MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

CONTRACT DOCUMENTS

**CONTRACT 2014.06**

BRIDGE SUPERSTRUCTURE REPLACEMENT
WEST ROAD UNDERPASS
MILE 91.0

NOTICE TO CONTACTORS

PROPOSAL

CONTRACT AGREEMENT

CONTRACT BOND

FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT

SPECIFICATIONS

# MAINE TURNPIKE AUTHORITY

# SPECIFICATIONS

The Specifications are divided into two parts:
Part I, General Provisions and Part II, Special Provisions.

The Maine Turnpike General Provisions are additions and alterations to the Maine Department of Transportation Standard Specifications. See Subsection 100.1.

TABLE OF CONTENTS


| | PAGE |
|---|---|
| NOTICE TO CONTRACTORS | N-1 |
| PROPOSAL | P-1 |
| CONTRACT AGREEMENT | C-1 |
| CONTRACT BOND | CB-1 |
| FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT | F-1 |

ARRANGEMENT OF SPECIFICATIONS

| | |
|---|---|
| PART I - GENERAL PROVISIONS | GP-1 |
| PART II - SPECIAL PROVISIONS | SP-1 |

PART I - GENERAL PROVISIONS

| SECTION | TITLE | PAGE |
|---|---|---|
| 100 | GENERAL PROVISIONS | |
| 100.1 | REPLACEMENT OF FORMER STANDARD SPECIFICATIONS AND DETAILS | GP-1 |
| 101 | CONTRACT INTERPRETATION | |
| 101.2 | DEFINITIONS | GP-1 |
| 102 | BIDDING | |
| 102.1.1 | BASIC REQUIREMENTS | GP-2 |
| 102.6 | BID GUARANTY | GP-3 |
| 102.7.1 | LOCATION AND TIME | GP-3 |
| 102.7.2 | EFFECTS OF SIGNING AND DELIVERY OF BIDS | GP-3 |

PART I - GENERAL PROVISIONS - Continued


| SECTION | TITLE | PAGE |
|---|---|---|
| 103 | AWARD AND CONTRACTING | |
| 103.3.1 | NOTICE AND INFORMATION GATHERING | GP-3 |
| 103.3.2 | NOTICE OF DETERMINATION | GP-3 |
| 103.3.3 | APPEAL | GP-4 |
| 103.4 | NOTICE OF AWARD | GP-4 |
| 103.5.4 | EXECUTION OF CONTRACT BY BIDDER | GP-4 |
| 103.8 | EXECUTION OF CONTRACT BY DEPARTMENT | GP-5 |
| 104 | GENERAL RIGHTS AND RESPONSIBILITIES | |
| 104.2.1 | FURNISHING OF RIGHT-OF-WAY | GP-5 |
| 104.2.3 | AUTHORITY OF PROJECT MANAGER AND RESIDENT | GP-5 |
| 104.3.5 | DUTIES REGARDING INSPECTION OF WORK | GP-5 |
| 104.3.7 | LAWS TO BE OBSERVED | GP-6 |
| 104.3.8 | WAGE RATES AND LABOR LAWS | GP-6 |
| 104.3.11 | RESPONSIBILITY FOR PROPERTY OF OTHERS | GP-7 |
| 104.3.14 | INTERPRETATION AND INTERPOLATION | GP-7 |
| 104.4.2 | PRECONSTRUCTION CONFERENCE | GP-7 |
| 104.4.5 | EARLY NEGOTIATION | GP-8 |
| 104.4.7 | COOPERATION WITH OTHER CONTRACTORS | GP-8 |
| 104.4.10 | COORDINATION OF BRIDGE CLOSURE/BRIDGE WIDTH RESTRICTION NOTIFICATION | GP-9 |
| 104.5.9 | LANDSCAPE SUBCONTRACTORS | GP-9 |
| 105 | GENERAL SCOPE OF WORK | |
| 105.1 | INTENT OF THE CONTRACT | GP-9 |

| SECTION | TITLE | PAGE |
|---|---|---|
| 105.2.3 | JOINT DUTY REGARDING SAFETY | GP-10 |
| 105.2.4.1 | LOCKOUT/TAGOUT PROCEDURES | GP-10 |
| 105.4.1 | MAINTENANCE DURING CONSTRUCTION | GP-10 |
| 105.4.3 | MAINTENANCE DURING WINTER CONSTRUCTION | GP-11 |
| 105.5.1 | GENERAL REQUIREMENTS | GP-11 |
| 105.6 | CONSTRUCTION SURVEYING | GP-13 |
| 105.6.1 | AUTHORITY PROVIDED SERVICES | GP-13 |
| 105.6.2 | CONTRACTOR PROVIDED SERVICES | GP-13 |
| 105.6.2.1 | QUALITY CONTROL | GP-13 |
| 105.6.3 | QUALITY ASSURANCE | GP-13 |
| 105.6.4 | BOUNDARY MARKERS | GP-14 |
| 105.7.1 | GENERAL | GP-14 |
| 105.7.4 | SUBMITTAL REQUIREMENTS | GP-15 |
| 105.8.1 | TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL | GP-15 |
| 105.10 | EQUAL OPPORTUNITY AND CIVIL RIGHTS | GP-16 |
| 105.10.1 | REQUIREMENTS APPLICABLE TO FEDERALLY FUNDED CONTRACTS | GP-16 |
| 105.10.2 | REQUIREMENTS APPLICABLE TO ALL CONTRACTS | GP-16 |
| 105.11 | OTHER FEDERAL REQUIREMENTS | GP-17 |
| 105.12 | LIMITATIONS OF OPERATIONS | GP-17 |
| 106 | QUALITY | |
| 106.3.3 | SOURCES | GP-18 |
| 106.3.4 | STORAGE | GP-18 |

| SECTION | TITLE | PAGE |
|---|---|---|
| 106.3.7 | SAMPLING AND TESTING | GP-18 |
| 106.6 | ACCEPTANCE | GP-18 |
| 106.8.3 | UNAUTHORIZED WORK | GP-18 |
| 107 | TIME | |
| 107.1.1 | SUBSTANTIAL COMPLETION | GP-19 |
| 107.3.1 | GENERAL | GP-19 |
| 107.3.2 | NIGHT WORK | GP-19 |
| 107.3.3 | SUNDAYS AND HOLIDAYS | GP-20 |
| 107.4.2 | SCHEDULE OF WORK REQUIRED | GP-20 |
| 107.4.4 | SCHEDULE REVISIONS | GP-20 |
| 107.7.2 | SCHEDULE OF LIQUIDATED DAMAGES | GP-20 |
| 107.9.1 | FINAL CLEAN-UP AND FINISHING | GP-21 |
| 108 | PAYMENT | |
| 108.1 | MEASUREMENT OF QUANTITIES FOR PAYMENT | GP-21 |
| 108.1.2 | GENERAL MEASUREMENT PROVISIONS | GP-21 |
| 108.1.3 | PROVISIONS RELATING TO CERTAIN MEASUREMENTS | GP-21 |
| 108.2.1 | GENERATION OF PROGRESS PAYMENT ESTIMATES | GP-21 |
| 108.2.2 | PAYMENT | GP-22 |
| 108.2.3 | MOBILIZATION PAYMENTS | GP-22 |
| 108.3 | RETAINAGE | GP-22 |
| 108.4 | PAYMENT FOR MATERIALS OBTAINED AND STORED | GP-23 |
| 108.4.1 | PRICE ADJUSTMENT FOR HOT MIX ASPHALT | GP-23 |
| 108.5 | RIGHT TO WITHHOLD PAYMENT | GP-23 |

PART I - GENERAL PROVISIONS - Continued


| SECTION | TITLE | PAGE |
|---|---|---|
| 108.6 | TAXES, FEES, ALLOWANCES, AND NOTICES | GP-24 |
| 108.8 | FINAL PAYMENT | GP-24 |
| 109 | CHANGES | |
| 109.1.1 | CHANGES PERMITTED | GP-24 |
| 109.1.2 | SUBSTANTIAL CHANGES TO MAJOR ITEMS | GP-24 |
| 109.3 | EXTRA WORK | GP-24 |
| 109.4 | DIFFERING SITE CONDITIONS | GP-25 |
| 109.4.1 | DEFINITION | GP-25 |
| 109.4.4 | INVESTIGATION / ADJUSTMENT | GP-25 |
| 109.5.1 | DEFINITIONS – TYPES OF DELAYS | GP-25 |
| 109.5.2 | ENTITLEMENT TO ADJUSTMENTS | GP-25 |
| 109.5.5 | DOCUMENTING THE DELAY AND REQUEST FOR ADJUSTMENTS | GP-26 |
| 109.5.6 | DECISION BY PROGRAM MANAGER | GP-26 |
| 109.5.7 | ADDITIONAL CONSIDERATION BY DEPARTMENT | GP-26 |
| 109.6.1 | OVERVIEW – GENERAL REQUIREMENTS | GP-26 |
| 109.7.2 | BASIS OF PAYMENT | GP-26 |
| 109.7.3 | COMPENSABLE ITEMS | GP-26 |
| 109.7.5 | FORCE ACCOUNT WORK | GP-27 |
| 110 | INDEMNIFICATIONS, BONDING AND INSURANCE | |
| 110.2.1 | BONDS | GP-27 |
| 110.2.3 | BONDING FOR LANDSCAPE SUBCONTRACTORS | GP-28 |
| 110.2.3 | BONDING FOR LANDSCAPE ESTABLISHMENT PERIOD | GP-28 |

PART I - GENERAL PROVISIONS - Continued


| SECTION | TITLE | PAGE |
|---|---|---|
| 110.3 | INSURANCE | GP-29 |
| 110.3.05 | UMBRELLA LIABILITY | GP-29 |
| 110.3.2 | COMMERCIAL GENERAL LIABILITY | GP-29 |
| 110.3.4 | PROFESSIONAL LIABILITY | GP-29 |
| 110.3.5 | OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY | GP-30 |
| 110.3.6 | BUILDER'S RISK INSURANCE | GP-30 |
| 110.3.8 | ADMINISTRATIVE AND GENERAL PROVISIONS | GP-30 |
| 111 | RESOLUTION OF DISPUTES | |
| 111.1.2 | ESCALATION PROCESS | GP-30 |
| 111.1.8 | COMMISSIONER COMMUNICATIONS BEFORE APPEAL | GP-31 |
| 111.2 | PROJECT LEVEL NEGOTIATION TO 111.6 JUDICIAL REVIEW | GP-31 |
| 112 | DEFAULT AND TERMINATION | |
| 112.2 | TERMINATION | GP-31 |
| 203 | EXCAVATION AND EMBANKMENT | |
| 203.01 | DESCRIPTION | GP-32 |
| 203.18 | METHOD OF MEASUREMENT | GP-32 |
| 502 | STRUCTURAL CONCRETE | |
| 502.10 | FORMS AND FALSE WORK | GP-32 |
| 502.11 | PLACING CONCRETE | GP-32 |
| 502.15 | CURING CONCRETE | GP-32 |
| 503 | REINFORCING STEEL | |
| 503.06 | PLACING AND FASTENING | GP-33 |

| SECTION | TITLE | PAGE |
|---|---|---|
| 504 | STRUCTURAL STEEL | |
| 504.09 | FACILITIES FOR INSPECTION | GP-33 |
| 504.18 | PLATES FOR FABRICATED MEMBERS | GP-33 |
| 504.31 | SHOP ASSEMBLY | GP-33 |
| 535 | PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE | |
| 535.02 | MATERIALS | GP-34 |
| 535.05 | INSPECTION FACILITIES | GP-34 |
| 535.26 | LATERAL POST-TENSIONING | GP-34 |
| 603 | PIPE CULVERTS AND STORMDRAINS | |
| 603.0311 | CORRUGATED POLYETHYLENE PIPE FOR OPTION III | GP-34 |
| 604 | MANHOLES, INLETS, AND CATCH BASINS | |
| 604.02 | MATERIALS | GP-34 |
| 605 | UNDERDRAINS | |
| 605.05 | UNDERDRAIN OUTLETS | GP-35 |
| 606 | GUARDRAIL | |
| 606.02 | MATERIALS | GP-35 |
| 606.09 | BASIS OF PAYMENT | GP-35 |
| 615 | LOAM | |
| 615.02 | MATERIALS | GP-35 |
| 618 | SEEDING | |
| 618.01 | DESCRIPTION | GP-36 |
| 618.03 | RATES OF APPLICATION | GP-36 |
| 618.09 | CONSTRUCTION METHOD | GP-36 |

| SECTION | TITLE | PAGE |
|---|---|---|
| 618.15 | TEMPORARY SEEDING | GP-36 |
| 620 | GEOTEXTILES | |
| 620.03 | PLACEMENT | GP-36 |
| 620.07 | SHIPMENT, STORAGE, PROTECTION AND REPAIR OF FABRIC | GP-36 |
| 620.09 | BASIS OF PAYMENT | GP-36 |
| 621 | LANDSCAPING | |
| 621.0036 | ESTABLISHMENT PERIOD | GP-37 |
| 626 | HIGHWAY SIGNING | |
| 626.034 | CONCRETE FOUNDATIONS | GP-37 |
| 639 | ENGINEERING FACILITIES | |
| 639.04 | FIELD OFFICES | GP-37 |
| 639.09 | TELEPHONE | GP-37 |
| 639.11 | BASIS OF PAYMENT | GP-38 |
| 652 | MAINTENANCE OF TRAFFIC | |
| 652.2 | MATERIALS | GP-38 |
| 652.2.4 | OTHER DEVICES | GP-38 |
| 652.2.5 | SAFETY VESTS | GP-38 |
| 652.3.1 | RESPONSIBILITY OF THE DEPARTMENT | GP-38 |
| 652.3.2 | RESPONSIBILITY OF THE CONTRACTOR | GP-39 |
| 652.3.3 | SUBMITTAL OF TRAFFIC CONTROL PLAN | GP-39 |
| 652.3.4 | GENERAL | GP-39 |
| 652.3.41 | LOCAL ROAD GENERAL REQUIREMENTS | GP-40 |

| SECTION | TITLE | PAGE |
|---|---|---|
| 652.3.5 | INSTALLATION OF TRAFFIC CONTROL DEVICES | GP-41 |
| 652.3.6 | TRAFFIC CONTROL | GP-42 |
| 652.41 | TRAFFIC OFFICERS | GP-42 |
| 652.6 | NIGHT WORK | GP-42 |
| 652.61 | CONSTRUCTION VEHICLES | GP-42 |
| 652.7 | METHOD OF MEASUREMENT | GP-42 |
| 652.8.2 | OTHER ITEMS | GP-43 |
| 653 | POLYSTYRENE PLASTIC INSULATION | |
| 653.05 | PLACING BACKFILL | GP-43 |
| 653.06 | COMPACTION | GP-43 |
| 656 | TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL | |
| 656.01 | DESCRIPTION | GP-43 |
| 656.02 | GENERAL | GP-44 |
| 656.03 | SILT FENCE | GP-44 |
| 656.04 | TEMPORARY EROSION CHECKS | GP-45 |
| 656.041 | EROSION CONTROL FILTER BERM | GP-45 |
| 656.05 | TEMPORARY BERMS | GP-45 |
| 656.06 | TEMPORARY SLOPE DRAINS | GP-45 |
| 656.07 | DUMPED STONE | GP-45 |
| 656.08 | SILT FENCE | GP-46 |
| 656.081 | BOOM SUPPORTED FLOATING SILT FENCE | GP-46 |
| 656.082 | MAINTENANCE | GP-46 |

| SECTION | TITLE | PAGE |
|---|---|---|
| 656.085 | EROSION CONTROL COMPLIANCE OFFICER | GP-46 |
| 656.09 | REMOVING AND DISPOSING | GP-47 |
| 656.10 | METHOD OF MEASUREMENT | GP-47 |
| 656.11 | BASIS OF PAYMENT | GP-47 |
| 701 | STRUCTURAL CONCRETE RELATED MATERIALS | |
| 701.10 | FLY ASH – CHEMICAL REQUIREMENTS | GP-48 |
| 703 | AGGREGATES | |
| 703.06 | AGGREGATE FOR BASE AND SUBBASE | GP-48 |
| 703.22 | UNDERDRAIN BACKFILL MATERIAL | GP-49 |
| 706 | NON-METALLIC PIPE | |
| 706.06 | CORRUGATED POLYETHYLENE PIPE FOR UNDERDRAIN, OPTION I AND OPTION II IN CULVERT PIPE | GP-49 |
| 709 | REINFORCING STEEL AND WELDED STEEL WIRE FABRIC | |
| 709.03 | STEEL STRAND | GP-49 |
| 712 | MISCELLANEOUS HIGHWAY MATERIALS | |
| 712.07 | TOPS AND TRAPS | GP-49 |
| 712.08 | CORRUGATED METAL UNITS | GP-49 |
| 712.09 | CATCH BASIN AND MANHOLE STEPS | GP-50 |
| 712.23 | FLASHING LIGHTS | GP-50 |
| 712.32 | COPPER TUBING | GP-51 |
| 712.33 | NON-METALLIC PIPE, FLEXIBLE | GP-51 |
| 712.34 | NON-METALLIC PIPE, RIGID | GP-51 |
| 712.341 | METALLIC PIPE | GP-51 |

| SECTION | TITLE | PAGE |
|---|---|---|
| 712.35 | EPOXY RESIN | GP-51 |
| 712.36 | BITUMINOUS CURB | GP-52 |
| 712.37 | PRECAST CONCRETE SLAB | GP-52 |
| 712.38 | STONE SLAB | GP-52 |
| 717 | ROADSIDE IMPROVEMENT MATERIAL | |
| 717.03 | C. METHOD #3 – ROADSIDE MIXTURE #3 | GP-52 |
| 717.05 | MULCH BINDER | GP-53 |

PART II - SPECIAL PROVISIONS


| SECTION | TITLE | PAGE |
|---|---|---|
| __ | GENERAL DESCRIPTION OF WORK | SP-1 |
| __ | PLANS | SP-1 |
| 101.2 | DEFINITION | SP-1 |
| 103.4 | NOTICE OF AWARD | SP-1 |
| 104.3.8 | WAGE RATES AND LABOR LAWS | SP-2 |
| 104.4.4 | REQUEST FOR INFORMATION (RFI) | SP-5 |
| 104.4.7 | COOPERATION WITH OTHER CONTRACTORS | SP-5 |
| 105.2.4.2 | LEAD PAINT | SP-5 |
| 105.3 | TRAFFIC CONTROL AND MANAGEMENT | SP-8 |
| 105.4.1 | MAINTENANCE DURING CONSTRUCTION | SP-8 |
| 105.4.3 | MAINTENANCE DURING WINTER CONSTRUCTION | SP-8 |
| 105.5.1 | GENERAL REQUIREMENTS | SP-8 |
| 105.7.4 | SUBMITTAL REQUIREMENTS | SP-9 |
| 105.8.1 | TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL | SP-9 |
| 105.8.1.1 | ENVIRONMENTAL STANDARDS | SP-10 |
| 105.8.1.1.1 | WATER POLLUTION CONTROL REQUIREMENTS | SP-11 |
| 105.8.1.1.2 | CONSTRUCTION REQUIREMENTS | SP-12 |
| 105.8.2 | PERMIT REQUIREMENTS | SP-13 |
| 107.1 | CONTRACT TIME AND CONTRACT COMPLETION DATE | SP-14 |
| 107.1.1 | SUBSTANTIAL COMPLETION | SP-14 |
| 107.3.2 | NIGHT WORK | SP-15 |
| 107.4.2 | SCHEDULE OF WORK REQUIRED | SP-15 |

| | | |
|---|---|---|
| 107.4.6 | PROSECUTION OF WORK | SP-15 |
| 107.4.9 | FAILURE TO STOP WORK WHEN DIRECTED | SP-16 |
| 107.7.2 | SCHEDULE OF LIQUIDATED DAMAGES | SP-16 |
| 107.8.1 | FABRICATION TIME | SP-16 |
| 108.4 | PAYMENT FOR MATERIALS OBTAINED AND STORED | SP-17 |
| 109.7.3 | COMPENSABLE ITEMS | SP-18 |
| 201. | CLEARING RIGHT-OF-WAY<br>(Clearing) | SP-19 |
| 202. | REMOVING STRUCTURES AND OBSTRUCTIONS<br>(Removing Existing Superstructure) | SP-20 |
| 202. | REMOVING STRUCTURES AND OBSTRUCTIONS<br>(Removing Existing Structural Concrete) | SP-22 |
| 202. | REMOVING STRUCTURES AND OBSTRUCTIONS<br>(Removing Existing Drain Troughs) | SP-23 |
| 202. | REMOVING STRUCTURES AND OBSTRUCTIONS<br>(Removing Pavement Surface) | SP-24 |
| 203. | EXCAVATION AND EMBANKMENT | SP-25 |
| 206. | STRUCTURAL EXCAVATION | SP-26 |
| 304. | AGGREGATE BASE AND SUBBASE COURSE | SP-28 |
| 401. | HOT MIX ASPHALT PAVEMENTS | SP-29 |
| 409. | BITUMINOUS TACK COAT | SP-32 |
| 419. | SAWING AND SEALING JOINTS IN BITUMINOUS PAVEMENT<br>(Sawing Bituminous Pavement) | SP-33 |
| 502. | STRUCTURAL CONCRETE | SP-34 |
| 504. | STRUCTURAL STEEL | SP-64 |
| 505. | STUD WELDED SHEAR CONNECTORS, ANCHORS AND FASTENERS<br>(Shear Connectors) | SP-68 |

| | | |
|---|---|---|
| 506. | PAINTING STRUCTURAL STEEL | SP-69 |
| 507. | RAILINGS<br>(Steel Bridge Railing, 3 Bar) | SP-78 |
| 508. | MEMBRANE WATERPROOFING | SP-79 |
| 515. | PROTECTIVE COATING FOR CONCRETE SURFACES<br>(Pigmented Concrete Protective Coating) | SP-80 |
| 515. | PROTECTIVE COATING FOR CONCRETE SURFACES<br>(Clear Concrete Protective Coating) | SP-83 |
| 518. | STRUCTURAL CONCRETE REPAIR<br>(Abutment Repairs)<br>(Pier Repairs)<br>(Abutment Seat Refacing) | SP-86 |
| 520. | EXPANSION DEVICES – NON MODULAR<br>(Asphaltic Plug Joint) | SP-91 |
| 523. | BEARINGS<br>(Bearing Removal and Installation)<br>(PTFE Elastomeric Bearing, Expansion) | SP-96 |
| 524. | TEMPORARY STRUCTURAL SUPPORTS<br>(Protective Shield – Steel Girders) | SP-99 |
| 535. | PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE<br>(Precast Concrete Deck Panels) | SP-101 |
| 606. | GUARDRAIL<br>(W-Beam to 3-Bar Bridge Rail Transition) | SP-105 |
| 606. | GUARDRAIL<br>(Guardrail Type 3c- Single Rail, 7 foot posts) | SP-106 |
| 606. | GUARDRAIL<br>(Delineator Post) | SP-107 |
| 607. | FENCES<br>(Snow Fence) | SP-109 |
| 619. | MULCH | SP-110 |
| 620. | GEOTEXTILES<br>(Cellular Confinement System) | SP-112 |

| | | |
|---|---|---|
| 645. | HIGHWAY SIGNING<br>(Remove and Reset Sign) | SP-115 |
| 652. | MAINTENANCE OF TRAFFIC<br>(General) | SP-116 |
| 652. | MAINTENANCE OF TRAFFIC<br>(Specific Project Maintenance of Traffic Requirements) | SP-120 |
| 652. | MAINTENANCE OF TRAFFIC<br>(Temporary Mainline Lane Closures)<br>(Lane Closure Installation and Removal Procedures)<br>(Temporary Mainline Shoulder Closures)<br>(Work Requiring Complete Stoppages of Traffic)<br>(Short-Term or Work Hour Speed) | SP-122 |
| 652. | MAINTENANCE OF TRAFFIC<br>(Portable-Changeable Message Sign) | SP-126 |
| 652. | MAINTENANCE OF TRAFFIC<br>(Truck Mounted Attenuator) | SP-128 |
| 656. | TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL | SP-130 |

MAINE TURNPIKE AUTHORITY

NOTICE TO CONTRACTORS

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACT 2014.06

BRIDGE SUPERSTRUCTURE REPLACEMENT
WEST ROAD UNDERPASS
MILE 91.0

at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, ME, until 11:00 a.m., prevailing time as determined by the Authority on January 14, 2014 at which time and place the Proposals will be publicly opened and read. Bids will be accepted from Contractors **prequalified** by the Maine Department of Transportation for Bridge Construction Projects. All other bids may be rejected. This Project includes a wage determination developed by the State of Maine Department of Labor.

The work consists of replacing the West Road bridge superstructure over the Maine Turnpike in the Town of Litchfield, Maine. The work includes concrete deck and steel girder replacement, concrete substructure modifications and repairs, approach work and paving, guardrail, bridge rails, maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

Plans and Contract Documents may be examined by prospective Bidders weekdays between 8:00 a.m. and 4:30 p.m. at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine. **The full size Plans** and Contract Documents may be obtained from the Authority upon payment of One Hundred ($100.00) Dollars for each set, which payment will not be returned. **The half size Plans** and Contract Documents may be obtained from the Authority upon payment of Fifty ($50.00) Dollars for each set, which payment will not be returned. Checks shall be made payable to: Maine Turnpike Authority. The Plans and Contract Documents may also be downloaded from a link on our website at http://www.maineturnpike.com/project-and-planning/Construction-Contracts.aspx.

For general information regarding Bidding and Contracting procedures, contact Nate Carll, Purchasing Manager, at (207) 871-7771 Ext. 115. For information regarding Schedule of Items, plan holders list and bid results, visit our website at **http://www.maineturnpike.com/project-and-planning/Construction-Contracts.aspx** . For Project specific information, fax all questions to Nate Carll, Purchasing Manager, at (207) 871-7739. Responses will not be prepared for questions received by telephone. Bidders shall not contact any other Authority staff or Consultants for clarification of Contract provisions, and the Authority will not be responsible for any interpretations so obtained.

All work shall be governed by the Specifications entitled "State of Maine, Department of Transportation, Standard Specifications, Revision of December 2002", "Standard Details, Revision of December 2002" and "Best Management Practices for Erosion and Sediment

Control", latest issue. Copies and recent updates to these publications can be downloaded at: http://www.maine.gov/mdot/contractors/publications/ .

Proposals must be accompanied by an original bid bond, certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than Five (5%) Percent of the Total Amount in the Proposal, but not less than $500.00. The Bidder to whom a Contract is awarded will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, for a sum not less than the Total Amount of the Proposal.

Proposals must be made upon the Proposal Forms furnished by the Authority separately with the Contract Documents, and must be enclosed in the sealed special addressed envelope provided therefore bearing the name and address of the Bidder, the name of the Contract, and the date and time of Proposal opening on the outside.

A pre-bid conference will be held on January 7, 2014 at 10:00 a.m. at the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine.

The Authority reserves the unqualified right to reject any or all Proposals and to accept that Proposal which in its sole judgment will under all circumstances serve its best interest.

MAINE TURNPIKE AUTHORITY

Nate Carll
Purchasing Manager
Maine Turnpike Authority

Portland, Maine

Maine Turnpike Authority

MAINE TURNPIKE

PROPOSAL

CONTRACT 2014.06

BRIDGE SUPERSTRUCTURE REPLACEMENT
WEST ROAD UNDERPASS
MILE 91.0

MAINE TURNPIKE AUTHORITY

PROPOSAL

CONTRACT 2014.06

BRIDGE SUPERSTRUCTURE REPLACEMENT
WEST ROAD UNDERPASS
MILE 91.0

TO MAINE TURNPIKE AUTHORITY:

The work consists of replacing the West Road bridge superstructure over the Maine Turnpike in the Town of Litchfield, Maine. The work includes concrete deck and steel girder replacement, concrete substructure modifications and repairs, approach work and paving, guardrail, bridge rails, maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

This Work will be done under a Contract known as Contract 2014.06 according to the Plans and Specifications which are on file in the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine.

On the acceptance of this Proposal for said Work, the undersigned will give the required bond with good security conditioned for the faithful performance of said Work, according to said Plans and Specifications, and the doing of all other work required by said Specifications for the consideration herein named and with the further condition that the Maine Turnpike Authority shall be saved harmless from any and all damages that might accrue to any person, persons or property by reason of the carrying out of said Work, or any part thereof, or by reason of negligence of the undersigned, or any person or persons under his employment and engaged in said Work.

The undersigned hereby declares that he/she has carefully examined the Plans, Specifications and other Contract Documents, and that he/she will contract to carry out and complete the said Work as specified and delineated at the price per unit of measure for each scheduled item of Work stated in the Schedule of Prices as follows:

It is understood that the TOTAL AMOUNT stated by the undersigned in the following Schedule of Prices is based on approximate quantities and will be used solely for the comparison of bids, and that the quantities stated in the Schedule of Prices for the various items are estimates only and may be increased or decreased all as provided in the Specifications.

# SCHEDULE OF BID PRICES
# CONTRACT NO. 2014.06
# BRIDGE SUPERSTRUCTURE REPLACEMENT
# WEST ROAD UNDERPASS
# MILE 91.0

| Item No | Item Description | Units | Approx. Quantities | Unit Prices in Numbers | | Bid Amount in Numbers | |
|---|---|---|---|---|---|---|---|
| | | | | Dollars | Cents | Dollars | Cents |
| 202.101 | Removing Existing Superstructure | Lump Sum | 1 | | | | |
| 202.12 | Removing Existing Structural Concrete | Cubic Yard | 16 | | | | |
| 202.191 | Removing Existing Drain Troughs | Lump Sum | 1 | | | | |
| 202.202 | Removing Pavement Surface | Square Yard | 550 | | | | |
| 203.20 | Common Excavation | Cubic Yard | 985 | | | | |
| 203.24 | Common Borrow | Cubic Yard | 550 | | | | |
| 206.081 | Structural Earth Excavation - Major Structures | Cubic Yard | 24 | | | | |
| 304.10 | Aggregate Subbase Course - Gravel | Cubic Yard | 1,424 | | | | |
| 403.209 | Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals) | Ton | 16 | | | | |
| 403.210 | Hot Mix Asphalt, 9.5 mm Nominal Maximum Size | Ton | 232 | | | | |
| 403.213 | Hot Mix Asphalt, 12.5 mm Nominal Maximum Size, Base | Ton | 230 | | | | |

**CARRIED FORWARD:**

| Item No | Item Description | Units | Approx. Quantities | Unit Prices in Numbers | | Bid Amount in Numbers | |
|---|---|---|---|---|---|---|---|
| | | | | Dollars | Cents | Dollars | Cents |
| | | | **BROUGHT FORWARD:** | | | | |
| 409.15 | Bituminous Tack Coat, Applied | Gallon | 70 | | | | |
| 419.30 | Sawing Bituminous Pavement | Linear Foot | 45 | | | | |
| 502.219 | Structural Concrete, Abutments and Retaining Walls | Lump Sum | 1 | | | | |
| 502.26 | Structural Concrete Roadway and Sidewalk Slab on Steel Bridges | Lump Sum | 1 | | | | |
| 502.49 | Structural Concrete Curbs and Sidewalks | Lump Sum | 1 | | | | |
| 503.14 | Epoxy-Coated Reinforcing Steel, Fabricated and Delivered | Pound | 40,400 | | | | |
| 503.15 | Epoxy-Coated Reinforcing Steel, Placing | Pound | 40,400 | | | | |
| 504.702 | Structural steel, fabricated and delivered, welded | Lump Sum | 1 | | | | |
| 504.71 | Structural steel erection | Lump Sum | 1 | | | | |
| 505.09 | Stud Welded Shear Connectors | Lump Sum | 1 | | | | |
| 506.9102 | Zinc Rich Coating System (Shop Applied) | Lump Sum | 1 | | | | |
| 506.9103 | Zinc Rich Coating System (Field Touch-Up) | Lump Sum | 1 | | | | |

**CARRIED FORWARD:**

| Item No | Item Description | Units | Approx. Quantities | Unit Prices in Numbers | | Bid Amount in Numbers | |
|---|---|---|---|---|---|---|---|
| | | | | Dollars | Cents | Dollars | Cents |
| | | | **BROUGHT FORWARD:** | | | | |
| 507.0821 | Steel Bridge Railing, 3 Bar | Lump Sum | 1 | | | | |
| 508.141 | High Performance Waterproofing Membrane | Lump Sum | 1 | | | | |
| 514.06 | Curing Box for Concrete Cylinders | Each | 1 | | | | |
| 515.201 | Pigmented Protective Coating for Concrete Surfaces | Square Yard | 210 | | | | |
| 515.202 | Clear Protective Coating for Concrete Surfaces | Square Yard | 280 | | | | |
| 518.10 | Abutment Repairs | Square Foot | 76 | | | | |
| 518.20 | Pier Repairs | Square Foot | 118 | | | | |
| 518.30 | Abutment Seat Refacing | Cubic Yard | 6 | | | | |
| 520.23 | Asphaltic Plug Joint | Linear Foot | 37 | | | | |
| 523.521 | Bearing Removal and Installation | Each | 15 | | | | |
| 523.5401 | Laminated Elastomeric Bearings, Fixed | Each | 3 | | | | |
| 523.5402 | Laminated Elastomeric Bearings, Expansion | Each | 6 | | | | |

**CARRIED FORWARD:**

| Item No | Item Description | Units | Approx. Quantities | Unit Prices in Numbers | | Bid Amount in Numbers | |
|---|---|---|---|---|---|---|---|
| | | | | Dollars | Cents | Dollars | Cents |
| | | | **BROUGHT FORWARD:** | | | | |
| 523.5404 | PTFE Elastomeric Bearings, Expansion | Each | 6 | | | | |
| 524.40 | Protective Shielding - Steel Girders | Square Yard | 588 | | | | |
| 526.301 | Temporary Concrete Barrier, Type I | Lump Sum | 1 | | | | |
| 606.1728 | W-Beam to 3-Bar Bridge Rail Transition | Each | 4 | | | | |
| 606.234 | Guardrail Type 3c - Single Rail, 7 Foot Posts | Linear Foot | 1,000 | | | | |
| 606.353 | Delineator Post | Each | 10 | | | | |
| 606.47 | Single Wood Post | Each | 2 | | | | |
| 606.78 | Low Volume Guardrail End - Type 3 | Each | 4 | | | | |
| 607.17 | Chain Link Fence - 6 Foot | Linear Foot | 300 | | | | |
| 607.23 | Chain Link Fence Gate | Each | 2 | | | | |
| 607.32 | Bracing Assembly Type I - Metal Posts | Each | 12 | | | | |
| 607.33 | Bracing Assembly Type II - Metal Posts | Each | 4 | | | | |

**CARRIED FORWARD:**

| Item No | Item Description | Units | Approx. Quantities | Unit Prices in Numbers | | Bid Amount in Numbers | |
|---|---|---|---|---|---|---|---|
| | | | | Dollars | Cents | Dollars | Cents |
| | | | **BROUGHT FORWARD:** | | | | |
| 607.431 | Snow Fence | Linear Foot | 208 | | | | |
| 609.11 | Vertical Curb Type 1 | Linear Foot | 80 | | | | |
| 610.18 | Stone Ditch Protection | Cubic Yard | 40 | | | | |
| 613.319 | Erosion Control Blanket | Square Yard | 1,550 | | | | |
| 615.07 | Loam | Cubic Yard | 250 | | | | |
| 618.1411 | Seeding Method Number 3, Plan Quantity | Unit | 20 | | | | |
| 619.1201 | Mulch, Plan Quantity | Unit | 15 | | | | |
| 619.1202 | Temporary Mulch | Lump Sum | 1 | | | | |
| 619.1401 | Erosion Control Mix | Cubic Yard | 15 | | | | |
| 620.58 | Erosion Control Geotextile | Square Yard | 125 | | | | |
| 620.625 | Cellular Confinement System | Square Yard | 765 | | | | |
| 629.05 | Hand Labor, Straight Time | Hour | 60 | | | | |

**CARRIED FORWARD:**

| Item No | Item Description | Units | Approx. Quantities | Unit Prices in Numbers | | Bid Amount in Numbers | |
|---|---|---|---|---|---|---|---|
| | | | | Dollars | Cents | Dollars | Cents |
| | | | **BROUGHT FORWARD:** | | | | |
| 631.10 | Air Compressor (including operator) | Hour | 20 | | | | |
| 631.11 | Air Tool (including operator) | Hour | 40 | | | | |
| 631.12 | All Purpose Excavator (including operator) | Hour | 10 | | | | |
| 631.171 | Truck - small (including operator) | Hour | 20 | | | | |
| 631.36 | Foreman | Hour | 20 | | | | |
| 645.109 | Remove and Reset Sign | Each | 8 | | | | |
| 652.30 | Flashing Arrow | Each | 2 | | | | |
| 652.312 | Type III Barricades | Each | 10 | | | | |
| 652.33 | Drum | Each | 90 | | | | |
| 652.34 | Cone | Each | 20 | | | | |
| 652.35 | Construction Signs | Square Foot | 1,230 | | | | |
| 652.361 | Maintenance of Traffic Control Devices | Lump Sum | 1 | | | | |

**CARRIED FORWARD:**

| Item No | Item Description | Units | Approx. Quantities | Unit Prices in Numbers | | Bid Amount in Numbers | |
|---|---|---|---|---|---|---|---|
| | | | | Dollars | Cents | Dollars | Cents |
| | | | | **BROUGHT FORWARD:** | | | |
| 652.38 | Flaggers | Hour | 150 | | | | |
| 652.41 | Portable Changeable Message Sign | Each | 2 | | | | |
| 652.45 | Truck Mounted Attenuator | Calendar Day | 100 | $75 | 00 | $7,500 | 00 |
| 656.50 | Baled Hay, in place | Each | 20 | | | | |
| 656.60 | Temporary Berms | Linear Foot | 1,250 | | | | |
| 656.62 | Temporary Slope Drains | Linear Foot | 75 | | | | |
| 656.632 | 30 inch Temporary Silt Fence | Linear Foot | 2,000 | | | | |
| 659.10 | Mobilization | Lump Sum | 1 | | | | |
| | | | | | **TOTAL:** | | |

Acknowledgment is hereby made of the following Addenda received since issuance of the Plans and Specifications: _____
_____
_____

Accompanying this Proposal is an original bid bond, cashiers or certified check on _____ Bank, for _____, payable to the Maine Turnpike Authority. In case this Proposal shall be accepted by the Maine Turnpike Authority and the undersigned should fail to execute a Contract with, and furnish the security required by the Maine Turnpike Authority as set forth in the Specifications, within the time fixed therein, an amount of money equal to Five (5%) Percent of the Total Amount of the Proposal for the Contract awarded to the undersigned, but not less than $500.00, obtained out of the original bid bond, cashier's or certified check, shall become the property of the Maine Turnpike Authority; otherwise the check will be returned to the undersigned.

The performance of said Work under this Contract will be completed during the time specified in Subsection 107.1.

It is agreed that time is of the essence of this Contract and that I (we) will, in the event of my (our) failure to complete the Work within the time limit named above, pay to Maine Turnpike Authority liquidated damages in the amount or amounts stated in the Specifications.

The undersigned is an Individual/Partnership/Corporation under the laws of the State of _____, having principal office at _____, thereunto duly authorized.

_____ *(SEAL)*

_____ *(SEAL)*

*Affix Corporate Seal*
*or Power of Attorney*
*Where Applicable*

_____ *(SEAL)*

By: _____

Its: _____

Information below to be typed or printed where applicable:

INDIVIDUAL:

| | |
|---|---|
| _____ | _____ |
| (Name) | (Address) |

PARTNERSHIP - Name and Address of General Partners:

| | |
|---|---|
| _____ | _____ |
| (Name) | (Address) |
| _____ | _____ |
| (Name) | (Address) |
| _____ | _____ |
| (Name) | (Address) |
| _____ | _____ |
| (Name) | (Address) |

INCORPORATED COMPANY:

| | |
|---|---|
| _____ | _____ |
| (President) | (Address) |
| _____ | _____ |
| (Vice-President) | (Address) |
| _____ | _____ |
| (Secretary) | (Address) |
| _____ | _____ |
| (Treasurer) | (Address) |

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

YORK TO AUGUSTA

CONTRACT AGREEMENT

This Agreement made and entered into between the Maine Turnpike Authority, and sometimes termed the "Authority", and _____

_____

herein termed the "Contractor":

WITNESSETH: That the Authority and the Contractor, in consideration of the premises and of the mutual covenants, considerations and agreements herein contained, agree as follows:

FIRST: The parties hereto mutually agree that the documents attached hereto and herein incorporated and made a part hereof collectively evidencing and constituting the entire Contract to the same extent as if herein written in full, are the Notice to Contractors, the Accepted Proposal, the Specifications, the Plans, this Agreement, the Contract Bond and all Addenda to the Contract Documents duly issued and herewith enumerated:

_____

_____

SECOND: The Contractor for and in consideration of certain payments to be made as hereafter specified, hereby covenants and agrees to perform and execute all of the provisions of this Contract and of all documents and parts attached hereto and made a part thereof, and at his own cost and expense to furnish and perform everything necessary and required to construct and complete, ready for its intended purpose, in accordance with the Contract and such instructions as the Engineer may give, acceptable to the Authority, in the times provided, all of the Work covered and included under Contract No. _____ covering _____ as herein described.

THIRD: In consideration of the performance by the Contractor of his covenants and agreements as herein set forth, the Authority hereby covenants and agrees to pay the Contractor according to the Schedule of Prices set forth in the Proposal with additions and deductions as elsewhere herein provided in the times and in the manner stated in the Specifications. This Agreement shall insure to the benefit of, and shall be binding upon the parties hereto, and upon their respective successors and assigns; but neither party hereto shall assign or transfer his interest herein in whole or in part without the consent of the other, except as herein provided.

IN WITNESS WHEREOF the parties to this Agreement have executed the same in quintuplicate.

AUTHORITY -

MAINE TURNPIKE AUTHORITY

By: _____

Title: CHAIRMAN

Date of Signature: _____

ATTEST:

_____
Secretary

CONTRACTOR -

_____
CONTRACTOR

By: _____

Title: _____

Date of Signature: _____

WITNESS:

_____

# CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS that _____

of _____ in the County of _____ and State of _____

as Principal, and _____ a Corporation duly organized under

the laws of the State of _____ and having a usual place of business in _____

_____

As Surety, are held and firmly bound unto the Maine Turnpike Authority in the sum of _____Dollars ($_____.___), to be paid to said Maine Turnpike Authority, or its successors, for which payment, well and truly to be made, we bind ourselves, our heirs, executors, successors and assigns jointly and severally by these presents.

The condition of this obligation is such that the Principal, designated as Contractor in the foregoing Contract No. _____ shall faithfully perform the Contract on his part and satisfy all claims and demands incurred for the same and shall pay all bills for labor, material, equipment and all other items contracted for, or used by him, in connection with the Work contemplated by said Contract, and shall fully reimburse the Obligee for all outlay and expense which the Obligee may incur in making good any default of said Principal, then this Obligation shall be null and void; otherwise it shall remain in full force and effect.

Signed and sealed this _____ day of _____, A.D., 201___

| Witnesses: | CONTRACTOR | |
|---|---|---|
| _____ | _____ | *(SEAL)* |
| _____ | _____ | *(SEAL)* |
| _____ | _____ | *(SEAL)* |
| | SURETY | |
| _____ | _____ | *(SEAL)* |
| _____ | _____ | *(SEAL)* |
| _____ | _____ | *(SEAL)* |

(Surety must attach copy of Power of Attorney showing authority of Office or Agent to execute bonds)

# FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT

Upon receipt of the sum of _____, which sum represents the total amount paid, including the current payment for work done and materials supplied for Project No. _____, in _____, Maine, under the undersigned's Contract with the Maine Turnpike Authority.

The undersigned, on oath, states that the Final Payment of _____ is the final payment for all work, labor, materials, services and miscellaneous (all of which are hereinafter referred to as "Work Items") supplied to the said Project through _____and that no additional sum is claimed by the undersigned respecting said Project.

The undersigned, on oath, states that all persons and firms who supplied Work Items to the undersigned in connection with said Project have been fully paid by the undersigned for such Work Items or that such payment will be fully effected immediately upon receipt of this payment.

In consideration of the payment herewith made, the undersigned does fully and finally release and hold harmless the Maine Turnpike Authority, and its Surety, if any, from any and all claims, liens or right to claim or lien, arising out of this Project under any applicable bond, law or statute.

It is understood that this Affidavit is submitted to assure the Owner and others that all liens and claims relating to the Work Items furnished by the undersigned are paid.

_____
(Contractor)

By: _____

Title: _____

State of MAINE

County of _____

I, _____, hereby certify on behalf of _____
*(Company Officer)* *(Company Name)*

its _____, being first duly sworn and stated that the foregoing representations are
*(Title)*

are true and correct upon his own knowledge and that the foregoing is his free act and deed in said capacity and the free act and deed of the above-named _____.
*(Company Name)*

The above-named, _____, personally appeared before me this ____ day of _____ and swears that this is his free act and deed.

*(SEAL)*

_____
Notary Public

My Commission Expires: _____

# MAINE TURNPIKE AUTHORITY

# SPECIFICATIONS

# PART I – GENERAL PROVISIONS

*(Rev. May 18, 2009)*

# DIVISION 100 - GENERAL PROVISIONS

## 100.1 Replacement of Former Standard Specifications and Details

The following paragraphs are added:

The Maine Department of Transportation Standard Specifications Revisions of 2002 as modified herein is referenced and incorporated in all Maine Turnpike Authority Construction Contracts. These Maine Turnpike General Provisions replace all previous Maine Turnpike General Provisions and are additions and alterations to the Maine Department of Transportation Standard Specifications. Maine Department of Transportation Consolidated Special Provisions or corrections, additions, and revisions to their Standard Specifications are not referenced or incorporated unless specifically included in the Contract. Applicable MaineDOT December 28, 2004 Consolidated Special Provisions, corrections, additions, and revisions have been incorporated into this document.

All references to components or employees of the Maine Department of Transportation listed in Column A shall also refer to components or employees of the Maine Turnpike Authority in Column B unless otherwise stated.

| A | B |
|---|---|
| Maine Department of Transportation | Maine Turnpike Authority |
| Department | Authority |
| Commissioner | Executive Director |
| Contracts Engineer | Purchasing Manager |
| Contracts Section | Purchasing Department |
| Chief Engineer | Director of Engineering |
| Bureau of Project Development | Maine Turnpike Authority |

# SECTION 101 – CONTRACT INTERPRETATION

## 101.2 Definitions

The following definitions are added or revised:

Authority - The Maine Turnpike Authority, a body corporate and politic duly created and existing under and by virtue of an act of the Legislature of the State of Maine, Chapter 69 of the Private and Special Laws of 1941, as amended.

Award - The resolution of the Authority at an official meeting expressly authorizing the Executive Director or his designee to notify the successful Bidder that his/her Proposal has been accepted and that he/she is required to execute the Contract Agreement and to furnish satisfactory Bonds.

Environmental Information - Hazardous waste assessments, dredge material test results, boring logs, geophysical studies, and other records and reports of the environmental conditions. For a related provision, see Subsection 104.3.14, Interpretation and Interpolation.

Fabrication Engineer - The Department's representative responsible for Quality Assurance of pre-fabricated products that are produced off-site.

Geotechnical Information - Replace with the following: "Boring logs, soil reports, geotechnical design reports, ground penetrating radar evaluations, seismic refraction studies, and other records of subsurface conditions. For a related provision, see Subsection 104.3.14, Interpretation and Interpolation.

Holidays - The following are extended to include the Holiday Period:

| HOLIDAY | HOLIDAY PERIOD |
|---|---|
| Martin Luther King Day | 12:01 a.m. (Midnight) to 11:59 p.m. Martin Luther King Day. |
| President's Day | 12:01 a.m. (Midnight) preceding Friday to 12:01 p.m. following Tuesday. |
| Easter | 12:01 a.m. (Midnight) preceding Friday to 12:01 p.m. following Monday. |
| Memorial Day | 12:01 p.m. preceding Thursday to 6:00 a.m. following Tuesday. |
| Labor Day | 12:01 p.m. preceding Thursday to 6:00 a.m. following Tuesday. |
| Columbus Day | 12:01 a.m. (Midnight) preceding Friday to 12:01 p.m. following Tuesday. |
| Veterans' Day | 12:01 a.m. (Midnight) to 11:59 p.m. Veterans' Day. |
| Thanksgiving Day | 12:01 a.m. (Midnight) preceding Wednesday to 12:01 p.m. following Monday. |

Project - The following sentence is added:

All the Work to be performed under the Contract.

Solicitation - Contract proposal sent to a select list of Contractors. Solicitations do include a requirement for a bid bond. Solicitations do not need Maine Turnpike Board Approval for an award.

Turnpike - The entire toll highway, including all approaches, bridges, interchanges, toll facilities, and structures owned by the Maine Turnpike Authority, and authorized by Chapter 69, Private and Special Laws of Maine, 1941, as amended, and located on properties held in the name of the Authority.

Working Day - The Contractor shall not work during the period from 1/2-hour after sunset to 1/2-hour before sunrise, unless otherwise approved by the Resident.

If, after approval, Work is performed on a Saturday, Sunday, or a holiday, the day shall be considered a Working Day.

## SECTION 102 - BIDDING

### 102.1.1 Basic Requirements

This Subsection is amended by the addition of the following:

To be eligible to Bid, prospective Bidders must not have been debarred or suspended from Bidding by the Authority or the Maine Department of Transportation.

102.6 Bid Guaranty

The second paragraph is deleted and replaced with the following:

No Proposal will be considered unless accompanied by a "Proposal Guaranty" in the form of an original bid bond, certified or cashier's check in favor of the Maine Turnpike Authority, in the amount of not less than five (5%) percent of the Total Amount of the Proposal, except that the amount of the check or Proposal Guaranty shall not be less than $500.00. Solicitations do not require a Bid Guaranty.

