

DOCUMENT A00801

SPECIAL PROVISIONS**FALL RIVER****Bridge Preservation, F-02-065, Fourth Street over I-195**

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 under this Contract consists of furnishing all necessary labor, materials, and equipment required to perform the proposed work, including:

1. Installation of temporary construction signing, pavement markings, temporary barrier, temporary construction fencing and other traffic control devices to establish Stage 1 work zone;
2. Performing a Test Pit for Exploration to determine the location of the gas main at the north end of the bridge at the proposed highway guard transition and furnishing the location to the Engineer for adjustment of the Highway Guard Transition dimensions, if needed;
3. Demolition of the concrete ceiling panel in the positive moment region (0' – 43.5' in Span No. 1 and 17.5' – 79.05' in Span No. 2) in Bay No. 15;
4. Installation of 2nd and 5th intermediate diaphragms in the utility bay (Bay No. 15);
5. Demolition of the concrete ceiling panel in the negative moment region in Bay No. 15;
6. Cleaning (full removal) & painting steel bridge Beam No. 16 & exposed portions of Beam No. 15;
7. Installation of remaining intermediate diaphragms in the utility bay (Bay No. 15);
8. Bridge Pavement Excavation;
9. Installation of temporary protective shielding;
10. Removal of existing steel bridge railing and partial demolition of the superstructure;
11. Forming, installing reinforcing steel and deck drains and placing/finishing concrete deck slab in Bay No. 15;
12. Removal of deck formwork;

SCOPE OF WORK (Continued)

13. Reconstruction of sidewalk expansion joints with non-sag joint sealer over pre-compressed joint seals as proposed in the Contract Plans;
14. Installing formwork and reinforcing steel and placing/finishing concrete for east sidewalk in alternating pours;
15. Sealing paraffin joints per the Contract Details;
16. Installation of membrane waterproofing for bridge decks and HMA patching along the curbline;
17. Installing a new pedestrian signal foundation, handhole, conduit and wiring;
18. Removal and resetting of pedestrian signal post and pedestrian push button to new foundation;
19. Removing and discarding existing pedestrian signal post foundation;
20. Installing new highway lighting luminaire, light pole, foundation, conduit and wiring;
21. Removing and discarding existing highway lighting luminaire, light pole and foundation;
22. Construction of cast-in-place Highway Guard Transitions;
23. Installation of S3-MTL4 Bridge Railing;
24. Installation of Type I protective screen;
25. Removing and replacing ground mounted chain link fencing along Retaining Wall #8 at the southeast corner of the bridge and connecting the existing fence along retaining wall #7 at the north end of the bridge to the proposed protective screen;
26. Setting proposed curb, transition stones and transition curbing for pedestrian curb ramps;
27. Adjusting signal and lighting handhole frames and covers to grade and coordinating with the gas company for adjustment of gas gate boxes;
28. Reconstruction of cement concrete sidewalk and pedestrian curb ramp surfaces;
29. Adjustment of drainage structures to grade;
30. Removal of temporary barrier, milling & paving of the bridge and approaches and placement of permanent pavement markings;
31. Patching hot mix asphalt;
32. Replacement of existing asphaltic bridge joints with Modified Asphaltic Bridge Joints;
33. Placement of pine bark mulch to restore the landscape area at the NE corner of the bridge;
and
34. Other incidental work necessary to complete the project.

Bridge Location:

- Bridge F-02-065 (3XJ) Fourth Street over Interstate 195 in Fall River

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.

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.

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 and be subject to the written approval of the Engineer.

Daytime work is permitted within the established long-term Temporary Traffic Control Setup on Fourth Street when there are no additional temporary traffic control measures required. Work Schedule during the day shall be based on a normal 8-hour day, 5-day week, Monday to Friday, between the hours of 7:00 AM and 3:30 PM.

Nighttime work is required for all work completed on I-195 and when additional temporary traffic control measures are used on Fourth Street. Work schedule during the night shall be based on an 8-hour day and shall be restricted to the following:

Sunday: 9:00 PM to 5:30 AM Monday
Monday: 9:00 PM to 5:30 AM Tuesday
Tuesday: 9:00 PM to 5:30 AM Wednesday
Wednesday: 9:00 PM to 5:30 AM Thursday
Thursday: 9:00 PM to 5:30 AM Friday

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.

The Contractor may schedule shifts longer than 8-hours with prior approval by the Engineer. No additional compensation will be made for work scheduled during nighttime or longer working hours. These time periods include the "set-up" and "breakdown" of any temporary traffic control pattern employed.

MassDOT has determined that the Contractor shall schedule work to expedite bridge work with a minimum disruption to road users and minimal impact to environmental resources while providing work zone safety. As a result, the Contractor is encouraged to perform concurrent work to facilitate on-time, on-budget project completion.

The Contractor shall schedule work to ensure the final coat of paint is not damaged by other operations. Any damage to coatings due to other Contractor's operations shall be repaired at the Contractor's expense.

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.

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.

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.

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.

NOTICE TO OWNERS OF UTILITIES

District 5 Utility/Constructability Engineer
Christopher Lockett (508) 884-6633
chris.j.lockett@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 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 5
Select the City of Fall River, and then locate the utility

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

LIBERTY UTILITIES EMERGENCY TELEPHONE NUMBERS

GAS:
Outage/ Emergency: 1-800-936-7000
New Service: 1-800-544-4944
Customer Support: 1-800-544-4944

NATIONAL GRID EMERGENCY TELEPHONE NUMBERS

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

WORK DONE BY OTHERS

The Contractor shall coordinate their work with, and provide access to the site to, Liberty Utilities and/or their Contractor for completion of proposed gas main work within the project limits. At both ends of the bridge, Liberty Utilities will replace a portion of the existing 12” gas main with an 8” gas main within a 12” carrier pipe. As a part of this work, Liberty Utilities will install a 16” sleeve through the backwall at the north and south abutments to accommodate the 12” carrier pipe, replace the brick masonry at the utility opening in the backwall and install new utility hangers and rollers. In addition, the utility will abandon the existing 8” gas main carried by the bridge. This work will be performed after demolition of the bridge deck is completed and before the formwork is installed for the new bridge deck in Bay No. 15. The Contractor shall coordinate with Liberty Utilities and account for this work in the Construction Schedule.

EQUIVALENT SINGLE AXLE LOADS (ESALS)

The estimated traffic level to be used for SUPERPAVE HMA mixture designs for this contract, expressed in Equivalent Single Axle Loads (ESALs) for the design travel lane over a 20-year period, is 3.02 Million 18-kip (80-kn) ESALs.

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.

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”.

The applicable submittals shall be according to Subsection 961.69 “Submittals”.

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

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 30 μ g/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.

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.

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.**

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

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.
 - **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).

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

- **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.

ENVIRONMENTAL PERMITTING

The proposed work does not occur in jurisdictional wetland resources subject to section 401 or section 404 of the Clean Water Act; therefore, the project does not require a Water Quality Certification from the Massachusetts Department of Environmental Protection or authorization from the US Army Corps of Engineers. The proposed work qualifies for the bridge exemption authorized in the Transportation Bond Bill and is therefore not subject to the Massachusetts Wetlands Protection Act, the Massachusetts Public Waterfront Act (Chapter 91), or the Massachusetts Environmental Policy Act.

If field conditions and/or Contractor-proposed erection, demolition, staging, or other procedures require work to occur in or otherwise impact water or wetland resource areas, 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 Resident Engineer in writing at least 60 days prior to desire commencement of the proposed activity. All environmental submittals, including any Contract with Local, State, or Federal environmental agencies, must be coordinated with the District Environmental Engineer. The Contractor is expected to 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.

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 Contractor 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.

NON-BID ITEMS

Specialty Services will be as required by the Engineer to cover such a work that has not been included in any contract bid Items. The Contractor will not bid on the specialty services; however, the Contractor will be reimbursed for the cost as required by the Engineer:

PAYMENT FOR SPECIALTY SERVICES

The Contractor will be paid for any specialty services (Regardless of whether hired by the Contractor as a specialty sub-contractor crew, or as an individual artisan) required for work that has not been included as incidental to any Contract Bid Item plus ten (10) percent. However, no specialty services shall be hired until approved by the Engineer and competitive prices may be required if the Engineer so directs. The specialty services will be used only as required by the Engineer.

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.

ITEM 107.18**MISCELLANEOUS STRUCTURAL STEEL****POUND**

All work under this Item shall conform to the relevant provisions of Subsection 960 of the Standard Specifications and the following:

The work to be done under this Item consists of providing new steel and replacing missing steel for repair of steel beams at locations specified in the Plans.

Structural steel shall be measured by the pound of new steel actually installed, complete in place, and accepted by the Engineer in accordance with the following:

- Unit weight of steel is 490 pounds per cubic foot.
- No deductions in weight are to be made for material removed for bolt holes, clips, or access holes.
- Any excess steel material ordered at the Contractor's discretion to facilitate fabrication and installation of the required finished product as defined to the limits on the drawing requirements shall not be MassDOT responsibility.
- The quantity of steel to be calculated and paid for shall only include the weight of the steel that meets the repair requirements for each location measured separately.
- The Contractor is responsible for field verification of the repair locations, and material quantities needed for repairs under this Item.
- The Contractor shall submit shop drawings that bear the seal and signature of a Professional Structural Engineer registered in Massachusetts, prior to the commencement of any work.

Diaphragm Type U1 & U3 details shown on the contract plans involve welding steel connection plates to the webs and bottom flanges of existing steel beams and installing proposed utility supports at the locations specified on the Plans.

All beams that are to be repaired shall be cleaned of all existing paint, rust and primed with an approved primer before performing the work. All new structural steel shall be shop primed prior to use. All repaired areas shall be repainted after the repairs have been made.

The procedures, materials, equipment, or anchorage proposed by the Contractor shall be submitted on a standard shop drawing for approval by the Engineer prior to beginning of work. Approval shall not relieve the Contractor of responsibility for the successful completion of the work. All work shall be done as required by the Engineer in accordance with the details shown on the Plans.

The work shall be done by methods not likely to produce fracture or other injury to the steel members. During the course of work, it may be necessary to disconnect, support, or adjust steel which is to remain in the structure. For these situations, the Contractor shall submit his proposals for disconnecting, supporting or adjusting the steel, as necessary, to the Engineer for approval and will be incidental to the item.

ITEM 107.18 (Continued)

The Contractor's proposals shall be approved prior to the actual commencement of any disconnecting, supporting or adjusting of steel. If, in the opinion of the Engineer, the Contractor's operations damage other members of the structure being repaired, the Contractor shall be required to change his methods of operations and make all necessary repairs as ordered by the Engineer at no additional cost to the Commonwealth.

The Contractor shall apply an Epoxy Polyamide coating where necessary to achieve flush contact between existing steel and proposed steel.

