DOCUMENT A00801

# SPECIAL PROVISIONS

## DISTRICT 1

### Scheduled Bridge and Culvert Substructure Repairs at Various Locations

Labor participation goals for this project shall be 15.3% for minorities and 6.9% for women for each job category. The goals are applicable to both contractor's and subcontractor's on-site construction workforce. Refer to document 00820 for details.

## SCOPE OF WORK

All work under this Contract shall be done in conformance with the *2026 Standard Specifications for Highways and Bridges, the Supplemental Specifications* contained in this book, the *Construction Standard Details* in effect as of May 2026, the *1990 Standard Drawings for Signs and Supports*, the 2015 *Overhead Signal Structure and Foundation Standard Drawings*, the *11th Edition of the Manual on Uniform Traffic Control Devices (MUTCD)* and the *January 2026 Massachusetts Amendments to the MUTCD*, *the 1968 Standard Drawings for Traffic Signals and Highway Lighting*, the latest edition of The *American Standard for Nursery Stock*, the Plans and these Special Provisions.

The work to be done under this Contract shall consist of scheduled bridge substructure and culvert repairs along with related work performed on bridges under the control of District One at various locations. The Contractor will be notified of the scheduled repairs by work order for each Location. The Work will include but not be limited to:

1. Removing the deteriorated concrete from any element of the substructure, including but not limited to stem piers, pier caps, pier columns, wingwalls, backwalls, and abutments.
2. Removing the deteriorated concrete from retaining walls, both connected/associated and not connected/associated with any structure in the jurisdiction of District One.
3. Replacing excavated, spalled, delaminated, or deteriorated concrete, and replacing any broken, missing or deteriorated reinforcing steel with new material.
4. Any additional repairs in either the superstructure or deck that are related to the substructure work.
5. Work is expected to be completed above the Ordinary High Water Level. At the discretion of the Engineer, any necessary application for permits will be procured by the District.

The work to be done under this Contract also includes preparing the designs for structural repairs, furnishing various artisans as specified in Item 100.1 "Base Labor Rate", materials, equipment, and engineering services to perform scheduled repairs for non-itemized related work. This work could also include repairs to parts of the superstructure and/or deck joints in close proximity to the substructure element under repair.

**SCOPE OF WORK** (Continued)

Where work is directed by the Engineer and is not in the list of bid items, the Contractor will be reimbursed under Non-Bid Items and Item 100.1 Base Labor Rate (Time and Materials).

All work shall be performed within, and accessed by, existing State, City or Town roadway layouts. No rights to enter on, or occupy, private property have been acquired for this project.

## LOCATION OF WORK

Work under this contract will be required on any or all bridges, viaducts, tunnels, culverts and approach ramps within District One as assigned by the Engineer. The following web link provides the cities and towns under the jurisdiction of District One:

https://www.mass.gov/service-details/find-your-highway-district-office

Select "District 1" and click "Submit" button.

No work shall be performed under this contract until specifically authorized and directed by the Department. Furthermore, this contract does not assign to the Contractor complete maintenance of the bridges owned by the Department. The Department reserves the right to perform such work as it deems best with its own forces, and/or to enter into special contracts for the maintenance of specific Items.

Some of the bridges, due to their height (vertical clearance), will require special lifting equipment to place shielding and/or formwork for the assigned bridge repair work. Any equipment required to erect shielding and/or formwork shall be incidental to the relevant contract items.

## CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGEMENTS

Prospective bidders are required to submit all questions to the Construction Contracts Engineer by 3:00 P.M. on the Tuesday of the previous week before the scheduled bid opening date. Any questions received after this time will not be considered for review by the Department.

Contractors should email questions and addendum acknowledgements to the following email address massdotspecifications@dot.state.ma.us The MassDOT proposal number and municipality is to be placed in the subject line.

## CONTRACTOR ACCESS

Contractors shall be aware that there are multi-span bridges with piers located away from the road and or near rivers and streams. No separate payment will be made for access roads to get equipment or personnel to the work site or for staging access to repair areas, etc., but all costs in connection therewith shall be included in the Contract.

## RAILROAD INSURANCE REQUIREMENTS

*(Supplementing Subsection 7.05)*

Railroad insurance will be in accordance with Subsection 7.05 of the Standard Specifications and the following:

The insurance requirements set forth in this section are in addition to the requirements of the Standard Specifications and supersede all other requirements.

Since the locations of bridges involving railroads are unknown, the Contractor will not be required to submit railroad insurance prior to execution of the Contract.

Upon assignment of a work order which requires railroad insurance, the Contractor shall submit to the Engineer all statements/estimates from a licensed insurer, which will meet the insurance requirements of the affected railroad. The Contractor should be aware that each railroad has its own specified minimum insurance requirements.

After determination of the necessity and amount of the proposed insurance required by the affected railroad, the Contractor will be given a written notice to proceed with the acquisition of the insurance.

After acquisition of insurance, the Contractor shall submit the railroad insurance information to the MassDOT in accordance with Subsection 7.05 of the Standard Specifications. The Contractor shall submit the railroad insurance amount as well as railroad license and review fees to the Department for reimbursement. The Contractor will be reimbursed for the insurance premium upon submittal of paid receipts.

If the Contractor is unable to secure said railroad insurance or is uninsurable, the Engineer may decide to cancel all future obligations and terminate the contract.

## ASBESTOS CONCERNS – ASBESTOS LIABILITY INSURANCE

Asbestos may be present on bridges in forms including but not limited to asbestos cement utility conduit, pipe insulation, pipe wrap, and/or gunite/shotcrete. The contractor shall identify potential asbestos-containing material (ACM) that may be impacted as part of the contract work. If ACM or potential ACM will be physically impacted, the contractor shall communicate this information to the Engineer, District Environmental Engineer (DEE), receive approval prior to beginning work, and conduct all work in accordance with applicable federal, state, and local regulations. The work will be paid under Non-Bid items and Item 100.1 as required by the Engineer. No Assignment of work will be allowed without the approval of the Engineer.

Upon assignment of a work order, if asbestos-containing material is anticipated to be encountered, prior to any testing or removal of asbestos, Asbestos Liability Insurance shall be obtained for this project in accordance with Subsection 7.05 of the Standard Specifications. The Contractor and the Massachusetts Department of Transportation shall be named as additional insureds. Costs will be reimbursed to the Contractor.

## NONCONFORMING COMPRESSIVE STRENGTH OF CEMENT CONCRETE

Concrete with compressive strength test results failing to attain the limits specified in Table 901.64-3 of 901.64.B: Acceptance Testing shall be evaluated for structural adequacy and serviceability at the Contractors' expense. The Department will review all production records, the concrete test records, petrographic analysis report, field notes, and the placement records for the concrete in question. If the Engineer determines the material is found to be adequate to remain in place, payment shall be adjusted in accordance with the following formula:

$$P = \frac{2(fc - f'c)(UP)(Q)}{f'c}$$

Where:

$P$ = pay adjustment for substandard concrete
$f'c$ = specified minimum compressive strength at 28 days
$fc$ = substandard concrete cylinder compressive strength at 56 days
$Q$ = quantity of concrete represented by the acceptance cylinders tested
$UP$ = unit contract price or the lump sum breakdown price per cubic yard for the class of concrete involved complete in place

## SCHEDULE OF WORK

All proposed work hours shall conform to Subsection 7.09 of the Standard Specifications and be subject to the written approval of the Engineer.

For specific locations, allowable work hours will be determined by the Engineer. On high volume and/or high-speed roadways, work may be restricted to non-peak hours as required by the Engineer to avoid peak traffic volumes and to maintain safety and productivity.

Work may not proceed beyond the normal 8-hour day unless prior approval is obtained from the Engineer for that day. Approval to work beyond the scheduled work will only be given when special conditions exist that warrant working beyond the scheduled work as determined by the Engineer.

These time periods include the "set-up" and "breakdown" of the traffic pattern employed. No operations, personnel, or equipment will be allowed on the roadways except during working hours.

## PEDESTRIAN ACCESS

ADA compliant access must be maintained at all times, including pedestrian guidance systems at work zones. Any pedestrian detours or bypasses shall include ADA compliant route with proper barricades, railing, ramps and signage, etc.

## HOLIDAY WORK RESTRICTIONS

(Supplementing Subsection 7.09)

The District Highway Director (DHD) may authorize work to continue during these specified time periods if it is determined by the District that the work will not negatively impact the traveling public. DHD may allow work in those areas on a case by case basis and where work is behind barrier and will not impact traffic

Below are the holiday work restrictions:

New Years Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day. No work on local roadways on the holiday without permission by the DHD and the local police chief.

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

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

Evacuation Day (Suffolk County State Holiday)
No work restrictions due to traffic
concerns.

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

Mother’s Day
No work on Western Turnpike and Metropolitan Highway System from 5:00 AM on the Friday before, until the normal start of business on the following day.

Memorial Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the Friday before, until the normal start of business on the following day.

Bunker Hill Day (Suffolk County State Holiday)
No work restrictions due to traffic concerns.

Juneteenth
No work restrictions due to traffic concerns, however work on local roadways requires permission by the DHD and local police chief.

**HOLIDAY WORK RESTRICTIONS** (Continued)

Independence Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day. No work on local roadways on the holiday without permission by the DHD and the local police chief.

Labor Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the Friday before, until the normal start of business on the following day.

Columbus Day (Federal Holiday)
No work on major arterials from 5:00 AM on the Friday before, until the normal start of business on the following day

Veterans' Day (Federal Holiday)
No work restrictions due to traffic concerns.

Thanksgiving Day (Federal Holiday)
No work on major arterials from 5:00 AM two days before until the normal start of business on the following Monday.

Christmas Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day.

**SUBSECTION 8.02 SCHEDULE OF OPERATIONS**
Replace this subsection with the following:

An integrated cost and schedule controls program shall be implemented by the Contractor to track and document the progress of the Work from Notice to Proceed (NTP) through the Contractor Field Completion (CFC) Milestone. The Contractor's schedules will be used by the Engineer to monitor project progress, plan the level-of-effort required by the Department's work force and consultants and as a critical decision-making tool. Accordingly, the Contractor shall ensure that it complies fully with the requirements specified herein and that its schedules are both accurate and updated as required by the specification throughout the life of the project. Detailed requirements are provided in Division II, Section 722 Construction Scheduling.

**EMERALD ASH BORER ADVISORY**

To the extent possible, all trees and brush shall be disposed on site, typically chipped and spread in place. When trees or brush must be removed, such as in urban, or otherwise populated areas, Contractor shall identify proposed location for disposal, and provide written notification to the Engineer for approval. Disposal shall be in city or town of project, or at minimum, within county, of construction operations.

