TOWN
OF
BELLINGHAM

Hartford Ave Roadway Improvements

Contract 2026-HARI

APRIL 2026

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TOWN OF BELLINGHAM

Hartford Ave Roadway Improvements
Contract 2026-HARI

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TOWN OF BELLINGHAM

DEPARTMENT OF PUBLIC WORKS
INVITATION FOR BIDS

March 11, 2026

The Bellingham Department of Public Works invites bids on: **Hartford Ave Roadway Improvements, Contract 2026-HARI.**

Bids must be received by April 23, 2026, at 1:00 pm at the Department of Public Work Office 215 Depot Street, Bellingham, MA, at which time they will be opened and read aloud.

Roadway improvements include roadway box widening, milling, paving, share use path construction, drainage improvements, traffic signal & control system improvement, traffic signs & markings, and landscaping on approximately 1,820 feet of Hartford from the I-495 bridge to Arrowhead Road, 525 feet of the I-495 Southbound exit ramp, and 300 feet of North Main Street and appurtenant work.

Bid documents will be available at the DPW Office 215 Depot Street, after Noon on March 11, 2026 between the hours of 7:00 am and 3:30 pm Monday through Friday for viewing and pick up.

Hard copies of the bid documents may be obtained for the refundable deposit of $75.00. Firms that return the bid documents, in good condition, to the DPW Office, up to 30 days after the bid opening, will be given back their deposit. Bid documents will be mailed via next-day delivery to prospective bidders for an additional prepaid non-refundable fee of $100.00. Electronic (PDF) copies will be available free of charge by emailing a request to dpwoffice@bellinghamma.org.

A 5% bid bond is required and must be submitted with the bids. The successful Bidder will be required to provide 100% payment and performance bonds, prior to being awarded the contract.

Only contractors that are prequalified to perform work class of **Highway Construction** for an estimated project value of **$11,872,668.05** are eligible to bid on this project. MassDOT issues the list of contractors meeting this requirement up to the day of the bid opening. Only contractors listed on the MassDOT prequalification list or waiver list will be allowed to submit Official Bid Forms. Any bidders that are **NOT** on the MassDOT Prequalification or Waiver lists, issued the day of the bid opening, will be consider **INELIGIBLE** to submit a bid on this project.

Firms must be able to supply insurance certificates indicating coverage as noted in the bid documents and the contractor will be required to sign an indemnity agreement prior to award of work under this bid.

All labor performing work on this contract must be paid in accordance with the Commonwealth of Massachusetts approved wage scales. Certified payrolls must be provided to the town for all work performed.

Firms submitting prices must be equal opportunity and affirmative action employers. Women and minority businesses are encouraged to submit prices.

Contact the Bellingham DPW at dpwoffice@bellinghamma.org for further information.

Information for Bidders:

General:

The Town of Bellingham hereby requests bids be submitted for the **Hartford Ave Roadway Improvements, Contract 2026-HARI.**

Bid Documents will be available at the Bellingham Department of Public Works Office, 215 Depot Street, Bellingham, MA 02019 from 7:00 A.M. through 3:30 P.M. Local Time, Monday through Friday. **See the Invitation to Bidders for the time and date of the bid documents will be available**.

Caution: Bidders must obtain bid documents from the Town. Failure to so could result in the bidder not being included in the list for distribution of critical addendum and notices. Bid advertising publication services must not be the source of bid documents. Bidders must not obtain bid documents from bid advertising publication services or risk rejection of the bid.

Bid Submittal:

Bids must be received at the Bellingham Department of Public Works Office, 215 Depot Street, Bellingham, MA 02019. **See the Invitation to Bid for the time and date of the bid opening**, at which time all bids will be publicly opened and read aloud.

All bids must be in a sealed envelope plainly marked; "Hartford Ave Roadway Improvements, Contract 2026-HARI" (See the Instructions for Bidders.)

Bids delivered by next-day mail delivery companies must be in a separate envelope, as all next-day mailers are open immediately on receipt.

Scope of Work:

Roughly half of the roadways being improved are MassDOT State Highway Layout. The Town has received a State Highway Access Permit from MassDOT. The Permit is attached to these documents in Appendix C. Bidders must review the Permit and Contractors must comply with work requirements noted in the Permit.

See the Invitation to Bid for more details on the scope of work

All work done under this contract shall be in conformance with the Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges 2024 Edition and as noted in the Technical Specifications that are part of these contract documents.

The work to be performed under this Contract consists of furnishing all necessary labor, materials and equipment required to complete roadway improvements per the project plans and specifications.

Definitions

"Contractor" shall mean the firm who has submitted a Bid which has been accepted and from which the Town have signed an agreement and issued a Notice to Proceed.

"Engineer" or "Director" shall mean the Bellingham Department of Public Works Director or his appointed agent(s).

"Standards" shall mean the Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges 2024 Edition.

"Town" or "Owner" shall mean the Town of Bellingham, Massachusetts.

Right to Reject

The Town reserves the right to reject any or all Bids in part, or in whole, as it deems necessary.

Equal Opportunity

Contractors submitting Bids must be equal opportunity and affirmative action employers. Women and Minority businesses are encouraged to submit Bids.

Insurance:

Firms must be able to supply insurance certificates indicating coverage as noted in Supplementary Conditions Appendix A.

Firms must sign and return the Contractors Indemnification Form prior to the contract being awarded. This form is not needed with the submitted bids.

Prevailing Wage Rate Requirements

The Commonwealth of Massachusetts approved wage rates must be paid to all Contractors' employees performing labor under this Bid. Firms supplying such labor will be required to submit certified weekly payroll reports.

Wage rate information and payroll report forms are included in Appendix B of the Bid Documents.

Bid Security and Payment and Performance Bonds

A five percent (5%) bid security is required with this Bid. A Bidder's bonding company can provide the bond on their typical form.

The successful Bidder will be required to execute and deliver to the Town a 100% Payment and a 100% Performance bond, prior to award and issuance of a notice to proceed. Payment and performance bond forms are attached. If a Bidder has been notified of the Town intention to award the project and fails to execute the agreement and provide payment and performance bonds within 14 days of the notice of intent to award, the Town may collect the bid security and may then be awarded to the second or subsequent bidder.

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

Insurance/Bonding Companies must be approved to operate in the Commonwealth of Massachusetts.

MassDOT Pre-Qualification Required

All firms submitting bids must be pre-qualified by MassDOT.

The MassDOT class of work and estimated value appear in the Advertisement for Bids

The MassDOT lists are issued periodically up to the bid date. The latest list will be made available to any prospective bidder upon request.

Contractors must appear on the MassDOT list of firms prequalified or have received a waiver from the MassDOT Prequalification Office to obtain an Official Bid Form. Any firm that is not on the MassDOT list of firms, or has not received a waiver, that submits a bid shall be considered ineligible.

Award

Bidders must be MassDOT prequalified to be considered eligible for award of the contract.

The Contract will be awarded to the "lowest responsible and eligible bidder based on the price of the Base Bid" pursuant to Massachusetts General Laws Chapter 30-39B, as amended.

Such a bidder shall possess the skill, ability and integrity necessary for the faithful performance of the work, shall be able to furnish labor that can work in harmony with all other elements of labor employed, or to be employed, in the work, and shall otherwise comply with all applicable provisions of law.

Contract Duration

All Bids shall be considered good for a period of ninety (90) calendar days from the date of the bid opening. This length of time bid to award is necessary in case bids come in higher than expected and the Town needs to appropriate added funds to award the project. The Town hopes to award the project shortly after bids are opened.

The Contractor is required to complete the project within the time frame noted in the Agreement. The Town will entertain any legitimate request for a time extension.

Construction Schedule

The Contractor shall submit the Initial Project Construction Schedule of work activities no later than fifteen (15) business days of after the notice to proceed is issued.

Should the Contractor's work progress deviate from the Initial Project Construction Schedule, the Engineer may request a Revised Project Construction Schedule. The Contractor shall submit a Revised Project Construction Schedule of work activities no later than seven (7) business days of after a written request for the revision is issued by the Engineer.

The Contractor's Project Construction Schedules must not include any planned hot mix asphalt installation in the late fall and winter seasons (between November 30th and April 1st).

The Project Construction Schedule of work activities shall include a plan of his construction procedures and the safety measures he will use during the prosecution of the work. The schedule also shall include the time the Contractor proposes to complete the various items of work.

Contractor's Representative & Emergency Contacts

The Contractor shall provide the Engineer with a contact list of phone numbers for Contractor personnel who can be notified in the event of an emergency 24 hours a day, 7 days a week for the duration of the field work. The list shall be kept current and shall include secondary contacts as needed to ensure that an authorized person is always available to mobilize crews as required to respond to emergencies. If contacted directly by emergency response personnel, the Contractor shall immediately notify the Engineer.

A competent foreman shall always be kept upon the project sites, to whom all notices and orders to the Contractor may be delivered, and who shall superintend the workmen in his respective department.

Paving Special Provisions

The Contractor shall complete all castings' concrete collars two (2) workdays in advance of paving operations on any streets to be paved. Concrete collars are subject to the Engineer's approval before paving operations may be scheduled.

The Contractor shall pre-sweep all surfaces with a mechanical broom sweeper immediately preceding application of tack coat and paving operations at no additional cost to the Town.

The Contractor shall not fan hot asphalt mix over the freshly laid mat of bituminous concrete and shall manually return surplus mix created during paving operations by the presence of structures' frames and covers to the auger of the paving machine. The Contractor shall inform the Engineer a location for disposal of surplus hot asphalt mix created by truck cleanouts, prior to paving operations daily. Trucks shall not be permitted to clean out in front of the paving machine.

No paving shall be allowed unless the air temperature is 45 degrees and forecast to rise during the workday. No hot mix asphalt base course shall be placed on frozen sub-base.

Incidental to this contract, are all ramps at joints and cones needed to ensure the safety of the public. The Contractor is liable for loss that occurs due to conditions and activities associated with their work.

The Contractor must provide "Caution Raised Castings" warning signs as incidental work to the project construction.

Ramp Rings and Signs shall be placed by the Contractor whenever there are raised castings in the travel way. The Contractor shall provide suitable horses or establish other such supports for the Signs.

The Contractor shall inform the Engineer, Eversource (Gas Division), of its scheduled dates for paving the top course of pavement over roadways so that the Engineer may alert the gas utility companies. The

Town is required to inform the gas utility companies of the scheduled date three (3) weeks in advance. The gas gates in the roadways need to be raised and cleaned or repaired, if necessary, in a timely manner and the Engineer and Eversource (Gas Division), need the Contractor's cooperation.

Daily Pay Item Tracking

The Contractor shall provide daily field quantity verification for all pay items via Daily Worksheet to track the Contractor's work activities which shall be signed off on by both the Engineer and the Contractor. The Contractor is required to submit a sample of the Daily Worksheet to the Engineer prior to the commencement of work activities, which is subject to the Engineer's approval. It is imperative that the Engineer and the Contractor keep an accurate track of pay item quantities to facilitate the approval of payment requisitions submitted by the Contractor.

Payment to Contractor

The Contractor and Engineer will determine what pay items have been completed with a mutually accepted time period. The Engineer will prepare payment request forms for signature by all parties.

Payment requests will be processed no more the twice a month. The form of the pay application shall be AIA Document G702 Application and Certification for Payment.

Hours of Work

The hours of work are noted in the project plans on Construction Staging Plans (Sheet 79 through Sheet 126).

No Guarantee of Unit Quantities

The Town reserves the right to increase or decrease the quantity of any item of work.

When the accepted quantities of work vary from the quantities in the Bid Schedule, the Contractor shall accept as payment in full, so far as Contract items are concerned, payment at the original Contract unit prices for the accepted quantities of work done.

The Engineer may order omitted from the work any items or portions of the work found unnecessary to the improvement and such omission shall not operate as a waiver of any condition of the Contract nor invalidate any of the provisions thereof, nor shall the Contractor have any claim for anticipated profit.

No allowance will be made for any increased expenses, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly or indirectly from such increased or decreased quantities or from unbalanced allocation, among the Contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursement therefore or from any other cause.

Price Adjustment for Bituminous Concrete Mixtures

The price adjustment clause is inserted into this bid because the shortage of oil products in relation to worldwide energy situation has made future costs of asphalt cement unpredictable. Bituminous concrete mixtures listed on the bid sheets are therefore subject to price adjustments.

The price adjustment will be based on the variance in price for only the asphalt cement component of the aforementioned mixtures from the base price to the period price. It shall not include transportation or other charges.

The fluctuation of the base price of asphalt cement is documented On Line and up to date on MassDOT webpage.

MHD guidelines will be generally followed. The asphalt content, for the purpose of this adjustment, will be 5 1/2 per cent (.055) for each ton of bituminous concrete mixture regardless of percentages established in the State's Job Mix Formula (M3.11.03) of the Standards.

Contractors must request an adjustment when submitting pay requests if the current price of base asphalt has increased.

The Towns reserve the right to apply cost reductions should the base asphalt price drop between the bid date and purchase date.

Price Adjustment for Heavy Equipment Fuel

The price adjustment clause is inserted into this bid because the shortage of oil products in relation to worldwide energy situation has made future costs of fuel for construction equipment unpredictable. A contractor may request an adjustment or change order for an increase in fuel cost. Such a request must include detailed fuel consumption records, and all submittals must be acceptable to the Engineer.

Fuel price variations can be analyzed by any acceptable method including review of the COMMBUYS ENEFY(YEAR) contract for statewide bid of gasoline, diesel fuel, and heating oil.

Protection of Underground Facilities

The Contractor's attention is directed to the necessity of making his own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etc., will occur.

The Contractor shall contact the Massachusetts 'DIG SAFE' call center at 1-888-344-7233 (1-888-DIG-SAFE) and procure a DIG SAFE number for each location prior to disturbing the existing ground in any way.

The Contractor shall notify Dig Safe 72 hours prior to start of construction.

Construction Layout

It shall be the Contractor's responsibility to provide survey and layout control for the construction.

Shop Drawing Submittal

Within fifteen (15) business days of the date notice to proceed is issued, the Contractor shall provide to the Engineer, catalog cuts of materials necessary to complete the project. Catalog cuts shall be submitted to the Engineer castings, proposed hot mix asphalt mix designs, and other materials requested by the Engineer.

Overloaded Trucks

THE TOWN WILL NOT ACCEPT ANY MATERIALS DELIVERED TO ANY PROJECT IN MOTOR VEHICLES OR SEMI-TRAILER UNITS THAT EXCEED THE LEGAL MAXIMUM GROSS WEIGHT ALLOWED FOR THE PARTICULAR CLASS, AS SPECIFIED IN SECTION 19A OF CHAPTER 90 OF THE GENERAL LAWS OF MASSACHUSETTS.

THE PROVISIONS OF SUBSECTION 7.03 OF THE STANDARD SHALL STILL APPLY.

Public Safety and Convenience

The Contractor's attention is directed to his responsibility to maintain safe conditions for pedestrians and Contractor's personnel, as well as vehicular traffic. This responsibility shall be the Contractor's, regardless of his compliance with these Technical Specifications concerning Prosecution of the Work, Maintenance of Traffic, and Construction Phasing.

The Contractor's attention is directed to the fact that the work on this project is to be performed on streets that are used by pedestrians as well as vehicles. He shall furnish, install, maintain, and move all warning devices, barricades, signs, slow-moving vehicle emblems, bridging materials, special apparel, and other safety measures and controls deemed necessary by the Engineer for the protection of motorists, pedestrians, and his own personnel. All automotive equipment, not protected by traffic cones or plastic drums, that is working on a public way under this project, shall have one amber flashing warning light mounted on the cab roof or on the highest practical point of the machinery visible to both oncoming and overtaking vehicles, at least 32 candlepower and 50-60 flashes per minute. This light shall be in operation while the equipment is working or traveling in the work area at a speed of less than 25 mph, and a slow-moving vehicle emblem shall also be displayed.

Construction equipment shall not be parked within any travel way unless said equipment is adequately lit and protected by safety devices and vehicular traffic is appropriately detoured. Appropriate MUTCD requirements shall apply.

The cost of this work shall be included in the contract bid prices and no additional payment shall be made, therefore.

The Contractor shall be responsible for the maintenance of flow in all gutters, water pipes, drains and other pipes affected by the work. There shall be no diversion, flooding, or other flow that will cause hindrance to this or other work, or cause nuisance or hazard of any kind.

Motorist Safety – Raised Casting

Incidental to this contract, as needed, are all ramps at joints and cones needed to ensure the safety of the public. The Contractor is liable for loss that occurs due to conditions and activities associated with their work.

The Contractor must provide “Caution Raised Castings” and “Bump” warning signs as incidental work to the project construction.

Ramp Rings and Signs shall be placed by the Contractor whenever there are raised castings in the travel way. The Contractor shall provide suitable horses or establish other such supports for the Signs.

Maintenance of Existing Municipal Utilities Systems

It shall be the Contractor's responsibility to always maintain proper drainage in the areas under construction until the final system is put into use. Existing drainage shall not be taken out of service without prior written notice to the Town.

The Contractor’s operations must prohibit any debris such as soil, asphalt, concrete and brick rubble, and mortar, from falling into manholes, catch basins or water gate box structures. Such debris must not impede the flow of sewage or stormwater through any structure or outlet or operation of water gate valve. The Contractor will be required to immediately remove any such debris at the own expense. The Engineer may require the Contractor to perform close circuit camera review of pipes up and downstream of any structure in which debris has entered and been removed. All liability for damage caused by gravity system flow backup shall remain with the Contractor

All new pipes and structures within the limits of this Contract shall be left in a clean and operable condition at the completion of the work.

Environmental Controls

All construction equipment shall be fitted with suitable muffling devices so that the noise from construction operations shall be properly controlled.

The Contractor shall control all dirt, dust, erosion and other related construction emissions from the project to the satisfaction of the Engineer.

Work Inspection

For the purpose of observing work that affects their respective properties, the Engineer, any public agencies, and the utility companies shall be permitted access to the work, but all official orders and directives to the Contractor will be issued by the Engineer.

Laws to Be Observed

The Contractor shall comply with the provisions of the rules and regulations for the control of air pollution adopted under Section 142B and 142D, Chapter 111 of the General Laws pertaining to air pollution control in the applicable Air Pollution Control District.

Disposal of Surplus Excavation Material

Surplus materials obtained from any type of excavation other than milling and not needed for further use as determined by the Engineer shall become the property of the Contractor and shall be disposed by the

Contractor outside the location subject to the regulations and requirements of local authorities governing the disposal of such materials, at no additional compensation.

Guarantee after Final Acceptance

Upon the date of acceptance of the project by the Town, the Contractor shall turn over all guarantees and warranties to the Town.

Property Bounds

The Contractor shall exercise due care when working around all property bounds. Should any damage to a bound result from the actions of the Contractor, the bound shall be replaced by the Contractor as directed by the Engineer. No further compensation will be due the Contractor for the materials and labor required to re-establish the bound in its proper position as shown on the Plans or as found in the field.

Steel Plates in Construction Zones

If steel plates are utilized each edge of such plates shall either be beveled or protected by a ramp of three feet (3') horizontally to one inch (1") vertically. Any temporary patching material may be used to construct the ramps. The cost of necessary patching materials, and their maintenance and removal, will be considered incidental to the project work with no separate payment.

Sheeting and Bracing

The Contractor shall furnish, place, and remove all sheeting and bracing required to support the sides of all trenches or other excavations for this project. The Contractor shall be solely responsible for the safety of the workmen and the adjacent facilities from danger of caving and sliding and all work to be done shall be in strict accordance with the Department of Labor, Occupational Safety and Health Administration regulations and suggested practices for construction excavation and/or other applicable codes and regulations. Special precautions shall be taken to guard against any damage to or settlement of pavements, buildings, walls, pipes, ducts or other structures and facilities, which are adjacent to the project area.

The cost of providing and removing, sheeting, shoring, and bracing under this contract will be the responsibility of the contractor and is deemed to be included in the Contract bid prices, therefore no additional compensation will be allowed.

Protection of Utilities and Property

The Contractor, in constructing or installing facilities alongside or near sewers, drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls or other structures shall, at his expense, sustain them securely in place, cooperating with the officers and agents of the various utility companies and municipal departments which control them, so that the services of these structures shall be maintained. He shall also be responsible for the repair or replacement, at his own expense, of any damage to such structures caused by his acts or neglect and shall leave them in the same condition as they existed prior to the commencement of work. In case of damage to utilities, the Contractor shall immediately notify the Owner and shall, if requested by the Engineer, furnish laborers to work temporarily under the Owner's direction in providing access to the utility. Pipes or other structures damaged by the operation of the Contractor may be repaired by the Town or by the utility company that suffers the loss. The cost of such

repairs shall be borne by the Contractor, without compensation, therefore. It shall be the sole responsibility of the Contractor to repair the damage to municipally owned utilities and not the Owner.

If, as the work progresses, it is found that any of the utility structures are so placed as to render it impracticable, in the judgment of the Engineer, to do the work called for under this Contract, the Contractor shall protect and maintain the services in such utilities and structures and the Owner, will, as soon thereafter as it reasonably can, cause the position of the utilities to be changed or take such other action as it deems suitable and proper.

If live service connections are to be interrupted by excavations of any kind, the Contractor shall not break the service until new services are provided. Abandoned services shall be plugged off or otherwise made secure.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified in this section shall be considered as included in the Contract bid prices and no additional compensation will be allowed, therefore.

Construction Safety

It shall also be a requirement of this contract that the Contractor shall supply to his personnel and require that they wear safety vests while working in or near the roadways of this project. The cost of furnishing such vests shall be included in the prices bid for the various items, and all such vests shall remain the property of the Contractor.

Property Access

The Contractor should note that the work is in a predominantly residential area. As such, the Contractor shall always provide and maintain access to all properties abutting the work. Safe and ready means of access to all residential properties and business in the project area, both day and night, shall be provided for the duration of the project.

Backfill and Compaction for Structures

No backfill shall be placed on or against drainage structures, pipes, or other masonry, until permitted by the Engineer. All backfill shall consist of suitable materials uniformly distributed in six-inch (6”) layers and thoroughly compacted to 95 percent of the maximum dry density of the backfill material in accordance with ASTM D1557 Modified Proctor. When suitable backfilling materials cannot be obtained from excavation, the material shall consist of satisfactory borrow. Mechanical tampers shall be used in compacting backfill for drainage trenches, and in hard to reach areas around drainage structures and masonry.

Backfill below and around retaining walls, drainage pipes, drainage structures, and water pipes shall be placed in six-inch (6”) layers (loose measurement), leveled off by approved equipment and compacted with railroad tampers or approved mechanical rammers. Each layer of backfill material shall be spread evenly across the entire width between the excavation sidewalls and drainage structure. Each six inch (6”) layer of backfill material shall be compacted to 95 percent of the maximum dry density of the backfill material in accordance with ASTM D1557 Modified Proctor and shall be moist prior to and during compaction. This procedure for backfilling retaining walls, drainage pipes, drainage structures, and water pipes shall be continued up from the bottom of the drainage structure excavation to the top of the roadway sub-base.

The Contractor shall, without additional compensation, employ whatever measures are necessary to adjust the natural water content of the suitable backfill material to permit the placement and compaction as herein specified. No additional compensation will be made for compaction as specified herein but shall be considered incidental and included in the Contract prices bid for each representative item.

Police Details

All police details related to this project will be ordered by the Contractor with the approval of the Engineer. Invoices will be sent by the Police to the DPW and the DPW will process payment of the invoices, with the following exceptions:

- If the Contractor fails to mobilize on the scheduled day and no work is performed, invoices for the detail officers will be paid by the Contractor with no compensation from the Town. (This exception can be waived by the Engineer if adverse weather conditions are involved.)
- Police Detail Officer(s) utilized to protect public safety during repair of any of the Contractor's defective work will be paid by the Contractor with no compensation from the Town.

Traffic Control - DETOURS

The plans include detailed detours that will be allowed and other notes regarding the closure of lanes to traffic when traffic cannot be detoured. The sentence in the SHA Permit at the bottom of page 3 is boiler plate in the MassDOT Permits. The detours noted on the plans have been approved by MassDOT

Reference Materials

Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges 2024 Edition.

All chapters and sections of the General Laws of the Commonwealth of Massachusetts deemed to be included as part of these bid documents is considered a part hereof. All other materials noted or referenced are considered a part of these bid documents.

The General Conditions and Supplemental Condition (Amendments), attached as Appendix A, are considered in all way part of the Bid Documents and apply to all aspects same.

Commonwealth of Massachusetts Prevailing Wage Schedules and Payroll Report Forms, attached as Appendix B, are considered in all way part of the Bid Documents and apply to all aspects same.

Bellingham Conservation Commission Order of Conditions & **MassDOT State Highway Access Permit** - Appendix C.

List of Items - Appendix D

END OF INFORMATION FOR BIDDERS

Instruction for Bidders:

Bids must be received at:

- The Bellingham DPW Office
  215 Depot Street
  Bellingham, MA 02019

Bids must be received by:

- **See the bid advertisement for the time and date.**

Bids must be submitted on the Official Bid Form.

Only bidders that are MassDOT Prequalified shall receive official bid forms and be considered eligible for the award of this contract.

Each bidder must submit a sealed bid envelope with the following enclosed:

- A completed Official Bid Form

PLEASE STAPLE THE BID FORM PAGES TOGETHER WHEN SUBMITTING A BID

- Bid Bond or security in the amount of Five Percent (5%) of the total base bid and alternate bid. (**Please do not staple the bid bond to the bid form**)

(No insurance certificates are required with the submittal of the bid.)

The bid envelope must be sealed and clearly marked with:

- The Name of the bidder, and
- The title:

"Hartford Ave Roadway Improvements, Contract 2026-HARI"

(Bids delivered by next day mail delivery companies must be in a separate envelope, as all next day mailers are open immediately on receipt.)

END OF INSTRUCTIONS FOR BIDDERS

AGREEMENT

This Agreement, made this _____ day of _____, 2026, by and between the Bellingham Department of Public Works hereinafter called "OWNER" and _____ doing business as (an individual) or (a partnership) or (a corporation) hereinafter called "CONTRACTOR".

The term "Contract Documents" as it appears in this agreement means and includes the following:

- Invitation for bids
- Information for bidders
- Instructions to bidders
- Official Bid Forms
- Payment and Performance Bonds
- Technical Specifications
- General Conditions and Supplemental Conditions (Amendments)
- Massachusetts Wage Scales
- Appendices C & D
- Construction Plans
- Any and all addendum issued.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:
The CONTRACTOR will commence and complete the **Hartford Ave Roadway Improvements (Contract 2026-HARI)** as directed by the OWNER.

1. The CONTRACTOR will furnish tools, equipment, labor, and other services necessary for the completion of the WORK described herein.
2. The CONTRACTOR will commence the WORK required by the Contract Documents within fourteen (14) calendar days of the Notice to Proceed and will complete the same within seven hundred and fifty **(750)** calendar days, unless the time of completion is extended by the TOWN.
3. The CONTRACTOR further agrees to pay as liquidated damages $1,000 for each consecutive calendar day that the CONTRACTOR shall be in default after the time that is specified in this Agreement.
4. The CONTRACTOR agrees to perform all work described in the Contract Documents and comply with the terms therein for the prices shown on the Official Bid Form.
5. The OWNER will pay the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the Contract Documents.
6. The OWNER may retain a portion of the amount otherwise due to the CONTRACTOR. Except as Commonwealth Law (Chapter 30, Section 39G of M.G.L.) otherwise provides, the amount the OWNER retains shall be limited to 5% of all accepted work.

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

In Witness whereof, the parties hereto have executed or caused to be executed by their duly authorized officials, this agreement in two copies each which shall be deemed an original on the date above written.

Bellingham Department of Public Works	CONTRACTOR
signed _____	signed _____
name _____	name _____
title _____	title _____

This page is intentionally left blank to accommodate two sided printing of this document.

PAYMENT BOND

BOND NUMBER_____

KNOW ALL MEN BY THESE PRESENTS: That we,

_____

(Name of Contractor)

_____

(Address of Contractor)

_____, hereinafter called Principal,

(Corporation, Partnership, or Individual)

_____

(Name of Surety)

_____

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the Board of **SELECTBOARD**,

of the Town of **BELLINGHAM**, Massachusetts, 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 liberally, 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 _____ , 2025, a copy of which is hereto attached and made a part hereof for the construction described as follows:

Hartford Ave Roadway Improvements

Contract 2026-HARI

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 therefore, including all amounts due for materials, lubrications, 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.

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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 thereunder or the Specifications accompanying the same shall in any wise affect it's 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 Specifications.

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 of which shall

be deemed an original, this the _____ day of _____, 2025.

ATTEST:

_____
(Principal)

(SEAL)

By:_____(s)

_____

_____

_____
Witness as to Principal

_____
(Address)

_____ _____

ATTEST: By:_____
Attorney - in - Fact

_____ _____
Witness as to Surety (Address)

_____ _____

_____

NOTE: Date of Bond must not be prior to date of Contract.
IF CONTRACTOR is Partnership, all partners should execute Bond.

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 United State where the Project is located.

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PERFORMANCE BOND

BOND NUMBER_____

KNOW ALL MEN BY THESE PRESENTS: That we _____ a _____ (form of entity) with an address of _____ hereinafter called “Principal” or “Contractor” and _____, as surety, with an address of _____, State of _____ hereinafter called the "Surety" and licensed by the State Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the Town of _____, Massachusetts, 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, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal has entered into a certain contract with the Owner (the “Construction Contract”), dated the _____ day of _____, 20___, for the construction described as follows:

Hartford Ave Roadway Improvements
Contract 2026-HARI

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of the Construction 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 if he shall satisfy all claims and demands incurred under the Construction Contract, and shall, as hereby agreed, fully indemnify the Owner from all liabilities, costs, expenses and damages which it may suffer by reason of the Principal’s failure to so perform, and shall reimburse and repay the Owner all outlay and expense the Owner may incur in making good such nonperformance (including without limitation Owner’s reasonable attorneys’ fees), then this obligation shall be void; otherwise, this obligation shall remain in full force and effect.

PROVIDED, FURTHER, that the Surety’s obligation under this Bond shall arise after the Owner has, with or without terminating the Construction Contract, declared that the Principal is in material breach of the Construction Contract (“Contractor Default”). When the Surety’s obligation under this Bond arises, the Surety, at its sole expense shall, at the election of the Owner, promptly: (1) arrange for the Principal to comply with the Construction Contract and perform and complete the Construction Contract; or (2) arrange for a contractor other than the Principal to perform and complete the Construction Contract; or (3) reasonably calculate the amount of its liability hereunder and, subject to Owner’s agreement, tender payment of such amount to Owner. Up to the penal sum of this Bond, the Surety’s obligation is limited to (1) the correction of defective work and completion of the Construction Contract; (2) additional costs and expenses incurred by the Owner for designer and project management services, and reasonable attorney’s fees, caused by the Contractor Default and any default of the Surety, including such costs and expenses and reasonable attorneys’ fees incurred in support of Owner’s claim on the Bond; (3) any additional work beyond the Construction Contract made necessary by the Contractor Default and default of the Surety under this Bond; (4) contract indemnification

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obligations of the Principal under the Construction Contract; (5) damages caused by the Contractor Default, including liquidated damages, if any, provided in the Construction Contract for Contractor delays, or if no such damages are specified, actual damages caused by such delays. The Surety and Principal shall be jointly and severally responsible for all such damages, costs, expenses, and fees.

The Surety will keep Owner reasonably informed of the progress, status, and results of its investigation of any claim of the Owner under this Bond. If the Surety does not proceed as provided in this Bond with reasonable promptness, the Surety shall be deemed in default of this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. Principal agrees, notwithstanding any agreement between it and the surety to the contrary, not to bring any claims against the Surety on account of the Surety's reasonable, good faith compliance with this Bond.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way 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 Construction Contract or to the work or to the specifications.

Any proceeding, legal or equitable, under this Bond shall be instituted in a state court of competent jurisdiction in the Commonwealth of Massachusetts sitting in the county in which Owner maintains its principal office. Surety agrees that any proceeding brought by Owner on this bond shall not be stayed on grounds that existing disputes between Owner and Contractor have not been adjudicated.

IN WITNESS WHEREOF, this instrument is executed in _____ ( ) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20___.

ATTEST:

_____
Principal

_____ By _____
(Principal Secretary)

_____

_____

_____
(Address-Zip Code)

_____ (SEAL)
Witness as to Principal

_____

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_____
(Address-Zip Code)

ATTEST:

_____
Surety

_____ By _____
(Attorney-in-Fact)

_____

_____
(Address-Zip Code)

_____ (SEAL)
Witness as to Surety

_____

_____
(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

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TECHNICAL SPECIFICATIONS

All materials supplied and work performed under this contract must meet the specifications set down in the respective section of the STANDARDS or as noted below. The numbers that appear on the Official Bid Form and table below are item numbers from the STANDARDS. Refer to the STANDARDS, which is deemed part of these Contract Documents, for specification (Description, Materials, Construction Methods, and Compensation) for Items noted below.

Item No.	Description	Unit
101.	CLEARING AND GRUBBING	A
102.1	TREE TRIMMING	FT
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	EA
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	EA
112.1	DEMOLITION OF BUILDING NO. 1	LS
112.2	DEMOLITION OF BUILDING NO. 2	LS
123.	MUCK EXCAVATION	CY
141.	CLASS A TRENCH EXCAVATION	CY
141.1	TEST PIT FOR EXPLORATION	CY
142.	CLASS B TRENCH EXCAVATION	CY
144.	CLASS B ROCK EXCAVATION	CY
146.	DRAINAGE STRUCTURE REMOVED	EA
150.	ORDINARY BORROW	CY
151.	GRAVEL BORROW	CY
151.2	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	CY
154.	SAND BORROW	CY
156.	CRUSHED STONE	TON
160.2	CONTROLLED LOW-STRENGTH MATERIAL - MECHANICAL EXCAVATABLE (100-300 PSI)	CY
170.	FINE GRADING AND COMPACTING - SUBGRADE AREA	SY
201.	CATCH BASIN	EA
202.	MANHOLE	EA
204	GUTTER INLET	EA
206.1	DROP INLET, TYPE AF	EA
220.	DRAINAGE STRUCTURE ADJUSTED	EA
220.2	DRAINAGE STRUCTURE REBUILT	FT
220.3	DRAINAGE STRUCTURE CHANGE IN TYPE	EA
220.5	DRAINAGE STRUCTURE REMODELED	EA
220.7	SANITARY STRUCTURE ADJUSTED	EA
221.	FRAME AND COVER	EA
222.1	FRAME AND GRATE - MASSDOT CASCADE TYPE	EA
222.2	FRAME AND GRATE - MASSDOT DROP INLET	EA
227.3	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT	CY
227.31	REMOVAL OF DRAINAGE PIPE SEDIMENT	FT
227.4	MASONRY PLUG	SF
238.10	10 INCH DUCTILE IRON PIPE	FT
244.12	12 INCH REINFORCED CONCRETE PIPE CLASS V	FT
244.18	18 INCH REINFORCED CONCRETE PIPE CLASS V	FT
244.24	24 INCH REINFORCED CONCRETE PIPE CLASS V	FT

265.06	6 INCH PIPE SUBDRAIN - OPTION	FT
302.08	8 INCH DUCTILE IRON WATER PIPE (RUBBER GASKET)	FT
302.12	12 INCH DUCTILE IRON WATER PIPE (RUBBER GASKET)	FT
309.	DUCTILE IRON FITTINGS FOR WATER PIPE	LB
347.1	1 INCH COPPER TUBING TYPE K	FT
358.	GATE BOX ADJUSTED	EA
363.1	1 INCH CORPORATION COCK	EA
376.	HYDRANT	EA
376.2	HYDRANT - REMOVED AND RESET	EA
381.	SERVICE BOX	EA
381.3	SERVICE BOX ADJUSTED	EA
384.	CURB STOP	EA
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE	CY
415.1	PAVEMENT STANDARD MILLING	SY
430.	CEMENT CONCRETE BASE COURSE	SY
440.	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL	LB
443.	WATER FOR ROADWAY DUST CONTROL	MGL
450.231	SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P)	TON
450.32	SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0)	TON
450.321	SUPERPAVE INTERMEDIATE COURSE - 19.0 POLYMER (SIC - 19.0 - P)	TON
450.42	SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5)	TON
451.	HMA FOR PATCHING	TON
452.	ASPHALT EMULSION FOR TACK COAT	GAL
453.	HMA JOINT ADHESIVE	FT
472.	TEMPORARY ASPHALT PATCHING	TON
476	CEMENT CONCRETE PAVEMENT	SY
482.5	SAWCUTTING ASPHALT PAVEMENT FOR BOX WIDENING	FT
504	GRANITE CURB TYPE VA4 - STRAIGHT	FT
504.1	GRANITE CURB TYPE VA4 - CURVED	FT
504.2	GRANITE CURB TYPE VA4 - SPLAYED END	EA
509.	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - STRAIGHT	FT
509.1	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - CURVED	FT
511.1	GRANITE EDGING TYPE SB - STRAIGHT	FT
512.1	GRANITE EDGING TYPE SB (RADIUS 10 FEET OR LESS)	FT
514.	GRANITE CURB INLET - STRAIGHT	EA
516.	GRANITE CURB CORNER TYPE A	EA
580.	CURB REMOVED AND RESET	FT
583.	EDGING REMOVED AND RESET	FT
620.13	GUARDRAIL, TL-3 (SINGLE FACED)	FT
620.33	GUARDRAIL - CURVED, TL-3 (SINGLE FACED)	FT
627.1	TRAILING ANCHORAGE	EA
627.83	GUARDRAIL TANGENT END TREATMENT, TL-3	EA
628.24	TRANSITION TO BRIDGE RAIL	EA
628.315	TEMPORARY IMPACT ATTENUATOR, REDIRECTIVE, TL-3	EA
628.4	TEMPORARY IMPACT ATTENUATOR, REMOVED AND RESET	EA
630.2	HIGHWAY GUARD REMOVED AND DISCARDED	FT
645.148	48 INCH CHAIN LINK FENCE (PIPE TOP RAIL) VINYL COATED (LINE POST OPTION)	FT
660.	METAL PIPE RAIL	FT

670.	FENCE REMOVED AND RESET	FT
697.1	SILT SACK	EA
701.	CEMENT CONCRETE SIDEWALK	SY
701.1	CEMENT CONCRETE SIDEWALK AT DRIVEWAYS	SY
701.2	CEMENT CONCRETE PEDESTRIAN CURB RAMP	SY
702.	HOT MIX ASPHALT SIDEWALK OR DRIVEWAY	TON
710.3	BOUND - LETTERED GRANITE	EA
711.	BOUND REMOVED AND RESET	EA
715.	RURAL MAIL BOX REMOVED AND RESET	EA
748*	MOBILIZATION	LS
751.	LOAM FOR ROADSIDES	CY
755.1	20 MIL PVC MEMBRANE LINER	SY
765.	SEEDING	SY
769.	PAVEMENT MILLING MULCH UNDER GUARD RAIL	FT
806.2	2 INCH ELECTRICAL CONDUIT TYPE RM - GALVANIZED STEEL	FT
811.21	ELECTRICAL HANDHOLE 24" DIA - SD2.021	EA
811.22	ELECTRIC HANDHOLE - SD2.022	EA
811.24	ELECTRIC HANDHOLE - SD2.024	EA
811.31	PULL BOX 12 X 12 INCHES - SD2.031	EA
811.35	PULL BOX ADJUSTED	EA
811.37	ELECTRIC HANDHOLE ADJUSTED	EA
817.65	SIGNAL MAST ARM 45 FEET - STEEL	EA
828.1	OVERHEAD GUIDE SIGN - ALUMINUM PANEL (TYPE B)	SF
829.	ROADSIDE GUIDE SIGN (G) - ALUMINUM PANEL (TYPE B)	SF
831.	ROADSIDE GUIDE SIGN (D6/D8) - ALUMINUM PANEL (TYPE A)	SF
832.	WARNING-REGULATORY AND ROUTE MARKER - ALUMINUM PANEL (TYPE A)	SF
841.1	SUPPORTS FOR GUIDE SIGN (D6 W/ D8-5 INCH TUBULAR POST) STEEL	EA
841.2	SUPPORTS FOR GUIDE SIGN (D6-5 INCH TUBULAR POST) STEEL	EA
847.1	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL	EA
851.1	TRAFFIC CONES FOR TRAFFIC MANAGEMENT	DAY
852.	SAFETY SIGNING FOR TRAFFIC MANAGEMENT	SF
853.1	PORTABLE BREAKAWAY BARRICADE TYPE III	EA
853.21	TEMPORARY BARRIER REMOVED AND RESET	FT
853.23	TEMPORARY BARRIER (TL-3)	FT
853.403	TRUCK MOUNTED ATTENUATOR	DAY
854.016	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED)	FT
854.036	TEMPORARY PAVING MARKINGS - 6 INCH (TAPE)	FT
854.1	PAVEMENT MARKING REMOVAL	SF
856.	ARROW BOARD	DAY
856.12	PORTABLE CHANGEABLE MESSAGE SIGN	DAY
859.	REFLECTORIZED DRUM	DAY
874.	STREET NAME SIGN	EA
904.	4000 PSI, 3/4 INCH, 610 CEMENT CONCRETE	CY
910.1	STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED	LB
986.	MODIFIED ROCKFILL	TON

*MOBILIZATION – The total bid price for this item must not exceed 3% of the contract bid total, including this item. **FAILURE TO OBSERVE THIS REQUIREMENT WILL RESULT IN REJECTION OF THE BID.**

BELOW ARE SPECIFICATIONS FOR ITEMS NOT PUBLISHED IN THE STANDARDS

ITEM 102.45 TRIM HEDGE FOOT

Work under Item 102.45 Trim Hedge shall conform to the relevant provisions of Subsection 771 and the following:

Work under this item consists of trimming hedges to provide sight distance and clearance of a sidewalk as shown in the Drawings or in other areas as directed by the Engineer.

CONSTRUCTION METHODS

Provide a minimum of 8" clearance between the sidewalk and hedge row. Before trimming, inspect the hedge to be pruned and obtain the Engineer's approval if removing more than 1/3 of the individual bush.

After trimming, clean debris from the remaining hedge and area, including existing debris from around the stems. Before leaving for the day, supply adequate water to the remaining hedge and dress the ground surface around the stems with a layer of aged pine bark mulch, approximately 4-inches thick. Properly dispose removed debris.

COMPENSATION

Item 102.45 Trim Hedge will be measured by the linear FOOT of hedge removed and properly disposed. Trim Hedge will be paid for at the Contract Unit Price per Foot which will be considered as adequate compensation for trimming, debris removal, watering, and all tools, equipment, materials, and labor needed to complete the work.

ITEM 102.511 TREE PROTECTION – ARMORING & PRUNING EACH

The work under this item shall conform to the relevant provisions of Sections 771 and shall be for furnishing and installing temporary tree trunk protection and for minor limb pruning or removal of lower tree limbs to prevent injury to the tree from construction equipment and activities.

Trunk armoring is for instances where construction activity (the use of heavy equipment) comes close enough to potentially damage the tree trunk or limbs. It is to be used where shown on the plans and as directed by the Engineer.

REFERENCES

If requested, the Contractor shall provide to the Engineer one copy of the latest edition of the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance: Part 1-Pruning and Part 5-Construction Management Standard. Provision of reference shall be incidental to this item.

MATERIALS

Trunk armoring shall be such that it prevents damage to the trunk from construction equipment. Selected material shall be such that installation and removal will not damage the trunk.

Acceptable materials include 2x4 wood cladding with wire or metal strapping, or, for instances when duration of construction activities is less than three months, corrugated plastic pipe mounted with duct tape. Height of cladding shall be from base of tree (including root flare) to the bottom of the first branch, eight feet above the ground, or as required by the Engineer. Material and methods shall be approved by the Engineer.

Other materials or methods may be acceptable if approved by the Town or by an Arborist (if included in the contract).

METHODS OF WORK

Prior to construction activities, the Engineer, the Contractor, the Town Tree Warden, and the Arborist (if item is included in the contract), shall review trees noted on the plans to be protected. Final decision as to trees armored and/or pruned shall be per the Engineer.

Care shall be taken to avoid damage to the bark during installation and removal of armoring. Trunk armoring shall be replaced and maintained such that it is effective for as long as required and shall be removed immediately upon completion of work activities adjacent to trees.

Pruning of limbs shall conform to the techniques and standards of the most recent ANSI A300 standards.

DAMAGES & PENALTIES

If trees designated for protection under this item are damaged, including root damage from unapproved trespassing onto the root zone, the Contractor shall, at his own expense obtain an Arborist. The Arborist shall be approved by the Town.

If, based on the recommendations of the Arborist, the Engineer determines that damages can be remedied by corrective measures, such as repairing trunk or limb injury, soil compaction remediation, pruning, and/or watering, the damage will be repaired as soon as possible within the appropriate season for such work and according to industry standards.

If the Engineer determines that damages are irreparable, the Contractor shall pay for the damages in the amount of $500.00 per diameter inch at breast height (DBH) per tree.

Additionally, if the Engineer determines that the damages are such that the tree is sufficiently compromised as to pose a future safety hazard, the tree shall be removed. Tree removal will include clean up of all wood parts, grinding of the stump to a depth sufficient to plant a replacement tree or plant, removal of all chips from the stump site, and filling the resulting hole with topsoil.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 102.511 will be measured and paid at the contract unit price per each. This will include full compensation for all labor, equipment, materials, and incidentals for the satisfactory completion of the work and the subsequent removal and satisfactory disposal of the protective materials upon completion of the contract.

In the event of tree damage, cost of Arborist services, of remediation measures, and/or tree removal will be borne by the Contractor.

Payment under this item will be scheduled throughout the length of contract:

- 40% of value shall be paid upon installation of trunk armoring and completion of pruning work, if required.
- 60% shall be paid at the end of construction operations that would damage the tree and after protection materials have been removed and properly disposed of by the Contractor. In the event of repairable damages, payment shall be made after the completion of remediation measures.

In the event of irreparable damage due to lack of proper protective measures being take there will be no compensation in addition to the $500.00 per diameter inch penalty.

