Proposal Description:
Rehabilitation of 4 Bridges Over NY Route 33 in the Town of Cheektowaga & City of Buffalo.

Letting of 2/21/2013 @ 10:30 A.M.
Submitted in accordance with Standard Specifications officially adopted May 1, 2008 and the Highway Law.

2. **Upcoming Projects/ Letting Results/Contract Documents.** Advertisements are available at: [www.dot.ny.gov/doing-business/opportunities/const-highway](http://www.dot.ny.gov/doing-business/opportunities/const-highway) and Letting Results are at: [www.dot.ny.gov/doing-business/opportunities/const-results](http://www.dot.ny.gov/doing-business/opportunities/const-results). Contract documents may be purchased at Plan Sales and at the Regional Office of record. Documents and Letting results are also available on Bid Express ([www.bidx.com](http://www.bidx.com)) for a fee.

3. **Procurement Lobbying Law.** [www.dot.ny.gov/main/business-center/contractors/contractors-repository/lobbylaw.pdf](http://www.dot.ny.gov/main/business-center/contractors/contractors-repository/lobbylaw.pdf). NYS Finance Law restricts communication with NYSDOT personnel on procurements and contact can only be made with designated persons. Contact with non-designated persons or other involved Agencies will be considered a serious matter and may result in disqualification. Contacts are: for technical questions, the Regional Contact shown on page 1 of the Proposal; Maria Tamarkin, Construction Letting & Award Unit, (518) 457-8403; maria.tamarkin@dot.ny.gov or the Assistant Director/Director, Contract Management Bureau, (518) 457-3583.

4. **D/M/WBE Goals.** [www.dot.ny.gov/main/business-center/contractors/construction-division/construction-civil-rights/ebo](http://www.dot.ny.gov/main/business-center/contractors/construction-division/construction-civil-rights/ebo). Projects may have one goal for participation by Disadvantaged Business Enterprises (DBE) when Federally funded, or two separate goals for participation by Minority Business Enterprises (MBEs) and Women’s Business Enterprises (WBE), when Non-Federally funded. If the project has (a) D/M/WBE goal(s), you must document your good faith efforts to obtain D/M/WBE participation. Solicitation of D/M/WBEs must begin prior to the submission of your bid. For projects with goals, the Pre-Award Utilization Package must be submitted to the Office of Construction within 7 calendar days after Letting, in accordance with §102-12 D/M/WBE Utilization, using the current version of NYSDOT approved Civil Rights reporting software.

5. **Bonds.** Statutes require that a low bidder file both a Performance Bond and a Labor and Material Bond for the full amount of the contract. Arrangements should be made with a Surety prior to submitting a bid. Failure to secure bonding could result in the loss of your bid deposit. See §103-03 Contract Bonds.

6. **Bid Security.** Every bid must be accompanied by a bid bond, certified check or bank cashier's check payable to the State of New York. Bid Express bids must include an electronic bid bond. Bonds must be on form CONR 391 and in the sum of 25% of the total bid. Checks must be in the amount specified in the proposal.

7. **New York State Can Help You Secure Surety Bonding.** The NYS Surety Bond Assistance Program (NYSBAP) provides technical and financial assistance to help New York State small business or MWBE contractors secure surety bonding. Contractors may be eligible to receive a guarantee of up to 30% to secure a surety bond line, bid bond or a performance and payment bond on State projects. Training is also available to contractors requiring technical support on how to become bond-ready. For more information visit [esd.ny.gov/BusinessPrograms/BondingAssistance.html](http://esd.ny.gov/BusinessPrograms/BondingAssistance.html) or contact Ms. Huey-Min Chuang at Empire State Development at 212-803-3238 or BAP@esd.ny.gov.

8. **Do Not Alter the Bid Proposal Unless Directed to Do So by Amendment.** Unauthorized alterations could lead to your bid being declared informal. See §102-05 Proposal Submission.

9. **The Contractor is responsible for ensuring that all Amendments have been incorporated into its bid.** Amendments are posted on Bid Express and at: [www.dot.ny.gov/doing-business/opportunities/const-notices](http://www.dot.ny.gov/doing-business/opportunities/const-notices).

10. **Bid on All Items and Sign the Bid.** If it is your intent to bid "0", use the numeric symbol. Leaving blank spaces can render your bid informal. See §102-05 Proposal Submission.

11. **Bids Should Be Submitted through Bid Express or in a Sealed Envelope prominently labeled “BID ENCLOSED” and addressed to NYSDOT, Contract Management Bureau, 50 Wolf Road, First Floor, Suite 1CM, Albany NY 12232.** The Company Name, Street Address, Federal Identification Number, Project Number and Project Description Should Be Clearly Marked. Your Federal Identification number on the envelope should be the same number used to buy plans. Low bidders must have a current NYS Vendor Responsibility Questionnaire For-Profit Construction (CCA-2) on file or submit one within 10 days of receipt of the contract. Questionnaires are available at: [www.dot.ny.gov/bids-and-lettings/construction-contractors/general-info](http://www.dot.ny.gov/bids-and-lettings/construction-contractors/general-info). Please call (518) 457-3583 if a reasonable accommodation is needed to participate in the Letting.
STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

ACCELERATED BRIDGE PROGRAM - PHASE 1A, CONTRACT 9
CITY OF BUFFALO, TOWN OF CHEEKTOWAGA
P.I.N. SABP.12, ERIE COUNTY

PROJECT LOCATION
EAST DELAVAN AVENUE, ECON ACCESS ROAD, DEERFIELD AVENUE AND
UNION ROAD OVER THE KENSINGTON EXPRESSWAY (I-90) (33)
ERIE COUNTY, CITY OF BUFFALO, TOWN OF CHEEKTOWAGA

F.A. PROJECT

RECOMMENDED BY

REGIONAL DESIGN ENGINEER
DATE

REGIONAL CONSTRUCTION ENGINEER
DATE

REGIONAL DIRECTOR OF OPERATIONS
DATE

REGIONAL TRAFFIC ENGINEER
DATE

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

APPROVED BY

REGIONAL DIRECTOR
DATE

THE LATEST REVISIONS OF THE STANDARD SHEETS MAINTAINED BY THE DEPARTMENT, WHICH
ARE CURRENT ON THE DATE OF ADVERTISEMENT FOR BIDS, SHALL BE CONSIDERED TO BE IN
EFFECT; ALL PAY ITEMS AND WORK CONTAINED IN THE CONTRACT AND ANY ADDITIONAL PAY
ITEMS AND WORK ENCOUNTERED DURING THE COURSE OF THE CONTRACT SHALL BE SUBJECT TO
THE APPLICABLE STANDARD SHEETS) UNLESS OTHERWISE SPECIFIED IN THE CONTRACT
DOCUMENTS.

ALL WORK CONTEMPLATED UNDER THIS CONTRACT IS TO BE COVERED BY AND IN CONFORMITY
WITH THE STANDARD SPECIFICATIONS (US CUSTOMARY) OF MAY 1, 2008, EXCEPT AS
MODIFIED ON THESE PLANS AND IN THE ITEMIZED PROPOSAL.
REQUIRED CONTRACT PROVISIONS

ARRA Reporting & Record Keeping Requirements

D/M/WBE Utilization

EEO Goals

D/M/WBE Goals

Form CONR 9k

Electronic Bidding

Federal Aid Contract Provisions

Percentage Bid Items

List of Additional Insured

Railroad Insurance

New York State Uniform Contracting Questionnaire

NOTE: This form was developed for repetitive use throughout all contract proposals and may identify items not applicable to this specific project.
## GOALS FOR MINORITY PARTICIPATION

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>%</th>
<th>COUNTY</th>
<th>%</th>
<th>COUNTY</th>
<th>%</th>
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<td>* Queens</td>
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<td>Yates</td>
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<td>Rensselaer</td>
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* The following goal ranges are applicable to the indicated trades in the Counties of Bronx, Kings, New York, Queens and Richmond.

<table>
<thead>
<tr>
<th>Trade Type</th>
<th>Goal Ranges</th>
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<tr>
<td>Electricians</td>
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<td>Carpenters</td>
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<td>Steam fitters</td>
<td>12.2 to 13.5</td>
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<td>Metal lathers</td>
<td>24.6 to 25.6</td>
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<tr>
<td>Painters</td>
<td>26.0 to 28.6</td>
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<tr>
<td>Operating engineers</td>
<td>25.6 to 26.0</td>
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<tr>
<td>Plumbers</td>
<td>12.0 to 14.5</td>
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<tr>
<td>Iron workers (structural)</td>
<td>25.9 to 32.0</td>
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<tr>
<td>Elevator constructors</td>
<td>5.5 to 6.5</td>
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</tbody>
</table>

* Goal for Participation of Women

The last publication of a goal for the participation of women was April 7, 1978 (43 FR 14888, 14900). Pursuant to 41 CFR 60-4.6, the 6.9% goal published on that date is hereby made the goal for all contracts and grant agreements, until further notice.
GOALS FOR DISADVANTAGED/MINORITY/WOMEN’S BUSINESS ENTERPRISE (D/M/WBE) PARTICIPATION

The Department has established the following utilization goal(s) for this contract, expressed as a percentage of the total contract bid amount. For clarification of Disadvantaged Business Enterprise (DBE) Utilization, Minority Business Enterprise (MBE) Utilization or Women's Business Enterprise (WBE) Utilization requirements refer to §102-12 D/M/WBE Utilization of the Standard Specifications.

- Disadvantaged Business Enterprise (DBE) Utilization Goal: 9% (Federal-Aid Only)
- Minority Business Enterprise (MBE) Utilization Goal: ___ - % (Non Federal-Aid Only)
- Women's Business Enterprise (WBE) Utilization Goal: ___ - % (Non Federal-Aid Only)

Directories and/or Information related to the current certification status of Disadvantaged Business Enterprises can be obtained from the NYS Unified Certification Program website at: http://biznet.nysucp.net

Direct questions concerning Disadvantaged Business Enterprise Utilization to:
NYS Department of Transportation
Office of Construction
50 Wolf Road Pod 51
Albany, New York 12232
(518) 457-6472

Direct questions concerning Disadvantaged Business Enterprise Certification to:
NYS Department of Transportation
Contract Audit Bureau
DBE Certification
50 Wolf Road, 6th Floor
Avenue F, 1st Street
Albany, New York 12232
(518) 457-3180

Directories and/or information related to the current certification status of Minority and Women's Business Enterprises, can be obtained by contacting the:
Empire State Development Corporation
Office of Minority and Women's Business Development
30 S. Pearl Street
Albany, NY 12245
(518) 292-5250
http://www.empire.state.ny.us/MWBE.html
### SUPPLEMENTAL INFORMATION AVAILABLE TO BIDDERS

The following information is available at the Office having jurisdiction for this project, as identified in the advertisement for bids, for inspection and review prior to the letting date. The bidder’s signature on this proposal certifies that they have made themselves aware of the availability, for their inspection and review prior to the letting date, of the information indicated below:

#### PINSABP.12

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<th>INFORMATION</th>
<th>Hard Copy Only</th>
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<td>1. Asbestos Information</td>
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<td>a. Asbestos Blanket Variances</td>
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<td>b. Asbestos Report</td>
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<td>2. CADD Information</td>
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<td>a. MicroStation DGN</td>
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<td>b. InRoads DTM and XML format</td>
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<td>c. InRoads ALG and XML format</td>
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<td>3. Cross Sections in ADOBE PDF format</td>
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<td>4. Quantity Information</td>
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<td>5. Record Plans</td>
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<td>6. Rock Cores (available for inspection only)</td>
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<td>7. Sign Face Layouts in ADOBE PDF format</td>
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<td>8. Stormwater Pollution Prevention Plan (SWPPP)</td>
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<td>9. Subsurface Information</td>
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<td>c. Laboratory Test Data from Soil Samples</td>
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<td>d. Tabulated Results of Probing</td>
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<td>e. Tabulated Depth to Bedrock</td>
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<td>f. Rock Core Evaluation Logs</td>
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<td>g. Compression Test Data from Rock Samples</td>
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<td>h. Rock Outcrop Maps</td>
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<td>i. Granular Materials Resource Survey Reports</td>
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<td>j. Terrain Reconnaissance Reports</td>
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<td>10. Subsurface Information - Other Information</td>
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<td>b. Source Information - Granular Material and aggregates</td>
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<td>c. Special Subsurface Reports</td>
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<td>11. Anticipated Construction Schedule</td>
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<td>12. Special Reports or Other Information:</td>
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<td>c. Survey Control Report</td>
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</table>
NYSDOT Electronic Bidding - Transport Expedite and Bid Express

**Expedite** allows bidders to receive electronic proposal bid item information from the Department's website and Bid Express to produce an electronic bid. Bidders need to enter unit prices only in the Schedule of Items. Expedite is provided free of charge, and can be used on almost any Windows-compatible PC. It integrates with many existing electronic bid preparation software packages, and has import/export capability for use with database and spreadsheet programs. Benefits may include:

- Bid data import takes seconds allowing users of computer systems that collect item data minimal time to construct bid files from "item libraries".
- Expedite calculates item and overall bid totals on-the-fly, as estimators work through the list, and alerts estimators if an item is accidentally omitted.
- Electronic files of item bid data will be posted to the NYSDOT website to coincide with advertising and contract document sale dates.
- Amended item bid data will be posted as soon as it is available. When it is downloaded, recognition of changes are automatic.
- The Department processes electronic bids much faster then paper bids decreasing the time needed for verification.

**Bid Express** allows secure, encrypted bid submittal over the internet. It integrates with Expedite and includes electronic bid bond verification. Bid Express is a fee-based service. Benefits may include:

- Real-time bid submittal from any location.
- No concerns about driving bids to Albany or mail services arriving after the deadline.
- Ability to submit a "safety bid" early while continuing to solicit better quotes from subs and suppliers and to overwrite the safety bid with a new bid right up to the submission deadline.
- As data accumulates on Bid Express, there is the ability to search and analyze bids on prior contracts for specific work items, by specific competitors, etc.
- Able to solicit and receive quotes from subcontractors through the Small Business Network on Bid Express.
- Contractors who use Bid Express do not submit a paper bid.

**First time electronic bidders should:**

- Allow at least five business days to obtain a digital ID and password for bidding through Bid Express.
- Follow the procedures in "Expedite Instructions", which are posted at http://www.dot.ny.gov/bids-and-lettings/construction-contractors/electronic-bid-system
- Enter the Agency as NYSDOT.
- Use the appropriate Federal-ID and firm name. Federal-ID must be in the format 12-3456789. Joint ventures must create a new digital ID and send an authenticated copy of evidence of the authority of the agent or attorney-in-fact for the joint venturers to act on behalf of all joint venturers to the Contract Management Bureau prior to the Letting.

**All electronic bidders should:**

- Enter prices for all bid items in the Schedule of Items.
NYSDOT Electronic Bidding - Transport Expedite and Bid Express

- Enter days for the B portion(s) of A + B bids on the Proposal Sites folder (if applicable).
- Enter the required info in the JURAT and Disclosure of Lobbying Activity folders.
- Complete the Contract Document Bid-Ability Survey (optional).
- Enter the required info in the Bid Bond folder if submitting bid through Bid Express and click Verify to verify the bid bond.
- All folders should be green if submitting bid through Bid Express. Submitting a bid through Bid Express with any red folders could lead to your bid being declared informal.

**Paper Bid Documents**: NYSDOT recommends and encourages contractors to bid electronically with Bid Express because of its many advantages, but contractors are not required to bid electronically. If NYSDOT receives both a Bid Express bid and a paper bid from the same contractor, the Bid Express bid will prevail.

Bidders who do not use Bid Express are encouraged to submit an electronic bid file on a disk/CD included with their paper bid. NYSDOT will not accept electronic bids on disk/CD without a paper bid. If there is any discrepancy between an electronic file and the paper bid, the paper bid will prevail.

When submitting an electronic bid file with your paper bid, include only one file per bid. The disk/CD must be labeled with the following information:

- Firm name
- Letting date
- D number
- A statement as to whether the paper bid does or does not include any handwritten changes from the electronic bid file. Do not mix partial printouts with differing date-time groups.

**Amendments**: Contractors are solely responsible for recognizing and responding to changes by amendment. If an amendment involves changes to item bid data, an amended Expedite file will be posted to the Department's website and to Bid Express. This file must be applied to your electronic bid. If there is any discrepancy in the itemized proposals published in paper and electronic formats, in either the contract pay items or quantities, the Department will evaluate the bids based only on that portion that is common to all formats. For example, if an item is missing from any format, the bids will be evaluated excluding that item and if item quantities are different in any format, the bids will be evaluated using the lowest item quantity.

Please notify the Department at 888-664-9343 or 518-485-8111 if you find any such discrepancies. However, not all amendments will involve changes to item bid data.

**For assistance:**
- Bid Express Help Desk (888) 352-2439 or (352) 381-4888
- NYSDOT Information Technology Division Help Desk (888) 664-9343 or (518) 485-8111
- Third-party Software - Contact the vendor of the software. The Department is neither authorized nor able to assist with any software package.
REQUIRED CONTRACT PROVISIONS FOR FEDERAL AID CONTRACTS

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS  
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (including purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor’s own organization and with the assistance of workers under the contractor’s immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor’s project activities under
REQUIRED CONTRACT PROVISIONS FOR FEDERAL AID CONTRACTS

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.; set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are
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applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor’s work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor’s association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT’s U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor
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will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their work in a way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

   a. All laborers and mechanics employed or working upon the site of the work will be paid at least as much and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conforming to paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or
will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contacting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, the appropriate information being maintained under §5.5 (a)(3)(iii) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1011 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency approved by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor’s firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).


V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.
REQUIRED CONTRACT PROVISIONS FOR FEDERAL AID CONTRACTS

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor’s own organization (23 CFR 635.116).

   a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term includes payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

      (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
      (2) the prime contractor remains responsible for the quality of the work of the leased employees;
      (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
      (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

   b. “Specialty Items” shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned, or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project.

18 U.S.C. 1020 reads as follows:
REQUIRED CONTRACT PROVISIONS FOR FEDERAL AID CONTRACTS

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more -- as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:
   a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
   b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
   c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.
   d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
   
   e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
   f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
   g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.
   h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epis.gov), which is compiled by the General Services Administration.
REQUIRED CONTRACT PROVISIONS FOR FEDERAL AID CONTRACTS

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the
department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

   a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

   b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.
Listing of Additional Insured Parties

State of New York /New York State Department of Transportation
Erie County
City of Buffalo
Town of Cheektowaga
Erie County Medical Center
City of Buffalo Water Authority
National Fuel
National Grid
Verizon
Time Warner

Coverage must also be provided for any consultant inspecting engineer or inspector (and their agents) working for or on the project.

The above listing supplements Section 107-06 INSURANCE of the “Standard Specifications”.
New York State Uniform Contracting Questionnaire (CCA-2)

In accordance with §103-01 of the Standard Specifications, the NYS Department of Transportation requires that a review of a firm's responsibility be performed prior to the award of a contract or approval of a subcontract. A New York State Uniform Contracting Questionnaire (CCA-2) is the primary tool used to perform this review. A completed CCA-2 must be on file with NYSDOT to be considered for the award of a contract or for the approval of a subcontract. An approved CCA-2 covers NYSDOT work for 12 months from date of receipt.

Any low bidder who does not have a completed CCA-2 on file within ten days of receipt of a contract for execution may be subject to the forfeiture of the amount of the bid deposit pursuant to §103-02 of the Standard Specifications.

There are three CCA-2 options available on the NYSDOT website https://www.dot.ny.gov/bids-and-lettings/construction-contractors/general-info: online filing (VendRep), a Rich Text fillable form, and an Adobe Acrobat fillable form. No previous versions of the form will be accepted.

If a firm chooses to file online at http://osc.state.ny.us/vendrep/popups/vendor_construction.htm (site of the Office of the New York State Comptroller’s VendRep repository), please note that the online VendRep System is only a repository of information with the Office of the State Comptroller (OSC). Although there is a certification completed in VendRep, it is only an electronic signature. This certification does NOT mean the CCA-2 has been reviewed and approved by any Agency. The firm must notify vendorresponsibility@dot.ny.gov by sending an e-mail stating that the online filing has been completed. This notification will initiate the review process. The firm cannot begin work for NYSDOT until a responsibility determination has been made by the Contract Management Bureau.

If choosing one of the other options, a firm must print out and MAIL its original, notarized CCA-2 to NYSDOT’s Contract Management Bureau. Whichever format is used, all Attachments must be completed. A firm may use its own spreadsheets, but must provide all of the information requested. Either of the following may be substituted for an Attachment C: the firm’s corporate balance sheet (including any Accountant’s Notes or Reports referenced), or a copy of the Schedule L filed with its IRS Form 1120. Once all of the completed paperwork has been received, the approval process will begin. All responsibility checks must be completed by NYSDOT before a firm is approved to begin work.