Sentence (C) of the third paragraph is deleted and not replaced.

102.7.1 Location and Time

The first paragraph is deleted and replaced with the following:

The Proposal and the Proposal Guaranty shall be enclosed in a sealed envelope furnished by the Authority for this purpose, and shall bear on the outside, the name and address of the Bidder as well as the designation of the Project as named in the Proposal form. Proposals will be received at the place and time stated in the Notice to Contractors, Solicitation, or Addendum as determined by the Authority. Proposals received after the time for opening of bids will be returned to the Bidder unopened. See also Subsection 102.11, Bid Responsiveness.

102.7.2 Effects of Signing and Delivery of Bids

Paragraph C, Certifications, is deleted and not replaced.

## SECTION 103 - AWARD AND CONTRACTING

103.3.1 Notice and Information Gathering

This Subsection is deleted and replaced with the following:

The Authority will review the Bid Proposals. As a condition for Award of a Contract, the Authority may require an Apparent Successful Bidder to demonstrate to the Authority's satisfaction that the Bidder is responsible and qualified to perform the Work. If such information is required, the Authority, or the Authority’s agent, will contact the Apparent Successful Bidder and request specific information. If requested by the Apparent Successful Bidder, this request can be in writing. The Apparent Successful Bidder shall respond to the request within 24-hours (one work day) unless both parties agree in writing to extend the deadline.

103.3.2 Notice of Determination

The first paragraph is deleted and replaced with the following:

If the Authority determines that a Bidder is “Not Qualified”, the Authority or its representative will notify the Bidder in writing of its determination. The notice will set forth the specific reasons therefore to the extent practical. Such reasons may include the following:

N. Bidder has previously performed Work for the State or for the Authority in an unsatisfactory manner;

O. Bidder does not have the capacity to perform the required Work in the opinion of the Authority;

P. This Project combined with other projects committed to by the Bidder puts him in excess of his capacity in the opinion of the Authority;

Q. Reasonable grounds for believing that the Bidder is interested in more than one Proposal for the Work contemplated;

R. Developments arise which, in the opinion of the Authority, adversely affect the Bidder's responsibility; and/or,

S. Lack of qualifications as determined by the Authority.

The Maine Turnpike Authority Board or Executive Director must approve the Award of a Contract. Once approved, the Contractor will be provided with a "Notice of Award". See Subsection 103.4.

103.3.3 Appeal

"Commissioner" is replaced with "Chief Operations Officer".

The third and fourth paragraphs are deleted and replaced with the following:

Within 14 Days of Receipt of such information and arguments, the Chief Operations Officer will notify the Bidder in writing as to whether the decision of "Not Qualified" is upheld, modified, or reversed. The Chief Operations Officer's decision is final.

After a final determination of "Not Qualified" the Bidder's Bid Guaranty will be returned and the Bidder will be ineligible to bid on future MTA Contracts until the Bidder has been determined "Qualified" by the Maine Turnpike.

103.4 Notice of Award

This Subsection is deleted and replaced with the following:

Within five (5) days of the Maine Turnpike Authority Board or Executive Director approval of a Contract Award, the Authority will transmit to the successful Bidder a Notice of Award along with the Contract Documents for execution by the Contractor. The Authority has the option of notifying the successful low Bidder that the above noted material is available at the Authority for the Contractor to pick-up. The Contractor has 20 days following the Bid Opening to deliver to the Authority the signed Contract Documents, required bonds, insurance certificates, and other required information from the successful Bidder. Once these Documents are submitted to the Authority, the Authority will execute the Contract. If the Authority does not execute the Contract within 30 days of receipt of all the proper requested information, the successful Bidder may withdraw their bid without forfeiture of its Bid Guaranty or bidding eligibility. If the Authority and the successful Bidder agree in writing, an extension may be allowed.

103.5.4 Execution of Contract by Bidder

The first sentence is deleted and replaced with the following:

The properly completed and signed Contract Agreement form provided in the Contract Documents constitutes the Bidder's offer.

103.8 Execution of Contract by Department

This Subsection is deleted and replaced with the following:

The Contract will be awarded or Proposals rejected within twenty (20) days from the date of Proposal openings, except that by mutual written agreement between the Bidders and the Authority, the award may be withheld for any length of time. Any Bidder not agreeing to extend the award date shall be eliminated from the Bid List without prejudice, and their Bid Bond released.

The Contract shall not be binding until the Contract has been executed by the Authority, nor shall any Work be performed on account of the proposed Contract until the Contract has been fully executed and delivered.

## SECTION 104 - GENERAL RIGHTS AND RESPONSIBILITIES

104.2.1 Furnishing of Right-of-Way

The first sentence is deleted and replaced with the following:

The Maine Turnpike Authority will secure all necessary rights to real property within the Project Limits shown on the Plans.

104.2.3 Authority of Project Manager and Resident

The following sentences are added:

The Resident is not responsible for supervising the construction Work and is not responsible for monitoring jobsite safety.

The Resident is not authorized to increase the obligation of the Authority to the Contractor, except as specifically set forth in the Specifications.

104.3.5 Duties Regarding Inspection of Work

The following paragraphs are added at the end of Paragraph A. Safe Access:

The Contractor shall furnish the Resident with every reasonable facility for ascertaining whether or not the Work is performed and the materials are furnished in accordance with the requirements and intent of the Contract. Such inspection may include mill, plant or shop inspection. If at any time before acceptance of the Work, the Resident requests it in writing, the Contractor shall remove or uncover such portion of the finished Work as directed. After examination, the Contractor shall restore said portions of the Work to the standards required by the Specifications. Should the Work exposed or examined meet the requirements of the Plans and Specifications, the uncovering or removing and the restoration of the uncovered Work shall be paid for as Extra Work except that no such payment will be made in those cases for which such removal is required by the Plans and Specifications as a part of the Work under the Project. Should the Work not meet the requirements of the Plans and Specifications, the uncovering or removing and restoration shall be at the Contractor's own expense. Any Work done or materials used without suitable supervision or inspection may be ordered to be removed and replaced by the Contractor without extra compensation.

No Work shall be done at night, on weekends, or legal holidays, without prior notice and approval of the Resident. No night Work shall be done until the Contractor has provided an adequate and sufficient source of artificial light to permit examination by the Resident of the suitability of the materials being used and the quality and character of the workmanship.

104.3.7 Laws to be Observed

This Subsection is amended by the addition of the following:

Any section of roadway open to the traveling public is a public way and subject to the applicable rules, regulations, and laws.

104.3.8 Wage Rates and Labor Laws

This Subsection is amended as follows:

A. Federal Wage Rates and Labor Laws is deleted and not replaced.

B. State Wage Rates and Labor Laws.

This Subsection is amended by the addition of the following:

This Contract is governed by the Prevailing Wage Provisions in Title 26, Chapter 15 of the Maine Revised Statutes Annotated. State Wage Rates, if applicable to the Contract, will be included in the Special Provisions.

Fair Minimum Wages

The hourly wage rate paid to laborers of the General Contractor and all Subcontractors shall not be less than the prevailing hourly rate of wages for Work of similar character in the State of Maine. The fair minimum hourly rates determined by the State of Maine Department of Labor for this Contract are included as part of this Contract.

A copy of the Wage Determination(s) shall be provided by the Contractor to all Subcontractors on the Project. In addition, the Wage Determination(s) must be kept posted at the Work site by the Contractor and by all Subcontractors at a prominent location, easily accessible by the workers. On a Project where there is no such location, a Contractor may comply with this requirement by providing each worker with a copy of the Wage Determination(s) within the first full day that the worker works on that Project. The Contractor must be able to document that each worker has received a copy of the Wage Determination(s).

Records

The Contractor and all Subcontractors shall keep an accurate record noting:

- The name and occupation of each and all laborers, workmen, and mechanics employed by them, and all independent Contractors working under Contract to them in connection to the Project;
- Number of hours worked;
- Title of the job;
- Hourly rate or other method of remuneration for the job; and,
- Actual wages or other compensation paid to each of the laborers, workmen, mechanics, and independent Contractors.

A copy of this record must be kept at the jobsite and shall be available at all reasonable hours to the inspection of the Bureau of Labor and/or the Maine Turnpike Authority, its officers and agents. These records must be preserved for a minimum of three (3) years after the completion of the Contract.

A copy of each record must be filed monthly with the Maine Turnpike Authority. This information shall be sent directly to the Maine Turnpike Authority, Director of Engineering and Building Maintenance, Attention: Wage Rate Records, 2360 Congress Street, Portland, ME 04102. The records shall note the Maine Turnpike Contract Number.

The Contractor and all Subcontractors are subject to penalties described in Title 26, Chapter 15 of the Maine Revised Statutes Annotated, for any violations of the Fair Minimum Wage Rates Policy for the State of Maine.

104.3.11 Responsibility for Property of Others

This Subsection is amended by the addition of the following:

The Contractor shall respond to all damage claims in writing, within 30 days, to the party making a damage claim. The response shall state that the Contractor accepts responsibility for the damage or outlines the reasons why the claim has been denied. If the Contractor has turned the claim over to their insurance agent or carrier, the name of the agent or carrier, along with the contact person, address and telephone information shall be included in the response to the claimant and a copy to the Authority. A standard form letter denying the claim without an explanation of the situation shall be unacceptable. A copy of the response letter shall be submitted to the Authority within the 30 day response time. The Authority shall review the response letter and will determine if the Contractor has replied in a responsive manner. If the Authority does not receive a response letter or action report from the Contractor within the 30 day response time, the Authority will determine if the Contractor is responsible for the claimed damage. If, in the absence of the Contractor's response or action report, the Authority deems the claim to be valid, the Authority will at its option pay the damage claim and deduct the amount of the claim from the Contractor. The Contractor will not be entitled to recoup these funds if their response was not transmitted within the 30 day response time. The Authority will not intervene in any claim actions where the Contractor's insurance carrier is conducting a valid, ongoing claim investigation.

104.3.14 Interpretation and Interpolation

The first sentence is change from "...and Geotechnical Information." to "...Environmental Information, and Geotechnical Information".

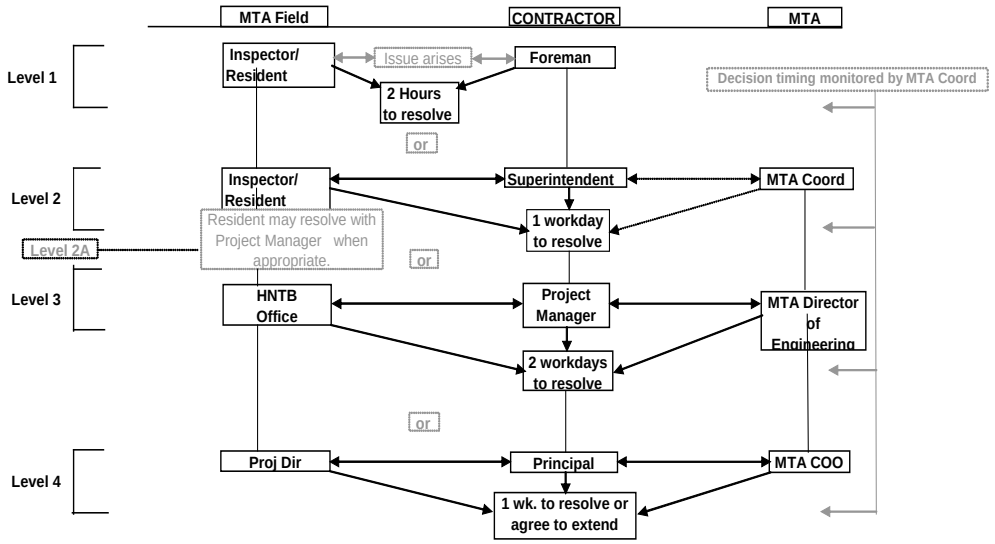
104.4.2 Preconstruction Conference

The following Matrix is added:

Project Decision Matrix

A Project "communication decision tree" will be developed mutually by the Authority and the Contractor during either the preconstruction meeting or partnering session. This Decision Matrix will clearly define, by descriptive job title and name, the respective counterparts for the Authority, and the Contractor who will be responsible for resolving issues at their respective levels of communication. Each level of communicators will be assigned a dollar magnitude of authority and a designated period of time within which all disputed issues must either be resolved or referred to the next higher level of communicators. The purpose of this Decision Matrix is to accelerate the resolution of decisions, to promote resolution at the lowest possible level, and to reduce the number of issues that become disputes.

The following is a sample of the Decision Matrix:




**Level 5** **If an issue is not resolved at Level 4, the matter becomes a Dispute. Refer to Section 111**

**Notes:**

1) **Each project will enter names in all title boxes at Preconstruction or Partnering sessions.**
2) **Substitute names will be provided for all key decision levels.**
3) **Each decision level will be empowered with a maximum dollar guidance value.**
4) **Issues will automatically bounce up to next level if decision time limits are surpassed.**

104.4.5 Early Negotiation

The second paragraph in Part A is deleted and replaced with the following:

Such notice may not be verbal. Notice shall be in the form of a written memo with signatures representing both the Owner and Contractor or shall be in the form of meeting minutes within 14 days of the date that the issue became known. Meeting minutes shall not be valid documentation until they are accepted by the Resident and the Contractor.

Paragraph C, Additional Consideration, is deleted and not replaced. See related Subsection 104.4.2.

104.4.7 Cooperation With Other Contractors

This Subsection is amended by the addition of the following:

The Contractor shall cooperate with the Maine Turnpike Authority. The Authority reserves the right to conduct maintenance operations and to erect and remove traffic control devices as deemed necessary by the Authority or the Resident within or adjacent to the Project.

The Contractor shall note that other contracts may be awarded for Work adjacent to this Contract and these shall be considered adjacent contracts. The Contractor shall cooperate with other Contractors and the Resident so that all Work can be completed in a safe and timely manner. The Resident may direct the Contractor to revise the Work or schedule based on Work that is ongoing in the adjacent Contract. The Contractor's Superintendent or Project Manager shall attend coordination meetings with the Resident and the adjacent Contractors at least once every two weeks. All Contractors bear the full responsibility of cooperation and coordination with each other in the planning and scheduling of traffic closures, stoppages, and other construction activity. The Resident's responsibility for coordination is limited to the timely dissemination of all schedules and information submitted by adjacent Contractors. Neither the Resident, nor the Maine Turnpike Authority, shall bear any responsibility for costs resulting from a Contractor's failure to submit all information as required. Issues and concerns not presented for review and discussion at joint Contractor meetings will not later be cause for claims. This cooperation shall be completed at no additional cost to the Authority.

The Contractor working on an adjacent section may require the placement of temporary construction signs and traffic control devices within this Project area. The placement and maintenance of these devices by another Contractor shall be allowed in this Contract at no additional cost to the Authority.

104.4.10 Coordination of Bridge Closure/Bridge Width Restriction Notification

This Subsection is deleted and replaced with the following:

The Contractor shall notify the Authority a minimum of two (2) weeks prior to the date of closure/restriction with the date on which the closure/restriction will begin and the anticipated duration of the closure/restriction. The Authority will be responsible for notification to others.

104.5.9 Landscape Subcontractors

This Subsection is deleted and replaced with the following:

The Contractor shall retain only Landscape Subcontractors that are certified by the Maine Department of Transportation Environmental Office Landscape Unit.

## SECTION 105 – GENERAL SCOPE OF WORK

Scope of Section

The second paragraph is deleted and replaced with the following:

This Contract is not federally funded.

105.1 Intent of the Contract

This Subsection is amended by the addition of the following:

The Plans and Specifications complement and supplement each other. Should any Work be required, which is not denoted on the Plans or in the Specifications because of an omission, but which is nevertheless necessary for the proper performance and completion of the Project, such Work shall be fully performed as if it were described and delineated. Should any misunderstanding arise as to the intent or meaning of said Plans and Specifications, refer to Subsection 104.4.4, Requests for Information.

The silence of the Specifications, Plans, or other supplemental documents as to any detail, or the apparent omission from them of a detailed description concerning any point, shall be regarded as meaning that only material and workmanship of excellent quality are to be used.

105.2.3 Joint Duty Regarding Safety

The first sentence is amended as follows:

The “Contractor’s TCP” is deleted and replaced with “Traffic Control Plan”.

This Subsection is amended by the addition of the following:

Nothing in the foregoing paragraphs shall be construed as relieving the Contractor from full responsibility for safe prosecution of the Work at all times. The Resident is not responsible for jobsite safety.

The following Subsection is added:

105.2.4.1 Lockout/Tagout Procedures

Prior to the start of Work, the Contractor and the Maine Turnpike Authority shall exchange and review the other party's Lockout/Tagout Procedures for the control of hazardous energy. If the Lockout/Tagout Procedures are similar and neither party has concerns, the two parties shall agree to abide by the procedures of the other party. Only the authorized individual who locked or tagged-out a circuit or piece of equipment is permitted to remove the lockout/tagout, except as provided for in the respective Lockout/Tagout Procedures.

Should either the Contractor or the Maine Turnpike Authority have concerns with the other party's Lockout/Tagout Procedures, the Safety Officers of the Contractor and the Maine Turnpike Authority shall meet, discuss and resolve the areas of concern. The Authority reserves the right to have the Contractor comply with the restrictions and prohibitions of the Maine Turnpike Authority's Lockout/Tagout Procedures if the Authority determines the Contractor's Lockout/Tagout Procedures are inadequate to protect the Authority's employees and patrons.

105.4.1 Maintenance During Construction

This Subsection is amended by the addition of the following:

Paved Surface - The Contractor is responsible for maintaining the existing paved shoulder, ramps, and travel lanes on the Maine Turnpike in good condition. The presence of tracked-dirt on the paved surfaces is unacceptable. The Resident shall have the sole authority to determine the acceptability of the paved surfaces. The use of stabilized construction entrances and frequent sweeping of the shoulder are the responsibility of the Contractor and shall be completed at no additional costs to the Authority.

Gravel Surface - The Contractor is responsible for maintaining gravel surfaces that are used for traffic in good condition. Potholes and wheel ruts are unacceptable. The Resident shall have the sole authority to determine the acceptability of the surfaces. Repairing the surfaces are the responsibility of the Contractor and shall be completed at no additional costs to the Authority.

Signs and Delineators - The Contractor is responsible for maintaining all mile markers, delineator, and signs including regulatory, warning, and guide signs during construction. Maintenance of signs shall mean that signs are clearly visible to motorists at the required height during construction. These items shall be kept in their existing location as long as is practicable. At no time shall any signs not be visible to the

driver. Construction material or equipment shall not obscure signs. This Work shall be accomplished at no additional cost to the Authority.

Erosion and Sedimentation Control - The Contractor shall plan their operations to protect existing Work from erosion. The Contractor is responsible for the inspection and maintenance of all erosion and sedimentation control devices until final acceptance. No payment will be made to repair failed areas if the Best Management Practices had not been utilized prior to a weather event.

105.4.3 Maintenance During Winter Construction

This Subsection is amended by the addition of the following:

The Maine Turnpike Authority will be responsible for winter maintenance including snow removal and application of salt on Maine Turnpike pavement open to traffic.

105.5.1 General Requirements

This Subsection is amended by the addition of the following:

Toll Free Passage on the Turnpike

The Contractor shall be granted free use of the turnpike for movement of vehicles, labor and equipment and for delivery of material essential to the Work. The Contractor will be issued cards with the Contract Number and Contractor Name while working on the Project. The cards shall be transferable and distributed by the Contractor to employees and vehicles working on the Project. The cards may only be used while working on the Project designated on the cards. Such free use shall be limited to the portion of the turnpike between the site of the Work and the nearest practicable exit including movement of vehicles, labor, equipment and materials from one site to another Work site. All vehicles must stop at a manned lane at the toll plazas to present the cards to the toll attendant. Vehicles without the required cards shall pay the required toll. This shall not be a reimbursable expense. The Contractor shall advise the Resident of the number of cards that are required. All cards shall be returned to the Resident at the completion of the Project. The use of the cards for toll free travel shall be revoked if the cards are misused. The Contractor shall nevertheless comply with regulations of the Authority relating to use of the turnpike and with established controls for non-revenue vehicles.

Existing Access

All existing access from local roads to the Maine Turnpike shall remain passable to emergency vehicles at all time. At no time shall construction equipment or material block these roads. Any misuse of this privilege will result in the Contractor's loss of access through these gates. The Contractor shall provide a lock and a piece of chain to link to the existing padlock on the gate allowing access to the Contractor and emergency vehicles.

Access From Local Roads

The Contractor shall not impact wetlands or streams to construct access to the Project. The Contractor may construct temporary access to the turnpike to facilitate the Project. Any damage caused to private property or local roads as a result of the access shall be repaired at the Contractor's own expense. The Contractor shall prepare a written plan outlining the proposed access.

At a minimum, the plan shall outline the following:

- Estimated number of vehicles;

- Time and duration of operation;
- Types of vehicles to use the access;
- Plans to construct a stabilized construction entrance;
- Plan to keep the local road free of tracked-mud and dust;
- Plan to control access to prevent unauthorized use;
- Restoration plan; and,
- Written permission from private property owners (if required).

The Contractor is required to retain the services of qualified flaggers to control the Contractor's operation at the local road access. Flaggers shall be present whenever construction vehicles are utilizing the access. The Contractor shall be responsible for constructing a gate across the access point to prohibit unauthorized access. The Contractor shall also construct a stabilized construction entrance in accordance with the MaineDOT Best Management Practices. All cost associated with the access including, but not necessarily limited to, the construction, restoration, flaggers, gate, and stabilized construction entrance shall be the responsibility of the Contractor. Failure to utilize flaggers will result in termination of permission to use local roads for access. Failure to keep local roads clear of tracked-mud will result in termination of permission to use local roads for access.

Construction Access

The Contractor shall construct a stabilized construction entrance in accordance with the Best Management Practices at all locations where construction vehicles will exit the mainline and/or enter the existing paved shoulder from a non-paved area. The Resident shall approve of the locations. The stabilized construction entrance shall be constructed in conjunction with the clearing activities or other early activities. Additional stabilized construction entrances may be required due to the Contractor's operations as well as site conditions. The construction and maintenance of the stabilized construction entrance shall be incidental.

Change of Direction

The Contractor will not be permitted to reverse directions (U-turns) at the toll plazas or at interchanges. All vehicles must exit the turnpike prior to reversing directions.

The Contractor shall not use the median openings on the turnpike unless the opening is located within passing lane closures on both roadways. The Contractor will be assessed a fine every time any employee of the Contractor, Subcontractor or supplier is observed using a median opening by a Resident or turnpike employee anywhere on the Maine Turnpike throughout the duration of the Contract. The fine will be deducted from monies owed to the Contractor.

The fines will be levied on a per occurrence basis as follows:

| NUMBER OF OCCURRENCES | FINE |
|---|---|
| First | $100 |

For the second occurrence, and any occurrence thereafter, the fine is increased by $100 per each occurrence. The number of occurrences is not specific to a Contract, an individual or a vehicle, but based solely on the number of times any employee of the Contractor, Subcontractor or supplier is observed using a median opening anywhere on the Maine Turnpike. The Contractor shall be notified in writing of the violation by the Authority.

105.6 Construction Surveying

This Subsection is deleted in its entirety and replaced with the following:

105.6.1 Authority Provided Services

The Authority will provide the Contractor with the description and coordinates of vertical and horizontal control points, set by the Authority, within the Project Limits, for full construction Projects and other Projects where survey control is necessary. For Projects of 1,500 feet in length, or less: The Authority will provide three points. For Projects between 1,500 and 5,000 feet in length: The Authority will provide one set of two points at each end of the Project. For Projects in excess of 5,000 feet in length: The Authority will provide one set of two points at each end of the Project, plus one additional set of two points for each mile of Project length. For non-full construction Projects and other Projects where survey control is not necessary, the Authority will not set any control points and, therefore, will not provide description and coordinates of any control points: Upon request of the Contractor, the Authority will provide the Authority's survey data management software and Survey Manual to the Contractor, or its survey Subcontractor, for the exclusive use on the Authority's Projects.

105.6.2 Contractor Provided Services

Utilizing the survey information and points provided by the Authority, described in Subsection 105.6.1, Authority Provided Services, the Contractor shall provide all additional survey layout necessary to complete the Work. This may include, but not necessarily be limited to, reestablishing all points provided by the Authority, establishing additional control points, running axis lines, providing layout and maintenance of all other lines, grades, or points, and survey quality control to ensure conformance with the Contract. The Contractor is also responsible for providing construction centerline, or close reference points, for all utility facility relocations and adjustments as necessary to complete the Work. When the Work is to connect with existing structures, the Contractor shall verify all dimensions before proceeding with the Work. The Contractor shall employ or retain competent engineering and/or surveying personnel to fulfill these responsibilities.

The Contractor must notify the Authority of any errors or inconsistencies regarding the data and layout provided by the Authority as provided by Subsection 104.3.3, Duty to Notify Department If Ambiguities Discovered.

105.6.2.1 Quality Control

The Contractor is responsible for all construction survey quality control. Construction survey quality control is generally defined as, first, performing initial field survey layout of the Work and, second, performing an independent check of the initial layout using independent survey data to assure the accuracy of the initial layout; additional iterations or checks may be required if significant discrepancies are discovered in this process. Construction survey layout quality control also requires written documentation of the layout process such that the process can be followed and repeated, if necessary, by an independent survey crew.

105.6.3 Quality Assurance

It is the Authority's prerogative to perform construction survey quality assurance. Construction survey quality assurance may or may not be performed by the Authority. Construction survey quality assurance is generally defined as an independent check of the construction survey quality control. The construction survey quality assurance process may involve physically checking the Contractor's construction survey layout using independent survey data, or may simply involve reviewing the construction survey quality control written documentation. If the Authority elects to physically check the

Contractor's survey layout, the Contractor's designated surveyor may be required to be present. The Authority will provide a minimum notice of 48-hours to the Contractor, whenever possible, if the Contractor's designated surveyor's presence is required. Any errors discovered through the quality assurance process shall be corrected by the Contractor, at no additional cost to the Authority.

105.6.4 Boundary Markers

The Contractor shall preserve and protect from damage all monuments or other points that mark the boundaries of the right-of-way or abutting parcels that are outside the area that must be disturbed in order to perform the Work. The Contractor indemnifies and holds harmless the Authority from all claims to reestablish the former location of all such monuments or points including claims arising from 14 MRSA § 7554-A. For a related provision, see Subsection 104.3.11, Responsibility for Property of Others.

105.7.1 General

The following paragraphs are added:

Within ten (10) days after the date of execution of the Contract, the Contractor shall inform the Resident in writing of the sources from which he proposes to obtain the materials required for the Project and statements of quality of these materials as hereinafter required in Subsection 106.01, Roles Regarding Quality. Information or materials not required to be incorporated in the Work within six (6) months after said date of execution, may be furnished within thirty (30) days.

Prior to the approval of the submittal, any Work done or materials ordered shall be at the Contractor's own risk. All submittals shall be stamped and signed by the Contractor verifying their approval of the Shop Drawings.

Prior to forwarding submittals to the Resident for review and approval, the Contractor shall mark the Item Number on each submittal for identification, thoroughly check the submittals for compliance with the Contract Documents, and place its stamp of approval on each sheet certifying that the Contractor has so checked each submittal. The Contractor shall certify that "This Shop Drawing has been thoroughly checked and complies with the Contract Documents and field measurements and the item fits with adjoining Work except as noted". Submittals which do not contain this stamp of approval and certification, or which are incomplete, have not been checked, have been checked only superficially, or contain numerous errors, will be returned un-reviewed by the Resident for resubmission by the Contractor. Delays in obtaining approvals, other than those caused by the Authority, are not grounds for granting an extension of time. Disclaimers by the Contractor, any Subcontractor, or supplier of responsibility for any requirements of the Contract Documents, will not be accepted by the Authority and will be deemed invalid.

The following submissions are required if applicable to the Work:

- Construction plans for access
- Project master schedule
- Updated schedules as required
- Shop Drawings
- Spill Prevention Control and Countermeasure (SPCC) Plan
- Traffic control plans
- Temporary earth support system submission
- Bridge beam or structural steel erection plan

105.7.4 Submittal Requirements

The second paragraph is deleted and replaced with the following:

For the first and subsequent submittals, the Contractor shall submit a minimum of seven (7) sets of drawings to the Resident on the size sheets required unless otherwise directed by the Resident.

105.8.1 Temporary Soil Erosion and Water Pollution Control

This Subsection is amended by the addition of the following:

Spill Prevention Control and Countermeasure (SPCC) Plan

Any areas where petroleum products, oils or hazardous materials are handled or stored will require a Spill Prevention Control and Countermeasure (SPCC) Plan. The Plan will be submitted to the Resident before construction begins for review and approval. At a minimum, the Plan shall provide the following information:

1. Name of person who is responsible for spill prevention;

2. Description of handling or storage location, noting setbacks from water bodies where relevant. Significant sand and gravel aquifers and other sensitive resources must be avoided wherever possible;

3. Description of storage and containment facilities;

4. Description of equipment and/or materials used to prevent discharges (including sorbent materials);

5. Preventative measures to minimize the possibility of a spill; and,

6. Contingency plan if spill should occur.

The approved plan must be posted at the jobsite. All personnel working in the area are required to read and be familiar with the plan.

There shall be no separate payment for preparation of a SPCC Plan acceptable to the Resident and preparation is considered incidental to the Work.

## ENVIRONMENTAL STANDARDS

The Project will be performed in accordance with the MaineDOT Best Management Practices (BMP) latest issue. The Contractor shall fully comply with all erosion and sedimentation control requirements outlined in the BMP's or contained herein. Non-compliance with these requirements as determined by the Resident shall result in a financial penalty of $1,000 per day, per violation. Any fines assessed to the Maine Turnpike Authority as a result of the Contractor's non-compliance shall be paid by the Contractor. If the Contractor fails to pay, the cost of the fine will be deducted from monies due, or which may become due to the Contractor under this Contract.

In the event of conflict between these Specifications and other erosion and pollution control laws, rules or regulations of other Federal, State and local agencies, the more restrictive law, rules or regulations shall apply.

The standards as described below shall be met on the Project:

1. Temporary erosion control measures shall be maintained until the site is permanently stabilized with vegetation or other permanent control measures.

2. The Contractor will immediately take appropriate measures to prevent erosion or sedimentation from occurring or to correct any existing problems regardless of the time of year.

3. Work in wetlands is prohibited except to the minimum extent necessary for completion of the Work as detailed on the Plans. Excavated and other material shall not be stockpiled in wetlands. Haybales, silt fence or other suitable barriers shall be used, where necessary, to prevent sedimentation from eroding materials.

4. Uncured concrete shall not be placed directly into the water body. Concrete may be placed in forms and shall cure at least one (1) week prior to form removal. No washing of tools, forms, etc. shall occur in or adjacent to the water body or wetland. Any additional requirements are outlined in Subsection 107.261 of the Special Provisions.

5. Disturbance of natural resources beyond the construction limits shown on the Plans is not allowed.

6. Bare earth slopes shall be roughened to dissipate sheet flow. This shall be accomplished by "tracking" the slope perpendicular to the centerline. No bare earth shall be maintained for more than five days without surface roughening. This Work will not be measured separately for payment, but shall be incidental to the Excavation item.

7. No wheeled or tracked equipment shall be operated in the water. Equipment operating on the shore may reach into the water with a bucket or similar extension. Equipment may NOT cross streams.

8. Existing ditches shall be maintained until the new ditches are stabilized. Stone check dams shall be placed in existing ditches prior to construction as to prevent the release of sedimentation. Stone check dams shall be installed at the outlets of all existing and proposed ditches adjacent to all stream and wetlands.

9. The Contractor's operation may require the placement of temporary pipes and fill over a ditch line to provide access to the Work area. The Resident shall approve the size of the pipe. The placement and removal of the temporary access will not be measured separately for payment, but shall be incidental to the Excavation item.

105.10 Equal Opportunity and Civil Rights

105.10.1 Requirements Applicable to Federally Funded Contracts

This Subsection is deleted and not replaced.

105.10.2 Requirements Applicable to All Contracts

The following is added after Paragraph (A), Maine Code of Fair Practice and Affirmative Action, Paragraph 4).

The Maine Turnpike Authority is an equal opportunity employer and as such, requires all Contractors to pursue in good faith affirmative action programs.

THEREFORE;

The Contractor hereby agrees to the following requirements:

1. The Contractor will pursue an affirmative action program which includes procedures designed to increase the numbers of minorities, women, and handicapped at all levels and in all segments of the workforce where imbalances exist. Such a program should include an assessment of the existing situation, and the development of realistic goals for necessary actions. These goals and related procedures and timetables should not require rigid quotas but are commitments which the Contractor should make every good faith effort to achieve.

2. In connection with Contracts in excess of $250,000, the Contractor will insure contractually that all Subcontractors shall also pursue an affirmative action program meeting the above requirements. The Contractor shall also ensure contractually that all Subcontractors with Contracts in excess of $50,000 pursue an affirmative action program meeting the above requirements.

3. An affirmative action program will provide that no Contractor and/or Subcontractor will discriminate against an employee or applicant for employment because of race, color, religious creed, sex, national origin, ancestry, age, physical handicap or mental handicap unless based upon a bona fide occupational qualification. Such action shall include, but not necessarily be limited to, the following; employment, upgrading, demotions, transfers, recruitment or recruitment advertising, layoffs or terminations, rates of pay and compensation, and selection for training and apprenticeship.

Paragraph (D), Prevention of Sexual Harassment, is deleted and replaced with the following:

Contractors are responsible, under Maine State Law, for ensuring and maintaining a Work environment that is free from sexual harassment. The Contractor shall comply with all relevant provisions of Maine State Law in regard to sexual harassment including, but not necessarily limited to, 5 MRSA 4572, 26 MRSA 806-807, and the regulations of the Maine Human Rights Commission.

Subsections 105.10.2 (E), DBE Reporting Requirements, and (F), Certification of Continuing EEO Efforts, are deleted and not replaced.

105.11 Other Federal Requirements

This Subsection is deleted in its entirety and not replaced.

The following Subsection is added:

105.12 Limitations of Operations

The Contractor shall keep the existing shoulder clear of construction activity except for the period of shoulder reconstruction. The Contractor shall not park or store construction equipment, vehicles, or materials on the shoulder. Construction vehicles shall not enter the mainline travel lane until they can safely merge with the traffic in the travel lane. The construction access shall be in accordance with the details in the Plans. The Resident must approve all shoulder closures.

Existing drainage shall be maintained at all times. All ditches that discharge into wetlands shall have a series of stone check dams installed in the ditch near the outlet prior to the commencement of clearing activities in the area.

## SECTION 106 – QUALITY

### 106.3.3 Sources

Paragraph A, General, is amended by the addition of the following:

Preference in the purchase of supplies and materials, other considerations being equal, shall be given in favor first of supplies and materials manufactured and sold within the State of Maine, and second, of supplies and materials manufactured within the United States. Materials and supplies sold outside the United States will be considered third in the preference order.

### 106.3.4 Storage

This Subsection is amended by the addition of the following:

The Contractor shall be responsible for the security of all storage areas. Materials and supplies that are stolen, damaged or otherwise made unacceptable while in storage shall be replaced in kind at the Contractor's own expense.

### 106.3.7 Sampling and Testing

The forth paragraph is deleted in its entirety and not replaced.

### 106.6 Acceptance

All paragraphs after the first paragraph are deleted and not replaced.

### 106.8.3 Unauthorized Work

The following paragraphs are added:

No omission or failure on the part of the Resident to disapprove or reject any Work or material shall be taken to be an acceptance of any defective Work or material. Within the time set by the Resident, the Contractor shall remove any Work or material condemned by the Resident and shall rebuild and replace the same without extra compensation and in default thereof the removal and replacement may be done by the Authority at the expense of the Contractor; or, in case the Resident should not consider the defect of sufficient importance to require the Contractor to rebuild or replace any imperfect Work or material, he shall have power, and is hereby authorized, to make an equitable deduction from the Contract price.

Materials which do not conform to the requirements of these Specifications shall be considered as defective and will be rejected, whether in place or not, and shall be removed from the Project. No material which has been rejected, the defects of which have been corrected or removed, shall be used until approved by the Resident in writing.

## SECTION 107 – TIME

The following Subsection is added:

### 107.1.1 Substantial Completion

An 80 percent reduction of retainage will be considered by the Authority when the Project is substantially complete. The Contractor shall include an explanation of the outstanding Work, an estimate of the cost to complete the Work, and a schedule for completing the Work. Seasonal limitations as well as warranty and establishment periods (for vegetation) shall be addressed.

### 107.3.1 General

This Subsection is amended as follows:

See related Subsection 101.2, Definitions: Holidays.

Work that impacts traffic may be subjected to further restrictions. See related Special Provision Section 652.

### 107.3.2 Night Work

This Subsection is amended by the addition of the following:

- The Maine Turnpike encourages the Contractor to construct the Project cost effectively while maintaining quality and conformance with all Federal, State and local laws. To facilitate this process, the Maine Turnpike recognizes that the Contractor may choose to construct portions of the Project at night.
- The following is a partial list of activities that would be favorably considered for night construction. The final determination of applicability by the Authority will be based on the Contractor's plan of operation. The Contractor shall demonstrate that the Work can be accomplished in conformance with the appropriate regulations.

Highway Related Work

- Installation and removal of traffic control devices (drums, concrete barrier, impact attenuators)
- Installation and removal of painted pavement markings
- Placement of pavement
- Sawcutting of pavement
- Installation and removal of guardrail

Bridge Related Work

- Delivery of materials (except oversize loads)
- Placement and removal of pier forms
- Shielding of old and new bridge
- Installation and removal of deck and diaphragm forms
- Installation and removal of overhang brackets
- Field painting and preparation of damaged paint areas
- Application of penetrating sealers
- Installation of sign panels on sign bridges

107.3.3 Sundays and Holidays

This Subsection is amended by the addition of the following:

"Saturday" is added before Sunday.

Requests to work outside of the allowable periods must be submitted in writing and approved by the Resident prior to the start of Work. Approval for Work, that in the Authority's opinion will not significantly impact traffic flow, will not be unreasonably withheld.

107.4.2 Schedule of Work Required

This Subsection is amended by the addition of the following:

No Pay Requisition will be approved for payment until the schedule requirement is fulfilled and accepted by the Maine Turnpike Authority.

In addition to the Schedule required hereinbefore, the Contractor shall submit, no later than 12:00-noon every Thursday, a detailed plan of his operations for the following week. This plan shall show the type of Work to be done and the traffic lanes that are to be impacted. This updated plan will be used by the Resident to schedule the appropriate resources and inform other interested parties of the proposed Work.

107.4.4 Schedule Revisions

This Subsection is amended by the addition of the following:

The progress of Work shall be compared against the Schedule of Work at a job meeting once every month. If the Authority determines that the Contractor's actual progress is not in substantial conformity with the Schedule of Work, then the Contractor shall submit a revised Schedule of Work to the Authority depicting the increased or decreased variations in activity durations and milestones as compared to previously submitted schedule(s). If noted in the meeting minutes, or directed in writing by the Resident, the Contractor shall submit a revised Schedule to the Authority within one week of the request. If a revised realistic Schedule is not received within one week of the request, the monthly pay requisition will be withheld. Failure to modify completion dates without a commitment to modify Project resources shall be deemed an unrealistic Schedule unless the particular activity had adequate float.

107.7.2 Schedule of Liquidated Damages

The table of liquidated damages is deleted and replaced with the following:

| Original Contract Amount From More Than | Original Contract Amount up to and Including | Amount of Liquidated Damages per Calendar Day |
|---|---|---|
| $0 | $100,000 | $100 |
| $100,000 | $300,000 | $200 |
| $300,000 | $500,000 | $400 |
| $500,000 | $1,000,000 | $575 |
| $1,000,000 | $2,000,000 | $750 |
| $2,000,000 | $4,000,000 | $900 |
| $4,000,000 | and more | $1,875 |

This Subsection is amended by the addition of the following:

At the option of the Authority, the Contractor may be held responsible for all costs incurred by the Authority which are due to any Work that remains incomplete after the time specified for the completion of the Contract, in addition to the daily calendar day charge.

107.9.1 Final Clean-up and Finishing

This Subsection is amended by the addition of the following:

No separate payment will be made for final clean-up and restoration of property, but the cost thereof shall be included in the prices bid for the various items scheduled in the Proposal.

## SECTION 108 - PAYMENT

108.1 Measurement of Quantities for Payment

This Subsection is amended by the addition of the following:

The quantities in the Schedule of Items are the approximate totals. The breakdown of quantities for various locations is approximate and is for information only. No change in the bid price will be considered for changes in the actual quantities at each location except as provided for in Subsection 109.1, Changes in Quantities.

108.1.2 General Measurement Provisions

The first sentence is deleted and replaced with the following:

The Maine Turnpike Authority will utilize the U.S. Customary system for all units of measurement.

108.1.3 Provisions Relating to Certain Measurements

This Subsection is amended by the addition of the following:

No allowance will be made for surface laid over a greater area than indicated on the Plans or otherwise authorized, or for excavation removed or embankment placed beyond the slope lines shown on the cross-sections, except as otherwise specifically noted or authorized by the Resident in writing.

108.2.1 Generation of Progress Payment Estimates

The first paragraph is deleted and replaced with the following:

The Resident will make current estimates in writing once each month, on or before the date set by the Resident at the time of starting Work, or from time to time as the Work progresses. Progress payments twice per month will not be allowed. The estimate shall include all materials complete in place and the amount of Work performed in accordance with the Contract, during the preceding month or period and the value thereof figured at the unit prices contracted together with estimates of the cost of Extra Work performed during the same period. Estimates or payments will not be made, if in the opinion of the Resident, the Work is not proceeding in accordance with the provisions of the Contract. The Contractor agrees to waive all claims relating to the timing and amount of such estimates.

108.2.2 Payment

The first two sentences are deleted and replaced with the following:

The Maine Turnpike Authority will make payment within 30 days of Contractor and Resident concurrence of progress payment.

108.2.3 Mobilization Payments

The second paragraph is deleted and replaced with the following:

A. The first payment of 50 percent of the lump sum price for mobilization or five percent of the original Contract Amount, whichever is less, will be made with the first monthly estimate.

B. The second payment of 25 percent of the lump sum price for mobilization or 2.5 percent of the original Contract Amount, whichever is less, will be made following completion of 25 percent of the proposed Contract Amount.

C. The third payment of 25 percent of the lump sum price for mobilization or 2.5 percent of the original Contract Amount, whichever is less, will be made following completion of 50 percent of the proposed Contract Amount.

D. Upon substantial completion of the Work on the Project, as determined by the Resident, payment of any amount bid for mobilization in excess ten percent of the original Contract Amount will be paid.

All payments are subject to standard retainage.

Demobilization will not be measured separately for payment, but shall be incidental to Item 659.10, Mobilization.

108.3 Retainage

This Subsection is deleted and replaced with the following:

From the total of the amounts so ascertained there will be deducted an amount equivalent to 7.5 percent of the whole, to be retained by the Authority until after the completion of the entire Contract in an acceptable manner, and the balance, or a sum equivalent to 92.5 percent of the whole shall be certified by the Resident to the Authority for payment.

If it became evident, on the basis of approved progress schedules, or otherwise, that the completion date for the Contract will not be met, the Authority reserves the right to retain the amount of the liquidated damages which have apparently accumulated, in addition to 7.5 percent of the value of the Work done to date.

If at any time there shall be evidence of any lien or claim for which, if established, the Authority might become liable and which is chargeable to the Contractor, the Authority shall have the right to retain out of any payment, then due or thereafter to become due, an amount sufficient to completely indemnify the Authority against such lien or claim.

If the Contractor elects to furnish to the Authority a surety bond in the amount of twice the amount of all liens or claims pending against the Contractor, then the Authority will not exercise the aforementioned right to make retention out of payments on account of such liens or claims.

The payment of any current estimates or of any retained percentages shall in no way affect the obligations of the Contractor to repair or renew any defective parts of the construction and to be responsible for all damage due to such defect.

All material estimates and payments shall be subject to correction in subsequent partial estimates and payments and on the final estimate and payment.

108.4 Payment for Materials Obtained and Stored

The first paragraph is amended as follows:

In the second sentence, the words "...Delivered on or near the Work site at acceptable storage places." are deleted and not replaced.

108.4.1 Price Adjustment for Hot Mix Asphalt

This Subsection is deleted and replaced with the following:

For Contracts containing an excess of 5,000 tons of bituminous pavement, an asphalt price adjustment will be made for all bituminous concrete placed six (6) months after the bid date of the Contract. No asphalt price adjustment will be allowed for Contracts containing less than 5,000 tons. For Contracts containing more than 5,000 tons, no adjustment will be made for asphalt placed at any time within six months of the bid date.

Price adjustment will be based on the variance in cost for the performance-graded binder component of the hot mix asphalt. The quantity of hot mix asphalt for each pay item will be multiplied by performance graded binder given in the table below, times the difference in price in excess of ten percent between the base price and the period price of asphalt cement. Adjustments will be made upward or downward, as prices increase or decrease. The quantity of Hot Mix Asphalt will be determined from the quantity shown on the progress estimate for each pay period. The base price of performance graded binder to be used is the price per standard ton current with the bid opening date. The period price shall be determined by the Authority and shall be the price per standard ton current with the ending date of the progress estimate. The prices shall be determined by using the average N.E. Barge Price, FOB, as listed in the Asphalt Weekly Monitor.

| | |
|---|---|
| Plant Mix B Pavement | 4.0% |
| Hot Bituminous Pavement Grading B | 4.5% |
| Hot Bituminous Pavement Grading C | 5.5% |
| Hot Bituminous Pavement Grading D | 5.5% |
| Hot Bituminous Pavement Grading E | 5.5% |

108.5 Right to Withhold Payment

This Subsection is amended by the addition of the following:

L. Contractor's failure to, or refusal to, remove within 24-hours after receipt of proper notice, any employee or person engaged in Work under Contract.

M. Contractor's failure to submit required schedule or schedule updates.

108.6 Taxes, Fees, Allowances, and Notices

This Subsection is amended by the addition of the following:

The Maine Turnpike Authority, an agency of the State of Maine, is exempt from payment of sales tax, under the present Maine Sales Tax Law, on any property purchased by it at retail for consumption. The Maine Tax Bureau has interpreted this to mean that all materials purchased by the Contractor which ultimately remain the property of the Maine Turnpike Authority, even though in a changed form, are not subject to the sales tax.

108.8 Final Payment

This Subsection is amended by the addition of the following:

Before final payment is made, the Contractor shall furnish to the Authority, on the forms prescribed (Sheet F-1), a sworn affidavit to the effect that no claims are pending. If such affidavit that claims have been paid cannot be given because of a dispute as to the amount or legality of such claim, the Contractor's affidavit shall clearly set out the facts as to the name, address, amount, and nature of the dispute. The Authority will review the matter and will make payment that the Authority deems is appropriate to the Contractor.

## SECTION 109 – CHANGES

109.1.1 Changes Permitted

The following is added to the end of the paragraph:

There will be no adjustment to Contract Time due to an increase or decrease in quantities, compared to those estimated, except as addressed through Contract Modification(s).

109.1.2 Substantial Changes to Major Items

The following is added to the end of the paragraph:

Contract Time adjustments may be made for substantial changes to Major Items when the change affects the Critical Path, as determined by the Authority.

109.3 Extra Work

The following paragraphs are added:

No Extra Work shall be performed except pursuant to the written orders of the Resident, expressly and unmistakably indicating its intention to treat the Work described therein as Extra Work.

If the Contractor determines that Work directed by the Resident is Extra Work, he shall, within 48-hours, give written notice thereof to the Resident stating why he deems it to be Extra Work and shall furnish to the Resident daily time slips and memoranda for the purpose of affording to the Authority an opportunity to verify the Contractor's claim at the time and (if it desires to do so) cancel promptly such order, direction or requirement of the Resident.

Accordingly, the failure of the Contractor to serve such notice or to furnish such time slips and memoranda shall be deemed to be a conclusive and binding determination on his part that the direction,

order or requirement of the Resident does not involve the performance of Extra Work, and shall be deemed to be a waiver by the Contractor of all claims for additional compensation or damages by reason thereof.

Refer to related Subsections 104.4.2, Preconstruction Conference, and 109.7.5, Force Account Work.

109.4 Differing Site Conditions

109.4.1 Definition

This Subsection is amended by the addition of the following:

Paragraph (A) is the definition of Differing Site Conditions. Paragraphs (B), (C) and (D) are not all required along with Paragraph (A) to prove Differing Site Conditions. However, they will be considered by the Maine Turnpike Authority as part of the evaluation of Differing Site Conditions. See related Subsection 102.3, Examination of Documents, Site, and Other Information.

109.4.4 Investigation / Adjustment

This Subsection is amended as follows:

In the third sentence, delete the words "Subsections (A) - (E)".

109.5.1 Definitions - Types of Delays

This Subsection is amended as follows:

B. Compensable Delay -

Replace (1) with the following:

1(A) a weather related Uncontrollable Event of such an unusually severe nature that a Federal Emergency Disaster is declared. The Contractor will only be entitled to an Equitable Adjustment if the Project falls within the geographic boundaries prescribed under the disaster declaration.

1(B) a weather related Uncontrollable Event of such an unusually severe nature that the Contractor's critical path schedule is disrupted.

109.5.2 Entitlement to Adjustments

This Subsection is amended as follows:

A. Types of Adjustments -

Paragraph 2. is deleted and replaced with the following:

2. If a Compensable Delay 1(A), (2), or (3), the Contractor is entitled to an extension of time and an equitable adjustment as set forth in Subsection 109.7, Equitable Adjustment to Compensation. If a Compensable Delay 1(B), the Contractor is entitled to an extension of time and an equitable adjustment as set forth in Subsection 109.7, Equitable Adjustment to Compensation, except that Cost of extended jobsite overhead and time will not be allowed.