ITEM 120.1 UNCLASSIFIED EXCAVATION CUBIC YARD

GENERAL

The work under Item 120.1 Unclassified Excavation shall conform to the relevant provisions of Sections 120 and 140 of the Standard Specifications and the following:

Included in Item 120.1 Unclassified Excavation is the excavation, removal, and proper disposal of existing sidewalks, walkways, pavement, pedestrian curb ramps; underground pipes and structures not provided for elsewhere; curbs, curbing, curb corners, curb inlets, berms, posts, and bollards; fences, fence posts, fence gates, hedges, shrubs, bushes plantings, and flowers where called out for removal; removal of existing sign panels and posts, where shown or indicated. The Contractor is responsible for any damages done to the pool due to excavation at the 1 Deerfield Lane Property and compensation will be part of an agreement between the Town and the landowner.

Included in Item 120.1 Unclassified Excavation is the removal and excavation of existing headwalls, excavation for the forebays, infiltration basin and swale.

Included in Item 120.1 Unclassified Excavation is the removal and proper disposal of any item not suitable for resetting or stacking; any item which the Engineer deems not suitable for re-use or has designated for disposal; or any item for which removal and disposal is not expressly provided for anywhere.

COMPENSATION

Method of Measurement and Basis of Payment shall comply with the Subsections 120.80 and 120.81. respectively.

ITEM 180.01 ENVIRONMENTAL HEALTH AND SAFETY PROGRAM LUMP SUM

The work shall consist of ensuring the health and safety of the Contractor's employees and subcontracting personnel, the Engineer, their representatives, the environment, and public welfare from any on-site chemical contamination present in air, soil, water and sediment.

The Contractor shall prepare and implement a site-specific Environmental Health and Safety Plan (EHASP) which has been approved and stamped by a Certified Industrial Hygienist (CIH) and includes the preparer's name and work experience. The EHASP shall include appropriate components required by OSHA Standard 29 CFR 1910.120(b) and the Massachusetts Contingency plan (MCP) 310 CMR 40.0018 and must comply with all applicable state and federal laws, regulations, standards and guidelines, and provide a degree of protection and training appropriate for implementation on the project. The EHASP shall be a dynamic document with provision for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The EHASP shall be developed and implemented independently from the standard construction HASP required.

Health and safety procedures provided by the Contractor shall comply with all the appropriate regulations that address employee working conditions, including but not limited to standards established by OSHA and National Institute for Occupational Safety and Health (NIOSH). Equipment used for the purpose of health and safety shall be approved by and meet pertinent standards and specifications of the appropriate regulatory agencies.

A copy of the most up-to-date version of the EHASP shall be maintained on-site at all times by the Contractor. The on-site copy shall contain the signature of the Engineer, the Contractor, and Subcontractors involved with on-site activities. The employee's signature on the EHASP shall be deemed prima facie evidence that the employee has read and understands the plan. Updated copies of signature sheets shall be submitted to the Engineer.

The EHASP shall specify a Contractor Site Safety and Health Officer responsible for implementation of the EHASP and to oversee all construction activities, including handling, storage, sampling and transport, which require contact with or exposure to potentially hazardous materials.

The level of protection, required to ensure the health and safety of on-site personnel will be stipulated in the EHASP. The Site Safety and Health Officer shall implement the EHASP based on changing site and weather conditions, type of operation or activity, chemical compounds identified on-site, concentration of the chemicals, air monitoring data, physical state of the hazardous materials, potential duration of exposure to hazardous materials, dexterity required to perform work, decontamination procedures, necessary personnel and type of equipment to be utilized.

During implementation of the EHASP, a daily log shall be kept by the Site Safety and Health Officer and a copy shall be provided weekly to the Engineer. This log shall be used to record a description of the weather conditions, levels of personal protection being employed, screening data and any other information relevant to on-site environmental safety conditions. The Site Safety and Health Officer shall sign and date the daily log.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Preparation and implementation of the Environmental Health and Safety Program, including the monitoring, protection and storage of all contaminated materials, as well as subsequent modifications to the EHASP, will be measured and paid for at the Lump Sum Bid Price.

Payment of 50% of the Environmental Health and Safety Program contract price will be made upon the initial acceptance of the EHASP by the Engineer. Payment of the remaining 50% of the Environmental Health and Safety Program contract price will be made upon completion of the work. The bid price shall include preparation and implementation of the EHASP as well as the cost for its enforcement by the Site Safety and Health Officer along with any necessary revisions and updates. The work of implementing the Environmental Health and Safety Program includes work involving, but not limited to, the monitoring, protection, and storage of all contaminated materials.

ITEM 180.02 PERSONAL PROTECTION LEVEL C UPGRADE HOUR

The work shall consist of providing appropriate personal protective equipment (PPE) for all personnel in an area either containing or suspected of containing a hazardous environment.

Contingencies for upgrading the level of protection for on-site workers will be identified in the EHASP and the Contractor shall have the capability to implement the personal protection upgrade in a timely manner. The protective equipment and its use shall be in compliance with the EHASP and all appropriate regulations and/or standards for employee working conditions.

Personal Protection Level C Upgrade will be measured and paid only upon upgrade to Level C and will be at the contract unit price, per hour, per worker, required in Level C personal protection. No payment will be made to the Contractor to provide Level D PPE.

ITEM 180.03 LICENSED SITE PROFESSIONAL SERVICES HOUR

Within limited areas of the project site, soils, sediments and/or groundwater may be contaminated. A Licensed Site Professional (LSP) shall be required to provide the services necessary to comply with the requirements of the MCP. These services may include sampling, analysis and characterization of potentially contaminated media, preparation of Immediate Response Action (IRA) Plans, Utility-Related Abatement Measure (URAM) and Release Abatement Measure (RAM) Plans, Imminent Hazard Evaluations, status reports, transmittal forms, release notification forms, risk assessments, completion statements, and related documents required pursuant to the Massachusetts Contingency Plan (MCP). LSP hours related to the characterization and disposal of contaminated soil and/or sediment are incidental to the disposal items. An estimate of LSP services to be provided shall be submitted to the Engineer for approval before any LSP activity begins.

The name and qualifications of the LSP and all environmental technicians to be assigned to the project shall be submitted to the Engineer for approval at least four weeks prior to initial site activities. The LSP shall have a current, valid license issued by the Massachusetts Board of Registration of Hazardous Waste Site Cleanup Professionals. The LSP shall have significant experience in the oversight of MCP activities at active construction sites. Qualification packages for the LSP and each technician shall include a resume, all recent work assignments with

responsibilities identified (previous 5 years), and applicable training and certifications. A list of all Notices of Noncompliance, Notice of Audit Findings and Enforcement Orders issued by the DEP shall be submitted for all work assignments listed for the LSP and environmental technicians.

The LSP shall evaluate soil and/or sediment with discoloration, odor, and presence of petroleum liquid or sheening on the groundwater surface, or any abnormal gas or materials in the ground which are known or suspected to be oil or hazardous materials. Excavated soil and sediment which is suspected of petroleum contamination shall be field screened using the jar headspace procedures according to established DEP Guidance. All field screening equipment must be pre-approved by the Engineer. The LSP shall ensure proper on site calibration of all field screening instrumentation.

The Engineer shall be contacted immediately when observations or any field screening results verify contamination requiring further analysis, and/or enhanced management of suspect soil and/or sediment. Any enhanced management of contaminated soil to ensure proper stockpiling and storage is incidental to the LSP Services item. The LSP shall adequately characterize subsurface conditions prior to backfill in areas where contaminated material has been excavated. The Engineer shall approve the locations of the testing sites prior to the sampling.
Contaminated soil, sediment and/or groundwater shall be handled in accordance with all applicable state and federal statutes, regulations and policies. The LSP shall adequately characterize contaminated media for comparison to the requirements of the MCP. The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations, and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations. The LSP shall maintain written records in a clear and concise format which tracks the excavation, stockpiling, analysis and reuse/disposal of all suspect contaminated soils, sediments and groundwater. These records shall be up-to-date and available to the Engineer on a bi-weekly basis. The LSP shall review and summarize the laboratory data from any analyses performed on contaminated media. A report shall be delivered to the Engineer outlining the material sampling methods, laboratory analysis results and proposed course of action. The laboratory report together with Chain of Custody forms for all analytical results shall be submitted to the Engineer within 14 days after completion of such analyses.

The LSP and Contractor shall be held responsible for the submission of all MCP-related documents to the Engineer at least 14 days in advance of any timeframe specified in the MCP and for the timely submission of data and tracking information as noted within this Item. All documents prepared under this Item must be reviewed and signed by the approved LSP. The Contractor and LSP shall be responsible for all fines, penalties and enforcement requirements imposed by applicable regulatory agencies for failure to meet regulatory and contract timeframes. No compensation will be provided for such fines, penalties and enforcement actions.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations, and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations.

If the Contractor causes a release of OHM, the Contractor shall be responsible for assessing and remediating the release in accordance with all pertinent State and Federal regulations, including securing the services of a LSP, at his own expense.

The LSP shall coordinate all activities involving MassDOT, the Town and the DEP through the Engineer. Any notification of release shall be approved by the Department before submittal to the DEP, except if an imminent hazard condition exists as defined in 309 CMR 4.03(4)(b).

LABORATORY TESTING IN SUPPORT OF LSP SERVICES

Laboratory testing provides for analytical testing in support of LSP services related to maintaining MCP compliance, such as delineating the extent and type of contamination present. Sampling and testing for disposal purposes are not included.

In order to maintain compliance with the MCP or other regulatory requirements, the LSP shall request approval from the Engineer to obtain samples from various locations and depths within the project area and to perform laboratory analyses on those samples. The samples shall be delivered to a DEP-certified laboratory using proper chain-of-custody documentation for analyses which, depending upon site conditions and suspected and/or identified contaminants of concern, may include, but are not limited to, metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs) and volatile petroleum hydrocarbons (VPHs). Subsequent testing, depending upon initial results, may be required for Toxicity Characteristic Leaching Procedure (TCLP) analyses (EPA Method 1311) for metals.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

LSP Services for work under this item will be measured per person, per hour of service provided by LSP, Environmental Technicians and other approved personnel. Travel time shall not be included in the billable hours. LSP hours related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.

The quantity and type of laboratory tests must be approved by the Engineer beforehand. The contractor will be reimbursed upon satisfactory written evidence of payment. The contractor may be required to obtain cost estimates from three DEP certified laboratories for the Engineer to choose the service provider. Laboratory testing related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.

LSP Services will be paid at the Contractor bid price for each hour, or fraction thereof, spent to perform the work as described above. The bid price shall be a blended rate that includes the cost of the LSP, environmental technicians and other personnel, the performance of all work tasks and field screening, including required equipment, materials and instrumentation, and production of all documentation described above. All requests for payment must be accompanied by the following information: the names of the personnel associated with the work charged under LSP Services, dates and hours worked, work conducted, including, where appropriate, locations as identified on the construction plans, and a copy of the field diary for the dates submitted.

Laboratory Testing will be reimbursed upon receipt of paid invoices for testing approved by the Engineer.

ITEM 181.11	**DISPOSAL OF UNREGULATED SOIL**	**TON**
ITEM 181.12	**DISPOSAL OF REGULATED SOIL IN-STATE FACILITY**	**TON**
ITEM 181.13	**DISPOSAL OF REGULATED SOIL OUT-OF-STATE FACILITY**	**TON**
ITEM 181.14	**DISPOSAL OF HAZARDOUS WASTE**	**TON**

The work under these Items shall include the transportation and disposal of contaminated material excavated, or excavated and stockpiled. It shall also include the cost of any additional laboratory analyses required by a particular disposal facility beyond the standard disposal test set.

Excavation of existing subsurface materials may include the excavation of contaminated soils. The Contractor shall be responsible for the proper coordination of characterization, transport and disposal, recycling or reuse of contaminated soils. Disposal, recycling or reuse will be referred to as "disposal" for the purposes of this specification. However, regardless of the use of the term herein, there will be no compensation under these items for reuse within the project limits. The Contractor will be responsible for coordinating the activities necessary for characterization, transport and disposal of contaminated soils. Such coordination will include the Engineer and his/her designee overseeing management of contaminated materials. Contaminated soils must be disposed of in a manner appropriate for the soil classification as described below and in accordance with the applicable laws of local, state and federal authorities. The Contractor shall be responsible for identifying disposal facility (ies) licensed to accept the class of contaminated soils to be managed and assure that the facility can accept the anticipated volume of soil contemplated by the project. The Contractor shall be responsible for hiring a Licensed Site Professional (LSP) and all ancillary professional services including laboratories as needed for this work. The Contractor will be responsible for obtaining all permits, approvals, manifests, waste profiles, Bills of Lading, etc. subject to the approval of the Engineer prior to the removal of the contaminated soil from the site. The Contractor and LSP shall prepare and submit to the Engineer for approval all documents required under the Massachusetts Contingency Plan (MCP) and related laws and environmental regulations to conduct characterization, transport, and disposal of contaminated materials.

CLASSES OF CONTAMINATED SOILS

The Contractor and its LSP shall determine if soil excavated or soil to be excavated is unregulated soil or contaminated soil as defined in this section. Such materials shall be given a designation for purposes of reuse or disposal based on the criteria of the MCP. Soils and sediments which are not suitable for reuse will be given a designation for purposes of off-site disposal based on the characterization data and disposal facility license requirements. The Classes of Contaminated Soils are defined as follows:

UNREGULATED SOIL consists of soil, fill and dredged material with measured levels of oil and hazardous material (OHM) contamination at concentrations below the applicable Reportable Concentrations (RCs) presented in the MCP. Unregulated soil consists of material which may be reused (or otherwise disposed) as fill within the Commonwealth of Massachusetts subject to the non-degradation criteria of the MCP (310 CMR 40.0032(3), in a restricted manner, such that they are sent to a location with equal or higher concentrations of similar contaminants. Disposal areas include licensed disposal facilities, approved industrial settings in areas which will be capped or

covered with pavement or loamed and seeded, and for purposes of this project should be reused as fill within the project site construction corridor whenever possible. The material cannot be placed in residential and/or environmentally sensitive (e.g. wetlands) areas. Under no circumstances shall contaminated soils be placed in an uncontaminated or less contaminated area (including the area above the groundwater table if this area shows no sign of contamination).

The Contractor shall submit to the Town the proposed disposal location for unregulated soils for approval. If such a disposal location is not a licensed disposal facility, the Contractor shall submit to the Engineer analytical data to characterize the disposal area sufficiently to verify that the unregulated material generated within the construction project limits is equal to or less than the contaminant levels at the disposal site and meets the non-degradation requirements of the MCP. In addition, the Contractor shall provide written confirmation from the owner of the proposed disposal location that they have been provided with the analytical data for both the materials to be disposed as well as the disposal site characterization and that s/he agrees to accept this material. A Material Shipping Record or Bill of Lading, as appropriate, shall be used to track the off-site disposal of unregulated soil and a copy, signed by the disposal facility or property owner, shall be provided to the Engineer in order to document legal disposal of the unregulated material.

The cost of on-site disposal of unregulated soil within the project area will be considered incidental to the item of work to which it pertains.

REGULATED SOIL consists of materials containing measurable levels of OHM that are equal to or exceed the applicable Reportable Concentrations for the site as defined by the MCP, 310 CMR 40.0000. Regulated soil which meets the MCP reuse criteria of the applicable soil/groundwater category for this project area may be reused on site provided that it meets the appropriate geotechnical criteria established by the Engineer. Regulated Soil may be reused (as daily or intermediate cover or pre-cap contouring material) or disposed (as buried waste) at lined landfills within the Commonwealth of Massachusetts or at an unlined landfill that is approved by the Massachusetts Department of Environmental Protection (DEP) for accepting such material, in accordance with DEP Policy #COMM-97-001, or at a similar out-of-state facility. It should be noted that soils which exceed the levels and criteria for disposal at in-state landfills, as outlined in COMM-97-001, may be shipped to an in-state landfill, but require approval from the DEP Division of Solid Waste Management and receiving facility. An additional management alternative for this material is recycling into asphalt. Regulated Soils may also be recycled at a DEP approved recycling facility possessing a Class A recycling permit subject to acceptance by the facility and compliance with DEP Policy #BWSC-94-400. Regulated Soil removed from the site for disposal or treatment must be removed via an LSP approved Bill of Lading, Manifest or applicable material tracking form. This type of facility shall be approved/permitted by the State in which it operates to accept the class of contaminated soil in accordance with all applicable local, state and federal regulations.

HAZARDOUS WASTE consists of materials which must be disposed of at a facility permitted and operated in full compliance with Federal Regulation 40 CFR 260-265, Massachusetts Regulation 310 CMR 30.000, Toxic Substances Control Act (TSCA) regulations, or the equivalent regulations of other states, and all other applicable local, state, and federal regulations. All excavated materials classified as hazardous waste shall be disposed of at an out-of-state permitted facility. This facility shall be a RCRA hazardous waste or TSCA facility, or RCRA hazardous

waste incinerator. This type of facility shall be approved/permitted by the State in which it operates to accept hazardous waste in accordance with all applicable local, state and federal regulations and shall be permitted to accept all contamination which may be present in the soil excavate. The Contractor shall ensure that, when needed, the facility can accept TSCA waste materials i.e. polychlorinated biphenyls (PCBs). Hazardous waste must be removed from the site for disposal or treatment via an LSP approved Manifest.

MONITORING/SAMPLING/TESTING REQUIREMENTS

The Contractor shall be responsible for monitoring, sampling and testing during and following excavation of contaminated soils to determine the specific class of contaminated material. Monitoring, sampling and testing frequency and techniques should be performed in accordance with Item 180.03 – LSP Services. Additional sampling and analysis may be necessary to meet the requirements of the disposal facility license. The cost of such additional sampling and analysis shall be included in the bid cost for the applicable disposal items. The Contractor shall obtain sufficient information to demonstrate that the contaminated soil meets the disposal criteria set by the receiving facility that will accept the material.

No excavated material will be permanently placed on-site or removed for off-site disposal until the results of chemical analyses have been received and the materials have been properly classified. The Contractor shall submit to the Engineer results of field and laboratory chemical analyses tests within seven days after their completion, accompanied by the classification of the material determined by the Contractor, and the intended disposition of the material. The Contractor shall submit to the Engineer for review all plans and documents relevant to LSP services, including but not limited to, all documents that must be submitted to the DEP.

WASTE TRACKING

Copies of the fully executed Weight Slips/Bills of Lading/ Manifests/Material Shipping Records or other material tracking form received by the Contractor from each disposal facility and for each load disposed of at that facility, shall be submitted to Engineer and the Contractor's LSP within three days of receipt by the Contractor. The Contractor is responsible for preparing and submitting such documents for review and signature by the LSP or other appropriate person with signatory authority, three days in advance of transporting soil off-site. The Contractor shall furnish a form attached to each manifest or other material tracking form for all material removed off-site, certifying that the material was delivered to the site approved for the class of material. If the proposed disposition of the material is for reuse within the project construction corridor, the Contractor shall cooperate with the Town to obtain a suitable representative sample(s) of the material to establish its structural characteristics in order to meet the applicable structural requirements as fill for the project.

All material transported off-site shall be loaded by the Contractor into properly licensed and permitted vehicles and transported directly to the selected disposal or recycling facility and be accompanied by the applicable shipping paper. At a minimum, truck bodies must be structurally sound with sealed tail gates, and trucks shall be lined and loads covered with a liner, which shall be placed to form a continuous waterproof tarpaulin to protect the load from wind and rain.

DECONTAMINATION OF EQUIPMENT

Tools and equipment which are to be taken from and reused off site shall be decontaminated in accordance with applicable local, state and federal regulations. This requirement shall include, but not be limited to, all tools, heavy machinery and excavating and hauling equipment used during excavation, stockpiling and handling of contaminated material. Decontamination of equipment is considered incidental to the applicable excavation item.

REGULATORY REQUIREMENTS

The Contractor shall be responsible for adhering to regulations, specifications and recognized standard practices related to contaminated material handling during excavation and disposal activities. The Town shall not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts DEP, the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing the disposal of contaminated soils.

All labor, materials, equipment and services necessary to make the work comply with such regulations shall be provided by the Contractor without additional cost to the Town. Whenever there is a conflict or overlap within the regulations, the most stringent provisions shall apply. The Contractor shall reimburse the Town for all costs it incurs, including penalties and/or for fines, as a result of the Contractor's failure to adhere to the regulations, specifications, recognized standard practices, etc., that relate to contaminated material handling, transportation and disposal.

SUBMITTALS

I. Summary of Sampling Results, Classification of Material and Proposed Disposal Option.

The following information, presented in tabular format, must be submitted to the Engineer for review and approval prior to any reuse on-site or disposal off-site. This requirement is on-going throughout the project duration. At least two weeks prior to the start of any excavation activity, the Contractor shall submit a tracking template to be used to present the information as stipulated below. Excavation will not begin until the format is acceptable to the Town.

Characterization Reports will be submitted for all soil, sediment, debris and groundwater characterized through the sampling and analysis program. Each report will include a site plan which identifies the sampling locations represented in the Report. The Construction Plan sheets may be used as a baseplan to record this information.

The Sampling Results will be presented in tabular format. Each sample will be identified by appropriate identification matching the sample identification shown on the Chain of Custody Record. The sample must also be identified by location (e.g. grid number or stockpile number). For each sample, the following information must be listed: the classification (unregulated, regulated, etc.), proposed disposal option for the stockpile or unit of material represented, and, all analytical results.

Each Characterization Report will include the laboratory analytical report and Chain of Custody Record for the samples included in the Report.

II. Stockpiling, Transport, and Disposal.

At least two weeks prior to the start of any excavation activity, the Contractor shall submit, in writing, the following for review and shall not begin excavation activity until the entire submittal is acceptable to the Town.

Excavation and Stockpiling Protocol:

Provide a written description of the management protocols for performing excavation and stockpiling and/or direct loading for transport, referencing the locations and methods of excavating and stockpiling excavated material.

Disposal and Recycling Facilities:

Provide the name, address, applicable licenses and approved waste profile for disposal and/or recycling location(s) where contaminated soil will be disposed. Present information substantiating the suitability of proposed sites to receive classifications of materials intended to be disposed there, including the ability of the facility to accept anticipated volumes of material.

Provide a summary of the history of compliance actions for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. Material should not be sent to facilities which are actively considered by the DEP, USEPA or other responsible agency to be in violation of federal, state or local hazardous waste or hazardous material regulations..

Transportation:

The name, address, applicable license and insurance certificates of the licensed hauler(s) and equipment and handling methods to be used in excavation, segregation, transport, disposal or recycling.

III. Material Tracking and Analytical Documentation for Reuse/Disposal.

The following documents are required for all excavation, reuse and disposal operations and shall be in the format described. At least two weeks prior to the start of any excavation or demolition activity, the Contractor shall submit the tracking templates required to present the information as stipulated below. Excavation or demolition will not begin until the format is acceptable to the Town.

All soils, sediments and demolition debris must be tracked from the point of excavation to stockpiling to onsite treatment/processing operations to off-site disposal or onsite reuse as applicable.

Demolition Debris:

Demolition debris must be tracked if the debris is stockpiled at a location other than the point of origin or if treatment or material processing is conducted. Identification of locations will be based on the station-offset of the location. The tracking table will identify date and point of generation,

any field screening such as PID or dust monitoring, visual observations/comments, quantity, and stockpile ID/processing operation location. For each unit of material tracked, the table will also track reuse of the material on-site, providing reuse date, location of reuse as defined by start and end station, width of reuse location by offset, the fill elevation range, quantity, and finish grade for said location. For demolition debris which is not reused on site, the table will also track disposal of the material as defined by disposal date, quantity and disposal facility. The table must provide a reference to any analytical data generated for the material.

Soil/Sediment:
Soil excavation will be identified based on the station-offset of the excavation location limits. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations, quantity, and stockpile number/location. For each unit of material tracked, the table will also track reuse of the material on-site and disposal of the material off-site using the same categories identified for demolition debris above.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Disposal of contaminated soil shall be measured for payment by the Ton of actual and verified weight of contaminated materials removed and disposed of. The quantities will be determined only by weight slips issued by and signed by the disposal facility. The most cost-effective, legal disposal method shall be used. The work of the LSP for disposal under all of these items shall be incidental to the work with no additional compensation.

ITEM 181.11 Measurement for Disposal of Unregulated Soil shall be under the Contract Unit Price by the weight, in tons, of contaminated materials removed from the site and transported to and disposed of at an approved location or licensed facility, and includes any and all costs for approvals, permits, fees and taxes, additional testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.12 Measurement for Disposal of Regulated Soil – In-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved in-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.13 Measurement for Disposal of Regulated Soil - Out-of-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved out-of-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.14 Measurement for Disposal of Hazardous Waste shall be under the Contract Unit Price by the weight in tons of hazardous waste removed from the site and transported to and disposed of at the licensed hazardous waste facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 184.1 DISPOSAL OF TREATED WOOD PRODUCTS TON

(Rev 01/13/2010)
Work under Item 184.1 shall include the removal and disposal of all treated existing wood product as directed by the Engineer.

Treated wood includes existing timber components that are treated or suspected to be treated with creosote, pentachlorophenol and/or CCA. This item shall include all costs for sampling, laboratory testing, loading, transportation and disposal of the treated wood. The Contractor is required to submit disposal manifests to the Engineer prior to the completion of the project. All aspects of this Item are to be completed in accordance with state and federal regulations.

Measurement and payment shall be by the weight, in tons, of treated timber removed from the project area and subsequently accepted at a licensed facility. The work shall be considered full compensation for all labor, tools, equipment, materials, testing, loading, transportation, approvals, and permits necessary for the completion of the work.

ITEM 203.2 STORMWATER CONTROL MEASURE EACH

STORM WATER TREATMENT DEVICE

1.1: This item shall govern the furnishing and installation of the Stormceptor® by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.

1.2: The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.

1.3: The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a Stormceptor® device manufactured by:

Contech Engineered Solutions LLC
9100 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

1.4: Related Sections

1.4.1	Section 02240: Dewatering
1.4.2	Section 02260: Excavation Support and Protection
1.4.3	Section 02315: Excavation and Fill
1.4.4	Section 02340: Soil Stabilization

1.5: All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the

quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.

1.6: The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.

1.7: The SWTD manufacturer shall submit to the Engineer of Record a "Manufacturer's Performance Certification" certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications.

1.8: No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

2.0 MATERIALS

2.1: Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:
2.1.1: Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
2.1.2: Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
2.1.3: Cement shall be Type III Portland Cement conforming to ASTM C 150;
2.1.4: Aggregates shall conform to ASTM C 33;
2.1.5: Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
2.1.6: Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
2.1.7: Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

2.2: Internal Components and appurtenances shall conform to the following:
2.2.1: Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
2.2.2: Fiberglass components shall conform to applicable sections of ASTM D-4097
2.2.3: Access system(s) conform to the following:
2.2.4: Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

2.2.5: Ladder rungs to be provided upon request
2.2.6: An aluminum safety grate shall be installed within the chamber of the unit

3.0: PERFORMANCE

3.1: The HDS device shall remove oil and sediment from stormwater during frequent wet weather events and retain these pollutants within the device for later removal.

3.2: The HDS device shall be engineered, designed and sized to treat a minimum of 90 percent of the annual runoff volume using a widely accepted continuous simulation runoff model which uses rainfall data records which includes antecedent conditions as well as rainfall periods. Rainfall records should be comprised of 15-years of rainfall data or a longer continuous period if available for a given location, but in all cases at least a minimum of 5-years continuous rainfall.

3.3: The HDS device shall be capable of removing the Engineer-specified total suspended solids (TSS) load, without scouring previously captured pollutants.

3.4: The HDS device shall be sized to remove the Engineer-specified total suspended sediment (TSS) load using the particle size distribution (PSD) in Table 3.5, in addition to adhering to sections 3.2 & 3.4 of this specification. No alternative PSDs or deviations from Table 3.5 shall be accepted.

Table 3.5 – Particle Size Distribution

Particle Size Distribution to be used to size HDS		
Particle Diameter (Micron)	% by Mass of All Particles	Specific Gravity
1000	**5%**	**2.65**
500	**5%**	**2.65**
250	**15%**	**2.65**
150	**15%**	**2.65**
100	**10%**	**2.65**
75	**5%**	**2.65**
50	**10%**	**2.65**
20	**15%**	**2.65**
8	**10%**	**2.65**
5	**5%**	**2.65**
2	**5%**	**2.65**

4.0: EXECUTION

4.1: The contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.

4.2: The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours' notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.

4.3: The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface

consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.

4.4: The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

TABLE 1: Storm Water Treatment Device Storage Capacities

STC Model	Hydrocarbon Storage Capacity (gal)	Sediment Capacity (ft3)	EOS Model	Hydrocarbon Storage Capacity (gal)
450	86	46	4-175	175
900	251	89	9-365	365
1200	251	127	12-590	591
1800	251	207	18-1000	1198
2400	840	205	24-1400	1457
3600	840	373	36-1700	1773
4800	909	543	48-2000	2005
6000	909	687	60-2500	2514
7200	1059	839	72-3400	3418
11000*	2797	1089	110-5000*	5023
13000*	2797	1374	130-6000*	6041
16000*	3055	1677	160-7800*	7850

**Consist of two chamber structures in series*

ITEM 376.5 HYDRANT – ADJUSTED EACH

The work of Item 376.5 Hydrant Adjusted shall conform to the relevant provisions Subsection 301 of the Standard Specifications, and the following:

SUBMITTALS

Written Acceptance of the Work, signed and dated by the Town of Bellingham.

MATERIALS AND CONSTRUCTION

The Contractor shall comply with the Town of Bellingham Specifications for Water-Sewer-Drainage.

The Contactor shall give the Town 48-hour notice before beginning the hydrant work.

The Contract shall adjust the elevation of existing hydrants with respect to the finished grade, using risers or barrel extenders as needed. The Contractor shall expose existing pipe and existing joints as needed to attach risers or to cut existing pipe. The Contractor shall backfill and compact the excavation as needed after adjusting the hydrant.

After adjustment, the hydrant shall be inspected, disinfected, and tested in accordance with Town Specifications. The Engineer and Town must accept the adjusted hydrant.

METHOD OF MEASUREMENT AND BASIS FOR PAYMENT

Item 376.5 Hydrant Adjusted shall be measured and paid at the Contract Unit Price for EACH hydrant adjusted with written Acceptance regardless of the amount raised or lowered.

The price shall be considered as adequate compensation for all means and methods to complete the work of the item including but not limited to: excavation to expose joints; preparation of joints; risers and extenders; cutting; testing and disinfecting.

ITEM 580.1 CURB REMOVED, RELOCATED AND RESET EACH

The work under this Item shall conform to the relevant provisions of Subsection 580 of the Standard Specifications and the following:

Work performed under this item shall consist of the removing, relocating, and resetting of granite curb into the sediment forebay as shown in the plans or as required by the Engineer.

METHOD OF MEASUREMENT

Item 580.1 Curb Removed, Relocated, and Reset will be measured per each complete in place.

BASIS OF PAYMENT

Item 580.1 Curb Removed, Relocated, and Reset will be paid for at the Contract unit price per EACH complete in place. This unit price shall include all labor, tools, materials, equipment and transportation required to complete the work in a satisfactory manner.

ITEM 655.3 WOOD RAIL FENCE FOOT

DESCRIPTION

Work shall consist of furnishing and installing wood rail fence at locations where indicated on the Plans and as required by the Engineer in conformance with the dimensions and details shown on the Plans and the relevant provisions of Section 600 of the Standard Specifications and the following:

MATERIALS

All timber posts and rail components shall conform with the following:

- Commercial lumber grade No. 1 or better after treatment.
- AASHTO M 133.
- Minimum tabulated design bending value of 1350 psi
- All timber shall be Southern Yellow Pine, seasoned and pressure treated as specified herein. All timber shall be square with nominal dimensions as indicated on the Plans, select structural grade, surfaced four sides (S4S) and shall conform to the requirements of the “Standard Grading Rules for Southern Yellow Pine” of the Southern Products Association.
- Variations in the size of any dimension shall not be more than ¼”

- All timber components shall be pressure treated with waterborne preservative according to requirements of AWPA U1. Use Category UC3b for exterior construction not in contact with the ground and Category UC4a for items in contact with the ground.
- Do not use preservative chemicals containing arsenic or chromium. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not contain colorants, bleed through, or otherwise adversely affect finishes.
- All timber components shall be fabricated (including but not necessarily limited to cutting, drilling, dapping and chamfering) prior to treatment.
- Use a process that includes water-repellent treatment.
- After treatment, redry materials using a Kiln or air dry to a maximum moisture content of 19%.
- Mark treated materials with treatment quality mark of an inspection agency certified by the American Lumber Standard Committee's (ALSC) Board of Review.
- Pressure treated wood shall be marked in accordance with AASHTO M133 standards.
- Round head bolts including nuts and washers shall be sized as indicated and hot dipped galvanized.
- Damaged post and rail elements will not be accepted.

Round head bolts including nuts and washers shall be manufactured in accordance with ASTM A307 Grade A specifications. All round head bolts including nuts and washers shall be hot-dipped galvanized in accordance with ASTM A153 Class C.

CONSTRUCTION METHODS

Wood rail fence shall be installed at the locations and according to the details as shown on the Plans. Wood fence posts shall be set plumb in augured holes, backfilled, as required, and compacted to the lines and grades shown on the Plans. Backfill shall be gravel borrow and shall be as specified under Item 151. Posts shall not be driven.

The Contractor is cautioned that within the limits of this project, buried utilities, which may be energized, may be present.

The Contractor shall be required to furnish extra length posts at transition areas or where field conditions warrant. These posts shall be of such length that the minimum depth in the ground, as shown on the Plans, is maintained.

Rails shall be butt joined together and securely bolted with round headed steel carriage bolts to the posts. No washers shall be installed at the bolt heads but shall be installed at the nuts. The back face of the bolt head shall rest against the front of the post. The nut and washer shall be countersunk in the post, so the threaded end of the bolt does not protrude beyond the face of rail. The members shall be sized so that there are at least two bolt threads visible beyond the end of the nut.

Lag bolts shall be countersunk into smaller predrilled holes. Finish head of lag bolt shall have less than 1/8 inch of head protruding above the face of rail.

Wood rail fence shall be installed with a continuous horizontal and vertical line parallel with finish grade to the dimensions indicated on the Plans.

Where preservative-treated members must be cut during erection, apply a field-treatment preservative to comply with AWPA M4. Use inorganic boron (SBX) treatment for members not in contact with the ground and continuously protected from liquid water.

METHOD OF MEASUREMENT

Wood Rail Fence shall be measured by actual fence installed and accepted by the foot.

BASIS OF PAYMENT

Payment will be made at the contract unit price per foot, complete in place. This payment shall be considered as full compensation for all labor, tools, equipment, and materials, including all required excavation, backfill, timber, fasteners, bolts, nuts, and washers necessary to complete the work in a satisfactory manner.

ITEM 657.	**TEMPORARY FENCE**	**FOOT**
ITEM 657.5	**TEMPORARY FENCE REMOVED AND RESET**	**FOOT**

The work under this Item shall conform to the relevant provisions of Section 600 of the Standard Specifications and includes installation of temporary chain link fencing as shown on the plans and the following:

Temporary chain link fence shall be placed around the work area to protect areas with excavation as required by the Engineer and shall meet the requirements of the Standard Specifications and the Construction Standards, except the material need not be in new condition.

Gates shall be used at all locations that are to be opened on a regular basis.

Temporary fence shall be reset as often as required by Contractor activities to meet the project schedule and to stage the construction, subject to approval by the Engineer. The Contractor shall submit a plan to the Engineer indicating the locations and the amount of Temporary Fence and Temporary Fence, Removed and Reset that he anticipates he will install for the project. The methods of installation(s) and fence detail(s) shall also be submitted for approval by the Engineer.

The Contractor shall inspect the condition of temporary fence on a daily basis. Temporary fence that is damaged shall be promptly replaced.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 657. Temporary Fence will be paid at the Contract Unit Price per foot, which price shall include all labor, materials, equipment, and incidental costs required to complete the work including posts, fence fabric, gates, bracing, mounting.

Item 657.5 Temporary Fence Removed and Reset will be paid at the Contract Unit Price per foot to remove and reset temporary fence, as many times as needed or as directed by the Engineer. The

Contract Unit Price shall be considered as adequate compensation for all labor, materials, equipment, and incidental costs required to complete the work including posts, fence fabric, gates, bracing, mounting, and other appurtenances to supplement the original installation of Temporary Fence.

No payment will be made for the final removal of temporary fence. No payment will be made for any component needed to replace defective components.

ITEM 669. FENCE REMOVED AND STACKED FOOT

Work under Item 669. Fence Removed and Stacked shall conform to the relevant provisions of Subsection 665 and the following:

The work of this Item also includes but is not limited to: notification of and removal and stacking of a fence. The Contractor shall notify the private property Owner prior to removal of the fence and coordinate a stacking location.

SUBMITTALS

Submit a copy of the notification letter (see Construction Methods below). The Engineer shall provide the Contactor a written receipt for the letter.

Submit photos of the pre-construction condition of the proposed stacking area.

CONSTRUCTION METHODS

Comply with the MassDOT Construction Methods as well as the following:

The Contractor shall notify the private property Owner, in writing, a minimum of **30 days** prior to removal of the fence, listing the Engineer as a copy recipient at the bottom of the letter. The Engineer shall provide the Contractor a receipt for the letter.

The Contractor shall coordinate stacking location with the private property Owner. In general, the stacking area should be adjacent to the layout at the bottom of the proposed roadway slope but within the temporary easement.

The Contractor shall restore the stacking area to pre-existing conditions before Substantial Completion. This includes removal of temporary materials, if they were needed, to stack the fence.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Method of measurement and Basis of Payment for Item 669. Fence Removed and Stacked shall comply with Subsection 665.80 and 665.81, respectively.

Incidental to the work is the restoration of the stacking area and removal of any temporary stacking appurtenances.

ITEM 697.1 SILT SACK EACH

Work under Item 697.1 Silt Sack shall conform to the relevant provisions of Subsections 227 and 670 of the Standard Specifications and the following:

The work under Item 697.1 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; or The BMP Store (800)-644-9223.

CONSTRUCTION

Silt sacks shall be installed in retained existing and in 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 will 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 in accordance with Subsection 227. 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 Subsection 227 of the Standard Specifications.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Silt sacks will be measured and paid at the Contract Unit Price per each for Item 697.1, 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 removal and disposal of the sediment from the insert, but all costs in connection therewith shall be included in the Contract Unit Price bid.

ITEM 698.3 GEOTEXTILE FABRIC FOR SEPARATION SQUARE YARD

The work under these items shall conform to the requirements of Section M9.50.0 of the Standard Specifications and the following:

The work shall include furnishing and installing geotextile fabric for separation, as required by the Engineer.

The Geotextile Fabric shall be manufactured with material meeting M9.50.0 for Separation or a fabric approved by the Engineer. Geotextile fabric used for this Item must be one listed on the MassDOT Qualified Construction Materials List for the approved application of separation.

Geotextile Fabric shall be used to separate the in-situ slope surface in Modified Rockfill Slope and the Crushed Stone. Geotextile Fabric shall also be installed as shown on the plans or in other locations designated by the Engineer.

Install geotextile fabric per manufacturer's recommendations.

METHOD OF MEASUREMENT

Item 698.3 will be measured for payment by the Square Yard, complete in place; any overlaps shall be measured as a single layer of cloth.

BASIS OF PAYMENT

Item 698.3 will be paid for at the contract unit price per Square Yard, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 706.4 GRANITE STEPS REMOVED AND RESET LUMP SUM

The work under Item 706.4 shall consist of the careful removal and resetting of granite steps as shown on the plans, or as required by the Engineer.

Any granite steps damaged or lost directly as a result of the Contractor's operations shall be replaced by the Contractor at their own expense.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 706.4 Granite Steps Removed and Reset shall be measured and paid for at the Lump Sum bid price, which price shall include all labor, material, equipment and incidental costs required to complete this work in a satisfactory manner.

ITEM 740. **ENGINEERS FIELD OFFICE AND EQUIPMENT (TYPE A)** **MONTH**

GENERAL

Work under Item 740. Engineers Field Office and Equipment (Type A) shall conform to the relevant provisions of Section 740 and the following:

A four-foot smart level shall be provided to the Engineer at the Resident Engineer's Office.

Two computer systems, printer system and a digital camera meeting the requirements set forth below including installation, maintenance, power, paper, disks and other supplies shall be provided at the Resident Engineer's Office:

All equipment shall be UL approved and Energy Star compliant.

The Computer System shall meet the following minimum criteria or better:

RAM:	8 GB
Hard disk:	500GB, 7200RPM
Monitor:	24" LCD with Built-in speakers, 1600 x 1050 at 24-bit true color
RW/CD-RW:	DVD-Combo drive including DVD ± RW
Network Adapter:	10/100 Mbit/s
USB Ports:	6 USB 3.0 ports
Mouse:	Optical mouse with scroll, MS-Mouse compliant
OS:	Windows 8, Professional with all security updates
Web Browser:	Internet Explorer with all security updates
Applications:	Latest MS Office Professional with all security updates

Latest Adobe Acrobat Professional with all security updates Latest Autodesk, AutoCAD LT

Antivirus software with all current security updates maintained through the life of the contract.

Flash drives:	2 - 32GB USB 3.0
Internet access:	High speed internet access with router.

The Multifunction Printer System shall meet the following minimum criteria or better:

Color laser printer, fax, scanner, email and copier all in one with the following minimum capabilities:

- Estimated volume 8,000 pages per month
- LCD touch panel display
- 50 page reversing automatic document feeder (RADF)
- Reduction/enlargement capability
- Ability to copy and print 11” x 17” paper size
- Email and network pc connectivity
- Microsoft and Apple compatibility
- Ability to overwrite latent images on hard drive
- 600 x 600 dpi capability
- 30 pages per minute print speed (color),
- 4 Paper Trays Standard (not including the bypass tray)
- Automatic duplexing
- Finisher with staple functions
- Standard Ethernet. Print Controller
- Scan documents to PDF, PC and USB
- Ability to print with authenticated protection

Contractor must supply a maintenance contract for next day service, and all supplies (toner, staples, paper) necessary to meet estimated monthly usage.

A Digital Camera shall meet the following minimum criteria or better:

Resolution:	14 Megapixel
Optical Zoom:	5x
Waterproof:	to a depth of 33ft (10m)
Shockproof:	up to 6.6ft (2m)
Freezeproof:	14°F (-10°C)
Memory:	8 GB SD Card
USB Port:	USB 2.0 with PC cable
Screen:	2.7+ inch LCD with scratch-resistance and anti-reflectance
Battery Power:	2 rechargeable batteries and a battery charger
Carrying Case:	Rain-proof with shoulder strap

The Engineer's Field Office and the equipment included herein including the computer system, printer and camera shall remain the property of the Contractor at the completion of the project. Disks, flash drives, and card readers with cards shall become the property of the Department.

Compensation for Item 740. will be made at the contract unit price per month which price includes full compensation for all services and equipment, and incidentals necessary to provide equipment, maintenance, insurance as specified and as directed by the Engineer.

ITEM 751.7 COMPOST BLANKET CUBIC YARD

The work under this Item shall conform to the relevant provisions of Subsection 751 and M1.06.0 Compost of the Standard Specifications and the following:

Work shall consist of furnishing and pneumatically applying compost as a thin mulch blanket (1/2-1 inch depth) over prepared soil to provide temporary soil stabilization and organic matter for plant growth.

SUBMITTALS AND MATERIALS

No materials shall be delivered until the required submittals have been approved by the Engineer. Delivered materials shall match the approved samples. Approval of test results does not constitute final acceptance.

Contractor shall submit to the Engineer samples and certified test results no sooner than 60 days prior to application of compost. Vender certification that material delivered meets the test results shall be submitted if requested.

Compost shall meet the requirements for M1.06.0: Compost, Type 2, as referenced in the MassDOT– Highway Division Standard Specifications for Highways and Bridges, Division III: Materials Specifications, latest edition.
The Engineer shall approve the Contractor's equipment for application.

CONSTRUCTION METHODS

Application of compost material shall not begin until the Engineer has approved the site and soil conditions. Soil preparation shall be as specified under the applicable item for soil placement or for seeding. The Contractor shall notify the Engineer when areas are ready for inspection and application of compost.

Compost blanket shall be pneumatically applied (blown on) to a minimum depth of one half to one inch. Where shown on the plans or when directed by the Engineer depth may be increased to provide berms for sediment control or to otherwise prevent slope erosion.

When compost blanket is proposed with seeding, seed shall be broadcast and shall occur in conjunction with compost blanket, as specified under the relevant item for seeding.

When compost blanket is proposed for areas with planting, compost (and seed if applicable) shall be applied after planting. If compost and seed occur prior to planting, areas shall be regraded and compost and seed reapplied to the satisfaction of the Engineer and at the Contractor's expense.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 751.7 will be measured and paid for at the Contract unit price per Cubic Yard which price shall include all labor, materials, equipment, and all incidental costs required to complete the work of pneumatically applying compost.

Surface preparation of substrate receiving compost blanket shall be compensated under the applicable item for placement of loam, sand, ordinary borrow, wetland soil, topsoil rehandled and spread, tilled existing soil, or other specified substrate.

Seeding, if utilized, will be compensated for under the appropriate seeding items.

ITEM 755.1 20 MIL PVC MEMBRANE LINER SQUARE YARD

This work consists of furnishing all material, labor, tools and equipment and performing all operations necessary to complete the installation of PVC membrane liners at locations where existing septic systems encroach the proposed shared use path in accordance with these Special Provisions, as shown on the Contract Documents, and as directed by the Engineer.

The work includes, but is not limited to, the proper storage and weather protection of the liner materials prior to their installation and the furnishing of approved materials to temporarily anchor the liners during installation.

The PVC membrane material shall be formulated and manufactured from 100% virgin raw materials that are specifically compounded for use in hydraulic structures. Only first quality phthalate and/or phosphate plasticizers shall be used. The use of water-soluble ingredients is prohibited. The compound must also contain a biocide at a viable formulation level.

Manufacturer's samples of liner materials to be furnished shall be submitted to the Engineer. Each sample shall bear the fabricator's name, type of liner material and thickness. Samples of joined, bonded liners shall be submitted, if requested.

The PVC material shall have the following physical characteristics based on the ASTM test methods noted in Table I.

