CITY OF AMESBURY

INVITATION FOR BIDS

Contract No: CY-2020-01 Route 150 / South Hunt Road

POND VIEW AVENUE (ROUTE 150) AT SOUTH HUNT ROAD & THE I-495 RAMPS TRANSPORTATION IMPROVEMENT PROJECT

BIDS DUE:
APRIL 9, 2020
2:00 PM

At the

Department of Public Works
39 South Hunt Road
Amesbury, Massachusetts 01913

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DIVISION 0

BIDDING AND CONTRACT REQUIRMENTS

INVITATION FOR BIDS

City of Amesbury through its Department of Public Works is seeking sealed bids for the construction of new coordinated traffic signals at two locations along 1,550 feet on Pond View Avenue (Route 150) at its intersection with the I-495 southbound ramps and its intersection with South Hunt Road and the I-495 northbound ramps. The project also includes geometric modifications to the approach roadways, the I-495 Northbound ramps with new granite curbing, full depth pavement, guard rails, a shared-use path, a new closed drainage system and incidental items. Construction is expected to be completed in the summer of 2021 starting after June 1, 2020.

Clearly marked sealed bids will be received at the Department of Public Works, 39 South Hunt Road, Amesbury, Mass. 01913 on or before **Thursday April 9, 2020 at 2:00 PM, no exceptions.** See bid documents described below for requirements of an acceptable bid. Bid opening will follow immediately after in the DPW Conference Room.

The bidding for and award of the contract for this project are to be in accordance with the requirements of Massachusetts General Laws Chapter 30 § 39M. Bidders are on notice that this project is subject to the schedule of prevailing wage rates as determined by the Commissioner of the Massachusetts Department of Labor and Workforce Development, Division of Occupational Safety and applicable Federal Regulations.

The Proposal Guaranty shall be in the form of either cash, bid bond, certified check, bank treasurer's check, or bank cashier's check, made payable to the City of Amesbury in the amount of 5% of the value of the bid.

Bid documents containing specification requirements and conditions will be available after 8:00 a.m. Tuesday, March 10, 2020 on TEC, Inc's website at https://www.theengineeringcorp.com/bids. For more information or questions regarding bid specifications, please contact Jason Brzezowski at jbrzezowski@theengineeringcorp.com. Questions will not be received after noon on Thursday, March 26, 2020. Contract Award is subject to availability of Funding through The City of Amesbury.

Proposals that do not include a properly completed "Affidavit" pertaining to noncollusion, etc., will be declared non-responsive and not eligible for award consideration. No Bidder may withdraw his bid for a period of thirty days, excluding Saturdays, Sundays and legal holidays after the actual date of the opening of bids.

One original shall be submitted. NO faxed or emailed proposals will be accepted. Bids are to be submitted in a SEALED envelope.

If submitting a bid in a mailer, the enclosed bid shall be in a separate sealed envelope.

The City of Amesbury fully complies with federal, state, and local laws and directives governing equal opportunity, affirmative action and non-discrimination in all City activities and actively solicits bids/proposals from MBE/WBE businesses in accordance with City of Amesbury policy.

The City reserves the right to waive any informality and to reject any or all bids if it is in the public interest to do so.

Robert Desmarais, P.E., Director
Amesbury Department of Public Works

INFORMATION FOR BIDDERS

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1.01 PROJECT IDENTIFICATION

A. Owner: City of Amesbury, Massachusetts

B. Awarding Authority: By its Mayor

C. Mailing Address: Amesbury Department of Public Works
39 South Hunt Road
Amesbury, Massachusetts 01913

D. Project Name: **ROUTE 150 / SOUTH HUNT ROAD**

E. Funding: **Local / MassWorks Grant**

1.02 RECEIPT OF BIDS

A. General Bids for the project will be received by the Awarding Authority at the time and place stated in Section 00020, INVITATION TO BID, and then at said place publicly opened and read aloud.

B. Each bid must be submitted in a sealed envelope, addressed to the Amesbury Department of Public Works, 39 South Hunt Road, Amesbury, MA 01913. Each sealed envelope containing a bid must be plainly marked on the outside with **Route 150 / South Hunt Road Project No. CY 2020-01 Roadway Improvements** and the envelope should bear on the outside the name of the Bidder and his address. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed to the Amesbury Department of Public Works at the above address. Each must be time stamped and signed by a City Employee upon receipt.

C. All bids must be made on the bid form included in the specifications. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid form must be fully completed and executed when submitted. Only one (1) set of the bid documents is required.

D. List of required Documents for General Bid submission:

1. Section 00300, Bid Form

2. Section 00310, Bid Bond (see Article 1.08 below)

3. Section 00311, Bidder's Certification Regarding Payment of Prevailing Wages

E. Section 00375, STATEMENT OF TAX COMPLIANCE, must be submitted to the Owner before the award of the contract.

1.03 ABILITY AND EXPERIENCE OF BIDDER

A. No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the Work successfully within the time named. The Owner's decision or judgment on these matters shall be final, conclusive and binding.

1.04 INFORMATION NOT GUARANTEED

A. All information given in the Contract Documents relating to the subsurface and other conditions, natural phenomena, existing pipes and other structures is from the best sources at present available to Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

B. It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes or other structures encountered during construction will be the same as those indicated in the contract documents.

C. It is agreed further and understood that no bidder or contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner or the Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents

1.05 MODIFICATIONS AND WITHDRAWAL OF BIDS

A. The Owner may waive any informalities or minor defects or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. Should there be reasons why the Contract cannot be awarded within the specified period; the time may be extended by mutual agreement between Owner and the Bidder.

B. No Bidder may withdraw his bid within thirty (30) calendar days after the actual date of the bid opening.

C. Prior to Bid Opening, bids may be withdrawn upon written or telegraphic request of the Bidder provided confirmation of any telegraphic withdrawal, signed by the Bidder, is placed in the mail and postmarked prior to the time set for the Bid Opening. Bid documents and security of any Bidder withdrawing his bid in accordance with the foregoing conditions will be returned.

1.06 EXAMINATION OF CONTRACT DOCUMENTS AND SITE(S)

A. Each Bidder is responsible for inspecting the site(s) and for reading and being thoroughly familiar with the contract documents. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to their bid.

B. Bidders must satisfy themselves of the accuracy of their bid by examination of the site(s) and a review of the Contract Documents. After bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

C. The Contract Documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Bidder or relieve him from fulfilling any of the conditions of the Contract.

1.07 ADDENDA AND INTERPRETATIONS

A. All questions by prospective Bidders as to the interpretation of the Contact Documents shall be submitted in writing to the Engineer and shall be in their possession at least ten (10) calendar days before the date herein set for the receipt of bids. The Engineer will then email and/or mail via certified mail with return receipt requested, to Bidders who have taken out the Contract Documents, at the addresses given by them, not less than five (5) calendar days before said date, interpretations of all questions so raised which, in their opinion, required interpretation.

B. Oral or telephone interpretations will not be generally made, and if made, shall be strictly informal and not legally valid or binding.

C. Written interpretations shall be made in the form of Addenda to the Bidding and Contract Documents. Bidders are urged to communicate all errors and discrepancies found in the Bidding and Contract Documents to the Engineer. Telephone calls pointing out any such errors or discrepancies will be taken by the Engineer, but only for the purpose of receiving the information in order that it may be properly processed, and not for interpretation or clarification.

D. Each Bidder shall be responsible for determining that they have received all addenda issued and shall acknowledge said receipt on Section 00300, BID FORM.

1.08 BIDS, BONDS, AND AWARD OF CONTRACT

A. Each bid must be accompanied by a bid bond, certified check or a treasurer's or cashier's check issued by a responsible bank or trust company, payable to the Owner in the amount of five (5) percent of the value of the bid. As soon as bid prices have been compared, the Owner will return the bid deposits of all except the three (3) lowest responsible Bidders. When the Agreement is executed, the bid deposits of the two (2) remaining unsuccessful Bidders will be returned. The bid deposit of the successful Bidder will be retained until the

payment bond and performance bond have been executed and approved, after which it will be returned.

B. Each Bidder shall sign his name in the space provided for. If a partnership or corporation makes the bid, the name and address of the partnership or corporation shall be shown, together with the names of the partners or the officers. A bid made by a partnership shall be acknowledged by one of the partners; a bid made by a corporation shall be acknowledged by one of the authorized officers thereof, and the corporate seal attached.

C. A conditional or qualified bid will not be accepted.

D. Bids will be compared on the basis of the total price stated in the bid. In the event that there is a discrepancy in the bid between written words and figures, the prices written in words shall govern. The Owner agrees to examine and consider each bid submitted in consideration of the bidder's agreements, as hereinabove set forth and as set forth in the bid. The several bids will be compared on the basis of the prices bid, and the contract awarded to the lowest responsible and eligible Bidder.

E. The Owner may make such investigations as he deems necessary to determine the ability of the Bidder to perform the work and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. The Owner may also reject bids which in its sole judgment are either incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities, or the Owner may waive such omissions, conditions or irregularities.

F. The low Bidder shall supply the names and addresses of major material Suppliers and Subcontractors when required to do so by the Owner.

G. A performance bond and a payment bond, each in the amount of one hundred (100) percent of the contract price, with a corporate surety approved by the Owner, will be required of the General Contractor for the faithful performance of the contract, and may be required by the General Contractor of Sub-contractors. If bonds are required of sub-contractors, the General Contractor shall pay the premiums for these bonds.

H. Attorneys-in-fact who sign bid bonds or payment bonds and performance bonds must file with each bond a certified and effective dated copy of their power of attorney.

1.09 REDUCTION IN SCOPE OF WORK

A. The Owner reserves the right to decrease the scope of the work to be done under this contract and to omit any work in order to bring the cost within available funds. To this end, the Owner reserves the right to reduce the quantity of any items or omit all of any progress of work. The Owner further reserves the right, at any time during the progress of the work, to restore all or part of any items previously omitted or reduced. Exercise by the Owner of the above rights shall not constitute any ground or basis of claim for damages or for anticipated profits on the work omitted.

1.10 EXECUTION OF THE AGREEMENT

A. The party to whom the Contract is awarded will be required to execute the Section 00500, FORM OF AGREEMENT and obtain the performance bond, payment bond, and

certificates of insurance within ten (10) calendar days from the date when Section 00430, NOTICE OF AWARD is delivered to the Bidder. If any Bidder fails to execute the Section 00500, FORM OF AGREEMENT and furnish a performance bond or payment bond as stated in his bid, his bid deposit shall become the property of the Owner as liquidated damages, provided that in case of death, disability or other unforeseen circumstances affecting the Bidder, his bid deposit may be returned to him, provided further that the amount of the bid deposit to be retained shall not exceed the difference between the low bid and the bid of the next lowest eligible Bidder.

1.11 INSURANCE CERTIFICATES

A. The Contractor will not be permitted to start any construction work until he has submitted certificates covering all insurances called for under Paragraph 21 of the General Conditions.

1.12 NOTICE TO PROCEED

A. Section 00650, NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Section 00500, FORM OF AGREEMENT by the Owner. Should there be reasons why the Section 00650, NOTICE TO PROCEED cannot be issued within such period; the time may be extended by mutual agreement between the Owner and Contractor. If the Section 00650, NOTICE TO PROCEED has not been issued within the ten-day period or within the period mutually agreed upon, the Contractor may terminate the Section 00500, FORM OF AGREEMENT without further liability on the part of either party.

1.13 TIME SCHEDULE FOR COMPLETION OF WORK

A. The total time period for completion of work as part of this contract is **based off an agreed upon time frame between the contractor and City**. Work performed beyond the agreed upon timeframe may be subject to liquidated damages in the amount specified herein.

B. It is the intent of this contract that the work specified for the repairs to Route 150 / South Hunt Road will begin after June 1, 2020, after the execution of this contract and be completed in accordance with the schedule outlined in the contract documents.

1.14 WAGE RATES

A. Minimum wage rates, as determined by the Department of Labor and Workforce Development, under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H, as amended, apply to this Project. It is the responsibility of the Bidder, before Bid Opening, to request, if necessary, any additional information on Massachusetts Wage Rates for those trades' people who are not covered by the applicable Massachusetts Wage Decision, but who may be employed for the proposed work under this Contract.

B. In accordance with Chapter 149, Section 27B, it is the responsibility of the Contractor and any Subcontractors to submit payroll records to the Owner on a weekly basis.

1.15 LAWS AND REGULATIONS

A. Applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations govern this Contract and any provision violation of the foregoing shall be deemed null, void and of no effect.

B. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout.

C. This project is subject to all of the OSHA Safety and Health Regulations (see 29 CFR Part 1926/1910 and all subsequent amendments) as promulgated by the United States Department of Labor on June 24, 1974 and to the Massachusetts, "Construction Industry Rules and Regulations", 454 CMR 10.00, et seq. Contractors shall be familiar with the requirements of these regulations, and all other pertinent regulations and requirements.

D. The Contract is being bid on under the provisions of Massachusetts General Laws Chapter 30 Section 39M.

E. This Project is a local project being bid, awarded and administered by the Owner (City of Amesbury, Massachusetts) through its awarding authority (Mayors Office). All bidders are on notice that the Contractor awarded this work shall be specifically required:

- To possess and/or obtain all licenses and permits necessary to complete performance under this Contract;
- To comply with M.G.L. Chapter 62C, Section 49A (compliance with Tax Laws);
- To comply with M.G.L. Chapter 151A, Section 19A (licenses to conduct business; contributions);
- To comply with M.G.L. Chapter 152 (Workers Compensation);
- To comply with all relevant Prevailing Wage Rates and Employment Laws;
- To comply with M.G.L. Chapter 156B and Chapter 181, Section 4, and has filed all required certificates and reports with the Secretary of State and the Attorney General's Office;
- To comply with Federal Anti-Lobbying requirements of 31 USC 1352;
- That it and any of its subcontractors are not currently disbarred or suspended by the Federal Government or the Commonwealth under any law, regulation or Executive Order;
- To comply with M.G.L. Chapter 268A (Conflict of Interest)

Federal and State laws and regulations prohibiting discrimination, including the American Disabilities Act, the Rehabilitation Act, the Federal Fair Housing Act, unlawful discrimination (M.G.L. Chapter 151B), business discrimination (M.G.L. Chapter 151E), the Public Accommodations Law (M.G.L. Chapter 272, Sections 92A, 98 and 98A), the Massachusetts Constitution, Article CXIV, M.G.L. Chapter 93, Section 103, the Telecommunications Act, and the Attorney General Office Protection of Elders, apply to this Contract.

1.16 INSPECTION OF THE WORK

A. The Contractor shall provide at all times proper facilities for access and inspection by representatives of the Owner, Federal, State or other agency having jurisdiction over the work of this project.

1.17 SALES TAX

A. This project is exempt from State Sales and Use or Excise Taxes to the extent allowed by law.

1.18 GUARANTEES

A. In addition to other guarantees due the Owner, the Contractor guarantees that the Work and services to be performed under the Contract, and all workmanship, materials and equipment performed, furnished, used or installed in the construction shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Contract Documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This guarantee shall be for a period of one year from and after the date of completion and acceptance of the Work as stated in the final estimate. If part of the Work is accepted in accordance with that subsection of this Agreement titled Partial Acceptance, the guarantee for that part of the Work shall be for a period of one year from the date fixed for such acceptance. The Performance Bond shall remain in full force and effect through the Guarantee Period.

B. If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the Owner may notify the Contractor in writing to make the required repairs, correction, or replacements. If the Contractor neglects to commence making such repairs, corrections, or replacements to the satisfaction of the Owner within three days from the date of receipt of such notice, or having commenced fails to prosecute such Work with diligence, the Owner may employ other persons to make the same, and all direct and indirect costs of making said repairs, correction or replacements, including compensation for additional professional services, shall be paid by the Contractor.

1.19 RECORD KEEPING

A. The Contractor is reminded that the provisions of Chapter 30, Section 39R relative to record keeping apply to this Contract. A copy of c.30, s.39R is included in Section 00855, SPECIAL CONDITIONS - COMMONWEALTH OF MASSACHUSETTS, of the Contract Documents. A brief summary of the requirements is as follows:

1. The Contractor and all subcontractors shall maintain books, records, and accounts at least six (6) years after the final payment. They will be subject to inspection by the awarding authority, officers of the Inspector General, or the Deputy Commissioner of Capital Asset Management and Maintenance.

2. Any changes in City record keeping or recording transactions that affect the awarding authority shall be explained along with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.

3. The Contractor shall file with the awarding authority a statement of management as to whether the system of internal accounting controls has been established.

4. The Contractor shall file with the awarding authority a statement prepared and signed by an independent certified public accountant that an examination has been made of internal accounting controls.

1.20 ENGINEER

A. The Engineer for this project is The Engineering Corp. (TEC). Questions regarding the Contract Documents shall be directed to: TEC:
Jason Brzezowski, jbrzezowski@theengineeringcorp.com

END OF SECTION

BID FORM

To the City of Amesbury, Massachusetts, herein called the Owner, acting by and through its Mayor, for **Route 150 / South Hunt Road, Amesbury, MA. Project No. CY-2020-01 Roadway Improvements.**

The Undersigned, as bidder, herein referred to as singular and masculine, declares as follows:

(1) The only parties interested in this BID as Principals are named herein;

(2) This BID is made without collusion with any other person, firm, or corporation;

(3) No officer, agent, or employee of the Owner is directly or indirectly interested in this BID;

(4) He has carefully examined the site of the proposed Work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed Work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this BID, and he has carefully read and examined the Documents, the annexed proposed AGREEMENT and the Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;

(5) He understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty or guarantee, expressed or implied, that the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered will be the same as those shown on the Documents or in any of the other Contract Documents and he agrees that he shall not use or be entitled to use any such information made available to him through the Contract Documents or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Owner or the Engineer arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and he has made due allowance therefore in this BID;

(6) And he understands that the quantities of work tabulated in this BID or indicated on the Documents or in the Specifications or other Contract Documents are only approximate and are subject to increase or decrease as deemed necessary by the Engineer/Owner;

and he agrees that, if this BID is accepted he will contract with the Owner, as provided in the copy of the Contract Documents deposited in the office of the Engineer, this BID form being part of said Contract Documents, and that he will perform all the work and furnish all the materials and equipment, and provide all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other things required by the Contract Documents in the manner and within the time therein prescribed and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefore the lump sum for the Work as stated in the schedule below.
(Note: Bidders must bid on each item. All entries in the entire BID must be made clearly and in ink; prices bid must be written in both words and figures. In case of discrepancy, the amount shown in words will govern.)
(Bidders should insert extended item prices obtained from quantities and unit prices.)

TO: City of Amesbury Department of Public Works
39 South Hunt Road
Amesbury, Massachusetts

PROJECT: **ROUTE 150 / SOUTH HUNT ROAD, AMESBURY, MA.**
Project No. CY-2020-01 ROADWAY IMPROVEMENTS

DATE: _____

SUBMITTED BY:

_____
(Full name)

_____
(Full address)

_____

Route 150 / South Hunt Road – Work Items

Note:
The unit price for each item must be written in words and figures. In case of discrepancy, the amount shown in words will govern.

ITEM NO.	QTY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
			DOLLARS	CENTS	DOLLARS	CENTS
101.	0.75	CLEARING AND GRUBBING AT _____ PER ACRE				
102.1	265	TREE TRIMMING AT _____ PER FOOT				
102.52	260	TEMPORARY TREE PROTECTION FENCE AT _____ PER FOOT				
120.1	14750	UNCLASSIFIED EXCAVATION AT _____ PER CUBIC YARD				
121.	10	CLASS A ROCK EXCAVATION AT _____ PER CUBIC YARD				
141.	10	CLASS A TRENCH EXCAVATION AT _____ PER CUBIC YARD				
141.1	18	TEST PIT FOR EXPLORATION AT _____ PER CUBIC YARD				
142.	270	CLASS B TRENCH EXCAVATION AT _____ PER CUBIC YARD				
144.	25	CLASS B ROCK EXCAVATION AT _____ PER CUBIC YARD				
146.	13	DRAINAGE STRUCTURE REMOVED AT _____ PER EACH				
150.1	1850	SPECIAL BORROW AT _____ PER CUBIC YARD				
151.	3195	GRAVEL BORROW AT _____ PER CUBIC YARD				
153.	10	CONTROLLED DENSITY FILL - EXCAVATABLE AT _____ PER CUBIC YARD				

CARRIED FORWARD _____

BT-1

BROUGHT FORWARD _____

ITEM NO.	QTY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
			DOLLARS	CENTS	DOLLARS	CENTS
156.	100	CRUSHED STONE AT _____ PER TON				
170.	7750	FINE GRADING AND COMPACTING - SUBGRADE AREA AT _____ PER SQUARE YARD				
192.4	1	GROUND WATER OBSERVATION WELL ADJUSTED AT _____ PER LUMP SUM				
201.	26	CATCH BASIN AT _____ PER EACH				
201.3	1	SPECIAL CATCH BASIN AT _____ PER EACH				
202.	5	MANHOLE AT _____ PER EACH				
202.2	3	MANHOLE (9 TO 14 FOOT DEPTH) AT _____ PER EACH				
203.	3	SPECIAL MANHOLE AT _____ PER EACH				
203.12	1	STORMWATER BASIN OUTLET STRUCTURE AT _____ PER EACH				
220.	2	DRAINAGE STRUCTURE ADJUSTED AT _____ PER EACH				
220.2	10	DRAINAGE STRUCTURE REBUILT AT _____ PER FOOT				
220.3	5	DRAINAGE STRUCTURE CHANGE IN TYPE AT _____ PER EACH				
220.5	1	DRAINAGE STRUCTURE REMODELED AT _____ PER EACH				

CARRIED FORWARD _____

BT-2

BROUGHT FORWARD _____

ITEM NO.	QTY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
			DOLLARS	CENTS	DOLLARS	CENTS
221.	11	FRAME AND COVER AT _____ PER EACH				
222.	8	FRAME AND GRATE - MASSDOT BAR TYPE AT _____ PER EACH				
222.1	10	FRAME AND GRATE - MASSDOT CASCADE TYPE AT _____ PER EACH				
222.3	9	FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD AT _____ PER EACH				
223.1	5	FRAME AND GRATE (OR COVER) REMOVED AND STACKED AT _____ PER EACH				
227.3	25	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT AT _____ PER CUBIC YARD				
227.31	200	REMOVAL OF DRAINAGE PIPE SEDIMENT AT _____ PER FOOT				
241.12	860	12 INCH REINFORCED CONCRETE PIPE AT _____ PER FOOT				
241.15	150	15 INCH REINFORCED CONCRETE PIPE AT _____ PER FOOT				
241.18	170	18 INCH REINFORCED CONCRETE PIPE AT _____ PER FOOT				
241.24	110	24 INCH REINFORCED CONCRETE PIPE AT _____ PER FOOT				
242.12	2	12 INCH REINFORCED CONCRETE PIPE FLARED END AT _____ PER EACH				
258.	12	STONE FOR PIPE ENDS AT _____ PER SQUARE YARD				

CARRIED FORWARD _____

BT-3

BROUGHT FORWARD _____

ITEM NO.	QTY		ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
				DOLLARS	CENTS	DOLLARS	CENTS
357.06	1	AT	6 INCH GATE BOX PER EACH				
358.	6	AT	GATE BOX ADJUSTED PER EACH				
402.	1430	AT	DENSE GRADED CRUSHED STONE FOR SUB-BASE PER CUBIC YARD				
415.3	4575	AT	PAVEMENT MICROMILLING PER SQUARE YARD				
431.	85	AT	HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE PER SQUARE YARD				
440.	23250	AT	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL PER POUND				
443.	80	AT	WATER FOR ROADWAY DUST CONTROL PER THOUSAND GALLONS				
450.23	1160	AT	SUPERPAVE SURFACE COURSE - 12.5 (SSC - 12.5) PER TON				
450.31	345	AT	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC -12.5) PER TON				
450.32	460	AT	SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0) PER TON				
450.41	485	AT	SUPERPAVE BASE COURSE - 25.0 (SBC - 25.0) PER TON				
450.42	975	AT	SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5) PER TON				
450.52	50	AT	SUPERPAVE LEVELING COURSE - 9.5 (SLC - 9.5) PER TON				
451.	90	AT	HMA FOR PATCHING PER TON				

CARRIED FORWARD _____

BT-4

BROUGHT FORWARD _____

ITEM NO.	QTY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
			DOLLARS	CENTS	DOLLARS	CENTS
452.	1400	ASPHALT EMULSION FOR TACK COAT AT _____ PER GALLON				
453.	10900	HMA JOINT SEALANT AT _____ PER FOOT				
472.	28	TEMPORARY ASPHALT PATCHING AT _____ PER TON				
482.5	635	SAWCUTTING ASPHALT PAVEMENT FOR BOX WIDENING AT _____ PER FOOT				
504.2	2	GRANITE CURB TYPE VA4 - SPLAYED END AT _____ PER EACH				
506.	475	GRANITE CURB TYPE VB - STRAIGHT AT _____ PER FOOT				
506.1	70	GRANITE CURB TYPE VB - CURVED AT _____ PER FOOT				
509.	18	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - STRAIGHT AT _____ PER FOOT				
509.1	40	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - CURVED AT _____ PER FOOT				
511.1	690	GRANITE EDGING TYPE SB - STRAIGHT AT _____ PER FOOT				
512.1	55	GRANITE EDGING TYPE SB (RADIUS 10 FEET OR LESS) AT _____ PER FOOT				
583.	3100	EDGING REMOVED AND RESET AT _____ PER FOOT				
593.	1300	EDGING REMOVED AND STACKED AT _____ PER FOOT				

CARRIED FORWARD _____

BT-5

BROUGHT FORWARD _____

ITEM NO.	QTY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
			DOLLARS	CENTS	DOLLARS	CENTS
620.12	35	GUARDRAIL, TL-2 (SINGLE FACED) AT _____ PER FOOT				
620.13	2900	GUARDRAIL, TL-3 (SINGLED FACED) AT _____ PER FOOT				
621.13	325	GUARDRAIL, TL-3 (DOUBLE FACED) AT _____ PER FOOT				
627.1	6	TRAILING ANCHORAGE AT _____ PER EACH				
627.73	1	GUARDRAIL END TREATMENT, TL-3 (DOUBLE FACED) AT _____ PER EACH				
627.83	7	GUARDRAIL TANGENT END TREATMENT, TL-3 AT _____ PER EACH				
627.93	1	GUARDRAIL FLARED END TREATMENT, TL-3 AT _____ PER EACH				
628.21	7	TRANSITION TO NCHRP 350 GUARDRAIL AT _____ PER EACH				
630.2	2775	HIGHWAY GUARD REMOVED AND DISCARDED AT _____ PER FOOT				
655.	700	CEDAR RAIL FENCE AT _____ PER FOOT				
670.	280	FENCE REMOVED AND RESET AT _____ PER FOOT				
697.1	30	SILT SACK AT _____ PER EACH				
701.	275	CEMENT CONCRETE SIDEWALK AT _____ PER SQUARE YARD				

CARRIED FORWARD _____

BT-6

BROUGHT FORWARD _____

ITEM NO.	QTY		ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
				DOLLARS	CENTS	DOLLARS	CENTS
701.2	235	AT	CEMENT CONCRETE WHEELCHAIR RAMP PER SQUARE YARD				
702.	205	AT	HOT MIX ASPHALT WALK SURFACE PER TON				
706.41	30	AT	GRANITE BLOCKS REMOVED AND RESET PER SQUARE YARD				
710.4	4	AT	BOUND - PLAIN GRANITE PER EACH				
748.	1	AT	MOBILIZATION PER LUMP SUM				
751.	1200	AT	LOAM BORROW PER CUBIC YARD				
756.	1	AT	NPDES STORMWATER POLLUTION PREVENTION PLAN PER LUMP SUM				
765.	7050	AT	SEEDING PER SQUARE YARD				
765.431	1625	AT	SEEDING - UPLAND TALL MIX - FULL SUN PER SQUARE YARD				
767.121	2625	AT	SEDIMENT CONTROL BARRIER PER FOOT				
767.31	1600	AT	STRAW MULCH PER SQUARE YARD				
769.	2875	AT	PAVEMENT MILLING MULCH UNDER GUARD RAIL PER FOOT				
804.3	1650	AT	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC -(UL) PER FOOT				
804.4	60	AT	4 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC -(UL) PER FOOT				

CARRIED FORWARD _____

BT-7

BROUGHT FORWARD _____

ITEM NO.	QTY		ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
				DOLLARS	CENTS	DOLLARS	CENTS
811.22	1	AT	ELECTRIC HANDHOLE - SD2.022 PER EACH				
811.31	22	AT	PULL BOX 12 X 12 INCHES - SD2.031 PER EACH				
815.1	1	AT	TRAFFIC CONTROL SIGNAL LOCATION NO. 1 PER LUMP SUM				
815.2	1	AT	TRAFFIC CONTROL SIGNAL LOCATION NO. 2 PER LUMP SUM				
816.03	1	AT	TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 1 PER LUMP SUM				
829.	45	AT	ROADSIDE GUIDE SIGN (G) - ALUMINUM PANEL (TYPE B) PER SQUARE FOOT				
832.	325	AT	WARNING-REGULATORY AND ROUTE MARKER - ALUM. PANEL (TYPE A) PER SQUARE FOOT				
834.17	15	AT	REFLECTORIZED FLEXIBLE DELINEATOR POST (AMBER) PER EACH				
834.18	20	AT	REFLECTORIZED FLEXIBLE DELINEATOR POST (WHITE) PER EACH				
841.81	6	AT	SUPPORTS FOR GUIDE SIGN - STEEL PER EACH				
847.1	18	AT	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL PER EACH				
848.1	11	AT	SIGN SUP (N/GUIDE)+RTE MKR W/2 BRKWAY POST ASSEMBLIES-STEEL PER EACH				
850.41	1440	AT	ROADWAY FLAGGER PER HOURS				
852.	650	AT	SAFETY SIGNING FOR TRAFFIC MANAGEMENT PER SQUARE FOOT				

CARRIED FORWARD _____

BT-8

BROUGHT FORWARD _____

ITEM NO.	QTY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
			DOLLARS	CENTS	DOLLARS	CENTS
853.1	4	PORTABLE BREAKAWAY BARRICADE TYPE III AT _____ PER EACH				
853.2	300	TEMPORARY BARRIER (TL-2) AT _____ PER FOOT				
853.21	150	TEMPORARY BARRIER REMOVED AND RESET AT _____ PER FOOT				
853.42	1	TEMP. IMP. ATTENUATOR FOR SHLDR, CAPABLE OF REDIRECTION AT _____ PER EACH				
853.421	1	TEMP. IMP. ATTENUATOR FOR SHLDR, CAPABLE OF REDIRECTION R&R AT _____ PER EACH				
853.8	10	TEMPORARY ILLUMINATION FOR WORK ZONE AT _____ PER DAY				
854.016	16700	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED) AT _____ PER FOOT				
854.036	4100	TEMPORARY PAVING MARKINGS - 6 INCH (TAPE) AT _____ PER FOOT				
854.1	1015	PAVEMENT MARKING REMOVAL AT _____ PER SQUARE FOOT				
856.	540	ARROW BOARD AT _____ PER DAY				
856.12	810	PORTABLE CHANGEABLE MESSAGE SIGN AT _____ PER DAY				
859.	27000	REFLECTORIZED DRUM AT _____ PER DAY				
859.1	270	REFLECTORIZED DRUM WITH SEQUENTIAL FLASHING WARNING LIGHTS AT _____ PER DAY				
864.04	540	PAVEMENT ARROWS AND LEGENDS REFL. WHITE (THERMOPLASTIC) AT _____ PER SQUARE FOOT				

CARRIED FORWARD _____

BT-9

BROUGHT FORWARD _____

ITEM NO.	QTY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE		TOTAL	
			DOLLARS	CENTS	DOLLARS	CENTS
864.33	17	SLOTTED PAVEMENT MARKER TWO-WAY WHITE/RED AT _____ PER EACH				
864.34	26	SLOTTED PAVEMENT MARKER TWO-WAY YELLOW/RED AT _____ PER EACH				
868.106	5950	6 INCH DURABLE RECESSED WET REFLECTIVE WHITE LINE (THERMOPLASTIC) AT _____ PER FOOT				
868.112	1075	12 INCH DURABLE RECESSED WET REFLECTIVE WHITE LINE (THERMOPLASTIC) AT _____ PER FOOT				
869.106	7500	6 INCH DURABLE RECESSED WET REFLECTIVE YELLOW LINE (THERMOPLASTIC) AT _____ PER FOOT				
869.112	640	12 INCH DURABLE RECESSED WET REFLECTIVE YELLOW LINE (THERMOPLASTIC) AT _____ PER FOOT				
874.	4	STREET NAME SIGN AT _____ PER EACH				
874.2	10	TRAFFIC SIGN REMOVED AND RESET AT _____ PER EACH				
874.22	5	GUIDE SIGN REMOVED AND RESET AT _____ PER EACH				
874.4	31	TRAFFIC SIGN REMOVED AND STACKED AT _____ PER EACH				
877.11	4	SIGN SUPPORT REMOVED AND DISCARDED AT _____ PER EACH				
877.2	40	SIGN POST REMOVED AND STACKED AT _____ PER EACH				
901.	3	4000 PSI, 1.5 IN., 565 CEMENT CONCRETE AT _____ PER CUBIC YARD				
910.1	42	STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED AT _____ PER POUND				
999.	1	POLICE DETAIL AT _____ ALLOWANCE	$124,800	00	$124,800	00

BASE BID TOTAL _____

_____
IN WRITTEN WORDS

BT-10

TOTAL PRICE IN WORDS: _____

BASIS OF AWARD: TOTAL AMOUNT OF BID, BASED ON ENGINEER'S ESTIMATE OF QUANTITIES Sum of all Items

Having examined the Place of the Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by The City of Amesbury, the undersigned, hereby offer to enter into a Contract to perform the Work, **Route 150 / South Hunt Road, Project No. CY 2020-01 Roadway Improvements**, for the Price of:

$_____dollars,

($_____) in lawful money of the United States of America and, We have included herewith, the unit price bid forms, and the required security deposit or Bid Bond as required by the Instruction to Bidders.

This project is exempt from all Massachusetts sales taxes.

The undersigned agrees that for extra work, if any, will be performed in accordance with Article 10 of the General Conditions of the Contract and will be paid for in accordance with Article 11 of the General Conditions of the Contract.

The bid security accompanying this BID shall be in the amount of 5 percent of the BID.

If this BID is accepted by the Owner, the undersigned agrees to complete the entire work provided to be done under the Contract within the agreed upon time frame between the Contractor and City stipulated in the AGREEMENT. Liquidated damages for each calendar day of delay shall be $500 as stipulated in the AGREEMENT.

As provided in the INSTRUCTIONS TO BIDDERS, the bidder hereby agrees that he will not withdraw this BID within thirty (30) consecutive calendar days after the actual date of the opening of Bids and that, if the Owner shall accept this BID, the bidder will duly execute and acknowledge the AGREEMENT and furnish, duly executed and acknowledged, the required CONTRACT BONDS within ten (10) days after notification that the AGREEMENT and other Contract Documents are ready for signature.

Should the bidder fail to fulfill any of his agreements as hereinabove set forth, the Owner shall have the right to retain as liquidated damages the amount of the bid check or cash which shall become the Owner's property. If a bid bond was given, it is agreed that the amount thereof shall be paid as liquidated damages to the Owner by the Surety.

Bidder has examined copies of all the Contract Documents and the following addenda listed:

Addenda number(s) _____ or circle: N/A
(To be filled in by Bidder if Addenda are issued.)

The time period for holding bids where Federal approval is not required is 30 days, Saturdays, Sundays and legal holidays included, after the opening of bids and where Federal approval is required, the time period for holding bids is 30 days, Saturdays, Sundays and legal holidays excluded after Federal approval.

The undersigned must furnish a 100 percent Construction Performance Bond and a 100 percent Construction Payment Bond with a surety company acceptable to the Owner. The name and address of the surety company who will sign the performance and payment bonds is as follows:

_____

The bidder, by submittal of this BID, agrees with the Owner that the amount of the bid security deposited with this BID fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the bidder to fulfill his agreements as above provided.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that he will comply fully with all laws and regulations applicable to awards made subject to MGL Ch. 30, Section 39M. The bidding and award of the contract will be in full compliance with Section 39M inclusive of Chapter 30 of the General Laws of the Commonwealth of Massachusetts as last revised.

The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated there under.

Pursuant to M.G.L. Ch. 62C, sec. 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The attached CERTIFICATE OF NON-COLLUSION must be signed and submitted as part of the Bid Proposal.

(SEAL)_____L.S. By _____
(Name of Bidder) (Signature and title of authorized representative)

_____
(Business address)

_____
(City and State)

Date _____

The bidder is a corporation incorporated in the State (or Commonwealth) of _____ - a partnership - an individual. (Bidder must add and delete as necessary to make this sentence read correctly.)

(Note: If the bidder is a corporation, affix corporate seal and give below the names of its president, treasurer, and general manager if any; if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address if different from business address.)

The required names and addresses of all persons interested in the foregoing Bid, as Principals, are as follows:

_____

_____

_____

_____

The bidder is requested to state below what work of a similar character to that included in the proposed Contract he has done and to give references that will enable the Owner to judge his experience, skill, and business standing.

_____

_____

_____

_____

(Add supplementary page if necessary.)

* * *

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the work "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

_____
(Name of person signing bid or proposal)

_____
(Name of business)

CONFLICT OF INTEREST STATEMENT

The proposer hereby certifies, under the penalties of perjury, that:

1. The proposer has not given, offered, or agreed to give any person (as that term is defined below), or received, accepted, or agreed to accept from any person, any gift, contribution, offer of employment, or financial incentive of any kind as an inducement for, or in connection with, the award of the contract for services for which the proposer is applying.
2. No consultant to or subcontractor for the proposer has given, offered, or agreed to give any gift, contribution, offer of employment or financial incentive of any kind to the proposer of to any other person as an inducement for, or in connection with, the award to the consultant or subcontractor of a contract by the proposer.
3. No person, other than a bona fide full-time employee of the proposer has been retained or hired by the proposer to solicit for or in any way assist the proposer in obtaining the contract for services for which the proposer is applying, upon an agreement or understanding that such person be paid a fee or other consideration contingent upon the award of the contract to the proposer.
4. Throughout the duration of the contract, if awarded the contract, the proposer will not have any financial relationship in connection with the performance of the contract with any materials or system manufacturer, distributor or vendor.

As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals. These provisions shall not apply to any stockholder of a corporation the stock of which is listed for sale to the general public with the Securities and Exchange Commission, if such stockholder holds less than ten percent of the outstanding stock entitled to vote at the annual meeting of such corporation

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The proposer further hereby certifies, under the penalties for perjury, that all information provided in this proposal to provide services is true and correct.

_____
Firm Name

_____
Authorized Principal (Printed Name)

_____
Authorized Principal (Signature)

_____
Title

_____
Date

BID BOND

Know all men by these presents, that we, the undersigned, _____
_____ As Principal,
and _____ as Surety, are
hereby held and firmly bound unto _____ as
Owner in the penal sum of
_____ for the payment of
which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 20_____.

The Condition of the above obligation is such that whereas the Principal has submitted to
_____ a certain Bid, attached hereto
and hereby made a part hereof to enter into a contract in writing, for the
_____
_____
_____

Now, therefore,

(a) If said Bid shall be rejected, or
(b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a Bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation, shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid and said Surety does hereby waive notice of any such extension.

In witness whereof, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____ (L.S.)
Principal

_____
Surety

By: _____

Important - Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

CERTIFICATION REGARDING
PAYMENT OF PREVAILING WAGES

The undersigned Bidder hereby certifies, under the pains and penalties of perjury, that the foregoing bid is based upon the payment to laborers to be employed on the project of wages in an amount no less than the applicable prevailing wage rates established for the project by the Massachusetts Department of Labor and Workforce Development, Division of Occupational Safety. The undersigned bidder aggress to indemnify the awarding authority for, from and against an loss, expanse, damages, actions or claims, including any expense incurred in connection with any delay or stoppage of the project work, arising out of or as a result of (1) the failure of the said bid to be based upon the payment of the said applicable prevailing wage rates or (2) the failure of the bidder, if selected as the Contractor, to pay laborers employed on the project the said applicable prevailing wage rates.

DATED: _____ NAME OF BIDDER: _____

By: _____

Name: _____

Title: _____

STATEMENT OF TAX COMPLIANCE

I, _____, as _____ of
(Title)

_____, whose principal place of
(Business)

business is located at _____, do hereby certify that the

above-named _____ has complied with all laws of the

Commonwealth of Massachusetts relating to taxes, in accordance with the provisions of

Massachusetts General Laws, Chapter 62C, S.49A, as amended.

Signed under the penalties of perjury this _____ day of _____, 20___.

Dated: _____ _____
(Authorized Signature)

BIDDERS QUALIFICATION FORM

The Bidder is requested to provide a general description and references for three projects he/she has completed within the past five years that are similar in character to that included in this contract. The Bidder shall provide: a general description of the projects; final construction cost for the projects; name, title, address and phone number of reference for whom the project was constructed. The Town will contact the references to judge the Bidders experience, skill, and qualifications.

1)_____

2)_____

3)

City of Amesbury
Route 150 / South Hunt Road
SECTION 00430

NOTICE OF AWARD

To:

Project Description:

The City of Amesbury hereinafter called "Owner" has considered the Bid submitted by you for the above described work in response to its DOCUMENT 00020, INVITATION TO BID dated _____20__, and DOCUMENT 00100, INFORMATION FOR BIDDERS. You are hereby notified that your Bid has been accepted in the amount of **$**

You are required by the DOCUMENT 00100, INFORMATION FOR BIDDERS to execute the DOCUMENT 00500, FORM FOR AGREEMENT and furnish the required Contractor's Performance Bond, Payment Bond and Certificates of Insurance within ten (10) calendar days from the date of this Notice of Award. If you fail to execute said Agreement and to furnish said Bonds within ten (10) days from the date of this Notice of Award, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your Bid as abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner. Dated this ___ th day of_____, 20__.

Owner: **CITY OF AMESBURY, MA.**

By its Mayor

_____
Kassandra Gove

_____
Angel A. Wills, City Accountant

Acceptance of Notice:

Receipt of the above Notice of Award is hereby acknowledged

by _____, this

_____day of _____, 20___

By _____

Title_____

AGREEMENT BY AND BETWEEN
THE CITY OF AMESBURY
&
(_____CONTRACTOR)

ROUTE 150 / SOUTH HUNT ROAD ROADWAY IMPROVEMENTS

This agreement made and entered into this day, _____, 20__, by and between the City of Amesbury, a municipal corporation duly organized under the laws of the Commonwealth of Massachusetts, hereinafter referred to as "the CITY" or "the Owner", by and through its Mayor, Kassandra Gove, and _____, "the Contractor", a corporation duly organized and existing under the laws of the Commonwealth of Massachusetts or as a D/B/A duly registered at: _____.

Commented [MDL1]: Should this be part of the prior sentence?

WHEREAS, the CITY invited the submission of proposals for the purchase and delivery of **ROUTE 150 / SOUTH HUNT ROAD ROADWAY IMPROVEMENTS**, hereinafter "the Project"; and WHEREAS, the CONTRACTOR submitted a Proposal to perform the work required to complete the Project; and WHEREAS, the CITY has decided to award the contract therefor to the CONTRACTOR. Now, therefore, the CITY and the CONTRACTOR agree as follows:

1. **CONTRACT DOCUMENTS**. The Contract Documents consist of this Agreement, the Invitation to Bid, Instructions to Bidders and the CONTRACTOR's Proposal. The Contract Documents constitute the entire Agreement between the parties concerning the work, and all are as fully a part of this Agreement as if attached hereto.

2. **THE WORK**. The Contractor agrees to furnish and deliver services, materials, supplies, and/or equipment to Amesbury, MA (delivery point) as more fully described in and in accordance with the Contract Documents.

3. TERM OF CONTRACT. This Agreement shall be in effect from _____ and shall expire on _____, unless terminated earlier pursuant to the terms hereof.

EXTENTION(S). Upon the expiration date of the initial term of this Agreement, _____ extension(s) of _____ month(s) beyond the initial term of this Contract may be considered and agreed upon by both parties. No term of extension beyond the initial term of this Contract will begin without prior approval in writing by the City. At no time will the City agree to allow auto renewal of this agreement.

4. **COMPENSATION**.
   A. The CITY shall pay the CONTRACTOR as full compensation for the performance of the work outlined in the Contract Documents, the contract sum of $_____.
   B. The acceptance by the CONTRACTOR of final payment for items and/or services provided shall be deemed a release of the CITY from any and all claims and liabilities under this Agreement.
   C. Neither the CITY's review, approval or acceptance of, nor payment for any of the items and/or services provided shall be construed to operate as a waiver of any rights of the CITY under the Agreement or any cause of action arising out of the performance of the Agreement.
   D. The CITY shall cancel this Agreement if funds are not appropriated or otherwise made available to support continuation of performance in any fiscal year succeeding the current fiscal year as required by G.L. c. 30B, sec. 12(c)(3).

5. **PAYMENT OF COMPENSATION**. Upon satisfactory completion of the scope of work and within thirty (30) days after its receipt of Invoice, the City agrees to pay to the Contractor the sum of money as stated in the Contract Value as set forth in this agreement.

6. **LIABILITY OF THE CITY**. The CITY's liability hereunder shall be to make all payments when they shall become due, and the CITY shall be under no further obligation or liability. Nothing in this Agreement shall be construed to render the CITY or any elected or appointed official or

employee of the CITY, or their successors in office, personally liable for any obligation under this Agreement.

7. **INDEPENDENT CONTRACTOR**. The CONTRACTOR acknowledges and agrees that it is acting as an independent contractor for all work and services rendered pursuant to this Agreement, and shall not be considered an employee or agent of the CITY for any purpose.

8. **INDEMNIFICATION**. The CONTRACTOR shall indemnify, defend, and hold the CITY and all of its officers, agents and employees harmless from and against any and all claims, demands, liabilities, actions, causes of actions, costs and expenses, including attorney's fees, arising out of the CONTRACTOR's breach of this Agreement or that may arise as a result of Contractor's action or failure to act, or the negligence or misconduct of the CONTRACTOR, or the CONTRACTOR's agents or employees.

9. **INSURANCE**. A Certificate of Insurance shall be filed with the City in accordance with the attached Insurance Requirements and shall be subject to approval of the City and shall not assign any of the moneys payable under this Agreement, except by and with the written consent of the CITY.

10. **ASSIGNABILITY**. The Contractor shall not assign, sell, subcontract, or otherwise transfer any interest of this Agreement, in whole or in part, without express prior written consent of the City and shall not assign any of the moneys payable under this Agreement, except by and with the written consent of the CITY.

11. **TERMINATION**.
    A. *Termination for Cause*. If at any time during the term of this Agreement the CITY determines that the CONTRACTOR has breached the terms of this Agreement by negligently or incompetently performing the work, or any part thereof, or by failing to perform the work in a timely fashion, or by failing to perform the work to the satisfaction of the CITY, or by not complying with the direction of the CITY or its agents, or by otherwise failing to perform this Agreement in accordance with all of its terms and provisions, the CITY shall notify the CONTRACTOR in writing stating therein the nature of the alleged breach and directing the CONTRACTOR to cure such breach within ten (10) days. The

CONTRACTOR specifically agrees that it shall indemnify and hold the CITY harmless from any loss, damage, cost, charge, expense or claim arising out of or resulting from such breach regardless of its knowledge or authorization of the actions resulting in the breach. If the CONTRACTOR fails to cure said breach within ten (10) days, the CITY may, at its election at any time after the expiration of said ten (10) days, terminate this Agreement by giving written notice thereof to the CONTRACTOR specifying the effective date of the termination. Upon receipt of said notice, the CONTRACTOR shall cease to incur additional expenses in connection with this Agreement. Upon the date specified in said notice, this Agreement shall terminate. Such termination shall not prejudice or waive any rights or action which the CITY may have against the CONTRACTOR up to the date of such termination, and the CONTRACTOR shall be liable to the CITY for any amount which it may be required to pay in excess of the compensation provided herein in order to complete the work specified herein in a timely manner. Upon such termination, the CONTRACTOR shall be entitled to compensation for all satisfactory work completed prior to the termination date, as determined by the CITY.

B. *Termination for Convenience*. The CITY may terminate this Agreement at any time for convenience by providing the CONTRACTOR written notice specifying therein the termination date which shall not be sooner than ten days from the issuance of said notice. Upon receipt of said notice, the CONTRACTOR shall cease to incur additional expenses in connection with this Agreement. Upon such termination, the CONTRACTOR shall be entitled to compensation for all satisfactory work completed prior to the termination date, as determined by the CITY, such payment not to exceed the fair value of the services provided hereunder.

12. **INSPECTION AND REPORTS**. The CITY shall have the right at any time to inspect the work of the CONTRACTOR, including the right to enter upon any property owned or occupied by CONTRACTOR, whether situated within or beyond the limits of the CITY. Whenever requested, CONTRACTOR shall immediately furnish to the CITY full and complete written reports of his operation under this Contract in such detail and with such information as the CITY may request.

13. **ROYALTIES AND PATENTS**. The CONTRACTOR shall pay all applicable royalties and license fees. In addition, the CONTRACTOR hereby represents that it is duly authorized to

use any process or other intellectual property rights held by third parties in the performance of this Agreement, it shall defend all suits or claims for infringement of any patent or other intellectual property rights and shall indemnify and hold the CITY harmless from loss on account thereof.

14. **SUCCESSOR AND ASSIGNS**. This Agreement is binding upon the parties hereto, their successors, assigns and legal representatives. Neither the CITY nor the CONTRACTOR shall assign or transfer any interest in the Agreement without the written consent of the other.

15. **COMPLIANCE WITH LAWS**. The CONTRACTOR shall comply with all Federal, State and local laws, rules, regulations and orders applicable to the work provided pursuant to this Agreement, such provisions being incorporated herein by reference, and shall be responsible for obtaining all necessary licenses, permits, and approvals required for the performance of such work.

16. **NOTICE**. Any and all notices, or other communications required or permitted under this Agreement, shall be in writing and delivered by hand or mailed postage prepaid, return receipt requested, by registered or certified mail or by other reputable delivery service, to the parties at the addresses set forth on Page 1 or furnished from time to time in writing hereafter by one party to the other party. Any such notice or correspondence shall be deemed given when so delivered by hand, if so mailed, when deposited with the U.S. Postal Service or, if sent by private overnight or other delivery service, when deposited with such delivery service.

17. **DAMAGES**. From any sums due to the Contractor for materials, supplies or equipment delivered, the City may keep for its own, the whole or any part of the amount for expenses, losses and damages, incurred by the City as a consequence of purchasing materials, supplies or equipment as a result of any event of default, failure, omission or mistake of the Contractor in furnishing or delivering materials, supplies or equipment as provided in this Contract.

18. **SEVERABILITY**. If any term or condition of this Agreement or any application thereof shall to any extent be held invalid, illegal or unenforceable by the court of competent jurisdiction, the validity, legality, and enforceability of the remaining terms and conditions of this Agreement

shall not be deemed affected thereby unless one or both parties would be substantially or materially prejudiced.

19. **FUNDING, GOVERNING LAWS and ORDINANCES**. This Contract is made subject to the availability of funds and shall be governed by, construed and enforced in accordance with the laws of the Commonwealth of Massachusetts and the ordinances of the City, and if any such clause thereof does not conform to such laws or ordinances, such clause shall be void, the remainder of this Contract shall not be affected and such law or ordinance shall be operative in lieu thereof. The CONTRACTOR submits to the jurisdiction of any of its appropriate courts for the adjudication of disputes arising out of this Agreement.

20. **EQUAL OPPORTUNITY**. In the performance of all work, after award and prior to completion of the contract work, the Contractor will not discriminate on grounds of race, color, sex, age, religious creed, disability, national origin or ancestry, sexual orientation, marital status, family status, military status, or source of income in the employment practices or in the selection or retention of subcontractors, and in the procurement of materials and rental equipment. The CITY may cancel, terminate, or suspend the contract in whole or in part for any violation of this Article.

21. **CONFLICT**. In the event there is a conflict between these Articles and the vendor proposal documents, the language in these Articles shall supersede that in the vendor proposal documents, unless otherwise stated in writing as an addendum, agreed to by both parties and is attached hereto.

ENTIRE AGREEMENT

This Agreement including all documents incorporated herein by reference constitutes the entire integrated agreement between the parties with respect to the matters described. This Agreement supersedes all prior written or oral understanding and shall not be modified or amended except by a written document executed by the authorized representatives of both parties listed on the signature page of this Agreement or their lawful successors in office or title.

SIGNATURE PAGE TO FOLLOW ON NEXT PAGE

IN WITNESS WHEREOF, the parties hereto have executed this Agreement effective as of the date of the last signatory written here.

THE CONTRACTOR

_____ Contract Value: $_____
Signature U.S. Dollars

_____
Print Name

_____
Title

_____
COMPANY NAME

_____
Street Address

_____
City, State, Zip Code

Telephone Number:_____
Fax Number: _____
Date Signed: _____

THE OWNER - CITY OF AMESBURY

_____
Kassandra Gove, Mayor

Date Signed: _____

Certified as to Availability of Funding for the amount of Contract Value Pursuant to M.G.L. Ch. 44 §31:

_____
Angel A. Wills, Chief Financial Officer

City Council Order# _____
Date Order Approved: _____
Purchases Order# _____
Amesbury, Massachusetts 01913

INSURANCE REQUIREMENTS

A. **Comprehensive General Liability, Completed Operations Coverage and Umbrella Liability Insurance**
Coverage for Bodily Injury and Property Damage as follows:

Limits of General Liability & Completed Operations Coverage	*Limits of Umbrella Liability Coverage*
$1 Million each occurrence	*$2 Million each occurrence*
$3 Million aggregate	*$2 Million aggregate*

The Comprehensive General Liability and Completed Operations Coverage Policy (3 years) shall provide insurance for the Contractor for Bodily Injury and Property Damage to third parties arising out of:

1. Work performed by the Contractor himself with his own employees; "premises-operations" line.
2. Work performed by his Subcontractors; Contractor's Protective Liability; ("sublet work" or "Independent Contractors") line. Use of subcontractor(s) may be subject to the prior approval of the City as described more fully in applicable contract terms and conditions. All subcontractors must also provide Certificates of Workers' Compensation, General Liability, Completed Operations and Umbrella Liability Coverage.
3. The Contractor's liability assumed under the Contract Terms; "hold harmless" or "indemnity agreement" line also known as Contractual Liability Insurance. This coverage must be explicitly stated on the Contractor's Insurance Certificate to indemnify and hold harmless the City.

B. **Comprehensive Automobile Liability Insurance**

All minimum coverage as required under Massachusetts General Laws for operation and registration of motor vehicles, and excess Bodily Injury and Property Damage coverage as follows:

Limits of Liability
Bodily Injury and Property Damage combined single limit of $1 Million

The insurance is to include all owned or hired vehicles of the contractor and non-ownership protection for all employees of the Contractor engaged in the performance of the Contract.

C. **Worker's Compensation and Employer's Liability Insurance**

Coverage as required by the Worker's Compensation laws of the Commonwealth of Massachusetts, MGL Ch149 §34A, including both statutory lines and Coverage B with a 100,000/500,000/100,000 limit of liability.

D. **Owner's Protective Liability Insurance**

The Contractor shall furnish to Amesbury Certificates of Insurance naming the City of Amesbury as an additional insured as their interest may appear and maintain said during the life of this Contract complete General Liability Insurance in amounts set forth above for Bodily Injury and Property Damage Liability.

E. **General Requirements for All Lines of Insurance Furnished**

Contractor will furnish a Certificate of Insurance form incorporated into and made a part of this Agreement naming the City of Amesbury as an "Additional Insured" on the appropriate insurance policies. Properly executed certificates must be on file with the Municipality prior to commencement of this Agreement, including a copy of the endorsement to their insurance policy naming the City as an Additional Insured.

All insurance policies must state to indemnify and save harmless the CITY and all of its officers, agents and employees for any suits, causes of action, claims, judgments or other liability that may arise as a result of the Contractor's action or failure to act. Mutual indemnification will not be accepted. No waivers of subrogation are implied or will be accepted. When higher limits are required, such provisions will be listed in the project specs.

The cost of such insurance, including required endorsements or amendments, certificates and renewals, shall be the sole responsibility of the Contractor. All policies shall be written so that the City of Amesbury shall be notified of cancellation or the addition of "restrictive amendments" by Registered Mail or by FAX not later than twenty (20) days prior to the effective date of such cancellation or amendment.

The Contractor shall, when subcontractors are permitted by the agreement, require that each subcontractor procure and maintain, until the completion of that subcontractor's work, insurance of the types and to the limits set forth in the above sections. All such coverage by subcontractors shall be in favor of the Contractor and the City shall be indemnified and held harmless from liability in all such policies and named as an additional insured.

Attachment A-1

A. Contractor's Certification

A contractor will not be eligible for award of a contract unless such contractor has submitted the following certification, which is deemed a part of the resulting contract:

Contractor's Certification

_____
Name of the General Contractor

Certifies that:

1. It intends to use the following listed construction trades in the work under contract:

_____

_____

_____

_____

2. Will comply with the minority workforce ratio and specific affirmative action steps contained herein: and

3. Will obtain from each of its subcontractors and submit to the contracting or administering agency prior to the award of any subcontract under this contract the subcontractor's certification required by these bid conditions.

_____
Signature of Authorized Representative or Contractor

PAYMENT BOND

Know all men by these presents that

_____
(Name of Contractor)

_____
(Address of Contractor)

A _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and

_____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the_____

_____

hereinafter called Owner, in the penal sum of:

_____

Dollars ($)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____ 20____, a copy of which is hereto attached and made a part hereof for the construction

of: _____

Now, therefore, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the Work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such Work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void, otherwise to remain in full force and effect.

Provided, further, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed there under or the Contract Documents accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the Contract Documents.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

In witness whereof, this instrument is executed in _____ counterparts, each one of which
(Number)

shall be deemed an original, this the _____ day of _____ 20_____.

(SEAL)
Attest:

_____
Principal

By _____
Witness as to Principal

By _____
Contractor

_____
Name

_____
Name

_____
Address

_____
Address

_____

_____

(SEAL)
Attest:

_____
Surety

By _____
Witness as to Surety

By _____
Attorney-in-Fact

_____
Name

_____
Name

_____
Address

_____
Address

_____

_____

Notes:

1. Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners must execute the Bond.

2. Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

PERFORMANCE BOND

Know all men by these presents that

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the _____

_____
hereinafter called Owner, in the penal sum of:

_____
Dollars ($)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____ 20____, a copy of which is hereto attached and made a part hereof for the construction of: _____

_____

Now, therefore, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

Provided, further, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed there under or the Contract Documents accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the Contract Documents.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

In witness whereof, this instrument is executed in _____ counterparts, each one of which
(Number)

shall be deemed an original, this the _____ day of _____ 20_____.

(SEAL)
Attest: _____
Principal

By _____ By _____
Witness as to Principal Contractor

_____ _____
Name Name

_____ _____
Address Address

_____ _____

(SEAL)
Attest: _____
Surety

By _____ By _____
Witness as to Surety Attorney-in-Fact

_____ _____
Name Name

_____ _____
Address Address

_____ _____

Notes:

1. Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners must execute the Bond.

2. Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

NOTICE TO PROCEED

To: Date:

Project:

You are hereby notified to commence Work in accordance with the Agreement dated _____, 20__, on or before _____, 20__, and you are to complete the Work within the agreed upon timeframe set up between the City and Contractor using no more than 5 on-site working days thereafter. The date of completion of all Work is therefore _____, 20__.

By its Mayor

_____
Kassandra Gove

Acceptance of Notice to Proceed:

Receipt of the above Notice to Proceed is hereby

acknowledged by _____,

this _____day of _____, 20___

By _____

Title _____

GENERAL CONDITIONS

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports and Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services and Facilities
7. Inspection and Testing
8. Substitutions
9. Patents
10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
12. Supervision by Contractor
13. Changes in the Work
14. Changes in Contract Price
15. Time for Completion and Liquidated Damages
16. Correction of Work
17. Subsurface Conditions
18. Suspension of Work, Termination and Delay
19. Payments to Contractor
20. Acceptance of Final Payment as Release
21. Insurance
22. Contract Security
23. Assignments
24. Indemnification
25. Separate Contracts
26. Subcontracting
27. Engineer's Authority
28. Land and Rights-of-Way
29. Guaranty
30. Claims and Disputes
31. Taxes
32. Interpretation of Drawings and Specifications
33. Site Regulations
34. Limitations of Data Presented
35. Health and Safety Equipment

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1. DEFINITIONS

Wherever used in the Contract Documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.1 ADDENDUM - A written or graphic instrument issued prior to the execution of the Contract, which modifies or interprets the Contract Documents, and/or Drawings and Specifications, by additions, deletions, clarifications or corrections.

1.2 AWARDING AUTHORITY - The authorized agent or representative of the Owner, as defined herein, for which the Project shall be undertaken.

1.3 BID - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

1.4 BIDDER - Any person, firm or corporation submitting a Bid for the Work.

1.5 BOND - Bid, Performance and Payment Bond(s) and other instruments of security, furnished by the Contractor and its Surety in accordance with the Contract Documents.

1.6 CHANGE ORDER - A written order to the Contractor authorizing an addition, deletion or revision in the Work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or Contract Time.

1.7 COMPLETION - That date, as certified by the Engineer, when the construction of the Project (and all parts thereof) is fully completed in accordance with the Contract Documents, including but not limited to the satisfactory fulfillment of, in the opinion of the Engineer, all punch list items, correction of any defective Work, start-up and training, testing of equipment, submission and approval of operations and maintenance manuals and record drawings. Should the Contractor not achieve Completion within the specified time, or extension of time granted by the Owner, then the provisions of Liquidated Damages shall apply.

1.8 CONTRACT – The Contract Documents form the Contract for construction. The Contract represents the entire and integrated agreement between the Owner and the Contractor and supersedes prior negotiations, representations or agreements, either written or oral.

1.09 CONTRACT DOCUMENTS – The term, Contract Documents, is defined in the Form for Agreement.

1.10 CONTRACT PRICE - The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

1.11 CONTRACT TIME - The number of calendar days, and/or in combination with working days, stated in the Contract Documents to achieve Completion of the Work.

1.12 CONTRACTOR - The person, firm or corporation with whom the Owner has executed the Contract.

1.13 DRAWINGS - The part of the Contract Documents that shows the characteristics and scope of the Work to be performed and which have been prepared or approved by the Engineer.

1.14 DESIGNATED AGENT – The authorized representative (s) of the Owner

1.15 ENGINEER - The person, firm or corporation named as such in the Contract Documents.

1.16 FIELD ORDER - A written order affecting a change in the Work, not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the Contractor during construction.