## SUBSECTION 8.14 UTILITY COORDINATION, DOCUMENTATION, AND MONITORING RESPONSIBILITIES

A. GENERAL

In accordance with the provisions of Section 8.00 Prosecution and Progress, utility coordination is a critical aspect to this Contract. This section defines the responsibility of the Contractor and MassDOT, with regard to the initial utility relocation plan and changes that occur as the prosecution of the Work progresses. The Engineer, with assistance from the Contractor shall coordinate with Utility companies that are impacted by the Contractor's operations. To support this effort, the Contractor shall provide routine and accurate schedule updates, provide notification of delays, and provide documentation of the steps taken to resolve any conflicts for the temporary and/or permanent relocations of the impacted utilities. The Contractor shall provide copies to the Engineer of the Contractor communication with the Utility companies, including but not limited to:

- Providing advanced notice, for all utility-related meetings initiated by the Contractor.
- Providing meeting minutes for all utility-related meetings that the Contractor attends.
- Providing all test pit records.
- Request for Early Utility work requirements of this section (see below).
- Notification letters for any proposed changes to Utility start dates and/or sequencing.
- Written notification to the Engineer of all apparent utility delays within seven (7) Calendar Days after a recognized delay to actual work in the field – either caused by a Utility or the Contractor.
- Any communication, initiated by the Contractor, associated with additional Right-of-Way needs in support of utility work.
- Submission of completed Utility Completion Forms.

B. PROJECT UTILITY COORDINATION (PUC) FORM

The utility schedule and sequence information provided in the Project Utility Coordination Form (if applicable) is the best available information at the time of the bid and has been considered in setting the contract duration. The Contractor shall use all of this information in developing the bid price and the Baseline Schedule Submission, inclusive of the individual utility durations sequencing requirements, and any work that has been noted as potentially concurrent utility installations.

C. INITIATION OF UTILITY WORK

The Engineer will issue all initial notice-to-proceed dates to each Utility company based on either the:

1) Contractor's accepted Baseline Schedule
2) An approved Early Utility Request in the form of an Early Utility sub-net schedule (in accordance with the requirements of this Subsection)
3) An approved Proposal Schedule

C.1 - BASELINE SCHEDULE – UTILITY BASIS

The Contractor shall provide a Baseline Schedule submission in accordance with the requirements of Subsection 8.02 and inclusive of all of the information provided in the PUC Form that has been issued in the Contract documents. This is to include the utility durations, sequencing of work, allowable concurrent work, and all applicable considerations that have been depicted on the PUC Form.

**SUBSECTION 8.14 (**Continued)

C.2 – EARLY UTILITY REQUEST – (aka SUBNET SCHEDULE) PRIOR TO THE BASELINE
All early utility work is defined as any anticipated/required utility relocations that need to occur prior to the Baseline Schedule acceptance. In all cases of proposed early utility relocation, the Contractor shall present all known information at the pre-construction conference in the form of a 'sub-net' schedule showing when each early utility activity needs to be issued a notice-to-proceed. The Contractor shall provide advance notification of this intent to request early utility work in writing at or prior to the Pre-Construction meeting. Prior to officially requesting approval for early utility work, the Contractor shall also coordinate with MassDOT and all utility companies (private, state or municipal) which may be impacted by the Contract. If this request is acceptable to the Utilities and to MassDOT, the Engineer will issue a notice-to-proceed to the affected Utilities, based on these accepted dates.

C.3 – PROPOSAL SCHEDULE - CHANGES TO THE PUC FORM
If the Contractor intends to submit a schedule (in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02) that contains durations or sequencing that vary from those provided in the Project Utility Coordination (PUC) Form, the Contactor must submit this as an intended change, in the form of a Proposal Schedule and in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02. These proposed changes are subject to the approval of the Engineer and the impacted utilities, in the form of this Proposal Schedule and a proposed revision to the PUC form. The Contractor shall not proceed with any changes of this type without written authorization from the Engineer, that references the approved Proposal Schedule and PUC form changes. The submission of the Baseline Schedule should not include any of these types of proposed utility changes and should not delay the submission of the Baseline Schedule. As a prerequisite to the Proposal Schedule submission, and in advance of the utility notification(s) period, the Contractor shall coordinate the proposed utility changes with the Engineer and the utility companies, to develop a mutually agreed upon schedule, prior to the start of construction.

D. UTILITY DELAYS
The Contractor shall notify the Engineer upon becoming aware that a Utility owner is not advancing the work in accordance with the approved utility schedule. Such notice shall be provided to the Engineer no later than seven (7) calendar days after the occurrence of the event that the Contractor believes to be a utility delay. After such notice, the Engineer and the Contractor shall continue to diligently seek the Utility Owner's cooperation in performing their scope of Work.

In order to demonstrate that a critical path delay has been caused by a third-party Utility, the Contractor must demonstrate, through the requirements of the monthly Progress Schedule submissions and the supporting contract records associated with Subsection 8.02, 8.10 and 8.14, that the delays were beyond the control of the Contractor.

**SUBSECTION 8.14 (**Continued)

All documentation provided in this section is subject to the review and verification of the Engineer and, if required, the Utility Owner. In accordance with MassDOT Specifications, Division I, Subsection 8.10, a Time Extension will be granted for a delay caused by a Utility, only if the actual duration of the utility work is in excess of that shown on the Project Utility Coordination Form, and only if;

1) proper Notification of Delay was provided to MassDOT in accordance with the time requirements that are specified in this Section
2) the utility delay is a critical path impact to the Baseline Schedule (or most recently approved Progress Schedule)

E. LOCATION OF UTILITIES

The locations of existing utilities are shown on the Contract drawings as an approximation only. The Contractor shall perform a pre-construction utility survey, including any required test pits, to determine the location of all known utilities no later than thirty (30) calendar days before commencing physical site work in the affected area.

F. POST UTILITY SURVEY – NOTIFICATION

Following completion of a utility survey of existing locations, the Contractor will be responsible to notify the Engineer of any known conflicts associated with the actual location of utilities prior to the start of the work. The Engineer and the Contractor will coordinate with any utility whose assets are to be affected by the Work of this Contract. A partial list of utility contact information is provided in the Project Utility Coordination Form.

G. MEETINGS AND COOPERATION WITH UTILITY OWNERS

The Contractor shall notify the Engineer in advance of any meeting they initiate with a Utility Owner's representative to allow MassDOT to participate in the meeting if needed.

Prior to the Pre-Construction Meeting, the Contractor should meet with all Utility Owners who will be required to perform utility relocations within the first 6 months of the project, to update the affected utilities of the Project Utility Coordination Form and all other applicable Contract requirements that impact the Utilities. The Contractor shall copy the Engineer on any correspondence between the Utility Owner and the Contractor.

H. FORCE ACCOUNT / UTILITY MONITORING REQUIREMENTS

The Engineer will be responsible for recording daily Utility work force reports. The start, suspension, re-start, and completion dates of each of the Utilities, within each phase of the utility relocation work, will be monitored and agreed to by the Engineer and the Contractor as the work progresses.

I. ACCESS AND INSPECTION

The Contractor shall be responsible for allowing Utility owners access to their own utilities to perform the relocations and/or inspections. The Contractor shall schedule their work accordingly so as not to delay or prevent each utility from maintaining their relocation schedule.

## COMPLIANCE WITH THE NATIONAL DEFENSE AUTHORIZATION ACT

(Supplementing Subsection 7.01)

On all projects, the "Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment" Regulation (2 CFR 200.216) prohibits the Contractor from using or furnishing the following telecommunications equipment or services:

- Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- Telecommunications or video surveillance services provided by such entities or using such equipment.
- Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

This prohibition applies to all products manufactured by the aforementioned companies, including any individual components or parts.

By submitting a bid on a project, the Contractor certifies that all work will be in compliance with the terms of 2 CFR 200.216. The Contractor shall submit a COC indicating compliance with the above provisions for all telecommunications equipment or services included in the Contract.

Payment for the item in which the materials are incorporated may be withheld until these COCs are received. Any cost involved in furnishing the certificate(s) shall be borne by the Contractor.

## FORMWORK AND SITEWORK

The temporary formwork used for concrete placement shall be removed and disposed of by the contractor. Any formwork that is not removed within forty-five (45) days after the concrete placement and is reported by Bridge Inspection or other MassDOT personnel will impose a damage of $500.00 for each form location (On one bridge there may be multiple locations). Payment for removal of concrete forms shall be included in the unit price under the applicable item.

The Contractor is required to broom and clean all work site areas after the removal of excavated debris, regardless of the pre-existing conditions. These include areas excavated under joints such as pier caps, revetment areas. This removal of debris is incidental to the contract with no additional compensation.

## PREPARATION OF CONCRETE SURFACES

All concrete surfaces to be patched shall be roughened, cleaned of all laitance, dirt, grease, oil, other contaminants, and all standing water. All reinforcing steel encountered in the excavation shall be thoroughly cleaned by abrasive blasting before being covered with new concrete.

With approval of the Engineer the Contractor may choose one of the following surface preparation methods. In bonding new concrete to already set concrete the surface of the concrete shall be thoroughly cleaned and roughened, then:

A) Wetted with clean water, and then flushed with a mortar composed of equal parts of the cement and sand specified for the new concrete, before new concrete is placed adjacent thereto. New concrete shall be placed before mortar has taken initial set.
B) Wetted with clean water, and then an epoxy adhesive suitable for bonding fresh concrete to hardened concrete for load bearing applications may be used. The epoxy adhesive shall conform to AASHTO M 235M/M 235 Type V and shall be applied in accordance with the manufacturer's recommendations.
C) Ponded with clean water to achieve Saturated Surface Dry (SSD) condition then it shall be blown off with oil free compressed air.

## TRUCK SAFETY DEVICES

(Supplementing Subsection 7.04: Motor Vehicles)

All motor vehicles subject to Section 7 of Chapter 90 to be operated under this Contract shall be equipped with safety devices as provided therein and in 540 CMR 4.00.

By December 31, 2025, the Contractor shall certify to the Registry of Motor Vehicles, in a manner prescribed by the Registrar, that all applicable vehicles are equipped with Lateral Protective Devices, Convex Mirrors, Cross Over Mirror(s) and Back Up Cameras in accordance with the requirements of 540 CMR 4.00.

The Contractor shall provide evidence satisfactory to the Department to demonstrate compliance with the above certification requirement for all applicable vehicles operated under this Contract by the Contractor and its subcontractors and vendors in a manner set forth by the Department. Thereafter, the Contractor shall have an affirmative obligation to continue to provide such evidence of compliance on an ongoing basis and no later than 7 days after certification with the Registry of Motor Vehicles of any additional vehicles operated under this Contract by the Contractor and its subcontractors and vendors.

Non-compliance with respect to a vehicle that is subject to 540 CMR 4.00 may subject the Contractor to statutory fines as established in M.G.L. c. 90, § 7 and/or contractual remedies up to and including termination of the Contract.