TABLE I: REQUIREMENTS FOR PVC MEMBRANE LINER

Property	Test Method	Value
Thickness (mm) (Nominal ± 5%)	ASTM D-1593	0.51
Specific Gravity, min.	ASTM D 792	1.23
Density (g/cc), min.	ASTM D 792	1.23
Tensile @ Break (N/cm-width) min.	ASTM D 882	80.6
Elongation @ Break, % min.	ASTM D 882	325
Modulus @ 100% Elongation (N/cm-width), min.	ASTM D 882	35.0
Tear Resistance, [Newtons (N)], min.	ASTM D 1004	26.7
Low Temperature, pass (°C)	ASTM D 1790	-26
Dimensional Stability @ 100°C for 15 minutes, % Change, max.	ASTM D 1204	3.5
Water Extraction, % loss, max.	ASTM D 3083	0.25
Volatility, % loss, max.	ASTM D 1203	0.90
Resistance to Soil Burial: % change, max.	ASTM D 3083	
Tensile @ Break		-5
Elongation @ Break		-20
Modulus @ 100% Elongation		+20

Hydrostatic Resistance (kPa), min.	ASTM D 751	414
Factory Seam Requirements *		
Bonded Seam Strength, min. (factory seam, breaking factor, N/cm-width)	ASTM D 3083	64.4

***Factory bonded seam strength is the responsibility of the fabricator.*

Factory Fabrication. Individual calendar widths of PVC material shall be factory fabricated into larger panels to fit the job site dimensions.

Factory fabricated seams are a minimum 1 inch width and extend to the edge of the sheet.

Factory seams are produced using either a chemical fusion agent, or by dielectric welding.

Factory fabrication production records identify each panel by - panel number, size, date of fabrication, material lot number and seam station identification. Each panel is prominently marked with the panel number and panel size to coincide with production records.

(1) The actual dimensions of the job site areas over which liner materials are to be placed shall be measured prior to factory fabrication or shipment to the job site.

After factory fabrication, the PVC membrane panels shall be double accordion folded and packaged to minimize handling at the job site. Shipping cartons shall be water resistant, strong enough to prevent damage to the contents, and banded to heavy-duty wood pallets. All cartons shall be identified by; panel size, type and number. PVC membrane panels, which have been delivered to the work area shall be unloaded and stored in their original, unopened containers in a secure, dry area, and protected from weathering. Whenever possible, a 6 inch minimum air space between the cartons shall be maintained, especially when the PVC membrane panels are to be stored over an extended period of time. Pallets must not be stacked.

The PVC membrane liner shall be stored in its original packaging until ready for use. The PVC membrane liner shall not be positioned when material temperatures are below 32°F. Liner deployment when material temperatures are below 32°F may require special handling and storage of the liner at a controlled temperature of at least 50°F. During low temperature installations, care must be taken to avoid the impact of "cold shock" on the PVC membrane.

Construction Methods

Installation of the PVC membrane liner shall conform to the details shown on the Contract Documents and as directed by the Engineer.

(1) The surface (substrate) upon which the liner will be placed shall be smooth, compacted to not less than 90% of maximum dry density as determined by AASHTO Standard T99 or undisturbed, free from sharp rocks, roots, vegetation, and other foreign material.

(2) Trench excavation shall be incidental to this item. The trench shall be dug to the limits show in the construction details to the extents shown in the construction plans. The liner shall be installed on the side of the trench furthest from the roadway. The trench shall be backfilled per the relevant provisions of section 100. The liner shall be cut below finished grade but not exceeding 4 inches below finished grade.

(4) Field seaming requires the overlapped PVC membrane panels be cleaned at the surfaces to be jointed. Any foreign material (e.g., dirt, moisture, etc.) must be removed with clean, dry rags before seaming commences.

(5) Chemical Fusion Agent

a. Chemical fusion agent shall be applied between the two surfaces to be joined. These surfaces shall be mated together, and pressure applied to the upper surface by means of a roller (high durometer rubber, nylon or steel).

b. A sufficient amount of chemical fusion agent shall be applied between the two surfaces to be joined so that when rolled, a thin excess of chemical fusion agent will be forced out of the seam. Any excess chemical fusion agent shall be wiped from the surfaces. The lower of the two surfaces to be joined shall be completely wet by the chemical fusion agent. Field seams shall be a minimum of 1 inch in width.

c. Fish mouths shall be slit, laid flat, bonded, then patched with a round or oval patch of the same membrane material. The patch shall extend a minimum of 6 inches beyond the repair area in all directions, and shall be seamed a minimum of 1 inch along its perimeter.

d. If any discontinuities are noted, allow the seaming agent to dissipate (approximately 1/2 hour) before re-applying agent. This process can be expedited by using artificial heat.

(6) Cements and adhesives shall be kept from extreme heat and cold.

(7) PVC (vinyl) liner must be covered with soil. A minimum of 1 foot of organic-rich soils, free of stones or other objects which may damage the liner, shall be placed and spread over the liner in one lift, to the limits directed by the Engineer, using rubber tired or track vehicles. Vehicles shall not drive directly on the liner, but may operate on the previously laid cover material. Care should be taken to eliminate traffic, which may cause damage to the lining material. The Contractor will be responsible for any damage to the lining material during covering operations. The 1 foot minimum soil cover shall consist of a commercially derived unfiltered loam and peat mixture at a 1:1 ratio.

(8) Driving on the liner is permitted only when the liner is first covered with 1 foot of soil. Damage to the liner must be repaired by using an additional piece of lining material as specified hereinafter.

Method Of Measurement

PVC membrane liner will be measured by square yard of surface area over the length and depth specified in the plans and details, complete-in-place as shown on the Contract Documents and as directed by the Engineer.

Basis of Payment

PVC membrane liner will be paid for at the contract unit price per square yard, complete-in-place, which shall include all material, labor, tools, equipment, and incidental costs required to complete the work.

ITEM 756. NPDES STORM WATER POLLUTION PREVENTION PLAN LUMPSUM

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.

Pursuant to the Federal Clean Water Act, effective March 10, 2003, construction activities which disturb one acre or more are required to apply to the U.S. Environmental Protection Agency (EPA) for coverage under the NPDES General Permit for Storm Water Discharges from Construction Activities. On July 1, 2003 (68 FR 39087), EPA published the final NPDES construction general permit for construction activity. On August 4, 2003 (68 FR 45817), EPA reissued the General Permit for the Commonwealth of Massachusetts and included state specific requirements.

The NPDES General Permit requires the submission of a Notice of Intent (NOI) to the U.S. EPA prior to the start of construction (defined as any activity which disturbs land, including clearing and grubbing). There is a seven (7) 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 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 and, if required, the SWPPP filing to DEP shall be paid by the Contractor.

The owner, Town of Ashland, and the operator, the Contractor, must submit separate NOIs. In cases where the municipality or other party has control over the plans and specifications or day-

to-day site operations, said party must also submit a NOI. The Contractor is responsible to ensure that all required parties have submitted an NOI and shall provide proof of same to the Engineer.

The General Permit also requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the afore-mentioned statutes and regulations. The Plan will include the General Permit 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 four weeks prior to any site activities. It is the responsibility of the Contractor to be familiar with the General Permit 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 this project and to include in the Storm Water Pollution Prevention Plan the methods and means necessary to comply with applicable conditions of said permits.

It is the responsibility of the Contractor to complete the SWPPP in accordance with the EPA Construction General Permit, provide all information required, and obtain any and all certifications as required by the Construction General Permit. 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.

Included in the General Permit 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 0.5 inches in twenty-four hours. The Contractor shall choose a qualified individual who will be on-site during construction to perform these inspections. The Engineer must approve the contractor's inspector. 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 General Permit. 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. Inspection of these controls is considered incidental to the applicable items. 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 CGP requires the submission of a Notice of Termination (NOT) from all operators when final stabilization has been achieved. 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.

COMPENSATION

Item 756 NPDES Storm Water Pollution Prevention Plan will be paid for at the Contract unit price per lump sum, which price shall include all labor, plan preparation, required revisions and addenda during construction, monthly reports and filing fees.

Upon submission of the SWPPP, a payment equal to 25% of the Contract Lump Sum price for Item 756 NPDES Storm Water Pollution Prevention Plan shall be paid.

Upon final acceptance of the SWPPP a payment equal to 25% of the Contract Lump Sum price for Item 756 NPDES Storm Water Pollution Prevention Plan shall be paid.

The remaining portion of the Lump Sum shall be paid in 10% increments distributed equally with each additional pay requisition.

ITEM 767.121 SEDIMENT CONTROL BARRIER FOOT

The work under this item shall conform to the relevant provisions of Subsections 670, 751 and 767 of the Standard 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 water 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 with biodegradable natural fabric (i.e., cotton, jute, burlap) are intended to be the primary sedimentation control barrier. Photo-biodegradable fabric shall not be used.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods:

- 9-inch compost filter tubes
- Straw bales which shall be trenched

No straw wattles may be used. Additional compost filter tubes (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.

When required by permits, additional sediment barrier shall be stored on-site for emergency use and replacement for the duration of the contract.

Where shown on the plans or when required by permits, sedimentation fence shall be used in addition to compost filter tubes and straw bales and shall be compensated under that item.

Sediment control barriers shall be installed in the approximate location as shown on the plans and as required so that no excavated or disturbed soil can enter mitigation areas or adjacent wetlands or waterways. If necessary to accommodate field conditions and to maximize effectiveness, barrier locations may be shifted with approval from the Engineer. Barriers shall be in place prior to excavation work. No work shall take place outside the barriers.

MATERIALS AND CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans and adjust placement to ensure that the placement will provide maximum effectiveness.

Barriers shall be staked, trenched, and/or wedged as specified herein and according to the Manufacturer's instructions. Barriers 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 peat, 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 made of 100% biodegradable materials (i.e., cotton, hemp or jute) and shall have a knitted mesh with openings that allow for sufficient water flow and effective sediment capture.
Tubes shall be tamped, but not trenched, to ensure good contact with soil. When reinforcement is necessary, tubes shall be stacked as shown on the detail plans.

Straw Bales

Straw bales shall be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

Bales should be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. All bales should be either wire-bound or string-tied. Straw bales should be installed so that bindings are oriented around the sides (rather than along the tops and bottoms) of the bales in order to prevent deterioration of the bindings.

The barrier should be entrenched and backfilled. A trench should be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. The trench must be deep enough to remove all grass and other material which might allow underflow. After the bales are staked and chinked (filled by wedging), the excavated soil should be backfilled against the barrier. Backfill soil should conform to the ground level on the downhill side and should be built up to 4 inches against the uphill side of the barrier.

Each bale should be securely anchored by at least 2 stakes or re-bars driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together. Stakes or re-bars should be driven deep enough into the ground to securely anchor the bales. For safety reasons, stakes should not extend above the bales but should be driven in flush with the top of the bale.

The gaps between the bales should be chinked (filled by wedging) with straw to prevent water from escaping between the bales. Loose straw scattered over the area immediately uphill from a straw bale barrier tends to increase barrier efficiency. Wedging must be done carefully in order not to separate the bales.

When used in a swale, the barrier should be 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.

Sedimentation Fence

Materials and Installation shall be per Section 670.40 and 670.60 of the Standard Specifications and the following:

Sedimentation fence shall only be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

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 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.

MAINTENANCE

Maintenance of the sediment control barrier shall be per Section 670.60 of the Standard Specifications or per the Stormwater Pollution Prevention Plan (SWPPP), whichever is more restrictive.

The contractor shall inspect the sediment barrier in accordance with relevant permits. At a minimum, barriers shall be inspected at least once every 7 calendar days and after a rain event resulting in 0.25 inches or more of rainfall. Contractor shall be responsible for ensuring that an effective barrier is in place and working effectively for all phases of the Contract.

Barriers that decompose 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 (despite fabric decay) and continues to provide effective water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed, as required, when construction work is complete and upslope areas have been permanently stabilized and after receiving permission to do so from the Engineer.

Regardless of site context, nonbiodegradable material and components of the sediment barriers, including photo-biodegradable fabric, plastic netting, nylon twine, and sedimentation fence, shall be removed and disposed off-site by the Contractor.

For naturalized areas, biodegradable, natural fabric and material may be left in place to decompose on-site. In urban, residential, or other locations where aesthetics is a concern, the following shall apply:

- Compost filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (as would be done with a soil amendment or mulch). No 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 seeding or existing grasses (i.e., lawn or native grass mix).
- Sedimentation fence, stakes, and other debris shall be removed and disposed off-site. Site shall be restored to a neat and clean condition.

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 the work.

Additional barrier, such as double or triple stacking of compost filter tubes, will be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damage by construction activities shall be repaired or replaced as directed by the Engineer at the Contractors expense.

ITEM 767.95 MATTING FOR EROSION CONTROL SQUARE YARD

Work under Item 767.95 Matting for Erosion Control or temporary erosion control mat (ECM) shall conform to the relevant provisions of Subsections 751, 765, and 767 of the Standard Specifications and the following:

The Contractor shall provide all tools, equipment, material and labor to furnish and install TEMPORARY matting for erosion control (ECM). Temporary ECM shall be installed in the locations shown on the Drawings or in locations directed by the Engineer.

For this Project, it is intended to install Temporary ECM on slopes as steep as 1.5h:1v until a healthy stand of grass can be established on these slopes.

SUBMITTALS

Submit Manufacturer's cut sheets for temporary erosion control mat.
Submit one (1) square yard sample.

MATERIALS

Materials shall have the following properties:

Composition:
1) Composed of processed slow degrading natural or polymer fibers mechanically-bound together between two slow degrading synthetic or natural fiber nettings to form a continuous matrix;

OR

2) An open weave textile composed of processed slow degrading natural, or polymer yarns or twines woven into a continuous matrix.

Biodegradable or Photodegradable
Functional Longevity: 18 months minimum
Recommended by the manufacturer for slopes 1.5h:1v or shallower
Design Permissible Sheer Stress: 2 pounds per sq. foot minimum

CONSTRUCTION METHODS

Install per Manufacturer's recommendations.

ACCEPTANCE

Temporary ECM will only be accepted by the Engineer when, in the Engineer's opinion, a healthy stand of grass is established under the temporary ECM.

If the planted grass seed is not acceptable and needs to be re-sown, then the overlaid temporary ECM shall be removed, if in good condition, and carefully reset. If the temporary ECM is not re-usable or becomes damaged during either the removal or during the resetting, the Contractor shall furnish and install new temporary ECM at no cost to the Town.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 767.95 Matting for Erosion Control shall not be measured nor paid for when used within the Project Limits. Matting for Erosion Control within these limits is considered as incidental to the Project work.

ITEM 804.3 — 3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC - (UL) — FEET

The work under this item shall conform to the relevant provisions of Section 800 of the Standard Specifications and the following:

The work shall include the furnishing and installation of 3-inch non-metallic conduit for traffic signal systems in accordance with the plans and as directed by the Engineer.

The conduit material shall be Schedule 80 polyvinyl chloride (PVC) plastic conduit.

Conduit Crossing Grass Areas outside the Limits of Grading

Where new conduits are installed in existing grass areas outside the limits of grading, the work shall include the placement of a minimum of 4 inches of topsoil and sod to restore the disturbed areas to their original condition. No separate payment will be made for this work, but all costs in connection therewith shall be included in the Contract unit price for this item.

Conduit Crossing Sidewalks & Medians

Where conduit is installed in existing sidewalk or paved median areas to remain, the work shall include replacement of the gravel base material and the surface pavement to match preconstruction conditions. No separate payment will be made for this work, but all costs in connection therewith shall be included in the Contract unit price for this item.

Conduit Crossing Roadways

Trenches in existing asphalt pavements not subject to full depth reconstruction shall be sawcut to a width of 18-inches. The existing pavement shall be sawcut through their full depth and pavement removed.

The conduit installation shall be backfilled with Controlled Density Fill – Excavatable (CDF - Excavatable). If the trench excavation or backfill operations have widened the top of the trench to the extent that a minimum of 12 inches of undisturbed soil is not available to support the CDF – Excavatable cap, the pavement shall be sawcut again and removed to provide the 12-inch width.

The finished grade of the CDF - Excavatable cap shall be 4 inches below existing pavement surface. Two 2-inch lifts of hot mix asphalt (binder and top course material) shall be placed over the cap. If the existing pavement is to be resurfaced, then the CDF - Excavatable shall be finished flush with the existing surface. 12 inches of gravel borrow Type b shall be placed over the Controlled Density Fill - Excavatable where the conduit crosses roadways.

No separate payment will be made for sawcutting, excavation, and CDF- Excavatable, but all costs in connection therewith shall be included in the Contract unit price for this item.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

3 Inch Conduit – Type NM Plastic (UL) will be measured and paid at the respective Contract unit price per linear feet, complete in place, which price shall include all labor, materials, equipment, saw cutting, excavation, fine grading and compaction, clearing and grubbing, surface restoration and incidental costs for conduit furnishing and installation.

All required or incidental work including saw cutting, excavation of trench, fine grading and compaction, clearing and grubbing, installation of conduit, detectable warning tape, adhesive,

couplings, elbows and other fittings, sand, backfill, concrete, HMA, tack coat, and loam and seed shall be paid for under the unit price bid for Item 804.3, 3 Inch Conduit - Type NM Plastic (UL) for complete in-place conduit.

ITEM 814. ADAPTIVE TRAFFIC SIGNAL CONTROL SYSTEM LUMP SUM

The work under this Item shall include furnishing and installing the Surtrac adaptive traffic signal control system by Miovision Technologies, Inc.The work also includes interfacing with local intersection controllers; software testing; licenses; system testing; system training; and all other equipment, materials and incidental costs necessary to provide a complete, fully operational adaptive traffic signal control system as specific herein and as shown on the plans. Adaptive operations shall be on a processor that is local to the intersection. Remote monitoring and system-level configuration shall be via a cloud-based server.

Adaptive Control

The Contractor shall furnish and install an adaptive traffic signal control system encompassing a total of five (5) intersections as listed under Items 816. The adaptive traffic signal control system shall provide adjustments to traffic signal timing on a second-by-second basis based on current vehicle demand on the road as determined by the system through existing vehicle detection systems at the intersections. System operation shall be decentralized such that hardware failures or network outages at one or more intersections do not unduly affect operation at other adaptive intersections. The system shall autonomously shift between strategies to facilitate balanced traffic flow, progression bandwidth and critical movement modes based on real-time optimization.

The adaptive system shall optimize phase durations on a second-by-second basis. The system shall utilize vehicle detector data to build a model of current traveler locations and estimate future paths. Real-time, second-by-second, distributed optimization shall be used to optimize performance for each intersection. Based on these optimization plans, projected outflows shall be shared with neighboring intersections to extend the planning horizon for optimization, for coordination and vehicle progression. Real-time models of queues shall be used during second-by-second optimization. The system shall not rely on fixed cycle times.

The system algorithm should be capable of automated shifts in strategy to accommodate a variety of traffic scenarios. Operation should be based on real-time optimization based on the current vehicles on the road network. Scenarios shall include minimizing overall network delay, favoring progression on major movements, and considering critical movements to accommodate movements or approaches that require special accommodation due to high traffic demand. The system shall not omit any phase that has active vehicle or pedestrian demand present, signal phases shall be serviced in sequence based on demand as shown on the contract plans.

The system/local controller firmware shall use a real-time model of current demand to recover and resume normal operation upon the completion of a preemption event. During the time when preemption is active, the system shall continue to collect traffic data and calculate the appropriate actions based on traffic conditions. Once preemption operation has been completed the system/controller shall immediately return to adaptive operation.

In the event that communications are lost to an individual intersection or detection failures compromise adaptive operation, the intersection should failover and revert to conventional time-based control operations as a backup mode until the issue can be resolved. Neighboring intersections shall continue in adaptive operation unless detection is compromised to the extent that adaptive operations are ineffective. Reverting intersection control to time-based backup shall be automated based on failure conditions with allowed manual override.

The Contractor shall program the system with varying levels of access privileges for up to 100 users. Access privileges must be adjustable on an intersection-by-intersection basis. The Contractor shall request the Engineer for a listing of all users and privileges that will be assigned to each user.

Adaptive Signal Control Performance Measures

The adaptive system shall provide performances measures for each intersection individually as well as for the entire system to allow the Department and the Town to assess traffic operations and identify operational bottlenecks and traffic signal timing, phasing and coordination issues. The system shall allow the user to designate a set of traffic signals to constitute a corridor and provide performance measures for each such designated corridor.

The performance measures shall include and not be limited to:

- Phase duration, utilization, and terminations (max-outs)
- Number of vehicles and flow rate by lane
- Low detector counts alert
- Following information or in equivalent form:
    - Percent arrivals on green/red
    - Purdue phase termination diagram
    - Purdue coordination diagram
    - Purdue split failure diagram
- Pedestrian delay
- Travel time
- Uptime:
    - Communication links
    - Detection equipment

Adaptive System Expansion

The adaptive system shall have the capability for future expansion to allow additional traffic signals that meet the system requirements to be incorporated into the adaptive traffic control system. Any limitations on the maximum number of traffic signals that can be part of the system shall be clearly defined in the shop drawing submittal.

The system shall also have the capability to interface with Connected and Autonomous Vehicles (CAVs) in future or utilize information as part of its adaptive signal control algorithm.

System Acceptance

System acceptance will be conditional based upon successful system integration of all required elements according to the plans and specifications, the system is fully operational to the satisfaction of the Resident and Design Engineers, testing has been completed, and the system has performed in accordance with the Contract Plans and Specifications without failure throughout the test period. During the test period, the Contractor shall maintain and make available to the Resident and Design Engineers on a daily basis a log of all activities, including significant events, failures, and failure correction actions.

All provisions related to Fine-tuning, Testing and Adjustment Period, and Final Inspection and Acceptance specified under Item 815 and Item 816 shall apply to this item.

System Training

Under this Item, the Contractor shall provide a minimum of sixteen (16) hours of personnel training in the use of the adaptive system and software. This training is to be conducted with MassDOT and Town Staff and Design Engineers. The Contractor is to coordinate with MassDOT and Town Staff as to the exact location and time of the training.

System Field Programming Unit

The Contractor shall furnish a System Field Programming Unit complete with vehicle detection software used for the monitoring of the systems and software for uploading and downloading of controller databases from/to the controllers supplied and installed as part of this project. The Contractor shall program and configure the unit and the application software installed to be fully functional to allow operation and monitoring of the system. The system field programing unit shall consist of one (1) laptop computer and shall meet the following minimum requirements:

- Intel Core i7 processor or better
- 500GB HD minimum
- 16GB of memory (RAM) minimum
- 12” Display or larger
- Graphics card with 512 MB RAM or higher
- 802.11g wireless Ethernet adapter
- 10/100 MB Ethernet adapter
- Windows 64-bit operating system
- 4 years of next-day on-site service
- Carrying case
- Power Supply

The Contractor shall deliver the laptop to the Engineer fully configured to remotely support adaptive and video detection monitoring and control operations.

Adaptive Signal Maintenance Services

Under this Item, the Contactor, through the adaptive traffic signal control system Vendor, shall provide maintenance services of the Adaptive Signal system for a period of five (5) years. This maintenance period shall begin once the project is accepted by MassDOT and the Town. The Contractor, at a minimum, shall provide the following tasks:

- Provide software upgrades for the field processors at all intersections within the Adaptive Signal system;
- Monitor the Adaptive Signal system for maximum efficiency, and suggest system adjustments;
- Preserve the Adaptive Signal system to operate as designed or when anomalies occur;
- System performance measures as specified above shall be collected and retained based on a daily time schedule; and
- Respond to alarms and communication issues.

Shop Drawings Submittal

Within thirty days following execution of the contract, the Contractor shall submit shop drawings for adaptive traffic signal control system including a list of equipment along with their quantities, and manufacturer's equipment specifications to the Engineer in accordance with the relevant provisions.

No work shall be commenced by the Contractor until approval of the shop drawings and the manufacturer's data 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 conforming to the plans and specifications.

BASIS OF PAYMENT

The work under Item 814. shall be paid for at the Contract Lump Sum price, which price shall include all labor, material, licenses, integration, equipment, and incidental costs required to install a fully-operational adaptive traffic signal control system including local processors and connections to the Ethernet interconnect communication system at each intersection included within the adaptive signal control system, configuration and testing of the adaptive traffic signal control system, unlimited remote access to the field and cloud-based systems, and maintenance and remote monitoring services for a period of no less than five (5) years.

ITEM 816.01	**TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 1**	**LUMP SUM**
ITEM 816.02	**TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 2**	**LUMP SUM**
ITEM 816.03	**TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 3**	**LUMP SUM**
ITEM 816.04	**TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 4**	**LUMP SUM**
ITEM 816.05	**TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 5**	**LUMP SUM**

Location 1 is the intersection of Hartford Ave at North Main Street and Cedar Hill Rd
Location 2 is the intersection of Hartford Ave at Crossroads Drive and Rawson Rd
Location 3 is the intersection of Hartford Ave at I-495 SB Ramps and Deerfield Lane
Location 4 is the intersection of Hartford Ave at I-495 NB Ramps
Location 5 is the intersection of Hartford Ave at Stallbrook Drive and Charles River Ctr Drive

All work under this item shall conform to the relevant provisions of Section 800 of the Standard Specification, the 2009 Manual on Uniform Traffic Control Devices (MUTCD), and the following.

These provisions are presented under major subheadings as follows: 1) General Requirements for Local Intersection Control Equipment, 2) Local Intersection Controllers, 3) Video Detection System; 4) System Interconnect and Communication; and 5) APS Pedestrian Pushbuttons.

The work includes furnishing all labor and materials to install NEMA ATC traffic signal controllers and Adaptive Traffic Control Technology (ASCT) processor in existing NEMA TS1 (Location 5) and existing and proposed NEMA TS2 Type 1 cabinets; mast arms and posts; foundations; vehicular signal heads including backplates; countdown pedestrian signal heads; vehicle detectors; APS-style pedestrian pushbuttons; pull boxes and hand holes; all cable and wiring; equipment grounding and bonding; communications and all other equipment, materials and program signal timing and backup coordination data to the local traffic signal controllers and incidental costs necessary to provide a complete, fully operational ASCT system as specified under Item 814., herein and as shown on the plans.

The work also includes removing and discarding existing pullboxes, handholes, signal heads, mast arms and signal poles, where shown on the Drawings or as directed by the Engineer.

The Contractor is responsible to ensure that prior to acceptance by the Town or MassDOT all signalized intersections along the corridor are functioning as part of the Hartford Ave Adaptive Traffic Signal System as follows:

1. Remote communication link to the system via a cable modem at the intersection of Hartford Ave at I-495 SB Ramps and Deerfield Lane is functioning

2. All Ethernet communication link between any two adjacent traffic signal cabinet is functioning.
3. All proposed NEMA ATC traffic controllers are of the same make, model and software version and compatible with the proposed ASCT system as specified under Item 814.
4. All video detection systems and detection zones are defined not only for traffic signal controller but also as needed by the proposed ASCT system.
5. All mast arms, posts and signal heads are in place and operational.
6. All pedestrian push buttons, vehicle and pedestrian displays and emergency pre-emption equipment installed by the Contractor are operational.

Service Connection - Electric

The Contractor shall coordinate with the servicing utility company for installation of a new service meter to the new controller cabinets.

The service connection shown on the plans is approximate only. The Contractor shall determine the exact location from the servicing utility, arrange to complete the service connection, and be responsible for all charges incidental thereto.

A 100-ampere meter socket approved by the servicing utility company shall be furnished and installed on the side of the control cabinet by the servicing utility company.

A 3" PVC Conduit shall be installed from the controller cabinet to the utility pole, which will supply electrical service to the controller cabinet. This conduit shall be encased in concrete where crossing roadways and/or driveways.

Service connection shall be installed according to the MassDOT Standard Drawing 813.1.0 *Traffic Signal Service Connection – Overhead.*

Service Connection – Communication

The Contractor shall coordinate with the local cable telecommunication provider to install a high-speed internet service with a speed of at least 25 Mbps to the cabinet at Location 3. The Contractor shall pay the monthly service charge for the internet service until such time that the signal work is accepted by the Town and for a period of one (1) year after the date of acceptance. The cost to install the cable modem service connection, all utility company charges including all monthly service charges for the period indicated above shall be included in the LUMP SUM bid price for Item 816.03 for Location 3.

1) General Requirements for Local Intersection Control Equipment

   Before beginning ANY traffic signal work, the individual or contracting organization responsible for any portion of the traffic signal construction shall demonstrate to the Engineer personal possession in the field of all of the following documents:

   Massachusetts Standard Specifications for Highways and Bridges, 2026 Edition
   Construction Standard Details, January 2026
   2023 Manual on Uniform Traffic Control Devices with all Amendments

1968 Standard Drawings for Traffic Signals and Highway Lighting
1990 Standard Drawings for Signs and Supports
All contract drawings showing traffic signal details or traffic signal design
All contract special provisions

A list of the major traffic signal items required is included on the Plans. All traffic signal equipment installed on this project shall be included on the MassDOT Highway Division Qualified Traffic Control Equipment List.

Within thirty days following execution of the contract, the Contractor shall submit shop drawings for signal supports, a list of equipment, and manufacturer's equipment specifications to the Engineer in accordance with the relevant provisions of Section 815.20.

No work shall be commenced by the Contractor until approval of the shop drawings and the manufacturer's data 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 conforming to the plans and specifications.

Traffic Signal Equipment

All traffic signal control components included in the traffic signal control cabinet shall comply with the National Electrical Manufacturers Association (NEMA) Standard No. TS 2-2021, Traffic Controller Assemblies with National Transportation Communications for ITS Protocol (NTCIP) Requirements.

Malfunction Management Unit (MMU)

The MMU shall meet Section 4 requirements set forth in NEMA TS-2 specifications. The MMU shall be compatible with a NEMA TS-2 Type 1 traffic signal controller. The MMU shall provide a means of displaying the real time status of operating parameters such as the time and date, compatibility card programming, functional inputs, and the status of MMU switch settings.

The MMU shall provide a settable internal ninety-nine-year clock. This clock shall automatically adjust for daylight savings time. This requirement shall be accomplished by a user programmable function.

The MMU shall store events in a nonvolatile memory and these events shall be retained through indefinite power interruption on event log. A minimum of 100 events shall be logged by time and date of event occurrence. The memory storage algorithm shall be a first-in/first-out system (this type of rolling memory assures that the most recent events are retained). As a minimum, the event log shall contain the following information:

A. Failure type (date/time stamp)
B. Display indications at time of failure
C. Manual reset (date/time stamp)
D. Manual switch changes (date/time stamp)

E. Last time/date stamp
F. Last print out

The MMU shall be furnished and wired such that data is transmitted directly to the controller for remote system access. The data exchange shall provide the ability to, via the controller unit, remotely upload the MMU event log, MMU switch settings, and compatibility card programming information.

Bus Interface Unit (BIU)

The Bus Interface Unit (BIU) shall comply with Section 8 of the NEMA TS 2 Standards. The BIU shall be fully interchangeable with any other manufacturer's unit and interchangeable in a NEMA TS 2 Type 1 cabinet assembly.

The BIU shall perform the interface function between Port 1 at the controller unit, the malfunction management unit, loop detector rack assembly, and the back panel terminal and facilities.

As a minimum, two (2) 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.

Flashing Operation

Changes from flashing to stop-and-go operation and from stop-and-go to flashing operation shall occur as set forth in the MUTCD.

Flash Transfer Relay

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.

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.

Signal Heads

Signal heads shall have yellow housings with black doors. All proposed signal head indications shall be state approved LED. All signal heads shall have 5" flat back plates with 3" yellow retro-reflective border as indicated on the plans.

Pedestrian Signal Heads

Pedestrian signal heads shall have yellow housings with black doors and shall be the LED-type with cap visors displaying a full overlay graphical hand or person symbol with countdown timer, in accordance with the plans. Countdown numerals shall be steady display and not be enabled during the walk interval.

Traffic Signal LED Module

All signal and pedestrian displays shall be equipped with light emitting diode (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 Heads – Light Emitting Diode (LED) Arrow Traffic Signal Supplement, Dated April 3, 2006.
- ITE's Vehicle Traffic Control Signal Heads – 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.
- 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 the Engineer 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 head 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

Posts, Bases and Foundations

Pedestal push-button posts shall have steel shafts, 4, 8 or 10 feet in height, with transformer bases. Signal base foundations shall not obstruct sidewalks or crosswalks.

Traffic Control Cabinet

The existing controller cabinets at Locations 4 and 5 shall be retained. The existing controller cabinets at Locations 1, 2 and 3 shall be removed and disposed as directed by MassDOT or the

Town. A new NEMA TS2 Type 1 traffic signal controller on new foundation as shown on the plans shall be installed.

Controller cabinet foundations shall not obstruct a sidewalk or crosswalk so that passage by physically challenged persons is impaired.

The following requirements are designed for effective use of a laptop computer in conjunction with traffic signal controllers. These requirements are also designed to permit all engineers, electricians and technicians (including those who are disabled but ambulatory) to work in the cabinet in a safe, effective, and comfortable manner. To this extent, the following meets applicable ADA requirements.

1. Adjust the control cabinet height by use of a cabinet extender, adjust the placement of cabinet shelves, adjust the height of the cabinet foundation or provide any combination of those three items so that the top of the LCD or other visual display window of both the local controller and the master controller is no more than 48" above finished grade in front of the cabinet. The top of the cabinet door opening shall be at least 5'8" above finished grade. Any technical provision, plan detail, standard specification or standard drawing to the contrary shall not apply to the extent that it may conflict with this viewing height requirement.

2. Furnish and install one slide-out/slide-in shelf or swing-out/swing-in shelf appropriate for the size and load of a laptop computer. This moveable shelf shall support the bottom of the laptop computer at a height between 3'-4" and 3'-8" above finished grade in front of the cabinet.

3. Furnish and install a paved pad in front of the control cabinet. This pad may be of bituminous concrete or cement concrete, built in accordance with the sidewalk specification applicable to this project, approximately level, approximately 1" above the surrounding unpaved surface, or at even grade with the adjacent surface if paved. This pad shall abut the front of the cabinet; project at least 1' to each side of the cabinet and at least 3' in front. No pad is required if the front of the cabinet immediately abuts an existing or proposed paved sidewalk or other paved surface.

4. The firmware and software version shall be the latest version available on the market. In addition, the contractor shall promptly furnish to the owner and install all upgraded versions of both firmware and software through the last day of the inspection period, guarantee period or warranty period, whichever day is later.

5. The contractor shall furnish one cable to connect a controller to a laptop computer. This cable shall have a termination at one end to match the controller. It shall have a termination on the other end to match the type of communication interface found on laptop computers. This cable shall be wired to provide communication between the controller and the computer.

6. Payment for the work described above shall be deemed to be incidental to and included in the prices bid for various items of traffic signal work, and no additional payment shall be made for the work described above.

Optical Preemption

The existing optical emergency preemption system at locations 4 and 5 shall be retained and updated as shown on the plans. The new traffic control cabinets at locations 1, 2 and 3 shall

include all new phase selectors and detection cards as required. The Contractor shall test and ensure the optical emergency preemption system is fully functional at all locations in coordination with the Town of Bellingham Fire Department and make any adjustments as necessary.

Operation

When optical energy impulses are received at the intersection, control of the signals shall transfer from the local controller to the controller's internal preemption logic which shall cause the signal controller to show a selected display identical to one of the color interval displays normally available as specified, which will assist the vehicle through the intersection without cross street conflict. After the vehicle has passed through the intersection, control of the signals shall then return to normal operation which shall restore the appropriate timings that were in effect prior to preemption.

The following description of work specifies the responsibilities involved in the installation of optical preemption.

The Contractor is required to supply all material and labor, as shown on the plans for the removal and relocation of optical preemption equipment at all specified locations in this project. Intersection preemption equipment required includes optical receivers, cable, interfacing equipment to the local controller, surge protection equipment, making electrical connections, and all required incidentals.

The following are the operational requirements of the optical preemption system.

- Emergency Vehicle Design Speed for all preemption controlled approaches shall be 45 mph.

- Operating sequence as specified shall be initiated when the optical receiver receives optical energy of the required repetition rate from an emitter.

- Receiver shall transform the optical energy signals into electrical signals and transmit the electrical signals to the local controller for processing.

- The emergency preemption system shall prioritize multiple calls from authorized vehicles.

The optical receiver cable shall meet the specifications of the system manufacturer.

The Contractor shall arrange for a trained representative of the manufacturer of the optical energy preemption equipment to perform the following field supervision and turn-on services:

- The representative shall select the proper quantity and method of installing all components to comply with the operational requirements shown in the preemption schedule included in these Special Provisions.

- The representative shall instruct Contractor and owner personnel in the procedures of installation.

- The representative shall be available to assist, supervise, and check all wiring to ensure proper operation.

- The representative shall perform a final check to include initial adjustment of range and timing to acceptable standards within the capabilities of each intersection.

- The representative shall initiate documentation for as-built drawings.

- The representative shall demonstrate the system and instruct the drivers of authorized emergency vehicles in the operation of the system.

- The representative shall instruct maintenance personnel in routine maintenance and minor troubleshooting of the system.

- Any operation problems occurring within the next thirty days shall be corrected by the Contractor or by a Field Service representative if the Contractor cannot do so. This requirement is not intended to modify the Contractor's twelve-month guarantee obligation, as set forth in an earlier portion of these Special Provisions.

The cost of these field supervision and turn-on services shall be included in the Lump Sum Bid Price, and no additional payment shall be made therefore.

Preemption System Design and Documentation shall include the following:

- Provide the installing agency with location for receiver installation.

- Provide the controller manufacturer, Engineer, and owner with electrical diagrams.

The installer shall install the equipment consistent with the preemption equipment, the manufacturer's recommended installation procedures and electrical diagrams in a neat and workmanlike manner.

The preemption equipment manufacturer shall be responsible for operational checkouts of the specified preemption functions prior to final acceptance and approval by the Engineer.

Operating checkout includes the following:

- Verifying that the priority system timing and range are properly set.

Preemption equipment warranties are put into effect.

2) Local Intersection Controller

The local intersection controller shall be an NEMA ATC controller for installation in existing NEMA TS1 (Location 5) or existing and proposed NEMA TS2 Type 1 traffic signal cabinets as indicated on the plans. The local controllers shall have the ability for time-based coordination, Peer-to-Peer capability, Transit Signal Priority and the ability to support future implementation of Automated Traffic Signal Performance Measures (ATSPM). All proposed local controllers shall be compatible with the proposed ASCT system as per Item 814. The local controller at Location 4 (Siemens M60) shall be retained. In addition, the proposed local

controller shall support Adaptive Traffic Signal Control Technology to be implemented in future.

The local intersection controller shall be capable of controlling a fully actuated intersection and shall meet or exceed NEMA TS 2 standards for fully actuated traffic control units. The local controller shall have internal communication capability with direct access to the data memory. The local system controller shall be capable of processing controller, intersection and system detection data and provide all required intersection control functions. The required local controller time-base coordination and preemption functions shall be internal in the timing unit.

New cabinets shall be made of aluminum and painted aluminum and shall comply with Section 7 of the specifications set forth in NEMA TS-2, 2016.

The local system intersection controller shall include all of the following internal functions: 1) software compatible with the control and data protocol of the existing on-street master, central-office computer and field laptop computer; 2) local time base scheduler including automatic accommodation for daylight savings time; 3) local coordination control; 4) local preemption control with at least four programmable internal preemption sequences; 5) data uploading and downloading capability; 6) process system and local intersection detector activity and accumulate samples of vehicle counts, occupancy, speed, stops, and delay; 7) perform extensive failure evaluation of the controller, detectors, and communications; 8) provide local control of remotely selected NEMA and special functions; 9) perform local report generation with printer capability if a printer is attached, including intersection status and performance; and 10) Automax/max extend capable of being programmed to automatically add a max extend value to the max timer, up to a settable limit called Automax, when the associated phase maxes out twice in a row. Conversely, a max extend value would be subtracted upon two gap outs in a row, down to the programmed max value, including max plans if used.

The local system intersection controller shall include an internal fiber-optic modem. An RS-232C interface or any other physical type interface with RS-232C logic and electrical characteristics shall be provided in or with the local controller to allow for local printing of reports and for interconnecting to a remote master controller through the modem.

To minimize training and simplify local programming, all local parameter access shall utilize prompting and English language displays, and all codes needed by the user, if any, shall be on the front panel or on the display screen to avoid the need for memorization or the presence of a manual.

3) Video Detection System

360-Degree Video Detection Camera and System

Description:
The work shall consist of furnishing, installation, configuration, integration and testing of a Video-based Detection and Analytics System (VDAS) to provide a remotely accessible system for traffic detection and analytics, and all other material, labor and equipment necessary to provide a complete and operating system as specified herein. This work must be

performed in accordance with the standard specifications as specified herein. The VDAS shall be MioVision, SmartView 360 with SmartLink.

System Requirements:

Communication Interface

The VDAS hall support 4G LTE cellular connectivity with MIMO and diversity (Bands 2, 4, 5, 13, 17, 25), HSPA+, GSM/GPRS/EDGE, EV-DO Rev A, 1XRTT with peak downlink of 100Mbps and peak uplink of 50Mbps. The VDAS shall support 802.11 a/b/g/n with MIMO and Diversity antennas with security of at least 64/128 bits WEP, WPA, WPA2. It shall also support location services using GPS or GLONASS. The communication interface shall support communication of detection data, video imagery, and traffic analytics to the Central Analytics Server (CAS). The communication interface shall support remote configuration of vehicle detection zones. The interface shall provide galvanic isolation between earth ground and logic ground.

The communication interface shall include a communication antenna that is externally mounted and contain the following fully-enclosed antenna elements and quantities in a single enclosure:

1. 2G/3G/LTE MIMO (quantity: 2)
2. 2.4GHz/5GHz WIFI MIMO (quantity: 2)
3. GPS/GLONASS/BEIDOU (quantity: 1)

The communication antenna shall have labeled antenna terminations for easy installation. It shall not exceed 35mm in height. The antenna shall be colored Pantone 427 U for blend with traffic cabinet construction. It shall be IP67 rated and mounted on the cabinet with a water-tight seal made of a closed cell rubber type foam and medium-firm acrylic adhesive with bonding features including a high initial adhesion and excellent high/low temperature holding power with excellent peel strength. The antenna shall capture Vehicle Identification Data via a wireless traffic probe utilizing Wi-Fi MAC address identification technology.

Camera

The VDAS shall include a camera that provides 360 degrees of visibility from the point of installation. It shall be powered via Power over Ethernet (PoE) and be IEEE802.3af compliant. It shall support configuration in both spherical “fisheye” configuration, and rectangular “quad view”. The camera shall support at least 9 megapixel (MP) capture, and have the ability to capture 4K video. The camera shall provide H.264 and MJPEG image compression and support RTSP streaming. The camera shall have a maximum aperture ratio of 1:1.9 with a focal length of 1.38mm. The camera shall include a clear polycarbonate resin-based dome rated to IP66 (NEMA 4X compliant). The camera shall include a de-humidification device for use in various weather conditions.

The camera shall l include all mounting hardware that is constructed of weatherproof painted aluminum. The mounting hardware shall be fully assembled to the camera and ready to attach to a pole or extension arm. The mounting hardware shall support vertical pole installation, horizontal pole installation, or attachment via a 1 ¼” threaded fitting. The mounting hardware shall include 40 feet of shielded Ethernet cable for connection to a Power

over Ethernet (PoE) power source and internet access. The cable shall include two-way Ethernet coupler rated to IP68 for connection to cabinet Ethernet cable.

NTCIP Controller Interface
The VDAS hardware shall include a NTCIP controller interface with communication capability over Ethernet providing auto-negotiation to 10/100 Mbps, half or full duplex. The interface shall include an ethernet cable for interfacing with NEMA TS2 type A1N, A2N, P1N, or P2N controllers. It shall support communication to the controller over TCP/IP, SNMP v1, v2c, and v3, and STMP NTCIP protocols reading all objects defined in NTCIP 1201 and 1202 supported by the controller.

The interface shall support acquisition and recording of phase, channel, detector, pedestrian detector, pre-emption, alarm and overlap statuses at a frequency of 10 times per second including whether a phase is next or has a call for service on it. It shall read and distinguish between detection, pedestrian detection, and pre-emption device information from all detectors, pedestrian detectors, and pre-emption devices wired into the cabinet. It shall detect all controller-defined failures of a detector defined in NTCIP 1202: - ASC.vehicleDetectorAlarms. It shall also detect all detector defined failures of a detector defined in NTCIP 1202 – ASC.vehicleDetectorReportedAlarms.

The interface shall detect the free mode status of the controller, read coordination information including cycle and sync status, as well as current and future coordination plan parameters, flash status, stop time, external start, power restart, low battery, a serviceable call exists and has not been serviced for two cycles, or SDLC response fault. It shall support measurement of the existing sequence selected, support reading of the phase table, sequence table, channel table and overlap table. It shall support running the traffic controller in free mode through force, hold and omit directions, support capturing and reporting Controller Faults based on controller-reported flash status reasons of ‘other’, ‘automatic’, ‘localManual’, ‘faultMonitor’, ‘mmu’, ‘startup’, and ‘preempt’.

SDLC Controller Interface
The VDAS shall include a SDLC controller interface with all necessary cabling to connect to a cabinet’s existing Port 1/SDLC bus. The interface shall support reading terminal and facility input & outputs, and channel state at a frequency of at least 10 times per second. The interface shall support acquisition of Malfunction Management Unit (MMU) fault status including conflict, red failure, and clearance failure. It shall support reading information from all detectors wired into the cabinet supporting up to 1 ms resolution between detection events, detect failure of a detector in either always high, or always low, mode, and support capturing and reporting Controller Faults based on MMU status bits of ‘in conflict’, ‘red failure’, ‘diagnostic failure’, ‘in failure state’, and ‘local flash’.

Peripheral Interface
The VDAS shall support 2 x USB 2.0 device ports, 4 x 10/100/1000 Ethernet ports, PoE on 2 of the above ports, with at least one of which capable of supporting PoE+. The VDAS shall support industrial temperature-rated storage comprising a solid state drive of at least 64 GB.

The VDAS hardware shall provide light-emitting diode (LED) indicators for Server connectivity, Ethernet link/activity, power, cellular link/activity, and signal strength. It shall

support 4 x RS232 serial connections (one port configurable to RS485) with RJ45 connectors. It shall provide Digital IO pins 4 x I/O pins (200mA sinking each), digital input, 0~30V, 1 x 24VDC supply pin (200mA max sourcing), 5 x ground. The interface shall provide galvanic isolation between earth ground and logic ground.