109.5.5 Documenting the Delay and Request for Adjustments

The last paragraph is deleted and replaced with the following:

The Authority may require that all cost shown in the report be certified by an accountant.

109.5.6 Decision by Program Manager

This Subsection is deleted and not replaced.

Refer to related Subsection 104.4.2, Preconstruction Conference.

109.5.7 Additional Consideration by Department

This Subsection is deleted and not replaced.

Refer to related Subsection 104.4.2, Preconstruction Conference.

109.6.1 Overview - General Requirements

This Subsection is amended by the addition of the following:

The Maine Turnpike will not participate in any costs borne by the Contractor that are not in accordance with Maine Turnpike policies. All money paid to a business or resident as compensation for impacts created by the Contractor's operation will not be reimbursed by the Authority. All Contractor costs must be documented. Monies paid by the Contractor to others must be documented by a receipt for the cost to be considered as part of the VECP. Copies of all receipts shall be submitted to the Resident.

109.7.2 Basis of Payment

This Subsection is deleted in its entirety and replaced with the following:

Equitable Adjustments will be established by mutual Agreement for compensable items listed in Subsection 109.7.3, Compensable Items, based upon Unit or Lump Sum Prices. If Agreement cannot be reached, the Contractor shall accept payment on a Force Account basis as provided in Subsection 109.7.5, Force Account Work, as full and complete compensation for all Work relating to the Equitable Adjustment.

109.7.3 Compensable Items

This Subsection is deleted and replaced with the following:

The Contractor is entitled to compensation for the following items, with respect to agreed upon Unit or Lump Sum Prices:

1. Labor expenses for non-salaried workers and salaried foremen.

2. Costs for Materials.

3. A markup on the totals of Items 1 and 2 of this Subsection (109.7.3) for home office overhead and profit of the Contractor, its Subcontractors and suppliers, and any lower tier Subcontractors or suppliers, with no mark-ups on mark-ups.

4. Cost for Equipment, based on Blue Book Rates or leased rates, as set forth in Subsection 109.7.5(C), or the Contractor's Actual Costs.

5. Costs for extended jobsite overhead.

6. Time.

7. Subcontractor quoted Work, as set forth below in Subsection 109.7.5, Force Account Work.

109.7.5 Force Account Work

This Subsection is amended by the addition of the following:

C. Equipment

When the Contractor is paid for furnishing and operating equipment on an hourly or daily basis, it shall be operated as approved by the Resident in such a manner as to obtain maximum production under the prevailing conditions. The Resident may order the removal and require replacement of any unsatisfactory equipment.

The first sentence of the second paragraph, which begins: "Equipment leased...", is deleted.

The second sentence of the sixth paragraph is changed from "The Contractor may furnish..." to read "If requested by the Authority, the Contractor will produce cost data to assist the Authority in the establishment of such rental rate, including all records that are relevant to the Actual Costs including rental Receipts, acquisition costs, financing documents, lease Agreements, and maintenance and operational cost records."

The following sentence is added:

Equipment leased by the Contractor for Force Account Work and actually used on the Project will be paid for at the actual invoice amount plus 10 percent markup for administrative costs.

The following sentence is added:

F. Subcontractor Quoted Work - When accomplishing Force Account Work that utilizes Subcontractor quoted Work, the Contractor will be allowed a maximum markup of five percent for profit and overhead.

## SECTION 110 - INDEMNIFICATIONS, BONDING AND INSURANCE

110.2.1 Bonds

The first three paragraphs are deleted and replaced with the following:

The Bidder to whom the Contract is awarded shall furnish a Surety Corporation Bond, satisfactory to the Authority, on the form of the Contract Bond bound herewith, as security for the faithful performance of the Work. The Contract Bond must be executed or countersigned on the part of such Surety by the Resident Agent of the Surety for the State of Maine.

The Bond shall be in an amount not less than the Total Amount bid in the Proposal and shall be maintained by the Contractor until the final payment under the Contract is made. In the event of insolvency

of the Surety, the Contractor shall forthwith furnish and maintain as above provided, other security satisfactory to the Authority.

If the Contractor is unable to continue the Work, then the completion of the Contract shall be the sole responsibility of the Surety. The Surety shall assume the role of and become the Contractor. Work shall not commence until the Authority has approved, in writing, the Subcontractor's employed by the Surety. All Work to complete the Contract will be paid for at Contract bid prices as shown on the Proposal bid sheets. All payments made by the Authority will be paid directly to the Surety who in turn will then pay the Subcontractors and suppliers. Regardless of the amounts previously paid to the Contractor as Progress Estimates for Work reported to have been put in place by the Contractor or his Subcontractors, the full Scope of the Contract Work shall be completed by the Surety and its designates for compensation not to exceed the Contract Price less the aggregate of prior payments to the Contractor.

110.2.3 Bonding for Landscape Subcontractors

This Subsection is deleted and replaced with the following:

110.2.3 Bonding for Landscape Establishment Period

The Contractor shall provide a signed, valid, and enforceable Performance, Warranty, or Maintenance Bond complying with the Contract, to the Department at Final Acceptance.

The Bond shall be in the full amount for all Pay Items for Work pursuant to Section 621, Landscape, made payable to the Maine Turnpike Authority.

The Contractor shall pay all premiums and take all other actions necessary to keep said Bond in effect for the duration of the Landscape Establishment Period as described in Special Provision 621.0036, Establishment Period. If the Surety becomes financially insolvent, ceases to be licensed or approved to do business in the State of Maine, or stops operating in the United States, the Contractor shall file new Bonds complying with this Subsection and within 10 days of the date the Contractor is notified or becomes aware of such change.

All Bonds shall be procured from a company organized and operating in the United States, licensed or approved to do business in the State of Maine by the State of Maine Department of Business Regulation, Bureau of Insurance, and listed on the latest Federal Department of the Treasury listing for "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies."

By issuing a Bond, the Surety agrees to be bound by all terms of the Contract, including those related to payment, time for performance, quality, warranties, and the Department's self help remedy as provided in Subsection 112.1, Default, to the same extent as if all terms of the Contract are contained in the Bond(s).

Regarding claims related to any obligations covered by the bond, the Surety shall provide, within 60 Days of Receipt of written notice thereof, full payment of the entire claim or written notice of all bases upon which it is denying or contesting payment. Failure of the Surety to provide such notice within the 60-day period constitutes the Surety's waiver of any right to deny or contest payment and the Surety's acknowledgment that the claim is valid and undisputed.

110.3 Insurance

This Subsection is amended by the addition of the following:

Each policy shall be signed by the President and Secretary of the insurance company and shall be countersigned by a licensed Resident Agent of the State of Maine as an authorized representative of the company.

Before Work is commenced pursuant to the Agreement, the Contractor shall file with the Authority a Certificate of Insurance, executed by an insurance company or companies satisfactory to the Authority and licensed or approved by the State of Maine Department of Business Regulation, Bureau of Insurance to do business in the State of Maine, stating that the Contractor carries insurance in accordance with the requirements of the Contract.

If at any time, any of the said policies shall be or become unsatisfactory to the Authority, the Contractor shall promptly obtain new and satisfactory policies and furnish certificates therefor as required above. All policies shall contain a valid provision or endorsement providing that the insurance company will notify the Authority in writing at least thirty (30) days prior to the termination of any policy or before any changes are made in any policies. The policy shall also indicate which exclusions have been deleted and any additional coverages.

Neither approval by the Authority, nor a failure to disapprove insurance furnished by a Contractor, shall release the Contractor of full responsibility for liability, damages and accidents as set forth herein.

No separate payment shall be made for any insurance that the Contractor may be required to carry, but all costs thereof shall be included in the prices bid for the various items scheduled in the Proposal.

The following Subsection is added:

110.3.05 Umbrella Liability

An Umbrella Liability Policy in excess of Employer's Liability, General Liability, and Automobile Liability shall be provided with a limit of $4,000,000.

110.3.2 Commercial General Liability

This Subsection is amended by the addition of the following:

Where the Work to be performed has to do with railroads, then railroad Protective Liability Insurance shall be provided, with the Maine Turnpike Authority as a named insured.

The Contractual Liability Insurance shall cover the Contractor's obligation to indemnify the Authority as provided in Subsection 110.1, Indemnification.

110.3.4 Professional Liability

The first sentence is deleted and replaced with the following:

Contractors who engage in design Work, preliminary engineering Work, and environmental consulting Work for the Authority shall maintain a Professional Liability policy for errors and omissions with a minimum limit of liability of $5,000,000. The Authority reserves the right to require increased insurance limits for certain major Projects.

110.3.5 Owner's and Contractor's Protective Liability

This Subsection is deleted and replaced with the following:

For Projects with a Contract price in excess of $500,000, an "Owner's Protective" policy in the name of the Maine Turnpike Authority, with a $5,000,000 limit, shall also be provided.

110.3.6 Builder's Risk Insurance

This Subsection is amended by the addition of the following:

The Contractor shall provide Builder's Risk Insurance if the Project requires it. This determination will be made by the Authority and shall be so stated in the Special Provisions. The insurance coverage shall be shown on a special form and provide for transient and off-premise coverage and materials intended for use at the Project site. Any exclusion related to design, materials, or workmanship shall not apply to resulting damage.

110.3.8 Administrative and General Provisions

A. Additional Insured

This paragraph is deleted and replaced with the following:

Each policy, with the exception of Workers' Compensation and Professional Liability Insurance, shall name the Authority as an additional named insured. The Maine Turnpike Authority Contract Number shall be clearly stated on each policy.

## SECTION 111 - RESOLUTION OF DISPUTES

111.1.2 Escalation Process

This Subsection is deleted and replaced with the following:

To resolve Issues and Disputes, the Contractor and the Maine Turnpike Authority will develop a Decision Matrix at the preconstruction or partnering meeting. See related Subsection 104.4.2, Preconstruction Conference. If an issue is not resolved, the matter becomes a Dispute and is eligible for settlement by an Alternate Dispute Resolution (ADR) process as outlined in this Section. Either the Authority or the Contractor may request an ADR process. If a Contractor is dissatisfied with an ADR recommendation, the decision may be appealed to the MTA Executive Director. A decision by the MTA Executive Director may be appealed to either Mediation or Arbitration. All costs of ADR, including Neutral Evaluations, Dispute Review Boards (DRBs), Mediation or Arbitration shall be shared equally.

ALTERNATIVE DISPUTE RESOLUTION

Preliminary ADR:

The purpose of the optional use of ADR is to assist the consenting parties to resolve disputes in a manner that complies with the Contract, that is fair, impartial, less expensive, faster and less formal than litigation. A Project issue becomes a Dispute eligible for ADR only when mutually acceptable resolution can not be achieved within the Decision Matrix-prescribed time period at the level of the Authority's Chief Operating Officer (COO), and the Contractor's Principal.

The Contractor and the Authority shall select a mutually acceptable form of Preliminary ADR from the following options, with the preference expressed in the order of listing.

1. NEUTRAL EVALUATION: Jointly selected by the disputing parties, the Neutral would conduct a third party, neutral investigation of both sides of the dispute, resulting in the submission of a Report of Recommended Settlement to the disputing parties.

2. DISPUTE REVIEW BOARD (DRB): The parties would jointly select two to three mutually acceptable experts who would hear and weigh a presentation of positions and evidence by the parties; resulting in the issuance by the DRB of a Recommended Settlement of the matter.

Recommendations by either a Neutral or a DRB will be non-binding unless the parties mutually agree in writing at the time of process selection that such recommendations will be binding.

Appeal to the Executive Director:

If either party rejects a recommendation resulting from ADR, the Dispute may be appealed to the Executive Director of the Authority. Once a dispute has been submitted to ADR, no party shall discuss the elements of the dispute with the Executive Director.

Final ADR - Mediation or Arbitration:

At the request of the Contractor, appeal decisions rendered by the Executive Director may be appealed by the Contractor to a Final ADR process of either Mediation or Arbitration. The costs of Mediation or Arbitration shall be borne equally by the Contractor and the Authority. Decisions by either a Mediator or an Arbitrator(s) will be non-binding unless the parties mutually agree in writing at the time of process selection that such recommendations will be binding.

NOTE: It is the intent of this Specification to retain maximum flexibility for the specific procedures for either Preliminary or Final Alternative Dispute Resolution. The processes shall follow the guidelines of construction industry ADR practices in general. The Authority and the Contractor will contribute equal input to the selection of location, methods, experts and timing of such processes. When a Dispute Review Board is utilized, the Authority and the Contractor shall have equal veto power in the selection of DRB composition.

111.1.8 Commissioner Communications Before Appeal

This Subsection is deleted and not replaced.

111.2 Project Level Negotiation to 111.6 Judicial Review

These Subsections (inclusive) are deleted and not replaced.

## SECTION 112 - DEFAULT AND TERMINATION

112.2 Termination

This Subsection is amended by the addition of the following:

When the Contract is terminated, the Contractor shall, if so required by the Authority, promptly remove any or all of his/her equipment and supplies from the Project site or from other property of the

Authority, failing which the Authority may remove such equipment and supplies at the expense of the Contractor.

## SECTION 203 - EXCAVATION AND EMBANKMENT

### 203.01 Description

The following is added at the end of the last paragraph:

Unclassified bids are submitted at the sole risk of the Bidder. The Contractor shall only be entitled to compensation at the unit prices submitted for the actual quantity of Common Excavation and Rock Excavation. No additional compensation shall be considered for changes from the estimated quantities to the actual quantities regardless of the reason for the change.

### 203.18 Method of Measurement

The seventh paragraph is amended as follows:

Elevations for final cross sections shall be determined as shown and calculated on the Plans. Measurements shall be determined at the bottom of loam line unless otherwise noted.

## SECTION 502 - STRUCTURAL CONCRETE

### 502.10 Forms and False Work

#### D. Removal of Forms and False Work

The first paragraph is amended as follows:

In the first, second, and third sentences, "forms and false work" are replaced with "forms".

### 502.11 Placing Concrete

#### G. Concrete Wearing Surface and Structural Slabs on Precast Superstructures

The last paragraph is amended as follows:

In the third sentence, replace "The temperature of the concrete shall not exceed 24°C [75°F] at the time of placement." with "The temperature of the concrete shall not exceed 24°C [75°F] at the time the concrete is placed in its final position."

### 502.15 Curing Concrete

The first paragraph is amended as follows:

The first sentence is replaced with: "All concrete surfaces shall be kept wet with clean, fresh water for a curing period of at least seven (7) days after concrete placing, with the exception of vertical surfaces as provided for in Subsection 502.10 (D), Removal of Forms and False Work.

The second paragraph is amended as follows:

The first two sentences are deleted.

The third paragraph is amended as follows:

The entire paragraph, which starts "When the ambient temperature....", is deleted.

The fourth paragraph is amended as follows:

Delete "approved" to now read "...continuously wet for the entire curing period…".

The fifth paragraph is amended as follows:

The second sentence is changed from "...as soon as it is possible to do so without damaging the concrete surface." to: "...as soon as possible."

The seventh paragraph is amended as follows:

The first sentence is changed from "...until the end of the curing period." to "...until the end of the curing period, except as provided for in Subsection 502.10(D), Removal of Forms and False Work."

## SECTION 503 - REINFORCING STEEL

### 503.06 Placing and Fastening

The second paragraph is amended as follows:

The third sentence is changed from "All tack welding shall be done in accordance with Section 504, Structural Steel." to "All tack welding shall be done in accordance with AWS D1.4, Structural Welding Code - Reinforcing Steel."

## SECTION 504 - STRUCTURAL STEEL

### 504.09 Facilities for Inspection

The following is added to the last paragraph:

Failure to comply with the above requirements will be consider to be a denial to allow access to Work by the Contractor. The Department will reject any Work done when access for inspection is denied.

### 504.18 Plates for Fabricated Members

The second paragraph is amended as follows:

The first sentence is changed from "…ASTM A 898/A 898 M..." to "...ASTM A 898/A 898 M or ASTM A 435/A 435 M as applicable and...".

### 504.31 Shop Assembly

The following is added to the last sentence:

The minimum assembly length shall include bearing centerlines of at least two substructure units.

## SECTION 535 - PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE

### 535.02 Materials

"Steel Strand for Concrete Reinforcement" is changed to "Steel Strand."

The following is added to the beginning of the third paragraph:

Concrete shall be Class P conforming to the requirements in this Subsection. Twenty-eight day compressive strength shall be as stated on the Plans. Coarse aggregate...

### 535.05 Inspection Facilities

The following is added to the last paragraph:

Failure to comply with the above requirements will be considered to be a denial to allow access to Work by the Contractor. The Department will reject any Work done when access for inspection is denied.

### 535.26 Lateral Post-Tensioning

The first paragraph is replaced with the following:

Overstressing strands for setting losses cannot be accomplished for chuck to chuck lengths of 7.6 m [25 feet] and less. In such instances, refer to the Plans for all materials and methods. Otherwise, post-tensioning shall be in accordance with PCI standards and shall provide the anchorage force as noted in the Plans. The applied jacking force shall be no less than 100 percent of the design jacking force.

## SECTION 603 - PIPE CULVERTS AND STORM DRAINS

### 603.0311 Corrugated Polyethylene Pipe for Option III

Minimum Mandrel Diameter Table is replaced with the following:

| Nominal Size US Customary (in) | Minimum Mandrel Diameter (in) | Nominal Size Metric (nun) | Minimum Mandrel Diameter (mm) |
|---|---|---|---|
| 12 | 11.23 | 300 | 280.73 |
| 15 | 14.04 | 375 | 350.91 |
| 18 | 16.84 | 450 | 421.09 |
| 24 | 22.46 | 600 | 561.45 |
| 30 | 28.07 | 750 | 701.81 |
| 36 | 33.69 | 900 | 842.18 |
| 42 | 39.30 | 1050 | 982.54 |
| 48 | 44.92 | 1200 | 1122.90 |

## SECTION 604 - MANHOLES, INLETS, AND CATCH BASINS

### 604.02 Materials

The following are added:

Tops and Traps 712.07

| | |
|---|---|
| Corrugated Metal Units | 712.08 |
| Catch Basin and Manhole Steps | 712.09 |

## SECTION 605 - UNDERDRAINS

### 605.05 Underdrain Outlets

The first paragraph is amended as follows:

In the second sentence, the words "metal pipe" are deleted.

## SECTION 606 - GUARDRAIL

### 606.02 Materials

The fourth paragraph, which reads "Retroreflective beam guardrail delineators..." is deleted and replaced with the following:

Reflectorized sheeting for Guardrail Delineators shall meet the requirements of Subsection 719.01, Reflective Sheeting. Delineators shall be fabricated from high-impact, ultraviolet and weather resistant thermoplastic.

The eighth paragraph, which reads "The sole patented supplier of multiple mailbox..." is deleted and replaced with the following:

Acceptable multiple mailbox assemblies shall be listed on the Department's Approved Products List and shall be NCHRP 350 tested and approved.

### 606.09 Basis of Payment

The second and third sentences in the first paragraph are deleted in their entirety and replaced with the following:

Butterfly-type guardrail reflectorized delineators shall be mounted on all W-beam guardrail at an interval of every 10 posts [62.5 feet] on tangents sections and every five posts [31.25 feet] on curved sections as directed by the Resident. On divided highways, the delineators shall be yellow on the left hand side and silver/white on the right hand side. On two-way roadways, the delineators shall be silver/white on the right hand side. All delineators shall have retroreflective sheeting applied to only the traffic facing side. Reflectorized guardrail delineators will not be paid for directly, but will be incidental to the guardrail items.

## SECTION 615 - LOAM

### 615.02 Materials

This Subsection is amended as follows:

One hundred percent of the loam material must pass the two inch sieve.

| Organic Content | Percent by Volume |
|---|---|
| Humus | "5% - 10%", as determined by Ignition Test |

## SECTION 618 - SEEDING

### 618.01 Description

The first sentence is amended to read:

This Work shall consist of furnishing and applying seed.

The words “and cellulose fiber mulch” are deleted from 618.01(a).

### 618.03 Rates of Application

The last sentence in 618.03(a) is deleted and replaced with the following:

These rates shall apply to Seeding Method 2, 3, and Crown Vetch.

In 618.03(c), "1.8 kg [4 lb]/unit." is deleted and replaced with "1.95 kg [4 lb]/unit."

### 618.09 Construction Method

In 618.09(a) 1, sentence two, "100 mm [four inches]" is replaced with "25 mm [one inch] (Method 1 areas) and 50 mm [two inches] (Method 2 areas)".

### 618.15 Temporary Seeding

The Pay Unit is changed from “Unit” to “Kg [lb]”.

## SECTION 620 - GEOTEXTILES

### 620.03 Placement

Section (c): Replace "Non-woven" in title with "Erosion Control".

The word "Non-woven” in the first paragraph is replaced with "Woven monofilament”.

The word "Non-woven" in the second paragraph is replaced with "Erosion Control".

### 620.07 Shipment, Storage, Protection and Repair of Fabric

Section (a): the second sentence is replaced with the following:

Damaged geotextiles, as identified by the Resident, shall be repaired immediately.

### 620.09 Basis of Payment

Pay Item 620.58: "Non-woven" is replaced with "Erosion Control".

Pay Item 620.59: "Non-woven" is replaced with "Erosion Control".

## SECTION 621 - LANDSCAPING

### 621.0036 Establishment Period

In the fourth and fifth paragraphs, "time of Final Acceptance" is replaced with "end of the period of establishment".

In the seventh paragraph, "Final Acceptance date" is replaced with “end of the period of establishment”; and "date of Final Acceptance" is replaced with "end of the period of establishment".

## SECTION 626 - HIGHWAY SIGNING

### 626.034 Concrete Foundations

The following is added to the end of the second paragraph:

Pre-cast and cast-in-place foundations shall be warranted against leaning and corrosion for two years after the Project is complete. If the lean is greater than two degrees from normal or the foundation is spalling within the first two years, the Contractor shall replace the foundation at his own cost.

## SECTION 639 - ENGINEERING FACILITIES

### 639.04 Field Offices

This Subsection is amended by the addition of the following:

The Field Office location shall be approved by the Resident and shall be provided when the Contract starts and shall remain until the Contract is complete. The Contractor shall be responsible for furnishing and maintaining electricity, heat, facsimile machine and appliances for the entire duration of the Contract, which includes periods of time which Work has been suspended.

The Contractor shall provide a plain paper (8-1/2” x 11”) fax/copier machine with a 10 page (minimum) auto document feeder, 15 page (minimum) fax memory, 50 sheet (minimum) paper capacity, and a transmission speed of six pages (minimum) per minute for the Resident's use during the Project. All maintenance and supplies shall be the responsibility of the Contractor. The fax machine shall be connected to a separate telephone line so that the fax machine operates independent of the telephone and answering machine. A total of three phone lines shall be provided by the Contractor. All of the costs associated with the above shall be the responsibility of the Contractor except for the monthly telephone charges.

The following are not required:

- Accessible route conforming to the Americans with Disabilities Act
- Wheelchair accessible toilet

### 639.09 Telephone

This Subsection is amended as follows:

The Contractor shall be reimbursed at cost for the monthly telephone service charges. Telephone service shall remain throughout the Contract including periods of seasonal shutdowns.

639.11 Basis of Payment

The following is added after the first paragraph:

The Contractor shall be reimbursed at cost for the monthly telephone service charges. No additional markup will be allowed. The Contractor shall submit copies of the monthly bills to the Resident for payment.

## SECTION 652 - MAINTENANCE OF TRAFFIC

652.2 Materials

The first sentence in the second paragraph is replaced with the following:

All construction signs shall be fabricated with super high intensity (ASTM 4956 – Type VII) retroreflective sheeting. All construction signs and construction sign packages shall have the Type VII sheeting material. 3924 Diamond Grade fluorescent orange sheeting manufactured by 3M conforms to ASTM 4956 – Type VII.

652.2.4 Other Devices

The eighth paragraph is amended by the addition of the following:

The Portable Message Signs shall be capable of being programmed remotely by telephone, of monitoring the speed of traffic in a travel lane, and of displaying a message in response to a vehicle exceeding an allowable speed threshold. The Contractor shall submit a catalog cut to the Resident for approval, establish a cellular account so that signs may be programmed remotely and provide training for the operation of the sign to the Resident.

The portable-changeable message signs may be moved throughout the Project area as required to provide advance warning of construction operations which may impact the flow of traffic as well used during lane closures to display messages relative to the speed of traffic. The Contractor shall remove, transport and maintain the signs as directed and approved by the Resident.

The Authority will be responsible for the actual programming of the signs.

A deduction will be made from money due the Contractor for signs that fail to operate for extended periods of time.

The following Subsection is added:

652.2.5 Safety Vests

All jobsite personnel shall wear a safety vest labeled as ANSI 107-199 standard performance for Class 2 risk exposure or an equivalent.

652.3.1 Responsibility of the Department

The first paragraph is deleted and replaced with the following:

The Authority will provide Project specific traffic control requirements and traffic control plans for use by the Contractor. The specific traffic control requirements for the Project are identified in Special Provision Section 652, Maintenance of Traffic (Specific Project Maintenance of Traffic Requirements). No

revisions to these requirements or Plans will be permitted unless the Contractor can thoroughly demonstrate an overall benefit to the public and a Contract Modification is approved.

The following sentence is added to the end of this Subsection:

The Maine Turnpike Authority may erect lane closures on the mainline within the Project area to collect survey, provide layout, and for any other reasons deemed necessary by the Resident.

652.3.2 Responsibility of the Contractor

The first paragraph is amended as follows:

The Contractor shall provide continuous and effective traffic control and management for the Project that is appropriate to the means, methods and sequencing allowed by the Contract; and consistent with the Traffic Control Plans and Maintenance of Traffic Specifications. The Contractor is responsible for ensuring a safe environment for the Contract workforce, local road users, and turnpike users; and maintaining the safe efficient flow of traffic through the construction zone at all times during the Contract. The protocols and requirements outlined in the Contract shall be strictly enforced.

The following paragraph is added:

The Contractor shall designate a supervisor to be responsible for the safe placement and maintenance of all traffic control devices. This individual shall be trained to safely install and maintain the devices. The Contractor shall submit to the Resident, in writing, documentation stating that this individual has reviewed and understands the traffic control requirements of the Contract and the Manual of Uniform Traffic Control Devices.

652.3.3 Submittal of Traffic Control Plan

This Subsection is deleted and not replaced.

652.3.4 General

This Subsection is deleted in its entirety and replaced with the following:

Prior to starting any Work on any part of the Project adjacent to or being used by the traveling public, the Contractor shall install the appropriate traffic control devices in accordance with the Plans, Specifications and the latest edition of the Manual of Uniform Traffic Control Devices, Part VI. The Contractor shall continuously maintain the traffic control devices in their proper position, and they shall be kept clean, legible and in good repair throughout the duration of the Work. The Contractor shall correct all problems or violations upon observation by the Contractor or upon notification by the Resident. Failure to correct a problem within one hour of notification during non-working hours or to respond immediately to a problem during Work hours, shall result in a penalty of $150.00 per occurrence. The Resident shall be the sole judge as to the time and response.

No equipment or vehicles of the Contractor, their Subcontractors, or employees engaged in Work on this Contract shall be parked or stopped on lanes carrying traffic, or on lanes or shoulders adjacent to lanes carrying traffic, at any time, except as required by ongoing Work operations. Contractor equipment or vehicles shall never be used to stop, block, or channelize traffic.

Vehicles parked on the shoulder shall be located so all portions of the vehicle(s) are a minimum of one foot from the traveled way. No operation (including loading or unloading vehicles) shall be conducted

on or near the traveled lanes or shoulders without first setting up the proper lane closure and traffic control devices. These precautions shall be maintained at all times while this Work is being performed.

The Contractor shall keep all paved areas of the highway as clear as possible at all times. No materials shall be stored on any paved area of the highway or within 30 feet of the traveled way (unless protected by concrete barriers and specifically approved by the Resident). Private vehicles owned by Contractor's employees shall be parked close together in a group no closer than 30 feet from the traveled way in pre-approved areas.

Channelization devices shall include Vertical Panel Markers, Barricades, Cones, and Cones and Drums. These devices shall be installed and maintained at the spacing shown on the Traffic Control Plans, or determined by the MUTCD, through the Work area.

No lane closures will be allowed during non-working hours, weekends and/or holiday periods unless included in the Contract as long-term traffic control requirement or approved by the Resident.

Any special signs, barricades or other devices deemed necessary by the Resident shall be furnished and maintained by the Contractor. Extra care shall be taken so that the traffic flow will not be disturbed. The use of construction signs and warning devices not shown on the Plans or in the MUTCD, unless approved by the Resident, will be prohibited.

The Contractor's personnel and equipment shall avoid crossing traffic whenever possible. No Contractor's vehicle may slow down or stop in a traffic lane unless said lane has previously been made safe with signs and barricades as required by the Resident.

No vehicle will move onto the traveled way at such a time or in such a manner so as to cause undue concern or danger to traffic approaching from either direction. The Contractor or his employees are not empowered to stop traffic.

The Contractor shall take necessary care at all times, in all operations and use of his equipment, to protect and facilitate traffic. During periods of idleness, the equipment shall not be left in a way to obstruct the traffic artery or to interfere with traffic.

The following Subsection is added:

652.3.41 Local Road General Requirements

Channelization devices consisting of barricades or drums, at a maximum spacing of 50 feet, shall be used in guardrail areas when neither the existing nor the new guardrail is in place. The Contractor shall not remove guardrail until absolutely necessary for construction operations in that area. The guardrail shall be replaced as soon as possible thereafter.

All excavation areas adjacent to the roadway shall be channelized continuously in both directions for the length of the Project in all areas where the centerline strip is not effective in accordance with the latest edition of MUTCD.

Where the roadway is adjacent to an area being excavated or filled, a minimum two foot shoulder should be maintained and the effective slope of the earth excavation or fill slope, beyond the two foot shoulder, shall not be steeper than 1-1/2 horizontal to 1 vertical. The effective slope of rock excavation shall not be steeper than 1 horizontal to 1 vertical beyond the two foot shoulder. In the case of cuts over five feet deep, an earth berm or other approved barrier shall be placed between the travel lane and the excavated area. In this instance, travel speeds shall be limited by specific advisory signing to 20 miles per hour in all cases. When excavation does not leave sufficient usable widths to maintain two-way traffic as provided in

Subsection 105.4, Maintenance of Work, one-lane traffic controlled by a traffic signal or continuous flagging may be considered. Closely spaced vertical panels, drums or other channelizing devices shall be used on any of these types of areas that are left exposed for short durations.

When paving operations or shoulder grading leave a three inch or less exposed vertical face at the edge of the traveled way, channelization devices shall be placed two feet outside of the pavement at intervals not exceeding 600 feet and a 48 inch by 48 inch W8-9 "Low Shoulder" sign shall be placed at a maximum spacing of 1/2 mile. When paving operations or shoulder grading leave a three inch or grater exposed vertical face at the edge of the traveled way, the Contractor shall place shoulder material for a width of at least four feet to meet the pavement grade, and place channelizing devices as above, before the lane is opened to traffic.

652.3.5 Installation of Traffic Control Devices

The first paragraph is deleted and replaced with the following:

Portable signs shall be erected on temporary sign supports approved crashworthy devices in conformance with NCHRP 350 requirements so that the bottom is either 1) 300 mm [12 inches]; or 2) greater than 1.5 m [five feet] above the traveled way. Post-mounted signs shall be erected so the bottom is no less than 1500 mm [five feet] above the traveled way, and 2100 mm [seven feet] above the traveled way in business, commercial, and residential areas. All post-mounted signs on the turnpike mainline shall be erected so the bottom is no less than 2100 mm [seven feet] above the traveled way. Post-mounted signs must also be erected so that the sign face is in a true vertical position. All signs shall be mounted within four feet of the existing edge of pavement. All signs shall be placed so that they are not obstructed in any manner and immediately modified to ensure proper visibility if obstructed. Due to Contractor or Project staging, it may be necessary to relocate previously erected portable or post-mount signs so they are clearly visible. Signs may be mounted lower or higher to fit the situation when authorized by the Resident. Cones shall either be weighted or nailed. Tires will not be allowed as weights.

The following is added to the end of the third paragraph:

NHCRP 350 tested drums with tire sidewall ballasts are acceptable. During winter periods, drums shall be placed on the grass shoulder or removed from the roadway so winter maintenance operations will not be impacted. This requires the placement of drums behind the median guardrail. Drums shall not be placed on snow banks.

The following is added to the end of the fifth paragraph:

The method of covering existing signs must be approved by the Resident. The use of adhesives on the sign face is prohibited.

The sixth paragraph is deleted and replaced with the following:

The Contractor shall replace damaged or missing traffic control devices with similar devices of acceptable quality.

The following paragraph is added to the end of this Subsection:

The Contractor is required to cover all existing signs, including regulatory and warning signs, within the Work zone which may conflict with the proposed construction signs. The Contractor is also required to cover all permanent construction signs when they conflict with a daily traffic control setup.

652.3.6 Traffic Control

The first sentence of the first paragraph is deleted and replaced with the following:

The minimum roadway width for local road one-way and two-way traffic, and minimum number of lanes and lane widths for the Maine Turnpike, are identified on the Project's traffic control plans and/or in Special Provision Section 652, Maintenance of Traffic (Specific Project Maintenance of Traffic).

The last sentence of the third paragraph is deleted and not replaced.

652.41 Traffic Officers

The first paragraph is deleted and replaced with the following:

Local road traffic officers, if required, shall be uniformed police officers. State Police officers and vehicles shall be used to warn and stop traffic on the Maine Turnpike. All State Police shall be scheduled through the Maine Turnpike Authority. The Authority will make payment for the State Police officers and vehicles directly to the State Police.

The Contractor will not be entitled to additional compensation if scheduled Work is not completed due to the unavailability of State Police.

652.6 Night Work

The sixth and seventh paragraphs are deleted and not replaced.

The following Subsection is added:

652.61 Construction Vehicles

The Contractor shall furnish approved signs reading "Construction Vehicle - Keep Back" to be used on trucks hauling to the Project. The signs shall be a minimum of 30 inch by 60 inch, Black and Orange, Type VII. The older type "Construction Vehicle - Do Not Follow" may be used until the end of their service life.

All vehicles used on the Project shall be equipped with amber flashing lights, visible from both front and rear, or by means of a single, approved type, revolving, flashing or strobe lights mounted so as to be visible 360 degrees. The vehicle flashing system shall be in continuous operation while the vehicle is on any part of the Project. Dump trucks and utility trucks shall have a strobe light mounted on each side of the vehicle.

652.7 Method of Measurement

The following is added to the end of the first paragraph:

The per unit measurement for payment of the portable–changeable message sign shall include the establishment and payment of a cellular phone account so that the portable–changeable message sign may be programmed remotely.

The following is added to the end of the second paragraph:

The number and locations of Flaggers will be determined by the Resident. Flaggers used during the Contract, for the convenience of the Contractor, will not be measured separately for payment, but shall be

incidental to the various pay items. The Authority will make payment for the State Police officers and vehicles directly to the State Police when utilized for mainline traffic control activities. State Police escorts, if required to move oversize material or equipment loads to the jobsite, will not be paid separately, but shall be incidental to the various pay items.

652.8.2 Other Items

The last paragraph is deleted and replaced with the following:

There will be no payment made under any 652 pay items after the expiration of the adjusted total Contract time.

## SECTION 653 - POLYSTYRENE PLASTIC INSULATION

653.05 Placing Backfill

In the second sentence, "...shall be not less than 150 mm [six inches] loose measure." is changed to "...shall be not less than 250 mm [10 inches] loose measure."

In the third sentence "...crawler type bulldozer of not more than 390 kg/m$^2$ [80 lb/ft$^2$] ground contact pressure..." is changed to "...crawler type bulldozer of not more than 4875 kg/m$^2$ [2000 lb/ft$^2$] ground contact pressure..."

653.06 Compaction

In the final sentence "...crawler type bulldozer of not more than 390 kg/m$^2$ [80 lb/ft$^2$] ground contact pressure..." is change to "...crawler type bulldozer of not more than 4875 kg/m$^2$ [2000 lb/ft$^2$] ground contact pressure..." it]."

## SECTION 656 - TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL

Section 656 is deleted in its entirety and replaced with the following:

656.01 Description

This Work shall consist of providing temporary erosion control during construction in accordance with these Specifications, standard details, Best Management Practices, or as otherwise directed.

All temporary erosion control devices shall be in place and approved by the Resident prior to any embankment and excavation operations. The Contractor is responsible for repairing and replacing damaged or missing sandbags, haybales, and silt fence material. The Contractor shall maintain these devices in a clean and properly operating condition as described herein.

The Contractor is responsible for all temporary drainage and erosion control measures. The Contractor shall review his construction operations and staging to determine if additional erosion control measures are required. The Resident may also request additional erosion control measures. The cost for all erosion control devices necessary, due solely to the Contractor's construction operations and are not shown on the Plans, shall be borne solely by the Contractor. The frequency of inspection of these devices by the Contractor and the Erosion Control Compliance Officer (ECCO) shall be bi-weekly and immediately following a rainfall of greater than 1/2 inch in a 24-hour period.

In areas of ledge or frozen ground only, the Contractor may opt to furnish and install an erosion control filter berm in lieu of silt fence. The erosion control filter berm shall be a water permeable windrow of a composted bark mix to remove suspended soil particles from water moving off the site. Erosion control filter berm shall be considered an erosion control device. This material and specific application shall be submitted to the Resident for approval.

656.02 General

Baled hay shall be bales at approximately 350 by 450 by 750 mm [14 by 18 by 30 inch], or an equivalent, securely tied to form a firm bale.

Sandbags shall consist of heavy cloth or woven plastic bags, approximately 0.03 m3 [one cubic foot] capacity, filled with sand or gravel.

Dumped stone shall be a graded mixture of large and small stone with approximately 50 percent of the stones larger than 150 mm [six inch].

Flexible drainage pipe shall consist of collapsible neoprene pipe, a minimum of 12 inches in diameter or equal.

656.03 Silt Fence

(a) Posts

Either hardwood posts or steel posts shall be used.

Hardwood posts shall be straight, at least 450 mm [18 inches] longer than the height of the silt fence and at least 32 mm by 32 mm [1 inch by 1 inch].

Staples shall be of No. 9 wire.

Steel posts shall be at least 450 mm [18 inches] longer than the height of the silt fence and have the means provided for fastening wire to the fence.

(b) Wire Support Fence

If required, wire support fence shall be at least 50 mm [2 inches] higher than the height of the silt fence. Horizontal and vertical wires shall be spaced no more than 150 mm [6 inches] apart. The top and bottom wires shall be at least 10 gauge; all other wires at least 12 gauge.

(c) Silt Fence

The woven geotextile fabric and components shall be made from polypropylene, polyester, polymide or other chemically stable material and be resistant to ultraviolet radiation degradation for at least 12 months of installation. Silt retention capacity shall be no less than 75 percent. The fabric shall have a Mullen burst test of no less than 1790 kPa [260 pounds per square inch] with a maximum average sieve opening size of 850 pm to 250 pm [No. 20 to No. 60]. Roll width of the fabric shall be no less than 150 mm [6 inches] wider than the height of the fence, except fabric for boom supported floating silt fence which shall be no less than 600 mm [two feet] wider than the design width.

(d) Flotation Devices

The flotation boom and weighing devices for boom supported floating silt fence shall be sufficient to hold the fence in an approximately vertical position.

656.04 Temporary Erosion Checks

Temporary erosion checks shall be constructed in ditches and at other locations designated. Checks shall be in accordance with the Standard Detail unless otherwise directed.

Baled hay, sandbags, or both, shall be used in other areas as necessary to inhibit soil erosion.

Sediment deposits behind haybales and silt fence shall be removed when the depth of sediment reaches 50 percent of the erosion control device height.

The Contractor is also required to have on-site, at all times, 25 percent additional Contract quantities of silt fence for use as backup devices.

656.041 Erosion Control Filter Berm

The erosion control berm shall be placed uncompacted, in a windrow in locations approved by the Resident. The cross section of the berm shall be four feet wide at the base and 1-1/2 feet high at the center. The erosion control filter berm shall be removed when no longer required, as determined by the Resident, and shall be distributed over an adjacent area.

656.05 Temporary Berms

When designated, temporary barriers shall be constructed along the edge of the embankment. The barriers shall be of embankment earth material, gravel or sand as available and shaped approximately as shown in the Standard Details. The barriers shall be compacted with the wheels of construction equipment. When placed on pavement, the berms shall be constructed of asphalt grindings or other non-erodible soil material as approved by the Resident, and shaped as shown in the Standard Details.

At designated intervals, temporary slope drains shall be constructed with a crescent shaped barrier placed at each slope drain to direct the water into the inlet pipe.

656.06 Temporary Slope Drains

Collapsible pipe with corrugated metal pipe inlet shall be placed down the embankment slopes at designated locations and in accordance with the Best Management Practices.

At the outlet end of the drain, dumped stone shall be placed to prevent scoring unless otherwise directed.

656.07 Dumped Stone

Dumped stone shall be placed at designated locations and shaped to the extent necessary to spread the stone over the area and in sufficient depth to prevent soil erosion.

656.08 Silt Fence

The silt fence shall be installed at all environmentally sensitive areas as shown on the Plans or as directed. The Contractor shall have the option to provide a reinforced filter fabric or an un-reinforced filter fabric attached to a wire fence.

The fence posts shall be spaced as specified by the Resident, however, not to exceed a maximum of 2.5 m [eight feet] apart when either type of silt fence is used and be driven a minimum of 450 mm [18 inches] into the ground.

The geotextile fabric shall be secured to the post or fence by suitable staples, tie wire or hog rings in such a manner as to prevent tearing and sagging of the fabric. The bottom of the geotextile fabric shall be entrenched into the ground a minimum depth of 150 mm [six inches] to prevent water from flowing under the fence. The geotextile shall be spliced together only at support posts with a minimum 150 mm [six inches] overlap and secure post connection which prevents leakage of silt. The top of the geotextile shall be installed with a reinforced top end section.

The Contractor shall maintain the silt fence in a functional condition at all times. All deficiencies shall be immediately corrected by the Contractor. The Contractor shall make a daily inspection of the silt fences in areas where construction activity causes drainage runoff, to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist, additional silt fences shall be installed as approved or directed.

Sediment deposits shall be removed when sediments reach 50 percent of the height of the device. All sediment deposits remaining in place after the device is no longer required shall be graded to conform with the existing ground, seeded, and mulched immediately.

Geotextile fabric which has decomposed or has become ineffective and is still needed shall be replaced with material equal to the original design.

656.081 Boom Supported Floating Silt Fence

The silt fence fabric shall be securely attached to the flotation boom with a continuous weight placed the entire length of the fence to maintain the fence in a vertical submerged position from the surface of the water to the design depth.

Anchor's shall be placed at the ends of the fence, and intermediate locations if necessary, to hold the fence securely in place.

656.082 Maintenance

The erosion control devices will be cleaned, repaired, or replaced as necessary. All deficiencies shall be corrected immediately by the Contractor.

656.085 Erosion Control Compliance Officer

The Contractor shall designate an Erosion Control Compliance Officer (ECCO) on this Project who shall accompany the Resident's ECCO in the inspection of all erosion control devices. An inspection log shall be maintained by the Resident and the log shall be signed by the Resident's ECCO and the Contractor's ECCO after each inspection. Failure to comply with the erosion and sedimentation control requirements herein or as directed by the Resident's ECCO within 24-hours after the violation is noted in the inspection log, will result in the $1,000 per day per violation penalty until the violation is corrected to the satisfaction of the Resident.

656.09 Removing and Disposing

When no longer needed, material and devices for temporary erosion control shall be removed or may be left in place and dispersed over an adjacent area, as directed.

When removed, such devices may be reused in other locations provided they are in good condition and suitable to perform the erosion control for which they are intended.

When dispersed over adjacent areas, the material shall be scattered to the extent that it causes no unsightly conditions nor creates future maintenance problems. Dumped stone shall be dispersed or covered in such a manner that it will not interfere with future mowing operations.

656.10 Method of Measurement

Baled hay and sandbags will be measured for payment by the number of bales or bags satisfactorily placed. Dumped stone will be measured for payment by the cubic meter [cubic yard] in vehicles.

Temporary berms and temporary slope drains will be measured for payment by the meter [linear foot] measured parallel with the flow line including the pipe inlet.

Temporary silt fence will be measured by the meter [linear foot] along the gradient of the fence, end post to end post.

Boom supported floating silt fence will be measured by the meter [linear foot] not including anchorages.

Erosion control filter berm shall be measured by the linear foot.

The quantity of additional haybales and silt fence material required herein will be measured for payment only when and if they are actually put to use as additional measures on the Project as directed by the Resident. Haybales and silt fence material used for maintenance or replacement of existing devices will not be measured for payment.

The removal of silt and other material from behind the haybales and silt fence will not be measured separately for payment, but shall be incidental to the Erosion Control items.

656.11 Basis of Payment

The accepted quantity of baled hay or sandbags will be paid for at the Contract unit price each for each bale or bag which price shall be full compensation for furnishing and placing the bales or sandbags, for furnishing and driving the stakes for baled hay and for the removing and disposing of the bales, stakes and sandbags when no longer needed.

The accepted quantity of temporary berms will be paid for at the Contract unit price per meter [linear foot] of berm which price shall be full compensation for furnishing, placing and compacting material, for maintaining and for removing the berm when no longer needed.

There will be no separate payment for excavation done in the construction of temporary erosion control items under this Section and all necessary excavation shall be incidental to the Work.

The accepted quantity of dumped stone will be paid for at the Contract unit price per cubic

meter [cubic yard] which price shall be full compensation for furnishing the stone, transporting, placing and shaping. Payment for removal or for covering will be made under Item 629.05, Hand Labor, and the appropriate equipment rental items.

The accepted quantity of temporary silt fence and boom supported floating silt fence will be paid for at the Contract unit price per meter [linear foot] complete in place. Payment shall be full compensation for furnishing, installing, maintaining, for replacing deteriorated geotextile and clogged geotextile when required and for removing and disposing of the fence when no longer needed.

The accepted quantity of erosion control filter berm will be paid for at the Contract unit price per linear foot under Item 656.632, 30 Inch Temporary Silt Fence, which price shall be full compensation for furnishing, placing, and removing the erosion control filter berm.

The removal of sediments and debris that accumulate around erosion control devices, when directed by the Resident, will be paid for under the appropriate Contract items.

Cost of seeding and mulching the area after removal of the temporary silt fence will be paid for at the Contract unit prices for Item 618, Seeding, and Item 619, Mulch.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 656.50 | Baled Hay, in place | Each |
| 656.51 | Sandbag, in place | Each |
| 656.55 | Dumped Stone | Cubic Meter [Cubic Yard] |
| 656.60 | Temporary Berms | Meter [Linear Foot] |
| 656.62 | Temporary Slope Drains | Meter [Linear Foot] |
| 656.631 | 375 mm [15 inch] Temporary Silt Fence | Meter [Linear Foot] |
| 656.632 | 750 mm [30 inch] Temporary Silt Fence | Meter [Linear Foot] |
| 656.64 | Boom Supported Floating Silt Fence | Meter [Linear Foot] |

## SECTION 701 – STRUCTURAL CONCRETE RELATED MATERIALS

### 701.10 Fly Ash - Chemical Requirements

All references to “ASTM C311’ are changed to “ASTM C114”.

## SECTION 703 - AGGREGATES

### 703.06 Aggregate for Base and Subbase

The first paragraph is deleted and replaced with the following:

The material shall have a minimum degradation value of 15 as determined by Washington State DOT Test Method T113, Method of Test for Determination of Degradation Value (March 2002 version), except that the reported degradation value will be the result of testing a single specimen from that portion of a sample that passes the 12.5 mm [1/2 inch] sieve and is retained on the 2.00 mm [No. 10] sieve, minus any reclaimed asphalt pavement used.

703.22 Underdrain Backfill Material

The first paragraph is amended as follows:

"...for Underdrain Type B..." is changed to "... for Underdrain Type B and C..."

## SECTION 706 - NON-METALLIC PIPE

706.06 Corrugated Polyethylene Pipe for Underdrain, Option I and Option II in Culvert Pipe

The first sentence is changed from "...300 mm diameters to 900 mm" to "...300 mm diameters to 1,200 mm".

The last sentence which begins "This pipe and resins..." is deleted in its entirety and replaced with the following:

The manufacturing plants of polyethylene pipe shall be certified by the Eastern States Consortium. Polyethylene pipe shall be accepted based on third party certification by the AASHTO's National Transportation Product Evaluation Program.

## SECTION 709 - REINFORCING STEEL AND WELDED STEEL WIRE FABRIC

709.03 Steel Strand

The second paragraph is changed from "...shall be 12mm [1/2 inch] AASHTO M203M/M203 (ASTM A416/A416M)..." to "...shall be 15.24 mm [0.600 inch] diameter AASHTO M203 (ASTM A416)...".

## SECTION 712 - MISCELLANEOUS HIGHWAY MATERIALS

The following Subsections are added:

712.07 Tops and Traps

These metal units shall conform to the Plan dimensions and to the following Specification requirements for the designated materials:

Gray iron castings shall conform to the requirements of AASHTO M105, Class 30, unless otherwise designated.

Carbon steel castings shall conform to the requirements of AASHTO M103/M103M. Grade shall be 450-240 [65-35] unless otherwise designated.

Structural steel shall conform to the requirements of AASHTO M183/M183M or ASTM A283/A283M, Grade B or better. Galvanizing, where specified for these units, shall conform to the requirements of AASHTO M 111.

712.08 Corrugated Metal Units

The units shall conform to Plan dimensions and the metal to AASHTO M36/M36M. Bituminous coating, when specified, shall conform to AASHTO M 190 Type A.

712.09 Catch Basin and Manhole Steps

Steps for catch basins and for manholes shall conform to ASTM C478M [ASTM C478], Section 13 for either of the following material:

(a) Aluminum steps-ASTM B221M, [ASTM B21 1] Alloy 6061-T6 or 6005-T5.