1.17 LIQUIDATED DAMAGES – The sum of monies due the Owner from the Contractor for the Owners costs incurred because of the Contractor's default for failure to achieve Substantial Completion or Completion of the Work within the specified time(s) or extension of time(s) granted by the Owner, as specified in the Contract Documents.

1.18 NOTICE OF AWARD - The written notice of the acceptance of the Bid by the Owner to the successful Bidder.

1.19 NOTICE TO PROCEED - Written communication issued by the Owner to the Contractor authorizing the Contractor to proceed with the Work and establishing the dates of commencement and completion of the Work.

1.20 OWNER - A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the Work is to be performed.

1.21 PROJECT - The undertaking to be performed as provided in the Contract Documents.

1.22 RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the Engineer at the Project Site who is assigned to the Project Sites or any part thereof.

1.23 SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, Supplier or distributor, which illustrate how specific portions of the Work shall be fabricated and/or installed.

1.24 SPECIFICATIONS - The part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.25 STATE - The State in which the Work under this Contract is to be performed.

1.26 SUBCONTRACTOR - A person, firm or corporation having a direct contract with the Contractor, or with any other Subcontractor, for the performance of a part of the Work.

1.27 SUBSTANTIAL COMPLETION - That date, as certified by the Engineer, when the construction of the Project, or a specified part thereof, is sufficiently completed in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purposes for which it is intended.

1.28 SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions required by an entity having a jurisdiction over or for participation, whether financially or otherwise, in the Project and approved by the entity in writing prior to inclusion in the Contract Documents, or such requirements that may be imposed by the Owner, the Engineer or applicable federal, state and local laws, regulations and/or agency guidelines.

1.29 SUPPLIER - Any person or organization who supplies materials or equipment to be incorporated with the Work, including that fabricated to a special design, but who does not perform labor at the site(s).

1.30 WORK - All labor, materials and equipment incorporated or to be incorporated in the Project required by the Contract Documents.

1.31 WRITTEN NOTICE - Any notice to any party of the Contract relative to any part of the Work of the Contract Documents in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at its last given address or delivered in person to said party or its authorized representative. Whenever the words "as directed", "as permitted", "as required", or words of like effect are used, it shall be understood that the direction, permission or requirements of the Engineer is intended; and similarly, the words "approved", "acceptable", "satisfactory", or words of like import, shall mean approved or acceptable or satisfactory to the Engineer. Whenever the words "or equal", or words of like import are used, it shall be understood that this means equal in accordance with the following provisions: an item shall be considered equal, if in the opinion of the Engineer (l) it is at least

equal in quality, durability, appearance, strength and design; (2) it will perform at least equally the function imposed by the general design for the Work being contracted for or the material being purchased; and (3) it conforms substantially, even with deviations, to the detailed requirements for the item. Whenever any power is possessed by, or act or thing is to be done by the Owner under this Contract, the exercise of such power or the doing of such act or thing by the Awarding Authority shall be a sufficient compliance with the terms of this Contract unless by law some other officer of the Owner is required to act in the premises. Both the address given in the Bid upon which this Contract is founded and the Contractor's office at or near the site(s) of the Work are hereby designated as places to either of which notices, letters, and any other communications to the Contractor shall be certified mailed or delivered. The delivering to the above-named place(s), or depositing in a post-paid wrapper directed to the first named place, in any post office box regularly maintained by the United States Postal Service, of any notice, letter or other communications to the Contractor, shall be deemed sufficient service thereof upon the Contractor, and the date of said service shall be the date of such delivery or mailing. The first named address may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the Engineer. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1 The Contractor may be furnished additional instructions and detail Drawings, by the Engineer, as necessary to carry out the Work required by the Contract Documents.

2.2 The additional Drawings and instructions thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail Drawings and instructions.

3. SCHEDULES, REPORTS, AND RECORDS

3.1 Within ten (10) days after the Work has commenced, the Contractor shall submit to the Engineer for approval a progress schedule in satisfactory form, showing in detail its proposed progress for the construction of the various parts of the Work and the proposed times for receiving the various materials required. The Contractor shall, at the end of each month, or more often, if required, furnish the Engineer two (2) copies of a chart showing actual progress of the various parts of the Work in comparison with the originally proposed progress schedule, as approved.

3.2 The Contractor shall submit a schedule of payments that it anticipates it will earn during the course of the Work.

3.3 The Work is to commence within ten (10) days after a date to be specified in the Notice to Proceed unless otherwise specified. Work shall continue with dispatch to Completion and no suspension of Work will be allowed without written approval of the Engineer.

3.4 No Saturday, Sunday, holiday, or work day longer than eight (8) hours Work, requiring the presence of the Engineer or Resident Project Representative, will be permitted without prior arrangements with the Engineer, except in the case of an emergency, and then only to the extent that is absolutely necessary, and, if practical, with the written permission of the Engineer.

If Saturday, Sunday, holiday or work day longer than eight (8) hours Work is contemplated, the Contractor shall notify the Engineer not later than Friday of the previous week to allow arrangements to be made for observation and any other services required by the Owner. If the Contractor must work beyond the regular work week in order to complete the Project within the Contract Time, all expenses of the Engineer and its personnel required for observation and any other extra expenses incurred by the Owner for such Work will be deducted monthly from any sums due or which will become due to the Contractor.

3.5 Prior to commencing any Work at the site(s) requiring the presence of the Engineer or its representative, the Contractor shall notify the Engineer in writing at least twenty-four (24) hours in advance of the exact date and time on which it intends to start the Work. In the event that the Contractor fails to meet this Schedule, the Engineer's on-site time will be assessed to the Contractor and will be deducted from any sums due or which will become due the Contractor.

4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the Drawings and Specifications is to require that the Contractor shall furnish all labor, materials, tools, equipment, and transportation necessary for proper execution of the Work in accordance with the Contract Documents and all incidental Work necessary to complete the Project in an acceptable manner, ready for use, occupancy or operation by the Owner. Any Work shown on the Drawings, though not mentioned in the Specifications, and any Work mentioned in the Specifications, though not shown on the Drawings, is to be executed by the Contractor as a part of the Work.

4.2 In case of a conflict between the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scaled dimensions, and detail Drawings govern over general Drawings.

4.3 Any discrepancies found between the Drawings and Specifications and site conditions, or any inconsistencies or ambiguities in the Drawings or Specifications, shall be immediately reported to the Engineer, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

4.4 Where compliance with two (2) or more industry standards or sets of requirements is indicated, and overlapping of those different standards or requirements establishes two (2) different or conflicting minimums or levels of quality, or quantity, the most stringent requirement (which is generally recognized to be, also, the most costly) is intended and will be enforced, unless specifically detailed language written into the Contract Documents (not by way of reference to an industry standard) clearly indicates that the less stringent requirement is to be fulfilled. Refer apparently-equal-but-different requirements, and uncertainties as to which levels of quality or quantity is the more stringent, to the Engineer for a written decision before proceeding.

5. SHOP DRAWINGS

5.1 The Contractor shall provide Shop Drawings, as may be necessary for prosecution of the Work, as required by the Contract Documents. The Engineer shall promptly review all Shop Drawings. The Engineer's approval of any Shop Drawing shall not release the Contractor from its

responsibility for deviations from the Contract Documents. A Change Order shall evidence the approval of any Shop Drawings, which substantially deviates from the requirements of the Contract Documents.

5.2 When submitted for the Engineer's review, Shop Drawings shall bear the Contractor's certification that it has reviewed, checked and approved the Shop Drawings and that they are in conformance with the requirements of the Contract Documents.

5.3 Portions of the Work requiring a Shop Drawing or sample submission shall not begin until the Engineer has approved the Shop Drawing or submission. A copy of each approved Shop Drawing and each approved sample shall be kept in good order by the Contractor at the site(s) and shall be available to the Engineer.

5.4 The Contractor shall submit to the Engineer, before any shop work is commenced, four (4) to seven (7) prints [four (4) prints are to be used by the Engineer and up to three (3) prints are be used by the Contractor] of Shop Drawings for all items so stated in the Specifications as requiring Shop Drawings. Additional prints for regulatory agencies shall be submitted when indicated in the Specifications. Standard forms for processing Shop Drawings will be used by the Contractor and furnished to the Contractor by the Engineer.

5.4.1 No Shop Drawings shall be submitted directly by Subcontractors or Suppliers. All Shop Drawings shall be submitted through the Contractor who shall check and verify all field dimensions, check for compliance with the Contract Documents, stamp and endorse all Shop Drawings to indicate its approval and compliance with the above, and assign a transmittal number to each submission. Numbers shall be assigned in sequence. In the event that a Shop Drawing is returned marked "Amend and Resubmit" or "Rejected", subsequent resubmittals for the same item shall retain the same transmittal number, but shall have an alphabetical suffix (3a, 3b, etc.). At the time of each submission, the Contractor shall in writing call the Engineer's attention to any deviations to the Contract Documents.

5.4.2 No portion of the Work requiring a Shop Drawing shall be commenced until the Shop Drawing has been reviewed by the Engineer. If the first submittal of the Shop Drawing is marked “No Exceptions Taken”, “Make Corrections Noted” or “No Action/No Review”, up to three (3) prints will be returned to the Contractor and fabrication of the item may begin. If the Shop Drawings are marked "Amend and Resubmit" or "Rejected - See Remarks", up to two (2) prints will be returned to the Contractor with notations thereon of corrections required. The Contractor shall cause the necessary corrections to be made and shall resubmit [four (4) to seven (7) prints (four (4) prints for the Engineer and up to three (3) prints for the Contractor] with transmittal numbers and letters, as defined above. If subsequent resubmittals are still not acceptable, resubmittals shall be made under the procedure outlined above until final acceptance is received.

5.4.3 The Engineer will review Shop Drawings with reasonable promptness, but its review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The acceptance of the separate item, as such, will not indicate acceptance of the assembly in which the item functions. The Contractor shall make any corrections required by the Engineer and shall return the

required number of corrected copies. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by the Engineer on previous submissions.

5.4.4 The Engineer's review of Shop Drawings shall not relieve the Contractor from its responsibility for any deviations from the requirements of the Contract Documents unless the Contractor has in writing called the Engineer's attention to such deviations at the time of submission and the Engineer has given written acceptance to the specific deviation, nor shall any acceptance by the Engineer relieve the Contractor from responsibility for errors or omissions in the Shop Drawings. The final acceptance of Shop Drawings by the Engineer shall not operate to relieve the Contractor in any way of its responsibility under this Contract for the satisfactory Completion of the Work, or for the accuracy of the dimensions, details, and quantities or for its Contract. No change shall be made in the accepted Shop Drawings without written consent of the Engineer. The Contract Price shall include the cost of furnishing all Shop Drawings, and the Contractor shall be allowed no extra compensation therefor.

5.5 The Contractor shall submit to the Engineer for review, with such promptness as to cause no delay in the Work, all samples required by the Contract Documents. All samples shall be checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers, the use for which intended, and the section number and paragraph of the Specification wherein the material is specified. All samples shall be shipped post and/or freight paid.

5.5.1 At the time of each submission, the Contractor shall in writing, call the Engineer's attention to the deviations that the samples may have from the requirements of the Contract Documents.

5.5.2 The Engineer will review with reasonable promptness submitted samples, but its review shall be only for conformance with the information given in the Contract Documents. The acceptance of a separate item as such will not indicate acceptance of the assembly in which the item functions. In the event samples are not accepted, the Contractor shall resubmit new samples until acceptance is obtained.

5.5.3 No Work requiring sample submission shall be commenced until the Engineer has accepted the submission in writing.

5.5.4 The Engineer's acceptance of sample(s) shall not relieve the Contractor from its responsibility for any deviations from the requirements of the Contract Documents unless the Contractor has in writing called the Engineer's attention to such deviations at the time of submission and the Engineer has given written acceptance of the specific deviations.

6. MATERIALS, SERVICES AND FACILITIES

6.1 It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all labor, materials, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and

facilities of any nature whatsoever necessary to execute, complete, and deliver the Work within the Contract Time.

6.2 Materials and equipment shall be so stored as to insure the preservation of its quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies, and equipment shall be in accordance with samples submitted by the Contractor and approved by the Engineer.

6.5 Materials, supplies, or equipment to be incorporated into the Work shall not be purchased by the Contractor or the Subcontractor subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

6.6 All materials are to be new, unused and the best and of finest quality of their several kinds. The Contractor shall provide facilities and handle all materials as required for the inspection by the Engineer. Materials which have not been accepted by the Engineer shall be removed from the site(s) of the Work together with all surplus earth and materials which are unsuitable or not in conformity with the Contract Documents. Disposal of materials shall be without expense to the Owner. The Contractor shall promptly replace any materials rejected or condemned, and shall not be allowed extra time for Completion of the Work by reason of such rejection.

7. INSPECTION AND TESTING

7.1 All materials and equipment in the construction of the Project shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the Contract Documents.

7.2 The Owner shall provide all inspection and testing services not required by the Contract Documents.

7.3 The Contractor shall provide at its expense the testing and inspection services required by the Contract Documents.

7.4 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Contractor, the Contractor will give the Engineer timely notice of readiness. The Contractor will then furnish the Engineer the required certificates of inspection, testing or approval.

7.5 Inspections, tests or approvals by the Engineer or others shall not relieve the Contractor from the obligation to perform the Work in accordance with the requirements of the Contract Documents. Should inspections or tests reveal defective Work, the defective Work shall be made good and unsuitable materials shall be rejected, notwithstanding that such Work and materials have been previously overlooked and 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 shall forthwith make good such defect in a manner satisfactory to the Engineer. Nothing in this Contract shall be construed as vesting in the Contractor any right or property in the materials used after they have been attached or affixed to the Work or the soil, but all such materials shall, upon being so attached or affixed, become the property of the Owner.

7.6 All portions of the Work condemned by the Engineer, as failing to conform to the Contract Documents, shall be taken down and removed, and the Contractor shall promptly replace and re-execute the same in accordance therewith and without expense to the Owner and bear the expense of making good all Work or property of other contractors or of the Owner destroyed or damaged by such removal or replacement.

7.7 The Engineer and its representatives will at all times have access to the Work. In addition, authorized representatives and agents of any participating federal or State agency shall be permitted to inspect all Work, materials, payroll records of personnel, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and, also, for any inspection or testing thereof.

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

7.9 If the Engineer considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor at the Engineer's request, will uncover, expose, or otherwise make available for observation, inspection or testing, as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, materials, tools and equipment. If it is found that such Work is defective, the Contractor will bear all expenses of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction. If, however, such Work is found not to be defective, the Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributed to such uncovering, exposure, observation, inspection, testing and reconstruction; and an appropriate Change Order shall be issued.

8. SUBSTITUTIONS

8.1 Whenever a material, article or piece of equipment is identified on the Drawings or Specifications by reference to brand name or catalog number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered.

8.2 The Contractor may recommend the substitution of a material, article or piece of equipment of equal substance and function for those referred to in the Contract Documents by reference to brand name or catalog number; and, if, in the opinion of the Engineer, such material, article or piece of equipment is of equal substance and function to that specified, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract Price and the Contract Documents shall be modified by Change Order. The Contractor warrants that, if substitutes are approved, no major changes in the function or general design of the Project will result. Incidental changes or extra component parts required to

accommodate the substitution will be made by the Contractor without a change in Contract Price or Contract Time.

9. PATENTS

9.1 The Contractor shall pay all applicable royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for any such loss when a particular process, design or the product of a particular manufacturer or manufacturers is specified. However, if the Contractor has reason to believe that the design, process, or the product specified is an infringement of a patent; the Contractor shall be responsible for such loss unless it promptly gives such information to the Engineer.

10. SURVEYS, PERMITS, REGULATIONS

10.1 The Owner shall furnish all boundary surveys and establish all baselines for locating the principal component parts of the Work, together with a suitable number of benchmarks adjacent to the Work, as shown in the Contract Documents. From the information provided by the Owner, unless specified in the Contract Documents, the Contractor shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations, and other working points, lines, elevations and cut sheets. The Contractor shall employ, at its expense, a competent surveyor, registered in the State wherein the Work is to be done to perform such duties.

10.2 The Contractor shall carefully preserve benchmarks, reference points and stakes and in case of willful or careless destruction shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be secured and paid for by the Contractor, unless otherwise specified. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. The Contractor shall be solely responsible for performing any necessary acts and providing any materials required in order to comply with any and all terms and conditions set forth in any permits and licenses. If the Contractor observes that the Contract Documents are at variance therewith, it shall promptly notify the Engineer in writing and any necessary changes shall be adjusted, as provided in Article 13 Changes in the Work.

11. PROTECTION OF WORK, PROPERTY, AND PERSONS

11.1 The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor will take all necessary precautions for the safety of, and will provide necessary protection to prevent damage, injury or loss to, all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site(s), and other property at the site(s) or adjacent thereto, including trees, shrubs, lawns, walks, pavement, roadways, structures and utilities not designated for removal, relocation or replacement during the course of construction. The Contractor shall be responsible for and pay

for all loss or damage to materials and property, whether such are incorporated in, or to be incorporated in, the Work. The Contractor shall also replace or restore to original condition man-made or natural improvements or other things injured or interfered with by the Contractor in carrying out the Work. Adequate weather protection of all materials and structures of this Project shall be the duty of the Contractor.

11.2 The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. It will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. It will notify owners of adjacent utilities when prosecution of the Work may affect them. The Contractor will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor, or anyone directly or indirectly employed by them, or anyone for whose acts any of them may be liable, except damage or loss attributable to the fault of the Contract Documents, or to acts or omissions of the Owner or the Engineer, or anyone employed by either of them or anyone for whose acts either of them may be liable and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.

11.3 In emergencies affecting the safety of persons or the Work or property at the site(s) or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, shall act to prevent threatened damage, injury or loss. The Contractor will give the Engineer prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall be issued covering the changes and deviations involved.

11.4 HAZARDOUS MATERIAL

11.4.1. If at any time during construction the presence of unanticipated hazardous materials at or proximate to a construction site(s) is detected, the Contractor shall stop Work in the affected area and perform the following immediately:

a. Notify the Owner in writing.

b. Take all action necessary and appropriate for the protection and safety of the public and persons at or about the site(s), including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

c. Notify the respective State agency responsible for hazardous waste and receive instructions as to the appropriate measures to be taken while working in that area.

d. Notify the designated representative of the respective State agency having financial, license or permit and/or technical jurisdiction for this Project, or other appropriate State program director/administrator in writing mailed within 48 hours following discovery of the suspected hazardous materials.

e. Notify the local hazardous waste coordinator.

11.4.2. Actions at the construction site(s) following completion of these steps shall be at the direction of the State agency responsible for hazardous waste. Nothing in this Article shall be construed to require the Engineer and/or the Contractor to perform Work for which adequate compensation has not been contracted for other than to insure that basic measures necessary to protect the health and welfare of workers, residents and abutters are immediately adopted.

11.4.3. At the construction site(s) where the presence of contaminated or hazardous materials are suspected to exist, and provisions have been made in the Contract Documents for their management, the requirements of Paragraph 11.4.1 of this Article shall apply.

12. SUPERVISION BY CONTRACTOR

12.1 The Contractor will supervise and direct the Work. The Contractor will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the Work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site(s). The supervisor/superintendent shall have full authority to act on behalf of the Contractor, and all communications given to the supervisor/superintendent shall be as binding as if given to the Contractor. The supervisor/superintendent shall be present on the site(s) at all times, as required, to perform adequate supervision and coordination of the Work.

12.2 The Contractor shall employ only competent workers; and, whenever the Engineer shall notify the Contractor in writing that any person on the Work is, in its opinion, incompetent, unfaithful, disorderly or otherwise unsatisfactory or not employed in accordance with the provisions of this Contract, such person shall be discharged from the Work and shall not again be employed on it except with the consent of the Engineer.

13. CHANGES IN THE WORK

13.1 The Owner may at any time, as the need arises, order changes within the scope of the Work without invalidating the Contract. If such changes increase or decrease the amount due under the Contract Documents, or in the time required for performance of the Work, a Change Order shall authorize an equitable adjustment. The Owner must confirm in writing any explanation or interpretation of Drawings or Specifications altering or varying the Work, made by an employee of the Owner, before such changed Work is acted upon by the Contractor.

13.2 The Engineer, also, may at any time by issuing a Field Order make changes in the details of the Work. The Contractor shall proceed with the performance of any changes in the Work so ordered by the Engineer, unless the Contractor believes that such Field Order entitles the Contractor to a change in the Contract Price, or time, or both, in which event the Contractor shall give the Engineer written notice thereof within seven (7) days after receipt of the ordered change. Thereafter, the Contractor shall document the basis for the change in Contract Price or time within thirty (30) days. The Contractor shall not execute such changes pending receipt of an executed Change Order or further instruction from the Owner.

14. CHANGES IN CONTRACT PRICE

14.1 The Contract Price may be changed only by a Change Order. The value of any Work covered by a Change Order, or of any claim for increase or decrease in the Contract Price, shall be determined by one (1) or more of the following methods in order of precedence listed below:

(a) Unit prices previously approved.

(b) An agreed lump sum.

(c) The actual cost for labor, direct overhead, materials, supplies, equipment and other services necessary to complete the Work, computed as follows:

(1) The reasonable cost of labor employed directly on the Work at prevailing rates of wages.

(2) The cost of Worker's Compensation Insurance, Federal Social Security and State Unemployment Compensation on Item (l) at established rates.

(3) The reasonable cost of materials incorporated in the Work.

(4) The reasonable cost at fair market rental rates for equipment employed directly on the Work.

(5) Fifteen (15) percent of Items (1), (2), (3) and (4) for overhead, superintendence and profit. On subcontract Work, this fifteen (15) percent will be allowed only to the Subcontractor.

(6) An additional five (5) percent of Items (1), (2), (3) and (4) on Work performed by a Subcontractor of the Contractor. This five (5) percent includes overhead, superintendence, profit and bonds.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of commencement and the time for Substantial Completion and Completion of the Work are essential conditions of the Contract Documents, and the Work embraced shall be commenced on a date specified in the Notice to Proceed.

15.2 The Contractor will proceed with the Work at such rate of progress to insure both Substantial Completion and full Completion within the Contract Time. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time allowed to achieve Substantial Completion and the Contract Time for Completion of the Work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the Work.

15.3 If the Contractor shall fail to achieve Substantial Completion or Completion within the specified time(s) or extension of time(s) granted by the Owner, then the Contractor will pay to the Owner the amount for Liquidated Damages, as specified in the Contract Documents, for each calendar day and/or working day that the Contractor shall be in default after the time(s) stipulated.

15.4 The Contractor shall not be charged with Liquidated Damages or any excess cost, when the delay in Completion of the Work is due to the following, and the Contractor has promptly given written notice of such delay to the Owner or Engineer:

15.4.1 To any preference, priority or allocation order duly issued by the Owner;

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God or of the public enemy, acts of the Owner, acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of Subcontractors occasioned by any of the causes specified in Paragraphs 15.4.1 and 15.4.2 of this Article.

16. CORRECTION OF WORK

16.1 The Contractor shall promptly remove from the premises all Work rejected by the Engineer for failure to comply with the Contract Documents, whether incorporated in the construction or not; and the Contractor shall promptly replace and re-execute the Work in accordance with the Contract Documents and without expense to the Owner. The Contractor shall bear the expense of making good all Work of other contractors by such removal and replacement of all destroyed or damaged Work.

16.2 All removal and replacement Work shall be done at the Contractor's expense. If the Contractor does not take action to remove and replace such rejected Work within five (5) days after receipt of written notice, the Owner may remove such Work and store the materials at the expense of the Contractor.

17. SUBSURFACE CONDITIONS

17.1 The Contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the Owner by written notice of:

17.1.1 Subsurface or latent physical conditions at the site(s) differing materially from those indicated in the Contract Documents, or

17.1.2 Unknown physical conditions at the site(s) of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the Contract Documents.

17.2 The Owner shall promptly investigate the conditions; and, if it finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the Work, an equitable adjustment shall be made and the Contract Documents shall be modified by a Change Order. Any claim of the Contractor for adjustment hereunder shall not be allowed unless the Contractor has given the required written notice, provided that

the Owner may, if the Contractor determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

18.1 The Owner may suspend the Work, or any portion thereof, for a period of not more than ninety (90) calendar days or such further time, as agreed upon by the Contractor, by written notice to the Contractor and the Engineer, which notice shall fix the date on which the Work shall be resumed. The Contractor will resume that Work on the date so fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

18.2 If the Contractor is adjudged bankrupt or insolvent, or if the Contractor makes a general assignment for the benefit of its creditors, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property, or if the Contractor files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or other applicable laws, or if the Contractor repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if the Contractor repeatedly fails to make prompt payments to Subcontractors or for labor, materials, or equipment, or if the Contractor disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the Work, or if the Contractor disregards the authority of the Engineer, or if the Contractor otherwise violates any provision of the Contract Documents, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and its surety a minimum of ten (10) days from delivery of a written notice, terminate the services of the Contractor and take possession of the Project and of all materials, tools, equipment, construction equipment and machinery thereon owned by the Contractor, and finish the Work by whatever method it may deem expedient.

18.3 In such case the Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor will pay the difference to the Owner. Such costs incurred by the Owner will be determined by the Engineer and incorporated in a Change Order.

18.4 Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any right of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies by the Owner due the Contractor will not release the Contractor from compliance with the Contract Documents.

18.5 After ten (10) days from delivery of a written notice to the Contractor and the Engineer, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Contract. In such case, the Contractor shall be paid for all Work satisfactorily executed and any expense sustained plus reasonable profit.

18.6 If, through no act or fault of the Contractor, the Work is suspended for a period of more than ninety (90) calendar days by the Owner or under an order of court or other public authority, or the Engineer fails to act on any request for payment within thirty (30) days after it is submitted, or the Owner fails to pay the Contractor substantially the sum approved by the Engineer or

awarded by arbitrators within thirty (30) days of its approval and presentation, then the Contractor may, after ten (10) days from delivery of a written notice to the Owner and the Engineer, terminate the Contract and recover from the Owner payment for all Work executed and all expenses sustained. In addition and in lieu of terminating the Contract, if the Engineer has failed to act on a request for payment or if the Owner has failed to make any payment as aforesaid, the Contractor may upon ten (10) days written notice to the Owner and the Engineer stop the Work until the Contractor has been paid all amounts then due, in which event and upon resumption of Work, a Change Order shall be issued for adjusting the Contract Price or extending the Contract Time or both to compensate for the costs and delays attributable to the stoppage of the Work.

18.7 If the performance of all or any portion of the Work is suspended, delayed, or interrupted, as a result of a failure of the Owner or the Engineer to act within the time specified in the Contract Documents, or if no time is specified, within a reasonable time an adjustment in the Contract Price and extension of the Contract Time, or both, shall be made by a Change Order to compensate the Contractor for the costs and delays necessarily caused by the failure of the Owner or the Engineer.

19. PAYMENTS TO CONTRACTOR

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the Contractor will submit to the Engineer a partial payment estimate filled out and signed by the Contractor covering the Work performed during the period covered by the partial payment estimate and supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site(s), the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the Owner, as will establish the Owner's title to the material and equipment and protect its interest therein, including applicable insurance. Payments to the Contractor are governed by Massachusetts General Law, Chapter 30, Section 39G and are recited in full in Document 00855, Special Conditions, Commonwealth of Massachusetts.

19.2 Prior to Substantial Completion, the Owner with the approval of the Engineer and with the concurrence of the Contractor may use any substantially completed portions of the Work. Such use shall not constitute an acceptance of such portions of the Work.

19.3 The Owner shall have the right to enter the premises for the purpose of doing Work not covered by the Contract Documents. This provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the Work, or the restoration of any damaged Work except such as may be caused by agents or employees of the Owner.

19.4 The Contractor will indemnify and save the Owner or the Owner’s agents harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of Work. The Contractor shall at the Owner’s request furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability of the Contractor other than claims in stated amounts, as may be specifically accepted by the Contractor, for all things done or furnished in connection with this Work and for every act and neglect of the Owner and others relating to or arising out of this Work. Any payment, however final or otherwise, shall not release the Contractor or its sureties from any obligations under the Contract Documents or the performance bond and payment bond.

21. INSURANCE

21.1 Refer to Section 00500 – Form for Agreement for INSURANCE REQUIREMENTS.

22. CONTRACT SECURITY

22.1 The Contractor shall within ten (10) days after receipt of the Notice Of Award furnish the Owner with a performance bond and payment bond in penal sums equal to the amount of the Contract Price, conditioned upon the performance by the Contractor of all undertakings, covenants, terms, conditions, and agreements of the Contract Documents and upon prompt payment by the Contractor to all persons supplying labor and materials in the prosecution of the Work provided by the Contract Documents. Such bonds shall be executed by the Contractor and a corporate bonding company licensed to transact such business in the State in which the Work is to be performed and named on the current list of “Surety Companies Acceptable on Federal Bonds", as published in the U.S. Treasury Department Circular Number 570. The expense of these bonds shall be borne by the Contractor. If at any time a surety on any such bonds is declared bankrupt or loses its right to do business in the State in which the Work is to be performed or is removed from the list of Surety Companies Acceptable on Federal Bonds, the Contractor shall, within ten (10) days substitute an acceptable bond(s) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such bond(s) shall be paid by the Contractor. No further payments to the Contractor shall be deemed due nor shall any be made until the new surety or sureties shall have furnished an acceptable bond(s) to the Owner.

23. ASSIGNMENTS

23.1 Neither the Contractor nor the Owner shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of its right, title or interest therein, or its obligations thereunder without written consent of the other party.

24. INDEMNIFICATION

24.1 The Contractor will indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against all claims, damages, losses, and expenses, including attorney's fees, arising out of or resulting from the performance of the Work, provided that any such claims, damage, loss, or expense is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including loss of use resulting therefrom and is caused in whole or in part by any negligent or willful act or omission of the Contractor and

Subcontractor(s), anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the Owner or the Engineer, or any of its agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor under Worker's Compensation Acts, Disability Benefit Acts, or other employee benefit acts.

24.3 The obligation of the Contractor under this Article shall not extend to the liability of the Engineer, its agents or employees, arising out of the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs or Specifications.

24.4 The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnisher of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the Work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived.

25. SEPARATE CONTRACTS

25.1 The Owner reserves the right to let other contracts in connection with this Project. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their Work, and shall promptly connect and coordinate Work with theirs. If the proper execution or results of any part of the Contractor's Work depends upon the Work of any other contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such Work that render it unsuitable for such proper execution and results.

25.2 The Owner may perform additional Work related to the Project or let other contracts containing provisions similar to these. The Contractor will afford the other contractors who are parties to such contracts (or the Owner, if performing the additional Work itself) reasonable opportunity for the introduction and storage of materials and equipment, and the execution of Work, and shall properly connect and coordinate Work with theirs.

25.3 If the performance of additional Work by other contractors or the Owner is not noted in the Contract Documents prior to the execution of the Contract, written notice thereof shall be given to the Contractor prior to starting any such additional Work. If the Contractor believes that the performance of such additional Work by the Owner or others involves the Contractor in additional expense, or entitles the Contractor to an extension of the Contract Time, the Contractor may make a claim therefor, as provided in Articles 14 and 15.

25.4 The Owner shall have the right to enter the premises for the purpose of doing Work not covered by the Contract Documents. This provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the Work, or the restoration of any damaged Work, except such as may be caused by agents or employees of the Owner.

26. SUBCONTRACTING

26.1 The Contractor may utilize the services of specialty Subcontractors on those parts of the Work, which under normal contracting practices are performed, by specialty Subcontractors.

26.2 The Contractor shall not award Work to Subcontractor(s) in excess of fifty (50) percent of the Contract Price without prior written approval of the Owner.

26.3 The Contractor shall be fully responsible to the Owner for the acts and omissions of its Subcontractors, and of persons either directly or indirectly employed by them, as they are for the acts and omissions of persons directly employed by them.

26.4 The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the Work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

26.5 Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

27. ENGINEER'S AUTHORITY

27.1 The Engineer may act as the Owner's representative during the construction period. The Engineer shall decide questions that may arise as to quality and acceptability of materials furnished and Work performed. The Engineer shall interpret the intent of the Contract Documents in a fair and unbiased manner. The Engineer will make visits to the site(s) and determine if the Work is proceeding in accordance with the Contract Documents.

27.2 The Contractor will be held strictly to the intent of the Contract Documents in regard to the quality of materials, workmanship and execution of the Work. Inspections may be made at the factory or fabrication plant of the source of material supply.

27.3 The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures or construction safety.

27.4 The Engineer shall promptly make decisions relative to interpretation of the Contract Documents.

28. LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of the Notice to Proceed, the Owner shall obtain all land and rights-of-way necessary for carrying out and for the Completion of the Work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.

28.2 The Owner shall provide to the Contractor information, which delineates and describes the lands owned and rights-of-way or right-of-entries acquired.

28.3 The Contractor shall provide at the Contractor's expense and without liability to the Owner any additional land and access thereto that the Contractor may desire for temporary construction facilities or for storage of materials.

29. GUARANTY

29.1 The Contractor shall guarantee all materials and equipment furnished and Work performed for a period of one (1) year from the date of Substantial Completion. The Contractor warrants and guarantees for a period of one (1) year from the date of Substantial Completion of the system that the completed system is free from all defects due to faulty materials or workmanship; and the Contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments, or other Work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

30. CLAIMS AND DISPUTES

30.1 All claims, disputes and other matters in question arising out of, or relating to, the Contract Documents or the breach thereof, except for claims that have been waived by the making and acceptance of final payment as provided by Article 20, shall be entered into a court of competent jurisdiction within the State where the Work is located.

30.2 The Contractor will carry on the Work and maintain the progress schedule during any disputes and other matters in question arising out of, or relating to, the Contract Documents or the breach thereof, unless otherwise mutually agreed in writing.

31. TAXES

31.1 The Contractor is an exempt purchaser under the Massachusetts Sales Act, Chapter 14 of the Acts of 1966, to the extent that materials and supplies are used or incorporated in the performance of the Contract. The Contractor shall obtain from the Owner an exemption certificate number to be used in lieu of paying the tax on exempted items.

32. INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

32.1 The Specifications and Drawings are intended to describe and provide for a completed Project. They are intended to be complementary, and what is called for by either shall be complete in every detail, notwithstanding that every item necessarily involved is not particularly mentioned, and the Contractor shall provide all labor and materials necessary for the entire Completion of the Work intended to be described.

33. SITE REGULATIONS

33.1 On or before the Completion of the Work, the Contractor shall without charge therefor tear down and remove all buildings and other temporary structures built by the Contractor, and shall

remove and legally dispose of surplus material and rubbish of all kinds from any ground which it has occupied and shall leave the Work, grounds and surroundings in a clean and neat condition.

33.2 Tobacco, Drugs and Liquor Prohibited. The Contractor shall neither permit nor suffer smoking where it creates a hazard nor the introduction or use of drugs, spirituous or intoxicating liquors upon or about the Work embraced in this Contract or upon any of the ground occupied by the Contractor.

33.3 Posters. The Contractor shall not permit or suffer any placards, posters or advertisements to be displayed on or about the premises unless approved by the Owner.

34. LIMITATIONS OF DATA PRESENTED

34.1 Drawings, surveys, measurements, dimensions, calculations, estimates, borings and statements as to the condition under which the Work is to be performed are believed to be correct.

34.2 The Bidder shall carefully examine the Contract Documents, including all Drawings, Specifications and Addenda, shall visit the site(s) and shall satisfy itself as to the type and quantity of the Work to be performed. For the purposes of comparing several proposals, the Bid shall be based on the data presented and the Bidder's examination of the site(s).

34.3 The locations of all utilities are obtained from the best available sources and are to be considered as approximate insofar as size, location and elevation are concerned. Furthermore, it is expressly understood that there may be utilities in existence other than those shown on the Drawings.

35. HEALTH AND SAFETY EQUIPMENT

35.1 As provided for in Article 11, the Contractor is responsible for establishing and maintaining a health and safety program throughout the course of the Project so as to meet all Local, State, Federal and OSHA requirements.

35.2 In order for the Owner and/or Engineer to observe the Work, the Contractor shall provide health and safety equipment for such purposes. Such equipment shall specifically include, but not necessarily be limited thereto, the following:

35.2.1 Ear plugs in sufficient quantities

35.2.2 Headset protective hearing devices

35.2.3 Safety glasses/goggles

35.2.4 3-way gas detector meter with lights and alarm (hydrogen sulfide, combustible gases and oxygen deficiency)

35.2.5 Tripod (mechanical crank type especially designed and equipped for lifting personnel in and out of confined spaces)

35.2.6 Ropes and harnesses

35.2.7 Disposable coveralls/protective clothing/gloves in sufficient quantity and sizes

35.2.8 Ventilating equipment for confined spaces

35.2.9 Self-contained breathing apparatus (SCBA)

35.3 All of the above equipment shall be continuously provided at the worksite(s) and maintained in good working order (including manufacture's recommended maintenance and calibration of the 3-way gas detector and SCBA equipment). It is understood that such equipment shall remain the property of the Contractor and is in addition to any and all health and safety equipment that the Contractor is required to have for the Contractor's health and safety program on-site.

35.4 The Contractor is advised that the Owner has clearly established on-going Confined Space and Lock-out/Tag-out programs. Where the Contractor's Work requires confined space entry into existing facilities and/or lock-out/tag-out of existing equipment and electrical controls, the Contractor shall strictly abide by the Owner's programs if they are more stringent than the Contractor's own procedures.

END OF DOCUMENT

SPECIAL CONDITIONS - GENERAL

1.01 Statutory Requirements in General

A. The Contractor shall keep himself fully informed of all existing and future State and National Laws and municipal ordinances and regulations in any manner affecting those engaged or employed in the Work, or the materials used or employed in the Work, or in any way affecting the conduct of the Work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same and of all provisions required by law to be made a part of this Contract, all of which provisions are hereby incorporated by reference and made a part thereof. If any discrepancy or inconsistency is discovered in the drawings or specifications or Contract 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. He shall at all times himself observe and comply with, and shall cause all his agents and employees to observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees; and shall protect and indemnify the Owner and Engineer and all of its and their officers, agents, and servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by himself or his employees or subcontractors.

B. All materials furnished and Works done are to comply with all state and federal laws and regulations.

1.02 Police Officers

A. Any police officers, reserve, special or otherwise, employed by the Contractor, shall be paid the prevailing wage rates paid to regular police officers of the municipality in which the Work is to be performed. When requesting police detail the bidder must give the project name and the Department of Public Works as the information it should be billed under.

B. The Contractor will commence the work required by the Contract Documents within 10 calendar days after a date to be specified in DOCUMENT 00650, NOTICE TO PROCEED and will complete the project under this contract as indicated herein.

C. The total time period for completion of work required under this contract is the time frame agreed upon between the Contractor and City for the project. The agreed upon time frame will be documented, confirmed, and signed by both the City and Contractor prior to notice to proceed. Work performed beyond the agreed upon timeframe for the project will be subject to liquidated damages in the amount specified herein.

D. Work performed beyond this Contract Time period (Completion) will be subject to liquidated damages. The Contractor agrees to pay as liquidated damages the sum of $500.00 for each consecutive calendar day and $500.00 for each working day thereafter as provided in Article 15 of the DOCUMENT 00700, GENERAL CONDITIONS.

E. The Contractor agrees to perform all of the work described in the Contract Documents and comply with the terms therein for the sums shown in DOCUMENT 00300, BID FORM.

F. The Contractor agrees that the “direct labor mark-up” rate for any change order work performed under this Agreement will be 15 percent. The “direct labor mark-up” rate shall account for the cost of Worker’s Compensation Insurance, Federal Social Security and State Unemployment Compensation as described in DOCUMENTS 00700, GENERAL CONDITIONS, ARTICLE 14.1(c) (2), CHANGES IN CONTRACT PRICE.

G. The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age, or national origin; and that it shall take affirmative

actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

H. The Contractor shall not participate in or cooperate with an international boycott, as defined in Section 999 (b) (3) and (4) of the Internal Revenue Code of 1954, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

I. Article XII of the “Commonwealth of Massachusetts Modified Supplemental Equal Opportunity Anti-discrimination and Affirmative Action Program” requires that the Contractor’s certification form, which must be signed by the successful low bidder prior to award by the contracting agency, must appear in the Contract and the subcontractors certification form, which must be signed by the prospective subcontractor(s) must be submitted to the Contractor and included in the subcontract.

J. The term "Contract Documents" means and includes the following:

(A) Advertisement for Bids
(B) Information for Bidders
(C) Bid Form
(D) Bid Bond
(E) Certification Regarding Payment of Prevailing Wages
(F) Statement of Tax Compliance
(G) Bidders Qualification Form
(H) Notice of Award
(I) Form for Agreement
(J) Payment Bond
(K) Performance Bond
(L) Notice to Proceed
(M) General Conditions
(N) Special Conditions – General Special Conditions - Commonwealth of Massachusetts
(O) Change Order Form
(P) Certificate of Substantial Completion
(Q) Waiver of Liens
(R) Certificate of Final Payment and Completion of Work
(S) Documents and Specifications
(T) Addenda

K. The Owner will pay to the Contractor in the manner and at such times as set forth in the Contract Conditions such amounts as required by the Contract Documents.

L. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

END OF DOCUMENT

SPECIAL CONDITIONS - COMMONWEALTH OF MASSACHUSETTS

Massachusetts General Laws ("2002 Official Edition")

MGL C.30, S.39F	Construction Contracts Assignment and Subrogation; Subcontractor Defined; Enforcement of Claim For Direct Payment; Deposit, Reduction of Disputed Amounts
MGL. C.30, S.39G	Completion of Public Works; Semi-Final and Final Estimates; Payments; Extra Work; Disputed Items
MGL C.30, S.39I	Deviation from Plans and Specifications
MGL C.30, S.39J	Public Construction Contracts; Effects of Decisions of Contracting Body or Administrative Board
MGL C.30, S.39K	Public Building Construction Contracts; Payments
MGL C.30, S.39L	Public Construction Work by Foreign Corporations; Restrictions and Reports
MGL C.30, S.39M	Contracts for Construction and Materials; Manner of Awarding
MGL C.30, S.39N	Construction Contracts; Equitable Adjustment In Contract Price for Differing or Latent Physical Conditions
MGL C.30, S.39O	Contracts for Construction and Materials; Suspension, Delay or Interruption Due to Order of Awarding Authority; Adjustment in Contract Price; Written Claim
MGL C.30, S.39P	Contracts for Construction and Materials; Awarding Authority's Decisions on Interpretation of Specifications, etc.: Time Limit; Notice
MGL C.30, S.39R	Definitions; Contract Provisions; Management and Financial Statements; Enforcement
MGL C.149, S.26	Public Works; Preference to Veterans and Citizens; Wages
MGL C.149, S.34	Public Contracts; Stipulation as to Hours and days of Work; Void Contracts
MGL C.82, S.40A	Excavations; Notice
MGL C.82, S. 40B	Designation of Location of Underground Utilities
MGL C. 82, S.40C	Excavator's Responsibility to Maintain Designation Markings; Damage Caused by Excavator
MGL C. 82, S. 40D	Local Laws Requiring Excavation Permits; Public Ways
MGL C.82, S. 40E	Violations of Secs. 40A-40E; Punishment
MGL C.149, S.26 to 27D	Minimum Wage Rates

The following excerpts are from the Massachusetts General Laws. The bidder shall make his own investigations to assure the accuracy of the excerpts by reviewing an Official Edition of the Massachusetts General Laws.

CONSTRUCTION CONTRACTS; ASSIGNMENT AND SUBROGATION; SUBCONTRACTOR DEFINED; ENFORCEMENT OF CLAIM FOR DIRECT PAYMENT; DEPOSIT, REDUCTION OF DISPUTED AMOUNTS - (MGL C.30, s.39F)

(1.) Every contract awarded pursuant to section forty-four A to L, inclusive, of chapter one hundred and forty-nine shall contain the following subparagraphs (a) through (I) and every contract awarded pursuant to section thirty-nine M of chapter thirty shall contain the following subparagraphs (a) through (h) and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by the subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of the balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy

shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (I) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided, that the awarding authority shall not deduct form a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (I) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by a decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account for accounts in a bank pursuant to subparagraph (f) shall be made out of amount payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of the such payment.

(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

(i) If the subcontractor does not receive payment as provided in subparagraph (a) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (a), the subcontractor may demand direct payment by following the procedure in subparagraph (d) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h).

COMPLETION OF PUBLIC WORKS; SEMI-FINAL AND FINAL ESTIMATES; PAYMENTS; EXTRA WORK; DISPUTED ITEMS (MGL C. 30, s 39G)

Upon substantial completion of the work required by a contract with the Commonwealth, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges and other highway structures, sewers and, water mains, airports and other public works, the contractor shall present in writing to the awarding authority its certification that the work has been substantially completed. Within twenty-one days thereafter, the awarding authority shall present to the contractor either a written declaration that the work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the contract sufficient to demonstrate that the work has not been substantially completed. The awarding authority may include with such a list a notice setting forth a reasonable time, which shall not in any event be prior to the contract completion date, within which the contractor must achieve substantial completion of the work. In the event that the awarding authority fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the contractor's certification within the twenty-one-day period, the contractor's certification shall take effect as the awarding authority's declaration that the work has been substantially completed.

Within sixty-five days after the effective date of a declaration of a substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quantity and price of the work done and all but one percent retainage on that work, including the quantity, price and all but one percent retainage for the undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The awarding authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payment filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to section thirty-nine F, but no contract subject to said section thirty-nine F shall contain any other provision authorizing the awarding authority to deduct any amount by virtue of claims asserted against the contract by subcontractors, material suppliers or others.

If the awarding authority fails to prepare and send to the contractor any substantial completion estimate required by this section on or before the date herein above set forth, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such substantial completion estimate at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the awarding authority sends that substantial completion estimate to the contractor for acceptance or to the date of payment therefor, whichever occurs first. The awarding authority shall include the amount of such interest in the substantial completion estimate.

Within fifteen days after the effective date of the declaration of substantial completion, the awarding authority shall send to the contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and, unless delayed by causes beyond his control, the contractor shall complete all such work items within forty-five days after the receipt of such list or before the then contract completion date, whichever is later. If the contractor fails to complete such work within such time, the awarding authority may, subsequent to seven days' written notice to the contractor by certified mail, return receipt requested, terminate the contract and complete the incomplete or unsatisfactory work items and charge the cost of same to the contractor.

Within thirty days after receipt by the awarding authority of a notice from the contractor stating that all of the work required by the contract has been completed, the awarding authority shall prepare and forthwith send to the contractor for acceptance a final estimate for the quantity and price of the work done and all retainage on that work less all payments made to date, unless the awarding authority's inspection shows that work items required by the contract remain incomplete or unsatisfactory, or that documentation required by the contract has not been

completed. If the awarding authority fails to prepare and send to the contractor the final estimate within thirty days after receipt of notice of completion, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth day after such completion until the date on which the awarding authority sends the final estimate to the contractor for acceptance or the date of payment therefor, whichever occurs first, provided that the awarding authority's inspection shows that no work items required by the contract remain incomplete or unsatisfactory. Interest shall not be paid hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided. The awarding authority shall include the amount of the interest required to be paid hereunder in the final estimate.

The awarding authority shall pay the amount due pursuant to any substantial completion or final estimate within thirty-five days after receipt of written acceptance for such estimate from the contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth day to the date of payment. Within 15 days, 30 days in the case of the commonwealth, after receipt from the contractor, at the place designated by the awarding authority, if such place is so designated, of a periodic estimate requesting payment of the amount due for the preceding periodic period, the awarding authority shall make a periodic payment to the contractor for the work performed during the preceding periodic estimate period and for the materials not incorporated in the work but delivered and suitably stored at the site, or some location agreed upon in writing, to which the contractor has title or which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that materials are free from all encumbrances. The awarding authority shall include with each such payment interest on the amount due pursuant to such periodic estimate at the rate herein above provided from the due date. In the case of periodic payments, the contracting authority may deduct from its payment a retention based on its estimate of the fair value of its claims against the contractor, a retention for direct payments to subcontractors based on demand for same in accordance with the provisions of section thirty-nine F, and a retention to secure satisfactory performance of the contractual work not exceeding five percent of the approved amount of any periodic payment, and the same right to retention shall apply to bonded subcontractors entitled to direct payment under section thirty-nine F of chapter thirty; provided, that a five percent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.

No periodic, substantial completion or final estimate or acceptance or payment thereof shall bar a contractor from reserving all rights to dispute the quantity and amount of, or the failure of the awarding authority to approve a quantity and amount of, all or part of any work item or extra work item.

Substantial completion, for the purposes of this section, shall mean either that the work required by the contract has been completed except for work having a contract price of less than one percent of the then adjusted total contract price, or substantially all of the work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work required by the contract.

DEVIATIONS FROM PLANS AND SPECIFICATIONS – (MGL C. 30, S 391)

Every contractor having a contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or public works for the commonwealth, or of any political subdivision thereof, shall perform all the work required by such contract in conformity with the plans and specifications contained therein. No willful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the awarding authority or by the engineer or architect in charge of the work who is duly authorized by the awarding authority to approve such deviations. In order to avoid delays in the prosecution of the work required by such contract such deviation from the plans or specifications may be authorized by a

written order of the awarding authority or such engineer or architect so authorized to approve such deviation. Within thirty days thereafter, such written order shall be conformed by a certificate of the awarding authority stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the contracting agency and the contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the contract authority. Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.

Whoever violates any provision of this section willfully and with intent to defraud shall be punished by a fine of not more than five thousand dollars or by imprisonment for not more than six months, or both.

PUBLIC CONSTRUCTION CONTRACTS; EFFECTS OF DECISIONS OF CONTRACTING BODY OR ADMINISTRATIVE BOARD – (MGL, C. 30, S 39J)

Notwithstanding any contrary provision of any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public works by the commonwealth, or by any county, city, town, district, board, commission or other public body, when the amount of the contract is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars in the case of any county, city, district, board, commission or other public body, a decision, by the contracting body or by any administrative board, official or agency, or by any architect or engineer, on a dispute, whether of fact or of law, arising under said contract shall not be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily is unsupported by substantial evidence, or is based upon error of law.

PUBLIC BUILDING CONSTRUCTION CONTRACTS; PAYMENTS – (MGL, C. 30, S 39K)

Every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building by the commonwealth, or by any county, city, town, district, board, commission, or other public body, when the amount is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars in the case of any county, city, town, district, board, commission or other public body, shall contain the following paragraph: Within fifteen days (30 days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the Contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority upon certification by the contractor that he is the lawful owner and the materials are free from all encumbrances, less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the contractor

and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as provided in section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate than charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen days (twenty-four days in the case of the commonwealth) after receipt of such a periodic estimate from the contractor, at the place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on said periodic estimate shall be computed in accordance with the changes so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in subbid form as required by specifications and a column listing the amount paid to each subcontractor and sub-subcontractor as of the date the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt marked on the estimate.

A certificate of the architect to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.

Notwithstanding the provisions of the section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less that 1 percent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall them complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any

such termination in the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149.

PUBLIC CONSTRUCTIONWORK BY FOREIGN CORPORATIONS; RESTRICTIONS AND REPORTS – (MGL C. 30, S 39L)

The Commonwealth and every county, city, town, district, board, commission or other public body which, as the awarding authority, requests proposals, bids or subbids for any work in the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or other public works (1) shall not enter into a contract for such work with, and shall not approve as a subcontractor furnishing labor and materials for a part of any such work, a foreign corporation which has not filed with such awarding authority a certificate of the state secretary stating that such corporation has complied with sections three and five of chapter one hundred and eighty-one and the date of such compliance, and (2) shall report to the state secretary and to the department of corporations and taxation any foreign corporation performing work under such contract or subcontract, and any person, other than a corporation, performing work under such contract or subcontract, and residing or having a principal place of business outside the Commonwealth.

CONTRACTS FOR CONSTRUCTION AND MATERIALS; MANNER OF AWARDING – (MGL, C 30, S 39M)

(a) Every contract for the construction, reconstruction, alteration, remodeling or repair of any public work, or for the purchase of any material, as hereinafter defined, by the commonwealth, or political subdivision thereof, or by any county, city, town, district, or housing authority, and estimated by the awarding authority to cost more than ten thousand dollars, and every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building by a public agency, as defined by subsection one of section forty-four A of chapter one hundred and forty-nine, estimated to cost more than ten thousand dollars but not more than twenty-five thousand dollars, shall be awarded to the lowest responsible and eligible bidder on the basis of competitive bids publicly opened and read by such awarding authority forthwith upon expiration of the time for the filing thereof; provided, however, that such awarding authority may reject any and all bids, if it is in the public interest to do so. Every bid for such contract shall be accompanied by a bid deposit in the form of a bid bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to the awarding authority. The amount of such bid deposit shall be five per cent of the value of the bid. Any person submitting a bid under this section shall, on such bid, certify as follows:

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

(Name of person signing bid)

(Company)

This paragraph shall not apply to the award of any contract subject to the provisions of sections forty-four A to forty-four L, inclusive, of chapter one hundred and forty-nine and every such contract shall continue to be awarded as provided therein. In cases of extreme emergency caused by enemy attack, sabotage or other such hostile actions or resulting from explosion, fire, flood, earthquake, hurricane, tornado or other such catastrophe, an awarding authority may, without competitive bids and notwithstanding any general or special law, award contracts otherwise subject to this paragraph to perform work and to purchase or rent

materials and equipment, all as may be necessary for temporary repair and restoration to service of any and all public work in order to preserve the health and safety of persons or property; provided that this exception shall not apply to any permanent reconstruction, alteration, remodeling or repair of any public work.

(b) Specifications for such contracts, and specifications for contracts awarded pursuant to the provisions of said sections forty-four A to forty-four L of said chapter one hundred and forty-nine, shall be written to provide for full competition for each item of material to be furnished under the contract; except, however, that said specifications may be otherwise written for sound reasons in the public interest stated in writing in the public records of the awarding authority or promptly given in writing by the awarding authority to anyone making a written request therefor, in either instance such writing to be prepared after reasonable investigation. Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item so named or described if, in the opinion of the awarding authority; (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications. For each item of material the specifications shall provide for either a minimum of three named brands of material or a description of material which can be met by a minimum of three manufacturers or procedures, and for the equal of any one said named or described materials.

(c) The term "lowest responsible and eligible bidder" shall mean the bidder (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who, where the provision of section eight B of chapter twenty-nine apply, shall have been determined to be qualified thereunder; and (4) who obtains within ten days of the notification of contract award the security by bond required under section twenty-nine of chapter one hundred and forty-nine; provided that for the purposes of this section the term "security by bond" shall mean the bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority.

(d) The provisions of this section shall not apply (1) to the extent that they prevent the approval of such specifications by any contributing federal agency, (2) to materials purchased under specifications of the state department of highways at prices established by the said department pursuant to advertisement and bidding in connection with work to be performed under the provisions of chapter eighty-one or chapter ninety, (3) to any transaction between the commonwealth and any of its political subdivisions or between the commonwealth and any public service corporation, and (4) to any contract of not more than twenty-five thousand dollars awarded by a governmental body, as defined by section two of chapter thirty B, in accordance with the provisions of section five of said chapter thirty B; and (5) to any contract solely for the purchase of material awarded by a governmental body, as defined by section 2 of chapter 30B, in accordance with section 5 of said chapter 30B.

(e)The word "material" as used in this section shall mean and include any article, assembly, system, or any component part thereof.

CONSTRUCTION CONTRACTS; EQUITABLE ADJUSTMENT IN CONTRACT PRICE FOR DIFFERING OR LATENT PHYSICAL CONDITIONS – (MGL, C. 30, S 39N)

"Every contract subject to section forty-four A of chapter one hundred and forty-nine or subject to section thirty-nine M of chapter thirty shall contain the following paragraph in its entirety and an awarding authority may adopt reasonable rules or regulations in conformity with that paragraph concerning the filing, investigation and settlement of such claims:

If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of me work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."

CONTRACTS FOR CONSTRUCTION AND MATERIALS; SUSPENSION, DELAY OR INTERRUPTION DUE TO ORDER OF AWARDING AUTHORITY; ADJUSTMENT IN CONTRACT PRICE; WRITTEN CLAIM (MGL, Chapter 30: Section 39O)

Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety and, in the event a suspension, delay, interruption or failure to act of the awarding authority increases the cost of performance to any subcontractor, that subcontractor shall have the same rights against the general contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the general contractor against the awarding authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the general contractor or the subcontractor may have against each other.

(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing, as soon as practicable after the end of the suspension, delay, interruption of failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act of failure to act involved in the claim.

CONTRACTS FOR CONSTRUCTION AND MATERIALS; AWARDING AUTHORITY'S DECISIONS ON INTERPRETATION OF SPECIFICATIONS, ETC.; TIME LIMIT; NOTICE – (MGL, C 30, S 39P)

Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made.

DEFINITIONS; CONTRACT PROVISIONS; MANAGEMENT AND FINANCIAL STATEMENTS; ENFORCEMENT - (MGL, C. 30, S 39R)

(a) The words defined herein shall have the meaning stated below whenever they appear in this section:

(1) "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.

(2) "Contract" means any contract awarded or executed pursuant to sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.

(3) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

(4) "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

(5) "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

(6) "Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as

a part thereof a signed statement by a responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.

(7) "Management", when used herein, means the chief executive officers, partners, principals, or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.

(8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

(b) Subsection (a)(2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections thirty-eight O, inclusive, of chapter 7, or eleven C of chapter twenty-five A, and pursuant to section thirty-nine M of chapter thirty or to section forty-four A through H, inclusive, of chapter one hundred and forty-nine, shall provide that:

(1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which is reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and

(2) until the expiration of six years after final payment, the office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the contractor or of his subcontractors that directly pertain to, and involve transactions relating to, the contractor or his subcontractors, and

(3) if the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his description the date of the change and reasons therefor, and shall accompany said description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and

(4) if the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and

(5) if the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

(c) Every contractor awarded a contract shall file with the awarding authority a statement of management as to whether the system of internal accounting controls of the contractor and its subsidiaries reasonably assures that:

(1) transactions are executed in accordance with management's general and specific authorization;

(2) transactions are recorded as necessary:

(i) to permit preparation of financial statements in conformity with generally accepted accounting principles, and

(ii) to maintain accountability for assets;

(3) access to assets is permitted only in accordance with management's general or specific authorization; and

(4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

Every contractor awarded a contract shall also file with the awarding authority a statement prepared and signed by an independent certified public accountant, stating that he has examined the statement of management on internal accounting controls, and expressing an opinion as to:

(1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and

(2) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

(d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the commissioner of capital asset management and maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the awarding authority upon request.

(e) The office of inspector general, the commissioner of capital asset management and maintenance and any other awarding authority shall enforce the provisions of this section. The commissioner of capital asset management and maintenance may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.

(f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b).

PUBLIC WORKS; PREFERENCE TO VETERANS AND CITIZENS; WAGES - (MGL, C. 149, S 26)

In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works by the commonwealth, or by a county, town or authority or district, or by persons contracting or subcontracting for such works, preference shall first be given to citizens of the commonwealth who have been residents of the commonwealth for at least six months at the commencement of their employment who are male veterans as defined in clause Forty-third of section seven of chapter four, and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the commonwealth generally who have been residents of the commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States, and every contract for such work shall contain a provision to this effect. Each county, town or district in the construction of public works, or persons contracting or subcontracting for such works, shall give preference to veterans and citizens who are residents of such county, town, authority or district. The rate per hour of the wages paid to said mechanics and apprentices,

teamsters, chauffeurs and laborers in the construction of public works shall not be less than the rate or rates of wages to be determined by the commissioner as hereinafter provided; provided, that the wages paid to laborers employed on said works shall not be less than those paid to laborers in the municipal service of the town or towns where said works are being constructed; provided, further, that where the same public work is to be constructed in two or more towns, the wages paid to laborers shall not be less than those paid to laborers in the municipal service of the town paying the highest rate; provided, further, that if, in any of the towns where the works are to be constructed, a wage rate or wage rates have been established in certain trades and occupations by collective agreements or understandings in the private construction industry between organized labor and employers, the rate or rates to be paid on said works shall not be less than the rates so established; provided further, that in towns where no such rate or rates have been so established, the wages paid to mechanics and apprentices, teamster, chauffeurs and laborers on public works, shall not be less than the wages paid to the employees in the same trades and occupations by private employers engaged in the construction industry. This section shall also apply to regular employees of the commonwealth or of a county, town, authority or district, when such employees are employed in the construction, addition to or alteration of public buildings for which special appropriation of more than One Thousand Dollars are provided. Payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.

Permanent and temporary laborers employed by the state department of highways and by the metropolitan district commission shall receive such salary or compensation as may be fixed under and in accordance with sections forty-five to fifty inclusive of chapter thirty.

PUBLIC CONTRACTS; STIPULATION AS TO HOURS AND DAYS OF WORK; VOID CONTRACTS - (MGL, C. 149, S 34)

Every contract, except for the purchase of material or supplies, involving the employment of laborers, workmen, mechanics, foremen or inspectors, to which the commonwealth or any county or town, subject to section thirty, is a party, shall contain a stipulation that no laborer, workman, mechanic, foreman or inspector working within the commonwealth, in the employ of the contractor, subcontractor or other person doing or contracting to do the whole or apart of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in case of emergency, or, in case any town subject to section thirty-one is a party to such a contract, more than eight hours in any one day, except as aforesaid, provided, that in contracts entered into by the department of highways for the construction or reconstruction of highways there may be inserted in said stipulation a provision that said department, or any contractor or subcontractor for said department, may employ laborers, workmen, mechanics, foremen and inspectors for more than eight hours in any one day in such construction or reconstruction when, in the opinion of the commissioner of labor and industries, public necessity so requires. Every such contract not containing the aforesaid stipulation shall be null and void.

EXCAVATIONS; NOTICE – (MGL, C.82, S.40A)

No excavator installing a new facility or an addition to an existing facility or the relay or repair of an existing facility shall, except in an emergency, make an excavation, in any public or private way, any company right-of-way or easement or any public or privately owned land or way, unless at least 72 hours, exclusive of Saturdays, Sundays, and legal holidays but not more than 30 days before the proposed excavation is to be made, such excavator has pre-marked not more than 500 feet of the proposed excavation and given an initial notice to the system. Such initial notice shall set forth a description of the excavation location in the manner as herein defined. In addition, such initial notice shall indicate whether any such excavation will involve blasting and, if so, the date and the location at which such blasting is to occur.

The notice requirements shall be waived in an emergency as defined herein; provided, however, that before such excavation begins or during a life threatening emergency, notification shall be given to the system and the initial point of boring or excavation shall be pre-marked. The excavator shall ensure that the underground facilities of the utilities in the area of such excavation shall not be damaged or jeopardized.