MATERIAL REQUIREMENTS – EPOXY POLYAMIDE

The Epoxy Polyamide coating to be used between layers of structural steel shall be a solvent-free patching compound used for repairing pits, cracks and voids in steel surfaces. It shall be designed for the following:

1. **Features:** Wet applications to be applied up to 2" in thickness (maximum of multiple coats). Self-priming on the surface of existing steel and able to be applied over existing steel and existing coating.
2. **Finish:** Flat.
3. **Primers:** Self-Priming.
4. **Topcoats:** Paint as specified.
5. **Dry Film Thickness:** 1/8" per layer.
6. **Solids Content:** By Volume: 99% ± 1%.
7. **Dry Temperature Resistance:** Continuous: 200°F (93°C) Non-Continuous: 250°F (121°C).

All new structural steel used in the repairs shall be AASHTO M 270 Grade 36 or Grade 50, and new high strength bolts shall conform to the requirements of Sections M8.05.0 and M8.04.3 of the Standard Specifications. Charpy V-Notch (CVN) testing of the proposed steel as main members shall be required. All bolted connections shall be slip critical class B connections.

All steel repair dimensions shall be field verified by the Contractor prior to developing shop drawings and fabrication of steel repair components. The Contractor shall prepare steel shop drawings using field measurements. The Engineer will verify the proposed repair limits shown on the shop drawings. Fabrication of repair components shall not be started prior to acceptance of shop drawings.

ITEM 107.18 (Continued)

The Contractor shall apply silicone caulking at all locations where the existing steel and the proposed steel meet after the top coat of paint has fully cured. Silicone caulking shall be recommended, applied, and be compatible with the paint system manufacturer's requirements. At locations where the gap between the existing steel and proposed steel is 1/8" or greater, the silicone caulk shall be tooled into gaps. The silicone caulk and its installation shall be considered incidental to this item.

The weight of the nuts, washers and bolts shall be determined from Subsection 960.80 of the Standard Specifications.

Existing steel components that are identified for removal on the Contract Plans or by the Engineer shall be carefully removed by dismantling existing connections and by machine cutting. Cutting of existing steel shall be performed with care to avoid undercutting, overheating, notching or other damage of material which is to remain.

In the event that the Contractor damages materials to remain during cutting operations, he shall replace, repair, or reinforce the damaged area as may be needed to restore the damage to existing condition prior to damage. This work shall be performed by the Contractor as ordered by the Engineer at no additional cost to the Commonwealth of Massachusetts, and as required by the Engineer.

The edges of the existing steel to be repaired, as well as the faces that will come in contact with the new steel, shall be ground smooth and primed prior to the installation of the new plates or shapes. Holes in steel shall be drilled, not punched or burned.

The Contractor is fully responsible for the accuracy and fit of the work and thus shall determine what measurements are required, and shall allow adequate time and resources for obtaining field measurements in developing their fabrication and construction. The Contractor shall develop shop drawings utilizing the field measurements of the replacement/repair areas to confirm bridge components and all other repair dimensions. Fabrication shall not be started prior to acceptance of shop drawings.

When it is necessary to temporarily support utility lines/pipes during steel repairs, the Contractor shall consult with the affected utility owners on the proposed Means and Methods of this work item. Any damages to the utilities caused by the Contractor's operations shall be repaired by the Contractor, as required by the Engineer and the affected utilities, at his/her own expense.

ITEM 107.18 (Continued)

Adequate measures shall be taken by the Contractor to prevent work generated debris, tools, and/or materials from entering into adjacent roadway lane or dropping to the ground or roadway below the structure. Extreme care must be exercised to protect vehicular traffic from debris and construction related activities. All debris and any materials which, accidentally fall into such areas shall be removed immediately at the Contractor's expense. Any damage from falling debris shall be repaired by the Contractor as required by the Engineer at the Contractor's own expense.

METHOD OF MEASUREMENT

Item 107.18 will be measured for payment by the Pound of new steel, furnished and installed in place.

The weight of the nuts, washers and bolts shall be determined from Subsection 960.80 of the Standard Specifications.

Cutting intermediate stiffeners, removal of existing connection plates/welds and grinding smooth webs and flanges of existing girders shall be incidental to Item 107.18.

BASIS OF PAYMENT

Item 107.18 will be paid for at the Contract unit price per Pound, which price shall include all labor, equipment, materials, welding, survey, scaffolding, tools, submittal preparation, utility support, localized cleaning and paint removal, silicone caulk installation, epoxy coating, and all incidental costs required to complete the work as required by the Engineer.

ITEM 114.11 **PARTIAL DEMOLITION OF SUPERSTRUCTURE** **LUMP SUM**
OF BRIDGE NO. F-02-065 (3XJ)

Work under this Item shall conform to the relevant provisions of Subsection 112 of the Standard Specifications and the following:

The work under Item 114.11 includes, but is not limited to, metal bridge railing removed, bridge curb removed & discarded, bridge pavement excavation, reinforced concrete excavation, and the removal or demolition of other specified components of Bridge No. F-02-65 (3XJ) to the limits shown on the plans.

CONSTRUCTION METHODS

The Contractor shall verify all conditions and materials in the field and shall base the bid on the Contractor's own findings without any additional compensation for variance from the Plans of these special provisions regarding actual conditions for Items to be removed.

During the prosecution of the work under this Item, the Engineer may reject the use of any method or equipment which causes undue vibration or possible damage to the remaining structure or any part thereof. The noise and dust created by demolition operations must be reduced to the maximum extent possible.

The Contractor shall take all precautions necessary so as not to damage those portions of the structure that are to remain including but not limited to the steel beams, concrete deck and steel reinforcing to be retained. Any portions of the existing structure that are to remain which become damaged as a result of the Contractor's operation, as determined by the Engineer, shall be repaired to the satisfaction of the Engineer at no additional cost to the Department.

Additionally, the Contractor shall be responsible for maintaining portions of the existing structure, including but not limited to the underside of the deck and elevation faces of the bridge, throughout all stages of demolition and construction. The cost of any repairs to the existing structure that are required to maintain traffic shall be considered incidental to this item.

No demolition work shall be started until any and all utility companies involved have been notified (not less than seven (7) days prior to the start of demolition) and the Contractor has received approval from the Engineer as to the equipment, procedures and schedule of operation to be used during the demolition and reconstruction periods. The Contractor shall carry on his work concurrently and in conjunction with the utility companies involved at the project site, to provide for all possible cooperation toward the satisfactory completion of the work with a minimum of delay and inconvenience. The Contractor shall be responsible for protecting any existing utility lines during his operations. If any utilities are damaged due to the Contractor's negligence, the Contractor shall make repairs at their own expense.

ITEM 114.11 (Continued)

The Contractor shall take precautions to prevent debris from falling, onto the roadway below, or to encroach upon the active lanes and shoulders. Temporary Protective Shielding must be used as specified under Item 994.1. The Contractor shall be required to remove any debris which is generated by demolition from the site immediately and to restore portions of the site affected by the operation to their original undisturbed condition or better.

All materials removed under Item 114.11 shall become the property of the Contractor and shall be removed from the job site at no additional expense unless such materials are designated to be reused in the proposed construction.

The Contractor shall make adequate provisions for the protection of traffic, private property, utilities and pedestrians from damage and injury during all phases of the demolition process.

REINFORCED CONCRETE EXCAVATION

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

The work includes removing and properly disposing of reinforced concrete at the existing concrete ceiling panels, bridge deck, sidewalks, backwalls and curtain walls for construction of a new sidewalk with S3-MTL4 Bridge Railing and as required by the Engineer.

Prior to excavation, the Contractor shall cover all drainage structures that may be affected by the work. The structures shall remain covered until the new concrete has set and the area has been cleaned.

The Contractor shall take all precautions necessary so as not to damage those portions of the Bridge including reinforcing steel that is to remain.

Incidental to the work under this heading shall be removing and discarding the Grade Separation Identification Sign mounted to the east side of the bridge deck/sidewalk. The sign and hardware shall be legally disposed of off-site.

All excavations shall be squared off by sawcutting, to a depth of 1 inch. The Contractor shall not remove any concrete beyond the specified limits unless ordered to do so by the Engineer. Any existing concrete designated to be retained during construction that is damaged by the Contractor's operation shall be replaced at the Contractor's expense.

To ensure adequate lateral bracing of the bottom flange in the negative moment region, removal of the concrete ceiling panels in Bay No. 15 shall progress as follows. The Contractor shall remove the concrete ceiling panels in the positive moment regions first (0' – 43.5' in Span No. 1 and 17.5' – 79.05' in Span No. 2). Removal shall progress from the abutments, towards the pier. Demolition work shall not progress into the negative moment region, within 21'-9" of the pier in Span No. 1 and within 17'-6" of the pier in Span No. 2, until the 2nd and 5th interior diaphragms have been installed.

ITEM 114.11 (Continued)

Concrete removal and surface preparation equipment shall be of the following types:

Pneumatic and Power-Driven Chipping Hammers: In no event shall any pneumatic or power hammer weighing in excess of twenty-five (25) pounds be used for the removal of concrete, unless approved by the Engineer. The Contractor will be restricted to fifteen (15) pound chipping hammers when removing concrete from below any reinforcing bar.

Abrasive Blasting Equipment: Abrasive blasting equipment shall be capable of removing rust and old concrete from exposed reinforcing steel when deemed necessary by the Engineer.

During the prosecution of 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.

The Contractor shall carefully remove the concrete around the existing reinforcing steel designated to be reused in the proposed construction. Existing reinforcing steel rendered unsuitable for reuse during construction due to negligence on the part of the Contractor shall be replaced at the Contractor's expense. Any steel that is unsuitable for further use through no fault of the Contractor shall be replaced under Item 992.11. All reinforcing steel that is loose shall be tied tightly together using wire ties.

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 construction. Immediately before placement of new concrete, the exposed area shall be free of foreign materials. These materials shall be removed by abrasive blasting and by use of oil free compressed air. No grease, dust, rust, or laitance will be allowed to remain on reinforcing steel and exposed concrete surfaces. All reinforcing steel with active rusting encountered in the excavation shall be thoroughly cleaned by abrasive blasting.

All excavated materials shall become the property of the Contractor and shall be removed from the job site.

BRIDGE PAVEMENT EXCAVATION

The work performed under this heading shall conform to the relevant provisions of Subsection 120 of the Standard Specifications and the following:

Work under this heading consists of the excavation of existing HMA pavement and waterproofing membrane on the bridge deck or over the backwall, including excavation of asphaltic plug joints, and as directed by the Engineer.

The deck pavement and any existing membrane shall be carefully removed down to the concrete surface without doing any damage to the surface. Care shall be taken to not damage existing membrane designated to be retained to lap proposed membrane. Damage caused to the bridge concrete deck slab from excavation of the wearing surface material shall be repaired by the Contractor, at no additional cost to the Department. The Contractor shall excavate the bridge pavement to a neat limit as required by the Engineer.

ITEM 114.11 (Continued)

Also included under this heading is the excavation of existing asphaltic plug joints (including backer rod, steel plate, asphaltic binder, aggregate, etc.). The removal of membrane waterproofing designated to be removed is considered incidental to this item.

