

DOCUMENT A00801

SPECIAL PROVISIONS**DISTRICT 4****Scheduled & Emergency Drainage Repairs and Improvements at Various Locations**

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

SCOPE OF WORK

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

The work to be done under this contract consists of drainage related repairs performed on drainage systems under the control of District 4 and includes:

- Adjusting & rebuilding of drainage structures.
- Installation of drainage pipes and structures.
- Repairing of drainage outlets and systems.
- Removing and resetting curb, edging, curb corners, and curb inlets of every type.
- Furnishing and setting curb, curb inlets, curb corners, and edging and HMA curbs and berms.
- Repair of roadways and embankments and washout areas as directed.
- Repair and construction of concrete headwalls, wing-walls and culverts.
- Providing and maintaining temporary erosion controls.
- Other incidental work to complete the above work.

All work shall be performed within, and accessed by, existing State, City or Town roadway layouts. No rights to enter upon, or occupy, private property have been acquired for this project. Fence work shall be performed from the MassDOT owned side of fence to the greatest extent possible.

Work may be required regardless of the weather conditions, at the discretion of the Engineer.

LOCATION OF WORK

Work under this contract will be required on any or all state highways and roadways within District Four. Work locations will be within the limits of District Four on various roadways as assigned by the Engineer. The following web link provides the cities and towns under the jurisdiction of District Four:

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

MassDOT - Highway Division reserves the right to add additional roadways or locations throughout the duration of this contract. Locations will be determined by the Engineer.

CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGMENTS

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 acknowledgments to the following email address massdotSpecifications@dot.state.ma.us The MassDOT project file number and municipality is to be placed in the subject line.

ACCESS MASSDOT HIGHWAY INFORMATION ON WEBSITE

Access MassDOT Highway Information related to Construction, Design/Engineering, Contractor/Vendor Information, Approved Materials and Fabricators, Manuals, Publications and Forms at:

<https://www.mass.gov/orgs/highway-division>

WORK SCHEDULE

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

Work is restricted to a normal 8-hour day, 5-day week, with the Prime Contractor and all Subcontractors working on the same shift. No work shall be done on Saturdays, Sundays, holidays, or the day before or after a holiday without prior approval of the Engineer.

Allowable work hours for specific locations will be determined by the District Highway Director or his/her representative. On high volume and/or high-speed roadways, work may be restricted to non-peak hours or night work as directed by the Engineer to avoid peak traffic volumes in order to maintain safety and productivity.

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

The Contractor may schedule night shifts longer than 8-hours with approval of the Engineer. No additional compensation will be made for work scheduled during nighttime hours.

CONTRACTOR NOTIFICATION

Scheduled Work

The Contractor will be notified of scheduled work by either a written or electronic Work Order. The work order will identify the location and a detailed scope of work for the assignment. This work shall be scheduled and commence on site within Five (5) days of notification by the Department.

MassDOT may also direct that scheduled or routine assignments shall commence on a particular date and time. If the Contractor has not reported and started work within 4 hours of the time expected, a non-response damages will be assessed to the contractor.

Emergency Work

Since it may be necessary for the Contractor to respond to emergency situations where immediate response is necessary, the Contractor is required to provide to MassDOT the name(s) and telephone number(s) of a person or persons who can be contacted 24 hours a day for the contract's duration, and who has the authority to provide whatever labor, materials, and equipment that may be necessary to address the emergency.

The Contractor will be notified of emergency work that **REQUIRES IMMEDIATE ATTENTION** by verbal *and* written/electronic Work Order. The work order will identify the location of the work, the scope of the work and details the Engineer's expectations. The Work Order will also identify lane closure(s) required.

CONTRACTOR NOTIFICATION (Continued)

The Contractor will be notified of emergency work that REQUIRES IMMEDIATE ATTENTION by verbal *and* written/electronic Work Order. The work order will identify the location of the work, the scope of the work and details the Engineer's expectations. The Work Order will also identify lane closure(s) required.

The Contractor will be required to commence this emergency work on site within Four (4) hours, unless otherwise directed, after notification by the Department.

NON-RESPONSE DAMAGES

(Supplementing Subsection 8.11)

Scheduled Work

If after notification, the Contractor has not started scheduled work on site within five (5) days of the notification, a non-response damages will be assessed to the Contractor. Contract payments will be reduced by one thousand dollars (\$1,000) for each day or portion of a day that the work is delayed, excluding Saturdays, Sundays, and Holidays, *unless the work was scheduled to be performed on one of these days.*

The non-response damages for scheduled work can be waived at the discretion of the Engineer when it is deemed that the weather, traffic or other environmental conditions prohibit the performance of the scheduled work.

Emergency Work

If after notification, the Contractor has not started emergency work on site within 4 hours of the notification, non-response damages will be assessed to the Contractor. Contract payments will be reduced by one thousand five hundred dollars (\$1,500) each time there is a failure to respond within the specified hours.

PROVISIONS FOR TRAVEL AND PROSECUTION OF WORK

(Supplementing Subsections 7.09, 7.10, and 8.03)

Attention is directed to the fact that these work areas may be heavily traveled, high speed roads.