(b) Reinforced plastic steps steel reinforcing bar with injection molded plastic coating copolymer polypropylene. Polypropylene shall conform to ASTM D 4101.

712.23 Flashing Lights

Flashing lights shall be power operated or battery operated as specified.

(a) Power operated flashing lights shall consist of housing, adapters, lamps, sockets, reflectors, lens, hoods and other necessary equipment designed to give clearly visible signal indications within an angle of at least 45 degrees and from three to 90 m [10 to 300 feet] under all light and atmospheric conditions.

Two circuit flasher controllers with a two-circuit filter capable of providing alternate flashing operations at the rate of not less than 50 nor more than 60 flashes per minute shall be provided.

The lamps shall be 650 lumens, 120 volt traffic signal lamps with sockets constructed to properly focus and hold the lamp firmly in position.

The housing shall have a rotateable sun visor not less than 175 nun [seven inches] in length designed to shield the lens.

Reflectors shall be of such design that light from a properly focused lamp will reflect the light rays parallel. Reflectors shall have a maximum diameter at the point of contact with the lens of approximately 200 mm [eight inches].

The lens shall consist of a round one-piece convex amber material which, when mounted, shall have a visible diameter of approximately 200 mm [eight inches]. They shall distribute light and not diffuse it. The distribution of the light shall be asymmetrical in a downward direction. The light distribution of the lens shall not be uniform, but shall consist of a small high intensity portion with narrow distribution for long distance throw and a larger low intensity portion with wide distribution for short distance throw. Lenses shall be marked to indicate the top and bottom of the lens.

(b) Battery operated flashing lights shall be self- illuminated by an electric lamp behind the lens. These lights shall also be externally illuminated by reflex reflective elements built into the lens to enable it to be seen by reflex reflection of the light from the headlights of oncoming traffic. The batteries must be entirely enclosed in a case. A locking device must secure the case. The light shall have a flash rate of not less than 50 nor more than 60 flashes per minute from minus 30°C [minus 20°F] to plus 65°C [plus 150°F]. The light shall have an on time of not less than 10 percent of the flash cycle. The light beam projected upon a surface perpendicular to the axis of the light beam shall produce a lighted rectangular projection whose minimum horizontal dimension shall be five degrees each side of the horizontal axis. The effective intensity shall not have an initial value greater than 15.0 candelas or drop below 4.0 candelas during the first 336-hours of continuous flashing. The illuminated lens shall appear to be uniformly

bright over its entire illuminated surface when viewed from any point within an angle of nine degrees each side of the vertical axis and five degrees each side of the horizontal axis. The lens shall not be less than 175 mm [seven inches] in diameter including a reflex reflector ring of 13 mm [1/2 inch] minimum width around the periphery. The lens shall be yellow in color and have a minimum relative luminous transmittance of 0.440 with a luminance of 2854° Kelvin. The lens shall be one-piece construction. The lens material shall be plastic and meet the luminous transmission requirements of this Specification. The case containing the batteries and circuitry shall be constructed of a material capable of withstanding abuse equal to or greater than 1.21 mm thick steel [No. 18 U.S. Standard Gage Steel]. The housing and the lens frame, if of metal shall be properly cleaned, degreased and pretreated to promote adhesion. It shall be given one or more coats of enamel which, when dry shall completely obscure the metal. The enamel coating shall be of such quality that when the coated case is struck a light blow with a sharp tool, the paint will not chip or crack and if scratched with a knife will not powder. The case shall be so constructed and closed as to exclude moisture that would affect the proper operation of light. The case shall have a weep hole to allow the escape of moisture from condensation. Photoelectric controls, if provided, shall keep the light operating whenever the ambient light falls below 215 lx [20 foot candles]. Each light shall be plainly marked as to the manufacturer's name and model number.

If required by the Resident, certification as to conformance to these Specifications shall be furnished based on results of tests made by an independent testing laboratory. All lights are subject to random inspection and testing. All necessary random samples shall be provided to the Resident upon request without cost to the Authority. All such samples shall be returned to the Contractor upon completion of the tests.

712.32 Copper Tubing

Copper tubing and fittings shall conform to the requirements of ASTM B88M Type A [ASTM B88, Type K] or better.

712.33 Non-metallic Pipe, Flexible

Non-metallic pipe and pipe fittings shall be acceptable flexible pipe manufactured from virgin polyethylene polymer suitable for transmitting liquids intended for human or animal consumption.

712.34 Non-metallic Pipe, Rigid

Non-metallic pipe shall be Schedule 40 polyvinylchloride (PVC) that meets the requirement of ASTM D 1785. Fittings shall be of the same material.

712.341 Metallic Pipe

Metallic pipe shall be ANSI, Standard B36. 10, Schedule 40 steel pipe conforming to the requirements of ASTM A53 Types E or S, Grade B. End plates shall be steel conforming to ASTM A36/A36M.

Both the sleeve and end plates shall be hot dip galvanized. Pipe sleeve splices shall be welded splices with full penetration weld before galvanizing.

712.35 Epoxy Resin

Epoxy resin for grouting or sealing shall consist of a mineral filled thixotropic, flexible epoxy

resin having a pot life of approximately one hour at 10°C [50°F]. The grout shall be an approved product suitable for cementing steel dowels into the preformed holes of curb inlets and adjacent curbing. The sealant shall be an approved product, light gray in color and suitable for coating the surface.

712.36 Bituminous Curb

The asphalt cement for bituminous curb shall be of the grade required for the wearing course, or shall be Viscosity Grade AC-20 meeting the current requirements of Subsection 702.01, Asphalt Cement. The aggregate shall conform to the requirements of Subsection 703.07. The coarse aggregate portion retained on the 2.36 mm [No. 8] sieve may be either crushed rock or crushed gravel.

The mineral constituents of the bituminous mixture shall be sized and graded and combined in a composite blend that will produce a stable durable curbing with an acceptable texture. Bituminous material for curb shall meet the requirements of Section 403, Hot Bituminous Pavement.

712.37 Precast Concrete Slab

Portland Cement concrete for precast slabs shall meet the requirements of Section 502, Structural Concrete, Class A.

The slabs shall be precast to the dimension shown on the Plans and cross section and in accordance with the Standard Detail Plans for Concrete Sidewalk Slab. The surface shall be finished with a float finish in accordance with Subsection 502.14(c). Lift devices of sufficient strength to hold the slab while suspended from cables shall be cast into the top or back of the slab.

712.38 Stone Slab

Stone slabs shall be of granite from an acceptable source, hard, durable, predominantly gray in color, free from seams which impair the structural integrity and be of smooth splitting character. Natural color variations characteristic of the deposit will be permitted. Exposed surfaces shall be free from drill holes or indications of drill holes. The granite slabs in any one section of backslope must be all the same finish.

The granite slabs shall be scabble dressed or sawed to an approximately true plane having no projections or depressions over 13 mm [1/2 inch] under a 600 mm [two foot] straightedge or over 25 mm [one inch] under a 1200 mm [four foot] straightedge. The arris at the intersection of the top surface and exposed front face shall be pitched so that the arris line is uniform throughout the length of the installed slabs. The sides shall be square to the exposed face unless the slabs are to be set on a radius or other special condition which requires that the joints be cut to fit, but in any case shall be so finished that when the stones are placed side by side no space more than 20 mm [3/4 inch] shall show in the joint for the full exposed height.

Lift pin holes in all sides will be allowed except on the exposed face.

## SECTION 717 - ROADSIDE IMPROVEMENT MATERIAL

717.03 C. Method #3 - Roadside Mixture #3

Seed proportions are amended as follows:

| | |
|---|---|
| Crown Vetch | 25.0% |
| Perennial Lupine | 25.0% |

| | |
|---|---|
| Red Clover | 12.5% |
| Annual Rye | 37.5% |

717.05 Mulch Binder

The third sentence is amended as follows:

"Paper fiber mulch may be used as a binder at the rate of 2.3 kg/unit [5 lb/unit]."

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART II – SPECIAL PROVISIONS

# MAINE TURNPIKE AUTHORITY

## SPECIFICATIONS

## PART II - SPECIAL PROVISIONS

All work shall be governed by the Maine Department of Transportation Standard Specifications except for that work which applies to sections of the Maine Department of Transportation Standard Specifications which are amended by the Maine Turnpike General Provisions and the following modifications, additions and deletions.

### General Description of Work

The work consists of replacing the West Road bridge superstructure over the Maine Turnpike in the Town of Litchfield, Maine. The work includes concrete deck and steel girder replacement, concrete substructure modifications and repairs, approach work and paving, guardrail, bridge rails, maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

### Plans

The drawings included in these Contract Documents, and referred to as the Plans, show the general character of the work to be done under this Contract. They bear the general title "Maine Turnpike – Contract 2014.06 – Bridge Superstructure Replacement – West Road Underpass Mile 91.0". The right is reserved by the Resident to make such minor corrections or alterations in the Plans as he deems necessary without change in the unit prices on the Schedule of Prices of the Proposal.

### 101.2 Definition

### Holidays

The following is added after Memorial Day in the General Provisions:

| | |
|---|---|
| Independence Day 2014<br>(Fourth of July) | 6:00 a.m. preceding Thursday to<br>6:00 a.m. the following Monday. |

### 103.4 Notice of Award

The following sentence is added:

The Maine Turnpike Authority Board is scheduled to consider the Contract Award on January 23, 2014.

104.3.8 Wage Rates and Labor Laws

The fourth paragraph under Records on GP Page 7 of 53 has been amended as follows:

A copy of each record must be filed monthly with the Maine Turnpike Authority. This information shall be sent directly to the Maine Turnpike Authority, Director of Engineering and Building Maintenance, Attention: Wage Rate Records, 2360 Congress Street, Portland, ME 04102. The records shall note the Maine Turnpike Contract Number.

The fair minimum hourly rates determined by the State of Maine Department of Labor for this Contract are as follows:

THIS DOCUMENT MUST BE CLEARLY POSTED AT THE PERTAINING STATE FUNDED PREVAILING WAGE CONSTRUCTION SITE

State of Maine
Department of Labor
Bureau of Labor Standards
Technical Services Division
Augusta, Maine 04333-0045
Telephone (207) 623-7906

Wage Determination - In accordance with 26 MRSA §1301 et. seq., this is a determination by the Bureau of Labor Standards, of the fair minimum wage rate to be paid laborers and workers employed on the below titled project.

Title of Project --------2014.06 Bridge Superstructure Replacement West Road Underpass Mile 91.0

Location of Project –Various Towns, Kennebec & Sagadahoc Counties

## 2014 Fair Minimum Wage Rates
## Heavy & Bridge Kennebec & Sagadahoc Counties

| Occupation Title | Minimum Wage | Minimum Benefit | Total | Occupation Title | Minimum Wage | Minimum Benefit | Total |
|---|---|---|---|---|---|---|---|
| Backhoe Loader Operator | $18.79 | $2.64 | $21.43 | Ironworker - Structural | $22.57 | $5.89 | $28.46 |
| Boom Truck (Truck Crane) Operator | $25.00 | $15.46 | $40.46 | Laborers (Incl.Helpers & Tenders) | $16.10 | $5.65 | $21.75 |
| Bricklayer | $28.51 | $18.55 | $47.06 | Laborer - Skilled | $17.55 | $4.87 | $22.42 |
| Bulldozer Operator | $17.98 | $2.55 | $20.53 | Line Erector - Power/Cable Splicer | $27.00 | $13.20 | $40.20 |
| Carpenter | $19.50 | $5.52 | $25.02 | Loader Operator - Front-End | $23.00 | $5.84 | $28.84 |
| Carpenter - Rough | $18.50 | $4.51 | $23.01 | Mechanic- Maintenance | $19.75 | $3.91 | $23.66 |
| Communication Equip Installer | $17.38 | $1.54 | $18.92 | Mechanic- Refrigeration | $23.22 | $3.27 | $26.49 |
| Comm Trans Erector-Microwave & Cell | $20.14 | $4.29 | $24.43 | Millwright | $21.50 | $0.00 | $21.50 |
| Concrete Pump Operator | $20.50 | $3.53 | $24.03 | Oil/Fuel Burner Servicer & Installer (Licensed) | $20.33 | $4.04 | $24.37 |
| Crane Operator <15 Tons | $19.50 | $4.66 | $24.16 | Painter | $18.00 | $0.00 | $18.00 |
| Crane Operator =>15 Tons) | $24.25 | $6.45 | $30.70 | Paver Operator | $17.25 | $1.63 | $18.88 |
| Crusher Plant Operator | $17.00 | $4.06 | $21.06 | Pile Driver Operator | $24.00 | $6.66 | $30.66 |
| Diver | $25.00 | $16.38 | $41.38 | Pipe/Steam/Sprinkler Fitter | $22.00 | $5.93 | $27.93 |
| Driller - Rock | $18.00 | $3.53 | $21.53 | Pipelayer | $51.92 | $34.51 | $86.43 |
| Dry-Wall Taper & Finisher | $20.00 | $1.04 | $21.04 | Propane & Natural Gas Servicer & Inst | $23.00 | $3.44 | $26.44 |
| Electrician - Licensed | $26.00 | $6.56 | $32.56 | Pump Installer | $21.00 | $2.77 | $23.77 |
| Electrician Helper/Cable Puller (Licensed) | $17.00 | $3.18 | $20.18 | Rigger | $20.50 | $5.32 | $25.82 |
| Excavator Operator | $30.49 | $22.45 | $52.94 | Roller Operator - Earth | $19.36 | $22.45 | $41.81 |
| Flagger | $16.17 | $15.65 | $31.82 | Roller Operator - Pavement | $17.25 | $5.41 | $22.66 |
| Grader/Scraper Operator | $16.73 | $2.98 | $19.71 | Truck Driver - Light | $21.54 | $9.12 | $30.66 |
| Hot Top Plant Operator | $20.75 | $9.69 | $30.44 | Truck Driver - Medium | $15.90 | $2.71 | $18.61 |
| Heating | $22.66 | $4.51 | $27.17 | Truck Driver - Heavy | $15.81 | $13.85 | $29.66 |
| Insulation Installer | $22.00 | $9.75 | $31.75 | Truck Driver - Tractor Trailer | $19.80 | $2.00 | $21.80 |
| Ironworker - Reinforcing | $20.00 | $0.00 | $20.00 | | | | |

The Laborer classifications include a wide range of work duties. Therefore, if any specific occupation to be employed on this project is not listed in this determination, call the Bureau of Labor Standards at the above number for further clarification.

Welders are classified in the trade to which the welding is incidental.

Apprentices - The minimum wage rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

Posting of Schedule - Posting of this schedule is required in accordance with 26 MRSA §1301 et. seq., by any contractor holding a State contract for construction valued at $50,000 or more and any subcontractors to such a contractor.

Appeal - Any person affected by the determination of these rates may appeal to the Commissioner of Labor by filing a written notice with the Commissioner stating the specific grounds of the objection within ten (10) days from the filing of these rates with the Secretary of State.

Determination No: HB-001-2014

Filing Date: December 10, 2013

Expiration Date: 12-31-2014

A true copy

Attest: Pamela Taylor

Pamela D Taylor
Director
Bureau of Labor Standards

BLS 424HB (R2014) (Heavy & Bridge Kennebec & Sagadahoc)

THIS DOCUMENT MUST BE CLEARLY POSTED AT THE PERTAINING STATE FUNDED PREVAILING WAGE CONSTRUCTION SITE

State of Maine
Department of Labor
Bureau of Labor Standards
Technical Services Division
Augusta, Maine 04333-0045
Telephone (207) 623-7906

Wage Determination - In accordance with 26 MRSA §1301 et. seq., this is a determination by the Bureau of Labor Standards, of the fair minimum wage rate to be paid laborers and workers employed on the below titled project.

Title of Project -------2014.06 Bridge Superstructure Replacement West Road Underpass Mile 91.0

Location of Project –Various towns, Kennebec & Sagadahoc County

## 2014 Fair Minimum Wage Rates
## Highway & Earthwork Kennebec & Sagadahoc County

| Occupation Title | Minimum Wage | Minimum Benefit | Total | Occupation Title | Minimum Wage | Minimum Benefit | Total |
|---|---|---|---|---|---|---|---|
| Asphalt Raker | $14.00 | $0.60 | $14.60 | Ironworker - Structural | $22.57 | $5.88 | $28.45 |
| Backhoe Loader Operator | $17.00 | $1.68 | $18.68 | Laborers (Incl.Helpers & Tenders) | $12.98 | $1.22 | $14.20 |
| Boom Truck (Truck Crane) Operator | $25.00 | $15.46 | $40.46 | Laborer - Skilled | $16.30 | $2.55 | $18.85 |
| Bulldozer Operator | $17.95 | $2.69 | $20.64 | Loader Operator - Front-End | $16.00 | $2.68 | $18.68 |
| Carpenter | $18.50 | $1.49 | $19.99 | Mechanic- Maintenance | $19.75 | $2.94 | $22.69 |
| Carpenter - Rough | $17.00 | $1.85 | $18.85 | Painter | $14.50 | $0.00 | $14.50 |
| Cement Mason/Finisher | $17.05 | $0.43 | $17.48 | Paver Operator | $18.13 | $2.79 | $20.92 |
| Concrete Pump Operator | $20.50 | $3.53 | $24.03 | Pipelayer | $35.72 | $21.35 | $57.07 |
| Crane Operator =>15 Tons) | $23.25 | $6.45 | $29.70 | Pump Installer | $21.00 | $2.77 | $23.77 |
| Crusher Plant Operator | $18.50 | $3.26 | $21.76 | Reclaimer Operator | $20.00 | $10.84 | $30.84 |
| Diver | $25.00 | $3.07 | $28.07 | Roller Operator - Earth | $19.36 | $22.45 | $41.81 |
| Driller - Rock | $18.00 | $5.01 | $23.01 | Roller Operator - Pavement | $17.00 | $5.35 | $22.35 |
| Driller - Well | $14.00 | $3.20 | $17.20 | Roofer | $16.00 | $1.40 | $17.40 |
| Electrician - Licensed | $24.50 | $5.86 | $30.36 | Screed/Wheelman | $18.40 | $5.37 | $23.77 |
| Excavator Operator | $17.91 | $2.16 | $20.07 | Truck Driver - Light | $16.00 | $3.05 | $19.05 |
| Fence Setter | $12.00 | $0.00 | $12.00 | Truck Driver - Medium | $14.00 | $0.57 | $14.57 |
| Flagger | $14.25 | $3.43 | $17.68 | Truck Driver - Heavy | $14.63 | $1.69 | $16.32 |
| Grader/Scraper Operator | $16.75 | $3.22 | $19.97 | Truck Driver - Tractor Trailer | $17.50 | $7.36 | $24.86 |
| Highway Worker/Guardrail Installer | $16.40 | $0.41 | $16.81 | Truck Driver - Mixer (Cement) | $11.42 | $2.90 | $14.32 |
| Hot Top Plant Operator | $21.75 | $10.34 | $32.09 | | | | |

The Laborer classifications include a wide range of work duties. Therefore, if any specific occupation to be employed on this project is not listed in this determination, call the Bureau of Labor Standards at the above number for further clarification.

Welders are classified in the trade to which the welding is incidental.

Apprentices - The minimum wage rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

Posting of Schedule - Posting of this schedule is required in accordance with 26 MRSA §1301 et. seq., by any contractor holding a State contract for construction valued at $50,000 or more and any subcontractors to such a contractor.

Appeal - Any person affected by the determination of these rates may appeal to the Commissioner of Labor by filing a written notice with the Commissioner stating the specific grounds of the objection within ten (10) days from the filing of these rates with the Secretary of State.

Determination No: HI-001-2014

Filing Date: December 10, 2013

Expiration Date: 12-31-2014

A true copy

Attest: Pamela Taylor

Pamela D Taylor
Director
Bureau of Labor Standards

BLS 424HB (R2014) (Highway & Earthwork Kennebec & Sagadahoc)

104.4.4 Request for Information (RFI)

This Subsection is amended by the addition of the following:

RFI's shall be submitted on company letterhead or on a standard company form with a tracking number. The General Contractor shall maintain a corresponding RFI log.

RFI's may be attached to an e-mail, but shall not be in the form of an e-mail, and at a minimum, must reference the subject Plan or Specification in question.

RFI's with multiple questions may be treated as a submittal and the allowed 21 calendar days for review and response will govern.

104.4.7 Cooperation With Other Contractors

This Subsection is amended by the addition of the following:

Contract 2013.07 Interchange Improvements Lewiston (Exit 80), Phase 1 (Ramps A, B, C and D), Mile 80.3 will be under construction in 2014 & 2015 with a contract completion date of June 2015.

Contract 2014.03 Pavement Rehabilitation MM 102.6 to MM 109.1 will be under construction in 2014 with a contract completion date of October 2014.

Contract 2014.07 Superstructure Replacement Litchfield Road, Mile Marker 106.9, will be under construction in 2014 with a contract completion date of November 2014.

The following Subsection is added:

105.2.4.2 Lead Paint

The Contractor shall note that the existing bridge structure contains lead based paint. The Contractor shall institute every precaution when working with materials coated with lead based paints.

Lead Paint Removal

The Contractor is required to remove and dispose of lead based paint and paint residue before cutting, grinding, drilling and sandblasting existing materials in preparation of completing the work except as provided under the Drilling of Lead Based Paint subsection in this Special Provision. All lead based paint and paint residue shall be removed, handled, stored and disposed of in conformance with all local, State and Federal laws and regulations governing lead based paint. The Contractor may use his own properly trained employees to abate the lead based paint in accordance with applicable regulations and requirements; or he may hire a licensed lead abatement subcontractor to abate the lead based paint in accordance with applicable regulations and requirements.

The Contractor, or licensed lead abatement subcontractor, shall submit a Project specific Health and Safety (OSHA) Plan and a Hazardous Waste Management Plan (EPA/DEP) a minimum of two (2) weeks prior to undertaking the removal of lead based paint.

Drilling of Lead Based Paint

The Contractor may drill lead based painted steel, without lead based paint removal, provided the Contractor collects and recycles the drill cuttings at a licensed metal recycling facility. If the Contractor chooses not to collect and recycle the drill cuttings at a licensed metal recycling facility he will be required to abate the area where drilling is to occur in full accordance with the lead based paint removal, storage and disposal requirement of this Special Provision.

The Authority will require a signed statement from the Contractor stating the drill cuttings were collected and recycled at a licensed metal recycling facility and the of name the recycling facility.

Health and Safety Plan

The Health and Safety Plan submittal shall describe how the Contractor/licensed lead abatement subcontractor intends to remove the lead based paints; and shall outline how the Contractor/licensed lead abatement subcontractor will adhere to all Federal, State and local ordinances which govern worker (including authorized representatives of the Authority) exposure to lead based paints, and ensure the safety of the workers performing lead removal. Copies of current worker training certificates (OSHA), medical screenings, and respirator fit up shall be included in the submittal.

Hazardous Waste Management Plan

The Hazardous Waste Management Plan submittal shall describe how the Contractor/licensed lead abatement subcontractor intends to manage the hazardous waste that will be generated, temporarily accumulated, stored, transported off-site and disposed; adhere to ordinances associated with the management of hazardous wastes; and ensure protection of the environment.

The Hazardous Waste Management Plan shall:

- Be signed by the Contractor;
- State whether Contractor or licensed lead abatement subcontractor will be undertaking the work; and,
- State whether abated lead materials will be accumulated and stored on-site (required if Contractor is not licensed by DEP/EPA to transport and temporarily store lead based hazardous waste), or be removed in HEPA vacuums daily to the removal Contractor's licensed waste storage facility (permitted only if Contractor is licensed by DEP/EPA to transport and temporarily store lead based hazardous waste).

If abated lead materials are to be accumulated and stored on-site, the Hazardous Waste Management Plan shall include (at a minimum) the following:

- Container size and labeling standards:
  - Containers must be 55 gallons or less
  - Containers must have the labeled "HAZARDOUS WASTE"

- Accumulation requirements:
  - Labels will include accumulation start date and container full date
  - On-site storage will not exceed 180 days from full date
  - Total on-site storage shall not exceed 55 gallons or 220 pounds

- Inspections (including frequency and checklist):
  - Inspections shall be performed each day the Contractor works
  - Inspection checklist shall be similar to MaineDEP format (Refer to Appendix A1 of MaineDEP Handbook for Hazardous Waste Generators – January 2003)
- Transport and DOT "pre-transport requirements":
  - Specify the licensed hazardous waste transporter to be used
  - Obtain Generator's EPA ID No. (typically a provisional ID # is obtained through the licensed hazardous waste transporter)
  - USDOT – approved containers must be used for shipment
  - Schedule MTA for signing Hazard Waste Manifest

- Recordkeeping requirements:
  - Describe where at the jobsite the required records (e.g., inspection logs, training records, Lead Determination report/hazardous waste characterization, etc.) will be maintained
  - Describe how and when copies of the required documents specified above will be transferred to the MTA Environmental Services Coordinator's office

The Contractor/licensed lead abatement subcontractor, shall provide documentation to the MTA that the employees who will be removing, handling, managing and/or directly supervising the hazardous waste operations have received required Resource Conservation and Recovery Act (RCRA) hazardous waste management training, and all training is current.

The lead based hazardous waste must remain on-site, unless the removal is being performed by a licensed lead abatement subcontractor that collects the paint residue in HEPA vacuums and is licensed by DEP/EPA to transport and temporarily store lead based hazardous waste at the removal Contractor's licensed waste storage facility. Both on-site and licensed off-site lead based hazardous waste storage facilities require secure storage and daily inspection of the stored waste.

If the removal Contractor is not licensed by DEP/EPA to transport and temporarily store lead based hazardous waste off-site, then an EPA licensed Hazardous Waste transporter(s) shall be used to remove hazardous waste from the site. All removal and disposal documentation will be required when the hazardous waste leaves the site. As the Generator, only the Authority's Environmental Services Coordinator or his trained designee shall sign waste manifests when material is removed from the Project site.

The removal, storage, handling, transporting, and disposal of lead based paint and lead based paint residue will not be measured separately for payment, but shall be incidental to the various Contract work items.

The following Subsection is added:

105.3 Traffic Control and Management

See Special Provision Section 652, Maintenance of Traffic.

105.4.1 Maintenance During Construction

This Subsection is amended by the addition of the following:

Once paid for mobilization, the Contractor is responsible for maintenance of the road that is open to local traffic within the Project limits. This does not include winter maintenance of deicing and snow removal.

Mobilization payment is defined as the Pay Requisition being submitted by the Resident to the Authority for payment.

105.4.3 Maintenance During Winter Construction

This Subsection is amended by the addition of the following:

The Contractor is responsible for the maintenance of erosion control and traffic control devices. The Authority will be responsible for winter road maintenance for lanes open to traffic.

The Contractor is also responsible for snow and ice removal from all drainage paths and catch basins located behind traffic control devices, in order to maintain drainage away from the paved travel way.

This Subsection is deleted from the General Provisions and replaced with the following:

105.5.1 General Requirements

Construction Access

The Contractor shall construct a stabilized construction entrance in accordance with the Best Management Practices at all locations where construction vehicles will exit and/or enter existing paved shoulders or travel ways from non-paved areas. The Resident shall approve of the locations. The stabilized construction entrance shall be constructed in conjunction with the clearing activities or other early activities. Additional stabilized construction entrances may be required due to the Contractor's operations as well as site conditions. The construction and maintenance of the stabilized construction entrance including frequent sweeping of the paved surfaces shall be incidental to the Contract.

105.7.4 Submittal Requirements

The following paragraph is added:

In addition to the hardcopy requirement, the contractor shall also make submittals in PDF electronic file format via email. Submittals shall be accompanied by a cover sheet, which identifies the submittal number, subject date, and any revision numbers associated with the submittal.

105.8.1 Temporary Soil Erosion and Water Pollution Control

This Subsection in the General Provisions is deleted and replaced with the following:

The Contractor shall certify in writing to the Resident that an On-Site Responsible Party (OSRP) has been trained and is knowledgeable in erosion and sediment control (ECS) through the MaineDEP's Non-Point Source Training Center, or an equivalent program, or is licensed in the State of Maine as a Professional Engineer, Landscape Architect or Soil Scientist. Proof of certification for the OSRP, and any other Contractor employees charged with conducting ESC inspections, must be submitted to the Authority's Environmental Coordinator prior to starting work.

Spill Prevention Control and Countermeasure (SPCC) Plan

Any areas where petroleum products, oils or non-petroleum hazardous materials are handled or stored will require a Spill Prevention Control and Countermeasure (SPCC) Plan. These materials may not be stored or handled in areas of the site draining to an infiltration area. The Plan will be submitted to the Resident before construction begins. In addition to petroleum products and hazardous materials, controls must be used to prevent additional pollutants (i.e., fertilizers, pesticides, salt/brine, litter, construction demolition debris, etc.) from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation. The Plan shall provide the following information at a minimum:

1. The name and emergency response numbers (telephone number, cellular phone and pager numbers, if applicable) of the Contractor's representative responsible for spill prevention and response;

2. Description of handling or storage location noting setbacks from water bodies where relevant. Significant sand and gravel aquifers and other sensitive resources, including infiltration areas, must be avoided wherever possible;

3. Description of storage and containment facilities, such as dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater or surface water;

4. Description of equipment and/or materials used to prevent discharges (including sorbent materials);

5. Preventative measures to minimize the possibility of a spill; and,

6. Contingency plan if spill should occur.

The approved plan must be posted at the Project site. All personnel working in the area are required to read and be familiar with the plan.

There shall be no separate payment for preparation of a SPCC Plan acceptable to the Resident and preparation shall be incidental to the work.

Notification of Authority of Hazardous Material Spills

In addition to MaineDEP reporting requirements for spills greater than five (5) gallons, the Contractor shall notify the on-site Resident Inspector. The on-site Resident Inspector shall notify the Maine Turnpike Radio Room at 207-871-7701. When the on-site Resident Inspector is not available, the Contractor shall notify the Maine Turnpike Radio Room directly at 207-871-7701.

In addition to MaineDEP reporting requirements for all spills where any stream or water body is threatened, the Contractor shall notify the on-site Resident Inspector. The on-site Resident Inspector shall notify the Maine Turnpike Radio Room at 207-871-7701. When the on-site Resident Inspector is not available, the Contractor shall notify the Maine Turnpike Radio Room directly at 207-871-7701.

These notification procedures shall be incorporated into the Spill Prevention Control and Countermeasure (SPCC) Plan.

Responsibility for Control and Cleanup of Hazardous Material Spills

The Contractor shall be responsible to control spills and properly cleanup, containerize, and dispose of petroleum and/or other hazardous material waste that results from the actions and/or equipment of the Contractor or his employees, subcontractors and suppliers. Chemicals, exposed to stormwater must be prevented from becoming a pollutant source.

The Contractor shall also be responsible for all direct and indirect costs associated with the control of spills and proper cleanup, containerization, and disposal of petroleum and/or other hazardous material waste that results from the actions and/or equipment of the Contractor or his employees, subcontractors and suppliers.

The following Subsections are added:

105.8.1.1 Environmental Standards

The Project will be performed in accordance with the MaineDOT Best Management Practices (BMP) latest issue. The Contractor shall fully comply with all erosion and sedimentation control requirements outlined in the BMP's or contained herein. Non-compliance with these requirements as determined by the Resident shall result in a financial penalty of $1,000 per day, per violation. Any fines assessed to the Maine Turnpike Authority as a result of the Contractor's non-compliance shall be paid by the Contractor. If the Contractor fails to pay,

the cost of the fine will be deducted from monies due, or which may become due, to the Contractor under this Contract.

In the event of conflict between these Specifications and other erosion and pollution control laws, rules or regulations of other Federal, State and local agencies, the more restrictive law, rules or regulations shall apply.

The standards as described below shall be met on the Project:

105.8.1.1.1 Water Pollution Control Requirements

(a) General

1. The Contractor must comply with the applicable Federal, State and local laws and regulations relating to prevention and abatement of water pollution.
2. Except as allowed by an approved permit or otherwise authorized by the Authority in writing, pollutants containing construction debris including excavated material, aggregate, residue from cleaning, sandblasting or painting, cement mixtures, chemicals, fuels, lubricants, bitumens, raw sewage, wood chips, and other debris shall not be discharged into water bodies, wetlands or natural or manmade channels leading thereto and such materials shall not be located alongside water bodies, wetlands, or such channels such that it will be washed away by high water runoff. Furthermore, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in the areas of the site draining to an infiltration area, unless these portions of the site (where storage and handling of these materials) are isolated using dikes, berms, sumps and other forms of secondary containment that prevent discharge to groundwater.
3. Temporary winter stabilization must be used between November 1st and April 15th or outside of said time period if the ground is frozen or snow covered. Temporary winter stabilization involves, at a minimum, covering all disturbed soils and seeded ground that is not Acceptable Work with an approved method. Use of these methods for over-winter temporary erosion control will be paid for under the appropriate Erosion Control items included in the Contract.
4. Construction operations in water bodies or wetlands shall be restricted to the construction limits shown on the Plans and to those areas that must be entered for the construction of temporary or permanent structures, except as allowed by approved permit or otherwise authorized by the Authority in writing. Mechanized equipment shall not be operated in water bodies or wetlands except as allowed by approved permit or otherwise authorized by the Authority in writing.
5. Upon completion of the work, water bodies or wetlands shall be promptly cleared of all falsework, piling, debris or other obstructions caused by the construction operations, except as allowed by approved permit or otherwise authorized by the Authority in writing.

(b) Earthwork

If earthwork disturbance is part of the Project scope:

1. Newly disturbed earth shall be mulched or otherwise stabilized by the end of each workday. Mulch shall be maintained on a daily basis.
2. All disturbed ditches shall be stabilized by the end of each workday. Stabilization shall be maintained on a daily basis.
3. Erosion control blanket shall be installed in the bottom of all ditches except where a stone lining is planned. Seed shall be applied prior to the placement of the blanket.
4. Permanent slope stabilization measures shall be applied within one (1) week of the last soil disturbance. Newly seeded or sodded areas must be protected from vehicle traffic, excessive pedestrian traffic, and concentrated runoff until the vegetation is well-established. If necessary, areas must be reworked and restabilized if germination is sparse, plant coverage is spotty, or topsoil erosion is evident.
5. Dust control items, other than those under Standard Specification Section 637, Dust Control, if applicable, shall be included in the plan.

105.8.1.1.2 Construction Requirements

1. The Contractor, to the maximum extent practicable, shall install temporary and permanent sedimentation control measures prior to conducting clearing and grubbing operations.
2. The Contractor shall conduct inspections of disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspections shall be conducted (1) at least once a week as well as before and after a storm event and prior to completing permanent stabilization measures; and (2) by a person knowledgeable of erosion and stormwater control, including the standards and conditions in the permit.
3. The Contractor shall maintain all measures in effective operating condition until areas are permanently stabilized. If BMPs need to be modified (i.e., corrective action, additional BMPs installed, etc.), implementation must be completed within seven (7) calendar days and prior to any storm event.
4. Temporary erosion control measures shall be maintained until the site is permanently stabilized with vegetation or other permanent control measures.
5. The Contractor will immediately take appropriate measures to prevent erosion or sedimentation from occurring or to correct any existing problems regardless of the time of year.
6. During periods of approved suspension, the Contractor shall inspect and maintain temporary and permanent erosion and sedimentation controls.
7. Work in wetlands is prohibited except to the minimum extent necessary for completion of the work as detailed on the Plans. Excavated and other material shall not be stockpiled in wetlands. Haybales, silt fence or other suitable barriers shall be used, where necessary, to prevent sedimentation from eroding materials.
8. Disturbance of natural resources beyond the construction limits shown on the Plans is not allowed.

9. Existing ditches shall be maintained until the new ditches are stabilized. Stone check dams shall be placed in existing ditches prior to construction as to prevent the release of sedimentation. Stone check dams shall be installed at the outlets of all existing and proposed ditches adjacent to all stream and wetlands.
10. For proposed ditches, stabilize the outlet first and build from the bottom up. Only excavate what can be stabilized or protected by the end of the work day.
11. Before permitting permanent channels to carry water, they shall be stabilized. This may require the installation of temporary erosion control BMP's or temporarily diverting flows.
12. All cross culvert outlets shall be armored before the end of the work day.
13. The Contractor's operation may require the placement of temporary pipes and fill over a ditch line to provide access to the work area. The Resident shall approve the size of the pipe. The placement and removal of the temporary access shall not be measured for payment and shall be incidental to the Excavation item.
14. Bare earth slopes shall be roughened to dissipate sheet flow. This shall be accomplished by "tracking" the slope perpendicular to the centerline. This work will not be measured separately for payment, but shall be incidental to the Excavation item.
15. Uncured concrete shall not be placed directly into the water body. Concrete may be placed in forms and shall cure at least one (1) week prior to form removal. No washing of tools, forms, etc. shall occur in or adjacent to the water body or wetland.
16. The Contractor shall contain all demolition debris (including debris from wearing surface removal, sawcut slurry, dust, etc.) and shall not allow it to discharge to any resource. Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source. The Contractor shall dispose of debris in accordance with Maine Solid Waste Law, Title 38 M.R.S.A., Section 1301 et. seq.
17. No wheeled or tracked equipment shall be operated in the water. Equipment operating on the shore may reach into the water with a bucket or similar extension. Equipment may NOT cross streams.
18. The Contractor shall not remove rocks from below the normal high water line of any wetland, great pond, river, stream or brook, except to the extent necessary for completion of the work and as allowed by environmental permits.

105.8.2 Permit Requirements

The Project is subject to the requirements of the Maine Pollutant Discharge Elimination System (MPDES) General Permit for Stormwater Discharge from Construction Activity, as promulgated by the US Environmental Protection Agency (US EPA) and Administrated by the Maine Department of Environmental Protection (DEP).

A Notice of Intent (NOI), accompanied by a preliminary Limit of Disturbance (LOD) plan was submitted by the Authority to the DEP for coverage under the Maine Construction General Permit (MCGP). Compliance with the erosion and sedimentation control requirements outlined in this Contract is required by the Contractor.

The Contractor shall prepare a LOD plan illustrating the Contractor's proposed limit of earthwork disturbance. The LOD plan shall show all construction access locations, field office locations, material and temporary waste storage locations, as well as include the Contract limits

of earthwork disturbance. All applicable erosion and sedimentation control devices needed shall be detailed on the Contractor's LOD plan and are not limited to those devices shown on the Contract LOD plan. **This Plan shall be submitted for review and approval, to the Resident within 14 days of Contract award.** Payment for creating, revising, and completing this plan shall be incidental to Item 659.10, Mobilization.

The LOD for this Contract, which were submitted as part of the NOI, has been estimated to be 2.4 acres.

At any time during the Contract, if the Limit of Disturbance needs to be adjusted to accommodate construction activities, the Contractor shall resubmit the LOD plan (including any additional erosion and sedimentation control measures needed) to the Resident for review and approval prior to any additional disturbance taking place:

- If the cumulative area of disturbance exceeds the estimated LOD noted above, by less than one acre, the Resident shall have a minimum of five (5) working days to approve the revised LOD plan.
- If the cumulative area of disturbance exceeds the estimated LOD noted above, by over one acre, the Resident shall first approve of the plan and then possibly resubmit the NOI for MaineDEP approval. The approval may take a minimum of 21 working days.

Compliance with the erosion and sedimentation control requirements outlined in this Contract is required by the Contractor.

The Contractor shall comply with the conditions outlined in the Maine Pollutant Discharge Elimination System (MPDES) General Permit for stormwater discharge associated with construction activity. The Contractor shall indemnify and hold harmless the Maine Turnpike Authority or its agents, representatives and employees against any and all claims, liabilities or fines arising from or based on the violation of the above noted permit.

107.1 Contract Time and Contract Completion Date

This Subsection is amended by the addition of the following:

Work on the site shall commence on or before February 6, 2014 at the discretion of the Authority, and all work shall be completed on or before June 19, 2015. The construction of West Road shall be substantially complete by October 17, 2014.

107.1.1 Substantial Completion

This Subsection is amended by the addition of the following:

Substantially complete shall be defined by the Authority as the following:

- All bridge deck work, including curbing, steel bridge rail, snow fence, surface pavement and guardrail installation including attachments complete and available for traffic.

- West Road fully opened to traffic including shoulders, guardrail, surface pavement and signage.
- All disturbed slopes loamed, seeded, mulched and protected with cellular confinement system, temporary erosion control mix and/or blanket installed where necessary.

Liquidated damages on a calendar day basis in accordance with Subsection 107.7.2 shall be assessed for each calendar day that substantial completion is not achieved. Liquidated damages for substantial completion will end when substantial completion is accepted by the Resident or at the Contract Completion Date. If the work remains incomplete at the Contract Completion Date, liquidated damages on a calendar day basis in accordance with Subsection 107.7.2 shall be assessed for each calendar day that Contract completion is not achieved.

107.3.2 Night Work

The following Subsection is added:

The only required night work activities in this Contract are erection and removal of structural steel over roads carrying traffic. Should the Contractor wish to undertake other work activities at night, he shall contact the Towns of Litchfield and Bowdoin to understand the requirements.

107.4.2 Schedule of Work Required

The weekly detailed schedule submitted by the Contractor shall show all lane closures that are anticipated for the following week. Lane closures that are not shown on this schedule will only be allowed if they are deemed emergency lane closures by the Resident.

The following Subsection is added:

107.4.6 Prosecution of Work

The following activities shall not begin until the date specified:

- West Road shall not be closed until on or after June 20, 2014 or the end of the 2013-2014 school year, whichever is later.

The Contractor shall submit to the Authority a construction schedule which shall document that the Contractor has the necessary labor and equipment to work immediately and continuously at the project site once the bridge is closed. The intent of this specification is to minimize the amount of time for bridge closure, while providing the Contractor sufficient time to complete the work in a diligent manner and reopen the bridge as prescribed by the project's Substantial Completion date.

The following Subsection is added:

107.4.9 Failure to Stop Work When Directed

In the event the Authority determines that the safety of the turnpike users (public) might be unduly compromised if work on the Project is not halted; the Resident Engineer, Resident Inspector or other authorized Authority representative will notify the Contractor to stop work. This may include directive to the Contractor to remove lane closures due to significant traffic delays. If the Contractor refuses to stop work within the time frame determined by the Authority, the Contractor will not be allowed to recommence work until after the Contractor meets with the Authority. In addition, work completed after the time allotted by the Authority to stop work, will not be measured for payment.

107.7.2 Schedule of Liquidated Damages

The table of liquidated damages is deleted and replaced with the following:

| Original Contract Amount From More Than | Original Contract Amount up to and Including | Amount of Liquidated Damages per Calendar Day |
|---|---|---|
| $0 | $100,000 | $225 |
| $100,000 | $300,000 | $350 |
| $300,000 | $500,000 | $475 |
| $500,000 | $1,000,000 | $675 |
| $1,000,000 | $2,000,000 | $900 |
| $2,000,000 | $4,000,000 | $1,000 |
| $4,000,000 | and more | $2,100 |

107.8.1 Fabrication Time

The Authority has budgeted for the following amounts of continuous full time fabrication/shop inspection for certain work components:

| Element | Time | Supplemental LD |
|---|---|---|
| 1) Structural Steel | 21 calendar days | $500 per calendar day |
| 2) Precast Deck Panels (if used) | 21 calendar days | $500 per calendar day |

The Contractor is responsible for requiring their fabricators and suppliers produce these products for the work continuously until finished, including any needed actions to correct unacceptable workmanship or materials. If the Authority determines that shop inspection beyond these times is required, then the corresponding Supplemental Liquidated Damages will be deducted as they occur from the amounts otherwise due the Contractor. The Contractor will be notified by the Authority when these times begin and when the allotted time will expire.

If a fabricator or supplier works more than one shift per day and the Authority determines that inspection is required for each shift, each shift will count as a calendar day and the LD rate will be the noted amount per shift per calendar day in lieu of per calendar day.

Inspection is required for the following activities:

For metal fabrication work – welding, including tack welding, heat correcting, nondestructive examination, assembly verification.

108.4 Payment for Materials Obtained and Stored

This Subsection in the General Provisions is deleted and not replaced.

This Subsection of the Standard Specifications is deleted and replaced with the following:

Acting upon a request from the Contractor, accompanied by the required documentation, the Authority will pay for all or part of the value of acceptable, non-perishable Materials that are to be incorporated in the Work, including Materials that are to be incorporated into the Work not delivered on the Work site, and stored at places acceptable to the Authority (e.g. at a facility controlled by the Contractor or his Subcontractor\Fabricator). Examples of such Materials include steel piles, structural steel, prestressed concrete beams and slabs, stone masonry, curbing, timber and lumber, metal culverts, and other similar Materials. The Authority will not make payment on living or perishable Materials until acceptably planted in their final locations.

For structural steel fabrication, the Authority will not make partial payments for expenses such as shop drawing development, overhead, transportation, rent, storage, heat, Contractor mark-ups or other items until after fabrication has commenced. Payment will be based on the Authority's determination of percent complete at the close of the period.

As a condition of payment, the Contractor or his Subcontractor\Fabricator shall provide the following:

1. Proof that all Materials are stored in a secure location acceptable to the Authority.
2. Detailed invoices from the material supplier including a summary of the Materials provided, quantities shipped and received, unit costs, taxes, transportation fees, and all other charges included in the invoice total.
3. Copies of mill certifications, or other material certifications, as required by the Specifications relevant to the Materials.
4. Right of access for the Authority, or its duly authorized agent, to inspect and quantify the Materials at the approved storage site.
5. Proof of insurance for the stored Materials. The Contractor or his Subcontractor\Fabricator shall carry insurance, equal to 100% of the replacement value of the Materials, for all stored Materials. The Maine Turnpike Authority shall be named as an Additional Insured on the insurance policy.

If payment for Materials obtained and stored by the Contractor's Subcontractor\Fabricator is made to the Contractor, then the Contractor must provide proof of payment from his Subcontractor\Fabricator within 14 calendar days of the date the Contractor receives payment for the Materials. Failure by the Contractor to provide timely proof of payment for these Materials will result in the paid amount being withheld from the subsequent progress payment, or payments, until such time proof of payment is received by the Authority.

Materials paid for by the Authority will become the property of the Authority, but the risk of loss shall remain with the Contractor. Payment for Materials does not constitute acceptance of

the Material. If Materials for which the Authority has paid are later found to be unacceptable, then the Authority may withhold amounts reflecting such unacceptable Materials from payments otherwise due the Contractor.

In the event of Default, the Authority may use, or cause to be used, all paid-for-Materials in any manner that is in the best interest of the Authority.

109.7.3 Compensable Items

The following is added to Item 3.:

3. "A maximum 15% markup will be allowed on the total..."

The following is added to the end of the paragraph:

4. ..."if determined by the Authority to be lower."

SPECIAL PROVISION

SECTION 201

CLEARING RIGHT-OF-WAY

(Clearing)

201.03 General

The following paragraph is added:

The Contractor is advised, that pursuant to Maine State law, the sale of harvested forest products must be reported to the Maine Forest Service at the end of each year. The Contractor is designated as the Authority's agent for reporting such harvesting. The Contractor shall prepare and submit the appropriate forms to the Maine Forest Service.

201.04 Clearing

The following is added at the end of the second paragraph:

Stumps that remain in areas not grubbed shall be cut flush with the ground, maximum height of 3 inches above ground. The stumps shall be treated with a herbicide.

Vegetation within the clearing limit that has a height greater than the distance measured from the edge of existing pavement to the base of the tree shall be cleared by a means that assures that the tree will not fall onto the pavement. The Contractor shall submit his method of clearing and removal to the Resident for approval.

The Contractor shall flag the clearing limits at 100 foot intervals two feet beyond the clearing limit line such that the flags remain in place at the completion of the clearing operation. This work shall be completed a minimum of one (1) week prior to the clearing. The flags shall be removed by the Contractor prior to the completion of the Contract. This work will be incidental to Clearing.

201.07 Disposal

The second paragraph is deleted and replaced with the following:

All clearing materials must be disposed of off-site by an approved method. Materials chipped on-site must be transported off-site for disposal. The Contractor will not be permitted to bury any brush or logs in the embankment slopes or within the turnpike right-of-way.

The loading of chips and logs for transport off the Project site shall not be conducted on the existing pavement and shall be located at least 20 feet from the edge of pavement when loading and transporting from the Turnpike mainline. The Resident may increase the required offset distance if it is determined that chips are spraying onto the pavement or love traffic area.

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Existing Superstructure)

202.01 Description

The following paragraphs are added:

The work shall include all labor, equipment, and materials required to remove the existing bridge superstructure.

All materials shall become the property of the Contractor and shall be removed from the site at the completion of the Project. The Contractor shall provide the Resident with an affidavit stating the final location of all disposed material and that the material was disposed of in accordance with the Maine Department of Environmental Protection Solid Waste Regulations.

202.03 Removing Existing Superstructure, Structural Concrete, Railings, Curbs, Sidewalks and Bridges

This Subsection is amended by the addition of the following:

The removal of the existing superstructure shall include the removal and disposal of the reinforced concrete deck, structural steel beams and diaphragms, parapets, curbing and all other materials which are part of the bridge superstructure, with the exception of the bearings.

Prior to starting any superstructure demolition work, the Contractor shall submit a demolition plan to the Resident for approval. The demolition plan shall be stamped by a Professional Engineer licensed in the State of Maine. The demolition plan shall consider the effect of construction equipment, methods of operation, and sequence of work on the capacity and stability of the bridge. The capacity of the structure shall be calculated in accordance with the latest edition of the AASHTO Manual of Bridge Evaluation and LRFD Bridge Design Specifications.

No demolition will be permitted until the approved method of shielding is completely installed. Traffic will not be permitted to use the travelway directly under the demolition work. A lane closure will be required.

202.08 Basis of Payment

This Subsection is amended by the addition of the following:

Removing Existing Superstructure will be paid for at the Contract lump sum price which shall be full compensation for removing and disposing of the superstructure as shown on the Plans or as approved by the Resident.