Questions regarding the CCA-2 may be directed to the Contract Management Bureau, Vendor Responsibility Unit at (518) 457-1564.
<table>
<thead>
<tr>
<th>Variances</th>
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</thead>
<tbody>
<tr>
<td>Asphalt and Fuel Price Adjustment</td>
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</tbody>
</table>

**NOTE:** This form was developed for repetitive use throughout all contract proposals and may identify items not applicable to this specific project.
Make the following change to the Standard Specifications of May 1, 2008:
(Issued with Prop Makeup for 9/4/08)

Page 5, insert, in numerical sequence, the following:
“Section 625 - Survey Operations, Row Markers, and Permanent Survey Markers……609”

Page 12, insert, in numerical sequence, the following:
“SECTION 726 - DETECTABLE WARNING UNITS………………………………1005
  726-01 Surface-Applied Detectable Warning Units……………………………1005
  726-02 Embedded Detectable Warning Units………………………………..1006
SECTION 727 - PAVEMENT MARKING MATERIALS……………………………..1006
  727-01 Extruded Thermoplastic………………………………………………..1006
  727-02 Removable Raised Pavement Markers…………………………………1008
  727-03 Epoxy Paint……………………………………………………………...1009
  727-04 Permanent Pavement Tape……………………………………………1011
  727-05 Glass Beads for Pavement Markings……………………………………1012
  727-06 Removable Pavement Tape……………………………………………1013
  727-07 Removable Wet-Night Reflective Tape…………………………………1015
  727-08 Permanent Wet-Night Reflective Tape…………………………………1016
  727-09 Traffic Paint……………………………………………………………..1018”

Make the following change to the Standard Specifications of May 1, 2008:
(Issued with Prop Makeup for 1/8/09)

Page 530, Section 608-3.01 Concrete Sidewalks and Driveways, third paragraph, first sentence,
Delete "When using fiber reinforcement it shall be added to the concrete at a rate of 2 pounds of fibers per cubic yard of concrete".
And replace with "When using fiber reinforcement it shall be added to the concrete at a rate of 1.5 pounds of fibers per cubic yard of concrete".

Page 606, Section 623-5 Basis of Payment, delete the M from all item numbers.

Page 911, TABLE 715-01-1 Charpy V-Notch Impact Requirements, replace the column entries of ENERGY with 15, 15, 15, 15, 15, 15, 20, 20

Make the following change to the Standard Specifications of May 1, 2008:
(Issued with Prop Makeup for 5/7/09)

Page 143, Section 201-3.02, second paragraph, first sentence, replace “15 feet” with “16 feet”

Page 147, Section 202-3.01, third from the last paragraph, first sentence, replace “3 feet” with “42 inches”

Page 148, Section 202-3.02F, third paragraph, first sentence, replace “3 feet” with “42 inches”

Page 153, Section 202-3.09, fourth paragraph, replace the second sentence with “If excavation support is necessary to support structures or other improvements, or if the alternatives of laying back slopes or benching are not available, the support system shall be as indicated in the contract documents.”

Page 157, Section 203-1.09, last line, replace “Analysis” with “Science”

Page 157, Section 203-1.15, last line, replace “below 32°F.” with “32°F or less.”
Page 158, replace Section 203-1.17 with the following:
“203-1.17 Cleaning Culverts, Closed Drainage Systems, Drainage Structures and Manholes. This work shall consist of cleaning and keeping clean, existing culverts, closed drainage systems, drainage structures and manholes indicated in the contract documents or where directed by the Engineer, for the duration of the contract.”

Page 161, Section 203-3.02, second paragraph, replace “Analysis” with “Science”

Page 163, Section 203-3.05C, replace “215 feet” with “212 feet” throughout

Page 163, Section 203-3.05C, replace “a Scaled Distance of 30 feet” with “a Scaled Distance of 30” throughout

Page 163, Section 203-3.05C, between the two equations, replace “AND” with “OR”

Page 167, Section 203-3.12B.2., fourth paragraph, first sentence, replace “CFR” with “PLI”

Page 168, Figure 203-3 Vibratory Compactors - 800 is missing on the vertical axis of the Figure.


Page 176, Section 203-5, Pay Item list, in numerical sequence add the following:
“203.22 Sand Backfill (screenings) Cubic Yard
203.23 Sand Backfill (Type 1B) Cubic Yard
203.24 Sand Backfill (Type 1A) Cubic Yard”

Page 176, Section 203-5, Pay Item list, item 203.51, under Pay Unit, replace “Foot” with “Linear Foot”

Page 182, Section 205-3.02A1.&2., 3.02B, delete “0.25 millimeter and 0.15 millimeter”

Page 183, Section 205-3.03, third paragraph, third sentence, delete “10°C”

Page 184, Section 205-3.04, first paragraph, fifth sentence, replace “0.3 meters” with “one foot”

Page 184, Section 205-3.04, first paragraph, third sentence form the end, replace “EIC” with “the Engineer”

Page 186, Section 205-5, Note at the end, replace “nnn” with “nn”

Page 192, Section 209-2.04, first paragraph, delete the second sentence “Strawbale shall be §713–19 Straw.”

Page 198, Sections 209-4.01,.02,.09,.10,.11, replace “square feet or square foot” with “square yard”

Page 215, Section 307-3.11, fourth sentence replace “0. 02 gallons/square yard” with “of 0.2 gal/sy”

Page 218, Section 308-3.07, first paragraph, third sentence replace “nine metric tons” with “10 tons”

Page 270, Section 407-4, Volume equation, replace “ 0.00045” with “0.00025”
ERRATA to 2008 STANDARD SPECIFICATIONS

Page 500, Section 605-2.02, second paragraph, replace “Soil Control Procedure (SCP)” with “Geotechnical Control Procedure (GCP)”

Page 602, Section 620-2.05, third paragraph, replace “Soil Control Procedure (SCP)” with “Geotechnical Control Procedure (GCP)”

Page 603, Figure 620-1 under Medium Stone Size, replace “6 inch” with “4 inch”

Page 603, table following Figure 620-1 entitled Approximate Shape, add “Figure 620-2” to title

Page 605, Section 620-3.06, last word, replace “water” with “weather”

Page 606, Section 623-3, replace with the following:

“623-3 CONSTRUCTION DETAILS. Screened gravel, crushed gravel, crushed stone or crushed slag shall be placed as shown on the plans or as directed by the Engineer.”

Page 606, Section 623-5, all Payment Item Numbers, delete “M”

Page 609, Section 624-5, all Payment Item Numbers, delete “M”, and replace “624.020611” with “624.020610”

Page 773, Table 703-2, under Material Designation, 5th and 6th row, replace “12.5mm” with “1/2 inch”

Page 774, Table 703-4, at Size Designation 4 and Screen Size 2 in, replace “0.15” with “0-15”

Page 780, Section 703-09, under Method of Measurement, replace “metric tons” with “tons”

Page 1048, Section 732-09, Material and Fabrication Requirements, first sentence, replace “15 3/4 inches” with “16 inches”

On page 1047, under 732-04 SAMPLERS, replace MATERIAL REQUIREMENTS with the following:

“MATERIAL REQUIREMENTS. Samplers shall be equipped with a ball check in the head section and have a minimum inside length of 20 inches. Samplers shall conform to the following sizes:

<table>
<thead>
<tr>
<th>Sampler Diameter (Inches)</th>
<th>Outside Diameter (Inches)</th>
<th>Cutting Shoe Opening (Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>1 1/8</td>
</tr>
<tr>
<td>2½</td>
<td>2 1/2</td>
<td>1 1/8</td>
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<td>3</td>
<td>3</td>
<td>2 1/8</td>
</tr>
<tr>
<td>3½</td>
<td>3 1/2</td>
<td>2 1/8</td>
</tr>
</tbody>
</table>

On page 1048, under 732-10 BOULDER AND ROCK CORE BOXES, replace the first paragraph under MATERIAL AND FABRICATION REQUIREMENTS with the following:

“MATERIAL AND FABRICATION REQUIREMENTS. Boxes shall be fabricated of white pine, Grade No. 2 common or better, 1 inch stock (finished 3/4 inch) thickness or an approved equal material and conform to the overall box dimensions given below:

<table>
<thead>
<tr>
<th>Core Box Size</th>
<th>Length (Inches)</th>
<th>Width (Inches)</th>
<th>Height (Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“AX”</td>
<td>61 1/2</td>
<td>9</td>
<td>2 1/4</td>
</tr>
<tr>
<td>“BX”</td>
<td>61 1/2</td>
<td>10 1/4</td>
<td>3 1/4</td>
</tr>
</tbody>
</table>
Core rows shall be separated by wooden or tempered hardboard, $\frac{3}{8}$ inch thick strips recessed to $\frac{3}{8}$ inch depth and glued with waterproof glue at the bottom and ends of the box.

Page 1049, Section 732-12, Material Requirements, replace with the following:

**MATERIAL REQUIREMENTS.**

**Cement.** The material shall meet the requirements of § 701-01 Portland Cement Type 1 or 2.

**Water.** The water for the mix shall conform to the requirements of § 712-01 Water.

**Bentonite Powder.** There are no material requirements for the bentonite, except it shall be supplied in powder form from a reputable manufacturer and pass a No. 200 sieve.

Make the following change to the *Standard Specifications of May 1, 2008* :

*(Issued with Prop Makeup for 9/3/09)*

Page 656, Table 645-1 Wind Load Criteria, row 1 column 4 and 5, replace “140 ft.” with “14.0 ft”.

Page 657, Table 645-2 Allowable Sign Areas, under Wooden Post Sections with Embedment of 6.0 ft., replace ”3.5 x 3.5” with “3.5 x 5.5”.

Page 661, Payment Item 645.8XYYZZ Type B Sign Posts, under YY Section, replace 01 to 08 with “01 S3x5.7, 02 W6x9, 03 W6x12, 04 W8x15, 05 W10x19, 06 W10x22, 07 W12x26, 08 W14x34”

Make the following change to the *Standard Specifications of May 1, 2008* :

*(Issued with Prop Makeup for 1/7/10)*

Page 386, Section 565-2.03, Second line, replace with the following:

“Type M.R. Bearings 716-06.01 or 716-07.01”

Page 609, Section 624-5, Payment Item Numbers 624.020101 and 624.020601 under Pay Unit, replace “Metric Ton” with “Ton”

Make the following change to the *Standard Specifications of May 1, 2008* :

*(Issued with Prop Makeup for 5/6/10)*

Page 218, Section 308-3.07, Page 608, Section 624-4.01, Page 641, Sections 638-4 and 638-5, Page 780, Section 703-09, Method of Measurement, replace “metric ton” with “ton”


Page 770, Table 702-10, replace Note 1 with XX = 01, 02, 03, 04, or 05

Make the following change to the *Standard Specifications of May 1, 2008* :

*(Issued with Prop Makeup for 9/2/10)*

Page 702, Section 663-3.23 Hydrostatic Testing, last sentence, replace “1035 kPa” with “150 psi”

Page 702, Section 663-4.01 Water Pipe, replace “0.1 m” with “1/2 foot”

Make the following change to the *Standard Specifications of May 1, 2008* :

*(Issued with Prop Makeup for 1/6/11)*

D262276

ERRATA to 2008 STANDARD SPECIFICATIONS

<table>
<thead>
<tr>
<th>“NX”</th>
<th>61½</th>
<th>10¾</th>
<th>3¼</th>
</tr>
</thead>
<tbody>
<tr>
<td>“HX”</td>
<td>61½</td>
<td>11¾</td>
<td>4%</td>
</tr>
</tbody>
</table>

01300 = 2008 Errata
Page 520, Section 606-5, under Payment Item Numbers, delete Item 606.36.

Make the following change to the Standard Specifications of May 1, 2008:
(Issued with Prop Makeup for 5/5/11)

Page 289, Section 501-2.04 C Mobile Concrete Mixing Units, replace Tolerances for Water and Admixtures with the following, “Admixtures ±3%, Water ±1%”

Page 524, Section 607-2 Materials, Steel and Iron Posts, Rails, Braces and Fittings for Chain-Link Fence, replace “710-10.03” with “710-10”

Make the following change to the Standard Specifications of May 1, 2008:
(Issued with Prop Makeup for 9/1/11)  No Errata

Make the following change to the Standard Specifications of May 1, 2008:
(Issued with Prop Makeup for 1/12/12)

Page 517, Table 606-2 under Heavy Post Blocked Out Corrugated Beam and Payment Factor 1.8, replace 3’ 1” with 3’ 1 1/2”

Make the following change to the Standard Specifications of May 1, 2008:
(Issued with Prop Makeup for 5/3/12)  No Errata

Make the following change to the Standard Specifications of May 1, 2008:
(Issued with Prop Makeup for 9/6/12)

Section 102-01, Region 1, delete Columbia under Counties, replace Address with 50 Wolf Road, Albany, NY 12232, (518) 457-3522

Section 102-01, Region 8, add Columbia under Counties

Make the following change to the Standard Specifications of May 1, 2008:
(Issued with Prop Makeup for 1/10/13)

All Pages, All Sections, in all places where it occurs replace “Select Structural Fill” with “Select Structure Fill”

Page 503, Section 606-2 under the material list replace “704-05 Precast Concrete Median Barrier” with “704-05 Precast Concrete Barrier”
The names of the individual Offices and Divisions in the Department have changed. The Office and Division names included in the Standard Specifications shall be referred to as shown in the Organizational Chart below (e.g., Office of Engineering changed to Engineering Division, Design Division changed to Office of Design, …)
REVISIONS TO STANDARD SPECIFICATIONS SECTION 100 - ELECTRONIC PLANS AND AMENDMENTS

Make the following changes to the Standard Specifications dated May 4, 2006 and May 1, 2008:

Delete §102-05 Proposal Submission and Replace it with the following:

102-05 PROPOSAL SUBMISSION.
Each proposal shall be submitted on the proposal form or electronic bid file prepared by the Department for that individual contract. The deadline for submitting a proposal is found in the published notice calling for proposals. Any proposal received after the time specified in the published notice, as modified by any Amendment, will not be accepted. All blank spaces in the proposal form shall be filled in as noted, and no change shall be made in the wording of the proposal or in the items mentioned therein. Bidders shall use dark permanent ink in completing hard copies of the proposal form, and ensure the form is clear and legible. Proposals that are illegible or that contain any omission, erasures, non-permanent ink, alterations, additions, or items not called for in the itemized proposal or that contain irregularities of any kind, may be rejected as informal. Any proposal which does not contain prices opposite each of the items for which there is a quantity exhibited in the itemized proposal, or which shall in any manner fail to conform to the conditions of the published notice inviting proposals, may be deemed informal.

The State is responsible for providing notice of Amendments only to those persons or firms listed as having purchased plans and/or proposals from the Department, and those that made a specific request of the Department for Amendments. Persons or firms that obtain contract documents from sources other than the Department bear the sole responsibility for obtaining any Amendments issued by the Department.

For proposals submitted on the proposal form, the Bidder shall sign in the space provided in the proposal form, with its signature. An officer of a corporation or a member of a partnership signing for the bidder shall place his or her signature and title after the word "By" under the name of the Contractor. The same procedure shall apply to the proposal of a joint venture by two or more bidders with each party of the joint venture submitting a separate signature page. If the signature is by an agent or attorney-in-fact for the joint venturers, then the proposal shall be accompanied by an authenticated copy of the evidence of its authority to act on behalf of all of the joint venturers.

For internet proposals submitted through Bid Express, the Bidder shall submit and digitally sign the electronic bid. For joint ventures submitted electronically, an authenticated copy of the evidence of the authority of the agent or attorney-in-fact for the joint venturers to act on behalf of all of the joint venturers must be submitted to the Contract Management Bureau prior to the Letting.

If the proposal is made by an individual, the individual’s address shall be given. If the proposal is made by a corporation, the names and addresses of the president, secretary and treasurer shall be given. If the proposal is made by a partnership, the names and addresses of the partners shall be given.

Delete §102-07 Modification Or Withdrawal Of Proposal and Replace it with the following:

102-07 MODIFICATION OR WITHDRAWAL OF PROPOSAL.
Permission will not be given to modify or explain by e-mail, telephone, letter or otherwise, any proposal or bid after it has been deposited with the Department. No proposal shall be withdrawn or canceled before the time designated for opening such proposals publicly except upon such conditions as the Commissioner may deem to be necessary.

No proposal shall be withdrawn or canceled after the time designated for opening such proposals publicly, except to exercise the option as provided herein. Any bidder or its duly authorized agent who is physically present at the letting and who has submitted proposals on more than one project of any one letting may, at its option and upon written request to an authorized Department representative at the
letting, withdraw any or all of its additional proposals after the person who opens and reads the bids has announced that such bidder has submitted the lowest proposal on a project for which bids have last been read. When this option is exercised, the proposals for other projects in the letting will be returned to the bidder unopened or, if the bid was submitted electronically, the Department will delete the bid(s) and the bid will not be made public. No returned proposals will be considered after the bidder has exercised its privilege to withdraw the same. Any bidder exercising the privilege of so withdrawing its bid or bids waives all claims that may arise should it be found that its opened proposal is informal or for any other reason is unacceptable to the Department. The Department will open and read proposals in the order in which they are drawn and not in the order in which the projects are advertised.

Delete the first item under the heading “BY EXECUTING THIS PROPOSAL, THE CONTRACTOR AGREES TO: of §102-17 and Replace it with the following:

1. Perform all work listed in accordance with the Contract Documents including all amendments, (found at https://www.nysdot.gov/doing-business/opportunities/const-notices), at the unit prices bid; subject to the Changed Conditions provisions if applicable;

Delete the first paragraph of §103-01 and Replace it with the following per Legal 9/28/12:

103-01 CONTRACT AWARD. The award of the contract will be made only to the lowest responsible bidder as will best promote the public interest as provided by Section 38 of the Highway Law. The lowest bid will be determined by the Commissioner on the basis of gross sum for which the entire work will be performed, arrived at by a correct computation of all contract pay items specified in the proposal, at unit prices stated in the proposal. If there is any discrepancy between the hard copy and electronic format of the itemized proposals published by the Department, in either the contract pay items or quantities, the Department will evaluate the bids based on that portion of the quantity or item number that is contained in both formats; provided however, if all bidders bid the same contract pay item or quantity in either format notwithstanding the discrepancy between the paper and electronic version, the commonly bid contract pay item or quantity shall control. The Department reserves the right to reject any or all bids in the best interest of the State pursuant to Section 38 (4) of the Highway Law.
REVISIONS TO STANDARD SPECIFICATIONS SECTION 100 - APPENDIX A

Make the following changes to the Standard Specifications of May 4, 2006 and May 1, 2008:

Delete §102-08 and §102-09 in their entirety and Replace them with the following:

102-08  SAMPLE STANDARD CLAUSES FOR ALL NYS CONTRACTS. The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "the contract" or "this contract") agree to be bound by the following clauses which are hereby made a part of the contract (the word "Contractor" herein refers to any party other than the State, whether a contractor, licensor, licensee, lessee or any other party):

1. EXECUTORY CLAUSE. In accordance with Section 41 of the State Finance Law, the State shall have no liability under this contract to the Contractor or to anyone else beyond funds appropriated and available for this contract.

2. NON-ASSIGNMENT CLAUSE. In accordance with Section 138 of the State Finance Law, this contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed or otherwise disposed of without the State’s previous written consent, and attempts to do so are null and void. Notwithstanding the foregoing, such prior written consent of an assignment of a contract let pursuant to Article XI of the State Finance Law may be waived at the discretion of the contracting agency and with the concurrence of the State Comptroller where the original contract was subject to the State Comptroller’s approval, where the assignment is due to a reorganization, merger or consolidation of the Contractor’s business entity or enterprise. The State retains its right to approve an assignment and to require that any Contractor demonstrate its responsibility to do business with the State. The Contractor may, however, assign its right to receive payments without the State’s prior written consent unless this contract concerns Certificates of Participation pursuant to Article 5-A of the State Finance Law.

3. COMPTROLLER’S APPROVAL. In accordance with Section 112 of the State Finance Law (or, if this contract is with the State University or City University of New York, Section 355 or Section 6218 of the Education Law), if this contract exceeds $50,000 (or the minimum thresholds agreed to by the Office of the State Comptroller for certain S.U.N.Y. and C.U.N.Y. contracts), or if this is an amendment for any amount to a contract which, as so amended, exceeds said statutory amount, or if, by this contract, the State agrees to give something other than money when the value or reasonably estimated value of such consideration exceeds $10,000, it shall not be valid, effective or binding upon the State until it has been approved by the State Comptroller and filed in his office. Comptroller’s approval of contracts let by the Office of General Services is required when such contracts exceed $85,000 (State Finance Law Section 163.6.a).