The interface shall provide data buffering of all Telemetry Data (controller state, detector actuations, pre-emption events) during periods of loss of cellular connection for at least 12 minutes, and data buffering of all Telemetry Data during periods of loss of power for at least 10 seconds.

Video Processing Unit
The VDAS shall have a video processing unit (VPU) that support processing of a minimum of two simultaneous feeds from Camera units. It shall display status of detection channels. The VPU shall include a USB 2.0 device port, 4 x 10/100/1000 Ethernet ports, and support PoE on two of the above ports.

The VPU shall include onboard processing capabilities to perform video- based vehicle detection and generation of traffic analytics. It shall provide 24 NEMA-rated GPIO ports that can be configured for actuation and support all requirements found in 2.2.1.6 SDLC Controller Interface. The VPU shall provide the capability to act as one or more SDLC detector racks and support generating detection outputs on up to 64 channels.

Video Detection
The VDAS shall support remote configuration of detection zones and system settings via Communications Service and Software. It shall also allow for configuration at the roadside, by a laptop computer connected via Ethernet to the Video Processing Unit and Software. The VDAS shall support the configuration of entries, exits, and turning movements for additional traffic analytics

The VDAS shall support maintaining multiple detection zone configurations that can be remotely selected and enabled at any time using Software. It shall store historical versions of detection zone configurations that can be restored at any time using Software.

The VDAS shall support a minimum of 100 unique video detection zones that are both rectangular and irregular polygon shaped zones. It shall support real-time detection of vehicles, cyclists, and pedestrians in configurable detection zones per camera. The VDAS shall ensure that the detection system meets or exceeds 98% detection accuracy requirement in good weather conditions.

The VDAS shall support identification of unacceptable video feed, including interrupted video signal. It shall support directional detection zones to reduce false detections from objects traveling in other directions and support the tracking of vehicles and pedestrians for video analytics applications.

The VDAS shall support a minimum of 16 detection channels. It shall support the option of actuation via SDLC, direct wiring into cabinet backplane, or through NEMA A/B/C interface. It shall also support actuation of both pulse and presence detection signals over

any of the above interfaces, and support output of a constant call on any detection channel if a loss of video signal occurs.

Video Analytics
The VDAS shall have video analytics capability including Continuous Traffic Data Collection, and On-Demand Video Analysis. It shall support the processing of turning movement count data for all visible movements at the intersection at all times. The count shall include classification of all vehicles passing through an intersection including Light Vehicles, Single-Unit Trucks, Articulated Trucks, and Buses. It shall also support the processing of crosswalk movement data for Pedestrians.

The VDAS has have the ability to record and recall MP4 video for offline or third-party on-demand traffic studies. It shall support offline safety analysis and turning movement studies.

The VDAS video analytics capabilities shall also include the ability to access the data 30 minutes of capture under normal operating circumstances. It shall support the graphical visualization of turning movement count data by vehicle class or by intersection movement. The system shall support the export of turning movement count data to XML, CSV formats, and in 1, 5, 10, 15, 30 minute and 1 hour bins. It shall automatically identify peak-hours and calculate peak-hour factor (PHF), and automatically generate and display truck percentage.

Software
The VDAS shall be supplied with a software system to provide a single user interface containing all Software functionality described herein. It shall provide a secure web-based Graphical User Interface (GUI) using SSL, allowing for an unlimited number of concurrent logins by authenticated users. It shall be fully accessible via desktop, tablet, and mobile products on modern browsers, and support user login via OAuth Login. It shall provide a secure means of verifying account registration via email and a secure means of password reset. The software shall support the addition and management of user accounts for users that are both inside and outside of the organization at no additional cost. It shall support access to all detection data, traffic analytics data, and Vehicle Identification Data stored on the Server.

The VDAS shall support live video streaming to modern desktop browsers without any third party plugins and live video streaming on tablet browsers using the HLS protocol. The live video streaming shall be with a latency of no more than 10 seconds at a frame rate of at least 15 fps, with an initial load time of no more than 10 seconds, at least 20 concurrent video streams from a single camera to be viewed in multiple browsers, and at least 40 concurrent video streams from all cameras active in the system, to be viewed in multiple browsers. The system shall support remotely enabling and disabling video recording on the Peripheral Interface Hardware. It shall support the remote upload (ie. recall) of recorded video from the Peripheral Interface Hardware, and recall of recorded video from the Peripheral Interface Hardware for at least the past 7 days. The system shall provide secure storage and access to any recalled video within the Software, and playback of recalled video in the browser.

The VDAS software system shall provide a user interface for remote configuration of detection zones. The user interface shall allow for monitoring of detection activity, wherein a detection zone is highlighted on the video overlay display to confirm vehicle detection

when a vehicle is detected crossing a detection zone, and caching and remote recall of video for up to 7 days to help diagnose detection problems.

The VDAS software system shall support live display of all Telemetry Data, including detector actuations and signal phasing, with latency not to exceed 1 second when LTE connection is active. It shall support historical display of all Telemetry Data on demand with load latency not to exceed 1 second. The software shall support a viewing mode in which all Telemetry Data is displayed overlaid onto a diagram of the intersection. It shall support a viewing mode in which all Telemetry Data is displayed in a timing diagram format in which interval length is displayed in seconds for each signal phase. It shall also display weather conditions for the location, including precipitation and temperature, as part of live and historical viewing of Telemetry Data, and provide reporting on signal telemetry and detector data.

The VDAS software system shall support open data to API via REST interface including JSON to all Telemetry Data, Alert Data, Vehicle Count Data, and Video Analytics data. It shall include administrator control of level of data API access, including what function calls can be made publicly and what function calls are accessible only through authentication. It shall support Swagger.io documentation of API.

The VDAS hardware system in cabinet shall be capable of receiving remote updates including the ability to extend the functionality, and to remotely update configuration.

Signal Performance Measures

The VDAS software system shall support Signal Performance Measures including generation of any of the below listed Signal Performance Measures, or Preemption Analysis for any 24hr period in under 5 seconds, for all captured data up to 3 years in the past

The VDAS system shall support the generation of performance metrics including generation of approach volume charts when the intersection includes upstream detector data, generation of arrivals-on-red / arrivals-on-green charts when the intersection includes upstream detector data, Purdue Split Failure chart when the intersection includes stop-bar detector data, split trends when the intersection includes stop-bar detector data, detector occupancy ratio charts (Red, Green, and ROR5) for all intersection movements that include stop-bar detector data, phase interval charts over any 24 hour period, phase green allocation over any 24 hour period, and Purdue Coordination Diagram when the intersection includes upstream detector data. The system shall support generation of simple delay charts for all intersection movements that include stop-bar detector data, delay charts for all pedestrian movements that include pedestrian detection.

The system shall support download of all above mentioned signal performance charts as flat image files, PDF files, CSV, or XLS files.

The system shall support generation and overlay of historical trends of approach volumes, arrivals-on-red, split trends, green allocation, and simple delay over any period (minimum of up to three months) throughout the three year data set. It shall support generation of historical variability statistics of approach volumes, arrival-on-red, and simple delay over any period (minimum of up to three months) throughout the three year data set, and ability to

statistically compare differences between data series, including single-day metrics and historical trends

The VDAS software system shall support generation and recall of logs of preemption events, including their time of occurrence and duration, and have the ability to query historical occurrences of pre-empt events into tabular format for export, in perpetuity.

The system shall allow aggregation of performance reports over a corridor including generation of corridor average arrivals on green per corridor for all corridors in the network, historical trend data for all corridors in a network for trends up to one year, comparison of historical trends to a baseline data set, and comparison of historical trends to a baseline data set for any period throughout the 3 year data. It shall support sorting of all corridors in a network by any aggregated metric listed above. It shall support the subscription and delivery of daily, weekly, or monthly aggregated corridor performance reports via email

The system also allow aggregation of signal performance reports including generation of major street aggregation of intersection arrivals on green per intersection for all supported intersections in the network, minor street simple delay per intersection for all supported intersections in the network, major street aggregation of approach volumes per intersection for all supported intersections in the network, split failure count per intersection for all supported intersections in the network, and historical trend data for all intersections in a network for trends up to one year. The system shall support the subscription and delivery of daily, weekly, or monthly aggregated intersection performance reports via email.

The VDAS software system shall include a signal performance analysis tool for generation and visualization of a selected metric for all movements within an intersection, including phase data, stop-bar occupancy ratios, Purdue Split Failures, and split trend data. It shall support the generation and visualization of metrics for all intersections within a corridor, including arrivals on red and coordinated phase data (ie. time-space visualization), zooming and filtering of data by time of day, and historical trend data for split trend and arrivals on red metrics

Travel Time Analysis

The VDAS system shall have the ability to generate point-to-point travel time reports from the Vehicle Identification Data for any two devices in the network. It shall support calculation and viewing of travel time data within 15 minutes of capture, generation and overlay of historical travel time trends over any period of up to 3 months throughout the collected data set, and generation of historical variability statistics of travel time over any period of up to 3 months throughout the collected data set.

It shall support download of above-mentioned travel time metrics as flat image files or PDF files, download of raw travel time match data in CSV or XLS format. It shall provide testing data showing a match rate of Vehicle Identification Data between adjacent intersections of at least 5%, where the match rate is the proportion of the total road vehicle volume for which a successful MAC-address match occurs at two adjacent intersections.

Central Server
The VDAS Central Server shall be hosted professional cloud-based facility with redundancy of at least two instances, with automatic load balancing, support any simultaneous number of connections, and have storage of all detection data and traffic analytics in perpetuity.

Communications Services
The VDAS system shall be provided with a 4G LTE cellular data service between the Communications Interface and the Central Server via a national commercial carrier using Bands 2, 4, 5, 13, 17, and 25 with failover support from 4G to 3G to 2G with incremental fallback on appropriate bands.

The VDAS communication service shall be a Virtual Private Network (VPN) for secure data transmission between the Communications Interface and Central Server. It shall create a private network where IP traffic can be transmitted from a traffic cabinet directly into the traffic management center and any central software systems. It shall use authentication based on public key infrastructure (PKI) and encryption using PKI and the TLS/DTLS1.0+ protocol and support HTTPS/SSL communication to the Central Server from the public internet.

The system shall support revoking of all authenticated user names, passwords, or keys at any time. The communication service shall be a simultaneous integration across a heterogeneous mix of different technologies and providers, including different cellular providers, fiber connected networks, and point-to-point radio solutions.

The communication service shall support integrating an unlimited number of intersections with the customers Central Management System and be capable of supporting both IP and serial-over-IP connections to all controller models in the field. It shall meet all bandwidth and latency requirements of the Customer's Central Management System.

Testing and Certification
All VDAS hardware shall be tested and certified. The Communications Interface shall be PTCRB and Verizon Safe-For-Network Certified. All hardware shall meet the following requirements: NEMA TS-2, Section 2 tested and compliant, including shock, vibration, voltage, and thermal articles 2.2.7-2.2.11, NEMA operating temperature specification -34 °C to 74 °C (-29 °F to 165 °F), NEMA storage temperature specification -34 °C to 74 °C (-29 °F to 165 °F), humidity operating requirements of 5% - 95% RH non-condensing, FCC tested and compliant, and RoHS compliant.

Installation
The VDAS system shall be furnished with all mounting hardware with device(s). The hardware components including the Peripheral Interface, NTCIP Controller Interface, and Communications Interface shall be provided in a single self-contained device. All functionality of SDLC Controller Interface and Video Processing Unit shall be provided in a single self-contained device. All hardware functionality of Peripheral Interface, NTCIP Controller Interface, and Communications Interface shall operate off a single UL, CSA-certificated LPS NEMA-rated power supply. All hardware functionality of SDLC Controller Interface and Video Processing Unit shall operate off a single UL, CSA-certificated NEMA-rated power supply.

The VDAS system shall be installed as per the contract documents. The system shall be configured with settings that were approved at equipment mock up (if required per the Special Provision for Testing and Integration) or as approved by the Engineer to ensure interoperability and security, including VPN settings, local IP address, port forwarding and Network Address Translation (NAT), and IP-based filtering. All system integration and testing shall be to meet the functionality and requirements specifications described herein as well as in the contract plans.

Support
The VDAS system provider shall provide technical support via email and toll-free telephone for all included hardware and software between the hours of 7:00 and 19:00 EST/EDT, Monday to Friday.

Warranty
The VDAS system shall be furnished with a standard manufacturer's warranty, transferable to MassDOT. All of the hardware system components shall carry a warranty including parts and labor for 3 years from the date of shipment. Firmware and Software shall be updated for the life of the product. Firmware updates, web application updates, and security patches, shall be provided by the Contractor through the VDAS provider over the term of the contract.

Advance Video Detection Camera
The advance video detection camera used for advance and dilemma zone traffic detection shall be furnished by the VDAS supplier and shall be qualified by the supplier to ensure proper system operation. The camera shall be full HD "bullet-type" camera and shall be capable of detecting vehicles from 200 feet to up to 500 feet from the stop line of the approach.

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 illumination over which the camera shall produce a useable color video image shall be 0.011 lux at 30 IRE and 0.015 lux at 50 IRE.

The camera shall use a CMOS image sensor and shall output color video with user-selectable resolution ranging from 320x180 to 1920x1080 in 16:9 mode, and from 1280x960 to 2048x1536 in 4:3 mode. The camera shall support the above resolutions at up to 30 frames per second (fps).

The camera shall include an electronic shutter control that is adjustable from 25 fps to up to 60 fps. The maximum aperture ratio shall vary from 1:1.17 under wide-angle to 1:3.0 under telephoto. The focal length shall be variable between 0.34 inches to 0.81 inches.

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 15 degrees (under telephoto zoom) to 36 degrees (under wide-angle zoom) when in 16:9 mode, and from 11 degrees (under telephoto zoom) to 20 degree wide (under wide-angle zoom) when in 4:3 mode.

The camera shall be housed in a weather-tight sealed enclosure. The housing shall be field rotate-able 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 5.25 inches wide x 5.25 inches high x 15.09 inches long, and shall weigh less than 6 pounds with the camera and lens mounted inside the enclosure. The camera enclosure shall include a temish membrane, heater and moisture absorption gel to prevent dust, and assure proper operation 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 +74 °C and a humidity range from 5% RH to 100% RH.

The camera shall be powered using Power over Ethernet (PoE) using an IEEE802.3af compliant cable. Power consumption shall be less than 11 watts under all conditions.

The mounting height of the camera shall be as per manufacturer specification. The camera shall view approaching vehicles up to a distance of 500 feet and provide accurate detection. 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 weather-tight RJ-45 connector capable of 10Base-T/100-Base-TX . The connection shall supply power and also allow diagnostic testing and viewing of video at the camera while the camera is installed on a mast arm or pole.

The video signal output by the camera shall be in color and support both unicast and multicast types of transmission. The camera shall support different transmission modes including CBR, VBR, Frame rate and Best effort. The camera shall support H.265, H.264, JPEG (MJPEG) compression methods. The camera shall support industry-standard TCP/IP protocols under both IPv6 and IPv4 addressing conventions.

Installation

A PoE CAT5e/CAT6 cable shall be used between the camera and the VDAS in the traffic cabinet. The cable shall be a continuous unbroken run from the camera to the VDAS. This cable shall be suitable for installation in conduit. RJ-45 plug connectors should be used at both the camera and cabinet ends. The RJ-45 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.

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 factor certification shall be provided.

Limited Warranty

The supplier shall provide a limited two-year warranty on the advance video detection camera. 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 MassDOT, and this support shall be available from factor-certified personnel or factor-certified installers.

During the warranty period, updates to the camera and/or the VDAS software shall be available from the supplier without charge.

Maintenance and Support

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the advance video detection camera. 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 advance video detection camera. 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 onsite 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.

4) System Interconnect and Communication

Work for the system communication shall conform to the relevant provisions of Section 800 of the Standard Specification.

5.8 GHz Broadband Point to Multipoint Wireless System

The Contractor shall install a broadband point-to-point wireless Ethernet communication system between Locations 1 and 2, between Locations 2 and 3, between Location 3 and 4, and between Locations 4 and 5 as shown on the plans.

Scope

This specification covers the minimum technical requirements of 5.8 GHz point to multi-point wireless broadband Ethernet system for ITS communications. 5.8 GHz is to be used for broadband connectivity applications. The system may consist of connectorized radios and/or radios with integrated panel antennas. The following specifications are the minimum requirements for the 5.8 GHz broadband wireless network.

General Requirements

The 5.8 GHz wireless broadband system must have the following minimum general operating characteristics. See section 3 for in-depth radio specifications.

FREQUENCY	5.2 GHz UNII & 5.8 GHz ISM Dynamic Frequency Selection (DFS)
WIRELESS TECHNOLOGY	E-OFDM and DSSS
OPERATING MODE	Point-to-point, point to multipoint,
RANGE	>20 Miles (LOS)
BANDWIDTH	54 Mbps
SOFTWARE COMPATIBILITY	Must be compatible with5.8 GHz broadband links and CONTROLPAK management software must be used with both systems.
COMPLIANCE	TXDOT and SWRI tested, FCC approved.
WEATHERPROOF OUTDOOR UNIT	IP67 rated and available as connectorized unit (n-male) or with integrated 23 dB panel antenna.
WARRANTY	1 YEAR

Radio Specifications

Multiple Frequency Bands	5.2 GHz UNII 5.8 GHz ISM Non-overlapping Channels: 40 x 5 MHz 20 x 10 MHz, 10 x 20 MHz, 5 x 40 MHz
Radio Type	E-Orthogonal Frequency Division Multiplexing (E-OFDM)
Standards Compliance	802.3, 802.11i, 802.11a hardware with proprietary bridging extensions
Radio Output Power	Max radio output power 26dB
Date Rate	54 Mbps
Receiver Sensitivity (dBm)	-70 to -93
Modulation	64QAM, 16QAM, QPSK, BPSK
Wireless Operating Modes	Point to Multipoint, Backhaul (point to point), Repeater, and Hotspot
Remote Power System	Power-over-Ethernet remote power to IP67 rated outdoor unit. Input: 100-240 AC, 50-60 Hz, Output: 18V, .4A.
Security	SecureRF architecture – Proprietary channelization and bridge protocol, link

	authentication, AES-256/WEP 152-bit data encryption options, VPN support for Ethernet tagged frames (802.1q, 802.1p)

Configuration and Management

Configuration Utility	Must use ControlPAK management software for configuration and diagnostics. One software package must communicate to all different radios within the system including 4.9GHz Broadband and Serial data radios
Software Upgrades	FTP download
Antenna Alignment Tool	Real-time RSSI (signal Strength) monitor, link optimization and throughput maximization utility.
Indoor LED Status Indicator	Indoor remote power indicator.
Real-Time Link Monitoring	Secure Management Interface- Real-time signal strength, authentication data, system uptime, data rate, and channel selection.

Mechanical

Dimensions	305mm x 305mm x 15mmn (Integrated Antenna) 22mm x 18mm x 5 mm (Connectorized)
POE Dimension	3” x 2” x 1.5”

Environmental

Radio Operating Temperature	-30°C to 60°C. Outdoor units are weather protected (IP67)
Radio Operating Humidity	Max. 95% non-condensing
Outdoor Antenna	-45°C to +60°C
Wind Survivability	125 Mph (201 Km/h)

Compliance and Certification

EMC	FCC Part 15, Industry Canada RSS-210, Mexico, ETSI
Safety	UL-Canada, USA, CE
Radio	FCC 15.407 (UNII, ISM), Industry Canada RSS-210, ETSI (w/TPC & DFS) , MII SRRC, TXDOT and SWRI Tested.

Integrated Antenna Specifications

The 5.8 GHz wireless Ethernet subscriber unit will be available as an integrated outdoor unit with a built-in 23dB panel antenna. The integrated antenna must meet the following specifications:

Frequency Range	5.2 GHz UNII 5.85 GHz ISM
Gain	23 dBi
3 dB Beamwidth	10.5deg/ 50deg
Polarization	Single linear, vertical
Dimensions	305mm x 305mm x 15mm (diamond shape)
VSWR	<1.9:1
Front to Back Ratio	>35dB
Cross Polarization	>24 dB
Power rating	10 Watts
Impedance	50 Ohms
Lightning Protection	DC ground
Weight	1.7lb
Radome	UV stabilized plastic
Wind Survivability	125 Mph (201 kph)
Wind Load	1.23 ft^2
Operating Temp.	-45C to +75C
Weatherproof	IP67 Rating

Environmentally Hardened Ethernet Switch

The communication between each adjacent pairs of local traffic signal controllers shall be through Ethernet communication. The Ethernet communication network shall utilize an Environmentally-Hardened Ethernet Switch.

The Environmentally-Hardened Ethernet switch with uplink management functionality shall have a minimum of 8 ports operating at 10/100 Mbps and designed to combine Ethernet data from the seven electrical ports into an 8^{th} electrical port and forward that data to the next network device. No programming shall be required to use this switch. The Ethernet switch shall be factory pre-programmed to prevent network video flooding. The Ethernet switch shall be either wall-mounted, shelf-mounted or DIN –rail mounted with the appropriate attachments. The Ethernet switch shall be designed to meet full compliance with the environmental requirements (ambient operating temperature, mechanical shock, vibration, humidity with condensation, high-line/low-line voltage conditions and transient voltage protection) of NEMA TS-1/TS-2 and the Caltrans Specification for Traffic Signal Control Equipment. All power and signal input/output lines shall have power surge and transient voltage protection. The Ethernet switch shall have LED indicators to provide power and activity status. The Ethernet switch shall be compliant with the IEEE 802.3 standards and come with a minimum 2-year warranty.

5) Accessible Pedestrian Signal Pushbuttons

This Supplemental Specification provides the requirements of accessible pedestrian signal pushbuttons.

The Accessible Pedestrian Signal (APS) Pushbutton shall provide information in a non-visual format. The format shall include, but not be limited to, audible tones, speech messages, as well as vibrating surfaces. APS pushbuttons shall be compliant with the 2009 MUTCD and the 2023 Public Right-of-Way Accessibility Guidelines (PROWAG) and shall have the capability to provide the following features:

- Pushbutton locator tone
- A visible and audible confirmation indicator, such as a light and speech message, that the button has been pressed
- A vibro-tactile arrow
- A speech walk message when the "WALKING PERSON" indication is shown. The speech walk messages and locations/situations where required, will be provided by the Engineer during review of the shop drawings.

The APS pedestrian pushbutton shall provide visually disabled pedestrians with a locator tone that will assist them in finding the pedestrian pushbutton to activate the walk signal. Once pressed, and the WALK signal has been initiated, the pedestrian pushbutton shall provide an audible and tactile response during the "WALK" interval. An LED shall come on to confirm the button has been pushed and the audible response shall be a message that indicates the name of the street crossing and when the "WALK" phase has started.

The APS housing and pushbutton unit shall meet the following minimum requirements:

- Constructed of cast aluminum with a yellow powder coat finish
- Unit shall be pressure activated with no moving parts
- Pushbutton must be vandal resistant and must be able to withstand significant blunt force, such as impact from a hammer or baseball bat.
- The unit must be able to operate between a temperature range of -34 degrees Celsius and 65 degrees Celsius
- Operating Voltage range shall be between 12 to 65 volts.
- Pushbutton shall be activated with a force of 5 Lbs. or less
- LED confirmation light that indicates that the button has been pressed
- APS Unit shall be designed so that ice is not allowed to form which would impede function of APS unit
- All electronics shall be sealed within the APS unit
- Speaker for APS unit shall be a weatherproof unit with a vandal resistant screen.
- APS pushbutton shall be 2 inches in diameter.

Tactile Arrows and Locator tones shall meet the following minimum requirements:

- The locator tone shall be located at the pushbutton

- The locator tone sound measured at three feet from the APS pushbutton shall be a minimum of 2 dB and 5 dB maximum above the ambient noise level. The locator tone shall be responsive to ambient noise level changes. Tones shall consist of multiple frequencies with a component of 880Hz and the duration shall be 0.15 sec. and repeat at 1 sec. intervals.
- Where an extended *push button* press is used to provide any additional features, an APS press of less than one second shall actuate only the *pedestrian* timing and any associated *accessible* walk indication, and an APS press of one second or more shall actuate the *pedestrian* timing, any associated *accessible* walk indication, and any additional features. If additional crossing time is provided by means of an extended push button press, a sign so indicating shall be mounted adjacent to or integral with the pedestrian push button.
- The vibro-tactile arrow shall be aligned parallel to the crosswalk direction. The arrow shall be raised and shall be a minimum of 1.5 inches in length. Arrow shall have high visual contrast with the background.
- Arrow shall vibrate during the "WALK" interval
- Speech walk message shall be audible from the beginning of the associated crosswalk interval.
- The maximum mounting height of the APS button shall be 42 inches above the finished sidewalk.
- APS buttons shall be located no greater than 5 feet from the side of a *curb ramp* run or the edge of the farthest associated *crosswalk* line from the center of the intersection. APS buttons shall be located between 1.5 and 10 feet from the edge of the *curb* or pavement.
- Where two *pedestrian push buttons* are provided on the same corner, they shall be 10 feet or more apart. Where technically infeasible to provide 10 feet separation between *pedestrian push buttons* on the same corner, a *pedestrian push button* information message complying with PROWAG R308.3.2 shall be provided.

The APS pedestrian pushbutton shall be installed as recommended by the manufacturer and documented in installation materials provided by the manufacturer. The Contractor and or manufacturer shall be responsible for the proper programming of the APS pushbuttons, the correct orientation of the pushbutton, as well as adjusting of the volume levels and all other work necessary to provide a complete and operational pushbutton system.

The Contractor or manufacturer shall supply one hand held remote configuration unit to the Town, if requested by the Engineer, which will allow adjustment and or configuration of locator tones, audible messages and custom walk sounds. The unit shall use infrared technology with an LCD display to program the APS pushbuttons. The unit shall be password protected.

If requested by the Engineer, the Contractor or manufacturer shall provide 4 hours of training to Town staff at a location within the Town of Bellingham. Each APS pedestrian pushbutton shall have a warranty that the unit will be free from defects in material and workmanship for a period of two years after being accepted by the Engineer.

Testing of Grounding System

The Contractor shall perform testing of the equipment grounding system in the presence of the Engineer in accordance with the Standard Specifications. All pull boxes shall be grounded according to the following details: 811.3.1/811.32.1; 811.31.2/811.32.2; 811.33.0.

Fine Tuning, Adjustment, and Testing Period

After the Contractor has finished installing the controller and all other associated signal equipment and after the Contractor has set the signal equipment to operate as specified in the contract documents, the fine tuning, adjustment and testing period shall begin. 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. Final acceptance will not be made until the system has operated satisfactorily, as designed, for a period of *not less than* 30 days from a date designated by the Engineer.

Guarantee After Final Acceptance

The Contractor shall troubleshoot, repair, and/or replace any equipment installed in conjunction with this contract at his own expense if found to be defective in workmanship, material, or manner of functioning within a period of six months from the date of final acceptance of this contract by the Engineer, MassDOT and the Town.

Basis of Payment

The work under this item will be paid for at the respective Contract unit price per lump sum, which price shall include all labor, material, equipment and incidental costs required to complete the work. Lump sum price shall include cabinets with NEMA ATC controllers and ASCT systems, mast arms and posts with foundation, handholes and pull boxes, traffic and pedestrian signal heads and pedestrian push buttons, video detection system and communication system, in place and fully operational.

Conduit will be paid for separately under Item 804.3, 3 inch electrical conduit type NM – plastic (UL). New pullboxes and handholes will be paid for separately under Item 811.22, electric handhole – SD2.022 and Item 811.31, pull box 12 x 12 inches – SD2.031.

ITEM 852.11	**TEMPORARY PEDESTRIAN BARRICADE**	**FOOT**
ITEM 852.12	**TEMPORARY PEDESTRIAN CURB RAMP**	**EACH**

DESCRIPTION

Work under these items consist of furnishing, deploying, maintaining in proper operating conditions, and removing temporary pedestrian barricades and temporary pedestrian ramps as part of a Temporary Pedestrian Access Route (TPAR) in order to guide pedestrians around a fully- or partially-closed sidewalk. These devices are intended to prevent pedestrians from entering the work area and to prevent pedestrians from inadvertently entering the vehicle travel lane by providing visual and physical separation between each space.

MATERIALS

The Temporary Pedestrian Barricade shall have a continuous bottom rail or edge no more than two (2) inches above the ground and six (6) inches in height (minimum) to accommodate cane users, have a smooth and continuous hand railing along the top edge no less than 32 inches above the ground and not obstruct or project into the pedestrian path of travel. Barricade walls shall be nearly vertical and generally within the same plane.

If exposed to traffic, Temporary Pedestrian Barricades shall be crashworthy.
The Temporary Pedestrian Curb Ramp shall provide a 60-inch minimum width, with a firm, stable, and non-slip surface. Protective edging with a two (2) inch minimum height shall be installed when the curb ramp or landing platform has a vertical drop of six (6) inches or greater.

The Temporary Pedestrian Curb Ramp walkway and landing area surface shall be of a solid, continuous, contrasting color abutting up to the existing sidewalk.

If a Temporary Pedestrian Curb Ramp leads to a crosswalk, a detectable warning pad must be used at the base of the ramp; if it leads to a protected path that does not conflict with vehicular traffic then a detectable pad shall not be used.

CONSTRUCTION METHODS

The Temporary Pedestrian Barricade shall be placed in an area that will provide pedestrians with a TPAR on a smooth, continuous hard surface for its entirety. The geometry and alignment of the facility shall meet the applicable requirements of the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities" and the Massachusetts Architectural Access Board.

The recommended width of the TPAR is 60 inches, but if constraints exist a minimum clear width of 48 inches shall be provided along its entirety. If a 60-inch width cannot be accommodated in full, a 60 inch by 60 inch passing space shall be provided every 200 feet or less along the TPAR. Turning areas shall be 60 inches by 60 inches minimum.

Lateral joints between any surfaces shall not exceed 0.5 inches. Lateral edges may be vertical up to 0.25 inches high and shall be beveled at 1V:2H between 0.25 inches and 0.5 inches.

The TPAR shall be kept clear of debris, snow, and ice and the Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall not obstruct drainage.

Removal and/or resetting of Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall be considered incidental.

BASIS OF PAYMENT

Payment for Temporary Pedestrian Barricades will be made at the contract price per linear foot installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

Payment for Temporary Pedestrian Curb Ramps will be made at the contract price per each unit installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

ITEM 859.1 REFLECTORIZED DRUMS W/ SEQUENTIAL FLASHING WARNING LIGHTS DAY

Work under this Subsection 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 862.406	**6-IN. RECESSED WHITE LINE (MC, UFD, WR)**	**FOOT**
ITEM 862.412	**12-IN. RECESSED WHITE LINE (MC, UFD, WR)**	**FOOT**
ITEM 863.406	**6-IN. RECESSED YELLOW LINE (MC, UFD, WR)**	**FOOT**
ITEM 863.412	**12-IN. RECESSED YELLOW LINE (MC, UFD, WR)**	**FOOT**

Description

Work to be completed under these items shall conform to the relevant provisions of Subsection 860 of the Standard Specifications and shall consist of furnishing and installing Recessed Multi-Component (MC), Wet Reflective (WR) Pavement Markings at the locations shown on the plans or as directed by the Engineer.

If the Multi-Component Pavement Marking material is applied over a different pavement marking material, the Contractor shall provide documentation that the Multi-Component Pavement Marking Material being used will adhere to the existing marking material.

Materials

MC pavement markings shall consist of a two-component, 100% solids liquid binder, first drop beads or elements to provide wet and dry retroreflectivity, and second drop glass beads to improve the durability of the pavement marking, reduce track-free times, and provide supplementary retro-reflectivity. MC Pavement Marking binders are typically composed of, but not limited to, Epoxies, Polyureas, or Urethanes.

Classification of dry time is based upon the results of the test procedures found in ASTM D711 (73.5 ± 3.5°F at 50 ± 5% relative humidity) when applied with glass beads. MC Ultra-Fast Dry (MC, UFD) pavement markings shall have a no track time of 3 minutes or less. The Contractor shall provide a Certificate of Compliance verifying the product supplied meets the specified dry time requirements per ASTM D711 prior to installation.

The Contractor shall select a liquid binder and bead/element combination that meets these performance specifications.

Second drop beads shall be manufactured from glass of a composition that is highly resistant to traffic wear and to the effects of weathering. If coating is required to meet the performance requirements, the second drop beads shall be coated to ensure satisfactory embedment and adhesion. Second drop beads retained on a No. 40 U.S. Standard Mesh Sieve shall have a minimum crush strength of 30 lbs. when tested in accordance with ASTM D1213.

Second drop beads passing the No. 30 sieve shall have a minimum of 75 percent true spheres when tested in accordance with ASTM D1155. All second drop beads retained on the No. 20 and No. 30 sieves shall have a minimum of 80 percent true spheres as determined by ASTM D1155.

Second drop beads shall meet the following gradation requirements when tested in accordance with ASTM D1214:

U.S. Standard Sieve No.	Percent Retained
20	3-10
30	15-35
50	45-75
70	0-10
Pan	0-5

Construction Methods

The Contractor shall follow all installation instructions from the manufacturer, including allowable ranges of temperature and humidity for installation, unless otherwise approved by the Engineer.

The pavement surface shall be clean, dry and free of laitance, oil, dirt, grease, paint or other foreign contaminants prior to the installation of any new pavement markings. If an air lance is used to clean the surface, air compressors shall initially be blown out away from the application area to prevent compressor condensation build-up. A minimum of 24 hours of dry time following any rainfall is required prior to the placement of pavement markings.

Recessing of markings shall be per 860.65: Recessed Markings.

Application rate for binder and all glass beads shall consider final pavement surface composition and smoothness in advance of application to ensure proper wet film thickness and embedment of all beads. The Contractor shall provide the Engineer with documentation from the manufacturer with all recommended application rates in advance of any pavement marking installation.

The minimum uniform wet thickness for the MC binder shall be 20 mils but should be increased if recommended by the manufacturer. The line thickness shall be met across at least the middle ⅔ of the pavement marking width. Wet mil thickness gauges shall be provided by the Contractor to the Engineer to assure that desired thickness is achieved.

The finished white color shall be free from tint, with good opacity and visibility under both daylight and artificial light. The finished yellow color shall be defined by Federal Test Standard 595 - Color Chip Number 13538, using Federal Test Standard 141 (Method 4252). The finished lines shall be uniform in color and have clean, well-defined edges.

Glass beads shall be applied in a manner that does not induce rolling or bouncing, to ensure that exposed portions of beads are free of binder material. Beads should be embedded in the binder to a depth of approximately 50% of their diameter.

Glass beads shall be applied as a reflective medium, using the double drop method, at a rate in accordance with the manufacturer’s specification in order to meet the minimum retro-reflectivity levels.

Newly installed pavement markings shall be protected from tracking during the curing period per Subsection 860.63.

Once the installed pavement markings have been open for traffic for a minimum of 7 days, the Contractor shall perform retro-reflectance readings per 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, and the testing procedures shall follow ASTM E1710 (*Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retro-reflectometer*) and ASTM E2177 (*Standard Test Method for Measuring the Coefficient of Retroreflected Luminance (R_L) of Pavement Markings in a Standard Condition of Wetness*).

The average initial retro-reflectance readings shall exceed the following minimum values:

Test Method	***White Markings**	***Yellow Markings**
ASTM E1710 (Dry)	475 mcd/lux/m²	375 mcd/lux/m²
ASTM E2177 (Wet Recovery)	375 mcd/lux/m²	300 mcd/lux/m²

*Observation Angle = 1.05°, Entrance Angle = 88.8°

Pavement markings with measured average initial retro-reflectance 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 a method approved by the Engineer and reapplied at no additional cost, unless otherwise approved by the Engineer.

Method of Measurement and Basis of Payment

Recessed MC pavement markings will be measured per FOOT, complete in place.

Recessed MC pavement markings will be paid for at the contract unit price per FOOT. The contract prices shall include all material, labor, and equipment required or incidental to the satisfactory completion of the work.

ITEM 864.1 GREEN FRICTION SURFACE FOR BIKE LANES SQUARE FOOT

The work shall be in accordance with the Standard Specifications for Highways and Bridges and Subsection 860 and the following. This work shall consist of furnishing and placing a Green Friction Surface (GFS) for bicycle safety, for bike boxes and approaches, lanes and other areas such as driveway crossings at intersection and as identified in the Contract Drawings.

The GFS shall be comprised of furnishing and installing a green color surface per Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14), and as shown on the plans.

The acceptable manufacturers and products and/or an equal manufactured product are as follows:

DBI Services
Epoxy binder with recycled & colorized aggregates (Green)
Description: Installer of bicycle lanes using epoxy binder system with green for bicycle lanes or red for transit lane systems.
Contact: Richard Baker (rbaker@dbiservices.com)
(804) 213-0335
100 North Conahan Drive
Hazleton, Pennsylvania 18201

Traffic Calming USA
TrafficGrip (Coated Stone – Color Coated Aggregates)
Resin-based binder with color aggregate binding system

Description: TrafficGrip bike lane green stone is applied using epoxy. Our product is warranted for 4 years against UV fading (*Link: TrafficGrip Colored aggregate data sheet pdf).*
Contact: Glyn Owen (glyn@trafficcalmingusa.com)
(770) 550-4044
317 A, NorthPoint Parkway
Acworth, Georgia, 30102

Ennis-Flint
CycleGrip®MMAX
Methyl-Methacrylate (MMA)
Description: Green color lane surface ideal for long lane areas with low to high vehicle traffic including cross-over points such as parking lot entries/exits along the corridor.
Contact: Scott Seeley (sseeley@ennistraffic.com)
(800) 331-8118 ext. 3619
115 Todd Court
Thomasville, NC 27360

Transpo Industries, Inc.
Color-Safe®
Methyl-Methacrylate (MMA)
Description: Color-Safe® is your solution for long lasting bike paths, bus lanes, crosswalks, and pedestrian areas. It is an MMA based material that outperforms paint and epoxies in color retention and durability. Color-Safe® is available in standard and custom PMS colors and capable of full cure in a wide range of temperatures.
Contact: Michael S. Stenko (Mstenko@transpo.com)
(914) 636-1000
20 Jones Street
New Rochelle, NY 10801

QUALITY CONTROL

A. General

The installer shall submit a minimum of three projects with the owner's contact information on which Green Friction Surface for Bike safety has been placed within the past three years. An installer who does not meet this minimum shall be allowed if they are certified by the manufacturer to install and a manufacturer's representative is onsite during installations.

B. Quality Control (QC) Plan

The QC plan for furnishing and installing the Green Friction Surface shall detail installer's key personnel, equipment, materials, proposed methods of installation, materials blending procedures, monitoring of ambient temperature, proposed methods of curing and corrective action plan. The Contractor shall submit a QC plan with any pertinent shop drawings and product literature and materials safety data to the Engineer for approval at least 30 days prior to placement of the Control Section.

The Contractor shall include at least one (1) friction testing of surfaces, as-installed on the Project (see Control Section).

C. Control Section

The Contractor shall construct a control section with a minimum area of one square yard to represent The Green Friction Surface for Bike Lane. The green color, the surface texture, materials and installation, shall be presented for acceptance and approval by the Engineer and the City of Leominster of prior to installation. The control section may be constructed as a Green Friction Surface on the project and if accepted may remain as part of completed work.

EQUIPMENT AND APPLICATION REQUIREMENTS

A. Construction Requirements

A manufacturer's representative shall be present at the jobsite during construction of the control section. All construction operations shall meet the manufacturer's recommendations. Final approval will be given by the Engineer.

B. Weather Limitations

Green Friction Surface for Bike Lane shall not be placed on any wet surface or when the ambient temperature and humidity or the pavement temperature is below the manufacturer's recommendations or when the anticipated weather conditions would prevent the proper application and curing of the surface treatment as directed by the manufacturer's representative.

C. Surface Preparations

The surface shall be clean, dry and free of all dust, oil, debris and any other material that might interfere with the bond to the existing surface as recommended by the manufacturer's representative. The manufacturer's specification shall control the installation on any new HMA pavement paved in the previous 30 days with motor vehicle traffic or 60 days without motor vehicle traffic.

The contractor shall pre-treat any joints and cracks per the manufacturer's recommendation.

All existing edge line pavement markings that are adjacent to the GFS location shall be covered and protected as approved by the Engineer prior to performing surface preparation. GFS shall not be placed over existing pavement markings or rumble strips. Lane line pavement markings that conflict with the GFS installation shall be removed by methods approved by the manufacturer's representative. Any existing edge line pavement markings that are damaged during the GFS application process shall be replaced at the contractor's expense per direction of the Engineer.

GFS shall be allowed to cure for the minimum duration as recommended by the binder component supplier's specifications and during that time the application area shall be closed to all vehicles and contractor's equipment traffic. After placement and cure of the GFS, the Contractor shall test the finished surface to detect unbonded areas.

Excess and loose aggregate shall be removed from the traveled way and shoulders in such a way that the GFS is not damaged or disturbed. Excess aggregate that can be reused shall be clean, uncontaminated and dry, if it is to be re-used in the GFS application.

Utilities, drainage structures, curbs and any other structures within or adjacent to the treatment location shall be protected against the application of the GFS materials.

D. Surface Friction

The Contractor shall meet as a minimum the friction value as given below:

- ASTM E-274, Skid Resistance of Paved Surfaces using a standard ribbed full-scale tire at a speed of 40 mph (FN40R), and has a minimum FN40R value of 35,

OR

- ASTM E-1911, Measuring Paved Surface Frictional Properties Using the Dynamic Friction Tester (DFT), at a speed of 40 mph (DFT40), and has a minimum DFT40 value of 40.

E. Application Methods

GFS shall be applied in accordance with the manufacturer's recommendations. The GFS can be applied by either mechanical or manual techniques.

METHOD OF MEASUREMENT

Item 864.1 will be measured for payment by the total square foot area of Green Friction Surface for Bike Lane and shall be the actual number of square feet furnished and installed as directed and approved by the Engineer.

BASIS OF PAYMENT

Work under Item 864.1 Green Friction Surface for Bike Lane shall be paid for at the contract unit price per square foot which shall be full compensation for all labor, materials, tools, equipment, testing and incidental items necessary to complete the described work to the satisfaction of the Engineer.

ITEM 864.11	**LEGENDS (PF)**	**EACH**
ITEM 864.12	**SYMBOLS (PF)**	**EACH**
ITEM 864.13	**ARROWS (PF)**	**EACH**
ITEM 864.22	**SYMBOLS FOR BICYCLE FACILITIES (PF)**	**EACH**
ITEM 864.23	**ARROWS FOR BICYCLE FACILITIES (PF)**	**EACH**

DESCRIPTION

Work under these items consists of furnishing and installing pavement marking arrows, symbols, and legends at the locations shown on the plans or as directed by the Engineer. All work shall conform to Subsection 860 and the following.

MATERIALS

Preformed Markings for Legends, Symbols, and Arrows are composed of preformed thermoplastic with pigments, glass spheres or other reflective materials, and other additives to control color, retroreflectivity, and skid resistance.

All pavement marking colors shall be white and conform to MUTCD standards, including the Daytime Color Specification Limits for Retroreflective Pavement Marking Material found in 23 CFR 655, Subpart F.

The dimensions of all pavement marking legends, symbols, and arrows shall conform to Figures 3B-16, 3B-23, 3B-24, 3C-2, 8B-7, 9C-3, 9C-7, and/or 9C-9 of the MUTCD, unless otherwise shown in the plans, and are generally categorized in the following table.

Item (Type)	**Typical Applications**
864.11 (Legends)	Legends, typically 8 ft tall, that fit laterally within a single lane (e.g. "ONLY," "BUS," "YIELD")
864.12 (Symbols)	Symbols that fit laterally within a single lane (e.g. Preferential Lane diamond; a unit of 4 to 6 triangles equally spaced to create a Yield Line)
864.13 (Arrows)	Lane Use Arrows; Lane Use Arrows for Roundabouts
864.22 (Bicycle Symbols)	Helmeted Bicyclist or Bicycle Outline used in bike lanes; Shared Lane Marking (Sharrow) with chevrons; Bicycle Detector symbol;
864.23 (Bicycle Arrows)	Arrow used with bike lane markings; Lane Use arrows at intersections

Post-installation, the surfaces of all preformed markings shall provide a minimum skid resistance value of 35 British Pendulum Number (BPN) when tested in accordance with ASTM E303, with exception to Preformed Markings for Bicycle Facilities, which shall provide a minimum of 55 BPN.

The leading edge(s) of all preformed markings shall be tapered to minimize risk of plow damage. Retroreflective properties shall be verified by an independent laboratory prior to installation. The average initial retroreflectance readings shall exceed the following minimum values:

Test Method	***White Markings**
ASTM E1710 (Dry)	300 mcd/lux/m^2

*Observation Angle = 1.05°, Entrance Angle = 88.8°

The Contractor shall provide a Certificate of Compliance verifying the product supplied will meet the color, friction, and retroreflectivity requirements prior to installation.

CONSTRUCTION METHODS

The Contractor shall supply Shop Drawings to the Engineer for approval a minimum of 30 days in advance of installation. Shop Drawings shall include the product manufacturer's instructions, material safety data sheets (MSDS) for all components including any primers and sealers, and all tools, equipment, and procedures to be used for the installation. No work shall commence until the Shop Drawings have been approved.

It shall be the responsibility of the Contractor to prepare the surface prior to the installation of any Preformed Markings for Legends, Symbols, and Arrows. Any joints or cracks in the pavement shall be pre-treated per the manufacturer's recommendation. At larger cracks or joints the material shall be laid over the gap and off-cut 1 in. on each side of the crack or joint prior to installation.

The surface shall be clean and dry prior to installation of the system. If additional surface preparation is recommended by the manufacturer, such as the installation of a primer or

preheating, it shall be completed per the manufacturer's specifications. All surface preparation shall be considered incidental to the cost of the item.

All existing pavement markings that are to remain, castings, curbs, and rumble strips within the vicinity of the Preformed Markings for Legends, Symbols, and Arrows shall be protected by the Contractor. Existing pavement markings damaged during the installation shall be removed and replaced by the Contractor at no additional cost.