## CONTRACTOR NOTIFICATION

Contractor notification and response will be classified into two categories as follows:

### 1. PRIORITY REPAIR:

A Priority Repair is defined as work required to repair failed bridge elements, which is not of an Emergency nature; however, needs to be completed in a timely manner to prevent further deterioration or to meet the need of other constraints. The Contractor will be required to commence a Priority Repair within seven (7) calendar days after notification by the Department, unless otherwise directed. Priority Repairs will be initiated, and Work Orders assigned using the work order management system.

### 2. SCHEDULED REPAIR:

A Scheduled Repair is not considered to be of an Emergency nature and has no priority over other repairs. The Contractor will be required to commence scheduled work within thirty (30) calendar days after notification by the Department, unless otherwise directed. The Contractor shall immediately notify the Engineer if unable to begin physical work within thirty (30) calendar days and provide an explanation for the delay. Scheduled repairs will be initiated and Work Orders assigned using the work order management system.

The Contractor will be notified of all Work Orders through the work order management system. The Work Order will identify the location of the work, the category of work (Scheduled or Priority), and identify the major items required for the work. The date from which potential non-response damages will be assessed for each work order will be based on the date the work order is assigned in the work order management system to the date the Contractor begins Physical Work.

For a Priority or Scheduled Repair, the Contractor must submit a work schedule and estimate for the Engineer’s review and approval within seven (7) calendar days of issuance of the work order. The Contractor's schedule and estimate shall provide information relating to equipment, materials, anticipated work hours, labor availability, itemized estimated value of the repairs, a breakdown of major components of the work (i.e. staging installation, concrete work, etc.) and estimated start and completion dates.

“Physical Work” shall be defined as “physical implementation of the required repair at the bridge site”. In no case will Physical Work include any of the following: ordering materials, fabrication of materials, organizing labor forces, coordinating with subcontractors, installing means of access and/or traffic control to implement the required repairs, installing temporary works, or other operations needed to be performed in advance of the required repairs.

## WORK ORDER SCHEDULE MILESTONES

Work Orders may include complexities which will have separate milestones as indicated below. All timeframes shown below are in calendar days.

| *Complexity* | *Milestone* |
|---|---|
| Engineering Design | Approved Design within 60 days of Work Order |
| Fabricated Materials | Approved Shop Drawings within 30 Days of Work Order or approved engineering design if engineering design required.<br>Fabrication shall begin within 14 Days of Approved Shop Drawings. |
| Utility Coordination | Engagement with utilities shall occur within two weeks of issuing the work order.<br>Final approval from the utility of the proposed work or utility protection shall be within 60 days of work order issuance or 60 days of approved engineering design if engineering design required. |
| Physical Work | "Physical Work" shall refer to physical implementation of the required repair at the bridge site. For repairs with no additional complexities as identified in this chart time to start of Physical Work will be measured from the issuance of the work order. In no case will Physical Work include any of the following: ordering materials, fabrication of materials, organizing labor forces, coordinating with subcontractors, installing means of access and/or traffic control to implement the required repairs, installing temporary works, or other operations needed to be performed in advance of the required repairs.<br>For work orders with complexities as outlined in this chart, "Physical Work" will be measured from the receipt of approval for all the necessary complexities.<br>Examples:<br>Work order requiring engineering design and fabrication shall measure time to beginning of Physical Work from the time of approval of the shop drawings.<br>Work order requiring engineering design, fabrication, and utility coordination shall measure time to beginning of Physical Work from the approval of the shop drawings or approval of utility agreement whichever is later.<br>Work order requiring engineering design, fabrication shall begin immediately upon flagger availability. |

All complexities and components of work orders shall be identified with milestones in the work order bar chart schedule.

## NON-RESPONSE DAMAGES

It is the intent of this provision to ensure prompt response to Work Orders based on priority. These Non-Response Damages may be waived by MassDOT when, in the opinion of the Engineer, it is in the best interest of MassDOT to do so.

If the Contractor has not met the complexity milestones as outlined in the Work Order and above, a notification will be sent to the Contractor regarding Non-Responses Damages that will be assessed. The Engineer shall assess damages in the amount of $1,000 per day (or portion thereof) for each day beyond the milestone due date that the milestone is not met.

Priority Repairs
The Contractor shall commence priority work within 7 days after an assignment is issued by the Department, unless otherwise directed. If the Contractor has not started Physical Work on an assignment within 7 days, the Department will notify the Contractor in writing of the intent to issue damages. Damages will begin five (5) days after written notification to the Contractor. The Engineer will assess damages in the amount of $1,000 per day for each day (or portion thereof) that the Work is delayed.

Scheduled Repair
The Contractor shall commence scheduled work within 30 days after an assignment is issued by the Department, unless otherwise directed. If the Contractor has not started Physical Work on an assignment within 30 days, the Department will notify the Contractor in writing of the intent to issue damages. Damages will begin five (5) days after written notification to the Contractor. The Engineer will assess damages in the amount of $1,000 per day for each day (or portion thereof) that the Work is delayed.

“Physical Work” shall refer to physical implementation of the required repair at the bridge site. For repairs with no additional complexities as identified in this chart time to start of Physical Work will be measured from the issuance of the work order. In no case will Physical Work include any of the following: ordering materials, fabrication of materials, organizing labor forces, coordinating with subcontractors, installing means of access and/or traffic control to implement the required repairs, installing temporary works, or other operations needed to be performed in advance of the required repairs.

If the Contractor has not submitted a work schedule or estimate for the Engineer’s review and approval on a Priority or Scheduled Repair within seven (7) calendar days after issuance of the Work Order, the Contractor will be subject to non-response damages in the amount $500 per day.

In addition, the Engineer shall consider such delays in evaluating the Contractor’s performance.

## SCHEDULE OF OPERATIONS - SCHEDULE TYPE

The applicable schedule type for this project is Type D.

## ENVIRONMENTAL REQUIREMENTS

This heading identifies procedures that shall be followed for bridges over or adjacent to waterways, wetlands, or other bodies of water.

Work on bridges below the Ordinary High Water line over non-tidal waterways will usually require Section 404 approval from the Army Corps of Engineers and Section 401 Water Quality Certification from the Department of Environmental Protection.

Repairs to bridges in tidal areas and/or navigable waters may require a Coast Guard Bridge Permit, and consistency review by Coastal Zone Management. Time frames for these bridges typically require 4 months for non-tidal bridge repairs and possibly longer for tidal bridge repairs. For permitting purposes, all proposed construction methods that may be required in, on or above water resources shall be identified by the Contractor. The proposed methods shall be reviewed with the District Environmental Engineer who will coordinate with the Environmental Division the appropriate review of permit applicability.

If any locations are located within rare species habitat as designated by the Massachusetts Natural Heritage and Endangered Species Program (NHESP), coordination will be undertaken by the MassDOT District Environmental Engineer. HQ MassDOT Environmental Services Unit is available to provide support. The contractor must notify the District Highway Director and Resident Engineer in writing at least 60 days prior to desired commencement of the proposed activity, however coordination with the MassDOT District Environmental Engineer should occur as early as possible. The contractor shall be responsible for complying with any permit/restrictions/stipulations regarding work in rare species habitat.

Where repairs or reconstruction will not involve work in any waterways, wetlands or other bodies of water, erosion and siltation controls shall be implemented to ensure that construction activity does not result in siltation of the adjacent water resources. This work, when needed, will be paid under Non-Bid Items and Item 100.1 (Base Labor Rate) as required by the Engineer. Regardless of exemptions from regulations, Enforcement Actions and/or Cease and Desist Orders due to resource damages resulting from construction activity may be invoked at any time.

## CONTAMINATED SOIL

Soil to be removed from the project area shall not be assumed to be uncontaminated and must be evaluated prior to off-site management for potential contamination with hazardous materials. No soil may be disposed of off-site without proper assessment by the contractor and approval from the Resident Engineer (RE), District Environmental Engineer (DEE), or the project designee.

## SOIL STOCKPILING DIRECTIVE P-22-001

Any stockpiling of soil must be performed in compliance with Policy Directive P-22-001, Off-Site Stockpiling of Soil from MassDOT Construction Projects. This directive limits the allowable locations for off-site stockpiling of soil generated during MassDOT projects and includes various requirements that must be satisfied by the contractor prior to off-site stockpiling. The Contractor is responsible for identifying a suitable stockpile location.

## ENVIRONMENTAL PERMITTING

No environmental permits have been obtained at this time. If Contractor erection, demolition, storage, or other procedures require work to occur in or otherwise impact water or wetland resource areas or their buffer zones, the Contractor is advised that no associated work can occur until all required environmental permits have been obtained allowing such work. The Contractor must notify the District Highway Director and the Engineer in writing at least 60 days prior to desired commencement of the proposed activity. All environmental submittals, including any contact with Local, State, or Federal environmental agencies, must be coordinated through the District Environmental Engineer. The Contractor shall fully cooperate with requests for information and provide same in a timely manner. The Contractor is further advised that the Department will not entertain a delay claim due to the time required to obtain the environmental permits. The Contractor is responsible for preventing debris of any type to enter waterways or wetland resource areas either temporarily or permanently.

After Notice to Proceed, the Contractor is responsible for complying with any and all environmental permits issued for the work covered under this Contract. The Contractor will not receive additional compensation for work required to achieve compliance with any issued environmental permits as payment for the work will be included in the various bid items.

## TREATED WOOD PRODUCTS

The presence of potential treated wood products is unknown at this time, but in the event that an assignment calls for the disposal of portions of treated timber, the Contractor must dispose of the materials in accordance with all applicable state and federal regulations at a licensed facility. The Contractor will be required to submit manifests and/or certificates of disposal to the Engineer prior to the completion of the contract. All work in conjunction with the proper testing, loading, transportation, and all incidental costs required for legal disposal of treated wood products shall be covered and paid under Non-Bid Items and Item 100.1 Base Labor Rate when needed and as required by the Engineer.

All new treated wood shall meet the requirements of M9.05.l for Wood Products, including the most recent versions of AWPA UI and M4 which are incorporated by reference. No new wood shall be treated with inorganic arsenic [including chromated copper arsenate (CCA), ammoniacal copper arsenate (ACA), and ammoniacal copper zinc arsenate (ACZA)], creosote, or pentachlorophenol in all project construction, including all guardrail and timber check dam components.

## CONTRACTOR ACTIVITY ADJACENT TO WETLANDS

The Contractor shall not stockpile material or equipment, perform maintenance or refuel equipment in a wetland area, within 100 feet of a wetland, or within 200 feet of a river, stream, pond, or other similar open body of water.