Operations that will affect the flow of traffic on such roads within the project limits are restricted to the hours of least volume. This may include night and weekend work. The hours of all work operations shall be as authorized by the Engineer.

The Contractor shall contact the District to obtain the allowable work hours for each location prior to starting the necessary work.

On a two lane undivided highway two way traffic shall be maintained during “peak hours”. On Interstate highway all lanes shall remain open during the “peak hours”. “Peak hours” are defined as the hours from 5:00 AM to 10:00 AM and from 3:00 PM to 7:00 PM.

The time periods outlined above include the “set-up” and “breakdown” of the traffic pattern employed.

Work will be restricted to one roadway at all times unless additional work crews are approved by the Engineer. The Contractor shall not begin any work, other than emergency work, in any other roadway until the roadway being worked on is completed.

SUBMITTALS/CONTRACTOR’S WORK REPORT

Each time there is an improvement or repair performed, it shall be recorded by the Contractor in a log supplied by him at no additional compensation. Three (3) legible copies of all pages of the log that contain new entries shall be furnished once every month to the Engineer. Each log entry shall include a breakdown of the contract items and include detailed locations with corresponding mile marker or station. A sample daily report shall be submitted to the Engineer for approval at the pre-construction conference.

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 either a traffic level 2 (0.3-10.0) million 18-kip (80-kn) ESALs or a traffic level 3 (≥ 10.0) million 18 kip ESALS as directed by the Engineer. Contractor will be provided with traffic information for the design mix at each location where work order is being requested.

TRAFFIC ACCOMMODATION

(Supplementing Section 7.17)

Safety devices/signing for construction operations shall comply with the relevant provisions of Section 850 of the Standard Specifications, the applicable sections of the MUTCD and the following:

Sign placement shall conform to the applicable sketches shown in the standard Traffic Control Plan (TCP) or MUTCD, whichever is more stringent for the application.

Safety devices and sign placement shall conform to the applicable sketches shown in the standard Work Zone Safety Guidelines included in this Contract – document A00815.

For conditions not shown in the Work Zone Safety Guidelines, the Contractor is directed to MassDOT's Standard Details and Drawings for the Development of Temporary Traffic Control Plans available on MassDOT's website:

<https://www.mass.gov/files/documents/2017/10/24/tcp.pdf>

Truck Mounted Attenuators, when shown in the sketches, are mandatory for this project.

In this case, safety devices and sign placement shall conform to the applicable sketches shown in the Standard Traffic Control Plans or MUTCD, whichever is more stringent for the application.

The Contractor shall bring three sets of the appropriate sketches for the work site to all work order assignment meetings. The purpose is to ensure that all concerned parties (i.e. Contractors, Sub-Contractors and the Engineer) have and agree upon the required traffic management for the specific working conditions.

Traffic police, when required, shall be located at a sufficient distance in advance of the work area, so that they can warn oncoming motorists of the work.

SUBSECTION 7.05 INSURANCE REQUIREMENTS

The insurance requirements set forth in this subsection are in addition to the requirements of the Standard Specifications

DRAINAGE

The contractor shall maintain the drainage systems in the project area to provide continual drainage of travel ways and construction area.

All pipes and structures installed as part of this contract shall be left in a clean and operable condition at the completion of the work.

The respective contract unit prices for applicable drainage Items shall include all costs for the removal and disposal of existing structures and drainage pipes being replaced, unsuitable material, various pavements encountered in the installation of drainage, dewatering, and any incidentals not otherwise specified and paid for. For bid purposes, the contractor shall be responsible for determining the various types and extent of materials to be excavated.

MULTIPLE CREWS

Since this contract encompasses all of District 4, the Contractor shall be prepared to provide more than one crew as needed throughout the duration of the contract which may work at different locations. If additional crews are requested but not provided the Contractor shall be assessed non-response damages as described within the special provisions.

PROTECTION OF UNDERGROUND FACILITIES

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

The Contractor shall notify Massachusetts DIG SAFE and procure a Dig Safe Number for each location prior to disturbing existing ground in any way. Contact the Dig Safe Call Center by dialing 811 or 1-888-344-7233 or online at www.digsafe.com.

ARCHITECTURAL ACCESS BOARD TOLERANCES

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

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

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope nor for dimensions less than the minimum dimensions.

Contractors shall establish grade elevations at all wheel chair ramp locations, and shall set transition lengths according to the appropriate table in the Construction Standards (or to the details shown on the plans).

All wheelchair ramp joints and transition sections which define grade changes shall be formed, staked and checked prior to placing cement concrete. All grade changes are to be made at joints.

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

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.

HOLIDAY WORK RESTRICTIONS (Continued)

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.

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.

NOTICE TO OWNERS OF UTILITIES

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 his/her 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.

The District Office maintains a list of utility contact persons, addresses and telephone numbers for each town, which may be requested by the Contractor for each location of work. Additionally, a list of public and private utilities can be found on the MassDOT website at:

<https://hwy.massdot.state.ma.us/webapps/utilities/select.asp>

Select District 4 on top of the webpage, select the City/Town, and then locate the utility.

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

Town officials are shown at the website <http://www.mass.gov> under the "for Government" tab, select "City/Town official directory" under "Online Services" heading. Enter the city/town on the left of the webpage and locate the official to contact.