The Contractor shall follow all installation instructions from the manufacturer, including allowable ranges of temperature and humidity for installation, unless otherwise approved by the Engineer.

Upon completion of installation, a sealer shall be applied if recommended by the manufacturer. The sealer shall be installed per the manufacturer's specification. The application of a sealer shall be considered incidental to the cost of the item.

The Contractor shall maintain protection of the Preformed Markings installation from vehicle and foot traffic throughout the minimum cure time recommended by the manufacturer.

Method of Measurement and Basis of Payment

Preformed Markings for Legends, Symbols, and Arrows will be measured by EACH installed, complete in place.

Preformed Markings for Legends, Symbols, and Arrows will be paid for at the contract unit price per EACH. The contract prices shall include all material, labor, and equipment required or incidental to the satisfactory completion of the work.

ITEM 864.33	**SLOTTED PAVEMENT MARKER TWO-WAY WHITE/RED**	**EACH**
ITEM 864.34	**SLOTTED PAVEMENT MARKER TWO-WAY YELLOW/RED**	**EACH**

The work to be done under this item shall consist of furnishing and installing two-way white/red and two way yellow/red slotted pavement markers in accordance with the Sign and Pavement Marking Plans, the relevant provisions of Traffic Standard TR.6.3 "Typical Pavement Markings for Freeways", and the following:

- Markers shall be installed along the broken white lane lines (skip lines) at the midway point between successive skip lines in the locations and at the intervals indicated on the Drawings.

CONSTRUCTION METHODS

The work shall include cutting the tapered pavement slot to the dimensions shown on the typical details for the one -way or 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.

MATERIALS

Slotted pavement markers shall be 3M Series 290, Avery Dennison Lifelite Model 948 BW, or Ray-O-Lite Model 200.

METHOD OF MEASUREMENT

The number of two-way white/red and two-way yellow/red slotted pavement markers completely furnished and installed, shall be measured by the unit Each as a complete installation.

BASIS OF PAYMENT

Two-way white/red and two-way yellow/red slotted pavement markers will be paid at the Contract Unit Price each under Item 864.33 and Item 864.34 respectively, and shall include cutting the tapered pavement slot, furnishing and installation of the reflectorized markers, including all necessary materials, labor, incidentals, and equipment to complete the work.

ITEM 874.2	**TRAFFIC SIGN REMOVED AND RESET**	**EACH**
ITEM 874.21	**GUIDE SIGN REMOVED AND RESET**	**EACH**

The work to be done under Item 874.2 Traffic Sign Removed and Reset & 874.21 Guide Sign Removed and Reset shall conform to the relevant provisions of Sections 828 and 840 of the Standard Specifications and the following:

The work shall include the removal of existing signs for reuse; and the removal and proper disposal of existing hardware, supports, and cement concrete foundation when applicable, from existing locations shown on the plans or as directed by the Engineer. The work includes the resetting of the existing signs with new hardware, new supports and new foundations when applicable in their final locations as shown on the plans or as directed by the Engineer. The work shall also include backfilling and overlay of the existing locations as described herein.

Item 874.2 signs shall include signs, traffic signs, D6 and D8 signs, other panels, or other placards as indicated on the Drawings or as directed by the Engineer. New hardware shall include hardware, fittings, and attachments which will affix the existing sign properly to the new post that matches the previously used post. Item 874.21 shall include the gas and food service signs located adjacent to the I-495 SB off ramp.

The Contractor shall **submit** Manufacturer’s cut sheets for the proposed sign posts for Approval by the Engineer.

Signs and panels shall be satisfactorily stored and protected until reset in the proposed work. Any signs damaged or lost directly or indirectly as a result of the Contractor’s operations shall be replaced by the Contractor at his own expense.

The Contractor shall coordinate the removal of the signs and posts with the Engineer by notifying

the Engineer prior to beginning the work. If practicable, existing signs shall remain in place until new sign posts are stable in their final location and the signs can be reset. During the execution of the work, if the absence of existing signs may cause hazardous conditions or excessive disruption to traffic, the Engineer may direct the Contractor to erect temporary signage until the signs are reset in their final locations. Temporary signage will be considered as incidental to this Item.
If signs are reset to another location, post holes shall be backfilled, tamped and graded level to present an undisturbed appearance. Any surface material necessary to overlay the backfill is included in the cost of these Items. Existing sign posts shall become the property of the contractor.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Traffic/ Guide Sign Removed and Reset will be measured and paid at the Contract Unit Price per each sign assembly, regardless of the number of panels or posts, reset in the designated location, which price shall include all tools, material, equipment and labor to complete the work.

Incidentals to the measurement and payment for Item 874.21 are: removal, new hardware, new supports, new foundations, any borrow materials, loam and seed, or other surface finishes needed to restore ground from where existing posts have been removed and not reset. New posts and foundations utilized for the reset of traffic signs are to be paid for under items 847.1, 848.1, 841.1 and 841.2 as necessary.

ITEM 874.4 TRAFFIC SIGN REMOVED AND STACKED EACH

The work to be done under Item 874.4 Traffic Sign Removed and Stacked shall conform to the relevant provisions of Subsections 828 and 840 of the Standard Specifications and the following:

The work shall include the removal of signs, traffic signs, street name signs, other panels, or other placards, attached hardware, and supports from locations shown on the plans or as directed by the Engineer.

Any signs or posts damaged or lost directly or indirectly as a result of the Contractor's operations shall be replaced by the Contractor at his own expense. The Contractor shall coordinate the removal of the signs and posts with the Engineer by notifying the Engineer prior to and at the completion of the work.

Signs removed within the Town layout will be properly stacked at the Town of Bellingham's Department of Public Works, located at 26 Blackstone Street Bellingham, MA 02019. Signs removed within the State Layout will be properly stacked at the MassDOT District 3 Maintenance Ward. Privately owned signs and their supports shall be properly stacked adjacent to the layout within the temporary easement.

Post holes shall be backfilled, tamped, and graded level to present an undisturbed appearance. Any surface material necessary to finish the posthole backfill is included in the cost of this item.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Traffic Sign Removed and Stacked will be measured for payment per EACH sign assembly, regardless of the number of panels or posts, properly stacked just outside of the layout.

Traffic Sign Removed and Stacked will be paid at the Contract Unit Price per each, which price shall include all labor, power disconnection, materials, equipment, transportation, and incidental cost to complete the work.

Incidental to this item are any tools, labor, materials, and equipment needed to restore disturbance of the ground due to removal of the designated signs.

ITEM 996.01 WALL STRUCTURE NO. 1 LUMP SUM

The work under Item 996.01 Wall Structure No. 1 shall conform to the relevant provisions of Section 120, 140, 150, 170, and 901 of the Standard Specifications and the following:

The work shall consist of furnishing materials, labor, equipment, and supervision for the construction of a segmental retaining wall (SRW) structure, consisting of precast cement concrete modular block units, without geogrid soil reinforcement, in accordance with MassDOT Standard Specifications, the requirements of this section, and in acceptable conformity with the lines, grades, design and dimensions shown in the Drawings.

The following particular details for each wall are listed below.

Wall Structure No. 1

Location: Sta 21+65 LT to 22+20 LT.
Loading: Pedestrian live loading, at minimum.
Appurtenances: 48 inch chain link fence (pipe top rail) vinyl coated (line post option) Black color.

ADDITIONAL REFERENCE STANDARDS

SRW Units (also referred to as Blocks)

1. ASTM C 94 – Standard Specification for Ready-Mixed Concrete
2. National Concrete Masonry Association (NCMA) Design Manual for Segmental Retaining Walls," Current Edition

SUBMITTALS

Submit two (2) hardcopies of NCMA Design Manual for Segmental Retaining Walls," 3rd Edition, 2009, at the preconstruction meeting for Town use.

Submit manufacturer's cut sheet for SRW Units (Blocks). Cut sheets shall include the name and address of the MassDOT approved precasting supplier.

Thirty (30) days prior to beginning the work of this item, submit shop drawings of wall. Include supplier or manufacturer's name and location of SRW units. Drawings shall be stamped and signed by a Professional Engineer with current license in Massachusetts.

Submit color swatch of vinyl coating on fence.

DELIVERY, STORAGE, AND HANDLING

Comply with manufacturer's recommendations. In the absence of manufacturer's recommendations, comply with the following:

A. Contractor shall check materials upon delivery to ensure that the specified type and grade of materials have been received and proper color and texture of retaining wall units have been received.
B. Contractor shall store and handle materials in accordance with manufacturer's recommendations and in a manner to prevent deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breaking, chipping or other causes.
C. Contractor shall prevent excessive mud, wet concrete, epoxies and similar materials that may affix themselves from coming in contact with materials.
D. Contractor shall protect materials from damage; no damaged material shall be incorporated into the segmental wall.

MATERIALS

For backfill and foundation borrow material, use crushed stone M2.01.1 or M2.01.2.

For 4" diameter PVC wall drain, use corrugated plastic (polyethylene) pipe M5.03.10.

For 48 inch chain link fence (pipe top rail) vinyl coated (line post option) and fence post foundation, comply with MassDOT Standard Specifications, Section 644.40. Vinyl color to be Black.

Blocks shall comply with the following:

- Blocks shall be manufactured by an Approved MassDOT manufacturer.
- Blocks shall be manufactured in compliance with NCMA guidelines.
- Blocks shall measure, approximately, 1 ft H x 2ft D x 4 ft L with face measuring 4 sf.
- Blocks shall be wet-cast, Portland cement concrete blocks specifically designed for retaining wall applications. Cement concrete shall be a minimum 4000 psi 28-day compressive strength, maximum aggregate size 1", Water/Cement Ratio 0.45, Air entrained with air content 6.0 +/- 1.5%.
- Retaining wall units shall be interlocked with alignment knobs and receiving slots designed with proper setback to provide a 2-degree cant from vertical.
- Design loading shall be appropriate for location. See particular details for each wall herein listed above.
- Block units shall be sound and free of cracks or other defects that would interfere with the proper placing of the unit or significantly impair the strength or permanence of the structure. Any cracks or chips observed during construction shall fall within the guidelines outlined in ASTM C 1372. Units that fall outside of the guidelines shall be replaced with new blocks at the Engineer's discretion at no cost to the Owner.
- Block units' molded dimensions shall not differ more than $\pm$ 1/8 inch from that specified, as measured in accordance with ASTM C 140. Units that differ more shall be replaced with new blocks at the Engineer's discretion at no cost to the Owner.

CONSTRUCTION METHODS

Coordinate sidewalk construction with wall construction. It is recommended to install the wall, wall drain, and fence posts prior to installing the adjacent sidewalk. Fence fabric may be installed after the sidewalk so that the HMA walk can be properly compacted.

For excavation, comply with the project Special Provisions and MassDOT Sections 120.60, 120.61 and Sections 140.60.

For preparation of subgrade and subbase, comply with the project Special Provisions and MassDOT Sections 170.60 and 170.61.

For placement of blocks, backfill wrapped in filter fabric, and installation of wall drain, comply with manufacturer's specific construction methods.

For installation of fence, comply with the project Special Provisions and MassDOT Sections 644.60 General, 644.61 Foundation Bases, 644.62 Top Rail, 644.64 Fence Fabric (renumbered from 644.65).

DO NOT OBSTRUCT WALL DRAIN WITH FENCE POST FOUNDATION CEMENT CONCRETE.

If needed, adjust location of the post. If needed, adjust discharge location. In all cases, provide positive drainage away from the wall.

BASIS FOR PAYMENT

Item 996.01 Wall Structure No. 1 will be paid for by the LUMP SUM. This shall include all labor, materials, equipment, and incidental costs required to complete the work. Included in the items are: wall design; excavation for wall and wall foundation, subgrade preparation for wall foundation; geotextiles; furnish and install block units; borrow material, backfill, and compaction behind the wall; furnish and install wall drain; and furnish and install fence behind the wall.

Block units which were found to be defective and were rejected by the Engineer shall not be measured nor paid for; rejected blocks shall be replaced with new blocks at no cost to the Owner.

Sidewalk construction, including the sidewalk foundation, are covered separately under Item 702. Hot Mix Asphalt Walk Surface.

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APPENDIX

Design Requirements for Mast Arm Foundations

All Mast Arm Foundations, anchor bolts, and reinforcement shall be designed and constructed in accordance with the December 2015 MassDOT Standard Drawings for Type II Mast Arms Cored Foundations based on the applicable wind speed classification.

Wind Zone – 110 mph
Soil Type – See Boring Logs

The soil type will be determined by the Engineer and the appropriate foundation design charts are included herein. For bidding purposes, the Contractor shall base assumptions in soil type based on the boring logs.

Boring Number	**Mast Arm Length**	**Soil Type/ Blows per 6"/ Groundwater Depth**	**Foundation Diameter**	**Foundation Depth**	**Vert Bars**	**Tie Bars**
Hartford Avenue (Route 126)						
B1	45 feet	SEE BORING LOGS	4'	11'-6"	18-#9	#5@9"
B2A	45 feet	SEE BORING LOGS	4'	11'-6"	18-#9	#5@9"
B3	60 feet	SEE BORING LOGS	4'-6"	12'-0"	18-#10	#5@6"
B4	15 feet	SEE BORING LOGS	3'-6"	8'-6"	18-#8	#5@12"
B5	50 feet	SEE BORING LOGS	4'	11'-6"	18-#9	#5@9"
B6	15 feet	SEE BORING LOGS	3'-6"	8'-6"	18-#8	#5@12"
B6	60 feet	SEE BORING LOGS	4'-6"	12'-0"	18-#10	#5@6"
B8	40 feet	SEE BORING LOGS	3'-6"	10'-6"	18-#8	#5@9"
B9	45 feet	SEE BORING LOGS	4'	11'-6"	18-#9	#5@9"

TOWN OF BELLINGHAM

SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY
ANTI-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM

I. For the purposes of this contract, "minority" refers to Asian-Americans, Blacks, Spanish Surnamed Americans, North American Indians, and Cape Verdeans. "Commission" refers to the Massachusetts Commission Against Discrimination. "Town" hereinafter refers to the Town of Bellingham.

II. During the performance of this contract, the Contractor and all of (his) Sub-contractors (hereinafter collectively referred to as the Contractor), for himself, his assignees, and successors in interest, agree as follows:

1.) In Connection with the performance of work under this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, or sex. The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion, or transfer; recruitment advertising; recruitment layoff; termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection of apprenticeship. The Contractor shall post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Town setting forth the provisions of the Fair Employment Practices Law of the Commonwealth (M.G.L. Chapter 151b).

2.) In connection with the performance of work under this contract, the Contractor shall undertake in good faith affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age, or sex, and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of hiring, upgrading, demotion, or transfer, recruitment, layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal opportunity in employment for all persons, regardless of race, color, religious creed, national origin, age, or sex. A purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for this and future Town public construction projects.

III.

1.) As part of his obligation of remedial action under the foregoing section, the Contractor shall maintain on this project a not less than 5% ratio minority employee man hours to total man hours in each job category including but not limited to brick-layers, carpenters, cement masons, electricians, ironworkers, operating engineers, and those "classes of work" enumerated in Section 44C of Chapter 149 of the Massachusetts General Laws.

2.) In the hiring of minority journeymen, apprentices, trainees, and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the Town, traditional referral methods utilized by the construction industry,

and referrals from agencies, not more than three in number at any one time, designated by the Liaison Committee or the Town.

IV.

1.) At the discretion of either the Commission or the Town there may be established for the life of this contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the agency or agencies administering this project, hereinafter called the administering agency, the Town and such other representatives as may be designated by the Town in conjunction with the administering agency.

2.) The Contractor (or his agent, if any, designated by him as the onsite equal employment opportunity officer) shall recognize the Liaison Committee as an affirmative action body, and shall establish a continuing working relationship with the Liaison Committee, consulting with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.

3.) The Contractor shall prepare projected manning tables on a quarterly basis. These shall be broken down into projections, by week, or workers required in each trade. Copies shall be furnished one week in advance of the commencement of the period covered, and also when updated, to the Town and Liaison Committee.

4.) Records of employment referral orders, prepared by the Contractor, shall be available to the Town and to the Liaison Committee or request.

5.) The Contractor shall prepare weekly reports in a form approved by the Town of hours worked in each trade by each employee, identified as minority or non-minority. Copies of these shall be provided at the end of each week to the Town and to the Liaison Committee.

V. If the Contractor shall use subcontractor or any work performed under this contract, he shall take affirmative action to negotiate with qualified minority subcontractors. This affirmative action shall cover both pre-bid and post-bid periods. It shall include notification to the Office of Minority Business Assistance (within the Executive Office of Commerce and Development) or its designee, while bids are in preparation, of all products, work or services for which the Contractor intends to negotiate bids.

VI. In the employment of journeymen, apprentices, trainees and advanced trainees, the Contractor shall give preference, first, to citizens of the Commonwealth who have served in the armed services of the United States in time of war and have been honorably discharged therefrom or released from active duty therein, and who are qualified to perform the work to which the employment relates, and secondly, to citizens of the Commonwealth generally, and, if such cannot be obtained in sufficient numbers, then to citizens of the United States.

VII. A designee of the Town and a designee of the Liaison Committee shall each have right of access to the construction site.

VIII. Compliance with Requirements

The contractor shall comply with the provisions of Executive Order No. 74, as amended by Executive Order of No. 116 dated May 1, 1975, and of Chapter 151B as amended, of the Massachusetts General Laws, both of which are herein incorporated by reference and made a part of this contract.

IX. Non-Discrimination

The Contractor, in the performance of all work after award, and prior to completion of the contract work, will not discriminate on grounds of race, color, religious creed, national origin, age and sex in employment practices, in the selection or retention of subcontractors, or in the procurement of materials and rentals of equipment.

X. Solicitations for Sub-Contracts, and for the Procurement of Material and Equipment

In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor supplier shall be notified in writing by the Contractor of the Contractor's obligations under this contract relative to non-discrimination and affirmative action.

XI. Bidders Certification Requirement

The following certification statement will be inserted in the bid document just above the bidder's signature, as a substitute for the present bidder certification form:

"The bidder hereby certifies he shall comply with the minority manpower ratio and specific action steps contained in the appendix EEO attached hereto, including compliance with the minority contractor compliance specified in Section V of said appendix. The contractor receiving the award of the contract shall be required to obtain from each of its subcontractors and submit to the contracting or administering agency prior to the performance and of any work under said contract a certification by said subcontractor, regardless of tier, that it will comply with the minority manpower ratio and specific affirmative action steps contained in the appendix EEO."

XII. Contractor's Certification

The Contractor's certification form must be signed by all successful low bidder(s) prior to award by the contracting agency. (See Official Bid Form.)

XIII. Compliance-information, Reports and Sanctions

1.) The contractor will provide all information and reports required by the administering agency or the Town on instructions issued by either of them and will permit access to its facilities and any books, records, accounts and other sources of information which maybe determined by the Town to affect the employment of personnel. This provision shall apply only to information pertinent to the Town's supplementary affirmative action contract requirements. Where information required is in the exclusive possession of another who

fails or refuses to furnish this information, the Contractor shall so certify to the administering agency or the Town as appropriate and shall set forth what efforts he has made to obtain the information.

2.) Whenever the administering agency, the Town, or the Liaison Committee believes the General Contractor or any Subcontractor may not be operating in compliance with the terms of this Section, the Town directly, or through its designated agent, shall conduct an appropriate investigation, and may confer with the parties, to determine if such Contractor is operating in compliance with the terms of this Section. If the Town or its agent finds the General Contractor or any subcontractor not in compliance, it shall make a preliminary report on non-compliance, and notify such Contractor in writing of such steps as will in the judgment of the Town or its agent bring such Contractor into compliance.

In the event that such Contractor fails or refuses to fully perform such steps, the Town shall make a final report of non-compliance, and recommend to the administering agency the imposition of one or more of the sanctions listed below. If, however, the Town believes the General Contractor or any Subcontractor has taken or is taking every possible measure to achieve compliance, it shall not make a final report of non-compliance. Within fourteen days of the receipt of the recommendations of the Town, the administering agency shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement.

a. The recovery by the administering agency from the General Contractor of 1/100 of 1% of the contract award price or $1,000 whichever sum is greater, in the nature of liquidated damages or, if a Subcontractor is in non-compliance, the recovery by the administering agency from the General Contractor, to be assessed by the General Contractor as a back charge against the Subcontractor, of 1/10 of 1% of the subcontract price, or $400 whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply;
b. The suspension of any payment or part thereof due under the contract until such time as the General Contractor or any Subcontractor is able to demonstrate his compliance with the terms of the contract;
c. The termination, or cancellation, of the contract, in whole or in part, unless the General Contractor or any Subcontractor is able to demonstrate within a specified time his compliance with the terms of the contract;
d. The denial to the General Contractor or any Subcontractor of the right to participate in any future contracts awarded by the administering agency for a period of up to three years.

3.) If at any time after the imposition of one or more of the above sanctions of a Contractor is able to demonstrate that he is n compliance with this Section, he may request the administering agency, in consultation with the Town, to suspend the sanctions conditionally, pending a final determination by the Town as to whether the Contractor is in compliance. Upon final determination of the Town, the administering agency, based on the recommendation of the Town, shall either lift the sanctions or re-impose them.

4.) Sanctions enumerated under Sections XIII-2 shall not be imposed by the administering agency except after an adjudicator proceeding, as that term is used M.G.L. c. 30A, has been

conducted. No investigation by the Town or its agent shall be initiated without prior notice to the Contractor.

XIV. Severability

The provisions of this section are severable, and if any of these provisions shall be held unconstitutional by any court or competent jurisdiction, the decision of such shall not affect or impair any of the remaining provisions.

MINIMUM MINORITY PERCENTAGES TO BE APPLIED TO

STATE AND STATE ASSISTED CONTRACTS

WITHIN THE COMMONWEALTH OF MASSACHUSETTS

The following percentages shall apply:		No Less Than
Boston:	Impact Area (Jamaica Plain (part), Mattapan, South Cove, Chinatown, Bay Village, Roxbury, Dorchester, South End)	30%
	Others	10%
Cambridge		12%
New Bedford		18%
Springfield		10%
All other cities and towns		5%

APPENDIX A

GENERAL CONDITIONS
&
SUPPLEMENTAL PROVISIONS

BELLINGHAM DPW

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

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American Council of Engineering Companies

The Associated General Contractors of America
Skill · Responsibility · Integrity

ASCE American Society of Civil Engineers

PE National Society of Professional Engineers
Professional Engineers in Private Practice

AMERICAN COUNCIL OF ENGINEERING COMPANIES

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Endorsed by

CSI

CONSTRUCTION SPECIFICATIONS INSTITUTE

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

19. *Engineer*—The individual or entity named as such in the Agreement. **(SEE SUPPLEMENTARY CONDITIONS)**

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

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

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

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

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

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

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

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

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

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

30. *PCBs*—Polychlorinated biphenyls.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1.02 *Terminology*

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

B. *Intent of Certain Terms or Adjectives:*

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

C. *Day:*

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

D. *Defective:*

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

a. does not conform to the Contract Documents; or

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

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

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

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

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

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

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

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

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

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

2.02 *Copies of Documents*

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

2.03 *Commencement of Contract Times; Notice to Proceed*

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

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2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

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

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

2. a preliminary Schedule of Submittals; and

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

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

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

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

2.07 *Initial Acceptance of Schedules*

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

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

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the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

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

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

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent (***SEE SUPPLEMENTARY CONDITIONS***)*

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

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

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

3.02 *Reference Standards*

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

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

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

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

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

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

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

B. *Resolving Discrepancies:*

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

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

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

3.04 *Amending and Supplementing Contract Documents*

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

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

1. A Field Order;

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

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3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

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

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

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

3.06 *Electronic Data*

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

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

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

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

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

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Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

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

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

4.02 *Subsurface and Physical Conditions*

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

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

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

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

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

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

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

4.03 *Differing Subsurface or Physical Conditions*

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

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

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

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

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

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

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

C. *Possible Price and Times Adjustments:*

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

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

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

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

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

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

   c. ~~Contractor failed to give the written notice as required by Paragraph 4.03.A~~. **(SEE SUPPLEMENTARY CONDITIONS)**

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages

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(including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

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

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

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

a. reviewing and checking all such information and data;

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

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

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

B. *Not Shown or Indicated:*

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

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

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or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

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

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

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

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

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

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

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by

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Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

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

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

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

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

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

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds (***SEE SUPPLEMENTARY CONDITIONS)**

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

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

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

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

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

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

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

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

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

5.04 *Contractor's Insurance* **(SEE SUPPLEMENTARY CONDITIONS)**

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

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

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

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

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

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

~~b. by any other person for any other reason;~~

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

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

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

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

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

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

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

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

6. include completed operations coverage:

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

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

5.05 *Owner's Liability Insurance* **(SEE SUPPLEMENTARY CONDITIONS)**

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

5.06 *Property Insurance* **(SEE SUPPLEMENTARY CONDITIONS)**

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

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

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

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

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

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

6. include testing and startup; and

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

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

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

D. Owner shall not be responsible for purchasing and maintaining any property insurance to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any

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such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

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

5.07 *Waiver of Rights* **(SEE SUPPLEMENTARY CONDITIONS)**

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

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

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

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

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery

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against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds* **(SEE SUPPLEMENTARY CONDITIONS)**

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

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

5.09 *Acceptance of Bonds and Insurance; Option to Replace* **(SEE SUPPLEMENTARY CONDITIONS)**

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

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

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ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

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

6.02 *Labor; Working Hours*

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

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

6.03 *Services, Materials, and Equipment*

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

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

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

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6.04 *Progress Schedule*

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

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

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

6.05 *Substitutes and "Or-Equals"*

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

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

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

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

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

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

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

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

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

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2. *Substitute Items:*

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

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

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

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

      1) shall certify that the proposed substitute item will:

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

         b) be similar in substance to that specified, and

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

      2) will state:

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

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

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

      3) will identify:

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

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

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

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

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

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

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

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

6.06 *Concerning Subcontractors, Suppliers, and Others*

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

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or

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other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

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

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

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

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

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

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

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

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6.07 *Patent Fees and Royalties*

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

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

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

6.08 *Permits*

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

6.09 *Laws and Regulations*

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

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all

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court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

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

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

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

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

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

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

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

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor

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shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

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

6.12 *Record Documents*

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

6.13 *Safety and Protection*

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

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

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

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

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

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

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

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

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

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

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

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1. *Shop Drawings:*

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

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

2. *Samples:*

    a. Submit number of Samples specified in the Specifications.

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

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

C. *Submittal Procedures:*

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

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

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

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

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

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

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop

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Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

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

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

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

E. *Resubmittal Procedures:*

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

6.18 *Continuing the Work*

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

6.19 *Contractor's General Warranty and Guarantee*

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

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

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

2. normal wear and tear under normal usage.

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

1. observations by Engineer;

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

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

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

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

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

7. any correction of defective Work by Owner.

6.20 *Indemnification (***SEE SUPPLEMENTARY CONDITIONS***)*

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

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

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Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

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

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

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

6.21 *Delegation of Professional Design Services*

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

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

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

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

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

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ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

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

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

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

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

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

7.02 *Coordination*

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

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

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

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

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

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7.03 *Legal Relationships*

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

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

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

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance* **(<u>SEE SUPPLEMENTARY CONDITIONS)</u>**

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

8.07 *Change Orders*

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

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8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

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

8.12 *Compliance with Safety Program*

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

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits

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and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

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

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

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

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

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

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

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

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

9.07 *Determinations for Unit Price Work*

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

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

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

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

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

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

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

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

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

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

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

9.10 *Compliance with Safety Program*

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

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

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

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

10.02 *Unauthorized Changes in the Work*

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

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10.03 *Execution of Change Orders*

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

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

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

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

10.04 *Notification to Surety*

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

10.05 *Claims*

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

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The

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opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

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

1. deny the Claim in whole or in part;

2. approve the Claim; or

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

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

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

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

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

11.01 *Cost of the Work*

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

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

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Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

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

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

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

5. Supplemental costs including the following:

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

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

    c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

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

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

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

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

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

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

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

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

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

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

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

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

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

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

11.02 *Allowances*

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

B. *Cash Allowances:*

1. Contractor agrees that:

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

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

C. *Contingency Allowance:*

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

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

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

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

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

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

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

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

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

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

12.01 *Change of Contract Price*

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

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

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

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

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

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

1. a mutually acceptable fixed fee; or

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

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

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

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

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

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

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

12.02 *Change of Contract Times*

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

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

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

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

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the

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control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

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

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

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

13.01 *Notice of Defects*

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

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

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

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

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

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

3. as otherwise specifically provided in the Contract Documents.

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

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

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

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

13.04 *Uncovering Work*

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

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

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

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

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13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

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

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

13.07 *Correction Period* (**SEE SUPPLEMENTARY CONDITION)**

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

~~1. repair such defective land or areas; or~~

~~2. correct such defective Work; or~~

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

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

~~B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers,~~

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~~architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.~~

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

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

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

13.08 *Acceptance of Defective Work*

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

13.09 *Owner May Correct Defective Work*

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

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances,

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construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

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

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

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

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

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the

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Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

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

B. *Review of Applications:*

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

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

   a. the Work has progressed to the point indicated;

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

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

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

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

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

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

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

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

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

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

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

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

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

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

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

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

C. *Payment Becomes Due:*

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

D. *Reduction in Payment:*

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

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

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

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

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

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

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title* (**SEE SUPPLEMENTARY CONDITIONS)**

~~A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.~~

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities

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pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

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14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

   d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

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1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

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1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

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F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

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ARTICLE 16 – DISPUTE RESOLUTION (SEE SUPPLEMENTARY CONDITIONS)

~~16.01 *Methods and Procedures*~~

~~A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.~~

~~B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.~~

~~C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:~~

~~1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or~~

~~2. agrees with the other party to submit the Claim to another dispute resolution process; or~~

~~3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.~~

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

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17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SUPPLEMENTARY CONDITIONS

Table of Contents

Article Number	Title
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4	AVAILABILITY OF LANDS: SUBSURFACE ANN PHYSICAL CONDITIONS; REFERENCE POINTS
5	BONDS AND INSURANCE
6	CONTRACTOR'S RESPONSIBILITY
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11	CHANGE OF CONTRACT PRICE
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13	TEST AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK
14	PAYMENTS TO CONTRACTOR AND COMPLETION
15	SUSPENSION OF WORK AND TERMINATION
16	DISPUTE RESOLUTION
17	MISCELLANEOUS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8-FA, 1997 edition) and other provisions of the Contract Documents as indicated below. All provisions, which are not so amended or supplemented, remain in full force and effect.

ARTICLE 1. DEFINITIONS

Add the following language at the end of definition 20 entitled “ENGINEER” in the General Conditions:

“On this contract the Bellingham Department of Public Works Director or his appointed designee will act as ENGINEER. All reference to ENGINEER in these specifications shall be equivalent to the DPW Director.”

Add the following language at the beginning of definition 31 entitled “OWNER” in the General conditions:

“The Town of Bellingham shall be the OWNER in this Contract.”

Add the following definition:

“Working Day” shall be any day which is not a Saturday, Sunday, Holiday for the Town of Bellingham Department of Public Works shop staff.

ARTICLE 2. PRELIMINARY MATTERS

Delete paragraph 2.05.C, of the General Conditions in its entirety and insert the following in its place:

“C. Before any Work whatsoever is started, CONTRACTOR shall deliver to OWNER certificates of insurance (and other evidence requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the requirements of ARTICLE 5.”

ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING AND REUSE.

3.01 INTENT

Add a new paragraph immediately after paragraph A, of the General Conditions, which is to read as follows:

“Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it where included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.”

ARTICLE 4. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.03 Differing Subsurface or Physical Conditions

Delete paragraph C.2.c of the General Conditions in its entirety and insert the following in its place.

"c. CONTRACTOR failed to give written notice to the OWNER and ENGINEER within twenty one days after becoming aware of a differing subsurface of physical condition as defined in and as required by paragraph 4.03."

ARTICLE 5. BONDS AND INSURANCE

5.03 Certificates of Insurance

Delete the second sentence in paragraph A of the General Conditions, which begins "OWNER shall deliver to...."

5.04 Contractor's Liability Insurance

Delete paragraphs 5.04 of the General Conditions in their entirety and insert the following:

5.04 Contractor's Liability Insurance

A. INSURANCE GENERAL

1. The CONTRACTOR shall procure and maintain at their sole expense and until final acceptance of the work by the OWNER insurance as hereinafter enumerated in policies written by insurance companies admitted in the State of Massachusetts, and acceptable to the OWNER. All insurance companies must carry an "A. M. Best's" Policyholders rating of "A"; and all insurance policies shall be subject to the Town of Bellingham's final approval as to policy form.

2. All insurance companies must carry an "A. M. Best's" Policyholders rating of "A"; and all insurance policies shall be subject to the Town of Bellingham's final approval as to policy form.

3. The CONTRACTOR shall not begin any work until the insurance as required by this agreement has been obtained and until copies of policies and/or original insurance certificates have been submitted to OWNER.

4. OWNER **s**hall be given at least 30 days written notice of cancellation, non-renewal, or material change of the required insurance coverage. Copies of policies, certificates and required written notice shall be sent to:

BELLINGHAM DPW
Town of Bellingham, MA
26 Blackstone Street
Bellingham, MA 02019

B INSURANCE DETAILS AND LIMITS

1. WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE

The CONTRACTOR agrees to comply with the Workers' Compensation laws of the Commonwealth of Massachusetts. If required by law, the CONTRACTOR agrees to maintain a MA Workers' Compensation" policy.

The limits shall be:

Workers' Compensation	Statutory MA Benefits
Employer's Liability	$500,000 each accident
	$500,000 Disease Policy Limit
	$500,000 Disease each employee Limit

Endorsements:
The "Waver Of The Insurance Companies Right To Recover From Others Endorsement" form WC 00 03 13 shall be added for the benefit of the OWNER.

The "MA Limits of Liability Endorsement" form WC 20 03 shall be included.

2. COMMERCIAL GENERAL LIABILITY INSURANCE and/or COMPREHENSIVE GENERAL LIABILITY INSURANCE

The CONTRACTOR shall provide Commercial General Liability Insurance that includes "products / completed operations insurance". "Blasting" operations coverage will also be provided if, the exposure exists or arises during the work.

The Commercial General liability limits shall be:

Annual Aggregate	$3,000,000
Products-Comp/Op Aggregate	$3,000,000
Bodily Injury and Property Damage	$1,000,000
Each Occurrence	$1,000,000

The OWNER shall be named as "Additional Insured". Product and Completed Operations shall be maintained for up to three (3) years after completion of the project.

3. OWNERS PROTECTIVE LIABILITY INSURANCE

The CONTRACTOR shall purchase "Owner's Protective" Liability Insurance in the name of the OWNER (and its elected and appointed officials, employees, and agents) which shall provide liability insurance for the OWNER for any claims arising out of any operations performed by or the responsibility of the CONTRACTOR.

The OWNER's Protective Liability limits shall be:

Each Occurrence	$1,000,000

4. BUSINESS AUTOMOBILE POLICY

The CONTRACTOR shall provide a Business Automobile Policy that includes coverage for: All owned, non-owned, leased, and hired vehicles.

The Business Automobile Liability "Combined Occurrence" limit shall be:

Bodily Injury and Property Damage $1,000,000 per accident

The OWNER shall be named as "Additional Insured".

D. BUILDERS' RISK PROPERTY COVERAGE

Builders' Risk Property Coverage shall be for the full insurable value (completed value) of the portion of any building under construction. It shall be "All Risk" insurance for physical loss or damage including theft.

E. UMBRELLA LIABILITY

Umbrella Liability of at least $2,000,000 per occurrence, and $2,000.000 aggregate must be maintained. The OWNER shall be named as "Additional Insured".

F. INSURANCE SUMMARY

1. All responsibility for payment of any sums resulting from any policy deductible provisions, and/or policy premium audit provisions shall remain with the CONTRACTOR.

2. It is expressly understood that the OWNER does not in any way represent that the specified limits of liability or coverage of policy forms are sufficient or adequate to protect the interest or liabilities of the CONTRACTOR.

3. Approval of any insurance by the OWNER shall not in any way relieve or decrease the liability of the CONTRACTOR under these insurance requirements.

G. CONTRACTOR'S INDEMNITY

1. The CONTRACTOR shall agree to and execute the "Contractor's Indemnity Form" attached to the end of the Supplementary Conditions.

5.05 OWNER's Liability Insurance

Delete the section 5.05 OWNER's Liability Insurance in its entirety.

5.06 Property Insurance

Delete the section 5.05 OWNER's Liability Insurance in its entirety and replace it with the following:

"5.06 Property Insurance

OWNER shall not be responsible for purchasing and maintaining any property insurance to protect the interest of the CONTRACTOR, Subcontractors, or others in the Work. If any of them wishes property insurance coverage, each may purchase and maintain it at the purchaser's own expense."

5.07 Waiver of Rights

Delete the section 5.07 Waiver of Rights in its entirety.

5.08 Receipt and Application of Insurance Proceeds

Delete paragraph A of the General Conditions in its entirety.

Delete paragraph B of the General Conditions in its entirety.

5.09 Acceptance of Bonds and Insurance; Option to Replace

Delete paragraph A of General Conditions in its entirety and insert the following in its place:

"A. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with this Article 5 on the basis of its not complying with the Contract Documents, OWNER will notify CONTRACTOR in writing thereof within ten days of the date of delivery of such certificates to OWNER in accordance with paragraph 2.7. CONTRACTOR will provide such additional information in respect of insurance provided by him as OWNER may reasonably request."

ARTICLE 6. CONTRACTOR's RESPONSIBILITIES

6.01 Supervision and Superintendent

Delete paragraph B. of the General Conditions in its entirety and replace with the following:

"B. At the site of the Work the CONTRACTOR shall employ a construction superintendent or foreman who shall have full authority to act for the CONTRACTOR. It is understood that such representative shall be acceptable to the ENGINEER and shall be one who will be continued in the capacity for the particular job involved unless the representative ceases to be on CONTRACTOR's payroll. If at any time during the Work the representative is deemed by the ENGINEER to be no longer acceptable, the representative shall be promptly replaced by the CONTRACTOR. All communications to the superintendent shall be as binding as if given to the CONTRACTOR.

6.20 Indemnification

Delete paragraphs A, A.1, and A.2 of the General Conditions in its entirety and replace with the following:

"A. To the fullest extent permitted by law, The CONTRACTOR shall indemnify and hold harmless to OWNER, the ENGINEER, ENGINEER'S consultants, and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from the performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by acts or omissions of the

CONTRACTOR, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall apply to any such claims, damages, losses and expenses which arise and/or are incurred by any person or entity either during the performance of the Work and/or after completion of construction. Nothing in this paragraph shall be construed to negate, abridge, or reduce other rights or obligations of indemnity or contribution which would otherwise exist as to a party or person indemnified hereunder. CONTRACTOR's employees, and for any and all damage to property caused by, resulting from, or arising out of any act, omission or neglect on the part of the CONTRACTOR, or of any Subcontractor or of anyone directly or indirectly employed by any of them or of anyone for whose acts, any of them may be liable."

Delete paragraph C, C.1, and C.2 of the General Conditions in its entirety.

ARTICLE 8. OWNER's RESPONSIBILITIES

8.06 Insurance

Delete paragraph A of the General Conditions in its entirety.

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

13.07 Correction Period

Delete paragraph A of the General Conditions and insert the following in its place:

"A. If within three years after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) correct such defective, work, or, if it has been rejected by OWNER, remove it from the site and replace it with work that is not defective, and (ii) satisfactorily correct or remove and replace any damage to other work or the work of others therefrom. If CONTRACTOR does not begin the repairs within ten (10) days of receipt of written notification and promptly comply with the terms of OWNER's written instructions, or in an emergency where delay would cause serious risk, loss or damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR."

ARTICLE 14. PAYMENTS TO CONTRACTOR AND COMPLETION

14.03 CONTRACTOR'S Warranty of Title

Delete paragraph A in its entirety and insert the following in its place:

"A. CONTRACTOR warrants and guarantees that title to all work material and equipment covered by any Application for Payment whether incorporated in the Project or not, will pass to OWNER no later than at the time of Application for Payment free and clear of all liens. CONTRACTOR shall provide written transfer of title and a certified paid invoice provided by the supplier."

ARTICLE 15. SUSPENSION OF WORK AND TERMINATION

15.02 OWNER May Terminate for Cause

Add two new paragraphs immediately after paragraph A.4. of the General Conditions which is to read as follows:

"5. If the Work to be done under this Contract shall be abandoned, or if this Contract or any part thereof shall be sublet, without the previous written consent of OWNER, or if the contract or any claim thereunder shall be assigned by CONTRACTOR otherwise than as herein specified;

6. If the CONTRACTOR fails to start work or deliver materials within 30 days of receipt of a written notice to proceed, or fails to deliver materials, 20 days from receipt of a purchase order:"

ARTICLE 16 - DISPUTE RESOLUTION

Delete this section in its entirety.

ARTICLE 17 - MISCELLANEOUS

Add the following new paragraphs after paragraph 17.05. of the General Conditions:

17.06 Assignment: The CONTRACTOR shall not assign the whole or any part of this Contract or any moneys due or to become due hereunder until thirty (30) days prior notice in writing has been given to the OWNER of the intention to assign, which notice shall state the identify and address of the prospective assignee. No assignment shall be made without the OWNER's prior written consent. Such consent shall not be reasonably withheld. In case the CONTRACTOR assigns all or any part of the moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the CONTRACTOR shall be subject to prior claims of all claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the work called for in this Contract.

17.07 Liability: It is understood and agreed that members of the OWNERS or the ENGINEER or any agent or employees of the OWNER signing this Agreement shall not be personally liable hereunder for any action incurred in connection with this contract.

17.08 Severability: If any provision of this Agreement shall be invalid or unenforceable to any extent or in any application, then the remainder of this Agreement and of such application, shall not be affected thereby, and each and every term and condition of this Agreement shall be valid and enforced to the fullest extent and in the broadcast application permitted by law."

17.09 Minimum Wages: Minimum wages determined by the Commonwealth of Massachusetts Department of Labor and Industries under the provisions of the Massachusetts General Laws Chapter 149, Section 26-27D, inclusive as amended, apply to all work on this project.

17.10 TIME OF COMPLETION and WORKING DAYS: If the CONTRACTOR feels the weather conditions are not conducive to good construction on a day otherwise defined as a working day. He must submit the reason in writing to the ENGINEER. The ENGINEER will file all such requests and shall submit them to the OWNER with any written request for a time extension.

The CONTRACTOR will not be allowed to work on Saturdays, Sundays or any day which is a Holiday for the Town of Bellingham Department of Public Works shop staff, without submitting a written request for permission to perform work on said days and without receipt of written permission from the ENGINEER for said work. Any such day approve for work shall be counted off of the time of completion for the contract.

17.11 PROTECTION OF PRIVATE AND PUBLIC PROPERTY: The CONTRACTOR shall be responsible for protecting his own work and all nearby abutting properties form damage resulting from his performance of the contract. He shall pay particular attention to trees,. shrubs, lawns, steps, walks, etc., abutting the work and shall save them from damage and harm. If, through negligence or carelessness, the CONTRACTOR damages such trees, scrubs, etc., an amount equal to the damage done will be deducted from payment due to contractor. Said deduction shall be determined by the ENGINEER and shall be binding and final.

17.12 EXECUTION CLAUSE: This contract is executed in Massachusetts, is a Massachusetts obligation, is to be construed and enforces according to the laws of the Commonwealth of Massachusetts and the CONTRACTOR agrees to be bound under the contract in accordance with the laws of the Commonwealth of Massachusetts and any and all disputes and problems concerning or arising out of or under the contract shall be litigated or otherwise resolved in Massachusetts and in accordance with the laws of the Commonwealth of Massachusetts.

17.13 SAFETY: All work on any item of this contract or work related to deliver of any item related to this contract will be done in strict compliance with all federal OSHA Safety Standard as they are at the time of the bid and as the may be amended.

Contractor's Indemnity Form

INDEMNITY: Damage by CONTRACTOR to OWNER's Property

The CONTRACTOR shall compensate the OWNER for all damages of any nature to the OWNER's property arising out of the CONTRACTOR's work.

INDEMNITY: Legal Liability

The CONTRACTOR shall indemnify, defend and save harmless the OWNER, (and its elected and appointed officials, employees, and agents) for any and all suits, actions, legal or administrative proceeding, claims, demands, damages, liabilities, interest, attorneys fees, costs and expenses of whatsoever kind or nature, whether arising before or after final acceptance and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part by reason of any act, error or omission, fault or negligence whether active or passive by the CONTRACTOR, or any one acting under the CONTRACTOR's direction, control or on the CONTRACTOR's behalf in connection with or incident to the CONTRACTOR's work or performance thereof.

INDEMNITY: Workers Compensation

The CONTRACTOR agrees to comply with the MA Workers' Compensation Act. The CONTRACTOR shall indemnify, defend and save harmless the OWNER, (and its elected and appointed officials, employees, and agents) for any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, interest, attorneys fees, costs and expenses of whatsoever kind or nature, arising our of bodily injury and/or death and/or injury to the CONTRACTOR (if an individual) or to CONTRACTOR's employees (if there are any) or to any person acting under the CONTRACTOR's direction, control or on the CONTRACTOR's behalf in connection with or incident to the work or performance thereof.

ACCEPTED BY THE CONTRACTOR

_____

Signature Date

CONTRACTOR's NAME & ADDRESS

_____

_____

_____

APPENDIX B

MASSACHUSETTS

WAGE SCALE

&

FORMS

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF LABOR

DIVISION OF OCCUPATIONAL SAFETY

PREVAILING WAGE PROGRAM

www.mass.gov/dos/pw
19 Staniford Street C 2nd Floor
Boston, Massachusetts 02114
Tel: 617-626-6953
Fax: 617-626-6944

The Massachusetts Prevailing Wage Law

M.G.L. c. 149, §§26-27

NOTICE TO AWARDING AUTHORITIES

The enclosed wage schedule applies only to the specific project listed at the top of the schedule, and these rates will remain in effect for the duration of the project, except in the case of multi-year projects. For projects lasting longer than one year, awarding authorities must request updated rates.

You should request an updated wage schedule from the Division of Occupational Safety if you have not opened bids or selected a contractor within 90 days of the date of issuance of the enclosed wage schedule.