4. WORKERS’ COMPENSATION BENEFITS. In accordance with Section 142 of the State Finance Law, this contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this contract for the benefit of such employees as are required to be covered by the provisions of the Workers’ Compensation Law.

5. NON-DISCRIMINATION REQUIREMENTS. To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for
employment because of race, creed, color, sex, national origin, sexual orientation, age, disability, genetic predisposition or carrier status, or marital status. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this contract shall be performed within the State of New York, Contractor agrees that neither it nor its Subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its Subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of $50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation.

6. WAGE AND HOURS PROVISIONS. If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its Subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its Subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by the State of any State approved sums due and owing for work done upon the project.

7. NON-COLLUSIVE BIDDING CERTIFICATION. In accordance with Section 139-d of the State Finance Law, if this contract was awarded based upon the submission of bids, Contractor affirms, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further affirms that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to the State a non-collusive bidding certification on Contractor's behalf.

8. INTERNATIONAL BOYCOTT PROHIBITION. In accordance with Section 220-f of the Labor Law and Section 139-h of the State Finance Law, if this contract exceeds $5,000, the Contractor agrees, as a material condition of the contract, that neither the Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the Federal Export Administration Act of 1979 (50 USC App. Sections 2401 et seq.) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the contract's execution, such contract, amendment or modification thereto shall be
rendered forfeit and void. The Contractor shall so notify the State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2 NYCRR 105.4).

9. SET-OFF RIGHTS. The State shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing to the State with regard to this contract, any other contract with any State department or agency, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the State for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto. The State shall exercise its set-off rights in accordance with normal State practices including, in cases of set-off pursuant to an audit, the finalization of such audit by the State agency, its representatives, or the State Comptroller.

10. RECORDS. The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, "the Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as the agency or agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The State shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the Contractor shall timely inform an appropriate State official, in writing, that said records should not be disclosed; and (ii) said records shall be sufficiently identified; and (iii) designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the State's right to discovery in any pending or future litigation.

11. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION.

(a) Identification Number(s). Every invoice or New York State Claim for Payment submitted to a New York State agency by a payee, for payment for the sale of goods or services or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. The number is any or all of the following: (i) the payee’s Federal employer identification number, (ii) the payee’s Federal social security number, and/or (iii) the payee’s Vendor Identification Number assigned by the Statewide Financial System. Failure to include such number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or Claim for Payment, must give the reason or reasons why the payee does not have such number or numbers.

(b) Privacy Notification. (1) The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the
REVISIONS TO STANDARD SPECIFICATIONS SECTION 100 - APPENDIX A

taxes administered by the Commissioner of Taxation and Finance. The information will be used for
tax administration purposes and for any other purpose authorized by law. (2) The personal
information is requested by the purchasing unit of the agency contracting to purchase the goods or
services or lease the real or personal property covered by this contract or lease. The information is
maintained in the Statewide Financial System by the Vendor Management Unit within the Bureau of
State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

12. EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN. In accordance
with Section 312 of the Executive Law and 5 NYCRR 143, if this contract is: (i) a written agreement or
purchase order instrument, providing for a total expenditure in excess of $25,000.00, whereby a
contracting agency is committed to expend or does expend funds in return for labor, services, supplies,
equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished
to the contracting agency; or (ii) a written agreement in excess of $100,000.00 whereby a contracting
agency is committed to expend or does expend funds for the acquisition, construction, demolition,
replacement, major repair or renovation of real property and improvements thereon; or (iii) a written
agreement in excess of $100,000.00 whereby the owner of a State assisted housing project is committed
to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or
renovation of real property and improvements thereon for such project, then the following shall apply and
by signing this agreement the Contractor certifies and affirms that it is Contractor’s equal employment
opportunity policy that:

(a) The Contractor will not discriminate against employees or applicants for employment because of
race, creed, color, national origin, sex, age, disability or marital status, shall make and document its
conscientious and active efforts to employ and utilize minority group members and women in its
work force on State contracts and will undertake or continue existing programs of affirmative action
to ensure that minority group members and women are afforded equal employment opportunities
without discrimination. Affirmative action shall mean recruitment, employment, job assignment,
promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of
compensation;

(b) At the request of the contracting agency, the Contractor shall request each employment agency,
labor union, or authorized representative of workers with which it has a collective bargaining or other
agreement or understanding, to furnish a written statement that such employment agency, labor union
or representative will not discriminate on the basis of race, creed, color, national origin, sex, age,
disability or marital status and that such union or representative will affirmatively cooperate in the
implementation of the Contractor's obligations herein; and

(c) The Contractor shall state, in all solicitations or advertisements for employees, that, in the
performance of the State contract, all qualified applicants will be afforded equal employment
opportunities without discrimination because of race, creed, color, national origin, sex, age, disability
or marital status.

Contractor will include the provisions of "a", "b", and "c" above, in every subcontract over $25,000.00 for
the construction, demolition, replacement, major repair, renovation, planning or design of real property
and improvements thereon (the "Work") except where the Work is for the beneficial use of the
Contractor. Section 312 does not apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The State shall consider compliance by a Contractor or Subcontractor with the requirements of any Federal law concerning equal employment opportunity which effectuates the purpose of this section. The contracting agency shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such Federal law and if such duplication or conflict exists, the contracting agency shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development’s Division of Minority and Women's Business Development pertaining hereto.

13. CONFLICTING TERMS. In the event of a conflict between the terms of the contract (including any and all attachments thereto and amendments thereof) and the terms of this Appendix A, the terms of this Appendix A shall control.

14. GOVERNING LAW. This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

15. LATE PAYMENT. Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law.

16. NO ARBITRATION. Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized), but must, instead, be heard in a court of competent jurisdiction of the State of New York.

17. SERVICE OF PROCESS. In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the State, in writing, of each and every change of address to which service of process can be made. Service by the State to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

18. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS. The Contractor certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of Section 165 of the State Finance Law, (Use of Tropical Hardwoods) which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the responsibility of the contractor to establish to meet with the approval of the State.

In addition, when any portion of this contract involving the use of woods, whether supply or installation, is to be performed by any Subcontractor, the prime Contractor will indicate and certify in the submitted bid proposal that the Subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in §165 State Finance Law. Any such use must
meet with the approval of the State; otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

19. (VACANT)

20. (VACANT)

21. (VACANT)

22. COMPLIANCE WITH NEW YORK STATE INFORMATION SECURITY BREACH AND NOTIFICATION ACT. Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa; State Technology Law Section 208).

23. COMPLIANCE WITH CONSULTANT DISCLOSURE LAW. If this is a contract for consulting services, defined for purposes of this requirement to include analysis, evaluation, research, training, data processing, computer programming, engineering, environmental, health, and mental health services, accounting, auditing, paralegal, legal or similar services, then, in accordance with Section 163 (4-g) of the State Finance Law (as amended by Chapter 10 of the Laws of 2006), the Contractor shall timely, accurately and properly comply with the requirement to submit an annual employment report for the contract to the agency that awarded the contract, the Department of Civil Service and the State Comptroller.

24. PROCUREMENT LOBBYING. To the extent this agreement is a "procurement contract" as defined by State Finance Law Sections 139-j and 139-k, by signing this agreement the contractor certifies and affirms that all disclosures made in accordance with State Finance Law Sections 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, the State may terminate the agreement by providing written notification to the Contractor in accordance with the terms of the agreement.

25. CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND SUBCONTRACTORS.

To the extent this agreement is a contract as defined by Tax Law Section 5-a, if the contractor fails to make the certification required by Tax Law Section 5-a or if during the term of the contract, the Department of Taxation and Finance or the covered agency, as defined by Tax Law 5-a, discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a material breach of this contract and this contract may be terminated, by providing written notification to the Contractor in accordance with the terms of the agreement, if the covered agency determines that such action is in the best interest of the State.

102-09 SAMPLE STANDARD CLAUSES FOR NON FEDERAL-AID NEW YORK STATE CONTRACTS.

In accordance with §102-14 Form of Contract and Bid Bond, the following articles of Appendix A Standard Clauses For New York State Contracts are not applicable to Federal-Aid contracts.
19. MACBRIE FAIR EMPLOYMENT PRINCIPLES. In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that the Contractor either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.

20. OMNIBUS PROCUREMENT ACT OF 1992. It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts. Information on the availability of New York State subcontractors and suppliers is available from:

NYS Department of Economic Development
Division for Small Business
30 South Pearl St -- 7th Floor
Albany, New York 12245
Telephone: 518-292-5220
Fax: 518-292-5884
http://www.empire.state.ny.us

A directory of certified minority and women-owned business enterprises is available from:

NYS Department of Economic Development
Division of Minority and Women's Business Development
30 South Pearl St -- 2nd Floor
Albany, New York 12245
Telephone: 518-292-5250
Fax: 518-292-5803
http://www.empire.state.ny.us

The Omnibus Procurement Act of 1992 requires that by signing this bid proposal or contract, as applicable, Contractors certify that whenever the total bid amount is greater than $1 million:

(a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to the State;

(b) The Contractor has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended;

(c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The Contractor agrees to document these efforts and to provide said documentation to the State upon request; and
(d) The Contractor acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

21. RECIPROCITY AND SANCTIONS PROVISIONS. Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively) require that they be denied contracts which they would otherwise obtain. NOTE: As of May 15, 2002, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii. Contact NYS Department of Economic Development for a current list of jurisdictions subject to this provision.

Delete §102-14 in its entirety and Replace it with the following:

**102-14 FORM OF CONTRACT AND BID BOND.** The form of contract and bid bond, if given, shall be that provided by the Department.

All of the following sections which have the word “Sample” in the title are samples of the contract documents executed by the Contractor as a part of the bidding and/or award process. The executed bid documents control and have precedence over the samples presented herein.

**A. Federal-Aid Contracts.** Federal-Aid contracts are denoted “F.A. Project” on the proposal cover and on the title page. The following subsections of Section 102 apply to all Federal-Aid contracts:

1. §102-01 to §102-07
2. §102-08 (Sample Only)
3. §102-10 to §102-14
4. §102-15 to §102-17 (Samples Only)

**B. Non Federal-Aid Contracts.** The following subsections of Section 102 apply to all Non Federal-Aid contracts:

1. §102-01 to §102-07
2. §102-08 to §102-09 (Samples Only)
3. §102-10 to §102-14
2. §102-15 to §102-17 (Samples Only)
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Make the following changes to the Standard Specifications dated May 4, 2006 and May 1, 2008:
Delete §102-11 and §102-12 and Replace them with the following:

102-11 EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS. The Department seeks to ensure nondiscrimination in employment under all Department contracts. The Contractor shall comply with the following Equal Employment Opportunity (EEO) requirements. Goals for Equal Opportunity Employment Participation are listed in the required contract provisions section of the contract proposal. The covered area is the county or counties in which the work is located.

For Federal-Aid contracts, Equal Employment Opportunity provisions are also found on Form FHWA 1273 Required Contract Provisions Federal-Aid Construction Contracts, or Form FHWA 1316 Required Contract Provisions Appalachian Development Highway System and Local Access Roads Construction Contracts, one of which is incorporated in the required contract provisions section of the contract proposal.

Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

A. Statutory Authority. The Federal statutory authority for Equal Employment Opportunity provisions is contained in 23 U.S.C. 140(a), and Executive Order 11246. State statutory authority is contained in Section 85 of the Highway Law, Section 428 of the Transportation Law, and NYS Executive Law Articles 15 and 15-A, Regulations have been promulgated under 23 CFR 230, 41 CFR 60, 49 CFR 21, and 5 NYCRR 140-145.

B. Definitions.

1. For Federal-Aid contracts, a minority group member is defined under this subsection as someone who is, and can demonstrate membership in, one of the following groups:

   a. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

   b. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

   c. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

   d. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. For non Federal-Aid contracts, a minority group member is defined under this subsection as a United States citizen or permanent resident alien who is, and can demonstrate membership in, one of the following groups:

   a. Black persons having origins in any of the Black African racial groups;
b. Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American descent of either Indian or Hispanic origin, regardless of race;

c. Asian and Pacific Islander persons having origins in any of the Far East countries, South East Asia, the Indian subcontinent, or the Pacific Islands;

d. Native American or Alaskan native persons having origins in any of the original peoples of North America.

C. Employment Goals. An employment goal(s) for minorities and a separate goal for women are presented in the contract documents. The Contractor shall provide equal employment opportunity and shall take affirmative action for all minority groups, both male and female; and women, both minority and non-minority. If the Contractor performs work outside of the covered area, it shall apply the goals established for the county where the work is actually performed. The Department will monitor the Contractor's attainments towards EEO goals in accordance with §105-21 Civil Rights Monitoring and Reporting.

The goals set for the contract are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress in meeting its goals in each trade. The hours of minority and female employment and training shall be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its contracts. The transfer of minority or female employees, apprentices, or trainees from contractor to contractor or from contract to contract for the sole purpose of meeting the Contractor's goals is a violation of the contract.

D. Contractor Obligations. The Contractor shall comply with all provisions of Federal Executive Order 11246 and the provisions of State and Federal laws and regulations. The Contractor shall furnish all information and reports required by Executive Order 11246 and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the Department and the U.S. Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders. The Contractor shall develop and implement an EEO policy in accordance with Form FHWA 1273 Required Contract Provisions Federal-Aid Construction Contracts for Federal-Aid contracts and in accordance with §102-08 Standard Clauses for All New York State Contracts for non Federal-Aid contracts.

1. Non-Discrimination. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, age, disability or marital status. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, sexual orientation, military status, sex, disability, predisposing genetic characteristics, marital status, or domestic violence victim status and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest. Such actions shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising;
layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Department setting forth the provisions of this non-discrimination clause.

The Contractor shall state in all solicitations or advertisements for employees that, in the performance of the contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of age, race, creed, color, national origin, sexual orientation, military status, sex, disability, predisposing genetic characteristics, marital status, or domestic violence victim status.

The Contractor shall not use the goals or affirmative action requirements to discriminate against any person because of age, race, creed, color, national origin, sexual orientation, military status, sex, disability, predisposing genetic characteristics, marital status, or domestic violence victim status.

2. Solicitations. The Contractor shall state in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, age, disability or marital status.

3. Collective Bargaining Agreements. The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments to equal employment opportunities, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union, or representative will not discriminate on the basis of race, creed, color, national origin, sex age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein.

Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations.

4. Complaints of Alleged Discrimination. The Contractor shall promptly investigate all complaints of alleged discrimination made to the Contractor in connection with its obligations under this contract, shall attempt to resolve such complaints, and shall take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, corrective action shall include such other persons. Upon completion of each investigation, the Contractor shall inform every complainant of all available avenues of appeal.

5. Non-Compliance. In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further contracts in accordance with procedures authorized in Executive
Order 11246, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, or by rule, regulation, or order of the U.S. Secretary of Labor, or as otherwise provided by law.

6. Subcontracts/Purchase Orders. The Contractor shall include the provisions of §102-11D Contractor Obligations in every subcontract or purchase order, so that such provisions will be binding upon each subcontractor or vendor. In the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Department, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

E. Affirmative Action Steps. The Contractor shall take specific affirmative actions to promote equal employment opportunity. The evaluation of the Contractor’s compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

1. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor’s employees are assigned to work. The Contractor, where possible, shall assign two or more women to each construction contract. The Contractor shall specifically ensure that all forepersons, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor’s obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations’ responses.

3. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

4. Provide immediate written notification to the Department when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor’s efforts to meet its obligations.

5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor’s employment needs, especially those programs
funded or approved by either the NYS Department of Labor or the US Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under E.2. above.

6. Disseminate the Contractor’s EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

7. Review, at least annually, the company’s EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, forepersons, etc., prior to the initiation of construction work at any contract site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

8. Disseminate the Contractor’s EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor’s EEO policy with other contractors and Subcontractors with whom the Contractor does or anticipates doing business.

9. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor’s recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of the Contractor’s work force.

11. Validate all tests and other selection requirements in accordance with state and Federal laws, rules and regulations.

12. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities. Encourage these employees to seek or to prepare for promotional opportunities through appropriate training, etc.

13. Ensure that seniority practices, labor classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and
14. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

15. Document and maintain a record of all solicitations of offers for Subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

16. Conduct a review, at least annually, of all supervisors’ adherence to and performance under the Contractor’s EEO policies and affirmative action obligations.

F. Associations. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations. The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling one or more of its obligations, provided that the Contractor actively participates in the group, makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the benefits of the program are reflected in the Contractor’s minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor’s and failure of such a group to fulfill an obligation shall not be a defense for the Contractor’s noncompliance.

G. Hometown Plans (Federal-Aid Contracts Only). If a Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the USDOL in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors participating in Hometown Plans shall be able to demonstrate their participation and document their compliance with the provision of the Hometown Plan. Each Contractor participating in an approved plan is individually required to comply with its obligation under the EEO clause and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other Contractors toward a goal in an approved plan does not excuse any covered Contractor’s failure to take good faith efforts to achieve the Plan goals and timetables.

102-12 D/M/WBE UTILIZATION. D/M/WBE is a general term that refers to a Disadvantaged Business Enterprise (DBE), a Minority Business Enterprise (MBE) or a Women Business Enterprise (WBE). The DBE program applies to Federal-Aid contracts, and the MBE/WBE (M/WBE) program applies to non Federal-Aid contracts. The Department seeks to:
- Ensure nondiscrimination in award and administration of Department contracts;
- Ensure that only firms that fully meet D/M/WBE eligibility standards are permitted to participate in the Department D/M/WBE programs;
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• Help remove barriers to the participation of D/M/WBEs in the performance of Department contracts;
• Create a level playing field on which D/M/WBEs can fairly compete for Department contracts; and
• Assist in the development of firms that can compete successfully in the construction industry outside the D/M/WBE programs.

The parties to this contract shall take all necessary and reasonable steps in accordance with the laws, rules and regulations cited in this subsection to promote the objectives outlined above. The Contractor shall comply with the applicable laws, rules and regulations and the D/M/WBE Program requirements stated below. The Contractor or Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of Department contracts. The Contractor shall carry out the applicable requirements of 49 CFR 26 in the award and administration of Federal-Aid contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Department deems appropriate. The Contractor shall not use the requirements of these specifications to discriminate against any qualified company or group of companies. These requirements shall be made a part of all subcontracts and agreements entered into as a result of this contract.

A. Statutory Authority.

1. Disadvantaged Business Enterprise (DBE) Program. The Federal statutory authority for the DBE Program is contained in the Surface Transportation Assistance Act of 1982 (Public Law 97-424, §105(f)), the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17, §106(c)), the Intermodal Surface Transportation Efficiency Act of 1991, and the Transportation Equity Act of the 21st Century. New York State has enacted Section 85 of the Highway Law and Section 428 of the Transportation Law. Regulations have been promulgated under 49 CFR 21, 49 CFR 26 and 17 NYCRR 35.

2. Minority/Women-Driven Business Enterprise (M/WBE) Program. The State statutory authority for the M/WBE Program is contained in Section 85 of the Highway Law, Section 428 of the Transportation Law, and Executive Law Article 15-A. Regulations have been promulgated under 5 NYCRR 140-145. The parties to this contract shall comply with these laws, rules and regulations and the M/WBE Program requirements stated below.

B. D/M/WBE Goal(s). Federal-aid contracts have a single DBE goal. Non Federal-Aid contracts have two separate and distinct goals, one for MBEs and one for WBEs, which cannot be combined. The Department will monitor the Contractor’s attainments towards D/M/WBE goals in accordance with §105-21 Civil Rights Monitoring and Reporting.

1. Established Goal(s). The Department may have established contract utilization goal(s) for D/M/WBEs, which are expressed as a percentage of the total contract price. The goal(s) are stated in the proposal and remain in effect throughout the life of the contract. In executing the contract or bid documents the Bidder declares that it subscribes to the utilization goal(s) and shall meet the goal(s) or demonstrate that it could not meet them despite its best efforts. Failure to
provide commitments to meet the established goal(s) for the contract or failure to meet the good faith efforts may be grounds for rejection of the bid as non-responsive.

2. Zero Percent Goal(s). When the Department has established zero goal(s) for participation by D/M/WBEs and the Bidder proposes the use of a Subcontractor, the purchase of materials, the use of a Service or the use of Trucking at any time during the life of the contract, the Contractor shall promote the objectives outlined in this subsection by providing opportunities for D/M/WBEs to participate in these areas, with such participation to be credited towards the race-neutral component of the Department’s D/M/WBE Programs.