The Contractor shall also be responsible for informing the following officials in each area that he is assigned to work in as required by the Engineer:

- Superintendent, Department of Public Works or Town Engineer
- Superintendent, Water Department
- Superintendent, Sewer Department
- Police and Fire Department
- Electric Department

NATIONAL GRID EMERGENCY TELEPHONE NUMBERS

GAS:

Emergency: 1-800-233-5325

New Service: 1- 877-696-4743

Customer Support: 1-800-732-3400

ELECTRIC:

Outage/ Emergency: 1-800-465-1212

New Service: 1-800-375-4730

Customer Support: 1-800-322-3223

EVERSOURCE EMERGENCY TELEPHONE NUMBERS

GAS:

Outage/ Emergency: 800-592-2000

New Service: 866-678-2744

Customer Support: 800-592-2000

ELECTRIC:

Outage/ Emergency: 800-592-2000 or 844-726-7562

New Service: 1-888-633-3797 (1-888-need pwr)

Customer Support: 1-800-340-9822

PUBLIC SAFETY AND CONVENIENCE

(Supplementing Subsection 7.09)

The Contractor shall provide necessary access for fire apparatus and other emergency vehicles through the work zones to abutting properties at all times.

Sweeping and cleaning of surfaces beyond the limits of the project to clean up material caused by spillage or vehicular tracking during the various phases of the work shall be considered as incidental to the work being performed under the Contract and there will be no additional compensation.

The Contractor, without additional compensation, shall provide access to all abutters during prosecution of the work, except for such periods and at such locations as authorized in writing by the Engineer.

ENVIRONMENTAL PERMITS, CONDITIONS & RESTRICTIONS

No environmental permits have been obtained in advance for this Contract. No work may begin or occur that could affect water, wetlands, banks, land under water bodies, flood-prone areas, or other protected environmental resource areas until all required environmental permits have been secured.

If field conditions or the Contractor's proposed methods require environmental permits, the Contractor must notify the Resident Engineer before starting the proposed activity. The Resident Engineer will coordinate all communication with local, state, and federal environmental agencies through the MassDOT Environmental Section.

Any delays resulting from the filing, obtaining, or modification of permits shall not be grounds for a claim. The Contractor may also be required to provide additional information regarding proposed work subject to environmental regulations.

No debris of any kind shall be allowed to enter water or wetland resource areas, whether temporarily or permanently.

The Contractor shall not enter, disturb, or otherwise impact any existing wetlands, banks, land under water bodies, or land subject to flooding until all required erosion and sediment control measures are fully in place.

Any equipment or machinery found leaking oil, lubricants, or any other pollutant shall be removed immediately from the work site and shall not return until fully repaired.

The Contractor shall take all necessary precautions to prevent pollutants from spreading beyond the limits of the construction activity area and shall implement all required measures to remove pollutants from streams or other affected areas, in accordance with the provisions of the Massachusetts Clean Water Act. For guidance regarding appropriate measures for specific situations, the Massachusetts Department of Environmental Protection, 100 Cambridge Street, Boston, MA 02134, may be contacted.

CONTRACTOR ACTIVITY ADJACENT TO WETLANDS

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

CONTRACTOR ACTIVITY ADJACENT TO CURB AND SIDEWALK

Any curbing and associated pavements removed by the Contractor in order to cut or remove trees or stumps shall be reset or rebuilt, and full compensation for such work shall be included in the contract unit price for the tree and stump removal items involved.

PRECAUTIONS FOR PROTECTION OF THE ENVIRONMENT

During the execution of work under this Contract, the Contractor shall exercise care in the placement and storage of equipment, materials and debris as some areas of the site are in environmentally sensitive areas. No equipment, materials or debris can be placed or stored in or near a resource or drainage area leading to a resource as directed by the Engineer.

Storage and lay-down areas within depot yards must be first approved by the Engineer in concurrence with the Depot Foreman to ensure no adverse impacts to maintenance operations.

EROSION AND SEDIMENTATION CONTROL

(Supplementing Subsection 7.02)

This work shall consist of temporary control measures as directed by the Engineer during the life of the contract to control erosion and sedimentation.

The erosion and sedimentation control features installed by the Contractor shall be satisfactorily maintained by the Contractor until they are ordered removed by the Engineer.

In the event that temporary erosion and sedimentation control measures are required due to the Contractor's negligence or carelessness, and such additional measures are ordered by the Engineer, the work shall be performed by the Contractor at his own expense. Temporary erosion and sedimentation control work, which is not attributed to the Contractor's negligence or carelessness, will be performed as ordered by the Engineer.

Repeated failures by the Contractor to control erosion and/or sedimentation shall be cause for the Engineer to employ outside assistance or to use his own forces to provide the necessary protective measures. The cost of such assistance plus project engineering cost will be charged to the Contractor and appropriate deductions made from the Contractor's monthly progress estimate.

NORTHERN LONG-EARED 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.

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.**

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.

EMERALD ASH BORER ADVISORY

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

CONTAMINATED SOIL AND/OR GROUNDWATER

CONTAMINATED SOIL

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

SOIL STOCKPILING DIRECTIVE P-22-001

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

ASBESTOS CONTAINING MATERIALS

Information about specific locations where repairs are to occur is unavailable. The Contractor should be aware of the potential to encounter asbestos pipe during this project. If encountered, the Contractor must immediately cease the operation, secure the site, notify the Engineer and obtain Asbestos Liability Insurance for this project. The Contractor and MassDOT – Highway Division shall be named as additional insureds.