## PIGEON WASTE

The Contractor shall remove and dispose of the pigeon waste and any other debris accumulated on the steel members and bridge seats in areas where work is being performed. Pigeon waste and debris material contaminants will require special handling and disposal in accordance with all Federal, state, and local requirements. No separate payment will be made for removal and disposal of pigeon waste. Cost shall be incidental to the contract pay items.

## GENERAL REQUIREMENTS FOR DEMOLITION AND WORK INVOLVING PAINTED STEEL

(02/06/2020)

Demolition and work involving painted steel shall conform to the requirements of Subsection 961 of the Standard Specifications.

### Work Involving Painted Steel

Hazardous materials shall be removed in the immediate area of any intended welding, heating, saw cutting or burning of steel. Hazardous material removal is required to allow the demolition of structural steel, railings, drainage systems, utility supports, steel lamp posts, etc.

The contractor shall assume that the coatings on the steel contain lead (Pb), unless otherwise determined by testing. The contractor shall certify in writing to the Engineer the results of all testing, and shall also certify that any lead (Pb) coated steel removed from the project was not reused or buried, but was sent to a scrap metal recycling facility.

Implement and maintain programs and procedures, which comply with the requirements of this specification and all applicable standards and regulations. Comply with all applicable regulations even if the regulation is not specifically referenced herein. If a state or local regulation is more restrictive than the regulation of this specification, follow the more restrictive requirements.

This requirement is intended only for the demolition and preparation prior to repair and does not include provisions for recoating of steel.

### Environmental

All applicable portions of Subsections 961.65 “Worker Protection” and 961.66 “Environmental Protection and Monitoring” shall be followed when performing this work.

During chemical stripping a hand washing facility may be used in lieu of a decontamination/changing facility.

Hazardous material shall be collected during the disassembly and disposed of as outlined in Subsection 961.68 “Handling of Hazardous Waste and Reporting Release Programs”.

**GENERAL REQUIREMENTS FOR DEMOLITION AND WORK INVOLVING PAINTED STEEL** (Continued)

The applicable submittals shall be according to Subsection 961.69 "Submittals".

**Cleaning/Removal**

**Cutting Or Burning Of Steel**

All surfaces to be welded, heated, saw cut or burned shall be cleaned so as to remove all contaminants and/or hazardous materials, which could be discharged to the environment as a function of the subsequent operations.

Lead paint shall be removed in its entirety in an area prescribed by a 6 inch (15 cm) minimum offset from the required work. The paint removal operation may be dry abrasive blasting, wet abrasive blasting or chemical stripping.

Proper level of containment shall be used when performing this work in accordance with Subsection 961.67 "Containment". Full containment is not required during chemical stripping operation however; the Contractor shall install proper shielding and/or tarpaulins under the chemical stripping operations in order to catch all debris generated during this procedure. A cleaned area must be inspected and approved before the demolition operations are started.

During cleaning operations the Contractor shall be required to furnish and erect temporary floodlights illuminating the steel surface at a minimum of 30-foot candles. This lighting shall be used in areas where there is insufficient lighting for proper cleaning operations and inspection. The Contractor shall supply electrical power.

The Contractor shall provide support for interim and final inspection of the bridge during cleaning operations. This support shall include the necessary traffic controls and safe access to the work.

**Mechanical Disassembly Of Steel**

All surfaces to be mechanically disassembled by shear cutting or removing bolts or rivets shall not require deleading. When shear cutting or removing bolts or rivets, the Contractor shall not use any method that will cause dust and/or particles to be emitted and/or dispersed into the environment to an extent that would expose the workers above the Action Levels of 30µg/m3.

For purposes of limiting the lead (Pb) dust, the Contractor will be required to dampen the lead paint work areas.

The contractor shall install a proper shielding and/or tarpaulins under all lead-paint-coated surfaces to be shear cut or bolts or rivets ordered removed in order to catch any loose lead paint chips, dust or particles.

## NOTICE TO OWNERS OF UTILITIES

*(Supplementing Subsection 7.13)*

District 1 Utility/Constructability Engineer
Mark Page (857) 368-1003
Mark.Page@dot.state.ma.us

If available, existing bridge plans indicate the location of the existing known utilities in the vicinity of the work. As the accuracy and completeness of the plans are not guaranteed in any manner, it is the Contractor's responsibility to make their own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etc., will occur.

Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of publicly or privately owned utilities of the Contractor's intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations and the Contractor shall at that time file a copy of such notice with the Engineer.

A list of public and private utilities can be found on the MassDOT website at:
https://www.mass.gov/info-details/utility-contacts-by-district-and-municipality

Select District 1, select the City/Town, and then locate the utility.

The utility contact list is for guidance only and is not guaranteed to be complete or up to date.

## NATIONAL GRID EMERGENCY TELEPHONE NUMBERS

GAS:
Emergency: 1-800-233-5325
New Service: 1- 877-696-4743
Customer Support: 1-800-732-3400

ELECTRIC:
Outage/ Emergency: 1-800-465-1212
New Service: 1-800-375-7405
Customer Support: 1-800-322-3223

## EVERSOURCE EMERGENCY TELEPHONE NUMBERS

GAS:
Outage/ Emergency: 800-592-2000
New Service: 866-678-2744
Customer Support: 800-592-2000

ELECTRIC:
Outage/ Emergency: 800-592-2000 or 844-726-7562
New Service: 1-888-633-3797 (1-888-need pwr)
Customer Support: 1-800-340-9822

## BERKSHIRE GAS EMERGENCY TELEPHONE NUMBERS

GAS:
Outage/Emergency: 1-800-292-5012 or 413-499-1680
New Service: 1- 800-297-7144
Customer Support: 1-800-292-5012

## NOTIFICATION OF PUBLIC OFFICIALS

Town officials are shown at website https://www.mass.gov/lists/massachusetts-cities-and-towns and select the required City/Town website.

State Police are shown at website https://www.mass.gov/info-details/massachusetts-state-police-troop-boundaries. Select the area of jurisdiction to find the local station.

The Contractor shall inform the following officials in each area that he is assigned to work in:

Superintendent, Department of Public Works, or Town Engineer. Superintendent, Water Department, Superintendent, Sewer Departments. Police Department, Fire Department, Electric Company, Railroads.

## NORTHERN LONG-EARED BAT AND TRICOLORED BAT PROTECTION

The northern long-eared bat (*Myotis septentrionalis*; NLEB) and tricolored bat (*Perimyotis subflavus*; TCB) are listed as federally endangered or proposed endangered, respectfully, under the Endangered Species Act (ESA). The U.S. Fish and Wildlife Service (USFWS) developed this guidance to address ESA compliance and promote conservation of NLEB and TCB. As there is no Federal nexus (Federal funding or permits) for this project, Section 7 consultation was not required or conducted. However, Section 9 of the ESA prohibits anyone from "taking" or harming an endangered species, and the below language shall be adhered to in order to maintain compliance with the ESA.

If any of the project locations require work within U.S. Army Corps of Engineers (ACOE) jurisdictional wetlands, the ACOE will be the lead federal agency for ESA consultation with the U.S. Fish & Wildlife Service (USFWS). Most consultations for the NLEB take 30 days.

The following Avoidance and Minimization Measures (AMMs) must be strictly adhered to in order to protect NLEB and TCB and to be in compliance with the ESA. Contact MassDOT Environmental Services - Wildlife & Endangered Species Unit Supervisor (David Paulson, david.j.paulson@dot.state.ma.us, 857-262-3378) for questions about project limits, restrictions, or conservation measures.

**The Resident Engineer can check on the status of AMM applicability by sending a locus map of the proposed work to MassDOT Highway Division's Environmental Services Section - Wildlife & Endangered Species Unit Supervisor for review and a determination if some of the AMMs and TOY restriction can be waived.**

**NORTHERN LONG-EARED BAT AND TRICOLORED BAT PROTECTION** (Continued)

**Required AMM for all projects:**

- The Contractor shall ensure all personnel working in on the project site are aware of all environmental commitments related to NLEB and TCB, including all applicable AMMs. NLEB Bat information (https://www.fws.gov/midwest/endangered/mammals/nleb/ and https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus) shall be made available to all personnel.

**If temporary lighting is proposed within the project scope, the following AMM is applicable:**
**Lighting AMM:**

- Direct temporary lighting away from suitable habitat during the active season: **April 15 to October 31.**

**If the Removal of Trees and/or Woody Vegetation >3-inch in diameter is proposed within the project scope, the following AMMs are applicable:**
**Tree AMMs:**

- If additional cutting is proposed by the Contractor that is outside the scope of this contract, additional review is required by the MassDOT Highway Division's Environmental Services Section, and additional review and restrictions may be required by the USFWS.

- Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

- In order to protect northern long-eared bats and their young during their active season, **no tree cutting shall be conducted during the Time of Year (TOY) restriction of April 15 to October 31**.

- Do not remove **documented** or NLEB roosts that are still suitable for roosting, or trees within 0.25 miles of roosts, or **documented** foraging habitat any time of year (http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/rare-mammals/northern-long-eared-bat.html).

- The Contractor shall ensure all personnel working in on the project site are aware of all environmental commitments related to NLEB and TCB, including the **TOY** restriction.

**If the Bridge Work is proposed within the project scope, the following AMMs are applicable:**
**Bridge AMMs:**

- **Bridge AMM 1** - To completely avoid direct effects to roosting bats, perform any bridge removal, replacement, and/or maintenance work during the winter hibernation period unless a hibernating colony of bats is present (contact your local USFWS Field Office for exact dates). Also, follow Bridge AMM 4.

**NORTHERN LONG-EARED BAT AND TRICOLORED BAT PROTECTION** (Continued)

- **Note**: Bridge AMM 1 is an avoidance measure for direct effects; the full implementation of which may

  not always be practicable. **If bridge removal, replacement, and/or maintenance work must be performed outside of the winter hibernation period, then follow Bridge AMMs 2-4.**

- **Bridge AMM 2 - Colony or Assuming Presence of Bats**

  - If assuming presence of bats or if bridge assessment or P/A surveys suggest presence of a colony of bats, and work is conducted during the active season, ensure activity will not disturb bats. The following types of bridge work can generally be conducted with the presence of bats:

    - above deck work where construction equipment or materials do not extend to the underside of deck where bats may be located (e.g., materials that may drip down to underside of deck), or does not include percussives (vibration) or noise levels above general traffic (e.g., road line painting, wing-wall work).
    - below deck work that is conducted away from roosting bats and does not involve percussives or noise level above general traffic (e.g., wing-wall work, some abutment, beam end, scour, or pier repair).