C. Eligibility. DBEs are eligible to be used to meet the goal on Federal-aid contracts. MBEs and WBEs are eligible to be used to meet the goal on non Federal-Aid contracts. The programs are separate, and eligibility in one program does not provide eligibility in the other.

1. DBE Eligibility. Only those DBE firms that are certified under the New York State Unified Certification Program are eligible to be used for goal attainment. DBE certification is not an endorsement of the quality or performance of the business but simply an acknowledgment of the firm’s status as a DBE. A business directory is available on the NYS Unified Certification Program website at http://biznet.nysucp.net.

2. M/WBE Eligibility. Only those M/WBE firms that are certified by the NYS Department of Economic Development are eligible to be used for goal attainment. M/WBE certification is not an endorsement of the quality or performance of the business but simply an acknowledgment of the firm’s status as an M/WBE. The participation of a firm that is certified as an MBE cannot be counted toward a WBE goal, and the participation of a firm that is certified as a WBE cannot be counted toward an MBE goal. The participation of a firm that is certified as both an MBE and a WBE will only be counted toward one goal, and cannot be divided between the two goals. A business directory is available on the Empire State Development website at www.esd.ny.gov/MWBE.html.

Additionally, the Contractor is encouraged to contact the Division of Minority and Woman Business Development {(518) 292-5250; (212) 803-2414; or (716) 846-8200} to discuss additional methods of maximizing participation by M/WBEs on the contract.

D. Counting D/M/WBE Participation Towards the D/M/WBE Goal(s). The value of the work performed by a D/M/WBE, including that of a D/M/WBE prime contractor, with its own equipment, with its own forces, and under its own supervision will be counted toward the goal(s), provided the utilization is a commercially useful function. A D/M/WBE prime contractor shall still provide opportunities for participation by other D/M/WBEs. Work performed by D/M/WBEs on the contract will be counted as set forth below. If the Department determines that some or all of a D/M/WBE’s work does not constitute a commercially useful function, only the portion of the work considered to be a commercially useful function will be credited toward the goal(s).

1. Subcontractors. 100% of the value of the work performed by a D/M/WBE Subcontractor will be counted toward the D/M/WBE goal(s), including the cost of materials and supplies purchased by the D/M/WBE, except the cost of supplies or equipment rented or leased from the Contractor or its affiliates will not be counted.
2. **Manufacturers/Fabricators.** 100% of the expenditure to a D/M/WBE Manufacturer or Fabricator will be counted toward the D/M/WBE goal(s). Manufacturers or Fabricators may provide materials to the Contractor, a Subcontractor, or other firm working on the contract for installation.

3. **Material Suppliers.** 60% of the expenditure to a DBE Material Supplier will be counted toward the DBE goal. 100% of the expenditure to an M/WBE Material Supplier will be counted toward the M/WBE goals. Packagers, brokers, manufacturer’s representatives, or other persons who arrange or expedite transactions are not Material Suppliers. Material Suppliers may provide materials to the Contractor, a Subcontractor, or other firm working on the contract for installation.

4. **Brokers/Manufacturer’s Representatives.** 100% of the expenditures for fees or commissions charged for assistance in the procurement of, or fees for transportation charges for the delivery of, materials or supplies provided by a D/M/WBE Broker/Manufacturer’s Representative will be counted toward the D/M/WBE goal(s), provided they are determined by the Department to be reasonable and not excessive as compared with fees customarily allowed for similar services. The cost of the materials and supplies themselves will not be counted. Brokers may supply materials to the Contractor, Subcontractor, or other firm working on the contract.

5. **Services.** 100% of the expenditure for fees charged by a D/M/WBE for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of the contract will be counted toward the D/M/WBE goal(s), provided the fee is reasonable and not excessive as compared with fees customarily allowed for similar services.

6. **Trucking Operations.** A D/M/WBE trucking firm shall own and operate at least one registered, insured, and fully operational truck used on the contract and shall be responsible for the management and supervision of the trucking operation for which it is responsible, and the arrangement cannot be contrived solely for the purpose of meeting the D/M/WBE goal(s). The D/M/WBE trucking firm shall control the day-to-day D/M/WBE trucking operations, and shall be responsible for: (1) Negotiating and executing rental/leasing agreements; (2) Controlling the work force; (3) Coordinating the daily trucking needs with the Contractor or Subcontractor; and (4) Scheduling and dispatching trucks.

   a. **D/M/WBE Owned/Leased Trucks.** 100% of the value of the trucking operations the D/M/WBE provides on the contract using trucks it owns or leases on a long-term basis that are registered, insured, and operated by the D/M/WBE using drivers it employs, will be counted toward the D/M/WBE goal(s). A lease shall indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks shall display the name and identification number of the DBE.
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b. Other D/M/WBE Trucks. The D/M/WBE may obtain trucks from another D/M/WBE, including an owner/operator. 100% of the value of the trucking operations that the other D/M/WBE provides will also be counted toward the D/M/WBE goal(s).

c. Non-D/M/WBE Trucks. The D/M/WBE may obtain trucks from a non-D/M/WBE, including an owner-operator. Only the value of the fee or commission that the D/M/WBE receives as a result of the arrangement with the non-D/M/WBE will be counted toward the D/M/WBE goal(s).

7. **Equipment Rental.** 100% of the expenditure to a D/M/WBE for equipment rental will be counted toward the D/M/WBE goal(s). The Contractor shall have a written rental agreement with the firm that rents the equipment.

E. **Conditions of Participation.** D/M/WBE participation will be counted toward meeting the D/M/WBE contract goal(s), subject to the following conditions:

1. **Commercially Useful Function.** A D/M/WBE is considered to perform a commercially useful function when it is responsible for the execution of a distinct element of work on a contract and carries out its responsibilities by actually performing, managing, and supervising the work involved in accordance with normal industry practice. Regardless of whether an arrangement between the Contractor and the D/M/WBE represent standard industry practice, if the arrangement erodes the ownership, control or independence of the D/M/WBE or in any other way does not meet the commercially useful function requirement, the Contractor will receive no credit toward the goal(s) and may be required to backfill the participation. A D/M/WBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction or contract through which funds are passed in order to obtain the appearance of D/M/WBE participation.

   A DBE may present evidence to rebut a determination by the Department that the DBE is not performing a commercially useful function. Commercially useful function determinations by the Department are subject to review by the Federal Highway Administration (FHWA) but the determination may not be administratively appealed to USDOT. An M/WBE may rebut a determination by the Department that the M/WBE is not performing a commercially useful function to the NYS Department of Economic Development.

2. **Work Force.** The D/M/WBE must employ a work force, (including administrative and clerical) separate and apart from that employed by the Contractor, other Subcontractors on the contract, or their affiliates. This does not preclude the employment by the D/M/WBE of an individual that has been previously employed by another firm involved in the contract, provided that the individual was independently recruited by the D/M/WBE in accordance with customary industry practice. The routine transfer of work crews from another employer to the D/M/WBE shall not be allowed.

3. **Supervision.** All work performed by the D/M/WBE must be controlled and supervised by the D/M/WBE without duplication of supervisory personnel from the Contractor, other Subcontractors on the contract, or their affiliates. This does not preclude routine communication
between the supervisory personnel of the D/M/WBE and other supervisors necessary to coordinate the contract work.

4. Equipment. D/M/WBE Subcontractors may supplement their equipment by renting or leasing additional equipment in accordance with customary industry practice. The D/M/WBE shall obtain approval of the Department prior to renting equipment from the Contractor or its affiliates, and shall provide documentation to the Department demonstrating that similar equipment and terms could not be obtained at a lower cost from other customary sources of equipment. The required documentation shall include, but not be limited to, copies of the rental or leasing agreements, and the names, addresses, and terms quoted by other sources of equipment.

F. Requests For Waiver. A potential bidder, defined as one who has purchased the contract documents, may request a waiver of all or part of a contract's D/M/WBE goal(s) by submitting a written request to the Office of Construction Civil Rights Unit. The request shall be submitted no later than 17 calendar days prior to the contract letting, in order to allow sufficient time for a review and issuance of an amendment of the established goal(s), if necessary, in accordance with the Department's schedule for contract amendments. The request should contain sufficient justification as to why the goal(s) should be waived or reduced, and should at least address the following factors: the potential Bidder's method of accomplishing the work, the subcontracting opportunities associated with the proposed method, and the availability of certified D/M/WBEs for the work to be subcontracted.

G. Good Faith Efforts. To determine whether a bidder that has failed to meet the D/M/WBE contract goal(s) may receive the contract, the Department will decide whether the efforts the Bidder made to obtain D/M/WBE participation were "good faith efforts" to meet the goal(s). Efforts to obtain D/M/WBE participation that are merely pro forma are not good faith efforts, nor are efforts that, even if they are sincerely motivated, given all relevant circumstances, they could not reasonably be expected to produce a level of D/M/WBE participation sufficient to meet the goal(s).

In order to award a contract to a bidder that has failed to meet the D/M/WBE contract goal(s), the Department will determine that the Bidder's good faith efforts were those that, given all relevant circumstances, a bidder actively and aggressively seeking to meet the goal(s) would make. When a contract is awarded with D/M/WBE commitment(s) that is less than the contract goal(s), the Contractor shall continue good faith efforts. The Contractor shall periodically review items that are available for D/M/WBE participation, typically before the beginning of a new construction season and when significant new items of work are added to the contract, and conduct additional D/M/WBE solicitation.

In order to evaluate the Bidder's good faith efforts, the Department will consider the quality, quantity, and intensity of the different kinds of efforts that the Bidder has made. Below is a list of the types of actions which the Department will consider as part of the Bidder's good faith efforts to obtain D/M/WBE participation. It is not a mandatory checklist, nor is it intended to be exhaustive or exclusive.

1. Securing participation by certified D/M/WBE firms for work that they are listed to perform that is in the contract. Only DBEs certified by the NYS Unified Certification Program (NYSUCP) shall be used to fulfill the established goal on Federal-Aid contracts. Only M/WBEs
certified by the NYS Department of Economic Development shall be used to fulfill the established goal(s) on non Federal-Aid contracts.

2. Soliciting through reasonable and available means the interest of certified D/M/WBEs who have the capability to perform the work of the contract. The Bidder shall solicit this interest within sufficient time to allow the D/M/WBEs to respond to the solicitation. The Bidder shall verify that D/M/WBEs received the solicitation by following up the initial solicitation with at least one additional solicitation via a different media. The Bidder shall keep records of efforts to solicit and negotiate with D/M/WBEs as evidence of good-faith efforts, using the Solicitation Log as a continuing record.

3. Soliciting, at a minimum, certified D/M/WBEs in the appropriate geographic area:
   - For all work, soliciting certified D/M/WBEs within 75 miles of the contract location.
   - For trucking operations and equipment rental, soliciting certified D/M/WBEs within 75 miles of the contract location.
   - For work such as guide rail, fencing, landscaping, work zone traffic control, survey, signs, permanent highway lighting, traffic signals, and intelligent transportation systems (ITS); soliciting certified D/M/WBEs within 150 miles of the contract location.
   - For work such as pavement markings, manufacturers, fabricators, material suppliers, brokers, and services; soliciting certified D/M/WBEs within 300 miles of the contract location, or on an upstate or downstate basis.

4. Selecting portions of the work to be performed by D/M/WBEs in order to increase the likelihood that the D/M/WBE goal(s) will be achieved. This includes, where appropriate, either breaking down operations or combining like or related operations into logistically and economically feasible units to facilitate D/M/WBE participation, even when the Contractor might prefer to perform these work items with its own forces.

5. Providing interested D/M/WBEs with adequate information on where and how to obtain the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

6. a. Negotiating in good faith with interested D/M/WBEs. It is the Bidder's responsibility to make a portion of the work available to D/M/WBE Subcontractors and material suppliers and to select those portions of the work or material needs consistent with the available D/M/WBE Subcontractors and material suppliers, so as to facilitate D/M/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of D/M/WBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for D/M/WBEs to perform the work.

   b. Additional Costs. The fact that there may be some additional costs involved in finding and using D/M/WBEs is not in itself sufficient reason for a bidder's failure to meet the contract D/M/WBE goal(s), as long as such costs are reasonable. The ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the Bidder of the
responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from D/M/WBEs if the price difference is excessive or unreasonable.

7. Not rejecting D/M/WBEs as unqualified without sound reasons based on a thorough investigation of their capabilities.

8. Making efforts to assist interested D/M/WBEs in obtaining bonding, lines of credit or insurance as required by the Department.

9. Making efforts to assist interested D/M/WBEs in obtaining necessary equipment, supplies, materials, or related assistance.

10. Where available, effectively using the services of available minority/women focused media, trade associations, and contractors=groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of D/M/WBEs.

H. D/M/WBE Pre-Award Utilization Package. Within 7 calendar days after bid letting, the Apparent Low Bidder shall submit a complete D/M/WBE Pre-Award Utilization Package, as outlined below, to the Office of Construction using the Department approved civil rights reporting software. Apparent Low Bidders that do not have access to the Department approved civil rights reporting software shall contact the Office of Construction for guidance on submission of the Utilization Package. As soon as practicable, but not later than prior to the first contract payment, the Contractor shall enter all current utilization data into the Department approved civil rights reporting software.

For each D/M/WBE Subcontractor, the Apparent Low Bidder shall indicate the contract pay item number(s) of the work to be performed. The Apparent Low Bidder shall explain, in writing, the scope of work to be performed by the D/M/WBE for any item which is not completely performed by the D/M/WBE Subcontractor. This does not include items for which the Contractor is performing less than the total contract quantity for that item.

For each D/M/WBE Manufacturer, Fabricator, Material Supplier, or Broker, the Apparent Low Bidder shall indicate the contract pay item number(s) of the material to be manufactured, fabricated, supplied, or otherwise provided. If the material, equipment or service does not correspond to a specific contract pay item, the Apparent Low Bidder shall use a contract pay item(s) to which the activity relates.

For each D/M/WBE Service, the Apparent Low Bidder shall indicate the contract pay item number(s) of the service to be provided. If the equipment or service does not correspond to a specific Department contract pay item, the Apparent Low Bidder shall use a contract pay item(s) to which the activity relates.

For each D/M/WBE Trucking Operation, the Apparent Low Bidder shall indicate the contract pay item number(s) for which the trucking operations are to be performed. If the trucking operation does not correspond to a specific contract pay item, the Apparent Low Bidder shall use a contract pay item(s) to which the activity relates. The Apparent Low Bidder shall indicate the type of trucking operation to be performed, the number of trucks owned/leased, the number of trucks working on-site or off-site, rate per hour/ton/load/etc., duration or amount, and total dollar value of the proposed D/M/WBE commitment. The Apparent Low Bidder shall provide copies of all lease agreements utilized by the D/M/WBE.
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If the Apparent Low Bidder has met or exceeded the established D/M/WBE goal(s) for the contract utilizing certified D/M/WBEs it is not necessary to submit documentation of good faith efforts.

If the Apparent Low Bidder has not met the D/M/WBE goal(s), it shall submit the Solicitation Log, together with other documentation that substantiates good faith efforts. Such documentation shall include, at a minimum, all envelopes of solicitation inquiries that were returned as undeliverable and quotations submitted by D/M/WBEs that are not included in the D/M/WBE Schedule of Utilization with an explanation for the Bidder's action in each case.

After contract award, the Contractor shall promptly execute subcontracts, agreements, or purchase orders, as appropriate, with each D/M/WBE for the type and amount of work identified in the approved D/M/WBE Utilization Worksheet.

I. Bidder’s Failure to Comply. The Department's acceptance of the Apparent Low Bidder's proposal is conditioned upon the Apparent Low Bidder's fulfillment of the D/M/WBE utilization requirements. If the Apparent Low Bidder fails to submit a complete D/M/WBE utilization package within 7 calendar days after the bid opening and/or fails to attain the D/M/WBE utilization goal(s) and to satisfactorily document its good faith efforts, the bid may be declared incomplete and the deposit may be subject to forfeiture pursuant to §103-02 Execution of Contract. The Apparent Low Bidder, upon receipt of written notification of its failure to comply with the D/M/WBE utilization requirements shall have 5 work days to carry out the corrective action(s) described in the notification.

If the Department determines that the Apparent Low Bidder has failed to meet the good faith effort requirements, the Department will, before awarding the contract, provide the Apparent Low Bidder an opportunity for administrative reconsideration by an official who did not take part in the original determination that the Apparent Low Bidder failed to meet the goal(s) or make adequate good faith efforts to do so. As part of this reconsideration, the Apparent Low Bidder shall have the opportunity to provide written documentation or argument and to meet in person with the Department’s reconsideration official concerning the issue of whether it met the goal(s) or made adequate good faith efforts to do so. The Department will send the Apparent Low Bidder a written decision on reconsideration, explaining the basis for finding that the Apparent Low Bidder did or did not meet the goal(s) or make adequate good faith efforts to do so.

Delete §105-21 and Replace it with the following:

105-21 CIVIL RIGHTS MONITORING AND REPORTING. The Department approved civil rights reporting software is Equitable Business Opportunity Solution (EBO). The EBO software is a web-based system owned and maintained by the Department, and provided to the Contractor at no cost. The Contractor shall use the Department approved civil rights reporting software on all contracts. The Contractor shall submit complete, accurate, electronic data to the Department for each month, not later than the 15th of the following month, using the Department approved civil rights reporting software. Data shall be current through the end of the last full payroll week for that month, or as otherwise approved by the Engineer to coordinate with contract payment submittals.

A. Civil Rights Officer(s). The Contractor and each Subcontractor shall designate a Corporate Civil Rights Officer, a Corporate DBE Representative, and a contract site Equal Employment Opportunity (EEO) Representative in the Department approved civil rights reporting software. The designated individuals shall have the responsibility to and shall be capable of effectively
administering and promoting an active program of equal employment opportunity and who shall be assigned adequate authority and responsibility to do so. A single individual may fulfill multiple roles. The Contractor shall update the Department approved civil rights reporting software within 10 calendar days of any changes in these roles.

B. Workforce Participation Plan. At the pre-construction meeting, the Contractor shall submit a Workforce Participation Plan covering the Contractor's workforce and the workforce of all its Subcontractors, together and coordinated with the contract progress schedule, that addresses the Equal Employment Opportunity goals.

The Contractor shall not start work until the Department and the Contractor have agreed upon has accepted the Workforce Participation Plan. The Contractor shall submit a revised plan when a significant work force build-up or reduction will substantially affect goal attainment, or when a revised schedule is requested by the Department. Such revised Workforce Participation Plan must be agreed upon by the Department or the original will remain in effect.

C. Equal Employment Opportunity (EEO) Monitoring and Reporting. The Contractor’s compliance with the EEO Requirements will be based on its Employment Utilization, affirmative action steps and its good faith efforts to meet the goals.

The Department, in evaluating the Contractor’s good faith efforts to meet the EEO goal(s), will first analyze the Contractor’s goal attainment on an individual contract. If the Contractor is not meeting the goal(s) for a single trade or contract, the Department will analyze, progressively, the Contractor’s goal attainment on all contracts held by the Contractor within the county, the Region, and/or the State. This method of analysis shall be applied primarily but not solely to contracts with small population numbers. Other factors to be considered include, but are not limited to; the location of the contracts, the relative proximity of the contracts to each other, and the nature of the work.

1. Employee Utilization Data. The Contractor shall submit employee utilization data for its workforce and for each Subcontractor with a subcontract exceeding $10,000 to the Department on a monthly basis showing hours worked for each payroll week, for each trade and classification, by gender and ethnicity. Employee utilization data shall include data from the start of the contract up to and including the month being reported. For the purpose of determining utilization percentages, the hours of female and minority employment shall be tabulated separately and attainment percentages calculated separately.

2. Federal-Aid Highway Construction Contractors Annual EEO Report. The Contractor shall submit all required employee utilization data to produce a Form FHWA 1391 Federal-Aid Highway Construction Contractors Annual EEO Report to the Department annually not later than August 15th, covering the last payroll period worked in July, for all ongoing Federal-Aid contracts. The data shall indicate the number of minority men, minority women, non-minority men, and non-minority women employees currently engaged in each trade.