In no event shall any excavation by blasting take place unless notice thereof, either in the initial notice or a subsequent notice accurately specifying the date and location of such blasting shall have been given and received at least 72 hours in advance, except in the case of an unanticipated obstruction requiring blasting when such notice shall be not less than four hours prior to such blasting. If any such notice cannot be given as aforesaid because of an emergency requiring blasting, it shall be given as soon as may be practicable but before any explosives are discharged.

DESIGNATION OF LOCATION OF UNDERGROUND FACILITIES – (MGL C.82, S.40B)

Within 72 hours, exclusive of Saturdays, Sundays and legal holidays, from the time said initial notice is received by the system or at such time as said company and the excavator agree, such company shall respond to the initial notice or subsequent notice by designating the location of the underground facilities within 15 feet in any direction of the pre-marking so that the existing facilities are to be found within a safety zone. Such safety zone shall be so designated by the use of standard color-coded markings. The providing of such designation by the company shall constitute prima facie evidence of an exercise of reasonable precaution by the company as required by this section; provided however, that in the event that the excavator has given notice as aforesaid at a location at which because of the length of excavation the company cannot reasonably designate the entire location of its facilities within such 72 hour period, then such excavator shall identify for the company that portion of the excavation which is to be first made and the company shall designate the location of its facilities in such portion within 72 hours and shall designate the location of its facilities in the remaining portion of the location within a reasonable time thereafter. When an emergency notification has been given to the system, the company shall make every attempt to designate its facilities as promptly as possible.

EXCAVATOR'S RESPONSIBILITY TO MAINTAIN DESIGNATION MARKINGS; DAMAGE CAUSED BY EXCAVATOR – (MGL C.82 S.40C)

After a company has designated the location of its facilities at the location in accordance with section 40 B, the excavator shall be responsible for maintaining the designation markings at such locations, unless such excavator requests remarking at the location due to the obliteration, destruction or other removal of such markings. The company shall then remark such location within 24 hours following receipt of such request.

When excavating in close proximity to the underground facilities of any company when such facilities are to be exposed, non-mechanical means shall be employed, as necessary, to avoid damage in locating such facility and any further excavation shall be performed employing reasonable precautions to avoid damage to any underground facilities including, but not limited to, any substantial weakening of structural or lateral support of such facilities, penetration or destruction of any pipe, main, wire or conduit or the protective coating thereof, or damage to any pipe, main, wire or conduit.

If damage to such pipe, main, wire or conduit or its protective coating occurs, the company shall be notified immediately by the excavator responsible for causing such damage.

The making of an excavation without providing the notice required by section 40A with respect to any proposed excavation which results in any damage to a pipe, main, wire or conduit, or its protective coating, shall be prima facie evidence in any legal or administrative proceeding that such damage was caused by

the negligence of such person.

LOCAL LAWS REQUIRING EXCAVATION PERMITS; PUBLIC WAYS – (MGL C.82 S.40D)

Nothing in this section shall effect or impair local ordinances or by-laws requiring a permit to be obtained before excavation in a public way or on private property; but notwithstanding any general or special law, ordinance or by-law to the contrary, to the extent that any permit issued under the provisions of the state building code or state fire code requires excavation by an excavator on a public way or on private property, the permit shall not be valid unless the excavator notifies the system as required pursuant to sections 40 and 40A, before the commencement of the excavation, and has complied wit the permitting requirements of chapter 82A.

VIOLATIONS OF SECS. 40A-40E; PUNISHMENT (MGL C.82 S.40E)

Any person or company found by the department of telecommunications and energy, after a hearing, to have violated any provision of sections 40A to 40E, inclusive, shall be fined $500 for the first offense and not less than $1,000 nor more than $5,000 for any subsequent offence within 12 consecutive months as set forth by the rules of said department; provided, however, that nothing herein shall be construed to require forfeiture of any penal sum by a state or local government body for violation of section 40A or 40C; and provided, further, that nothing herein shall be construed to require the forfeiture of any penal sum by a residential property owner for the failure to Premark for an excavation on such person's residential property.

MINIMUM WAGE RATES

In compliance with Massachusetts Laws, Chapter 149, Sections 26 to 27D inclusive, job classifications and determinations of the rate of wages applying thereto have been established by the Executive Office of Labor of the Commonwealth of Massachusetts and are included below.

END OF DOCUMENT

CHANGE ORDER FORM

Date: _____

Change Order Number: _____

Contract Number: _____

Project: _____

Engineer: _____

Owner: **City of Amesbury, Massachusetts**

Contractor: _____

Contract Date: _____

To: _____
(Contractor)

You are hereby authorized and directed to make the changes noted below in the subject Contract.

Approved By: _____
(Owner)

_____

_____

_____

_____

_____
(Date)

Description and Reason for Change:
These changes result in the following adjustment of Contract Price and Contract Time:

Original Contract Price: $ _____

Contract Price prior to this Change Order: $ _____

The Contract Price due to this Change Order will be
(Increased) (Decreased) by: $ _____

The New Contract Price including this Change Order: $ _____

This Change Order (Increases) (Decreases) the Contract Time by:
_____ Calendar Days and/or _____ Working Days

The revised Contract Completion Date is: _____

Other Contracts affected (if any): _____

Reviewed By:

_____
(Signature)

_____
(Date)

Accepted By: _____
(Contractor)

_____
(Signature)

_____
(Date)

Certification of Appropriation under M.G.L. c.44, s.31c: Adequate funding in an amount sufficient to cover the total cost of this change order is available.

By: _____ _____
Certification Officer Date

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner's Project No. _____ Engineer's Project No._____

Project: _____**, Amesbury Massachusetts**

Contractor _____

Contract for _____ Contract Date _____

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

To _____
Owner

And To _____
Contractor

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

_____
Date of Substantial Completion

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of Contractor to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by Contractor within _____ days of the above date of Substantial Completion.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as follows:

Responsibilities:

Owner: _____

_____

_____

Contractor: _____

_____

_____

The following documents are attached to and made a part of this Certificate:

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Executed by Engineer on _____, 20____

_____
Engineer

By _____

Contractor accepts this Certificate of Substantial Completion on _____, 20___

_____
Contractor

By _____

Owner accepts this Certificate of Substantial Completion on _____, 20___

_____ _____
Owner

_____

_____ By _____

WAIVER OF LIENS

Contract No.: _____ **Agreement Date: _____**

Owner: **City of Amesbury, Massachusetts**

Project Name: _____

Completion Date per Agreement and Change Orders: _____

The undersigned contractor hereby swears under penalty of perjury that (1) all previous progress payments received from the Owner on account of work performed under the Contract referred to above have been applied by the undersigned to discharge, in full, all obligations of the undersigned incurred in connection with work covered by prior Estimates for Partial Payment under said contract, being Estimates Number 1 through _____ inclusive; and (2) all labor, materials and equipment incorporated in said Project or otherwise listed in or covered by these Estimates for Partial Payment are free and clear of all liens claims, security interests and encumbrances, except those listed below by obligee, nature and amount of obligation and covered by appropriate bond or bonds, as listed beside each obligation and attached to and made a part of this certification.

Obligation	Bond

_____ _____
Date Contractor

_____
Signed by Officer of Corporation

_____
Title

COUNTY OF _____

STATE OF _____

Before me on this _____ day of _____, 20 ___ personally appeared _____ known to me, who being duly sworn, did depose and save that he is the _____ (Officer) of the Contractor above mentioned; that he executed the above statement on behalf of said Contractor and that all of the statements contained therein are true, correct and complete.

_____
NOTARY PUBLIC

CERTIFICATE OF FINAL PAYMENT AND COMPLETION OF WORK

Contract No.: _____ Agreement Date: _____

Owner: **City of Amesbury, Massachusetts**

Project Name**:** _____

Completion Date per Agreement and Change Orders: _____

FINAL CERTIFICATION OF CONTRACTOR

Name: _____

Address: _____

_____

agrees to accept $ _____as full and final payment for all work completed under this Contract dated _____ with the City of Amesbury, Massachusetts (Owner) for

_____ **(Project)**

I certify that all construction has been carried out in substantial compliance with the Contract Documents, and that all labor, equipment, materials and Subcontractors have been or will be paid in accordance with the requirements of the General Laws of the Commonwealth of Massachusetts.

_____ _____
Date Contractor

_____
Signed by Officer of Corporation

_____
Title

DIVISION 1

GENERAL REQUIREMENTS

SUMMARY OF WORK

PART 1 - GENERAL

1.01 PURPOSE

The purpose of this bid is to provide all labor, materials, equipment, and to perform all the work for the construction of new coordinated traffic signals at two locations along 1,550 feet on Pond View Avenue (Route 150) at its intersection with the I-495 southbound ramps and its intersection with South Hunt Road and the I-495 northbound ramps, in Amesbury, MA as indicated by the Department of Public Works and as specified in the Contract Documents.

1.02 SCOPE

The Scope of work under this contract shall include but is not limited to the following items and all incidental work as shown on the attached Contract Documents.

A. All work under this contract shall be done in conformance with the *Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges* 2020 Edition, the *2017 Construction Standard Details,* the *1990 Standard Drawings for Signs and Supports*; the *1996 Construction and Traffic Standard Details* (as relates to the Pavement Markings details only); *The 2015 Overhead Signal Structure and Foundation Standard Drawings*, the *2009 Manual on Uniform Traffic Control Devices (MUTCD)* with *Massachusetts Amendments* and the *Standard Municipal Traffic Code*; the *1968 Standard Drawings for Traffic Signals and Highway Lighting*; the latest edition of *American Standard for Nursery Stock*; the Plans and these Special Provisions.

Any provisions presented in the General Conditions, Supplementary Conditions, or Special Conditions shall supersede the conditions presented in the Standard Specifications.

B. The Contractor is responsible for identifying and locating all underground and above ground utilities and service lines prior to any below or above ground site alterations. The Contractor is responsible for notifying concerned utilities, at least 72 hours prior to excavation in the proximity of telephone, gas and electric utilities, by calling Dig Safe at 1-888-344-7233.

C. The Contractor is responsible for all mobilization and site preparation required for construction. The Contractor is responsible for any incidentals that are required for delivering equipment, labor or materials to the site. The unit bid price for Mobilization (Item 748.) shall not exceed 3% of the contract bid total, exclusive of this item. Failure to observe this requirement could result in rejection of the bid.

D. The Contractor is responsible for all earthwork including clearing and grubbing, excavation, grading, and backfilling as indicated on the Contract Documents, and specified herein. Earthwork activities shall only occur within the Limit of Work provided in the Contract Documents.

E. The Contractor is responsible for the off-site disposal of all material generated during clearing and grubbing activities, excavations and other construction activities. All materials shall be disposed of at an approved site.

F. Any ledge encountered during excavation that will interfere with the placement of specified devices or obtaining finished grades as specified on the Documents will be brought to the attention of the Engineer. Any rock excavation will be performed in accordance with respective contract pay item numbers 120.1, 121., & 144.

G. The Contractor shall be responsible for furnishing and installing all labor, equipment, and materials necessary to construct new coordinated traffic signals at two locations along 1,550 feet on Pond View Avenue (Route 150) at its intersection with the I-495 southbound ramps and its intersection with South Hunt Road and the I-495 northbound ramps. The I-495 northbound ramps will be reconstructed to align with South Hunt Road. Pond View Avenue will be widened to provide a 5-foot southbound bicycle lane, a 10-foot shared-use path with a 3-foot buffer (separated by guardrail) along the east side, exclusive left-turn lanes at both ramp intersections, and an exclusive right-turn lane onto South Hunt Road. South Hunt Road will be widened to provide 5-foot bike lanes, a 5.5-foot sidewalk on the south side, and an exclusive left-turn lane on the eastbound approach. The proposed work includes vertical granite curb and edging, cement concrete sidewalk, HMA shared-use path, guardrail, pavement resurfacing, full depth pavement, box widening, traffic signal construction, drainage modifications, stormwater BMPs, signs and pavement markings. All work shall be constructed as specified and as shown on the project plans prepared by The Engineering Corp. (TEC) 146 Dascomb Road, Andover, MA 01810.

H. The project will require a State Highway Access Permit, a copy of which is part of the bid documents.

I. The Contractor is responsible for furnishing and installing erosion control compost sock; furnishing and installing temporary site barriers and traffic controls; restoring all grass and landscape areas disturbed through the project; and all other tasks and costs incidental thereto unless otherwise specified. Connection and installation of all drainage structures shall be done in accordance with the manufacturer's instructions, and the specifications and documents contained herein.

J. The Contractor shall provide and maintain erosion control measures as indicated in the documents and as specified herein at all locations prior to and during all construction activities. Contractor shall comply with all the requirements of the Order of Conditions issued by the Amesbury Conservation Commission, a copy of which is part of the bid documents.

K. The Contractor is responsible for dewatering the project areas during construction activities and shall furnish all necessary equipment including filter socks, pumps, piping, sand bags and sedimentation controls to conduct dewatering activities.

L. The Contractor is responsible for returning the construction area and surrounding area to its pre-construction condition.

M. The Contractor shall provide as-built documents of the construction site.

N. The Contractor is to perform the work of this contract in accordance with applicable State and Federal laws and regulations. In the event the Owner is required to pay any fines, administrative penalties or damages to anyone, including governmental agencies, due to the Contractor's failure to perform in accordance with this contract and/or regulations, the Contractor will indemnify and hold harmless the Owner and reimburse Owner for all such payments plus reasonable legal fees and expenses incurred.

O. The Contractor is hereby notified that they are ultimately responsible for constructing all project elements in strict compliance with the current AAB/ADA rules, regulations and standards.

All construction elements in this project associated with sidewalks, walkways, wheelchair ramps and curb cuts are controlled by 521CMR - Rules and Regulations of the Architectural Access Board (AAB).

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope nor for dimensions less than the minimum dimensions. Contractors shall establish grade elevations at all wheel chair ramp locations and shall set transition lengths according to the appropriate table in the Construction Standards (or to the details shown on the plans). All wheelchair ramp joints and transition sections which define grade changes shall be formed, staked and checked prior to placing cement concrete. All grade changes are to be made at joints.

P. All labor, materials, tools, equipment, and incidentals required to complete the work shall be provided by the Contractor.

Q. The Contractor shall obtain the services of a qualified material testing company to provide in-situ compaction and other material testing as ordered by the Resident Engineer. No separate payment shall be made, and all costs associated with material testing shall be considered incidental to various contract items.

1.03 SITE VISIT

A. Before submitting a Bid, the Contractor shall visit the site, examine existing conditions and become thoroughly acquainted with the effort required to perform the Work.

B. The Contractor shall study the Contract Documents and compare the same with the information gathered during examination of the site, as no extra compensation will be authorized for extra Work caused by unfamiliarity with the site and/or Contract Documents or the conditions peculiar to this Project.

1.04 PROJECT SCHEDULE

The work of this project may start June 1, 2020.

The District Highway Director (DHD) and City of Amesbury may authorize work to continue during these specified time periods if it is determined that the work will not negatively impact the traveling public.

Below are the holiday work restrictions for the calendar year 2020.

New Years Day (Federal Holiday)
Wednesday, January 1, 2020:
No work on major arterial roadways from 5:00 AM on Tuesday, December 31, 2019 until the normal start of business on Monday, January 6, 2020. No work on local roadways on the holiday without permission by the DHD and the local police chief.

Martin Luther King's Birthday (Federal Holiday)
Monday, January 20, 2020:
No work restrictions due to traffic concerns however work on local roadways requires permission by the DHD and local police chief.

President's Day (Federal Holiday)
Monday, February 17, 2020:
No work restrictions due to traffic concerns however work on local roadways requires permission by the DHD and local police chief.

Patriot's Day (State Holiday)
Monday, April 20, 2020:
Work restrictions will be in place for Districts 3, 4 and 6 along the entire Boston Marathon route and any other locations that the DHD in those districts determine are warranted so as to not to impact the marathon. All other districts work restrictions will be as per DHD.

Mother’s Day
Sunday, May 10, 2020:
No work restrictions due to traffic concerns however work on local roadways requires permission by the DHD and local police chief.

Memorial Day (Federal Holiday)
Monday, May 25, 2020:
No work on major arterial roadways from 5:00 AM on Friday, May 22, 2020 until the normal start of business on Tuesday, May 26, 2020

Independence Day (Federal Holiday)
Saturday, July 4, 2020:
No work on major arterial roadways from 5:00 AM on Friday, July 3, 2020 until the normal start of business on Monday, July 6, 2020.

Labor Day (Federal Holiday)
Monday, September 7, 2020:
No work on major arterial roadways from 5:00 AM on Friday, September 4, 2020 until the normal start of business on Tuesday, September 8, 2020.

Columbus Day (Federal Holiday)
Monday, October 12, 2020:
No work on major arterials from 5:00 AM on Friday, October 9, 2020 until the normal start of business on Tuesday, October 13, 2020. DHD may allow work in those areas on a case by case basis and where work is behind barrier and will not impact traffic.

Veterans' Day (Federal Holiday)
Wednesday, November 11, 2020:
No work restrictions due to traffic concerns.

Thanksgiving Day (Federal Holiday)
Thursday, November 26, 2020:
No work on major arterials from 5:00 AM on Wednesday, November 25, 2020 until the normal start of business on the Monday, November 30, 2020.

Christmas Day (Federal Holiday)
Friday, December 25, 2020:
No work on major arterial roadways from 5:00 AM on Thursday, December 24, 2020 until the normal start of business on Monday, December 28, 2020.

1.05 UTILITY CONTACTS

Amesbury Department of Public Works 39 South Hunt Road Amesbury, MA 01913	Robert Desmarais (978) 388-8116
National Grid (Electric) 40 Sylvan Road Waltham, MA 02451	Daniel Milligan (781) 907-1908
National Grid (Gas) 40 Sylvan Road Waltham, MA 02451	Melissa Owens (781) 907-2845
Verizon (Telephone) 385 Myles Standish Blvd. Taunton, MA 02780	Joshua Miller (978) 323-0287
Comcast (Cable) 5 Omni Way Chelmsford, MA 01824	Bill Bowlan Bill_Bowlan@comcast.com
First Light (Fiber Optic) 359 Corporate Drive Portsmouth, NH 03801	Paulie Polacke (781) 526-3027

Amesbury Fire Department (Fire Alarm)
9 School Street
Amesbury, MA 01913

Deputy Chief James Nolan
(978) 388-8185

1.06 Price Adjustments

The contractor shall be aware that this project is subject to price adjustments for Hot Mix Asphalt (HMA), Diesel Fuel, and Gasoline in accordance with MassDOT Standard Operating Procedure. See Documents 00811 and 00812 contained within the project manual.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

CONTROL OF WORK AND MATERIALS

PART 1 – GENERAL

1.01 SCOPE OF WORK

Work of this Section includes control of work and materials during the Project.

1.02 HAULING, HANDLING AND STORAGE OF MATERIALS

The Contractor shall, at their own expense, handle and haul all materials furnished by them or generated by the removal of existing materials. The Contractor shall provide suitable and adequate storage for equipment and materials furnished by them that are liable to injury and shall be responsible for any loss of or damage to any equipment or materials by theft, breakage, or otherwise. The Contractor shall be responsible for all damages to the work under construction during its progress and until final completion and acceptance even though partial payments have been made under the Contract.

1.04 OPEN EXCAVATIONS

A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe means for completely covering all open excavations and for accommodating travel when work is not in progress. The length of open trench will be controlled by the particular surrounding conditions but shall always be confined to the limits prescribed by the Engineer.

B. Where prescribed by the Engineer, excavations shall be completely closed at the end of each workday. Backfilling or use of steel plates of adequate strength to carry traffic shall be used.

C. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, then special construction procedures shall be taken, such as prohibiting stockpiling excavated material in the roadway.

1.05 REJECTED MATERIALS AND DEFECTIVE WORK

A. Materials furnished by the Contractor and rejected by the Engineer as unsuitable or not in conformity with the specifications shall forthwith be removed from the work by the Contractor, and shall not be made use of elsewhere in the work.

B. Any errors, defects or omissions in the execution of the work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Engineer.

C. The Contractor shall reimburse the Owner for any expense, losses or damages incurred in consequence of any defect, error, omission or act of the Contractor or his employees, as determined by the Engineer, occurring previous to the final payment.

1.06 SANITARY REGULATIONS

Sanitary conveniences for the use of all persons employed on the work, properly screened from public observation, shall be provided in sufficient numbers, in such manner, and at such locations as may be approved. The contents shall be removed and disposed of in a satisfactory manner as the occasion requires. The Contractor shall rigorously prohibit the committance of nuisances within, on or about the work. Any employees found violating these provisions shall be discharged and not again employed on the work without the written consent of the Engineer. The sanitary conveniences specified above shall be the obligation and responsibility of the Contractor.

1.07 SAFETY AND HEALTH REGULATIONS

This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Massachusetts Department of Labor and Industries, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations (Industrial Bulletin No. 12)." Contractors shall be familiar with the requirements of these regulations.

1.08 MAINTENANCE OF DRAINAGE FACILITIES

All existing drainage facilities including, but not limited to; brooks, streams, canals, channels, ditches, culverts, catch basins and drainage piping shall be adequately safeguarded so as not to impede drainage or to cause siltation of downstream areas in any manner whatsoever. If the Contractor damages or impairs through circumstances beyond his control, any of the aforesaid drainage facilities, he shall repair the same within the same day.

1.09 SITE INVESTIGATION

The Contractor acknowledges that he has satisfied himself as to the conditions existing at the site of the work, the type of equipment required to perform this work, the quality and quantity of the materials furnished insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the Documents and specifications made a part of this contract. Any failure of the Contractor to acquaint himself with available information will not relieve him from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusion or interpretation made by the Contractor on the basis of the information made available by the Owner.

1.10 CUTTING, FITTING AND PATCHING

A. The Contractor shall do all cutting, fitting, or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other Contractors, as shown upon or reasonably implied by

the Documents and the specifications for the completed structure, including all existing work.

B. The Contractor shall not endanger any work by cutting, digging, or otherwise, and shall not cut or alter the work of any other Contractor, save with the consent of the Engineer.

C. All holes or openings required to be made in new or existing work, particularly at pipe, conduit, or other penetrations not covered by escutcheons or plates, shall be neatly patched. All such holes shall be made completely watertight as approved by the Engineer.

D. Workmanship and materials of patching and repair work shall match the adjacent similar work, and shall conform to the applicable sections of the specification. Patches and joints with existing work shall provide, as applicable in each case, visual, structural, and waterproofing continuity.

1.11 WEATHER PROTECTION

In conformance with Section 44C of Chapter 149 of the General Laws of Massachusetts, the General Contractor shall install weather protection and shall furnish adequate heat in the area so protected during the months of November through March.

1.12 ELECTRICAL SERVICES

A. The Contractor shall make all necessary applications and arrangements and pay for all fees and charges for electrical energy for power and light necessary for the proper completion of this contract during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, connections, and meters.

B. There shall be sufficient electric lighting so that all work may be done in a workmanlike manner where there is not sufficient daylight.

1.13 ACCEPTANCE OF THE WORK

Until the final acceptance of the Work, it shall be under the care and charge of the Contractor and every precaution shall be taken necessary against injury or damage to the Work by the action of the elements or any other causes. The Contractor shall rebuild, repair, restore and make good, at their own expense, all injuries or damages to any portion of the Work before its completion and acceptance.

1.14 REGULATORY COMPLIANCE

A. The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the Work as drawn and specified. If the contractor performs any Work contrary to such laws, ordinances, rules and regulations, the Contractor shall bear all cost arising therefrom.

B. The Contractor shall note that this project is subject to conditions specified under the Massachusetts Department of Environmental Protection, Bureau of Resource

Protection, Order of Conditions for Wetlands Permit File #098-0674, all regulations covered under the Massauchusetts Wetland Protection Act and all regulations covered under the Army Corps of Engineers Programmatic General Permit.

C. The Contractor shall secure and pay for all other necessary permits for this Work.

1.15 PERMANENT FEATURES PROTECTION

A. The Contractor shall maintain and protect existing pipes, poles, wires, fences, curbing, property-line markers, and other structures which, in the opinion of the Engineer, must be preserved in place without being temporarily or permanently relocated. In case of damage, the Contractor shall notify the Engineer so that the proper steps may be taken to repair any and all damage done. When the Engineer does not wish to make the repairs itself, all damage shall be repaired by the Contractor; or, if not promptly done by him, the Engineer may have the repairs made at the expense of the Contractor.

B. During execution of any and all items of the Work, extreme care shall be exercised by the Contractor to preclude any interferences/disturbances of existing structures, roadways, above-grade and below-grade utilities, or other features not associated with the Work. These interferences/disturbances shall include but not be limited to damage, movement, or collapse of the structures, roadways, and utilities. The Contractor shall assume the liability for any and all said damage, movement, settlement or collapse and promptly repair same at no cost to the Owner.

1.16 WORK SCHEDULE

A. Work may be performed at the site on Mondays through Fridays between 7:00 am and 5:00 pm unless otherwise directed by the Owner/Engineer. Construction equipment shall be operated in accordance with local ordinances.

B. Work may be permitted on weekends and legal holidays if the Contractor obtains written approval from the Engineer. The request shall be made 72 hours in advance of the work.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 PAYMENT

A. All Work shall be completed in compliance with the Contract Documents and shall be in accordance with the prices bid.

B. Unless otherwise noted, all excavation, removal of excavated material, and furnishing and placement of fill materials shall be included under any item requiring excavation. Unless otherwise noted, each item shall be furnished and installed in accordance with the technical section whether a specific application payment item exists or not.

C. As to all measurement and payment items described herein, the Contractor is responsible for verifying the types and quality of equipment, fixtures, steel, hardware, pipe, excavate, and any other items required to complete the work under this contract.

1.02 LUMP SUM ITEMS

A. Lump sum payment shall be full compensation for: providing all submissions required prior to the start of work; insurance, permits, licenses, and approvals required for the performance of the work; contract close out procedures including the submission of required documentation, including any transport/disposal fees and taxes; and all other tasks and costs incidental to the project unless otherwise specified.

B. Payment shall also fully compensate the Contractor for any other work that is not specified or shown, but that is necessary to complete the Work.

C. Payment for Work performed shall be in accordance with the breakdown of the lump sum price shown in the Bid Schedule.

D. Should any equipment or material be eliminated under a lump sum item then a Change Order shall be issued.

1.03 UNIT PRICE ITEMS

A. Payments for Work performed shall be in accordance with the unit prices bid on the Bid Form and shall be full compensation for all labor, materials, equipment, taxes and fees, testing, onsite handling and transport of materials covered under the unit price bid item.

B. Both the unit price categories and quantities contained in the Bid Form represent estimates. The Owner maintains the option of including: none, a portion, all or exceeding the estimated quantities listed under this contract. Should the Owner elect not to include any of the unit price categories and/or quantities as a part of

this contract, the Contractor is not entitled to any compensations for loss of revenue or profit. Work shall be performed in accordance with the specifications.

C. Should any unit price items contained in the proposal form be found unnecessary for the proper completion of work contracted, the Owner may eliminate such unit price items from the Contract, and such action shall in no way invalidate the Agreement, and no allowance will be made for items so eliminated in making final payment to the Contractor.

1.04 DESCRIPTION

A. The following subsections describe the measurement of one payment for the work to be done under the items listed in the Bid Proposal.

B. Each price stated in the Bid Proposal constitutes full compensation as herein specified for each item of work completed in accordance with the specifications.

C. The Contractor shall be responsible for any damage incurred due to this work on abutting or adjacent properties, private or public.

PART 2 - MATERIALS

Not Used

PART 3 – BID ITEMS

Not Used

END OF SECTION

ENVIRONMENTAL PROTECTION PROCEDURES

PART 1 – GENERAL

1.01 SCOPE OF WORK:

A. The work covered by this Section consists of furnishing all labor, materials, and equipment and performing all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and as the result of construction operations under this Contract. For the purpose of this Specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic and/or recreational purposes.

B. The control of environmental pollution requires consideration of air, water, and land, and involves management of noise and solid waste, as well as other pollutants.

C. Schedule and conduct all work in a manner that will minimize the erosion of soils in the area of the work. Provide erosion control measures such as diversion channels, sedimentation or filtration systems, berms, staked hay bales, seeding, mulching, or other special surface treatments as are required to prevent silting and muddying of streams, rivers, impoundments, lakes, etc. All control measures shall be in place in an area prior to any construction activity in that area. Specific requirements for erosion and sedimentation controls are specified in Section 01568.

D. These Specifications are intended to ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and its surroundings. These are general guidelines. It is the Contractor's responsibility to determine the specific construction techniques to meet these guidelines.

E. All phases of sedimentation and erosion control shall comply with and be subject to the approval of the Massachusetts Department of Environmental Protection and local Conservation Commission.

F. Schedule and conduct all work in a manner that will minimize the level of noise escaping the site, especially at night and on weekends.

1.02 APPLICABLE REGULATIONS:

A. Comply with all applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement.

1.03 NOTIFICATIONS:

A. The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements shall notify the Contractor in writing, through the Engineer, of any non-compliance with State or local requirements. The Contractor shall, after receipt of such notice from the Engineer or from the regulatory agency through the Engineer, immediately take corrective action. Such notice, when delivered to the Contractor or its authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No

part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.04 IMPLEMENTATION:

A. Prior to commencement of the work, meet with the Engineer to develop mutual understandings relative to compliance with this provision and administration of the environmental pollution control program.

B. Remove temporary environmental control features, when approved by the Engineer, and incorporate permanent control features into the project at the earliest practicable time.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 EROSION CONTROL:

A. Provide positive means of erosion control such as shallow ditches around construction to carry off surface water. Control measures such as siltation basins, hay check dams, mulching, jute netting, and other equivalent techniques shall be used as appropriate. Offsite surface water shall be diverted around the site to a downstream channel ahead of siltation barriers. Flow of surface water into excavated areas shall be prevented. Ditches around construction areas shall also be used to carry away water resulting from dewatering of excavated areas. At the completion of work, ditches shall be backfilled and the ground surface restored to original condition.

3.02 PROTECTION OF STREAMS, WETLANDS, AND SURFACE WATER:

A. Care shall be taken to prevent or reduce to a minimum any damage to any stream, drainage ditch or storm drain from pollution by debris, sediment, or other material, or from the manipulation of equipment and/or materials in or near such streams. Water that has been used for washing or processing, or that contains oils or sediments that will reduce the quality of the water in the stream, shall not be directly returned to the stream. Such water will be diverted through a settling basin or filter before being directed into the streams.

B. The Contractor shall not discharge water from dewatering operations directly into any perennial or intermittent stream, channel, wetlands, surface water, or any storm sewer. Water from dewatering operations shall be treated by filtration, settling basins, or other approved method to reduce the amount of sediment contained in the water to allowable levels.

C. All preventative measures shall be taken to avoid spillage of petroleum products and other pollutants. In the event of any spillage, prompt remedial action shall be taken in accordance with a contingency action drawing or plan approved by the Massachusetts Department of Environmental Protection. Contractor shall submit copies of approved contingency drawings or plans to the Engineer.

D. Water being flushed from structures or pipelines after disinfection, with a chlorine residual of 0.2 mg/l or greater, shall be treated with a dechlorination solution, in a method approved by the Engineer, prior to discharge.

3.03 PROTECTION OF LAND RESOURCES:

A. Land resources within the project boundaries and outside the limits of permanent work shall be restored to a condition, after completion of construction, that will appear to be natural and not detract from the appearance of the project. Confine all construction activities to areas shown on the Drawings.

B. Outside of areas requiring earthwork for the construction of the new facilities, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without prior approval. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the Engineer. Where such special emergency use is permitted, first wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied before any rope, cable, or wire is placed. The Contractor shall in any event be responsible for any damage resulting from such use.

C. Where trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment, dumping or other operations, protect such trees by placing boards, planks, or poles around them. Monuments and markers shall be protected similarly before beginning operations near them.

D. Any trees or other landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition. The Engineer will decide what method of restoration shall be used and whether damaged trees shall be treated and healed or removed and disposed of.

E. The locations of the Contractor's storage, and other construction building, required temporarily in the performance of the work, shall be cleared portions of the job site or areas to be cleared and shall require written approval of the Engineer and shall not be within wetlands or floodplains. The preservation of the landscape shall be an imperative consideration in the selection of all sites and in the construction of buildings. Drawings showing storage facilities shall be submitted for approval of the Engineer.

F. Remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess of waste materials, or any other vestiges of construction as directed by the Engineer. It is anticipated that excavation, filling, and plowing of roadways will be required to restore the area to near natural conditions which will permit the growth of vegetation thereon. The disturbed areas shall be prepared and seeded as described in Section 01568, or as approved by the Engineer.

G. All debris and excess material will be disposed of outside wetland or floodplain areas in an environmentally sound manner.

3.04 PROTECTION OF AIR QUALITY:

A. The use of burning at the project site for the disposal of refuse and debris will not be permitted.

B. The Contractor will be required to maintain all excavations, embankments, stockpiles, access roads, plant sites, waste areas, borrow areas, and all other work areas within or without the project boundaries free from dust which could cause the standards for air pollution to be exceeded, and which would cause a hazard or nuisance to others.

C. An approved method of stabilization consisting of sprinkling of water or other similar methods will be permitted to control dust. The use of chlorides may be permitted with approval from the Engineer.

D. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor must have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs, as determined by the Engineer.

3.05 NOISE CONTROL:

A. The Contractor shall make every effort to minimize noises caused by its operations. Equipment shall be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with State and Federal (OSHA) regulations.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 – GENERAL

1.01 DESCRIPTION:

A. This Section specifies the general methods and requirements of submissions applicable to the following work-related submittals.

1. Shop Drawings.

2. Product Data.

3. Samples.

4. Mock Ups.

5. Construction Photographs.

6. Construction or Submittal Schedules.

B. Additional general submission requirements are contained in Paragraph 5 of the General Conditions.

C. Detailed submittal requirements will be specified in the technical specifications section.

1.02 SHOP DRAWINGS, PRODUCT DATA, SAMPLES:

A. Shop Drawings:

1. Shop drawings, as defined in the General Conditions, and as specified in individual work Sections include, but are not necessarily limited to: custom-prepared data such as fabrication and erection/installation (working) drawings of concrete reinforcement, structural details and piping layout, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications as applicable to the work.

2. All shop and working drawings shall be prepared on standard size, 24-in. by 36-in. sheets, except those which are made by changing existing standard shop or working drawings.

3. All shop drawings shall be submitted using the transmittal form furnished by the Engineer.

4. All shop drawings submitted by subcontractors for approval shall be sent directly to the Contractor for checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.

5. The Contractor shall check all subcontractor's shop drawings regarding measurements, size of members, material, and details to satisfy himself that

they conform to the intent of the Drawings and Specifications. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission thereof.

6. All details on shop drawings submitted for approval shall show clearly the relation of the various parts of the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements; such measurements shall be made and noted on the drawings before being submitted for approval.

B. Product Data:

1. Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and printed installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances including certificates of compliance and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications and recommended spare-parts listing, and printed product warranties, as applicable to the Work.

C. Samples:

1. Samples specified in individual Sections, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and units of work to be used by the Engineer or Owner for independent inspection and testing, as applicable to the Work.

1.03 CONTRACTOR'S RESPONSIBILITIES:

A. The Contractor shall review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:

1. Field measurements.

2. Field construction criteria.

3. Catalog numbers and similar data.

4. Conformance with the Specifications.

B. Each shop drawing, sample, and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor: "Certification Statement: by this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements." Shop drawings and product data sheets 11-in. X 17-in. and smaller shall be bound together in an orderly fashion and bear the above Certification Statement on the cover sheet. The cover sheet shall fully describe the packaged data and include a listing of

all items within the package. Provide to the Engineer a copy of each submittal transmittal form for shop drawings, product data and samples at the time of submittal of said drawings, product data and samples to the Engineer.

C. If a shop drawing shows any deviation from the requirements of the Contract Documents, the Contractor shall make specific mention of the deviations in the Transmittal Form furnished by the Engineer and provide a description of the deviations in a letter attached to the submittal.

D. The review and approval of shop drawings, samples or product data by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will not have responsibility therefor.

E. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.

F. Project work, materials, fabrication, and installation shall conform with approved shop drawings, applicable samples, and product data.

1. Manufacturer's printed installation instructions, a part of product data submitted to the Engineer will not be reviewed and are for informational purposes <u>only.</u>

1.04 SUBMISSION REQUIREMENTS:

A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other contractor.

B. All submittals shall be submitted sufficiently in advance of construction requirements to provide no less than ten days, including Saturdays, Sundays and legal holidays for review from the time received at the Engineer's reviewing office. For submittals of major equipment, that require more than ten days to review, due to its sheer complexity and amount of detail and also requiring review by more than one engineering discipline, a letter will be sent by the Project Manager or his/her designee to the Contractor informing him/her of the circumstances and the date it is expected the submittal will be returned to the Contractor.

C. Number of submittals required:

1. Shop Drawings: Unless otherwise stated in the respective Specifications Sections, submit six (6) copies.

2. Product Data: Unless otherwise stated in the respective Specifications submit six (6) copies.

3. Samples: Submit the number stated in the respective Specification Sections.

D. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.

2. The Project title and number.

3. Contractor identification.

4. The names of:

   a. Contractor

   b. Supplier

   c. Manufacturer

5. Identification of the product, with the specification section number, page and paragraph(s).

6. Field dimensions, clearly identified as such.

7. Relation to adjacent or critical features of the Work or materials.

8. Applicable standards, such as ASTM or Federal Specification numbers.

9. Identification of deviations from Contract Documents.

10. Identification of revisions on resubmittals.

11. An 8-in. X 3-in. blank space for Contractor and Engineer stamps.

E. Each shipment of drawings shall be accompanied by a transmittal form furnished by the Engineer giving a list of the drawing numbers and the names mentioned above.

1.05 REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES:

A. The Engineer's review is for general conformance with the design concept and contract drawings. Markings or comments shall not be construed as relieving the Contractor from compliance with the contract plans and specifications or from departures therefrom. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.

B. The review of shop drawings, data, and samples will be general. They shall not be construed:

   1. As permitting any departure from the Contract requirements;

   2. As relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;

   3. As approving departures from details furnished by the Engineer, except as otherwise provided herein.

C. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for

performance, the Engineer may return the reviewed drawings without noting an exception.

D. Two (maximum) copies of shop drawings or product data will be returned to the Contractor via First Class United States Postal Service. Samples will not be returned.

E. Submittals will be returned to the Contractor under one of the action codes indicated and defined on the transmittal form furnished by the Engineer.

F. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing, on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the Engineer, on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor. The Contractor shall make corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the Engineer.

G. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor, and will be considered "Rejected" until resubmitted. The Engineer may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.

H. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer at least seven working days prior to release for manufacture.

I. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.

1.06 DISTRIBUTION:

A. Distribute reproductions of approved shop drawings and copies of approved product data and samples, where required, to the job site file and elsewhere as directed by the Engineer. Number of copies shall be as directed by the Engineer but shall not exceed 6.

1.07 GENERAL PROCEDURES FOR SUBMITTALS:

A. Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections, of the Specifications, so that the installation will not be delayed by processing times including disapproval resubmittal (if required), coordination with other submittals, inspection, testing (off-site and on-site), purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the Work.

1.08 CERTIFICATION FORMS:

A. If specifically specified in other Sections of these Specifications, the Contractor shall submit the applicable certification form for each item required, and in the form attached to this Section, completely filled in and stamped.

1.09 CERTIFICATES OF COMPLIANCE:

A. Certificates of Compliance specified in the specifications shall include and mean certificates, manufacturer's certificates, certifications, certified copies, letters of certification and certificate of materials.

B. The Contractor shall be responsible for providing Certificates of Compliance requested and specified in the technical specifications. Certificates are required for demonstrating proof of compliance with specification requirements and shall be executed in 6 copies unless otherwise specified. Each certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Supplier, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Supplier from furnishing satisfactory material, if after tests are performed on selected samples, the material is found not to meet the specific requirements.

END OF SECTION

CERTIFICATE OF DESIGN

The undersigned hereby certifies that he/she is a Professional Engineer registered in the state of _____ and that he/she has been employed by (Name of Contractor) _____ to design _____ in accordance with Specifications Section for_____ in Amesbury, Massachusetts. The undersigned further certifies that he/she has performed similar designs previously and has performed the design of the _____; that said design is in conformance with all applicable local, state, and federal codes, rules, and regulations and professional practice standards; that his/her signature and Professional Engineer (P.E.) Stamp have been affixed to all calculations and drawings used in, and resulting from, the design; and that the use of that stamp signifies the responsibility of the undersigned for that design.

The undersigned hereby certifies that he/she has Professional Liability Insurance with limits of $1,000,000.00 and a Certificate of Insurance is attached.

The undersigned hereby agrees to make all original design drawings and calculations available to the city of Amesbury or Owner's representative within seven (7) days following written request therefore by the Owner.

_____	_____
P.E. Name	Contractor's Name
_____	_____
Signature	Signature
_____	_____
Title	Title
_____	_____
Address	Address

EROSION CONTROL, SEDIMENTATION AND CONTAINMENT OF CONSTRUCTION MATERIALS

PART 1 - GENERAL

1.01 DESCRIPTION:

A. Provide all work and take all measures necessary to control soil erosion resulting from construction operations, prevent flow of sediment from construction site, and contain construction materials (including excavation and backfill) within protected working area as to prevent damage to any stream, stormwater/drainage system, or wetlands.

1.02 REFERENCE:

A. "Guidelines for Erosion and Sediment Control, Planning and Implementation" and "Processes, Procedures and Methods to Control Pollution Resulting from all Construction Activity", published by the United States Environmental Protection Agency.

B. “Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas”, published by the Massachusetts Department of Environmental Protection.

C. Details of standard preventive methods for soil erosion and sediment control.

D. City of Amesbury Conservation Commission Order of Conditions included as Appendix C to these specifications.

1.03 SUBMITTALS:

A. Two weeks prior to the start of the work, submit to Engineer, for review, a plan with detailed sketches showing the proposed methods to be used for controlling erosion and sediment during construction.

B. Prior to commencing any work that will require dewatering of excavations; the Contractor shall obtain coverage under the EPA NPDES permit program for construction dewatering. The Contractor shall submit a construction site dewatering form to the US EPA Region 1 and the Massachusetts DEP. Copies of the form are attached in Appendix D to these Specifications. No dewatering shall be undertaken until the permit coverage is obtained. All dewatering operations must be conducted in compliance with EPA and DEP requirements.

1.04 QUALITY ASSURANCE:

A. Use acceptable procedures, including use of water diversion structures, diversion ditches, settling basins, and sediment traps.

B. Operations restricted to areas of work indicated on the Drawings and area which must be entered for construction of temporary or permanent facilities.

C. If construction materials are washed away during construction, remove materials from fouled areas.

D. Stabilize diversion outlets by means acceptable to the Engineer.

E. Engineer has authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct immediate permanent or

temporary pollution control measures to prevent contamination of any stream, stormwater/drainage system, or wetlands, including construction of temporary berms, dikes, dams, sediment basins, sediment traps, slope drains, and use of temporary mulches, mats, or other control devices or methods as necessary to control erosion.

PART 2 – PRODUCTS

2.01 BALES:

A. Hay or straw or other suitable material acceptable to the Engineer.

2.02 WOOD STAKES:

A. 2 in. by 2 in. by 3 ft.

2.03 SYNTHETIC FILTER FABRIC:

A. Synthetic filter fabric to be a pervious sheet of propylene, nylon, polyester or ethylene filaments and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Physical Property	Requirements
Filtering Efficiency	75% (min.)
Tensile Strength at 20% (max.) Elongation	Extra Strength - 50 lbs./lin. in. (min.) Standard Strength – 30 lbs./lin. in. (min.)
Flow Rate	0.3 gal./sq. ft./min. (min.)

B. Burlap to be 10 ounce per square yard fabric.

C. Posts for filter fences either 2 x 3 or 2 x 4 inch studs or 0.5 pounds (minimum) per linear foot steel with a minimum length of 5 feet. Steel posts to have projections for fastening wire to them.

D. Stakes for filter fences to be 2" x 2" wood or equivalent metal with a minimum length of 3 feet.

E. Wire fence reinforcement for silt fences using standard strength filter cloth to be a minimum of 42 inches in height, a minimum of 14 gauge and have a maximum mesh spacing of 6 inches. Use where required per manufacturer's instructions.

2.04 SEDIMENTATION BASIN:

A. Sedimentation basins shall be sized to collect silt laden water during dewatering from construction site into an enclosed baffled-basin system. The basin shall be sized to accommodate and effectively remove solids from the maximum volume of dewatering effluent anticipated with a resulting effluent stream free of silt and other suspended solids.

PART 3 – EXECUTION

3.01 GENERAL:

A. Soil and sedimentation control measures installed over the length of the project at all stormwater/drainage system inlets and in areas located within wetland resource areas or within 100 feet of the buffer zone of these areas. Both hay bales and filter fences installed at wetland areas and within 100 feet of buffer zones. Sediment and erosion control measures installed along the work area prior to excavation of trench sections. The location of the proposed control measures should be as directed in the field or as shown on the Drawings.

3.02 INSTALLATION:

A. Bales:

1. Sheet flow applications:

a. Bales placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another.

b. All bales either wire-bound or string-tied. Bales installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales to prevent deterioration of the bindings.

c. The barrier to be entrenched and backfilled. Excavate trench the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. After the bales are staked and chinked, backfill against the barrier with excavated soil. Backfill soil to conform to the ground level on the downhill side and be built up to 4 inches against the uphill side of the barrier. Bales placed 10 feet away from toe of slope.

d. Each bale securely anchored by at least two stakes or rebars driven through the bale. The first stake in each bale driven toward the previously laid bale to force the bales together. Stakes or re-bars driven deep enough into the ground to securely anchor the bales.

e. The gaps between bales to be chinked (filled by wedging) with straw to prevent water from escaping between the bales. Loose straw to be scattered over the area immediately uphill from a straw bale barrier to increase barrier efficiency. In sloping areas where surface flow follows the bale line, perpendicular bale checks installed at appropriate intervals (100 feet maximum).

f. Inspect barriers frequently and repair or replacement made promptly as needed.

g. Bale barriers removed when they have served their usefulness, but not before the upslope areas have been permanently stabilized.

2. Channel Flow Applications:

a. Bales placed in a single row, lengthwise, oriented perpendicular to the contour, with ends of adjacent bales tightly abutting one another.

b. The remaining steps for installing a bale barrier for sheet flow applications apply here, with the following addition:

(1) The barrier extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment laden runoff will flow either through or over the barrier but not around it.

3. Catchbasin Application:

a. Bales shall be placed in a square or rectangular shape around depressed catchbasin inlets. Catchbasins constructed on sloping areas not encircled by bales.

b. The remaining steps for installing a bale barrier for sheet flow applications apply.

4. Maintenance:

a. Inspect barrier after each storm event and repair or replacement made promptly as needed or as directed by the Engineer.

b. Cleanout of accumulated sediment behind the bales if 1/4 of the original height of the bales becomes filled in with sediment.

B. Filter or Silt Fences:

1. Sediment barrier constructed of burlap or standard strength or extra strength synthetic filter fabrics in areas where only sheet or overland flows are expected. In special cases burlap to be used in drainageways as directed by the Engineer.

a. The height of the barrier not to exceed 36 inches. Filter fence located 10 feet away from the toe of slope.

b. When joints are necessary, filter cloth spliced together only at a support post, with a minimum 6-inch overlap, and securely sealed. See manufacturer's recommendations.

c. Posts spaced a maximum of 10 feet apart at the barrier location and driven securely into the ground (minimum of 12 inches). When extra strength fabric is used without the wire support fence, post spacing as manufacturer recommends.

d. Excavate trench approximately 4 inches wide and 4 inches deep along the line of posts and upslope from the barrier in accordance with manufacturer's recommendations.

e. When standard strength filter fabric is used, fasten a wire mesh support fence securely to the upslope side of the posts using heavy duty wire staples at least 1 inch long, tie wires or hog rings. Extend the wire into the trench a minimum of 2 inches and not more than 36 inches above the original ground surface.

f. The standard strength filter fabric to be stapled, wired or tied to the wire fence, and extend 8 inches of the fabric into the trench. Extend the fabric not more than 36 inches above the original ground surface. Do not staple filter fabric to existing trees.

g. Eliminate the wire mesh support fence when extra strength filter fabric or burlap and closer post spacing are used. In such a case, the filter fabric is stapled, wired, or tied directly to the posts with all other provisions of item f. applied.

h. Backfill the trench and the soil compacted over the filter fabric.

i. Remove filter barriers when they have served their useful purpose, but not before the upslope area has been permanently stabilized.

2. Maintenance:

a. Inspect filter barriers immediately after each rainfall and at least daily during prolonged rainfall. Perform any required repairs immediately.

b. Should the fabric decompose or become ineffective prior to the end of the expected usable life and the barrier still be necessary, replace fabric promptly.

c. Remove sediment deposits when they reach approximately one-half the height of the barrier.

d. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required to be dressed to conform to the existing grade, prepared and seeded.

3. Emergency provisions:

a. Effective monitoring implemented to check the sedimentation and erosion controls.

b. Monitoring includes availability during non-working hours.

C. Sedimentation Basin:

1. Install sedimentation basins where necessary or as directed by the Engineer to reduce the amount of suspended solids from effluent discharged by construction operations. Accumulated sediment and silt shall be removed from the basins by the Contractor as needed to ensure efficiency. Removed material shall be legally disposed of in a location determined by the Contractor to be acceptable to the Owner or the Engineer.

D. Additional Requirements:

1. Construct earth berms or diversions to intercept and divert runoff water from critical areas.

2. Discharge silt-laden water from excavations onto filter fabric mat, baled hay or straw sediment traps, or into sedimentation basins to ensure that only sediment-free water is returned to watercourses.

3. Do not place excavated soil material adjacent to watercourse in manner that will cause it to wash away by high water or runoff.

4. Prevent damage to vegetation by excessive watering or silt accumulation in the discharge area.

5. Do not dump spoiled material into any streams, wetlands, surface waters, or unspecified locations.

6. Prevent indiscriminate, arbitrary, or capricious operation of equipment in streams, wetlands or surface waters.

7. Do not pump silt-laden water from trenches or excavations into surface waters, streams, stormwater/drainage systems, wetlands, or natural or man-made channels leading thereto.

8. Prevent damage to vegetation adjacent to or outside of construction area limits.

9. Do not dispose of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in streams, stormwater/drainage systems, wetlands, surface waters, or natural or man-made channels leading thereto, or unspecified locations.

10. Do not alter flow line of any stream unless indicated or specified.

END OF SECTION

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SCOPE OF WORK:

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Closeout procedures.

2. Final cleaning.

3. Adjusting.

1.02 RELATED WORK:

A. Warranties and Bonds are included in Section.

1.03 CLOSEOUT PROCEDURES:

A. Submit written certification that the Contract Documents have been reviewed, the work has been inspected, and that the work is complete in accordance with the Contract Documents and ready for the Engineer's inspection.

B. Provide submittals to the Engineer that are required by governing or other authorities.

C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payment, and sum remaining due.

1.04 FINAL CLEANING:

A. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

1. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

END OF SECTION

CLEANING UP

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

A. During its progress, the work and the adjacent areas affected thereby shall be cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.

B. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes structures, work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc., shall, upon completion of the work, be left in a clean and neat condition.

C. On or before the completion of the work, the Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove all temporary buildings and structures built by it; shall remove all temporary works, tools, and machinery or other construction equipment furnished by it; shall remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by it; shall remove all rubbish from any grounds which it has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by its operations in a neat and satisfactory condition.

D. The Contractor shall restore or replace, when and as directed, any public or private property damaged by its work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end, the Contractor shall do as required all necessary highway or driveway, walk, and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration. The restoration of existing property or structures shall be done as promptly as practicable as work progresses and shall not be left until the end of the contract period.

END OF SECTION

DOCUMENT 00811
SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT (HMA) MIXTURES ENGLISH AND METRIC UNITS
Revised: 06/04/2019

This provision applies to all projects using greater than 100 tons (91 megagrams) of hot mix asphalt (HMA) mixtures containing liquid asphalt cement as stipulated in the Notice to Contractors section of the bid documents.

Price Adjustments will be based on the variance in price, for the liquid asphalt component only, between the Base Price and the Period Price. They shall not include transportation or other charges. Price Adjustments will occur on a monthly basis.

Base Price

The Base Price of liquid asphalt on a project as listed in the Notice to Contractors section of the bid documents is a fixed price determined by the Department at the time of the bid using the same method as the determination of the Period Price detailed below. The Base Price shall be used in all bids.

Period Price

The Period Price is the price of liquid asphalt for each monthly period as determined by the Department using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market - New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. The Department will post this Period Price on its website at https://www.mass.gov/service-details/2020-massdot-contract-price-adjustments within two (2) business days following its receipt of the relevant issue of the "Asphalt Weekly Monitor". Poten and Partners has granted the Department the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor. This method of period price determination was formerly called the New Asphalt Period Price Method. Separate website postings using both the New Asphalt Period Price Method and the Old Asphalt Period Price Method were discontinued after June 2013.

Price Adjustment Determination, Calculation and Payment

The Contract Price of the HMA mixture will be paid under the respective item in the Contract. Price Adjustments, as herein provided, either upwards or downwards, will be made after the work has been performed using the monthly period price for the month during which the work was performed.

Price Adjustments will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M3.11.03.

Price Adjustments will be separate payment items. The pay item numbers are 999.401 for a positive price adjustment (a payment) and 999.402 for a negative price adjustment (a deduction). Price Adjustments will be calculated using the following equation:

Price Adjustment = Tons of HMA Placed X Liquid Asphalt Content % X RAP Factor X (Period Price - Base Price)

No Price Payment will be allowed beyond the Completion Date of this Contract, unless there is a Department-approved extension of time.

******** END OF DOCUMENT ********

DOCUMENT 00812
SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE – ENGLISH UNITS
Revised: 06/04/2019

This monthly fuel price adjustment is inserted in this contract because the national and worldwide energy situation has made the future cost of fuel unpredictable. This adjustment will provide for either additional compensation to the Contractor or repayment to the Commonwealth, depending on an increase or decrease in the average price of diesel fuel or gasoline.

This adjustment will be based on fuel usage factors for various items of work developed by the Highway Research Board in Circular 158, dated July 1974. These factors will be multiplied by the quantities of work done in each item during each monthly period and further multiplied by the variance in price from the Base Price to the Period Price.

The Base Price of Diesel Fuel and Gasoline will be the price as indicated in the Department's web site (https://www.mass.gov/service-details/2020-massdot-contract-price-adjustments) for the month in which the contract was bid, which includes State Tax.

The Period Price will be the average of prices charged to the State, including State Tax for the bulk purchases made during each month.

This adjustment will be effected only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No adjustment will be paid for work done beyond the extended completion date of any contract.

Any adjustment (increase or decrease) to estimated quantities made to each item at the time of final payment will have the fuel price adjustment figured at the average period price for the entire term of the project for the difference of quantity.

The fuel price adjustment will apply only to the following items of work at the fuel factors shown where the item is included in the contract documents herein:

ITEMS COVERED	FUEL FACTORS	
	Diesel	Gasoline
Excavation: and Borrow Work: Items 120, 120.1, 121, 123, 124, 125, 127, 129.3, 140, 140.1, 141, 142, 143, 144., 150, 150.1, 151, and 151.1 (Both Factors used)	0.29 Gallons / CY.	0.15 Gallons / CY
Surfacing Work: All Items containing Hot Mix Asphalt	2.90 Gallons / Ton	Does Not Apply

******** END OF DOCUMENT ********

DIVISION 2

SPECIFICATIONS

SPECIAL PROVISIONS

ITEM 102.52 TEMPORARY TREE PROTECTION FENCE FOOT

The work under this item shall conform to the relevant provisions of Sections 101, 644 and 771 of the Standard Specifications and the following:

The purpose of this item is to prevent damage to branches, stems and root systems of existing individual trees as well as shrubs and other quality vegetation to remain, and to ensure their survival. To the extent possible, to avoid soil compaction within the root zone, construction activities including, but not limited to, vehicle movement, excavation, embankment, staging and storage of materials or equipment shall not occur within the protective zone of trees to remain. Where these activities will occur or where directed, the Contractor shall take the appropriate protective measures specified herein.

Temporary Tree Protection Fence, Item 102.52 shall be used to protect areas of existing trees or other areas of quality vegetation that is to remain.

The Contractor shall be solely responsible for judging the full extent of the work requirements, including, but not necessarily limited to any equipment and materials necessary for providing tree protection.

Incidental to the cost of this item, the Contractor shall retain the services of a Massachusetts Certified Arborist with at least 10 years of experience in tree care, including care during construction and mitigation of construction impacts. The arborist shall be responsible for making recommendations as to the specific appropriate treatment of trees within or near the work zone, and for directing, or executing, tree care operations as described herein.

Prior to any construction activities, the Contractor and Arborist shall walk the site with the Engineer and Town Tree Warden to identify which trees will require protection and to determine approved measures. The Arborist shall make recommendations as to appropriate methods to protect trees. The Engineer will have final decision as to trees and methods.

The Contractor is responsible for the protection of all existing trees and plants within and immediately adjacent to the construction area that are not designated to be removed for the length of the construction period.

SUBMITTALS

Incidental to this item, the Contractor shall provide to the Engineer one (1) copy American National Standards Institute (ANSI) Standard Z-133.1 and A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance, Part 1: Pruning. These references shall be kept by the Engineer at his office for the length of the Contract.

Prior to start of work, the Contractor shall submit to the Engineer the name, certification number and resume of the Massachusetts Certified Arborist referenced herein. Cost for Certified Arborist for all activities pertaining to this item shall be incidental to this item.

ITEM 102.52 (Continued)

Submit arborists report documenting site walk and summarizing trees protected (species and quantities) as well as recommendations for protection.

MATERIALS

Fence and temporary fence posts shall be subject to the approval of the Engineer.

Wood chips shall conform to provisions of Wood Chip Mulch under Materials Section M6.04.3.

Temporary Tree Protection Fence shall be brightly colored polypropylene barricade or wooden snow fencing for tree protection or safety fencing as shown on the Contract drawings or as directed by the Engineer. Fencing shall be a minimum of 4 feet high and supported by steel or hardwood stakes spaced at a maximum of 8 feet on center or by other means acceptable to the Engineer. Fencing shall be materials and fastenings sufficient to provide sturdy and highly visible separation of the construction activates from the trees and existing plantings to be preserved.

Incidental to this item, the Contractor shall provide water for maintaining plants in the construction area that will have exposed root systems for any period during construction.

CONSTRUCTION METHODS

To the extent possible, to avoid soil compaction within the root zone, construction activities including, but not limited to, vehicle movement, excavation, embankment, staging and storage of materials or equipment shall not occur within the protective zone of trees to remain. Under this contract, the protective zone shall be defined as 1.5 feet from the trunk per 1 inch of trunk diameter (ie. 10 inch trunk diameter tree = 15 foot protective zone). Where these activities will occur within the protective zone of trees to remain, or where directed, the Contractor shall take the appropriate protective measures specified herein.

For individual tree protection, the Contractor shall set posts and fencing at the limits of the protective zone. Where construction activities closer to the trees is unavoidable, the contractor shall tie branches out of the way and place wood chips to a depth of 6 inches on the ground to protect the root systems. Where construction activities will occur within 10 feet of the trees' trunk, the Contractor shall wrap the area of the trunk of the tree with burlap prior to armoring with 2x4 cladding. Cladding for tree trunks shall extend from the base of the tree to at least 8 feet from the base. Burlap shall only be used on young or thin-barked trees and shall only cover the area of the trunk where the 2x4 cladding is in contact. Cladding and burlap shall be removed soon after the construction is complete in the area.

To the extent possible, temporary tree protection fencing shall be installed at the limit of the protective zone and shall be staked and maintained vertical for the length of the contract.

Where excavation within the protective zone is unavoidable, the Contractor shall use equipment and methods that shall minimize damage to the tree roots, per recommendations of the Certified Arborist. Such methods may require root pruning prior to, as well as during, any excavation

ITEM 102.52 (Continued)

activities. Any air spading and/or root pruning required shall be performed and considered incidental to this item.

All fencing, trunk protection, branch protection, and woodchips shall be maintained throughout the duration of the contract, unless otherwise specified herein. Protective fencing shall be repaired and woodchip mulch replaced as necessary during the duration of the contract at no additional cost.

Cutting and Pruning

Some pruning of roots and branches may be a necessary part of construction. Cutting and pruning of roots and branches shall be considered incidental to this item.

Watering

Water each tree within the construction area where work is in progress twice per week until the surrounding soil of each tree is saturated for the duration of construction activities.

Removal of Protection

After all other construction activities are complete, but prior to final seeding, wood chips, temporary fencing, branch protection, and trunk protection materials shall be removed and disposed of off-site by the Contractor at no additional cost.

Tree Damage

The Contractor shall be held responsible for the health and survival of the existing trees in the immediate vicinity of the of the construction area. Damage that, in the Engineer's opinion, can be remedied by corrective measures shall be repaired immediately. Broken limbs shall be pruned according to industry standards. Wounds shall not be painted. Trees or shrubs that are damaged irreparably shall, at the Engineer's discretion, be replaced per the requirements of Division I of these Special Provisions. Cost of replacement trees shall be borne by the Contractor.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Where the plans show specific, individual trees to remain and where grading or other disturbance is shown within the drip line of these trees or where the Engineer determines that an individual tree must be protected, these trees shall be protected and paid for under Item 102.51 Individual Tree Protection per each tree protected.

Temporary tree protection fence will be measured for payment by the foot of fence installed, complete in place.

Payment under this item shall be scheduled throughout the length of contract: 30 percent of value shall be paid upon installation, 30 percent approximately halfway through the contract, and the remainder to be paid at the end of the contract after completion of construction operations that

ITEMS 102.52 (Continued)

would disturb plants and after the protection materials have been removed and properly disposed of off-site by the Contractor.

Where construction disturbance, such as grading activities, shall occur within the limits of the protective zone of trees, these trees shall be protected and paid for under Item 102.52, Temporary Tree Protection Fence.

Submittal of arborist report is incidental to and required for payment of this item.

Temporary Tree Protection Fence shall be paid for at the Contract unit price per Foot. This item shall include full compensation for all labor, equipment, materials, and incidentals for the satisfactory completion of the work, including the services of a certified arborist, water and fertilizer, and the subsequent removal and satisfactory disposal of the protective materials upon completion of the Contract.

Cost of wood chips, as required, shall be incidental to this item.

ITEM 120.1 **UNCLASSIFIED EXCAVATION** **CUBIC YARD**

The work under this item shall conform to the relevant provisions of Sections 101 and 120 of the Standard Specifications and the following:

The work shall include the excavation of material of every description regardless of the type encountered, from within the project limits as shown on the drawings and as directed by the Resident Engineer.

The work shall also include the removal of drainage pipes as shown on the plans.

METHOD OF MEASUREMENT

Item 120.1 shall be measured per Cubic Yard in the original position by the cross-section method or by such other method as the Resident Engineer may determine.