Removing bridge bearings shall not be included herein for payment, but rather will be paid for under Pay Item 523.521, Bearing Removal and Installation.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 202.101 | Removing Existing Superstructure | Lump Sum |

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Existing Structural Concrete)

202.01 Description

The following paragraphs are added:

This work shall include removal and disposal of the existing abutment backwalls and wingwalls, to the limits shown on the Plans.

After removal of the concrete, all newly exposed structural steel surfaces to be incorporated into the new construction shall be thoroughly cleaned with chipping hammers or other means as necessary so all surfaces are free of rust, scale, chunks of concrete, or other foreign materials.

The Contractor may not dispose of demolition concrete within the Project limits. All materials shall become the property of the Contractor and shall be removed from the site at the completion of the Project. The Contractor shall provide the Resident with an affidavit stating the final location of all disposed material and that the material was disposed of in accordance with the Maine Department of Environmental Protection Solid Waste Regulations.

202.07 Method of Measurement

The first and third sentences of the first paragraph are deleted and replaced with the following:

Removing Existing Structural Concrete at wingwalls and backwalls will be measured by the cubic yard in place prior to beginning the work.

Any excavation required to remove existing structural concrete or superstructure concrete will be measured for payment under Pay Item 206.081, Structural Earth Excavation – Major Structures.

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Existing Drain Troughs)

202.01 Description

The following paragraph is added:

The work shall consist of removing and disposing of the existing drain troughs attached to, or in front of, the abutments; and removing and disposing of the existing drainage trough downspouts buried in the embankments at the West Road Underpass.

The filling and shaping of the void left by the removal of the existing drain troughs will be paid under Item 304.10, Aggregate Subbase Course - Gravel.

The following Subsections are added:

202.025 General

All drain trough components removed shall be disposed of by the Contractor off of the turnpike right-of-way in accordance with the Maine Department of Environmental Protection Solid Waste Management Requirements.

202.07 Method of Measurement

The following paragraph is added:

Removing Existing Drain Troughs shall be measured by the lump sum.

202.08 Basis of Payment

The following sentences are added:

Removing Existing Drain Troughs shall be paid for at the Contract lump sum price which includes all removals, disposal, equipment and labor necessary to satisfactorily complete the work.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 202.191 | Removing Existing Drain Troughs | Lump Sum |

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Pavement Surface)

202.01 Description

The following sentence is added:

This work shall also consist of removing the surface of the bituminous concrete pavement to the depth, width, grade, and cross section as shown on the Plans or as approved by the Resident.

The following Subsection is added:

202.061 Removing Pavement

The equipment shall also have an effective means for removing excess material from the surface and for preventing accidents from flying material in compliance with Subsection 105.2.4, Compliance with Health and Safety Laws and with Subsection 105.2.5, Safety and Convenience of the Public, of these Specifications.

The pavement grindings shall be disposed of by the Contractor off the turnpike right-of-way. All grindings shall be disposed of in accordance with the Maine Department of Environmental Protection Solid Waste Management Requirements.

The milling machine(s) shall be capable of accurately establishing profile grades by referencing from a floating straight edge, a minimum of 50 feet, for controlling cross slope elevations.

The equipment for grinding the bituminous surface shall be a power operated milling machine or planer capable of removing the bituminous concrete pavement to the required depth.

SPECIAL PROVISION

SECTION 203

EXCAVATION AND EMBANKMENT

This Section is amended as follows:

All references to "waste storage areas" shall be deleted.

203.04 General

The third paragraph is deleted and replaced with the following:

There are no approved waste storage areas or waste areas within the Project limits. Unsuitable materials shall be disposed of off-site in accordance with Subsection 203.06.

All excavations shall be accomplished in accordance with the applicable OSHA Standards. The Resident reserves the right to request the Contractor to prepare an excavation plan. This plan shall include, but not necessarily be limited to, the limit and depth of excavation, side slope, shoring, trench box and utility support.

The following Subsection is added:

203.043 Sampling and Testing

The Contractor is responsible for quality control. Quality assurance testing and sampling, to monitor the conformance of the embankment fill materials, placement, and compaction will be completed by the Resident. Particular emphasis will be placed on the gradation characteristics and the in-place density of the embankment fill.

203.16 Winter Construction of Embankments

The word "core" is deleted from the first and second sentences in the first paragraph.

203.18 Method of Measurement

Any reference to borrow will be deleted from the first paragraph.

The pay quantity of common borrow shall be 115 percent of the compacted quantity measured in place.

The following paragraphs are added:

There will be no additional payment for the required excavation plan, and costs shall be incidental to the Excavation items.

SPECIAL PROVISION

SECTION 206

STRUCTURAL EXCAVATION

This Section is amended as follows:

All references to "waste storage areas" shall be deleted.

206.01 Description

The following is added after the first paragraph:

This work also shall consist of excavating and removal of earth materials at the bridge abutments and backwall and along the wingwalls where demolition will occur or at areas requiring refacing repair within the limits of work as shown on the Plans or as approved by the Resident.

206.02 Construction Methods

The following paragraphs are added:

There are no approved waste storage areas or waste areas within the Project limits. Unsuitable materials shall be disposed of off-site in accordance with Subsection 203.06.

The bituminous pavement shall be disposed of by the Contractor off the turnpike right-of-way. All bituminous pavement shall be disposed of in accordance with Chapter 404 of the Maine Department of Environmental Protection Solid Waste Management Regulations.

206.04 Method of Measurement

The following paragraph is added:

Excavation required to expose demolition and refacing repair areas will be paid for under Item 206.081, Structural Earth Excavation - Major Structures. Backfill of the repair areas, not requiring gravel or hot bituminous pavement, will not be measured separately for payment, but shall be incidental to the Structural Earth Excavation item.

206.05 Basis of Payment

The following is added after the first paragraph:

The work shall also include all materials, equipment and labor associated with excavating, backfilling and compacting areas of Structural Excavation.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 206.081 | Structural Earth Excavation – Major Structures | Cubic Yard |

SPECIAL PROVISION

SECTION 304

AGGREGATE BASE AND SUBBASE COURSE

304.04 Shaping, Compacting and Stabilizing

The following is added after the first sentence of the first paragraph:

The aggregate subbase course gravel placed below the roadway level and within areas of structural excavation, shall be compacted to a density of not less than 98 percent of the maximum density for the full width and depth of the layer.

SPECIAL PROVISION

SECTION 401

HOT MIX ASPHALT PAVEMENTS

| Desc. of Course | Grad. Design | Item Number | Bit Cont. % of Mix | Total Thick | No. Of Layers | Comp. Notes |
|---|---|---|---|---|---|---|
| | | | **West Road Travelway Bridge** | | | |
| Wearing | 9.5 mm | 403.210 | N/A | 3 in. | 2 | A, C, F, L |
| | | | **West Road Travelway Overlay** | | | |
| Wearing | 9.5 mm | 403.210 | N/A | 1-1/2 in. | 1 | A, F, L |
| | | | **West Road Travelway Full Depth Construction and Full DepthPavement Reconstruction** | | | |
| Wearing | 9.5 mm | 403.210 | N/A | 1-1/2 in. | 1 | A, F, L |
| Base | 12.5 mm | 403.213 | N/A | 2-1/2 in. | 1 | A, F, L |
| | | | **West Road Drives** | | | |
| Wearing | 9.5 mm | 403.209 | N/A | 2 in. | 1 | A, F, L |

COMPLEMENTARY NOTES

A. The bituminous binder material for this mixture shall be PG 64-28.

B. The contractor shall furnish a quality control technician with a thin lift nuclear density gauge to ensure density requirements are met.

C. Bridge decks. No RAP is allowed in the bridge mix design. The use of an oscillating steel roller shall be used to compact all hot mix asphalts placed on bridge decks.

D. The aggregate qualities shall meet the design traffic level of 3 to <10 million ESALS for mix placed under this contract. The design verification, Quality Control, and Acceptance tests for this mix will be performed at **75 gyrations**. (N design)

E. Section 106.6, Acceptance, (1) Method A. (MaineDOT Standard Specification-December 2002).

F. Section 106.6, Acceptance, (2) Method C (MaineDOT Standard Specification-December 2002).

G. A **"FINE"** 9.5 mm mix with a gradation above or through the restricted zone shall be used for this item.

H. A mixture meeting the gradation of 12.5 mm hot mix asphalt may be used at the option of the Contractor.

I. A mixture meeting the gradation of 9.5 mm hot mix asphalt may be used at the option of the Contractor.
J. A mixture meeting the requirements of Subsection 703.09, Grading 'D', with a minimum PGAB content of six percent, and the limits of Special Provision 401, Table 9 (Drives and Sidewalks) for PGAB content and gradation may be substituted for this item. A job mix formula shall be submitted to the Resident for approval.
K. Any base or binder mix left exposed to traffic over the winter shall have a layer of 12.5 mm mix substituted for the 19 mm mix. If this substitution is made, the specified layers may need to be modified, as approved by the Resident.
L. Joints shall conform to Subsection 401.17 below.
M. Match existing pavement thickness.

401.03 Composition of Mixture

This Subsection is deleted in its entirety and replaced with the following:

The Contractor shall submit a current MaineDOT approved job mix formula to the Resident at least 30 days prior to the placement of bituminous pavement. Submission shall include a description of where the submitted mix is currently in use on a MaineDOT Project. Bituminous pavement shall not be placed until after the job mix formula is approved by the Resident.

401.6 Weather and Seasonal Limitations

This Subsection is deleted in its entirety and replaced with the following:

The Contractor shall not place any hot mix asphalt on a wet or frozen surface. The air temperature shall be 40ºF or higher when placing non-surface mix, 45ºF or higher when placing shim or surface mix and 50ºF or higher when placing the bridge deck mix.

401.17 Joints

All cold joints with temperatures less than 120°F shall be sealed as specified herein.

The fourth paragraph is amended as follows:

The words "emulsified asphalt" are deleted and replaced with "joint sealant, conforming to Federal Specification SS-S-1401C".

The following sentence is added after the last paragraph:

The Contractor shall submit to the Resident a manufacturer's certification for the joint sealant (SS-S-1401C).

401.204 Opening to Traffic

No vehicular traffic or loads shall be permitted on newly completed pavement until adequate stability has been attained and the material has cooled sufficiently to prevent distortion or loss of fines. The newly paved area may be opened to traffic after the internal temperature of the pavement has cooled to 120°F. The Resident will test the internal temperature of the pavement and shall be the sole judge as to the opening to traffic. The period of time before opening to traffic may be extended at the discretion of the Resident. The lane closure may not be removed until the internal temperature has cooled to 120°F.

401.205 Additional Lifts of Pavements

No additional lifts of pavement shall be permitted on a newly completed pavement layer until the material has cooled sufficiently and adequate stability has been attained to prevent mat distortion or loss of fines. No subsequent lift of pavement shall be placed until the internal temperature of the previously placed pavement layer has cooled to 120$^{o}$F. The Resident will test the internal temperature of the previously placed pavement layer and shall be the sole judge as to whether a subsequent lift of pavement can be placed. No equipment or traffic will be permitted on the compacted pavement layer until the internal temperature has cooled to 120$^{o}$F.

SPECIAL PROVISION

SECTION 409

BITUMINOUS TACK COAT

409.02 Bituminous Material

This Subsection is deleted in its entirety and replaced with the following:

Bituminous material shall conform to the Specifications for Emulsified Asphalt RS-1, of the AASHTO Designation M-140.

409.05 Equipment

Add "or as determined by the Resident", after the words "gal/yd$^2$]" in the fourth line of the second paragraph of this Subsection.

409.06 Preparation of Surface

The following paragraph is added:

All existing pavement and shoulder areas on which bituminous concrete mixtures are to be placed shall receive a tack coat. The surface area where the tack coat is to be applied shall be dry and cleaned of all dirt, sand, and loose material. Cleaning shall be accomplished by use of revolving brooms or mechanical sweepers. Undesirable material not removed by the above means shall be cleaned by hand-brooming or scraping, or a combination of both. Small areas otherwise inaccessible may be broomed with hand brooms. The tack coat shall be applied only when the existing surface is dry.

409.08 Method of Measurement

The following paragraphs are added:

Measurement will be based on delivery slips made out in duplicate by the Contractor and signed by the Resident, or his representative, at the point of delivery. One of these slips shall be retained by the Resident and one by the Contractor. Delivery slips shall be furnished by the Contractor and shall provide space for identifying the vehicle and driver, for stating the volume of material, the source of the material, the date, and the Resident or his representative's signature.

Material included in the delivery slips and not used or rejected shall be deducted from the amount being measured for payment. Each day's delivery slips shall be reconciled by the Contractor and the Resident within 24-hours.

Cleaning of the surface area where tack coat is to be applied shall be incidental to Item 409.15, Bituminous Tack Coat, Applied.

SPECIAL PROVISION

SECTION 419

SAWING AND SEALING JOINTS IN BITUMINOUS PAVEMENT

(Sawing Bituminous Pavement)

419.01 Description

This work consists of sawing bituminous concrete pavement as shown on the Plans, as specified herein or as approved by the Resident.

419.02 General

The bituminous concrete pavement to be sawed shall be accurately marked before cutting. The marking shall be in accordance with the locations as shown on the Plans or as approved by the Resident. Cutting shall be with an approved power driven saw with an abrasive blade.

Unless otherwise noted or directed, the sawcut shall be vertical, a minimum of 3/8 inch wide, and extend to the depth as shown on the Plans.

Residue or debris from the sawing operation shall be removed immediately and legally disposed of by the Contractor.

419.03 Method of Measurement

Sawing Bituminous Pavement will be measured by the linear foot of pavement actually cut and accepted. No additional payment will be made for variations in the pavement thickness.

419.04 Basis of Payment

Sawing Bituminous Pavement will be paid for at the Contract unit price per linear foot which shall be full compensation for all materials, tools, equipment, labor, and all incidentals necessary for the completion of the work to the satisfaction of the Resident. The disposal of sawcut residue shall be incidental to this item.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 419.30 | Sawing Bituminous Pavement | Linear Foot |

SPECIAL PROVISION

SECTION 502

STRUCTURAL CONCRETE

This Subsection is deleted in its entirety and replaced with the following:

502.01 Description

This work shall consist of furnishing and placing Portland Cement Concrete for structures and incidental construction in accordance with these Specifications and in conformity with the lines, grades and dimensions shown on the Plans or established, or for placing concrete fill or underwater seals for foundations where called for on the Plans.

502.02 Classification

The Portland Cement Concrete shall be the class indicated on the Plans.

502.03 Materials

Materials shall meet the requirements specified in the following Subsections of Division 700, Materials:

| | |
|---|---|
| Portland cement and Portland-pozzolan cement | 701.01 |
| Water | 701.02 |
| Air-Entraining Admixtures | 701.03 |
| Water Reducing Admixtures | 701.04 |
| High Range, Water Reducing, Admixture | 701.0401 |
| Set-retarding Admixtures | 701.05 |
| Curing Materials | 701.06 |
| Waterstops | 701.07 |
| Smoothed Surfaced Asphalt Roll Roofing (formerly heavy roofing felt) | 701.08 |
| Fly Ash | 701.10 |
| Calcium Nitrite Solution | 701.11 |
| Silica Fume | 701.12 |
| Ground Granulated Blast Furnace Slag | 701.13 |
| Fine Aggregate for Concrete | 703.01 |
| Coarse Aggregate for Concrete | 703.02 |
| Alkali Silica Reactive Aggregates | 703.0201 |
| Preformed Expansion Joint Filler | 705.01 |
| Bridge Drains | 711.04 |

In Subsection 701.10, Fly Ash, the “Loss on Ignition (LOI)” paragraph is deleted and replaced with the following:

Loss on Ignition (LOI) - Shall be 6.0 percent maximum per AASHTO T105 (ASTM C311) provided the Fly Ash has a documented history of not adversely effecting the concrete air content, otherwise the LOI shall be 3.0 percent maximum per AASHTO T105 (ASTM C311).

502.04 Shipping and Storage

Cement may be shipped in bags or in bulk from pre-tested and approved silos at the cement mill. The cement shall be completely protected from rain and moisture. Any cement damaged by moisture or which fails to meet any of the specified requirements shall be rejected and removed from the site. If requested by the Resident, cement stored for a period longer than 60 days shall be retested before being used in the work.

Bags of cement in shipment or storage shall not be piled more that eight (8) bags high. Bags of cement which for any reason have become partially set or which contain lumps of caked cement shall be rejected. Shipments of cement in bags shall be separately stored in a manner as to provide easy access for identification and inspection of each shipment.

Fly ash and slag shall be stored in weather tight silos approved by the Resident. All silos shall be completely empty and clean before material is deposited therein, unless the silo already contains material of the same type and properties.

Fly ash or slag remaining in bulk storage for a period greater than one (1) year after completion of tests will be resampled and retested by the supplier before shipment or use.

Handling, shipping and stockpiling of aggregates shall be done in such a way as to minimize segregation and breakage.

Fine aggregate and each size of coarse aggregate shall be stored in completely separate stockpiles on prepared bases constructed of the same material as that to be stockpiled, with a minimum thickness of 300 mm [1 ft.]. The ground under the prepared bases shall be reasonably graded to drain away from the stockpile and shall be free of brush or other harmful vegetation. The base shall be left in place, undisturbed for the duration of the use of the stockpile. Prepared bases can be salvaged for reuse provided this material is reprocessed. Barge floors, wood, metal or other approved hard surfaces shall be considered acceptable alternates for the prepared bases described above.

502.041 Testing Equipment

The Contractor shall provide testing equipment and materials as specified below for use by the Resident or their representative exclusively. The equipment shall be available and acceptable to the Resident one (1) week prior to placing any concrete. All costs associated with providing and maintaining testing equipment shall be incidental to the work and no additional payment will be made.

The Resident will maintain the test equipment in reasonable condition. However, the Contractor shall replace any equipment that becomes unusable due to normal wear and tear or which is stolen or damaged from other than the Resident's neglect or mistreatment. All such replacement costs shall be incidental to the work and no additional payment will be made.

A. Pressure air meter meeting requirements of AASHTO T152 (Type B) and all accessory pay items required for use with the particular design of apparatus. This shall include one nine inch mason trowel, one metal scoop nine inches long *x* five inches wide, one tamping rod conforming to AASHTO T119, one rubber mallet as

described in AASHTO T152, one strike off bar (flat straight bar of steel). The air meter shall be functional and shall bear a current calibration certificate issued by a recognized testing laboratory. Current shall mean within the calendar year.

B. Two pocket dial thermometers 0˚F to 200˚F, one inch diameter dial, five inch pointed stem, unbreakable poly carbonate crystal, stainless steel case, stem and bezel. Accuracy required is one percent over entire range.

C. "Contractors" rubber tired wheelbarrow.

D. Two D-handle square end shovels 9-1/2 inches wide.

E. Two pair heavy duty, long cuff, rubber gloves.

F. Miscellaneous equipment: 16 oz. plastic squeeze bottle, five gallon bucket, scrub brush, paper towels, folding rule, and rubber syringe.

G. Small rod – one tamping rod conforming to AASHTO T277.

H. 10 foot straightedge as required by Resident.

502.05 Composition and Proportioning

Concrete shall be composed of a homogenous mixture Portland Cement, fly ash, or ground granulated blast furnace slag, fine aggregate, coarse aggregate, water and admixtures proportioned according to these Specifications and shall conform to the requirements of Table 1.

At least 45 days prior to placement of any concrete to be incorporated in the bridge or other concrete structure, the Contractor shall submit mix designs that meet the requirements of Table 1 along with the proposed sources of aggregates, cement, water and admixtures for each class of cement concrete specified. Sufficient material shall be obtained by the Authority's designated testing personnel at the proposed sources for verification of acceptability by test and for mix design. Materials failing to meet the specified requirements shall be rejected and new materials shall be resubmitted to the laboratory. The Authority's testing laboratory will determine the proportions of cement, aggregate, water, air entraining agents, and other admixtures of all specified and proposed concrete mixtures by means of trial design batches and tests using the consistencies, air content and other properties suitable for the work and in accordance with the latest applicable AASHTO or ASTM Standards and designations.

**TABLE 1**
**MASTER LIMITS TABLE**

| Class of Concrete | Minimum Compressive Strength at 28 Days | Minimum Cementitious Content | Water Cement Ratio | Slump | Air Content | Maximum Coarse Aggregate Size (703.02) | Notes |
|---|---|---|---|---|---|---|---|
| | PSI | LB/CY | | INCHES | % | INCHES | |
| A | 4000 | 611 | 0.38±0.02 | 6 ± 2 | 6 ± 1 | 1 | 3, 4 |
| AA | 4000 | 658 | 0.38±0.02 | 3.5 | 5 to 7 | 3/4 | 1, 3 |
| AAA | 4500 | 658 | 0.38±0.02 | 6 ± 2 | 6 ± 1 | 3/4 | 3, 4 |
| AAA – Deck | 4500 | 658 | 0.42±0.02 | 6 ± 2 | 7.5 ± 1.5 | 3/4 | 3,4,6 |
| B | 3000 | 517 | 0.40±0.02 | 6 ± 2 | 5 ± 1 | 1-1/2 | 1, 3 |
| S | 3500 | 635 | 0.38±0.02 | 6 ± 2 | 6 ± 1 | 1-1/2 | 1, 3 |
| P | SEE PLANS | 658 | 0.38±0.02 | 6 ± 2 | 5 ± 1 | 3/4 | 3, 4, 5 |
| IS | 3000 | 470 | 0.58 | 5 ± 1 | 3.0% Max | 1-1/2 | 2, 3 |

NOTES:

1. All concrete shall contain either a normal water reducing admixture (Type A) or a high range water reducing admixture (HRWR) meeting the requirements of Subsection 701.0401. When a HRWR is used, a maximum of an 8.0” slump is allowed.

2. All concrete shall contain a non-chloride based, mid-range water reducing admixture (MRWR) meeting the requirements of ASTM C494.

3. All concrete shall contain a Portland Cement replacement. Portland Cement pre-blended with either fly ash or ground granulated blast-furnace slag may be used when accepted by the Resident.

   Due to the lower heat of hydration effect of high cement replacements, the Contractor is responsible for selecting a replacement level which is appropriate for the time of year if cold weather conditions are anticipated.

4. All concrete shall contain a high range water reducing admixture (HRWR) meeting the requirements of Subsection 701.0401. A minimum of one-half the design dosage of the HRWR should be added at the plant to insure thorough mixing. The HRWR should be added in strict accordance with the manufacturer’s guidelines and limitations. The HRWR Guidelines need to be submitted to the Resident for review and approval. The concrete will not be slump tested by the Authority prior to the addition of the HRWR. The supplier shall provide the aggregate moisture adjustment and plant-added water on the delivery tickets. If additional slump is required in the field, it will be achieved with additional HRWR (in accordance with the manufacturer's recommendations and limitations).

5. A calcium nitrate corrosion inhibitor meeting the requirements of ASTM 494 Type C shall be added at a rate of not less than three gallons per cubic yard.

6. Deck concrete (Class AAA – Deck) is a new mix design and trial batching will be required per specifications. The mix design may gain strength slower than other MTA mix designs, and the contractor shall plan construction operation accordingly.

The mix design submitted by the Contractor shall include the following information:

A. Description of individual coarse aggregate stockpiles, original source, bulk specific gravity, absorption, gradation and alkali silica reactivity test results. A combined coarse aggregate blended gradation shall be provided.

B. Description of fine aggregate, original source, bulk specific gravity, absorption, colorimetric, gradation and Fineness Modulus (F.M.).

C. Description and amount of cement and cement replacement material.

D. Target water cement ratio.

E. Target water content by volume.

F. Target strength.

G. Target air content, slump, and concrete temperature.

H. Target concrete unit weight.

I. Type and dosages of air entraining and chemical admixtures.

Approval by the Authority will be contingent upon the ability of the mix design proportions to meet the concrete strength requirement and other factors that affect durability. Cement replacements are included in the cementitious material.

Concrete mix designs shall contain 15 to 30 percent fly ash replacement by weight, or 25 to 50 percent slag cement replacement by weight. Deck concrete mix designs shall have a maximum of 30% slag cement replacement by weight.

Cast-in-place concrete shall contain no more than 660 lb/cy of cementitious material.

All concrete mixes must be designed in accordance with the criteria of this Section. The design proportions with the fine aggregates designated as a percent of the total aggregate must be stated in terms of aggregate in a saturated, surface dry condition and the batch weights will be adjusted by the Contractor for the actual moisture of the aggregate at the time of use.

Based on the design parameters, including minimum cement factor and maximum water cement ratio, a curve representing the relation between the water/cement ratio and the average seven day and 28 day compressive, or earlier strength at which the concrete is to receive its full

working load, will be established by the Authority's laboratory for a range of values including all of the compressive strengths required. The curves shall be established by at least three points, each point representing average values from at least three test specimens. Amount of water used in the concrete, as determined from the curve, shall correspond to the required average strength called for in the Specifications in accordance with the ACI 301-10, Table for Laboratory Mix Design Data – Required Average Compressive Strength below. When required, the consistency of the basic mix selected shall be adjusted by the use of high range water reducers.

LABORATORY MIX DESIGN DATA
REQUIRED AVERAGE COMPRESSIVE STRENGTH

| SPECIFIED $f'_c$ | REQUIRED $f'_{cr}$ |
|---|---|
| LESS THAN 3000 PSI | $f'_c$ + 1,000 PSI |
| 3000 PSI TO 5000 PSI | $f'_c$ + 1,200 PSI |
| OVER 5000 PSI | $f'_c$ + 1,400 PSI |
| The curves shall be established by at least three (3) points, each point representing the average values from at least three (3) test specimens for each age of seven (7) and twenty-eight (28) days. Laboratory tests are valid for ninety (90) days. | |

The laboratory adjusted mix design will then be forwarded to the Contractor for his use. No change in the source or character of the mix ingredients may be made without notice to the Resident, and no new mix ingredients shall be used until the Resident has approved such ingredients and new mix proportions, if they change. Additional testing, if required, shall be paid for by the Contractor.

502.0501 Quality Control

The Contactor shall control the quality of the concrete through testing, inspection and quality control practices which shall be sufficient to assure a product meeting the Contract requirements.

Concrete sampling for QC shall be taken at the discharge point with pumped concrete sampling taken at the discharge end of the pump line.

For each truckload of concrete, the Contractor shall provide a Certificate of Compliance to the Authority at the time of the load placement. The Certificate of Compliance shall be a form acceptable to the Authority and shall include the following:

- Contract Name & Number
- Bridge Name
- Manufacturing Plant (Batching Facility)
- Name of Contractor (Prime Contractor)
- Date
- Time Batched/Time Discharged
- Truck No.
- Quantity (Quantity Batched this Load)

- Type of Concrete by Class and Producer Design Mix No.
- Cement Brand or Type, and Shipment Certification No.
- Temperature of Concrete at Discharge
- Target Weights per Cubic Yard and Actual Batched Weights for:
    1. Cement
    2. Pozzolanic additives, including fly ash, slag cement, and microsilica
    3. Coarse concrete aggregate
    4. Fine concrete aggregate
    5. Water (including free moisture in aggregates and water added at the Project)
    6. Admixtures brand and quantity (fl. oz./cubic yard)
        - Air-entraining admixture
        - Water reducing admixture
        - Other admixtures
- Placement Location

502.0502 Quality Assurance

The Authority will determine the acceptability of the concrete through a quality assurance program and field measurement of surface tolerance, alignment and trueness, plumb and batter, and finish.

The Authority will take verification tests at times deemed appropriate by the Resident. Verification tests will include compressive strength, air content and permeability.

Concrete sampling for verification tests will be taken at the discharge point, with pumped concrete sampling taken at the discharge end of the pump line.

Compressive strength test will be completed by the Authority in accordance with AASHTO T22 at 28 days except that no slump will be taken. The average of two cylinders will be used to determine compressive strength.

Testing for entrained air in concrete, at the rate of one test per load, shall be in accordance with AASHTO T152.

Determination of the concrete cover over reinforcing steel for structural concrete shall be made prior to concrete being placed in the forms. Bar supports, chairs, slab bolsters, and side form spacers shall meet the requirements of CRSI Chapter 3, Section 2.5 Class 1, Section 2.6 Class 1A or Section 4. All supports shall meet the requirements for type and spacing as stated in the Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice, Chapter 3. Concrete will not be placed until the placing of the reinforcing steel and supports have been approved by the Resident. If the Contractor fails to secure Authority approval prior to placement, the Contractor's failure shall be cause for removal and replacement at the Contractor's expense. The Contractor shall notify the Resident, at least 48-hours prior to the placement, when the reinforcing steel will be ready for checking. Sufficient time must be allowed for the checking process and any needed repairs.

Rejection by Resident - For material not meeting Project Specifications, the Authority at its sole discretion will:

A. Require the Contractor to remove and replace the entire affected placement with concrete meeting the Contract requirements at no additional expense to the Authority; or,

B. Accept the material at a reduced payment as determined by the Authority.

Surface Tolerance, Alignment and Trueness, Plumb and Batter, and Finish - The Resident will measure each of these properties as follows:

A. Surface Tolerance - Exposed horizontal and sloping portions of the substructure, superstructure slabs, wearing surface, sidewalks, parapets, barriers, and wingwalls will be measured at randomly generated locations with a 10 foot straightedge once per 100 $ft^2$. Measurements beyond tolerances given in Table 5, Subsection 502.14(E) will be cause for removal or pay adjustment and potential corrective action as determined by the Resident. The Contractor shall furnish the 10 foot straightedge. At the Resident's discretion, measurements may be taken with a lightweight profiler. When the Resident uses the lightweight profiler to measure tolerance, and the International Ride Index (IRI) is between 250 and 300 in./mile for any one placement, a pay adjustment will be made. When tolerances exceed 300 in./mile, there will be cause for removal or a pay adjustment and potential corrective action.

B. Alignment and Trueness - Alignment and trueness may be measured by the Resident longitudinally along any vertical surface of any portion of the structure and shall not exceed a deviation of 1/4 inch in three feet for structures up to 30 feet in length. Structures in excess of 30 feet in length will be subject to a maximum tolerance of two inches. Measurements exceeding these tolerances will be cause for removal or pay adjustment and potential corrective action as determined by the Resident.

C. Plumb and Batter - The Resident will measure all columns and other vertical surfaces that will remain exposed to determine actual plumbness and batter. Measurements will be taken subsequent to every placement. Vertical faces of columns will be measured at a minimum of two faces at right angles to each other. Other vertical surfaces will be measured once every 15 feet along the face of longitudinal wall. All measurements will be made on a per placement basis and will be subject to a tolerance of 1/4 inch in 10 feet. Measurements between 1/4 inch and 1/2 inch in 10 feet will result in pay adjustments. Measurements beyond 1/2 inch in 10 feet will be cause for removal or pay adjustment and potential corrective action as determined by the Resident.

D. Finish - The Resident will measure and determine the areas to be repaired in accordance with Subsections 502.10(d), 502.13, and 502.14(e) for each placement. Areas to be repaired will be measured as a percentage of the total surface area of the placement. Those areas to be repaired that are between zero and five percent of the total surface area of the placement will result in no pay adjustments. Areas to be repaired that are between five percent and 10 percent will result in pay adjustments. Areas greater than 10 percent of the total surface area of the placement will be cause for removal or pay adjustment and corrective action as determined by the Resident.

Appropriate pay adjustments, as described in Subsection 502.194, will be made for any or all of the properties described above that do not meet Specification requirements.

502.0505 Resolution of Disputed Acceptance Test Results

The Contractor shall work cooperatively with the Resident in maintaining Control Charts in order to identify potential issues with any test results and take appropriate actions to address these issues before they become disputed issues. Circumstances may arise where the Authority's test results indicate that a material is unacceptable and removal is warranted. If the material is marginally acceptable, it may remain in place and be paid for at a reduced rate determined by the Authority. This Subsection provides recourse for the Contractor to contest the Authority's QA test results as follows, at no additional cost to the Authority:

A. Compressive Strength - The Contractor shall take appropriate corrective measures when the Resident advises the Contractor that the average of three consecutive compressive strength test results fall to less than 150 psi above the specified strength, or any single test falls more than 200 psi below the specified strength. The Contractor shall make corrective changes in materials, mix proportions, or in the concrete manufacturing procedure before additional concrete of the same class is placed.

There may be situations where there is the possibility that an underlying structural element could be built-upon before test results for the underlying element have been reported, based upon the normal frequency of testing. In these instances, it is in the Contractor's best interest to perform additional testing that will provide indications that the concrete will meet the requirements of the applicable Specifications, prior to continuing to build upon this underlying element. In the extreme case where an underlying structural element has been built-upon before test results for the underlying element have been reported, the above mentioned safeguards of tracking and additional testing have failed and the final test results for the concrete of the underlying element indicate that removal is warranted and the Contractor's QC results do not confirm the Authority's test results, the following procedure concerning compressive strength may be undertaken by the Contractor and witnessed by the Authority, within 36 days of the placement date:

1. Drilled core specimens shall be retrieved from the concrete in question in accordance with the requirements of ASTM C42/C42M, Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete. The core strength acceptance and evaluation criteria included in ACI 318 shall not apply.

2. Three drilled core specimens shall be taken from each sublot in question, from randomly selected locations to be representative to the entire volume of the sublot. The Resident and the Contractor's representative shall agree on the sample locations prior to drilling. The specimens shall have a minimum diameter of four inches and a minimum length of eight inches.

3. The concrete cores shall be taken directly from the Project to the Authority's designated independent testing laboratory where they will be tested. The cores shall be protected from drying and damage during transport. The Contractor shall make arrangements with the Authority's designated independent testing laboratory for testing prior to beginning the coring process.

4. Core test results will be evaluated by the Authority with the understanding that the strength of drilled cores is, in general, 85 percent of that of corresponding standard-

cured molded cylinders. Therefore, the test results of the three cored cylinders shall be averaged, and then divided by a factor of 0.85. The resulting compressive strength shall be used by the Authority in the final determination of the acceptability of the material in question and shall replace the contested test result in computing pay adjustments for the sublot in question. If coring is not done with the 36 day time limit, the Authority will not allow dispute testing of the sublot.

5. If the Authority concludes that the strength of the structural element in question is adequate as a result of the above procedure, then the concrete shall remain in place and will be paid for at a reduced rate, as determined by the Authority. If the Authority concludes that the strength of the structural element in question is unsatisfactory as a result of the above procedure, then the Authority will direct the Contractor to take appropriate actions, as determined by the Authority, and at no additional cost to the Authority.

B. Entrained Air – In order to dispute the Authority's test results, the Contractor must test material from the same sample as the Authority. If the difference between the Authority's and the Contractor's air tests is equal to or greater than 0.8 percent, then the material shall be retested by both parties. If the difference between the retests is equal to or greater than 0.8 percent, the concrete placement will be suspended immediately, and 1) both air meters shall be calibrated immediately, or 2) the Contractor shall immediately replace both air meters. Once it is demonstrated the QC and Acceptance air meters are in agreement with 0.8 percent, the concrete placement may resume.

502.06 Batching

Measuring and batching shall be performed at an approved batching plant, unless otherwise approved by the Resident. The batching plant shall meet the requirements of AASHTO M-157.

502.0701 Delivery

A. Delivery and discharge of the concrete from the mixer shall be completed within a maximum of 1-1/2-hours from the time the cement is added to the aggregate, except that in hot weather when the concrete mix temperature exceeds 70˚F or under other conditions contributing to quick stiffening of the concrete, delivery and discharge from the mixer shall be completed within one hour. When approved by the Resident, the use of a retarding admixture (Type D) may be used for increasing the one hour discharge time to 1-1/2-hours, provided concrete temperatures are kept below 80˚F and conditions contributing to quick stiffening of the concrete are not present.

B. Concrete, which has been condemned for any reason, shall be removed immediately from the jobsite and disposed of properly.

C. Concrete temperature before placement shall not exceed 85˚F.

D. All concrete trucks must have working revolution counters, and be set to zero at the start of mixing. Any truck without a counter will be rejected from the job unless the Contractor can assure the Resident that adequate mixing has been achieved.

502.08 Cold Weather Concrete

All frost, ice, and snow shall be removed from all material that will be in contact with fresh concrete.

Unless authorized by the Resident, the mixing and placing of concrete shall be discontinued when the atmospheric temperature is below 40˚F in the shade and dropping and shall not be resumed until the atmospheric temperature is as high as 35˚F in the shade and rising. If authorization is granted for the mixing and placing of concrete under atmospheric conditions different from those specified above, the water shall be heated to a temperature not exceeding 180˚F. When either the aggregate or water is heated to above 120˚F, they are to be combined first in the mixer before the cement is added. If the atmospheric temperature is below 25˚F, the aggregate shall also be heated when approved by the Resident. Materials containing frost or lumps of frozen material shall not be used. Stockpiled aggregates may be heated by the use of dry heat or steam. Aggregates shall not be heated directly by gas or oil flame or on sheet metal over a fire. When aggregates are heated in bins, steam coil or water coil heating or other methods that will not be detrimental to the aggregates may be used. The heating apparatus shall be capable of heating the mass uniformly and preventing the occurrence of spots of overheated material. The temperature of the mixed concrete shall be between the minimum values shown in Table 4 and 70˚F when it is placed in the forms. Salt or other chemicals shall not be added to the concrete for any reason whatsoever, except by written permission of the Resident.

TABLE 4
COLD WEATHER TEMPERATURE TABLE

MINIMUM FORM DIMENSION SIZE

| Less than 300 mm (12 in.) | 300 – 900 mm (12 - 36 in.) | 900 – 1800 mm (36 - 72 in.) | Greater than 1800 mm (72 in.) |
|---|---|---|---|
| 13˚C (55˚F) | 10˚C (50˚F) | 7˚C (45˚F) | 5˚C (40˚F) |
| MINIMUM CONCRETE TEMPERATURE AS PLACED | | | |

When permitted by the Resident, footings may be protected by completely submerging them by admitting water inside the cofferdam. Until submersion takes place, the temperature of the concrete and its surface shall be controlled as specified above. Submersion shall proceed slowly and the temperature of the air or water shall be maintained sufficient to prevent ice from forming within the cofferdam for a period of seven (7) days after the placing of the concrete.

When depositing concrete under water, there shall be no ice inside the cofferdam.

Permission given to place concrete under the conditions mentioned above shall not relieve the Contractor of responsibility for obtaining satisfactory results. The Contractor shall be wholly responsible for the protection of concrete during cold weather operations and any concrete injured by frost action or overheating shall be removed and replaced at the Contractor's expense.

502.10 Forms and False Work

A. Construction of Forms - All forms shall be well built, substantial and unyielding, securely braced, strutted and tied to present motion and distortion while concrete is being placed in them. The forms shall be strong enough to safely support the weight of the concrete and all superimposed loads (such as runways, concrete buggy loads, workers, scaffolding, etc.) placed upon them.

Forms shall be built to conform to the dimensions, location, contours and details shown on the Plans. The faces of forms against which the concrete is to be placed shall be dressed smooth and uniform and shall be free from winds, twists, buckles and other irregularities.

Stay-in-place forms of any type will not be permitted for any part of the slab structures, unless otherwise indicated on the Plans.

The placing of concrete in excavated pits and trenches without forms will be permitted only in exceptional cases and then at the discretion of the Resident.

All corners within the forms shall be fitted with chamfer strips mitered at their intersections, except that chamfer strips will not be required as follows: (1) on corners of slab blocking of interior steel beams and the inside of exterior steel beams; (2) on corners constructed transversely at the underside of the slab of superstructures which consist of a concrete slab on steel beams; (3) on footings not exposed to view; and (4) on all structures when more than two feet below the final finished ground line.

Chamfer strips shall have a width across the diagonal face between 1/2 inch and 3/4 inch. The size to be adopted for a given portion of the work shall depend upon the general dimensions. Except where special size chamfer strips are shown on the Plans, the size of chamfer strips shall be uniform on individual projects. Provisions shall be made for the chamfering of the top edges of abutment bridge seats and wing walls, tops of piers and retaining walls, tops of through girders, roadway curbs, etc., by nailing chamfer strips inside the forms. Unless otherwise provided, all chamfer strips shall produce plain flat surfaces on the concrete.

The forms for beams, girders and spandrel arches shall be so constructed as to permit the sides to be removed without disturbing the supports.

All foreign matter within the forms shall be removed before depositing concrete in them.

In all cases where metal anchorages or ties within or through the face forms are required to hold the forms in their correct position, such anchorages or ties shall be of ample strength and shall be constructed so that the metal work can be removed to a depth of not less than one inch from the face and back surfaces of the concrete without damaging such surfaces.

Elevations will be taken on the top flanges of structural steel beams and girders for the purpose of determining the depth of blocking necessary for the construction of the forms for the concrete slab, after the following conditions have been satisfied:

1. The satisfactory erection of the superstructure structural steel beams or girders, including any required flooring beams and stringers, unless an alternative plan is submitted by the Contractor and approved by the Authority.

2. All bolt tightening operations must be complete.

3. No foreign loads supported by the beams or girders are present.

The Contractor shall submit working drawings for approval of the proposed forms supporting the superstructure slabs, and of the proposed forms and false work supporting the overhanging portion of the superstructure slab in accordance with Subsection 105.7. The working drawings shall show the size, spacing and location of the supporting members, and the proposed loads and weight of the concrete forms to be carried by the members. The proposed superstructure slab form and false work systems' computations, plans, and working drawings shall be designed and sealed by the Contractor's Professional Engineer, who must be registered in the State of Maine. This Professional Engineer may be directly employed or otherwise retained by the Contractor.

In the construction of forms and false work for the portion of superstructure slabs overhanging the exterior members of beam and girder spans, forms and supporting devices resulting in point loadings on the exterior members shall not be used. Loads resulting from supporting devices shall be distributed directly to the flanges by means of brackets or braces.

All forms shall be inspected and approved by the Professional Engineer responsible for the design of the form and false work systems before the placing of any concrete within them. The Professional Engineer shall, after inspection, provide a sealed certification to the Resident that the systems were erected in conformance with the Professional Engineer's plans and design details.

B. Surface Treatment of Forms - The inside surfaces of forms shall be uniformly coated with form oil or other approved surface treatment.

Form surfaces shall be treated before placing the reinforcing steel.

C. Construction of False Work - All false work used for supporting reinforced concrete superstructures shall be composed of members having ample structural sections to resist all loads imposed upon them, with deformations less than span length / 360.

When the vertical members of false work consist of piles or when framed or other false work is supported upon piles, the piles shall be driven to secure a safe load resistance.

When false work is supported upon mud sills, the foundation pressures resulting from the imposed loads upon the mud sills (false work, forms, fresh concrete, scaffolding, etc.) shall not exceed the capacity of the on-site soils.

All false work systems shall be designed to support all vertical loading and any differential settlement forces, all horizontal and longitudinal forces, and shall account for any temporary unbalanced loading due to the placement sequence of the concrete. Sufficient redundancy shall be designed into centering or false work systems so that the failure of any

member shall not cause a collapse. Design computations, layout drawings, and details of materials for the centering or false work systems shall be submitted to the Authority for its records. The erection of centering or false work systems shall be accomplished in strict conformance with the design and details. No concrete shall be placed without prior approval of the Resident.

False work systems adjacent to and/or over traveled ways shall additionally be designed to resist any vibration forces due to traffic and shall incorporate sufficient protection against impact by errant vehicles.

All false work system computations, plans and working drawings shall be designed and sealed by the Contractor's Professional Engineer, who must be registered in the State of Maine. This Professional Engineer may be directly employed or otherwise retained, by the Contractor. Prior to concrete placement, the Professional Engineer responsible for the design of the false work system shall, after false work inspection, provide a sealed certification to the Resident that the system was erected in conformance with the Professional Engineer's plans and design details.

False work shall be so constructed that the forms will have a camber, the amount depending upon the deflection anticipated in the design.

Forms supported upon false work shall be provided with a satisfactory means for their adjustment in the event of settlement or deformation of the false work due to overloading or other causes.

Provisions shall be made for the gradual lowering of false work and rendering the supported structure self-supporting.

D. Removal of Forms and False Work

1. Location, weather conditions, cementitious materials used and the character of the structure involved shall be considered in determining the time for the removal of forms and false work. Forms and false work shall not be removed until concrete cylinders cured with the structure establish that the concrete has developed 80 percent of design strength. The Contractor shall cast and break two cylinders per sublot and furnish the Resident with these test reports before removal of the forms and false work.

   When approved by the Resident, the vertical forms of footings, walls, columns and sides of beams and slabs may be removed 48-hours after completion of placement of concrete, exclusive of the time the ambient air temperature is below 45˚F and provided the following conditions are met:

   Immediately after the forms are removed, defects in the concrete surface shall be repaired in accordance with Subsection 502.13 and the repaired area thoroughly dampened with water. The surfaces of exposed concrete shall be cured for the remainder of the seven day curing period by the application of a product listed on the Maine Department of Transportation Prequalified list of curing compounds. The curing compound shall be applied continuously by an approved pressure spraying or distributing equipment at a rate necessary to obtain an even, continuous

membrane, meeting the manufacturer's recommendation but at a rate of not less than 1 gal/200 $ft^2$ of surface. Other methods of curing concrete may be used with the prior approval of the Resident.

2. Forms and false work, including blocks and bracing, shall not be removed without the consent of the Resident. The Resident's consent shall not relieve the Contractor of responsibility for the safety of the work. In no case shall any portion of the wood forms be left in the concrete. As the forms are removed, all projecting metal devices that have been used for holding the forms in place shall be removed in accordance with Subsection 502.10. The holes shall be filled as required in Subsection 502.13.

502.11 Placing Concrete

A. General – Concrete shall not be placed until forms and reinforcing steel have been checked and approved by the Resident. The forms shall be clean of all debris. The method and sequence of placing the concrete shall be approved before any concrete is placed.

All concrete shall be placed before it has taken its initial set and, in any case, as specified in Subsection 502.0701. Concrete shall be placed in horizontal layers in such a manner as to avoid separation and segregation. A sufficient number of workers for the proper handling, tamping and operation of vibrators shall be provided to compact each layer before the succeeding layer is placed and to prevent the formation of cold joints between layers. Care shall be taken to prevent mortar from spattering on structural steel, reinforcing steel and forms. Any concrete or mortar that becomes dried on the structural steel, reinforcing steel or forms shall be thoroughly cleaned off before the final covering with concrete. Following the placing of the concrete, all exposed surfaces shall be thoroughly cleaned as required, with care not to injure any surfaces.

Concrete shall not come in direct contact with seawater during placing and for a period of 72- hours thereafter, except as follows:

1. Concrete seals that are located entirely below low tide.

2. Concrete footings constructed in the dry and located entirely below low tide or final ground elevation.

3. Concrete Fill placed under water.

Concrete in any section of a structure shall be placed in approximately horizontal layers of such thickness that the entire surface shall be covered by a succeeding layer before the underlying layer has taken its initial set. Layers shall not exceed 18 inches in thickness and be compacted to become an integral part of the layer below. Should the placement be unavoidably delayed long enough to allow the underlying layer to take initial set or produce a so-called "cold joint", the following steps shall be taken:

- An incomplete horizontal layer shall be bulk headed-off to produce a vertical joint.

- Horizontal joints shall be treated as required in this Subsection 502.11(F).

- Portland Cement concrete with a high range, water reducing admixture shall not be placed when the concrete mix temperature is below 40˚F or above 85˚F.

The concrete in superstructures shall be placed monolithically except when construction joints are shown on the Plans or are authorized in accordance with approved details submitted by the Contractor. If the concrete in the stems of T-beams is to be placed independent of the slab section, the construction joint shall be located at the underside of the slab and the bond between stem and slab shall be a mechanical one. The bond shall be produced by embedding two *x* four, four inch wooden blocks having a length approximately four inches less than the width of the stem and placed horizontally at right angles to the centerline of the beam in the top surface of the concrete immediately following the completion of the concrete placement. To provide for the uniform spacing of the blocks and their ready removal when the concrete has taken a set sufficient to hold its form, the blocks shall be firmly nailed upon a board at a distance of one foot center to center. The blocks shall be thoroughly oiled to facilitate their ready removal from the concrete.

In arch spans, the order of construction or sequence of the work, as shown on the Plans shall be followed in the placing of concrete.

In no case shall the work on any section or layer be stopped or temporarily discontinued within 18 inches below the top of any face, unless the Plans provide for a coping having a thickness less than 18 inches in which case, at the option of the Resident, the construction joint may be made at the underside of the coping. Concrete in columns shall be placed in one continuous operation, unless otherwise directed.

Fresh concrete, threatened with rain damage shall be protected by approved means. Sufficient material for covering the work expected to be done in one day shall be on hand at all times for emergency use. The covering shall be supported above the surface of the concrete.

Concrete Fill shall be placed at least to the pay limits shown on the Plans. Forms may be omitted at the Contractor's option. Vibration of concrete will not be required. The Contractor has the option of placing concrete fill under water or in the dry.

B. Chutes, Troughs, Pipes and Buckets - Sectional drop chutes or short chutes, troughs, pipes and buckets when used as aids in placing concrete, shall be arranged and used in such a manner that the ingredients of the concrete do not become separated or segregated. Wood and aluminum chutes, troughs, pipes or buckets shall not be used.

Dropping the concrete a distance of more than six feet, unless confined by closed chutes or pipe will not be permitted. The concrete shall be deposited at or as near as possible to its final position.

C. Vibrating - Mechanical, high frequency internal vibrators shall be used, operating within the concrete, for compacting the concrete in all structures and precast and cast-in-place piles, with the exception of concrete placed under water. The vibrators shall be an approved type with a frequency of 5,000 to 10,000 cycles per minute and shall be visibly capable of properly consolidating the designed mixture. A spare vibrator shall be available on the Project at all times during the placing of concrete.

Sufficient vibrators shall be used to consolidate the incoming concrete within five (5) minutes after placing. Vibrators shall neither be held against forms or reinforcing steel, nor shall they be used for flowing the concrete or spreading it into place. Over-vibrating shall not be allowed.