3. Monthly Training Progress Report. When training is required under §102-11 Equal Employment Opportunity Requirements and/or Training Special Provisions, the Contractor shall submit a monthly training progress report to the Engineer not later than the 15th of each month.
4. **Contractor Compliance.** If the Contractor fails to meet the EEO goal(s) for minorities or women, the Department may require training of minorities and women to satisfy the employment goals. If the Contractor fails to meet the EEO goal(s) or is in noncompliance with the nondiscrimination clauses, the Department may suspend additional contract payments in accordance with Article 8 *No Payment on Contractor’s Non-Compliance* of the contract agreement, the Contractor may be directed to attend a hearing before the Contract Review Unit, or the Department may follow any other lawful procedure upon due notice in writing to the Contractor, including cancellation, termination, or suspension in whole or in part in accordance with Article 11 *Right to Suspend Work and Cancel Contract* of the contract agreement.

The Contractor may also be referred to the U.S. Department of Labor, Office of Federal Contract Compliance Programs (OFCCP), which has the sole authority to determine compliance with Executive Order 11246 and its implementing regulations. OFCCP may declare the Contractor ineligible for further Federal-Aid contracts in accordance with procedures authorized in Executive Order 11246, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, or by rule, regulation, or order of the U.S. Secretary of Labor, or as otherwise provided by law.

**D. D/M/WBE Monitoring and Reporting.** The Engineer will monitor the work to ensure that the identified D/M/WBEs perform the work as identified in the Contractor’s commitments. Attainments will be measured based on payments made to D/M/WBEs. Attainments based on work completed by D/M/WBEs that are no longer certified will not be counted after the D/M/WBE is no longer certified.

1. **Report of Payments to Subcontractors and D/M/WBEs.** The Contractor shall report payments made to all Subcontractors and all D/M/WBEs, in order to measure goal attainment and to gauge the effect of D/M/WBE goal(s) on the industry. The Contractor shall submit payment data for all Subcontractors and for all D/M/WBEs approved by the Department that are due a payment or have received a payment within the last month. The Subcontractor or D/M/WBE shall acknowledge payment not later than 7 calendar days after receipt.

2. **Revisions to D/M/WBE Utilization.** The Contractor shall obtain Department approval for substantial revisions in D/M/WBE utilization prior to implementing any proposed change through submission of a revised *D/M/WBE Utilization Worksheet* using the Department approved civil rights reporting software.

   If the reduction of the D/M/WBE’s work or the removal of the D/M/WBE, including for reasons of commercially useful function violations, causes the D/M/WBE utilization to fall below the goal(s), the Contractor shall make good faith efforts to find another D/M/WBE to substitute for the original D/M/WBE to perform at least the same amount of work as the D/M/WBE that was terminated, to the extent needed to meet the contract goal(s).

   A D/M/WBE may be substituted if the work committed to the D/M/WBE is deleted or reduced by the Department and enough work remains to substitute an equal commitment amount to the affected D/M/WBE. If not enough work remains, the Department may relieve the Contractor from attaining that portion of the commitments.

   The following modifications will be considered a substantial revision in D/M/WBE utilization:

   1. Adding, removing or substituting a D/M/WBE.
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2. Adding new item(s) of work to a D/M/WBE within a core (3 digit) contract pay item number (i.e. 606 – Guide Railing) not currently approved.
3. Significantly reducing the dollar value of or eliminating the D/M/WBE item(s) of work. Significant reduction will be determined by comparison to the total D/M/WBE contract goal.

The following modifications will not be considered a substantial revision in D/M/WBE utilization:
1. Increasing the dollar value of an item(s) of work or adding new item(s) of work within the same core (3 digit) contract pay item number (i.e. 606 – Guide Railing) to a D/M/WBE.
2. Substituting similar dollar values of work within a currently approved core (3 digit) contract pay item number (i.e. 606 – Guide Railing).
3. Changes in utilization due to differences between estimated quantities and actual work performed.

a. DBE Program. In accordance with 49 CFR 26.53(f)(1), the Contractor shall not terminate a DBE listed on the approved DBE Utilization plan without the prior written consent of the Department. This includes, but is not limited to, instances in which a contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The Department will consent only if the prime contractor has good cause to terminate the DBE firm. Good cause includes, at a minimum, one the following circumstances:
- The listed DBE fails or refuses to execute a written contract;
- The listed DBE fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the Contractor;
- The listed DBE fails or refuses to meet the Contractor's reasonable, nondiscriminatory bond requirements.
- The listed DBE becomes bankrupt, insolvent, or exhibits credit unworthiness;
- The listed DBE is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1,200 or applicable state law;
- The Department has determined that the listed DBE is not a responsible contractor;
- The listed DBE voluntarily withdraws from the project and provides to the Department written notice of its withdrawal;
- The listed DBE is ineligible to receive DBE credit for the type of work required;
- A DBE owner dies or becomes disabled with the result that the listed DBE is unable to complete its work on the contract;
- Other documented good cause that you determine compels the termination of the DBE. Provided, that good cause does not exist if the Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the Contractor can self-perform the work for which the DBE was engaged or so that the Contractor can substitute another DBE or non-DBE contractor after contract award.
Before submitting its request to terminate and/or substitute a DBE to the Department, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Engineer, of its intent to request to terminate and/or substitute, and the reason for the request.

The Contractor shall give the DBE five days to respond to the notice and advise the Department and the Contractor of the reasons, if any, why the DBE objects to the proposed termination of its subcontract and why the Department should not approve the Contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), the Department may approve a response period shorter than five days.

b. M/WBE Program. In the cases of substantial reduction, removal or substitution, the Contractor shall provide written justification with a substantive basis for the change. A Contractor's ability to negotiate a more advantageous contract with another Subcontractor will not be considered a valid basis for change.

3. Contractor Compliance. If the Contractor fails to meet the D/M/WBE utilization goal(s), to exert a good faith effort, or otherwise fails to comply with the D/M/WBE requirements, the Department may take further actions, as follows:

a. DBE Program. The Department may suspend contract payments in accordance with Article 8 No Payment on Contractor's Non-Compliance of the contract agreement, the Contractor may be directed to attend a hearing before the Contract Review Unit, or the Department may follow any other lawful procedure upon due notice in writing to the Contractor, including cancellation, termination, or suspension in whole or in part in accordance with Article 11 Right to Suspend Work and Cancel Contract of the contract agreement. The Contractor may also be referred to the USDOT for possible suspension or debarment as provided in 49 CFR 29 and such other sanctions as may be imposed and remedies invoked as provided under the authority of 49 CFR 26, or by rule, regulation, or order of the Commissioner or as otherwise provided by law.

b. M/WBE Program. The Department may suspend contract payments in accordance with Article 8 No Payment on Contractor’s Non-Compliance of the contract agreement, the Contractor may be directed to attend a hearing before the Contract Review Unit, or the Department may follow any other lawful procedure upon due notice in writing to the Contractor, including cancellation, termination, or suspension in whole or in part in accordance with Article 11 Right to Suspend Work and Cancel Contract of the contract agreement.

Where Department determines that Contractor is not in compliance with the requirements of the Contract and Contractor refuses to comply with such requirements, or if Contractor is found to have willfully and intentionally failed to comply with the MWBE participation goals, Contractor shall be obligated to pay to the Department liquidated damages. Such Liquidated Damages for failure to meet the M/WBE requirements shall be calculated as an amount equaling the difference between the amount committed to MWBEs by the Contractor at award; and the amount actually paid to MWBEs for work performed or materials supplied under the Contract, not including any amount for work deleted by the Department.
If a determination has been made which requires the payment of liquidated damages and such identified sums have not been withheld by the Department, Contractor shall pay such liquidated damages to the Department within sixty (60) days after they are assessed, unless prior to the expiration of such sixtieth day, the Contractor has filed a complaint with the Director of the Division of Minority and Woman Business Development pursuant to Subdivision 8 of Section 313 of the Executive Law in which event the liquidated damages shall be payable if Director renders a decision in favor of the Department.

The Department may file a complaint with the NYS Department of Economic Development, Division of Minority and Women's Business Development pursuant to Executive Law Article 15-A, or other sanctions may also be imposed and remedies invoked as provided under the authority of Executive Law Article 15A, 5 NYCRR 140-145, or by rule, regulation, or order of the Commissioner or as otherwise provided by law.

**E. Compliance Reviews.** The Department conducts annual civil rights contract compliance reviews of selected Federal-aid contracts in accordance with 23 CFR 230.409. A compliance review consists of a thorough review of all civil rights contract requirements, including Nondiscrimination in Labor/Employment, EEO, Training, and DBE requirements. A Contractor will typically not be selected for more than one compliance review per year statewide. Based on contract monitoring and/or the results of compliance review(s), the Department may conduct a review of some or all ongoing contracts with a single Contractor, regardless of funding source.
Make the following changes to the Standard Specifications dated May 4, 2006 and May 1, 2008:

May 4, 2006, Page 82 and May 1, 2008, Page 80;
Delete §105-03 *Methods and Equipment* and Replace it with the following:

**105-03 METHODS AND EQUIPMENT.** Where particular methods or equipment are specifically required, the Contractor may apply in writing to the Regional Director to use alternate methods and equipment to provide the same results. Such alternates may be used only after favorable recommendation by the Regional Director and the written approval of the Deputy Chief Engineer (Construction). When, in the opinion of the Regional Director, satisfactory results are not being obtained using the Contractor's alternate methods and equipment, the methods and/or equipment shall be immediately modified to produce satisfactory results.

The Contractor may use the most efficient equipment that is consistent with conditions at the time of use. It is anticipated that seasonal or weather conditions combined with the nature of the terrain will often require the use of lighter and smaller equipment than might be used under optimum conditions.

Construction operations requiring soil compaction shall not be performed from November 1st thru April 1st except with an approved Winter Earthwork submittal in accordance with §203-3.01 A. *Winter Earthwork Submittal.*

In all work incorporated into the final product, the Contractor shall not place material that is frozen, or place fill material on frozen ground regardless of the date.

May 4, 2006, Page 103 and May 1, 2008, Page 102;
Insert the following at the end of §107-01 *Laws, Rules, Regulations and Permits*:

**D. Archaeological Salvage.** Whenever, during the course of construction, historical or prehistoric objects or human remains are encountered, such objects shall not be destroyed or moved. The Contractor shall stop work to avoid disturbing such areas and notify the Engineer immediately.

The Engineer will notify the appropriate Department personnel and other authorities and arrange to have an immediate inspection of the site conducted.

Removal or salvage of archaeological objects will be considered extra work. Such work will be limited to that performed within the right-of-way, and at any location under direct control of the Contractor used as a source of approved borrow material or a spoil disposal area.
Make the following changes to the Standard Specifications dated May 4, 2006 and May 1, 2008:

May 4, 2006, Page 88 (as modified by EI 06-007) and May 1, 2008, Page 85;
Delete §105-10 Survey and Stakeout in its entirety and Replace it with the following:

105-10 SURVEY AND STAKEOUT.

Prior to the start of construction work, all right of way markers, property line markers and survey control markers located in or adjacent to areas which may be disturbed during construction shall be properly protected and tied to fixed reference points or located from established contract control. Upon completion of the work, all right of way or property line markers or survey markers that have been disturbed by the Contractor, shall be reset under the direction of a Land Surveyor. Field location notes shall be recorded and made available to the Engineer upon request at no additional cost to the State.

All survey control and boundary location work shall be performed in accordance with the Department’s Land Surveying Standards and Procedures Manual under the direction of a Land Surveyor.

All survey work performed for quality control by the Contractor and for quality assurance by the Department should both utilize: (1) similar levels of measurement precision and methods to perform positional measurements, (2) the same control network from which measurements are made, and (3) the same survey measurement procedures to ensure consistency of results.

Terrain features are measured and positioned by various methods relative to the contract control network established for each contract. The precision with which an instrument or equipment positions a point is related to the quality of the method by which measurements are made, and the ability to duplicate the same measurement. The local accuracy of a located point is the closeness of the measured or computed value to a standard or accepted value (actual spatial position on the earth). Positional tolerance is the allowable spatial difference between making measurements by two different methods or by the same method at separate times, all of which have the same level of precision.

Horizontal coordinates and vertical elevations of existing features provided as part of the contract are located in the field based on accuracies achievable for each positional point relative to the contract control. Positional accuracies are directly related to the strength of the contract control network, the methods used to make the measurements, the precision of the instruments used to measure to the feature, and how definable the feature is which is being located. Point feature locations represent a single position (for example: property line marker, sign post, utility pole, or fire hydrant) and can be re-identified or verified in the field to within a small variation (high confidence level) from where they were initially positioned. Linear feature locations define the alignment of that feature. That alignment can be verified to within a specific tolerance depending on the spacing or frequency at which the points were originally measured to define that alignment. Straight or uniformly curved linear features (for example: curbline, edge of roadway, or edge of sidewalk) which can be easily defined in the field should have a relatively small positional variation from their designed location when compared to a verified field location. Irregular shaped or not as clearly defined linear features (for example: break lines, ditchlines, treelines, or environmental area perimeters) which are sometimes difficult to define or delineate precisely in the field, could have a larger variation from where they were initially positioned when compared to a field-verified location.

Digital terrain model (DTM) surfaces, when provided by the Department, are made up of a combination of point and linear features. The precision of a data collection instrument does not necessarily indicate what positional tolerance should be expected of any feature verified from an existing DTM. The location or elevation of a feature selected from a DTM surface can, at best, be determined by interpolating the horizontal position or elevation between previously located points. The verification of any specific elevation on the DTM surface is directly related to: (1) the spacing of collected data or breaklines used to produce that surface; (2) the uniformity of the surface being measured; (3) the steepness of the slope of that surface; and (4) how obscured the surface is from the measuring technique used to originally locate the surface. Standardized procedures for determining the spacing/frequency of point and linear features (including break lines), are critical to providing consistent results. Department standardized procedures for determining feature locations are described in both the “Land Surveying Standards and Procedures Manual”, and the “Specifications for Photogrammetric Stereocompilation”.

Verification of the positional tolerance of the DTM surface elevation requires a comparison of the original
collected point data with recollected point data measured at the same horizontal locations. Field comparisons to interpolated DTM surfaces or recreated surface information (from other information sources) shall not be used for verification of the positional tolerance of a feature. Comparisons of re-measured point data can only be made with the original collected point data, not to interpolated positions. Measurements for verification of DTM point data shall also be made from the same contract control network, and by instruments capable of an equal or greater precision.
Make the following changes to the Standard Specifications of May 1, 2008:

Page 104, **Delete §107-05B. Project Safety and Health Plan** and **Replace** it with the following:

**B. Project Safety and Health Plan.** The Contractor shall perform all necessary planning, supervision, and training activities to ensure that all of the requirements of 29 CFR 1926 are fully met for all workers employed in the construction of the contract. The Contractor shall provide to the Department prior to the start of work satisfactory evidence that all current requirements of 29 CFR 1926 will be adequately addressed. As a minimum, the Contractor shall provide a written Project Safety and Health Plan which documents the Contractor's company policy relative to safety, and which identifies and addresses specific safety and health concerns to be encountered on the project. Before the work begins and periodically throughout the project, the Contractor's project supervision staff shall meet with the Engineer to review and discuss the status of safety issues on the project. An appropriate notice shall be posted on the contract site that the Project Safety and Health Plan is available for examination by any worker employed on the project. As a minimum this plan shall include the following items:

- Identification of project and company safety officers.
- Hazardous Materials Communications Plan.
- Employee Safety Training Program.
- Company safety policy.
- Procedures to address project safety and health concerns.
- Procedures to address distraught, emotionally disturbed persons and/or homeless persons.
- Procedures for compelling worker compliance with safety and health requirements.

Certain of these items may be submitted in the format of a Company Safety and Health Program, with the Project Safety and Health Plan limited to project-specific issues.

The Contractor shall ensure that each subcontractor employed on the project complies with this requirement. The Contractor shall provide to the Department a Project Safety and Health Plan covering all work to be done by the subcontractor prior to starting work. As an alternative, the Contractor may provide a certification that all activities performed by and workers employed by the subcontractor will be subject to the Contractor's Project Safety and Health Plan.

Submission of the required Project Safety and Health Plan by the Contractor and its acceptance by the Department shall not be construed to imply approval of any particular method or sequence for addressing safety and health concerns, or to relieve the Contractor from the responsibility to adequately protect the safety and health of all workers involved in the project as well as any members of the public who are affected by the project.

In accordance with NYS Labor law §220-h, all laborers, workers, and mechanics shall be certified prior to performing any work on the contract as having successfully completed a course in construction safety and health approved by the US Department of Labor's Occupational Safety and Health Administration (OSHA) that is at least ten hours in duration. The Contractor shall attach proof of completion to first certified payroll for initial workers, and to subsequent payrolls for new or additional workers. The Contractor shall clearly indicate on subsequent payrolls any workers not previously employed on that contract. If no proof of completion has been submitted for a worker listed on a certified payroll, the Engineer will alert the Contractor to this fact. If the Contractor cannot provide proof of completion and the worker continues to work, the Department will notify the Contractor in writing with a copy to the NYSDOL by e-mail at PWAsk@labor.state.ny.us.
Make the following changes to the Standard Specifications dated May 4, 2006 and May 1, 2008:

§107-05 Safety and Health Regulations **Delete paragraph N. Drilling and Blasting entirely and Replace** it with the following:

**N. Drilling and Blasting.** Blasting shall be performed in accordance with the Department publication entitled *Procedures for Blasting*. This publication is available upon request from the Regional Director or the Director, Geotechnical Engineering Bureau.

The Contractor shall submit a written Blast Plan in accordance with *Procedures for Blasting* for approval by the Department a minimum of 10 work days prior to start of blasting operations. A preblast meeting relative to the method, manner and procedure of blasting operations shall be held with the Engineer, the Contractor, the Blaster, a Departmental Engineering Geologist and representatives of all interested agencies prior to the commencement of drilling and blasting operations.

Whenever explosives are used, they shall be of such character and strength and in such amounts as permitted by state and local laws and ordinances and all agencies having jurisdiction over them. The Department reserves the right to specify the maximum size of the charges. Blasting shall be done only when the Engineer and those agencies shall approve and under such restrictions as they may impose.

If a blast causes injury, damage to property, adverse affects upon traffic, or causes gases to migrate and/or accumulate in a potentially harmful manner, all blasting operations shall cease by order of the Engineer for a review of the procedures. The review will be conducted by the Engineer in conjunction with an Engineering Geologist to ensure that proper procedures and practices were used to determine if the approved procedures need to be revised. Should the findings of the review indicate the injury, damage, traffic delay, or migration/accumulation of gases was attributed to improper blasting operations, the blaster of record may be removed at the Department’s option.

The Contractor shall meet all the requirements of 12 NYCRR 23, 12 NYCRR 39, and 12 NYCRR 61, which include but are not limited to the licensing for ownership, possession, transportation, or use of explosives, certifications for blasters, and provisions for storage, construction and maintenance of magazines.
Make the following changes to the Standard Specifications of May 1, 2008:

Page 114 Insert §107-05U. Use of Personal Entertainment Devices and Portable Phones.

U. Use of Personal Entertainment Devices and Portable Phones. The Contractor shall ensure that workers are able to perceive hazards, are not distracted from their tasks, and are not creating hazard(s) through the use of personal entertainment devices. The Contractor shall ensure that portable phones, two-way radios, and other communication devices are used by workers for performing work tasks only. Flaggers shall use portable phones, two-way radios, and other communication devices only to communicate with other flaggers, workers or supervisors regarding flagging operations. Equipment operators shall use portable phones, two-way radios or other communication devices while actively operating equipment only for communicating with workers performing directly related work tasks. Truck drivers shall use hands free technology for all calls while driving within work zones. Portable phones, two-way radios, and other communication devices shall be equipped with hands-free technology whenever practicable. Workers shall not use personal entertainment devices with earphones such as radios, iPods, MP3 players, media players, or other personal listening devices while working.

Page 579, Delete §619-3.02L.2, as modified and Replace it with the following:

2. Flagger Equipment. Flaggers shall wear orange protective helmets and traffic control apparel in accordance with §107-05A. High Visibility Apparel. Flaggers shall be appropriately dressed, including apparel that covers the legs, torso, and arms with sleeves a minimum of 100 mm long and appropriate footwear. Immodest or sloppy dress will not be permitted. Flaggers shall be equipped with an emergency air horn to alert workers of errant vehicles or other dangerous situations. Where flaggers are not within sight of each other, each flagger shall be equipped with a communication device, such as portable phone or two-way radio. The communication device shall only be used to communicate with other flaggers, other workers, or supervisor(s) regarding the flagging operations. Where the distance between flaggers is more than 1 km or where shown in the contract documents, the Contractor may use pilot cars to lead lines of vehicles through the work zone.