The contractor will be reimbursed for the proper handling and disposal of any pipe encountered. The asbestos cement pipes must be managed as a “Special Waste” and in Massachusetts may only be disposed of at a facility that is permitted to accept ACWM under 310 CMR 19.061 (“Special Waste” regulation).

PIPE CONNECTION / DISCONNECTION TO STRUCTURE

If reconstructing or installing a drainage structure, connecting existing pipe is incidental to structure or installation item.

For connecting pipe, the wall shall provide the minimum size opening required to surround the pipe. The pipe end shall be set or cut off flush with the inside face of the new structure wall and the remaining space around the pipe completely filled with cement grout for the full thickness of the structure wall. Inverts shall be constructed to provide a smooth uniform flow channel from the pipe through the structure.

MASONRY PLUGS

The Contractor shall plug open ends of abandoned pipes and unintended openings in structures encountered on the project with concrete, cement mortar and brick, or cement mortar and stone. This work will be incidental to the construction operations that were occurring when the opening was discovered and no additional compensation will be made.

MISCELLANEOUS CEMENT CONCRETE WORK

Cement concrete used for collars around drainage structures, for gate boxes, for trench caps, or in conjunction with new or reset curb or edging shall be brought up only to a height which will allow a minimum of three inches of hot mix asphalt to be placed over the concrete. The surface of the cement concrete shall be given a float finish and shall be free of honeycomb or excessive roughness.

The surface shall be cured according to the applicable provisions of the Standard Specifications, or the curing may be done by an application of RS-1 emulsion as soon as the surface has hardened sufficiently but not later than 24 hours after placing the concrete.

All costs associated with the application of RS-1 emulsion shall be considered incidental throughout this Contract.

CASTINGS FOR STRUCTURES

All castings in paved areas shall be adjusted to the finish grade before the top course pavement is placed. All adjustments made to new structures or rebuilt structures shall be included under the contract unit price for the respective structures.

It shall also be a requirement of this Contract that all structures in traveled ways or deemed hazardous by the Engineer be protected with suitable covers (steel plates or equal) in conformance with Subsection 7.09.

MATERIAL OPTIONS

In the case of all option items listed in the proposal, the Engineer shall direct the Contractor of his/her option prior to the installation of the material.

OPTIONS

<u>Item Number</u>	<u>Item Descriptions</u>	<u>Unit</u>
<u>234.10</u>	<u>10 Inch Drainage Pipe – Option</u>	<u>Foot</u>
<u>234.12</u>	<u>12 Inch Drainage Pipe – Option</u>	<u>Foot</u>
<u>234.18</u>	<u>18 Inch Drainage Pipe – Option</u>	<u>Foot</u>
<u>234.24</u>	<u>24 Inch Drainage Pipe – Option</u>	<u>Foot</u>
<u>234.36</u>	<u>36 Inch Drainage Pipe – Option</u>	<u>Foot</u>

PIPE OPTIONS

Reinforced Concrete Pipe
 Corrugated Plastic (Polyethylene) Pipe
 Corrugated Plastic (Polypropylene) Pipe

<u>235.12</u>	<u>12 Inch Drainage Pipe Flared End – Option</u>	<u>Each</u>
<u>235.18</u>	<u>18 Inch Drainage Pipe Flared End – Option</u>	<u>Each</u>

PIPE OPTIONS

Reinforced Concrete Pipe
 Corrugated Plastic (Polyethylene) Pipe
 Corrugated Plastic (Polypropylene) Pipe

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.

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.

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.

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.

SCHEDULE OF OPERATIONS - SCHEDULE TYPE

The applicable schedule type for this project is Type D.

ITEM 107.04 TEMPORARY STEEL PLATE(S) POUND

The work under this Item shall include the furnishing, placing and removing of a temporary steel plate or plates that will cover open trenches, voids on bridge decks or at locations directed by the Engineer. Each steel plate shall be capable of safely sustaining a thirty-six and one-half (36.5) ton truck load with impact.

Also included under this Item is the cost for placing hot mix asphalt at the edges of the steel plate to provide as smooth a transition as possible for the motoring public.

The Contractor's attention is directed to the following:

- The size of the steel plate(s) required for the task(s) shall be determined by the Engineer.
- Steel plate(s) are to become the property of the MassDOT upon completion of each plate's individual intended use.

Method of Measurement and Basis of Payment

Item 107.04 will be measured and paid for at the Contract unit price per Pound, which price shall include deployment of the plate(s) as described herein, removal of individual plate(s) when as directed, and delivery and careful stacking of said plates at the nearest MassDOT Maintenance Depot or as directed by the Engineer, all labor, materials, equipment, and all incidental costs required to complete the work.