D. Dewatering Forms - All forms shall be dewatered before concrete is placed in them. Pumping will not be permitted from the inside of forms while concrete is being placed. Moving water shall not be permitted to be exposed to fresh concrete.

E. Depositing Concrete Under Water - No concrete shall be deposited under water except for cofferdam seals. Pumping will not be allowed within the cofferdam while concrete is being placed.

Seal concrete shall be placed carefully in a compact mass in its final position by means of a tremie or by other approved means and shall not be disturbed after being deposited. Bottom dump buckets will not be permitted. Special care must be exercised to maintain still water at the point of deposit. Seal concrete shall not be placed in running water. The method of depositing concrete shall be so regulated as to produce approximate horizontal surfaces. Each seal shall be placed in one continuous operation.

When a tremie is used, it shall consist of a tube not less than 10 inches in diameter. The means of supporting the tremie shall be such as to permit free movement of the discharge end over the entire seal and to permit its being lowered rapidly, when necessary to choke-off or retard flow. The tremie shall be filled by a method that will prevent washing of the concrete. The discharge end shall be completely submerged in concrete at all times and the tremie tube shall be kept full to the bottom of the hopper. The flow shall be regulated by raising or lowering the tremie.

When the horizontal area of the tremie seal is large, several tremie hoppers shall be provided and positioned strategically to allow easy deposit of concrete near the point where it is needed to avoid moving concrete horizontally through the water. The number of tremie hoppers and the work plan shall be approved by the Resident.

All laitance or other unsatisfactory material shall be removed from the surface of the seal before placing additional concrete. The surface shall be cleaned by scraping, chipping or other means that will not injure the concrete.

The placing and dewatering of seal concrete within cofferdams shall be in accordance with Section 511, Cofferdams.

F. Construction Joints - Construction joints shall be located where shown on the Plans or permitted by the Resident. When the concrete is in seawater, except concrete cores for stone masonry, no horizontal construction joint will be permitted between extreme low tide and extreme high tide elevations.

At horizontal construction joints, temporary gage strips having a minimum thickness of 1-1/2 inches shall be placed horizontally inside the forms along all exposed faces to give the joints straight lines. The joint shall be so constructed that the surface of the concrete will not be less than 1/4 inch above the bottom of the gage strip. Before placing fresh concrete, the

temporary gage strip shall be removed, the surfaces of construction joints shall be thoroughly cleaned, drenched with water until saturated and kept saturated until the new concrete is placed. Immediately prior to placing new concrete, the forms shall be drawn tight against the concrete already in place. Concrete in substructures shall be placed in such a manner that all horizontal joints will be horizontal and if possible, in locations such that they will not be exposed to view in the finished structure.

Where vertical construction joints are necessary, reinforcing bars shall extend across the joint in such a manner as to make the structure monolithic. Construction joints through paneled wing walls or other large surfaces which are to be treated architecturally will not be allowed except as shown on the Plans. All vertical construction joints in abutments and retaining walls shall contain water stops as shown on the Plans. The water stops shall be one continuous piece at each location.

All horizontal construction joints in abutments and retaining walls shall be constructed using a joint cover, as shown on the Plans.

Construction joints in the wearing surface shall be located where called for on the Plans. No other construction joints will be allowed.

All joints shall be formed in the manner detailed on the Plans. The forms shall not be treated with oil or any other bond breaking material that will adhere to the concrete.

Sealing slots shall be provided at all joints in the wearing surface that are located directly over a slab construction joint.

Construction joints in the wearing surface not receiving a sealing slot shall be brushed with a neat cement paste immediately prior to making the adjacent concrete placement.

After the concrete has been cured, sealing slots, when required, shall be sandblasted with approved equipment to remove all laitance and foreign material on the surfaces of the slots. The bottom of the sealing slots shall receive an approved bond breaker. The joint shall then be filled within 1/8 inch of the surface with a poured sealant conforming to the following requirements and in accordance with the manufacturer's recommendations. The joint sealant supplied shall be an approved two component, elastomeric sealant capable of 50 percent joint movement. Both components shall be in liquid form and the combining ratio of components by volume shall be as recommended by the manufacturer.

G. Concrete Wearing Surface and Structural Concrete Slabs on Precast Superstructures

When called for on the Plans, a separate concrete wearing surface or structural concrete slabs on precast superstructures shall be bonded to the supporting slab. No surface preparation of a new structural concrete slab shall begin before completion of the specified curing period.

When the supporting slab is composed of cast-in-place concrete, the Contractor shall scabble the entire surface of the structural concrete slab and then sandblast the entire structural concrete slab surface. When the supporting slab is comprised of precast units, the Contractor shall sandblast the entire deck surface.

The entire area of the deck surface and the faces of curb and barrier walls or other median devices, up to a height of one inch above the top elevation of the wearing surface or slab, shall be cleaned to a bright, clean appearance which is free from curing compound, laitance, dust, dirt, oil, grease, bituminous material, paint and all other foreign matter. Air lines shall be equipped with effective oil traps. The cleaning of an area of the deck shall be performed within the 24-hour period preceding placement of the wearing surface. The cleaning shall be performed by dry sand blasting or other methods approved by the Resident. All debris from the cleaning operation shall be thoroughly removed by compressed dry air from the cleaned surfaces and adjacent areas. The cleaned areas shall be protected against contamination before placement of the wearing surface. Contaminated areas shall be recleaned by dry sand blasting. Prepared, areas that have not received the wearing surface within 36-hours shall be recleaned.

All horizontal surfaces in contact with the wearing surface shall receive a coating of bonding grout or bonding agent listed on Maine Department of Transportation Prequalified List of Bonding Agents. The vertical faces in contact with the wearing surface shall be broomed-up to the elevation of the top of the wearing surface with bonding grout or an approved bonding agent.

Stiff bristled street brooms shall be used to brush the grout onto the surface. The coating shall not exceed 1/8 inch in thickness. The rate of progress in applying grout shall be limited so that the grout does not become dry before it is covered with new concrete. During delays in the surfacing operations, should the surface of the grout indicate an extensive amount of drying, the grout shall be removed by methods approved by the Resident and the area should be regrouted.

The bonding grout shall have Portland Cement and fine aggregate proportioned 2 to 1 by volume. The fine aggregate from which the material larger than 1/8 inch has been removed shall be the same source as used in the concrete. The cement and fine aggregate shall be measured separately in appropriately sized containers. The fine aggregate shall be deposited in an approved mechanical mortar mixer before adding cement. Water shall be added in sufficient quantity to allow flow of the grout without segregation of the grout ingredients.

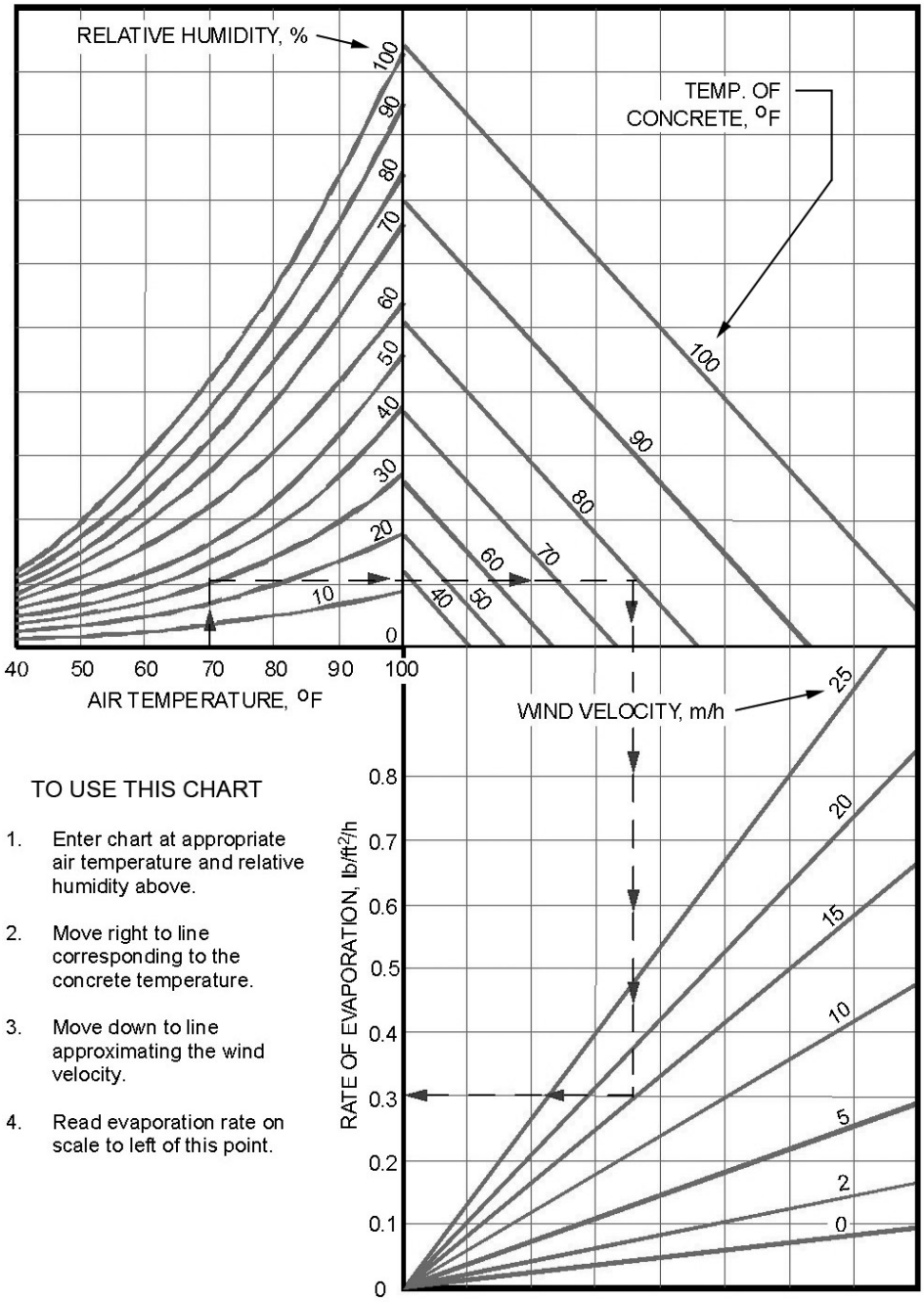
No water shall be added after initial mixing. The grout shall not be allowed to separate before placement. The cement to water contact time of the grout shall not exceed 30 minutes before it is placed. Any grout that has dried or become unworkable before application, as determined by the Resident, shall not be incorporated into the work. The use of retarding admixtures for increasing the discharge time limits will be allowed.

The Resident may approve the batching of bonding grout at an approved commercial concrete batch plant. In this case, mixing and delivery shall be in transit truck mixers. The bonding agent shall be one of the products listed on the Maine Department of Transportation's List of Prequalified Bonding Agents and shall be applied in accordance with the manufacturer's recommendations.

No structural concrete slab structure, including but not necessarily limited to, concrete deck slabs, wearing surfaces, simple slab spans and slabs on precast superstructures, shall be commenced if the combination of ambient air temperature, relative humidity, wind speed, and plastic concrete temperature result in a surface moisture evaporation rate theoretically equal to or greater than 0.1 $lb/ft^2/hr.$ of exposed surface (refer to the Rate of Evaporation from Concrete Surface Chart). If the surface moisture evaporation rate rises to 0.15 $lb/ft^2/hr.$ of exposed

surface, the Contractor shall immediately implement remedial actions to reduce the surface moisture evaporation rate. The temperature of the concrete shall not exceed 75˚F at the time the concrete is placed in its final position. The maximum temperature of the surface on which concrete will be placed shall be 90˚F. The Contractor shall provide all equipment and perform all measurements and calculations in the presence of the Resident to determine the rate of evaporation.

**RATE OF EVAPORATION FROM CONCRETE SURFACE NOMOGRAPH**



502.12 Expansion and Contraction Joints

Expansion and contraction joints shall be located and constructed as shown on the Plans. Water stops shall be one continuous piece at each location. Joint cover, as shown on the Plans, shall be applied to all joints where water stops cannot physically be installed, as determined by the Resident.

502.13 Repairing Defects and Filling Form Tie Holes in Concrete Surfaces

After the forms are removed, all surface defects and holes left by the form ties shall be repaired.

All fins and irregular projections shall be removed from the following: Surfaces which are visible in the completed work; surfaces to be waterproofed; and the portion of vertical surfaces of substructure units which is below the final ground surface to a depth of 12 inches, not including underwater surfaces.

In patching surface defects, all coarse or fractured material shall be chipped away until a dense uniform surface, exposing solid coarse aggregate is obtained. Feathered edges shall be sawcut away to form faces having a minimum depth of one inch perpendicular to the surface. All surfaces of the cavity shall be saturated thoroughly with water, after which a thin layer of neat cement paste shall be applied. The cavity shall then be filled with thick, reasonably stiff mortar, not more than 30 minutes old, composed of material of the same type and quality and of the same proportions as that used in the concrete being repaired. The surface of this mortar shall be floated before initial set takes place and shall be neat in appearance. The patch shall be water cured for a period of five days.

If the removal of defective concrete materially impairs the soundness or strength of the structure, as determined by the Resident, the affected unit shall be removed and replaced by the Contractor at their expense.

The holes left by form ties, on the portions of substructure concrete that are to be permanently covered in the finished work, may be filled with an acceptable grade of plastic roofing cement. Holes in the bottom of slabs caused by supporting hangers need not be filled with the exception of voids that expose the top side of a girder top flange. Where holes in the deck or haunch are required to be filled, this work shall be completed using an approved high performance elastomeric sealant.

502.14 Finishing Concrete Surfaces

Neat cement paste, dry cement powder or the use of mortar for topping or plastering of concrete surfaces will not be permitted.

A. Float Finish - A float finish for horizontal surfaces shall be achieved by placing an excess of concrete in the form and removing or striking-off the excess with a template or screed, forcing the coarse aggregate below the surface. Creation of concave surfaces shall be avoided. After the concrete has been struck-off, the surface shall be thoroughly floated to the finished grade with a suitable floating tool. Aluminum and steel floats are not allowed.

Float finish, unless otherwise required, shall be given to all horizontal surfaces except those intended to carry vehicular traffic and those of curbs and sidewalks.

B. Structural Concrete Slab Structures – Include, but not limited to, structural concrete deck slabs, wearing surfaces, slabs on precast superstructures, top and bottom slabs of box culverts, approach slabs, rigid frame structures and simple slab spans, as applicable. Screed rails shall be set entirely above the finished surface of the concrete and shall be supported in a manner approved by the Resident. Where shear connector studs are available, welding to the studs will be permitted. No welding will be permitted directly on the stringer flanges to attach either screed rail supports or form supports of any type.

Screed rail supports set in the concrete shall be so designed that they may be removed to at least 50 mm [2 in.] below the surface of the concrete. Voids created by removal of the upper part of the screed rail supports shall be filled with mortar having the same proportions of sand and cement as that of the slab or wearing surface. The mortar shall contain an approved additive in sufficient proportions to produce non-shrink or slightly expansive characteristics.

The rate of placing concrete shall be limited to that which can be finished without undue delay and shall not be placed more than 10 feet ahead of strike-off.

The Contractor shall furnish a minimum of two work bridges behind the finishing operation, capable of spanning the entire width of the deck and supporting at least a 500 lb. load without deflection to the concrete surface, to be supported on the screed rails. These working bridges shall be used by the Contractor for touch-up and curing cover application and shall be available for inspection purposes. When the overall length of the structure is 60 feet or less only one working bridge will be required.

An approved bridge deck finishing machine complying with the following requirements shall be used, except as otherwise specified, for finishing structural concrete slab structures. The finishing machine shall have the necessary adjustments, built in by the manufacturer, to produce the required cross section, line and grade. The supporting frame shall span the section being cast in a transverse direction without intermediate support. The finishing machine shall be self-propelled and capable of forward and reverse movement under positive control. Provisions shall be made for raising all screeds to clear the screeded surface for traveling in reverse. The screed device shall be provided with positive control of the vertical position.

The finishing machine shall be self-propelled with one or more oscillating screeds or one or more rotating cylinder screeds. An oscillating screed shall oscillate in a direction parallel to the centerline of the structure and travel in a transverse direction. A rotating cylinder screed shall rotate in a transverse direction while also traveling in the same direction. Either type of screed shall be operated transversely in overlapping strips in the longitudinal direction not to exceed six inches. One or more powered augers shall be operated in advance of the screed(s) and a drag (pan type) float shall follow the screed(s). For concrete placements less than six inches in depth, vibratory pan(s) having a minimum of 3000 vibrations/min shall be operated between the oscillating screed(s) or rotating cylinder screed(s) and the power auger(s). For concrete placed in excess of 3-1/2 inches but less than six inches thickness, hand- operated spud vibrators shall be used in addition to the machine vibratory pan(s).

The transversely operated rotating cylinder(s) of the bridge deck finishing machine shall be rotated such that the direction of the rotation of the cylinder(s) at the surface of the concrete is in accordance with the manufacturer's recommendations.

Concrete immediately in front of the power auger(s) of a bridge deck finishing machine shall be placed or cut to a depth no higher than the center of the rotating auger(s). The advance auger(s) shall strike-off the concrete to approximately 1/4 inch above the final grade. The concrete shall then be consolidated with the vibrating pan(s) and then finished to final grade.

A small handheld pan vibrator shall be required at edges and adjacent to joint bulkheads. In lieu of the handheld pan vibrator equipment, the Resident may approve small spud vibrator(s).

Lightweight, vibrating screeds may be used on slab structures which are more than 12 inches below the roadway finish grade or have a length of 30 feet or less, or where concrete placements are specified to be less than 16 feet in width and shall have the following features:

1. It shall be portable and easily moved, relocated, or adjusted by no more than four persons.
2. The power unit shall be operable without disturbing the screeded concrete.
3. It shall be self-propelled with controls that will allow a uniform rate of travel and by which the rate of travel can be increased, decreased or stopped.
4. It shall have controlled, uniform, variable frequency vibration, end to end.
5. It shall be fully adjustable for flats, crowns, or valleys.
6. The screed length shall be adjustable to accommodate the available work area.

When a lightweight vibrating screed is utilized, the concrete shall be placed or cut to no more than 1/2 inch above the finished grade in front of the front screed. The screed shall be operated such that at least three feet of concrete is in position in front of the screed.

Supporting slabs for bituminous wearing surfaces shall be finished in accordance with the recommendations of the waterproofing membrane manufacturer.

The texturing of concrete wearing surfaces shall be applied as approved by the Resident. The surface tolerance and texture shall be acceptable to the Resident, or the placement may be suspended until remedial action has been taken. The Resident may order the removal and replacement of material damaged by rainfall.

On all concrete wearing surfaces, a one feet wide margin shall be finished adjacent to curbs and permanent barriers with a magnesium float.

Immediately after screeding, floating and texturing, the surface of the concrete shall be tested for trueness, by the Contractor, with a 10 feet straightedge and all irregularities corrected at once in order to provide a final surface within the tolerance required in Table 5. The surface shall be checked both transversely and longitudinally. Any area that requires finishing to correct surface irregularities shall be retextured.

The straightedges shall be furnished and maintained by the Contractor. They shall be fitted with a handle and all parts shall be made of aluminum or other lightweight metal. The straightedges shall be made available for use by the Resident when requested.

In the event of a delay during a concrete placement, all concrete that cannot receive the final curing cover shall be covered with wet burlap.

No vehicles will be allowed, either directly or indirectly, on reinforcing steel before concrete placement.

C. Curb and Sidewalk Finish on Bridges - Curb and sidewalk finish is a float finish produced by using a short float moved in small circles to produce a shell-like pattern on the surface of the concrete. Alternately, sidewalks may receive a light broom finish perpendicular to the sidewalk.

When a concrete curb is monolithic with a sidewalk, a six inches wide smooth margin shall be made along the top of the curb with a magnesium float.

Unless shown on the Plans, the sidewalk area shall not be divided into sections by transverse grooves.

At all transverse construction and expansion joints, except where steel expansion dams are used, the edges of the joints, on the surface of the sidewalk, shall be finished with a sidewalk edging tool two inches in width with a 1/4 inch radius lip.

D. Form Surface Finish - The character of the materials used and the care with which forms are constructed and concrete placed shall be considered in determining the amount of rubbing required. If using first class form material, well-constructed forms and the exercise of special care, concrete surfaces are obtained that are satisfactory to the Resident, the Contractor may be relieved in part from the requirement of rubbing.

1. Ordinary Finish - An Ordinary Finish is defined as the finish left on a surface after the removal of the forms, the filling of all holes and the repairing of all defects. The surface shall be true and even, free from stone pockets and depressions or projections and of uniform texture. All formed concrete surfaces shall be given an ordinary finish unless otherwise specified.

   Repaired areas that do not meet the above requirements or areas that cannot be satisfactorily repaired to meet the requirements for ordinary finish shall be given a rubbed finish. When a rubbed finish is required on any part of a surface, the entire surface shall be given a rubbed finish.

2. Rubbed Finish - Rubbing of the concrete shall occur within seven (7) days of the concrete placement. If rubbing of the concrete is not complete within seven days, the Contractor must apply a latex bonding agent to the concrete as submitted and approved by the Resident.

   The concrete shall be thoroughly saturated with water immediately before starting this work. Sufficient time shall have elapsed before wetting-down to allow the mortar used in ordinary finish to become thoroughly set. Surfaces to be finished shall be rubbed with a medium coarse carborundum stone, using a small amount of mortar on its face. The mortar shall be composed of cement and fine sand mixed in proportions as used in the concrete being finished. Rubbing shall be continued until

all form marks, projections and irregularities have been removed, all voids filled and a uniform surface has been obtained. A thin layer of paste produced by this rubbing shall be left on the surfaces.

After all concrete above the surface being treated has been cast, the final finish shall be obtained by a second rubbing with a fine carborundum stone using only water. This rubbing shall be continued until the entire surface is of a smooth texture and uniform color.

After the final rubbing is completed and the surface has dried, it shall be rubbed lightly with clean and dry burlap to remove excess loose powder and shall be left free from all unsound patches, paste, powder and objectionable marks. This finish shall result in a surface of smooth texture and uniform color.

No surface finishing shall be done in freezing weather or when the concrete contains frost. In cold weather the preliminary rubbing necessary to remove the inert sand and cement materials and the surface irregularities may be done without the application of water to the concrete surfaces.

The following portions of concrete roadway grade separation structures shall be given a rubbed finish unless otherwise indicated in the Contract:

(a) Retaining walls and the breast and wing walls of abutments - face surfaces to 12 inches below the finished ground line.
(b) Piers - all vertical surfaces and the underside of overhanging portions of caps, except that for overpass structures, the piers beyond the outside limits of the roadway pavement, the vertical surfaces on the back which are not visible from the roadway or sidewalk will not require a rubbed finish.
(c) Parapets and end posts – all horizontal and face surfaces, excluding overhead surfaces, to 12 inches below the finish ground.

If, in the opinion of the Resident, the general appearance of a concrete structure, due to the excellence of workmanship, cannot be improved by a rubbed finish, this requirement may be waived.

E. Surface Finish - After the concrete has cured, the surface shall be tested with a 10 feet straightedge or a lightweight profiler.

The straightedge shall be furnished and maintained by the Contractor. It shall be fitted with a handle and all parts shall be made of aluminum or other lightweight metal. The straightedges shall be made available for use by the Resident when requested. The lightweight profiler will be furnished by the Authority.

Areas found to not comply with the tolerance of Table 5 shall be brought into conformity by methods proposed by the Contractor and approved by the Resident at no additional cost to the Authority.

TABLE 5
SURFACE TOLERANCE LIMITS

| Type of Surface: | * Maximum deviation of surface in millimeters [in.] below 3 m [10 ft.] straightedge |
|---|---|
| Concrete Wearing Surface, Curbs, Sidewalks, and Barriers | 3 mm [1/8 in.] |
| Concrete Slab Surfaces to be Covered by Membrane Waterproofing or Concrete Wearing Surfaces | 6 mm [1/4 in] |
| Concrete Slab Surfaces with Integral Concrete Wearing Surface | 6 mm [1/4 in.] |
| Concrete Slab Surfaces to be Covered By Earth or Gravel | 10 mm [3/8 in.] |
| Concrete Surface of Box Culvert Bottom Slab | 10 mm [3/8 in.] |
| Concrete Surface of Abutments, Piers, Pier Shafts, Footings, and Walls | 10 mm [3/8 in.] |

* Allowance shall be made for crown, camber and vertical curve.

502.15 Curing Concrete

All concrete surfaces shall be kept wet with clean, fresh water for a curing period of at least seven (7) days after concrete placing, with the exception of vertical surfaces as provided for in Subsection 501.10(D), Removal of Forms and False Work.

For concrete wearing surfaces and all concrete containing fly ash or slag, the temperature of the concrete shall be kept above 50˚F for the entire seven day period. All other concrete and its surfaces shall be kept above 50˚F for the first four days of the curing period and above 32˚F for the remainder of the period.

In the 24-hours following the end of the curing period, the temperature of the concrete shall be decreased on a gradual basis, not to exceed a total change of 40˚F for moderate sections, such as abutments and pier bents, and 30˚F for mass sections such as massive piers.

All slabs and wearing surfaces shall be water cured only and kept continuously wet for the entire curing period by covering with one of the following systems:

A. Two (2) layers of wet burlap;

B. Two (2) layers of wet cotton mats;

C. One (1) layer of wet burlap and either a polyethylene sheet or a polyethylene coated burlap blanket; or,

E. One (1) layer of wet cotton mats and either a polyethylene sheet or a polyethylene coated burlap blanket.

Except as otherwise specified, curing protection for slabs and wearing surfaces shall be applied within 30 minutes after the concrete is screeded and before the surface of the concrete

has lost its surface “wetness” or “sheen” appearance. The first layer of either the burlap or the cotton mats shall be wet and shall be applied as soon as it is possible. Polyethylene sheets shall not be placed directly on the concrete, but may be placed over the fabric cover to prevent drying.

The covering of concrete wearing surfaces, decks, curbs and sidewalks shall be kept continuously wet for the entire curing period by the use of a continuous wetting system and shall be located to insure a completely wet concrete surface for the entire curing period.

All other surfaces, if not protected by forms, shall be kept thoroughly wet either by sprinkling or by the use of wet burlap, cotton mats or other suitable fabric until the end of the curing period, except as provided for in 502.10(D), Removal of Forms and False Work. Polyethylene sheets shall not be placed directly on the concrete, but may be placed over the fabric cover to prevent drying.

Surfaces of all concrete placements containing silica fume additive shall be coated with an approved evaporation retardant immediately after finishing and texturing the concrete surface. The application of wet burlap or wet cotton mats shall be made within 15 minutes after the finishing of the concrete surface.

The application rate, the desired equipment, and the mixing and application procedures for an approved evaporation retardant shall be as designated by the manufacturer. Successive applications or heavier applications of this evaporation retardant shall be applied as necessary to retain the required surface “wetness” appearance.

502.16 Loading Structures and Opening to Traffic

No superstructure concentrated loads such as structural steel beams, girders and trusses shall be placed upon finished concrete substructures until the concrete has reached its design strength.

No load or work will be permitted on concrete superstructure slabs or rigid frame structures until concrete cylinders cured with the slab establish that design strength has been reached. However, after a shorter period of time, the Resident may permit handwork for form construction and setting stone bridge curb. No curbing or other materials shall be stored on the bridge during the seven day curing period, except that if handwork is permitted, curb stones may be stored in a line near to their final location until ready to be set.

Neither traffic nor fill material shall be allowed on superstructures of concrete bridges or culverts until concrete cylinders cured with the slab establish that design strength has been reached, dependent upon conditions as specified in Subsection 502.10 and with the approval of the Resident.

No traffic will be allowed on the cured concrete of a concrete wearing surface until 24-hours after the completion of the application of protective coating for concrete surfaces.

Concrete approach slabs at the end of structures may be opened to traffic or backfilled if buried when the design strength has been reached.

502.17 Bridge Drains and Incidental Drainage

All drains shall be accurately placed at the locations shown on the Plans or as approved by the Resident, and an adequate means provided for securely holding them in the required positions during the placing of concrete.

Bridge drains shall be galvanized in accordance with Subsection 711.04, Bridge Drains. The Contractor shall furnish an insulator between surfaces of galvanized and weathering steels when erecting the bridge drain support assembly. Epoxy-coated washers shall be used when the support assembly attaches to weathering steel beam webs.

Drains or weep holes through abutments and retaining walls shall be pipe of the size and shape shown on the Plans and shall be of Schedule 40 PVC pipe.

For the purpose of providing drainage for any moisture that may collect between the floor slab and the bituminous concrete roadway surface, approved one inch inside diameter plastic tube drains shall be installed at the low points of the slab surface, adjacent to the end dam or dams. The exact location will be determined in the field by the Resident and the discharge from them shall be such as to clear the bridge seats and any other portion of the structure in their proximity. The tops of the drains shall be depressed 3/8 inch below the surface of the slab and the outlets shall project two inches below the underside of the slab. Care shall be exercised such that the drains are open after the installation of the membrane waterproofing, when it is installed.

502.18 Method of Measurement

A. Structural concrete satisfactorily placed and accepted will be measured by the cubic yard, in accordance with the dimensions shown on the Plans or authorized changes in the Plans, or as one lump sum unit as indicated in the Schedule of Items.

Structural Concrete for any irregular shapes may be measured by the cubic yard as determined from the theoretical yield of the design mix or in the case of transit mixed concrete, by delivery ticket as approved by the Resident.

B. The limits to be used in determining the quantities of the aforementioned structural concrete items for arriving at a lump sum price will be as follows:

1. Structural Concrete Superstructure Slabs, Structural Concrete Roadway and Sidewalk Slabs on Steel Bridges, Structural Concrete Roadway and Sidewalk Slabs on Concrete Bridges and Structural Concrete Superstructure T-Beam Type. The limits will be the entire concrete superstructure, outside to outside, both transversely and longitudinally, exclusive of concrete curbs, sidewalks, permanent transition barrier and concrete transition barriers.

2. Structural Concrete Wearing Surfaces. The limits will be the entire concrete wearing surface bounded transversely by the roadway curbs and longitudinally by the extreme ends.

3. Structural Concrete Box Culverts. The limits will be the entire structure, meaning the bottom floor slab, abutments, wings, superstructure floor slab and headwalls or curbs.

4. Structural Concrete, Approach Slabs. The limit will be the entire approach slab or slabs, as shown on the Plans.

5. Structural Concrete, Abutments and Retaining Walls Structural Concrete, Abutments and Retaining Walls (placed under water), Structural Concrete Piers, and Structural Concrete Piers (placed under water). The limits will be the entire concrete substructure unit or units, from the bottom of the footing to the top of the unit, and outside to outside, both transversely and longitudinally, except for the portion to be placed under water, as indicated on the Plans, which will be the limits of the concrete unit or units, outside to outside, transversely, longitudinally, and vertically.

6. Structural Concrete Rigid Frame Structures. The limits will be the entire concrete structure, meaning the frame walls and top slab. Included within the limits for payment, unless otherwise shown on the Plans, are bottom slab, wing walls and headwalls.

7. Structural Concrete Culvert End Walls. The limit will be the entire concrete end wall or end walls, as shown on the Plans.

8. Structural Concrete Curb and Sidewalks. The limit will be the entire concrete curb or sidewalk, as shown on the Plans.

9. Concrete Fill. Will be measured for payment by the number of cubic yards of concrete, in place, to the vertical pay limits shown on the Plans. If the Contractor elects to omit forms, then any excavation or concrete placed beyond the pay limits indicated on the Plans shall not be paid for, but shall be at the Contractor's expense.

10. Structural Concrete Parapets. The limit will be the entire concrete portion of the parapets and bridge transition barriers measured longitudinally, from end to end on both sides of the structure, as shown on the Plans.

C. No deduction will be made for the volume of concrete displaced by structural steel, reinforcing steel, pile heads, expansion joint material, drains, chamfers on corners, inset panels of 1-1/2 inches or less in depth, pipes, weep holes and authorized openings for utilities of 1/4 $yd^3$ or less in volume, when any of these items occur in structural concrete which is to be paid for on a cubic yard basis.

D. When the bottom of foundations for concrete structures is required to be at a definite elevation within rock excavation, as shown on the Plans or otherwise designated, the quantity to be measured will be the number of cubic yards of concrete actually and satisfactorily placed above a plane at one foot below the above specified plan elevation and within the neat lines of the structure as shown on the Plans or on authorized changes in the Plans. If the ledge rock is excavated below the plane at one foot below the plan elevation, without authorization,

then this space shall be replaced with concrete of the same composition as required for the structure foundation but will not be measured for payment.

502.19 Basis of Payment

The accepted work done under structural concrete, of the classes and for the types of work required, will be paid for at the Contract unit price per cubic yard, or at the Contract lump sum price, for the respective Contract items involved. Payment for both the unit price and the lump sum price items will be full compensation for furnishing and installing bridge drains, pier nose armor, water stops, expansion joint filler, PVC or plastic tube drains, asphalt roll roofing (roofing felt), asphalt for painting or covering various type of joints, all required sandblasting, bonding, curing and joint sealing and all incidentals necessary to complete the work satisfactorily. No direct payment will be made for concrete admixtures.

No price adjustments will be made to the lump sum bid for the respective items that are bid lump sum, except when quantity changes are directed by the Authority. It will be the responsibility of the Contractor to verify the estimated quantities prior to submitting bid documents.

Reinforcing steel, railings, stone curbing and any material that may be required for bridge lighting systems, will be measured and paid for separately as provided in the appropriate sections.

Implementation of the Quality Control Requirements and costs associated with acceptance test sampling shall be incidental.

All costs associated with obtaining, testing and evaluating drilled core specimens for dispute resolution will not be measured separately for payment, but shall be incidental to related items.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 502.219 | Structural Concrete, Abutments and Retaining Walls | Cubic Yard |
| 502.26 | Structural Concrete Roadway and Sidewalk Slab on Steel Bridges | Lump Sum |
| 502.49 | Structural Concrete Curbs and Sidewalks | Lump Sum |

SPECIAL PROVISION

SECTION 504

STRUCTURAL STEEL

504.04 Facility Requirements

This Subsection is deleted in its entirety and replaced with the following:

Steel shall be fabricated in a facility holding a current AISC shop certification as follows:

| Type of Product | Certification Required[1,2,3,4] |
|---|---|
| • Plate girder bridges<br>• Spliced rolled beam bridges<br>• Complex bridge or truss-type highway sign structures<br>• All structures including the use of HPS 50W or HPS 70W steel | AISC Cbr |
| • Unspliced rolled beam bridges<br>• Non truss-type highway sign supports<br>• Misc. bridge components such as cross frames | AISC Cbr or Sbr |
| • Non-vehicular bridges<br>• High mast poles and light poles<br>• Other Steel Products | AISC Cbr, Sbr, Cbd, or Sbd |

1. Application of protective coatings requires a "P" endorsement or SSPC QP3 Certification.
2. Fabrication of fracture critical members, and of structures utilizing HPS70W steel, requires an "F" endorsement.
3. All materials fabricated in non-certified shop will be rejected.
4. Work shall not be subcontracted to a non-certified facility without approval of the Fabrication Engineer.

504.10 Mill Orders and Mill Test Reports

The following paragraph is added:

In addition, the Contractor shall provide the Manufacturer's Certified Test Report and the Distributor Certified Test Report (if applicable) for all high strength bolts used in structural connections. See related Subsection 504.45 for Rotational Capacity Test requirements.

504.12 Protective Coating

The following paragraphs are added:

Diaphragms, cross frames, and all portions of bearings not welded to the beam or girder shall be galvanized.

Galvanized nuts shall be overtapped to the minimum required for the fastener assembly, and shall meet the requirements of Supplementary Requirement Sl of ASTM A563, Lubricant and Test for Coated Nuts. Overtapping shall not exceed 0.015 inch diametrically for nuts one inch diameter and smaller and 0.025 inch for nuts larger than one inch diameter. Excess hot-dip galvanizing on threaded portions of bolts shall be removed by centrifuging or air blasting immediately upon withdrawal. Flame chasing is prohibited.

504.15 Design

The first sentence is deleted and replaced with the following:

Bridge design, detail and load requirements shall conform to the most current edition of the AASHTO LRFD Bridge Design Specifications, applicable Interim Specifications and these Specifications, unless otherwise noted on the Plans.

504.18 Plates for Fabricated Members

The first sentence in the second paragraph is changed from "...ASTM A 898/A 898 M..." to "...ASTM A 898/A 898 M or ASTM A 435/A 435 M as applicable and...".

504.21 Thermal Cutting

The following sentence is added to the end of the second paragraph:

For painted structures, edge preparation shall be in conformance with Section 506, Painting Structural Steel.

504.25 Die Stamping

The following sentence is added to the end of the paragraph:

Any die stamping in unauthorized locations will be removed at the Contractor's own expense.

504.30 Welded Fabrication

The following sentence is added:

Mill scale shall be removed from the surfaces on which flange-to-web, cover plate-to-flange, bearing stiffener-to-web, and connection plate-to-web welds are to be made.

504.41 Methods and Equipment

The following paragraph is added:

When structural steel erection is to take place over travel ways, the Contractor shall submit a structural steel erection plan stamped by a Professional Engineer. The erection plan shall include the number and location of crane(s), the weight of the pick, crane capacities and all other pertinent information.

504.44 Connections Using High Strength Bolts

The following is added to the end of the second paragraph:

Each wrench shall be accompanied with the necessary sockets, extension handles, and other related equipment and shall be acceptable to the Fabrication Engineer. No separate payments will be made for said testing. Any costs will be incidental to the bid items.

504.45 Bolts, Nuts, Washers and Direct Tension Indicators

This Subsection is amended by the addition of the following:

Should it prove to be impractical to obtain all nuts, bolts and washers for a Project from a single source, the Contractor shall submit a work plan for the Fabrication Engineer's approval that will ensure that all nut, bolts and washers in each individual main structural connection or group of such connections (i.e., beam and girder splices, floor beam end connections, truss members end connections, etc.) will be from a single source. All DTI's will be from one manufacturer and one supplier.

504.50 Calibration, Installation and Tensioning of High Strength Bolts

This Subsection is amended by the addition of the following:

Bolts that are too short for calibration in the tension measuring device may be tightened in a steel joint, using direct tension indicating washers (DTI's). The DTI's shall first be calibrated in a tension measuring device using longer bolts.

504.51 Installation

This Subsection is amended by the addition of the following:

Where an outer face of the bolted parts has a slope of more than one to 20 with respect to a plane normal to the bolt axis, a smooth beveled washer will be used to compensate for the lack of parallelism.

Connections using DTI's shall be brought to a "Snug Tight" condition as above except that, following snugging, no gap on any DTI in a connection shall exceed 0.040 inch, and no DTI shall have a gap less than 0.015 inch. Any DTI having a gap less than 0.015 inch following snugging of a connection shall be removed and the fastener assembly shall be re-snugged using a new DTI.

504.52 Tightening

Item 1 is amended by the addition of the following:

Wrenches shall be recalibrated at any time significant changes are noted in the condition of bolt threads, nuts, washers, lubrication, hose length, environmental conditions, etc., which may affect calibration.

504.54 Reuse of Bolts

This Subsection is amended by the addition of the following:

Reuse of bolts will be allowed only with the approval of the Fabrication Engineer. Galvanized bolts may not be reused.

504.641 Method of Measurement

Unless otherwise specified, structural steel will be measured as one lump sum complete and accepted, consisting of all metal and related materials in the fabricated and erected structure as show on the Plans, excluding railings and drains. Related materials shall include, but not necessarily be limited to, steel bolsters at bearings and heavy roofing felt between girders and bolsters where noted on plans.

There will be no additional payment for the required erection plan, the cost shall be incidental to the Structural Steel Erection item.

SPECIAL PROVISION

SECTION 505

STUD WELDED SHEAR CONNECTORS, ANCHORS AND FASTENERS

(Shear Connectors)

505.01 Description

The following sentence is added:

Stud welded shear connectors shall be the type, length, and diameters shown on the Plans.

505.07 Basis of Payment

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 505.09 | Stud Welded Shear Connectors | Lump Sum |

SPECIAL PROVISION

SECTION 506

PAINTING STRUCTURAL STEEL

506.01 Description

This work shall consist of applying a galvanized or zinc-rich protective coating to new and existing steel substrate in accordance with the Plans and these Specifications.

Shop applied coating systems shall include the application of a galvanized or zinc-rich protective coating to new steel substrate in accordance with the Plans and these Specifications and, in the case of weathering steel, to the limits indicated on the Plans. Unless otherwise noted on the plans all diaphragms and crossframes connecting to a painted connection plate shall be hot dip galvanized.

Field touch up shall include the field repair of new shop applied coating systems using an approved repair procedure.

506.02 Materials

Materials shall comply with the requirements in the respective subsections of this Specification.

506.03 Submittals

The Contractor shall submit for review by the Authority a materials' list, and other such details as described within the Plans and the respective subsections of this Specification.

506.04 General Requirements

Requirements for the type of protective coating to be furnished are as follows:

- Galvanizing — Subsections 506.10 through 506.19
- Zinc-Rich Coating System — Subsections 506.20 through 506.89

506.05 Inspection

Quality Control (QC) is the responsibility of the Contractor. The Quality Control Inspector (QCI) shall inspect all aspects of the work and shall supervise required testing. The QCI shall record measurements and test results in a Job Control Record (JCR). The QCI shall reject materials and workmanship that do not meet Contract requirements. The Contractor may perform testing in addition to the minimum required. The results of all testing shall be documented and made available to the Quality Assurance Inspector (QAI).

The JCR shall include the following, as applicable:

- Type of application equipment
- Surface preparation - cleanliness and anchor profile
- Environmental conditions - dew point, relative humidity and temperature
- Coating lot number, date of manufacture and shelf life
- Manufacturer's Certification of Conformance
- Name(s) of applicator(s)
- Dry Film Thickness (DFT)
- Cure data

Quality Assurance (QA) is the prerogative of the Authority. The QAI will ensure that the QC function is performing properly, verify documentation, periodically inspect workmanship and witness testing. QA testing deemed necessary by the Resident, in addition to the minimum testing requirements, shall be scheduled to minimize interference with the production schedule.

506.06 Inspector's Authority

The QAI will have the authority to reject material or workmanship that does not meet the Contract requirements. The acceptance of material or workmanship by the QAI will not prevent subsequent rejection, if found unacceptable.

506.07 Rejections

Rejected material and workmanship shall be corrected or replaced by the Contractor in accordance with Subsection 106.8.2 of the Standard Specifications.

506.08 Facilities for Inspection

The Contractor shall provide a private office at the coating site for inspection personnel authorized by the Authority. The office shall have an area not less than 100 feet and shall be in close proximity to the work. The office shall be climate controlled to maintain the temperature between 65°F and 85°F, lighted and have the exit(s) closed by a door(s) equipped with a lock and two keys which shall be furnished to the Inspector(s). The office shall be equipped with a desk or table having a minimum size of 48 inches by 30 inches, two chairs, a telephone, telephone answering machine, separate line data port, plan rack and two-drawer letter size file cabinet with a lock and two keys which shall be furnished to the Inspector(s).

The facilities and all furnishings shall remain the property of the Contractor upon completion of the work. Payment for the facilities, heating, lighting, telephone installation, basic monthly telephone charges and all furnishings shall be incidental to the Contract.

Failure to comply with the above requirements will be considered to be a denial to allow the Inspector access to the work by the Contractor. The Authority will reject any work when access for inspection is denied.

506.09 Qualification

Shop-applied zinc-rich coating systems shall be applied in facilities holding a current AISC Sophisticated Paint Endorsement (SPE) or has been qualified in accordance with SSPC QP3-Standard Procedure for Evaluating Qualifications of Shop Painting Applicators.

Field application and touch-up shall be performed by Contractors qualified in accordance with SSPC QP1-Standard Procedure for Evaluating Qualifications of Painting Contractors.

HOT-DIP GALVANIZING

506.10 Description

Hot-dip galvanizing shall meet the requirements of AASHTO M 111 (ASTM A 123). The minimum average coating thickness grade shall conform to Table 1. The frequency of testing shall be in accordance with Section 6. The choice of the test method is the prerogative of the Contractor.

Certification and written test results shall be provided in accordance with Section 10 of AASHTO M 111 (ASTM A 123).

506.11 Surface Preparation

Steel substrate shall be abrasive blast cleaned to a minimum of SSPC-SP 6/NACE 3-Commercial Blast Cleaning prior to galvanizing.

506.12 Repairs

Repairs to galvanizing shall be in accordance with Annex A1 or A3 of ASTM A 780. Zinc-rich paints for repair may only be used with approval of the Resident.

506.13 Topcoat Galvanized Surfaces

Topcoat, when required, shall be applied as specified in the Contract Documents. Quenching of the galvanized surface shall not be allowed when topcoat is specified. Surfaces shall be cleaned to SSPC-SP 1 using either the solvent or steam cleaning alternatives; an alkali alternative may be used provided that the PH is 11 or less. All surfaces shall be prepared in accordance with SSPC-SP 7/NACE No. 4 Brush-Off Blast Cleaning. The surface shall have an anchor profile within the paint manufacturer's recommendations. The blast media shall be a mineral slag or organic product. Steel grit will not be allowed.

Topcoat material shall be any topcoat product from a listed NEPCOAT QPL system, A or B list or equivalent as determined by the Authority. Primer or tie coat shall be as recommended by the topcoat manufacturer and as approved by the Resident.

Touch-up shall be in accordance with the coating manufacturer's recommendations. If repairs larger than 36 square inches are made on the top coat of fascia beam; the entire beam shall be re-coated after repairs are completed.

506.14 thru 506.19 Vacant

ZINC-RICH COATING SYSTEMS

506.20 Description

Shop applied coatings to new steel shall consist of application of a three-coat, zinc-rich coating system in accordance with the Plans and these Specifications.

Field touch-up shall include the field repair of new shop applied coating systems in accordance with the recommendations provided by the paint system manufacturer.

506.21 Materials

Coatings for shop coating of new steel shall be selected from the Northeast Protective Coating Committee (NEPCOAT) Qualified Products List (QPL) A. The list may be found on the NEPCOAT web page (http://www.nepcoat.org).

Materials for field touch-up of existing steel shall be selected based on the recommendations made by the manufacturer of the paint system being repaired.

The Contractor shall provide the batch description, lot number, date of manufacture, shelf life and the manufacturer's published storage requirements for each coating system to the Resident. In addition, the Contractor shall provide the manufacturer's published instructions for application of each coat of the coating system including equipment, surface preparation, anchor profile, mixing, thinning, application, cure time for the entire range of allowable environmental conditions, dry film thickness (DFT), and recoat time.

The finish topcoat color for new steel surfaces shall be a lusterless brown and match Federal Standard 595B, Color No 30045. For field painting and touchup on existing steel girders, the finish color shall be submitted to the Resident for approval.

The Contractor shall sample each batch of coating to be applied to new steel; sampling shall be witnessed by the QAI. Samples shall be sent to and tested by the lab that originally performed the NEPCOAT QPL qualification tests. Samples shall be tested for unit weight and infrared refractory (IR) results; the lab shall evaluate the sample(s) and render an opinion of relative comparison with the original NEPCOAT QPL test. Report(s) of the test results shall be furnished to the Resident. Material that does not compare favorably with the original tests is not acceptable for use. Sampling and testing costs will be borne by the Contractor. No sampling and testing is required for the coating used for field painting and touchup on existing girders.

506.22 Limits of Work

a) Shop Coating of New Steel Surfaces

All new steel surfaces, excluding diaphragms and connection angles, shall be coated with primer, intermediate and topcoat. Surfaces to be embedded in concrete shall receive a mist coat (0.75 to 1.5 mils) of primer only. Weathering steel girders shall be coated to the limits shown on the plans.

For weathering steel components all faying surfaces of bolted connections, with the exception of the faying surfaces of field splices and galvanized diaphragms, shall be primed only and develop a Class B slip coefficient in accordance with the *"Specification for Structural Joints Using ASTM A325 or A 490 Bolts"* by the Research Council of Structural Connections (RCSC). The Contractor shall provide documentation to demonstrate that the coating was tested and met the above requirements.

b) Field touch-up of new shop applied coatings

All new painted surfaces where the existing protective coating has been removed or damaged due to construction activities shall be touched-up with an approved paint system recommended by the manufacturer of the paint system being repaired.

506.23 Surface Preparation

a) Shop Coating of New Steel Surfaces

Prior to abrasive blast cleaning, all corners and edges of members and plates, whether rolled cut or sheared, exposed in the assembled product shall be rounded to approximately an 1/8 inch radius. A series of tangents to the approximate radius will be considered as a rounded. The Contractor shall prepare a plate approximately 2 inch *x* 12 inch with the appropriate rounded corner and edge. The QCI and QAI shall agree upon the acceptability of the corner preparation and the plate shall become the Job Standard. The plate shall remain the property of the Contractor.

Surfaces to be coated shall be abrasive blast cleaned to meet the requirements of SSPC-SP 10/NACE No. 2 or the coating manufacturer's published recommendations, whichever is the more stringent. SSPC VIS 1 shall be used to determine acceptable cleanliness. The QCI and QAI shall evaluate the first piece using VIS 1 as a comparator. No further blast cleaning shall be done until the QCI and QAI agree upon the acceptable Job Standard for cleanliness. If more than one method of abrasive blast cleaning is used (e.g., centrifugal blast and compressed air), the acceptable Job Standard shall be established for each method. At the Contractor's option, a sample piece may be abrasive blast cleaned and sealed with a clear coating to preserve the surface preparation and the sample piece may be used as a comparator to establish the agreed upon Job Standard.

After abrasive blast cleaning, the surface shall be visually inspected for fins, tears, delaminations and other discontinuities. Fins, tears and other discontinuities shall be removed with a grinder or other suitable power tool and the area shall be blended at a slope of approximately 1:20. The affected area(s) shall be abrasive blast cleaned to develop an acceptable anchor profile.