The standard signaling device for flagging operations, where one or more flaggers are controlling a single stream of traffic or two alternating streams of traffic in opposite directions, shall be STOP/SLOW signal paddles. Red signal flags may be used where display of the STOP and SLOW faces in opposite directions may be inappropriate or misleading.
Make the following changes to the Standard Specifications dated May 4, 2006 / May 1, 2008:

Delete §107-06 and Replace it with the following:

107-06 INSURANCE. The Contractor shall procure, at its own sole cost and expense, and shall maintain in force at all times during the term of this contract including any extensions or renewals until Contract Final Acceptance, the policies of insurance covering all operations under the contract whether performed by it or its subcontractors as herein below set forth, written by companies authorized by the New York State Insurance Department to issue insurance in the State of New York and that have an A.M. Best Company rating of (A-) or better or approved by the Department. The Department may, at its sole discretion, permit the placement of policies with a non-authorized carrier or carriers upon request by the Contractor accompanied by the documentation required by 11 NYCRR §27.0 et seq.; provided that nothing herein shall be construed to require the Department to accept insurance placed with a non-authorized carrier under any circumstances. The Contractor shall deliver to the Department evidence of such policies as the Department deems necessary to verify that the required insurance is in effect.

A. Conditions Applicable to Insurance. All policies of insurance required by this agreement must meet the following requirements:

1. Coverage Types and Policy Limits. The types of coverage and policy limits required from the Contractor are specified in Paragraph B Insurance Requirements below. General liability insurance shall apply separately on a per-job or per-project basis.

2. Policy Forms. Except as may be otherwise specifically provided herein or agreed in writing by the Department, policies must be written on an occurrence basis. In the event that occurrence-based coverage is not commercially available, claims-made policy forms will be considered provided that, at minimum, it includes provisions that allow for (a) reporting circumstances or incidents that may give rise to future claims and (b) an extended reporting period of not less than three (3) years with respect to events that occurred but were not reported during the term of the policy.

3. Certificates of Insurance/Notices. Contractor shall provide a Certificate or Certificates of Insurance, in a form satisfactory to the Commissioner, before commencing any work under this contract. Certificates or transmittal correspondence shall reference the NYSDOT Contract D Number. Certificates shall be mailed to the:

Office of Contract Management
New York State Department of Transportation
50 Wolf Rd.
Albany, NY 12232

Unless otherwise agreed, policies shall be written so as to require that the policy will not be (i) canceled, (ii) materially changed or (iii) permitted to expire or lapse for any reason except upon thirty (30) days’ prior written notice to the Department by Certified Mail, Return Receipt Requested at the address stated above. In addition, if required by the Department, the Contractor shall deliver to the Department within forty-five (45) days of such request a copy of any or all policies of insurance not previously provided, certified by the insurance carrier as true and complete. Certificates of Insurance shall:

a. Be in the form provided by the Department (C218 or successor) unless the Department specifically approves a different form. The ACORD forms of Certificate of Insurance are not acceptable.

b. Be signed by an authorized representative of the insurance carrier or producer and be acknowledged before a notary public.

c. Disclose any deductible, self-insured retention, aggregate limit or any exclusion to the policy that materially changes the coverage required by the contract.
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d. Specify the Additional Insureds and Named Insureds as required herein.

e. Refer to this Contract by number on the face of the certificate, and

f. Expressly reference the inclusion of all required endorsements.

If at any time during the term of this contract, it shall come to the attention of the Department that required insurance is not in effect or that adequate proof of insurance has not been provided, the Department may, at its option:

a. Direct the Contractor to suspend work and not re-enter the premises with no additional payment or extension of time due on account thereof, or

b. May withhold further contract payments in accordance with Article 8 No Payment Due to Contractor’s Non-Compliance of the contract agreement, or

c. Treat such failure as a breach or default of the contract.

4. Additional Insureds. All insurance policies required by these specifications, except workers’ compensation and professional liability shall be endorsed to provide coverage to “The State of New York/New York State Department of Transportation, any municipality in which the work is being performed, any public benefit corporation, railroad, or public utility whose property or facilities are affected by the work, and any consultants working for or on the project, and their agents or employees” with respect to any claim arising from the Contractor’s Work under this contract or as a result of the Contractor’s activities. The endorsement shall be effected by endorsement of the applicable policy using ISO form CG 20 10 11 85, CG 20 37 07 04, CG 20 33 07 98 when used in combination with CG 20 37 07 04, or CG 20 33 10 01 or a form(s) that provides equivalent coverage.

5. Primary Coverage. All insurance policies, excepting workers’ compensation, shall provide that the required coverage shall be primary as to any other insurance that may be available to the Department for any claim arising from the Contractor’s Work under this contract, or as a result of the Contractor’s activities.

6. Waiver of Subrogation. As to every type and form of insurance coverage required from the Contractor, there shall be no right of subrogation against the State of New York/New York State Department of Transportation, its agents or employees. To the extent that any of Contractor’s policies of insurance prohibit such a waiver of subrogation, Contractor shall secure the necessary permission to make this waiver.

7. Policy Renewal/Expiration. At least thirty (30) calendar days prior to the expiration of any policy required by this contract, evidence of renewal or replacement policies of insurance with terms no less favorable to the Department than the expiring policies shall be delivered to the Department in the manner required for service of notice in Paragraph A.3. Certificates of Insurance/Notices above.

8. Self-Insured Retention/Deductibles. Contractors utilizing self-insurance programs are required to provide a description of the program for Department approval. Collateralized deductible and self-insured retention programs administered by a third party may be approved. Except as may be specifically provided in the Contract Documents of a particular project, Contractor or third-party-administered insurance deductible shall be limited to the amount of the bid deposit or $100,000.00, whichever is less. Security is not required if it is otherwise provided to an administrator for an approved risk management program. The Department will not accept a self-insured retention program without security being posted to assure payment of both the self-insured retention limit and the cost of adjusting claims. The Contractor shall be solely responsible for all claim expense and loss payments within any permitted deductible or self-
insured retention. If the Contractor’s deductible in a self-administered program exceeds the amount of the bid deposit, the Contractor shall furnish an irrevocable Letter of Credit as collateral to guarantee its obligations. Such Letter of Credit or other collateral as may be approved by Department must be issued by a guarantor or surety with an AM Best Company rating of (A-) or better. If, at any time during the term of this agreement, the Department, in its sole discretion, determines that the Contractor is not paying its deductible, it may require the Contractor to collateralize all or any part of the deductible or self-insured retention on any or all policies of insurance or, upon failure to promptly do so, the same may be withheld from payments due the Contractor.

9. **Waiver of Indemnities.** The Contractor waives any right of action it and/or its insurance carrier might have against the Department (including its employees, officers, commissioners, or agents) for any loss that is covered by a policy of insurance that is required by this contract. The Contractor waives any right of action it and/or its insurance carrier might have against the Department (including its employees, officers, commissioners, or agents) for any loss, whether or not such loss is insured.

10. **Subcontractor’s Liability Insurance.** In the event that any portion of the work described in this contract is performed by an approved subcontractor, the insurance requirements of this Article shall be incorporated into the subcontract agreement. Subcontractor insurance requirements shall include the requirements for Workers’ Compensation, Commercial General Liability, and, if applicable, Commercial Auto and/or Professional Liability. Excess or umbrella insurance is not required for subcontractors. Contractor shall require that Certificates of Insurance, meeting the requirements of the Department are provided to the Department documenting the insurance coverage for each and every subcontractor employed by them to do work under this contract.

B. **Insurance Requirements.** The types of insurance and minimum policy limits shall be as follows:

1. **Workers’ Compensation and Disability Insurance.** As required by State Finance Law §142, the Contractor shall maintain in force workers’ compensation insurance upon forms required by or acceptable to the Workers Compensation Board for all of Contractor’s employees. Contractor shall also maintain disability insurance as required by the Disability Benefits Law of the State of New York.

2. **Commercial General Liability Insurance.** The Contractor shall maintain an occurrence form commercial general liability policy or policies insuring against liability arising from premises (including loss of use thereof), personal injury or death, advertising injury, liability insured under an insured contract (including the tort liability of another assumed in a business contract) occurring on or in any way related to the premises or occasioned by reason of the operations of Contractor. Such coverage shall be written on an ISO occurrence form (ISO Form CG 00 01 12 07 or a policy form providing equivalent coverage) in an amount of not less than $1,000,000.00 per occurrence and not less than $2,000,000.00 aggregate. Unless otherwise provided, the policy or policies of insurance providing the liability coverage shall include:
   
   a. Coverage for contractual liability assumed by the Contractor insured under an insured contract (including the tort liability of another assumed in a business contract).
   
   b. All insurance policies required by these specifications except workers’ compensation and professional liability shall be endorsed to provide coverage to “the State of New York/New York State Department of Transportation, any municipality in which the work is being performed, any public benefit corporation, railroad, or public utility whose property or facilities are affected by the work, or any consultant inspecting engineer or inspector working for or on the project, and their agents or employees” using ISO form CG 20 10 11 85, CG 20 37 07 04, CG 20 33 07 98 when used in combination with CG 20 37 07 04, or CG 20 33 10 01 or a policy form or forms providing equivalent coverage.
c. Products-Completed Operations Coverage, as provided in the General Liability Policy, or in certain instances through ISO form CG 26 11 09 99 or suitable equivalent.

d. Where contract work will be performed by unregistered off-road equipment, Contractor shall provide documentation of a blanket Pollution Liability policy, or an endorsement to cover short-term pollution events, ISO form CG 04 33 10 01 or equivalent.

e. Coverage for claims for bodily injury asserted by an employee of an additional insured and any Employer Liability Exclusion which may otherwise operate to exclude such coverage shall be voided in this respect.

f. Explosion, Collapse and Underground Hazards coverage (“XCU”) (for contracts that call for the performance of excavating, underground work, and/or the use of blasting equipment).

3. Commercial Automobile Insurance including liability and required coverage for New York (applicable to any project where automobiles or other vehicles will be employed to complete the work). In the event that automobiles are used in connection with Contractor’s business or operations with the Department, the Contractor shall maintain a commercial or other automobile policy or policies insuring against liability for bodily injury, death, or damage to property and other mandatory coverages, relating to the use, operation, loading or unloading of any of Contractor’s automobiles (including owned, hired and non-owned vehicles) on and around the project. This should be ISO form CA 00 01 10 01, CA 00 01 01 87 or a policy form providing equivalent coverage along with mandatory New York endorsements. Coverage shall be in an amount of not less than $1,000,000.00 each accident.

4. Umbrella or Excess Liability Insurance. The Contractor shall maintain an occurrence form umbrella liability policy or policies insuring against liability arising from premises (including loss of use thereof), operations, independent Contractors, products-completed operations, personal injury and advertising injury, and liability insured under an insured contract (including the tort liability of another assumed in a business contract) occurring on or in any way related to the premises or occasioned by reason of the operations of Contractor or arising from automobile liability as described above. Such coverage shall be written on an ISO occurrence form CU 00 01 12 07 or a policy form providing equivalent coverage. In the event that umbrella coverage is unavailable, equivalent excess coverage may be substituted. The minimum required limits for the umbrella/excess coverage shall be sufficient to provide a total of not less than $5,000,000.00 per occurrence/aggregate.

5. Special Protective and Highway Liability Policy. The Contractor shall maintain, separate and apart from its umbrella policy, a policy issued to and covering the liability of the People of the State of New York, The State of New York, the Commissioner of Transportation, all employees of the Department of Transportation both officially and personally, any municipality in which the work is being performed, any public benefit corporation, railroad, or public utility whose property or facilities are affected by the work, or any consultant inspecting engineer or inspector working for or on the project, and their agents or employees, against damages that the insureds may be held legally liable to pay for property damage, personal injuries, or death that is caused by any occurrence that takes place within any location where work is to be or is being performed by Contractor, including at the location of any of the work. This should be ISO form CG 00 14 12 or a policy form providing equivalent coverage along with mandatory New York endorsements. Coverage shall be in an amount of not less than $1,000,000.00 per occurrence and at least $2,000,000.00 for each aggregate limit.

6. Contractor’s Risks. The Contractor shall be responsible for obtaining any insurance it deems necessary to cover its own risks, including without limitation: (a) business interruption, such as gross earnings, extra expense, or similar coverage, (b) personal property, and/or (c) automobile physical damage and/or theft. In no event shall the Department be liable for any damage to, or loss of, personal property, or
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damage to, or loss of, an automobile that is covered by a policy of insurance that is required by this agreement, even if such loss is caused by the negligence of the Department.

7. Builders’ Risks Policy. (applicable to projects that call for the construction of any “Structure” or building, including, but not limited to pump stations and in connection with such projects, only to the extent of the value associated with such construction). The Contractor shall procure and maintain a Builder’s Risk policy in a form such as ISO form CP 00 20 10 90 or a policy form providing equivalent coverage, covering the perils insured under and including the special causes of loss form, including collapse. Subject to the allowances stated in Paragraph A.8. Self-Insured Retention/Deductibles, above, the deductible not to exceed the amount of the bid deposit or $100,000.00, whichever is less, covering the total value of work performed and equipment, supplies and materials at the location of the Work as well as at any off-site storage locations. Policy shall cover the total value of structures and buildings, supplies and materials at the location of the Work as well as at any off-site storage locations. Sub-limits for loss caused by Flood and Earthquake are acceptable. The policy shall cover the cost of removing debris, including demolition as may be legally necessary by the operation of any law, ordinance or regulation, and for loss or damage to any owned, borrowed, leased or rented capital equipment, tools, including tools of their agents and employees, staging towers and forms, and property of Department held in their care, custody and/or control. Such policy shall name the Contractor as insured, and The People of the State of New York, and Subcontractors as additional insureds.

8. Professional Liability/ Errors and Omissions. (applicable to professional services requiring the signature, stamp or certification of a licensed professional, including, without limitation, erection plans, demolition plans, containment plans, coffer dams, and temporary sheeting.) The Contractor shall maintain at its own expense or shall require to be maintained, such insurance as is customary to compensate Department for any claims or losses that occur because of Contractor’s errors, omissions malpractice or breach of professional obligations. Such policy or policies may be written on a claims-made form so long as coverage is maintained to be in effect to cover claims arising from the performance of services under this contract. Said coverage may be subject to a deductible or self-insured retention level of no more than $250,000.00 subject to approval by Department, such approval not to be unreasonably withheld, except that it is also agreed that Department may withhold payment for services rendered under this contract in the event, and to the extent of any deductible in the event that a claim is asserted. Such coverage shall be written on a claims-made basis (or a policy form providing equivalent coverage) in an amount of no less than $5,000,000.00 per claim and not less than $5,000,000.00 in the aggregate.

9. Railroad Protective Liability Insurance. (applicable to any Work Affecting Railroads as described in §105-09.) The Contractor shall maintain at its own expense railroad protective liability policy of insurance in the name of the affected railroad and with limits of coverage as specified in the Special Notes on Railroad Insurance, or if no limits of coverage are specified, the limits shall be not less than $5,000,000.00 combined Bodily Injury Liability and/or Property Damage for each occurrence with a $10,000,000.00 Aggregate Limit applying separately to each annual period. Said policy shall be subject to the approval of the railroad and comply with 23 CFR 646 Subpart A.

Delete §107-09 and Replace it with the following:

107-09 DAMAGE. All damage, direct or indirect, of whatever nature resulting from the performance of the work or resulting to the work during its progress from whatever cause, including omissions and supervisory acts of the State, shall be borne and sustained by the Contractor, and all work shall be solely at its risk until it has been finally inspected and accepted by the State except that:

A. Damage by Public Traffic. Payment shall be made to the Contractor for repair or replacement of any permanent element of the highway which is completed to the stage of serving its intended function and is subsequently damaged by accident by public traffic. The Contractor must supply satisfactory evidence that such damage was caused by a public traffic accident and not by vandalism or by the Contractor’s equipment.
Satisfactory evidence shall generally be limited to: accident reports filed with the NYS Department of Motor Vehicles, police agencies or insurance companies; statements by reliable, unbiased eye witnesses; or identification of the vehicle involved in the accident. Physical evidence that the damage was caused by a motor vehicle (such as tire marks or broken headlight glass) will not be sufficient unless it can be shown that the damage was not caused by the Contractor’s vehicles or by vandalism.

Work for which there is a bid item will be paid for at the unit price for that item. Work for which there is no bid item will be paid for at an agreed price or by means of force account. Payment will not be made for repair or replacement in any way connected with untimely failure of any portion of the highway under public traffic, and the determination regarding this matter shall be made by the Regional Director, taking into consideration the normal life and the amount of normal wear of the element involved. This provision does not relieve the Contractor of the responsibility of maintenance and protection of traffic for the contract or the responsibility of having wholly complete and acceptable work at the time of final inspection and contract acceptance. Payment for such damage shall be made only after the Contractor has demonstrated to the satisfaction of the Regional Director that it had made every reasonable effort to collect the costs from the person or persons responsible for damage.

The Contractor shall not be responsible for damages resulting from faulty designs as shown in the contract documents nor damages resulting from willful acts of Department officials or employees and nothing in this paragraph or contract shall create or give to third parties any claim or right of action against the Contractor or State beyond such as may legally exist irrespective of this paragraph or contract.

B. Damage by Occurrence. The term “Occurrence” shall include only those floods, droughts, tidal waves, fires, hurricanes, earthquakes, windstorms or other storms, landslides or other catastrophes when such occurrences or conditions and effects have been proclaimed a disaster or state of emergency by the President of the United States, or the Governor of New York State, or the Federal Highway Administrator, or the chief executive of a county or city.

If damage to the work in progress is caused by an Occurrence, and to the extent that such damage has been determined by the Department to be beyond that which may be anticipated from heavy storms, and also to the extent that such damage is not reimbursable by insurance carried by the Contractor, the Contractor may apply to the State to pay or participate in the cost of repairing the damage to the work, unless such damage is caused by the Contractor’s action or inaction or the Contractor’s means and methods of construction.

The Contractor’s written request for the State to pay or participate in the cost of rebuilding, repairing, restoring or otherwise remedying damage to the work caused by an occurrence shall be submitted to and approved by the Commissioner before performing any work other than emergency work, including emergency work necessary to provide for passage of public traffic.

At the sole discretion of the Department, the contract may be terminated and the Contractor relieved of further obligation to perform the work.

C. Obligation to Indemnify by the Contractor. To the fullest extent permitted by law, the Contractor shall indemnify and save harmless the State, any municipality in which the work is being performed, and/or any public benefit corporation, railroad, or public utility whose property or facilities are affected by the work, from suits, claims, actions, damages and costs, of every name and description arising from the work under its contract during its prosecution and until the final acceptance thereof. The Contractor and any assigns, heirs, or successors in interest shall also indemnify and save harmless, to the fullest extent permitted by law, any consultant working for or on the project from suits, claims, actions, damages and costs involving personal injury and property damage arising from the Contractor’s work under the contract during its prosecution and until the final acceptance thereof. The State may retain such monies from the amount due the Contractor as may be necessary to satisfy any claim for damages recovered against the State, any municipality in which the work is being performed, and/or any public benefit corporation, railroad or public utility whose property or facilities are affected by the work, or consultants working for the State on or for the project. The Contractor’s obligation under this paragraph shall not be deemed waived by the failure of the State to retain the whole or any part of such monies due the Contractor, nor where such suit, action, damages and/or costs have not been resolved or determined prior to release of any monies to the Contractor under the contract, nor shall such obligation be deemed limited or discharged by the enumeration or procurement of any insurance for liability for damages.
imposed by law upon the Contractor, Subcontractor or the State, any municipality in which the work is being performed, and/or any public benefit corporation, railroad or public utility whose property or facilities are affected by the work, or any consultants working for the State on or for the project.

The Contractor has the obligation, at its own expense, for the defense of any action or proceeding which may be brought against the parties specified in paragraph §107-09 C. Obligation to Indemnify by the Contractor. This obligation shall include the cost of attorneys’ fees, disbursements, costs and other expenses incurred in connection with such action or proceeding.

Such obligation does not extend to those suits, actions, damages and costs of every name that arise out of the sole negligence of the State, any municipality in which the work is being performed, and/or any public benefit corporation, railroad or public utility whose property or facilities are affected by the contract work, or any consultants working for the State, their agents or employees, relative to the construction, alteration, or repair or maintenance of a building, highway or structure and appurtenances and appliances thereof including moving, demolition and excavating connected therewith.