The existing bituminous concrete pavement shall be sawcut. The sawcut shall not damage the existing waterproofing membrane to allow lapping of the new and existing waterproofing membranes. Sawcut at all joints between existing and proposed pavements, to provide a uniform, vertical surface for the proposed pavement joint with the existing pavement. Sawcut edges, which become broken, ragged, or undermined because of the Contractor's operations, shall be re sawcut prior to the placement of the abutting proposed pavement at no additional cost to the Department.

The pavement shall be excavated using wide-blade pneumatic hammers or by other approved methods. Pavement milling will not be allowed.

The Contractor shall take all measures necessary to protect pedestrian and vehicular traffic from construction operations. No debris, tools, or incidental equipment of any kind will be permitted to fall into areas where vehicular or pedestrian traffic exists. Any material that accidentally falls into such areas shall be removed immediately. All materials removed under this item shall be removed from the job site and properly disposed of according to all state, federal, town, cities rules, regulations, requirements, restrictions. The Contractor is required to broom clean all work site areas after the removal of excavated debris regardless of preexisting conditions. This includes areas under the excavated repair area such as abutment seats, pier caps, revetment areas, and bridge shielding areas.

BRIDGE CURB REMOVED AND DISCARDED

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

Work under this heading consists of the removal and disposal of existing bridge curb and anchors, and as directed by the Engineer. Removal and disposal of all curb between the back of the south abutment and the back of the north abutment will be included under this item. All materials shall be legally disposed of offsite.

METAL BRIDGE RAILING REMOVED AND DISCARDED

The Work under this heading shall conform to the relevant provisions of Subsection 630 of the Standard Specifications and the following:

Work under this heading consists of the removal and disposal of existing bridge railing, and as required by the Engineer. Removal and disposal of all bridge railing on the east side of the bridge deck will be included under this item. Removal shall commence after installation of temporary barrier and temporary protective shielding at the overhang. Existing bridge railing should be assumed to be coated with lead paint. All materials shall be legally disposed of offsite.

ITEM 114.11 (Continued)**DEMOLITION PLAN SUBMITTALS**

The Contractor shall prepare and submit a demolition plan indicating their proposed demolition sequence, procedures and methods to be used including equipment, tools, devices, schedule of operations, methods of utility protection, methods of preventing any debris resulting from demolition, excavation or construction from damaging the roadway below to the Engineer of Record for approval. The demolition plan, including checked calculations sufficient to substantiate the adequacy of the proposed demolition sequencing and methods, shall be stamped by a Professional Structural Engineer registered in Massachusetts. This engineer shall be familiar with these specifications, those of the American Association of State Highway and Transportation Officials (AASHTO), the Work and be experienced in this technical field. Note: Any acceptance or approvals of the above submissions by the Engineer of Record shall not relieve the Contractor from responsibility for all demolition procedures and operations.

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

The Contractor shall broom clean all work site areas after the removal of excavated debris regardless of preexisting conditions. This includes areas under the excavated repair area such as abutment drainage troughs, abutment seats, pier caps, revetment areas, and bridge shielding areas.

The design and recommended construction sequences depicted on the Plans and described within these Special Provisions, present one possible sequencing of the work and method of construction.

The Contractor may choose to adopt the proposed sequences or develop an approach and propose a method to accomplish construction using a sequence other than that which is shown in the contract documents. In either instance, the Contractor must carefully study the site, the schedule restraints, and logistical requirements in relation to the selected means and methods and assure that the work can be accomplished.

In the event that the Contractor chooses to develop an alternative approach, the Contractor must re-evaluate the structure and any related appurtenances and ancillary structures for compliance with all applicable design and construction standards. Under this circumstance, the Contractor shall submit plans, detailed drawings, and calculations, which describe and evaluate these changes, to the Engineer for approval. These plans, detailed drawings, and calculations shall be in accordance with Department standards and specifications. Upon acceptance of the changes, the Contractor will be held solely responsible for design of all affected structures.

Regardless of whether the Contractor uses the recommended construction approach or proposes alternative methods, the Contractor shall submit for approval, procedures for the actual methods to be used in the work which demonstrate that the construction approach is in accordance with Department standards and specifications.

ITEM 114.11 (Continued)

All calculations, drawings and reports shall be submitted for review and approval. Calculations and drawings shall bear the seal of a Professional Engineer of the appropriate discipline registered in Massachusetts.

BASIS OF PAYMENT

Item 114.11 will be paid for at the contract unit price per Lump Sum, which prices shall include all labor, materials, equipment and incidental costs required to complete the work.

The Contractor shall make his/her own investigation of the structure to be demolished including the materials that are part of the structure. No increase will be made to the bid price due to the nature of the materials involved in the demolition. All costs for permits, dump fees, special handling of hazardous materials, etcetera, shall be included in the bid price of the demolition Item, except for those included for payment in the estimate under other items.

Removal of existing joints and materials will be paid for under Item 114.11.

MassDOT does not guarantee or represent that the bridge materials will actually coincide with any descriptions contained herein or represented on the Plans. The Contractor shall be satisfied by their own investigation and research regarding all conditions and materials affecting the work to be done.

Within ten (10) days of the Notice to Proceed, the Contractor shall submit in duplicate for approval, by the Engineer, a cost schedule for the Demolition of Superstructure Components for Bridge No. F-02-065 (3XJ). The approval of the cost schedule by the Engineer shall not be considered as a guarantee to the Contractor of the quantities assumed in developing any part of the submitted cost schedule. The schedule is only for the purposes of estimating partial payments, and it shall not affect the contract terms in any way.

No additional compensation, other than the lump sum price bid for this item, shall be made if the materials or work prove to be different than the inferred or described herein, or shown on the plans.

BASIS FOR PARTIAL PAYMENT FOR PARTIAL DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. F-02-065 (3XJ)

<u>Sub-Item No.</u>	<u>Description</u>	<u>QTY.</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
127.1	Reinforced Concrete Excavation	120	CY		
129.6	Bridge Pavement Excavation	70	SY		
594.1	Bridge Curb Removed & Discarded	150	FT		
974.3	Metal Bridge Railing Removed	140	FT		

TOTAL LUMP SUM FOR ITEM 114.11 =

ITEM 507.

GRANITE TRANSITION
CURB - SLOPED TO VERTICAL - STRAIGHT

EACH

Work under this Item shall conform to the applicable provisions of Section 500 of the Standard Specifications and the following:

The work shall consist of furnishing and installing granite transition curb stones between the sloped bridge curb and vertical granite curbing at the locations shown on the Plans and as required by the Engineer. This item shall include furnishing a six-foot-long, factory cut granite transition piece, cutting both ends and placing it at the location(s) provided in the plans. The transition stones shall be cut to match the 3-1/2" setback of the bridge curb and cut to length on the opposite end.

Incidental to this item is the disposal of the cut offs.

METHOD OF MEASUREMENT

Item 507. will be measured for payment by each vertical granite curb to sloped edging transition stone (6 foot) installed, complete and in place.

BASIS OF PAYMENT

Item 507. will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

No separate payment will be made for sawcutting the stones to length, disposing of the excess granite, sawcutting the existing pavement or concrete, but all costs in connection therewith shall be included in the Contact unit price bid.

ITEM 657.

TEMPORARY FENCE

FOOT

The work under this item shall conform to the relevant provisions of Subsection 644 of the Standard Specifications and the following:

The Contractor shall provide all labor, materials, equipment, and incidental costs required to furnish, install, maintain and remove temporary fencing to prevent pedestrians from accessing the work zone. The temporary fence shall be a pre-fabricated chain link fence, a minimum of 6 feet high and shall be self-supporting, without use of anchors installed in the bridge deck. The base shall be secured against wind by use of a concrete base or ballasted with sand bags. Individual fence segments shall be connected, such that a continuous barrier is created.

METHOD OF MEASUREMENT

Item 657. will be measured for payment by the Foot of temporary fence installed, measured from the centerline of the first post to the centerline of the last post.

BASIS OF PAYMENT

Temporary Fence will be paid for at the Contract unit price per Foot, which price shall include all labor, materials, equipment, and incidental costs required to furnish, install, maintain and remove the temporary fencing.

60% of the unit price bid for this item will be paid when the fence is furnished, installed and accepted. The remaining 40% will be paid once the temporary fence has been removed from the project site.

Temporary fence shall remain the property of the Contractor at the end of the project. No separate payment will be made for gates and locks, or to maintain (and remove when ordered) the temporary fence, but all costs in connection therewith shall be included in the Contract unit price bid for this item.

ITEM 669.1**FENCE REMOVED AND DISCARDED****FOOT**

The Work under this Item shall conform to the relevant provisions of Subsection 665 of the Standard Specifications and the following:

This work shall consist of removing and discarding existing chain link fence at locations specified on the Contract Plans and as required by the Engineer. All components of the fencing will be removed and discarded, including fence posts, rails, fence fabric, ties, concrete foundations and drive anchors. In addition, wood boards attached to the base of the fence will be removed and discarded under this item.

Incidental to this item, the Contractor shall remove and stack all signs attached to the fence being removed. Signs shall be neatly stacked and protected until they are removed from the site by the abutting property owner.

Old post holes shall be backfilled with suitable material and properly compacted.

Fence along Retaining Wall #8, at the southeast corner of the bridge, shall not be removed until the Contractor is prepared to install the new fencing. New fencing shall be installed during the same shift that the existing fencing is removed. All fencing along the retaining wall must be continuous upon the completion of each shift.

METHOD OF MEASUREMENT

Item 669.1 will be measured for payment by the Foot of existing fence removed, measured from the centerline of the first post to the centerline of the last post.

BASIS OF PAYMENT

Item 669.1 will be paid for at the Contract unit price per Foot, which shall include all labor, materials, equipment, and incidental costs required to complete the work.

All fence materials shall be legally disposed of offsite.

No separate payment will be made for removal and disposal of the fence or wood boards or for removing and stacking of signage attached to the fence, but all costs in connection therewith shall be included in the Contract unit price bid for this item.

ITEM 697.1**SILT SACK****EACH**

Work under this item shall conform to the relevant provisions of Subsections 227 and 670 of the Standard Specifications and the following:

The work under this item includes the furnishing, installation, maintenance and removal of a reusable fabric sack to be installed in drainage structures for the protection of wetlands and other resource areas and the prevention of silt and sediment from the construction site from entering the storm water collection system. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

CONSTRUCTION

Silt sacks shall be installed in retained existing catch basins and drop inlets within the project limits and as required by the Engineer.

The silt sack shall be as manufactured to fit the opening of the drainage structure under regular flow conditions, and shall be mounted under the grate. The insert shall be secured from the surface such that the grate can be removed without the insert discharging into the structure. The filter material shall be installed and maintained in accordance with the manufacturer's written literature and as directed by the Engineer.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the filter fabric will become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and disposed of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Department.