No separate payment will be made for supply, installation, removal and disposal of hot mix asphalt transitions, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 107.041 **DEPLOYMENT OF TEMPORARY STEEL PLATES** **EACH**

The work under this Item shall consist of loading, transporting, placing, returning to point of origin, and stacking steel plate(s) stored at MassDOT Maintenance areas at various locations throughout the area of responsibility of this Contract. Plates removed and reset at the work site will be reimbursed under Item 107.042, Remove and Reset Temporary Steel Plate(s).

Also included under this Item will be the cost for placing hot mix asphalt at the edges of the steel plate to provide a smooth transition for the motoring public.

Measurement and Payment

The work under Item 107.041 shall be measured and paid at the contract unit price per Each Deployment. Each payment will constitute full reimbursement per assignment, regardless of the number of plates deployed. The contract unit price shall include the cost of materials, equipment, tools and labor and incidentals necessary to complete the work to the satisfaction of the Engineer.

ITEM 127.1

REINFORCED CONCRETE EXCAVATION

CUBIC YARD

Work under this Item shall conform to the relevant provisions of Section 120 of the *Standard Specifications*, enclosed sketch, as directed by the Engineer and the following:

Reinforced Concrete Roadway Excavation shall be used for the removal and disposal of sections of deteriorated Reinforced Cement Concrete slabs and headwalls and other reinforced concrete requiring removal to perform the work.

Work under this Item shall include the removal of existing cement concrete in roadway slabs and headwalls and other drainage structures as directed and the saw-cutting of the existing pavement to insure neat lines of excavation and patching. The depth of saw-cuts shall be to the bottom of the cement concrete slabs or to the bottom of the asphalt pavement. The contractor is advised that the anticipated average depth of the reinforced concrete slab is approximately eight (8) inches.

The unit price for the above Items shall be full compensation for all work, including any incidentals not otherwise classified and paid for, and cost encountered in the satisfactory removal and disposal of said materials.

ITEM 201

CATCH BASIN

EACH

The work under this item shall conform to the relevant Provisions of Section 201, Construction Standard Drawing E201.3 and E201.4.0 and the following:

Each Catch Basin shall be installed with a 4 foot deep sump, unless directed by the Engineer.

All catch basins shall be placed on a bedding of 6 inches of crushed stone if necessary, to stabilize foundations in accordance with Subsection 150.68.

Where required, cone sections of manholes and catch basins structures shall be replaced with a flat top sections or eccentric sections at no additional cost.

Method of Measurement and Basis of Payment

Measurement for catch basin will be based on a standard unit having a depth of 7.5 feet as measured vertically at the center of structure from the top of grating to the top of floor. When the measured depth exceeds the standard, the number of units paid for will be in the proportion of the measured depth to the standard depth.

No separate payment will be made for excavation (regardless of depth) or bedding foundation, therefore all costs in connection therewith shall be included in the Contract unit price bid.

<u>ITEM 220.</u>	<u>DRAINAGE STRUCTURE ADJUSTED</u>	<u>EACH</u>
<u>ITEM 220.2</u>	<u>DRAINAGE STRUCTURE REBUILT</u>	<u>FOOT</u>
<u>ITEM 221.</u>	<u>FRAME AND COVER</u>	<u>EACH</u>
<u>ITEM 222.</u>	<u>FRAME AND GRATE – MASSDOT BAR TYPE</u>	<u>EACH</u>
<u>ITEM 222.1</u>	<u>FRAME AND GRATE - MASSDOT CASCADE TYPE</u>	<u>EACH</u>

The work under these Items shall conform to the applicable provisions of Section 220 and the following:

Any structure that is in the traveled way and is not at the point of being backfilled and the collar installed at the end of any work day shall be steel plated and backfilled with compacted gravel, level with the roadway. The plates, gravel, and re-excavation of the gravel to complete the drainage structure shall be included in the above item’s unit price.

Concrete collars shall be at least 6 inches thick and shall be constructed of 4000 psi, 3/4 inch, 610 Lb. cement concrete (High Early Strength). Concrete for collars shall be brought up to a height that will allow the full depth of hot mix asphalt surface course pavement to be placed above the collar. All concrete collars will be completely coated with (RS-1H) Asphaltic Emulsion before placement of hot mix asphalt.

Method of Measurement and Basis of Payment

Removal and resetting of castings is considered incidental to these Items. The plates, gravel, and re-excavation of the gravel to complete the drainage structure shall be included in the above item’s unit price.

Any substandard or damaged castings removed and discarded in conjunction with these items will not be measured but shall be considered incidental to the Contract Items of work. This does not relieve the Contractor of his responsibility pursuant to Subsection 220.61.

The method of payment for Drainage Structure Adjusted, Frame and Cover, Frame and Grate – MassDOT Bar Type, Frame and Grate MassDOT Cascade Type is as specified in Section 220.81. The Contract unit bid prices shall be full compensation for all labor, tools, equipment and materials, including the removal and resetting of the casting and installation of the concrete collars, necessary to complete the work.

ITEM 221.1

FRAME AND COVER – SECURED

EACH

The work under this Item shall conform to the relevant provisions of Section 201, 220 and the following:

The work to be done under this Item consists of the furnishing and delivering Frame and Cover – Secured to the site as shown on the Plans, and as directed by the Engineer.