- **Bridge AMM 3 - Small Number of Bats**

  - If bridge assessment or P/A surveys suggest presence of a small number of bats (<5 – not a colony), and work is conducted during the active season, the following types of bridge work can generally be conducted with the presence of bats:

    - above deck work where construction equipment or materials do not extend to the underside of deck where bats may be located (e.g., materials that may drip down to underside of deck), or does not include percussives (vibration) or noise levels above general traffic (e.g., road line painting, wing-wall work).
    - below deck work that is conducted away from roosting bats and does not involve percussives or noise level above general traffic (e.g., wing-wall work, some abutment, beam end, scour, or pier repair).
    - any other bridge removal, replacement, and/or maintenance work (which may include activities with percussives) conducted in the evening while the bats are feeding, starting one hour after sunset, and ending one hour before daylight excluding the hours between 10 p.m. and midnight and keep the light localized.

- **Bridge AMM 4** - If assuming presence of bats, or if bridge assessment or P/A surveys suggest presence of bats, ensure suitable roosting habitat is maintained. Suitable roosting sites may be incorporated into the design of a new bridge.

## SUPPLEMENTAL REQUIREMENTS FOR NON-BID ITEMS

(Supplementing Subsection 3.04)

The Contractor will be paid for additional artisans, equipment rental, materials, engineering services and specialty services required to perform the work plus (10%) percent, plus actual increased bond premium.

The Contractor shall be required to furnish certified paid receipts for additional artisans, equipment rental, materials, engineering services and specialty services that are required to perform the work prior to payment by the Department. Increased bond premium for additional artisans, equipment rental, materials, engineering services and specialty services will be paid after a certified paid receipt is submitted showing payment of the increased bond.

## NON-BID ITEMS

For work not covered by the various bid items in this Contract, it is the intent to pay for such related work on a time and materials basis, as directed by the Engineer. The payment for such work is outlined in the following sections: Payment for Materials, Payment for Rental Equipment, Payment for Engineering Services, Payment for Specialty Services/Additional Artisans.

### A. PAYMENT FOR MATERIALS

The Contractor will be paid the actual cost for materials that are required to maintain or repair a bridge but are not covered under the Contract bid Items plus ten (10) percent. Any arrangements for the purchase of materials will be considered incidental. Delivery charges will be incidental to the material charges. State and Federal taxes if billed will not be reimbursed by MassDOT. No materials shall be ordered until approved by the Engineer and competitive prices may be required if the Engineer directs.

The District may have surplus materials on hand that could be included into the work.
The transportation of materials and/or parts supplied by MassDOT will be included for payment under Item 100.1.

Payments for the installation of materials and/or parts will be made under Item 100.1 All materials which are necessary to perform the work under the various contract bid items shall be incidental to those Items at no additional compensation.

### B. PAYMENT FOR RENTAL EQUIPMENT

The Contractor will be paid the actual rental cost for the equipment, which may be required to perform certain repair work that has not been included in the contract bid items, plus ten (10) percent. No equipment shall be rented until approved by the Engineer. The rental equipment shall not be part of the tradesman basic toolbox as specified under Item 100.1 Base Labor Rate.

**NON-BID ITEMS** (Continued)

Contractor-owned equipment required under this contract, (with the exception of equipment listed under the various artisans' descriptions in Item 100.1 Base Labor Rate will be reimbursed in the format outlined under Subsection 9.03 "Payment for extra Work" Section C of the Standard Specifications. Rental Equipment will not carry any overtime premium rate after being in full operation for more than 8 hours in a day.

Unless the rented equipment cost includes the operator, the Contractor will receive compensation for the operator of the "Rental Equipment" used for "Related Work" as specified in Item 100.1 Base Labor Rate.

The Contractor must get the authorization of the Resident Engineer before any equipment is rented and competitive prices may be required if the Engineer directs.

All rental equipment and tools shall be in excellent working condition. The Contractor shall not be paid for the time that the equipment is broken down.

The actual cost for rental equipment including equipment that is required when working from water below (i.e., barge equipped with 60' or higher boom lift, boat, operator, and other safety equipment) shall be judged in accordance with the rate specified in the Rental Blue Book and it is the Contractor's responsibility to provide a copy of this Blue Book to the Department. The rental compensation shall also include the cost of a boat captain/tender crew. The rental for equipment will be paid on an hourly basis and will not carry any overtime rate after eight hours of operation.

All rental equipment and tools which are necessary to prosecute the work under the various contract bid items shall be incidental to those Items at no additional compensation.

## C. PAYMENT FOR ENGINEERING SERVICES

Each non-routine structural repair for which there is no Contract bid Item to cover the work, the Contractor shall submit a design by a Professional Engineer of the appropriate discipline registered in Massachusetts (who shall be from the Department's approved consultant list) within one week of notification (seven (7) calendar days after receipt of formal Work Order).

This design shall address all structural defects itemized in the Work Order. It shall be submitted to the Engineer. The Contractor must get the proposed design approved by the Engineer prior to commencing any work.

The Contractor will be paid the actual cost for the Engineering Services for the structural design by a Professional Engineer of the appropriate discipline registered in Massachusetts, plus ten (10) percent when any Engineering Services are required for work done on a time and materials basis for which there is no bid Item. The Engineer shall approve all engineering costs prior to any design work being undertaken.

All engineering services which are necessary to prosecute the work under the various Contract bid items shall be incidental to those Items at no additional compensation.

**NON-BID ITEMS** (Continued)

**ENGINEERING SERVICES COST ESTIMATE**

When engineering designs or other consulting services are deemed necessary by the Engineer, the design firm will submit a cost estimate of the proposed work. This estimate will include the classification, estimated hours needed, and actual hourly rate for each individual anticipated to be used in developing the finished product. The billable rates shall include overhead and profit. Overhead shall be as approved by MassDOT Audit Section or in absence of approved audited rates a maximum 155% shall apply for overhead. The profit fee is 10%. The billable rate shall be calculated using 1.10*(Base Hourly Rate + Base Hourly*Overhead Rate %).

**D. PAYMENT FOR SPECIALTY SERVICES/ ADDITIONAL ARTISANS**

The Contractor will be paid for any artisans that are not categorized under Item 100.1 "Base Labor Rate" (Regardless of whether the additional artisans are hired by the Contractor as a specialty sub-contractor crew, or as an individual artisan) required to repair or maintain the bridges or any work that has not been included as incidental to any Contract Bid Item plus ten (10) percent. However, no artisans shall be hired until approved by the Engineer and competitive prices may be required if the Engineer so directs. The Contractor will not bid this item. If the Engineer has knowledge of source of additional artisans, which are competitive with the Contractor's choice, then the Contractor may be required to investigate and use an alternative choice.

**COST ESTIMATES**

Where the scope of a repair task can be adequately determined and described, the Contractor, when directed by the Engineer, shall be required to submit a Cost Estimate for the repair task.

Each Cost Estimate, submitted in writing, shall include an itemized scope of work, a working schedule (including the number of working days and hours worked each day by each category of artisan), work procedures and a NOT-TO-EXCEED cost breakdown itemized by the following: the number and type of workers, the number and type of equipment, barges, materials, specialty contractors, engineering services, traffic controls and police, etc. The Cost Estimate submittal must also state if roadway closures and waterway and/or bridge closures will be required.

The Engineer will approve each Cost Estimate submittal in writing. A submittal does not guarantee the Contractor will be assigned the work. Payment will be based on actual hours worked at the contractual rates for various items as previously described, up to the maximum task amount. Completion of the task is the sole responsibility of the Contractor once the not-to- exceed amount has been reached. Should unforeseen problems develop during the task completion, the Contractor will submit to the Engineer a revised scope of work with a comparison to the original scope of work along with a breakdown of the additional costs for approval by the Engineer. Approval for any increases to the agreed upon not-to-exceed cost will be dependent upon the justification of the additional work.

**NON-BID ITEMS** (Continued)

If the Contractor performs work which is not provided for in this Contract, or which was not authorized in writing by the Engineer, said Contractor shall receive no compensation for such work.

The management of the project and generating Cost Estimates, including such items as the planning of repair details, hiring of subcontractors, meetings with affected parties, scheduling of required artisans, purchasing of the necessary materials and the arrangement of equipment rentals, etc., will be considered incidental to the work and as such no additional compensation will be provided.

**RATES OF PAYMENT**

Payment for Non-Bid Items and Item 100.1 Base Labor Rate will be made for time spent on the project doing actual work on the Department's bridges and shall NOT include travel time to and from the Contractor's place of business, and it shall also not include time for investigative field trips to find out how much material, equipment, tools, etc., may be needed for the work.

All equipment, materials, engineering costs and artisans' compensation which are necessary to prosecute the work under the various contract bid items shall be incidental to those bid Items, at no additional compensation.

Note: For work covered by bid items in this contract and those not covered, there may be situations where the Department has pertinent materials or equipment stockpiled. The Department reserves the right to utilize these materials or equipment as seen fit in the prosecution of the work.

The Contractor will be reimbursed for the total actual cost (plus a percentage markup as indicated) for materials, equipment rental, additional artisans and engineering services required for related work directed by the Engineer. Artisans will be compensated as specified in Item 100.1 "Base Labor Rate". The Contractor will not bid the materials, equipment rental, additional artisan, and engineering services Items.

Payment for Non-Bid Items will be based on bills submitted, covering all charges for labor, materials, and equipment according to the respective terms of the contract. Bills covering the total charges incurred in any given month are to be submitted by the fifteenth of the following month for processing.

The Contractor is encouraged to submit bills/invoices of all charges to the Engineer by the 15th of the following month. It shall be required that the Contractor furnish certified copies of any or all payrolls for the Contract, showing the name, address, and occupational classification of each employee on said works, the hours worked by, and the wages paid to such employee.

**ITEM 100.1 BASE LABOR RATE HOUR**

The Contractor shall provide competent artisans, possessing all pertinent licenses and/or certifications, as required by the Engineer, to maintain and repair various components of the bridges. As described more fully below, included in this Item will be a tool kit for each trade with incidental tools, special apparel and any required personal safety equipment, and a vehicle for each trade with no additional charge to the Department. The Contractor shall submit to the Engineer all pertinent licenses and/or certifications for each artisan prior to the commencement of any work. Failure to provide the pertinent licenses and/or certifications could result in the artisan being compensated at the laborer rate regardless of how the Contractor so compensated him/her. The Contractor will calculate and submit an estimate for time and materials prior to using this item.

The payment under this Item will be for the time spent by the artisan and the artisan's toolkit only

Payment will be based upon time spent on the project doing actual work assigned by the Engineer and shall NOT include travel time to and from the Contractor's place of business and it shall also not include time for investigative field trips.

Payment for equipment (other than the usual artisan toolbox) will be made under payment for equipment rental as stated elsewhere in these special provisions.

This Item shall only be used to compensate the Contractor for the time that their in-house workforce spends on work orders assigned by the Engineer.