When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractors expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

All curb openings shall be blocked to prevent stormwater from bypassing the device.

All debris accumulated in silt sacks shall be handled and disposed of as specified in Subsection 227 of the Standard Specifications

COMPENSATION

Silt sacks will be measured and paid at the Contract unit price per each, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work. No separate payment will be made for removal and disposal of the sediment from the insert, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 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:

Two computer systems and printer system meeting minimum 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
	Latest Adobe Acrobat Professional with all security updates
	Latest Autodesk AutoCAD LT
	Antivirus software with all current security updates maintained through the life of the contract.
Monitors:	Two 27" LED with Full HD resolution. 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
- 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 (RADF) (not including the bypass tray)
- Automatic duplexing
- Finisher with staple functions
- Standard Ethernet. Print Controller
- Scan documents to PDF, PC and USB
- ability to print with authenticated 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 directed by the Engineer.

ITEM 811.35

PULL BOX ADJUSTED

EACH

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

The work under this Item consists of adjusting existing pull box frame & covers to the surface of the reconstructed sidewalk. Existing frame & cover castings shall be removed, adjusted to grade using brick masonry and reset on a bed of mortar.

METHOD OF MEASUREMENT

Item 811.35 will be measured for payment by the Each pull box adjusted to final grade, complete in place.

BASIS OF PAYMENT

Item 811.35 will be paid for at the Contract unit price per Each, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

The cement concrete sidewalk will be paid under Item 701.

Frame & cover castings for new pull boxes shall be set to grade under Item 811.22 and Item 811.31 and shall not be paid under this item.

ITEM 821.13 **HIGHWAY LIGHTING POLE (ANCHOR BASE)** **EACH**
10 FOOT BRACKET

The work under this item shall conform to the relevant provision of Subsection 820 of the Standard Specifications and the following:

The work under this item shall consist of furnishing and installing a new highway lighting pole and ten-foot bracket arm for a luminaire to be mounted at a height of 30 feet, as located and detailed on the Contract Plans.

All poles shall be of the same design shape; dimensionally, aesthetically, and supplied by the same manufacturer. All poles shall be in accordance with MassDOT manufacturing and submittal standards and include the following:

The pole shall consist of a single piece, round, tapered, galvanized steel shaft. The length of each pole assembly shall position the proposed luminaires at the mounting height above the finished grade as shown on the drawings.

Each pole shall include base plate, handhole, anchor bolts, galvanized pole top cap, breakaway couplings and base plate covers.

All materials required to mount the poles regardless of the mounting shall be replaced and provided by the Contractor.

1. Breakaway couplings will be provided and shall conform to all MassDOT standards and be supplied by the pole Manufacturer. When a breakaway base is used, a customized full-length galvanized base plate cover shall be provided. Breakaway couplings shall be cast iron (Triplex) not aluminum.
2. A 4 inch X 6 inch reinforced galvanized handhole shall be included and oriented 90 degrees from the luminaire. The handhole and reinforcements shall be welded to the pole shaft at 12 inches from the bottom of the pole. Internally positioned and welded securely on the opposite pole wall from the handhole, a grounding lug, complete with grounding screw shall be provided. A galvanized cover shall be provided by the Manufacturer and secured with tamper resistant, stainless steel fasteners.
3. The anchor bolts shall be manufactured using a carbon steel bar and have a 90 degree bend on one end and shall be galvanized over the entire length of the bolt. Four (4) anchor bolts with galvanized nuts and washers shall be provided for each new pole foundation required for this project. The length of the anchor bolt shall be in accordance with the recommendation of the pole Manufacturer.
4. All materials are to be galvanized after fabrication (no exceptions will be taken). Galvanizing shall meet the requirements of M7.
5. All poles are to be provided with an internal vibration-dampening device secured by means of stainless steel hardware. Actual mounting height of device shall be per the recommendations of the pole manufacturer.

ITEM 821.13 (Continued)

All lighting standards shall be set plumb, with vertical plane of arms perpendicular to the roadway centerline. The bracket arm shall be secured to the light standard shaft in accordance with manufacturer's recommendations. The bracket arm shall be oriented as shown on the Drawings.

The Contractor is required to provide all miscellaneous hardware required to install the above items, which are not noted on drawings or specification. All hardware, unless noted above, shall be stainless steel grade 316 or better.

The Contractor shall prepare and submit shop drawings of the proposed *Highway Lighting Pole (anchor base) 10 Foot Bracket* to the Engineer for review and approval. The shop drawings for the proposed *Highway Lighting Pole (anchor base) 10 Foot Bracket* shall show all dimensions, material and coating specifications and required opening details. The shop drawings must be stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

METHOD OF MEASUREMENT

Item 821.13 will be measured for payment by each highway lighting pole and ten-foot bracket arm installed, complete in place.

BASIS OF PAYMENT

Item 821.13 will be paid for at the contract unit price per each, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 823.111**HIGHWAY LIGHTING LUMINAIRE -
TYPE 3, 60F, 139W LED****EACH**

The work under this item shall conform to the relevant provisions of Subsection 820 of the Standard Specifications and the following:

The work shall include furnishing and installation of all materials necessary to provide an operational highway lighting luminaire to replace the existing luminaire at the northeast corner of the bridge. The new luminaire shall be functionally equivalent to the existing that it is replacing.

Prior to ordering any materials, the Contractor shall confirm the voltage of the existing luminaire to ensure a compatible replacement is provided. The Contractor shall coordinate with the City of Fall River prior to accessing any parts of the City's lighting system.

Submittals

Submittals for all lighting equipment shall be made in a timely fashion including photometric data, shop drawings, and reports shall employ the terminology, classifications, and methods prescribed by the IES Lighting Handbook, as applicable, for the lighting systems specified.

Manufacturer's data shall be submitted for the following:

- Luminaires, including drivers.
- Independent Testing Laboratory Photometric Data
- Lighting standards and mounting brackets.

Shop drawings shall be submitted for the following:

- Each luminaire, including fabrication and assembly drawings, bill of material.
- Lighting standards, including base details, dimensions, wind loading calculations, pole deflection and other applicable information.
- Luminaire photometric data, including isolux lines of horizontal footcandles based on required mounting height; average and minimum ratio, computerized candlepower distribution data graphically representing in polar coordinates the average vertical transverse through 75 degree lateral, coefficients of utilization curves (street and house side).

Luminaires and accessories shall be shipped securely packaged and labeled for safe handling in shipment and to avoid damage. Luminaires and accessories shall be stored in a secure area in original packaging in a manner to prevent soiling, physical damage, wetting or corrosion prior to installation.

Housing

Luminaire housing shall be fabricated from low copper content die cast 319 aluminum alloy material min. 0.100 thick. Finish shall be a 6 mil semi-gloss polyester acrylic powder coat finish to match the architects chip assembly (See Finish). Luminaire shall be UL listed for use in wet locations. All hardware to be stainless steel. Provide with four-bolt slip fitter mounts to 2" (1.675 to 2.375 " O.D.) diameter tenon luminaire. Housing shall have cooling fins to maintain LED junction temperature assuring long LED life and efficacy.

ITEM 823.111 (Continued)Optics

Optical assembly shall be full cut-off (0° lumens above 90°) The LED module shall produce an IES distribution as shown on the Drawings. LEDs shall be 4000°K CCT white and 70 CRI.

Optical system shall maintain an IP66 rating.

Electrical

The power input shall match the existing luminaire and the voltage supplied by the existing lighting system. The input power internal driver shall be field replaceable. Power supply shall have minimum power factor of .90 and <20% Total Harmonic Distortion (THD). EMC meets or exceeds FCC CFR Part 15. Transient voltage complies with ANSI C62.41 Cat. A. Integral surge protector shall comply with ANSI/IEEE C62.45 procedures based on ASNSI/IEEE C62.41.2 definitions for standard and optional waveforms for location category C (10kV/5kA).

Electrical components shall be accessed without tools and are to be mounted on removable power door. Provide with quick electrical disconnects to terminal block and LED board.

MaterialsGeneral

Ferrous mounting hardware and accessories shall be finished using a galvanic or phosphate primer and baked paint process to prevent corrosion. Finish shall match the finish of the luminaire and standard.

Luminaires shall be free of light leaks and shall be designed to provide sufficient ventilation of LEDs and drivers including vent holes where required.

Wiring channels and socket mountings shall be rigid and accurately made.

Luminaires shall be furnished complete, of the type specified herein, and shall conform to fixture dimensions shown on the drawings.

Stainless steel components, fasteners and mounting hardware shall be Type 316.

LED's shall be provided by one manufacture. Type and wattage indicated on the drawings or specified herein shall be provided.

Construction MethodsHighway Lighting Luminaires and Standards:

The Drawings show in general, the location of the roadway lighting systems. They are diagrammatic only, but shall be followed as closely as actual conditions that the site will permit.

All lighting standards shall be set plumb, with vertical plane of arms perpendicular to the roadway centerline.

ITEM 823.111 (Continued)

Poles shall be erected and secured to foundations in a manner as described herein.

The Contractor shall exercise special care in erecting light poles to insure that they are firmly secured to the concrete foundation and plumbed in accordance with the details shown on the plans. The existing light pole shall not be removed until the new light pole, luminaire and related underground conduit and wiring has been completed and tested.

The bracket arm shall be secured to the light standard shaft in accordance with manufacturer's recommendations. The bracket arm shall be oriented as shown on the Drawings.

A luminaire of the size and type indicated on the Drawings shall be installed on its respective lighting standard as shown. The luminaire shall be installed on the bracket arms with the luminaire parallel to the roadway grade. Pole and bracket cable shall be installed through the pole bracket arm and connected to the luminaire terminals. Adequate slack pole and bracket cable shall be left at the base of the pole to permit connections to the roadway lighting circuits.

Install fuse and fuse holder at base.

A handhole will be installed over the existing conduit feeding the existing light pole. New 2" diameter Type NM conduit shall be installed from the proposed handhole to the proposed light pole foundation. Included under this item is the furnishing and installation of all wiring between the luminaire and the proposed handhole, complete with all wire connectors and incidental items necessary to connect the proposed luminaire to the existing lighting system. When the Contractor is prepared to connect the proposed wiring to the existing system, the Contractor shall remove the existing light pole, break into the existing conduit at the new handhole and connect the proposed wiring to the existing.

Upon completion of the installation, an operating test shall be conducted to demonstrate that the roadway lighting systems and associated equipment operate in accordance with the requirements of this Section.

The Contractor shall demonstrate that the lighting system operates correctly in the presence of the Engineer.

Prior to acceptance, the Contractor shall operate the roadway lighting system, sunset to sunrise, for five consecutive days without interruption or failure. If a LED or driver should fail, it shall be immediately replaced. This shall not require a restart of the test. The Contractor shall record each fault, the method and date of correction of each, and the beginning and end of the five day test. After the 5-day test, the Contractor shall put the lighting control system into automatic mode and test the system in automatic mode for 7 consecutive days without interruption or failure. The Contractor shall restart the test if the system fails during the 7 days. The Contractor shall provide all labor and material to maintain and repair the system during testing. The Contractor shall provide qualified personal to repair system at night in the event of failure during darkness.