BASIS OF PAYMENT

Item 120.1 shall be paid at the Contract unit price for Cubic Yard of excavation, which price shall include all labor and material required to perform the work.

No separate payment shall be made for the off-site disposal of all existing material unsuitable for reuse in the proposed work, but all costs in connection therewith shall be included in the price bid for earth excavation.

ITEM 153. CONTROLLED DENSITY FILL - EXCAVATABLE CUBIC YARD

Work under this Item shall conform to the relevant provisions of Section 150 of the Standard Specifications and the following:

Controlled density fill (CDF) shall be used under the control of the Engineer in cold planed and overlay pavement construction areas in utility trenches where normal backfill compaction cannot achieved and/or as directed by the Engineer in utility trenches to achieve adequate compaction.

Controlled density fill material shall conform to Section M4.08.0. Controlled Density Fill and shall be Type 1E – Very Flowable (Excavatable).

Work under this item shall consist of furnishing and placing controlled density fill in trenches for utility lines installed in pavement milling and overlay areas where normal backfill cannot placed and/or as directed by the Engineer. The trench shall be backfilled with Controlled density fill to a depth equal to the top of the subbase of the existing pavement structure. The trench will then be permanently patched to be flush with the existing roadway surface, prior to pavement milling, with Hot Mix Asphalt.

METHOD OF MEASUREMENT

Item 153. Controlled Density Fill – Excavatable, will be measured for payment per cubic yard basis complete and in place.

Item 153. shall be measured by the Cubic Yard of material placed within the specified limits as directed by the Resident Engineer.

BASIS OF PAYMENT

Item 153. shall be paid at the Contract unit price per Cubic Yard of material, complete in place, which price shall include all material, labor, equipment, and incidental costs required to complete the work as described and as required by the Engineer.

ITEM 192.4 **GROUND WATER OBSERVATION WELL ADJUSTED** **LUMP SUM**

GENERAL

The work under this Item shall consist of adjusting existing monitoring wells to finished grade. The work includes the removal of the monitoring well stick up, extending the riser pipe, and the addition and setting of a roadway box to the required grade. Care must be taken when removing the stick up to ensure not to damage or misalign the riser pipe in any way. Extreme care shall be taken to keep soil and other debris from entering the well.

To extend the riser pipe a polyvinylchloride (PVC) coupling of identical diameter shall be installed with additional sections of PVC pipe. No adhesives with Volatile Organic Compounds (VOCs) shall be used to adjust riser height. After the stick up is removed, all existing concrete shall be removed from the casing prior to the addition of the roadway box. The roadway box shall be set using 4,000 PSI – 1.5” – 565 lb. Cement Concrete (High Early Strength). The roadway box shall be brought up only to a level which will allow the final surface material (Superpave Surface Course) to be placed.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 192.4 shall be measured and paid at the Contract unit price, lump sum, Ground Water Observation Well Adjusted, which price shall include all labor, materials, equipment, materials, and incidental costs required to complete the work. No separate payment will be made for setting concrete, but all costs in connection therewith shall be included in the unit price bid.

ITEM 201.3 **SPECIAL CATCH BASIN** **EACH**

GENERAL

The work under this item shall conform to the relevant provisions of Section 200 of the Standard Specifications and the following:

Work shall include installation of non-standard catch basins with a 4-foot sump per the Construction Details included in the plans. The Contractor shall submit to the Engineer for approval each type of special catch basin prior to any work being done related to the special catch basins.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 201.3 shall be measured and paid for at the contract unit price per each, complete in place and approved, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 203.12 STORMWATER BASIN OUTLET STRUCTURE EACH

The work under this Item shall include excavation and backfilling, furnishing, and setting precast concrete structure, trash rack, and any other incidental work required to construct the stormwater basin outlet structure in accordance with the requirements herein, where indicated, and as detailed on the Plans or as required by the Engineer.

MATERIALS

Materials shall conform to the relevant provisions and requirements of Section 201 of the Standard Specifications. Stormwater basin outlet structure shall consist of a precast reinforced concrete structure as shown on the Plans. Concrete shall have a minimum 28-day strength of 4000 psi, with steel reinforcement meeting the requirements of ASTM A-615 Standards, Grade 60 1-inch minimum cover. The structure shall have a design loading of AASHTO HS20-44.

CONSTRUCTION METHODS

Construction methods shall conform to the relevant provisions and requirements of Section 201 of the Standard Specifications and the following:

Precast concrete structure shall be as manufactured by a MassDOT Approved fabricator. Shop Drawings shall be submitted to the Engineer for review. Excavation, dewatering, sheeting, and shoring operations where required shall conform to the relevant provisions and requirements specified in Section 140 of the Standard Specifications.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 203.12, Stormwater Basin Outlet Structure, shall be measured as a complete unit, per EACH outlet structure actually installed.

Item 203.12, Stormwater Basin Outlet Structure, shall be paid at the contract unit price per EACH, installed in place, which price shall be full compensation for all labor, tools, equipment, and materials required to complete the work as described above including, but not limited to, excavation and backfilling, furnishing and setting precast concrete structure, cast-iron frame and grate, crushed stone bedding, and any other incidental work required to construct the stormwater basin outlet structure in accordance with the requirements herein, where indicated and as detailed on the Plans, or as required by the Engineer. Transportation, delivery, and installation of the frame and grate shall be included in the contract unit price bid for the item listed herein.

Extra depth excavation below the bottom of the crushed stone (M2.01.1) base required to obtain a stable foundation for the structure shall be paid for under this item.

No separate payment will be made for Crushed stone (M2.01.1) placed below the bottom of the structure to obtain a stable base, but all costs in connection therewith shall be included in the unit price bid.

ITEM 222.3 FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD EACH

The work under this item shall conform to the relevant provisions of Section 201 and 220 of the Standard Specifications and the following:

Work under this item consists of furnishing Frame and Grate (or Cover) Municipal Standard.

Frames and grates shall be manufactured by a MassDOT approved fabricator listed on the Qualified Construction Materials List (QCML). Casting date shall be listed on the QCML. Frames and grates shall have hook locks. Frames and grates shall be approved by the City prior to ordering and installation.

Frames and covers shall have pick holes and the appropriate word "DRAIN" or "SEWER" cast in 3-inch letters to match the corresponding utility. Frames and covers shall be manufactured by a MassDOT approved fabricator listed on the Qualified Construction Materials List (QCML). Casting date shall be listed on the QCML. Frames and covers shall be approved by the City prior to ordering and installation.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 222.3 shall be measured and paid at the Contract unit price per Each Frame and Grate (or Cover) Municipal Standard furnished, which price shall include all labor, materials, equipment, loading, unloading, storage, transportation, and all incidental costs required to complete the work.

Frame and Grate or Frame and Cover shall be considered as a one unit.

ITEM 223.1 **FRAME AND GRATE (OR COVER) REMOVED AND STACKED** **EACH**

The work under this item shall conform to the relevant provisions of Section 220 of the Standard Specifications and the following:

Work shall include removing and stacking of existing frames and grates (or covers). The frames and grates (or covers) shall be stacked on boards for pick-up by the City of Amesbury Department of Public Works, as determined by the Resident Engineer.

If the existing frames and/or grates stacked for pickup by the City are not wanted by the City, it shall become the property of the Contractor and be removed and discarded with no additional payment.

If the existing frames and/or grates are damaged by the contractor during the removal and stacking process, a new frame and grate of the same size and material shall be provided to the City at the contractors' expense.

Frames and grates (or covers) determined to be unsatisfactory for reuse shall become the property of the Contractor and shall be carefully removed, transported, and discarded in accordance with all applicable regulations.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 223.1 shall be measured and paid at the Contract unit price per Each Frame and Grate (or Cover) removed and stacked, which price shall include all labor, materials, equipment, storage, and all incidental costs required to complete the work.

Frame and Grate or Frame and Cover shall be considered as a one unit.

ITEM 504.2 GRANITE CURB TYPE VA4 – SPLAYED END EACH

Work under this item shall conform to the relevant provisions of Section 501 of the Standard Specifications and the following:

The work shall include furnishing and installing curb transition sections at the locations shown on the plans to match into proposed or existing granite edging. The curbing shall be type VB and shall have a minimum length of six feet (6'-0"). The curb shall be sawcut to match into the proposed adjacent granite curb or curb inlets at one end and the opposite end shall match into the existing or proposed granite edging as shown on the plans.

METHOD OF MEASUREMENT

Item 504.2 will be measured for payment by the Each, complete in place. Each six-foot splayed end curb shall constitute a single unit.

BASIS OF PAYMENT

Item 504.2 will be paid for at the contract unit price per Each, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 593. EDGING REMOVED AND STACKED FOOT

GENERAL

Work under this item shall conform to the relevant provisions under Section 580 of the standard specifications and the following:

Work shall include the removal and stacking of existing edging as shown on the plans. The edging shall be stacked on boards at secure location to be picked up by the City before construction concludes. The Contractor shall assist the City in loading the materials for transport. Shall the edging not be wanted by the City it shall become the property of the Contractor and it shall be legally disposed of off-site as directed by the Resident Engineer.

COMPENSATION

Method of Measurement

Edging removed and stacked will be measured for payment by linear foot.

Basis of Payment

Edging Removed and Stacked will be paid for at the Contract unit price per foot, which price shall include all labor, materials, equipment, transport, and incidental costs required to complete the work.

ITEM 620.12	**GUARDRAIL, TL-2 (SINGLE FACED)**	**FOOT**
ITEM 620.13	**GUARDRAIL, TL-3 (SINGLE FACED)**	**FOOT**

GENERAL

Work under this item shall conform to the relevant provisions of Section 600 of the standard specifications and the following:

Work of these items shall include the installation of TL-2 and TL-3 guardrail with deep steel posts in locations shown on the plans and to conform with section 400 of MASSDOT Construction Standard Details, dated October 2017.

Work of these items shall include the installation of TL-3 guardrail with timber backing where specified on the plans and to conform with Section 400 of the MASSDOT Construction Standard Details, dated October 2017.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Items 620.12 and 620.13 will be measured and paid for at the Contract unit price per foot of guardrail installed, which price shall include all labor, materials, equipment, transport and incidental costs required to complete the work. No additional payment will be made for the installation of deep posts where necessary. No additional payment will be made for the installation of timber backing where necessary.

ITEM 655. CEDAR RAIL FENCE FOOT

The work under this item shall conform to the relevant provisions of Section 600 of the Standard Specifications and the following:

Shop drawings shall be submitted to the Engineer indicating the layout and fabrication details of the wood fence.

MATERIALS

Wood posts and rail shall be white cedar, 1450 grade or better, or other approved species.

Rail and posts shall be cut to length.

The bottom portion of the wood post, extending 2”± above finish grade, shall be treated with wood preservative as specified by the fence manufacturer.

CONSTRUCTION

Posts shall be set plumb in excavated holes at the line and grade shown on the plans. Post holes shall be backfilled with suitable material and thoroughly compacted in layers not exceeding 12 inches in depth.

METHOD OF MEASUREMENT

Cedar rail fence will be measured for payment by the Foot along the top rail from center to center of end posts, complete in place.

COMPENSATION

Cedar rail fence will be paid for at the Contract unit price per Foot, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation and backfill, wood preservative, but all costs in connection therewith shall be included in the unit price bid.

ITEM 697.1 **SILT SACK** **EACH**

Work under this item shall conform to the relevant provisions of Section 670 of the Standard Specifications, Section 227 of the Supplemental Specifications and the following:

The work under this item includes the furnishing, installation, maintenance and removal of a reusable fabric sack to be installed in drainage structures for the protection of wetlands and other resource areas and the prevention of silt and sediment from the construction site from entering the storm water collection system. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

CONSTRUCTION

Silt sacks shall be installed in retained existing and proposed catch basins and drop inlets within the project limits and as required by the Resident Engineer.

The silt sack shall be as manufactured to fit the opening of the drainage structure under regular flow conditions and shall be mounted under the grate. The insert shall be secured from the surface such that the grate can be removed without the insert discharging into the structure. The filter material shall be installed and maintained in accordance with the manufacturer's written literature and as directed by the Engineer.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the filter fabric shall become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and disposed of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Department.

When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractors expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

All curb openings shall be blocked to prevent stormwater from bypassing the device.

All debris accumulated in silt sacks shall be handled and disposed of as specified in Section 227.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 697.1 shall be measured and paid at the Contract unit price per each, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 697.1 (Continued)

No separate payment shall be made for removal and disposal of the sediment from the insert, regardless of the frequency of removal and disposal, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 706.41 GRANITE BLOCKS REMOVED AND RESET SQUARE YARDS

The work under this item shall include the removal and resetting of existing granite blocks as needed at STA 108+00 LT and 109+50 LT, underneath the I-495 overpass. The granite blocks shall be reset as to match existing conditions.

Any granite blocks damaged during construction shall be replaced under this item.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 706.41 shall be measured and paid for at the contract unit price per square yard of granite blocks removed and reset at the agreed upon locations, which price shall include all labor, materials, equipment and incidental costs required to complete the work as described.

ITEM 756. NPDES STORM WATER POLLUTION PREVENTION PLAN LUMP SUM

This Item addresses the preparation and implementation of a Storm Water Pollution Prevention Plan required by the National Pollutant Discharge Elimination System (NPDES) and applicable Construction General Permit (CGP) issued by the U.S. Environmental Protection Agency (EPA).

Pursuant to the Federal Clean Water Act, construction activities which disturb one acre or more are required to apply to the EPA for coverage under the NPDES General Permit for Storm Water Discharges from Construction Activities. On February 16, 2012 (77 FR 12286), EPA issued the final NPDES Construction General Permit (CGP) for construction activity. The Contractor shall be fully responsible for compliance with the CGP. Should a fine or penalty be assessed against it, or MassDOT, as a result of a local, state, or federal enforcement action due to non-compliance with the CGP, the Contractor shall take full responsibility.

The NPDES CGP requires the submission of a Notice of Intent (NOI) to the EPA prior to the start of construction (defined as any activity which disturbs land, including clearing and grubbing). There is a 14 day review period commencing from the date on which EPA enters the Notice into their database. The Contractor is advised that, based on the review of the NOI, EPA may require additional information, including but not limited to, the submission of the Storm Water Pollution Prevention Plan (SWPPP) for review. Work may not commence on the project until final authorization has been granted by EPA. Any additional time required by EPA for review of submittals will not constitute a basis for claim of delay.

In addition, if the project discharges to an Outstanding Resource Water, vernal pool, or is within a coastal ACEC as identified by the Massachusetts Department of Environmental Protection (DEP), a separate notification to DEP is required. DEP may also require submission of the Storm Water Pollution Prevention Plan for review and approval. Filing fees associated with the notification to DEP and, if required, the SWPPP filing to DEP shall be paid by the Contractor.

The CGP also requires the preparation and implementation of a SWPPP in accordance with the afore-mentioned statutes and regulations. The Plan will include the CGP conditions and detailed descriptions of controls of erosion and sedimentation to be implemented during construction. It is the responsibility of the Contractor to prepare the SWPPP to meet the requirements of the most recently issued CGP. The Contractor shall submit the Plan to the Engineer for approval at least 4 weeks prior to any site activities. It is the responsibility of the Contractor to comply with the CGP conditions and the conditions of any state Wetlands Protection Act Order, Water Quality Certification, Corps of Engineers Section 404 Permit and other environmental permits applicable to the project and to include in the SWPPP the methods and means necessary to comply with applicable conditions of said permits (reference to Part 9.1.1 of the 2012 CGP).

It is the responsibility of the Contractor to complete the SWPPP in accordance with the EPA CGP, provide all information required, and obtain any and all certifications as required by the CGP. Any amendments to the SWPPP required by site conditions, schedule changes, revised work, construction methodologies, and the like are the responsibility of the Contractor. Amendments will require the approval of the Engineer prior to implementation.

ITEM 756. (Continued)

Included in the CGP conditions is the requirement for inspection of all erosion controls and site conditions on a weekly basis as well as after each incidence of rainfall exceeding 0.25 inches in twenty-four hours. For multi-day storms, EPA requires that an inspection must be performed during or after the first day of the event and after the end of the event. The CGP requires that inspections be performed by a qualified individual. MassDOT requires proof of completion of a 4 hour minimum sedimentation and erosion control training class current to the latest CGP. This individual can be, but not limited to, someone that is either a certified inspector, certified professional, or certified storm water inspector. The documentation shall be included as an appendix in the SWPPP. The Engineer must approve the contractor's inspector. This individual shall be on-site during construction to perform these inspections. In addition, if the Engineer determines at any time that the inspector's performance is inadequate, the Contractor shall provide an alternate inspector. Written weekly inspection forms, storm event inspection forms, and Monthly Summary Reports must be completed and provided to the Engineer. Monthly Summary Reports must include a summary of construction activities undertaken during the reporting period, general site conditions, erosion control maintenance and corrective actions taken, the anticipated schedule of construction activities for the next reporting period, any SWPPP amendments, and representative photographs.

The Contractor is responsible for preparation of the Plan, all SWPPP certifications, inspections, reports and any and all corrective actions necessary to comply with the provisions of the CGP. Work associated with performance of inspections is not included under this Item. The Standard Specifications require adequate erosion control for the duration of the Contract. All Control measures must be properly selected, installed, and maintained in accordance with manufacturer specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or is no longer adequate, it is the responsibility of the Contractor to replace or modify the control for site conditions at no additional cost to the Department. The Contractor must maintain all control measures and other protective measures in effective operating condition and shall consider replacement of erosion controls for each construction season.

This Item addresses acceptable completion of the SWPPP, any revisions/amendments required during construction, and preparation of monthly reports. In addition, any erosion controls beyond those specified in bid items elsewhere in this contract which are selected by the Contractor to facilitate and/or address the Contractor's schedule, methods and prosecution of the work shall be considered incidental to this item.

The Contractor is advised The CGP provides specific requirements for temporary and final stabilization. This shall be incorporated into the project schedule. The permit defines specific deadline requirements for Initial Stabilization ("immediately", i.e., no later than the end of the next work day following the day when earth-disturbing activities have temporarily or permanently ceased) and for Complete Stabilization Activities (no later than 14 calendar days after the initiation of stabilization). Stabilization criteria for vegetative and non-vegetative measures are provided in the CGP.

ITEM 756. (Continued)

The CGP requires the submission of a Notice of Termination (NOT) from all operators when final stabilization has been achieved, as well as removal and proper disposal of all construction materials, waste and waste handling devices, removal of all equipment and construction vehicles, removal of all temporary stormwater controls, etcetera. Approval of final stabilization by the Engineer and confirmation of submission of the NOT will be required prior to submission of the Resident Engineer's Final Estimate. The permittee is required to use EPA's electronic NOI system or "eNOI system" to prepare and submit NOT. The electronic NOT form can be found at www.epa.gov/npdes/stormwater/cgpenoi. If you are given approval by the EPA Regional Office to use a paper NOT, you must complete the form in Appendix K of the 2012 CGP.

COMPENSATION

Payment for all work under this Item shall be made at the contract unit price, lump sum, which shall include all work detailed above, including plan preparation, required revisions, revisions/addenda during construction, monthly reports and filing fees.

Payment of 50% of the contract price shall be made upon acceptance of the Storm Water Pollution Prevention plan. Payment of 40% of the contract price shall be made in equal installments for implementation of the Stormwater Pollution Prevention plan. Payment of the final 10% of the contract price shall be paid upon satisfactory submissions of a Notice of Termination (NOT) when final stabilization has been achieved.

ITEM 765.431 SEEDING – UPLAND TALL MIX – FULL SUN SQUARE YARD

The work under this item shall conform to the relevant provisions of Section 765 of the Standard Specifications and the following:

The work shall consist of planting and establishing a stand of grass in the areas shown on the plans or as required by the Engineer.

For the purposes of these specifications, the term "grass" shall apply to all the forbs, grasses, sedges, and rushes included in the materials.

All seeding shall be done by a company having a minimum of five years of experience with native grass establishment. Prior to beginning work, the applicator shall furnish proof of qualifications to the Engineer for approval. Proof of qualifications includes providing documentation to demonstrate knowledge and expertise with native seeding and proof of having completed successful native seeding projects.

SEEDING SEASON

Seeding seasons shall be April 1 through May 15 and October 1 through November 15 for dormant seeding. For seeding that occurs outside of these periods, the seed rate shall be increased by 50%.

MATERIALS

Seed

Samples and Submittals

1) Certificate of Materials. Prior to ordering, the Contractor shall submit to the Engineer the manufacturer or supplier's notarized Certificate of Materials. This document shall not be used as proof of purchase, proof of material delivered, or proof of material seeded, but simply to verify supplier availability of seed listed on the date certified. The species listed shall match those specified on the plans or herein, however, cultivars may vary due to availability. Substantial substitutions or changes in the mix from that specified on the plans or herein shall be approved by MassDOT Landscape Design Section.

2) Seed Tag Certification. All seed lots have a seed analysis tag as required by State and Federal law. The contractor shall submit seed tags for each bag of seed used on the project site or ensure that each tag is photo documented by the Engineer. Number of tags shall match number of bags sent by the supplier to meet rate of Pure Live Seed specified on the plans. Tag must include: kind and variety of seed; lot number; origin of seed; net weight; % purity; germination; dormant seed; germination test date; inert matter; weed, noxious and other crop seed; and name and address of company responsible for the analysis. Seeding may be considered unacceptable for payment if no tags are submitted.

ITEM 765.431 (Continued)

3) Certificate of Compliance. Prior to payment, contractor shall submit a signed, dated and notarized Certificate of Compliance from the Supplier that serves as proof of purchase or bill of lading. This document shall include kind and variety of seed, lot number, net weight shipped, date of sale, invoice number under which seed was purchased, and name and address of Supplier or Manufacturer. All information must be included on the notarized form, including lot number and net weight shipped for specified job. This information shall match Seed Tag Certification and quantity of seed applied on the job. Seeding may be considered unacceptable for payment if information is incomplete.

4) Seed Sample. Contractor may be asked, prior to seeding, to submit a seed sample for testing. Testing shall be incidental to this item.

Seed mix shall be a custom blend as shown on the plans or shall be as specified below. Seed cultivars shall be those that are as regional to New England or the local ecotype as possible.

Upland Native Mix

Item 765.431 Seeding –Upland Tall Mix – Full Sun

	Botancial Name	Common Name	% PLS By Weight
Grass			
	Schizachyrium scoparium 'Albany Pine'	Little Bluestem 'Albany Pine'	40.00%
	Elymus virginicus	Virginia Wild Rye	20.00%
	Sorghastrum nutans 'NE-54'	Indiangrass 'NE-54'	15.00%
	Panicum virgatum 'Shelter/Trailblazer'	Switchgrass 'Shelter/Trailblazer'	8.00%
	Panicum clandestinum 'Tioga'	Deer Tongue 'Tioga'	5.00%
	Agrostis perennans	Upland Bentgrass	2.00%
	Juncus tenuis	Path Rush	1.00%
			91.00%
Herb/Forb			
	Chamaecrista fasciculata	Partridge Pea	2.50%
	Rudbeckia hirta	Black-eyed Susan	2.00%
	Geum canadense	White Avens	1.00%
	Lespedeza capitata	Roundhead Bush Clover	1.00%
	Asclepias syriaca	Common Milkweed	1.00%
	Monarda fistulosa	Wild Bergamot	0.80%
	Solidago odorata	Licorice Scented Goldenrod	0.30%
	Euthamia caroliniana	Slender Goldentop	0.20%
	Pycnanthemum muticum	Bigleaf Mountain Mint	0.20%
			9.00%

100.00%

ITEM 765.431 (Continued)

Seeding Rate:
Apply this mix at 10 lbs PLS/acre on areas of less than 3:1 slope and 25 lbs PLS on areas of greater than 3:1 slope.

Add 30 lbs/acre of a cover crop. For a cover crop use either grain oats (1 Jan to 31 July) or grain rye (1 Aug to 31 Dec). Cover crop shall be incidental to seeding item.

Basin Mix

This mix may be used for the entire basin area.

Any species substitutions shall be with a species having similar characteristics and native to New England. Substantial changes in the mix shall be approved by MassDOT Landscape Design Section.

Fertilizer

No fertilizers shall be applied.

Water

Water, including hose and all other watering equipment required for the work, shall be furnished by the Contractor to the site at no additional cost. Water shall be suitable for irrigation and free from ingredients harmful to plant life. All plants injured or work damaged due to the lack of water or the use of too much water shall be the Contractor's responsibility to correct.

Mulch

Seed areas shall be separately mulched with hydromulch, straw or as specified below when incorporated with compost topsoil.

Photo Documentation

Contractor shall submit photo documentation to the Engineer and Landscape Design Section. Each photo shall be date stamped. Photos shall be submitted after the following stages of construction:

- Soil preparation
- Seed and hydromulch/Compost topsoil and seed
- Germination
- Grass establishment after one full growing season (June-September)

ITEM 765.431 (Continued)

CONSTRUCTION

Surface Preparation

Soil preparation and seeding shall occur only when the bed is in a friable condition, not muddy or hard. Bare soils shall be raked to remove large stiff clods, lumps, brush, roots, stumps, litter and other foreign matter. All ruts and any depressions caused by settlement, erosion or rolling shall be filled with additional loam or compost and the soil shall be re-graded to a smooth and even finish corresponding to the required grades. No tracking or rolling shall be done on wet soil.

Prior to seeding, site preparation shall be approved by the Engineer.

Seeding Methods

Seeding on Loam

Seeding application shall be by broadcast methods followed by hydromulching. Seed may be broadcast by using a cyclone or whirlwind seeder, or by hand.

If spread by hand, small or light-seeded species such as bluestem may be mixed with approved filler (e.g., sawdust, rice, kitty litter, or clean damp sand) to achieve an even distribution. Broadcast seeding shall be undertaken in two separate passes at ninety degrees to each other. One-half the seeding rate shall be applied in each direction. Seed shall be incorporated 1/8 to 1/4-inch deep by raking or dragging, culti-packing, or tracking with heavy machinery. Raked areas shall be rolled with a weighted roller to provide good seed to soil contact. Do not roll or track the seed if the soil is wet.

Immediately following completion of broadcast seeding and packing, area shall be hydromulched.
Hydromulch shall be per the Standard Specifications and per the manufacturer's directions. Mulch for hydroseeding shall be wood fiber only.

Seeding in Combination with Compost Topsoil

If proposed in the contract, compost topsoil shall be as specified under Item 751.7 Compost Topsoil.

Seeding shall be done as a second operation after placement of compost has been approved by the Engineer. Seeding shall be broadcast followed by hydro-mulching.

Contractor shall notify Engineer prior to seeding operation to obtain written approval of site preparation and compost topsoil application.

No seeding shall be done if soils are muddy or dry and compacted.

ITEM 765.431 (Continued)

Care during Seed Germination

Contractor shall care for seeded areas as required. Care shall include irrigation and weed removal as necessary for germination and healthy growth.

Over-seeding

If there are numerous areas of bare ground greater than 10-12 inches, these areas shall be over-seeded. Areas where seed fails to germinate and that become invaded by weeds shall be mowed as low as possible and over-seeded. Soil that is compacted shall be raked or roughened prior to seeding to ensure seed to soil contact.

ITEM 765.431 (Continued)

Over-seeding shall be incidental and shall not be paid for separately.

Care during Grass Establishment

Following germination of seeded species, the contractor shall maintain the stand of grasses to ensure healthy growth.

Work shall include mowing or weed-whacking for weed control, irrigation if necessary, and monitoring for invasive plants. Watering shall provide uniform coverage without eroding soil or grassed surfaces. Treatment of invasive plants shall be per the requirements of the Engineer and the MassDOT Landscape Architect.

The Contractor shall provide all labor, equipment, materials, and water required for establishment. Contractor shall water all seeded areas as necessary to a depth of 2 inches or greater.

EXPECTATIONS OF ESTABLISHMENT

Native upland grasses and forbs will not look like turf grass. Many of the native grasses are bunch type grasses and will not form a uniform growth or have a sod-type appearance. However, seeded area shall show general uniform growth of the seeded species throughout the area. Areas with gaps of bare soil greater than 10-12 inches will be considered unacceptable and shall be over-seeded.

A well-established stand of grasses at the end of one full growing season (June-September), as determined by the Engineer in consultation with the MassDOT Landscape Architect, will be required for acceptance. At least 80-90 percent of the grass established shall be the seeded species and any invasive or aggressive weeds (mugwort, ragweed, or knapweed) shall have been cut or otherwise managed.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 765.431 will be measured for payment by the square yard at the end of one full growing season upon approval of establishment by the Engineer in coordination with the MassDOT Landscape Architect.

Item 765.431 will be paid for at the Contract unit price per Square Yard upon receipt of required submittals as specified above and upon approval of established stand of grass as specified above. This price shall include surface preparation prior to seeding as specified under Surface Preparation, and as required by the Engineer, seeding, reseeding, irrigation, care during germination and establishment, labor materials, equipment, photo documentation, and all incidental costs required to complete the work.

ITEM 767.121 **SEDIMENT CONTROL BARRIER** **FOOT**

The Work under this item shall conform to the relevant provisions of Sections 751 and 767 of the Standard Specifications and Section 670 of the Standard Supplemental Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment Control Barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes are intended to be the primary sedimentation control barrier.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods;

- Straw tubes/wattles which shall be trenched
- Straw bales which shall be trenched

Additional barriers (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

Where specified or required by permits, silt fence shall be used in addition to compost filter tubes or straw bales and shall be incidental to the item.

MATERIALS AND CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans to ensure that the placement will provide maximum effectiveness.

Barriers shall be stacked, trenched and/or wedged as specified herein and shall be securely in contact with existing soil such that there is no flow beneath the barrier.

Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no manure or bio-solids shall be used; no kiln dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be a knitted mesh with 1/8 – 3/8” openings and made of 100% biodegradable materials (i.e, cotton, hemp or jute).

Compost Filter tubes shall be a minimum of 12 inches in diameter installed. Tubes shall be placed, filled, and stacked in place as required to ensure stability against water flows. All tubes shall be tamped, but not trenched, to ensure good contact with soil.

ITEM 767.121 (Continued)

Where reinforcement is necessary, additional tubes shall be installed as shown on plans.

Straw Bales
Straw bales shall conform to the requirements of section M6.04.3 of the Standard Specifications and the following:

Bales should be a minimum size of 12 x 16 x 36 inches and shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another.

The bales shall be trenched and backfilled. The trench shall be excavated with the width of the bale and the length of the proposed barrier to a depth of 4 inches. After the bales are stacked the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier.

Straw Wattle

Straw wattle shall be a minimum of 12 inches in diameter. Straw filling shall conform to the requirements of Section M6.04.3, shall be encased in durable netting, and shall have a density of 3 lb/foot.

Straw wattle shall be trenched in 3 inches deep and staked according to the plans. The wattles shall be sufficiently secure on the upstream side to prevent water flowing underneath the wattle.

Silt Fence
Materials and Installation shall be per Section 670.40 of the Standard Supplemental Specifications and the following:

Silt fence shall be used when specified by Orders of Condition or other permitting.

When used with compost filter tubes, the tube shall be placed on a minimum of 8 inches of folded fabric on the upslope side of the fence. Fabric does not need to be trenched.

When used with straw bales, an 8-inch deep and 4-inch wide trench or V-trench shall be dug on the upslope side of the fence line. One foot of fabric shall be placed in the bottom of the trench followed by backfilling with compacted earth or gravel. Stakes shall be driven 16 inches into the ground on the down slope side of the trench and shall be spaced such that the fence remains vertical and effective.

Width of fabric shall be sufficient to provide a 36-inch high barrier after fabric is folded or trenched. Sagging fabric will require additional staking or other anchoring.

Stakes
Stakes for anchoring Compost Filter Tubes, Straw Wattles, and Straw Bales shall be as shown on the plans and shall be a minimum of 1x1 inch diameter x 4 feet hardwood stakes.

ITEM 767.121 (Continued)

When used with Silt Fence, stakes for Compost Filter Tubes shall be driven 12 inches into the ground, Stakes for Straw Bales shall be driven 16 inches into the ground.

Stakes of other material of equivalent strength may be used if approved by the Engineer.

MAINTENANCE

Maintenance of Sediment Control Barriers shall be per Section 670.40 of the Standard Supplemental Specifications or per the Stormwater Pollution Prevention Plan (SWPPP).
The contractor shall inspect the sediment barrier after each rain event and as specified in relevant permits to ensure that they are working effectively and as intended. Contractor shall be responsible for ensuring that an effective barrier is in place for all phases of the contract.

Barriers that decompose naturally due to weatherization over time such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact and continues to provide water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed when construction work is complete and when site conditions are sufficiently stable to prevent surface erosion and after receiving permission to do so from the Engineer.

For all instances, all nonbiodegradable material, including photo-biodegradable fabric, plastic netting, nylon twine, and silt fence, shall be removed and disposed off-site by the Contractor regardless of site context.

For naturalized areas, biodegradable, natural fabric and material may be left in place to decompose on-site. Compost filter tubes may be left as they are with stakes removed. Straw bales shall be broken down and spread evenly. All nylon or nonbiodegradable twin shall be removed along with silt fence. Wooden stakes may be left on site, placed neatly and discreetly.

On urban, residential, and other locations where aesthetics is a concern, the following shall apply:

- Filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (similar to a soil amendment or mulch). Not more than a 2-inch depth shall be left on soil substrate.
- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent grasses (i.e., lawn or native grass mix).
- Silt fence, stakes, and other debris shall be removed and disposed off-site. Site shall look neat and clean upon completion.

ITEM 767.121 (Continued)

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 767.121 will be measured and paid for at the contract unit price per foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration, of soil, and all incidental costs required to complete work

Silt fence, when used in conjunction with compost filter tubes or straw bales, will be incidental to this item.

Additional barrier, such as double or triple stacking of compost filter tubes, shall be paid for per foot of tube to be installed.

Barriers that have been driven over or otherwise damaged by construction activities shall be repaired or replaced as directed by the Engineer at the Contractors expense.

ITEM 804.3 3 INCH ELECTRICAL CONDUIT TYPE NM – PLASTIC – (UL) FOOT
ITEM 804.4 4 INCH ELECTRICAL CONDUIT TYPE NM – PLASTIC – (UL) FOOT

Work under these items shall conform to the relevant provisions of Section 800 of the *Standard Specifications for Highway and Bridges* (Standard Specifications) and the following:

Conduit shall be schedule 80 polyvinyl chloride (PVC) conduit. The plans denote where 4-inch conduit and 3-inch conduit are utilized.

Method of Measurement and Basis of Payment

Items 804.3 and 804.4 shall each be measured and paid for as per Subsections 801.80 and 801.81, respectively.

ITEM 811.22	**ELECTRIC HANDHOLE – SD2.022**	**EACH**
ITEM 811.31	**PULL BOX 12 X 12 INCHES – SD2.031**	**EACH**

The work under these items shall conform to the relevant portions of Section 801 of the *Standard Specifications for Highway and Bridges* (Standard Specifications) and the following:

The work shall include the furnishing and the installation of 12-inch by 12-inch (approximate) pull boxes and 12-inch by 24-inch (approximate) electric handholes for the traffic signal control and signal interconnect in accordance with the plans and as required by the Engineer.

Materials

The pull boxes and handholes shall be a MassDOT standard pre-cast concrete handholes. The pull box and handhole frame and cover shall be cast iron and formed to be flush with sidewalk or pavement. The cover should denote the text of the MassDOT standard logo.

Method of Measurement and Basis of Payment

Item 811.22 Electric Handhole - SD2.022 will be measured for payment per each, complete in place. Item 811.22 Electric Handhole - SD2.022 will be paid for at the Contract unit price per each, which price shall include all labor, material, equipment and incidental costs required to complete the work.

Item 811.31 Pull Box 12 x 12 inches - SD2.031 will be measured for payment per each, complete in place. Item 811.31 Pull Box 12 x 12 inches - SD2.031 will be paid for at the Contract unit price per each, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for excavation, back filling, gravel borrow, but all costs in connection therewith shall be included in the contract unit price bid.

ITEM 815.1	**TRAFFIC CONTROL SIGNAL LOCATION NO. 1**	**LUMP SUM**
ITEM 815.2	**TRAFFIC CONTROL SIGNAL LOCATION NO. 2**	**LUMP SUM**
ITEM 816.03	**TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 1**	**LUMP SUM**

Work under these items shall conform to the relevant provisions of Section 800 and 900 of the *Standard Specifications for Highway and Bridges* (Standard Specifications), the *2009 Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), and the following:

The work shall include the furnishing and installation of part or all of the following items: local traffic signal controller; cabinet and foundation with concrete pad; mast arm assemblies with anchor bolts and foundations; signal posts, bases, and foundations; signal housings; retroflective louvered backplates; vehicular and bicycle video and loop detection; pedestrian signals with countdown timers; accessible pedestrian signals (APS) push buttons with signage; emergency vehicle preemption; all cable and wiring; ground rods, equipment grounding and bonding; service connections; and all other equipment, materials and incidental costs necessary to provide complete, fully operational traffic control signal system as specified herein and as shown on the plans at the following locations:

- Location 1 (Item 815.1): Hillside Avenue (Route 150) / Interstate 495 SB Ramps
- Location 2 (Item 815.2): Hillside Avenue (Route 150) / Pond View Avenue (Route 150) / South Hunt Road / Interstate 495 NB Ramps
- Location 3 (Item 816.03): Hillside Avenue (Route 150) / Haverhill Road (Route 110)

A list of major traffic signal items as required at these locations is included on the traffic signal plans. It is not intended that every fitting, minor detail or feature be shown and described, as the assumption is made that the Contractor and/or their Subcontractor is an expert in the particular area of responsibility and is capable of interpreting the plans, Specifications, and Special Provisions so that the bid and/or construction shall include all items required to provide complete, fully operational traffic control signal system and that they shall be provided and installed in a neat and workmanlike manner.

All traffic signal equipment shall comply with the MassDOT Qualified Traffic Control Equipment List unless otherwise approved by the Engineer:
(http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/ApprovedMaterialsandFabricators/QualifiedTrafficControlEquipment.aspx)

Maintenance of Traffic Signals

It shall be the responsibility of the Contractor to provide all labor, equipment and material required for the total maintenance and repair of all existing and proposed traffic signal control equipment, including damage by automobile accidents until final completion and acceptance of the project, unless otherwise specified under Subsection 7.17 "Traffic Accommodation: of the Standard Specifications as amended, in which case Subsection 7.17 will govern. These provisions will apply to the signalized location included as part of this construction Contract from the date of written notice given to the Engineer that the Contractor will work on or adjacent to an existing signal until the date when the MassDOT accepts the complete project. This written notice must be given before the Contractor may proceed with any work on a specified traffic signal location.

ITEM 815.1, 815.2, & 816.03 (Continued)

For the purpose of these Special Provisions, the phrase "Traffic Signal Control Equipment" is intended to include, but is not limited to, controllers, signal housings, supporting structures, cabinet accessories and panels, wires, conduit and all other ancillary electrical equipment used for traffic control.

Shop Drawings and Certificate of Compliance

Within 30 days following Notice to Proceed, the Contractor shall submit a list of equipment and manufacturer's equipment specifications he proposes to install to the Engineer in accordance with the relevant provisions of Section 815.20. No equipment or accessories will be accepted unless type tested and approved by the MassDOT – Highway Division prior to the date of proposal, unless otherwise noted in the plans or the Special Provisions.

The Contractor shall commence no work until approval of the shop drawings has been received in writing from the Engineer. Approval of these drawings will be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing materials and workmanship required by the plans and these specifications.

Along with the shop drawings the Contractor shall deliver to the Engineer a certificate of compliance with the manufacturer for all materials purchased from the manufacturer.

Existing Traffic Signal Installations

All of the existing traffic signal equipment at Location 3 (Item 816.03) shall be retained unless otherwise indicated. For those components to be removed under this item and as indicated on the plans, the existing traffic signal equipment shall be maintained in operation throughout the construction period and until the new signal equipment is ready for operation.

Service Connection

Under Items 815.1 and 815.2, the service connection shown on the plans is approximate only. The Contractor shall determine exact location from the servicing utility, arrange to complete the service connection, and be responsible for all charges incidental thereto.

It shall be the Contractor's responsibility to contact the utility company. The electric company will connect and disconnect power as required. No work shall be done in manholes or on power poles without a representative of the electric company being present. The Contractor will be responsible for coordinating work with the electric company.

The utility will provide a connection at the overhead structure, furnish the wire and make the connection from the power source to the meter socket. The Contractor will install the conduit connecting the connection to the controller cabinet foundation. The service connection shall include a riser, weatherhead, and disconnect switch.

ITEM 815.1, 815.2, & 816.03 (Continued)

The Contractor shall furnish and install, or cause to be installed, all service equipment to the satisfaction of the electric utility company. It shall also be the Contractor's responsibility to pay all charges to the utility company for performing the work previously described.

Openings where cables enter the bottom of the controller cabinet and each pull box shall be sealed with approved elastic sealing compound.

No direct reimbursement will be made under this contract to the Contractor for payments made to electric company, it being understood that full compensation for any payment made by the Contractor to the utility company will be included in the contract prices bid.

Testing of Grounding System

Grounding Cable - Grounding cable shall be bare copper No. 8 AWG wires. All proposed traffic signal equipment shall have new cabling.

The Contractor shall perform testing of the equipment grounding system in the presence of the Engineer and MassDOT in accordance with the Standard Specifications.

Traffic Controller Cabinet

Controller Cabinet shall conform to the NEMA TS 2 Standards, Section 7. Cabinet size shall be as indicated on the plans and as shown below:

TS 2 Type 1 Configuration Table

Item #	NEMA TS 2 Cabinet Size	Nominal *Cabinet Size* (HxWxD)*	Config. Type	Load Switch Positions	Flash Transfer Relays	BIUs Required w/ spare	Detector Rack Type	MMU (Channels)
815.1	6	52x44x24	4	16	6	4	2	16
815.2	6	52x44x24	4	16	6	4	2	16

*Approximate cabinet dimensions are provided in inches.

The cabinet shall be made of aluminum and painted unpainted.

The cabinet shall be equipped with filter vents and two (2) thermostatic fans for forced air cooling.

The cabinet shall also be wired with a normally closed switch connected to a user defined input to the controller for remote monitoring of the control cabinets' door open status (future use).

The cabinet shall be installed with the door opening positioned in order to allow general observation of the flow of traffic and the inside of the cabinet at the same time.

Provisions shall be made for manual override of the traffic controller. Manual override equipment shall include an automatic-manual switch and interval advance hand-push button switch, both located within the auxiliary police door. Hand-push button switch shall have flexible cord of sufficient length to allow movement by the operator to observe the operation of the intersection from the controller cabinet.

ITEM 815.1, 815.2, & 816.03 (Continued)

Cabinet Door Sticker

The Contractor shall supply and install a laminated door sticker on all existing and proposed cabinets. This sticker shall be permanently affixed to the upper left-hand side of the interior main cabinet door, unless unable based on cabinet size. The sticker shall contain, at a minimum, the following:

- Plan view of traffic signals influence area; including signal housing locations, pole and post locations, detector zones, etc.
- Vehicle detection information including detector channel assignment, phase assigned, approach and termination points.
- Network communications information including IP address, subnet mask and MAC address.
- Per approach preemption information including channel, approach/direction and termination points.

GFI Duplex Outlets

The Contractor shall supply and install a second separate GFI protected duplex outlet in the proposed controller cabinets and mounted on the side wall of the cabinets for servicing other devices.

Traffic Signal Controller

The traffic controller supplied shall conform to Section 3 “Controller Units” of the NEMA TS 2 Standard. The traffic controller shall be supplied in a TS 2 Type P Configuration as required in the list of major traffic signal items included on the plans for this intersection. Specifically, the controller unit (CU) shall be supplied as actuated controller with NTCIP capabilities; defined as Type A1N in Subsection 3.2 of the NEMA TS 2 Standard.

The TS 2 Type P cabinet shall, at a minimum, meet the requirements of configuration 3 as defined in Table 5-2, “Type 1 Configurations” of the NEMA TS 2 Standard.

The controller unit shall utilize an interface conforming to Subsection 3.3 of the NEMA TS 2 Standard. The controller unit shall utilize an input/output interface conforming to the requirements of Paragraph 3.3.1 for all input/output functions with the Terminals and Facilities (TF), Malfunction Management Unit (MMU), detector rack assemblies and auxiliary devices. The controller unit shall also meet the requirements of Paragraph 3.3.6 “NTCIP Requirements” of the NEMA TS 2 Standard.

The controller unit shall be supplied with Port 1, Port 2, and Port 3 as defined by the requirements of Subsections 3.3.1, 3.3.2, and 3.3.3, respectively. The controller shall include an integrated Ethernet port and USB port.

ITEM 815.1, 815.2, & 816.03 (Continued)

The controller unit shall be keyboard-entry menu-driven unit with internal time base coordination, emergency preemption, and programmatic capability. The controller shall also be complete with a module for closed loop system functions.

The controller and cabinet shall be capable of accommodating flashing yellow arrow (FYA) operations per Section 4D.18 and 4D.20 of the MUTCD.

Flashing Operation

The controller shall be capable of functioning with both incoming and outgoing coordination.

The controller shall be equipped with a separate emergency flashing mechanism capable of providing flashing operation at the rate of 50 to 60 flashes per minute. This mechanism shall be so wired and so mounted within the cabinet that it will continue to cause the signals to flash even when the basic controller is removed from the cabinet.

Changes from automatic flashing to stop-and-go operation and from stop-and-go to automatic flashing operation shall occur as set forth in Section 4D.28-31 of the MUTCD. Flashing yellow arrow operations shall be in conformance with Section 4D.18 and 4D.20 of the M.U.T.C.D.

Coordination

Communication for proposed coordinated signal system is planned to be via the use of GPS receivers mount to each cabinet. The signal communication system work shall require the Contractor to furnish and install a fully operational GPS communications network for the closed-loop traffic signal control systems, as shown on the plans and in accordance with this Special Provision, or as ordered. The work shall include, but not be limited to, performing a GPS site evaluation and GPS frequency path analysis as needed; installation and testing of GPS antennas, coaxial cable, and GPS modules in cabinets; furnishing and installing terminal facilities in existing and new controller cabinets, connecting the cables to the terminal in each controller cabinet; and installing lightening protection.

Traffic Signal Cabinet Equipment

The traffic signal controller unit (CU), MMU, detector amplifiers, cabinet power supply, bus interface units (BIUs) and all other ancillary traffic signal control components included in the traffic control cabinet shall comply with the NEMA Standard No. TS 2-1998, Traffic Controller Assemblies with National Transportation Communications for ITS Protocol (NTCIP) Requirements.

ITEM 815.1, 815.2, & 816.03 (Continued)

Malfunction Management Unit

The MMU shall comply with Section 4 of the NEMA TS 2 standard. The MMU shall be capable of operating as either a Type 16 with 16 channels (8 vehicle, 4 pedestrian, 4 overlap) or a Type 12 with 12 channels (8 vehicle, 4 overlap). The MMU's supplied shall be configured to operate as Type 16 units. The MMU supplied shall be set-up to operate in conflict monitor mode. The MMU shall be compatible with the traffic signal controller and shall include an integrated Ethernet port, or approved equivalent.

The MMU's in either the Type 16 or Type 12 configuration shall be capable of operating in a NEMA TS 2 Type 1 cabinet, a NEMA TS 2 Type 2 cabinet, or a NEMA TS 1 cabinet without loss of functionality.

The MMU shall be capable of accommodating FYA operations per Section 4D.18 and 4D.20 of the MUTCD.

Bus Interface Units

The BIUs shall comply with Section 8 of the NEMA TS 2 Standard. The BIU shall be fully interchangeable with any other manufacturer's unit and interchangeable in a NEMA TS 2 Type 2 cabinet assembly.

At a minimum the BIU shall perform the interface function between port 1 at the controller unit, the MMU, the loop detector rack assembly, and the terminal facilities. The cabinets shall be supplied with the appropriate number of BIUs required to provide an operating traffic control signal according to the plans and these specifications.

As a minimum, two LED indicators shall be provided on the BIU front panel. One indicator shall serve a dual use; as a power on indication and as a diagnostic indicator for proper operation of the device. The second indicator shall serve as a transmit indicator illuminating each time data is transmitted.

Cabinet Power Supply

A separate power supply shall be supplied and installed in the TS 2 cabinet. As a minimum, the power supply shall meet all requirements of Paragraph 5.3.5 of the National Electrical Manufacturers Association (NEMA) TS 2 Standard. The unit shall be AC line powered and provide regulated DC power, unregulated AC power, a line frequency reference for the rack mounted loop amplifiers, bus interface units, load switches and other auxiliary cabinet equipment as required.

The power supply shall be either shelf mounted or installed as part of the detector rack assembly.

ITEM 815.1, 815.2, & 816.03 (Continued)

The unit shall contain four LED indicators on the front panel to indicate the four outputs;

1. + 12 VDC +/- 1 VDC @ 2.0 amps,
2. + 24 VDC +/- 2 VDC @ 2.0 amps,
3. 12 VAC @ 250 milliamps, and
4. 60 Hz line frequency reference.

A test point terminal shall also be located on the unit's front panel for + 24VDC and logic ground testing.

Load Switches

Load switches shall comply with Subsection 6.2 of the NEMA TS 2 standard. All load switches shall utilize optically isolated encapsulated modular solid-state relays. Discrete components on circuit boards are not acceptable.

Load switch indicator lights shall be LED-type and wired on the input side of the device.

Flasher

Flashers shall comply with Subsection 6.3 of the NEMA TS 2 Standard and be equipped with two output indicator lights which will show flashing power out to the cabinet assembly.

Flash Transfer Relays

Flash transfer relays shall comply with Subsection 6.4 of the NEMA TS 2 standard. The field electrical loading for flash operation shall be wired through the transfer relays such that the load on the 2-circuit flasher is as balanced as possible within the limitations of the signal phasing.

Spare Equipment

The Contractor shall provide the following spare signal equipment in each of the traffic signal controller cabinets for Locations 1 and 2 (Items 815.1 and 815.2) listed below:

- A full complement of load switches to accommodate each available position on the back panel;
- A full complement of flash transfer relays to accommodate each available position on the back panel;
- Two (2) Bus Interface Units (BIU's)
- One (1) Video Detection Module [as needed – dependent on brand]
- One (1) Loop Detection Module
- A 25-foot RS-232 cable for communication function with a laptop computer

ITEM 815.1, 815.2, & 816.03 (Continued)

Surge Suppression

Each cabinet shall have each input and output surge protected except signal outputs from cabinet load switches. (The load switches act as surge suppressors.)

The surge protector must be electrically connected to the nearest grounded metal structure or nearest ground rod.

Surge protection for power service shall conform to the NEMA TS-2 standard. The product complies when a lab report summary from an independent test laboratory stating the product passes the current NEMA TS-2(5.4.2.4) specification is submitted with the shop drawings.

Surge protection for all loop, pedestrian button, and pre-emption connections shall have peak surge current protection of at least 10kA with a response time of less than 5 nanoseconds. The product complies when a lab report summary from an independent test laboratory stating the product passes this specification is submitted with the shop drawings.

Units shall be plug mounted in the controller cabinet.

At a minimum surge suppression shall be provided for loop detectors, power service, and emergency preemption.

Units shall be unconditionally warrantied for at least 5 years. Manufacturers without publicly advertised 5-year warranties must provide written confirmation that they will warranty the surge suppression unit for five years and this documentation is to be provided with the shop drawing submission.

Emergency Vehicle Preemption

The emergency vehicle preemption system shall be per City of Amesbury Standards, shall be fully compatible with City of Amesbury Fire Department equipment, including any coding requirements and installed in the same cabinet as the controller. It is the responsibility of the Contractor to determine pre-emption operation requirements through the City's Fire Chief.

Cabling for the emergency preemption system shall be separate from the cable associated with the traffic signal system.

The emergency vehicle preemption control system shall consist of a data-encoded phase selector to be installed within the traffic control cabinet. This unit will serve to validate, identify, classify, and record the signal from the optical detectors located on support structures at the intersection. Upon receiving a valid signal from the detector, the phase selector shall generate a preempt call to the controller initiating a preemption operation as shown on the plans.

The optical detectors shall be single input, single output units used to control one approach. All traffic signal installations shall be supplied with a minimum of two optical detectors unless otherwise noted in the major items list.

ITEM 815.1, 815.2, & 816.03 (Continued)

The phase selector shall be a rack-mounted plug-in, dual priority device. The phase selector shall plug into a shelf-mounted single card slot chassis. Programming the phase selector shall be via a PC-based computer utilizing unit specific software. One copy of software, on a CD shall be supplied and licensed to the Cityn of Amesbury. A hard copy of final programming data shall be left in the control cabinet. The Contractor shall supply a complete set of interface cables for phase selector to laptop connection.

The Contractor shall install a confirmation strobe at the traffic signal location as shown on the plans. The confirmation strobe shall serve to validate to the driver of the emergency vehicle that the traffic signal has recognized the preemption call and will initiate the proper preemption sequence. The confirmation strobe shall be a white lens.

The Contractor shall be responsible for the proper programming of the phase selector, final orientation of the optical detectors (should field conditions warrant a different direction per the plans), and all other work necessary to provide a complete and operating emergency vehicle preemption system. The Contractor may be required to field adjust the location of the optical detectors in the presence of the Engineer to properly detect preemption calls from approaching vehicles.

Loop Detector Amplifiers and Rack Assembly

The detector rack assembly shall conform to Paragraph 5.3.4 of the NEMA TS 2 Standard. The detector rack assembly shall be supplied in a Type 2 configuration as defined in Table 5-9 of the NEMA TS 2 Standard.

The loop detector amplifiers shall conform to Subsection 6.5 of the NEMA TS 2 Standard. The loop detector amplifiers supplied shall be a Type C rack, two channel units with delay and extension timing internal to each unit's channel, as defined in Table 6-1 of the NEMA TS 2 Standard. (Note: Delay and/or extension timings shall be programmed in the controllers and not on the detector amplifiers). The two-channel card rack loop amplifier units shall occupy one of the rack slots in the assembly.

The detector unit shall be capable of operating in a voltage range from 10.8 to 26.5 VDC. The unit shall operate from the cabinet's external power supply at 12 VDC.

The front portion of the detector rack shall be provided with a marker strip to allow identification of detector phase assignments. In addition to the required marker strip, the Contractor shall supply and install on the upper left-hand corner of the back of the cabinet door a laminated, pictorial diagram depicting the traffic detector amplifier channel assignments. The assignment information contained shall include approach name, phase, detector number and terminal numbers.

ITEM 815.1, 815.2, & 816.03 (Continued)

Vehicle Loop Detectors

Wire loop detectors shall be installed in the roadway for vehicle queue detection on each Interstate 495 off-ramp. In advance of the loop detector installation, the Contractor shall mark, on site, the loop detectors with any changes required by field conditions such as manholes. The loop detector layout shall be inspected and approved by the Engineer before the loop detectors are installed.

Loop wire shall be encased in a protected plastic tubing of PVC or polyethylene plastic, IMSA 51-5, 0.25 inches outside diameter, and the wire may have cross-linked polyethylene insulation or it may have THHN/THWN insulation.

Splicing insulator shall be an approved re-enterable rigid body splice kit with a non-hardening sealing compound compatible with the wire insulation.

Splice and Connection: Splicing and connection shall be made in the pull box / handhole nearest the roadway loop sensor but not exceeding four loops per pull box. All loops included in a detector group as shown on the plans shall be spliced in a single pull box. Each lead and lead-in connector shall be stripped back and spliced using a pressure type wire connector applied with a crimping tool. Multiple loop sensors shall be identified as detailed on the plans.

Each lead-in cable shall run directly, without intermediate splices, from the loop detector splice kit to the terminal end connection in the controller cabinet. Lead-in splicing shall be staggered to prevent contract with each other. Each crimped splice shall be soldered and insulated. The insulation material shall be heat-shrinked polyolefin. The shielded lead-in cable outer jacket and shield shall be stripped back sufficiently to ensure that the shield cannot come into contact with the spliced conductors. Follow the instructions of the kit manufacturer for this procedure when installing the re-enterable splice kit.

NOTE WELL: The above splice shall be done on the day of the loop wire installation to prevent the entrance of any moisture into the plastic tubing.

The lead-in conductors shall be connected to the appropriate terminals in the controller cabinet, by using crimped or soldered terminal ends. The heat source for soldering shall be electrical not exceeding 30W capacity.

Testing of Loops

The following test procedure shall be performed in the presence of the Engineer before and after the loop sensor is sealed in the pavement as detailed below. The cost of equipment, labor, and materials to perform such testing and similar re-testing following repairs, replacement, or adjustment of any detector within the project area shall be included in the contract lump sum unit price for this Item.

ITEM 815.1, 815.2, & 816.03 (Continued)

After installation of wire loop sensors in the roadway and installation of shielded lead-in connecting the loop sensors to the controller cabinet each loop sensor and lead-in combination shall be tested (at the controller cabinet) for proper installation. This includes testing for continuity, inductance, and the resistance for the loop-ground, loop-shield, and shield-ground. The resistance from lead to lead of the same loop shall not exceed three (3) ohms per one thousand (1,000) feet as measured by a high-quality meter suitable for measurements of low resistance in the range of 1 to 6 ohms.

A megohmmeter test at 500 volts DC shall be made between the two leads of a loop/lead-in combination temporarily spliced together, but otherwise disconnected from all terminals, and the shield drain wire and the earth ground connection. These resistances shall be at least one hundred (100) megohms.

A megohm meter test at 500 volts DC shall be made between lead-in shield and the earth ground rod. This resistance shall be at least one hundred (100) megohms.

The meter used for these tests shall be checked for calibration each day of use by using a resistor block of ±5% resistors simulating loads of 1 megohm, 20 megohm and 100 megohms. The observed meter reading shall be ±10% of the nominal resistor load.

If any loop sensor and lead-in combination fails to pass any one of the four (4) tests, it shall be repaired and then re-tested on two occasions at least two (2) weeks apart, and then shall pass on each re-test occasion. If the loop sensor lead-in combination does not pass all these re-tests, a new loop sensor and/or lead-in shall be installed, and shall pass these tests, at no additional cost.

After the above tests have been satisfactorily completed, all loop sensor/shielded lead-in inductances shall be measured, a written report of the results shall be filed with the Engineer, and a copy stored with the “box prints” at the intersection.

Existing Video Detection

Existing video detection at Location 3 (Item 816.03) shall be maintained unless otherwise noted for removal or replacement. If the existing detection is compromised by other work; detection shall be restored within 10 calendar days.

Video Detection

Video detection shall be installed for vehicle and bicycle detection at the following intersections:

- Location 1 (Item 815.1): Hillside Avenue (Route 150) / Interstate 495 SB Ramps
- Location 2 (Item 815.2): Hillside Avenue (Route 150) / Pond View Avenue (Route 150) / South Hunt Road / Interstate 495 NB Ramps

ITEM 815.1, 815.2, & 816.03 (Continued)

Specific video detection to be installed at this location is specified on the plans. This section covers the minimum requirements for a system that detects vehicles on a roadway using only video images of vehicle traffic.

The Contractor has option to provide and install a Single-Point Video Detection (SPVD) System [omni-directional] or a multi-camera system as also defined in these special provisions. Plan set currently shows location a multi-camera system. The Contractor shall notify designer of use of SPVD to allow for revisions to traffic signal plans.

Camera Monitor

The Contractor shall install a 7-inch TFT L.C.D. video monitor that is to be permanently mounted in the controller cabinet on a swivel mount of Items 815.1 and 815.2. The Contractor shall provide any wires or ancillary equipment to allow for communication between the L.C.D. monitor and the traffic signal controller cabinet.

SINGLE-POINT VIDEO DETECTION OPTION A:

The SPVD system shall include a single ultra-wide-angle lens camera, video processor unit, detection algorithms, all cables, connections, mounting hardware, application software, and accessories required by the manufacturer for proper operation of the system, including but not limited to surge protection devices.

Video software and a transfer cable shall be supplied to the MassDOT at the time of acceptance.

System Hardware

The SPVD system shall detect and monitor vehicles on approach roadways utilizing advanced, omni-directional, vehicle tracking algorithms along with three-dimensional vehicle modeling to supply accurate and consistent stop line detection.

The SPVD system shall include all necessary software and hardware to allow the end user to program, setup, and/or modify detection zones within the video camera image. One pointing device and one swivel mounted color monitor within the controller cabinet for future viewing of the detection camera images shall be supplied by the Contractor. The Contractor shall also supply any necessary cables, interface devices and software for monitoring video detection via laptop computers per the manufacturer’s recommendations.

The camera shall be mounted at the intersection, as shown on the plan or as directed by The Engineer. The Contractor shall notify designer of use of SPVD to allow for update of traffic signal plans with single camera location).

<u>ITEM 815.1, 815.2, & 816.03</u> (Continued)

Camera Minimum Requirements

At a minimum, the SPVD shall meet the following camera requirements:

- Power: 48 VDC, single burial grade CAT 5e cable
- Operating Temp: -35C to +60C
- Humidity: Up to 100%
- Dimensions: 10" diameter x 9"
- Weight: less than 11 lbs.
- The camera shall include an ultra-wide-angle lens.
- The camera shall include a heater to prevent the formation of ice and condensation.
- The camera, when properly installed and configured, shall be able to concurrently observe at least 5 lanes of traffic per approach.
- The camera shall be able to concurrently observe more than one approach.
- The camera, mounting hardware, and any related materials, when properly installed, shall withstand 150 mph wind speeds.
- The camera shall operate at a level of presence detection accuracy at or above 97 percent, excluding issues of occlusion due to limitations imposed by camera placement.

Video Processor Unit Minimum Requirements

- Power: 120-240 VAC, requiring 150 watts or less.
- Operating Temp: -34C to +74C
- Humidity: Up to 95% non-condensing
- Dimensions: 12.25" wide x 11.25" depth x 5" high
- Enclosure: Rack mount in traffic cabinet

The video processor unit shall save configurations and zone plans locally to maintain operation with or without monitoring equipment connected. The video processor unit shall be designed to function dependably in the adverse environment found in the typical roadside traffic cabinet. The video processor unit shall include at least 24 detector outputs. The video processor unit shall include an SDLC connection for TS2 type controllers. The video processor shall be compatible with TS1 type controllers as well. The video processor unit shall include a USB on the front surface for simple data collection on non-networked systems. The video processor unit shall include both LAN and WAN RJ-45 interface ports on the front surface of the unit.

Application Software Minimum Requirements

The application software shall support the creation and modification of at least twenty-four (24) polygonal detection zones within the graphical user interface.

The application software will show images of the detection zones superimposed on the video image of traffic.

ITEM 815.1, 815.2, & 816.03 (Continued)

The application software shall support the assignment of a detector output(s) to each zone. These assignments can be modified at any time through the software.

The application software shall support direction of travel assignment within detection zones. The vehicle detection zone shall not activate for objects traveling any direction other than the one specified for detection. Cross-street and wrong way traffic shall not cause detection.