The wage schedule shall be incorporated in any advertisement or call for bids for the project for which it has been issued.

Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project.

NOTICE TO CONTRACTORS

The enclosed wage schedule must be posted in a conspicuous place at the work site during the life of the project.

The wages listed on the enclosed wage schedule must be paid to employees on public works projects regardless of whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.

The enclosed wage schedule applies to all phases of the project, including the final clean-up. Contractors whose only role is to perform final clean-up must pay their employees according to this wage schedule.

All apprentices must be registered with the Massachusetts Division of Apprenticeship Training (DAT) in order to be paid at the lower apprentice rates. All apprentices must keep his/her apprentice identification card on his/her person during all work hours. If a worker is not registered with DAT, they must be paid the "total rate" listed on the wage schedule regardless of experience or skill level. For further information, please call 617-626-5409, or write to: DAT, 19 Staniford Street, 1st Floor, P.O. Box 146759, Boston, MA 02114.

MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM

Company's Name:	Address:	Phone No.:	Payroll No.:

Employer's Signature:	Title:	Contract No:	Tax Payer ID No.	Work Week Ending:

Awarding Authority's Name:	Public Works Project Name:	Public Works Project Location:	Min. Wage Rate Sheet No.

General / Prime Contractor's Name:	Subcontractor's Name:		"Employer" Hourly Fringe Benefit Contributions				

Employee Name & Complete Address	Employee is OSHA 10 Certified (?)	Work Classification:	Appr. Rate (%)	Hours Worked Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	Project Hours (A) All Other Hours	Hourly Base Wage (B)	Health & Welfare Insurance (C')	ERISA Pension Plan (D)	Supp. Unemp. (E)	(B+C+D+E) Total Hourly Prev. Wage (F)	(A x F) Project Gross Wages (G) Total Gross Wages	Check No. (H)
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NOTE: Pursuant to MGL Ch. 149 s.27B, every contractor and subcontractor is required to submit a "true and accurate" copy of their weekly payroll records directly to the awarding authority. Failure to comply may result in the commencement of a criminal action or the issuance of a civil citation.

Date recieved by awarding authority
/ /

WEEKLY PAYROLL RECORDS REPORT
& STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 20_____

I,_____,_____
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by _____ on the _____
(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____

Title _____

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS
Prevailing Wage Rates

MAURA HEALEY
Governor
KIM DRISCOLL
Lt. Governor

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN JONES
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority: Bellingham - Department of Public Works
City/Town: BELLINGHAM
Contract Number: 2026-HARI
Description of Work: Roadway Improvements from I495 South Ramp to Arrowhead Drive
Job Location: Hartford Ave, Bellingham MA

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- 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 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, the 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. The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.
- This annual update requirement is generally not applicable to 27F "rental of equipment" contracts. For such contracts, the prevailing wage rates issued by DLS shall remain in effect for the duration of the contract term. However, if the prevailing wage rate sheet issued does not contain wage rates for each year covered by the contract term, the Awarding Authority must request updated rate sheets from DLS and provide them to the contractor to ensure the correct rates are being paid throughout the duration of the contract. Additionally, if an Awarding Authority exercises an option to renew or extend the contract term, they must request updated rate sheets form DLS and provide them to the contractor.
- 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 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 a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons 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 DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must 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. For a sample payroll reporting form go to 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.
- Contractors must obtain the wage schedules from awarding authorities. 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.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$40.95	$16.17	$21.78	$0.00	$0.00	$78.90
	6/1/2026	$41.95	$16.17	$21.78	$0.00	$0.00	$79.90
	12/1/2026	$41.95	$16.17	$23.52	$0.00	$0.00	$81.64
	1/1/2027	$41.95	$16.77	$23.52	$0.00	$0.00	$82.24
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$41.02	$16.17	$21.78	$0.00	$0.00	$78.97
	6/1/2026	$42.02	$16.17	$21.78	$0.00	$0.00	$79.97
	12/1/2026	$42.02	$16.17	$23.52	$0.00	$0.00	$81.71
	1/1/2027	$42.02	$16.77	$23.52	$0.00	$0.00	$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$41.14	$16.17	$21.78	$0.00	$0.00	$79.09
	6/1/2026	$42.14	$16.17	$21.78	$0.00	$0.00	$80.09
	12/1/2026	$42.14	$16.17	$23.52	$0.00	$0.00	$81.83
	1/1/2027	$42.14	$16.77	$23.52	$0.00	$0.00	$82.43
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1) For apprentice rates see "Apprentice- PILE DRIVER"	1/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
AIR TRACK OPERATOR LABORERS LABORERS - ZONE 2 For apprentice rates see "Apprentice- LABORER"	12/1/2025	$41.97	$10.15	$9.50	$9.11	$0.00	$70.73
	6/1/2026	$43.41	$10.15	$9.50	$9.11	$0.00	$72.17
	12/1/2026	$44.85	$10.15	$9.50	$9.11	$0.00	$73.61
	6/1/2027	$46.30	$10.15	$9.50	$9.11	$0.00	$75.06
	12/1/2027	$47.75	$10.15	$9.50	$9.11	$0.00	$76.51
	6/1/2028	$49.25	$10.15	$9.50	$9.11	$0.00	$78.01
	12/1/2028	$50.75	$10.15	$9.50	$9.11	$0.00	$79.51
AIR TRACK OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY) For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"	12/1/2025	$41.97	$10.15	$9.50	$9.21	$0.00	$70.83
	6/1/2026	$43.41	$10.15	$9.50	$9.21	$0.00	$72.27
	12/1/2026	$44.85	$10.15	$9.50	$9.21	$0.00	$73.71
ASBESTOS WORKER (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (SOUTHERN MASS)	12/1/2025	$44.80	$14.50	$4.30	$6.75	$0.00	$70.35
ASPHALT RAKER LABORERS LABORERS - ZONE 2 For apprentice rates see "Apprentice- LABORER"	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
ASPHALT RAKER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.47	$10.15	$9.50	$9.21	$0.00	$70.33
	6/1/2026	$42.91	$10.15	$9.50	$9.21	$0.00	$71.77
	12/1/2026	$44.35	$10.15	$9.50	$9.21	$0.00	$73.21

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
OPERATING ENGINEERS LOCAL 4	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BACKHOE/FRONT-END LOADER	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
OPERATING ENGINEERS LOCAL 4	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BARCO-TYPE JUMPING TAMPER	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
LABORERS	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
LABORERS - ZONE 2	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER	12/1/2025	$41.97	$10.15	$9.50	$9.11	$0.00	$70.73
LABORERS	6/1/2026	$43.41	$10.15	$9.50	$9.11	$0.00	$72.17
LABORERS - ZONE 2	12/1/2026	$44.85	$10.15	$9.50	$9.11	$0.00	$73.61
	6/1/2027	$46.30	$10.15	$9.50	$9.11	$0.00	$75.06
	12/1/2027	$47.75	$10.15	$9.50	$9.11	$0.00	$76.51
	6/1/2028	$49.25	$10.15	$9.50	$9.11	$0.00	$78.01
	12/1/2028	$50.75	$10.15	$9.50	$9.11	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)	12/1/2025	$41.97	$10.15	$9.50	$9.21	$0.00	$70.83
LABORERS	6/1/2026	$43.41	$10.15	$9.50	$9.21	$0.00	$72.27
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	$44.85	$10.15	$9.50	$9.21	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
BOILER MAKER	1/1/2024	$48.12	$7.07	$14.60	$6.00	$0.00	$75.79
BOILERMAKERS LOCAL 29							
BOILERMAKERS LOCAL 29							

Apprentice: BOILER MAKER

Effective Date: 1/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	65.00	$31.28	$7.07	$9.32	$3.90	$0.00	$51.57
2	65.00	$31.28	$7.07	$9.32	$3.90	$0.00	$51.57
3	70.00	$33.68	$7.07	$10.03	$4.20	$0.00	$54.98
4	75.00	$36.09	$7.07	$10.74	$4.50	$0.00	$58.40
5	80.00	$38.50	$7.07	$11.45	$4.80	$0.00	$61.82
6	85.00	$40.90	$7.07	$12.18	$5.10	$0.00	$65.25

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: BOILER MAKER

Effective Date: 1/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
7	90.00	$43.31	$7.07	$12.88	$5.40	$0.00	$68.66
8	95.00	$45.71	$7.07	$13.62	$5.70	$0.00	$72.10

Apprentice to Journeyworker Ratio: 1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	2/1/2026	$67.16	$11.49	$15.57	$7.33	$0.00	$101.55
BRICKLAYERS LOCAL 3	8/1/2026	$69.36	$11.49	$15.57	$7.33	$0.00	$103.75
BRICKLAYERS LOCAL 3 (FOXBORO)	2/1/2027	$70.76	$11.49	$15.57	$7.33	$0.00	$105.15

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$33.58	$11.49	$15.57	$7.33	$0.00	$67.97
2	60.00	$40.30	$11.49	$15.57	$7.33	$0.00	$74.69
3	70.00	$47.01	$11.49	$15.57	$7.33	$0.00	$81.40
4	80.00	$53.73	$11.49	$15.57	$7.33	$0.00	$88.12
5	90.00	$60.44	$11.49	$15.57	$7.33	$0.00	$94.83

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.68	$11.49	$15.57	$7.33	$0.00	$69.07
2	60.00	$41.62	$11.49	$15.57	$7.33	$0.00	$76.01
3	70.00	$48.55	$11.49	$15.57	$7.33	$0.00	$82.94
4	80.00	$55.49	$11.49	$15.57	$7.33	$0.00	$89.88
5	90.00	$62.42	$11.49	$15.57	$7.33	$0.00	$96.81

Apprentice to Journeyworker Ratio: 1:5

BULLDOZER/GRADER/SCRAPER	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
OPERATING ENGINEERS LOCAL 4	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
CAISSON & UNDERPINNING BOTTOM MAN	12/1/2025	$49.85	$10.15	$9.50	$9.80	$0.00	$79.30
LABORERS	6/1/2026	$51.40	$10.15	$9.50	$9.80	$0.00	$80.85
LABORERS - FOUNDATION AND MARINE	12/1/2026	$52.90	$10.15	$9.50	$9.80	$0.00	$82.35
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING LABORER	12/1/2025	$48.70	$10.15	$9.50	$9.80	$0.00	$78.15
LABORERS	6/1/2026	$50.25	$10.15	$9.50	$9.80	$0.00	$79.70

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS - FOUNDATION AND MARINE	12/1/2026	$51.75	$10.15	$9.50	$9.80	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING TOP MAN	12/1/2025	$49.03	$10.15	$9.50	$9.80	$0.00	$78.48
LABORERS	6/1/2026	$50.58	$10.15	$9.50	$9.80	$0.00	$80.03
LABORERS - FOUNDATION AND MARINE	12/1/2026	$52.08	$10.15	$9.50	$9.80	$0.00	$81.53
For apprentice rates see "Apprentice- LABORER"							
CARBIDE CORE DRILL OPERATOR	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
LABORERS	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
LABORERS - ZONE 2	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
CARPENTER	9/1/2025	$50.35	$10.33	$11.47	$8.50	$0.00	$80.65
CARPENTERS	3/1/2026	$51.60	$10.33	$11.47	$8.50	$0.00	$81.90
CARPENTERS -ZONE 2 (Eastern Massachusetts)	9/1/2026	$52.85	$10.33	$11.47	$8.50	$0.00	$83.15
	3/1/2027	$54.10	$10.33	$11.47	$8.50	$0.00	$84.40

Apprentice: CARPENTER

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$22.66	$10.33	$0.00	$1.73	$0.00	$34.72
2	45.00	$22.66	$10.33	$0.00	$1.73	$0.00	$34.72
3	55.00	$27.69	$10.33	$0.00	$3.40	$0.00	$41.42
4	55.00	$27.69	$10.33	$0.00	$3.40	$0.00	$41.42
5	70.00	$35.25	$10.33	$11.41	$5.10	$0.00	$62.09
6	70.00	$35.25	$10.33	$11.41	$5.10	$0.00	$62.09
7	80.00	$40.28	$10.33	$11.44	$6.80	$0.00	$68.85
8	80.00	$40.28	$10.33	$11.44	$6.80	$0.00	$68.85

Apprentice: CARPENTER

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$23.22	$10.33	$0.00	$1.73	$0.00	$35.28
2	45.00	$23.22	$10.33	$0.00	$1.73	$0.00	$35.28
3	55.00	$28.38	$10.33	$0.00	$3.40	$0.00	$42.11
4	55.00	$28.38	$10.33	$0.00	$3.40	$0.00	$42.11
5	70.00	$36.12	$10.33	$11.41	$5.10	$0.00	$62.96
6	70.00	$36.12	$10.33	$11.41	$5.10	$0.00	$62.96
7	80.00	$41.28	$10.33	$11.44	$6.80	$0.00	$69.85
8	80.00	$41.28	$10.33	$11.44	$6.80	$0.00	$69.85

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 1:5							
CARPENTER WOOD FRAME	10/1/2025	$27.75	$7.02	$3.80	$1.00	$0.00	$39.57
CARPENTERS	10/1/2026	$28.85	$7.02	$3.80	$1.00	$0.00	$40.67
CARPENTERS-ZONE 3 (Wood Frame)							
All Aspects of New Wood Frame Work							

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$16.65	$7.02	$0.00	$0.00	$0.00	$23.67
2	60.00	$16.65	$7.02	$0.00	$0.00	$0.00	$23.67
3	65.00	$18.04	$7.02	$0.00	$1.00	$0.00	$26.06
4	70.00	$19.43	$7.02	$0.00	$1.00	$0.00	$27.45
5	75.00	$20.81	$7.02	$3.80	$1.00	$0.00	$32.63
6	80.00	$22.20	$7.02	$3.80	$1.00	$0.00	$34.02
7	85.00	$23.59	$7.02	$3.80	$1.00	$0.00	$35.41
8	90.00	$24.98	$7.02	$3.80	$1.00	$0.00	$36.80

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$17.31	$7.02	$0.00	$0.00	$0.00	$24.33
2	60.00	$17.31	$7.02	$0.00	$0.00	$0.00	$24.33
3	65.00	$18.75	$7.02	$0.00	$1.00	$0.00	$26.77
4	70.00	$20.20	$7.02	$0.00	$1.00	$0.00	$28.22
5	75.00	$21.64	$7.02	$3.80	$1.00	$0.00	$33.46
6	80.00	$23.08	$7.02	$3.80	$1.00	$0.00	$34.90
7	85.00	$24.52	$7.02	$3.80	$1.00	$0.00	$36.34
8	90.00	$25.97	$7.02	$3.80	$1.00	$0.00	$37.79

Apprentice to Journeyworker Ratio: 1:5

CEMENT MASONRY/PLASTERING	1/1/2026	$53.24	$13.35	$16.43	$7.78	$1.80	$92.60
PLASTERERS AND CEMENT MASONS LOCAL 534	7/1/2026	$54.49	$13.35	$16.43	$7.78	$1.80	$93.85
Plasterers and Cement Masons - Zone 1	1/1/2027	$55.94	$13.35	$16.43	$7.78	$1.80	$95.30
	7/1/2027	$57.29	$13.35	$16.43	$7.78	$1.80	$96.65
	1/1/2028	$58.64	$13.35	$16.43	$7.78	$1.80	$98.00

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$26.62	$13.35	$16.43	$0.00	$0.00	$56.40
2	60.00	$31.94	$13.35	$16.43	$7.78	$1.80	$71.30

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	65.00	$34.61	$13.35	$16.43	$7.78	$1.80	$73.97
4	70.00	$37.27	$13.35	$16.43	$7.78	$1.80	$76.63
5	75.00	$39.93	$13.35	$16.43	$7.78	$1.80	$79.29
6	80.00	$42.59	$13.35	$16.43	$7.78	$1.80	$81.95
7	90.00	$47.92	$13.35	$16.43	$0.00	$0.00	$77.70

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 7/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.25	$13.35	$16.43	$0.00	$0.00	$57.03
2	60.00	$32.69	$13.35	$16.43	$7.78	$1.80	$72.05
3	65.00	$35.42	$13.35	$16.43	$7.78	$1.80	$74.78
4	70.00	$38.14	$13.35	$16.43	$7.78	$1.80	$77.50
5	75.00	$40.87	$13.35	$16.43	$7.78	$1.80	$80.23
6	80.00	$43.59	$13.35	$16.43	$7.78	$1.80	$82.95
7	90.00	$49.04	$13.35	$0.00	$7.78	$0.00	$70.17

Apprentice to Journeyworker Ratio: 1:5

CHAIN SAW OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$60.48	$16.05	$13.25	$3.25	$0.00	$93.03
	6/1/2026	$61.81	$16.05	$13.25	$3.25	$0.00	$94.36
	12/1/2026	$63.29	$16.05	$13.25	$3.25	$0.00	$95.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$37.97	$16.05	$13.25	$3.25	$0.00	$70.52
	6/1/2026	$38.83	$16.05	$13.25	$3.25	$0.00	$71.38
	12/1/2026	$39.78	$16.05	$13.25	$3.25	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DELEADER (BRIDGE) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$59.56	$10.35	$12.00	$12.60	$0.00	$94.51

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: DELEADER (BRIDGE)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2	55.00	$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3	60.00	$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4	65.00	$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5	70.00	$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6	75.00	$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7	80.00	$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8	90.00	$53.60	$10.35	$12.00	$11.34	$0.00	$87.29

Apprentice to Journeyworker Ratio: 1:1

DEMO: ADZEMAN LABORERS LABORERS - ZONE 2	12/1/2025	$48.75	$10.15	$9.50	$9.65	$0.00	$78.05
	6/1/2026	$50.30	$10.15	$9.50	$9.65	$0.00	$79.60
	12/7/2026	$51.80	$10.15	$9.50	$9.65	$0.00	$81.10
	6/7/2027	$53.40	$10.15	$9.50	$9.65	$0.00	$82.70
	12/6/2027	$55.00	$10.15	$9.50	$9.65	$0.00	$84.30
	6/5/2028	$56.68	$10.15	$9.50	$9.65	$0.00	$85.98
	12/4/2028	$58.35	$10.15	$9.50	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$49.75	$10.15	$9.50	$9.65	$0.00	$79.05
	6/1/2026	$51.30	$10.15	$9.50	$9.65	$0.00	$80.60
	12/7/2026	$52.80	$10.15	$9.50	$9.65	$0.00	$82.10
	6/7/2027	$54.40	$10.15	$9.50	$9.65	$0.00	$83.70
	12/6/2027	$56.00	$10.15	$9.50	$9.65	$0.00	$85.30
	6/5/2028	$57.68	$10.15	$9.50	$9.65	$0.00	$86.98
	12/4/2028	$59.35	$10.15	$9.50	$9.65	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BURNERS LABORERS LABORERS - ZONE 2	12/1/2025	$49.50	$10.15	$9.50	$9.65	$0.00	$78.80
	6/1/2026	$51.05	$10.15	$9.50	$9.65	$0.00	$80.35
	12/7/2026	$52.55	$10.15	$9.50	$9.65	$0.00	$81.85
	6/7/2027	$54.15	$10.15	$9.50	$9.65	$0.00	$83.45
	12/6/2027	$55.75	$10.15	$9.50	$9.65	$0.00	$85.05
	6/5/2028	$57.43	$10.15	$9.50	$9.65	$0.00	$86.73
	12/4/2028	$59.10	$10.15	$9.50	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: CONCRETE CUTTER/SAWYER LABORERS LABORERS - ZONE 2	12/1/2025	$49.75	$10.15	$9.50	$9.65	$0.00	$79.05
	6/1/2026	$51.30	$10.15	$9.50	$9.65	$0.00	$80.60
	12/7/2026	$52.80	$10.15	$9.50	$9.65	$0.00	$82.10
	6/7/2027	$54.40	$10.15	$9.50	$9.65	$0.00	$83.70
	12/6/2027	$56.00	$10.15	$9.50	$9.65	$0.00	$85.30
	6/5/2028	$57.68	$10.15	$9.50	$9.65	$0.00	$86.98
	12/4/2028	$59.35	$10.15	$9.50	$9.65	$0.00	$88.65

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"							
DEMO: JACKHAMMER OPERATOR	12/1/2025	$49.50	$10.15	$9.50	$9.65	$0.00	$78.80
LABORERS	6/1/2026	$51.05	$10.15	$9.50	$9.65	$0.00	$80.35
LABORERS - ZONE 2	12/7/2026	$52.55	$10.15	$9.50	$9.65	$0.00	$81.85
	6/7/2027	$54.15	$10.15	$9.50	$9.65	$0.00	$83.45
	12/6/2027	$55.75	$10.15	$9.50	$9.65	$0.00	$85.05
	6/5/2028	$57.43	$10.15	$9.50	$9.65	$0.00	$86.73
	12/4/2028	$59.10	$10.15	$9.50	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER	12/1/2025	$48.75	$10.15	$9.50	$9.65	$0.00	$78.05
LABORERS	6/1/2026	$50.30	$10.15	$9.50	$9.65	$0.00	$79.60
LABORERS - ZONE 2	12/7/2026	$51.80	$10.15	$9.50	$9.65	$0.00	$81.10
	6/7/2027	$53.40	$10.15	$9.50	$9.65	$0.00	$82.70
	12/6/2027	$55.00	$10.15	$9.50	$9.65	$0.00	$84.30
	6/5/2028	$56.68	$10.15	$9.50	$9.65	$0.00	$85.98
	12/4/2028	$58.35	$10.15	$9.50	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DIRECTIONAL DRILL MACHINE OPERATOR	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
OPERATING ENGINEERS LOCAL 4	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DIVER	8/1/2024	$78.11	$10.08	$11.62	$10.04	$0.00	$109.85
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 1)							
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Diver wage 70/80/90 2A $69.83, 3A $91.79,4A $102.14 Total Rate							
DIVER TENDER	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 1)							
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Piledriver wage 70/80/90 2A $54.20, 3A $73.93,4A $82.05 Total Rate							
DIVER TENDER (EFFLUENT)	8/1/2024	$83.69	$10.08	$11.62	$12.67	$0.00	$118.06
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 1)							
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER/SLURRY (EFFLUENT)	8/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 1)							
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction)	7/1/2020	$26.77	$6.67	$3.93	$0.00	$0.16	$37.53
DRAWBRIDGE - SEIU LOCAL 888							
DRAWBRIDGE - SEIU LOCAL 888							
ELECTRICIAN	9/1/2025	$66.17	$13.00	$14.37	$8.72	$0.00	$102.26
ELECTRICIANS LOCAL 103	3/1/2026	$66.86	$13.00	$14.64	$9.00	$0.00	$103.50
ELECTRICIANS LOCAL 103	9/1/2026	$68.78	$13.00	$14.69	$9.00	$0.00	$105.47

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	3/1/2027	$69.97	$13.00	$14.73	$9.00	$0.00	$106.70
	9/1/2027	$71.88	$13.00	$14.79	$9.00	$0.00	$108.67
	3/1/2028	$73.08	$13.00	$14.82	$9.00	$0.00	$109.90

Apprentice: ELECTRICIAN

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$26.47	$13.00	$0.79	$0.00	$0.00	$40.26
2	40.00	$26.47	$13.00	$0.79	$0.00	$0.00	$40.26
3	45.00	$29.78	$13.00	$13.27	$3.92	$0.00	$59.97
4	45.00	$29.78	$13.00	$13.27	$3.92	$0.00	$59.97
5	50.00	$33.09	$13.00	$13.37	$4.36	$0.00	$63.82
6	55.00	$36.39	$13.00	$13.47	$4.80	$0.00	$67.66
7	60.00	$39.70	$13.00	$13.57	$5.23	$0.00	$71.50
8	65.00	$43.01	$13.00	$13.67	$5.67	$0.00	$75.35
9	70.00	$46.32	$13.00	$13.77	$6.10	$0.00	$79.19
10	75.00	$49.63	$13.00	$13.87	$6.54	$0.00	$83.04

Apprentice: ELECTRICIAN

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$26.74	$13.00	$0.80	$0.00	$0.00	$40.54
2	40.00	$26.74	$13.00	$0.80	$0.00	$0.00	$40.54
3	45.00	$30.09	$13.00	$13.53	$4.05	$0.00	$60.67
4	45.00	$30.09	$13.00	$13.53	$4.05	$0.00	$60.67
5	50.00	$33.43	$13.00	$13.63	$4.50	$0.00	$64.56
6	55.00	$36.77	$13.00	$13.73	$4.95	$0.00	$68.45
7	60.00	$40.12	$13.00	$13.83	$5.40	$0.00	$72.35
8	65.00	$43.46	$13.00	$13.93	$5.85	$0.00	$76.24
9	70.00	$46.80	$13.00	$14.03	$6.30	$0.00	$80.13
10	75.00	$50.15	$13.00	$14.13	$6.75	$0.00	$84.03

Apprentice Notes

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Apprentice to Journeyworker Ratio: 2:3

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ELEVATOR CONSTRUCTOR	1/1/2026	$77.26	$16.38	$11.06	$10.70	$0.00	$115.40
ELEVATOR CONSTRUCTORS LOCAL 4	1/1/2027	$80.55	$16.48	$11.16	$11.00	$0.00	$119.19
ELEVATOR CONSTRUCTORS LOCAL 4							

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$38.63	$0.00	$0.00	$0.00	$0.00	$38.63
2	55.00	$42.49	$16.38	$11.06	$10.70	$0.00	$80.63
3	65.00	$50.22	$16.38	$11.06	$10.70	$0.00	$88.36
4	70.00	$54.08	$16.38	$11.06	$10.70	$0.00	$92.22
5	80.00	$61.81	$16.38	$11.06	$10.70	$0.00	$99.95

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$40.28	$0.00	$0.00	$0.00	$0.00	$40.28
2	55.00	$44.30	$16.48	$11.16	$11.00	$0.00	$82.94
3	65.00	$52.36	$16.48	$11.16	$11.00	$0.00	$91.00
4	70.00	$56.39	$16.48	$11.16	$11.00	$0.00	$95.03
5	80.00	$64.44	$16.48	$11.16	$11.00	$0.00	$103.08

Apprentice to Journeyworker Ratio: 1:1

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4 ELEVATOR CONSTRUCTORS LOCAL 4	1/1/2026 1/1/2027	$54.08 $56.39	$16.38 $16.48	$11.06 $11.16	$10.07 $11.00	$0.00 $0.00	$91.59 $95.03
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"							
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025 6/1/2026 12/1/2026	$41.47 $42.91 $44.35	$10.15 $10.15 $10.15	$9.50 $9.50 $9.50	$9.21 $9.21 $9.21	$0.00 $0.00 $0.00	$70.33 $71.77 $73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	11/1/2025 5/1/2026 11/1/2026 5/1/2027	$53.56 $55.00 $56.29 $57.72	$16.05 $16.05 $16.05 $16.05	$13.25 $13.25 $13.25 $13.25	$3.25 $3.25 $3.25 $3.25	$0.00 $0.00 $0.00 $0.00	$86.11 $87.55 $88.84 $90.27
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	11/1/2025 5/1/2026 11/1/2026 5/1/2027	$55.17 $56.62 $57.92 $59.37	$16.05 $16.05 $16.05 $16.05	$13.25 $13.25 $13.25 $13.25	$3.25 $3.25 $3.25 $3.25	$0.00 $0.00 $0.00 $0.00	$87.72 $89.17 $90.47 $91.92
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	11/1/2025 5/1/2026 11/1/2026 5/1/2027	$26.03 $26.88 $27.64 $28.49	$16.05 $16.05 $16.05 $16.05	$13.25 $13.25 $13.25 $13.25	$3.25 $3.25 $3.25 $3.25	$0.00 $0.00 $0.00 $0.00	$58.58 $59.43 $60.19 $61.04

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIRE ALARM INSTALLER ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	9/1/2025 3/1/2026 9/1/2026 3/1/2027 9/1/2027 3/1/2028	$66.17 $66.86 $68.78 $69.97 $71.88 $73.08	$13.00 $13.00 $13.00 $13.00 $13.00 $13.00	$14.37 $14.64 $14.69 $14.73 $14.79 $14.82	$9.00 $9.00 $9.00 $9.00 $9.00 $9.00	$0.00 $0.00 $0.00 $0.00 $0.00 $0.00	$102.54 $103.50 $105.47 $106.70 $108.67 $109.90
For apprentice rates see "Apprentice- ELECTRICIAN"							
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	9/1/2025 3/1/2026 9/1/2026 3/1/2027 9/1/2027 3/1/2028	$52.94 $53.49 $55.02 $55.98 $57.50 $58.46	$13.00 $13.00 $13.00 $13.00 $13.00 $13.00	$13.97 $14.23 $14.28 $14.31 $14.36 $14.38	$6.98 $7.20 $7.20 $7.20 $7.20 $7.20	$0.00 $0.00 $0.00 $0.00 $0.00 $0.00	$86.89 $87.92 $89.50 $90.49 $92.06 $93.04
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"							
FIREMAN (ASST. ENGINEER) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025 6/1/2026 12/1/2026	$47.69 $48.75 $49.93	$16.05 $16.05 $16.05	$13.25 $13.25 $13.25	$3.25 $3.25 $3.25	$0.00 $0.00 $0.00	$80.24 $81.30 $82.48
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FLAGGER & SIGNALER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025 6/1/2026 12/1/2026	$28.09 $29.21 $29.21	$10.15 $10.15 $10.15	$9.50 $9.50 $9.50	$9.21 $9.21 $9.21	$0.00 $0.00 $0.00	$56.95 $58.07 $58.07
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
FLOORCOVERER FLOORCOVERERS LOCAL 2168 FLOORCOVERERS LOCAL 2168 ZONE I	9/1/2025 3/1/2026 9/1/2026 3/1/2027	$57.74 $59.24 $60.74 $62.24	$10.33 $10.33 $10.33 $10.33	$11.47 $11.47 $11.47 $11.47	$8.80 $8.80 $8.80 $8.80	$0.00 $0.00 $0.00 $0.00	$88.34 $89.84 $91.34 $92.84

Apprentice: FLOORCOVERER

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$25.98	$10.33	$0.00	$1.76	$0.00	$38.07
2	45.00	$25.98	$10.33	$0.00	$1.76	$0.00	$38.07
3	55.00	$31.76	$10.33	$0.00	$3.52	$0.00	$45.61
4	55.00	$31.76	$10.33	$0.00	$3.52	$0.00	$45.61
5	70.00	$40.42	$10.33	$11.47	$5.28	$0.00	$67.50
6	70.00	$40.42	$10.33	$11.47	$5.28	$0.00	$67.50
7	80.00	$46.19	$10.33	$11.47	$7.04	$0.00	$75.03
8	80.00	$46.19	$10.33	$11.47	$7.04	$0.00	$75.03

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: FLOORCOVERER

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$26.66	$10.33	$0.00	$1.76	$0.00	$38.75
2	45.00	$26.66	$10.33	$0.00	$1.76	$0.00	$38.75
3	55.00	$32.58	$10.33	$0.00	$3.52	$0.00	$46.43
4	55.00	$32.58	$10.33	$0.00	$3.52	$0.00	$46.43
5	70.00	$41.47	$10.33	$11.47	$5.28	$0.00	$68.55
6	70.00	$41.47	$10.33	$11.47	$5.28	$0.00	$68.55
7	80.00	$47.39	$10.33	$11.47	$7.04	$0.00	$76.23
8	80.00	$47.39	$10.33	$11.47	$7.04	$0.00	$76.23

Apprentice Notes

Steps are 750 hrs.

Apprentice to Journeyworker Ratio: 1:1

FORK LIFT/CHERRY PICKER OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025 6/1/2026 12/1/2026	$59.28 $60.58 $62.03	$16.05 $16.05 $16.05	$13.25 $13.25 $13.25	$3.25 $3.25 $3.25	$0.00 $0.00 $0.00	$91.83 $93.13 $94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
GENERATOR/LIGHTING PLANT/HEATERS OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025 6/1/2026 12/1/2026	$37.97 $38.83 $39.78	$16.05 $16.05 $16.05	$13.25 $13.25 $13.25	$3.25 $3.25 $3.25	$0.00 $0.00 $0.00	$70.52 $71.38 $72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 35 GLAZIERS LOCAL 35 (ZONE 2)	1/1/2026	$49.06	$10.35	$12.00	$12.60	$0.00	$84.01

Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.53	$10.35	$0.00	$0.00	$0.00	$34.88
2	55.00	$26.98	$10.35	$0.00	$6.88	$0.00	$44.21
3	60.00	$29.44	$10.35	$0.00	$7.50	$0.00	$47.29
4	65.00	$31.89	$10.35	$0.00	$8.13	$0.00	$50.37
5	70.00	$34.34	$10.35	$12.00	$8.75	$0.00	$65.44
6	75.00	$36.80	$10.35	$12.00	$9.38	$0.00	$68.53
7	80.00	$39.25	$10.35	$12.00	$10.00	$0.00	$71.60
8	90.00	$44.15	$10.35	$12.00	$11.25	$0.00	$77.75

Apprentice to Journeyworker Ratio: 1:1

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
HOISTING ENGINEER/CRANES/GRADALLS OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025 6/1/2026 12/1/2026	$59.28 $60.58 $62.03	$16.05 $16.05 $16.05	$13.25 $13.25 $13.25	$3.25 $3.25 $3.25	$0.00 $0.00 $0.00	$91.83 $93.13 $94.58

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS

Effective Date: 12/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$32.88	$0.00	$0.00	$0.00	$0.00	$32.88
2	60.00	$35.87	$16.05	$13.25	$3.25	$0.00	$68.42
3	65.00	$38.86	$16.05	$13.25	$3.25	$0.00	$71.41
4	70.00	$41.85	$16.05	$13.25	$3.25	$0.00	$74.40
5	75.00	$44.84	$16.05	$13.25	$3.25	$0.00	$77.39
6	80.00	$47.82	$16.05	$13.25	$3.25	$0.00	$80.37
7	85.00	$50.81	$16.05	$13.25	$3.25	$0.00	$83.36
8	90.00	$53.80	$16.05	$13.25	$3.25	$0.00	$86.35

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$33.32	$0.00	$0.00	$0.00	$0.00	$33.32
2	60.00	$36.35	$16.05	$13.25	$3.25	$0.00	$68.90
3	65.00	$39.38	$16.05	$13.25	$3.25	$0.00	$71.93
4	70.00	$42.41	$16.50	$13.25	$3.25	$0.00	$75.41
5	75.00	$45.44	$16.50	$13.25	$3.25	$0.00	$78.44
6	80.00	$48.46	$16.50	$13.25	$3.25	$0.00	$81.46
7	85.00	$51.49	$16.50	$13.25	$3.25	$0.00	$84.49
8	90.00	$54.52	$16.50	$13.25	$3.25	$0.00	$87.52

Apprentice to Journeyworker Ratio: 1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	9/1/2025 3/1/2026 9/1/2026 3/1/2027 9/1/2027 3/1/2028	$66.17 $66.86 $68.78 $69.97 $71.88 $73.08	$13.00 $13.00 $13.00 $13.00 $13.00 $13.00	$14.37 $14.64 $14.69 $14.73 $14.79 $14.82	$8.72 $9.00 $9.00 $9.00 $9.00 $9.00	$0.00 $0.00 $0.00 $0.00 $0.00 $0.00	$102.26 $103.50 $105.47 $106.70 $108.67 $109.90
For apprentice rates see "Apprentice- ELECTRICIAN"							
HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING -WATER) PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2025	$69.08	$13.45	$13.75	$9.30	$0.00	$105.58
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2025	$69.08	$13.45	$13.75	$9.30	$0.00	$105.58
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS LABORERS LABORERS - ZONE 2	12/1/2025	$41.97	$10.15	$9.50	$9.11	$0.00	$70.73
	6/1/2026	$43.41	$10.15	$9.50	$9.11	$0.00	$72.17
	12/1/2026	$44.85	$10.15	$9.50	$9.11	$0.00	$73.61
	6/1/2027	$46.30	$10.15	$9.50	$9.11	$0.00	$75.06
	12/1/2027	$47.75	$10.15	$9.50	$9.11	$0.00	$76.51
	6/1/2028	$49.25	$10.15	$9.50	$9.11	$0.00	$78.01
	12/1/2028	$50.75	$10.15	$9.50	$9.11	$0.00	$79.51
For apprentice rates see "Apprentice- LABORER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.97	$10.15	$9.50	$9.21	$0.00	$70.83
	6/1/2026	$43.41	$10.15	$9.50	$9.21	$0.00	$72.27
	12/1/2026	$44.85	$10.15	$9.50	$9.21	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (SOUTHERN MASS)	9/1/2025	$54.31	$14.75	$9.52	$10.09	$0.00	$88.67
	9/1/2026	$57.38	$14.75	$9.52	$10.09	$0.00	$91.74

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.16	$14.75	$9.27	$5.05	$0.00	$56.23
2	60.00	$32.59	$14.75	$9.32	$6.05	$0.00	$62.71
3	70.00	$38.02	$14.75	$9.37	$7.06	$0.00	$69.20
4	80.00	$43.45	$14.75	$9.42	$8.07	$0.00	$75.69

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$28.69	$14.75	$9.27	$5.05	$0.00	$57.76
2	60.00	$34.43	$14.75	$9.32	$6.05	$0.00	$64.55
3	70.00	$40.17	$14.75	$9.37	$7.06	$0.00	$71.35
4	80.00	$45.90	$14.75	$9.42	$8.07	$0.00	$78.14

Apprentice to Journeyworker Ratio: 1:4

IRONWORKER/WELDER	3/16/2021	$42.46	$7.70	$12.10	$5.00	$0.00	$67.26

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
IRONWORKERS LOCAL 37 IRONWORKERS LOCAL 37							

Apprentice: IRONWORKER/WELDER

Effective Date: 3/16/2021

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	70.00	$29.72	$7.70	$12.10	$5.00	$0.00	$54.52
2	75.00	$31.85	$7.70	$12.10	$5.00	$0.00	$56.65
3	80.00	$33.97	$7.70	$12.10	$5.00	$0.00	$58.77
4	85.00	$36.09	$7.70	$12.10	$5.00	$0.00	$60.89
5	90.00	$38.21	$7.70	$12.10	$5.00	$0.00	$63.01
6	95.00	$40.34	$7.70	$12.10	$5.00	$0.00	$65.14

Apprentice to Journeyworker Ratio: 1:4

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
LABORER LABORERS LABORERS - ZONE 2	12/1/2025	$41.22	$10.15	$9.50	$9.11	$0.00	$69.98
	6/1/2026	$42.66	$10.15	$9.50	$9.11	$0.00	$71.42
	12/1/2026	$44.10	$10.15	$9.50	$9.11	$0.00	$72.86
	6/1/2027	$45.55	$10.15	$9.50	$9.11	$0.00	$74.31
	12/1/2027	$47.00	$10.15	$9.50	$9.11	$0.00	$75.76
	6/1/2028	$48.50	$10.15	$9.50	$9.11	$0.00	$77.26
	12/1/2028	$50.00	$10.15	$9.50	$9.11	$0.00	$78.76

Apprentice: LABORER

Effective Date: 12/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$25.03	$10.15	$9.50	$9.11	$0.00	$53.79
2	70.00	$29.20	$10.15	$9.50	$9.11	$0.00	$57.96
3	80.00	$33.38	$10.15	$9.50	$9.11	$0.00	$62.14
4	90.00	$37.55	$10.15	$9.50	$9.11	$0.00	$66.31

Apprentice: LABORER

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$25.60	$10.15	$9.50	$9.11	$0.00	$54.36

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: LABORER

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
2	70.00	$29.86	$10.15	$9.50	$9.11	$0.00	$58.62
3	80.00	$34.13	$10.15	$9.50	$9.11	$0.00	$62.89
4	90.00	$38.39	$10.15	$9.50	$9.11	$0.00	$67.15

Apprentice to Journeyworker Ratio: 1:5

LABORER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.22	$10.15	$9.50	$9.21	$0.00	$70.08
	6/1/2026	$42.66	$10.15	$9.50	$9.21	$0.00	$71.52
	12/1/2026	$44.10	$10.15	$9.50	$9.21	$0.00	$72.96

Apprentice: LABORER (HEAVY & HIGHWAY)

Effective Date: 12/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$25.03	$10.15	$9.50	$9.21	$0.00	$53.89
2	70.00	$29.20	$10.15	$9.50	$9.21	$0.00	$58.06
3	80.00	$33.38	$10.15	$9.50	$9.21	$0.00	$62.24
4	90.00	$37.55	$10.15	$9.50	$9.21	$0.00	$66.41

Apprentice: LABORER (HEAVY & HIGHWAY)

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$25.60	$10.15	$9.50	$9.21	$0.00	$54.46
2	70.00	$29.86	$10.15	$9.50	$9.21	$0.00	$58.72
3	80.00	$34.13	$10.15	$9.50	$9.21	$0.00	$62.99
4	90.00	$38.39	$10.15	$9.50	$9.10	$0.00	$67.14

Apprentice to Journeyworker Ratio: 1:5

LABORER: CARPENTER TENDER LABORERS LABORERS - ZONE 2	12/1/2025	$41.22	$10.15	$9.50	$9.11	$0.00	$69.98
	6/1/2026	$42.66	$10.15	$9.50	$9.11	$0.00	$71.42
	12/1/2026	$44.10	$10.15	$9.50	$9.11	$0.00	$72.86
	6/1/2027	$45.55	$10.15	$9.50	$9.11	$0.00	$74.31
	12/1/2027	$47.00	$10.15	$9.50	$9.11	$0.00	$75.76
	6/1/2028	$48.50	$10.15	$9.50	$9.11	$0.00	$77.26
	12/1/2028	$50.00	$10.15	$9.50	$9.11	$0.00	$78.76

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER LABORERS LABORERS - ZONE 2	12/1/2025	$41.22	$10.15	$9.50	$9.11	$0.00	$69.98
	6/1/2026	$42.66	$10.15	$9.50	$9.11	$0.00	$71.42
	12/1/2026	$44.10	$10.15	$9.50	$9.11	$0.00	$72.86
	6/1/2027	$45.55	$10.15	$9.50	$9.11	$0.00	$74.31

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	$47.00	$10.15	$9.50	$9.11	$0.00	$75.76
	6/1/2028	$48.50	$10.15	$9.50	$9.11	$0.00	$77.26
	12/1/2028	$50.00	$10.15	$9.50	$9.11	$0.00	$78.76

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS LABORERS - ZONE 2	12/1/2025	$41.31	$10.15	$9.50	$9.65	$0.00	$70.61
	6/1/2026	$42.75	$10.15	$9.50	$9.65	$0.00	$72.05
	12/7/2026	$44.19	$10.15	$9.50	$9.65	$0.00	$73.49
	6/7/2027	$45.64	$10.15	$9.50	$9.65	$0.00	$74.94
	12/6/2027	$47.09	$10.15	$9.50	$9.65	$0.00	$76.39
	6/5/2028	$48.59	$10.15	$9.50	$9.65	$0.00	$77.89
	12/4/2028	$50.09	$10.15	$9.50	$9.65	$0.00	$79.39

For apprentice rates see "Apprentice- LABORER"

LABORER: MASON TENDER LABORERS LABORERS - ZONE 2	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01

For apprentice rates see "Apprentice- LABORER"

LABORER: MASON TENDER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.47	$10.15	$9.50	$9.21	$0.00	$70.33
	6/1/2026	$42.91	$10.15	$9.50	$9.21	$0.00	$71.77
	12/1/2026	$44.35	$10.15	$9.50	$9.21	$0.00	$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

LABORER: MULTI-TRADE TENDER LABORERS LABORERS - ZONE 2	12/1/2025	$41.22	$10.15	$9.50	$9.11	$0.00	$69.98
	6/1/2026	$42.66	$10.15	$9.50	$9.11	$0.00	$71.42
	12/1/2026	$44.10	$10.15	$9.50	$9.11	$0.00	$72.86
	6/1/2027	$45.55	$10.15	$9.50	$9.11	$0.00	$74.31
	12/1/2027	$47.00	$10.15	$9.50	$9.11	$0.00	$75.76
	6/1/2028	$48.50	$10.15	$9.50	$9.11	$0.00	$77.26
	12/1/2028	$50.00	$10.15	$9.50	$9.11	$0.00	$78.76

For apprentice rates see "Apprentice- LABORER"

LABORER: TREE REMOVER LABORERS LABORERS - ZONE 2	12/1/2025	$41.22	$10.15	$9.50	$9.11	$0.00	$69.98
	6/1/2026	$42.66	$10.15	$9.50	$9.11	$0.00	$71.42
	12/1/2026	$44.10	$10.15	$9.50	$9.11	$0.00	$72.86
	6/1/2027	$45.55	$10.15	$9.50	$9.11	$0.00	$74.31
	12/1/2027	$47.00	$10.15	$9.50	$9.11	$0.00	$75.76
	6/1/2028	$48.50	$10.15	$9.50	$9.11	$0.00	$77.26
	12/1/2028	$50.00	$10.15	$9.50	$9.11	$0.00	$78.76

This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"

LASER BEAM OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.47	$10.15	$9.50	$9.21	$0.00	$70.33
	6/1/2026	$42.91	$10.15	$9.50	$9.21	$0.00	$71.77
	12/1/2026	$44.35	$10.15	$9.50	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
MARBLE & TILE FINISHERS BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	2/1/2026	$53.16	$11.49	$15.57	$6.05	$0.00	$86.27
	8/1/2026	$54.92	$11.49	$15.57	$6.05	$0.00	$88.03
	2/1/2027	$56.04	$11.49	$15.57	$6.05	$0.00	$89.15

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$26.58	$11.49	$15.57	$6.05	$0.00	$59.69
2	60.00	$31.90	$11.49	$15.57	$6.05	$0.00	$65.01
3	70.00	$37.21	$11.49	$15.57	$6.05	$0.00	$70.32
4	80.00	$42.53	$11.49	$15.57	$6.05	$0.00	$75.64
5	90.00	$47.84	$11.49	$15.57	$6.05	$0.00	$80.95

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.46	$11.49	$15.57	$6.05	$0.00	$60.57
2	60.00	$32.95	$11.49	$15.57	$6.05	$0.00	$66.06
3	70.00	$38.44	$11.49	$15.57	$6.05	$0.00	$71.55
4	80.00	$43.94	$11.49	$15.57	$6.05	$0.00	$77.05
5	90.00	$49.43	$11.49	$15.57	$6.05	$0.00	$82.54