ITEM 823.111 (Continued)

METHOD OF MEASUREMENT

Item 823.11 will be measured for payment by the Each highway lighting luminaire furnished and installed, complete in place. This item shall include furnishing and installing all wiring between the luminaire and the proposed handhole over the existing conduit and all labor and materials needed to connect the new wiring to the existing lighting system, including coordination with the City.

BASIS OF PAYMENT

Item 823.11 will be paid for at the Contract unit price per Each, which price shall include all submittals, labor, materials, equipment and incidental costs required to complete the work, including all wiring.

2 Inch Electrical Conduit Type NM - Plastic (UL) will be furnished and installed under Item 804.2.

A proposed handhole will be furnished and installed over the existing conduit under Item 811.22.

A proposed Light Pole Foundation will be installed under Item 812.13.

The proposed Highway Lighting Pole will be paid under Item 821.13.

The existing luminaire, light pole and its foundation will be removed under Item 823.71.

ITEM 823.71

**HIGHWAY LIGHTING POLE AND LUMINAIRE
REMOVED AND STACKED**

EACH

The work under this item shall conform to the relevant provisions of Subsection 820 of the Standard Specifications and the following:

The work shall include removing and stacking the existing light pole and luminaire identified on the Plans, including all the equipment and labor required, and removal of the existing foundation.

The existing light pole and luminaire shall not be removed until the new light pole and luminaire have been installed. The wiring for the new luminaire shall be connected to the existing lighting system during the same shift that the existing luminaire is disconnected.

The highway Lighting Luminaire and light pole shall be carefully removed and stacked at a location specified by the City of Fall River. Should the City elect not to retain the light pole and/or the luminaire, they shall become property of the Contractor and shall be legally disposed of offsite at no additional compensation.

The foundation shall be removed to a minimum depth of 12 inches below grade, if not interfering with the proposed construction.

METHOD OF MEASUREMENT

Item 823.71 will be measured for payment by the Each highway lighting pole and luminaire removed and stacked.

BASIS OF PAYMENT

Item 823.71 will be paid for at the Contract unit price per Each, which price shall include all labor, materials, equipment, and incidental costs required to complete the work, including all coordination with the City of Fall River and delivery of materials to a location specified by the City.

Coordination with the City of Fall River, disconnection of the luminaire from the existing lighting system and removal of the existing foundation are incidental to the work to be performed under this item.

ITEM 832.

**WARNING-REGULATORY AND ROUTE
MARKER -ALUMINUM PANEL (TYPE A)**

SQUARE FOOT

The work under this Item shall conform to the relevant provisions of Subsection 828 of the Standard Specification and the following:

I2-3 Grade Separation Identification Sign shall be mounted to the concrete sidewalk/deck over the right side of the roadway. The Contractor shall install the I2-3 Grade Separation Identification Sign using a minimum of eight stainless steel concrete screws in pre-drilled holes.

METHOD OF MEASUREMENT

Item 832. will be measured for payment per Subsection 828.80 of the Standard Specifications.

BASIS OF PAYMENT

Item 832. will be paid for per Subsection 828.81 of the Standard Specifications.

No separate payment will be made for concrete screws and any incidental hardware needed to complete the installation but all costs in connection therewith shall be included in the contract unit price bid.

ITEM 853.8 **TEMPORARY ILLUMINATION FOR WORK ZONE** **DAY**

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specification and the following:

The work under this Item shall include furnishing, deploying and maintaining in proper operating condition a LED balloon diffuser lighting system. These portable light towers shall be used throughout the project area for temporary work zone lighting. The use of unshielded high wattage flood lights shall not be permitted.

The Contractor shall illuminate the following work zone areas:

- Change in direction (i.e., work zone entrances and exits, crossovers, etc.)
- Tapered areas
- Actual area where the construction is being performed

Light measurement shall be based on the illuminance method and the lighting levels shall be based on the classification of construction activity that is taking place. At no time shall the light level be below 5 fc and the uniformity shall not exceed 6:1. Task Classifications and recommended illumination levels are shown in Table 1.

TABLE 1
TASK CLASSIFICATIONS AND ILLUMINATION LEVELS

Task Classifications	Illumination Level	Average Minimum Maintained Illuminance
All work operations areas, setup of lane or road closures, lane closure tapers, and flagging stations, such as: Excavation (all types), Embankment Fill and Compaction, Reworking Shoulders, Asphalt Pavement Rolling, Subgrade, Stabilization and Construction, Base Course Rolling, Sweeping, Cleaning and Landscaping.	Level I	5 foot-candles
Areas on or around construction equipment; asphalt paving, milling, and concrete placement and/or removal, such as, Milling, Removal of Pavement, Asphalt Paving and Resurfacing, Concrete Pavement, Waterproofing and Sealing, Sidewalk Construction, Base Course Grading and Shaping, Surface Treatment, Bridge Decks, Drainage Structures and Drainage Piping, Other Concrete Structures, Barrier Wall and Traffic Separators, Guardrails and Fencing, Striping and Pavement Markings, Repair of Concrete Pavement, Highway Signs, Hole Filling and Repair of Guardrails and Fencing.	Level II	10 foot-candles
Pavement or structural crack/ pothole filling; joint repair, pavement patching and/or repairs, installation of signal/electrical/mechanical equipment, such as, Traffic Signals, Highway Lighting Systems and Crack Filling	Level III	20 foot-candles

ITEM 853.8 (Continued)

Prior to commencement of work the Contractor shall submit to MassDOT for approval a description of illumination equipment that is proposed to be used on this project, and shall include photometrics that detail the light levels that are to be provided for the particular operation for the type of equipment, level of luminance and height to be installed.

Any potential glare from the lighting system should be considered from each direction and on all approaching roadways and opposing lanes of traffic. Glare from the illumination system should be minimized as much as possible for both workers and motorists in adjacent active travel lanes. If required, the Contractor shall provide supplemental hardware, such as, visors, louvers, shields, glare screen and barrier to reduce glare in adjacent active travel lanes.

Equipment mounted lighting may be used to supplement light towers to achieve the required lighting levels for the activity involved per Table 1.

The Contractor shall allow MassDOT up to 30 calendar days for review and comment.

METHOD OF MEASUREMENT

Item 853.8 will be measured per Subsection 850.80.

BASIS OF PAYMENT

Item 853.8 will be paid per Subsection 850.81. The cost shall include all labor, materials, equipment, tools and all incidentals required for the design and installation of the work zone lighting system. This shall include, but not be limited to lighting submission preparation, wiring connections, equipment relocations, and include all material and labor incidental for a complete, functional and operational work zone illumination system.

The price of this item shall include the material and labor necessary to install any supplemental hardware required to reduce glare on all adjacent active travel lanes.

The per day price shall be full compensation for all “Temporary Illumination for Work Zone” regardless of the number of concurrent work areas, amount of equipment concurrently in use or the durations of or changes of the work shifts per day.

Furnishing, Installing, resetting, modifying and removing equipment for work zone illumination shall be incidental to Item 853.8.

ITEM 854.6**TEMPORARY PORTABLE RUMBLE STRIP****DAY**

Work under this item consists of furnishing, deploying, maintaining in proper operating conditions, and removing temporary portable rumble strips (TPRS) for temporary lane closures of 24 hours or less.

MATERIALS

The TPRS shall be 10' to 11' wide, measured perpendicular to the path of travel, 12" to 16" long, measured parallel to the path of travel, and 0.5" to 0.75" tall. All edges shall be beveled. The surfaces shall be grooved to limit potential hydroplaning.

The TPRS shall lay flat on the road surface without the use of nails, anchors, or adhesives, and shall be flexible so as to conform to the surface profile.

The TPRS shall be able to withstand vehicle weights of up to 80,000 lbs. and operate in temperatures between 0° to 120° F.

The manufacturer shall certify the TPRS to be safe for use on roads with speed limits of at least 70 mph.

TPRS that appear damaged or functioning in an unsafe manner may be order removed by the Engineer and replaced at no additional cost.

CONSTRUCTION METHODS

The TPRS shall be installed per the plans or at the discretion of the Engineer.

The Contractor shall conform to the manufacturer's specifications for installation and the following:

- A. The road surface shall be cleared of all gravel, sand, and debris.
- B. If RoadQuake 2™ model is used, the modular pieces shall be assembled into 11-foot strips per the manufacturer's instructions in advance of deployment. The interconnected segments shall form a smooth and flat, continuous section.
- C. A Truck-Mounted Attenuator, conforming to Section 850, shall be used as shadow vehicle protection during the deployment and removal of TPRS on any roadway with speeds of 45 mph or greater.
- D. TPRS shall be deployed in conjunction with all other temporary traffic control devices. MA-W28-1 (Rumble Strips Ahead) sign(s) shall be installed per the Temporary Traffic Control Plan.
- E. TPRS deployment:
 1. TPRS shall be placed perpendicular to the direction of travel, centered in the lane.
 2. Three (3) individual strips are required for a single array.
 3. Refer to the Temporary Traffic Control Plan for the location of the array respective to the lane closure.

ITEM 854.6 (Continued)

4. The spacing of the individual strips within the array shall conform to the following table:

Speed Limit	Distance Between Rumble Strips (measured center-to-center)
> 55 mph	20 feet
40 mph to 55 mph	15 feet
<40 mph	10 feet

5. The TPRS shall be placed without the use of nails, adhesives, or other methods of affixing them to the road surface.
- F. All TPRS shall be maintained in proper condition, alignment, spacing, and location throughout the duration of the lane closure, at no additional cost.
- G. The TPRS shall be removed prior to the removal of the traffic control devices used to close the travel lane.
- H. TPRS shall not be used during snow events.

METHOD OF MEASUREMENT

An array of three (3) temporary portable rumble strips is considered one (1) unit and will be measured by the day. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times the array is deployed, repositioned, or removed.

BASIS OF PAYMENT

Temporary Portable Rumble Strips will be paid for at the contract unit price per day, which shall include full compensation for furnishing, deploying, repositioning, and removing the array of three (3) individual strips as directed by the Engineer.

ITEM 859.1 **REFLECTORIZED DRUMS WITH SEQUENTIAL** **DAY**
FLASHING WARNING LIGHTS

The work under this item shall conform the relevant provisions of Subsection 850 of the Standard Specifications and the following:

Work under this Item consists of furnishing, installing, maintaining in proper operating conditions, and removing reflectorized drums, and any necessary ballast, equipped with sequential flashing warning lights.

MATERIALS

Reflectorized drums shall be listed on the MassDOT Qualified Traffic Control Equipment List.

Reflective sheeting on drums shall meet or exceed ASTM D4956 Type VIII. All drums shall be maintained in a satisfactory manner including the removal of oils, dirt, and debris that may cause reduced retroreflectivity.