Incidental to this item, vehicles are to be supplied for each artisan. If more than one artisan of a certain type (for example, carpenter) are working at a work site, the Contractor need only supply the minimum vehicles required to transport the artisans, their equipment, laborers, materials, and supplies. The artisan vehicle(s) shall be capable of transporting materials consistent with the trade. It is the intent under this item for material deliveries to be reimbursable only for bulk items or materials of sufficient quantity as determined by the Engineer. The Contractor shall make his bid with the understanding that ownership and operating costs do not apply and are not reimbursable for the vehicles utilized under the artisan items.

Described below, and included in this item, will be a tool kit for each trade with all incidental tools, special apparel, and any required personal safety equipment and a vehicle for each trade with no additional charge to the Department.

All tools and equipment in artisan tool kit shall be in excellent working condition.

If a separate tool truck is utilized, such vehicle shall also be considered incidental to this item.

Any Additional vehicles the Engineer deems necessary will be paid for under the rental equipment item. If it is the Contractor's policy for the artisan to use their personal vehicles for the above purposes, no additional vehicles are required.

Artisans and toolboxes are described below:

**ITEM 100.1** (Continued)

**LABORER**

Small hand tools, handheld power tools, chipping hammer, eye shields, gloves, protective clothing, generators as necessary to run the equipment and equipment that is normally used in the trade.

**CARPENTER**

Hammer, framing square, tape measure, pouch, levels, hand saws, power saws, all electric power tools, air tools and generators and compressors as necessary to run the equipment. Saw blades and drill bits are also included.

**IRONWORKER/WELDER**

Spud wrench, dowels, alignment pins, tape measure, pouch, levels, eye shields, gloves, protective clothing, rivet buster, air hammer, jackhammer, reamers, chipping hammer, wire brushes AC/DC-300 amp- 100% duty cycle (minimum size) welding machine, torches for cutting, burning, or preheating steel, including fuel tanks & fuel / oxygen, grinders, heating oven for all welding consumables and other equipment that is normally used in the trade.

**CEMENT MASON**

All trowels, floats, Chipping Hammers, Wire Brushes, Trowels, Floats, Reinforcing Tie Wires, Mortar Boards, Jointing Tools and Buckets, mortar board and mixing tub/buckets, and other hand tools as necessary to complete masonry patching work.

**PAINTER/DELEADER**

Hand scrapers, wire brushes, paint spray apparatus, needle guns, wire wheels, gloves, protective clothing and all electrical power tools, air tools and generators with compressors as necessary to run the equipment.

Lead disposal costs will be paid for under the Non-Bid Items.

Materials required for the containment shall be paid for under non-bid materials allotment.

**BACKHOE/FRONT-END LOADER OPERATOR**

Operator shall have all licenses and certifications required by the Commonwealth of Massachusetts for the equipment they will be operating. Operators shall be in possession of their licenses at all times and show it to the Engineer when requested. Typical equipment includes a backhoe, skid, skid-steer loader and front-end leader.

Equipment which does not require a special license or certification for its operation shall be considered incidental to the artisan using it.

**ITEM 100.1** (Continued)

**METHOD OF MEASUREMENT**

Item 100.1 will be measured for payment by the Hour.

The Engineer will calculate total Base Labor Rate hours spent on the project by artisans. The Contractor will calculate and submit an estimate for time and materials prior to using this item. Overtime hours will be paid for work exceeding eight (8) consecutive hours per day or forty (40) hours per week and shall be compensated as specified in this Item.

To calculate the total Base Labor Rate hours, the Engineer will modify the hours spent by various artisans on the project using adjustment factor(s) described below:

| **COMPENSATION FACTORS** | | |
|---|---|---|
| **ARTISAN** | **REGULAR** | **OVERTIME** |
| LABORER | 1.00 | 1.30 |
| CARPENTER | 1.11 | 1.44 |
| IRON WORKER / WELDER | 0.99 | 1.29 |
| CEMENT MASON | 1.30 | 1.69 |
| PAINTER/DELEADER | 1.47 | 1.91 |
| BACKHOE/FRONT-END LOADER OPERATOR | 1.07 | 1.39 |

If an artisan has an apprentice, then that apprentice's compensation factor shall be determined from the State Wages Apprentice level.

The Compensation Factors above will be used to adjust the number of hours a specific artisan will be paid for, per one (1) hour of work.

**Example:**

If the time spent on this project by various artisans is:

Laborer.....8 hrs
Carpenter.....4 hrs
Cement Mason.....6 hrs

then the total hours for "Base Labor Rate" will be calculated as follows:

"Artisan A (hrs.)" x "Compensation Factor A" +
"Artisan B (hrs.)" x "Compensation Factor B" +
"Artisan C (hrs.)" x "Compensation Factor C"

8(hr) x 1.00 + 4(hr) x 1.11 + 6(hr) x 1.30
8.00(hr) + 4.44(hr) + 7.80(hr) = 20.24 (billable hours)

In the above example, the total hours for "Base Labor Rate" is 20.24 (billable hours)

**ITEM 100.1** (Continued)

## BASIS OF PAYMENT

Item 100.1 will be paid for at the Contract unit price per Hour, which price shall include all equipment (usual artisan tool kit), tools required to perform the normal artisans work all clothing or safety equipment normally associated with the artisans.

Any transportation required for an artisan and their toolbox to travel to and from a job site will be incidental to this Item. Ownership and operating costs, fuel and maintenance are not reimbursable for the vehicles and tools utilized under the artisan items.

## SPECIAL NOTES REGARDING PREVAILING WAGE REQUIREMENTS

Item 100.1, Base Labor Rate establishes a unit price for the Department's compensation to the Contractor for furnishing competent artisans to maintain and repair various components of the bridges. Nothing herein should be construed as establishing, altering or otherwise affecting the prevailing wages rates applicable to the work performed or relieving the Contractor of its obligations to ensure that workers are paid in accordance with applicable labor and wage laws.

Note that the erection and dismantling of scaffolding, rigging and containment for bridge painting work is subject to the "Painter (Bridges/Tanks)" prevailing wage rate. This includes surface preparation, including removal of all types of paint on bridges, the application of paint and the clean up of debris resulting from paint removal operation on bridges, pursuant to the determination by the Massachusetts Department of Labor Standards' 12/23/2009 "Notice Concerning the Removal and Application of Paint on Bridges and Tanks."

**ITEM 106.45 BRIDGE WASHING HOUR**

The work under this Item consists of cleaning and flushing the following: concrete bridge seats, steel bearing assemblies and structural steel within the limits of the vertical faces of the abutment and pier caps, bridge scuppers, downspouts and drainage troughs. In addition, any other bridge component may be added, as required by the Engineer.

All surfaces to be cleaned shall be cleaned to remove all oil, grease, dirt, salt, and guano. The Engineer may also specify graffiti removal under this item.

The Contractor shall lay out areas to be cleaned, limiting his activities to one location and confine this operation only to a point where the work can be completed within the same shift.

NOTE: Lead paint and pigeon waste are considered hazardous waste materials. This type of material shall be disposed of in accordance all Federal, State, and Local environmental requirements and in accordance with the Subsection 961 – "MAINTENANCE PAINTING OF STEEL BRIDGES" of the MassDOT Standard Specification for Highway and Bridges.

Work will be per assignment and may include various bridge components, as directed by the Engineer, and as detailed below.

**CLEANING BRIDGE SEATS AT ABUTMENTS AND PIER CAPS:**

The horizontal surfaces of the abutments and pier caps shall be cleaned of all debris, which may include but are not limited to, sand, gravel, lead paint chips, bituminous material, and guano. This material shall be removed and disposed of away from the job site.

After the debris has been removed the Contractor shall pressure wash the horizontal surfaces of the abutments and pier caps in accordance with these special provisions. The Contractor shall also pressure wash all surfaces of the superstructure and substructure elements that are directly above the pier caps and abutments, such as steel/ concrete beam ends, concrete end diaphragms, and abutment backwall. Cleaning of the superstructure surfaces shall be so programmed that dust and other contaminants from the cleaning process will not contaminate wet, newly cleaned surfaces.

**CLEANING DRAIN INLETS, SCUPPERS AND DOWNSPOUTS**

The work under these Items shall conform to the relevant provisions of Subsection 227 of the Standard Specifications and the following:

The scuppers downspouts and drainage pipes are considered clean when unobstructed flow of drainage is established and observed, as determined by the Engineer, and there is no further evidence of dirt or debris.

The contractor is responsible to mechanically sweep all gutter lines of a structure prior to cleaning any scuppers.

**ITEM 106.45** (Continued)

Some of the scuppers may have welded covers. The contractor shall first attempt to clean the scupper with the welded cover in place. If it is deemed not possible, the contractor shall remove the exiting cover, clean the scupper and re-weld in kind the existing cover as required by the Engineer. The Engineer will determine if the scupper cover shall be removed or can remain in place. All scupper covers shall be re-welded and secured prior to opening to road traffic. Should this be required, it will be paid under a time and materials basis – not under this Item.

**PRESSURE WASHING STEEL MEMBERS:**

Where bridge washing limits, as defined by the Engineer, include structural steel, the work shall conform to the relevant Provisions of Subsection 961.60 of the Standard Specifications and the following. Loose mill scale, loose rust, and loose paint shall also be removed from all bearings and structural steel within the area to be cleaned.

Before any pressure washing commences under this Item, the Contractor shall remove any loose, standing debris, dirt, paint chips, and/or guano from the structural steel beams. The Contractor shall notify the Engineer if deteriorated steel breaks off during washing.

**PRESSURE WASHING CONCRETE SURFACES:**

This Item may consist of pressure washing a bridge's concrete abutment, pier, concrete retaining wall, barriers, concrete sidewalk, concrete beam, or bituminous concrete surface, as directed by the Engineer.

**METHODS OF CLEANING**

Cleaning operations shall be accomplished by hand scrapers and pressure washing in accordance with these special provisions.

All dirt, oil, grease, tar, road salt, guano or other foreign material which has accumulated on surfaces shall be removed with pressure washing equipment, which shall be the final phase of cleaning. Containment during pressure washing operations shall also include use of a micro-net type filter to screen all debris which is washed from the structure.

The Contractor is solely responsible for damages arising from the pressure washing operations.

The Contractor is responsible for proper cleaning procedures, with the following serving only as a guideline to consider:

The operator should hold the face of the nozzle within six (6) inches of all surfaces and tilt it slightly in the direction of travel. The surface should first be wetted to allow the cleaning compound to loosen foreign matter which is later removed by a cleaning pass. The time interval between wetting and cleaning should be regulated according to the degree of dirt accumulations, but usually it is sufficient to go twice over an area that is conveniently reached from one position. The speed of pass over an area is comparable to that used in spray painting.

**ITEM 106.45** (Continued)

A properly cleaned surface will feel firm and somewhat tacky, but it should not be slick or grimy to the touch. In 90% of the cases, the areas that are properly cleaned can be verified by sight.