Frame and Cover - Secured assemblies shall consist of covers and frames that conform to the nominal size, weight, material and load-carrying requirements in MassDOT Construction Standard Details E 202.6.0, E 202.7.0 and E 202.8.0, and are on the relevant MassDOT Qualified Construction Materials list. Some dimensions of secured manhole covers and frames may vary slightly from those shown on the standard details to account for necessary fastening components. The Contractor shall submit shop drawings of all drainage castings for approval prior to ordering.

Covers and frames shall be held securely together by bolting to threaded holes in the frame or to nuts or tumbler devices secured by the frame, by use of hooks attached to the cover or by any other means approved by MassDOT, to prevent being dislodged under traffic loading. Gaskets and other sealing devices will not be allowed.

Method of Measurement and Basis of Payment

Item 221.1 will be measured and paid at the contract unit bid price per Each Frame and Cover – Secured furnished and delivered to the site.

ITEM 226.9 **INTERNAL PIPE INSPECTION BY VIDEO CAMERA** **HOUR**

Work under this Item shall conform to the relevant provisions of Section 200 of the Standard Specifications and consist of inspecting drainage pipes within the limits of the project extending to the discharge ends of each drainage system.

Inspections will be accomplished by use of a self-powered submersible camera system capable of traveling throughout various size and shape drainage systems within the project limits. This Item includes simultaneous use of a video monitor capable of providing full view of all areas and accurate measurements of distance throughout the drainage system.

Video recording of the inspection will be considered incidental to this Item.

The operator will provide to the Engineer a copy of the inspection on DVD or USB drive at no additional compensation.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 226.9 will be measured and paid at the Contract unit price per Hour for each unit ordered into operation by the Engineer. Decimal Pay Limits will be to the nearest 0.5 hour. The contract price shall constitute full compensation for operation, labor, materials, fuel, maintenance, and transportation required to inspect designated drainage systems. No compensation will be made for travel to and from the work site.

ITEM 227.33 **REMOVAL OF DRAINAGE SYSTEMS SEDIMENT** **HOUR**

The work under this Item shall consist of cleaning all drainage pipes, culverts and appurtenances regardless of size, as directed by the Engineer in accordance with Section 227 of the Supplemental Specifications and the following:

The Contractor must furnish a minimum two-person crew and truck that contains a minimum water capacity of 1,500 gallons, utilizes a minimum hose length of 150 feet, and is capable of providing water at a rate up to 75 gpm , and delivering minimum 2500 psi.

Simultaneous use of a centrifugal compressor capable of providing air flow to 800 ft³/min and vacuum pressures to 7500 lb/ft² of water will deliver the loosened soil and debris to a truck mounted container which will transport the material from the site.

A dual engine system allowing independent control of both the water rodding and vacuum system will also be provided.

The Contractor shall provide all water required to complete the work. The Contractor shall also be responsible for providing all necessary ladders, staging, lift trucks and hand tools required to complete the work. In the event that existing fire hydrants are utilized, the Contractor shall be

ITEM 227.33 (Continued)

responsible for making all arrangements. This includes soliciting and obtaining permission from the appropriate municipality and providing the Engineer with a copy of the authorization.

Work may require the use of “root cutters” in conjunction with a high pressure jet for some drainage lines. No additional compensation will be paid for the use of this or any specialized attachment required to clean the drainage line.

Where applicable the cast iron hood shall be removed from all catch basins so equipped, prior to cleaning. Resetting of the hood is considered incidental to this Item.

Due to the variable sizes and shapes of culverts, a flexible hose will be required in order to vacuum sediment from directly within the culvert. The flexible hose must be long enough in length to reach all sediment within the culvert from a singular access point, therefore must be several hundred feet in length.

All material removed from the drainage pipes shall be properly handled and disposed of by the Contractor, and this must be done in accordance with all DEP regulations, policies, and

guidance. The responsibility for the proper handling and disposal of this material shall be solely the Contractor's.

Material removed from drainage pipes shall be transported immediately to the place of disposal in machines or trucks that will not spill either liquid and/or the other material along the roadway. Any material falling on the roadway shall be removed at the Contractor's own expense.

Method Of Measurement

Item 227.33, Removal of Drainage Pipe Sediment will be measured for payment by the Hour and the quantity paid for shall be the actual number of hours spent cleaning drainage systems regardless of the volume of sediment removed.

Basis Of Payment

Item 227.33, Removal of Drainage Pipe Sediment will be paid for at the Contract unit price per Hour, which price shall include all labor, tools, equipment and materials (including water) necessary to remove, deliver and proper dispose of drainage pipe sediments at an approved landfill, disposal facility or recycling facility, including the costs for approvals, permits, testing, transportation, and other incidental expenses involved with the completion of this Item to the satisfaction of the Engineer.

ITEM 234.10

10 INCH DRAINAGE PIPE - OPTION

FOOT

The work under these Items shall be in accordance with the relevant provisions of the Section 230 of the Standard Specifications and the following:

Pipe shall meet the material requirements of Sub-Section 230.40 for the option selected.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Items 234.10 will be measured and paid as specified per Subsections 230.80 and 230.81.

<u>ITEM 235.12</u>	<u>12 INCH DRAINAGE PIPE FLARED END - OPTION</u>	<u>EACH</u>
<u>ITEM 235.18</u>	<u>18 INCH DRAINAGE PIPE FLARED END - OPTION</u>	<u>EACH</u>

Work under these items shall conform to Section 230 of the *Standard Specifications*, and as directed by the Engineer.