The Contractor shall use one of the following sequential flashing warning light systems unless otherwise approved by the Engineer:

1. Empco-Lite LWCS.
2. pi-Lit® Sequential Barricade-Style Lamp; or
3. Unipart Dorman SynchroGUIDE.

Sequential flashing warning lights shall be secured to reflectorized drums per the light manufacturer's specifications.

CONSTRUCTION METHODS

The first ten (10) drums in any merging or shifting taper as designated in the Temporary Traffic Control Plan shall be equipped with sequential flashing warning lights. These lights shall be operating, at a minimum, between dusk and dawn when the taper is deployed.

The successive flashing of the sequential warning lights shall occur from the upstream end of the merging or shifting taper to the downstream end of the taper in order to identify the desired vehicle path. Each warning light in the sequence shall be flashed at a rate of not less than 55, nor more than 75 times per minute.

Warning lights shall be powered off when drums are not deployed in a taper.

ITEM 859.1 (Continued)

METHOD OF MEASUREMENT

A group of ten (10) reflectorized drums with sequential flashing warning lights is considered one (1) unit and will be measured by the Day. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times that the drums are positioned, repositioned, removed, or returned to service.

BASIS OF PAYMENT

Reflectorized Drums with Sequential Flashing Warning Lights will be paid for at the contract unit price per day, which shall include full compensation for furnishing, positioning, repositioning, and removing the group of ten (10) drums as directed by the Engineer.

<u>ITEM 862.506</u>	<u>6-IN. RECESSED WHITE LINE (MC, FD, WR)</u>	<u>FOOT</u>
<u>ITEM 862.512</u>	<u>12-IN. RECESSED WHITE LINE (MC, FD, WR)</u>	<u>FOOT</u>
<u>ITEM 863.506</u>	<u>6-IN. RECESSED YELLOW LINE (MC, FD, WR)</u>	<u>FOOT</u>
<u>ITEM 863.512</u>	<u>12-IN. RECESSED YELLOW LINE (MC, FD, WR)</u>	<u>FOOT</u>

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

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

MATERIALS

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

Classification of dry time is based upon the results of the test procedures found in ASTM D711 (73.5 ± 3.5°F at 50 ± 5% relative humidity) when applied with glass beads. MC Ultra-Fast Dry (MC, UFD) pavement markings shall have a no track time of 3 minutes or less. MC Fast Dry (MC, FD) pavement markings shall have a no track time of 10 minutes or less. MC Standard Dry (MC, SD) pavement markings shall have a no track time of 45 minutes or less. The Contractor shall provide a Certificate of Compliance verifying the product supplied meets the specified dry time requirements per ASTM D711 prior to installation.

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

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

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

ITEMS 862.506, 862.512, 863.506, and 863.512 (Continued)

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

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

CONSTRUCTION METHODS

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

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

Recessing of markings shall be per Subsection 860.65: Recessed Markings.

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

The minimum uniform wet thickness for the MC binder shall be 20 mils but should be increased if recommended by the manufacturer. The line thickness shall be met across at least the middle $\frac{2}{3}$ of the pavement marking width. Wet mil thickness gauges shall be provided by the Contractor to the Engineer to assure that desired thickness is achieved.

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

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

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

ITEMS 862.506, 862.512, 863.506, and 863.512 (Continued)

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

Once the installed pavement markings have been open for traffic for a minimum of 7 days, the Contractor shall perform retro-reflectance readings per the measurement and sampling procedures contained in ASTM D7585 (Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments) using the Referee Evaluation Protocol found in section 6.4, and the testing procedures shall follow ASTM E1710 (*Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retro-reflectometer*) and ASTM E2177 (*Standard Test Method for Measuring the Coefficient of Retroreflected Luminance (R_L) of Pavement Markings in a Standard Condition of Wetness*).

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

Test Method	*White Markings	*Yellow Markings
ASTM E1710 (Dry)	475 mcd/lux/m ²	375 mcd/lux/m ²
ASTM E2177 (Wet Recovery)	375 mcd/lux/m ²	300 mcd/lux/m ²

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

Pavement markings with measured average initial retro-reflectance readings that do not meet the specified minimum values using the procedures outlined in subsection 6.4.5 of ASTM D7585 shall be removed by a method approved by the Engineer and reapplied at no additional cost, unless otherwise approved by the Engineer.

METHOD OF MEASUREMENT

Items 862.506, 862.512, 863.506 and 863.512 will be measured for payment by the foot of Recessed Multi-Component (MC), Fast Drying (FD), Wet Reflective (WR) Pavement Markings installed, complete in place.

BASIS OF PAYMENT

Items 862.506, 862.512, 863.506 and 863.512 will be paid for at the respective contract unit prices per foot, which prices shall include all material, labor, and equipment required or incidental to the satisfactory completion of the work.

ITEM 864.11
ITEM 864.13

LEGENDS (PF)
ARROWS (PF)

EACH
EACH

The work under these Items shall conform to the relevant provisions of Subsection 860 of the Standard Specifications and the following:

The work under these items consists of furnishing and installing pavement marking arrows, symbols, and legends at the locations shown on the plans or as directed by the Engineer.

MATERIALS

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

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

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

Item (Type)	Typical Applications
864.11 (Legends)	Legends, typically 8 ft tall, that fit laterally within a single lane (e.g. "ONLY," "BUS," "YIELD")
864.13 (Arrows)	Lane Use Arrows; Lane Use Arrows for Roundabouts

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

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

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

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

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

ITEMS 864.11 and 864.13 (Continued)**CONSTRUCTION METHODS**

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

It shall be the responsibility of the Contractor to prepare the surface prior to the installation of any Preformed Markings for Legends, Symbols, and Arrows. Any joints or cracks in the pavement shall be pre-treated per the manufacturer's recommendation. At larger cracks or joints the material shall be laid over the gap and off-cut 1 in. on each side of the crack or joint prior to installation. The surface shall be clean and dry prior to installation of the system. If additional surface preparation is recommended by the manufacturer, such as the installation of a primer or preheating, it shall be completed per the manufacturer's specifications. All surface preparation shall be considered incidental to the cost of the item.

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

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

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

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

METHOD OF MEASUREMENT

Items 864.11 and 864.13 will be measured for payment by EACH Preformed Markings for Legends, Symbols, and Arrows installed, complete in place.

BASIS OF PAYMENT

Items 864.11 and 864.13 will be paid for at the respective contract unit price per EACH, which prices shall include all material, labor, equipment, and incidental costs required to complete the work.

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

The work under this Item shall conform to the relevant provisions of Subsections 828 and 840 of the Standard Specifications and the following:

The Contractor shall carefully remove all existing signs, attachment hardware and sign support posts as shown on the drawings and as directed by the Engineer. Existing foundations shall be removed to a depth of at least 6 inches below the existing ground and the holes backfilled with gravel. The surface shall be patched with material to match the existing ground or as required by the Engineer.

Signs shall be satisfactorily stored and protected until reset in the proposed work. Sign support posts and hardware shall be disposed of in a satisfactory manner. New sign support posts and hardware shall be provided.

Signs lost, damaged or otherwise made unsuitable for reuse by the Contractor's operations shall be replaced by the Contractor with new material at no additional compensation. New attachment hardware and posts shall be furnished and installed as necessary to replace existing hardware.

The sign shall be mounted in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) and the 1990 Standard Drawings for Signs and Supports. Sign panels shall be cleaned before being reset.

METHOD OF MEASUREMENT

Item 874.2 will be measured for payment by EACH traffic sign removed and reset, complete in place.

BASIS OF PAYMENT

Item 874.2 will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

No separate payment will be made for dismantling, storing and resetting of the signs as designated above, the excavation and disposal of the existing foundation, the supplying and placing of compacted gravel backfill where foundations and posts are removed and the patching of the existing surface and area restoration, replacement posts and hardware but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 961.2**CLEAN (FULL REMOVAL) AND PAINT
STRUCTURAL STEEL****SQUARE FOOT**

The work under this Item shall conform to the relevant provisions of Subsections 961 of the Standard Specifications, and the following:

This work shall consist of cleaning and painting all exposed structural steel at Beam No. 15 & 16, which shall include, but is not limited to, the beams, diaphragms, utility supports, connection plates/angles and bearings.

Work under Item 961.2 shall include the cleaning and painting of all exposed steel within the limits approved by the Engineer. The Engineer and Contractor shall agree on a square foot area to be paid prior to the start of the work.

Steel repairs and/or installation of new structural steel, required by the Engineer, shall be completed before steel surfaces receive the intermediate and topcoat applications. The Contractor shall clean and prime the steel prior to any structural steel repairs required by the Engineer, which will be paid under Item 107.18.

The paint color shall be Federal Standard 595B Color No. 15050 (Blue).

CONSTRUCTION METHODS**Pigeon Waste/Debris Removal & Cleaning**

The Contractor shall first remove all accumulation of sediment, debris, and pigeon waste from the areas where work is being performed as directed by the Engineer which may include but is not limited to tops of abutment bridge seats (including drainage troughs), pier caps, steel members.

The Contractor shall clean all exposed surfaces of abutment seats and pier caps by power washing with water pressure not less than 2200 psi, at nozzle, and flow rate not less than 2.0 gallons of water per minute to the acceptance of the Engineer. All costs of cleaning abutment seats and pier caps, including debris collection and removal, disposal and pressure washing, shall be considered incidental to this Item.

Structural Steel Inspection

The Contractor shall notify the Engineer if significant amount of section loss is found on the structural steel during the cleaning and blasting process. If requested by the Engineer, the Contractor shall provide the access and time window to the Engineer to inspect and document the structural steel section loss after the cleaning and blasting operation.

ITEM 961.2 (Continued)**Overcoat**

The Contractor shall over-coat by six (6) inches beyond the limits established with the final coat of the three-coat system. The over-coated surfaces must be surface prepared in accordance with the manufacturer's specifications to ensure a proper bond of the new paint to the existing paint. The Contractor should note that some areas may have been painted with previously approved paint systems or with just shop primer on them. The removal of debris, cleaning and overcoating in this area shall be incidental to this Item.

METHOD OF MEASUREMENT

Item 961.2 will be measured for payment by the Square Foot of structural steel cleaned and painted.

BASIS OF PAYMENT

Item 961.2 will be paid for at the contract unit price per Square Foot, which price shall include all labor, materials, equipment, design and installation of the required containment system/work platform, temporary removal and resetting the anti-missile fencing to access the steel for painting, and all incidental costs required to complete the work.

The Contractor is responsible to sequence and steel repair work and painting, payment will not be made to paint the same area multiple times due to the Contractor's sequence of work.

The cleaning and removal of any accumulated materials in the areas to be cleaned and painted shall be incidental to this Item.

New vertical projections from additional steel thickness of repair plates, bolts and nuts will not be measured for payment but will be incidental to Item 961.2.

SPECIAL NOTES REGARDING PREVAILING WAGE REQUIREMENTS

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 971.2

MODIFIED ASPHALTIC BRIDGE JOINT SYSTEM

FOOT

The work under this Item shall conform to the relevant provisions of Subsection 971, as modified below and as follows.