The Engineer will judge whether the surface cleaned has met the cleaning criteria defined herein. If additional cleaning is necessary to produce the desired results, the Contractor will not receive additional compensation. The last pass on any surface should be made with clean fresh water without detergent to remove surplus solution.

When the bridge is over water, the Contractor shall take all precautions necessary so as not to have any guano or other debris fall into the water below.

## CONTAINMENT SYSTEM

The Contractor is responsible for developing a containment and recovery system for the collection and disposal of all debris generated during washing procedures. The containment shall be constructed of non-permeable materials.

The containment system must control and capture all cleaning water and debris to ensure it does not enter the river or water body, including street drainage systems during the washing operation.

All debris and wash water captured during the washing procedure shall become the property of the Contractor. The Contractor will be responsible for the proper disposal of all wash water and debris collected during the washing procedures.

The Contractor shall thoroughly examine the structure and verify its ability to support the containment system as well as the traffic and Contractor's vehicles. Drawings and a plan for the containment and recovery system shall be submitted to the Engineer. Said submittal shall be stamped by a Professional Engineer of the appropriate discipline registered in Massachusetts. Approval by the Department is required prior to the start of any Bridge Washing.

## CREW AND EQUIPMENT

The Contractor shall provide the following:

1. Tank Truck: Minimum 1000 GALLON capacity with 150 foot of hose and high-pressure pump and nozzle. Hose inside diameter shall be greater than or equal to 0.74 in. The pump shall be capable of 650 psi (minimum) for general washing and 550 psi for specific cleaning such as scuppers and down spouts. The Contractor shall provide all water as necessary. All water shall be potable.
2. Crew: The minimum crew shall consist of a foreman and a driver. If additional personnel are deemed necessary, they shall be paid as laborers.
3. Equipment: The Contractor shall provide all necessary ladders, staging, lift truck and hand tools required to complete the work and to allow Department inspectors to safely access the work areas.

**ITEM 106.45** (Continued)

**GRAFFITI REMOVAL BY PRESSURE WASHING AND BY APPLICATION OF COATING:**

This work shall consist of the removal of graffiti from the surfaces of steel, concrete, and/or masonry structures owned by MassDOT to the acceptance of the Engineer. The removal limits shall be as directed by the Engineer.

The work shall conform to the following:

Where graffiti is required to be removed from steel surfaces, the work shall also conform to the relevant Provisions of Subsection 961.60 of the Standard Specifications. Water pressure is to be determined by the Engineer, up to 10,000 PSI at nozzle.

The work shall be executed by (1) pressure washing with or mechanical means or by (2) application of coating to the area affected by graffiti.

Graffiti removal by application of coating means concealing graffiti completely out of sight by making use of approved coating application on a given structure.

**MATERIALS**

For graffiti removal conducted by application of coating, the proposed paint system shall be a two-coat system consisting of a primer coat and a topcoat. The primer shall be a quality primer with good hiding power and formulated specifically for the purpose of covering graffiti; It shall be compatible with the surface it is used on as per the manufacturer's data sheet.

The top coat shall be compatible with the primer and the existing substrate. Its color shall match the color of the adjacent surface to the satisfaction of the Engineer. The Contractor shall submit the graffiti removing coating products for the approval of the Engineer. Different coating products may be required for surfaces of different materials.

Any product approved by the Engineer shall be non-toxic, non-corrosive, biodegradable substance and comply with the volatile organic compound (VOC) requirements of the Massachusetts Department of Environmental Protection (MassDEP) regulation 310 CMR 7.25(11), Architectural and Industrial Maintenance (AIM) Coatings. The application of the product selected for graffiti removal shall be consistent with the recommendations of the coating manufacturer.

The thoroughness of the graffiti removal from the graffitied surface is subject to the approval of the Engineer. If the Engineer establishes the work requires additional application, the Contractor shall remedy and remove any sign of the graffiti at no additional cost to the State.

**ITEM 106.45** (Continued)

## CONSTRUCTION DETAILS

Primarily, the intention is to remove the graffiti by power washing or mechanical means. If this is not adequate to remove the graffiti as determined by the Engineer, coating shall be applied to conceal the graffiti completely out of sight.

The substrate surfaces shall be thoroughly cleaned before applying coating. All dust, dirt, oil, grease, and other substances which might prevent the adhesion of the paint to the substrate shall be removed.

At the beginning of the graffiti removal operation at each assigned location, the Contractor shall perform the chosen cleaning method on a 3' by 3' test area to demonstrate its effectiveness to the Engineer for approval. Upon the review of the result, the Engineer may require the Contractor to modify the cleaning method to suit the situation on hand.

The graffiti removal coating material shall be applied as per manufacturer's specification. The contractor shall provide product data and manufacturer's recommendations for use by the Engineer for approval at least two weeks prior to starting of work. The surface preparation and application procedure shall be consistent with the recommendations of the graffiti removal coating manufacturer.

Cleaned surfaces shall bear no evidence of graffiti paint layers. If after cleaning is completed, the cleaned surface becomes soiled because of the Contractor's operations, it shall be re-cleaned, at the expense of the Contractor.

## METHOD OF MEASUREMENT

Item 106.45 will be measured by the unit Hour for the entire crew and equipment. The unit hour measured shall be the actual time the crew is actively involved in cleaning and flushing operations or setting up prior to the start of such operations. Delay in delivery of water to the crew causing the crew to remain idle will not be considered for payment.

## BASIS OF PAYMENT

Item 106.45 will be paid for at the Contract unit price per Hour, which price shall include all labor, materials, equipment, and all incidental costs required to complete the work. Included in this Item is the construction and removal of an approved containment system, and the disposal of all wastewater and debris captured, as well as coating for graffiti where required.

The work associated with the removal of welded scupper grate for the cleaning and the re-welding of the existing cover after cleaning will be paid for on a time and material basis.

**ITEM 127.12 REINFORCED CONCRETE SUBSTRUCTURE EXCAVATION CUBIC YARD**

The work under this Item shall conform to the relevant Provisions of Subsection 120 and 482 of the Standard Specifications and the following:

The work under this Item consists of the removal and disposal of all deteriorated, spalled, and scaled concrete as required to repair the existing concrete substructure elements to the general lines identified on the drawings and as required by the Engineer. Any concrete excavation necessary to access concrete substructure elements for repair shall be paid for under this Item.

The Contractor shall take all measures necessary to protect pedestrian and vehicular traffic from the construction operations. No debris, tools or incidental equipment of any kind will be permitted to fall into river bed or river bank areas or where vehicular or pedestrian traffic exists. Any material that accidentally falls into such areas shall be removed.

During the prosecution of the Work, the Engineer may reject the use of any method or equipment which causes undue vibration or possible damage to the structure or any part thereof. Pneumatic hammers heavier than the nominal 25 pounds mass shall not be used unless approved by the Engineer.

Minimum depth of excavation to sound concrete shall be one inch (1”) beyond the inner most layer of reinforcing steel, but not less than four inches (4”) from the original surface. The Contractor shall stop excavating deteriorated concrete when the depth of excavation reaches six inches (6”) and shall notify the Engineer immediately. The edges of the patch shall be cut to neat lines by saw cutting or by methods approved by the Engineer, and the patch areas shall be made rectangular in shape, if possible, with horizontal and vertical edges and avoid over cutting square corners.

The Contractor shall limit extent of excavation of the pier caps and columns as shown on the repair sequence contract drawings. If the Contractor exceeds the limits of excavation as shown on the repair sequence contract drawings, then temporary shoring shall be installed to alleviate loading on the substructure, at no additional cost to the Department. The Contractor may submit an alternate method of reinforced concrete excavation to be approved by the Engineer. The alternate method, if approved by the Engineer, shall not incur any additional costs to the Department, and Item 127.12 Reinforced Concrete Substructure Excavation will be paid at the contract unit price regardless of the method used to complete the work.

The Contractor shall take all precautions necessary so as not to damage those portions of the bridge including reinforcing steel that are to remain. This includes determining the concrete cover to the steel bars at the edge of each patch prior to excavating concrete. Any steel that is unsuitable for further use through no fault of the Contractor shall be replaced under Item 910.1 Steel Reinforcement for Structures – Epoxy Coated. All reinforcing steel that is loose shall be tied tightly together using epoxy coated wire ties.

Also, included under this Item are all costs in connection with the cleaning, cutting, and bending of the existing reinforcing steel designated to be retained in the proposed repair.

**ITEM 127.12** (Continued)

## METHOD OF MEASUREMENT

Item 127.12 will be measured for payment by the Cubic Yard of substructure concrete excavated, removed, and properly disposed of.

## BASIS OF PAYMENT

Item 127.12 will be paid for at the Contract unit price per Cubic Yard, which price shall include all labor, tools, equipment, materials, sawcutting, cleaning, disposal of all debris and incidental costs required to complete the work.

New reinforcing steel will be paid under Item 910.1.

## ITEM 740. ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) MONTH

The work under this Item shall conform to the relevant provisions of Subsection 740 of the Standard Specifications and the following:

A computer system and printer system 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:**

| | |
|---|---|
| Processor: | Intel, 3.5 GHz |
| System Memory (RAM): | 12 GB |
| Hard Drive: | 500 GB |
| Optical Drive: | DVD-RW/DVD+RW/CD-RW/CD+RW |
| Graphics Card: | 8 GB |
| Network Adapter: | 10/100 Mbit/s |
| USB Ports: | 6 USB 3.0 ports |
| Keyboard: | Generic |
| Mouse: | Optical mouse with scroll, MS-Mouse compliant |
| Video/Audio | the computer system shall be capable of allow video calling and recording: |
| Video camera | shall be High Definition 1080p widescreen capable video calling and recording with built in microphone. The microphone system shall capture natural audio while filtering out background noise. |
| Audio | shall be stereo multimedia speaker system delivering premium sound. |
| OS: | Latest Windows Professional with all security updates |
| Web Browser: | Latest Internet Explorer with all security updates |
| Applications: | Latest MS Office Professional with all security updates<br>Latest Adobe Acrobat Professional with all security updates<br>Latest Autodesk AutoCAD LT<br>Antivirus software with all current security updates maintained through the life of the contract. |
| Monitors: | Two 27" LED with Full HD resolution.<br>Max. resolution 1920 x 1080 |
| Flash drives: | 2 (two) - 128GB USB 3.0 |
| Internet access: | High Speed (min. 24 mbps) internet access with wireless router. |

**ITEM 740.** (Continued)

**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) (not including the bypass tray)
- 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
- Automatic duplexing
- Finisher with staple functions
- Standard Ethernet. Print Controller
- Scan documents to PDF, PC and USB
- ability to print with authenticated access protection

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

The Engineer's Field Office and the equipment included herein including the computer system and printer 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 this work 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 required by the Engineer.