The application software shall change the color of the zone within the graphical user interface as vehicles enter or exit a detection zone, changing its occupancy status.

The application software shall provide visual indication of the light state for each zone within the

The application software shall feature the ability to digitally pan, tilt, and zoom within the camera's field of view without movement of the camera.

The application software shall feature the ability to mask objects that occlude the camera field of view and/or disrupt the camera automatic gain and exposure control.

The application software shall feature an optional reporting interface offering point and click reporting for turning movement counts and vehicle classification.

The Contractor shall provide software that enables a technician to test all features and functions of the SPVD system, and to perform all set-up procedures. This software shall be delivered on a CD so that it can be installed on other laptops. MassDOT shall have the right to make and use an unlimited number of copies of this software.

Installation

The SPVD system shall be installed in accordance with the manufacturer's recommended procedure for installation. The SPVD system shall be installed by factory certified installers and as recommended by the manufacturer and documented in installation materials provided by the manufacturer. Proof of the factory certification shall be provided. Installation includes connecting the SPVD to the traffic signal controller and power supply in the associated controller cabinet assembly. When the setup is complete and the SPVD system is ready for operation, the values of all parameters that were set during the process shall be delivered to the Engineer in printed and computer readable form. All equipment, such as software, laptop computer, tools and cables, needed for setup work shall be provided by the Contractor.

If the mounting suggested height of installation cannot be performed with traditional mast arm, the contractor shall supply a combination mast arm / luminaire pole to achieve height requirements at which the cost shall be considered under Items 815.1 and 815.2 for each location, respectively.

ITEM 815.1, 815.2, & 816.03 (Continued)

Programming

The Contractor shall be responsible for the proper programming of the SPVD, orientation of the SPVD, and all other work necessary to provide a complete vehicle detection system. The Contractor may be required to field adjust the location of the SPVD system in the presence of the Engineer to properly detect approaching vehicles.

Documentation

The cabinet documentation (box prints) shall show all wiring between the SPVD system and the controller cabinet.

Warranty

The supplier shall provide a three-year warranty on the SPVD system following installation and warranty registration. The camera shall include an additional warranty to require no aiming or focusing for a period of five years. During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

During the warranty period, updates to SPVD software shall be available from the supplier without charge.

MULTI-CAMERA SYSTEM OPTION B:

A multi-camera system shall include four cameras (one per approach), video processor unit, detection algorithms, all cables, connections, mounting hardware, application software, and accessories required by the manufacturer for proper operation of the system, including but not limited to surge protection devices.

System Hardware

Processor shall be a 2-channel processor. The video detection system shall consist of one or more video cameras, a video detection processor (VDP) which mounts in a standard detector rack; a detector rack mounted extension module (EM), and a pointing device.

System Software

The system shall include software that detects vehicles in multiple lanes using only the video image. Detection zones shall be defined using only an onboard video menu and a pointing device to place the zones on a video image. Up to 24 detection zones per camera shall be available. A separate computer shall not be required to program the detection zones.

Video software and a transfer cable shall be supplied to MassDOT at the time of acceptance.

ITEM 815.1, 815.2, & 816.03 (Continued)

Limited Warranty

The supplier shall provide a two-year warranty on the entire video detection system (equipment and software).

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

During the warranty period, updates to VDP software shall be available from the supplier without charge.

Maintenance Support

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on-site technical support services.

Installation or training support shall be provided by a factory authorized representative. All product documentation shall be written in the English language.

Functional Capabilities

The VDP shall process video from one or two sources, as specified. The source can be a video camera or video tape player. The video shall be input to the VDP in RS170 format and shall be digitized and analyzed in real time. Dual video VDP’s shall process images from both inputs simultaneously.

The VDP shall detect the presence of vehicles in up to 24 detection zones per camera. A detection zone shall be approximately the width and length of one car.

Detection zones shall be programmed via an on-board menu displayed on a video monitor and a pointing device connected to the VDP. The menu shall facilitate placement of detection zones and setting of zone parameters or to view system parameters. A separate computer shall not be required for programming detection zones or to view system operation.

The VDP shall store up to three different detection zone patterns. The VDP can switch to any one of the three different detection patterns within 1 second of user request via menu selection with the pointing device.

ITEM 815.1, 815.2, & 816.03 (Continued)

The VDP shall detect vehicles in real time as they travel across each detector zone.

The VDP shall have an RS-232 port for communications with an external computer. The VDP RS-232 port shall be multi-drop compatible.

The VDP shall accept new detector patterns from an external computer through the RS-232 port when the external computer uses the correct communications protocol for downloading detector patterns. A Windows™-based software designed for local or remote connection and providing video capture, real-time detection indication and detection zone modification capability shall be provided with the system.

The VDP shall send its detection patterns to an external computer through the RS-232 port when requested when the external computer uses the appropriate communications protocol for uploading detector patterns.

The extension module (EM) shall be installed to avoid the need of rewiring the detector rack, by enabling the user to plug an extension module into the appropriate slot in the detector rack. The extension module shall be connected to the VDP by an 8-wire cable with modular connectors.

VDP and EM communications shall be accommodated by methods using differential signals to reject electrically coupled noise. The extension module shall be available in both 2 and 4 channel configurations. EM configurations shall be programmable from the VDP.

The camera system shall be able to transmit an NTSC video signal, with minimal signal degradation, up to 1000 feet under ideal conditions.

The associated VDP shall default to a safe condition, such as a constant call on each active detection channel, in the event of loss of video signal.

The system shall be capable of automatically detecting a low-visibility condition such as fog and respond by placing all defined detection zones in a constant call mode. A user-selected output shall be active during the low-visibility condition that can be used to modify the controller operation if connected to the appropriate controller input modifier(s). The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists.

Vehicle Detection

A minimum of 24 detection zones shall be supported and each detection zone shall be user definable in size and shape to suit the site and the desired vehicle detection region.

A single detection zone shall be able to replace multiple inductive loops and the detection zones shall be OR'ed as the default or may be AND'ed together to indicate vehicle presence on a single phase of traffic movement.

ITEM 815.1, 815.2, & 816.03 (Continued)

Placement of detection zones shall be done by using only a pointing device, and a graphical interface built into the VDP and displayed on a video monitor, to draw the detection zones on the video image from the video camera. No separate computer shall be required to program the detection zones.

A minimum of 3 detection zone patterns shall be saved within the VDP memory. The VDP's memory shall be non-volatile to prevent data loss during power outages. The VDP shall continue to operate (e.g. detect vehicles) using the existing zone configurations even when the operator is defining/modifying a zone pattern. The new zone configuration shall not go into effect until the configuration is saved by the operator.

The selection of the detection zone pattern for current use shall be done through a menu or remote computer via RS-232 port. It shall be possible to activate a detection zone pattern for a camera from VDP memory and have that detection zone pattern displayed within 1 second of activation.

When a vehicle is detected crossing a detection zone, the corners of the detection zone (for the entire polygon) will flash on the video overlay display screen to confirm the detection of the vehicle.

Detection shall be at least 98% accurate in good weather conditions and at least 96% accurate under adverse weather conditions (rain, snow, or fog). Detection accuracy is dependent upon site geometry; camera placement, camera quality and detection zone location, and these accuracy levels do not include allowances for occlusion or poor video due to camera location or quality.

Detector placement shall not be more distant from the camera than a distance of ten times the mounting height of the camera.

The VDP shall provide up to 24 channels of vehicle presence detection per camera through a standard detector rack edge connector and one or more extension modules.

The VDP shall provide dynamic zone reconfiguration (DZR) to enable normal detector operation of existing channels except the one where a zone is being added or modified during the setup process. The VDP shall output a constant call on any detection channel corresponding to a zone being modified.

Detection zone setup shall not require site specific information such as latitude, longitude, date and time to be entered into the system.

The VDP shall output a constant call for each enabled detector output channel if a loss of video signal occurs. The VDP shall output a constant call during the background learning period.

Detection zone outputs shall be configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse, extend, and delay outputs shall be user definable between 0.1 to 25.0 seconds.

ITEM 815.1, 815.2, & 816.03 (Continued)

Up to six detection zones shall be capable to count the number of vehicles detected. The count value shall be internally stored for later retrieval through the RS-232 port. The data collection interval shall be user definable in periods of 5, 15, 30 or 60 minutes.

VDP and EM Hardware

The VDP and EM shall be specifically designed to mount in a standard TS-1, TS-2, and 170 type detector rack, using the edge connector to obtain power and provide contact closure outputs. No adapters shall be required to mount the VDP or EM in a standard detector rack. Detector rack rewiring shall not be required or shall be minimized.

The VDP and EM shall operate in a temperature range from -34°C to +74°C and a humidity range from 0%RH to 95%RH, non-condensing.

The VDP and EM shall be powered by 12 or 24 volts DC. These modules shall automatically compensate for the different input voltages.

VDP power consumption shall not exceed 300 milliamps at 24 VDC. The EM power consumption shall not exceed 120 milliamps at 24 VDC.

The VDP shall include an RS-232 port for serial communications with a remote computer. The VDP RS-232 port shall be multi-drop compatible. This port shall be a 9-pin "D" subminiature connector on the front of the VDP.

The VDP shall utilize flash memory technology to enable the loading of modified or enhanced software through the RS-232 port without modifying the VDP hardware.

The VDP and EM shall include detector output pin out compatibility with industry standard detector racks.

The front of the VDP shall include detection indications, such as LED's, for each channel of detection that display detector outputs in real time when the system is operational.

The front of the VDP shall include one or two BNC video input connection suitable for RS-170 video inputs as required. The video input shall include a switch selectable 75-ohm or high impedance termination to allow camera video to be routed to other devices, as well as input to the VDP for vehicle detection. Video must be inputted via a BNC connector on the front face of the processor. RCA type connectors/jacks for video input are not allowed. Video shall not be routed via the edge connectors of the processor.

The front of the VDP shall include one BNC video output providing real time video output that can be routed to other devices. An RCA type connector/jack for video output is not allowed.

The front panel of the VDP and EM shall have a detector test switch to allow the user to place calls on each channel. The test switch shall be able to place either a constant call or a momentary call depending on the position of the switch.

ITEM 815.1, 815.2, & 816.03 (Continued)

Video Detection Camera

The video cameras used for traffic detection shall be furnished by the VDP supplier and shall be qualified by the supplier to ensure proper system operation.

The camera shall produce a useable video image of the bodies of vehicles under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 0.1 lux to 10,000 lux.

The camera shall use a charge coupled device (CCD) sensing element and shall output monochrome video with resolution of not less than 380 lines vertical and 380 lines horizontal.

The camera shall include an electronic shutter control based upon average scene luminance and shall be equipped with a factory adjusted manual iris. Auto-iris lenses are not allowed.

The camera shall include a variable focal length lens with variable focus that can be adjusted, without opening up the camera housing, to suit the site geometry by means of a portable interface device designed for that purpose and manufactured by the detection system supplier.

The horizontal field of view shall be adjustable from 8.1 to 45.9 degrees. A single camera configuration shall be used for all approaches in order to minimize the setup time and spares required by the user. The camera electronics shall include automatic gain control (AGC) to produce a satisfactory image at night.

The camera shall be housed in a weather-tight sealed enclosure. The housing shall be field rotatable to allow proper alignment between the camera and the traveled road surface.

The camera enclosure shall be equipped with a sunshield. The sunshield shall include a provision for water diversion to prevent water from flowing in the camera's field of view. The camera enclosure with sunshield shall be less than 6" diameter, less than 15" long, and shall weigh less than 6 pounds when the camera and lens are mounted inside the enclosure.

The camera enclosure shall include a thermostatically controlled heater to assure proper operation of the lens shutter at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure.

When mounted outdoors in the enclosure, the camera shall operate satisfactorily in a temperature range from -34 °C to +60 °C and a humidity range from 0% RH to 100% RH.

The camera shall be powered by 120-240 VAC 50/60 Hz. Power consumption shall be 15 watts or less under all conditions.

ITEM 815.1, 815.2, & 816.03 (Continued)

Recommended camera placement height shall be at least 20 feet (or 6 meters) above the roadway, and over the traveled way on which vehicles are to be detected. For optimum detection the camera should be centered above the traveled roadway. The camera shall view approaching vehicles at a distance not to exceed 200 feet for reliable detection (height to distance ratio of 10:100). Camera placement and field of view (FOV) shall be unobstructed and as noted in the installation documentation provided by the supplier.

The camera enclosure shall be equipped with separate, weather-tight connections for power and setup video cables at the rear of the enclosure. These connections may also allow diagnostic testing and viewing of video at the camera while the camera is installed on a mast arm or pole using a lens adjustment module (LAM) supplied by the VDP supplier. Video and power shall not be connected within the same connector.

The video signal output by the camera shall be black and white in RS170 or CCIR format.

The video signal shall be fully isolated from the camera enclosure and power cabling.

Co-Axial Cable

The coaxial cable to be used between the camera and the VDP in the traffic cabinet shall be Belden 8281 or a 75-ohm, precision video cable with 20 gauge solid bare copper conductor (9.9 ohms/M), solid polyethylene insulating dielectric, 98% (min) tinned copper double-braided shield and black polyethylene outer covering. The signal attenuation shall not exceed 0.78 dB per 100 feet at 10 MHz. Nominal outside diameter is 0.304 inches. The coax cable shall be a continuous unbroken run from the camera to the VDP. This cable shall be suitable for installation in conduit or overhead with appropriate span wire. 75-ohm BNC plug connectors should be used at both the camera and cabinet ends. The coaxial cable, BNC connector, and crimping tool shall be approved by the supplier of the video detection system, and the manufacturer's instructions must be followed to ensure proper connection.

Power Cabling

The power cabling shall be 16 AWG three-conductor cable. The cabling shall comply with the National Electric Code, as well as local electrical codes. Cameras may acquire power from the luminaire if necessary.

Execution

The video detection system shall be installed by supplier factory certified installers and as recommended by the supplier and documented in installation materials provided by the supplier. Proof of factory certification shall be provided.

ITEM 815.1, 815.2, & 816.03 (Continued)

Testing of Cameras

The following test procedure shall be performed in the presence of the Engineer before and after the camera detection is used. The cost of equipment, labor, and materials to perform such testing and similar re-testing following repairs, replacement, or adjustment of any camera within the project area shall be included in the contract unit price for this Item.

After installation of cameras above the roadway each camera shall be tested (at the controller cabinet) for proper installation.

Mast Arms, Poles, and Foundations (less than 60 feet in length)

All mast arm poles shall be Type 2 steel monolevers primed to MassDOT standards, with shoe bases. Mast arm assemblies shall be unpainted. Mast arms, poles, and foundations shall be fabricated and constructed in conformance with the MassDOT's *Overhead Signal Structure & Foundation Standard Drawings* issued December 2015.

Acceptance of Type 2 mast arm poles will be contingent upon review and approval of shop drawings submitted by the Contractor. Longhand design calculations shall be submitted by the Contractor with the shop drawings for the Type 2 mast arm pole. The Contractor shall provide a set of calculations, stamped by a Structural Engineer registered in the Commonwealth of Massachusetts, along with plans and specifications for review by the Engineer.

Considered incidental to this item, the Contractor shall perform soil test borings for each mast arm foundation location to confirm existing soil parameters. The contractor shall submit the test boring logs to the Engineer for review and approval of the selected Mast Arm Foundation geometry in accordance with the MassDOT 2015 Overhead Signal Structure & Foundation Standard Drawings. For the purposes of bidding, the Contractor shall assume that all soils are wet loose sand and that foundation depth is equivalent to MassDOT standard for this soil type and as noted in the table below. Final design of depth and rebar will be determined following the soil test borings by the Engineer.

The mast arm pole foundations shall be a cored pier foundation and constructed in conformance with MassDOT Standard Drawings included in the plans and priced per the table provided below.

Pier Foundation Assumptions for 110 MPH Wind Speed Zone

STA/OFF	Soil Type	Mast Arm Length	Fdn. Dia.	Fdn. Depth	Vertical Bars	Tie Bars
103+84 LT 56.8'	TBD	35'	3'-6"	TBD	18-#8	#5 @ 9"
104+95 LT 39.3'	TBD	40'	3'-6"	TBD	18-#8	#5 @ 9"
104+96 RT 29.4'	TBD	20'	3'-6"	TBD	18-#8	#5 @ 12"
105+97 RT 29.7'	TBD	20'	3'-6"	TBD	18-#8	#5 @ 12"
112+08 RT 48.9'	TBD	40'	3'-6"	TBD	18-#8	#5 @ 9"
112+12 LT 33.3'	TBD	25'	3'-6"	TBD	18-#8	#5 @ 12"
113+20 RT 34.2'	TBD	35'	3'-6"	TBD	18-#8	#5 @ 9"
113+34 LT 36.2'	TBD	45'	4'-0"	TBD	18-#9	#5 @ 9"

ITEM 815.1, 815.2, & 816.03 (Continued)

Concrete foundations shall be constructed of 4000 psi, 565 Cement Concrete. The Contractor shall submit shop drawings of any bolt circle details for approval by the Engineer. Anchor bolts shall be set accurately, and tops shall be formed neatly. The top forming of cast-in-place units shall extend downward for a minimum of 24" on the side of any foundation. The lower portions of all foundations shall be placed directly against undisturbed earth. At the time of foundation construction, the Contractor shall be responsible to complete material testing of mast arm foundation concrete and rebar in accordance with the Standard Specifications.

Relocation of utilities for the convenience of drilling may be needed and shall be at the expense of the Contractor if requested. The Contractor shall be responsible for all items required to install traffic signal infrastructure at location(s); including, but not limited to, shielding of overhead primary / secondary wires within 10-feet, insulation of overhead wires, relocation of overhead wires, and/or for the potential use of other low-profile installation and/or excavation techniques as necessary. The Contractor shall be responsible for making all necessary arrangements to have the proper utility company(s) relocate overhead wires in order for the proper mast arm clearances or visibility to traffic signal indications to be obtained, should any conflicts arise. The Contractor shall take extra care and precaution in placing signal heads to ensure the existing or proposed/future overhead utility wires do not interfere with the visibility of the signal heads located above the roadway. All measurements to determine the exact dimensions and clearances to existing overhead utility lines shall be made in the field by the Contractor for incorporation into the erection plans and shop drawings which are submitted for approval. This may require relocation of overhead wires in coordination with the utility company. No separate payment will be made for work considered incidental to the traffic signal equipment related to the utility company coordination or implementation as noted, but all costs in connection therewith shall be included in the lump sum bid price for Items 815.1 and 815.2.

In the event that soil conditions or ledge prevent the use of MassDOT standard foundation type, the Contractor shall coordinate with the Engineer to select and design alternative foundation types that fit within the existing right-of-way. Alternative foundation types could include spread footings, coring and socketing into rock or other foundations previously used to support similar loads, within reason.

The bottom of the signal head shall have a minimum clearance of not less than 17'-6" or greater than 19 feet above the pavement grade at the center of the roadway.

New mast arm pole foundations shall not obstruct a sidewalk or crosswalk so that passage by physically-challenged persons is impaired. The installation shall be in compliance with ADA/AAB standards.

No separate payment will be made for work considered incidental to the excavation, including but not limited to, mast arm foundations, dewatering, etc. but all costs in connection therewith shall be included in the lump sum bid prices for Items 815.1 and 815.2, respectively.

ITEM 815.1, 815.2, & 816.03 (Continued)

Posts and Foundations

The new pedestal posts shall have transformer bases and be made of aluminum. New signal base foundations shall not obstruct a sidewalk or crosswalk so that passage by physically-challenged persons is impaired. The installation shall be in compliance with ADA/AAB standards. Sidewalk extensions shall be provided when needed in order to maintain minimum ADA/AAB compliance.

The new pedestal posts on new foundations may utilize either precast or cast-in-place cement concrete pedestal post foundations constructed in conformance with the MassDOT Standard Drawings.

No separate payment will be made for work considered incidental to the excavation, including but not limited to, pedestal post foundations, dewatering, etc. but all costs in connection therewith shall be included in the lump sum bid prices for Items 815.1 and 815.2.

Steel Equipment

Galvanizing

All bolts, screws, nuts, rods and washers shall be galvanized in accordance with AASHTO M232 and the Standard Specifications. The hardened machine screws may be electroplate galvanized. Stainless steel studs, bolts, screws, nuts, straps and washers shall not be galvanized. Galvanized hardware need not be painted; however, the ends of bolts, nuts, and washers shall be painted in the field according to section "Touch-up and Repairs." Immediately prior to galvanizing, the steel shall be immersed in a bath of zinc ammonium chloride. The dry kettle galvanizing process shall be used.

All steel components, other than above, shall be galvanized after fabrication in accordance with AASHTO M111. The galvanizing bath shall contain nickel (0.05% to 0.09% by weight).

Galvanized members requiring shop assembly shall be welded and drilled prior to galvanizing.

The applicator shall ensure that all components are smooth and without sharp protrusions that would present and injury hazard to pedestrians. Also, the fabricator shall ensure that all welds shall be cleaned thoroughly in accordance with good practice and according to AWD D1.5 and ASTM A123-89a and shall have a suitable surface to accept the galvanizing.

Should any damage occur to the galvanized coating during shipping or handling at the job site, the Contractor shall repair and touch-up any damaged areas to the satisfaction of the Engineer and the following:

Touch-up of galvanizing before the finish coat is applied shall be accomplished by applying galvanizing repair paint. The dry film thickness of the applied repair paint shall not be less than 4.0 mils. Applications shall be in accordance with the manufacturer's instruction.

ITEM 815.1, 815.2, & 816.03 (Continued)

Field touch-up procedures shall conform to the recommendations of the Galvanizer.

Aluminum Equipment

All aluminum signal pedestal posts shall have a powder coat finish YELLOW in color. The coating shall be a polyester-TGIC (triglycidyl isocyanurat) resin system conforming to the following:

Quality	Test	Limits
Abrasion	Taber abraser CS-10, 1000 gram load, 1000 cycle, ASTM D4060	100 mg. Maximum weight loss
Adhesion	ASTM D .59 Initial 1000 hours	 5A 5A
Gloss	ASTM D 523 60° - 600 hours 60° - 1000 hours	 82% retention 90% retention (washed)
Hardness	ASTM D 3363	2H – No Gouge
Impact	ASTM D 2794 Direct	Pass 80 inch-lb.
Salt Spray Resistance	ASTM B 177 ASTM D 1654 1000 hours unscribed 400 hours scribed	 Table 2-10 Table 1-10
Weather Resistant	ASTM G 23, 1000 hours, 18 min. waterspray, 102 min. light	No film failure
Color	YELLOW	
Identify	Infrared fingerprint	Match
Flexibility	180° bend; ½" dia, mandrel within 10 seconds	No breaks, flaking or cracks. Tested with a Q-panel with 2 mils or less of coating
Humidity	ASTM D 2247, 1000 hours	No blister or film failure
Thickness		4 mils +/- 1 mils
Mar Resistance		Good

A Certificate of Compliance of the powder coating system is required for the Engineer's approval.

ITEM 815.1, 815.2, & 816.03 (Continued)

Signal Housings

Signal housings mounted on mast arms shall be rigidly attached to the mast arms unless otherwise noted. All signal housings mounted overhead on mast arms shall be installed with the bottom of the signals at the same height. All traffic signal lenses shall be 12 inches in diameter unless otherwise noted on the plans. All proposed post-mounted signal housings shall be retrofitted or installed with louvered retroreflective backplates. All backplates shall be 5" wide beyond the signal housing and consist of s 3" retroreflective strip and louvers. Each indication section of the signal housing shall be installed with a tunnel visor as noted on the plans. All signal housings shall be equipped with ball and/or arrow light emitting diode (LED) modules.

LED Signal Modules

All signal and pedestrian displays shall be equipped with LED signal modules. All red, yellow, green, and pedestrian signal housings with the exception of optically programmed and fiber optic housings shall conform to the following where applicable:

- ITE's Vehicle Traffic Control Signal Housings – Light Emitting Diode (LED) Arrow Traffic Signal Supplement, Dated April 3, 2006.
- ITE's Vehicle Traffic Control Signal Housings – Light Emitting Diode (LED) Circular Signal Supplement, Dated June 27, 2005.
- ITE's Pedestrian and Countdown Signal Modules Compliant to PTCSI - Part 2 Light Emitting Diode (LED), Dated, August, 2007.
- Energy Star / EPACT Program Requirements for Traffic Signals
- On the MassDOT Traffic Signal Approved Equipment List.

An independent lab shall certify that the LED signal module complies with the applicable ITE specification. The independent report should be submitted to MassDOT for review unless the module is already on the approved list.

To prevent the LED module warranty from being voided, the connecting leads on the module shall not be cut. The original LED module leads shall be connected to the signal housing terminal block as continuous wire without splices.

The LED signal module will be replaced or repaired by the manufacturer if it exhibits one of the following:

- A failure due to workmanship or material defects within the first 60 months of field operation
- A greater than 40 percent light output degradation or a fall below the minimum intensity levels (as defined by the latest ITE performance specifications) within the first 36 months of field operation

ITEM 815.1, 815.2, & 816.03 (Continued)

Pedestrian Signal Housings with Countdown Timers

All pedestrian signal housings shall be 16-inch, single units, with countdown timers. All pedestrian signal housings shall include audible devices, if not installed as part of the push button, in conformance with the MassDOT Accessible Pedestrian Signal (APS) Installation Policy, dated June 1, 2012 and as revised. Pedestrian signal housing indications shall be illuminated L.E.D. type displaying graphical filled-in symbols of a walking person and/or upraised hand. The countdown module shall display the number of seconds remaining throughout the flashing don't walk (UPRAISED HAND) interval, and blank out during the steady walk (WALKING PERSON) and steady don't walk (UPRAISED HAND) intervals. The countdown module shall be automatically set by the intersection controller based upon the walk (WALKING PERSON) and flashing don't walk (UPRAISED HAND) signal intervals only. The countdown module shall continuously monitor the intersection controller for any changes to the pedestrian phase timing and reprogram itself automatically. All L.E.D. indications on the pedestrian signal shall have an automatic dimming circuit for night illumination to reduce long-term degradation to the LEDs.

Pedestrian Push Buttons and Audible Devices

Pedestrian push buttons shall be in conformance with the MassDOT Accessible Pedestrian Signal (APS) Installation Policy, dated June 1, 2012 and as revised. Pedestrian push buttons shall be 4-wire. Countdown signage shall be 9"x15". All push button assemblies shall be painted YELLOW without exception.

Pedestrian push button controls shall be raised from or flush with their housings and shall be a minimum of 2 inches in the smallest dimension. The force required to activate the controls shall be no greater than 5 pounds.

Pedestrian push buttons shall be located adjacent to the sidewalk curb ramp serving the controlled crossing and shall permit operation from a clear level ground space. If two crosswalks, oriented in different directions, end at or near the same location, the positioning of pedestrian pushbuttons and/or legends on the pedestrian push button signs should clearly indicate which crosswalk signal is actuated by each pedestrian push button.

Upon installation, the push button should be perpendicular to the crosswalks with the raised arrow on the push button parallel to the path of pedestrian travel. The audible device (which may be part of the push button assembly) should be capable of providing alternative audio messages / sound for those locations in which two push buttons for two separate crosswalks are within ten (10) feet of each other. At locations where two separate push buttons are within ten (1) feet of each other, different audible tones shall be set for each audible device and the audible walk indication shall be a speech "WALK"-type message.

A maximum mounting height of 42-inches above the finish sidewalk grade shall be used for pedestrian push buttons. A maximum pedestrian reach from a level surface to any installed pedestrian push button shall be no more than 10-inches. Where final installation results in more than a 10-inch reach from a level surface, the contractor shall be responsible to retrofit the push button with an extension arm or device compatible with the push button and associated pole/post.

ITEM 815.1, 815.2, & 816.03 (Continued)

Equipment Finish and Color

Traffic signal equipment including, but not limited to, signal pedestal posts, bases, signal housings, visors (outside), doors, service meter socket box, optical preemption detectors, hardware, and rigid mounting brackets for signals and signs shall be painted standard colors, subject to the approval of MassDOT or unless otherwise noted in the Special Provisions. The Contractor shall submit to the Engineer paint chips and sample finishes on steel and aluminum of the intended color prior to any work being done under this heading.

All push button assemblies shall be painted YELLOW without exception.

Signal housings, doors, visors, mounting brackets, and hardware supplied direct from the manufacturer in the color stipulated above may be acceptable provided it meets or exceeds the finish process for the material indicated below.

Software

All local controller, malfunction management unit, and amplifier software shall be supplied with the latest available revision. Any software upgrades released by the manufacturer shall be supplied at no charge to the Owner for a period of five years after acceptance of the traffic signal installation.

Data Base Programming

Each programmable local hardware component (i.e., controller, malfunction management unit, preemption unit, and detector amplifier) shall be initially programmed by the Contractor based on information contained on the plans.

Three sets of hard copy programming per device shall be supplied by the Contractor.

The Contractor shall supply a laminated copy of the traffic signal design plans and sequence and timing chart to be left in the cabinet's documentation envelope mounted on the inside of the cabinet door.

Electric Power Cost

The payment for power under Items 815.1, 815.2, and 816.03 will be undertaken by the Contractor during the construction period. After the project's completion and acceptance by the MassDOT, the utility charges and account will be transferred to the MassDOT.

ITEM 815.1, 815.2, & 816.03 (Continued)

Traffic Signal Timing – Fine Tuning

After the Contractor has finished installing the controllers and all other associated signal control equipment and after the Contractor has set the signal equipment to operate as specified in the contract documents, the fine tuning, adjusting and testing period shall begin. The Contractor shall advise the Engineer and MassDOT in writing of the date of the beginning of the fine-tuning and testing period.

During this period, the Contractor, under the direction of the Engineer will make necessary adjustments and tests to ensure safe and efficient operation of the equipment. This period shall not last be less than 30 days. The contract completion date shall take this testing period into consideration. No request for final acceptance will be considered until successful completion of the testing period.

The Contractor shall notify the MassDOT and the Engineer in writing of the starting date of the fine-tuning period and shall have MassDOT present for an inspection of the traffic signal.

The cost of electrical energy consumed by the operation of the traffic signal during the construction, fine-tuning and testing until final acceptance shall be borne by the Contractor.

Final Acceptance

Upon successful completion of the 30-day testing period wherein the traffic signal system has operated for 30 days without failure, the Contractor shall notify MassDOT. The Engineer will make a final inspection of the installation in the presence of MassDOT and the Contractor. An inspection check will be made to ensure that all equipment, materials, installations and operations are in accordance with the construction contract, plans and specifications. Items to be checked will include, but not be limited to, traffic signal systems operation, cabinet equipment, documents (wiring diagrams, as-built plans, instruction manuals, parts list, warranties, grounding resistivity test report, etc.), signs, and pavement markings, and street hardware (posts, bases, housings, brackets, etc.).

The Engineer will notify the Contractor in writing of any items in which the inspection reveals that the work is incomplete, defective, or does not otherwise meet the project specifications. The Contractor shall perform the corrective actions necessary to achieve final acceptance by MassDOT. These corrective actions shall be done by and at the expense of the contractor and within 15 days of the date of the inspection report, unless otherwise approved in writing by the Department.

Guarantee After Final Acceptance

The Contractor shall diagnose (troubleshoot) the system and replace any part of the traffic signal system found to be defective in workmanship, material or manner of functioning within six months from date of final acceptance of all the installations under this Contract. This requirement does not affect the one-year warranty period on equipment specified in Subsection 815.20 of the Standard Specifications. Note: some of the equipment installed under this Contract shall have a warranty period beyond one year as noted.

ITEM 815.1, 815.2, & 816.03 (Continued)

Upon the date of acceptance of the project by MassDOT, the Contractor shall turn over all guarantees and warranties to MassDOT.

As-Built Plans

The Contractor shall supply As-Built Plans and wiring diagrams in 2016 AutoCAD DWG, DWF, and PDF formats.

Technical Manuals and "Box Prints"

Per MassDOT Specifications the Contractor shall provide prior to final acceptance as furnished by the manufacturer.

1. Controller Unit, Flasher, Load Switches, Conflict Monitor an all external logic units.
    a. Electronic schematic of circuit boards.
    b. Pictorial layout of components on circuit boards.
    c. Service manual for troubleshooting.
    d. Manual describing the theory of operations.
    e. Parts list showing manufacturer's part number and location.
2. Controller cabinet.
    a. Cabinet wiring diagram (3 sets).
    b. Field wiring diagram (3 sets).

Method of Measurement and Basis of Payment

Items 815.1, 815.2, and 816.03 shall each be measured and paid for at the Contract lump sum price, which price shall include all labor, material, equipment and incidental costs required to complete the work.

No separate payment will be made for adjusting or readjusting of proposed vehicle detection zones, but all costs in connection therewith shall be included in the lump sum price bid for Item 815.1 and 815.2.

Controlled Density Fill – Excavatable shall be paid separately under Item 153.

Conduit shall be paid separately under Item 804.3, 3-Inch Electrical Conduit, Type NM Plastic (UL) and Items 804.4, 4-Inch Electrical Conduit, Type NM Plastic (UL).

Pull boxes and handholes shall be paid separately under Items 811.22 Electric Handhole – SD2.022 and 811.31, 12" x 12" Pull Boxes - SD2.030.

ITEM 841.81 **SUPPORT FOR GUIDE - STEEL** **EACH**

The work under this item shall conform to the relevant provisions of Section 840 of the Standard Specifications and the following:

The work under this item shall consist of fabricating and installing steel beam support posts in 4000 psi concrete foundations for sign panels as shown on the plans or as directed by the Engineer.

All new supports provided under these items shall be designed to sustain a minimum wind speed of 90 mph. Base plate bolts shall be torqued per current MassDOT and AASHTO standards.

For bidding purposes, all signs are presumed to be mounted on single 6 inch by 6 inch steel square tube posts, however, the exact size of post to be installed at each location shall be determined by the Contractor and approved by the Engineer prior to fabrication and installation.

METHOD OF MEASUREMENT

The quantity of Support for Guide Sign – Steel shall be measured by the unit EACH and shall be the quantity actually installed per sign.

Payment for this item will be made at the Contract Unit Price per EACH complete in place. Payment shall include the design of the support, fabrication and installation, including the foundation, excavation, backfilling and compaction.

The Contract Price shall constitute full compensation for furnishing and installing all materials (including new hardware if existing hardware cannot be reused), labor, equipment, tools, appurtenances, and incidentals necessary to satisfactorily complete this item of work, complete, in place and accepted.

Loam Borrow and Seeding, as part of ground restoration work where required or as directed by the Engineer, shall be paid for under Items 751 and 765, respectively.

ITEM 859.1 REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS DAY

Work under this Section consists of furnishing, installing, maintaining in proper operating conditions, and removing reflectorized drums, and any necessary ballast, equipped with sequential flashing warning lights.

MATERIALS

Reflectorized drums shall be listed on the MassDOT Qualified Traffic Control Equipment List.

Reflective sheeting on drums shall meet or exceed ASTM D4956 Type VIII. All drums shall be maintained in a satisfactory manner including the removal of oils, dirt, and debris that may cause reduced retroreflectivity.

The Contractor shall use one of the following sequential flashing warning light systems unless otherwise approved by the Engineer:

1. Empco-Lite LWCSD
2. pi-Lit® Sequential Barricade-Style Lamp; or
3. Unipart Dorman SynchroGUIDE.

Sequential flashing warning lights shall be secured to reflectorized drums per the light manufacturer's specifications.

CONSTRUCTION METHODS

The first ten drums in any merging or shifting taper as designated in the Temporary Traffic Control Plan shall be equipped with sequential flashing warning lights. These lights shall be operating, at a minimum, between dusk and dawn when the taper is deployed.

The successive flashing of the sequential warning lights shall occur from the upstream end of the merging or shifting taper to the downstream end of the taper in order to identify the desired vehicle path. Each warning light in the sequence shall be flashed at a rate of not less than 55, nor more than 75 times per minute.

Warning lights shall be powered off when drums are not deployed in a taper.

METHOD OF MEASUREMENT

A group of ten (10) reflectorized drums with sequential flashing warning lights is considered one (1) unit and will be measured by the day. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times that the drums are positioned, repositioned, removed, or returned to service.

BASIS OF PAYMENT

Reflectorized Drums with Sequential Flashing Warning Lights will be paid for at the contract unit price per day, which shall include full compensation for furnishing, positioning, repositioning, and removing the group of ten (10) drums as directed by the Engineer.

ITEM 864.33	**SLOTTED PAVEMENT MARKER TWO-WAY WHITE/RED**	**EACH**
ITEM 864.34	**SLOTTED PAVEMENT MARKER TWO-WAY YELLOW/RED**	**EACH**

Work under this section shall conform to the relevant provision of Section 860 of the Standard Specifications and the following:

The work to be done under this section shall consist of furnishing and installing two-way white-red and two-way yellow-red reflectorized pavement markers (SLOTTED IN PAVEMENT) in accordance with the relevant provisions of Traffic Standard TR.6.2 “Raised Pavement Marker Placement” and TR.6.5 “Typical Pavement Marking for Conventional Roadways”.

MATERIALS

Reflectorized pavement markers shall be 3M Series 290, Avery Dennison Lifelite Model C80, Ray-O-Lite Model 2004 or an approved equivalent.

CONSTRUCTION METHODS

The work shall include cutting the tapered pavement slot to the dimensions specified by the Manufacturer for the two way markers, application of the Manufacturer’s recommended epoxy adhesive, and placing the reflectorized pavement marker in the proper position within the slot so that the reflective face is visible and perpendicular to oncoming traffic and so that the top of the marker is set 1/8± inch below the top of the adjacent pavement.

Surface preparation and installation shall be strictly in accordance with the Manufacturer’s instructions.

METHOD OF MEASUREMENT

Slotted Pavement Marker Two-Way White/Red will be measured for payment by each unit installed, complete in place.

Slotted Pavement Marker Two-Way Yellow/Red will be measured for payment by each unit installed, complete in place.

BASIS OF PAYMENT

Slotted Pavement Marker Two-Way White/Red and Slotted Pavement Marker Two-Way Yellow/Red will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment and incidental costs required to complete the work. No separate payment will be made for cutting the tapered pavement slot, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 868.106	**6 INCH DURABLE RECESSED WET REFLECTIVE WHITE LINE (THERMOPLASTIC)**	**FT**
ITEM 868.112	**12 INCH DURABLE RECESSED WET REFLECTIVE WHITE LINE (THERMOPLASTIC)**	**FT**
ITEM 869.106	**6 INCH DURABLE RECESSED WET REFLECTIVE YELLOW LINE (THERMOPLASTIC)**	**FT**
ITEM 869.112	**12 INCH DURABLE RECESSED WET REFLECTIVE YELLOW LINE (THERMOPLASTIC)**	**FT**

The work to be done under these items shall conform to the relevant provisions of Section 860 of the Standard Specifications and the following:

Work shall consist of grooving a slot in the pavement surface and the furnishing and installation of liquid thermoplastic wet reflective pavement markings, liquid two-part polyurea wet reflective pavement markings, liquid two-part epoxy wet reflective pavement markings, and preformed wet reflective pavement markings. As work incidental to these items, the Contractor or pavement marking Material Supplier(s) shall measure the performance of the pavement markings upon installation, six months following installation, and one year following installation.

Construction Methods for Installation of Groove

Contractor shall refer to 3M™ Information Folder 5.18 *Grooving Application*s and the following:

Prior to cutting out the grooves for all recessed lines, the Contractor shall use a chalk line or other suitable method to layout the proposed pavement markings on the surface course so that the Engineer can inspect the locations. Once the Engineer has inspected and approved the proposed striping layout, the grooves for the proposed pavement markings may be cut. No pavement grooving shall be done without the prior approval of the Engineer.

Groove position shall be a minimum of 4 inches from the edge of the pavement marking to any longitudinal pavement joints. The groove shall not be installed on bridge joints, at drainage structures, or in other areas identified by the Engineer. The groove shall not be installed continuously for intermittent pavement markings, but only where markings are to be applied.

The use of gang stacked diamond cutting blades to grind a smooth square slot is required for producing all grooves. The spacers between blade cuts shall be such that there will be less than a 10 mil rise in the finished groove between the blades. The acceptability of the surface texture will be determined by the Engineer and/or Material Supplier’s Technical Representative.

The diamond grinder shall have an articulating head so that the slots are installed correctly on grades and super elevated sections.

ITEM 868.106, 868.112, 869.106, 869.112 (Continued)

Grooves that are ground deeper or wider than the specified allowable limits shall be repaired according to the Department's approved repair procedure at no additional cost to the Department. Grooves that are ground too shallow or narrow shall be reground to the specification limits at no additional cost to the Department. Slots that are ground out of alignment shall be cut out and patched using an approved method and approved materials.

The Contractor shall grind the groove to the correct depth, width, and length as specified and in proper alignment. Grooves shall be 1 inch ± ¼ inch wider than the pavement marking material. Groove depth shall be per the Material Supplier's specification for liquid thermoplastic application, 80 mils ± 5 mils for polyurea or epoxy liquid pavement markings application, and 150 mils ±5 mils for preformed material application, unless otherwise approved by the Engineer. Depth shall be consistent across the full width of the groove. Depth plates shall be provided by the Contractor to the Engineer to assure that desired groove depth is achieved.

Grooves shall be clean, dry and free of laitance, oil, dirt, grease, paint or other foreign contaminants. Shrouds and a vacuum apparatus shall be included as part of the grinder to remove larger pieces of pavement that are ground out. If water is used to clean the groove or the grooving process takes place during rainfall, a minimum of 24 hours of dry time is required prior to the placement of pavement markings.

A Technical Representative from the Material Supplier(s) shall be present for the first grooving operation shift to provide quality assurance/quality control.

After the depth, width, length, and surface condition has been approved by the Engineer, an air lance shall be used to remove fine particles from the groove. Air compressors shall initially be blown out away from the application area to prevent compressor condensation build-up from entering the grove. The Contractor shall prevent traffic from traversing the grooves and re-clean grooves, as necessary, prior to application of pavement markings at no additional cost to the Department.

All grooves must be given final approval by the Engineer prior to the placement of pavement marking material.

Construction Methods for Installation of Liquid Pavement Markings

Application of liquid pavement markings and reflective elements shall be per the Material Supplier(s)'s specifications in order to meet the minimum initial retroreflectance levels described herein.

The minimum uniform wet thickness for all applied polyurea and epoxy applications shall be 20 mils, unless otherwise approved by the Engineer.

The uniform wet thickness of applied thermoplastic pavement markings shall be 120 mils ± 5 mils.

ITEM 868.106, 868.112, 869.106, 869.112 (Continued)

A Technical Representative from the Material Supplier shall be present for the first liquid pavement marking installation shift for each liquid binder type to provide quality assurance/quality control.

Construction Methods for Installation of Preformed Pavement Markings

Application of the preformed pavement markings shall conform to Section III Application Guidelines of 3M™ Information Folder 5.18 *Grooving Application*s, unless otherwise instructed by the Engineer.

A primer application shall be applied prior to the installation of all preformed pavement markings per the Manufacturer's Specification. This work shall be considered incidental to the cost of the item.

A Technical Representative from the Material Supplier shall be present for the first preformed pavement marking installation shift to provide quality assurance/quality control.

Materials

For thermoplastic applications, the Contractor shall use one of the following products, or approved equivalent:

1. 3M™ All Weather Thermoplastic;
2. Ennis-Flint Pavemark®;
3. Franklin Paint™ 22% Melt Down Thermoplastic; or
4. Swarco SWARCOTHERM.

3M™ Stamark™ All Weather Contrast Tape 380AW-5, or approved equivalent, shall be used on all Portland Concrete Cement surfaces in place of liquid pavement markings.

Material certifications shall be provided to the Engineer prior to installation.

ITEM 868.106, 868.112, 869.106, 869.112 (Continued)

Pavement Marking Retroreflectivity Performance

Incidental to the cost of these items, the Contractor or Material Supplier shall perform retroreflectance readings and provide the results to the Department. The measurement and sampling procedures contained in ASTM D7585 (Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments) using the Referee Evaluation Protocol found in section 6.4 shall be followed. The following tests shall be performed during the measurement and sampling process:

1. ASTM E1710 *(Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer)*;
2. ASTM E2177 *(Standard Test Method for Measuring the Coefficient of Retroreflected Luminance (RL) of Pavement Markings in a Standard Condition of Wetness)*; and
3. ASTM E2832 *(Standard Test Method for Measuring the Coefficient of Retroreflected Luminance of Pavement Markings in a Standard Condition of Continuous Wetting (RL-2))*.

All measuring equipment shall be properly calibrated prior to the implementation of any temporary traffic controls that are required.

Retroreflectance readings shall be taken at the following three times:

1. Initial (between 7 and 30 days from date of application);
2. 6 Month (182 days, ± 14 days from initial application); and
3. 1 Year (365 days, ± 14 days from initial application).

The cost of temporary traffic control setups for the Initial readings shall be considered incidental to the cost of item. The Department will provide temporary traffic control setups for the 6 Month and 1 Year readings at no cost to the Contractor or Material Supplier.

The average Initial retroreflectance readings shall exceed the following minimum values for all pavement marking materials installed under these items:

	White	Yellow
Observation Angle	1.05º	1.05º
Entrance Angle	88.8º	88.8º
ASTM E1710 (Dry)	475	375
ASTM E2177 (Wet Recovery)	475	375
ASTM E2832 (Wet	150	125

ITEM 868.106, 868.112, 869.106, 869.112 (Continued)

Pavement markings with measured average initial retroreflectance readings that do not meet the specified minimum values using the procedures outlined in subsection 6.4.5 of ASTM D7585 shall be removed by an approved method and reapplied at no cost to the Department, unless otherwise approved by the Engineer.

Readings taken at the 6 Month and 1 Year intervals are for MassDOT Highway Division informational purposes only. Average readings that fall below the specified minimum values will not require additional testing or pavement marking removal and reinstallation.

Retroreflectance readings shall be summarized and include the following information: date & time of reading, highway location (including direction) of each test, material type tested, ASTM test method, pavement marking color, date of initial material application, air and pavement
temperature during application, initial material application thickness, depth of groove, and any other pertinent information. Results for all readings shall be provided within 10 business days of testing to the Engineer, with a second copy to:

State Traffic Engineer
Attention: Pavement Marking Retroreflectivity Testing
10 Park Plaza, Room 7210
Boston, MA 02116

Method of Measurement and Basis of Payment

Payment for work under these items will be made at the contract price per foot for lines completely installed in place, including all incidental items. Applied lines are to be paid for on the actual length of lines applied. This price shall include the cost of furnishing and maintaining in good working condition of all traffic management devices.

ITEM 874.2 TRAFFIC SIGN REMOVED AND RESET EACH

GENERAL

Work under this item shall conform to the relevant provisions under Section 828 of the standard specifications and the following:

The Contractor shall carefully remove and reset all designated existing signs including attachment hardware and sign support posts located as needed and where directed by the Engineer.

Work shall include the dismantling, removal, transporting, storing and resetting of existing traffic signs at the locations shown on the plans. The Contractor shall completely remove the sign and post and reset said sign and post at the new location. If existing sign and/or post are not suitable for reuse as determined by the Engineer, the contractor shall provide new sign and/or post under items 832. and/or 847.1 respectively. New attachment hardware shall be furnished as necessary to replace any missing or unusable existing hardware. Work shall also include the removal and disposal of footings up to a depth of 12 inches below the proposed surface of sidewalks and driveways as well as up to 36 inches below the proposed roadway.

Existing sign and/or post damaged by the contractor's operations shall be replaced in-kind by the Contractor at no additional compensation

Included under this item are warning, regulatory, and route marker signs and miscellaneous directional signs.

The Contractor shall backfill with compacted gravel all holes resulting from the removal of the existing signs and their foundations and restore the area to match existing conditions of adjacent areas.

Method of Measurement and Basis of Payment

Measurement and payment for this item shall be made at the Contract Unit Price per each traffic sign removed and reset complete in place. Payment shall constitute full compensation for dismantling, loading, transporting and resetting of the signs as designated above, gravel backfill and incidental costs required to complete the work, including removal and disposal of footings.

ITEM 874.22 **GUIDE SIGN REMOVED AND RESET** **EACH**

GENERAL

The work under this item shall conform to the relevant provisions of Section 840 of the Standard Specifications and the following:

Work under this Item shall consist of removing and attaching existing sign panels and brackets to new supports as required by the Engineer.

Method of Measurement and Basis of Payment

Item 874.22 will be measured and paid for at the contract unit price per Each sign panel removed and reset (with existing hardware if applicable). This price shall include all labor, materials, equipment, and any incidentals necessary to complete the work.

ITEM 874.4 TRAFFIC SIGN REMOVED AND STACKED EACH

GENERAL

Work under these items shall conform to the relevant provisions under Section 828 of the standard specifications and the following:

Work shall include removing, transporting, protection, temporary storage and stacking of signs, posts and hardware. The signs, posts and hardware within City Layout shall be stacked on boards for pick-up by the City of Amesbury Department of Public Works, as determined by the Resident Engineer. Work shall also include the removal and disposal of footings up to a depth of 12 inches below the proposed surface of sidewalks and driveways as well as up to 36 inches below the proposed roadway.

Traffic signs determined to be unsatisfactory for reuse shall become the property of the Contractor and shall be removed and discarded.

The Contractor shall completely remove the sign and post. If existing sign and/or post are damaged by the Contractor's operations, a new sign and/or post of the same size and material shall be provided to the City at the Contractor's expense.

The Contractor shall backfill with compacted gravel all holes resulting from the removal of the existing signs and their foundations and restore the area to match existing conditions of adjacent areas.

Method of Measurement and Basis of Payment

Item 874.4 shall be measured and paid for at the Contract unit price per each, which price shall include all labor, materials, equipment and incidental costs required to complete the work, including removal and disposal of footings.

ITEM 877.11 **SIGN SUPPORT REMOVED AND DISCARDED** **EACH**

GENERAL

The work under this item shall conform to the relevant provisions of Section 840 of the Standard Specifications and the following:

The work under this item shall consist of the removal and disposal of the sign supports for all signs being removed and reset under Item 874.22.

All components of the concrete foundation including the concrete, steel reinforcing, and stub post, shall be removed to a minimum of 12 inches (12”) below the ground line outside of the proposed roadway and to a minimum of 36 inches (36”) below the ground line within the proposed roadway.

The holes shall be backfilled with suitable material approved by the Engineer. The surface of the filled holes shall be finished to match the surrounding area. All debris resulting from this operation shall be removed and properly disposed of.

Method of Measurement and Basis of Payment

Item 877.11 will be measured and paid for at the contract unit price per Each sign requiring support and foundation removal and disposal. This price shall include excavation, backfill material, and all labor, materials, equipment, and any incidentals necessary to complete the work.

Loam Borrow and Seeding, as part of ground restoration work where required or as directed by the Engineer, shall be paid for under Items 751 and 765, respectively.

ITEM 877.2 SIGN POST REMOVED AND STACKED EACH

GENERAL

The work under this item shall conform to the relevant provisions of Section 840 of the Standard Specifications and the following:

Work under this Item shall include removing and stacking sign posts that support existing delineators, as required by the Engineer.

Sign posts that are determined to be salvageable by the Engineer shall remain the property of MassDOT and shall be properly transported and stored at a MassDOT Maintenance Depot as directed by the Engineer.

Method of Measurement and Basis of Payment

Item 877.2 will be measured and paid for at the contract unit price per Each sign post removed and stacked. This price shall include the removal and stacking of sign posts, any necessary post-hole backfill material, all labor, equipment, materials, transport to MassDOT, and any incidentals necessary to complete the work.

APPENDIX A

PREVAILING WAGE RATES

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

ROSALIN ACOSTA
Secretary

MICHAEL FLANAGAN
Interim Director

Awarding Authority: City of Amesbury

Contract Number:

City/Town: AMESBURY

Description of Work: The work includes the installation of 2 fully-actuated traffic signal at Route 150 and Interstate 495 ramps, roadway and sidewalk reconstruction, drainage, pavement markings and signage.

Job Location: Various

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.

Issue Date: 02/25/2020 **Wage Request Number:** 20200225-083

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2019	$34.25	$12.41	$13.72	$0.00	$60.38
	06/01/2020	$35.15	$12.41	$13.72	$0.00	$61.28
	08/01/2020	$35.15	$12.91	$13.72	$0.00	$61.78
	12/01/2020	$35.15	$12.91	$14.82	$0.00	$62.88
	06/01/2021	$35.95	$12.91	$14.82	$0.00	$63.68
	08/01/2021	$35.95	$13.41	$14.82	$0.00	$64.18
	12/01/2021	$35.95	$13.41	$16.01	$0.00	$65.37
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2019	$34.32	$12.41	$13.72	$0.00	$60.45
	06/01/2020	$35.22	$12.41	$13.72	$0.00	$61.35
	08/01/2020	$35.22	$12.91	$13.72	$0.00	$61.85
	12/01/2020	$35.22	$12.91	$14.82	$0.00	$62.95
	06/01/2021	$36.02	$12.91	$14.82	$0.00	$63.75
	08/01/2021	$36.02	$13.41	$14.82	$0.00	$64.25
	12/01/2021	$36.02	$13.41	$16.01	$0.00	$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2019	$34.44	$12.41	$13.72	$0.00	$60.57
	06/01/2020	$35.34	$12.41	$13.72	$0.00	$61.47
	08/01/2020	$35.34	$12.91	$13.72	$0.00	$61.97
	12/01/2020	$35.34	$12.91	$14.82	$0.00	$63.07
	06/01/2021	$36.14	$12.91	$14.82	$0.00	$63.87
	08/01/2021	$36.14	$13.41	$14.82	$0.00	$64.37
	12/01/2021	$36.14	$13.41	$16.01	$0.00	$65.56
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2019	$102.78	$9.90	$21.15	$0.00	$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR *LABORERS - ZONE 2*	12/01/2019	$34.81	$8.10	$15.38	$0.00	$58.29
	06/01/2020	$35.70	$8.10	$15.38	$0.00	$59.18
	12/01/2020	$36.59	$8.10	$15.38	$0.00	$60.07
	06/01/2021	$37.51	$8.10	$15.38	$0.00	$60.99
	12/01/2021	$38.42	$8.10	$15.38	$0.00	$61.90
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	12/01/2019	$37.00	$12.50	$8.85	$0.00	$58.35
	06/01/2020	$38.00	$12.50	$8.85	$0.00	$59.35
	12/01/2020	$39.00	$12.50	$8.85	$0.00	$60.35
ASPHALT RAKER *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.73	$12.50	$15.70	$0.00	$76.93
	06/01/2020	$49.83	$12.50	$15.70	$0.00	$78.03
	12/01/2020	$50.98	$12.50	$15.70	$0.00	$79.18
	06/01/2021	$52.08	$12.50	$15.70	$0.00	$80.28
	12/01/2021	$53.23	$12.50	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.73	$12.50	$15.70	$0.00	$76.93
	06/01/2020	$49.83	$12.50	$15.70	$0.00	$78.03
	12/01/2020	$50.98	$12.50	$15.70	$0.00	$79.18
	06/01/2021	$52.08	$12.50	$15.70	$0.00	$80.28
	12/01/2021	$53.23	$12.50	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 2*	12/01/2019	$34.81	$8.10	$15.38	$0.00	$58.29
	06/01/2020	$35.70	$8.10	$15.38	$0.00	$59.18
	12/01/2020	$36.59	$8.10	$15.38	$0.00	$60.07
	06/01/2021	$37.51	$8.10	$15.38	$0.00	$60.99
	12/01/2021	$38.42	$8.10	$15.38	$0.00	$61.90
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2020	$46.10	$7.07	$17.98	$0.00	$71.15

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$29.97	$7.07	$11.69	$0.00	$48.73
2	65	$29.97	$7.07	$11.69	$0.00	$48.73
3	70	$32.27	$7.07	$12.59	$0.00	$51.93
4	75	$34.58	$7.07	$13.49	$0.00	$55.14
5	80	$36.88	$7.07	$14.38	$0.00	$58.33
6	85	$39.19	$7.07	$15.29	$0.00	$61.55
7	90	$41.49	$7.07	$16.18	$0.00	$64.74
8	95	$43.80	$7.07	$17.09	$0.00	$67.96

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (LYNN)*	02/01/2020	$54.40	$10.75	$21.94	$0.00	$87.09
	08/01/2020	$55.75	$10.75	$22.09	$0.00	$88.59
	02/01/2021	$56.39	$10.75	$22.09	$0.00	$89.23
	08/01/2021	$57.79	$10.75	$22.25	$0.00	$90.79
	02/01/2022	$58.38	$10.75	$22.25	$0.00	$91.38

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 Lynn*

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.20	$10.75	$21.94	$0.00	$59.89
2	60	$32.64	$10.75	$21.94	$0.00	$65.33
3	70	$38.08	$10.75	$21.94	$0.00	$70.77
4	80	$43.52	$10.75	$21.94	$0.00	$76.21
5	90	$48.96	$10.75	$21.94	$0.00	$81.65

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.88	$10.75	$22.09	$0.00	$60.72
2	60	$33.45	$10.75	$22.09	$0.00	$66.29
3	70	$39.03	$10.75	$22.09	$0.00	$71.87
4	80	$44.60	$10.75	$22.09	$0.00	$77.44
5	90	$50.18	$10.75	$22.09	$0.00	$83.02

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2019	$40.25	$8.10	$16.80	$0.00	$65.15
	06/01/2020	$41.24	$8.10	$16.80	$0.00	$66.14
	12/01/2020	$42.22	$8.10	$16.80	$0.00	$67.12
	06/01/2021	$43.24	$8.10	$16.80	$0.00	$68.14
	12/01/2021	$44.25	$8.10	$16.80	$0.00	$69.15
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2019	$39.10	$8.10	$16.80	$0.00	$64.00
	06/01/2020	$40.09	$8.10	$16.80	$0.00	$64.99
	12/01/2020	$41.07	$8.10	$16.80	$0.00	$65.97
	06/01/2021	$42.09	$8.10	$16.80	$0.00	$66.99
	12/01/2021	$43.10	$8.10	$16.80	$0.00	$68.00
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2019	$39.10	$8.10	$16.80	$0.00	$64.00
	06/01/2020	$40.09	$8.10	$16.80	$0.00	$64.99
	12/01/2020	$41.07	$8.10	$16.80	$0.00	$65.97
	06/01/2021	$42.09	$8.10	$16.80	$0.00	$66.99
	12/01/2021	$43.10	$8.10	$16.80	$0.00	$68.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	09/01/2019	$41.90	$9.40	$18.95	$0.00	$70.25
	03/01/2020	$42.50	$9.40	$18.95	$0.00	$70.85
	09/01/2020	$43.15	$9.40	$18.95	$0.00	$71.50
	03/01/2021	$43.75	$9.40	$18.95	$0.00	$72.10
	09/01/2021	$44.40	$9.40	$18.95	$0.00	$72.75
	03/01/2022	$45.00	$9.40	$18.95	$0.00	$73.35
	09/01/2022	$45.65	$9.40	$18.95	$0.00	$74.00
	03/01/2023	$46.25	$9.40	$18.95	$0.00	$74.60

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.95	$9.40	$1.73	$0.00	$32.08
2	60	$25.14	$9.40	$1.73	$0.00	$36.27
3	70	$29.33	$9.40	$13.76	$0.00	$52.49
4	75	$31.43	$9.40	$13.76	$0.00	$54.59
5	80	$33.52	$9.40	$15.49	$0.00	$58.41
6	80	$33.52	$9.40	$15.49	$0.00	$58.41
7	90	$37.71	$9.40	$17.22	$0.00	$64.33
8	90	$37.71	$9.40	$17.22	$0.00	$64.33

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.25	$9.40	$1.73	$0.00	$32.38
2	60	$25.50	$9.40	$1.73	$0.00	$36.63
3	70	$29.75	$9.40	$13.76	$0.00	$52.91
4	75	$31.88	$9.40	$13.76	$0.00	$55.04
5	80	$34.00	$9.40	$15.49	$0.00	$58.89
6	80	$34.00	$9.40	$15.49	$0.00	$58.89
7	90	$38.25	$9.40	$17.22	$0.00	$64.87
8	90	$38.25	$9.40	$17.22	$0.00	$64.87

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 $29.99/ 3&4 $35.85/ 5&6 $54.22/ 7&8 $60.14

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME *CARPENTERS -ZONE 2 (Wood Frame)*	10/01/2019	$27.95	$7.07	$7.86	$0.00	$42.88

All Aspects of New Wood Frame Work

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CARPENTER (Wood Frame) - Zone 2*

Effective Date - 10/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$16.77	$7.07	$0.00	$0.00	$23.84
2	60	$16.77	$7.07	$0.00	$0.00	$23.84
3	65	$18.17	$7.07	$7.86	$0.00	$33.10
4	70	$19.57	$7.07	$7.86	$0.00	$34.50
5	75	$20.96	$7.07	$7.86	$0.00	$35.89
6	80	$22.36	$7.07	$7.86	$0.00	$37.29
7	85	$23.76	$7.07	$7.86	$0.00	$38.69
8	90	$25.16	$7.07	$7.86	$0.00	$40.09

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 $19.65/ 3&4 $27.19/ 5&6 $34.50/ 7&8 $37.29

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (LYNN)*	01/01/2020	$49.07	$12.75	$22.41	$0.62	$84.85

Apprentice - *CEMENT MASONRY/PLASTERING - Eastern Mass (Lynn)*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.54	$12.75	$15.41	$0.00	$52.70
2	60	$29.44	$12.75	$17.41	$0.62	$60.22
3	65	$31.90	$12.75	$18.41	$0.62	$63.68
4	70	$34.35	$12.75	$19.41	$0.62	$67.13
5	75	$36.80	$12.75	$20.41	$0.62	$70.58
6	80	$39.26	$12.75	$21.41	$0.62	$74.04
7	90	$44.16	$12.75	$22.41	$0.62	$79.94

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$49.73	$12.50	$15.70	$0.00	$77.93
	06/01/2020	$50.83	$12.50	$15.70	$0.00	$79.03
	12/01/2020	$51.98	$12.50	$15.70	$0.00	$80.18
	06/01/2021	$53.08	$12.50	$15.70	$0.00	$81.28
	12/01/2021	$54.23	$12.50	$15.70	$0.00	$82.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$32.47	$12.50	$15.70	$0.00	$60.67
	06/01/2020	$33.22	$12.50	$15.70	$0.00	$61.42
	12/01/2020	$34.00	$12.50	$15.70	$0.00	$62.20
	06/01/2021	$34.75	$12.50	$15.70	$0.00	$62.95
	12/01/2021	$35.54	$12.50	$15.70	$0.00	$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2020	$50.96	$8.20	$22.10	$0.00	$81.26
	07/01/2020	$52.06	$8.20	$22.10	$0.00	$82.36
	01/01/2021	$53.16	$8.20	$22.10	$0.00	$83.46