The work under this Item shall include preparation and installation of a multi-component joint system. The work under this Item differs from the requirements contained in Subsection 971 as follows:

1. A pre-compressed seal joint system shall be used in place of the backer rod.
2. An air gap between the binder and pre-compressed seal shall be maintained through the section at the roadway.
3. A non-woven fabric material shall be used in place of the bridge plate.

Incidental to this Item shall be the placement of a pre-compressed seal joint system and non-sag joint sealer above the pre-compressed seal through the sidewalk, including installation of a factory 90-degree seal transition through the curbing on the west side of the roadway.

At locations where the seal is exposed on a sidewalk a non-sag joint sealer shall be installed over the width of the pre-compressed seal itself flush with the top of sidewalk.

MATERIALS

ASPHALTIC BINDER, COMPACTED AGGREGATE, AND NON-SAG JOINT SEALER

Materials for the Asphaltic Binder and Aggregate for the Modified Asphaltic Bridge Joint System shall meet the requirements specified in the following Subsections of Division III, Materials:

Polyurethane Joint Sealer, Non-Sag.....	M9.14.4
Asphaltic Binder for Asphaltic Bridge Joint System	M9.17.0
Aggregate for Asphaltic Bridge Joint System.....	M9.17.1

PRE-COMPRESSED SEAL JOINT SYSTEM

The pre-compressed seal joint system assembly shall consist of a preformed/pre-compressed seal epoxy adhesive, injected silicone sealant bands, all combined in manner required by the manufacturer’s specification and to form a continuous watertight seal.

The materials comprising the pre-compressed seal joint system shall be capable of accommodating minimum movements of +50%, -50% (Total 100%) of nominal material size.

Depth and installation of seal shall be as recommended by manufacturer.

ITEM 971.2 (Continued)

The preformed, pre-compressed, self-expanding, sealant system with silicon pre-coated surface shall be comprised of three components:

- 1) cellular polyurethane foam impregnated with hydrophobic 100% acrylic (to be certified in writing by independent laboratory tested FTIR and DSC analysis to be free in composition of any waxes or wax compounds), water based emulsion, factory coated with highway-grade, fuel resistant silicone;
- 2) field-applied epoxy adhesive primer;
- 3) field-injected silicone sealant bands.

Impregnation agent is to have proven non-migratory characteristics. Silicone coating to be highway-grade, low-modulus, fuel resistant silicone applied to the impregnated foam sealant at a width greater than maximum allowable joint extension and which when cured and compressed will form a bellow. Size of the seal shall be as recommended by manufacturer for the specific location and may vary along the length of the joint. The foam seal shall be installed into manufacturer's standard field-applied epoxy adhesive. The seal system is to be recessed from the deck surface such that after the field applied injection band of silicone is installed between the substrates and the foam, the highest part of the pre-applied silicone facing will be below the deck surface.

Changes in plane and direction at locations, such as gutter line and face of barriers, shall be executed using factory-fabricated "universal 90" or custom transition assemblies supplied by the manufacturer of the pre-compressed seal. Transitions shall be warranted to be watertight at inside and outside corners through the full movement capabilities of the product.

The Contractor shall certify in writing that the expansion joint seal system is capable of withstanding 150°F for three hours while compressed down to the minimum of movement capability dimension of the basis of design product (-50 percent of nominal material size) without evidence of any bleeding of impregnation medium from the material, and that the same material after the heat stability test will self-expand to the maximum of movement capability dimension of the basis-of-design product (+50 percent of nominal material size) within 24 hours at room temperature 68°F.

The Contractor shall submit measurements of the existing joint opening at a given temperature for determination of the required nominal joint seal size.

All material for the pre-compressed joint seal system shall be stored indoors, in a dry area out of direct sunlight at room temperature.

ITEM 971.2 (Continued)**BRIDGING MATERIALS**

The bridging material shall be a nonwoven fabric compatible with paving operations.

The Contractor shall use one of the following products unless otherwise approved by the Engineer:

1. Mirafi MPV500 Paving Fabric manufactured by Tencate Mirafi Geosynthetics
2. TerraTex OLI manufactured by Hanes Geo Component
3. US 100 P manufactured by USFabrics
4. FX42A/O manufactured by Carthage Mills
5. Or approved equal meeting the material requirements below.

Property	Test Method	Minimum Value
Grab Tensile Strength	ASTM D-4632	100 lbs
Grab Tensile Elongation	ASTM D-4632	50%
Asphalt Retention	ASTM D-4160	0.20 gal / SY
Melting Point	ASTM D-276	300° F
UV Resistance @ 500 Hours	ASTM D-4355	70%

ANTI-TACKING MATERIAL

The anti-tacking material shall be a fine graded granular material with 100% passing the 3/16" sieve and no more than 5% passing the #200 when tested in accordance with AASHTO T-27.

CONSTRUCTION METHODS

Any existing joint removal, deck reconstruction and wearing surface placement shall take place in advance of the new joint installation. Any existing concrete to remain below the joint shall be inspected for signs of deterioration. If necessary deteriorated sections of concrete and steel shall be repaired as directed by the Engineer and shall be paid under separate Item(s).

Prior to the start of the asphalt pavement operation, the Contractor shall place a marks on each curb or barrier on either side of the paved roadway. These marks shall be aligned with the proposed edges of the bridge joint, based on the joint opening, and shall be placed so that they will not be covered or otherwise obscured by the asphalt pavement. A 19 inch strip of roofing felt shall be centered over the joint location prior to the placement of any waterproofing membrane or asphalt pavement.

Any membrane waterproofing and wearing surface shall be placed uniformly across the deck and joint locations.

ITEM 971.2 (Continued)

After the completion of the paving operation, the Contractor shall snap a straight chalk line on the pavement between these marks. The Contractor shall then saw cut the pavement along this line and the wearing surface and membrane waterproofing shall be removed within the limits of the proposed joint system.

The Contractor shall protect the blockout from damage by equipment and construction operations. If the entire length of the joint system cannot be installed in the same shift, a bond breaker (such as tar paper) shall be placed in the blockout and the blockout filled with compacted hot mix asphalt. When the joint system is to be installed the HMA and bond breaker shall be removed, and the block cleaned.

Prior to installation of the joint system, the joint opening should be sandblasted to a CSP of 3-6 and blown clean using compressed air. The compressed air shall be free of moisture and oil. To ensure cleanliness, the joint walls shall be wiped clean with a solvent-dampened, lint-free rag to the depth of the bottom of the pre-compressed seal material plus one inch (1") to remove any dust remaining. The joint gap shall be inspected for cleanliness by The Engineer. Should any contaminates remain, the joint must be re-cleaned.

The pre-compressed seal, epoxy adhesive, and injected silicone sealant band shall be installed in accordance with the contract drawings. The pre-compressed seal joint system shall be continuous through median barriers, and parapets. Continuity of seal shall be achieved through the use of factory-fabricated universal or custom transitions supplied by the pre-compressed joint seal manufacturer. Install silicone corner beads and silicone band forced down alongside of pre-compressed seal on both sides.

The bridging material shall only be installed after the materials of the pre-compressed seal joint are fully cured and set for at least thirty (30) minutes.

Place tack coat, binder or primer (as specified by the manufacturer) on deck surfaces and install bridging material in accordance with the manufacturer's recommendations. There shall be no joints or laps in the paving fabric material.

The minimum ambient air temperature shall be 40°F and rising during any installation of the joint components.

Following the completion of the installation of the binder, the finished joint shall be dusted with anti-tacking material. Non-sag joint sealer shall be applied in sidewalk, median and barrier joints where applicable.

The Contractor shall be responsible for removing all binder material that leaks through the joint and is deposited on any bridge component, including underside of decks, headers, beams, diaphragms, bearings, abutments, and piers.

ITEM 971.2 (Continued)**QUALITY CONTROL****MANUFACTURER'S FIELD REPRESENTATIVE**

The Contractor shall arrange with the pre-compressed seal joint system's manufacturer or distributor to have the services of a competent field representative at the work site prior to any installation to instruct the work crews in the proper installation procedures. The field representative shall remain at the job site after work commences and continue to instruct until the representative and the Contractor, Inspector and/or Engineer are satisfied that the crew has mastered the technique of installing the system successfully. The representative shall make periodic visits to the project as the work progresses and shall confer on each visit with the Contractor, Inspector and/or Engineer.

A qualified employee of the asphaltic binder manufacturer or an installer certified by the manufacturer and approved by the Department shall be at the job site prior to the beginning of the joint construction process to instruct the work crews in proper joint construction procedures and shall remain on the job site for the duration of the installation of the asphaltic material.

The manufacturer's field representatives must be fully qualified to perform the work and shall be subject to the approval of the Engineer.

The Contractor shall be completely responsible for the expense of the service of the required field representatives and the bid contract price shall be full compensation for all costs in connection therewith.

QUALITY CONTROL PLAN

The Contractor shall submit a Quality Control Plan at least 30 days before the start of work to the Engineer for approval.

The submittal shall include:

- The qualifications of the installer.
- List of manufactured materials and their properties
- Material Certificates and Certificates of Compliance for the asphalt binder, aggregate and pre-compressed seal joint.
- Detailed step by step installation procedure
- List of the specific equipment to be used for the installation.

The Quality Control Plan must fully comply with the specifications and address all anticipated field conditions, including periods of inclement weather. The Contractor's QC personnel will perform Quality Control inspection and testing of polymeric modified asphalt binder heating, blending, placement, compaction, and finishing.

The Installer shall have previously demonstrated the ability to have successfully produced a joint of similar nature and shall provide documentation of a working joint to the Department.

ITEM 971.2 (Continued)

The Contractor shall provide a daily field QC Inspection Report to the Engineer within 48 hours of the work. The report shall include at a minimum the weather conditions during installation, material temperature, materials details, and pictures (or videos) of each step from preparation to open to traffic.

METHOD OF MEASUREMENT

Item 971.2 will be measured for payment by the Foot, as measured along the joint centerline between curb lines, complete in place.

The joint treatment at the safety curb, sidewalk, median and barriers shall be considered incidental to the work done under this Item.

BASIS OF PAYMENT

Item 971.2 will be paid for at the Contract unit price per Foot, which price shall include all labor, material, equipment, manufacturer's representative, and all incidental costs required to complete the work.

Removal of existing joints and materials will be paid for separately under Item 114.11.

ITEM 992.11**ALTERATION TO BRIDGE STRUCTURE**
NO. F-02-065 (3XJ)**LUMP SUM**

The work to be done under this Item shall conform to the relevant provisions of Subsection 995 of the Standard Specifications and the specific requirements stipulated for component parts of Item 992.11. For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply, except for payment.