The anchor profile shall meet the requirements of the coating manufacturer's published recommendations. The blast media shall contain enough grit to provide an angular anchor profile. The anchor profile shall be measured in accordance with ASTM D 4417 Method C. If the anchor profile fails to meet the minimum requirements, the Contractor shall re-blast the substrate until the minimum required anchor profile is achieved. If the anchor profile exceeds the maximum allowed in the manufacturer's published recommendations, the substrate shall be coated only with the approval of the Resident.

The QCI shall measure the anchor profile of the substrate on each plane of the first piece and each additional piece with a significant change in size or geometry. The QAI will witness the testing. After it has been established to the satisfaction of the Resident, that the abrasive blast equipment is capable of providing uniform, acceptable surface preparation, a diminished degree of testing may be agreed upon by the QCI and QAI. The Quality Assurance Inspector may require that the anchor profile be measured and recorded on any surface that is, in the judgment of the QAI, unacceptable. Failure to measure anchor profile as required will result in rejection of the surface preparation on the piece in question.

If there is a significant change in surface cleanliness or anchor profile due to blast media degradation or other reasons, the Contractor shall cease the blast operation until corrective action is taken.

If compressed air is used for abrasive blast cleaning, a blotter test shall be performed in accordance with ASTM D 4285 at the beginning of each shift and at any other time the QAI directs it. The QCI and QAI shall be present to witness the blotter test.

The allowable time between abrasive blast cleaning and primer application shall not exceed the manufacturer's published recommendations or eight-hours, whichever is less. If the substrate develops flash rust (rust bloom) before the primer is applied or before the primer application is completed, the piece shall be re-blasted to bare substrate and re-coated.

b) Field touch-up of new shop applied coatings

Areas of new paint to be touched-up shall be cleaned to meet the requirements of SSPC-SP 3, or the coating manufacturer's published recommendations, whichever is the more stringent, prior to the application of paint. SSPC VIS 3 shall be used to determine acceptable cleanliness (unless a more stringent cleanliness is required in which case the more stringent visual standard shall govern). The QCI and QAI shall evaluate the first piece using VIS 3 as a comparator. No further cleaning shall be done until the QCI and QAI agree upon the acceptable Job Standard for cleanliness. If more than one method of cleaning is used (e.g., power sanders and needle guns), the acceptable Job Standard shall be established for each method.

The allowable time between cleaning and primer application shall not exceed the manufacturer's published recommendations.

506.24 Application

All protective coating shall be applied using either conventional or airless spray equipment meeting the manufacturer's published recommendations. Striping and touchup of areas less than 36 square inches may be applied by other methods with the approval of the Resident. Protective coating shall not be applied when the ambient temperature in the immediate vicinity of the piece(s) in question is above 90˚F or below 40˚F. Thinning and mixing of coatings shall be in conformance with the manufacturer's published instructions. Thinner shall be measured using a graduated cup or other container that clearly indicates the amount of thinner being added. Mixing shall be done using the method, equipment and for the amount of time recommended by the coating manufacturer.

Primer, intermediate coat and topcoat, shall be applied in accordance with the manufacturer's published recommendations. Environmental conditions in the immediate vicinity of the surfaces to be coated shall be within the range of the manufacturer's published requirements both during the coating operation and during the curing period. Primer shall not be force-cured.

Environmental conditions shall be measured by the QCI in the immediate vicinity of the surfaces to be coated. The QAI may perform environmental testing in addition to the testing performed by the QCI. If there are significant differences between the test results, the differences shall be resolved or explained to the satisfaction of the Resident prior to coating application. The results of the environmental testing shall be recorded in the JCR.

Corners, fasteners, welds and inaccessible locations shall be striped in accordance with SSPC PA 1. The striping shall extend a minimum of one inch from each edge. Striping will not be required on intermediate and topcoat; however, the Contractor shall meet the minimum DFT requirements on all surfaces.

Recoat time shall be in accordance with the manufacturer's published requirements for the environmental conditions at the time of application and cure. If the coating is contaminated with dust, debris, over spray or other deleterious material, the surface shall be cleaned in accordance with SSPC-SP 1 immediately prior to recoating. Other methods of cleaning may be used if approved by the Resident.

The QAI shall be given ample notice in order to inspect the product prior to coating, recoating or removal of paint from the area. "Ample notice" shall be defined at the Pre-Job meeting depending on shop or site conditions.

Substrates that are primed or surfaces that are recoated without notification of the QAI will be rejected and no further coating shall be done on the piece. Coating applied without notification of the QAI will be investigated by destructive and non-destructive testing as approved by the Resident and by a review of the JCR. The Resident may reject, conditionally accept, or accept the coating based on documentation and test results. Rejected coating shall be removed and re-applied. Conditionally accepted coatings shall be made acceptable as approved by the Resident. The cost of additional testing and repairs shall be borne by the Contractor.

At the completion of the shop coating, the completion date (month and year) and the number of the type of coating system used shall be stenciled on the inside of the fascia beams, at the locations designated by the Resident, in four inch numbers (for example: 6/05 IOZ-1). The paint used for this marking shall be black polyurethane or such other paint as may be approved by the Resident.

Erection marks, for the field identification of members, and weight marks shall be transferred or preserved.

506.25 Dry Film Thickness

Dry film thickness shall be measured in accordance with SSPC PA 2. The results shall be documented in the JCR. The JCR documentation shall include the actual measurements, spot average and the location(s). Each piece or area presented for acceptance, regardless of size shall

be considered a separate structure for purposes of determining the number of readings to be taken except that large quantities of small parts and/or secondary framing members coated at the same time may be measured at a lesser frequency when approved by the Resident. When random DFT testing of a large quantity of small parts and/or secondary framing members results in unacceptable DFTs, the Contractor shall have the option of measuring and documenting the DFT of each piece or removing the coating and/or recoating all pieces represented in the production lot.

The Authority reserves the right to determine the acceptability of multiple-coat systems by destructive testing (Tooke Gauge) if the Resident believes there is cause to question the acceptability of the DFTs of individual coats. The Authority reserves the right to determine the acceptability of coatings by adhesion testing (ASTM D 4514) if the Resident believes that the coating was mixed, thinned, applied or cured improperly. The coating shall have a minimum tensile bond of 725 psi. Repairs to areas of destructive testing shall be as described in Subsection 506.26; payment will be in accordance with Subsection 106.8.4.

506.26 Repairs

Damaged or unacceptable coatings shall be repaired before the piece is removed from the paint area. Damaged areas shall be prepared in accordance with the manufacturer's published instructions or as approved by the Resident. Damaged or unacceptable coatings shall be repaired using the same coating removed and prepared for repair. Environmental conditions, cure times and DFTs shall be in accordance with manufacturer's published directions for the coating being applied. Repairs to topcoat shall result in a uniform gloss and color match. The Resident shall have final authority concerning acceptable appearance.

If repairs larger than 36 square inches are made on the top coat of fascia beam, the entire beam shall be re-coated after repairs are completed. The DFT of re-coated beams shall not exceed the published manufacturer's recommendations.

506.27 Handling and Storage

The coating shall be adequately cured before handling, but under no circumstances shall the product be handled before the coating has achieved the manufacturer's published minimum cure time. Coated steel members shall be handled in a manner to avoid damage to the coating. Members shall be lifted and moved using non-metallic slings, padded chains and beam clamps, softeners or other non-injurious methods. Material shall be stored, both at the coating facility and in the field, in a manner that prevents damage to the coating.

Material shall not be loaded for shipment until the shop coating has adequately cured and been inspected. The components will be stamped "APPROVED" only after the loading has been completed and approved, and no material shall be shipped without the prior approval of the Resident.

Damage to the coating that is discovered after the product is loaded for shipment to the jobsite shall be documented by the QCI. Repairs shall not be made unless the damaged area is repaired in accordance with Subsection 506.26. Repairs that cannot be acceptably done on the truck shall be done in the shop or in the field at the Contractor's option.

506.28 thru 506.89 Vacant

506.90 Method of Measurement

Protective Coating shall be measured by the lump sum, complete and accepted. The limits shall be as shown on the Plans or as described within the respective subsections.

Galvanizing will not be measured separately for payment, but shall be incidental to the item being galvanized.

506.91 Basis of Payment

All work for Protective Coating will be paid for at the lump sum price for the respective item. Payment will be full compensation for all work and materials needed to complete the item; coating and cleaning materials, testing, labor, surface preparation, cleaning, application, curing and repairs to coating.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 506.9102 | Zinc-Rich Coating System (Shop Applied) | Lump Sum |
| 506.9103 | Zinc-Rich Coating System (Field Touch-Up) | Lump Sum |

SPECIAL PROVISION

SECTION 507

RAILINGS

(Steel Bridge Railing, 3 Bar)

507.05 Steel Bridge Railing

This Subsection is deleted and replaced with the following:

Steel railings shall be fabricated in accordance with the requirements of Section 504, Structural Steel. Steel railings shall be galvanized to the requirements of AASHTO M111 (ASTM A123).

Threaded fasteners shall conform to the requirements of ANSI Standard B1.13M, Class 6g for external and Class 6h for internal threads (ANSI Standard B 1.1, Class 2A for external and Class 2B for internal threads). All fasteners and anchor bolts shall be galvanized per the requirements of AASHTO M111 (ASTM A123).

507.08 Method of Measurement

This Subsection is deleted and replaced with the following:

Steel Bridge Railing, 3 Bar will be measured by the lump sum, fabricated, delivered, erected, and accepted.

507.09 Basis of Payment

This Subsection is deleted and replaced with the following:

Steel Bridge Railing, 3 Bar will be paid for at the Contract lump sum price, complete in place. Payment for galvanizing shall be included in the lump sum price.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 507.0821 | Steel Bridge Railing, 3 Bar | Lump Sum |

SPECIAL PROVISION

SECTION 508

MEMBRANE WATERPROOFING

508.01 Description

The second sentence of the first paragraph is deleted and replaced with the following:

When high performance waterproofing membrane is specified, the Contractor shall furnish and install an approved high performance waterproofing membrane to the concrete deck with a heat welded membrane system applied in accordance with the Plans, Specifications and the manufacturer's published recommendations.

508.02 Materials

The first sentence of the first paragraph is deleted and replaced with the following:

When high performance waterproofing membrane is specified, the materials shall meet the requirements of the manufacturer and shall be one of the approved heat welded products on the MaineDOT's Prequalified List of Approved Materials for High Performance Waterproofing Membrane.

All membrane joints along curbs, scuppers and bridge joints shall be sealed using one of the following materials:

| | |
|---|---|
| Monolithic Membrane 6125 | Aslan Flashing |
| American Hydrotech, Inc. | Soprema, Inc. |
| Chicago, Illinois | Wadsworth, Ohio |
| Phone: 800-877-6125 | 1-800-356-3521 |
| www.hydrotechusa.com | www.soprema.us |

508.05 Installation

This subsection is deleted and replaced with the following:

When High Performance Membrane is specified the edge of the membrane shall terminate no more than ½ inch from the curb line, scupper or bridge expansion joint.

508.07 Basis of Payment

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 508.141 | High Performance Waterproofing Membrane | Lump Sum |

SPECIAL PROVISION

SECTION 515

PROTECTIVE COATING FOR CONCRETE SURFACES

(Pigmented Concrete Protective Coating)

This Section is deleted in its entirety and replaced with the following:

515.01 Description

The work shall include the surface preparation and application of a pigmented concrete protective coating system to protect new and existing concrete and masonry structures. The coating system shall be applied to piers, endposts, wingwalls, abutments, curbs and fascia in accordance with the Plans, Specifications and the manufacturer's published recommendations.

515.02 Materials

The pigmented penetrating sealer system shall be a two coat system consisting of Certi-Vex Guard and Certi-Vex Envio Smooth VOC, as manufactured by Vexcon Chemicals, Inc., or an approved equal, consisting of the following two parts:

- The primer shall be a vinyl toulene acrylic silane polymer blend or an approved equal. This primer shall provide the main protection against the ingress of water borne chlorides and sulfates.

- The top coat shall be solvent borne modified acrylic resins with selected pigments and fillers. The Envio Smooth top coat color shall be Concrete Gray.

The product shall comply with regulations limiting the Volatile Organic Compound (VOC) content of architectural and industrial maintenance coatings.

The Contractor shall submit the Vexcon Chemical's product data sheets, material safety data sheets and recommended instructions for application of the Certi-Vex Guard and Certi-Vex Envio Smooth VOC.

Materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and identification.

515.021 Substitute Materials

The Contractor shall submit a written request for approval of proposed substitute material naming the proposed manufacturer and product. This request shall be accompanied by:

1. Test data from an independent testing laboratory stating that the proposed substitute meets or exceeds the specified requirements as listed and has been tested in accordance with the specified test standards.

2. Documentation that the proposed material has a proven record of performance when used in the intended application as confirmed by actual field tests and successful installations in place on at least five similar projects.

3. Certification that if two or more types of products are intended to be used as part of a system they will be supplied by the same manufacturer to ensure compatibility of materials, and to maintain single source manufacturer responsibility.

The Resident reserves the right to require additional testing to evaluate any proposed substitute product at no additional cost to the Authority. The Resident's decision as to the acceptability or non-acceptability of the proposed product shall be final.

515.03 Surface Preparation

All caulking, patching, and joint sealant shall be installed prior to application of the sealer. The surface shall be prepared in strict accordance with the instructions of the approved manufacturer. Surface shall be fully cured, dry, and free from contamination such as asphalt coatings, oil, grease, loose particles, decaying matter, moss, algae growth, and curing compounds. For maximum penetration of the primer, the Contractor shall lightly sandblast the surface.

Existing form tie hole plugs which are loose or deteriorated shall be completely removed. The holes shall be reamed to sound concrete. All open form tie holes, new and existing shall be filled with an approved non-shrinking mortar, and after setting, rubbed level to the adjacent surface. Filled holes shall be cured for at least two (2) days prior to the application of the concrete protective coating.

The Contractor may use, when required, appropriate cleaning materials recommended by the sealer manufacturer in conjunction with high pressure water for cleaning the concrete or masonry.

Grass and vegetation adjacent to surfaces to be coated shall be removed or trimmed closely to permit proper preparation and application of the coating.

515.04 Application

The materials shall be mixed and applied in strict accordance with the instructions of the approved manufacturer. Spray or roll the primer at the recommended application rate. If the surface is very absorbent, the primer should be applied until surface is saturated per the manufacturer’s written instructions. All areas not to receive coating shall be marked with straight, even lines as the limit lines.

If a substitute material has been approved, the Contractor shall, in the presence of the Resident, apply the materials on a sample area which is representative of a jobsite application. When color and application methods are approved, the sample area shall serve as a standard of acceptance for all further work.

The primer shall not be applied in direct sunlight when the air or surface temperature is greater than 90$^{o}$F, or when air or surface temperature is below 35$^{o}$F. The top coat shall not be applied when air or surface temperature is below 40$^{o}$F or as approved by the Resident.

The primer shall be allowed to dry for a minimum of two-hours before applying pigmented top coat. Under poor drying conditions this time shall be extended. The primer shall not be coated with top coat until the surface is dry. The top coat should be applied by brush, roller or suitable airless spray.

Top coat material shall be applied per the manufacturer's recommended application rate and in strict accordance with the manufacturer's written instructions. The top coat shall provide consistent color without light spots or shadows. The Resident reserves the right to have the Contractor recoat the top coat if the dried top coat(s) lack consistent color or show light spots or shadows.

Protect plants, grass, sealant, asphalt, traffic, etc. during application from spray.

515.05 Method of Measurement

Pigmented Concrete Protective Coating will be measured for payment by the square yard, satisfactorily applied and accepted.

515.06 Basis of Payment

Pigmented Concrete Protective Coating will be paid at the Contract unit price per square yard which price shall be full compensation for all labor, materials, equipment and incidentals required for furnishing and applying the pigmented concrete protective coating as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

Surface preparation, vegetation removal, and protection of surfaces not designated for treatment will not be paid for separately, but shall be incidental to the Pigmented Concrete Protective Coating item.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 515.201 | Pigmented Protective Coating for Concrete Surfaces | Square Yard |

SPECIAL PROVISION

SECTION 515

PROTECTIVE COATING FOR CONCRETE SURFACES

(Clear Concrete Protective Coating)

This Section is deleted in its entirety and replaced with the following:

515.01 Description

The work shall include the surface preparation and application of a clear protective coating on concrete surfaces to protect new cast-in-place concrete, precast concrete and masonry structures. The coating system shall be applied to piers, endposts, curbs and fascia in accordance with the Plans, Specifications and the manufacturer's published recommendations.

515.02 Materials

The penetrating sealer shall be Stand Off SLX100 Water & Oil Repellent, as manufactured by ProSoCo, Inc., or an approved equal. The sealer shall have the following properties:

| | |
|---|---|
| Active Substance: | modified alkyl alkoxy silane |
| Active Content: | > 90% |
| Form: | clear liquid |
| VOC: | < 3.5 pounds per gallon |

The product shall comply with regulations limiting the Volatile Organic Compound (VOC) content of architectural and industrial maintenance coatings.

The Contractor shall submit the ProSoCo's product data sheets, material safety data sheets and recommended instructions for application of the Stand Off SLX100.

Materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and identification.

515.021 Substitute Materials

The Contractor shall submit a written request for approval of proposed substitute material naming the proposed manufacturer and product. This request shall be accompanied by:

1. Test data from an independent testing laboratory stating that the proposed substitute meets or exceeds the specified requirements as listed and has been tested in accordance with the specified test standards.

2. Documentation that the proposed material has a proven record of performance when used in the intended application as confirmed by actual field tests and successful installations in place on at least five similar projects.

3. Certification that if two or more types of products are intended to be used as part of a system, they will be supplied by the same manufacturer to ensure compatibility of materials, and to maintain single source manufacturer responsibility.

The Resident reserves the right to require additional testing to evaluate any proposed substitute product at no additional cost to the Authority. The Resident's decision as to the acceptability or non-acceptability of the proposed product shall be final.

515.03 Surface Preparation

All caulking, patching, and joint sealant shall be installed prior to application of the sealer. On new surfaces to be treated, all voids shall be dressed by dry rubbing to remove form marks and blemishes to present a neat appearance. Concrete and masonry surfaces shall be cleaned free of dust, surface dirt, oil, efflorescence and contaminants to ensure penetration of the sealer. The surface may be slightly damp at the time of treatment.

The Contractor may use, when required, appropriate cleaning materials recommended by the sealer manufacturer in conjunction with high pressure water for cleaning the concrete or masonry.

515.04 Application

The Contractor shall apply the clear concrete protective coating in strict accordance with the manufacturer’s published recommendations.

The application shall not be conducted when surface and air temperatures are below 40$^{o}$F or above 100$^{o}$F. The work shall not be conducted when there is a chance of the surface temperature falling below 40$^{o}$F in the 24-hours following application.

The treatment shall not be applied during rain to wet surfaces or when there is a chance of rain within 24-hours after application. After treatment, surfaces should be protected from rain for not less than 48-hours. It shall not be applied when winds are sufficient to carry airborne chemicals to unprotected surfaces.

Prior to applying the sealer, the Contractor shall protect all surrounding non-masonry/non-concrete surfaces, landscape and lawn areas, and surfaces not designated for treatment, from contact with the penetrating sealer, and prevent overspray of the penetrating sealer caused by wind drift.

The Contractor shall ensure that all safety equipment, facilities and precautions recommended by the product manufacturer are furnished and/or strictly adhered to.

The sealer material shall be applied in the manner and with the equipment recommended by the product manufacturer. Coverage will vary depending on condition, texture and porosity of the surfaces. Pre-testing is required.

Sealer shall be applied as packaged without dilution or alteration. The sealer shall be applied with low pressure (20 psi) airless spray equipment or with a heavily saturated brush or

roller unless otherwise permitted by the Resident. Sufficient material shall be applied to thoroughly saturate the surface making sure to brush out excess material that does not penetrate.

When the sealer is applied to horizontal surfaces, it shall be applied in a single saturating application with sufficient material and applied so the surface remains wet for one to two minutes before penetration into the concrete. Surface residues, pools and puddles shall be broomed-out thoroughly until they completely penetrate into the surface.

When the sealer is applied to vertical and sloped surfaces, it shall be applied in a "wet-on-wet" application for best results on most porous materials. In the case of extremely dense concrete, it may be necessary to restrict the amount of material applied to one saturating application in order to prevent surface darkening. Apply from the bottom up with sufficient material to thoroughly coat the surface and create a slight rundown below the spray pattern. Allow the first application to penetrate the concrete surface, and within a few minutes after the first coat appears dry, reapply in the same saturating manner.

When the sealer is applied to vertical and sloped surfaces, it shall be applied in two applications, 10 minutes apart, with a low pressure (20 psi) airless sprayer.

515.05 Method of Measurement

Clear Protective Coating for Concrete Surfaces will be measured for payment by the square yard, satisfactorily applied and accepted.

515.06 Basis of Payment

Clear Protective Coating for Concrete Surfaces will be paid at the Contract unit price per square yard which price shall be full compensation for all labor, materials, equipment and incidentals required for furnishing and applying the clear concrete protective coating as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

Surface preparation, vegetation removal, and protection of surfaces not designated for treatment will not be measured separately for payment, but shall be incidental to the Clear Concrete Protective Coating item.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 515.202 | Clear Protective Coating for Concrete Surfaces | Square Yard |

SPECIAL PROVISION

SECTION 518

STRUCTURAL CONCRETE REPAIR

(Abutment Repairs)
(Pier Repairs)
(Abutment Seat Refacing)

518.01 Description

The following paragraphs are added:

The work includes abutment repairs, abutment refacing and pier repairs as described below.

- Abutment repairs include concrete surface repairs on all deteriorated horizontal and vertical abutment and wingwall surfaces as shown on the Plans or identified by the Resident.

- Abutment seat refacing includes removal and replacement of existing horizontal and vertical surfaces of abutment seats as shown on the Plans, or as identified by the Resident.

- Pier Repairs include concrete surface repairs on all deteriorated horizontal, vertical and overhead pier surfaces as shown on the Plans or identified by the Resident.

The work shall also include the removal of all tectyl (bituminous) coating on the backwalls, bridge seats and breastwalls of the existing abutments. This work shall occur prior to the start of the abutment concrete repairs so the Resident may identify additional areas requiring repair.

518.03 Repair Materials is re-designated as Subsection 518.02 Repair Materials.

Paragraphs 1-3 and the Coarse Aggregate Gradation Designation/ Thickness of Placement Table of Section 518.03 Repair Materials are deleted and replaced with the following:

A patching material from the appropriate list provided below may be used instead of concrete for concrete patching at the Contractor's option, provided the manufacturer's published recommendations are met (Note: Not all products are suitable for all depth of placements.). All materials used for repair of concrete or reinforcing steel shall meet the applicable requirements of Division 700 as specified in the Standard Specification Sections 502 and 503 respectively. When concrete is used as the repair material, it shall conform to the requirements of Table 1 of Subsection 502.05 for Class AAA Concrete except that the minimum cement factor shall be **750 pounds** per cubic yard. Concrete mix shall be selected at 1,200 psi above design strength of 4,500 psi. The coarse aggregate size shall conform to ASTM C33 Grading 7.

All areas of abutment bridge seat refacing shall be completed using structural concrete. Patching materials will not be allowed in these areas.

Materials for non-emergency deck patching, and formed vertical and overhead deck repairs, shall be one of the following:

- MTA - AAA modified concrete – transit mixed or mixed on site,
- Sikacrete 211, as manufactured by Sika Corporation, 201 Polito Avenue, Lakehurst, NJ 07011
- SikaRepair 222 extended with aggregate, as manufactured by Sika Corporation, 201 Polito Avenue, Lakehurst, NJ 07011
- BASF LA40 Repair Mortar, as manufactured by BASF Corporation, 889 Valley Park Drive, Shakopee, MN 55379
- Civil Structural FPX, as manufactured by Dayton Superior Corporation, 1125 Byers Road, Miamisburg, OH 45342

or an approved proprietary, non-fast setting, shrinkage compensated patching material, manufactured or extended with stone, with the following published properties:

Compressive strength @ 24 hours – less than 3500 psi
Compressive strength @ 28 days – less than 7500 psi
Minimum bond strength @ 28 days – 1500 psi

Note: Rapid-setting high early strength materials are not permitted.

Materials for non-emergency, un-formed vertical and overhead deck repairs shall be one of the following:

- SikaTop 123 Plus as manufactured by Sika Corporation, 201 Polito Avenue, Lakehurst, NJ 07011.
- SikaRepair 223, as manufactured by Sika Corporation, 201 Polito Avenue, Lakehurst, NJ 07011
- Zero-C Vertical Overhead Mortar, as manufactured by BASF Corporation Systems, 889 Valley Park Drive, Shakopee, MN, 55379.
- Verticoat Supreme as manufactured by The Euclid Chemical Company, 19218 Redwood Rd., Cleveland, OH, 44110

The second sentence in subsection 518.03.1 is revised to read:

"The bonding material shall consist of the following, except that, in the case where an approved proprietary material is used in the repair areas, the manufacturer's published recommendations regarding application and use of bonding materials shall take precedence:"

<u>518.03 Removal of Unsound Concrete</u>

Paragraph 4 item b) is revised to read:
"b) To the minimum depth required per the manufacturer's recommendation, but not less than 1 inch behind the top mat of reinforcing steel, when an approved proprietary material is used."

Paragraph 4 item c) is deleted and not replaced.

Paragraph 4 item d) is revised to read:
"d) To a minimum depth of 1 inch behind the top mat of reinforcing steel."

The following paragraphs are added:

Care shall be taken during the demolition process to ensure the integrity of the surrounding concrete is maintained. The Contractor shall use great care to avoid damaging the existing reinforcing steel during the demolition process. Existing reinforcing steel damaged during the demolition process shall be repaired or replaced by a method approved by the Resident, at no additional cost to the Authority.

All unsound concrete and other material removed shall be disposed of outside the limits of the turnpike right-of-way. The Contractor shall provide the Resident with an affidavit stating the final location of all disposed material and that the material was disposed of in accordance with Chapter 404 of the Maine Department of Environmental Protection Solid Waste Regulations.

The following Subsection is added:

518.031 Bearing Areas for Superstructure Metal

The Contractor's attention is directed to the fact that the removal of unsound concrete may be immediately adjacent to the structural bearing parts of the steel stringers and may involve removal of unsound concrete under the existing masonry plate.

The Contractor shall submit, a minimum of two (2) weeks prior to the start of work, his proposed method of temporary support which will list the type and size of the proposed members, details of construction, load capacity calculations, and a sequence of operations, all to be made and stamped by a Professional Engineer registered in the State of Maine. Temporary structural supports may bear on the adjacent bridge seat area, backwall or ground.

518.04 Reinforcing Steel

The first paragraph is deleted in its entirety and replaced with the following:

All existing reinforcing steel exposed by concrete removal which is to remain in the structure, shall be thoroughly cleaned by sandblasting to an SSPC-SP-6, supplemented by chipping hammers or other means as necessary so that the surfaces are free of rust, scale, mortar and other foreign material, and reasonably free of shadows. The sandblast shall be applied at an angle to the bars so that the embedded steel shall be free of rust and other foreign material to 100 percent of its circumferences. Once the existing reinforcement is cleaned, and prior to casting the repair, all new and existing reinforcing steel shall be coated with an approved epoxy bonding agent. The elapsed time between sandblasting application of the approved epoxy bonding agent shall be a reasonable minimum.

The following paragraph is added to the end of this Subsection:

Where approved by the Resident, exposed reinforcement shall be depressed to provide 1-1/2 inch clear cover of concrete over the top bars. Minimum clear distance under the bottom of reinforcement bars for horizontal repairs, behind reinforcement bars on vertical repairs, and over the top of reinforcement bars on overhead surfaces shall meet the requirements of Subsection 518.03. Epoxy coated reinforcing support chairs shall be provided by the Contractor to support the

bars in their specified location. Bars protruding from sound concrete adjacent to a repair area shall be bent up or down within the repair area to obtain the required minimum clear cover.

518.07 Placing Repair Materials

The following is added after the first paragraph:

All vertical and overhead repair areas shall be formed over the entire surface with quick erecting forms approved by the Resident. The forms shall be held securely in place and be able to withstand the hydrostatic pressure of the fluid concrete of the height to which it is to be placed. Forms shall be built such that the resulting repair will duplicate the original lines of the concrete removed. Form faces shall be of new finished plywood or steel, or other smooth surface as approved by the Resident prior to use. Forms will be provided with a top chute, at a maximum spacing of four feet, for providing a compression head of concrete in the form. The overfilled area shall be struck-off flush when forms are removed. Forms shall be placed snugly against the surface of the old concrete at the edges of the patch and shall extend beyond the edges at least three inches. They shall not deflect under the placement of the fresh concrete. Vertical surface repair forms shall remain in place a minimum of 48-hours.

All proposed bearing pads and bearing pad repairs shall be cast monolithically with the abutment repair concrete.

The following paragraphs are added to the end of this Subsection:

Modified Class AAA Concrete may be transit mixed or mixed on-site. The concrete shall be placed in accordance with the provisions of Section 502 except that the pre-plasticized slump shall not exceed three inches. Materials shall be batched by weight. The concrete shall be pumped or hand shoveled into the forms. Internal mechanical vibrators shall be of an approved design and of a size suitable to the work at hand. External vibrators attached to the forms will be permitted if requested, subject to the results obtained. The amount of vibration shall be guided by results obtained from previous placements.

If the concrete cannot be placed satisfactorily, as determined by the Resident, superplasticizers shall be added to the mix as approved by the Resident and at no additional cost to the Authority. After removal of the forms, the concrete shall be smooth rubbed and wet cured and given a smooth rubbed finish.

518.10 Method of Measurement

The sixth paragraph is deleted and not replaced.

The following paragraphs are added:

The quantity of Abutment Repairs and Pier Repairs will be measured by the square foot and shall be computed as the sum of the products of the average length and width of each area repaired.

The quantity of Abutment Seat Refacing shall be measured by the cubic yard complete and in place.

Removal of all tectyl (bituminous) coating from existing abutments will not be measured separately for payment, but shall be incidental to the Repair items.

Fabrication and placement of reinforcing steel for concrete repairs will not be measured for payment separately, but shall be incidental to the related contract items.

Earth excavation and backfilling beyond the limits shown on the Plans required to expose repair areas at the abutments and all earth excavation and backfilling required to expose repair areas at the piers will not be measured separately for payment, but shall be incidental to the related 518 pay items.

518.11 Basis of Payment

The following paragraphs are added:

Abutment Repairs and Pier Repairs will be paid for at the Contract unit price bid per square foot for each type of repair; which price shall include, but not necessarily be limited to, removal and disposal of materials; cleaning existing concrete and reinforcing steel; furnishing and placing new reinforcing steel where required; furnishing, placing and removal of forms, staging, temporary supports where required; placing, curing and finishing new concrete; earth excavation and backfilling, except as shown on the Plans; and all materials, labor, equipment, tools and incidentals necessary to complete the work.

Abutment Seat Refacing will be paid for at the Contract unit price bid per cubic yard; which price shall include, but not necessarily be limited to, removal and disposal of existing concrete and reinforcing steel to the limits shown; cleaning existing concrete; furnishing and placing new reinforcing steel; furnishing, placing, and removal of forms, staging, and temporary supports where required; placing, curing, and finishing new concrete; and all materials, labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 518.10 | Abutment Repairs | Square Foot |
| 518.20 | Pier Repairs | Square Foot |
| 518.30 | Abutment Seat Refacing | Cubic Yard |

SPECIAL PROVISION

SECTION 520

EXPANSION DEVICES -- NON MODULAR

(Asphaltic Plug Joint)

520.01 Description

This work shall consist of furnishing and installing asphaltic plug joint systems at the locations shown on the Plans, in accordance with these Specifications or as approved by the Resident.

This work shall also include having a manufacturer trained lead installer(s) or a manufacturer's qualified technical representative(s) onsite during the joint installation to supervise the joint system installers in the proper installation of the joint system. The resumes of the manufacturer trained lead installer(s) and/ or manufacturer's qualified technical representative(s) shall be submitted for review and acceptance. All costs associated with this service shall be included in the unit price of the work.

520.011 Submittals

Prior to construction, the Contractor shall submit the following to the Resident for review and approval:

(a) Complete and detailed Shop Drawings of asphaltic plug joint system. Shop Drawings shall include information covering materials, their properties, installation procedures, storage and handling requirements, and Materials Safety Data Sheets.

(b) The resume of the manufacturer's technical representative, which shall include the representative's experience installing the asphaltic plug joint system along with the names and telephone numbers of contact persons for recent projects where technical assistance was provided.

(c) Certified test reports of the asphaltic binder, closed cell foam backer rod and the plastic compound.

(d) Certificates of Compliance for bearing plates, centering nails and aggregate.

520.02 Materials

The asphaltic plug joints shall consist of a system including bridge joint binder material, aggregate, backer rod, bridging plate, and polysulfide joint sealant conforming to the details and dimensions shown on the Plans, in accordance with these Specifications or as approved by the Resident.

The following systems are acceptable for use as asphaltic plug joints:

| Thorma-Joint | Wabo Expandex | Matrix 502 |
|---|---|---|
| Dynamic Surface Applications, Ltd<br>373 Village Road<br>Pennsdale, PA 17756 | Watson Bowman Acme<br>95 Pineview Drive<br>Amherst, NY 14228 | D.S. Brown<br>300 East Cherry St.<br>North Baltimore, OH 45872 |

Materials which are incorporated in or used in conjunction with approved asphaltic plug joint systems are as follows:

(a) Asphaltic Binder: Binder shall meet or exceed requirements of AASHTO M301 (ASTM D3405) and consist of a hot applied, thermoplastic polymeric modified asphalt with the following properties when tested in accordance with the following ASTM methods:

| PROPERTY | REQUIREMENT | TEST METHOD |
|---|---|---|
| Softening Point, °C | 83 min. | ASTM D36 |
| Tensile Adhesion | 700 min. | ASTM D3583 |
| Ductility min @ 25°C (77°F) | 400 min. | ASTM D113 |
| Penetration<br>max @ 25°C (77°F), 150 g, 5 s<br>min @ -18°C (0°F), 200 g, 60 s | <br>75 mm<br>1.0 mm | ASTM D3407 |
| Flow 5 hrs @ 60°C (140°F), mm | 3.0 max. | ASTM D3407 |
| Resilience min.-max. @ 25°C (77°F), % | 40 - 70 | ASTM D3407 |
| Asphalt Compatibility @ 140°F | Pass | ASTM D3407 |
| Recommended Pouring Temperature, °C | 182 to 199 | |
| Safe Heating Temperature, °C | 199 to 216 | |
| Bond 3 cycles at -7°C (20°F), 100% Elong. | Pass | ASTM D3405 |
| Flexibility at -23°C (-10°F) | Pass | ASTM D5329 |

(b) Backer Rod: Backer rod shall be a cylindrical closed cell expanded polyethylene foam rod, with a diameter of 150 percent of joint opening width, capable of withstanding the temperature of the hot binder materials and having the following properties:

| PROPERTY | REQUIREMENT | TEST METHOD |
|---|---|---|
| Density, $lb/ft^3$ | 2.0 min. | ASTM D1622 |
| Tensile Strength, psi | 25 min. | ASTM D1623 |
| Water Absorption, % of wt. | 1.0 max. | ASTM C509 |

(c) Bridging Plate: Bridging plate shall be ASTM A36 steel, minimum of 1/4 inch thick and galvanized. Holes for the centering nails shall be approximately one foot center-to-center along the centerline of plates.

(d) Centering Nail: Nail shall be 16d or larger and hot dip galvanized in accordance with ASTM A153.

(e) Aggregates: Aggregates shall be crushed, double-washed and dried, igneous rock and meeting the manufacturer's gradation. This aggregate shall also be used for top dressing on the finished joints.

(f) Plastic Compound: Plastic compound used for repairing overcuts in bituminous concrete overlays shall be a two-component liquid with a synthetic resin base. It shall have a minimum viscosity of 3,500 cps at 77°F and a maximum viscosity of 65,000 cps at 25°F. The plastic compound shall be cured by the addition of a specific hardener. Sufficient hardener shall be used to cure the plastic compound in approximately 30 minutes at 77°F. It shall have sufficient strength and resiliency to withstand stresses setup by vibration, and expansion and contraction due to temperature changes. It shall also be resistant to most chemicals and solvents, including most salts, acids and hydrocarbons.

Product data, test data and reports, and material certifications shall be submitted for review and approval.

The steel and concrete surface preparation requirements, primer material (if required), backer rod and non-sag silicone sealant to seal the raised curbs shall also be submitted for review and approval.

520.06 Installations

Asphaltic plug joint system shall be installed in accordance with manufacturer’s latest instructions and specifications. A manufacturer trained lead installer(s) or a manufacturer’s qualified technical representative shall be present during the entire installation to ensure satisfactory results are obtained.

The equipment and installation procedures used shall be in strict accordance with the manufacturer’s published installation guidelines. Installation guidelines shall be submitted for review and approval.

Asphaltic plug joint system shall allow total joint movement for up to two inches. The installation shall be centered over the expansion joint gap as indicated on the Plans. It shall not be installed when ambient or substrate temperatures are below 40°F, when the ambient air temperature has been above 75°F on the previous four days, when rain is imminent, or as approved by the Resident.

Sawcut and remove bituminous concrete overlay and waterproofing membrane to the required dimensions as shown on the Plans. If required, a leveling course shall be applied to concrete surfaces prior to placing bridging plates. Vertical surfaces of bituminous concrete overlay shall be cleaned to remove all water and cutting dust.

Backer rods shall be installed in expansion joint openings at a minimum of one inch depth as indicated on the Plans.

Binder shall be heated to a safe temperature as recommended by manufacturer. Heating kettles shall be equipped with continuous agitation system, temperature controller, calibrated thermometer and double steel jacket with an oil layer in between to prevent scorching of the binder. During application, the temperature of binder shall be maintained at a minimum of 350°F. It shall be poured into expansion joint openings until it runs over edges.

Steel bearing plates shall be placed from curb-to-curb on the roadway portion of expansion joints. Plates shall be centered over joint openings. Centering nails shall be placed in pre-drilled holes and hammered in to secure plates.

Aggregate shall be heated in a rotating drum mixer to a minimum of 350°F or as recommended by the Resident. The thermoplastic polymeric modified asphalt Binder shall be added to the mixer to precoat aggregates.

Coated aggregate shall be placed into blockouts in layers as recommended by the manufacturer. Blockouts shall be overfilled with coated aggregate as required to compensate for compaction. Equipment for compaction shall be as recommended by the manufacturer. Additional thermoplastic polymeric modified asphalt binder shall be screeded over the compacted joint to fill any surface voids.

Top dressing aggregate shall be applied per the manufacturer's recommendation.

Plastic compound shall be used for repairing overcuts in bituminous concrete. Cleaning, mixing and application shall be in conformance with the manufacturer's instructions.

Vehicular traffic may pass over finished joints two-hours after compaction or as recommended by the manufacturer.

520.07 Method of Measurement

Asphaltic Plug Joint system will be measured by the linear foot along the top surface of installed joints to the limits as shown on the Plan. Preparation of surfaces for the proposed joint system including cutting, grinding and cleaning, will not be measured separately for payment, but shall be incidental to the Asphaltic Plug Joint item.

520.08 Basis of Payment

Asphaltic Plug Joint system will be paid for at the Contract unit price per linear foot which price shall be full compensation for all labor, materials, equipment and incidentals required for furnishing and installing the Asphaltic Plug Joint system as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

The backer rod and elastomeric sealant installed up the vertical face and across the horizontal surfaces of bridge curbs and sidewalks will not be measured separately for payment, but shall be incidental to the Asphaltic Plug Joint pay item.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 520.23 | Asphaltic Plug Joint | Linear Foot |

SPECIAL PROVISION

SECTION 523

BEARINGS

(Bearing Removal and Installation)
(PTFE Elastomeric Bearings, Expansion)

523.01 Description

The following paragraphs are added:

This work shall also consist of removing, transporting and stacking on pallets, 9 existing steel bearings (bearings, sole plates and masonry plates) from the piers and abutments at the Authority's Auburn Maintenance Facility at Mile 76.9 NB.

This work shall also consist of the installation of new PTFE elastomeric bearings and sole plates at the locations shown on the Plans.

This work shall also consist of removing all lead based paint that will be disturbed by the removal of the existing steel rocker bearings in accordance with Special Provision 105.2.4.2..

523.02 Materials

The following paragraphs are added:

Steel for new bearings shall conform to AASHTO M270 Grade 50 or 50W. Steel reinforcement plates for elastomeric bearings shall conform to ASTM A36. All anchor rods shall conform to ASTM F1554, GR 55 and shall be swedged or threaded on the embedded portion. All exposed steel surfaces shall be galvanized in accordance with ASTM A123 and A153 as applicable.

Stainless steel plates shall be 20 gauge (GA) conforming to ASTM A240 Type 304. Sliding surfaces shall have a surface finish of 10 micro inches R.M.S. (Root-Mean-Square) on the side in contact with PTFE. The reverse side shall be prepared for bonding to the auxiliary plate or load plate. The stainless steel shall be a minimum of 1/4 inch smaller than the auxiliary load plate in all directions, and shall be bonded to the auxiliary load plate with an epoxy adhesive meeting the requirements of this Specification.

Epoxy adhesive shall meet the requirements of the Table below:

| Physical Property | ASTM Test Method | Requirement |
|---|---|---|
| Flexural Modulus | D790 | $2 \times 10^4$ |
| Safe Operating Temperature | | -60° to 145° C |
| Linear Expansion Coefficient, in/in | D696 | $4.8 \times 10^{-5}$ |
| Bond Strength, psi (Tensile Shear) | D1002 | 1,000 |

Polytetraflouroethylene (PTFE): PTFE sliding surfaces shall be 100 percent virgin unfilled PTFE polymer and bonded to a rigid confining substrate. The substrate shall limit the elongation of the confined PTFE to not more than 0.009 inch under a load of 2,000 psi for 15 minutes at 78°F for a 2 inch by 3 inch test sample. The virgin unfilled PTFE shall have a minimum thickness of 1/16 inch.

PTFE properties shall conform to the requirements of the Table below:

| Physical Property | ASTM Test Method | Requirement |
|---|---|---|
| Hardness at 78°F | D2240 | 50 -65 Durometer D |
| Tensile Strength, psi | D1457 | 2800 (min. avg.) |
| Elongation % | D1457 | 200 (min. avg.) |
| Deformation Under Load %<br>78°F – 2,000psi (1/2”x1/2”x1/32”) | D621 | 4 (max.) |
| Specific Gravity | D792 | 2.14 to 2.21 |

Coefficient of friction between contacting PTFE and polished stainless steel surfaces shall not exceed 0.06 at an 800 psi compressive loading.

PTFE shall be bonded to the upper load plate or elastomeric pad with rigid confining medium substrate conforming to the requirements of this Specification.

523.05 Fabrication

The following paragraphs are added:

Removal of lead based paint shall be in accordance with Subsection 105.2.4.2, Lead Paint. The Contractor shall submit a lead based paint removal plan to the Resident for approval prior to the start of the work.

All surfaces of the new steel girders, where paint is removed for welding and bearing installation, shall be repaired to the requirements of Special Provision 506.26 Repairs, upon completion of the work.

The Contractor shall re-finish damaged galvanized coatings after installation in accordance with ASTM A780.

Welding of structural steel adjacent to elastomeric bearing pads shall be controlled such that no portion of the bearing pad or Teflon surface will be subjected to temperatures in excess of 300$^{o}$F. Temperature Indicating Crayons are to be used on the elastomeric bearing and components during field welding operations to assure that these temperature restrictions are not exceeded.

523.07 Method of Measurement

The following sentences are added:

Bearing Removal and Installation will be measured for payment by the actual number of bearings removed and replaced.

New bearings will be measured for payment by the actual number of bearings furnished under Items 523.5401, Laminated Elastomeric Bearings, Fixed; 523.5402, Laminated Elastomeric Bearings, Expansion; and 523.5404, PTFE Elastomeric Bearings, Expansion.

523.51 Basis of Payment

The third sentence of the first paragraph is amended as follows:

Removal of the existing bearings, including all materials, equipment, labor, and incidentals necessary to remove, transport and stack the existing bearings in accordance with the Plans and Specifications, shall be included in the Bearing Removal and Installation item.

The following paragraphs are added:

All materials, equipment, labor and incidentals required for: preparing the new steel girders to receive the new bearings; lead paint removal; and field repair of new paint; trimming of existing anchor rods and proposed anchor rod installation; and installation of grout pads on the piers (if required), shall be incidental to the Bearing Removal and Installation item.

Touch-up of galvanized coating for the sole plates, masonry plates, and bearing bolsters shall be included in the unit price.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 523.521 | Bearing Removal and Installation | Each |
| 523.5404 | PTFE Elastomeric Bearings, Expansion | Each |

SPECIAL PROVISION

SECTION 524

TEMPORARY STRUCTURAL SUPPORTS

(Protective Shielding - Steel Girders)

524.01 Description

The following paragraph is added:

This work shall also consist of furnishing all labor, equipment and materials required to provide protection for the public during demolition and construction. This protection shall include, but not necessarily be limited to, protective shielding of existing structures during demolition work, concrete removal, and installation of temporary deck support over roadway lanes and shoulders on all existing and new bridge structures.

The following Subsections are added:

524.031 Protective Shielding Design

Prior to the start of work, the Contractor shall submit plans for review and comment indicating the sizes and dimensions of protective shielding. The proposed methods of protective shielding, including connections and fasteners, shall be in accordance with the following criteria:

The protective shielding shall be designed for safely supporting all construction and dead loads, but not less than 100 pounds per square foot with a load duration of seven (7) days. Protective shielding shall be stiff enough to limit deflection to 1/2 inch under maximum loads and to be tightly sealed at all joints. The protective shielding shall be placed on the tops of the bottom flanges of the steel girders, with edges and laps made tight to protect the turnpike motorists from dust, debris and falling objects.

524.041 Protective Shielding Erection and Removal

No portion of the protective shielding installed over a roadway shall project below a plane connecting the bottoms of the bottom flanges of the steel stringers. During demolition operations, the protective shielding shall be covered with sheet plastic made tight at edges and laps to prevent water used in the sawcutting operation from falling onto the facilities under the bridge.

The protective shielding on existing and new structures shall extend horizontally three feet beyond the fascia lines and vertically to a point one foot minimum above the top of parapet. Shielding on existing and new structures shall extend 10 feet beyond the edge of pavement of the roadway below as shown on the Plans or as approved by the Resident.

Shielding shall be approved and installed prior to the start of any demolition work and shall remain in position during all demolition work. Shielding shall also be approved and

installed prior to the start of any deck forming and shall remain in position during all deck work. The shielding shall be relocated or removed only as approved by the Resident.

Construction sequences may require protective shielding material to be removed, stored and then reinstalled by the Contractor. Any shielding which is damaged during this removal and reinstallation shall be replaced by the Contractor at no additional cost.

524.28 Method of Measurement

The following paragraph is added:

Protective Shielding will be measured by the square yard for shielding designed, installed, removed and disposed or stacked. For purposes of computing the area, only the horizontal plan dimensions will be used.

524.29 Basis of Payment

The following paragraphs are added:

Protective Shielding will be paid for at the Contract bid price per square yard and shall include all design, materials, transportation and stacking, labor (to install, remove and stack as needed), tools and equipment necessary to perform the work as described above or as approved by the Resident. The measurement shall include one sequence of placement, removal, and on-site storage (if applicable for intended reuse) of Protective Shielding. Where bridge and girder construction dictates that Protective Shielding is to be installed in the same location at a later date, then the quantity of Protective Shielding shall be increased accordingly to reflect the total work, and shall be tabulated on the drawings. Therefore, the calculated quantity of Protective Shielding will be the summation of each sequence noted above (placement, removal, and on-site storage). The Contractor shall note that additional timber material may be required to accommodate differing girder spacing or differing overhang dimensions

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 524.40 | Protective Shielding - Steel Girders | Square Yard |

SPECIAL PROVISION

SECTION 535

PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE

(Precast Concrete Deck Panels)

535.02 Materials

The following sentences are added:

Materials for precast deck panels shall meet the requirements specified in the following Subsections:

- Curing Materials 701.06
- Sealant 714.04

Deformed welded wire fabric shall conform to the requirements of AASHTO M221 (ASTM A497).

All mild reinforcing steel shall be epoxy coated in accordance with Standard Specification 503.

535.09 Rejections

The following sentences are added:

Any of the following conditions shall be cause for rejection of precast deck panels:

a) Any cracks transverse or diagonal to the strand pattern and crossing more than one strand with crack widths greater than 0.15 mm.
b) Any crack parallel to a strand and longer than 1/3 of the panel length strand with crack widths greater than 0.15 mm.
c) Cracks shorter than 1/3 of the panel length and occurring at more than 25 percent of the total number of strands in the panel.
d) Voids or honeycombed areas with exposed strand.

Panels with cracks or with damage less severe than the conditions stated above shall be repaired by the Contractor, at his own expense, using procedures approved by the Resident.

535.13 Concrete

The following paragraph is added:

Portland Cement concrete for precast deck panels shall be Class P ($f'_c$=6,000 psi, $f'_{ci}$=4,000 psi) concrete in accordance with Special Provisions Subsection 502.05, Composition and Proportioning. The mix design shall be approved by the Resident.

535.21 Precast Deck Panels

The following paragraphs are added:

Grout dams shall be continuous foam strips of one color fabricated from rigid high-density extruded polystyrene (XPS) conforming to ASTM C578 Type VII. Non-corrosive threaded inserts, leveling screws and compressible polyethylene foam (1.7 pcf) strips may be used in lieu of rigid grout dams if approved by the Resident. Compressible polyethylene foam shall be white such as "CelluPlank" manufactured by Sealed Air Corporation, or an approved equal.