The material shall be Corrugated Plastic or Reinforced Cement Concrete, and shall meet the following requirements:

Corrugated Plastic (Polyethylene) Pipe or Flared Ends	M5.03.10
Reinforced Concrete Pipe or Flared Ends	M5.02.2

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Items 235.12, and 235.18, will be measured and paid for at the Contract unit Each for each Flared End pipe furnished and installed complete in place.

The Contract price for all above Items shall include all labor, materials, equipment, fittings, couplings, stainless steel rods and nuts and incidental costs required to complete the work.

ITEM 402.11 DENSE GRADED CRUSHED STONE FOR SHOULDERS TON

The work under this Item shall conform to the relevant provisions of Section 445 and to the following:

As directed by the Engineer, the top portion of shoulders shall be graded with Dense Graded Crushed Stone (DGCS) continuous at all perimeters of the highway pavement.

MATERIAL

This material shall meet the requirements of M2.01.7 with the exception of the fine aggregate which shall consist of stone screenings and the following grading requirements:

<u>Sieve Designation</u>	<u>Percent by Weight Passing Square Mesh Sieves</u>
¾ inch	100
½ inch	80-95
⅜ inch	65-85
No. 4	35-55
No. 16	13-25
300 µm	5-15
75 µm	0-10

CONSTRUCTION METHODS

Construction of the shoulders shall be in conformity with the existing lines and grades. The top surface of the DGCS shall be finish graded and compacted with equivalent cross slope and the elevation of the finish pavement.

Method of Measurement and Basis of Payment

The quantity is to be determined only by weight slips that have been properly countersigned by the Engineer at the time of delivery. Any weight slip not countersigned shall not be included for payment under the Contract.

Item 402.11 will be paid at the contract unit bid price per Ton, complete in place, and shall include full compensation for all labor, equipment, tools and other incidentals necessary for the completion of the work.

ITEM 570.

HOT MIX ASPHALT CURB - OPTION

FT

The work under this Item shall conform to the relevant provisions of Subsection 501. of the *Standard Specifications*, and as directed by the Engineer.

The Engineer shall direct the Contractor which type of curb to install. Options can be found in the MassDOT Construction Standard Details, Drawing Number E106.2.0. Typical installations shown are Type-1, Type-2, Type-3, and as directed by the Engineer.

Method of Measurement and Basis of Payment

Item 570. will be measured and paid for at the Contract unit price per foot, complete in place.

The Contract unit price for the above Item shall include all labor, materials, equipment, and incidental costs required to complete the work.

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 and proposed catch basins and drop inlets within the project limits and as required by the Resident Engineer.

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

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

ITEM 697.1 (Continued)

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

All curb openings shall be blocked to prevent stormwater from bypassing the device. All debris accumulated in silt sacks shall be handled and disposed of as specified in Section 227 of the Standard Specifications

Method of Measurement and Basis of Payment

Silt sacks will be measured and paid at the Contract unit price per each, 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 748.1

EMERGENCY RESPONSE

EACH

Work under this Item shall conform to the relevant provisions of Section 748. of the Standard Specifications, and the following:

Work consists of the movement of personnel, materials, equipment, and incidentals to the project site within a 4 Hours hour period after notification by the Engineer ready to commence work to address the emergency situation.

This Item is to be used as a means of providing compensation to the Contractor for the costs associated with providing prompt response to emergency situations. Emergency situations, if and when the designation is necessary, will be determined solely by the Engineer.

Method of Measurement and Basis of Payment

Item 748.1 will be measured and paid for at the contract unit price per EACH, which price shall be for each emergency work notification that requires immediate attention. Payment for emergency response shall for emergency response only and is in addition to any other items that may apply toward the completion of each emergency work order. All labor, material and equipment to perform the emergency work will be paid for under the appropriate pay items.

In the event that another emergency occurs at a different location during the period which the contractor's forces have been mobilized these forces shall be redeployed at no additional compensation. The Engineer shall determine if conditions require another crew to be mobilized as a separate emergency response.

In the event that the Contractor does not satisfy the 4 hour response time, payment for Emergency Response will not be made and the Contractor will be subjected to the Non - Response Damages outlined in this contract.

ITEM 767.121**SEDIMENT CONTROL BARRIER****FOOT**

The work under this item shall conform to the relevant provisions of Subsections 670, 751 and 767 of the Standard Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment control barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes with biodegradable natural fabric (i.e., cotton, jute, burlap) are intended to be the primary sedimentation control barrier.

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

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

No straw wattles may be used. Additional compost filter tubes (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

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

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

Sediment control barriers shall be installed in the approximate location as shown on the plans and as required so that no excavated or disturbed soil can enter mitigation areas or adjacent wetlands or waterways. Barriers shall be in place prior to excavation work. No work shall take place outside the barriers.

MATERIALS AND CONSTRUCTION

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

Barriers shall be staked, trenched, and/or wedged as specified herein and according to the Manufacturer's instructions. Barriers shall be securely in contact with existing soil such that there is no flow beneath the barrier.