DESCRIPTION

The work includes installing/removing formwork, placing and finishing cement concrete; furnishing and placing steel reinforcing; furnishing and installing S3-MTL4 Bridge Railing with Type I Protective Screen; membrane waterproofing for bridge decks; and other work not specified elsewhere for payment as shown on the plans for Bridge No. F-02-065 (3XJ), located in Fall River, Massachusetts.

Payment for materials shown on the Plans as being part of this alteration to bridge structure or which may be incidental to its construction and are not specifically included for payment under another Item shall be considered incidental to the work performed under this Item and shall be included in the unit price of the component of which they are a part.

This Item includes all materials and labor necessary to complete the work in accordance with the schedules listed hereinafter under Basis for Partial Payments and all other Items that are part of the work for which payment is not provided in the proposal.

Work under Item 992.11 shall include all materials, equipment and labor needed to construct the following:

- 5000 PSI ¾ Inch, 685 HP Cement Concrete for construction of the bridge deck, sidewalk, backwall, curtain wall and Highway Guardrail Transitions;
- Steel Reinforcement for Structures – (Epoxy Coated);
- Deck drains;
- Membrane Waterproofing for Bridge Deck Repairs;
- Metal Bridge Railing (3 Rail), Steel (Type S3-MTL4); and
- Protective Screen Type I.

ITEM 992.11 (Continued)**5000 PSI, ¾ INCH, 685 HP CEMENT CONCRETE**

The 5000 PSI, ¾ Inch, 685 HP Cement Concrete under this heading shall be used for the concrete deck, sidewalk, backwall, curtain wall and Highway Guard Transitions. 5000 PSI, ¾ IN., 685 HP Cement Concrete shall conform to all material and placement, finishing, and curing requirements of the Standard Specifications, except for the cementitious content which shall be limited to a maximum of 685 pounds per cubic yard. Removable forms shall be used; stay-in-place forms are not allowed for this project. Incidental to the work under this heading is the preparation and sealing of paraffin joints between sidewalk pours, per the contract details. Excavation for the Highway Guard Transitions will be paid under Item 120.1 Unclassified Excavation.

Placement of New Concrete

Before placing new concrete, the existing surface must be cleaned with oil-free compressed air. After the surface preparation has been accepted, every effort should be made to thoroughly wet the concrete surface, and all porous surfaces to be in contact with new concrete, for 12 hours. This may be accomplished by continuous wetting with soaker hoses or the use of burlap/burlene, etc. where moisture can be maintained. If, in the opinion of the Engineer, conditions or the situation prohibits this, then the surfaces should be wetted for as long as possible. Surfaces must be wetted by a means acceptable to the Engineer using potable water.

The Contractor shall remove any puddles of free-standing water with oil-free compressed air, and protect the surfaces from drying, so the existing concrete remains in a clean, saturated surface dry condition until placement of the new concrete.

The Contractor shall take all steps necessary to ensure that pedestrian and vehicular traffic is always protected from harm.

No separate payment will be made for this concrete placement preparation work.

Deck Drains

Deck drains are considered incidental to the work under this heading. The Contractor shall furnish all materials, including ¾" Schedule 40 P.V.C. drainage pipe and fittings, 23-gauge, 1/8" Galvanized screen mesh, tar mastic and non-welded conduit clamps, and labor necessary to provide deck drains as detailed in the contract plans.

Deck drains shall be recessed ½" below the surface of the concrete deck, as detailed in the Plans.

All P.V.C. drainage pipe shall be connected to the existing structural steel using steel conduit clamps. Welding to the structural steel will now be allowed.

Waterproofing membrane will be sealed around the deck drain openings with tar mastic compatible with the waterproofing membrane material.

ITEM 992.11 (Continued)**STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED**

The work under this heading shall conform to relevant provisions of Subsection 901 and conform to Materials Specification M8.01.7 Epoxy Coated Reinforcing Bars.

All modifications to the existing structure necessary to place the proposed reinforcing as shown on the contract plans shall be considered incidental to this item.

MEMBRANE WATERPROOFING FOR BRIDGE DECK REPAIRS

The work under this heading shall conform to relevant provisions of Subsection 966 and conform to Materials Specification M9.08.2 Sheet Membrane. Spray applied waterproofing membrane shall not be permitted.

All modifications to the existing structure necessary to place the waterproofing membrane, including carefully retaining a minimum lap distance with the existing membrane to be retained, as shown on the contract plans shall be considered incidental to this item.

METAL BRIDGE RAILING (3 RAIL), STEEL (TYPE S3-MTL4) & PROTECTIVE SCREEN TYPE I

The work under these headings shall conform to relevant provisions of Subsection 975.

The proposed Metal Bridge Railing and Protective Screen shall be painted Federal Standard 595B Color No. 15050 (Blue).

The proposed fence at the southeast corner of the bridge and the existing fence along the retaining wall at the northeast corner of the bridge shall be connected to the first/last post of the protective screen, without a gap exceeding two inches. The fence will be connected to the protective screen using standard fence materials to provide a continuous barrier from I-195. Fence that is not a part of the Type I Protective Screen will be paid under Item 645.072 72 INCH CHAIN LINK FENCE (PIPE TOP RAIL) (LINE POST OPTION).

SCHEDULE OF BASIS FOR PARTIAL PAYMENT

Within ten (10) days after the Notice to Proceed, the Contractor shall submit their proposal form, a schedule of unit prices for the major component Sub-Items that make up Item 992.11 as well as their total bridge structure Lump Sum cost for Bridge Structure No. F-02-065 (3XJ). The bridge structure Lump Sum breakdown quantities provided in the proposal form are estimated and not guaranteed. The total of all partial payments to the Contractor shall equal the Lump Sum contract price regardless of the accuracy of the quantities furnished by the Engineer for the individual bridge components. The cost of labor and materials for any Item not listed but required to complete the work shall be considered incidental to Item 992.11 and no further compensation will be allowed.

ITEM 992.11 (Continued)

The schedule on the proposal form applies only to Bridge Structure No. F-02-065 (3XJ). Payment for similar materials and construction at locations other than at this bridge structure shall not be included under this Item. Sub-Item numbering is presented for information only in coordination with MassDOT Standard Nomenclature.

BASIS FOR PARTIAL PAYMENT FOR BRIDGE NO. F-02-065 (3XJ)

<u>Sub-Item No.</u>	<u>Description</u>	<u>QTY.</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>TOTAL</u>
904.3	5000 PSI, ¾ Inch, 685 HP Cement Concrete	90	CY		
910.1	Steel Reinforcement for Structures – Epoxy Coated	20900	LB		
966.	Membrane Waterproofing for Bridge Deck Repairs	335	SF		
975.1	Metal Bridge Railing (3 Rail), Steel (Type S3-MTL4)	160	FT		
975.3	Protective Screen Type I	150	FT		

TOTAL LUMP SUM FOR ITEM 992.11 =

ITEM 994.1 TEMPORARY PROTECTIVE SHIELDING SQUARE FOOT

The work under this item consists of furnishing, maintaining, removing and disposing of a shielding system on and under the bridge in locations required by the Engineer.

The temporary shielding system shall provide for the protection of traffic, persons and facilities on the roadway beneath bridges, and utilities carried on the bridge, from falling debris during the removal of concrete from bridge decks, parapets, copings and sidewalks. This shall be accomplished by the utilization of adequate shielding methods.

No portion of the bridge deck shall be removed until the protective shielding is in place and complete.

Any existing formwork on the bridge shall also be removed and legally disposed of by the Contractor, at no additional expense.

Any equipment necessary to erect the shielding will be considered incidental to this item.

All shielding shall meet the following requirements:

1. Temporary Protective Shielding must be used on bridges over roadways, railroads, and waterways during full depth excavation and when, in the opinion of the Engineer, there is the possibility of dislodging concrete from the bottom of the deck, parapets or coping. In some cases, the Contractor may be able to utilize the bottom flanges of existing beams as supports for the protective shielding. However, the Contractor will not be permitted to weld onto, drill into, or cut any existing structural beams.
2. The Contractor shall submit drawings and calculations stamped by a Professional Engineer of the appropriate discipline registered in Massachusetts of the proposed temporary shielding to the Engineer for approval prior to its installation. The drawings shall include details of all connections, brackets, and fasteners.
3. Shielding shall be designed to safely withstand all loads that it will be subjected to. The allowable design stresses shall be in accordance with AASHTO Standard Specifications for Highway Bridges, 17th Edition. The design shall also include a description of the equipment and construction methods proposed for the deck, parapet, or coping excavation and the maximum size of the area being excavated. The shielding shall also be designed to withstand the maximum size of the excavated area should it fall during excavation or removal. No debris shall be swung over traffic, on or below the bridge.
4. Shielding shall be designed such that impact on traffic during installation and removal shall be minimal. The Contractor shall submit the traffic plan to the Engineer for approval.
5. The shielding shall extend a sufficient distance above and beyond the deck overhang at the fascia where concrete excavation is required outside the fascia beams. The shielding shall extend the length of the superstructure.
6. The area for shielding shall be approved by the Engineer prior to any installation of any shielding. The Contractor may utilize the bottom flanges of existing beams as supports for the protective shielding. However, the Contractor will not be permitted to weld onto, drill into, or cut any existing structural beams. All spaces along the perimeter of the shielding and at the seams shall be sealed to prevent dust, water, and debris from escaping and falling onto traffic below the bridge.

ITEM 994.1 (Continued)

7. The Engineer may request that the shielding be designed so that it may also serve as false work (forms) for all areas of full-depth concrete replacement/repair.
8. The shielding shall not decrease the minimum vertical bridge clearance to the roadway unless otherwise approved by the Engineer.
9. The shielding shall be maintained and remain in place until the strength of the concrete used to repair the deck has cured and reached the design strength requirement, except where shielding needs to be removed and reset to install formwork for the areas of full depth repair. The shielding shall remain the property of the Contractor and shall be removed by the Contractor from the site when no longer needed.

If the Contractor's operations damage any existing portions of the bridge that are to remain, such damage shall be repaired at the Contractor's own expense.

All materials used in the temporary shielding system shall become the property of the Contractor and shall be removed from the site upon the completion of the project.

Existing temporary shielding shall be removed and stacked prior to commencement of any reinforced concrete excavation work and replaced with temporary protective shielding under this item. Removal and stacking of existing shielding shall be incidental to this item.

METHOD OF MEASUREMENT

Item 994.1 will be measured for payment by the Square Foot of shielding installed, maintained and removed upon completion of the work, as required by the Engineer.

BASIS OF PAYMENT

Item 994.1 will be paid at the Contract unit price per Square Foot, which price shall include all labor, materials, equipment, engineering services, submittals, and all incidental costs required to complete the work including shielding installed, maintained, and removed upon completion of repair work as required by the Engineer, including removal and stacking of any existing shielding.

The Contract price shall include removal and disposal of debris not paid under other items, removal and disposal of debris generated by excavation of concrete will be paid under the applicable items, Item 114.11.

60% of the Unit bid Price will be paid upon installation of the shielding and the remaining 40% will be paid upon complete removal.

END OF DOCUMENT