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.48	$8.20	$0.00	$0.00	$33.68
2	55	$28.03	$8.20	$5.94	$0.00	$42.17
3	60	$30.58	$8.20	$6.48	$0.00	$45.26
4	65	$33.12	$8.20	$7.02	$0.00	$48.34
5	70	$35.67	$8.20	$18.86	$0.00	$62.73
6	75	$38.22	$8.20	$19.40	$0.00	$65.82
7	80	$40.77	$8.20	$19.94	$0.00	$68.91
8	90	$45.86	$8.20	$21.02	$0.00	$75.08

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.03	$8.20	$0.00	$0.00	$34.23
2	55	$28.63	$8.20	$5.94	$0.00	$42.77
3	60	$31.24	$8.20	$6.48	$0.00	$45.92
4	65	$33.84	$8.20	$7.02	$0.00	$49.06
5	70	$36.44	$8.20	$18.86	$0.00	$63.50
6	75	$39.05	$8.20	$19.40	$0.00	$66.65
7	80	$41.65	$8.20	$19.94	$0.00	$69.79
8	90	$46.85	$8.20	$21.02	$0.00	$76.07

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 2*	12/01/2019	$39.30	$8.10	$16.60	$0.00	$64.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 2*	12/01/2019	$40.30	$8.10	$16.60	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS *LABORERS - ZONE 2*	12/01/2019	$40.05	$8.10	$16.60	$0.00	$64.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2019	$40.30	$8.10	$16.60	$0.00	$65.00
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2019	$40.05	$8.10	$16.60	$0.00	$64.75
DEMO: WRECKING LABORER *LABORERS - ZONE 2* For apprentice rates see "Apprentice- LABORER"	12/01/2019	$39.30	$8.10	$16.60	$0.00	$64.00
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$68.52	$9.90	$21.15	$0.00	$99.57
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$48.94	$9.90	$21.15	$0.00	$79.99
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$73.41	$9.90	$21.15	$0.00	$104.46
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$102.78	$9.90	$21.15	$0.00	$133.83
DRAWBRIDGE OPERATOR (Construction) *ELECTRICIANS LOCAL 103*	09/01/2019	$53.01	$13.00	$18.94	$0.00	$84.95
	03/01/2020	$53.50	$13.00	$19.20	$0.00	$85.70
	09/01/2020	$54.93	$13.00	$19.25	$0.00	$87.18
	03/01/2021	$56.13	$13.00	$19.28	$0.00	$88.41
	09/01/2021	$57.56	$13.00	$19.33	$0.00	$89.89
	03/01/2022	$58.76	$13.00	$19.36	$0.00	$91.12
	09/01/2022	$60.19	$13.00	$19.41	$0.00	$92.60
	03/01/2023	$61.39	$13.00	$19.44	$0.00	$93.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN *ELECTRICIANS LOCAL 103*	09/01/2019	$53.01	$13.00	$18.94	$0.00	$84.95
	03/01/2020	$53.50	$13.00	$19.20	$0.00	$85.70
	09/01/2020	$54.93	$13.00	$19.25	$0.00	$87.18
	03/01/2021	$56.13	$13.00	$19.28	$0.00	$88.41
	09/01/2021	$57.56	$13.00	$19.33	$0.00	$89.89
	03/01/2022	$58.76	$13.00	$19.36	$0.00	$91.12
	09/01/2022	$60.19	$13.00	$19.41	$0.00	$92.60
	03/01/2023	$61.39	$13.00	$19.44	$0.00	$93.83

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$21.20	$13.00	$0.64	$0.00	$34.84
2	40	$21.20	$13.00	$0.64	$0.00	$34.84
3	45	$23.85	$13.00	$14.37	$0.00	$51.22
4	45	$23.85	$13.00	$14.37	$0.00	$51.22
5	50	$26.51	$13.00	$14.79	$0.00	$54.30
6	55	$29.16	$13.00	$15.20	$0.00	$57.36
7	60	$31.81	$13.00	$15.61	$0.00	$60.42
8	65	$34.46	$13.00	$16.03	$0.00	$63.49
9	70	$37.11	$13.00	$16.44	$0.00	$66.55
10	75	$39.76	$13.00	$16.86	$0.00	$69.62

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$21.40	$13.00	$0.64	$0.00	$35.04
2	40	$21.40	$13.00	$0.64	$0.00	$35.04
3	45	$24.08	$13.00	$14.62	$0.00	$51.70
4	45	$24.08	$13.00	$14.62	$0.00	$51.70
5	50	$26.75	$13.00	$15.04	$0.00	$54.79
6	55	$29.43	$13.00	$15.46	$0.00	$57.89
7	60	$32.10	$13.00	$15.87	$0.00	$60.97
8	65	$34.78	$13.00	$16.29	$0.00	$64.07
9	70	$37.45	$13.00	$16.70	$0.00	$67.15
10	75	$40.13	$13.00	$17.12	$0.00	$70.25

Notes: :

App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2020	$61.42	$15.73	$18.41	$0.00	$95.56
	01/01/2021	$63.47	$15.88	$19.31	$0.00	$98.66
	01/01/2022	$65.62	$16.03	$20.21	$0.00	$101.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$30.71	$15.73	$0.00	$0.00	$46.44
2	55	$33.78	$15.73	$18.41	$0.00	$67.92
3	65	$39.92	$15.73	$18.41	$0.00	$74.06
4	70	$42.99	$15.73	$18.41	$0.00	$77.13
5	80	$49.14	$15.73	$18.41	$0.00	$83.28

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$31.74	$15.88	$0.00	$0.00	$47.62
2	55	$34.91	$15.88	$19.31	$0.00	$70.10
3	65	$41.26	$15.88	$19.31	$0.00	$76.45
4	70	$44.43	$15.88	$19.31	$0.00	$79.62
5	80	$50.78	$15.88	$19.31	$0.00	$85.97

Notes:

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2020	$42.99	$15.73	$18.41	$0.00	$77.13
	01/01/2021	$44.43	$15.88	$19.31	$0.00	$79.62
	01/01/2022	$45.93	$16.03	$20.21	$0.00	$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2019	$44.18	$12.00	$15.60	$0.00	$71.78
	05/01/2020	$45.33	$12.00	$15.60	$0.00	$72.93
	11/01/2020	$46.33	$12.00	$15.60	$0.00	$73.93
	05/01/2021	$47.48	$12.00	$15.60	$0.00	$75.08
	11/01/2021	$48.48	$12.00	$15.60	$0.00	$76.08
	05/01/2022	$49.63	$12.00	$15.60	$0.00	$77.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2019	$45.68	$12.00	$15.60	$0.00	$73.28
	05/01/2020	$46.83	$12.00	$15.60	$0.00	$74.43
	11/01/2020	$47.84	$12.00	$15.60	$0.00	$75.44
	05/01/2021	$49.00	$12.00	$15.60	$0.00	$76.60
	11/01/2021	$50.01	$12.00	$15.60	$0.00	$77.61
	05/01/2022	$51.17	$12.00	$15.60	$0.00	$78.77
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2019	$22.57	$12.00	$15.60	$0.00	$50.17
	05/01/2020	$23.24	$12.00	$15.60	$0.00	$50.84
	11/01/2020	$23.83	$12.00	$15.60	$0.00	$51.43
	05/01/2021	$24.51	$12.00	$15.60	$0.00	$52.11
	11/01/2021	$25.11	$12.00	$15.60	$0.00	$52.71
	05/01/2022	$25.78	$12.00	$15.60	$0.00	$53.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 103*	09/01/2019	$53.01	$13.00	$18.94	$0.00	$84.95
	03/01/2020	$53.50	$13.00	$19.20	$0.00	$85.70
	09/01/2020	$54.93	$13.00	$19.25	$0.00	$87.18
	03/01/2021	$56.13	$13.00	$19.28	$0.00	$88.41
	09/01/2021	$57.56	$13.00	$19.33	$0.00	$89.89
	03/01/2022	$58.76	$13.00	$19.36	$0.00	$91.12
	09/01/2022	$60.19	$13.00	$19.41	$0.00	$92.60
	03/01/2023	$61.39	$13.00	$19.44	$0.00	$93.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING*ELECTRICIANS LOCAL 103*	09/01/2019	$39.76	$13.00	$16.86	$0.00	$69.62
	03/01/2020	$40.13	$13.00	$17.12	$0.00	$70.25
	09/01/2020	$41.20	$13.00	$17.16	$0.00	$71.36
	03/01/2021	$42.66	$13.00	$17.27	$0.00	$72.93
	09/01/2021	$44.32	$13.00	$17.38	$0.00	$74.70
	03/01/2022	$45.83	$13.00	$17.49	$0.00	$76.32
	09/01/2022	$47.55	$13.00	$17.62	$0.00	$78.17
	03/01/2023	$49.11	$13.00	$17.73	$0.00	$79.84
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$39.89	$12.50	$15.70	$0.00	$68.09
	06/01/2020	$40.80	$12.50	$15.70	$0.00	$69.00
	12/01/2020	$41.75	$12.50	$15.70	$0.00	$69.95
	06/01/2021	$42.66	$12.50	$15.70	$0.00	$70.86
	12/01/2021	$43.61	$12.50	$15.70	$0.00	$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE 2*	12/01/2019	$23.50	$8.10	$15.38	$0.00	$46.98
	06/01/2020	$23.50	$8.10	$15.38	$0.00	$46.98
	12/01/2020	$24.50	$8.10	$15.38	$0.00	$47.98
	06/01/2021	$24.50	$8.10	$15.38	$0.00	$47.98
	12/01/2021	$24.50	$8.10	$15.38	$0.00	$47.98
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE I*	09/01/2019	$46.25	$9.40	$19.25	$0.00	$74.90
	03/01/2020	$47.05	$9.40	$19.25	$0.00	$75.70
	09/01/2020	$47.85	$9.40	$19.25	$0.00	$76.50
	03/01/2021	$48.65	$9.40	$19.25	$0.00	$77.30
	09/01/2021	$49.45	$9.40	$19.25	$0.00	$78.10
	03/01/2022	$50.25	$9.40	$19.25	$0.00	$78.90

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *FLOORCOVERER - Local 2168 Zone I*

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.13	$9.40	$1.79	$0.00	$34.32
2	55	$25.44	$9.40	$1.79	$0.00	$36.63
3	60	$27.75	$9.40	$13.88	$0.00	$51.03
4	65	$30.06	$9.40	$13.88	$0.00	$53.34
5	70	$32.38	$9.40	$15.67	$0.00	$57.45
6	75	$34.69	$9.40	$15.67	$0.00	$59.76
7	80	$37.00	$9.40	$17.46	$0.00	$63.86
8	85	$39.31	$9.40	$17.46	$0.00	$66.17

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.53	$9.40	$1.79	$0.00	$34.72
2	55	$25.88	$9.40	$1.79	$0.00	$37.07
3	60	$28.23	$9.40	$13.88	$0.00	$51.51
4	65	$30.58	$9.40	$13.88	$0.00	$53.86
5	70	$32.94	$9.40	$15.67	$0.00	$58.01
6	75	$35.29	$9.40	$15.67	$0.00	$60.36
7	80	$37.64	$9.40	$17.46	$0.00	$64.50
8	85	$39.99	$9.40	$17.46	$0.00	$66.85

Notes: Steps are 750 hrs.
% After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
Step 1&2 $32.00/ 3&4 $38.36/ 5&6 $57.45/ 7&8 $63.86

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.73	$12.50	$15.70	$0.00	$76.93
	06/01/2020	$49.83	$12.50	$15.70	$0.00	$78.03
	12/01/2020	$50.98	$12.50	$15.70	$0.00	$79.18
	06/01/2021	$52.08	$12.50	$15.70	$0.00	$80.28
	12/01/2021	$53.23	$12.50	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$32.47	$12.50	$15.70	$0.00	$60.67
	06/01/2020	$33.22	$12.50	$15.70	$0.00	$61.42
	12/01/2020	$34.00	$12.50	$15.70	$0.00	$62.20
	06/01/2021	$34.75	$12.50	$15.70	$0.00	$62.95
	12/01/2021	$35.54	$12.50	$15.70	$0.00	$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 35 (ZONE 2)*	01/01/2020	$40.46	$8.20	$22.10	$0.00	$70.76
	07/01/2020	$41.56	$8.20	$22.10	$0.00	$71.86
	01/01/2021	$42.66	$8.20	$22.10	$0.00	$72.96

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *GLAZIER - Local 35 Zone 2*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.23	$8.20	$0.00	$0.00	$28.43
2	55	$22.25	$8.20	$5.94	$0.00	$36.39
3	60	$24.28	$8.20	$6.48	$0.00	$38.96
4	65	$26.30	$8.20	$7.02	$0.00	$41.52
5	70	$28.32	$8.20	$18.86	$0.00	$55.38
6	75	$30.35	$8.20	$19.40	$0.00	$57.95
7	80	$32.37	$8.20	$19.94	$0.00	$60.51
8	90	$36.41	$8.20	$21.02	$0.00	$65.63

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.78	$8.20	$0.00	$0.00	$28.98
2	55	$22.86	$8.20	$5.94	$0.00	$37.00
3	60	$24.94	$8.20	$6.48	$0.00	$39.62
4	65	$27.01	$8.20	$7.02	$0.00	$42.23
5	70	$29.09	$8.20	$18.86	$0.00	$56.15
6	75	$31.17	$8.20	$19.40	$0.00	$58.77
7	80	$33.25	$8.20	$19.94	$0.00	$61.39
8	90	$37.40	$8.20	$21.02	$0.00	$66.62

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.73	$12.50	$15.70	$0.00	$76.93
	06/01/2020	$49.83	$12.50	$15.70	$0.00	$78.03
	12/01/2020	$50.98	$12.50	$15.70	$0.00	$79.18
	06/01/2021	$52.08	$12.50	$15.70	$0.00	$80.28
	12/01/2021	$53.23	$12.50	$15.70	$0.00	$81.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$26.80	$12.50	$0.00	$0.00	$39.30
2	60	$29.24	$12.50	$15.70	$0.00	$57.44
3	65	$31.67	$12.50	$15.70	$0.00	$59.87
4	70	$34.11	$12.50	$15.70	$0.00	$62.31
5	75	$36.55	$12.50	$15.70	$0.00	$64.75
6	80	$38.98	$12.50	$15.70	$0.00	$67.18
7	85	$41.42	$12.50	$15.70	$0.00	$69.62
8	90	$43.86	$12.50	$15.70	$0.00	$72.06

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$27.41	$12.50	$0.00	$0.00	$39.91
2	60	$29.90	$12.50	$15.70	$0.00	$58.10
3	65	$32.39	$12.50	$15.70	$0.00	$60.59
4	70	$34.88	$12.50	$15.70	$0.00	$63.08
5	75	$37.37	$12.50	$15.70	$0.00	$65.57
6	80	$39.86	$12.50	$15.70	$0.00	$68.06
7	85	$42.36	$12.50	$15.70	$0.00	$70.56
8	90	$44.85	$12.50	$15.70	$0.00	$73.05

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2020	$49.36	$13.35	$24.12	$2.61	$89.44
	08/01/2020	$50.96	$13.35	$24.12	$2.66	$91.09
	02/01/2021	$52.61	$13.35	$24.12	$2.71	$92.79
	08/01/2021	$54.36	$13.35	$24.12	$2.76	$94.59
	02/01/2022	$56.11	$13.35	$24.12	$2.81	$96.39

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 103*	09/01/2019	$53.01	$13.00	$18.94	$0.00	$84.95
	03/01/2020	$53.50	$13.00	$19.20	$0.00	$85.70
	09/01/2020	$54.93	$13.00	$19.25	$0.00	$87.18
	03/01/2021	$56.13	$13.00	$19.28	$0.00	$88.41
	09/01/2021	$57.56	$13.00	$19.33	$0.00	$89.89
	03/01/2022	$58.76	$13.00	$19.36	$0.00	$91.12
	09/01/2022	$60.19	$13.00	$19.41	$0.00	$92.60
	03/01/2023	$61.39	$13.00	$19.44	$0.00	$93.83

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2020	$49.36	$13.35	$24.12	$2.61	$89.44
	08/01/2020	$50.96	$13.35	$24.12	$2.66	$91.09
	02/01/2021	$52.61	$13.35	$24.12	$2.71	$92.79
	08/01/2021	$54.36	$13.35	$24.12	$2.76	$94.59
	02/01/2022	$56.11	$13.35	$24.12	$2.81	$96.39
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PIPEFITTERS LOCAL 537 (Local 138)*	09/01/2019	$50.36	$10.95	$19.74	$0.00	$81.05
	03/01/2020	$51.86	$10.95	$19.74	$0.00	$82.55
	09/01/2020	$53.36	$10.95	$19.74	$0.00	$84.05
	03/01/2021	$54.86	$10.95	$19.74	$0.00	$85.55
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC *PIPEFITTERS LOCAL 537 (Local 138)*	09/01/2019	$50.36	$10.95	$19.74	$0.00	$81.05
	03/01/2020	$51.86	$10.95	$19.74	$0.00	$82.55
	09/01/2020	$53.36	$10.95	$19.74	$0.00	$84.05
	03/01/2021	$54.86	$10.95	$19.74	$0.00	$85.55
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS *LABORERS - ZONE 2*	12/01/2019	$34.81	$8.10	$15.38	$0.00	$58.29
	06/01/2020	$35.70	$8.10	$15.38	$0.00	$59.18
	12/01/2020	$36.59	$8.10	$15.38	$0.00	$60.07
	06/01/2021	$37.51	$8.10	$15.38	$0.00	$60.99
	12/01/2021	$38.42	$8.10	$15.38	$0.00	$61.90
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	09/01/2019	$48.44	$12.80	$16.40	$0.00	$77.64

Apprentice - *ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston*

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.22	$12.80	$11.90	$0.00	$48.92
2	60	$29.06	$12.80	$12.80	$0.00	$54.66
3	70	$33.91	$12.80	$13.70	$0.00	$60.41
4	80	$38.75	$12.80	$14.60	$0.00	$66.15

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 7 (LAWRENCE AREA)*	03/16/2019	$42.25	$8.00	$23.50	$0.00	$73.75

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 7 Lawrence*

Effective Date - 03/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$25.35	$8.00	$23.50	$0.00	$56.85
2	70	$29.58	$8.00	$23.50	$0.00	$61.08
3	75	$31.69	$8.00	$23.35	$0.00	$63.04
4	80	$33.80	$8.00	$23.50	$0.00	$65.30
5	85	$35.91	$8.00	$23.50	$0.00	$67.41
6	90	$38.03	$8.00	$23.50	$0.00	$69.53

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 2*	12/01/2019	$34.06	$8.10	$15.38	$0.00	$57.54
	06/01/2020	$34.95	$8.10	$15.38	$0.00	$58.43
	12/01/2020	$35.84	$8.10	$15.38	$0.00	$59.32
	06/01/2021	$36.76	$8.10	$15.38	$0.00	$60.24
	12/01/2021	$37.67	$8.10	$15.38	$0.00	$61.15

Apprentice - *LABORER - Zone 2*

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$20.44	$8.10	$15.38	$0.00	$43.92
2	70	$23.84	$8.10	$15.38	$0.00	$47.32
3	80	$27.25	$8.10	$15.38	$0.00	$50.73
4	90	$30.65	$8.10	$15.38	$0.00	$54.13

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$20.97	$8.10	$15.38	$0.00	$44.45
2	70	$24.47	$8.10	$15.38	$0.00	$47.95
3	80	$27.96	$8.10	$15.38	$0.00	$51.44
4	90	$31.46	$8.10	$15.38	$0.00	$54.94

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER *LABORERS - ZONE 2*	12/01/2019	$34.06	$8.10	$15.38	$0.00	$57.54
	06/01/2020	$34.95	$8.10	$15.38	$0.00	$58.43
	12/01/2020	$35.84	$8.10	$15.38	$0.00	$59.32
	06/01/2021	$36.76	$8.10	$15.38	$0.00	$60.24
	12/01/2021	$37.67	$8.10	$15.38	$0.00	$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 2*	12/01/2019	$34.06	$8.10	$15.38	$0.00	$57.54
	06/01/2020	$34.95	$8.10	$15.38	$0.00	$58.43
	12/01/2020	$35.84	$8.10	$15.38	$0.00	$59.32
	06/01/2021	$36.76	$8.10	$15.38	$0.00	$60.24
	12/01/2021	$37.67	$8.10	$15.38	$0.00	$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 2*	12/01/2019	$34.15	$8.10	$15.44	$0.00	$57.69
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 2*	12/01/2019	$34.06	$8.10	$15.38	$0.00	$57.54
	06/01/2020	$34.95	$8.10	$15.38	$0.00	$58.43
	12/01/2020	$35.84	$8.10	$15.38	$0.00	$59.32
	06/01/2021	$36.76	$8.10	$15.38	$0.00	$60.24
	12/01/2021	$37.67	$8.10	$15.38	$0.00	$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 2*	12/01/2019	$34.06	$8.10	$15.38	$0.00	$57.54
	06/01/2020	$34.95	$8.10	$15.38	$0.00	$58.43
	12/01/2020	$35.84	$8.10	$15.38	$0.00	$59.32
	06/01/2021	$36.76	$8.10	$15.38	$0.00	$60.24
	12/01/2021	$37.67	$8.10	$15.38	$0.00	$61.15
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2020	$41.49	$10.75	$20.12	$0.00	$72.36
	08/01/2020	$42.57	$10.75	$20.27	$0.00	$73.59
	02/01/2021	$43.08	$10.75	$20.27	$0.00	$74.10
	08/01/2021	$44.20	$10.75	$20.43	$0.00	$75.38
	02/01/2022	$44.67	$10.75	$20.43	$0.00	$75.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE & TILE FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.75	$10.75	$20.12	$0.00	$51.62
2	60	$24.89	$10.75	$20.12	$0.00	$55.76
3	70	$29.04	$10.75	$20.12	$0.00	$59.91
4	80	$33.19	$10.75	$20.12	$0.00	$64.06
5	90	$37.34	$10.75	$20.12	$0.00	$68.21

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.29	$10.75	$20.27	$0.00	$52.31
2	60	$25.54	$10.75	$20.27	$0.00	$56.56
3	70	$29.80	$10.75	$20.27	$0.00	$60.82
4	80	$34.06	$10.75	$20.27	$0.00	$65.08
5	90	$38.31	$10.75	$20.27	$0.00	$69.33

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2020	$54.42	$10.75	$21.93	$0.00	$87.10
	08/01/2020	$55.77	$10.75	$22.08	$0.00	$88.60
	02/01/2021	$56.41	$10.75	$22.08	$0.00	$89.24
	08/01/2021	$57.81	$10.75	$22.24	$0.00	$90.80
	02/01/2022	$58.38	$10.75	$22.24	$0.00	$91.37

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile*

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.21	$10.75	$21.93	$0.00	$59.89
2	60	$32.65	$10.75	$21.93	$0.00	$65.33
3	70	$38.09	$10.75	$21.93	$0.00	$70.77
4	80	$43.54	$10.75	$21.93	$0.00	$76.22
5	90	$48.98	$10.75	$21.93	$0.00	$81.66

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.89	$10.75	$22.08	$0.00	$60.72
2	60	$33.46	$10.75	$22.08	$0.00	$66.29
3	70	$39.04	$10.75	$22.08	$0.00	$71.87
4	80	$44.62	$10.75	$22.08	$0.00	$77.45
5	90	$50.19	$10.75	$22.08	$0.00	$83.02

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) *MILLWRIGHTS LOCAL 1121 - Zone 2*	04/01/2019	$38.87	$9.90	$18.50	$0.00	$67.27

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 2*

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$21.38	$9.90	$5.31	$0.00	$36.59
2	65	$25.27	$9.90	$15.13	$0.00	$50.30
3	75	$29.15	$9.90	$16.10	$0.00	$55.15
4	85	$33.04	$9.90	$17.06	$0.00	$60.00

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$23.08	$12.50	$15.70	$0.00	$51.28
	06/01/2020	$23.63	$12.50	$15.70	$0.00	$51.83
	12/01/2020	$24.20	$12.50	$15.70	$0.00	$52.40
	06/01/2021	$24.75	$12.50	$15.70	$0.00	$52.95
	12/01/2021	$25.33	$12.50	$15.70	$0.00	$53.53
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$27.64	$12.50	$15.70	$0.00	$55.84
	06/01/2020	$28.29	$12.50	$15.70	$0.00	$56.49
	12/01/2020	$28.97	$12.50	$15.70	$0.00	$57.17
	06/01/2021	$29.61	$12.50	$15.70	$0.00	$57.81
	12/01/2021	$30.29	$12.50	$15.70	$0.00	$58.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2020	$50.96	$8.20	$22.10	$0.00	$81.26
	07/01/2020	$52.06	$8.20	$22.10	$0.00	$82.36
	01/01/2021	$53.16	$8.20	$22.10	$0.00	$83.46

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.48	$8.20	$0.00	$0.00	$33.68
2	55	$28.03	$8.20	$5.94	$0.00	$42.17
3	60	$30.58	$8.20	$6.48	$0.00	$45.26
4	65	$33.12	$8.20	$7.02	$0.00	$48.34
5	70	$35.67	$8.20	$18.86	$0.00	$62.73
6	75	$38.22	$8.20	$19.40	$0.00	$65.82
7	80	$40.77	$8.20	$19.94	$0.00	$68.91
8	90	$45.86	$8.20	$21.02	$0.00	$75.08

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.03	$8.20	$0.00	$0.00	$34.23
2	55	$28.63	$8.20	$5.94	$0.00	$42.77
3	60	$31.24	$8.20	$6.48	$0.00	$45.92
4	65	$33.84	$8.20	$7.02	$0.00	$49.06
5	70	$36.44	$8.20	$18.86	$0.00	$63.50
6	75	$39.05	$8.20	$19.40	$0.00	$66.65
7	80	$41.65	$8.20	$19.94	$0.00	$69.79
8	90	$46.85	$8.20	$21.02	$0.00	$76.07

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SIGN, PICTORIAL & DISPLAY) *PAINTERS LOCAL 35 - ZONE 2*	06/01/2013	$25.81	$7.07	$7.05	$0.00	$39.93

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER SIGN - Local 35 Zone 2*

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$12.91	$7.07	$0.00	$0.00	$19.98
2	55	$14.20	$7.07	$2.45	$0.00	$23.72
3	60	$15.49	$7.07	$2.45	$0.00	$25.01
4	65	$16.78	$7.07	$2.45	$0.00	$26.30
5	70	$18.07	$7.07	$7.05	$0.00	$32.19
6	75	$19.36	$7.07	$7.05	$0.00	$33.48
7	80	$20.65	$7.07	$7.05	$0.00	$34.77
8	85	$21.94	$7.07	$7.05	$0.00	$36.06
9	90	$23.23	$7.07	$7.05	$0.00	$37.35

Notes:

Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2020	$41.86	$8.20	$22.10	$0.00	$72.16
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	07/01/2020	$42.96	$8.20	$22.10	$0.00	$73.26
	01/01/2021	$44.06	$8.20	$22.10	$0.00	$74.36

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - New*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.93	$8.20	$0.00	$0.00	$29.13
2	55	$23.02	$8.20	$5.94	$0.00	$37.16
3	60	$25.12	$8.20	$6.48	$0.00	$39.80
4	65	$27.21	$8.20	$7.02	$0.00	$42.43
5	70	$29.30	$8.20	$18.86	$0.00	$56.36
6	75	$31.40	$8.20	$19.40	$0.00	$59.00
7	80	$33.49	$8.20	$19.94	$0.00	$61.63
8	90	$37.67	$8.20	$21.02	$0.00	$66.89

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.48	$8.20	$0.00	$0.00	$29.68
2	55	$23.63	$8.20	$5.94	$0.00	$37.77
3	60	$25.78	$8.20	$6.48	$0.00	$40.46
4	65	$27.92	$8.20	$7.02	$0.00	$43.14
5	70	$30.07	$8.20	$18.86	$0.00	$57.13
6	75	$32.22	$8.20	$19.40	$0.00	$59.82
7	80	$34.37	$8.20	$19.94	$0.00	$62.51
8	90	$38.66	$8.20	$21.02	$0.00	$67.88

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2020	$39.92	$8.20	$22.10	$0.00	$70.22
	07/01/2020	$41.02	$8.20	$22.10	$0.00	$71.32
	01/01/2021	$42.12	$8.20	$22.10	$0.00	$72.42

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.96	$8.20	$0.00	$0.00	$28.16
2	55	$21.96	$8.20	$5.94	$0.00	$36.10
3	60	$23.95	$8.20	$6.48	$0.00	$38.63
4	65	$25.95	$8.20	$7.02	$0.00	$41.17
5	70	$27.94	$8.20	$18.86	$0.00	$55.00
6	75	$29.94	$8.20	$19.40	$0.00	$57.54
7	80	$31.94	$8.20	$19.94	$0.00	$60.08
8	90	$35.93	$8.20	$21.02	$0.00	$65.15

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.51	$8.20	$0.00	$0.00	$28.71
2	55	$22.56	$8.20	$5.94	$0.00	$36.70
3	60	$24.61	$8.20	$6.48	$0.00	$39.29
4	65	$26.66	$8.20	$7.02	$0.00	$41.88
5	70	$28.71	$8.20	$18.86	$0.00	$55.77
6	75	$30.77	$8.20	$19.40	$0.00	$58.37
7	80	$32.82	$8.20	$19.94	$0.00	$60.96
8	90	$36.92	$8.20	$21.02	$0.00	$66.14

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 2*	12/01/2019	$34.06	$8.10	$15.38	$0.00	$57.54
	06/01/2020	$34.95	$8.10	$15.38	$0.00	$58.43
	12/01/2020	$35.84	$8.10	$15.38	$0.00	$59.32
	06/01/2021	$36.76	$8.10	$15.38	$0.00	$60.24
	12/01/2021	$37.67	$8.10	$15.38	$0.00	$61.15
For Apprentice rates see "Apprentice- LABORER"						
PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2020	$40.46	$8.20	$22.10	$0.00	$70.76
	07/01/2020	$41.56	$8.20	$22.10	$0.00	$71.86
	01/01/2021	$42.66	$8.20	$22.10	$0.00	$72.96

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER - Local 35 Zone 2 - BRUSH NEW*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.23	$8.20	$0.00	$0.00	$28.43
2	55	$22.25	$8.20	$5.94	$0.00	$36.39
3	60	$24.28	$8.20	$6.48	$0.00	$38.96
4	65	$26.30	$8.20	$7.02	$0.00	$41.52
5	70	$28.32	$8.20	$18.86	$0.00	$55.38
6	75	$30.35	$8.20	$19.40	$0.00	$57.95
7	80	$32.37	$8.20	$19.94	$0.00	$60.51
8	90	$36.41	$8.20	$21.02	$0.00	$65.63

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.78	$8.20	$0.00	$0.00	$28.98
2	55	$22.86	$8.20	$5.94	$0.00	$37.00
3	60	$24.94	$8.20	$6.48	$0.00	$39.62
4	65	$27.01	$8.20	$7.02	$0.00	$42.23
5	70	$29.09	$8.20	$18.86	$0.00	$56.15
6	75	$31.17	$8.20	$19.40	$0.00	$58.77
7	80	$33.25	$8.20	$19.94	$0.00	$61.39
8	90	$37.40	$8.20	$21.02	$0.00	$66.62

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2020	$38.52	$8.20	$22.10	$0.00	$68.82
	07/01/2020	$39.62	$8.20	$22.10	$0.00	$69.92
	01/01/2021	$40.72	$8.20	$22.10	$0.00	$71.02

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - BRUSH REPAINT*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.26	$8.20	$0.00	$0.00	$27.46
2	55	$21.19	$8.20	$5.94	$0.00	$35.33
3	60	$23.11	$8.20	$6.48	$0.00	$37.79
4	65	$25.04	$8.20	$7.02	$0.00	$40.26
5	70	$26.96	$8.20	$18.86	$0.00	$54.02
6	75	$28.89	$8.20	$19.40	$0.00	$56.49
7	80	$30.82	$8.20	$19.94	$0.00	$58.96
8	90	$34.67	$8.20	$21.02	$0.00	$63.89

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.81	$8.20	$0.00	$0.00	$28.01
2	55	$21.79	$8.20	$5.94	$0.00	$35.93
3	60	$23.77	$8.20	$6.48	$0.00	$38.45
4	65	$25.75	$8.20	$7.02	$0.00	$40.97
5	70	$27.73	$8.20	$18.86	$0.00	$54.79
6	75	$29.72	$8.20	$19.40	$0.00	$57.32
7	80	$31.70	$8.20	$19.94	$0.00	$59.84
8	90	$35.66	$8.20	$21.02	$0.00	$64.88

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2019	$34.08	$12.41	$13.72	$0.00	$60.21
	06/01/2020	$34.98	$12.41	$13.72	$0.00	$61.11
	08/01/2020	$34.98	$12.91	$13.72	$0.00	$61.61
	12/01/2020	$34.98	$12.91	$14.82	$0.00	$62.71
	06/01/2021	$35.78	$12.91	$14.82	$0.00	$63.51
	08/01/2021	$35.78	$13.41	$14.82	$0.00	$64.01
	12/01/2021	$35.78	$13.41	$16.01	$0.00	$65.20
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	$48.94	$9.90	$21.15	$0.00	$79.99
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2019	$48.94	$9.90	$21.15	$0.00	$79.99

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 1*

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.47	$9.90	$21.15	$0.00	$55.52
2	60	$29.36	$9.90	$21.15	$0.00	$60.41
3	70	$34.26	$9.90	$21.15	$0.00	$65.31
4	75	$36.71	$9.90	$21.15	$0.00	$67.76
5	80	$39.15	$9.90	$21.15	$0.00	$70.20
6	80	$39.15	$9.90	$21.15	$0.00	$70.20
7	90	$44.05	$9.90	$21.15	$0.00	$75.10
8	90	$44.05	$9.90	$21.15	$0.00	$75.10

Notes:

Apprentice to Journeyworker Ratio:1:5

PIPEFITTER & STEAMFITTER *PIPEFITTERS LOCAL 537 (Local 138)*	09/01/2019	$50.36	$10.95	$19.74	$0.00	$81.05
	03/01/2020	$51.86	$10.95	$19.74	$0.00	$82.55
	09/01/2020	$53.36	$10.95	$19.74	$0.00	$84.05
	03/01/2021	$54.86	$10.95	$19.74	$0.00	$85.55

Apprentice - *PIPEFITTER Local 537 (Local 138)*

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$20.14	$10.95	$8.00	$0.00	$39.09
2	45	$22.66	$10.95	$19.74	$0.00	$53.35
3	60	$30.22	$10.95	$19.74	$0.00	$60.91
4	70	$35.25	$10.95	$19.74	$0.00	$65.94
5	80	$40.29	$10.95	$19.74	$0.00	$70.98

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$20.74	$10.95	$8.00	$0.00	$39.69
2	45	$23.34	$10.95	$19.74	$0.00	$54.03
3	60	$31.12	$10.95	$19.74	$0.00	$61.81
4	70	$36.30	$10.95	$19.74	$0.00	$66.99
5	80	$41.49	$10.95	$19.74	$0.00	$72.18

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.
Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
PLUMBER *PLUMBERS & GASFITTERS LOCAL 12 (Local 138)*	09/01/2019	$53.61	$11.82	$17.01	$0.00	$82.44
	03/01/2020	$54.61	$12.07	$17.26	$0.00	$83.94
	09/01/2020	$56.11	$12.07	$17.26	$0.00	$85.44
	03/01/2021	$57.61	$12.07	$17.26	$0.00	$86.94

Apprentice - *PLUMBER/GASFITTER - Local 12 (Local 138)*

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$18.76	$11.82	$6.16	$0.00	$36.74
2	40	$21.44	$11.82	$6.99	$0.00	$40.25
3	55	$29.49	$11.82	$9.53	$0.00	$50.84
4	65	$34.85	$11.82	$11.18	$0.00	$57.85
5	75	$40.21	$11.82	$12.88	$0.00	$64.91

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$19.11	$12.07	$6.24	$0.00	$37.42
2	40	$21.84	$12.07	$7.08	$0.00	$40.99
3	55	$30.04	$12.07	$9.63	$0.00	$51.74
4	65	$35.50	$12.07	$11.33	$0.00	$58.90
5	75	$40.96	$12.07	$13.03	$0.00	$66.06

Notes:

Steps are 1 yr

Step 4 with lic$61.35, Step5 with lic$68.41

Apprentice to Journeyworker Ratio:1:5

PNEUMATIC CONTROLS (TEMP.) *PIPEFITTERS LOCAL 537 (Local 138)*	09/01/2019	$50.36	$10.95	$19.74	$0.00	$81.05
	03/01/2020	$51.86	$10.95	$19.74	$0.00	$82.55
	09/01/2020	$53.36	$10.95	$19.74	$0.00	$84.05
	03/01/2021	$54.86	$10.95	$19.74	$0.00	$85.55
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWDERMAN & BLASTER *LABORERS - ZONE 2*	12/01/2019	$35.06	$8.10	$15.38	$0.00	$58.54
	06/01/2020	$35.95	$8.10	$15.38	$0.00	$59.43
	12/01/2020	$36.84	$8.10	$15.38	$0.00	$60.32
	06/01/2021	$37.76	$8.10	$15.38	$0.00	$61.24
	12/01/2021	$38.67	$8.10	$15.38	$0.00	$62.15
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.73	$12.50	$15.70	$0.00	$76.93
	06/01/2020	$49.83	$12.50	$15.70	$0.00	$78.03
	12/01/2020	$50.98	$12.50	$15.70	$0.00	$79.18
	06/01/2021	$52.08	$12.50	$15.70	$0.00	$80.28
	12/01/2021	$53.23	$12.50	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.73	$12.50	$15.70	$0.00	$76.93
	06/01/2020	$49.83	$12.50	$15.70	$0.00	$78.03
	12/01/2020	$50.98	$12.50	$15.70	$0.00	$79.18
	06/01/2021	$52.08	$12.50	$15.70	$0.00	$80.28
	12/01/2021	$53.23	$12.50	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$32.47	$12.50	$15.70	$0.00	$60.67
	06/01/2020	$33.22	$12.50	$15.70	$0.00	$61.42
	12/01/2020	$34.00	$12.50	$15.70	$0.00	$62.20
	06/01/2021	$34.75	$12.50	$15.70	$0.00	$62.95
	12/01/2021	$35.54	$12.50	$15.70	$0.00	$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER *TEAMSTERS 170 - J.G. MacLellan (Lowell)*	01/01/2020	$24.80	$9.65	$6.35	$0.00	$40.80
	05/01/2020	$25.15	$9.65	$6.35	$0.00	$41.15
	01/01/2021	$25.15	$10.01	$6.35	$0.00	$41.51
	05/01/2021	$25.50	$10.01	$6.35	$0.00	$41.86
	01/01/2022	$25.50	$10.37	$6.35	$0.00	$42.22
	05/01/2022	$25.85	$10.37	$6.35	$0.00	$42.57
	01/01/2023	$25.85	$10.77	$6.35	$0.00	$42.97
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	02/01/2020	$45.92	$11.50	$15.90	$0.00	$73.32
	03/01/2020	$45.67	$11.50	$15.90	$0.00	$73.07
	08/01/2020	$47.10	$11.50	$15.90	$0.00	$74.50
	02/01/2021	$48.53	$11.50	$15.90	$0.00	$75.93
	08/01/2021	$49.96	$11.50	$15.90	$0.00	$77.36
	02/01/2022	$51.39	$11.50	$15.90	$0.00	$78.79

Apprentice - *ROOFER - Local 33*

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.96	$11.50	$3.69	$0.00	$38.15
2	60	$27.55	$11.50	$15.90	$0.00	$54.95
3	65	$29.85	$11.50	$15.90	$0.00	$57.25
4	75	$34.44	$11.50	$15.90	$0.00	$61.84
5	85	$39.03	$11.50	$15.90	$0.00	$66.43

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.84	$11.50	$3.69	$0.00	$38.03
2	60	$27.40	$11.50	$15.90	$0.00	$54.80
3	65	$29.69	$11.50	$15.90	$0.00	$57.09
4	75	$34.25	$11.50	$15.90	$0.00	$61.65
5	85	$38.82	$11.50	$15.90	$0.00	$66.22

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
(Hot Pitch Mechanics' receive $1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	02/01/2020	$46.17	$11.50	$15.90	$0.00	$73.57
	03/01/2020	$45.92	$11.50	$15.90	$0.00	$73.32
	08/01/2020	$47.35	$11.50	$15.90	$0.00	$74.75
	02/01/2021	$48.78	$11.50	$15.90	$0.00	$76.18
	08/01/2021	$50.21	$11.50	$15.90	$0.00	$77.61
	02/01/2022	$51.64	$11.50	$15.90	$0.00	$79.04
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2020	$49.36	$13.35	$24.12	$2.61	$89.44
	08/01/2020	$50.96	$13.35	$24.12	$2.66	$91.09
	02/01/2021	$52.61	$13.35	$24.12	$2.71	$92.79
	08/01/2021	$54.36	$13.35	$24.12	$2.76	$94.59
	02/01/2022	$56.11	$13.35	$24.12	$2.81	$96.39

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SHEET METAL WORKER - Local 17-A*

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	$20.73	$13.35	$5.89	$0.00	$39.97
2	42	$20.73	$13.35	$5.89	$0.00	$39.97
3	47	$23.20	$13.35	$11.13	$1.43	$49.11
4	47	$23.20	$13.35	$11.13	$1.43	$49.11
5	52	$25.67	$13.35	$12.08	$1.53	$52.63
6	52	$25.67	$13.35	$12.33	$1.54	$52.89
7	60	$29.62	$13.35	$13.70	$1.70	$58.37
8	65	$32.08	$13.35	$15.15	$1.80	$62.38
9	75	$37.02	$13.35	$16.56	$2.01	$68.94
10	85	$41.96	$13.35	$17.96	$2.20	$75.47

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	$21.40	$13.35	$5.89	$0.00	$40.64
2	42	$21.40	$13.35	$5.89	$0.00	$40.64
3	47	$23.95	$13.35	$11.13	$1.45	$49.88
4	47	$23.95	$13.35	$11.13	$1.45	$49.88
5	52	$26.50	$13.35	$12.08	$1.56	$53.49
6	52	$26.50	$13.35	$12.33	$1.57	$53.75
7	60	$30.58	$13.35	$13.70	$1.73	$59.36
8	65	$33.12	$13.35	$15.15	$1.85	$63.47
9	75	$38.22	$13.35	$16.56	$2.04	$70.17
10	85	$43.32	$13.35	$17.96	$2.24	$76.87

Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2019	$34.54	$12.41	$13.72	$0.00	$60.67
	06/01/2020	$35.44	$12.41	$13.72	$0.00	$61.57
	08/01/2020	$35.44	$12.91	$13.72	$0.00	$62.07
	12/01/2020	$35.44	$12.91	$14.82	$0.00	$63.17
	06/01/2021	$36.24	$12.91	$14.82	$0.00	$63.97
	08/01/2021	$36.24	$13.41	$14.82	$0.00	$64.47
	12/01/2021	$36.24	$13.41	$16.01	$0.00	$65.66

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2019	$34.83	$12.41	$13.72	$0.00	$60.96
	06/01/2020	$35.73	$12.41	$13.72	$0.00	$61.86
	08/01/2020	$35.73	$12.91	$13.72	$0.00	$62.36
	12/01/2020	$35.73	$12.91	$14.82	$0.00	$63.46
	06/01/2021	$36.53	$12.91	$14.82	$0.00	$64.26
	08/01/2021	$36.53	$13.41	$14.82	$0.00	$64.76
	12/01/2021	$36.53	$13.41	$16.01	$0.00	$65.95
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section B) Zone 2*	01/01/2020	$54.06	$9.68	$19.80	$0.00	$83.54
	03/01/2020	$55.78	$9.47	$19.60	$0.00	$84.85
	10/01/2020	$57.13	$9.47	$19.60	$0.00	$86.20
	03/01/2021	$58.48	$9.47	$19.60	$0.00	$87.55

Apprentice - *SPRINKLER FITTER - Local 550 (Section B) Zone 2*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$18.92	$9.68	$11.35	$0.00	$39.95
2	40	$21.62	$9.68	$12.00	$0.00	$43.30
3	45	$24.33	$9.68	$12.65	$0.00	$46.66
4	50	$27.03	$9.68	$13.30	$0.00	$50.01
5	55	$29.73	$9.68	$13.95	$0.00	$53.36
6	60	$32.44	$9.68	$14.60	$0.00	$56.72
7	65	$35.14	$9.68	$15.25	$0.00	$60.07
8	70	$37.84	$9.68	$15.90	$0.00	$63.42
9	75	$40.55	$9.68	$16.55	$0.00	$66.78
10	80	$43.25	$9.68	$17.20	$0.00	$70.13

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 103*	09/01/2019	$39.76	$13.00	$16.86	$0.00	$69.62
	03/01/2020	$40.13	$13.00	$17.12	$0.00	$70.25
	09/01/2020	$41.20	$13.00	$17.16	$0.00	$71.36
	03/01/2021	$42.66	$13.00	$17.27	$0.00	$72.93
	09/01/2021	$44.32	$13.00	$17.38	$0.00	$74.70
	03/01/2022	$45.83	$13.00	$17.49	$0.00	$76.32
	09/01/2022	$47.55	$13.00	$17.62	$0.00	$78.17
	03/01/2023	$49.11	$13.00	$17.73	$0.00	$79.84

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 103*

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$17.89	$13.00	$0.54	$0.00	$31.43
2	45	$17.89	$13.00	$0.54	$0.00	$31.43
3	50	$19.88	$13.00	$13.75	$0.00	$46.63
4	50	$19.88	$13.00	$13.75	$0.00	$46.63
5	55	$21.87	$13.00	$14.06	$0.00	$48.93
6	60	$23.86	$13.00	$14.37	$0.00	$51.23
7	65	$25.84	$13.00	$14.69	$0.00	$53.53
8	70	$27.83	$13.00	$14.99	$0.00	$55.82
9	75	$29.82	$13.00	$15.30	$0.00	$58.12
10	80	$31.81	$13.00	$15.61	$0.00	$60.42

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	$18.06	$13.00	$0.54	$0.00	$31.60
2	45	$18.06	$13.00	$0.54	$0.00	$31.60
3	50	$20.07	$13.00	$14.00	$0.00	$47.07
4	50	$20.07	$13.00	$14.00	$0.00	$47.07
5	55	$22.07	$13.00	$14.31	$0.00	$49.38
6	60	$24.08	$13.00	$14.62	$0.00	$51.70
7	65	$26.08	$13.00	$14.94	$0.00	$54.02
8	70	$28.09	$13.00	$15.26	$0.00	$56.35
9	75	$30.10	$13.00	$15.56	$0.00	$58.66
10	80	$32.10	$13.00	$15.87	$0.00	$60.97

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2020	$53.34	$10.75	$21.94	$0.00	$86.03
	08/01/2020	$54.69	$10.75	$22.09	$0.00	$87.53
	02/01/2021	$55.33	$10.75	$22.09	$0.00	$88.17
	08/01/2021	$56.73	$10.75	$22.25	$0.00	$89.73
	02/01/2022	$57.32	$10.75	$22.25	$0.00	$90.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.67	$10.75	$21.94	$0.00	$59.36
2	60	$32.00	$10.75	$21.94	$0.00	$64.69
3	70	$37.34	$10.75	$21.94	$0.00	$70.03
4	80	$42.67	$10.75	$21.94	$0.00	$75.36
5	90	$48.01	$10.75	$21.94	$0.00	$80.70

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.35	$10.75	$22.09	$0.00	$60.19
2	60	$32.81	$10.75	$22.09	$0.00	$65.65
3	70	$38.28	$10.75	$22.09	$0.00	$71.12
4	80	$43.75	$10.75	$22.09	$0.00	$76.59
5	90	$49.22	$10.75	$22.09	$0.00	$82.06

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE*	12/01/2019	$40.50	$8.10	$16.80	$0.00	$65.40
	06/01/2020	$41.49	$8.10	$16.80	$0.00	$66.39
	12/01/2020	$42.47	$8.10	$16.80	$0.00	$67.37
	06/01/2021	$43.49	$8.10	$16.80	$0.00	$68.39
	12/01/2021	$44.50	$8.10	$16.80	$0.00	$69.40
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE*	12/01/2019	$39.22	$8.10	$16.80	$0.00	$64.12
	06/01/2020	$40.21	$8.10	$16.80	$0.00	$65.11
	12/01/2020	$41.19	$8.10	$16.80	$0.00	$66.09
	06/01/2021	$42.21	$8.10	$16.80	$0.00	$67.11
	12/01/2021	$43.22	$8.10	$16.80	$0.00	$68.12
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2019	$39.10	$8.10	$16.80	$0.00	$64.00
	06/01/2020	$40.09	$8.10	$16.80	$0.00	$64.99
	12/01/2020	$41.07	$8.10	$16.80	$0.00	$65.97
	06/01/2021	$42.09	$8.10	$16.80	$0.00	$66.99
	12/01/2021	$43.10	$8.10	$16.80	$0.00	$68.00
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.23	$12.50	$15.70	$0.00	$76.43
	06/01/2020	$49.31	$12.50	$15.70	$0.00	$77.51
	12/01/2020	$50.45	$12.50	$15.70	$0.00	$78.65
	06/01/2021	$51.54	$12.50	$15.70	$0.00	$79.74
	12/01/2021	$52.68	$12.50	$15.70	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2019	$35.12	$12.41	$13.72	$0.00	$61.25
	06/01/2020	$36.02	$12.41	$13.72	$0.00	$62.15
	08/01/2020	$36.02	$12.91	$13.72	$0.00	$62.65
	12/01/2020	$36.02	$12.91	$14.82	$0.00	$63.75
	06/01/2021	$36.82	$12.91	$14.82	$0.00	$64.55
	08/01/2021	$36.82	$13.41	$14.82	$0.00	$65.05
	12/01/2021	$36.82	$13.41	$16.01	$0.00	$66.24
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)*	12/01/2019	$51.38	$8.10	$17.20	$0.00	$76.68
	06/01/2020	$52.37	$8.10	$17.20	$0.00	$77.67
	12/01/2020	$53.35	$8.10	$17.20	$0.00	$78.65
	06/01/2021	$54.37	$8.10	$17.20	$0.00	$79.67
	12/01/2021	$55.38	$8.10	$17.20	$0.00	$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)*	12/01/2019	$53.38	$8.10	$17.20	$0.00	$78.68
	06/01/2020	$54.37	$8.10	$17.20	$0.00	$79.67
	12/01/2020	$55.35	$8.10	$17.20	$0.00	$80.65
	06/01/2021	$56.37	$8.10	$17.20	$0.00	$81.67
	12/01/2021	$57.38	$8.10	$17.20	$0.00	$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)*	12/01/2019	$43.45	$8.10	$17.20	$0.00	$68.75
	06/01/2020	$44.44	$8.10	$17.20	$0.00	$69.74
	12/01/2020	$45.42	$8.10	$17.20	$0.00	$70.72
	06/01/2021	$46.44	$8.10	$17.20	$0.00	$71.74
	12/01/2021	$47.45	$8.10	$17.20	$0.00	$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)*	12/01/2019	$45.45	$8.10	$17.20	$0.00	$70.75
	06/01/2020	$46.44	$8.10	$17.20	$0.00	$71.74
	12/01/2020	$47.42	$8.10	$17.20	$0.00	$72.72
	06/01/2021	$48.44	$8.10	$17.20	$0.00	$73.74
	12/01/2021	$49.45	$8.10	$17.20	$0.00	$74.75
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2019	$34.54	$12.41	$13.72	$0.00	$60.67
	06/01/2020	$35.44	$12.41	$13.72	$0.00	$61.57
	08/01/2020	$35.44	$12.91	$13.72	$0.00	$62.07
	12/01/2020	$35.44	$12.91	$14.82	$0.00	$63.17
	06/01/2021	$36.24	$12.91	$14.82	$0.00	$63.97
	08/01/2021	$36.24	$13.41	$14.82	$0.00	$64.47
	12/01/2021	$36.24	$13.41	$16.01	$0.00	$65.66
WAGON DRILL OPERATOR *LABORERS - ZONE 2*	12/01/2019	$34.31	$8.10	$15.38	$0.00	$57.79
	06/01/2020	$35.20	$8.10	$15.38	$0.00	$58.68
	12/01/2020	$36.09	$8.10	$15.38	$0.00	$59.57
	06/01/2021	$37.01	$8.10	$15.38	$0.00	$60.49
	12/01/2021	$37.92	$8.10	$15.38	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2019	$48.73	$12.50	$15.70	$0.00	$76.93
	06/01/2020	$49.83	$12.50	$15.70	$0.00	$78.03
	12/01/2020	$50.98	$12.50	$15.70	$0.00	$79.18
	06/01/2021	$52.08	$12.50	$15.70	$0.00	$80.28
	12/01/2021	$53.23	$12.50	$15.70	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & GASFITTERS LOCAL 12 (Local 138)*	09/01/2019	$53.61	$11.82	$17.01	$0.00	$82.44
	03/01/2020	$54.61	$12.07	$17.26	$0.00	$83.94
	09/01/2020	$56.11	$12.07	$17.26	$0.00	$85.44
	03/01/2021	$57.61	$12.07	$17.26	$0.00	$86.94
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2019	$28.83	$8.75	$1.86	$0.00	$39.44
	08/30/2020	$29.67	$9.25	$1.89	$0.00	$40.81
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2019	$40.84	$8.75	$10.02	$0.00	$59.61
	08/30/2020	$42.03	$9.25	$10.27	$0.00	$61.55
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2019	$33.64	$8.75	$9.86	$0.00	$52.25
	08/30/2020	$34.62	$9.25	$10.07	$0.00	$53.94
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2019	$26.43	$8.75	$1.79	$0.00	$36.97
	08/30/2020	$27.20	$9.25	$1.82	$0.00	$38.27
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2019	$40.84	$8.75	$14.10	$0.00	$63.69
	08/30/2020	$42.03	$9.25	$14.35	$0.00	$65.63
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2019	$36.04	$8.75	$10.65	$0.00	$55.44
	08/30/2020	$37.09	$9.25	$10.87	$0.00	$57.21
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2019	$21.62	$8.75	$1.65	$0.00	$32.02
	08/30/2020	$22.25	$9.25	$1.67	$0.00	$33.17
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2019	$26.43	$8.75	$1.79	$0.00	$36.97
	08/30/2020	$27.20	$9.25	$1.82	$0.00	$38.27
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/01/2019	$48.05	$8.75	$17.19	$0.00	$73.99
	08/30/2020	$49.45	$9.25	$17.48	$0.00	$76.18

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LINEMAN (Outside Electrical) - East Local 104*

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$28.83	$8.75	$3.36	$0.00	$40.94
2	65	$31.23	$8.75	$3.44	$0.00	$43.42
3	70	$33.64	$8.75	$3.51	$0.00	$45.90
4	75	$36.04	$8.75	$5.08	$0.00	$49.87
5	80	$38.44	$8.75	$5.15	$0.00	$52.34
6	85	$40.84	$8.75	$5.23	$0.00	$54.82
7	90	$43.25	$8.75	$7.30	$0.00	$59.30

Effective Date - 08/30/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$29.67	$9.25	$3.39	$0.00	$42.31
2	65	$32.14	$9.25	$3.46	$0.00	$44.85
3	70	$34.62	$9.25	$3.54	$0.00	$47.41
4	75	$37.09	$9.25	$5.11	$0.00	$51.45
5	80	$39.56	$9.25	$5.19	$0.00	$54.00
6	85	$42.03	$9.25	$5.26	$0.00	$56.54
7	90	$44.51	$9.25	$7.34	$0.00	$61.10

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	02/04/2019	$30.73	$4.70	$3.17	$0.00	$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	02/04/2019	$28.93	$4.70	$3.14	$0.00	$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	02/04/2019	$28.93	$4.70	$3.14	$0.00	$36.77
TREE TRIMMER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$18.51	$3.55	$0.00	$0.00	$22.06

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.

TREE TRIMMER GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$16.32	$3.55	$0.00	$0.00	$19.87

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.
*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

APPENDIX A

AMESBURY CONSERVATION COMMISSION ORDER OF CONDITIONS

ORIGINAL

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
002-1253
MassDEP File #

eDEP Transaction #

Amesbury
City/Town

A. General Information

Please note: this form has been modified with added space to accommodate the Registry of Deeds Requirements

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

1. From: Amesbury
Conservation Commission

2. This issuance is for (check one): a. ☒ Order of Conditions b. ☐ Amended Order of Conditions

3. To: Applicant:

Rob
a. First Name

Desmarias
b. Last Name

Amesbury Department of Public Works
c. Organization

39 South Hunt Road
d. Mailing Address

Amesbury
e. City/Town

MA
f. State

01913
g. Zip Code

4. Property Owner (if different from applicant):

City of Amesbury
a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

5. Project Location:

Route 150/I-495/South Hunt Road Interesection

Amesbury
b. City/Town

n/a
c. Assessors Map/Plat Number

n/a
d. Parcel/Lot Number

Latitude and Longitude, if known:

42d83m876s
d. Latitude

-70d93m629s
e. Longitude

A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):
   Essex South
   a. County
   b. Certificate Number (if registered land)
   c. Book
   d. Page

7. Dates: 1.10.20 a. Date Notice of Intent Filed; 2.3.20 b. Date Public Hearing Closed; 2.18.20 c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):
   Transportation Improvement Project
   a. Plan Title
   TEC Inc.
   b. Prepared By
   Peter Ellison, P.E.
   c. Signed and Stamped by
   1.10.20
   d. Final Revision Date
   1"=20'
   e. Scale
   See Attachment to Order of Conditions
   f. Additional Plan or Document Title
   g. Date

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

   Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

a. ☒ Public Water Supply
b. ☒ Land Containing Shellfish
c. ☒ Prevention of Pollution
d. ☐ Private Water Supply
e. ☒ Fisheries
f. ☒ Protection of Wildlife Habitat
g. ☒ Groundwater Supply
h. ☒ Storm Damage Prevention
i. ☒ Flood Control

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

a. ☒ the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

B. Findings (cont.)

Denied because:

b. ☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☐ Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) _____ a. linear feet

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☒ Bank	34 a. linear feet	34 b. linear feet	0 c. linear feet	0 d. linear feet
5. ☐ Bordering Vegetated Wetland	a. square feet	Temporary 440SF	c. square feet	d. square feet
6. ☐ Land Under Waterbodies and Waterways	a. square feet	b. square feet	c. square feet	d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☒ Bordering Land Subject to Flooding	0 a. square feet	0 b. square feet	0 c. square feet	0 d. square feet
Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. ☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. ☒ Riverfront Area	33,700 a. total sq. feet	33,700 b. total sq. feet		
Sq ft within 100 ft	4,930 c. square feet	4,930 d. square feet	0 e. square feet	0 f. square feet
Sq ft between 100-200 ft	28,770 g. square feet	28,770 h. square feet	0 i. square feet	0 j. square feet

B. Findings (cont.)

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. ☐ Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12. ☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. ☐ Coastal Beaches	a. square feet	b. square feet	cu yd c. nourishment	cu yd d. nourishment
14. ☐ Coastal Dunes	a. square feet	b. square feet	cu yd c. nourishment	cu yd d. nourishment
15. ☐ Coastal Banks	a. linear feet	b. linear feet		
16. ☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17. ☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. ☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. ☐ Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20. ☐ Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	a. c/y dredged	b. c/y dredged		
21. ☐ Land Subject to Coastal Storm Flowage	a. square feet	b. square feet		

B. Findings (cont.)

* #22. If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

22. ☐ Restoration/Enhancement *:

a. square feet of BVW | b. square feet of salt marsh

23. ☐ Stream Crossing(s):

a. number of new stream crossings | b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. the work is a maintenance dredging project as provided for in the Act; or
   b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

    "Massachusetts Department of Environmental Protection" [or, "MassDEP"]

    "File Number 002-1253 "

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.

12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

13. The work shall conform to the plans and special conditions referenced in this order.

14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.

15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.

17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. **The work associated with this Order (the "Project") is** (1) ☒ **is not** (2) ☐ **subject to the Massachusetts Stormwater Standards. If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:**

a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:
i. all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
ii. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
iii. any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;
iv. all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;
v. any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement) for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: *i.*) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and *ii.*) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 18(f) through 18(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 18(f) through 18(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.

i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

See Attachment to Order of Conditions

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☒ Yes ☐ No

2. The Amesbury Conservation Commission hereby finds (check one that applies):

   a. ☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

   1. Municipal Ordinance or Bylaw _____ 2. Citation _____

   Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

   b. ☒ that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

   1. Municipal Ordinance or Bylaw: Amesbury Wetlands Ordinance
   2. Citation: AWO

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

   The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

   See Attachment to Order of Conditions

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
002-1253
MassDEP File #

eDEP Transaction #

Amesbury
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

2.18.20
1. Date of Issuance

Please indicate the number of members who will sign this form.
This Order must be signed by a majority of the Conservation Commission.

3
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

☒ by hand delivery on
2.18.20
Date

☐ by certified mail, return receipt requested, on
Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request of Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Amesbury
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Amesbury
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

Route 150/I-495/South Hunt Road Interesection

002-1253
MassDEP File Number

Has been recorded at the Registry of Deeds of:

Essex South
County

Book

Page

for: City of Amesbury
Property Owner

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

2.18.20
Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

ATTACHMENT TO ORDER OF CONDITIONS

Applicant: **Rob Desmarias**

Site Address: **Route 150/I-495/South Hunt Road Interesection**

DEP File: **002-1253**

Pursuant to Massachusetts Wetlands Protection Act and Regulations and the Amesbury Wetlands Protection Ordinance and their implementing regulations:

This Order permits: Horizontal alignment and vertical profile of Route 150. Project includes drainage improvements including deep sump catch basins with hoods and an infiltration basin with a sediment forebay. See Appendix for details.

SPECIAL CONDITIONS:

1. Approval of this application does not constitute compliance with any law or regulation other than MGL Chapter 131, Section 40, Wetlands Regulations CMR 10.00, and the Town of Amesbury Wetlands Protection Ordinance. It is the responsibility of the applicant to procure all other applicable federal, state and local permits and approvals associated with this project.

2. The work shall conform to the following:

Notice of Intent filed by:	**Rob Desmarias, Director** **City of Amesbury** **Department of Public Works** **36 South Hunt Road** **Amesbury, MA 01913**
Site plans prepared by:	**TEC, Inc.**
Titled:	**Transportation Improvement Project** **Pond View Avenue (Route 150) at South Hunt Road & the I-495 Ramps in the City of Amesbury, Essex County, NOI Submittal** **Scale: 1" = 1000'** **Date: 12.24.19** **Signed/Stamped:** **Sheets 17 of 17**

Drainage report prepared by:	**TEC, Inc.**
Titled:	**Drainage Report Transportation Improvement Project Pond View Avenue (Route 150) at South Hunt Road & the I-495 Ramps in the City of Amesbury Date: 1.10.20**
Report prepared by:	**TEC, Inc.**
Titled:	**Custom Soil Resource Report for Essex County, Massachusetts, Northern Part Transportation Improvement Project Date: 12.18.19**
Report prepared by:	**TEC, Inc.**
Titled:	**Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan Date: 1.10.20**
Report prepared by:	**TEC, Inc.**
Titled:	**Stormwater Management Operations and Maintenance Plan Date: 1.10.20**

3. The Amesbury Conservation Commission (ACC) reserves the right to impose additional conditions on this project including but not limited to additional or modified erosion control / siltation controls during construction, if it deems that site conditions warrant such measures to mitigate potential impacts.