D. Prompt Response to Claims by the Public. The Contractor’s responsibility for the contract site applies to the full limits of the contract regardless of the extent or nature of contract work at a particular location. This obligation begins when the contract is awarded and continues until contract final acceptance. The Contractor shall promptly address all written damage claims of the public and, if not addressed directly, claims shall be promptly turned over to the Contractor’s insurance carrier without prejudicing the validity of the claim. There should be an interval of no more than ten (10) work days between receipt of a written claim by the Contractor and receipt by the carrier. The Contractor and/or the Insurance Carrier are expected to investigate, determine and adjust such claims promptly and fairly with notice to the Engineer. The Engineer will monitor claims by the public. If the Contractor fails to provide satisfactory resolution through a timely claims adjustment process or denies the claim without proper cause and justification, the Department may invoke Article 8 No Payment Due to the Contractor’s Non-Compliance of the contract or utilize other remedies.
Make the following changes to the Standard Specifications of May 1, 2008:

Page 125 Add:

SECTION 107-13 RELEASE TO PERFORM CONTRACT WORK ON PRIVATE LAND

Use of Adjacent Land for Contract Work: The contractor shall not enter upon any parcel until the proper rights of entry have been obtained as stated in §105-15. Releases may be used for contract work outside of the existing right-of-way that minimizes the construction impacts of the project on a property owner and is not essential for the construction of the project. Work performed under a release may include: plantings; unsound and hazardous tree removal; minor grading; and reconnection of private driveways, walkways and utilities.

The Department will secure all releases prior to the contractor performing contract work on private parcels. The contractor may not secure releases for contract work. If a release is not obtained, the contractor shall not enter upon the parcel and the work will be removed from the contract.

Any damage resulting from the contractor’s work on private property shall be satisfactorily repaired or items replaced at the contractor's expense.

The engineer will coordinate with the property owner to determine the disposition of removed trees in accordance with state and federal requirements and guidelines, which may require chipping or other disposal in accordance with §201.

Use of Adjacent Land for Contractor Staging, Access and Office Space: A release letter is not used for property rights acquired by the contractor (e.g., rental of property for equipment staging, office space or material storage). The contractor is responsible to the landowner and the contractor shall provide the Department with a copy of the lease, rental agreement, deed, contract to perform private work in trade for property rights, etc. prior to entering private land.
Make the following changes to the Standard Specification of May 4, 2006 / May 1, 2008:

Delete §109-07 Prompt Payments by the Contractor and Replace it with the following:

109-07 PROMPT PAYMENTS BY THE CONTRACTOR. In accordance with Section 139-f(2) of the State Finance Law, the Contractor shall pay each Subcontractor and materialman for the value of work performed pursuant to contract no later than seven (7) calendar days from the receipt of each payment the Contractor receives from the State. Payment by the Contractor to Subcontractors or materialmen shall reflect the quantities or percentage of work completed by the Subcontractor or materials furnished by the materialmen, and paid by the State; and such payment shall be based upon the actual conditions of the subcontract or purchase order. The Contractor shall not hold any retainage, but may deduct an amount necessary to satisfy any claims, liens or judgments against a Subcontractor or materialman which have not been fully discharged.

The Contractor shall maintain an accounting system acceptable to the Department to track payments made by the State to the Contractor and payments made by the Contractor to each Subcontractor, Manufacturer, Fabricator or Material Supplier by item and by date. The Contractor shall enter payment data into the current Department approved civil rights reporting system in accordance with §105-21 Civil Rights Monitoring and Reporting, with any exceptions noted and explained.
EXCAVATION AND EMBANKMENT

Make the following changes to the Standard Specifications dated May 1, 2008:

Page 153, Delete the first paragraph of §202-3.09 and Replace it with the following:

The appropriate construction details specified for Section 203 Excavation and Embankment, as stated in §203-3.01 General through and including §203-3.02 Unclassified Excavation and Disposal shall apply. The excavation shall be dewatered and kept free from water, snow and ice when necessary.

Page 186, Delete “§203-1.01” in the first paragraph of §206-1.01 and Replace it with “Section 203, Definitions”.

Page 187, Delete the first paragraph of §206-3.01 entirely and Replace it with the following:

The appropriate construction details specified for “Excavation and Embankment” in §203-3.01 General through and including §203-3.03 Embankment In Place, and §203-3.06 Select Granular Fill and §203-3.14 Select Structural Fill shall apply to the work specified in this section.

Page 187, Delete the first paragraph of §206-3.03 entirely and Replace it with the following:

The provisions of §203-3.01D Suitable Materials and/or §203-3.01E Unsuitable Materials shall apply to all material excavated under this section which is not used as backfill.

Page 195, Delete “§203-3.08, Disposal of Surplus Excavated Materials” in the second bullet of the third paragraph of §209-3.02 and Replace it with “Section 203, Disposal of Surplus Excavated Material”.

Page 205, Delete “§203-3.16, Borrow” in the first paragraph of §302-2.03 and Replace it with “Section 203, Borrow”.

Page 212, Delete “§203-3.12, Compaction” in the first paragraph of §304-3.03 and Replace it with “Section 203, Compaction”.

Page 214, Delete “§203-3.12, Compaction” in the first paragraph of §307-3.01 D and Replace it with “Section 203, Compaction”.

Page 215, Delete “§203-3.12, Compaction” in the first paragraph of §307-3.10 and Replace it with “Section 203, Compaction”.

Page 277, Delete each use of “§203-3.12, Compaction” in the first paragraph of §411-3.03 and Replace it with “Section 203, Compaction”.

As modified by EI 08-037, Delete “§203-2.02 C Select Granular Fill and Select Structure Fill” in the first paragraph of §554-2.02 A 2 b and Replace it with “Section 203, Select Granular Fill”.

As modified by EI 08-037, Delete “§203-2.02 C Select Granular Fill and Select Structure Fill” in the first paragraph of §554-2.03 B 1 and Replace it with “Section 203, Select Structural Fill”.

As modified by EI 08-037, Delete “§203-2.02 C Select Granular Fill and Select Structure Fill” in the second paragraph of §554-2.03 C 2 and Replace it with “Section 203, Select Structural Fill”.

As modified by EI 08-037, Delete “§203-3.12 B.6. Compaction Equipment for Confined Areas” in the first paragraph of §554-3.01 D 3 c and Replace it with “Section 203, Compaction Equipment for Confined Areas”.

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As modified by EI 08-037, **Delete “§203-3.12 B.6. Compaction Equipment for Confined Areas” in the first paragraph of §554-3.02 D 4 and Replace it with “Section 203, Compaction Equipment for Confined Areas”**.

As modified by EI 08-037, **Delete “§203-3.12 Compaction” in the first paragraph of §554-3.02 F 5 and Replace it with “Section 203, Compaction”.**

As modified by EI 08-037, **Delete “§203-3.12 Compaction” in the first paragraph of §554-3.03 C 4 and Replace it with “Section 203, Compaction”.**

Page 482, **Delete “§203-3.15, “Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables”” in the second paragraph of §597-3.02 G and Replace it with “Section 203, Select Structural Fill.”**

Page 489, **Delete “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the first paragraph of §603-3.03 and Replace it with “Section 203, Select Granular Fill.”**

Page 497, **Delete “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the first paragraph of §604-3.11 and Replace it with “Section 203, Select Granular Fill.”**

Page 506, **Delete “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the fourth paragraph of §606-3.01 D and Replace it with “Section 203, Select Granular Fill.”**

Page 507, **Delete “§203-3.15” in the first paragraph of §606-3.01 E and Replace it with “Section 203, Select Granular Fill.”**

Page 604, **Delete “§203-3.12, Compaction” in the first paragraph of §620-3.01 and Replace it with “Section 203, Compaction”.**

As modified by EI 08-020, **Delete the first paragraph of §632-2.02 and Replace it with the following:**

Backfill material shall conform to the material requirements as specified in Section 203, Select Structural Fill.

As modified by EI 08-020, **Delete the first paragraph of §632-2.03 and Replace it with the following:**

Unit infill material shall conform to the material requirements as specified in Section 203, Select Structural Fill.

As modified by EI 08-020, **Delete “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the second paragraph of §632-3.02 E and Replace it with “Section 203, Select Structural Fill.”**

Page 648, **Delete “§203-3.08, Disposal of Surplus Excavated Materials” in the second paragraph of §644-3.04 and Replace it with “Section 203, Disposal of Surplus Excavated Material”.**

Page 648, **Delete “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the third paragraph of §644-3.04 and Replace it with “Section 203, Select Structural Fill.”**

Page 694, **Delete “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the first paragraph of §659-3.04 and Replace it with “Section 203, Select Granular Fill.”**

Page 695, **Delete “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the first paragraph of §660-3.04 and Replace it with “Section 203, Select Granular Fill.”**
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Page 695, **Delete** “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the first paragraph of §661-3.04 and **Replace** it with “Section 203, Select Granular Fill.”

Page 696, **Delete** “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the first paragraph of §662-3.04 and **Replace** it with “Section 203, Select Granular Fill.”

Page 698, **Delete** “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the second paragraph of §663-3.04 and **Replace** it with “Section 203, Select Granular Fill.”

Page 706, **Delete** “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the first paragraph of §664-3.04 and **Replace** it with “Section 203, Select Granular Fill.”

Page 709, **Delete** “§203-3.12, Compaction” in the first paragraph of §667-3.03 and **Replace** it with “Section 203, Compaction.”

Page 711, **Delete** “§203-3.08, Disposal of Surplus Excavated Materials” in the fourth paragraph of §670-3.03 and **Replace** it with “Section 203, Disposal of Surplus Excavated Material”.

Page 711, **Delete** “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the fourth paragraph of §670-3.03 and **Replace** it with “Section 203, Select Granular Fill.”

Page 712, **Delete** the second sentence in the Method B of the sixth paragraph of §670-3.04 and **Replace** it with the following:

The clear area shall be backfilled with Select Granular Fill in accordance with §203-2.06 Select Granular Fill, and compacted in accordance with §203-3.06 Select Granular Fill.

Page 713, **Delete** “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the second paragraph of §670-3.07 and **Replace** it with “Section 203, Select Granular Fill.”

Page 714, **Delete** “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the sixth paragraph of §670-3.08 and **Replace** it with “Section 203, Select Granular Fill.”

Page 723, **Delete** “§203-3.08, Disposal of Surplus Excavated Materials” in the second paragraph of §680-3.09 and **Replace** it with “Section 203, Disposal of Surplus Excavated Material”.

Page 723, **Delete** “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the third paragraph of §680-3.09 and **Replace** it with “Section 203, Select Granular Fill.”

Page 725, **Delete** “§203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables” in the first paragraph of §680-3.13 and **Replace** it with “Section 203, Select Granular Fill.”

Page 156-176, **Delete** SECTION 203 entirely and **Replace** it with the following:

SECTION 203 – EXCAVATION AND EMBANKMENT

203-1 DESCRIPTION. This work shall consist of excavation, disposal, placement and compaction of all materials that are not provided for under another section of these Specifications, and shall be executed in conformance with payment lines, grades, thicknesses and typical sections specified in the contract documents.

203-1.01 Definitions.

A. **Unclassified Excavation.** Unclassified excavation shall consist of the excavation and disposal of all
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materials, of any description, encountered in the course of construction, unless otherwise specified in the contract. Estimated limits and descriptions of subsurface deposits and formations which may be shown in the contract documents are supplied as a part of Base Line Data.

B. Embankment. The embankment is the portion of a fill section situated between the embankment foundation and the subgrade surface, excluding any material placed under another section of these specifications.

C. Embankment Foundation. The embankment foundation is the surface upon which an embankment is constructed after all work required under §203-3.03A. Embankment Foundation has been completed.

D. Subgrade Surface. The subgrade surface is the surface of the road section upon which the select materials and/or subbase are placed.

E. Subgrade Area. The subgrade area is that portion of an embankment situated above either of the following, but excluding any material placed under another section of these specifications.
1. A line located 2 ft. below the subgrade surface and extended to the intersection with the embankment side slopes, or
2. The embankment foundation, whichever is higher.

The material and compaction requirements for the subgrade area in embankments are found in §203-2.01A. Subgrade Area Material and §203-3.03C. Compaction, respectively.

In cut sections, the subgrade area is not defined except where undercut and backfill with a select material item is specified or ordered: in such cases, the payment lines for undercut work shall define the subgrade area.

F. Embankment Side Slope Area. The embankment side slope areas are those cross-sectional areas of an embankment situated outside of lines projected downward and outward on a one on one slope from the edges of the subgrade surface to their intersection with the embankment foundation, but excluding any portion lying within a subgrade area.

G. Topsoil. See Section 613 Topsoil.

H. Suitable Material. A material whose composition is satisfactory for use in embankment construction is a suitable material. The moisture content of the material has no bearing upon such designation. In general, any mineral (inorganic) soil, blasted or broken rock and similar materials of natural or man made (i.e. recycled) origin, including mixtures thereof, are considered suitable materials. Determinations of whether a specific natural material is a suitable material shall be made by the Engineer on the above basis.

Recycled materials that the Department has evaluated and approved for general use shall be considered to be suitable material for embankment construction subject to the conditions for use as determined by the Department. The Regional Geotechnical Engineer and Geotechnical Engineering Bureau are available to provide guidance on the use of such materials. In general, the use of recycled materials must be also sanctioned by the Department of Environmental Conservation, usually in the form of a Beneficial Use Determination (BUD).

Glass from recycling facilities meeting the requirements of §733-05 Glass Backfill shall be considered suitable material for embankment construction.

Reclaimed Asphalt Pavement (RAP), and Recycled Portland Cement Concrete Aggregate (RCA) shall be considered suitable materials for embankment construction, subject to the following conditions for use: RAP - The Contractor shall provide and place RAP conforming to the requirements of §733-06 Reclaimed Asphalt Pavement for Earthwork and Subbase.

RCA-The Contractor shall provide and place RCA conforming to the requirements of §733-07 Recycled Portland Cement Concrete Aggregate.

Pieces of broken up concrete pavement from on-site pavement removal or in-place recycling (i.e. rubblizing, crack and seat, break and seat, etc.) may be used in embankment construction. Refer to §203-3.03A. Embankment Foundation and §203-3.03B. Embankments.
I. **Unsuitable Material.** Any material containing vegetable or organic matter, such as muck, peat, organic silt, topsoil or sod, or other material that is not satisfactory for use in embankment construction under §203-1.01H. **Suitable Material** is designated as an unsuitable material. Certain man made deposits of industrial waste, toxic or contaminated materials, sludge, landfill or other material may also be determined to be unsuitable materials, based on an evaluation by the Department’s Geotechnical Engineering Bureau and Office of Environment, and the Department of Environmental Conservation.

J. **Borrow.** Borrow is material required for earthwork construction in excess of the quantity of suitable material available from the required grading, cuts and excavations. Borrow may be necessary even though not shown in the contract documents.

K. **Embankment Construction Control Devices.** Embankment construction control devices allow real-time observations of embankment construction to assess the actual performance of the embankment compared to that envisioned in the design phase. Settlement and pore water pressure are common measures of embankment performance. Techniques for monitoring settlement include a settlement rod or a surface settlement gauge. A settlement rod is an optical survey technique to monitor settlement of the embankment surface. The settlement rod(s) establish monitoring point(s) in relation to a reliable benchmark.

A surface settlement gauge is an optical survey technique to monitor settlement of the existing ground surface, below the embankment installation. The surface settlement gauge is installed prior to placing the embankment and extended upwards through the fill.

Pore water pressure monitoring may be used to determine the effective overburden diagrams (the basis of all geotechnical analyses), monitoring consolidation progress of embankments constructed over soft soils, evaluating seepage in natural slopes or earth dams (slope stability), checking the effectiveness of subsurface drainage facilities, or monitoring water well tests.

A piezometer is an instrument which provides measurements of pore water pressure at the elevation of the installed sensor. Pore pressure data is needed in a foundation soil to assess the excess pore water pressure and hence the undrained strength of the soil. Piezometers are used at various depths within cohesive foundation soils. Some piezometers are used in granular foundation soils to assess their drainage behavior.

L. **Proof Rolling.** Proof rolling consists of applying test loads over the subgrade surface by means of a heavy pneumatic-tired roller of specified design, to locate and permit timely correction of deficiencies likely to adversely affect performance of the pavement structure.

M. **Select Granular Fill – Slope Protection.** Select granular fill – slope protection is a material used to protect the grade of a slope from erosion and sloughing from runoff and groundwater seepage. Seepage is the slow movement of water through small openings and spaces in the surface of unsaturated soil into or out of a body of surface or subsurface water. Sloughing is a shallow surface failure caused by erosive removal of supporting material.

Select granular fill – slope protection is highly permeable while also providing sufficient frictional resistance to resist seepage forces and remain in place.

N. **Applying Water.** Under this work, the Contractor shall furnish and apply water for dust control. Moisture control for compaction purposes is the Contractor’s responsibility. Water shall not be applied in inclement weather or when the temperature is 32° F or less.

O. **Modifying Cut Slopes and Other Means of Obtaining Borrow.** The Regional Director may approve the modification of cut slopes and other means of obtaining material, which is not part of the contract, so long as provisions are made to prevent unsafe conditions, damage, and nuisances to property, wildlife areas, and haul routes within and outside the contract limits. Such approval may be granted only after review of a written proposal by the Contractor showing the final deposition of the material, the haul route, hauling hours, and provisions necessary to comply with the above. Should unanticipated conditions arise resulting in any unsatisfactory situation, the Engineer shall immediately rescind the approval pending satisfactory correction.
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The following procedure shall apply to areas within the R.O.W. limits which are not designated as available sources of borrow by a Special Note in the contract proposal where the Contractor requests and is granted permission to modify slopes to obtain material for use on State contract work only. The Contractor will be required to reimburse the State with a rebate for the material obtained in these areas. Permission will not be granted to excavate material beyond the design slopes if it is to be used on other than State contract work.

The rebate to be obtained from the Contractor for this material is comprised of 1) A royalty based on the actual value of the excavated material, and 2) A credit for the difference in the Contractor's handling costs if these handling costs have been reduced. The royalty which is to be obtained for the excavated material shall be appropriate for the item for which it is to be utilized and shall be comparable to the current price being paid to purchase similar material in the area.

If the Contractor's handling costs associated with obtaining material from within the R.O.W. limits are greater than those for obtaining material from other acceptable sources, these additional handling costs must be borne by the Contractor. The royalty shall not be reduced to offset any increased handling costs incurred by the Contractor.

If the Contractor's handling costs associated with obtaining materials from within the R.O.W. limits are less than those for obtaining material from other acceptable sources, the differences shall be reimbursed to the State as a credit in addition to the royalty.

The difference in the Contractor's handling cost shall be determined by an analysis based on a comparison of haul lengths, hauling equipment, hauling operation, use of haul roads or public highways, preparation and restoration of the borrow areas, and any other variables involved.

Prior to modifying rock cut slopes, the Geotechnical Engineering Bureau must be consulted. If rock cut slopes are flattened sufficiently to eliminate the need for presplitting, an additional rebate will be necessary.

All special requirements to be fulfilled by the Contractor, at the Contractor's own expense, shall be clearly stated in the agreement. The foregoing requirement of receiving a rebate from the Contractor for material obtained by modification of slopes shall apply only to locations not designated in the Contract Documents.

203-2 MATERIALS

203-2.01 General. The requirements for select materials and subgrade area materials are described below. All processing operations including washing, removal of oversize material, blending, or crushing shall be completed at the source of the material. The procedure for acceptance or rejection of these materials shall be in conformance with the procedures contained in the geotechnical control procedure “Procedure for the Control and Quality Assurance of Granular Materials”.

A. Subgrade Area Material. Subgrade area material shall consist of any suitable material having no particles greater than 6 in. in maximum dimension, unless Select Granular Subgrade with the well graded rock option is used. In that case, refer to §733-13 Select Granular Subgrade. If concrete is used, any exposed mesh or rebar shall not exceed 1 in. in length. RAP is also permitted.

B. Glass Backfill. Provide backfill material meeting the requirements of §733-05 Glass Backfill.

C. RAP. Provide backfill material meeting the requirements of §733-06 Reclaimed Asphalt Pavement for Earthwork and Subbase.

D. RCA. Provide backfill material meeting the requirements of §733-07 Recycled Portland Cement Concrete Aggregate.

E. Miscellaneous. Necessary fill material for cleaning, grading and shaping the existing roadside section shall conform to the requirements of §203-2.01A, Subgrade Area Material.

203-2.02 Unclassified Excavation and Disposal. None Specified.

203-2.03 Embankment In Place. Provide backfill material meeting the requirements of §733-08 Embankment
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In Place.

203-2.04 Select Borrow. Provide backfill material meeting the requirements of §733-09 Select Borrow.

203-2.05 Select Fill. Provide backfill material meeting the requirements of §733-10 Select Fill.

203-2.06 Select Granular Fill. Provide backfill material meeting the requirements of §733-11 Select Granular Fill.

203-2.07 Select Granular Fill Slope Protection. Provide backfill material meeting the requirements of §733-12 Select Granular Fill Slope Protection.