Apprentice to Journeyworker Ratio: 1:5

MARBLE MASONS,TILELAYERS & TERRAZZO MECH BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	2/1/2026	$69.32	$11.49	$15.57	$7.99	$0.00	$104.37
	8/1/2026	$71.52	$11.49	$15.57	$7.99	$0.00	$106.57
	2/1/2027	$72.92	$11.49	$15.57	$7.99	$0.00	$107.97

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.66	$11.49	$15.57	$7.99	$0.00	$69.71
2	60.00	$41.59	$11.49	$15.57	$7.99	$0.00	$76.64

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	70.00	$48.52	$11.49	$15.57	$7.99	$0.00	$83.57
4	80.00	$55.46	$11.49	$15.57	$7.99	$0.00	$90.51
5	90.00	$62.39	$11.49	$15.57	$7.99	$0.00	$97.44

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.76	$11.49	$15.57	$7.99	$0.00	$70.81
2	60.00	$42.91	$11.49	$15.57	$7.99	$0.00	$77.96
3	70.00	$50.06	$11.49	$15.57	$7.99	$0.00	$85.11
4	80.00	$57.22	$11.49	$15.57	$7.99	$0.00	$92.27
5	90.00	$64.37	$11.49	$15.57	$7.99	$0.00	$99.42

Apprentice to Journeyworker Ratio: 1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
MILLWRIGHT (Zone 2) MILLWRIGHTS LOCAL 1121 MILLWRIGHTS LOCAL 1121 - Zone 2	1/5/2026	$47.36	$10.08	$11.47	$10.00	$0.00	$78.91

Apprentice: MILLWRIGHT (Zone 2)

Effective Date: 1/5/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$26.05	$10.08	$0.00	$5.50	$0.00	$41.63
2	65.00	$30.78	$10.08	$0.00	$6.50	$0.00	$47.36
3	75.00	$35.52	$10.08	$11.47	$7.50	$0.00	$64.57
4	85.00	$40.26	$10.08	$11.47	$8.50	$0.00	$70.31

Apprentice Notes

Step 1&2 Appr. indentured after 1/6/2020 receive no pension,

Apprentice to Journeyworker Ratio: 1:4

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
MORTAR MIXER LABORERS LABORERS - ZONE 2	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$25.68	$16.05	$13.25	$3.25	$0.00	$58.23
	6/1/2026	$26.27	$16.05	$13.25	$3.25	$0.00	$58.82
	12/1/2026	$26.94	$16.05	$13.25	$3.25	$0.00	$59.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$31.65	$16.05	$13.25	$3.25	$0.00	$64.20
	6/1/2026	$32.37	$16.05	$13.25	$3.25	$0.00	$64.92
	12/1/2026	$33.17	$16.05	$13.25	$3.25	$0.00	$65.72
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$59.56	$10.35	$12.00	$12.50	$0.00	$94.41

Apprentice: PAINTER (BRIDGES/TANKS)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2	55.00	$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3	60.00	$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4	65.00	$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5	70.00	$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6	75.00	$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7	80.00	$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8	90.00	$53.60	$10.35	$12.00	$11.34	$0.00	$87.29

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$50.46	$10.35	$12.00	$12.60	$0.00	$85.41

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$25.23	$10.35	$0.00	$0.00	$0.00	$35.58
2	55.00	$27.75	$10.35	$0.00	$6.93	$0.00	$45.03
3	60.00	$30.28	$10.35	$0.00	$7.56	$0.00	$48.19
4	65.00	$32.80	$10.35	$0.00	$8.19	$0.00	$51.34
5	70.00	$35.32	$10.35	$12.00	$8.82	$0.00	$66.49
6	75.00	$37.85	$10.35	$12.00	$9.45	$0.00	$69.65
7	80.00	$40.37	$10.35	$12.00	$10.08	$0.00	$72.80
8	90.00	$45.41	$10.35	$12.00	$11.34	$0.00	$79.10

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$48.52	$10.35	$12.00	$12.60	$0.00	$83.47

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.26	$10.35	$0.00	$0.00	$0.00	$34.61
2	55.00	$26.69	$10.35	$0.00	$6.93	$0.00	$43.97
3	60.00	$29.11	$10.35	$0.00	$7.56	$0.00	$47.02
4	65.00	$31.54	$10.35	$0.00	$8.19	$0.00	$50.08
5	70.00	$33.96	$10.35	$12.00	$8.82	$0.00	$65.13
6	75.00	$36.39	$10.35	$12.00	$9.45	$0.00	$68.19
7	80.00	$38.82	$10.35	$12.00	$10.08	$0.00	$71.25
8	90.00	$43.67	$10.35	$12.00	$11.34	$0.00	$77.36

Apprentice to Journeyworker Ratio: 1:1

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 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$49.06	$10.35	$12.00	$12.60	$0.00	$84.01

Apprentice: PAINTER / TAPER (BRUSH, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.53	$10.35	$0.00	$0.00	$0.00	$34.88
2	55.00	$26.98	$10.35	$0.00	$6.93	$0.00	$44.26
3	60.00	$29.44	$10.35	$0.00	$7.56	$0.00	$47.35

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: PAINTER / TAPER (BRUSH, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
4	65.00	$31.89	$10.35	$0.00	$8.19	$0.00	$50.43
5	70.00	$34.34	$10.35	$12.00	$8.82	$0.00	$65.51
6	75.00	$36.80	$10.35	$12.00	$9.45	$0.00	$68.60
7	80.00	$39.25	$10.35	$12.00	$10.08	$0.00	$71.68
8	90.00	$44.15	$10.35	$12.00	$11.34	$0.00	$77.84

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, REPAINT) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 2	1/1/2026	$47.12	$10.35	$12.00	$12.60	$0.00	$82.07

Apprentice: PAINTER / TAPER (BRUSH, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$23.56	$10.35	$0.00	$0.00	$0.00	$33.91
2	55.00	$25.92	$10.35	$0.00	$6.93	$0.00	$43.20
3	60.00	$28.27	$10.35	$0.00	$7.56	$0.00	$46.18
4	65.00	$30.63	$10.35	$0.00	$8.19	$0.00	$49.17
5	70.00	$32.98	$10.35	$12.00	$8.82	$0.00	$64.15
6	75.00	$35.34	$10.35	$12.00	$9.45	$0.00	$67.14
7	80.00	$37.70	$10.35	$12.00	$10.08	$0.00	$70.13
8	90.00	$42.41	$10.35	$12.00	$11.34	$0.00	$76.10

Apprentice to Journeyworker Ratio: 1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.22	$10.15	$9.50	$9.21	$0.00	$70.08
	6/1/2026	$42.66	$10.15	$9.50	$9.21	$0.00	$71.52
	12/1/2026	$44.10	$10.15	$9.50	$9.21	$0.00	$72.96
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$40.78	$16.17	$21.78	$0.00	$0.00	$78.73
	6/1/2026	$41.78	$16.17	$21.78	$0.00	$0.00	$79.73
	12/1/2026	$41.78	$16.17	$23.52	$0.00	$0.00	$81.47
	1/1/2027	$41.78	$16.77	$23.52	$0.00	$0.00	$82.07
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16
For apprentice rates see "Apprentice- PILE DRIVER"							
PILE DRIVER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: PILE DRIVER

Effective Date: 8/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$25.11	$10.08	$0.00	$2.53	$0.00	$37.72
2	55.00	$30.68	$10.08	$0.00	$5.07	$0.00	$45.83
3	70.00	$39.05	$10.08	$11.62	$7.60	$0.00	$68.35
4	80.00	$44.63	$10.08	$11.62	$10.14	$0.00	$76.47

Apprentice to Journeyworker Ratio: 1:5

PIPEFITTER & STEAMFITTER PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2025	$69.08	$13.45	$13.75	$9.30	$0.00	$105.58

Apprentice: PIPEFITTER & STEAMFITTER

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$27.63	$13.45	$13.75	$9.30	$0.00	$64.13
2	45.00	$31.09	$13.45	$13.75	$9.30	$0.00	$67.59
3	60.00	$41.45	$13.45	$13.75	$9.30	$0.00	$77.95
4	70.00	$48.36	$13.45	$13.75	$9.30	$0.00	$84.86
5	80.00	$55.26	$13.45	$13.75	$9.30	$0.00	$91.76

Apprentice to Journeyworker Ratio: 1:3

PIPELAYER LABORERS LABORERS - ZONE 2	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
PIPELAYER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.47	$10.15	$9.50	$9.21	$0.00	$70.33
	6/1/2026	$42.91	$10.15	$9.50	$9.21	$0.00	$71.77
	12/1/2026	$44.35	$10.15	$9.50	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
PLUMBERS & GASFITTERS PLUMBERS & GASFITTERS LOCAL 12 PLUMBERS & GASFITTERS LOCAL 12	9/1/2025	$71.74	$14.32	$12.61	$8.00	$0.00	$106.67
	3/2/2026	$73.89	$14.32	$12.61	$8.00	$0.00	$108.82
	8/31/2026	$76.04	$14.32	$12.61	$8.00	$0.00	$110.97
	3/1/2027	$78.19	$14.32	$12.61	$8.00	$0.00	$113.12
	8/30/2027	$80.34	$14.32	$12.61	$8.00	$0.00	$115.27
	2/28/2028	$82.54	$14.32	$12.61	$8.00	$0.00	$117.47
	9/4/2028	$84.74	$14.32	$12.61	$8.00	$0.00	$119.67

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	3/5/2029	$86.94	$14.32	$12.61	$8.00	$0.00	$121.87
	9/3/2029	$89.14	$14.32	$12.61	$8.00	$0.00	$124.07
	3/4/2030	$91.09	$14.32	$12.61	$8.00	$0.00	$126.02

Apprentice: PLUMBERS & GASFITTERS

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	$25.11	$14.32	$4.61	$2.80	$0.00	$46.84
2	40.00	$28.70	$14.32	$5.22	$3.20	$0.00	$51.44
3	55.00	$39.46	$14.32	$7.07	$4.40	$0.00	$65.25
4	65.00	$46.63	$14.32	$8.30	$5.20	$0.00	$74.45
5	75.00	$53.81	$14.32	$9.53	$6.00	$0.00	$83.66

Apprentice: PLUMBERS & GASFITTERS

Effective Date: 3/2/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	$25.86	$14.32	$4.61	$2.80	$0.00	$47.59
2	40.00	$29.56	$14.32	$5.22	$3.20	$0.00	$52.30
3	55.00	$40.64	$14.32	$7.07	$4.40	$0.00	$66.43
4	65.00	$48.03	$14.32	$8.30	$5.20	$0.00	$75.85
5	75.00	$55.42	$14.32	$9.53	$6.00	$0.00	$85.27

Apprentice to Journeyworker Ratio: 1:2

PNEUMATIC CONTROLS (TEMP.) PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	9/1/2025	$69.08	$13.45	$13.75	$9.30	$0.00	$105.58
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
PNEUMATIC DRILL/TOOL OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$41.47	$10.15	$9.50	$9.21	$0.00	$70.33
	6/1/2026	$42.91	$10.15	$9.50	$9.21	$0.00	$71.77
	12/1/2026	$44.35	$10.15	$9.50	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWDERMAN & BLASTER LABORERS LABORERS - ZONE 2	12/1/2025	$42.22	$10.15	$9.50	$9.11	$0.00	$70.98
	6/1/2026	$43.66	$10.15	$9.50	$9.11	$0.00	$72.42
	12/1/2026	$45.10	$10.15	$9.50	$9.11	$0.00	$73.86
	6/1/2027	$46.55	$10.15	$9.50	$9.11	$0.00	$75.31

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	$48.00	$10.15	$9.50	$9.11	$0.00	$76.76
	6/1/2028	$49.50	$10.15	$9.50	$9.11	$0.00	$78.26
	12/1/2028	$51.00	$10.15	$9.50	$9.11	$0.00	$79.76
For apprentice rates see "Apprentice- LABORER"							
POWDERMAN & BLASTER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2025	$42.22	$9.90	$9.50	$9.21	$0.00	$70.83
	6/1/2026	$43.66	$9.90	$9.50	$9.21	$0.00	$72.27
	12/1/2026	$45.10	$9.90	$9.50	$9.21	$0.00	$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWER SHOVEL/DERRICK/TRENCHING MACHINE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (CONCRETE) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (DEWATERING, OTHER) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$37.97	$16.05	$13.25	$3.25	$0.00	$70.52
	6/1/2026	$38.83	$16.05	$13.25	$3.25	$0.00	$71.38
	12/1/2026	$39.78	$16.05	$13.25	$3.25	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
READY-MIX CONCRETE DRIVER TEAMSTERS 170 TEAMSTERS 170 - Dauphinais (Bellingham)	1/1/2025	$27.60	$11.26	$6.15	$0.00	$0.00	$45.01
RECLAIMERS OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
RIDE-ON MOTORIZED BUGGY OPERATOR LABORERS LABORERS - ZONE 2	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
ROLLER/SPREADER/MULCHING MACHINE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
ROOFER (Inc.Roofer Waterproofng & Roofer Damproofg) ROOFERS LOCAL 33 ROOFERS LOCAL 33	2/1/2026	$54.78	$13.28	$12.67	$9.03	$0.00	$89.76

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg)

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.39	$13.28	$6.52	$9.03	$0.00	$56.22
2	60.00	$32.87	$13.28	$12.67	$9.03	$0.00	$67.85
3	65.00	$35.61	$13.28	$12.67	$9.03	$0.00	$70.59
4	75.00	$41.09	$13.28	$12.67	$9.03	$0.00	$76.07
5	85.00	$46.56	$13.28	$12.67	$9.03	$0.00	$81.54

Apprentice Notes

** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1

Apprentice to Journeyworker Ratio: 1:5

ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 33 ROOFERS LOCAL 33	2/1/2026	$55.03	$13.28	$12.67	$9.03	$0.00	$90.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09

Apprentice: SHEETMETAL WORKER

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	42.00	$26.43	$14.91	$6.19	$0.00	$0.00	$47.53
2	42.00	$26.43	$14.91	$6.19	$0.00	$0.00	$47.53
3	47.00	$29.58	$14.91	$10.93	$1.25	$1.62	$58.29
4	47.00	$29.58	$14.91	$10.93	$1.25	$1.62	$58.29
5	52.00	$32.72	$14.91	$11.66	$1.50	$1.74	$62.53
6	52.00	$32.72	$14.91	$11.66	$1.75	$1.75	$62.79
7	60.00	$37.76	$14.91	$12.84	$2.00	$1.93	$69.44
8	65.00	$40.90	$14.91	$13.58	$2.25	$2.04	$73.68
9	75.00	$47.20	$14.91	$15.06	$2.75	$2.28	$82.20
10	85.00	$53.49	$14.91	$16.53	$2.75	$2.49	$90.17

Apprentice to Journeyworker Ratio: 1:4

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$41.24	$16.17	$21.78	$0.00	$0.00	$79.19
	6/1/2026	$42.24	$16.17	$21.78	$0.00	$0.00	$80.19
	12/1/2026	$42.24	$16.17	$23.52	$0.00	$0.00	$81.93
	1/1/2027	$42.24	$16.77	$23.52	$0.00	$0.00	$82.53

SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10	1/1/2026	$41.53	$16.17	$21.78	$0.00	$0.00	$79.48
	6/1/2026	$42.53	$16.17	$21.78	$0.00	$0.00	$80.48

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2026	$42.53	$16.17	$23.52	$0.00	$0.00	$82.22
	1/1/2027	$42.53	$16.77	$23.52	$0.00	$0.00	$82.82
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	1/1/2026	$72.05	$13.45	$7.45	$18.25	$0.00	$111.20

Apprentice: SPRINKLER FITTER

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	$25.22	$13.45	$13.84	$0.00	$0.00	$52.51
2	40.00	$28.82	$13.45	$14.75	$0.00	$0.00	$57.02
3	45.00	$32.42	$13.45	$15.67	$0.00	$0.00	$61.54
4	50.00	$36.03	$13.45	$16.57	$0.00	$0.00	$66.05
5	55.00	$39.63	$13.45	$17.49	$0.00	$0.00	$70.57
6	60.00	$43.23	$13.45	$18.40	$0.00	$0.00	$75.08
7	65.00	$46.83	$13.45	$19.32	$0.00	$0.00	$79.60
8	70.00	$50.44	$13.45	$20.22	$0.00	$0.00	$84.11
9	75.00	$54.04	$13.45	$21.15	$0.00	$0.00	$88.64
10	80.00	$57.64	$13.45	$22.05	$0.00	$0.00	$93.14

Apprentice Notes

Apprentice entered prior 9/30/10:

Apprentice to Journeyworker Ratio: 1:3

STEAM BOILER OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TELECOMMUNICATION TECHNICIAN TELECOMMUNICATION TECHNICIAN ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	9/1/2025	$52.94	$13.00	$13.97	$6.98	$0.00	$86.89
	3/1/2026	$53.49	$13.00	$14.23	$7.20	$0.00	$87.92
	9/1/2026	$55.02	$13.00	$14.28	$7.20	$0.00	$89.50
	3/1/2027	$55.98	$13.00	$14.31	$7.20	$0.00	$90.49
	9/1/2027	$57.50	$13.00	$14.36	$7.20	$0.00	$92.06
	3/1/2028	$58.46	$13.00	$14.38	$7.20	$0.00	$93.04

For apprentice rates and ratios see "Apprentice- ELECTRICIAN"

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$23.82	$13.00	$0.71	$0.00	$0.00	$37.53
2	45.00	$23.82	$13.00	$0.71	$0.00	$0.00	$37.53
3	50.00	$26.47	$13.00	$13.17	$3.49	$0.00	$56.13
4	50.00	$26.47	$13.00	$13.17	$3.49	$0.00	$56.13
5	55.00	$29.12	$13.00	$13.25	$3.84	$0.00	$59.21
6	60.00	$31.76	$13.00	$13.33	$4.19	$0.00	$62.28
7	65.00	$34.41	$13.00	$13.41	$4.54	$0.00	$65.36
8	70.00	$37.06	$13.00	$13.49	$4.89	$0.00	$68.44
9	75.00	$39.71	$13.00	$13.57	$5.24	$0.00	$71.52
10	80.00	$42.35	$13.00	$13.65	$5.58	$0.00	$74.58

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 3/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$24.07	$13.00	$0.72	$0.00	$0.00	$37.79
2	45.00	$24.07	$13.00	$0.72	$0.00	$0.00	$37.79
3	50.00	$26.75	$13.00	$13.43	$3.60	$0.00	$56.78
4	50.00	$26.75	$13.00	$13.43	$3.60	$0.00	$56.78
5	55.00	$29.42	$13.00	$13.51	$3.96	$0.00	$59.89
6	60.00	$32.09	$13.00	$13.59	$4.32	$0.00	$63.00
7	65.00	$34.77	$13.00	$13.67	$4.68	$0.00	$66.12
8	70.00	$37.44	$13.00	$13.75	$5.04	$0.00	$69.23
9	75.00	$40.12	$13.00	$13.83	$5.40	$0.00	$72.35
10	80.00	$42.79	$13.00	$13.91	$5.76	$0.00	$75.46

Apprentice to Journeyworker Ratio: 1:1

TERRAZZO FINISHERS BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	2/1/2026	$68.24	$11.49	$15.57	$8.02	$0.00	$103.32
	8/1/2026	$70.44	$11.49	$15.57	$8.02	$0.00	$105.52
	2/1/2027	$71.84	$11.49	$15.57	$8.02	$0.00	$106.92

Apprentice: TERRAZZO FINISHERS

Effective Date: 2/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.12	$11.49	$15.57	$8.02	$0.00	$69.20
2	60.00	$40.94	$11.49	$15.57	$8.02	$0.00	$76.02
3	70.00	$47.77	$11.49	$15.57	$8.02	$0.00	$82.85
4	80.00	$54.59	$11.49	$15.57	$8.02	$0.00	$89.67
5	90.00	$61.42	$11.49	$15.57	$8.02	$0.00	$96.50

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: TERRAZZO FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.22	$11.49	$15.57	$8.02	$0.00	$70.30
2	60.00	$42.26	$11.49	$15.57	$8.02	$0.00	$77.34
3	70.00	$49.31	$11.49	$15.57	$8.02	$0.00	$84.39
4	80.00	$56.35	$11.49	$15.57	$8.02	$0.00	$91.43
5	90.00	$63.40	$11.49	$15.57	$8.02	$0.00	$98.48

Apprentice to Journeyworker Ratio: 1:5

TEST BORING DRILLER LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2025	$52.70	$10.15	$9.50	$9.80	$0.00	$82.15
	6/1/2026	$54.25	$10.15	$9.50	$9.80	$0.00	$83.70
	12/1/2026	$55.75	$10.15	$9.50	$9.80	$0.00	$85.20
For apprentice rates see "Apprentice- LABORER"							
TEST BORING DRILLER HELPER LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2025	$48.82	$10.15	$9.50	$9.80	$0.00	$78.27
	6/1/2026	$50.37	$10.15	$9.50	$9.80	$0.00	$79.82
	12/1/2026	$51.87	$10.15	$9.50	$9.80	$0.00	$81.32
For apprentice rates see "Apprentice- LABORER"							
TEST BORING LABORER LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2025	$48.70	$10.15	$9.50	$9.80	$0.00	$78.15
	6/1/2026	$50.25	$10.15	$9.50	$9.80	$0.00	$79.70
	12/1/2026	$51.75	$10.15	$9.50	$9.80	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"							
TRACTORS/PORTABLE STEAM GENERATORS OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	12/1/2025	$58.62	$16.05	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$59.90	$16.05	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.34	$16.05	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TRAILERS FOR EARTH MOVING EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2026	$41.82	$16.17	$21.78	$0.00	$0.00	$79.77
	6/1/2026	$42.82	$16.17	$21.78	$0.00	$0.00	$80.77
	12/1/2026	$42.82	$16.17	$23.52	$0.00	$0.00	$82.51
	1/1/2027	$42.82	$16.77	$23.52	$0.00	$0.00	$83.11
TUNNEL WORK - COMPRESSED AIR LABORERS LABORERS (COMPRESSED AIR)	12/1/2025	$60.93	$10.15	$9.50	$10.25	$0.00	$90.83
	6/1/2026	$62.48	$10.15	$9.50	$10.25	$0.00	$92.38
	12/1/2026	$63.98	$10.15	$9.50	$10.25	$0.00	$93.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) LABORERS LABORERS (COMPRESSED AIR)	12/1/2025	$62.93	$10.15	$9.50	$10.25	$0.00	$92.83
	6/1/2026	$64.48	$10.15	$9.50	$10.25	$0.00	$94.38
	12/1/2026	$65.98	$10.15	$9.50	$10.25	$0.00	$95.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR	12/1/2025	$53.00	$10.15	$9.50	$10.25	$0.00	$82.90

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	6/1/2026	$54.55	$10.15	$9.50	$10.25	$0.00	$84.45
LABORERS (FREE AIR TUNNEL)	12/1/2026	$56.05	$10.15	$9.50	$10.25	$0.00	$85.95
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR (HAZ. WASTE)	12/1/2025	$55.00	$10.15	$9.50	$10.25	$0.00	$84.90
LABORERS	6/1/2026	$56.55	$10.15	$9.50	$10.25	$0.00	$86.45
LABORERS (FREE AIR TUNNEL)	12/1/2026	$58.05	$10.15	$9.50	$10.25	$0.00	$87.95
For apprentice rates see "Apprentice- LABORER"							
VAC-HAUL	1/1/2026	$41.24	$16.17	$21.78	$0.00	$0.00	$79.19
TEAMSTERS JOINT COUNCIL NO. 10	6/1/2026	$42.24	$16.17	$21.78	$0.00	$0.00	$80.19
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2026	$42.24	$16.17	$23.52	$0.00	$0.00	$81.93
	1/1/2027	$42.24	$16.77	$23.52	$0.00	$0.00	$82.53
WAGON DRILL OPERATOR	12/1/2025	$41.47	$10.15	$9.50	$9.11	$0.00	$70.23
LABORERS	6/1/2026	$42.91	$10.15	$9.50	$9.11	$0.00	$71.67
LABORERS - ZONE 2	12/1/2026	$44.35	$10.15	$9.50	$9.11	$0.00	$73.11
	6/1/2027	$45.80	$10.15	$9.50	$9.11	$0.00	$74.56
	12/1/2027	$47.25	$10.15	$9.50	$9.11	$0.00	$76.01
	6/1/2028	$48.75	$10.15	$9.50	$9.11	$0.00	$77.51
	12/1/2028	$50.25	$10.15	$9.50	$9.11	$0.00	$79.01
For apprentice rates see "Apprentice- LABORER"							
WAGON DRILL OPERATOR (HEAVY & HIGHWAY)	12/1/2025	$41.47	$10.15	$9.50	$9.21	$0.00	$70.33
LABORERS	6/1/2026	$42.91	$10.15	$9.50	$9.21	$0.00	$71.77
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	$44.35	$10.15	$9.50	$9.21	$0.00	$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
WASTE WATER PUMP OPERATOR	12/1/2025	$59.28	$16.05	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.58	$16.05	$13.25	$3.25	$0.00	$93.13
OPERATING ENGINEERS LOCAL 4	12/1/2026	$62.03	$16.05	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
WATER METER INSTALLER	9/1/2025	$71.74	$14.32	$12.61	$8.00	$0.00	$106.67
PLUMBERS & GASFITTERS LOCAL 12	3/2/2026	$73.89	$14.32	$12.61	$8.00	$0.00	$108.82
PLUMBERS & GASFITTERS LOCAL 12	8/31/2026	$76.04	$14.32	$12.61	$8.00	$0.00	$110.97
	3/1/2027	$78.19	$14.32	$12.61	$8.00	$0.00	$113.12
	8/30/2027	$80.34	$14.32	$12.61	$8.00	$0.00	$115.27
	2/2/2028	$82.54	$14.32	$12.61	$8.00	$0.00	$117.47
	9/4/2028	$84.74	$14.32	$12.61	$8.00	$0.00	$119.67
	3/5/2029	$86.94	$14.32	$12.61	$8.00	$0.00	$121.87
	9/3/2029	$89.14	$14.32	$12.61	$8.00	$0.00	$124.07
	3/4/2030	$91.09	$14.32	$12.61	$8.00	$0.00	$126.02
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"							

Additional Apprentice Information

All apprentices must be registered with the Division of Apprenticeship Training(DAS) in accordance with M.G.L.c. 23, §§ 11E-11L. Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the hourly prevailing wage rate established by the Commissioner under the provisions of M.G.L.c. 149, §§ 26-27D.

Apprentice ratios are established by DAS pursuant to M.G.L.c. 23, §§ 11E-11L. Ratios are expressed as the allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified. The ratios listed herein have been taken from relevant private collective bargaining agreements(CBAs) and are provided for illustrative purposes only. They have not been independently verified as being accurate or continuing to be accurate.

Parties having questions regarding what ratio to use should contact DAS.

APPENDIX C

BELLINGHAM CONSERVATION COMMISSION
ORDER OF CONDITIONS

MASSDOT
STATE HIGHWAY ACCESS PERMIT

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:
105-0971
MassDEP File #

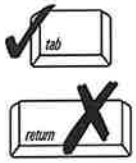
eDEP Transaction #

Bellingham
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: Bellingham
Conservation Commission

2. This issuance is for (check one): a. ■ Order of Conditions b. ☐ Amended Order of Conditions

3. To: Applicant:

Jesse (a. First Name) | Riedle (b. Last Name)
Town of Bellingham Department of Public Works (c. Organization)
26 Blackstone Street (d. Mailing Address)
Bellingham (e. City/Town) | MA (f. State) | 02019-1602 (g. Zip Code)

4. Property Owner (if different from applicant):

(a. First Name) | (b. Last Name)
Town of Bellingham Department of Public Works (c. Organization)
26 Blackstone Street (d. Mailing Address)
Bellingham (e. City/Town) | MA (f. State) | 02019-1602 (g. Zip Code)

5. Project Location:

Hartford Avenue (Route 126), I-495 (a. Street Address) | Bellingham (b. City/Town)
(c. Assessors Map/Plat Number) | (d. Parcel/Lot Number)
Latitude and Longitude, if known: d m s (d. Latitude) | d m s (e. Longitude)

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:
105-0971
MassDEP File #

eDEP Transaction #

Bellingham
City/Town

A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):

a. County

b. Certificate Number (if registered land)

c. Book

d. Page

7. Dates: a. Date Notice of Intent Filed | b. Date Public Hearing Closed | c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):

Massachusetts Department of Transportation, Highway Division, Plan and Profile of Hartford Avenue (Route 126) In the Town of Bellingham, Norfolk County, Notice of Intent
a. Plan Title

Chappell Engineering
b. Prepared By

c. Signed and Stamped by

12/3/2024
d. Final Revision Date

e. Scale

Additional supporting documents listed in the Special 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.

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:
105-0971
MassDEP File #

eDEP Transaction #

Bellingham
City/Town

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) — 25 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	a. linear feet	b. linear feet	c. linear feet	d. linear feet
5. ☐ Bordering Vegetated Wetland	a. square feet	b. square feet	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	a. square feet	b. square feet	c. square feet	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	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

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:
105-0971
MassDEP File #

eDEP Transaction #

Bellingham
City/Town

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	c. nourishment cu yd	d. nourishment cu yd
14. ☐ Coastal Dunes	a. square feet	b. square feet	c. nourishment cu yd	d. nourishment cu yd
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		
22. ☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

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B. Findings (cont.)

* **#23.** 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.

23. ☐ Restoration/Enhancement *:

a. square feet of BVW | b. square feet of salt marsh

24. ☐ 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.
   c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.
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. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).
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 1/29/28 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.

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C. General Conditions Under Massachusetts Wetlands Protection Act

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.

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 105-0971 "

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.

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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

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.

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.

19. The work associated with this Order (the "Project")
    (1) ■ is subject to the Massachusetts Stormwater Standards
    (2) ☐ is NOT 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;

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

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) 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 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(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.

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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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):

Please see Special Conditions attached

20. For Test Projects subject to 310 CMR 10.05(11), the applicant shall also implement the monitoring plan and the restoration plan submitted with the Notice of Intent. If the conservation commission or Department determines that the Test Project threatens the public health, safety or the environment, the applicant shall implement the removal plan submitted with the Notice of Intent or modify the project as directed by the conservation commission or the Department.

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D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ■ No

2. The _____ hereby finds (check one that applies):
Conservation Commission

   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 2. Citation

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):

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
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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.

1/29/2025
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.

5
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.

Signature	Printed Name
Michael O'Herron (dotloop verified 01/29/25 9:52 AM EST CFKV-OFDR-BIZM-P34E)	Michael O'Herron
Neal Standley (dotloop verified 01/29/25 8:51 AM EST YWRX-KCJO-UMAB-URVR)	Neal Standley
	Arianne Barton
Steven Kohler (dotloop verified 01/29/25 8:40 AM EST LYQK-9N2N-HFVD-8LZU)	Steven Kohler
James Clancy (dotloop verified 01/28/25 8:44 PM EST VHEV-UTDG-DYGC-ABQO)	James Clancy
	Don Coelho
Pamela Francis (dotloop verified 01/29/25 7:02 AM EST WZ6H-MWPI-H2JL-GW1P)	Pamela Francis
Hannah Chace	Hannah Chace - Agent

☑ by hand delivery on

1/29/2025
Date

☐ by certified mail, return receipt requested, on

Date

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
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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 for 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.

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
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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.

Bellingham
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

Project Location | MassDEP File Number

Has been recorded at the Registry of Deeds of:

County | Book | Page

for: 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:

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Request for Departmental Action Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

Provided by DEP

A. Request Information

1. Location of Project

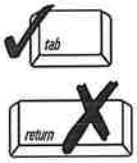
a. Street Address

b. City/Town, Zip

c. Check number

d. Fee amount

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



2. Person or party making request (if appropriate, name the citizen group's representative):

Name

Mailing Address

City/Town

State

Zip Code

Phone Number

Fax Number (if applicable)

3. Applicant (as shown on Determination of Applicability (Form 2), Order of Resource Area Delineation (Form 4B), Order of Conditions (Form 5), Restoration Order of Conditions (Form 5A), or Notice of Non-Significance (Form 6)):

Name

Mailing Address

City/Town

State

Zip Code

Phone Number

Fax Number (if applicable)

4. DEP File Number:

B. Instructions

1. When the Departmental action request is for (check one):

☐ Superseding Order of Conditions – Fee: $120.00 (single family house projects) or $245 (all other projects)

☐ Superseding Determination of Applicability – Fee: $120

☐ Superseding Order of Resource Area Delineation – Fee: $120

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Request for Departmental Action Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

Provided by DEP

B. Instructions (cont.)

Send this form and check or money order, payable to the *Commonwealth of Massachusetts,* to:

Department of Environmental Protection
Box 4062
Boston, MA 02211

2. On a separate sheet attached to this form, state clearly and concisely the objections to the Determination or Order which is being appealed. To the extent that the Determination or Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

3. Send a **copy** of this form and a **copy** of the check or money order with the Request for a Superseding Determination or Order by certified mail or hand delivery to the appropriate DEP Regional Office (see https://www.mass.gov/service-details/massdep-regional-offices-by-community).

4. 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.

SPECIAL CONDITIONS
Order of Conditions DEP #105-0971& BWP-359

Hartford Ave (Route 126)
Proposed Improvements West of I-495
Town of Bellingham Department of Public Works
Pages 1 through 4

Location of Property
Hartford Avenue (Route 126) West of I-495
Parcel IDs: Hartford Avenue
Bellingham, Massachusetts

Name and Address of Applicant
Applicant: Town of Bellingham Department of Public Works c/o Jesse Reidle
26 Blackstone Street
Bellingham, MA 02019

Representative: Keith Lincoln
Chappell Engineering Associates, LLC
201 Boston Post Road West, Suite 101
Marlborough, MA 01752

Project History
On August 26th 2024, Chappell Associates filed a Notice of Intent (NOI) Application on behalf of Jessie Reidel Director of the Department of Public Works and the Town of Bellingham Department of Public Works (the Applicant) with the Bellingham Conservation Commission (BCC) for improvements to Hartford Avenue, starting at the intersection of Hartford Avenue at Arrowhead Road, North Main Street and ending at the Route 126 bridge over I-495. The project corridor spans approximately 1950 feet linear feet of Hartford Avenue in Bellingham, Massachusetts. The project was filed pursuant to the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40, the Act) and its implementing Regulations (310 CMR 10.00). Town DPW projects are exempt from the Town of Bellingham Wetlands Protection Bylaw (BWPB) (Chapter 235, Bylaw) and its implementing Regulations (Chapter 247, Bylaw Regulations).

Date	Event
08/26/2024	Notice of Intent (NOI) filed with the BCC
09/11/2024	New Public Hearing Opened

09/25/2024	Public Hearing
10/2/2024	Peer Review Scope Prepared
10/09/2024	Public Hearing
11/13/2024	Public Hearing and Peer Review Comments issued
12/3/2024	Response to Peer Review
12/11/2024	Public Hearing
12/23/2023	Peer Review Supplemental Response
1/3/2025	Response to Supplemental Peer Review
1/8/2025	Public Hearing Closed

Supporting Documents

NOI submission including appendices A through I

- Plan Set entitled *Massachusetts Department of Transportation, Highway Division, Plan and Profile of Hartford Avenue (Route 126) in the Town of Bellingham, Norfolk County, Notice of Intent*, prepared by Chapell Engineering Associates, dated April 26, 2024, and revised to July 19, 2024.
- *Stormwater Management Checklist, Operations and Maintenance Plan and Long-Term Pollution Prevention Plan, Stormwater Calculations, Hydrodynamic Separator Information, and Drainage Photo Report*, prepared by Chappell Engineering Associates

Letter from Chappell Engineering Associates LLC to the Town of Bellingham Conservation Commission, Attn: Ms. Hannah Crawford, dated December 3, 2024, RE: Stormwater Management Peer Review, Route 126 (Hartford Avenue) Roadway Improvements, Bellingham, MA and five (5) appendices

Letter from Chappell Engineering Associates LLC to the Town of Bellingham Conservation Commission, Attn: Ms. Hannah Crawford, dated January 3, 2025, RE: Stormwater Management Peer Review, Route 126 (Hartford Avenue) Roadway Improvements, Bellingham, MA and five (5) appendices

Final Approved Plans

Plan Set entitled *Massachusetts Department of Transportation, Highway Division, Plan and Profile of Hartford Avenue (Route 126) in the Town of Bellingham, Norfolk County, Notice of Intent*, prepared by Chappell Engineering Associates, dated April 26, 2024, and revised to December 3rd, 2024.

Letter from Chappell Engineering Associates LLC to the Town of Bellingham Conservation Commission, Attn: Ms. Hannah Crawford, dated January 3, 2025, RE: Stormwater Management Peer Review, Route 126 (Hartford Avenue) Roadway Improvements, Bellingham, MA Appendix 1: Proposed Hydraulic Model Layout with Stormceptor Contributing Area, Appendix 2: Stormceptor Outfall Hydrograph, 1-INCH storm

event, Appendix 4: Operation and Maintenance Plan & Long Term Pollution Prevention Plan and Appendix 5: Outfall Hydrograph Comparison, Pre vs Post Development

Findings of Fact and Decision

The project consists of improvements to Hartford Avenue, starting at the intersection of Hartford Avenue at Arrowhead Road, North Main Street and ending at the Route 126 bridge over I-495. The project spans approximately 1950 feet linear feet of Hartford Avenue in Bellingham, Massachusetts. The project primarily aims to widen the roadway to add an additional west bound travel lane and an 8' to 10' wide shared use path along Hartford Avenue and interchange ramps in addition to providing pedestrian and bicycle accommodations in addition to milling and resurfacing the existing roadway. New stormwater BMP's are proposed throughout the project corridor directing stormwater to existing outfall locations. One new point of stormwater discharge is proposed at the outfall end of a proposed Hydrodynamic separator stormwater infiltration structure. Roadway stormwater runoff from the intersection of North Main Street at Hartford Avenue and the northern portion of North Main Street will be directed to proposed deep sump catch basins and directed to the proposed hydrodynamic stormwater separator treatment structure. Currently there is no treatment for the existing roadway stormwater runoff.

The site contains Bordering vegetated wetlands (BVW), Inland Bank to Intermittent stream, Land Under Waterbodies and Waterways, and Buffer Zones. There are four (4) areas where BVWs are located adjacent to the project limits. Wetland AA (AA1 to AA23) delineates a BVW comprised of the northern boundary of Bank and a wooded swamp associated with an intermittent stream. BVWs BB and BC (flags BB1 to BB10 and BC1 to BC3) delineate the eastern boundary of Bank and wooded swamp associated with an intermittent stream. Wetlands EA, EB and EC (flags EA-1 to EA15, EB-1 to EB-20 and EC1-EC-4) are all comprised of wooded swamps associated with intermittent streams. The applicant also identified a state non-jurisdictional isolated wetland located within the project area identified as wetland BA (BA1-BA11).

The proposed project will result in the permanent alteration of 64 ± square feet of state regulated wetland Buffer Zone in association with the proposed hydrodynamic separator stormwater infiltration structure. This structure is identified specifically as a Stormceptor STC 2400. Based upon the work of the Commission and its peer review consultant with the Applicant, the BCC finds that impacts to Buffer Zone have been minimized and meets the requirements of the Wetlands Protection Act Regulations 310 CMR 10.53(1). The proposed work also meets the stormwater standards established in 310 CMR 10.05(6)(k)

BCC relied on the expertise and guidance of a third-party reviewer, BSC Group, Inc. (BSC in the review and evaluation of the project for compliance with the Act.

GENERAL CONDITIONS

21. Prior to the commencement of any construction activity on Site, the Applicant shall record this Order at the Registry of Deeds with proof of recording provided to the BCC at or before the preconstruction meeting required in Condition #26 below.

22. The term "Applicant" as used in the Order shall refer to the current applicant or any assignee, successor in interest or successor in control of the property referenced in the Notice of Intent (NOI), supporting documents, approved plans, and the Order. The BCC shall be notified in writing within 30 days of all transfers of title of any portion of the property subject to the Order.

23. This Order and a copy of the approved drawings and plans shall be available at the Site at all times during construction for easy reference for the benefit of the contractors, subcontractors and commissioners or its representative who will periodically inspect the Site. As established in this Order, these are the Plans of Record.

24. The Order shall be incorporated into all site work construction contracts for the Project. All contractors and subcontractors working at the site shall be made aware of the provisions contained within this Order of Conditions and shall adhere to the Special Conditions contained herein. Thereafter, the site work contractors as well as property owners shall be held jointly responsible for any violations and penalties under the law.

25. The Conservation Commission (BCC) and Agent shall have the right to enter and inspect the site to evaluate and ensure compliance with the Order. Additional information may be required to accomplish an evaluation. For safety reasons, the BCC and Agent shall contact the Site Supervisor, and if required, shall be escorted by the Owner's representative and/or Site Work Contractor while on-site.

OVERALL PRE-CONSTRUCTION

26. After the installation of the erosion controls, the BCC and Agent shall be notified so that a pre-construction site walk can be planned. The purpose of the site walk is to determine that the sediment and erosion controls have been properly installed in the locations specified on the Plans of Record. The Commission or its Agent reserves the right to make changes in the field as is necessary.

27. An adequate reserve of erosion control materials shall be stored on-site at all times for emergency or routine replacement.

28. The name and telephone number of the Project person(s) responsible for ensuring that adequate and functioning erosion controls are present shall be provided to the BCC and Agent. This person or an alternate shall be available on a 24-hour, 7-day basis.

DURING CONSTRUCTION

29. No work activities are permitted beyond the sediment and erosion control barriers in accordance with the Approved Plans. Trash shall not be permitted on the site. The erosion control inspector shall note any

debris or trash generated by the construction and such material is to be gathered for immediate removal and proper disposal.

30. Stockpiling of soil or construction materials shall have adequate erosion controls installed at the time the stockpile(s) is created. Any stockpiles should be placed on, and covered by, an adequate poly tarp.

31. The stone riprap outlet associated with the new stormwater discharge point from the Stormcepter STC 2400 shall be constructed per the Approved Plans.

POST CONSTRUCTION

32. When the site (or areas of the site) meets final soil stabilization criteria and there is no longer a function for the erosion controls, the erosion control materials shall be removed and properly disposed of off-site in accordance with pertinent laws. The BCC shall be notified at the time the Applicant proposes to remove the sediment and erosion controls and this activity shall be noted in the final construction monitoring report.

33. An On-Going Condition shall be adherence to the Operation and Maintenance Plan (O&M) and Longterm Pollution Prevention Plan as identified in Appendix 4 of the January 3rd letter from Chappell Engineering, including the long term operation and maintenance of the proposed Stormcepter unit. The Stormcepter unit shall be inspected monthly by appropriately qualified personnel for structural soundness regularly and maintained as needed by the Town of Bellingham, Massachusetts Department of Public Works as identified in the (O&M).

34. A Final Certificate of Compliance shall be requested in a timely manner when construction is completed and final site stabilization is achieved. The request shall include completion of Form 8A Request for Certificate of Compliance, an as-built survey, a stamped statement of project completion and compliance with the Approved Plans and this Order of Conditions by the Professional Engineer. At the time of final inspection, the Commission or its representative may condition issuance of the Certificate of Compliance upon removal of all sediment and erosion controls.

3-2022-0088

ROAD IMPROVEMENTS/ Not Associated with curb cut

BELLINGHAM

Subject to all of the terms, conditions and restrictions printed or written below, and on the reverse side hereof, permission is hereby granted to the **BELLINGHAM DEPARTMENT OF PUBLIC WORKS** to enter upon the State Layout in the **TOWN of BELLINGHAM** on the road known as **Interchange of Route 126 with I-495 Ramps,** Hartford Ave, for the purposes of **highway improvements along Hartford Avenue (Route 126) from North Main Street (Route 126) to the I-495 overpass to add roadway and intersection capacity. In addition, the project includes improvements at five signalized intersections that are included within the existing Hartford Avenue (Route 126) coordinated signal system,** as shown on the plan submitted and on file in the District Three Permits Office.

Prior to ANY work being done within the State Highway Layout, the Grantee must receive approval from the District in the form of an approved Work Request through the State Highway Access Permit System, SHAPS. The Work Request shall be submitted no later than 12:00 PM on the Thursday PRIOR to the week the work will begin. Work Requests shall be submitted weekly, for the duration of the project, for review/approval. The Grantee must submit their proposed **"Work Schedule"** by logging into their SHAPS account and submitting a **"Work Request Form**". This form can be found by selecting the *Forms and Sample Submission Documents* link located in the left-hand column of the SHAPS dashboard. Once completed the form shall be uploaded under the "Work" tab (shovel icon) of the permit. Once submitted we will review and approve/deny for the following week(s) schedule. A work schedule must be approved by MassDOT Permits Section/Operations before any work takes place within the State Right of Way. Any unscheduled, unapproved, or unpermitted work shall be in violation. For more information please call (857)-368-3001.

It is the responsibility of the Grantee to obtain any additional approvals necessary prior to performing this work.

THE 2026 FIFA WORLD CUP WILL BE HELD AT GILLETTE STADIUM IN FOXBOROUGH, RELATED EVENTS, AND SIGNIFICANT TOURIST EVENTS SUCH AS SAIL BOSTON AND THE 250TH ANNIVERSARY OF THE UNITED STATES WILL BE HELD THROUGHOUT THE REGION. MATCHES AND FAN FEST AND OTHER POSSIBLE 250TH CELEBRATION ACTIVITIES ARE SCHEDULED THROUGH JUNE, JULY, AND AUGUST 2026.THE DISTRICT WILL BE IMPOSING WORK AND/OR TRAFFIC RESTRICTIONS AS NECESSARY TO MINIMIZE IMPACTS DURING THESE PERIODS WHEN, AS DETERMINED BY MASSDOT, THE GRANTEE'S OPERATIONS COULD IMPACT VEHICULAR TRAFFIC, PARTICULARLY ON INTERSTATE HIGHWAYS AND MAJOR ARTERIALS THROUGHOUT THE REGION AND LOCAL ROADS NEAR THE EVENT SITES. THE GRANTEE SHALL PLAN ACCORDINGLY. ANY NECESSARY OR EMERGENCY WORK REQUIRED DURING THIS TIME WILL REQUIRE DISTRICT APPROVAL.