4. A copy of this Order of Conditions and the plan approved in this Order shall be available on site at all times when work is in progress.

5. In conjunction with the sale of this property or any portion thereof before a Certificate of Compliance has been issued, the applicant or current landowner shall submit to the ACC a signed statement by the buyer that he/she is aware of an outstanding Order of Conditions on the property and has received a copy of the Order of Conditions.

PRE-CONSTRUCTION CONDITIONS:

6. Prior to the pre-construction meeting and commencement of any activity on this site, the boundaries of all wetland resource areas shall be identified by flagging, spaced at

intervals not greater than 25-feet apart. Wetland flags shall be checked and replaced as necessary and maintained until a Certificate of Compliance is issued for the project.

7. No work shall be undertaken until all administrative appeal periods pursuant to MGL ch. 131 §40 and the Amesbury Wetlands Ordinance from this Order have elapsed or, if such an appeal has been filed, until all proceedings before the Department or Court have been completed.

8. This Order shall be **recorded by the applicant at the Registry of Deeds** immediately after the expiration of all appeal periods. No work shall be undertaken until the Final Order has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is to be done. **The recording information shall be submitted to the Amesbury Conservation Commission or Department on the form at the end of this Order prior to commencement of the work. Any Order not recorded by the applicant before work commences may be recorded by the ACC at the applicant's expense.**

9. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words **"DEP File Number 002-1253".**

10. The applicant shall designate an **'Environmental Monitor'** such as a Registered Professional Engineer or Professional Wetland Scientist, who has relevant experience in wetland impact / assessment and erosion / sedimentation control measures to oversee any emergency placement of controls and regular inspection or replacement of sedimentation control device. The name and phone number of the Environmental Monitor must be provided to the ACC in the event that this person has to be contacted, due to an emergency at this site, during any 24-hour period, including weekends. **This person shall be given the authority to stop construction should there be unlawful entry into the wetland resources areas and / or for erosion controls purposes.** The Environmental Monitor will be required to inspect all such devices and oversee cleaning and the proper disposal of waste products. Cleaning shall include removal of any entrapped silt. **The Environmental Monitor shall conduct site inspections on site for compliance with this Order at a <u>minimum of once per week</u> and during or immediately after rainstorms of 0.5 inches or more.**

11. The Environmental Monitor shall **submit a written report to the ACC at least ONCE A MONTH,** or otherwise arranged by the ACC in which construction activities occurs on site and for as long thereafter as grounds remains exposed. The Environmental Monitor must certify that, to the best of his / her knowledge and belief based on a careful site inspection, all work is being performed in compliance with this Order of Conditions. The **Environmental Monitor must visually inspect all sedimentation / erosion control measures** and assume responsibility for their **maintenance on a weekly basis** and that they are functioning as intended. In addition, all wetland resources areas must be visually inspected for siltation, turbidity, and / or other water quality impacts. The reports shall include what work is anticipated to be complete over

the next reporting period (this will update the construction sequence); current conditions of the erosion controls; description of any erosion or sedimentation repair and / or replacement; and describe any erosion problems and mitigation measures implemented. Such reports shall continue until the applicant has requested a less frequent reporting schedule or an end of to the reports, which has been approved in writing by the Conservation Commission or its Agent.

12. Prior to the pre-construction meeting and commencement of any activity on this site, all erosion control devises approved under this Order shall be properly installed per the approved plan(s). The ACC and/or its Agent shall inspect and approve such installation at a pre-construction meeting. The erosion control devises must remain in place until the Commission or its Agent has authorized their removal. All workers must be instructed not to work beyond this limit.

13. **Once the above mentioned pre-construction requirements are complete, the applicant shall contact the Conservation Department prior to site preparation or construction and shall arrange an on-site PRE-CONSTRUCTION MEETING with a representative from the ACC and/or its agent, the project supervisor, the contractor responsible for work, the engineer, wetland scientist (if applicable), and the applicant to ensure all of the Conditions of this Order are understood. Please contact the Amesbury Conservation Department office at (978) 388-8110 ext. 317 at least seventy-two (72) hours prior to any activity to arrange the pre-construction meeting.**

14. Inform all contractors and subcontractors of the conditions and provisions of this Order. This Order shall be included in all construction contracts and subcontracts dealing with the work, and shall supersede other contract requirements.

CONSTRUCTION CONDITIONS:

15. Accepted engineering and Best Management Practices for construction standards shall be followed in the conduct of all work.

16. Erosion control devices shall be inspected regularly; and immediately after .5 inches of precipitation. Any entrapped silt shall be removed to an area outside of the buffer zone and wetland resource areas; silt fence and hay bales shall be replaced as necessary.

17. No alteration or activity shall occur beyond the limit or work as defined by the siltation barriers shown on the approved plan.

18. All waste generated by, or associated with, the construction activity shall be contained within the construction area, and away from the resource area. There shall be no stump dumps, burying of stumps or any material onsite. The applicant shall maintain a dumpster (or other suitable means) at the site for the storage and removal of such construction material off-site. However, **no trash dumpsters will be allowed within 50-feet to any areas subject to protection under the Act or local Ordinance.**

19. All stockpiles shall be enclosed by erosion control consisting of hay bales and entrenched silt fence. There shall be no stockpiling outside the approved limit of work.

20. Equipment storage and refueling operations shall be situated in an upland area at a distance greater than 50-feet from any resource area.

21. Any damage caused as a direct result of this project to any wetland resource areas shall be the responsibility of the applicant to repair, restore and / or replace. Sedimentation or erosion into these areas shall be considered damage to wetland resource areas. If sediment reaches these areas the Commission shall be contacted and a plan for abatement of the problem and proposed restoration / mitigation measures shall be submitted for approval and implementation.

AFTER CONSTRUCTION:

22. **Upon completion of the project, the applicant shall submit the following to the Amesbury Conservation Commission to request a Certificate of Compliance (COC):**
    a. WPA Form 8A- Request for a Certificate of Compliance;
    b. A letter from the applicant requesting the Certificate of Compliance with the following information included:
        i. Name and address of current landowner;
        ii. The name and address of the individual or other entity to whom the COC is to be issued;
        iii. The street address and lot number for the project; and DEP file #
        iv. "As-Built" plans prepared, sign, and stamped by a Registered Professional Civil Engineer (and / or Registered Professional Land Survey) of the Commonwealth, for public record.

23. Erosion control devices shall remain in place and functioning properly until all exposed soils have been stabilized with final vegetative cover and the Commission and / or its Agent has authorized their removal.

PERPETUAL CONDITIONS:

The following conditions are ongoing and do not expire with the issuance of the Certificate of Compliance:

24. Water quality to the adjacent Bordering Vegetated Wetlands (BVW) shall be not differ significantly following the completion of the project from the pre-development conditions. There shall be no sedimentation into the resource areas from discharge pipes or surface runoff leaving the site. This shall be a continuing condition in perpetuity.

25. Fertilizers utilized for landscaping and lawn care shall be slow release, low-nitrogen types (<5%), and shall not be used within 25-feet of a resource area. Pesticides and herbicides shall not be used within 100-feet of a wetland resource area. This condition shall survive the Order of Conditions and shall run with the title of the property.

26. No herbicides or pesticides shall be used within 200 feet of the Merrimac River.

Appendix
Approved Work Description and Plans

and in the very north of the site, bordering land subject to flooding (BLSF). Resource areas were delineated by Rimmer Environmental Consulting, LLC (Rimmer) on April 17, 2018 and October 18, 2018, and produced a delineation report dated June 5 2018, and revised on December 4, 2018. Wetland Resource Delineation Report is attached.

The project site is not located within Estimated Habitat of Rare Wetland Wildlife and Priority Habitat as mapped by the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program as published by MassGIS. There are no potential or certified vernal pools within the project site location.

According to the Natural Resource Conservation Service (NRCS), the site is comprised mostly of Udorthents, however, Hinkley Loamy Sand, Pits – Gravel, and a small section of Maybid Silt Loam in the north are also located on site. Hydrologic soil groups A and D have been utilized for the hydrology calculations based on these soil types.

According to MassGIS and the FEMA FIRMette, the majority of the site is not within the 100-year flood plain. However, the northern most 75 feet of Route 150 within the project limits are within a Zone A, or bordering land subject to flooding. Refer to the attached FIRMette Figure, and to the attached Site Plans to see the location of the flood plain.

Proposed Conditions

The proposed improvements include horizontal alignment and vertical profile of Route 150. To the maximum extent practical, the profile is to be designed with minimum 0.5% grades to improve drainage runoff and utilize AASHTO Green Book standard for vertical curves to meet the desired design speed. Additionally, automated traffic signals and multi-use paths will make the intersection safer for both vehicular, and non-vehicular traffic.

In addition to the minimum slopes, proposed drainage improvements include new deep sump catch basins with hoods, and an infiltration basin with a sediment forebay. The infiltration basin and sediment forebay have been sized to handle the stormwater runoff from the improvements mentioned and additionally the stormwater runoff from anticipated future improvements along South Hunt Road.

While this project will largely improve upon resource areas by increasing greenspace within buffer zones, TSS removal, increasing infiltration, and decreasing peak flows, approximately 34 LF of asphalt-lined intermittent stream bank will be directly impacted due to the intersection realignment. A proposed headwall with associated piping will be installed, and extend into the asphalt-lined intermittent stream by approximately 14 feet. The piping will tie into the existing closed drainage system where the intermittent stream currently flows.

This project qualifies as a limited project under 310 CMR 10.53(3)(f) of the Wetlands Protection Act. This regulation grants limited project status to projects that propose "maintenance and improvement of existing public roadways, but limited to widening less than a single lane, adding shoulders, correcting substandard intersections, and improving inadequate drainage systems."

Resource Area Impacts

The proposed project includes grading, installation of drainage infrastructure, and paving within the 100-foot buffer zone of the BVWs, within the 200-foot riverfront area, and 34 LF of direct impacts to an asphalt-lined intermittent stream bank.

Riverfront Area and Inland Bank

An unnamed perennial stream flows from the northeastern portion of the project, runs south beneath I495, turns southeast within the northbound cloverleaf and continues off site under Summit Ave to Bailey Pond. North of I495, the unnamed perennial stream bank is delineated by wetland flags "J-9" through "J-24", "K-9" through "K-17", and the "F", and "G" flag series. South of I495 and within the northbound cloverleaf, the stream bank is delineated by the "A" series of wetland flagging. The riverfront area associated with this stream is a 200-foot buffer measured horizontally from the delineated bank on either side of I495. Once the stream crosses under I495, the riverfront area stops until the culvert outlets on the other side as explained in 310 CMR 10.58: "Where a river runs through a culvert more than 200 feet in length, the riverfront area stops at a perpendicular line at the upstream end of the culvert and resumes at the downstream end."

There are no direct impacts to the inland bank associated with the unnamed perennial stream. The total area altered within the riverfront area includes grading, drainage infrastructure installation, and paving, and totals approximately 33,700 SF, with 4,930 SF of the work within 100 feet of the stream. It should be noted that the work area is a previously disturbed public roadway.

Intermittent Streams

- The intermittent stream which ties into the perennial stream is delineated by the wetland flags "K-1" through "K-9", and "J-1" through "J-8". There is no work proposed within the buffer zone to this resource area.
- The intermittent stream which is located north of South Hunt Road and west of Route 150 is delineated by the wetland flags "D-1" through "D-8", and "E-1" through "E-8" prior to entering a culvert and flowing beneath Route 150 and joining the perennial stream on the eastern side of the road. The stream is delineated by the wetland flags "H-1" through "H-4" and "I-1" through "I-4" on the western side of Route 150.
  Proposed work associated with this resource area is limited to the buffer zone only, and includes grading, drainage infrastructure installation, and paving.
- The third intermittent stream flows within a paved receiving ditch along the western side of Route 150, north to the intersection of South Hunt Road. The intermittent stream then gets collected by an existing drop inlet as part of the closed drainage system, before outletting on the eastern side of Route 150 joining the above-mentioned intermittent stream delineated by the wetland flags "H-1" through "H-4" and "I-1" through "I-4".

The proposed work directly impacts this resource area by installing a headwall to divert the stream into the closed drainage system approximately 14 feet south, consistent with existing drainage patterns. As mentioned above, the intermittent stream runs through an asphalt lined ditch, and as such, negates the wildlife habitat protection intention of the Wetland Protection act. The resource area functioning instead as flood control and storm damage prevention. 310 CMR 10.54(1) states:

"Banks are likely to be significant to public or private water supply, to ground water supply, to flood control, to storm damage prevention, to the prevention of pollution and to the protection of fisheries and wildlife habitat. Where Banks are composed of concrete, asphalt or other artificial impervious material, said Banks are likely to be significant to flood control and storm damage prevention."

The proposed conditions do not adversely affect the flood control and storm damage prevention qualities of the resource area, as the proposed infrastructure matches or exceeds the carrying capacity and erosion control aspects of the asphalt lined ditch.

In addition, the 34 LF of bank impacts are less than 10% (and less than 50 LF) of the section of the stream, and according to 310 CMR 10.54(4)(a)(5) "(impacts) *shall not be deemed to impair its capacity to provide important wildlife habitat functions*".

Isolated Wetland

- There is an isolated wetland south of the I495 northbound ramps delineated by wetland flags "B-1" through "B-17". Work proposed within the buffer zone of this wetland includes grading, drainage infrastructure installation, and paving.

Bordering Land Subject to Flooding

- Within the northern limits of the site, FEMA flood maps denote a bordering land subject to flooding (BLSF). This area is from the northern site boundary to approximately Station 102+75. Proposed improvements within this area are limited to pavement markings and installation of a guardrail. Neither of these proposed actives will affect flood storage, as existing grading will not be altered.

Overall, the project proposes 34 LF of direct impacts to resource areas, but generally improves upon condition of stormwater runoff to the resource areas, and restricts disturbance to outside resource areas. Erosion control barriers will be removed once construction is completed, exposed soil is vegetated and stabilized, and permission from the Conservation Commission is granted.

Construction Sequence

The following sequence is typical of roadway construction; however, this may be modified based on input from the Conservation Commission (ConCom).

1. Obtain/record Order of Conditions from ConCom
2. Pre-construction meeting with ConCom agent
3. Install erosion control barriers and silt sacks
4. Perform excavation for drainage, utilities, and pavement reconstruction
5. Install curbing, sidewalks, loam, seed and landscaping
6. Final paving
7. Install traffic signs and pavement markings
8. Perform final inspection and address punch list items
9. Final acceptance by the Town
10. Obtain Certificate of Compliance from ConCom
11. Remove erosion control barriers and silt sacks

Mitigation

Erosion control and sedimentation barriers will be installed prior to construction between the project area and resource areas to establish a limit-of-work. Additionally, silt sacks will be placed in all existing and proposed catch basins once installed, to intercept any construction sediments.

As the proposed direct impacts do not adversely affect the resource area, there is no mitigation associated with the shortening of the asphalt-lined intermittent stream.

A drainage study was performed to assess the potential impacts of the proposed project. Please see attached Drainage Report for the full drainage study. The drainage watersheds within the project limits are shown on the attached Pre-Development Drainage Area (Figure D-1), and Post-Development Drainage Area (Figure D-2) and described below. The proposed project will improve upon the existing stormwater management system and will incorporate additional Best Management Practices (BMP) to the maximum extent feasible. This analysis has been prepared to verify that the proposed improvements will not have an adverse effect on the stormwater discharged.

The proposed Stormwater Management Plan has been designed to meet the Stormwater Standards identified in the Massachusetts Stormwater Handbook to the maximum extent practicable. The proposed project reduces the risk of erosion and sedimentation and improves the quality of stormwater runoff by total suspended solids (TSS) removal and reducing overall peak flows prior to discharging to resource areas.

Alternatives Analysis

The following alternatives were considered during the development of the proposed stormwater system:

Alternative 1 – No Build
The No Build alternative would include leaving the existing roadway drainage as-is. The drainage system is antiquated and lacks TSS removal, as well as has no current infiltration and groundwater recharge. The lack of deep sumps and hoods in the existing catch basins allows runoff to flow into resource areas untreated. Leaving Route 150, I495 northbound ramps, and South Hunt Road as-is is not a preferred solution.

Alternative 2 – No Infiltration BMP
Alternative 2 would consist of new deep sump catch basins with hoods, and drainage manholes along Route 150, I495 northbound ramps, and South Hunt Road. These proposed catch basins would flow directly to the wetland systems located along the site treated for TSS, however no groundwater recharge would take place. This alternative is not a preferred solution.

Alternative 3 – Infiltration BMP
Alternative 3 is the preferred solution and would include the use of a closed drainage system consisting of new deep sump catch basins with hoods, and drainage manholes along Route 150, I495 northbound ramps, and South Hunt Road, and would include an infiltration BMP to infiltrate and recharge the stormwater back into the ground. There is sufficient space for the BMP, and sufficient separation between the bottom of the BMP and groundwater. The infiltration BMP can be large enough to infiltrate the majority of stormwater runoff from the site as well as accommodate for stormwater runoff for future roadway improvements. This alternative provides improved treatment, increased groundwater recharge, and is consistent with existing drainage patterns.

Conclusion

The City of Amesbury is proposing to realign the intersection of South Hunt Road, Route 150, and the I495 northbound ramps. This realignment will increase the overall safety of the intersection for vehicular and non-vehicular traffic by introducing automatic traffic signals, multi-use sidewalk, and significantly increased drainage infrastructure. The proposed drainage infrastructure would improve upon existing conditions by decreasing peak flows, decreasing TSS, and increasing infiltration.

The Applicant requests that the Conservation Commission finds that the project as described in this Notice of Intent successfully upholds the interest of the Wetlands Protection Act and subsequently issues an Order of Conditions for the proposed improvements.

TRANSPORTATION IMPROVEMENT PROJECT

PLAN AND PROFILE OF

POND VIEW AVENUE (ROUTE 150) AT SOUTH HUNT ROAD & THE I-495 RAMPS

IN THE CITY OF

AMESBURY

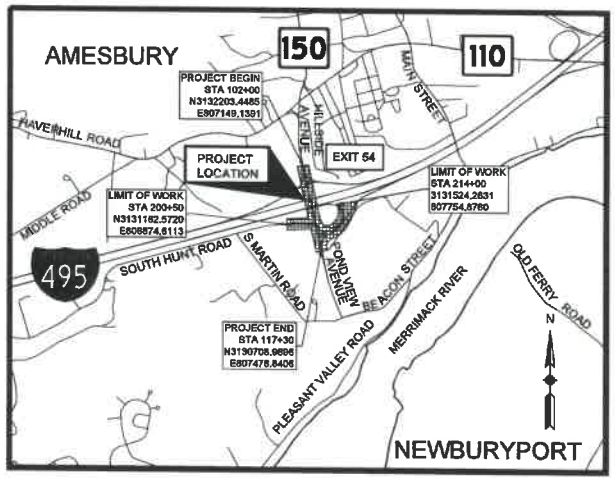
ESSEX COUNTY

NOI SUBMITTAL

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED APRIL 1, 2019, THE LATEST INTERIM SUPPLEMENTAL SPECIFICATIONS, THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1988 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

INDEX

SHEET NO.	DESCRIPTION	
1	TITLE SHEET & INDEX	
2	LEGEND & ABBREVIATIONS	
3	KEY PLAN	
~~4-6~~	~~TYPICAL SECTIONS & PAVEMENT NOTES~~	Omitted
7-11	CONSTRUCTION PLANS	
~~12-13~~	~~PROFILES~~	Omitted
14-18	CURB TIE & GRADING PLANS	
~~19-23~~	~~TRAFFIC SIGN & PAVEMENT MARKING PLANS~~	Omitted
~~24~~	~~TRAFFIC SIGN SUMMARY~~	Omitted
~~25-30~~	~~TRAFFIC SIGNAL PLANS~~	Omitted
~~31-33~~	~~TEMPORARY TRAFFIC CONTROL PLANS~~	Omitted
34-36	CONSTRUCTION DETAILS	
37	WHEELCHAIR RAMP DETAILS	
~~38-58~~	~~CROSS SECTIONS~~	Omitted



0 1000 2000 3000 4000
SCALE: 1" = 1000'

TOTAL LENGTH OF PROJECT = 2860 FEET = 0.542 MILES
HILLSIDE AVENUE/ POND VIEW AVENUE (ROUTE 150) = 1530 FEET = 0.290 MILES
SOUTH HUNT ROAD = 500 FEET = 0.095 MILES
I-495 NB RAMPS = 830 FEET = 0.157 MILES

DESIGN DESIGNATION

	SOUTH HUNT ROAD	POND VIEW AVENUE (ROUTE 150)	I-495 NB OFF-RAMP
DESIGN SPEED	35 MPH	45 MPH	35 MPH
ADT (2019)	1847	8575	4224
ADT (2029)	2106	9777	4816
K	13.3%	10.3%	10.6%
D	53.7% EB	71.4% NB	100% WB
T (PEAK HOUR)	1.4%	1.4%	0.3%
T (AVERAGE DAY)	1.7%	1.1%	0.9%
DHV	280	1004	509
DDHV	151	717	509
FUNCTIONAL CLASSIFICATION	URBAN COLLECTOR	URBAN MINOR ARTERIAL	URBAN MINOR ARTERIAL

DATE	DESCRIPTION	REV #
01/10/2020	NOI SUBMITTAL	-
12/24/19	75 / 100% SUBMITTAL	-
6/21/19	25% SUBMITTAL	-

MassWorks Infrastructure Project
Executive Office of Housing & Economic Development

TEC, Inc.
146 Dascomb Road
Andover, MA 01810
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508-868-5104
169 Ocean Blvd, Unit 3
PO Box 249
Hampton, NH 03842
603-601-6154
www.TheEngineeringCorp.com

DESIGNED BY	CHECKED BY	DATE
LEN	JJS	12/24/2019
DRAWN BY	APPROVED BY	PROJECT NO.
SL	JAR	T0775

[NCR]-01 (TITLE SHEET).DWG Plotted on 8-Jan-2020 3:02 PM

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT SOUTH HUNT ROAD & I-495 RAMPS
LEGEND & ABBREVIATIONS

[75-100STAGE]HD2[LEGEND].DWG Plotted on 6-Jan-2020 3:03 PM

GENERAL SYMBOLS

PROPOSED	DESCRIPTION
JB	JERSEY BARRIER
CB/GI	CATCH BASIN OR GUTTER INLET
CBCI/GICI	CATCH BASIN OR GUTTER INLET W/ CURB INLET
FP	FLAG POLE
GP	GAS PUMP
MB	MAIL BOX
	POST SQUARE
	POST CIRCULAR
WELL	WELL
EHH	ELECTRIC HANDHOLE
	FENCE GATE POST
GG	GAS GATE
BHL #	BORING HOLE
MW #	MONITORING WELL
TP #	TEST PIT
	HYDRANT
	LIGHT POLE
	COUNTY BOUND
	GPS POINT
	CABLE MANHOLE
	DRAINAGE MANHOLE
	ELECTRIC MANHOLE
	GAS MANHOLE
	MISC MANHOLE
	SEWER MANHOLE
	TELEPHONE MANHOLE
	WATER MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
	MONUMENT
	STONE BOUND
	TOWN OR CITY BOUND
	TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TROLLEY POLE OR GUY POLE
	TRANSMISSION POLE
UFB	UTILITY POLE W/ FIREBOX
UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	UTILITY POLE W/ 1 LIGHT
UPL	UTILITY POLE
	BUSH
	TREE
	STUMP
	SWAMP / MARSH
WG	WATER GATE
WSO	WATER SHUTOFF/CURB STOP
PM	PARKING METER
	OVERHEAD CABLE/WIRE
	CURBING
	CONTOURS (ON-THE-GROUND SURVEY DATA)
	CONTOURS (PHOTOGRAMMETRIC DATA)
	UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
	UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
	BALANCED STONE WALL
	GUARD RAIL - STEEL POSTS
	GUARD RAIL - WOOD POSTS
	CHAIN LINK OR METAL FENCE
	WOOD FENCE
	HAY BALES/SILT FENCE
	TREE LINE
	EDGE OF PAVEMENT
	SAWCUT LINE
	TOP OR BOTTOM OF SLOPE
	LIMIT OF EDGE OF MICROMILLING AND OVERLAY
	BANK OF RIVER OR STREAM
	BORDER OF WETLAND
	100 FT WETLAND BUFFER
	200 FT RIVERFRONT BUFFER
	STATE HIGHWAY LAYOUT
	TOWN OR CITY LAYOUT
	COUNTY LAYOUT
	RAILROAD SIDELINE
	TOWN OR CITY BOUNDARY LINE
	PROPERTY LINE OR APPROXIMATE PROPERTY LINE
	EASEMENT

TRAFFIC SYMBOLS

DESCRIPTION
CONTROLLER CABINET, FOUNDATION
CONTROLLER CABINET, FOUNDATION, CONC. PAD
MAST ARM FOUNDATION (SCALE OF BLOCK = DIAMETER IN INCHES)
MAST ARM (LENGTH NOTED)

TRAFFIC SYMBOLS (cont.)

DESCRIPTION
EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
VEHICULAR SIGNAL HEAD
PEDESTRIAN SIGNAL HEAD
MAST ARM OR TS POLE MOUNTED SIGN
EMERGENCY PRE-EMPTION RECEIVER
EMERGENCY PRE-EMPTION CONFIRMATION STROBE
PEDESTRIAN PUSH BUTTON
YAGI ANTENNA
BICYCLE WIRE LOOP DETECTOR (SIZE AS NOTED)
WIRE LOOP DETECTOR (SIZE AND TYPE NOTED)
TRAFFIC SIGN (1 POST)
TRAFFIC SIGN (2 POST)
PULL BOX 12"x12" (OR AS NOTED)
ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

PROPOSED	DESCRIPTION
	PAVEMENT ARROW - WHITE
ONLY	LEGEND "ONLY" - WHITE
	BIKE LANE LEGEND - WHITE
SL	STOP LINE
CW	CROSSWALK
SWL	SOLID WHITE LINE
SYL	SOLID YELLOW LINE
BWL	BROKEN WHITE LINE
BYL	BROKEN YELLOW LINE
DWL	6" DOTTED WHITE LINE (3' LINE W/ 9' GAP)
DYL	6" DOTTED YELLOW LINE (3' LINE W/ 9' GAP)
DWLEx	6" DOTTED WHITE LINE EXTENSION (2' LINE W/ 6' GAP)
DYLEx	6" DOTTED YELLOW LINE EXTENSION (2' LINE W/ 6' GAP)
DBWL	DOUBLE WHITE LINE
DBYL	DOUBLE YELLOW LINE
YGL	12" YELLOW GORE LINE (3:1, 10' O.C.)
	YIELD LINE

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GC	GRANITE CURB
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LOG	LIMIT OF GRADING
LP	LIGHT POLE
L&S	LOAM AND SEED
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
P&R	POST & RAIL
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATERWAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
RRFB	RECTANGULAR RAPID FLASHING BEACON
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SGE	SLOPED GRANITE EDGING
SHLD	SHOULDER

ABBREVIATIONS (cont.)

GENERAL

SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION
YL	YIELD LINE

TRAFFIC SIGNAL ABBREVIATIONS

CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY DON'T WALK
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

CONSTRUCTION NOTES:

1. EXISTING CONDITIONS INFORMATION COMPILED FROM SURVEY BY TEC, INC, ANDOVER, MA PERFORMED IN APRIL 2018

   HORIZONTAL DATUM = NAD83 (MASSACHUSETTS STATE PLANE COORDINATES)
   VERTICAL DATUM = NAVD88

2. ALL EXISTING STATE, COUNTY, AND CITY LOCATION LINES HAVE BEEN ESTABLISHED FROM AN ACTUAL ON-THE-GROUND SURVEY. ALL PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.

3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL CONTACT DIGSAFE (1-888-DIGSAFE) A MINIMUM OF 72 HOURS PRIOR TO ANY CONSTRUCTION TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

5. ALL MUNICIPALLY OWNED UTILITY STRUCTURES (CATCH BASINS, DRAIN MANHOLES, WATER GATES, ETC.) SHALL BE ADJUSTED BY THE CONTRACTOR TO FINISHED GRADE UNLESS DIRECTED OTHERWISE. THE CONTRACTOR SHALL COORDINATE WITH THE AMESBURY DEPARTMENT OF PUBLIC WORKS TO ALLOW FOR THE REPLACEMENT OF EXISTING UTILITY STRUCTURES IN POOR CONDITION. THESE REPLACEMENT UTILITY STRUCTURES TO BE PROVIDED AND INSTALLED BY THE DPW.

6. ALL PRIVATELY OWNED UTILITY STRUCTURES (GAS GATES, ELECTRIC /TELEPHONE MANHOLES, ETC.) SHALL BE ADJUSTED TO FINISHED GRADE BY THE PRIVATE UTILITY COMPANY, UNLESS DIRECTED OTHERWISE. THE CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE ALTERATION AND ADJUSTMENT, AS NECESSARY.

7. PROPOSED LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 1.0% (MINIMUM) UNLESS OTHERWISE NOTED.

8. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R), AS APPROVED BY THE ENGINEER.

9. THE TERM "MEET EX" MEANS TO MEET BOTH THE EXISTING ALIGNMENT AND ELEVATION.

10. DETECTABLE WARNING PANELS ARE REQUIRED ON ALL PROPOSED WHEELCHAIR RAMPS AND SHALL BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARDS.

11. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTORS EXPENSE.

12. ALL EXISTING GRANITE CURB AND EDGING THAT MEETS SPECIFICATIONS SHALL BE REUSED IN THE PROPOSED WORK.

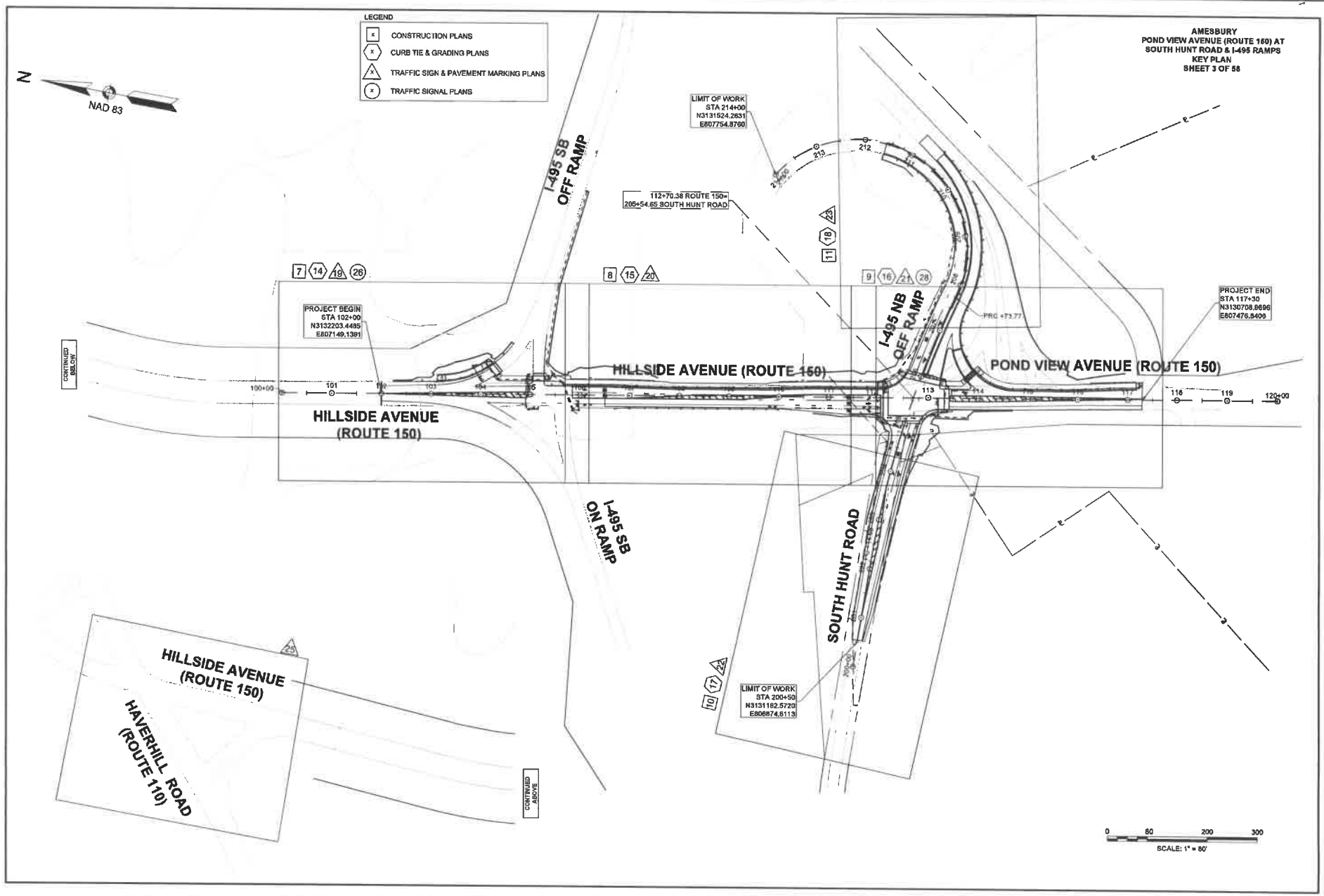
13. PROPOSED GUARDRAIL INSTALLED ADJACENT TO THE SHARED USE PATH SHALL BE INSTALLED WITH TIMBER BACKING, THE COST OF WHICH SHALL BE INCLUDED WITH THE BID PRICE OF GUARDRAIL.

14. EXISTING DRAIN PIPE THAT IS NO LONGER NEEDED SHALL BE FILLED AND ABANDONED, UNLESS IT CONFLICTS WITH THE PROPOSED WORK. EXISTING DRAIN PIPE THAT CONFLICTS WITH THE PROPOSED WORK SHALL BE REMOVED.

15. ALL CATCH BASIN GRATES WITHIN STATE HIGHWAY LAYOUT SHALL BE HOOK LOCK CASCADE GRATES, EXCEPT RAMPS WHICH SHALL BE PARALLEL BAR. EXISTING FRAMES AND GRATES THAT DO NOT MEET THIS REQUIREMENT SHALL BE REPLACED ACCORDINGLY.

16. CLEARING AND GRUBBING SHALL EXTEND FIVE FEET BEYOND THE LIMIT OF GRADING.

17. CONTRACTOR TO TAKE CARE TO ENSURE PROPOSED GUARDRAIL POSTS DO NOT CONFLICT WITH UNDERGROUND UTILITIES (I.E. PROPOSED DRAINAGE STRUCTURES AND PIPES).



[75-1005T A0]@[ND3]KEY PLAN.DWG Plotted on: 8-Jun-2020 3:07 PM

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CONSTRUCTION PLANS - SHEET 1 OF 5
SHEET 7 OF 58

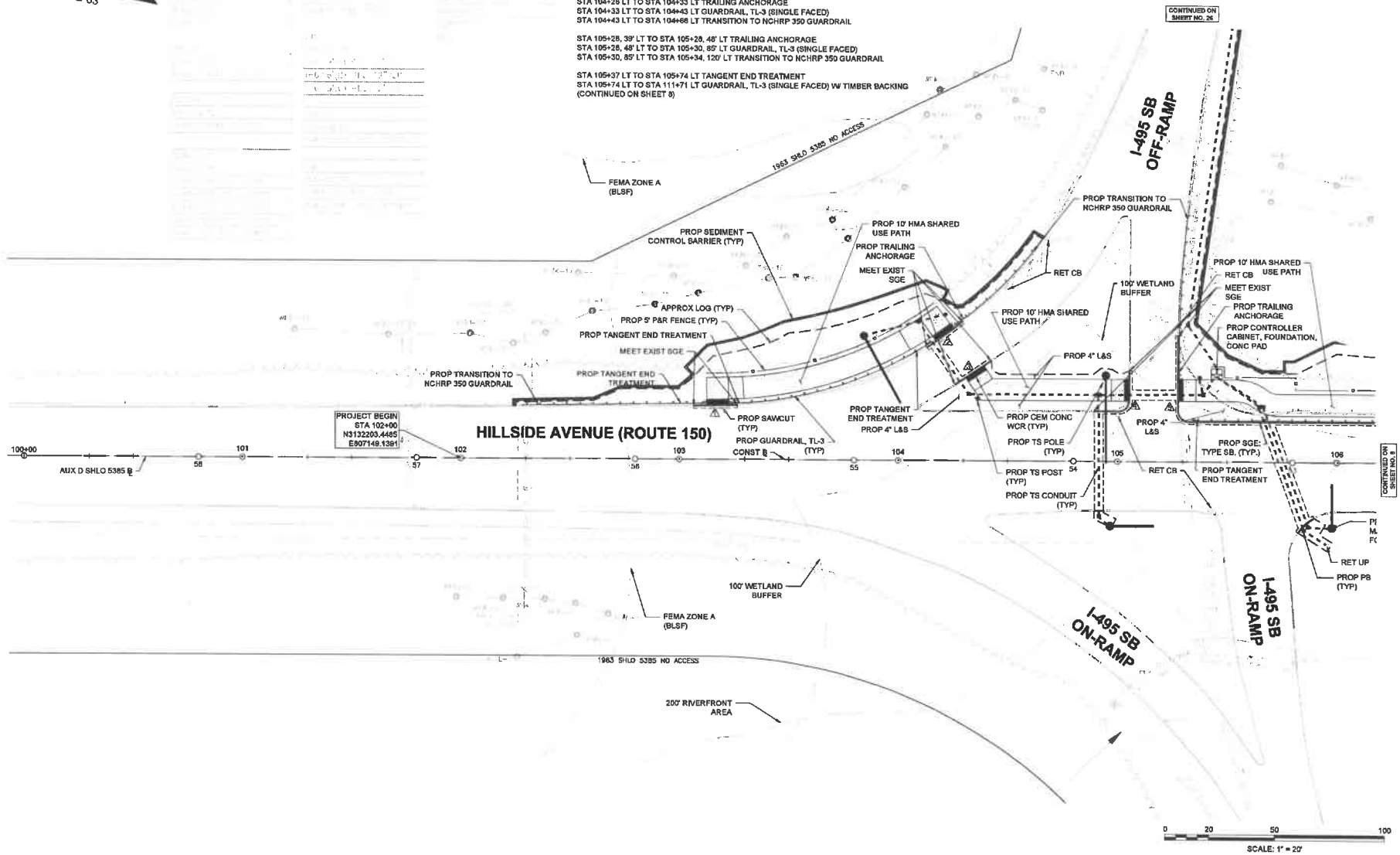
GUARDRAIL DETAILS
STA 102+27 LT TO STA 102+62 LT TRANSITION TO NCHRP 350 GUARDRAIL
STA 102+62 LT TO STA 102+74 LT GUARDRAIL, TL-3 (SINGLE FACED)
STA 102+74 LT TO STA 103+12 LT TANGENT END TREATMENT

STA 103+24 LT TO STA 103+61 LT TANGENT END TREATMENT
STA 103+61 LT TO STA 103+82 LT GUARDRAIL, TL-3 (SINGLE FACED) W/ TIMBER BACKING
STA 103+82 LT TO STA 104+15 LT TANGENT END TREATMENT, TL-3

STA 104+26 LT TO STA 104+33 LT TRAILING ANCHORAGE
STA 104+33 LT TO STA 104+43 LT GUARDRAIL, TL-3 (SINGLE FACED)
STA 104+43 LT TO STA 104+66 LT TRANSITION TO NCHRP 350 GUARDRAIL

STA 105+26, 39' LT TO STA 105+26, 48' LT TRAILING ANCHORAGE
STA 105+26, 48' LT TO STA 105+30, 85' LT GUARDRAIL, TL-3 (SINGLE FACED)
STA 105+30, 85' LT TO STA 105+34, 120' LT TRANSITION TO NCHRP 350 GUARDRAIL

STA 105+37 LT TO STA 105+74 LT TANGENT END TREATMENT
STA 105+74 LT TO STA 111+71 LT GUARDRAIL, TL-3 (SINGLE FACED) W/ TIMBER BACKING
(CONTINUED ON SHEET 8)



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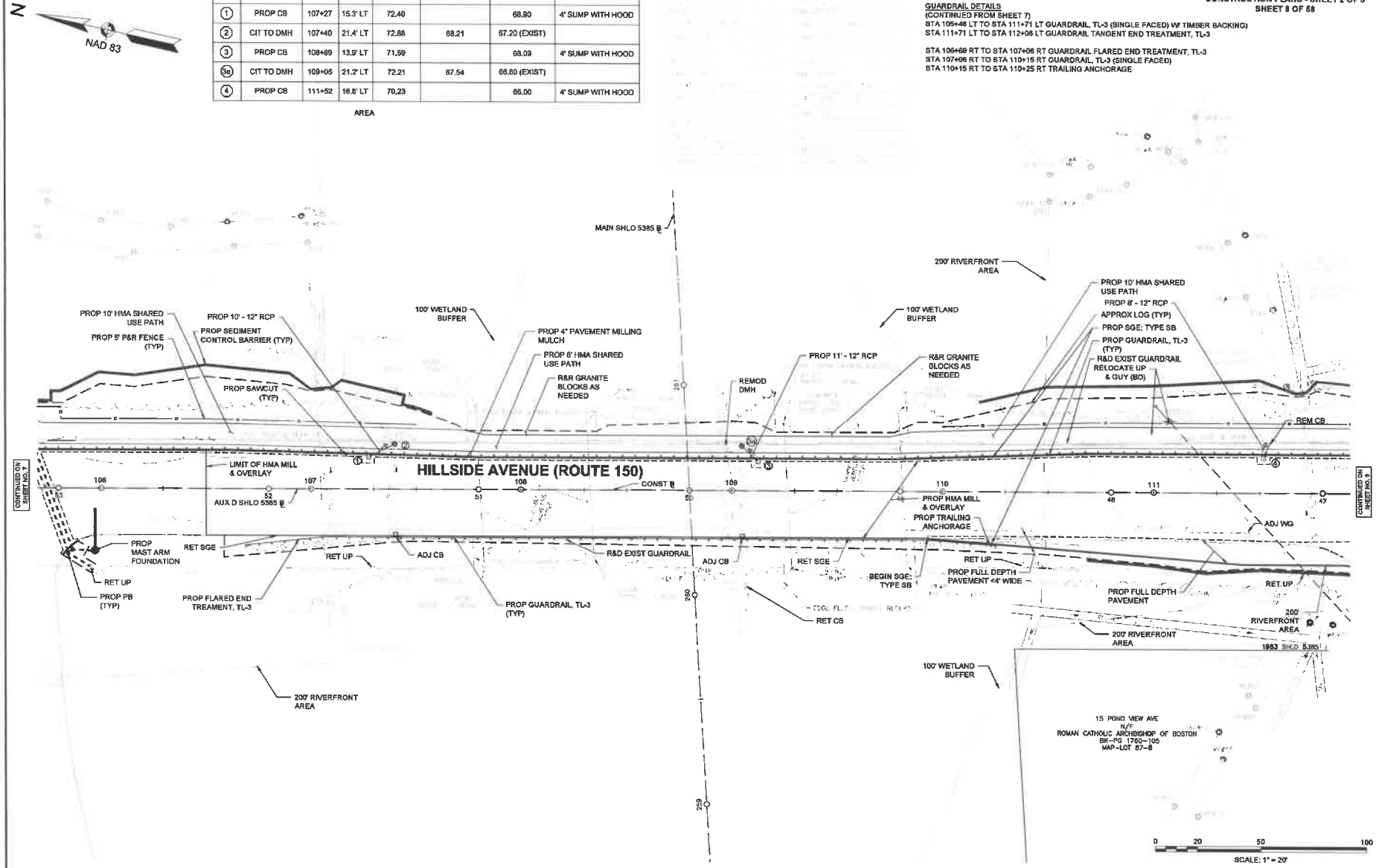
AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CONSTRUCTION PLANS - SHEET 2 OF 5
SHEET 8 OF 58

PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
1	PROP CB	107+27	15.3' LT	72.40		68.90	4' SUMP WITH HOOD
2	CIT TO DMH	107+40	21.4' LT	72.88	68.21	67.20 (EXIST)	
3	PROP CB	108+89	13.9' LT	71.59		68.09	4' SUMP WITH HOOD
3a	CIT TO DMH	109+05	21.2' LT	72.21	67.54	66.60 (EXIST)	
4	PROP CB	111+52	16.8' LT	70.23		66.00	4' SUMP WITH HOOD

AREA

GUARDRAIL DETAILS
(CONTINUED FROM SHEET 7)
STA 105+48 LT TO STA 111+71 LT GUARDRAIL, TL-3 (SINGLE FACED) W/ TIMBER BACKING)
STA 111+71 LT TO STA 112+08 LT GUARDRAIL TANGENT END TREATMENT, TL-3

STA 106+69 RT TO STA 107+06 RT GUARDRAIL FLARED END TREATMENT, TL-3
STA 107+06 RT TO STA 110+15 RT GUARDRAIL, TL-3 (SINGLE FACED)
STA 110+15 RT TO STA 110+25 RT TRAILING ANCHORAGE



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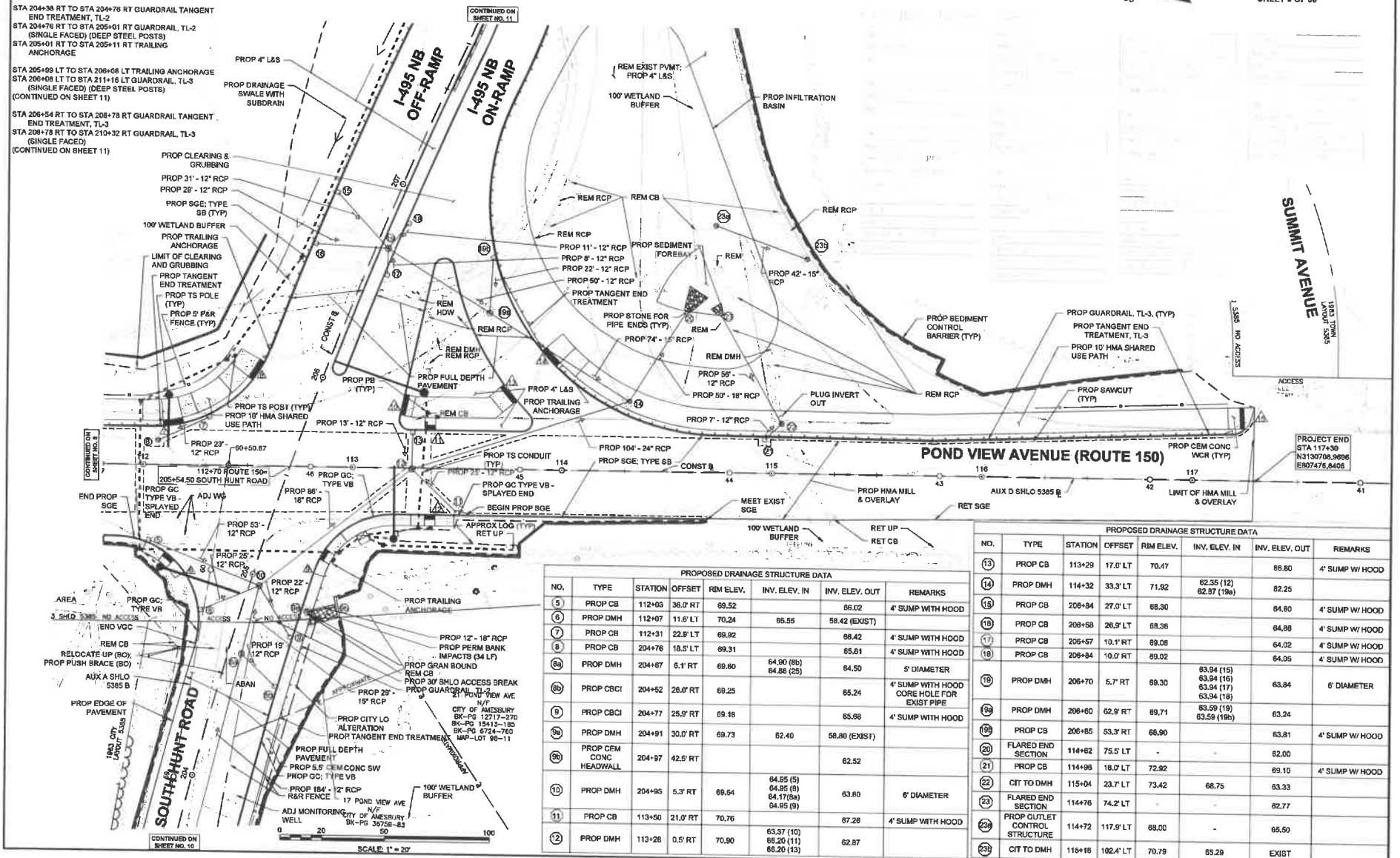
AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CONSTRUCTION PLANS - SHEET 3 OF 5
SHEET 9 OF 58

GUARDRAIL DETAILS
STA 113+99 LT TO STA 114+06 LT TRAILING ANCHORAGE
STA 114+06 LT TO STA 116+81 LT GUARDRAIL, TL-3 (SINGLE FACED) W/ TIMBER BACKING)
STA 116+81 LT TO STA 117+19 LT GUARDRAIL TANGENT END TREATMENT, TL-3

STA 204+38 RT TO STA 204+76 RT GUARDRAIL TANGENT END TREATMENT, TL-2
STA 204+76 RT TO STA 205+01 RT GUARDRAIL, TL-2 (SINGLE FACED) (DEEP STEEL POSTS)
STA 205+01 RT TO STA 205+11 RT TRAILING ANCHORAGE

STA 205+99 LT TO STA 206+08 LT TRAILING ANCHORAGE
STA 206+08 LT TO STA 211+16 LT GUARDRAIL, TL-3 (SINGLE FACED) (DEEP STEEL POSTS)
(CONTINUED ON SHEET 11)

STA 206+54 RT TO STA 208+78 RT GUARDRAIL TANGENT END TREATMENT, TL-3
STA 208+78 RT TO STA 210+32 RT GUARDRAIL, TL-3 (SINGLE FACED)
(CONTINUED ON SHEET 11)



PROPOSED DRAINAGE STRUCTURE DATA

NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
5	PROP CB	112+03	36.0' RT	69.52		66.02	4' SUMP WITH HOOD
6	PROP DMH	112+07	11.6' LT	70.24	65.55	58.42 (EXIST)	
7	PROP CB	112+31	22.6' LT	69.92		66.42	4' SUMP WITH HOOD
8	PROP CB	204+76	18.5' LT	69.31		65.61	4' SUMP WITH HOOD
8a	PROP DMH	204+67	6.1' RT	69.60	64.90 (8b) 64.86 (25)	64.50	5' DIAMETER
8b	PROP CBCI	204+52	26.0' RT	69.25		65.24	4' SUMP WITH HOOD CORE HOLE FOR EXIST PIPE
9	PROP CBCI	204+77	25.9' RT	69.18		65.68	4' SUMP WITH HOOD
9a	PROP DMH	204+91	30.0' RT	69.73	62.40	58.80 (EXIST)	
9b	PROP CEM CONC HEADWALL	204+97	42.5' RT			62.52	
10	PROP DMH	204+95	5.3' RT	69.64	64.95 (5) 64.95 (8) 64.17(8a) 64.95 (9)	63.60	6' DIAMETER
11	PROP CB	113+50	21.0' RT	70.76		67.28	4' SUMP WITH HOOD
12	PROP DMH	113+26	0.5' RT	70.90	63.37 (10) 66.20 (11) 66.20 (13)	62.87	

PROPOSED DRAINAGE STRUCTURE DATA

NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
13	PROP CB	113+29	17.0' LT	70.47		66.80	4' SUMP W/ HOOD
14	PROP DMH	114+32	33.3' LT	71.92	62.35 (12) 62.87 (19a)	62.25	
15	PROP CB	206+84	27.0' LT	68.30		64.80	4' SUMP W/ HOOD
16	PROP CB	206+58	26.9' LT	68.36		64.86	4' SUMP W/ HOOD
17	PROP CB	205+57	10.1' RT	69.06		64.02	4' SUMP W/ HOOD
18	PROP CB	206+84	10.0' RT	69.02		64.05	4' SUMP W/ HOOD
19	PROP DMH	206+70	5.7' RT	69.30	63.94 (15) 63.94 (16) 63.94 (17) 63.94 (18)	63.84	6' DIAMETER
19a	PROP DMH	206+60	62.9' RT	69.71	63.59 (19) 63.59 (19b)	63.24	
19b	PROP CB	206+85	53.3' RT	68.90		63.81	4' SUMP W/ HOOD
20	FLARED END SECTION	114+62	75.5' LT	-	-	62.00	
21	PROP CB	114+96	16.0' LT	72.92		69.10	4' SUMP W/ HOOD
22	CIT TO DMH	115+04	23.7' LT	73.42	68.75	63.33	
23	FLARED END SECTION	114+76	74.2' LT	-	-	62.77	
23a	PROP OUTLET CONTROL STRUCTURE	114+72	117.9' LT	68.00	-	65.50	
23b	CIT TO DMH	115+16	102.4' LT	70.79	65.29	EXIST	

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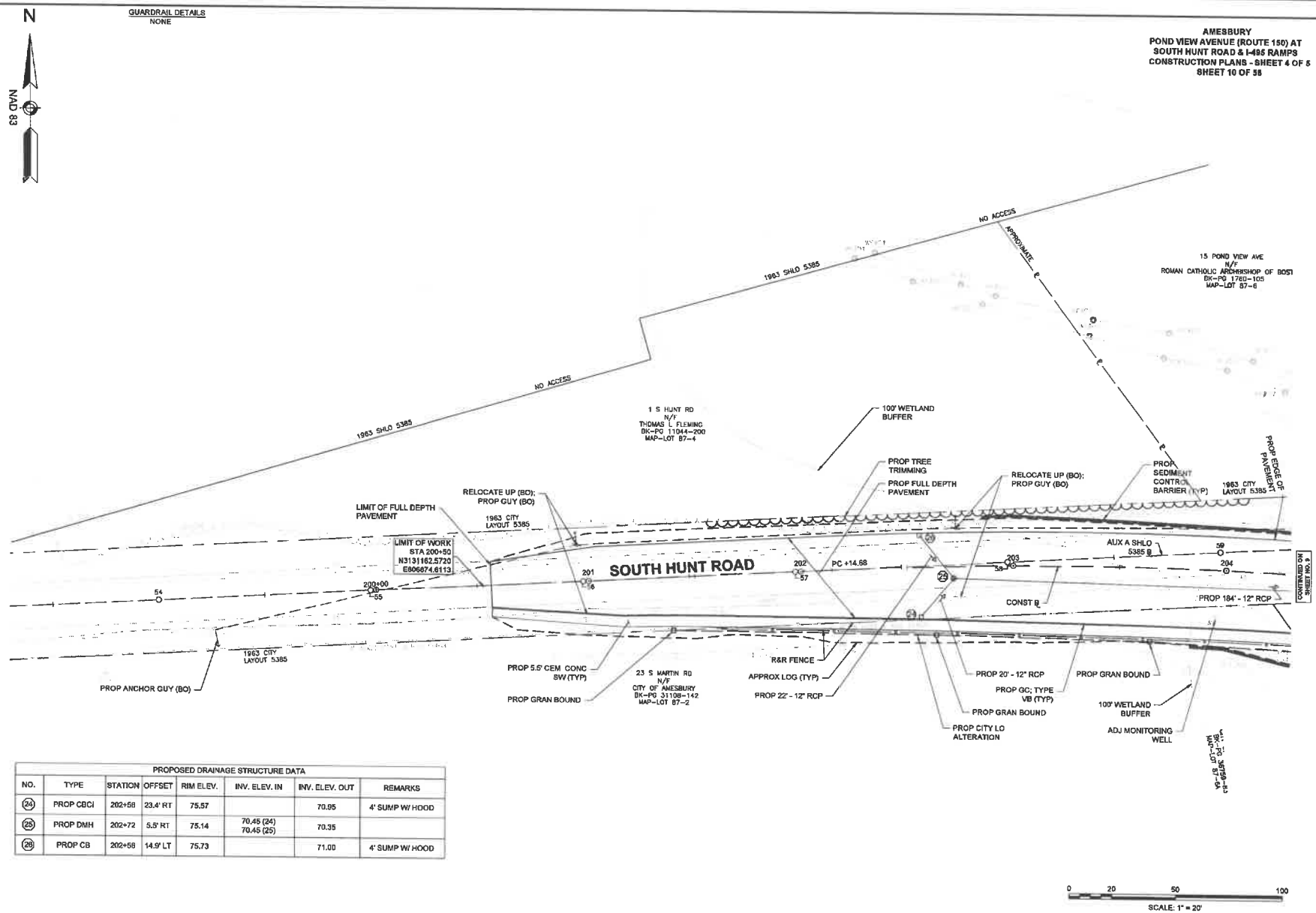
GUARDRAIL DETAILS
NONE

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CONSTRUCTION PLANS - SHEET 4 OF 5
SHEET 10 OF 58



PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
24	PROP CBCI	202+58	23.4' RT	75.57		70.95	4' SUMP W/ HOOD
25	PROP DMH	202+72	5.5' RT	75.14	70.45 (24) 70.45 (25)	70.35	
26	PROP CB	202+58	14.9' LT	75.73		71.00	4' SUMP W/ HOOD

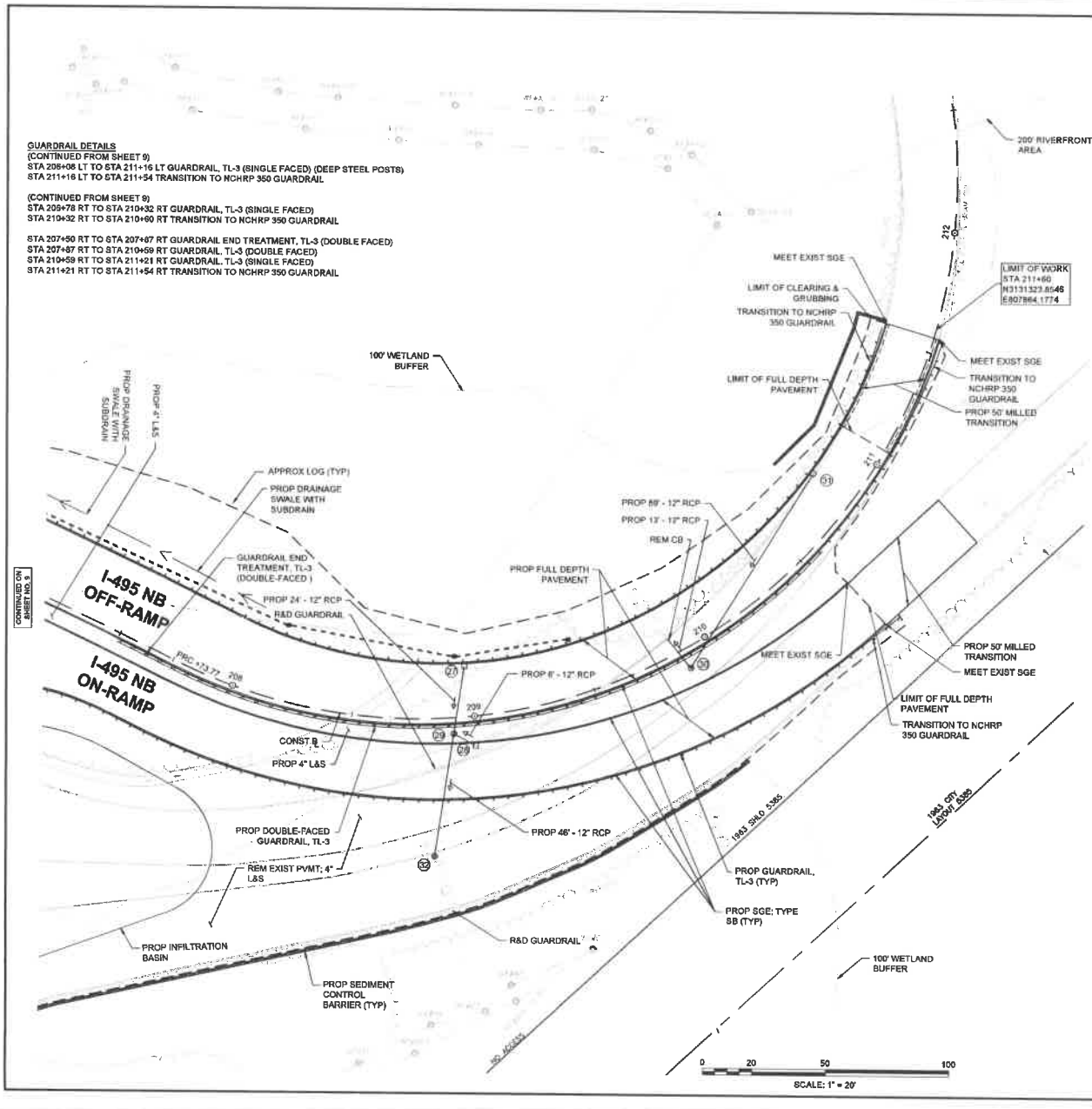
[P:\95-E]\HDS\CONSTRUCTION PLANS.DWG Plotted on 10-Jan-2020 11:26 AM

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CONSTRUCTION PLANS - SHEET 5 OF 5
SHEET 11 OF 58

GUARDRAIL DETAILS
(CONTINUED FROM SHEET 9)
STA 206+08 LT TO STA 211+16 LT GUARDRAIL, TL-3 (SINGLE FACED) (DEEP STEEL POSTS)
STA 211+16 LT TO STA 211+54 TRANSITION TO NCHRP 350 GUARDRAIL

(CONTINUED FROM SHEET 9)
STA 206+78 RT TO STA 210+32 RT GUARDRAIL, TL-3 (SINGLE FACED)
STA 210+32 RT TO STA 210+60 RT TRANSITION TO NCHRP 350 GUARDRAIL

STA 207+50 RT TO STA 207+87 RT GUARDRAIL END TREATMENT, TL-3 (DOUBLE FACED)
STA 207+87 RT TO STA 210+59 RT GUARDRAIL, TL-3 (DOUBLE FACED)
STA 210+59 RT TO STA 211+21 RT GUARDRAIL, TL-3 (SINGLE FACED)
STA 211+21 RT TO STA 211+54 RT TRANSITION TO NCHRP 350 GUARDRAIL