ITEM 767.121 (Continued)Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no peat, manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be made of 100% biodegradable materials (i.e., cotton, hemp or jute) and shall have a knitted mesh with openings that allow for sufficient water flow and effective sediment capture.

Tubes shall be tamped, but not trenched, to ensure good contact with soil. When reinforcement is necessary, tubes shall be stacked as shown on the detail plans.

Straw Bales

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

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

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

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

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

When used in a swale, the barrier should be extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment-laden runoff will flow either through or over the barrier but not around it.

ITEM 767.121 (Continued)**Silt Fence**

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

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

When used with compost filter tubes, the tube shall be placed on a minimum of 8 inches of folded fabric on the upslope side of the fence. Fabric does not need to be trenched.

When used with straw bales, an 8-inch deep and 4-inch wide trench or V-trench shall be dug on the upslope side of the fence line. One foot of fabric shall be placed in the bottom of the trench followed by backfilling with compacted earth or gravel. Stakes shall be on the down slope side of the trench and shall be spaced such that the fence remains vertical and effective.

Width of fabric shall be sufficient to provide a 36-inch high barrier after fabric is folded or trenched. Sagging fabric will require additional staking or other anchoring.

MAINTENANCE

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

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

Barriers that decompose such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact and continues to provide effective water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

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

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

ITEM 767.121 (Continued)

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

- Compost filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (as would be done with a soil amendment or mulch). No more than a 2-inch depth shall be left on soil substrate.
- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent seeding or existing grasses (i.e., lawn or native grass mix).
- Silt fence, stakes, and other debris shall be removed and disposed off-site. Site shall be restored to a neat and clean condition.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 767.121 will be measured and paid for at the contract unit price per foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Silt fence, when used in conjunction with compost filter tubes or straw bales, will be incidental to this item.

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

Barriers that have been driven over or otherwise damaged by construction activities shall be repaired or replaced as directed by the Engineer at the Contractor's expense.

ITEM 767.9**JUTE MESH****SQUARE YARD**

The work under this item shall conform to the relevant provisions of Section 700 of the Standard Specifications and the following.

The work under this item consist of furnishing and installing jute mesh fabric to prevent soil erosion. Jute mesh shall be placed over all areas of exposed soil in locations shown on the plans or as required by the Engineer.

MATERIALS

Fabric shall be 100% biodegradable woven jute mesh with minimum ¼” openings.

Anchoring devices shall consist of minimum 8” bio-degradable stakes. Longer stakes shall be used where loose soils or other conditions obligate, as required by the Engineer.

CONSTRUCTION METHODS

Area shall be seeded prior to installation of mesh.

Contractor shall bury ends of fabric in anchor trenches at top and bottom of slopes.

Installation of jute mesh shall be such as to ensure continuous contact with soil without folds or wrinkles. Jute mesh fabric may be joined by overlapping with a minimum 6 inch overlap. Overlap shall be such that upslope fabric is placed over lower slope fabric.

The mesh shall be anchored in place with vertically driven spikes. The spikes shall be driven until their tops are flush with the soil. Spikes shall be placed at 12 inch intervals along the top of a slope and in staggered courses along the face of the slope to achieve a minimum of 3 spikes per square yard, or as manufacturer’s recommendations for given site conditions.

Reseed all trenched and otherwise disturbed areas with specified slope seed mix. The Contractor shall maintain the jute mesh and make satisfactory repairs of any areas damaged until acceptance of seed establishment.

METHOD OF MEASUREMENT

Item 767.9 will be measured for payment by the Square Yard, complete in place as measured across the surface of grade and does not include buried or overlapped portions.

BASIS OF PAYMENT

Item 767.9 will be paid for at the contract unit price per Square Yard, which price shall include all labor, materials, equipment, trenching, placing and stapling of jute fabric, reseeding of trenched and disturbed areas, and all incidental costs required to complete the work.

ITEM 853.8 TEMPORARY ILLUMINATION FOR WORK ZONE DAY

The work under this Item shall conform to the relevant provisions of Section 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.

These towers shall be used, relocated and adjusted to meet the criteria in Section 850 of the Standard Specifications and the following:

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 is shown in Table 1.

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

TABLE 1
TASK CLASSIFICATIONS AND ILLUMINATION LEVELS

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 necessary, 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.

Method of Measurement Basis of Payment

Item 853.8 will be measured and paid for at the contract unit price per DAY. 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 859.1**REFLECTORIZED DRUMS WITH SEQUENTIAL
FLASHING WARNING LIGHTS****DAY****Description**

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

Materials

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

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

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

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

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

Construction Methods

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

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

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

Method of Measurement

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

ITEM 983.3

RIP RAP REMOVED AND RELAID

CUBIC YARD

The work to be done under this Item shall conform to the relevant provisions of Section 983 of the Standard Specifications and the following:

This Item shall be used in locations designated by the Engineer of previous washouts where the washout can be repaired and the existing rip rap is suitable to be reused.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 983.3 will be measured and paid at the Contract unit price per Cubic Yard, complete in place.

Any remaining stone not re-laid, shall be removed from the site and paid under Item 120.1 – Unclassified Excavation. The Contract price shall include all labor, tools, equipment, materials required to complete the work to the satisfaction of the Engineer.

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