Adhesive for bonding grout dams to girder flanges shall be "CX-200 Construction Adhesive" manufactured by ChemRex or an approved equal.

535.22 Tolerances

The following paragraph is added:

Precast deck panels shall be 3.5 inches thick throughout. The panels shall be rectangular in shape having a nominal width between 4'-0" and 8'-0". Panels shall have 0.5" chamfers along all edges. The panels shall be manufactured in conformity with the following tolerances:

| | |
|---|---|
| Thickness of panel | -1/8", 1/4" |
| Width of panel | -0", +1/4" |
| Length of panel | ±1/4" |
| Horizontal alignment (dev. from line parallel to CL) | 1/4" |
| Squareness (difference along diagonals) | 1/2" |
| Vertical position of strand group (meas. from bottom) | +0", -1/8" |
| Vertical position of individual strands | ±1/8" |
| Horizontal strand position | ±1/4" |
| Strand projection | ±1/2" |
| Bowing | ±1/8" |
| Sweep | ±1/8" |
| Warping (meas. from nearest corner) | 1/16" per foot |
| Threaded jack inserts (long. and transv.) | ±1/4" |

535.27 Erection of Precast Deck Panels

The following paragraphs are added:

At a minimum, stud welded shear connectors shall extend to the top of the precast deck panel, and preferably should extend two inches above the top of the precast deck panel.

Grout shall conform to the requirements of the amended Master Limits Table. Chemical air-entrainment is not required. Shrinkage-reducing properties shall be developed in the mix through the use of an approved admixture such as "Eclipse" manufactured by W.R. Grace or an approved equal. Expansive type additives are not acceptable.

The Master Limits Table is amended as follows:

MASTER LIMITS TABLE

| Class of Concrete | Minimum Compressive Strength at 28 Days | Minimum Cementit. Content | Water Cement Ratio | Slump | Air Content | Maximum Coarse Aggregate Size (703.02) | Notes |
|---|---|---|---|---|---|---|---|
| | PSI | LB./CY | | INCHES | % | INCHES | |
| Grout | 4,000 | 658 | 0.38±0.02 | 7 ± 1 | 3 ± 1 | 1/2 | 1, 2, 3, 4 |

Prestressing steel for precast deck panels shall be uncoated, low relaxation, seven wire strand conforming to the requirements of AASHTO M203 (ASTM A416). The strand shall be 3/8 inch diameter Grade 270. The initial strand tension shall be 17.2 kips per strand.

If leveling screws are used, temporary bracing shall be installed between the ends of the panels to prevent any transverse movements and hence loss of bearing. The leveling screws shall be completely removed after the grouting operation and the holes filled with a fluid type grout prior to the placement of the cast-in-place topping.

The Contractor shall furnish certified copies of a representative load-elongation curve test report for each size and grade of strand for each lot of 10 tons or fraction thereof. The Contractor shall also furnish a certified mill test report for each heat and coil of wire used in the production of the strand.

535.28 Method of Measurement

No separate measurement will be made for Precast Concrete Deck Panels. All work and related materials including, but not necessarily limited to, furnishing and installing deck panels, lifting devices, grout dams, adhesive, leveling screws, inserts, grout, panel reinforcing steel or welded wire fabric, and cast-in-place concrete topping will be incidental to, and included in, Item 502.26, Structural Concrete Roadway and Sidewalk Slab on Steel Bridges.

If precast concrete deck panels are utilized in the construction, no deducts will be applied to Structural Concrete Roadway and End Posts, Reinforcing Steel, and Protective Shielding for the material not used due to the use of the precast panels.

No separate measurement will be made for fabricating and placing reinforcing steel in the cast-in-place concrete topping. All costs associated with this work shall be paid for separately under Items 503.14, Epoxy-Coated Reinforcing Steel, Fabricated and Delivered and 503.15, Epoxy-Coated Reinforcing Steel, Placing.

No separate measurement will be made for longer stud welded shear connectors required with the Precast Concrete Deck Panels. All costs associated with this work shall be incidental to Item 505.09, Stud Welded Shear Connectors.

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(W-Beam to 3-Bar Bridge Rail Transition)

606.01 Description

The section is amended by the addition of the following:

This work shall consist of furnishing and erecting W-beam to 3-bar bridge rail transitions at the required locations in accordance with the Specifications and in reasonably close conformity with the lines and grades shown on the Plans.

W-beam to 3-bar bridge rail transitions shall consist of galvanized thrie beam transition sections, nested thrie beam, wood or composite offset blocks, driven steel posts, connection hardware, terminal connectors, and other incidentals required to complete the work.

606.08 Method of Measurement

The section is amended by the addition of the following:

W-beam to 3-bar bridge rail transitions will be measured by each unit satisfactorily fabricated, delivered and erected.

Curbing will not be considered for payment as part of the W-beam to 3-bar bridge rail transitions, but will be measured for payment separately under Specification 609.

606.09 Basis of Payment

The section is amended by the addition of the following:

The accepted quantity of W-beam to 3-bar bridge rail transitions will be paid for at the Contract unit price for each unit complete in place and shall be full compensation for furnishing all labor, equipment and materials necessary to complete the work. Payment shall be full compensation for furnishing and installing thrie beam transition sections, nested thrie beam, wood or composite offset blocks, driven posts, terminal connectors, connection plates, all hardware, nuts, bolts, washers, and all other items necessary to make for a complete installation as shown on the Plans or as approved by the Resident.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 606.1728 | W-Beam to 3-Bar Bridge Rail Transition | Each |

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Guardrail Type 3c- Single Rail, 7 foot posts)

606.01 Description

The section is amended by the addition of the following:

This work shall consist of furnishing and erecting Guardrail Type 3c – Single Rail, 7 Foot Posts at the required locations in accordance with the Specifications and in reasonably close conformity with the lines and grades shown on the Plans.

606.02 Materials

The section is amended by the addition of the following:

Steel posts shall be 7 feet long.

606.08 Method of Measurement

The section is amended by the addition of the following:

Guardrail Type 3c – Single Rail, 7 Foot Posts will be paid for at the contract unit price per linear foot of rail satisfactorily installed and accepted.

606.09 Basis of Payment

The section is amended by the addition of the following:

The accepted quantity of Guardrail Type 3c – Single Rail, 7 Foot Posts will be paid for at the contract unit price per linear foot of rail and shall be full compensation for furnishing all labor, equipment and materials necessary to complete the work.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 606.234 | Guardrail Type 3c – Single Rail, 7 Foot Posts | Linear Foot |

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Delineator Post)

606.01 Description

The following paragraphs are added:

This work shall also consist of furnishing and installing new delineator posts and/or removing and resetting existing delineator posts within the Contract limits. The existing reflectorized delineator panels on reset posts shall be removed and replaced with new reflectorized delineator panels as required by the Resident.

Existing and reset delineator posts shall be located as follows:

Outside Shoulder:

- One at guardrail trailing ends (green delineator).
- Two at guardrail approach ends (delineators at face end and first angle point, red on traffic side).
- One at guardrail attachments to endposts (white delineator).

Other Locations:

- One at culvert outlets (red delineator).

Delineator posts that do not exist in the locations described above, shall be supplied and installed by the Contractor. The installation of the delineator post shall include the demountable reflectorized delineator.

Delineator posts shall be bolted to the back of the first post in the end treatments.

606.02 Materials

The following paragraphs are added:

Non-guardrail guardrail delineator posts shall conform to Subsection 606.02.

Guardrail delineator posts for the approach ends of end treatments shall be fabricated by Davidson Traffic Control Devices. The post shall be the color gray and a product of the Flexi-Guide 500 Series. The delineator shall be bolted to the top of the first post with two 4 inch 5/16 galvanized lag screws with flat washers.

The demountable reflectorized delineator panel shall meet the requirements of Subsection 719.06. Delineator panel shall be rectangles measuring 8" x 3".

606.03 Posts

The following paragraphs are added:

The installation of delineator posts shall conform to Subsection 606.03 for guardrail delineator posts.

The top of delineator posts associated with guardrail shall be installed 5'-0" (60") above edge of pavement elevation. White delineator posts for mile delineation shall be 4'-6" (54") above edge of pavement elevation. Delineators shall be installed four feet from edge of pavement except those delineating end treatments, culverts and electrical items.

A mock-up of the guardrail delineator posts shall be submitted to the Resident for approval prior to installation.

Any materials damaged by the Contractor's operations shall be replaced at no additional cost to the Authority.

Top of the delineator panel shall be flush with the top of post.

606.08 Method of Measurement

The following paragraphs are added:

Delineator Posts shall be measured by each unit installed and accepted.

606.09 Basis of Payment

The following sentences are added:

The accepted quantity of Delineator Posts will be paid for at the Contract unit price per each which price shall be full compensation for the post, specified delineator or mile marker panel, complete in place.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 606.353 | Delineator Post | Each |

SPECIAL PROVISION

SECTION 607

FENCES

(Snow Fence)

607.01 Description

The following paragraph is added:

The work shall include the installation of snow fence on the bridge to the limits shown on the plans.

607.02 Materials

The following paragraph is added:

Snow fence material shall consist of galvanized chain link fence at a height shown on the Plans. Posts shall be galvanized metal and spaced as shown on the Plans. The chain link fence and the posts shall be connected to the vertical bridge rail posts via U-bolts as shown on the Plans. All accessories such as tie wires, bars, and tension members shall be galvanized.

607.06 Method of Measurement

The following paragraph is added:

Snow Fence will be measured by the linear foot accepted in place.

607.07 Basis of Payment

The accepted quantities of Snow Fence shall be paid for at the contract unit price per foot of Snow Fence. Payment shall be full compensation for furnishing and installing all materials as shown on the plans including labor tools and incidentals required to complete the installation.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 607.431 | Snow Fence | Linear Foot |

SPECIAL PROVISION

SECTION 619

MULCH

619.01 Description

The first paragraph is modified by the addition of the following:

"as a temporary or permanent erosion control measure" after the word "mulch".

619.03 General

The first paragraph is deleted and replaced with the following:

Cellulose fiber mulch shall not be used within 200 feet of a wetland or stream. The limits shall be 200 feet upstation and downstation of the wetland or streams as well as the slopes adjacent to the stream. The application of hay or straw mulch with an approved binder shall be used at these locations to prevent erosion.

The use of cellulose fiber mulch will only be allowed at other areas with the approval of the Resident. The Contractor may be required to demonstrate that the material may be applied in a manner that will prevent erosion and will aid in the establishment of permanent vegetation. The Resident reserves the right to require the use of hay or straw mulch at all locations if he determines that the cellulose mulch is ineffective. Cellulose fiber mulch is not acceptable for winter stabilization.

619.04 Applying Mulch

The third paragraph is deleted and replaced with the following:

Newly disturbed earth and ditches shall be mulched or otherwise stabilized by the end of each work day and maintained on a daily basis as described in Subsection 105.8.1.11 (b) in the Special Provisions. The Contractor is responsible for applying temporary mulch as necessary, in accordance with the latest edition of the BMP's, to minimize soil erosion prior to the application of the final slope treatment.

Temporary mulch applied during the winter months of November 1$^{st}$ through April 15$^{th}$ shall be applied at twice the standard temporary stabilization rate or 150 lbs. per 1,000 square feet or three tons/acre. Mulch shall not be spread on top of snow and shall be anchored with mulch netting on slopes steeper than eight percent unless erosion control blankets or erosion control mix is being used on the slopes.

The Contractor shall review his construction operations and staging to determine how much temporary mulching is required.

619.06 Method of Measurement

The following sentence is added:

Temporary Mulch will be paid for by the lump sum.

619.07 Basis of Payment

The following paragraphs are added:

Temporary Mulch will be paid for at the Contract price per lump sum which shall be full compensation for furnishing and spreading the Temporary Mulch as many times as necessary as determined by the Contractor's operations and staging. The price shall also include the additional mulch netting and snow removal necessary during the winter months.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 619.1202 | Temporary Mulch | Lump Sum |

SPECIAL PROVISION

SECTION 620

GEOTEXTILES

(Cellular Confinement System)

620.01 Description

The following paragraph is added:

This work shall also include designing, furnishing and installing a proprietary cellular confinement system on slopes steeper than 2H:1V at the locations shown on the plan or designated by the Resident.

The cellular confinement system shall consist of a four (4) inch deep (minimum) geocell material which may be expanded to form a three dimensional cellular confinement system which resembles the appearance of a large honeycomb. This geocell material shall be anchored to the slope, filled with loam and seed and covered with temporary erosion control blanket to form a stable slope protection system.

The work shall also include having the manufacturer provide a qualified field representative on site at the start of construction to ensure the cellular confinement system is installed in accordance with the Contract Documents.

620.02 Materials

The following is added:

Slope stabilization geotextile shall be GEOWEB - GW30V Cellular Confinement System as manufactured by Presto Geosystems, PO Box 2399, Appleton, Wisconsin 54912 2399. Toll Free (800) 548 3424. Phone (920) 738 1328. Fax (920) 738 1222.E Mail info@prestogeo.com. Website www.prestogeo.com or approved equal.

Stake anchors shall be #4 reinforcing steel (minimum), 24” long (minimum) with molded, high-strength polyethylene end caps installed on the exposed rebar ends.

Keys shall be constructed of polyethylene and provide a high strength connection to connect the cellular confinement system together at each interleaf and end to end connection.

Infill material shall be loam meeting the requirements of Section 615 with a Soil Conservation Service texture of loam, sandy loam or silty loam. Topsoil shall be neither excessively acidic nor alkaline; and shall be free of any foreign material. Clays and silts are not acceptable infill material.

The Contractor shall submit shop drawings and installation instructions for review by the Resident.

620.03 Placement

The following paragraphs are added:

Prepare subgrade and install cellular confinement system in accordance with Manufacturer's recommendations.

Excavate or fill foundation soils so top of installed cellular confinement system is flush with or slightly lower than adjacent terrain or final grade as indicated on the drawings or as directed by the Engineer.

Install the cellular confinement system in accordance with the approved shop drawings and the manufacturer’s published recommendations. The stake anchors and keys shall be installed in a grid pattern provided by the manufacturer and approved by the Resident.

Place specified infill in expanded cells with suitable material handling equipment. Limit the drop height to a maximum of 3 feet (1 m) to avoid damage or displacement of the cell walls. Fill the cellular confinement system sections from the crest of the slope to toe or in accordance with Engineer's direction. Evenly spread infill and tamp into place.

Fill the anchorage trench with the specified material and compact as required by the Contract Documents.

Seed, and install erosion control fabric, secured per the Manufacturer's instructions, immediately after placement of the loam fill materials

620.05 Protection of Fabric

The following is added:

The manufacturer’s recommendation for cellular containment system installation, staking, and placement of loam shall be strictly followed so the cellular containment system is not damaged. The operation of construction vehicles over the installed cellular containment system will not be permitted.

620.07 Method of Measurement

The following is added:

The quantity of cellular containment system will be measured by the number of square yards of surface area satisfactorily covered and accepted.

Common excavation and fill materials to obtain subgrade for the cellular containment system will be measured for payment under their respective pay items. Proper preparation of the subgrade to accept the cellular containment system will not be measured separately but shall be incidental to Item 620.625 Cellular Confinement System.

Loam, seed, and temporary erosion control blanket will be measured for payment under their individual pay items. No additional compensation will be allowed for any additional labor, material or equipment required to place these materials in the cellular containment system in accordance with the manufacturer's recommendation.

620.08 Basis of Payment

The following is added:

Cellular containment system will be paid for at the contract unit price per square yard. Such payment shall be full compensation for proper preparation of the subgrade to accept the cellular containment system; and for designing, furnishing and placing the cellular containment system, and required stake anchors and keys.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 620.625 | Cellular Confinement System | Square Yard |

SPECIAL PROVISION

SECTION 645

HIGHWAY SIGNING

(Remove and Reset Sign)

645.07 Demounting and Reinstalling Existing Signs and Poles

The following paragraphs are added:

At locations noted on the Plans, existing ground-mounted signs are designated to be removed and reset. This work shall consist of removing the sign panels, removing and resetting or disposing of the existing wood post and resetting the sign panels on a new wood post if required in the appropriate specified location. The Resident will determine if a new wood post is required.

Any existing signs not shown on the Plans are to remain in their existing condition unless directed otherwise by the Resident.

645.08 Method of Measurement

The following sentences are added:

Removing and Resetting existing ground-mounted signs shall be measured as complete units each, removed, reset and accepted.

Removing and stacking existing signs shall be measured as complete units each removed and stacked.

645.09 Basis of Payment

The following paragraphs are added:

The accepted signs Removed and Reset will be paid for at the Contract unit price each as specified. Such price will include removing and resetting sign panels, removing and resetting or disposing existing wood post and resetting the sign panels on the existing or new wood post and new hardware as required to complete the sign installation. Any signs or supports damaged by the Contractor shall be replaced by him with new signs or supports conforming to the applicable Specifications at no additional cost to the Authority.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 645.109 | Remove and Reset Sign | Each |

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(General)

652.2 Materials

Delete the first sentence in the second paragraph and replace with the following:

Super high intensity fluorescent retro reflective sheeting, ASTM 4956 – Type VII, Type VIII, or Type IX (Prismatic), is required on all construction signs.

652.2.3 Flashing Arrow Board

Delete the existing five paragraphs and replace with the following: Flashing Arrow Panels (FAP) must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation and placed on the Maine Department of Transportations' Approved Products List of Portable Changeable Message Signs & Flashing Arrow Panels.

FAP units shall meet requirements of the current Manual on Uniform Traffic Control Devices (MUTCD) for Type "C" panels as described in Section 6F.56 - Temporary Traffic Control Devices. An FAP shall have matrix of a minimum of 15 low-glare, sealed beam, Par 46 elements capable of either flashing or sequential displays as well as the various operating modes as described in the MUTCD, Chapter 6-F. If an FAP consisting of a bulb matrix is used, each element should be recess-mounted or equipped with an upper hood of not less than 180 degrees. The color presented by the elements shall be yellow.

FAP elements shall be capable of at least a 50 percent dimming from full brilliance. Full brilliance should be used for daytime operation and the dimmed mode shall be used for nighttime operation. FAP shall be at least 96" x 48" and finished in non-reflective black. The FAP shall be interpretable for a distance not less than 1 mile.

Operating modes shall include, flashing arrow, sequential arrow, sequential chevron, flashing double arrow, and flashing caution. In the three arrow signals, the second light from the arrow point shall not operate.

The minimum element on-time shall be 50 percent for the flashing mode, with equal intervals of 25 percent for each sequential phase. The flashing rate shall be not less than 25 nor more than 40 flashes per minute. All on-board circuitry shall be solid state.

Primary power source shall be 12 volt solar with a battery back-up to provide continuous operation when failure of the primary power source occurs, up to 30 days with fully charged batteries. Batteries must be capable of being charged from an onboard 110 volt AC power source and the unit shall be equipped with a cable for this purpose.

Controller and battery compartments shall be enclosed in lockable, weather-tight boxes. The FAP shall be mounted on a pneumatic-tired trailer or other suitable support for hauling to various locations, as directed. The minimum mounting height of an arrow panel should be 2.1 M [7 feet] from the roadway to the bottom of the panel.

The face of the trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers.

A portable changeable message sign may be used to simulate an arrow panel display."

652.2.4 Other Devices

The eighth paragraph is deleted and replaced with Special Provision Section 652, Maintenance of Traffic (Portable Changeable Message Sign).

652.2.5 Safety Vests

This Subsection is amended by the addition of the following:

All jobsite personnel shall wear a safety vest labeled as ANSI 107-2004 standard performance for Class 3 risk exposures at all times. This requirement also applies to truck drivers and equipment operators when out of an enclosed cab.

652.2.6 Signs

The use of temporary plaques to cover text or to change text will not be allowed. All signs shall have a uniform face.

652.4 Flaggers

Replace the first paragraph with the following; "The Contractor shall furnish flaggers as required by the TCP or as otherwise specified by the Resident. All flaggers must have successfully completed a flagger test approved by the MaineDOT and administered by a MaineDOT-approved Flagger-Certifier who is employing that flagger. All flaggers must carry an official certification card with them while flagging that has been issued by their employer. Flaggers shall wear safety apparel meeting ANSI 107-2004 Class 3 risk exposure that clearly identifies the wearer as a person, and is visible at a minimum distance of 1000 ft, and shall wear a hardhat with 360° retro-reflectivity. Retro-reflective or flashing SLOW/STOP paddles shall be used, and the flagger station shall be illuminated to assure visibility in accordance with 652.6.2."

Second paragraph, first sentence; change "…have sufficient distance to stop before entering the workspace." to "…have sufficient distance to stop at the intended stopping point." Third sentence; change "At a spot obstruction…" to "At a spot obstruction with adequate sight distance,…"

Fourth paragraph, delete and replace with "Flaggers shall be provided as a minimum, a 10 minute break, every two hours and a 30 minute or longer lunch period away from the work station. Flaggers may only receive one unpaid break per day; all other breaks must be paid. Sufficient certified flaggers shall be available onsite to provide for continuous flagging

operations during break periods. If the flaggers are receiving the appropriate breaks, breaker flagger(s) shall be paid starting two hours after the work begins and ending two hours before the work ends. A maximum of one breaker per six flaggers will be paid. (one breaker flagger for two to six flaggers, two breaker flaggers for seven to 12 flaggers, etc)"

652.6 Nightwork

Delete this section entirely and replace with the following:

652.6.1 Daylight Work Times

Unless otherwise described in the Contract, the Contractor is allowed to commence work and end work daily according to the Sunrise/Sunset Table at: http://www.sunrisesunset.com/usa/Maine.asp . If the Project town is not listed, the closest town on the list will be used as agreed at the Preconstruction Meeting. Any work conducted before sunrise or after sunset will be considered Night Work.

652.6.2 Night Work

When Night Work occurs (either scheduled or unscheduled), the Contractor shall provide and maintain lighting on all equipment and at all work stations.

The lighting facilities shall be capable of providing light of sufficient intensity to permit good workmanship, safety and proper inspection at all times. The lighting shall be cut off and arranged on stanchions at a height that will provide perimeter lighting for each piece of equipment and will not interfere with traffic, including commercial vehicles, approaching the work site from either direction.

The Contractor shall have available portable floodlights for special areas. The Contractor shall utilize padding, shielding or other insulation of mechanical and electrical equipment, if necessary, to minimize noise, and shall provide sufficient fuel, spare lamps, generators, etc. to maintain lighting of the work site.

The Contractor shall submit, as a subset of the Traffic Control Plan, a lighting plan at the Preconstruction Conference, showing the type and location of lights to be used for night work. The Resident may require modifications be made to the lighting set up in actual field conditions.

Prior to beginning any Night Work, the Contractor shall furnish a light meter for the Residents use that is capable of measuring the range of light levels from 5 to 20 foot-candles.

Horizontal illumination, for activities on the ground, shall be measured with the photometer parallel to the road surface. For purposes of roadway lighting, the photometer is placed on the pavement. Vertical illumination, for overhead activities, shall be measured with the photometer perpendicular to the road surface. Measurements shall be taken at the height and location of the overhead activity.

Night Work lighting requirements:

Mobile Operations: For mobile-type operations, each piece of equipment (paver, roller, milling machine, etc) will carry indirect (i.e. balloon type) lights capable of producing at least 10 foot-candles of lighting around the work area of the equipment.

Fixed Operations: For fixed-type operations (flaggers, curb, bridge, pipes, etc.), direct (i.e. tower) lighting will be utilized capable of illuminating the work area with at least 10 foot-candles of light.

Hybrid Operations: For hybrid-type operations (guardrail, sweeping, Inslope excavation, etc.), either direct or indirect lighting may be utilized. The chosen lights must be capable of producing at least 10 foot-candles of light around the work area of the equipment Inspection Operations: Areas required to be inspected by the Department will require a minimum of 5 foot-candles of lighting. This may be accomplished through direct or indirect means.

The Contractor shall apply 2- inch wide retro-reflective tape, with alternating red and white segments, to outline the front back and sides of construction vehicles and equipment, to define their shape and size to the extent practicable. Pickup trucks and personal vehicles are exempt from this requirement. The Contractor shall furnish approved signs reading "Construction Vehicle - Keep Back" to be used on trucks hauling to the project when such signs are deemed necessary by the Resident. The signs shall be a minimum of 30 inches by 60 inches, Black and Orange, ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic).

All vehicles used on the project, including pickup trucks and personal vehicles, shall be equipped with amber flashing lights, visible from both front and rear, or by means of single, approved type, revolving, flashing or strobe lights mounted so as to be visible 360º. The vehicle flashing system shall be in continuous operation while the vehicle is on any part of the project.

The Resident or any other representative of the Department reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Department shall not be held responsible for any delay in the work due to any suspension under this item. Failure to follow the approved Lighting Plan will result in a Traffic Control violation.

Payment for lighting, vehicle mounted signs and other costs accrued because of night work will not be made directly but will be considered incidental to the related contract items."

652.8.2 Other Items

Replace the first paragraph with the following: "The accepted quantities of flagger hours will be paid for at the contract unit price per hour for each flagging station occupied excluding lunch breaks, and for each approved breaker flagger. Overtime hours, as reported on the certified payrolls, will be paid an additional 30% of the bid price for 652.38. The computation and additional payment for overtime hours will occur during the project close-out process and will be paid as additional hours of 652.38 to the nearest ¼ hour. The contract unit price shall be full compensation for hiring, transporting, equipping, supervising, and the payment of flaggers and all overhead and incidentals necessary to complete the work."

Replace the last paragraph with the following: "There will be no payment made under any 652 pay items after the expiration of the adjusted total contract time.

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Specific Project Maintenance of Traffic Requirements)

This Specification describes the specific project maintenance of traffic requirements for this Project.

The following minimum traffic requirements shall be maintained:

West Road Traffic Control Requirements

West Road will be closed to through traffic and a detour shall be established and maintained at all times in accordance with the details shown on the Plans. The Resident/Inspector shall notify the Towns of Litchfield and Bowdoin. The Contractor shall erect any additional local road signage required by the municipality one day prior to the closing of West Road and approved by the Resident.

Upon installation of the West Road Detour, West Road may be completely closed until the bridge and roadway are reconstructed and suitable for reopening to traffic.

Maine Turnpike Traffic Control Requirements

Work activities, with the exception of erection or removal of structural steel, are allowed 24-hours a day starting at 7:00 p.m. Sunday through 6:00 p.m. Friday.

For all other operations, a traffic control plan shall be developed by the Contractor from the typical details provided. This plan shall be approved by the Resident prior to installation.

There shall be one lane of traffic flowing in each direction at all times. A minimum traveling width of 14 feet is required for all lane closures.

Erection or removal of structural steel is allowed nightly from Sunday night to Friday morning between the hours of 10:00 p.m. and 5:00 a.m. with traffic stoppages.

Temporary lane closures shall be removed if construction is not ongoing. Unattended lane closures are not allowed unless included in the contract language or approved by the Resident as a long term traffic control operation.

652.7 Method of Measurement

The following paragraph is added:

Traffic control devices required to complete the work will be measured for payment under their respective pay items. Installation, maintenance, and removal of traffic setups will not

be measured separately for payment, but shall be incidental to Item 652.361, Maintenance of Traffic Control Devices.

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Temporary Mainline Lane Closures)
(Lane Closure Installation and Removal Procedures)
(Temporary Mainline Shoulder Closures)
(Work Requiring Complete Stoppages of Traffic)
(Short-Term or Work Hour Speed)

This Section outlines the minimum requirements that shall be maintained for working on, over, or adjacent to the Maine Turnpike roadway.

General

Two travel lanes in each direction (each direction being 24 feet wide excluding shoulder) shall be maintained at all times except while performing work in a designated lane, directly over or adjacent to traffic, and during the placement and removal of traffic control devices.

Temporary Mainline Lane Closures

A minimum width of 14 feet is required for all lane closures.

A lane closure is required when a danger to the traveling public may exist. The potential of any material falling onto the roadway shall be considered a potential danger. This shall include, but not necessarily be limited to, demolition debris, water, tools, equipment and materials.

A lane closure will be required whenever men or equipment will be present within four feet of a travel lane. Dump trucks shall be parked at least six (6) feet from the travel lane when being loaded. Temporary lane closures will only be allowed at the times outlined in Special Provision Section 652, Specific Project Maintenance of Traffic Requirements. These hours may be adjusted based on the traffic volume each day by the Resident.

The lane closure setup may not begin until the beginning time specified. Lane closures that are setup early or that remain in place outside of the approved period shall be subject to a lane rental fee of $500 per five minutes for every five minutes outside of the approved time. The actual restriction of a travel lane by an arrow board or other traffic control device shall be a lane closure. Construction signs shall be installed immediately prior to the start of the lane closure and shall be promptly removed when no longer required. The installation and removal of a lane closure including signs, channelizing devices and arrow boards shall be a continuous operation. The Authority reserves the right to order removal of an approved lane closure.

The following is a partial list of activities requiring lane closures. Lane closures may be required for other activities as well:

- Removal of trees and chips from the cleared area.

- Loading of trucks within four feet of a travel lane.
- Bridge construction activities adjacent to a travel lane
- Bridge work directly over traffic or within six feet of a travel lane as measured from the painted pavement marking line or traffic control device:

    1. Installing and removing shielding
    2. Superstructure demolition
    3. Unbolting structural steel
    4. Removing structural steel
    5. Erecting structural steel
    6. Installing and removing deck and diaphragm forms
    7. Erecting or moving sign panels on bridges
    8. Bolting structural steel
    9. Painting structural steel

When approved by the Resident, Items 3, 6 and 8 may be performed over traffic if a temporary floor is provided between the bottom flanges of the beams.

Lane closures shall be removed if work requiring the lane closure is not ongoing unless included in the Contract as a long term traffic control requirement or approved by the Resident.

Daytime lane closures shall be a maximum of three (3) miles. Only one daytime lane closure will be permitted per direction. Nighttime lane closures may extend through the entire length of the Project.

The Resident is required to receive approval from the Maine Turnpike Authority for all lane closures. The request shall be submitted to the Authority by the Resident at least two (2) working days prior to the day of the requested lane closure. All requests must be received by 12:00 p.m. to be considered as received on that day. Requests received after 12:00 p.m. shall be considered as received the following day. The Contractor shall plan the work accordingly.

<u>Lane Closure Installation and Removal Procedure</u>

The Contractor will follow the following procedures when closing any travel lanes on the turnpike roadways:

1. The sign package shall be erected starting with the first sign and proceeding to the start of the taper. The sign crew shall erect signs with the vehicle within the outside shoulder;

2. Position the arrow board with the proper arrow at the beginning of the taper; and,

3. When arrow board is in place, continue with the drums/cones to secure the work area.

To dismantle the lane closure, start with last drums/cone placed and work in reverse order until all the drums are removed. The arrow board which was installed first shall be the final traffic control device removed, excluding the sign package. The remaining sign package shall be picked-up starting with the first sign placed and continuing in the direction of traffic and with the vehicle in the outside shoulder.

Temporary Mainline Shoulder Closures

Temporary mainline shoulder closures will only be allowed as outlined in Special Provision Section 652, Specific Project Maintenance of Traffic Requirements. Temporary shoulder closures are anticipated at locations where Contractor access to the mainline is required.

Temporary shoulder closures with plastic drums shall be removed at the end of the workday. Temporary shoulder closures with plastic drums will not be allowed during periods of inclement weather as determined by the Authority.

Work Requiring Complete Stoppages of Traffic

Complete stoppages of traffic will only be allowed outlined in Special Provision Section 652, Specific Project Maintenance of Traffic Requirements, or as approved by the Resident.

The following is a partial list of activities requiring complete stoppages of traffic. Complete stoppages of traffic may be required for other activities as well:

- Erection or removal of structural steel.
- Moving of heavy or slow equipment across or on the travel lanes (stoppage less than five minutes).
- Erection or removal of overhead signs or sign bridges.

State Police will be used to stop traffic. Cost for State Police will be the responsibility of the Authority. The times requested for trooper assisted equipment moves by on-duty troopers cannot be guaranteed. The MTA will not be held responsible for any delays or costs associated with the delay, postponement or cancellation of an on-duty trooper assisted equipment move.

The Erection or Removal of Structural Steel

The erection or removal of structural steel will only be allowed at times outlined in Section 652, Specific Project Maintenance or Traffic Requirements. Traffic shall be stopped and may be held for periods of up to 25 minutes during these operations. Before the roadway is reopened, all materials shall be secured so they will not endanger traffic passing underneath.

The Contractor will reimburse the Authority at the rate of $2,500.00 per five-minute period for each roadway (northbound and southbound) not reopened, in excess of the 25 minutes limit. Total penalty shall be deducted from the next pay estimate.

Equipment Moves

The complete stoppage of traffic for an equipment move (including delivery of materials to the median) will be considered for approval if the action can not reasonably be completed with the erection of a lane closure. Contractor shall be responsible for the installation of Signs CS-3, “Expect Stopped Traffic” and Signs W3-4 “Be Prepared to Stop”, in accordance with the Single Lane Closure Detail immediately prior to the equipment move. These signs shall be covered when not applicable.

The maximum time for which traffic may be stopped and held for an equipment move at any single time shall be five (5) minutes. The duration shall be measured as the time between the time the last car passes the Resident until the time the Resident determines that all travel lanes are clear. The traffic shall only be stopped for the minimum period of time required to complete the approved activity. The Contractor shall reimburse the Authority at a rate of $500 per minute for each minute in excess of the five-minute allowance.

Unapproved movement of heavy equipment across the travel lanes shall be considered a violation of the Maintenance of Traffic Requirements and is subject to the fines of $500 per minute or portion thereof.

Request for Complete Stoppage of Traffic

A request for a complete stoppage of traffic must be submitted to the Resident for approval. The Resident is required to receive approval from the Maine Turnpike Authority for all stoppages. The request shall be submitted to the Authority by the Resident at least five (5) working days prior to the day of the requested stoppage of traffic and two (2) days for a stoppage less than five minutes. All requests must be received by 12:00 p.m. noon to be considered as received on that day. Requests received after 12:00 p.m. shall be considered as received the following day. The Contractor shall plan the work accordingly.

Short-Term or Work Hour Speed

A short-term or work hour speed (Fines Doubled) is a regulatory speed limit that indicates the maximum legal speed through a work zone which is lower than the normal posted speed. The speed limit shall be displayed by black on white speed limit signs in conjunction with a black on orange “Work Zone” plate. Speed limit signs shall be installed at each mile within the work zone. The reduced speed zone shall be at least 1,500 feet long. Any existing regulatory speed limit signs within the reduced speed zone shall be covered once the reduced speed signs have been erected.

Two orange fluorescent flags shall be attached to all speed limit signs that are uncovered for a period of time exceeding one week. This work shall be incidental. Signs that are uncovered on a regular basis are not required to have the supplemental flags.

The reduced speed limit signs shall only be used during the following circumstances unless approved by the Resident:

- Workers are adjacent to traffic
- Travel lane is closed
- Outside shoulder is closed for 3,000 feet with concrete barrier

The signs shall be covered or removed when not applicable. The covering and uncovering of signs shall be included for payment under Maintenance of Traffic. Signs relating to reduced speed shall be installed in accordance with the details. The Contractor shall note that signs installed behind concrete barrier in the outside shoulder are required to be clearly visible to all drivers at all times.

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Portable-Changeable Message Sign)

652.2.4 Other Devices

The eighth paragraph is deleted and replaced with the following:

Portable-Changeable Message Signs (PCMS) will be furnished by the Contractor and shall be Ver-Mac PCMS-1210 or an approved equal. PCMS's shall be located and relocated to locations approved by the Resident within the Project limits for the duration of the Project.

Features to the Ver-Mac PCMS shall include:

- An all LED display.
- Be legible from a distance of 1,000 feet.
- Have three (3) lines available for messages.
- Be NTCIP compliant (NTCIP 1203 & 1204).
- Be capable of being programmed by a remote computer via a data (IP over Cell) cellular modem connection.
- Have GPS location capability by adding on a GPS device capable of providing GPS location remotely to the MTA Communications' Center.
- Be programmable by Vanguard Software by Daktronics.

The Contractor shall complete and/or provide the following:

- Submit a catalog cut shop drawing to the Resident of all proposed equipment for review and approval.
- Establish and pay for a data cellular account so that PCMS may be remotely programmed and operated from the MTA Communications' Center.
- Provide to the Authority technical support from the PCMS manufacturer that may be necessary to integrate the PCMS into the MTA software platform (Vanguard Software by Daktronics).
- Provide the manufacturer's software necessary to change the PCMS messages remotely from the MTA Communications' Center and the Resident's computer if necessary or requested.
- Provide training on the operation of the PCMS to the Resident and the MTA Communications' Center representative.
- Make all PCMS on the Project work site available to the MTA for any/all emergency situations as defined by the MTA. This shall include the preemption of any messages running at the time of need as approved by the MTA and the Resident.

The Contractor shall also:

- Furnish, operate, relocate and maintain the PCMS as approved by the Resident.
- Be responsible for the day to day programming and operation of the PCMS for Project purposes.

The PCMS(s) shall be on-site, with data cellular account established, GPS location capable, and all training required complete within one month after mobilization or seven days prior to implementing traffic shifts, detours or stoppages, whichever is sooner. Implementation of traffic shifts, detours, or stoppages of traffic will not be allowed without PCMS boards on-site with the specified MTA Communications' Center Software Platform integration and training.

652.7 Method of Measurement

The following sentence is added:

Portable-Changeable Message Sign(s) will be measured for payment by each unit furnished, installed and maintained.

652.8 Basis of Payment

The following paragraphs are added:

The accepted quantity of PCMS will be paid for at the Contract unit price each. This price shall be full compensation for furnishing, relocating, maintaining and removing the PCMS. The price also includes all costs associated with setting-up and paying for a data cellular account, technical support, training and any costs associated with the GPS location device.

Progress payment of each PCMS shall be pro-rated over the duration of the Contract. Contract duration shall be from the specified Contract start date to substantial completion or Contract completion, whichever is sooner.

For a PCMS that fails to operate when required, the Contractor will be given 24-hours to repair or replace the PCMS. For periods longer than 24-hours, payment will be reduced based on the pro-rated time that the PCMS is out of service.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 652.41 | Portable-Changeable Message Sign | Each |

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Truck Mounted Attenuator)

652.1 Description

The following sentence is added:

The Contractor shall furnish, operate and maintain a truck and truck mounted attenuator.

652.2.1 Truck Mounted Attenuator

The truck mounted attenuator system shall conform to the following requirements:

- Truck and attached attenuator shall conform to the NCHRP Report 350, Test Level 3 criteria.
- A mounted revolving amber light or amber strobe light with 360-degree visibility.
- An arrow light bar fixed to the vehicle.
- The attenuator shall be mounted to a vehicle with a minimum weight of 10,000 lbs.

652.3.7 Operations

The Contractor shall manage the operation of the truck mounted attenuator. The truck mounted attenuator should be utilized in lane closures and other construction operations where workers are exposed to traffic and not protected by positive means. The operation of the vehicle shall be in accordance with the Manual of Uniform Traffic Control Devices and the manufacturer's recommendation.

652.7 Method of Measurement

The following sentences are added:

Truck mounted attenuator shall be measured for payment by the calendar day for each calendar day that the unit is used on a travel lane or shoulder on the project.

652.8.2 Basis of Payment

The following paragraphs are added:

The Truck Mounted Attenuator(s) will be paid for at the Contract unit price per calendar day. This price shall include all costs associated with the use of the vehicle. Payment shall include operator, fuel, truck, maintenance, flashing lights, arrow board and all other incidentals necessary to operate the vehicle.

The unit price noted in the proposal sheet is fixed by the Maine Turnpike Authority and may not be altered. Altering of the unit price will be a non-curable bid defect.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 652.45 | Truck Mounted Attenuator | Calendar Day |

SPECIAL PROVISION

SECTION 656

TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL

Section 656 of the Standard Specifications and the General Provisions is deleted in its entirety and replaced with the following:

656.01 Description

This work shall consist of providing temporary erosion and water pollution control during construction in accordance with these Specifications, standard details, Best Management Practices, or as otherwise directed.

All temporary erosion control devices shall be in place and approved by the Resident prior to any operations resulting in disturbed area. The Contractor is responsible for maintaining all erosion control measures in effective operating condition, including repairing and replacing damaged or missing erosion control material until areas are permanently stablized. The Contractor shall maintain these devices in a clean and properly operating condition as described herein.

Prior to construction, the Contractor shall properly install sediment barriers (e.g., silt fence) at the edge of any downgradient disturbed area and adjacent to any drainage channels within the distrubed area. The Contractor shall maintain the sediment barriers until the disturbed area is permanently stabilized.

The Contractor is responsible for all temporary drainage and erosion control measures. The Contractor shall review his construction operations and staging to determine if additional erosion control measures are required. The Resident may also request additional erosion control measures. The cost for all erosion control devices necessary, due solely to the Contractor's construction operations and not shown on the Plans, shall be borne solely by the Contractor. The frequency of inspection of these devices by the Contractor and the Erosion Control Compliance Officer (ECCO) shall be weekly and before, during and immediately following a rainfall of greater than 1/2 inch in a 24-hour period.

656.02 Temporary Erosion and Sedimentation Control Devices - Materials

The Contractor shall install and maintain all temporary erosion and sedimentation control materials in accordance with the manufacturer's recommendations or the latest BMP's.

1. Baled hay shall be bales at approximately 14 by 18 by 30 inches, or an equivalent, securely tied to form a firm bale.
2. Flexible drainage pipe shall consist of collapsible neoprene pipe, a minimum of 12 inches in diameter or equal.
3. Silt Fence

    (a) Posts - Either hardwood posts or steel posts shall be used. Hardwood posts shall be straight, at least 18 inches longer than the height of the silt fence

and at least one inch by one inch.

Staples shall be of No. 9 wire.

Steel posts shall be at least 18 inches longer than the height of the silt fence and have the means provided for fastening wire to the fence.

(b) Wire Support Fence - If required, wire support fence shall be at least two inches higher than the height of the silt fence. Horizontal and vertical wires shall be spaced no more than six inches apart. The top and bottom wires shall be at least 10 gauge; all other wires at least 12 gauge.

(c) Fabric - The woven geotextile fabric and components shall be made from polypropylene, polyester, polymide or other chemically stable material and be resistant to ultraviolet radiation degradation for at least 12 months of installation. Silt retention capacity shall be no less than 75 percent. The fabric shall have a Mullen burst test of no less than 260 pounds per square inch with a maximum average sieve opening size of No. 20 to No. 60. Roll width of the fabric shall be no less than six inches wider than the height of the fence, except fabric for boom supported floating silt fence which shall be no less than two feet wider than the design width.

656.03 Temporary Erosion and Sedimentation Control Devices - General

Temporary Erosion Checks - Temporary erosion checks shall be constructed in ditches and at other locations designated. Checks shall be in accordance with the Standard Detail unless otherwise directed.

Baled hay shall be used in other areas as necessary to inhibit soil erosion.

Sediment deposits behind haybales and silt fence shall be removed when the depth of sediment reaches 50 percent of the erosion control device height.

The Contractor is also required to have on-site, at all times, 25 percent additional Contract quantities of silt fence for use as backup devices.

656.04 Temporary Erosion and Sedimentation Control Devices – Construction Requirements

1. Erosion Control Filter Berm

The Contractor may opt to furnish and install an erosion control filter berm in lieu of silt fence. The erosion control filter berm shall be a water permeable windrow of a composted bark mix to remove suspended soil particles from water moving off the site. Erosion control filter berm shall be considered an erosion control device. The material and specific application shall be submitted to the Resident for approval.

The erosion control berm shall be placed uncompacted, in a windrow in locations approved by the Resident. The cross section of the berm shall be four feet wide at the base and 1-1/2 feet high at the center. The erosion control filter berm shall be

removed when no longer required, as determined by the Resident, and shall be distributed over an adjacent area.

2. Temporary Berms

When designated, temporary barriers shall be constructed along the edge of the embankment. The barriers shall be of embankment earth material, gravel or sand as available and shaped approximately as shown in the Standard Details. The barriers shall be compacted with the wheels of construction equipment. When placed on pavement, the berms shall be constructed of asphalt grindings or other non-erodible soil material as approved by the Resident, and shaped as shown in the Standard Details.

At designated intervals, temporary slope drains shall be constructed with a crescent shaped barrier placed at each slope drain to direct the water into the inlet pipe.

3. Temporary Slope Drains

Collapsible pipe with corrugated metal pipe inlet shall be placed down the embankment slopes at designated locations and in accordance with the Best Management Practices.

At the outlet end of the drain, dumped stone shall be placed to prevent scoring unless otherwise directed.

4. Silt Fence

The silt fence shall be installed downhill of disturbed slopes as shown on the Plans or as approved. The Contractor shall have the option to provide a reinforced filter fabric or an un-reinforced filter fabric attached to a wire fence.

The fence posts shall be spaced as specified by the Resident, however, not to exceed a maximum of eight feet [2.5 m] apart when either type of silt fence is used and be driven a minimum of 18 inches [450 mm] into the ground.

The geotextile fabric shall be secured to the post or fence by suitable staples, tie wire or hog rings in such a manner as to prevent tearing and sagging of the fabric. The bottom flap of the geotextile fabric shall be entrenched into the ground a minimum depth of six inches [150 mm] to prevent water from flowing under the fence. The geotextile shall be spliced together only at support posts with a minimum six inches [150 mm] overlap and secure post connection which prevents leakage of silt. The top of the geotextile shall be installed with a reinforced top end section.

The Contractor shall maintain the silt fence in a functional condition at all times. All deficiencies shall be immediately corrected by the Contractor. The Contractor shall make a daily inspection of silt fences in areas where construction activity causes drainage runoff, to ensure that the silt fences are

properly located for effectiveness. Where deficiencies exist, additional silt fences shall be installed as approved or otherwise directed.

Sediment deposits shall be removed when sediments reach 50 percent of the height of the device. All sediment deposits remaining in place after the device is no longer required shall be graded to conform to the existing ground, seeded and mulched immediately.

Geotextile fabric which has decomposed or has become ineffective and is still needed shall be replaced with material equal to the original design.

656.05 Temporary Erosion and Sedimentation Control Devices - Maintenance

The erosion control devices will be cleaned, repaired or replaced as necessary. All deficiencies shall be corrected immediately by the Contractor.

656.06 Temporary Erosion and Sedimentation Control Devices - Removing and Disposing

When disturbed areas have been permanently stabilized, temporary erosion control devices, including stone check dams, shall be removed. However, erosion control mix filter berms may be spread out, seeded and left to decompose. Areas disturbed during the removal of the erosion control devices shall be repaired and properly stabilized.

When removed, such devices may be reused in other locations provided they are in good condition and suitable to perform the erosion control for which they are intended. Reused devices, if approved, will be measured for payment.

656.07 Erosion Control Compliance Officer

The Contractor shall designate an Erosion Control Compliance Officer (CECCO) on this Project who shall be a "DEP Certified Contractor" or have had equivalent training approved by the Authority. The Contractor shall provide the Resident with the name of the CECCO and any phone numbers or pager numbers that can be used to contact the person in case of emergency.

Before commencing any work that could disturb soils or impact water quality, the CECCO must field review the Project with the Resident's ECCO (RECCO).

656.08 Inspection and Recordkeeping

The CECCO shall accompany the RECCO in the inspection of all erosion control devices. An inspection log shall be maintained by the Resident for the duration of the Project. The log will include daily on-site precipitation and air temperature as well as the performance, failure and/or any corrective action for all erosion and sedimentation controls in place. The log will be updated at least weekly and after all significant storm runoff or flood events. The log shall be signed by the RECCO and the CECCO after each inspection.

Failure to comply with the erosion and sedimentation control requirements herein or as directed by the RECCO within 24-hours after the violation is noted in the inspection log, will

result in the $1,000 per day per violation penalty until the violation is corrected to the satisfaction of the Resident.

656.09 Method of Measurement

Baled hay will be measured for payment by the number of bales or bags satisfactorily placed.

Temporary berms and temporary slope drains will be measured for payment by the linear foot measured parallel with the flow line including the pipe inlet.

Temporary silt fence will be measured by the linear foot along the gradient of the fence, end post to end post.

Erosion control filter berm shall be measured by the linear foot.

The quantity of additional haybales and silt fence material required herein will be measured for payment only when and if they are actually put to use as additional measures on the Project as approved by the Resident. Haybales and silt fence material used for maintenance or replacement of existing devices will not be measured for payment.

The removal of silt and other material from behind the erosion control devices will not be measured separately for payment, but shall be incidental to the Erosion Control items.

656.10 Basis of Payment

The accepted quantity of baled hay will be paid for at the Contract unit price each for each bale which price shall be full compensation for furnishing and placing the bales, for furnishing and driving the stakes for baled hay, for maintaining the bales and stakes and for the removing and disposing of the bales and stakes when no longer needed.

The accepted quantity of temporary berms will be paid for at the Contract unit price per linear foot of berm which price shall be full compensation for furnishing, placing and compacting material, for maintaining and for removing the berm when no longer needed.

There will be no separate payment for excavation in the construction of temporary erosion control items under this Section and all necessary excavation shall be incidental to the work.

The accepted quantity of temporary silt will be paid for at the Contract unit price per linear foot complete in place. Payment shall be full compensation for furnishing, installing, maintaining, replacing deteriorated geotextile and clogged geotextile when required and for removing and disposing of the fence when no longer needed.

The accepted quantity of erosion control filter berm will be paid for at the Contract unit price per linear foot under Item 656.632, 30 Inch Temporary Silt Fence, which price shall be full compensation for furnishing, placing, maintaining, and removing the erosion control filter berm.

Cost of seeding and mulching the area after removal of the temporary silt fence will

be paid for at the Contract unit prices for Item 618, Seeding, and Item 619, Mulch.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 656.50 | Baled Hay, in place | Each |
| 656.60 | Temporary Berms | Linear Foot |
| 656.62 | Temporary Slope Drains | Linear Foot |
| 656.632 | 30 inch Temporary Silt Fence | Linear Foot |