SPECIAL CONDITIONS

- *Due to the nature of this project, the District will allow the Performance Bond and the Certificate of Liability Insurance for this project to be provided post issuance of this permit. Please be advised that no Work Requests will be approved for the work within the SHLO until these documents have been provided, reviewed, and approved of. Please submit these ancillary documents at least 2 weeks prior to when the Grantee intends to begin work within the SHLO to allow adequate time for review/approval.*
    - *MassDOT will require a performance bond in the amount of $13,200,000. The limits of said bond shall be in accordance with M.G.L. c. 81, § 21. Please upload the bond document with MassDOT as the obligee to the Docs Section when available. The hard copy must be mailed to 499 Plantation Parkway Worcester, MA 01605.*
- *All guardrail must conform to the current MASH standards and MassDOT Engineering Directive E-20-004. All guardrail must be installed by a MassDOT approved guardrail Contractor. All work is done at the Grantee's expense.*
- *Prior to performing any guardrail work within the SHLO, the Grantee must provide the contact information of the selected MassDOT preapproved guardrail contractor that is to perform such work for the District's review and approval.*
- *All State maintained assets, including but not limited to drainage infrastructure, roadway signs, and/or loop detectors, are damaged as a result of the proposed work, they shall be replaced in-kind and in accordance with MassDOT Standard Specifications and details. All work done at the Grantee's expense.*
- *The Grantee is responsible for maintaining proper pedestrian access and ADA-compliant pathways at all times throughout the duration of the proposed work in accordance with MassDOT Standards.*
- *The Grantee shall implement all traffic control setups with proper taper lengths and spacing per the applicable speed and offset of the State Roadway in accordance with MassDOT Standards and the MUTCD.*
- *Coordination is required between the Grantee and MassDOT's Survey Section prior to the start of work that is to impact existing MassDOT bounds. Please contact the District 3 Survey Section, Paul Tivnan at 857-368-3089 or paul.tivnan@dot.state.ma.us prior to this portion of the proposed work for proper guidance. All of the work related to the treatment of the existing MassDOT highway bound shall be done with the approval of MassDOT District 3 Survey Section.*
- *Prior to the start of work that will impact the existing traffic signal loops and/or associated wiring for the traffic signal, the Grantee must contact Jeff Gomes, at jeffrey.r.gomes@dot.state.ma.us or 774-270-4960 for the proper coordination.*
- *All restoration of loop detectors and associated wiring in addition to accessing the signal cabinet shall only be performed by a Prequalified Contractor approved by MassDOT. These devices shall be replaced in-kind and in accordance with MassDOT Standard Specifications and details. All work done at the Grantee's expense.*

WORK HOURS

- **All Lane Closures** shall only take place between the hours of **9:00pm – 5:00am Sunday through Thursday**.

- **All Detours** shall only take place within the approved hours of the District Operations Engineer. The Grantee shall contact the District Three Permit Office **a minimum of two weeks prior to pursuing any phase of work that will require the use of detours** so the District may determine the approved work hours accordingly.

- No equipment, trucks, etc. shall occupy any part of the traveled way outside of those hours.

- **If No Lane closure is required,** then work shall be permitted between **9:00am-3:30pm Monday through Friday**.

- No work shall be allowed on holidays, the Friday after a Thursday holiday, or at any times between and including the day before or the day after a long weekend which involves a holiday without the permission of the District Operations Engineer.

In no case will operations commence prior to the specified hours of this Permit. This includes traffic set-ups that restrict the flow of traffic upstream of and through the construction zone.

If the Grantee would like to request a change in the approved work hours they must make a formal request through SHAPS. This can be done by logging into their SHAPS account and uploading a letter that clearly outlines the requested change and provides justification showing that the roadway will be able to function adequately during the times requested while the approved traffic management plan (TMP) is implemented. **The Grantee shall also leave a note in the permit under the "Discuss/Notes" tab at the time of this request to ensure the District is notified.**

MassDOT reserves the right to change or alter permitted work hours as deemed necessary.

GENERAL TRAFFIC MANAGEMENT AND SAFETY REQUIREMENTS

If applicable, any and all portable changeable message board (PCMSs) utilized as part of the approved traffic management plan (TMP) under this permit must be properly secured with regards to hacking and unauthorized tampering prevention. The Grantee(s) shall adhere to all appropriate security specifications and take all necessary precautions to mitigate the risk of the boards being hacked. All PCMSs shall be stored in a secured area and shall have a lockable, weatherproof enclosure for the operator interface, removable local keyboards which shall be removed whenever possible, and a password protected controller with local administrative passwords changed on a regular basis. The message(s) shall be approved by MassDOT prior to use.

The Grantee(s) must contact the "Dig Safe" Center at 811 to obtain a "Dig Safe" number prior to starting any emergency excavation for the purpose of identifying the location of underground utilities.

No work, other than of an emergency nature, shall be authorized during inclement weather.

WORK IN PROGRESS: In the event of inclement weather (snow, ice, dense fog, etc.), which lessens the visibility of advanced warning signs, vehicles and workers, the Grantee(s) will suspend all operations (except in emergencies) so as to not interfere with the safety of the motoring public and the operations of work. In the event of snow or icing conditions, all vehicles and equipment must be removed from the roadway and/or shoulder area (at least thirty (30') feet away from the roadway) to avoid interfering with Snow and Ice Operations. If steel plates are being utilized, every effort shall be made to properly backfill all openings and remove said plates, located within the roadway, to avoid a hazardous condition during plowing operations. If emergency work is being done during snow and ice operations which impede snow removal, the grantee will be responsible to remove said snow and deicing after emergency work is completed.

When any portion of the roadway will be blocked with equipment to facilitate the proposed work, the Grantee(s) will be required to submit a TMP to MassDOT, Highway Division, to be reviewed and approved by the District Permits Engineer
prior to working within or impacting the roadway. The plan must include information relating to proper signing, traffic control device placement and police details. A Truck Mounted Attenuator (TMA) may be required as part of the setup.
At any time during construction operations when a traffic delay of over twelve (12) minutes occurs and the situation is worsening, the Grantee or the Department shall begin to suspend operations. Continuously increasing delays of over twelve (12) minutes shall not be permitted. When it appears that delays are developing, one or more of the parties mentioned above shall drive the queue to determine the actual time of delay. Monitoring of traffic delays will be a continuous process until the job activity is complete and off the traveled way or until the determination is made to suspend operations.

No detours are allowed under the terms of this Permit except during extreme emergencies.

If traffic must be "stopped", the duration shall not be more than five (5) minutes.

A uniformed police officer and their vehicle are required for traffic management to protect the safety of the motorist, pedestrians and workers as determined by MassDOT, Highway Division.

Necessary signs, lights and barriers shall be installed by the Grantee in accordance with the latest Edition of the "Manual on Uniform Traffic Control Devices", as amended with the latest revisions.

All required signs and traffic warning devices shall be furnished by the Grantee. Cones or non-reflectorized warning devices shall not be left in operating position on the highway when the daytime operations have ceased.

If it becomes necessary for MassDOT, Highway Division to remove any construction warning devices or their appurtenances from any project due to negligence by the Grantee/Contractor, all expenses will be billed to the Grantee and they shall be responsible for reimbursement to MassDOT, Highway Division.

All working personnel and those who are to be found within the travelled way, breakdown lanes or within the State Highway Layout are required to wear approved safety vests and hard hats.

All vehicles that have an obstructed view to the rear (i.e. dump trucks, box trucks, flatbed trucks, graders, bulldozers, loaders, tractors, etc.) are required to have backup alarms, in full working order, and all vehicles, except passenger cars, which are assigned to the permitted project and which operate on the site at speeds of 25 M.P.H. or less shall have an official SLOW MOVING VEHICLE emblem displayed, subject to Chapter 90 Section 7 of the Massachusetts General Laws to operate on any MassDOT, Highway Division roadways, under contract or permit.

All operations shall be conducted to minimize the interference of motorist or pedestrian traffic, and under no circumstances shall the operations create a hazardous environment for the general public.

The Grantee is responsible for maintaining access and egress to all impacted properties.

PROJECTS EXCEEDING A CATEGORY C (MINOR LOT) CLASSIFICATION:

If the total quantity of hot mix asphalt is **equal to or greater than 2,100 tons**, additional requirements shall be adhered to in accordance with the LATEST Edition of the Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges.

The Grantee shall contact the **District 3 Economic Development Engineer, Kevin Robenhymer, via email (kevin.r.robenhyme@dot.state.ma.us) or phone (857-368-3034) at least 2 weeks in advance of paving operations to schedule a "pre-paving" meeting.** All applicable parties including, but not limited to, the Grantee, paving contractor, quality control personnel and third-party inspection firms shall be in attendance.

Prior to placing hot mix asphalt the Grantee shall provide notice to the **District 3 Permits Inspector, Chad Noel, via email (chad.b.noel@dot.state.ma.us) or phone (857-278-1379) at least 48 hours in advance of the work.** The notice shall include the anticipated schedule, HMA tonnage, the type of mix, the mix provider and plant location.

TRENCH

The Grantee(s) must adhere to 520 CMR 14.00; EXCAVATION AND TRENCH SAFETY, as promulgated by the Department of Public Safety in conjunction with the Division of Occupational Safety pursuant to authority granted

by M.G.L. c. 82A § 1. If not already approved, a Trench Permit Rider must be completed and submitted to MassDOT, Highway Division before any trench work is performed under this Permit.

BACKFILL METHOD FOR WORK WITHIN THE HARDENED SURFACE OF THE ROADWAY SHALL BE AS FOLLOWS

All permanent trench restorations shall be performed in accordance with MassDOT's "Utility Trench Permanent Pavement Repair" detail. This detail has been provided at the end of this permit for reference and is described in detail below.

The roadway must be sawcut in neat, true lines along the length of the trench. The trench shall then be excavated, the utility repaired, and controlled low-strength materials (CLSM) Type Mechanical Excavatable placed to one (1') foot and seven and one half (7.5") inches below the finish grade of the roadway surface. From the bottom of the excavation to a minimum of twelve (12") inches above the top of the utility, utility specific backfill material shall be allowed. The trench shall then be plated securely and ramped with bituminous concrete overnight to allow the controlled low-strength materials to cure. The plates may need to be recessed to the finished grade of the roadway as directed by the Engineer. Unless circumstances are beyond your control due to an emergency, NO STEEL PLATES MAY BE LEFT WITHIN THE STATE HIGHWAY LAYOUT OVER THE WEEKEND WITHOUT PRIOR APPROVAL BY MASSDOT'S PERMIT SECTION/OPERATIONS. No trench shall be left open overnight.

Once the CLSM has cured a minimum of twelve (12") inches of gravel sub-base shall be placed on top of it. Then the perimeter of the trench must be sawcut a minimum of one (1') foot beyond the existing edge of the trench and this material removed to a depth of seven and one half (7.5") inches.

The Grantee must then place the first layer of the permanent bituminous concrete patch which shall consist of three and one half (3.5") inches of Superpave Base Course 37.5 (SBC – 37.5). Once installed an additional sawcut shall be made a minimum of one (1') foot around the perimeter of the trench and this material removed to a depth of four (4") inches.

The final two layers of the permanent bituminous concrete patch shall then be installed consisting of two and one quarter (2.25") inches of Superpave Intermediate Course 19.0 (SIC – 19.0), AND one and three quarter (1.75") inches of Superpave Surface Course 12.5 (SSC – 12.5). Superpave Intermediate Course 19.0 (SIC – 19.0) may be substituted for Superpave Base Course 37.5 (SBC – 37.5). If this is done, the intermediate course shall be placed in two (2) lifts.

If a temporary patch is to be used, the CLSM shall be placed to the elevation of the adjoining subgrade, then gravel shall be placed and compacted to within three and one half (3.5") inches of the finished grade. The last three and one half (3.5") inches shall be hot mix asphalt placed in two layers: one and one half (1.5") surface course over two (2") intermediate course. The temporary patches and the underlying material shall then be excavated to a depth of seven and one half (7.5") inches below the existing surface to install the permanent patch constructed in the manner described above.

The exposed edges of all longitudinal and transverse saw cut joints shall be treated with hot poured rubberized asphalt joint sealant meeting MassDOT specifications.

Yellow metal foil marking tape shall be placed eighteen (18") inches over the conduit. Metal marking tape/wire should be used for non-metallic conduit.

For roads with an existing cement concrete base, a reinforced, high early strength air entrained, Class "F" cement concrete slab shall be cast in place to meet the existing pavement. Specific joint details with the existing pavement shall be approved dependent on the existing site conditions.

District 3, 499 Plantation Parkway Worcester, MA 01605
Tel: (857) 368-3000, FAX: (857) 368-0310
www.mass.gov/orgs/highway-division

All trench dimensions shall be in accordance with sub-section 140.80 of the MassDOT Standards and Specifications for Highways and Bridges.

**Controlled Low-Strength Materials (CLSM), Type Mechanical Excavatable, must be batched at a concrete plant and shall meet the specifications outlined in the LATEST Edition of the "Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges", as amended, and LATEST Supplemental Specifications at the time of permit issuance and/or as directed in this permit.*

The infra-red method may be performed in conjunction with the permanent patch, if required, to create a smooth driving surface consistent with the existing roadway. The District Office must be notified two (2) business days prior to starting this work, so that an inspector may be assigned. This mix must be machine laid.

All disturbed traffic safety lines and markings, and/or utility structures and covers must be replaced in-kind according to the LATEST Edition of the *"Commonwealth of Massachusetts Department of Transportation Standard Specifications For Highways and Bridges*", as amended .

No trench shall be left open overnight. If it becomes necessary for said trench to be left overnight, then it shall be covered securely with steel plates and ramped with bituminous concrete. The plates may need to be recessed to the finished grade of the roadway as directed by the Engineer. Unless circumstances are beyond your control, NO STEEL PLATES MAY BE LEFT OVER THE WEEKEND.

Attention is called to the clauses in this permit relating to the laying of pipes, conduit, etc.

All excavated material, including bituminous concrete, cement concrete, stone, gravel, etc., shall be removed from the State Highway Layout. No stockpiling will be allowed within the State Highway Layout.

The Grantee shall assume full responsibility for the structural integrity of any trench constructed under this Permit. The Grantee shall maintain this section of roadway at all times from inception of this project until the resurfacing of this particular roadway by the Massachusetts Highway Department.

BACKFILL METHOD FOR WORK WITHIN THE SOFT SHOULDER AREA SHALL BE AS FOLLOWS

Backfill for conduit or pipe shall be selected from excavation free from large lumps, clods or rock. If the excavated material is deemed unacceptable Gravel Borrow Type C (M1.03.0 Type C) shall be used as a backfill. The material shall be placed between the pipe and the walls of the trench in layers not exceeding six (6") inches in depth and thoroughly compacted. Each layer, if dry, shall be moistened and then compacted by rolling or by tamping with mechanical rammers. Special care should be taken to thoroughly compact the fill under the haunches of the pipe or conduit. This method of filling and compacting shall be continued until the material is level with the top of the pipe or conduit. The remainder of the filling shall consist of suitable material placed in successive layers not more than six (6") inches in depth. Each layer shall be thoroughly compacted as specified above. The top four (4") inches shall be restored with compacted loam and seeded in accordance with MassDOT Standard Specifications.

If the work and excavation are performed within the soft shoulder along the immediate area of the road, or if the excavation directly abuts or tapers under the hardened surface of the roadway, the opening must be backfilled with Controlled Low-Strength Materials (CLSM) to prevent undermining and preserve the integrity of the roadway.

The Grantee(s) shall be responsible for the shoulder and roadway areas affected by the proposed work, to be performed as described herein, and shall routinely inspect said areas for deficiencies such as settling, heaving, cracks etc. This responsibility shall remain in effect until work is performed at the subject location by MassDOT, Highway Division.

SIDEWALK RECONSTRUCTION

When HMA sidewalks are impacted, the sidewalk shall be reconstructed with eight (8") inches of gravel borrow topped with three (3") inches of Superpave. The HMA shall be laid in TWO courses with a compacted lift thickness of one and three quarter (1.75") inches of intermediate course AND one and one quarter (1.25") inches of surface course. When concrete sidewalks are impacted, the HMA layers shall be replaced with four (4") inches of cement concrete (4,000 psi, 3/4-inch 610). Cement concrete sidewalks shall be replaced in full panel widths. If the sidewalk is at a driveway and cement concrete is used, the sidewalk shall be six (6") inches deep.

The new sidewalk must be compacted in accordance with the LATEST Edition of the "*Commonwealth of Massachusetts Department of Transportation Standard Specifications For Highways and Bridges*", as amended, and LATEST Supplemental Specifications and graded in such a manner that no ponding of water occurs within the Highway Layout. If such ponding occurs, the Grantee(s) will be responsible for its correction.

The Grantee(s) will install concrete wheelchair ramps in conformance with the Architectural Access Board Regulations within all sidewalk areas located at drives or roadway intersections that may be included in this project.

The Grantee(s) shall be responsible for the maintenance and repair of the portion of the repaired sidewalk located within the State Highway Layout and shall routinely inspect the sidewalk for deficiencies such as settling, heaving, cracks, etc. This responsibility shall remain in effect until MassDOT, Highway Division or the Town reconstructs the sidewalk.

DRIVEWAY RECONSTRUCTION

When HMA driveways are impacted, the driveway shall be reconstructed with eight (8") inches of gravel borrow topped with four (4") inches of Superpave. The HMA shall be laid in TWO courses with a compacted lift thickness of two and one half (2.50") inches of intermediate course AND one and one half (1.50") inches of surface course. When cement concrete driveways are impacted, the HMA layers shall be replaced with six (6") inches of cement concrete (4,000 psi, 3/4-inch 610). Cement concrete driveways shall be replaced in full panel widths.

The Grantee(s) will install concrete wheelchair ramps in conformance with the Architectural Access Board Regulations within all sidewalk areas located at drives or roadway intersections that may be included in this project.

The Grantee(s) shall be responsible for the maintenance and repair of the portion of the repaired driveway located within the State Highway Layout and shall routinely inspect the driveway for deficiencies such as settling, heaving, cracks, etc. This responsibility shall remain in effect until MassDOT, Highway Division, the Town or applicable property owner reconstructs the driveway.

WINTERTIME WORK CONDITIONS

Work to be performed between November 1st and April 1st may be allowed WEATHER PERMITTING, with prior written approval from the District Highway Director or an authorized representative, and must be in conformance with the LATEST Edition of the "Commonwealth of Massachusetts Department of Transportation Standard Specifications For Highways and Bridges", as amended, and LATEST Supplemental Specifications at the time of permit issuance and/or as directed in this permit. All construction shall conform to the LATEST Massachusetts Department of Transportation, Highway Division's "Construction Standard Details".

When the air temperature falls below 50° F, extra precautions shall be taken in drying the aggregates, controlling the temperatures of the material and placing and compacting the mixtures.

No bituminous concrete mixture shall be placed unless the breakdown and intermediate rolling can be completed by the time the material has cooled to 170° F, and provided that the density of the completed pavement attains at least 95% of the laboratory compacted density.

No materials are to be staged within the Right of Way to exceed one day's work limits. Due to possible inclement weather (Snow & Ice) which could occur at any time, you may not exceed placing materials beyond the next day's limit.

Particular care must be taken to prepare the roadway/shoulder areas for public safety at the end of each workday. Excavation activities may be cancelled with the prediction of snow or freezing temperatures.

Resulting from "emergency" excavations, no trench shall be covered with a steel plate without the permission of the District Operations Engineer during the wintertime. Should the Grantee be unable to obtain permission to use a steel plate, then these instructions shall be followed: The trench shall be backfilled with gravel borrow Type C (M1.03.0 Type C) throughout with special care taken to thoroughly compact the fill under the haunches of the pipe or conduit. The remainder of the backfill must be compacted every six (6") inches by rolling or by tamping with mechanical rammers up to a depth of three and one half (3.5") inches below the existing surface. The last three and one half (3.5") inches shall be a temporary patch consisting of hot mix asphalt placed in two layers: one and one half (1.5") inches Superpave Surface Course 12.5 (SSC – 12.5) over two (2") inches Superpave Intermediate Course 19.0 (SIC – 19.0). The temporary patches and the underlying material shall then be excavated to a depth of seven and one half (7.5") inches below the existing surface to install the permanent patch constructed in the manner described above. Permanent patching will not begin for ninety (90) days or until, in the Engineer's judgment, final compaction and settlement of the trench area has occurred.

All trench restoration and work involving hot mix asphalt completed during the wintertime is considered temporary unless otherwise approved by MassDOT's Permit Section/Operations. All trenches and work involving hot mix asphalt will need to receive permanent restoration after the winter season.

The Grantee(s) are responsible for assuring that all work associated with this Permit involving pressure washing, pumping, or any other activity causing water to accumulate in the roadway, is closely monitored to avoid icing conditions during the winter season. If necessary, the Grantee(s) will be required to address the issue by spreading salt or other de-icing materials at their expense. If MassDOT is required to respond to an icing condition as a result of the work performed, the Grantee(s) will be billed for all costs incurred by MassDOT, Highway Division to correct this safety issue.

The Grantee(s) will be responsible for the clearing of ice and snow on the State Road(s) where work is performed within the project limits. The roadways shall be reasonably maintained (plowed and chemically treated), to ensure safe travel and avoid any conflict with MassDOT Snow and Ice Operations.

Special attention shall be given when performing work that will impact MassDOT, Highway Division, snow and ice operations.

TRAFFIC SIGNALS

The Grantee(s) will be responsible to repair/replace any damaged items tied to the exiting traffic signal including but not limited to conduit and detectors. The Grantee will be billed for any cost incurred to restore normal operation to MassDOT, Highway Division signal equipment, to the satisfaction of the Engineer.

District 3, 499 Plantation Parkway Worcester, MA 01605
Tel: (857) 368-3000, FAX: (857) 368-0310
www.mass.gov/orgs/highway-division

IN THE EVENT of DAMAGE to loop detector wires, lead-in cables, power cables, conduit or any traffic signal related asset during operations, it would be the Grantee's responsibility and expense to have the asset replaced and repaired by a MassDOT Approved Traffic Signal Contractor as soon as weather permits.

If damage to a signal asset should occur, please contact **Jeff Gomes – Assistant District Traffic Engineer (O&M) at (774)-270-4960 before** starting the repair work. Also, an assigned MassDOT electrician must check all underground conduit/asset repairs BEFORE the trench is backfilled. The District Three Permit Office shall also be contacted at (857)-368-3043.

If any roadway travel lanes must be closed or if normal signal operation will be affected during the work, police for traffic control must be provided at the Grantee's expense.

GENERAL

All work done under this contract shall be in conformance with the LATEST Edition of the "Commonwealth of Massachusetts Department of Transportation Standard Specifications For Highways and Bridges", as amended, and LATEST Supplemental Specifications at the time of permit issuance and/or as directed in this permit. All construction shall conform to the LATEST Massachusetts Department of Transportation, Highway Division's "Construction Standard Details"; the 2015 Overhead Signal Structure and Foundation Standard Drawings; the latest Manual on Uniform Traffic Control Devices with Massachusetts Amendments; the latest edition to the following: the 1996 Construction and Traffic Standard Details (as related to Traffic Standard details only); the 1990 Standard Drawings for Traffic Signs and Supports; 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.

All street approaches and driveways where disturbed shall be replaced conforming to original alignment, grade, and materials.

The shoulder area shall be restored to a condition as good as existed prior to the work.

All grassed areas where disturbed shall be restored to as good condition as found by loaming and seeding.

Accommodation shall be made for the safety of pedestrian traffic during the work period.

Care shall be exercised to protect existing underground structures.

The bounds marked MHB shall not be disturbed or buried.

No metal drums are allowed within the State Highway Layout.

UNIFORMED POLICE OFFICERS SHALL BE IN ATTENDANCE TO DIRECT TRAFFIC.

All required signs and traffic warning devices, **including the use of arrowboard(s),** shall be furnished by the Grantee. All signs and devices shall be in accordance with the current edition of the FHWA Manual on Uniform Traffic Control Devices. The number and location of all signs and devices shall be as deemed necessary by the Engineer for the safe and efficient performance of the work and the safety of the traveling public.

District 3, 499 Plantation Parkway Worcester, MA 01605
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All warning devices shall be subject to removal, replacement and/or repositioning by the Grantee as often as deemed necessary by the Engineer.

Cones or non-reflectorized warning devices shall not be left in operational position on the highway when the daytime operations have closed. If it becomes necessary for the MassDOT Highway Division to remove any warning devices or appurtenances from the project due to negligence by the Grantee, all costs for this work will be charged to the Grantee.

All vehicles excepting passenger cars which are assigned to the permitted project, and which operate on the site at speeds of 25 mph or less shall have an official SLOW MOVING VEHICLE emblem displayed.

Only a minimal amount of men and equipment shall occupy the State Highway Layout.

Only equipment to be used in the actual construction work shall be allowed within the State Highway Layout.

ALL PERSONNEL WHO ARE WORKING IN THE STATE HIGHWAY LAYOUT SHALL WEAR SAFETY VESTS AND HARDHATS.

The Grantee shall exercise this permit subject to all the rules and regulations made from time to time by the said MassDOT Highway Division and the Department of Public Utilities and nothing in the permit shall be construed as authorizing any installation or maintenance thereof except in strict conformity with all Federal, State and Municipal laws, ordinances, and regulations.

The Grantee shall indemnify and save harmless the Commonwealth and MassDOT Highway Division against all suits, claims or liability of every name and nature arising at any time out of or in consequence of the Acts of the Grantee in the performance of the work covered by this permit and/or failure to comply with the terms and conditions of this permit whether by itself or its employees or subcontractors.

A copy of this permit will be made available at the project site at all times during the progress of work for inspection by Department Personnel. Should the Grantee or contractor not have a copy at the site, the work will be stopped until such permit is made available.

This office will be notified prior to the start of work under the provisions of this permit.

ALL OF SAID WORK SHALL BE DONE AS DIRECTED AND TO THE SATISFACTION OF THE ENGINEER FROM THIS DEPARTMENT.

No work shall be done under this permit until the Grantee shall have communicated with and received instructions from the District Highway Director or an authorized representative.

"FOLLOWING CONDITIONS APPLY TO PERMITS"

Definitions

Whenever the word "MassDOT" is used herein it shall mean the Massachusetts Department of Transportation of the Commonwealth of Massachusetts. Whenever the word "Director" is used herein it shall mean the District Highway Director

or other authorized representative of MassDOT. Whenever the word "Grantee" is used herein it shall mean the person or persons, corporation, or municipality to whom this permit is granted, or their legal representatives.

Conditions:

Conditions Relating Particularly to Permits for the Laying of Pipes, Conduits, etc.

After any pipes, conduits, drains or other underground structures are laid, or any excavation is made in the roadway, the trenches or openings shall be properly backfilled with suitable material, the backfilling shall be thoroughly tamped, and the surface of the road over said structures shall be left even with the adjoining ground. If the work is done in cold weather no frozen material shall be used for back-filling.

Wherever the hardened surface of the roadway, gutters, or any part of the surface of the highway is disturbed it shall be replaced in as good condition as before it was disturbed, and if new materials are required, they shall correspond with those already in place on the road. Where service pipes are to cross the highway, the connections shall be made without disturbing the hardened surface of the roadway, by driving the pipes under the roadway, or the service pipes shall be carried under and across the road in a larger pipe, unless otherwise ordered by the Director.

The Grantee shall maintain the surface of the roadway over said structures as long as MassDOT may deem necessary, until all signs of the trenches shall have been eliminated.

GENERAL AND ADDITIONAL CONDITIONS

During the progress of the work all structures underground and above ground shall be properly protected from damage or injury; such barriers shall be erected and maintained as may be necessary for the protection of the traveling public; the same shall be properly lighted at night; and the Grantee shall be responsible for the damages to persons or property due to or resulting from any work done under this permit. Except as herein authorized, no excavation shall be made, or obstacle placed within the limits of the State highways in such a manner as to interfere unnecessarily with the travel over said road. If any grading of sidewalk work done under this permit interferes with the drainage of the State highway in any way, such catch basins and outlets shall be constructed as may be necessary, in the opinion of the Director, to take proper care of such drainage.

Wherever the hardened surface of the roadway is disturbed, and the Director may consider it necessary or advisable to do so, said surface will be restored by the employees of MassDOT, at such time as MassDOT may direct, and the expense thereof shall be borne by the Grantee, who shall purchase and deliver on the road the materials necessary for said work if and when directed by the Director. All payments to the supplier and laborers, inspectors, etc., employed by MassDOT for or on account of the work herein contemplated shall be made by said Grantee forthwith on receipt of written orders, pay rolls, or vouchers approved by MassDOT.

IF THE GRANTEE DOES ANY WORK CONTRARY TO THE ORDERS OF THE DIRECTOR, AND, AFTER DUE NOTICE, FAILS TO CORRECT SUCH WORK OR TO REMOVE STRUCTURES OR MATERIALS ORDERED TO BE REMOVED, OR FAILS TO COMPLETE WITHIN THE SPECIFIED TIME THE WORK AUTHORIZED BY THIS PERMIT, MASSDOT MAY, WITH OR WITHOUT NOTICE, CORRECT OR COMPLETE SUCH WORK IN WHOLE OR IN PART, OR REMOVE SUCH STRUCTURES OR MATERIALS, AND THE GRANTEE SHALL REIMBURSE MASSDOT FOR ANY EXPENSE INCURRED IN CORRECTING AND/OR COMPLETING THE WORK OR REMOVING THE STRUCTURES OR MATERIALS.

ALL OF THE WORK HEREIN CONTEMPLATED SHALL BE DONE UNDER THE SUPERVISION AND TO THE SATISFACTION OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, AND THE ENTIRE EXPENSE THEREOF SHALL BE BORNE BY THE GRANTEE.

On the completion of the work herein contemplated all rubbish and debris shall be removed and the roadway and roadsides shall be left neat and presentable and satisfactory to the Director. MassDOT hereby reserves the right to order the change of location or the removal of any structure or' structures authorized by this permit at any time, said change or removal to be made by and at the expense of the Grantee or its I their successors or assigns. This permit may be modified or revoked at any time by MassDOT without rendering said MassDOT or the Commonwealth of Massachusetts liable in any way.

The Grantee shall pay the salary, subsistence and travel expenses of any inspector appointed by MassDOT to supervise the work herein contemplated.

All of the above conditions shall be applicable to the work herein authorized, unless the same are inconsistent with the conditions on the face of the permit, in which case the conditions written or printed on the face of the permit shall apply.

The acceptance of this permit or the doing of any work thereunder shall constitute an agreement by the Grantee to comply with all of the conditions and restrictions printed or written herein.

REQUESTING PERMIT "SIGN OFF"

Upon completion of ALL work within the State Highway Layout the Grantee shall request a final inspection. This can be done by submitting a **"Sign Off Request"** through SHAPS. After logging into their SHAPS account the Grantee will navigate to the "Action" option. This is located on the SHAPS main dashboard, in the rightmost column titled *Action* of the respective row for the permit application. When the option is selected, choose "Request Sign-Off" from the drop-down menu and follow the on-screen prompts to upload a Completion of Work Form. This form can also be found by selecting the *Forms and Sample Submission Documents* link located in the left-hand column of the SHAPS dashboard. **Once finished, leave a message in the "Discuss/Notes" tab so the District is notified.** Once received, the MassDOT Permits Section/Operations will complete a field inspection to verify all work was found to be in compliance with the terms and conditions as outlined in this permit and is acceptable to MassDOT. The field inspection will take a minimum of two weeks to be performed from the time the signoff request is received. The Grantee will be notified through SHAPS if the work has been accepted or will receive a Punchlist providing the findings that will need to be addressed.

If a Punchlist is provided, once the remediation work is complete the Grantee shall follow the above-mentioned steps to request another final inspection.

Approved Signature

Maura Healey, Governor
Kimberley Driscoll, Lieutenant Governor
Phillip Eng, Interim Secretary & CEO
Jonathan L. Gulliver, Undersecretary & Highway Administrator

3-2022-0088

Approved Signature

Barry Lorion by E.N.
District Highway Director

Date of Issue: February 9, 2026

Permit Expiration: Tuesday, February 9, 2027

District 3, 499 Plantation Parkway Worcester, MA 01605
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APPENDIX D

LIST OF BID ITEMS

LIST OF BID ITEMS 2026-HARI			
Item No.	**Item Description**	**Qnty**	**Units**
101.	CLEARING AND GRUBBING	1.00	A
102.1	TREE TRIMMING	180.00	FT
102.45	TRIM HEDGE	100.00	FT
102.511	TREE PROTECTION – ARMORING & PRUNING	4.00	EA
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES	2.00	EA
104.	TREE REMOVED - DIAMETER 24 INCHES AND OVER	7.00	EA
112.1	DEMOLITION OF BUILDING NO. 1	1.00	LS
112.2	DEMOLITION OF BUILDING NO. 2	1.00	LS
120.1	UNCLASSIFIED EXCAVATION	11300.00	CY
123.	MUCK EXCAVATION	10.00	CY
141.	CLASS A TRENCH EXCAVATION	360.00	CY
141.1	TEST PIT FOR EXPLORATION	110.00	CY
142.	CLASS B TRENCH EXCAVATION	200.00	CY
144.	CLASS B ROCK EXCAVATION	10.00	CY
146.	DRAINAGE STRUCTURE REMOVED	50.00	EA
150.	ORDINARY BORROW	1550.00	CY
151.	GRAVEL BORROW	3200.00	CY
151.2	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	2850.00	CY
154.	SAND BORROW	290.00	CY
156.	CRUSHED STONE	3340.00	TON
160.2	CONTROLLED LOW-STRENGTH MATERIAL - MECHANICAL EXCAVATABLE (100-300 PSI)	530.00	CY
170.	FINE GRADING AND COMPACTING - SUBGRADE AREA	9900.00	SY
180.01	ENVIROMENTAL HEALTH AND SAFETY PLAN	1.00	LS
180.02	PERSONAL PROTECTION LEVEL C UPGRADE	40.00	HR
180.03	LICENSED SITE PROFESSIONAL SERVICES	40.00	HR
181.11	DISPOSAL OF UNREGULATED SOIL	7000.00	TON
181.12	DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY	1625.00	TON
181.13	DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY	1625.00	TON
181.14	DISPOSAL OF HARZARDOUS WASTE	550.00	TON
184.1	DISPOSAL OF TREATED WOOD PRODUCTS	2.00	TON
201.	CATCH BASIN	50.00	EA
202.	MANHOLE	30.00	EA
203.2	STORMWATER CONTROL MEASURE	1.00	EA
204	GUTTER INLET	5.00	EA
206.1	DROP INLET, TYPE AF	2.00	EA
220.	DRAINAGE STRUCTURE ADJUSTED	110.00	EA
220.2	DRAINAGE STRUCTURE REBUILT	50.00	FT

LIST OF BID ITEMS 2026-HARI			
Item No.	**Item Description**	**Qnty**	**Units**
220.3	DRAINAGE STRUCTURE CHANGE IN TYPE	6.00	EA
220.5	DRAINAGE STRUCTURE REMODELED	1.00	EA
220.7	SANITARY STRUCTURE ADJUSTED	8.00	EA
221.	FRAME AND COVER	40.00	EA
222.1	FRAME AND GRATE - MASSDOT CASCADE TYPE	50.00	EA
222.2	FRAME AND GRATE - MASSDOT DROP INLET	2.00	EA
227.3	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT	10.00	CY
227.31	REMOVAL OF DRAINAGE PIPE SEDIMENT	50.00	FT
227.4	MASONRY PLUG	7.00	SF
238.10	10 INCH DUCTILE IRON PIPE	50.00	FT
244.12	12 INCH REINFORCED CONCRETE PIPE CLASS V	1475.00	FT
244.18	18 INCH REINFORCED CONCRETE PIPE CLASS V	420.00	FT
244.24	24 INCH REINFORCED CONCRETE PIPE CLASS V	130.00	FT
265.06	6 INCH PIPE SUBDRAIN - OPTION	210.00	FT
302.08	8 INCH DUCTILE IRON WATER PIPE (RUBBER GASKET)	20.00	FT
302.12	12 INCH DUCTILE IRON WATER PIPE (RUBBER GASKET)	50.00	FT
309.	DUCTILE IRON FITTINGS FOR WATER PIPE	130.00	LB
347.1	1 INCH COPPER TUBING TYPE K	30.00	FT
358.	GATE BOX ADJUSTED	30.00	EA
363.1	1 INCH CORPORATION COCK	2.00	EA
376.	HYDRANT	1.00	EA
376.2	HYDRANT - REMOVED AND RESET	2.00	EA
376.5	HYDRANT - ADJUSTED	3.00	EA
381.	SERVICE BOX	2.00	EA
381.3	SERVICE BOX ADJUSTED	15.00	EA
384.	CURB STOP	2.00	EA
402.	DENSE GRADED CRUSHED STONE FOR SUB-BASE	4920.00	CY
415.1	PAVEMENT STANDARD MILLING	19200.00	SY
430.	CEMENT CONCRETE BASE COURSE	310.00	SY
440.	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL	15200.00	LB
443.	WATER FOR ROADWAY DUST CONTROL	40.00	MGL
450.231	SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P)	3600.00	TON
450.32	SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0)	740.00	TON
450.321	SUPERPAVE INTERMEDIATE COURSE - 19.0 POLYMER (SIC - 19.0 - P)	750.00	TON
450.42	SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5)	1575.00	TON
451.	HMA FOR PATCHING	400.00	TON
452.	ASPHALT EMULSION FOR TACK COAT	3050.00	GAL

LIST OF BID ITEMS 2026-HARI			
Item No.	**Item Description**	**Qnty**	**Units**
453.	HMA JOINT ADHESIVE	1000.00	FT
472.	TEMPORARY ASPHALT PATCHING	50.00	TON
476	CEMENT CONCRETE PAVEMENT	50.00	SY
482.5	SAWCUTTING ASPHALT PAVEMENT FOR BOX WIDENING	7800.00	FT
504	GRANITE CURB TYPE VA4 - STRAIGHT	3350.00	FT
504.1	GRANITE CURB TYPE VA4 - CURVED	1130.00	FT
504.2	GRANITE CURB TYPE VA4 - SPLAYED END	18.00	EA
509.	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - STRAIGHT	200.00	FT
509.1	GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - CURVED	180.00	FT
511.1	GRANITE EDGING TYPE SB - STRAIGHT	1900.00	FT
512.1	GRANITE EDGING TYPE SB (RADIUS 10 FEET OR LESS)	30.00	FT
514.	GRANITE CURB INLET - STRAIGHT	30.00	EA
516.	GRANITE CURB CORNER TYPE A	30.00	EA
580.	CURB REMOVED AND RESET	885.00	FT
580.1	CURB REMOVED, RELOCATED AND RESET	60.00	EA
583.	EDGING REMOVED AND RESET	675.00	FT
620.13	GUARDRAIL, TL-3 (SINGLE FACED)	1550.00	FT
620.33	GUARDRAIL - CURVED, TL-3 (SINGLE FACED)	300.00	FT
627.1	TRAILING ANCHORAGE	1.00	EA
627.83	GUARDRAIL TANGENT END TREATMENT, TL-3	5.00	EA
628.24	TRANSITION TO BRIDGE RAIL	2.00	EA
628.315	TEMPORARY IMPACT ATTENUATOR, REDIRECTIVE, TL-3	5.00	EA
628.4	TEMPORARY IMPACT ATTENUATOR, REMOVED AND RESET	5.00	EA
630.2	HIGHWAY GUARD REMOVED AND DISCARDED	220.00	FT
645.148	48 INCH CHAIN LINK FENCE (PIPE TOP RAIL) VINYL COATED (LINE POST OPTION)	100.00	FT
655.3	WOODEN RAIL FENCE	200.00	FT
657	TEMPORARY FENCE	100.00	FT
657.5	TEMPORARY FENCE REMOVED AND RESET	100.00	FT
660.	METAL PIPE RAIL	60.00	FT
669	FENCE REMOVED AND STACKED	100.00	FT
670.	FENCE REMOVED AND RESET	510.00	FT
697.1	SILT SACK	70.00	EA
698.3	GEOTEXTILE FABRIC FOR SEPARATION	1900.00	SY
701.	CEMENT CONCRETE SIDEWALK	50.00	SY
701.1	CEMENT CONCRETE SIDEWALK AT DRIVEWAYS	50.00	SY
701.2	CEMENT CONCRETE PEDESTRIAN CURB RAMP	250.00	SY
702.	HOT MIX ASPHALT SIDEWALK OR DRIVEWAY	600.00	TON

LIST OF BID ITEMS 2026-HARI			
Item No.	**Item Description**	**Qnty**	**Units**
706.4	GRANITE STEPS REMOVED AND RESET	1.00	LS
710.3	BOUND - LETTERED GRANITE	10.00	EA
711.	BOUND REMOVED AND RESET	8.00	EA
715.	RURAL MAIL BOX REMOVED AND RESET	4.00	EA
740	ENGINEERS FIELD OFFICE AND EQUIPMENT (TYPE A)	36.00	MO
748	MOBILIZATION	1.00	LS
751.	LOAM FOR ROADSIDES	1170.00	CY
751.7	COMPOST BLANKET	260.00	CY
755.1	20 MIL PVC MEMBRANE LINER	25.00	SY
756	NPDES STORMWATER POLLUTION PREVENTION PLAN	1.00	LS
765.	SEEDING	10300.00	SY
767.121	SEDIMENT CONTROL BARRIER	1430.00	FT
767.95	MATTING FOR EROSION CONTROL	100.00	SY
769.	PAVEMENT MILLING MULCH UNDER GUARD RAIL	1800.00	FT
804.3	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC -(UL)	1300.00	FT
806.2	2 INCH ELECTRICAL CONDUIT TYPE RM - GALVANIZED STEEL	230.00	FT
811.21	ELECTRICAL HANDHOLE 24" DIA - SD2.021	4.00	EA
811.22	ELECTRIC HANDHOLE - SD2.022	12.00	EA
811.24	ELECTRIC HANDHOLE - SD2.024	7.00	EA
811.31	PULL BOX 12 X 12 INCHES - SD2.031	7.00	EA
811.35	PULL BOX ADJUSTED	5.00	EA
811.37	ELECTRIC HANDHOLE ADJUSTED	5.00	EA
814	ADAPTIVE TRAFFIC SIGNAL CONTROL SYSTEM	1.00	LS
816.01	TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 1	1.00	LS
816.02	TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 2	1.00	LS
816.03	TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 3	1.00	LS
816.04	TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 4	1.00	LS
816.05	TRAFFIC SIGNAL RECONSTRUCTION LOCATION NO. 5	1.00	LS
817.65	SIGNAL MAST ARM 45 FEET - STEEL	1.00	EA
828.1	OVERHEAD GUIDE SIGN - ALUMINUM PANEL (TYPE B)	20.00	SF
829.	ROADSIDE GUIDE SIGN (G) - ALUMINUM PANEL (TYPE B)	20.00	SF
831.	ROADSIDE GUIDE SIGN (D6/D8) - ALUMINUM PANEL (TYPE A)	30.00	SF
832.	WARNING-REGULATORY AND ROUTE MARKER - ALUMINUM PANEL (TYPE A)	440.00	SF
841.1	SUPPORTS FOR GUIDE SIGN (D6 W/ D8-5 INCH TUBULAR POST) STEEL	2.00	EA
841.2	SUPPORTS FOR GUIDE SIGN (D6-5 INCH TUBULAR POST) STEEL	2.00	EA
847.1	SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY - STEEL	120.00	EA
851.1	TRAFFIC CONES FOR TRAFFIC MANAGEMENT	800.00	DAY

LIST OF BID ITEMS 2026-HARI			
Item No.	**Item Description**	**Qnty**	**Units**
852.	SAFETY SIGNING FOR TRAFFIC MANAGEMENT	1500.00	SF
852.11	TEMPORARY PEDESTRIAN BARRICADE	1575.00	FT
852.12	TEMPORARY PEDESTRIAN CURB RAMP	15.00	EA
853.1	PORTABLE BREAKAWAY BARRICADE TYPE III	20.00	EA
853.21	TEMPORARY BARRIER REMOVED AND RESET	825.00	FT
853.23	TEMPORARY BARRIER (TL-3)	1240.00	FT
853.403	TRUCK MOUNTED ATTENUATOR	900.00	DAY
854.016	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED)	25000.00	FT
854.036	TEMPORARY PAVING MARKINGS - 6 INCH (TAPE)	2000.00	FT
854.1	PAVEMENT MARKING REMOVAL	600.00	SF
856.	ARROW BOARD	575.00	DAY
856.12	PORTABLE CHANGEABLE MESSAGE SIGN	5600.00	DAY
859.	REFLECTORIZED DRUM	108100.00	DAY
859.1	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS	5800.00	DAY
862.406	6-IN. RECESSED WHITE LINE (MC, UFD, WR)	14000.00	FT
862.412	12-IN. RECESSED WHITE LINE (MC, UFD, WR)	1920.00	FT
863.406	6-IN. RECESSED YELLOW LINE (MC, UFD, WR)	9000.00	FT
863.412	12-IN. RECESSED YELLOW LINE (MC, UFD, WR)	580.00	FT
864.1	GREEN FRICTION SURFACE FOR BIKE LANES	1500.00	SF
864.11	LEGENDS (PF)	40.00	EA
864.12	SYMBOLS (PF)	20.00	EA
864.13	ARROWS (PF)	70.00	EA
864.22	SYMBOLS FOR BICYCLE FACILITIES	10.00	EA
864.23	ARROWS FOR BICYCLE FACILITIES	10.00	EA
864.33	SLOTTED PAVEMENT MARKER TWO-WAY WHITE/RED	35.00	EA
864.34	SLOTTED PAVEMENT MARKER TWO-WAY YELLOW/RED	25.00	EA
874.	STREET NAME SIGN	12.00	EA
874.2	TRAFFIC SIGN REMOVED AND RESET	40.00	EA
874.21	GUIDE SIGN REMOVED AND RESET	2.00	EA
874.4	TRAFFIC SIGN REMOVED AND STACKED	10.00	EA
904.	4000 PSI, 3/4 INCH, 610 CEMENT CONCRETE	10.00	CY
910.1	STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED	60.00	LB
986.	MODIFIED ROCKFILL	2100.00	TON
996.01	WALL STRUCTURE NO.1	1.00	LS