PROPOSED DRAINAGE STRUCTURE DATA								
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
27	PROP CB	208+98	20.4' LT	71.76		68.58	SHALLOW CB W/ 4' SUMP & HOOD
28	PROP CB	208+99	11.9' RT	73.68		69.28	4' SUMP W/ HOOD
29	PROP DMH	208+91	6.4' RT	73.65	68.46 (27) 68.98 (28)	68.36	
30	PROP DMH	209+69	7.9' RT	78.19	71.50	71.40	
31	PROP CB	210+81	19.1' LT	77.14		73.64	
32	CIT TO DMH	208+82	55.7' RT	73.43	68.13 (29)	68.03 (EXIST)	

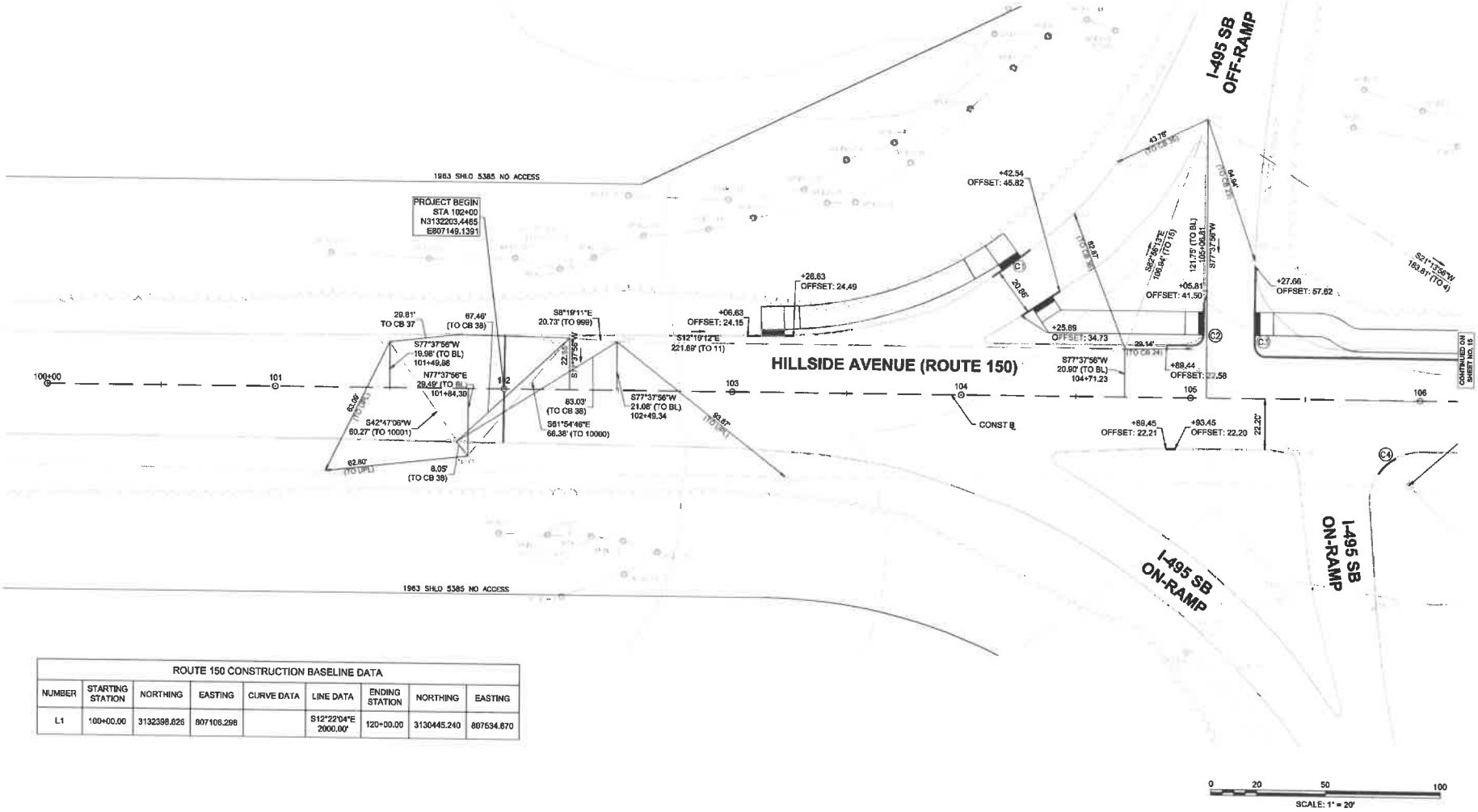
(PS42)HDG/CONSTRUCTION PLANS.DWG Plotted on 10-Jan-2020 11:26 AM

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CURB TIE & GRADING PLANS - SHEET 1 OF 5
SHEET 14 OF 58

N
NAD 83

CURVE TABLE								
CURVE #	DELTA	RADIUS	LENGTH	TANGENT	PC STATION	OFFSET	PT STATION	OFFSET
C1	3° 19' 04"	350.00	20.27	10.14	104+13.48	51.31 LT	104+29.81	63.31 LT
C2	89° 41' 23"	5.00	7.83	4.97	105+00.81	22.50 LT	105+05.77	27.58 LT
C3	90° 15' 03"	5.00	7.88	5.02	105+27.51	23.02 LT	105+32.51	18.00 LT
C4	28° 36' 36"	22.00	10.22	5.20	105+81.90	31.81 RT	105+89.38	25.08 RT

Survey Traverse Point Table				
Point #	Northing	Easting	Elevation	Raw Description
11	3131943.005	807227.641	73.988	MTRV MMAG
12	3132256.724	807157.907	75.292	MTRV MMAG
15	3131929.856	807333.772	73.980	MTRV MMAG
999	3132159.788	807180.296	74.716	MTRV
10000	3132180.298	807177.296	74.779	MTRV
10001	3132212.492	807116.969	75.503	MTRV

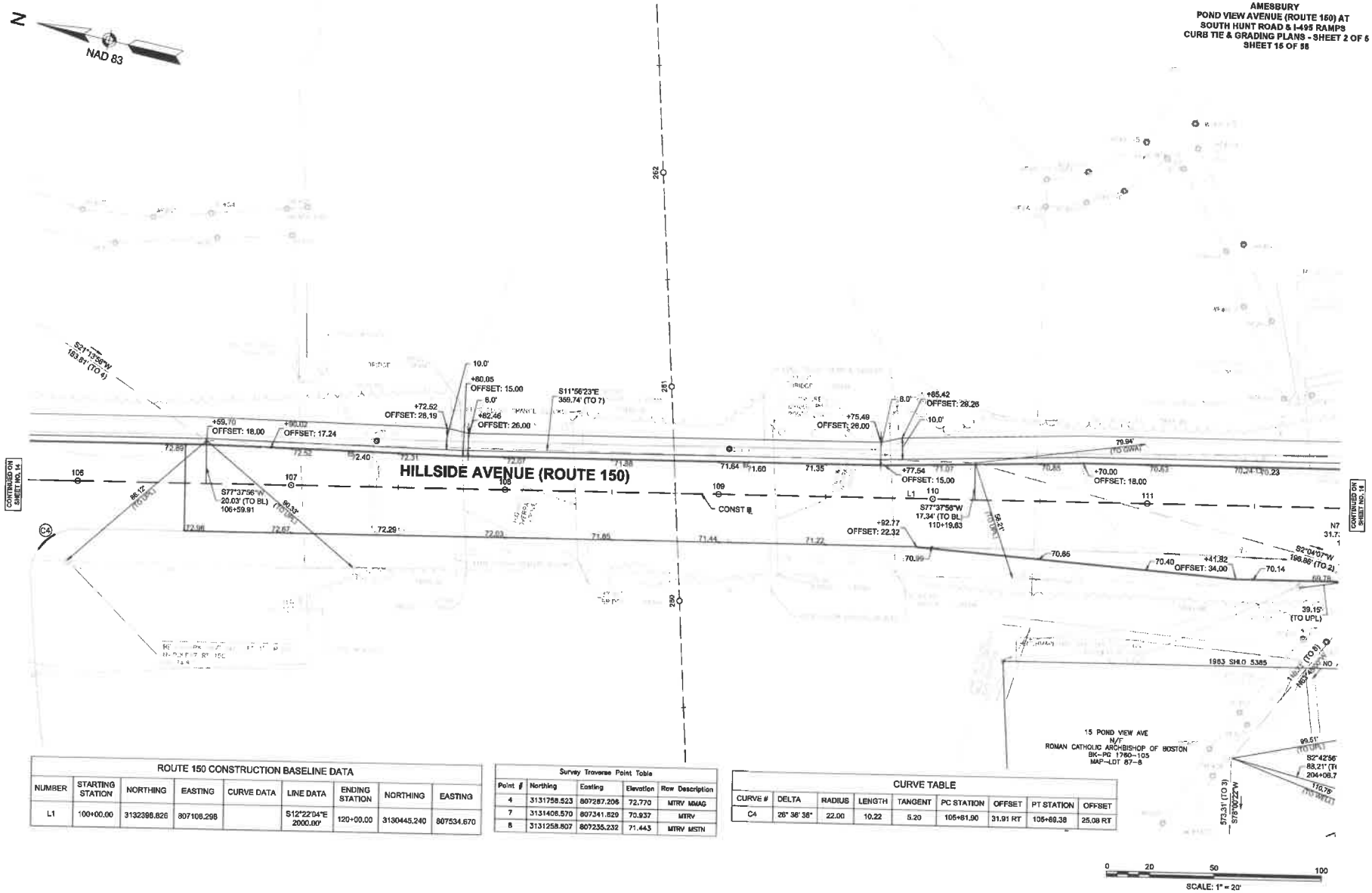


ROUTE 150 CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	100+00.00	3132398.826	807106.298		S12°22'04"E 2000.00'	120+00.00	3130445.240	807534.870

0 20 50 100
SCALE: 1" = 20'

[PSE]R07(CURB TIE PLAN(5).DWG Plotted on 10-Jan-2020 11:27 AM

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CURB TIE & GRADING PLANS - SHEET 2 OF 6
SHEET 15 OF 58



ROUTE 150 CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	100+00.00	3132398.826	807106.298		S12°22'04"E 2000.00'	120+00.00	3130445.240	807534.670

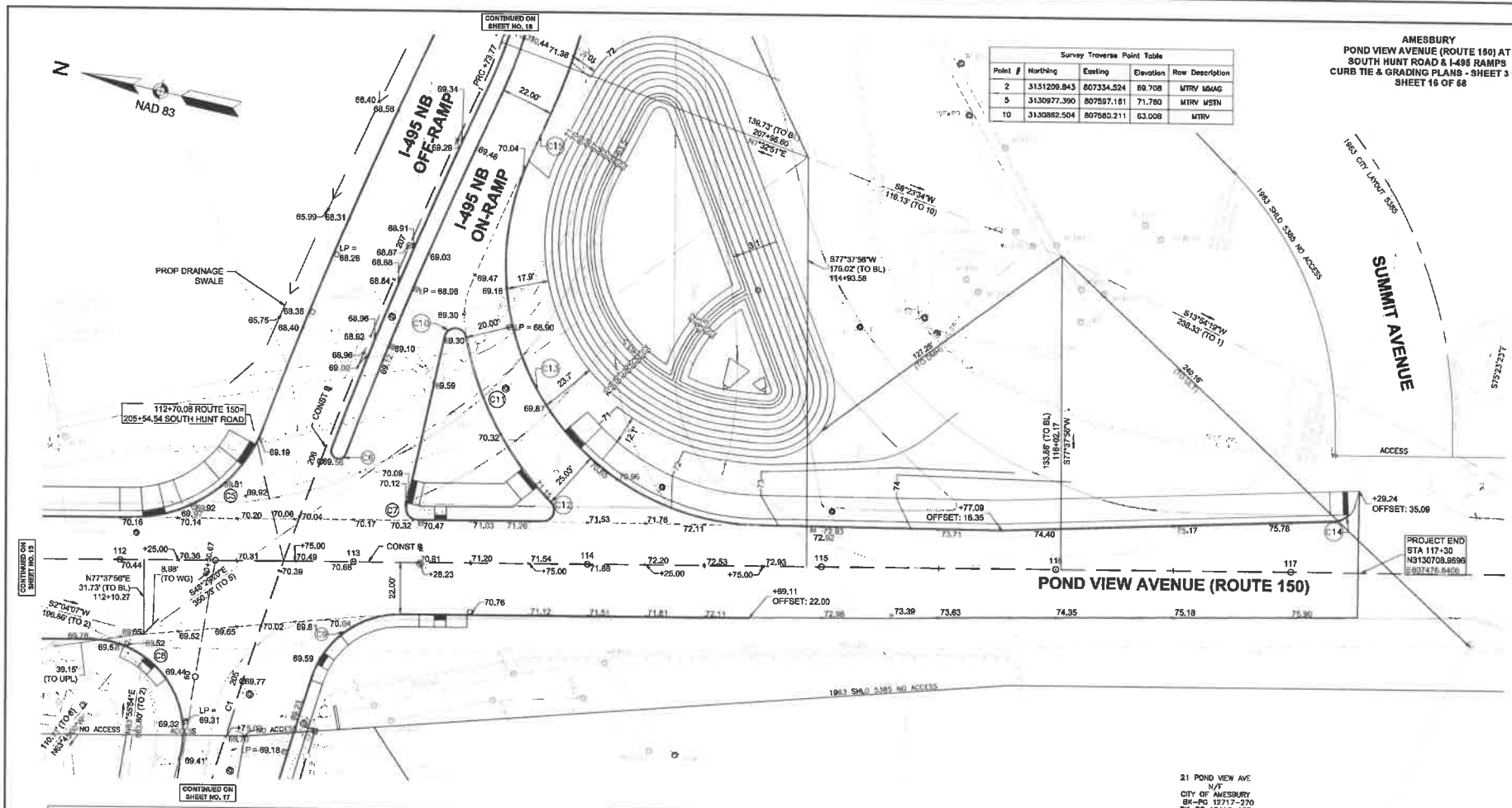
Survey Traverse Point Table				
Point #	Northing	Easting	Elevation	Row Description
4	3131758.523	807287.206	72.770	MTRV MMAG
7	3131408.570	807341.829	70.937	MTRV
8	3131258.807	807235.232	71.443	MTRV MSTN

CURVE TABLE								
CURVE #	DELTA	RADIUS	LENGTH	TANGENT	PC STATION	OFFSET	PT STATION	OFFSET
C4	26° 38' 36"	22.00	10.22	5.20	105+81.90	31.91 RT	105+89.38	25.08 RT

[PSAE]H07(CURB TIE PLANS).DWG Plotted on 10-Jun-2020 11:27 AM

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CURB TIE & GRADING PLANS - SHEET 3 OF 5
SHEET 16 OF 58

Survey Traverse Point Table				
Point #	Northing	Easting	Elevation	Row Description
2	3131209.843	807334.524	69.708	MTRV MMAG
5	3130977.390	807597.181	71.780	MTRV WSTN
10	3130862.504	807580.211	63.008	MTRV



21 POND VIEW AVE
N/F
CITY OF AMESBURY
BK-PG 12717-270
BK-PG 15413-185
BK-PG 6724-1750
MAP-LOT 98-11

0 20 50 100
SCALE: 1" = 20'

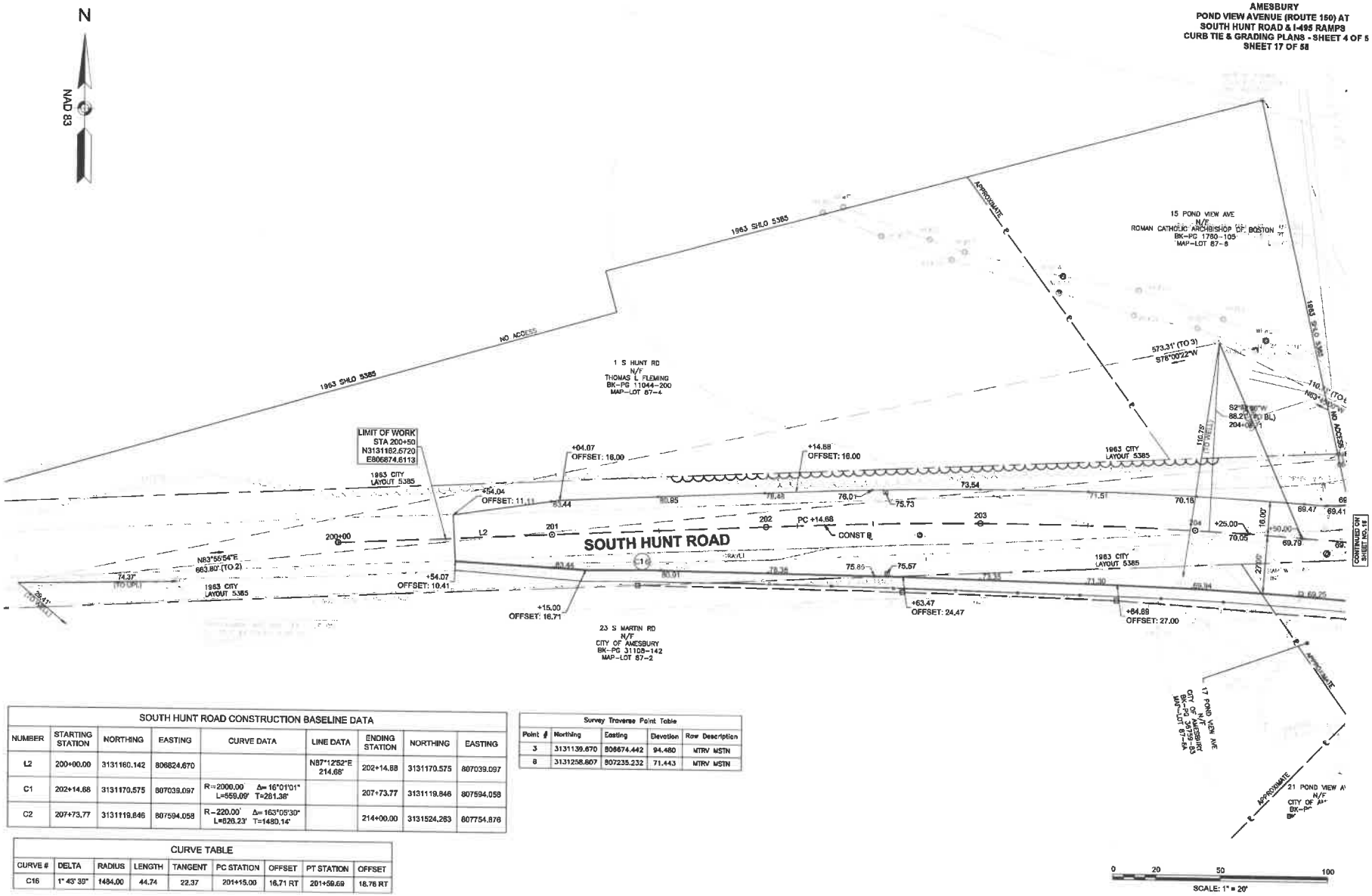
ROUTE 150 CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	100+00.00	3132398.826	807106.298		S12°22'04"E 2000.00'	120+00.00	3130445.240	807534.670

SOUTH HUNT ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L2	200+00.00	3131160.142	606824.670		N87°12'52"E 214.88'	202+14.68	3131170.575	807039.097
C1	202+14.68	3131170.575	807039.097	R 2000.00' Δ= 16°01'01" L=559.09' T=281.38'		207+73.77	3131119.846	807594.058
C2	207+73.77	3131119.846	807594.058	R=220.00' Δ= 163°06'30" L=626.23' T=1480.14'		214+00.00	3131624.263	807754.876

CURVE TABLE								
CURVE #	DELTA	RADIUS	LENGTH	TANGENT	PC STATION	OFFSET	PT STATION	OFFSET
C5	89° 15' 15"	60.00	72.52	41.43	112+04.64	18.00 LT	206+04.39	28.00 LT
C6	160° 58' 46"	3.50	11.06	409.43	206+06.92	2.00 RT	206+08.93	9.00 RT
C7	102° 31' 32"	5.00	8.95	6.23	113+21.99	24.08 LT	113+28.87	18.00 LT
C8	106° 36' 28"	40.00	74.43	53.67	111+87.22	34.00 RT	204+59.92	16.00 LT
C9	71° 56' 41"	40.00	50.22	29.02	205+11.03	27.00 RT	113+19.81	22.00 RT
C10	157° 11' 45"	5.00	13.72	24.79	206+69.96	28.97 RT	206+73.62	38.08 RT
C11	34° 28' 19"	133.00	80.02	41.26	206+73.62	38.08 RT	113+94.32	26.52 LT
C12	134° 45' 04"	5.00	11.76	12.00	113+84.32	26.52 LT	113+80.77	18.00 LT
C13	114° 34' 46"	110.00	219.98	171.26	207+56.79	31.00 RT	114+73.15	17.32 LT
C14	72° 17' 06"	10.00	12.62	7.30	117+18.28	21.87 LT	117+27.54	26.98 LT
C15	0° 28' 24"	1969.00	15.12	7.56	207+56.79	31.00 RT	207+72.15	31.00 RT

[PS4]EXTCURB TIE PLANS.DWG Plotted on 10-Jan-2020 2:58 PM

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CURB TIE & GRADING PLANS - SHEET 4 OF 5
SHEET 17 OF 58



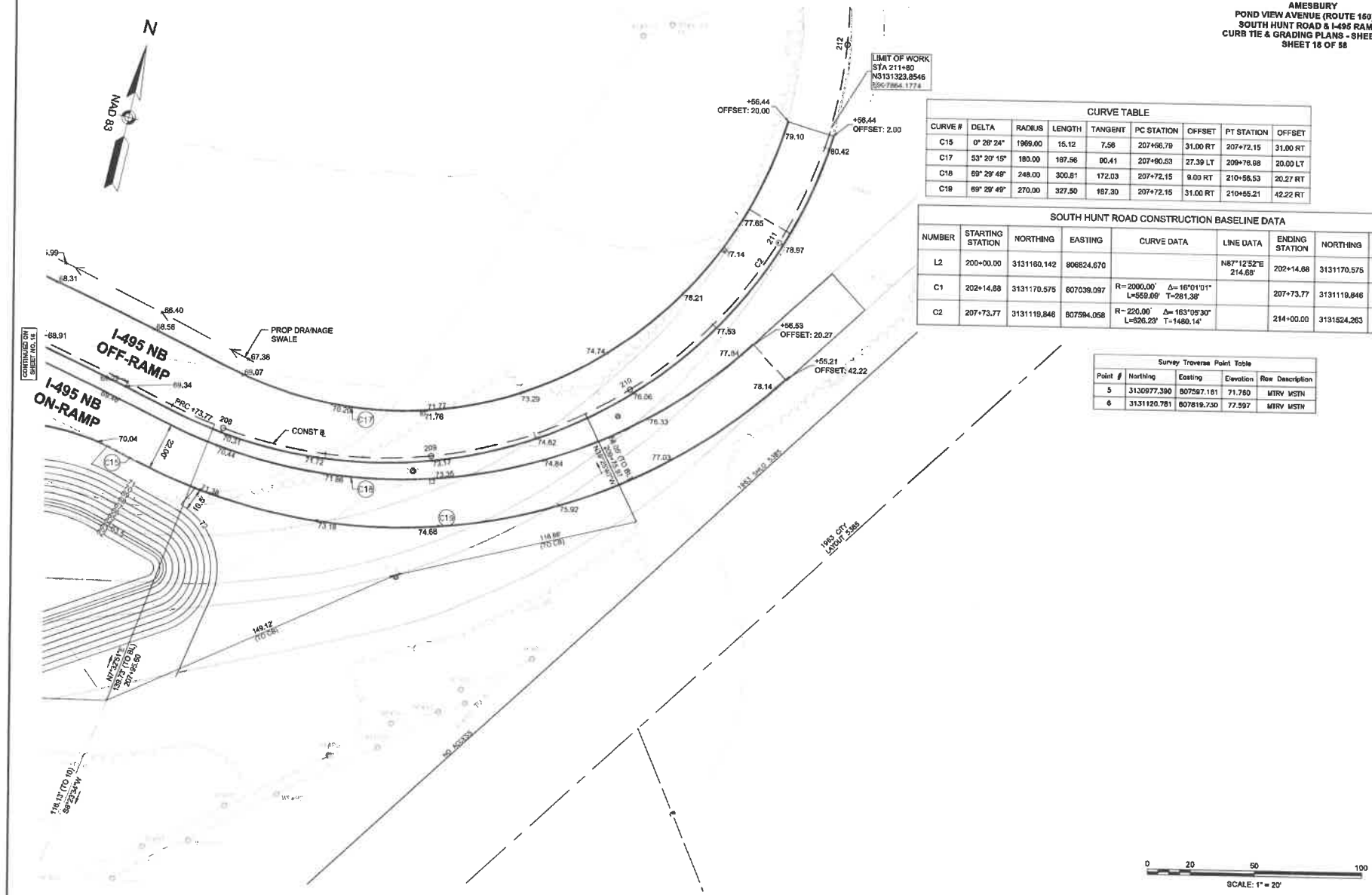
SOUTH HUNT ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L2	200+00.00	3131160.142	806824.670		N87°12'52"E 214.68'	202+14.88	3131170.575	807039.097
C1	202+14.88	3131170.575	807039.097	R=2000.00 Δ=16°01'01" L=559.09' T=281.36'		207+73.77	3131119.846	807594.058
C2	207+73.77	3131119.846	807594.058	R=220.00' Δ=163°05'30" L=626.23' T=1480.14'		214+00.00	3131524.283	807754.876

CURVE TABLE								
CURVE #	DELTA	RADIUS	LENGTH	TANGENT	PC STATION	OFFSET	PT STATION	OFFSET
C16	1° 43' 39"	1484.00	44.74	22.37	201+15.00	16.71 RT	201+59.69	18.76 RT

Survey Traverse Point Table				
Point #	Northing	Easting	Elevation	Raw Description
3	3131139.670	806874.442	94.480	MTRV MSTN
8	3131258.807	807235.232	71.443	MTRV MSTN

[PSSE]-07(CURB TIE PLANS).DWG Plotted on 10-Jan-2020 11:28 AM

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT
SOUTH HUNT ROAD & I-495 RAMPS
CURB TIE & GRADING PLANS - SHEET 5 OF 6
SHEET 16 OF 58



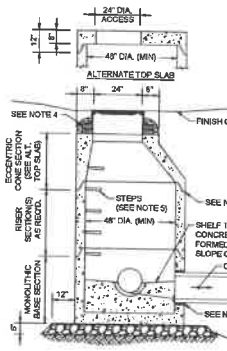
CURVE TABLE								
CURVE #	DELTA	RADIUS	LENGTH	TANGENT	PC STATION	OFFSET	PT STATION	OFFSET
C15	0° 26' 24"	1969.00	15.12	7.56	207+56.79	31.00 RT	207+72.15	31.00 RT
C17	53° 20' 15"	180.00	167.56	90.41	207+80.53	27.39 LT	209+76.88	20.00 LT
C18	69° 29' 49"	248.00	300.81	172.03	207+72.15	9.00 RT	210+56.53	20.27 RT
C19	69° 29' 49"	270.00	327.50	187.30	207+72.15	31.00 RT	210+55.21	42.22 RT

SOUTH HUNT ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L2	200+00.00	3131160.142	806824.670		N87°12'52"E 214.68'	202+14.68	3131170.575	807039.097
C1	202+14.68	3131170.575	807039.097	R=2000.00' Δ=16°01'01" L=559.09' T=281.38'		207+73.77	3131119.846	807594.058
C2	207+73.77	3131119.846	807594.058	R=220.00' Δ=163°05'30" L=626.23' T=1460.14'		214+00.00	3131524.263	807754.878

Survey Traverse Point Table				
Point #	Northing	Easting	Elevation	Row Description
5	3130977.390	807597.161	71.760	MTRV MSTN
6	3131120.781	807819.730	77.597	MTRV MSTN

[PS4]SHOT(CURB TIE PLANS.DWG Plotted on 10-Jan-2020 2:51 PM

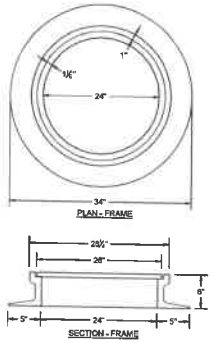
AMESBURY
POND VIEW AVENUE (ROUTE 150) AT SOUTH HUNT ROAD & I-495 RAMPS
CONSTRUCTION DETAILS - SHEET 1 OF 3
SHEET 34 OF 56



DRAIN MANHOLE
N.T.S.

NOTES:

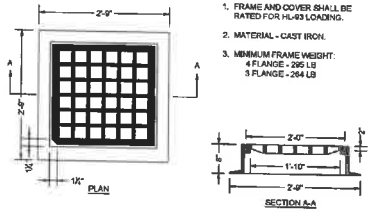
1. ALL SECTIONS SHALL BE DESIGNED FOR HL-93 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP. 5 COURSES MAX)
5. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
6. CLASS B TRENCH TO BE ONLY PERFORMED AS REQUIRED. SOFT OR UNSUITABLE MATERIAL EXISTING BELOW THE REQUIRED BEDDING GRADE SHALL BE REMOVED AS DIRECTED AND REPLACED WITH SAND, GRAVEL, CRUSHED STONE, OR OTHER SUITABLE MATERIAL AND THOROUGHLY COMPACTED.



NOTES:

1. FRAME AND COVER SHALL BE RATED FOR HL-93 LOADING.
2. MATERIAL - CAST IRON.
3. MINIMUM MASS - 295 LBS.
4. ALL MH FRAMES AND COVERS SHALL BE ADA AND AAB COMPLIANT.
5. MANHOLE COVERS SHALL HAVE A DIAMOND PATTERN, PICK HOLES, AND THE WORD "DRAIN" OR "SEWER" CAST IN 3-INCH LETTERS.
6. MANHOLE COVERS WITHIN SHLO SHALL COMPLY WITH CONSTRUCTION STANDARD E202.6.0.

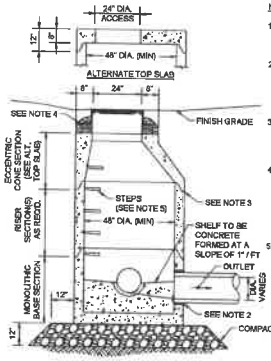
MANHOLE FRAME & COVER (MUNICIPAL STANDARD)
N.T.S.



NOTES:

1. FRAME AND COVER SHALL BE RATED FOR HL-93 LOADING.
2. MATERIAL - CAST IRON.
3. MINIMUM FRAME WEIGHT:
   4 FLANGE - 295 LB
   3 FLANGE - 264 LB

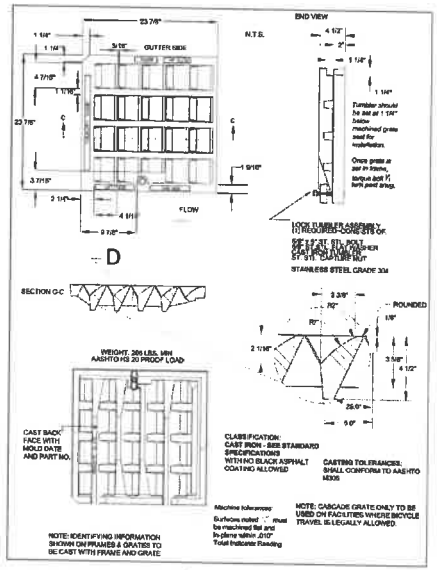
CATCH BASIN FRAME & GRATE (MUNICIPAL STANDARD)
N.T.S.



DRAIN MANHOLE
N.T.S.

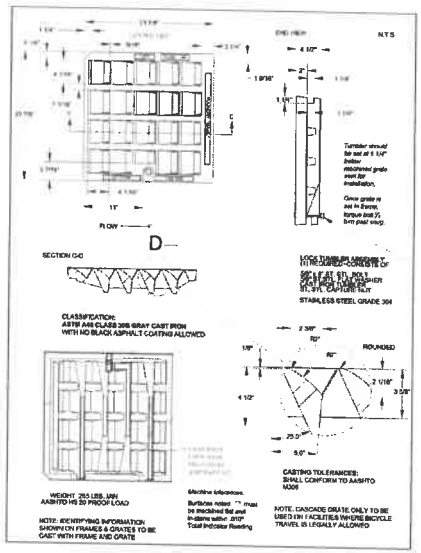
NOTES:

1. ALL SECTIONS SHALL BE DESIGNED FOR HL-93 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP. 5 COURSES MAX)
5. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.

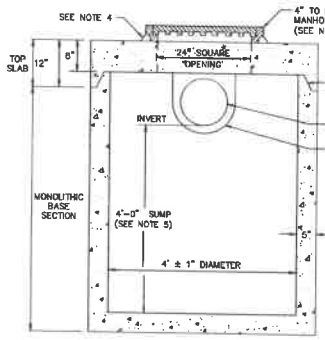


HOOK LOCK CASCADE GRATE (FLOW FROM RIGHT, SHLO STANDARD)
N.T.S.

NOTE: HOOK LOCK CASCADE GRATES TO BE INSTALLED ON ALL CATCH BASINS WITHIN SHLO, EXCEPT RAMPS WHICH SHALL BE PARALLEL BAR.



HOOK LOCK CASCADE GRATE (FLOW FROM LEFT, SHLO STANDARD)
N.T.S.



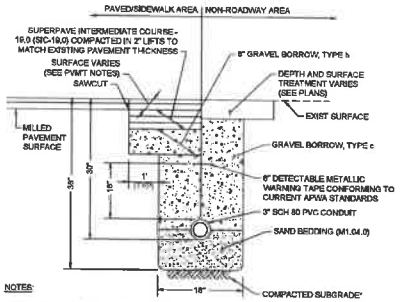
SPECIAL CATCH BASIN/MANHOLE (SHALLOW)
N.T.S.

NOTES:

1. ALL SECTIONS SHALL BE DESIGNED FOR HL-93 LOADING.
2. PROVIDE DOGHOUSE OPENING FOR PIPE WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. TOP SLAB SHALL NOT REST DIRECTLY ON PIPE. GROUT ALL PIPE CONNECTIONS WITH NON-SHRINK GROUT.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN AND MANHOLE FRAMES SHALL BE SET IN FULL MORTAR BED.
5. OMIT 4' SUMP FOR MANHOLE STRUCTURES.
6. FRAME ELEVATION SHALL BE INSTALLED AT FINISH GRADE USING VARIABLE FRAME DEPTHS AND VARIABLE HEIGHT BRICK COURSES.

[P:\AEP\011\CON DETAILS.DWG Plotted on 10-Jan-2020 11:12 AM

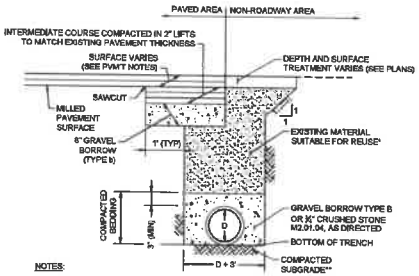
AMESBURY
POND VIEW AVENUE (ROUTE 150) AT SOUTH HUNT ROAD & I-495 RAMPS
CONSTRUCTION DETAILS - SHEET 2 OF 3
SHEET 35 OF 58



NOTES:

* SOFT OR UNSUITABLE MATERIAL EXISTING BELOW THE REQUIRED BEDDING GRADE SHALL BE REMOVED AS DIRECTED AND REPLACED WITH SAND, GRAVEL, CRUSHED STONE OR OTHER SUITABLE MATERIAL, AND THOROUGHLY COMPACTED.

CONDUIT TRENCH
N.T.S.

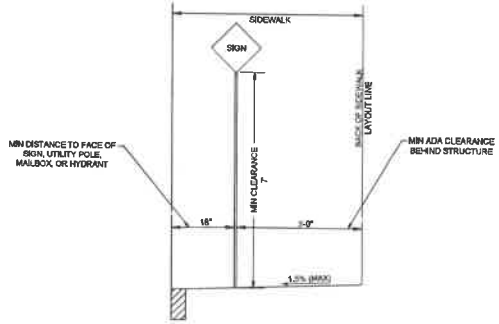


NOTES:

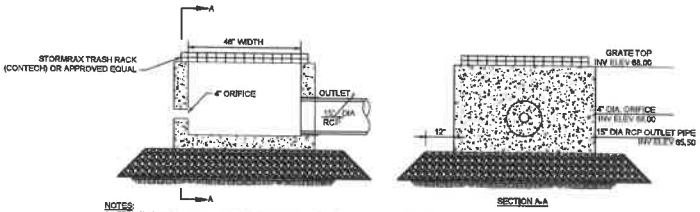
* EXISTING MATERIAL OBTAINED FROM EXCAVATION THAT IS DETERMINED TO BE SUITABLE, AND APPROVED BY THE ENGINEER SHALL BE USED. BACKFILL SHALL BE PLACED IN LAYERS NO MORE THAN 8" IN DEPTH AND THOROUGHLY COMPACTED. BACKFILLING TO A POINT 2' OVER THE PIPE SHALL CONTAIN NO STONES LARGER THAN 3".

**SOFT OR UNSUITABLE MATERIAL EXISTING BELOW THE REQUIRED BEDDING GRADE SHALL BE REMOVED AS DIRECTED AND REPLACED WITH SAND, GRAVEL, CRUSHED STONE OR OTHER SUITABLE MATERIAL AND THOROUGHLY COMPACTED.

UTILITY TRENCH
N.T.S.

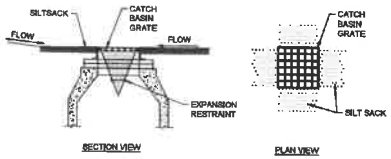


R&R VERTICAL OBSTRUCTION WITHIN SIDEWALK
N.T.S.



NOTES:
1. STRUCTURE SHALL BE 48" DIAMETER (INNER DIMENSIONS) PRECAST CONCRETE.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.

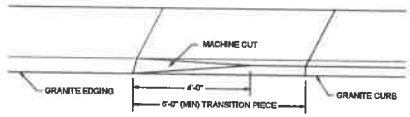
OUTLET CONTROL STRUCTURE (23a)
N.T.S.



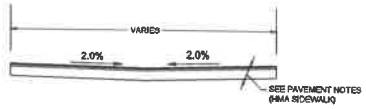
NOTES:

1. INSTALL SILT SACK IN EXISTING CATCH BASINS BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. GRATE TO BE PLACED OVER SILT SACK.
3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

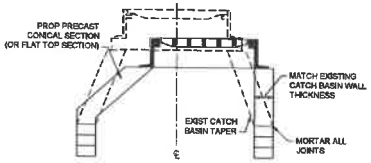
INLET PROTECTION SILT SACK IN CATCH BASIN
N.T.S.



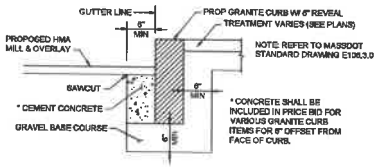
GRANITE CURB SPLAYED END
N.T.S.



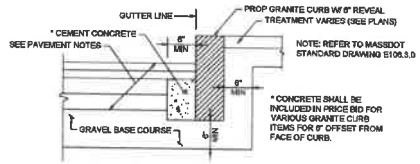
PAVED DITCH DETAIL
N.T.S.



CATCH BASIN REMODEL
N.T.S.

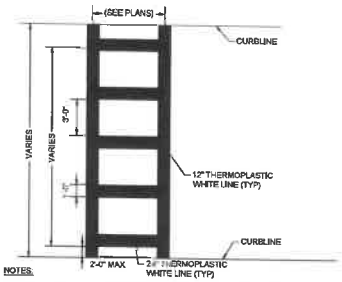


GRANITE CURB IN HMA MILL & OVERLAY
N.T.S.



GRANITE CURB IN FULL DEPTH PAVEMENT
N.T.S.

P:\5-1005T\ACAD\PD11\PCON DETAILS.DWG Plotted on 5-Jan-2023 3:18 PM

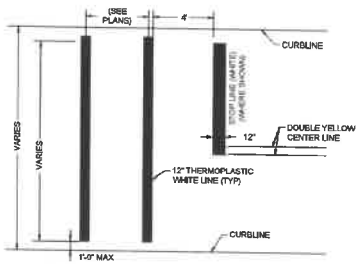


NOTES:

1. ALL 12" LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED. ALL 24" LINES MAY BE EITHER ONE 24" LINE OR A COMBINATION OF TWO - 12" LINES.
2. LAYOUT OF CROSSWALKS SHALL BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION.
3. CROSSWALK BARS SHALL BE PLACED OUTSIDE THE VEHICULAR WHEEL PATH WHEREVER POSSIBLE.

CROSSWALK PAVEMENT MARKING I-495 ON RAMP, STA 114+00 LT

N.T.S.



NOTES:

1. ALL 12" LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED.
2. LAYOUT OF CROSSWALKS SHALL BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION.

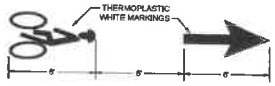
CROSSWALK PAVEMENT MARKING WITH STOP BAR

N.T.S.

NOTE: SPACING SHALL BE SAME FOR RIGHT TURN LANE AND THRU ONLY PAVEMENT MARKING (REFER TO MASSDOT STANDARD DRAWING TR.6.1)

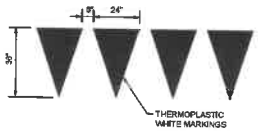
LEFT TURN LANE PAVEMENT MARKING

N.T.S.



BICYCLE LANE PAVEMENT MARKING

N.T.S.

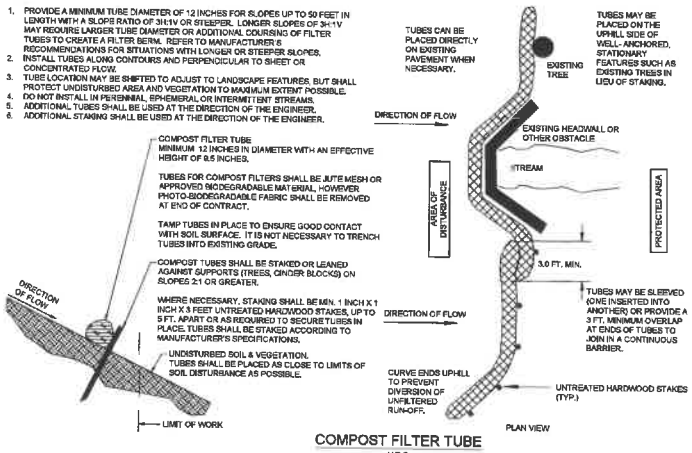


YIELD LINE PAVEMENT MARKING

N.T.S.

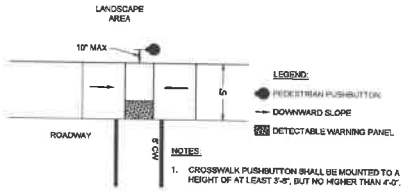
NOTES:

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.
4. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
5. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER.



COMPOST FILTER TUBE

N.T.S.



NOTES:

1. CROSSWALK PUSHBUTTON SHALL BE MOUNTED TO A HEIGHT OF AT LEAST 3'-6", BUT NO HIGHER THAN 4'-0".

CROSSWALK PUSHBUTTON LOCATION

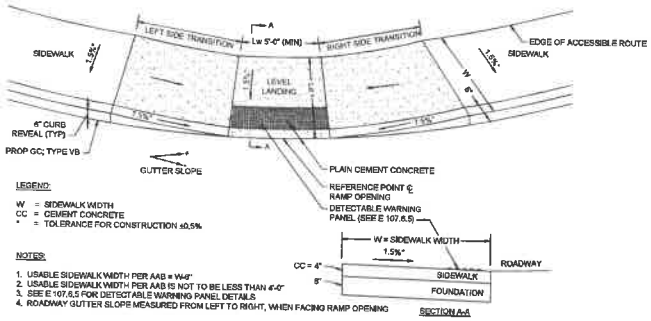
N.T.S.

[75-1005TAGE]HD11(CON DETAILS).DWG Plotted on 8-Jun-2020 3:17 PM

WHEELCHAIR RAMP NOTES:

1. MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE DESIGNED TO 4.5% ±0.5% (7.5% ±0.5% FOR CURB RAMPS)
2. A MINIMUM OF 3'-0" CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E. HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
3. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
4. RAMP, CURB AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
5. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5'x5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FT.
6. ELIMINATE CURBING AT RAMP WHERE IT ABUTS ROADWAY.
7. DETECTABLE WARNING PANELS ARE REQUIRED ON ALL OF THE PROPOSED WHEELCHAIR RAMPS AND ARE TO BE INSTALLED IN ACCORDANCE WITH CONSTRUCTION STANDARD E 107.6.5 (OCTOBER 2017). CONTRACTOR SHALL PROVIDE 5" BETWEEN DETECTABLE WARNING PANEL AND EDGE OF CONCRETE WHERE IT ABUTS LOAM & SEED.
8. WHEELCHAIR RAMP SLOPES AND CROSS SLOPES SHALL HAVE A CONSTRUCTION TOLERANCE OF ±0.5%.

AMESBURY
POND VIEW AVENUE (ROUTE 150) AT SOUTH HUNT ROAD & I-495 RAMPS
WHEELCHAIR RAMP DETAILS
SHEET 37 OF 58



LEGEND:

W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

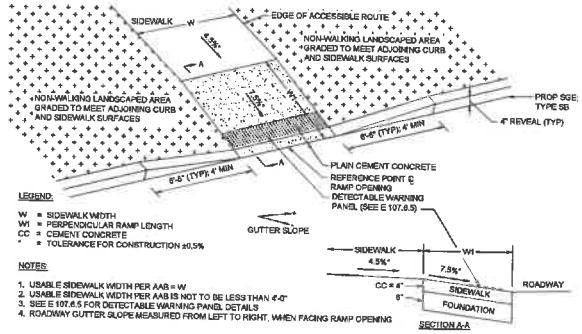
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W-4"
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
4. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT, WHEN FACING RAMP OPENING

WHEELCHAIR RAMP TYPE A

N.T.S.

WHEELCHAIR RAMP DATA												
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	LEFT SIDE			RIGHT SIDE		
				WIDTH (Lw)	DEPTH (Ld)		TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH	TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH
6	ROUTE 150	112+12.9	43.3' RT	5'-0"	5'-6"	+0.3%	8'-6"	6"	5'-0"	8'-0"	6"	5'-6"
9	SOUTH HUNT ROAD	205+20.1	28.0' RT	5'-0"	5'-8"	-1.4%	9'-0"	6"	5'-6"	8'-6"	6"	5'-8"



LEGEND:

W = SIDEWALK WIDTH
W1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

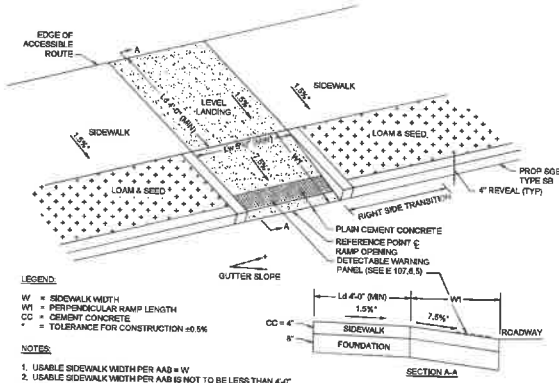
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
4. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT, WHEN FACING RAMP OPENING

WHEELCHAIR RAMP TYPE B

N.T.S.

WHEELCHAIR RAMP DATA							
RAMP #	BASELINE REFERENCE	STATION	OFFSET	ROADWAY GUTTER SLOPE	W1	CURB REVEAL	SIDEWALK WIDTH
3	ROUTE 150	104+35.1	40.8' LT	+0.9%	7'-4"	4"	10'
4	ROUTE 150	105+05.6	32.5' LT	-0.5%	8'-4"	4"	10'
5	ROUTE 150	105+27.6	32.5' LT	+1.8%	8'-4"	4"	10'
10	SOUTH HUNT ROAD	206+01.9	39.7' RT	+1.7%	5'-8"	4"	10'
13	ROUTE 150	113+75.1	36.8' LT	-2.0%	9'-0"	4"	10'



LEGEND:

W = SIDEWALK WIDTH
W1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

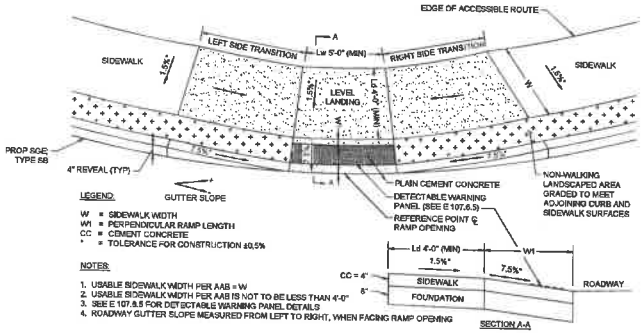
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
4. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT, WHEN FACING RAMP OPENING.

WHEELCHAIR RAMP TYPE C

N.T.S.

WHEELCHAIR RAMP DATA								
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	W1	CURB REVEAL
				WIDTH (Lw)	DEPTH (Ld)			
11	ROUTE 150	113+36.9	18.0' LT	5'-0"	10'-0"	+1.1%	6'-2"	4"



LEGEND:

W = SIDEWALK WIDTH
W1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

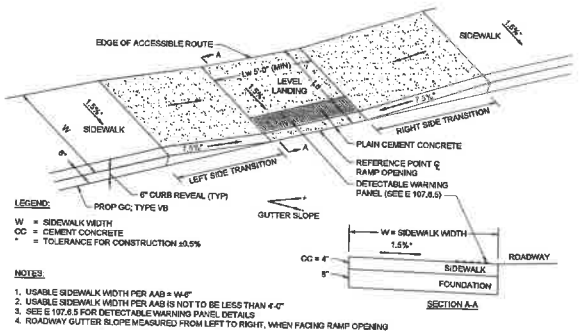
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
4. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT, WHEN FACING RAMP OPENING

WHEELCHAIR RAMP TYPE D

N.T.S.

WHEELCHAIR RAMP DATA													
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		(W') RAMP LENGTH	ROADWAY GUTTER SLOPE	LEFT SIDE			RIGHT SIDE		
				WIDTH (Lw)	DEPTH (Ld)			TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH	TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH
1	ROUTE 150	103+17.6	24.3' LT	10'-0"	10'-0"	3'-0"	-0.5%	N/A	N/A	N/A	5'-6"	4"	10'-0"
2	ROUTE 150	104+21.7	57.2' LT	9'-7"	10'-0"	3'-0"	-1.4%	11'-0"	4"	10'-0"	N/A	N/A	N/A
7	ROUTE 150	112+14.3	16.8' LT	7'-8"	10'-0"	3'-0"	-1.1%	9'-0"	4"	10'-0"	5'-6"	4"	10'-0"
8	SOUTH HUNT ROAD	205+91.7	29.5' LT	8'-3"	10'-0"	3'-0"	-1.8%	9'-0"	4"	10'-0"	N/A	N/A	N/A
14	ROUTE 150	113+92.9	53.2' LT	8'-9"	10'-0"	3'-0"	+0.7%	N/A	N/A	N/A	9'-0"	4"	10'-0"



LEGEND:

W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

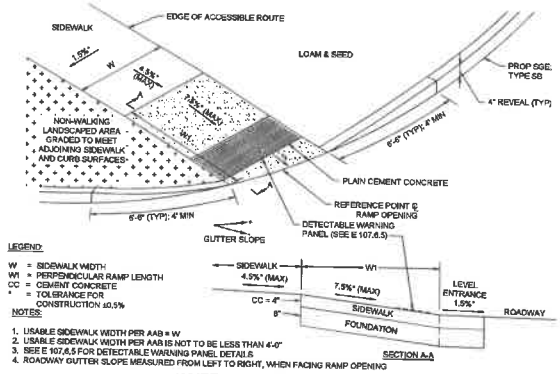
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W-4"
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
4. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT, WHEN FACING RAMP OPENING

WHEELCHAIR RAMP TYPE E

N.T.S.

WHEELCHAIR RAMP DATA													
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	LEFT SIDE			RIGHT SIDE		
				WIDTH (Lw)	DEPTH (Ld)		TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH	TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH
12	ROUTE 150	113+36.8	22.0' RT	5'-0"	5'-6"	-1.1%	9'-0"	6"	5'-6"	6'-6"	6"	5'-6"



LEGEND:

W = SIDEWALK WIDTH
W1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
4. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT, WHEN FACING RAMP OPENING

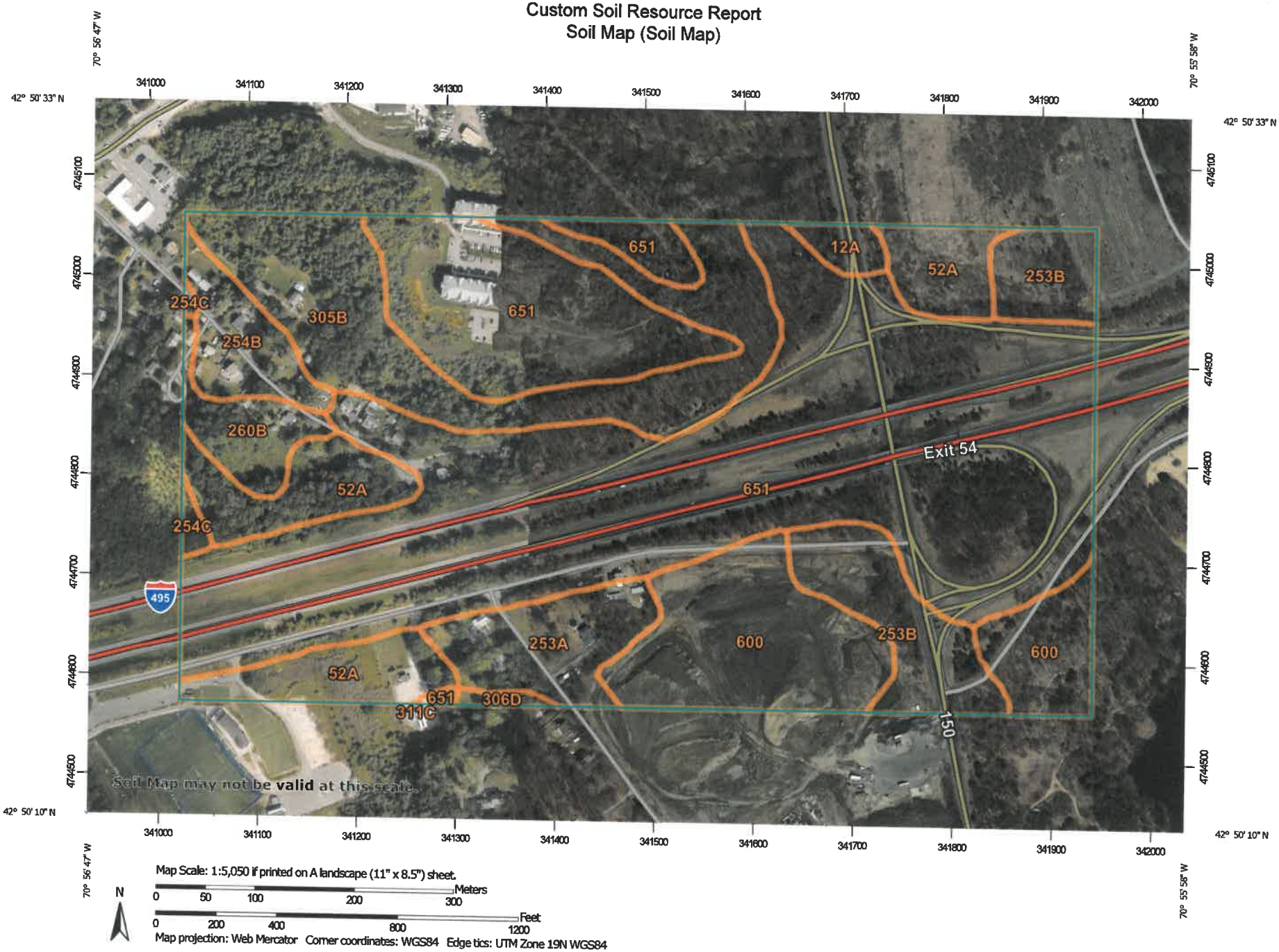
WHEELCHAIR RAMP TYPE F

N.T.S.

WHEELCHAIR RAMP DATA							
RAMP #	BASELINE REFERENCE	STATION	OFFSET	ROADWAY GUTTER SLOPE	W1	CURB REVEAL	SIDEWALK WIDTH
15	ROUTE 150	117+27.8	30.0' LT	-3.9%	6'-4"	4"	10'-0"

[75-1065TA\SB\FD1\CON DETAILS.DWG Plotted on 8-Jun-2020 3:17 PM

Custom Soil Resource Report
Soil Map (Soil Map)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, Massachusetts, Northern Part
Survey Area Data: Version 15, Sep 12, 2019

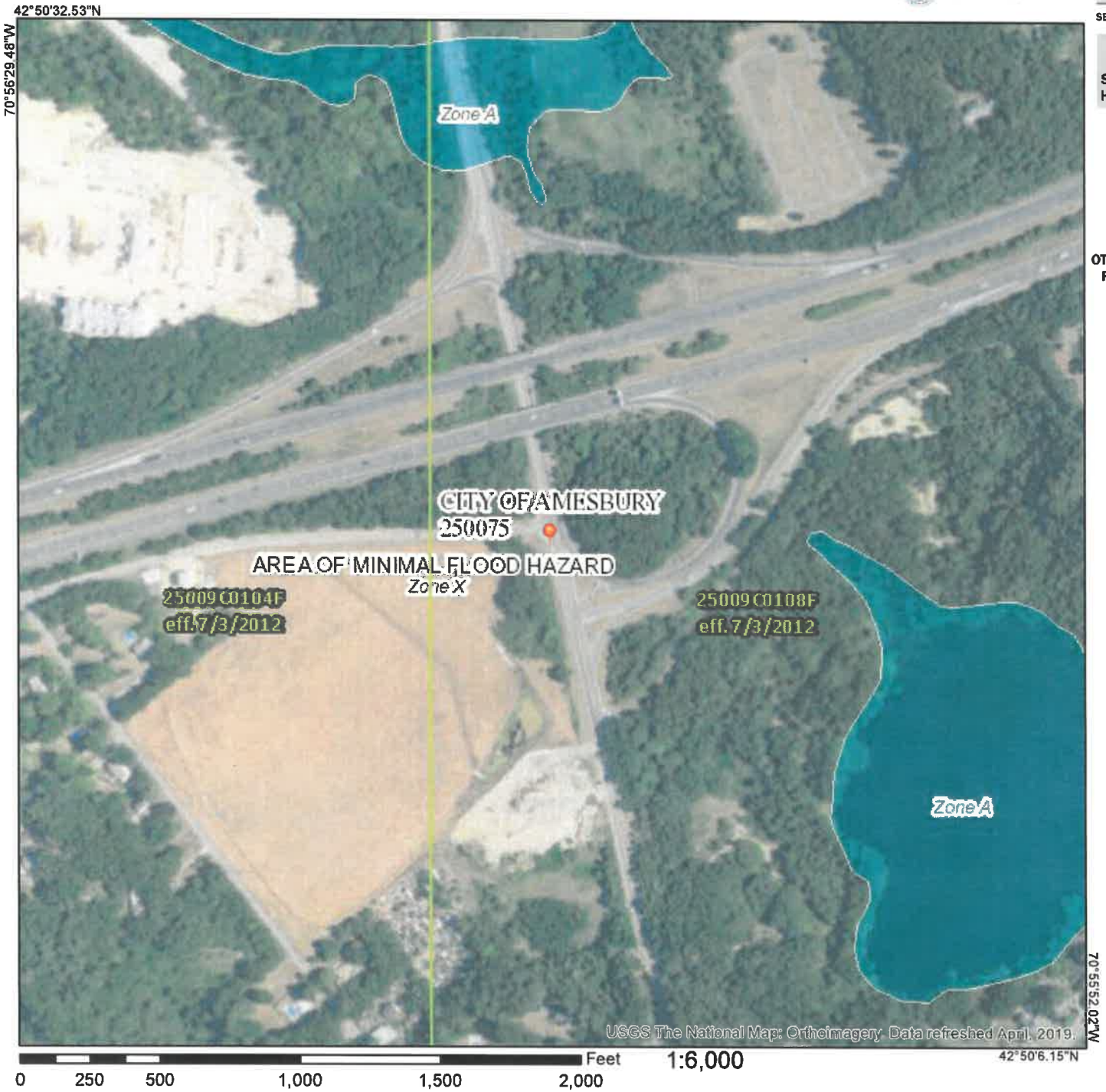
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 30, 2011—Sep 20, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

National Flood Hazard Layer FIRMette

FEMA



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

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Introduction

The City of Amesbury is proposing a transportation and drainage improvement project along Route 150, and the realignment of the intersection of South Hunt Road, Route 150, and the I495 northbound ramps for Exit 54. The project limits along Route 150 begin approximately 150 feet north of the I495 Southbound off-ramp, and continue south to Summit Avenue. The proposed improvement project includes the realignment of the intersection, installation of fully-actuated traffic signals, minor roadway widening with bicycle lanes, a shared use path, sidewalks, crosswalks, and drainage improvements including an infiltration basin.

The purpose of this project is to provide improvements to address existing safety and operational deficiencies.

The proposed Stormwater Management Plan has been designed to meet the Stormwater Standards identified in the Massachusetts Department of Environmental Protection (DEP) Stormwater Handbook and the City of Amesbury Stormwater Regulations. The Stormwater Management Design reduces peak runoff rates, reduces the risk of erosion and sedimentation migration, and improves stormwater runoff quality.

The project includes work within a Riverfront area, work within 100-feet of a jurisdictional wetland, including construction of a new infiltration basin connected to an existing wetland outlet, and approximately 34 linear feet of direct impacts to a paved swale transporting an intermittent stream, associated with site grading. Due to topography of subcatchments and runoff flow direction, this NOI and stormwater study will only outline portions of the project flowing to jurisdictional wetland areas. Subcatchment areas which have discharge points outside of the jurisdictional wetland buffer zones will not be evaluated.

Existing Conditions

Within the proposed project limit, Route 150 consists of two lanes, with a full shoulder along the western side, and a full shoulder along portions of the eastern side. The overall pavement width of Route 150 ranges from approximately 40 to 50 feet. South Hunt Road consists of two lanes, and totals approximately 22 feet in total pavement width.

The existing drainage infrastructure consists of catch basins, drainage manholes, pipes, paved drainage ditches, and culverts. Stormwater runoff along Route 150 is comprised of direct entry drainage and South Hunt Road is comprised of country drainage. The stormwater runoff from South Hunt Road flows into roadside swales leading to paved drainage ditches, these ditches flow through culverts under Route 150 and into the unnamed perennial stream. Stormwater runoff from Route 150 flows into catch basin along the roadway and flow into the unnamed perennial stream or an isolated wetland. The current drainage infrastructure deficiencies include a lack of TSS removal and stormwater infiltration.

Resource areas adjacent to, and on site include an unnamed perennial stream and its associated riverfront area, intermittent streams and associated bordering vegetated wetlands, an isolated wetland,