**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.

**ITEM 767.121** (Continued)

**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.

**ITEM 767.121** (Continued)

**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.

**ITEM 767.121** (Continued)

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 905. 4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications, and the following:

The work under this Item consists of furnishing and placing 4,000 PSI, 3/8 INCH, 660 CEMENT CONCRETE to repair pier caps, pier columns, exposed pier footings, bridge seat, breastwall, wing walls, parapets, retaining walls, culverts, and as required by the Engineer, after all concrete is removed under Item 127.12.

The Contractor's attention is directed towards the Repair Procedure as noted in Document A00803.

The Contractor shall have the approval of the Engineer certifying that the existing concrete has been removed to the required limits and that adequate surface preparation has been achieved before any concrete is placed.

All formwork shall be approved and accepted by the Engineer prior concrete placement.

All concrete surfaces shall be prepared in accordance with PREPARATION OF CONCRETE SURFACES.

**METHOD OF MEASUREMENT**

Item 905. will be measured for payment by the Cubic Yard of cement concrete placed, complete in place.

**BASIS OF PAYMENT**

Item 905. will be paid at the Contract unit price per Cubic Yard, which price shall include all labor, materials, equipment, surface preparation, and all incidental costs required to complete the work. The epoxy bonding compound will be considered incidental to this Item.

- The concrete pump truck shall be paid as a SUPPLIER'S EQUIPMENT RENTAL COST that will include the driver/operator.

No separate payment will be made for the installation and subsequent removal of any formwork, coating/patching of the steel reinforcing, but all cost in connection therewith shall be included in the Contract unit price bid.

Where formwork is installed for concrete placement, payment of seventy percent (70%) of the Cubic Yard price of this item will be made upon complete concrete installation. The remaining thirty percent (30%) of the Cubic Yard Price of this Item will be paid only after the complete formwork removal by the Contractor.

**ITEM 905.** (Continued)

The remaining thirty percent (30%) of the Cubic yard price of this item will be paid only after complete formwork removed by the Contractor.

When High-Early Cement Concrete is directed to be used by the Engineer, the contractor will be compensated at the unit bid price for the Item plus a cost allowance of the actual cost difference between the 4000 PSI, 3/8 INCH, 660 CEMENT CONCRETE and the High-Early Cement Concrete mix. The differential per cubic yard material allowance will be made under Non-Bid Items.

## ITEM 908. CEMENT FOR POINTING BAG

The work under this Item includes the cleaning out of defective mortar joints in the exposed surfaces of the existing portions of stone and granite block abutments, piers, wing-walls, spandrel walls, retaining walls and the pointing of the joints with new cement mortar. Also included is the filling of voids left by the excavation of deteriorated stonework and rubble with new cement mortar as required by the Engineer.

## MATERIALS

The cement mortar shall meet the requirements of Subsection M4.04.3.

## CONSTRUCTION METHODS

All defective stone masonry joints, as determined by the Engineer, shall be chipped out a minimum depth of two inches by means of pneumatic tools. The joint shall be thoroughly cleaned of all loose mortar, dust, dirt and vegetation with high pressure air and water blast and flushed clean.

All cleaned joints shall be inspected and approved by the Engineer prior to the application of cement mortar. The mortar shall be driven to the back of the excavated joint and cut flush with the masonry face.

Only enough mortar shall be mixed that can be effectively used to repoint the prepared joints and voids. As required by the Engineer, peastone will be added to the mortar mix and chinking stones in the larger voids.

Pointing shall not be done in freezing weather nor when the stones contain frost.

The Contractor shall be responsible for maintaining the stability of the masonry walls throughout the work.

## METHOD OF MEASUREMENT

Item 908. will be measured for payment per BAG of cement for pointing complete in place.

## BASIS OF PAYMENT

Item 908. will be paid at the Contract unit price per BAG, which price shall include full compensation for all labor, materials (except peastone and chinking stones), forms and equipment (including but not limited to all masonry tools, ladders, staging, man lifts, bucket trucks, etc.), and all incidental costs required to complete the work. The net weight of each bag of cement shall be 94 pounds.

The Contractor shall be compensated for the cost of the peastone and chinking stones under the NON – BID item for the cost of material. No additional cost associated with labor will be allowed.

## ITEM 909.2 CEMENTITIOUS MORTAR FOR PATCHING SQUARE FOOT

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work under this Item consists of patching vertical surfaces on the existing structures at areas of spalled, delaminated, or cracked concrete as directed by the Engineer.

This Item does not include the repair of any vertical patch that exceeds two (2) inches in depth. The repairs to those patches shall be made using Item 905.

### MATERIALS

Concrete and High Strength Mortar Products shall be in accordance with M4.04.1.

### CONSTRUCTION METHODS

The contractor shall remove all deteriorated and spalled areas as designated by the Engineer. All costs to remove the deteriorated and spalled concrete shall be compensated for under Item 127.12. The Contractor shall have the approval of the Engineer certifying that all spalled and deteriorated concrete has been removed prior to patching deteriorated areas.

All concrete surfaces shall be prepared in accordance with PREPARATION OF CONCRETE SURFACES.

Mortar must be worked into the substrate filling all pores and voids. Force the material against the edge of the repair, working towards the center. After filling, consolidate, then screed.

The maximum thickness of application in one pass shall be one (1) inch. If the depth of patch exceeds one (1) inch, the mortar shall be placed in two passes of approximate equal thickness, with a total thickness not to exceed two (2) inches. Before the first pass has achieved an initial set, the surface shall be prepared for the second pass by scratching with a trowel to form a grid of deformation on the surface. The preceding lift shall be allowed to reach final set before applying fresh material. The fresh mortar must be scrubbed into the preceding lift.

Prime and work the mix into the substrate, filling all pores and voids. Avoid puddling of the primer on horizontal substrates.

Use a fine mist spray of water, wet burlap, or a non-solvent approved curing compound if ambient conditions might cause premature surface drying (high temperature, low humidity, strong winds, etc.). If necessary, protect the newly applied mortar from rain. To prevent freezing, cover with insulating material.

Protective sealing compounds shall be applied to repair areas where required by the Engineer. Protective sealing compounds shall be in accordance with Subsection 901.41.

**ITEM 909.2** (Continued)

## METHOD OF MEASUREMENT

Item 909.2 will be measured for payment by the Square Foot of patch area, complete in place.

## BASIS OF PAYMENT

Item 909.2 will be paid for at the Contract unit price per Square Foot, which price shall include all labor, materials, equipment, certification, samples, curing, protective sealing, and all incidental costs required to complete the work. The epoxy bonding compound will be considered incidental to this Item.

## ITEM 910.1 STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED POUND

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

All requirements of Subsection 901.35 Reinforcement shall be adhered to, including but not limited to lapping at splices and ties at every other intersection. The mechanical splicers shall be incidental to this item.

The Contractor may be required to submit for approval, detail plans and schedule of bar reinforcement. The Contractor will replace reinforcing bars as directed by the Engineer. Any reinforcing steel damaged by the Contractor's operations will be replaced by the Contractor at their own expense.

The Contractor may be required to use standard non-epoxy coated (black bar) instead of epoxy coated bar as directed by the Engineer.

### METHOD OF MEASUREMENT

Item 910.1 will be measured for payment by the Pound, according to Subsection 901.80.

### BASIS OF PAYMENT

Item 910.1 will be paid for at the Contract unit price per Pound, according to Subsection 901.81.

The use of non-epoxy coated black bar will be substituted with no additional compensation, as required by the Engineer.

**ITEM 964.01 CONCRETE PENETRANT / SEALER SQUARE YARD**

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work under this Item consists of applying concrete penetrant sealer to pier caps, columns, parapets, abutments, wingwalls, in the areas shown on the work orders provided to the Contractor and as required by the Engineer, after concrete and mortar patching is complete.

## MATERIALS

The materials shall meet all the requirements of M9.15.0 and be listed on the MassDOT QCML.

## SURFACE PREPARATION

Other concrete surfaces may be treated with concrete penetrant / sealer, as required by the Engineer.

The number of coats, rate of application, and surface preparation shall be in accordance with the manufacturer's recommendations. All concrete and mortar patching shall be properly cured per manufacturer's specifications before application. All surfaces shall be dry and clean immediately prior to application. The concrete penetrant shall not be diluted except in strict accordance with the manufacturer's instructions.

## METHOD OF MEASUREMENT

Item 964.01 will be measured for payment by the Square Yard of concrete penetrant / sealer applied, complete in place.

## BASIS OF PAYMENT

Item 964.01 will be paid at the Contract unit price per Square Yard, which price shall include full compensation for all labor, tools, equipment, materials, surface preparation, cleaning, and all incidental costs required to complete the work.

**ITEM 964.7 EPOXY MORTAR FOR PATCHING SQUARE FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work under this Item consists of repairing deteriorated or spalled areas that are no more than one (1) inch in depth.

A two-component, polymer-modified cementitious, fast setting, non-sag structural repair mortar shall be used to patch the existing structures in those areas designated by the Engineer.

The procedure to be used to repair deteriorated or spalled concrete shall be as follows:

## MATERIALS

The epoxy mortar shall meet all requirements of Subsection M4.04.0 and curing shall be in accordance with Subsection 901.38. Products to be used for this Item shall be approved by the Engineer before the Contractor begins his operations.

## CONSTRUCTION METHODS

The Contractor shall remove existing concrete as described in the special provision for Item 127.12. The Contractor shall have the approval of the Engineer certifying that existing concrete has been removed to the required limits and that adequate surface preparation has been achieved before any mortar is placed.

All exposed concrete surfaces on which mortar is to be placed shall be roughened, cleaned with a minimum oil free air pressure of 100 psi to remove loosened particles and coated with an epoxy bonding compound.

Mortar shall be prepared and mixed in accordance with manufacturer's recommendations.

A stiff mix is required for vertical or overhead surfaces.

Mortar shall be worked into substrate filling all pores and voids. Material shall be forced into edge of the repair and worked towards the center. After filling, the material shall be consolidated and then screeded.

Maximum thickness in one pass shall be one (1) inch. If the Contractor chooses to place the mortar in two lifts each lift shall be of approximately equal thickness. Before the first pass has achieved an initial set, the surface shall be prepared for the second pass by scratching with a scratcher trowel/knife or scarifier to form a grid of deformation on the surface.

## METHOD OF MEASUREMENT

Item 964.7 will be measured for payment per Square Foot of area patched, complete in place.

**ITEM 964.7** (Continued)

## BASIS OF PAYMENT

Item 964.7 will be paid at the Contract unit price per Square Foot, which price shall include all labor, materials, tools, equipment and incidentals to complete the work. The epoxy bonding compound will be considered incidental to this Item.

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