203-2.08 Surface Settlement Gauges. Provide materials for the embankment construction control device surface settlement gauge meeting the requirements of §733-17 Surface Settlement Gauge.

203-2.09 Settlement Rods. Provide materials for the embankment construction control device settlement rod meeting the requirements of §733-18 Settlement Rod.

203-2.10 Piezometers. Provide materials for the piezometer installation meeting the requirements of §732-11 Open Well Piezometer.

203-2.11 Applying Water. Water used for dust control purposes may be obtained from any source.

203-2.12 Select Granular Subgrade. Provide backfill material meeting the requirements of §733-13 Select Granular Subgrade.

203-2.13 Select Structural Fill. Provide backfill material meeting the requirements of §733-14 Select Structural Fill.

203-2.14 Sand Backfill. Provide backfill material meeting the requirements of §733-15 Sand Backfill.

203-3 CONSTRUCTION DETAILS

203-3.01 General. The Contractor shall remove all soil, rock, and other material, and utilize or dispose of these materials as required by the contract documents. All excavation and embankment work shall be executed to payment lines shown in the contract documents.

All graded earth surfaces outside the roadway limits shall be smoothed and trimmed in reasonably close conformity (6± in.) of true grade. After trimming, the area shall be left in a compact and satisfactory condition, free of large stones or other objectionable materials, as determined by the Engineer.

Earthwork construction operations requiring compaction shall not be performed from November 1st thru April 1st except with a Winter Earthwork submittal subject to the provision of this Section and approved by the Regional Director or his designated representative. Winter Earthwork will be subject to the following restrictions:

- Transitioning from the normal construction season to the exempt winter earthwork months between November 1st and April 1st, the use of standard earthwork materials may be permitted only under the conditions where the air temperature, ground temperature and material temperature are all above 32° F at the time of placement. Modifications to compaction procedures, including but not limited to the use of thinner lifts, may be required when the temperatures are above 32° F but below 40° F at the time of placement.

- Between November 1st and April 1st, if the air temperature, ground temperature, or material temperature is at or below 32° F at the time of placement, earthwork may only proceed using material that meets the requirements of §733-16 Winter Earthwork.

In all work incorporated into the final product, the Contractor shall not place material that is frozen, or place fill material on frozen ground regardless of the date.
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A. Winter Earthwork Submittal. For Contractors choosing to proceed with earthwork compaction operations between November 1st thru April 1st, provide the Engineer with a Winter Earthwork submittal, with a copy to the Regional Geotechnical Engineer, outlining the modifications to the materials and methods including the following:

1. Material Requirements. The material meets the requirements of §733-16 Winter Earthwork. Provide information on material composition and source substitute, if proposed.

2. Material Placement. Provide information on the proposed methods for controlling the weather effects on the material and existing ground conditions (i.e. insulation, enclosures, canvas and framework). Devise a plan to be outlined in the Winter Earthwork Submittal such that all snow, ice, and frozen material shall be removed from the surface of the ground on which embankment or backfill material is to be placed, and from the surface under construction before succeeding lifts are added.

3. Transition Period. Provide acknowledgement of a transition period allowing the use of standard earthwork materials between November 1st and April 1st only under conditions where the air temperature, ground temperature and material temperature are all above 32° F at the time of placement. Acknowledge the transition period ends either when the air temperature, ground temperature or material temperature is at or below 32° F at the time of placement.

Proceed with Winter Earthwork only after receiving written approval by the Regional Director or his designated representative subject to the provisions of this Section.

B. Scheduling of Work to Minimize Soil Erosion and Water Pollution. The Contractor shall ensure effective and continuous soil erosion and sediment control throughout the construction period. The Contractor shall prepare and submit for approval, plans and schedules for all excavation, stripping, embankment, fill and grading operations. Such plans and schedules shall include but are not limited to temporary and permanent erosion control measures specified in Section 209 Soil Erosion and Sediment Control, Section 610 Turf and Wildflower Establishment and Section 612 Sodding.

C. Drainage and Grading. The Contractor shall provide and maintain slopes, crowns and ditches on all excavation and embankments to ensure satisfactory surface drainage at all times. Ditches and other drainage facilities necessary to remove ponded water shall be constructed as soon as practical to have the work area dry during the progression of work. All existing culverts and drainage systems shall be maintained in satisfactory operating condition throughout the course of the work. If it is necessary to interrupt existing surface drainage, sewers or under-drainage, then temporary drainage facilities shall be provided until the permanent drainage work is complete. Top-of-slope interceptor ditches, where shown on the contract documents, shall be completed before adjacent excavation operations are begun. In earth cuts, the Contractor shall progress excavation operations in such a manner that the portion of the cut immediately adjacent to the design slope is at least 5 ft. lower than the general level of the cut at all times until the lower payment line is reached.

The construction of these temporary drainage facilities shall be considered as incidental to the construction of the project and no additional payment will be allowed.

Any portion of an embankment or subgrade which has been damaged by the Contractor's equipment during the course of construction, shall be repaired and re-compacted by the Contractor at no additional cost to the State.

Where seepage causes instability of slopes, excavation and backfill or other corrective measures shall be performed as ordered by the Engineer and paid for under the appropriate item. Excavation for the installation of slope protection may be necessary at any time and location throughout the duration of the contract and may not necessarily coincide with the Contractor's performance of the general excavation work.

D. Suitable Materials. Moisture content has no bearing on the suitability of material to be used for embankment construction, however, the moisture content of a material may be such that its use will require manipulation. It is the Contractor's responsibility to determine the economics of using, or disposing of and replacing, such materials. Material determined by the Contractor to be un-economical for use may be disposed of as specified under §203-3.02B. Disposal of Surplus Excavated Materials and replaced with other material at no additional cost to the State.

When a contract includes the item “Unclassified Excavation and Disposal”, all excavated suitable
materials, including the excavation performed under “Structure Excavation” and “Trench and Culvert Excavation,” shall become the Contractor's property for disposal or use under another item of these specifications.

E. Unsuitable Materials. All excavated unsuitable materials shall be the Contractor's property for disposal as surplus materials under the provisions of §203-3.02B. Disposal of Surplus Excavated Materials.

F. Borrow. The management of a borrow source and the acceptability of all borrow material shall be subject to the approval of the Engineer at all times. The Contractor shall notify the Engineer at least ten (10) work days in advance of opening any borrow area, and request approval of the source under the pay item involved. Test pits required by the Engineer to evaluate the acceptability and limits of the source, shall be provided by the Contractor at the Contractor's own expense. Concurrent removal of material for more than one pay item from a single source or pit shall be prohibited except with the written permission of, and under such conditions and restrictions as may be imposed by the Engineer. All borrow pits shall be stripped of sod, topsoil and vegetable matter well in advance of any working face. The minimum distance by which stripping shall lead excavation for a given source shall be established by the Engineer to suit local conditions. Where a borrow source is not under direct control of the Contractor or where special conditions exist, the Engineer may waive any of the above requirements and establish alternative provisions for the control and acceptability of borrow.

Ordinary borrow will be accepted for use where the material qualifies under the definition of Suitable Material, §203-1.01H. Suitable Material. All borrow placed within the limits of Embankment or the Subgrade Area shall be placed in conformance with §203-3.03B. Embankments or §203-3.01G. Subgrade Area respectively, as appropriate, or where used for fill or backfill at structures, culverts and pipes, in conformance with §203-3.06 Select Granular Fill and §203-3.17 Select Structural Fill.

G. Subgrade Area. Where a subgrade area is defined in an embankment by §203-1.01E. Subgrade Area, the material placed shall conform to §203-2.01A. Subgrade Area Material, placed and compacted in conformance with §203-3.03B. Embankments and §203-3.03C. Compaction. Where longitudinal and transverse changes from cut to fill are encountered in the work, a subgrade transition section shall be provided in conformance with Standard Sheet Earthwork Transition and Benching Details. Where a subgrade area becomes defined by §203-1.01E. Subgrade Area in a cut section, the materials placed and other details shall be as specified under §203-3.02C. Proof Rolling in Cut Sections 3. Procedure, unless otherwise required by the contract documents. Prior to subbase course placement, the surface on which the subbase is to be placed shall be thoroughly compacted to the satisfaction of the Engineer.

1. Subgrade Surface Tolerance. After compaction, the subgrade surface shall not be above design elevation at any location.

203-3.02 Unclassified Excavation and Disposal.

A. Rock Excavation. Presplitting is required where the design rock slope is 1 vertical on 1 horizontal or steeper and the vertical height of the exposed rock slope exceeds 5 ft. Ripping will not be allowed within 10 ft. of a slope that requires presplitting. Test sections will be required at the outset of presplit drilling and blasting operations for the evaluation of the presplit rock slopes by a Departmental Engineering Geologist. The Contractor will be required to completely expose the presplit rock face in the test section for evaluation prior to any further presplit drilling.

All rock slopes shall be thoroughly scaled and cleaned. For rock excavations involving multiple lifts, scaling of upper lifts shall be completed prior to drilling and fragmenting of lower lifts. Scaled rock slopes shall be stable and free from possible hazards of falling rocks or rock slides that endanger public safety. If, after scaling, such conditions still exist, a determination of the cause will be made by a Departmental Engineering Geologist and if it is determined that the conditions are the result of poor quality work or improper methods employed by the Contractor, the Contractor shall provide approved remedial treatment, at no expense to the State. Such treatment may include, but is not necessarily limited to, laying back the slope, rock bolting, or shotcreting. In no case shall the subgrade be trimmed prior to the completion of the scaling operation at any location.
1. **Presplitting.** Prior to drilling presplitting holes, the overburden shall be completely removed to expose the rock surface along the presplitting line. The methods of collaring the holes to achieve required inclination and alignment shall be approved by the Engineer.

The presplitting holes shall be a maximum of 4 in. in diameter, spaced not more than 3 ft. center to center along the slope, and drilled at the designed slope inclination for a maximum slope distance of 60 ft. When excavation operations are conducted in multiple lifts, the presplitting holes for successive lifts may be offset a distance of not more than 3 ft. for a design slope of 1 vertical on 1 horizontal and not more than 1 ft. for slopes of steeper design; however, a presplitting hole shall not be started inside the payment line. The Contractor shall control the presplit drilling operations by using proper equipment and technique to achieve the design slope and maximum bench between lifts. If presplitting is conducted in lifts, each lift shall be of approximately equal depth. All presplitting holes shall be checked and cleared of obstructions immediately prior to loading any holes in a round. All presplitting holes shall be loaded with a continuous column charge manufactured especially for presplitting which contains not more than 0.35 lbs. of explosive per foot. The top of the charge shall be located not more than 3 ft. below the top of rock. A bottom charge of not more than 3 lbs. of packaged explosive may be used; however, no portion of any bottom charge shall be placed against a proposed finished slope. Each presplitting hole shall be filled with No. 1A crushed stone stemming meeting the gradation requirements of §703-02 Coarse Aggregate. The presplitting charges shall be fired with detonating cord extending the full depth of each hole and attached to a trunk line at the surface. Detonation of the trunk line shall be with blasting cap(s) and shall precede the detonation of fragmentation charges within the section by a minimum of 25 milliseconds. Presplitting shall extend for a minimum distance equal to the burden plus 3 ft. beyond the limits of fragmentation blasting within the section.

2. **Fragmentation Blasting.** Fragmentation holes, or portions thereof, shall not be drilled closer than 4 ft. to the proposed finished slope. Where presplitting is required, fragmentation holes adjacent to the presplitting holes shall be drilled parallel to the presplitting holes for the full depth of the production lift at a spacing not exceeding the spacing of the production pattern. Only packaged explosives shall be used 10 ft. or less from a design slope which requires presplitting regardless of the construction sequence.

Fragmentation charges shall be detonated by properly sequenced millisecond delay blasting caps.

3. **Explosive Loading Limits.** In the absence of more stringent requirements, the maximum quantity of explosives allowed per delay period shall be based on a maximum particle velocity of 2 in./s at the nearest structure to be protected. In the absence of seismic monitoring equipment, the following explosive loading limits shall apply:

**DISTANCE EQUAL TO OR LESS THAN 212 ft. FROM THE NEAREST STRUCTURE**

a. When the distance from the proposed blasting area to the nearest structure to be protected is 6 ft. or less, no blasting shall be allowed.

b. When the distance between the blasting area and the nearest structure to be protected is greater than 6 ft. and equal to or less than 15 ft., a maximum of ¼ lb. of explosives per delay period (minimum of 25 milliseconds) blasting cap shall be allowed.

c. When the distance between the blasting area and the nearest structure to be protected is greater than 15 ft. and equal to or less than 212 ft., a Scaled Distance of 30 ft. shall be utilized to determine the maximum amount of explosive allowed per delay period (minimum of 25 milliseconds) blasting cap.

The Scaled Distance Formula is as described below:

\[
SD = \frac{D}{\sqrt{E_{\text{max}}}}
\]

where:

- \(SD\) = Scaled Distance
- \(D\) = Distance from blasting area to nearest structure to be protected in feet

\[E_{\text{max}}\]
or

\[
E_{\text{max}} = \frac{D^2}{(SD)^2}
\]

where: \( E_{\text{max}} \) = Maximum pounds of explosive per delay period (minimum of 25 milliseconds) blasting cap

**DISTANCE GREATER THAN 212 ft. FROM THE NEAREST STRUCTURE**

a. When the blaster elects to utilize more than 50 lbs. of explosive per delay period (minimum of 25 milliseconds) blasting cap, a seismograph shall be employed to monitor the blasting vibrations generated. The initial loading shall be computed using a Scaled Distance of 30 ft. The resulting particle velocity measured by the seismograph shall be evaluated by a Department Engineering Geologist. The Geologist's evaluation shall be the basis for adjusting the Scaled Distance.

No separate payment shall be made for this work. The cost shall be included in the appropriate excavation item. The above requirements shall in no way relieve the Contractor of liability for any damage incurred as a result of the blasting operations.

**B. Disposal of Surplus Excavated Materials.** Only unsuitable materials, or that portion of suitable material excavated in excess of the quantity required to construct all embankments on the project, shall be considered as surplus.

Where disposal of surplus materials cannot be accommodated within the right of way, the excess shall become the Contractor's property for disposal. Surplus material disposed of within the right-of-way shall be placed in accordance with §107-10 Managing Surplus Material And Waste.

**C. Proof Rolling in Cut Sections.** Immediately prior to final trimming of the subgrade surface and placement of subbase materials in cut sections, all areas of the subgrade surface within roadway limits shall be proof rolled according to the requirements of this subsection. This work, and any delays due to this work, shall be considered incidental to the excavation item.

1. **Purpose.** In cut sections, the purpose of proof rolling is to determine the location and extent of areas below the subgrade surface that require corrective undercutting and are not so specified in the contract documents.

2. **Equipment.** The proof roller used in embankment sections, as specified in §203-3.03D. *Proof Rolling in Embankment Sections 1. Equipment*, shall be employed for proof rolling in cut sections except that the roller shall be loaded to achieve a single stress level in operation, using a gross ballasted weight of 30 tons and all tires inflated to 40 psi.

3. **Procedure.** Two complete passes shall be applied over all elements of the area to be proof rolled. Where any portion of the cut subgrade surface other than that which has been damaged by the Contractor's operations fails to provide a satisfactory support for the proof rolling operation, the Engineer may order corrective undercut and backfill work performed. Backfill of undercuts shown in the contract documents or ordered by the Engineer shall be in conformance with §203.3-13 Select Granular Subgrade. Where natural soil below this course will not support the weight of the construction equipment, and when ordered by the Engineer, the course shall be placed in one lift. No additional proof rolling shall follow corrective work.

4. **Exceptions.** Proof rolling of the subgrade surface in cut sections will not be required in any area where the subgrade surface is in a rock cut, or where undercut and backfill has been previously performed.
EXCAVATION AND EMBANKMENT

The Engineer may order undercutting and backfill without proof rolling of any cut where the need for corrective work, as determined by the Engineer, is obvious without actual proof rolling. The Engineer may also delete proof rolling in any cut section where, based upon a written evaluation by a Departmental Geotechnical Engineer, proof rolling would be detrimental to the work.

203-3.03 Embankment In Place.

A. Embankment Foundation. After completion of the work required under Section 201 Clearing and Grubbing, and Section 202 Removal of Structures and Obstructions, the embankment foundation shall be prepared. Sod and topsoil shall be removed where the final pavement grade is 6 ft. or less above the existing ground surface and in other areas designated in the contract documents or by the Engineer. Prior to embankment construction and subbase course placement, the surface on which the embankment and/or subbase is to be placed shall be thoroughly compacted to the satisfaction of the Engineer. Unsuitable materials other than sod and topsoil shall be removed to the depths shown in the contract documents or as directed by the Engineer. Underwater areas shall be filled in accordance with §203-3.04 Select Borrow or §203-3.05 Select Fill and paid for under its appropriate item.

Where embankments are to be constructed over ground that will not adequately support embankment construction equipment, an initial layer of fill may be allowed to form a working platform. The need, manner of construction, and thickness of such a layer shall be subject to approval of the Engineer, and the layer will be permitted only where the lack of support is, as determined by the Engineer, not due to deficient ditching, grading or drainage practices or where the embankment could be constructed in the approved manner by the use of different equipment or procedures. Thicknesses of up to 3 ft. may be permitted for such a layer. Concrete or asphalt slabs may be used at the bottom of such a layer, provided they are placed horizontally.

In locations where embankments are to be constructed on hillsides or against existing embankments with slopes steeper than 1 vertical on 3 horizontal, the slopes shall be benched. Required benches shall be constructed as shown on the Standard Sheet Earthwork Transition and Benching Details.

Where old pavement is encountered within 2 ft. of the top of the subbase course, it shall be broken up or scarified.

B. Embankments. The embankment shall be constructed of suitable material as defined by §203-1.01H. Suitable Material. Embankment material shall not be placed on frozen earth, nor shall frozen soils be placed in any embankments. Embankment material shall be placed and spread in lifts (layers) of uniform thickness, then uniformly compacted as specified under applicable portions of §203-3.03C. Compaction. During embankment construction operations, earth moving equipment shall be routed so as to prevent damage to any compacted lift. Damage to any compacted lift at any time during the course of construction, such as rutting under the loads imposed by earth moving equipment, shall be fully repaired by the Contractor at his/her own expense prior to placement of any overlying materials. At the close of each day's work, the working surface shall be crowned, shaped and rolled with smooth steel wheel or pneumatic tired rollers, for positive drainage.

Particles with a dimension in excess of $\frac{2}{3}$ of the loose lift thickness are designated as oversized particles. Oversized particles shall be removed prior to compaction of the lift and may be placed in the Embankment Side Slope Area.

Pieces of concrete or asphalt may be used provided that the voids between the pieces are completely filled, and the greatest dimension of any piece does not exceed $\frac{2}{3}$ the loose lift thickness. Exposed mesh or rebar shall not exceed 1 in. in length.

Embarkments constructed using rock products or pieces of concrete shall be spread by bladed equipment on each lift to minimize the formation of large voids as the work progresses. The top lift of a rock or concrete fill shall be chinked.

When permitted by a note in the contract documents, stumps, logs, and other materials may be placed in the Embankment Side Slope Area, provided that: 1) such matter is deposited and compacted concurrent with the adjacent embankment, and; 2) any stumps or woody material are covered by not less than 2 ft. of soil beneath the exposed side slope surface.

Glass shall not be placed in contact with synthetic liners, geogrids, geotextiles or other geosynthetics.
EXCAVATION AND EMBANKMENT

C. Compaction

1. General Requirements. It shall be the Contractor's responsibility to properly place and compact all materials in the road section and other locations specified in the contract documents, and to correct any deficiencies resulting from insufficient or improper compaction of such materials throughout the contract period. The Contractor shall determine the type, size and weight of compactor best suited to the work at hand, select and control the lift (layer) thickness, exert control over the moisture content of the material, and other details necessary to obtain satisfactory results. During the progression of the work, the Department will inspect the Contractor's operations and will permit the work to continue where:

   a. Lift thickness is controlled and does not exceed the maximum allowed according to the equipment classifications in subparagraph 2. Compaction Equipment, of this subsection, and the equipment meets all specified class criteria. Thinner lifts and lighter equipment than the maximum allowed may be necessary for satisfactory results on some materials.

   b. The compactive effort (number of passes and travel speed) is uniformly applied and not less than that specified for the given equipment class and lift thickness. Higher efforts than the minimum allowed may be necessary for satisfactory results on some materials.

   c. The Engineer concludes from a visual observation that adequate compaction has been attained, with the exception of backfill at structures, culverts, pipes, conduits, and direct burial cables. However, the State reserves the right to perform density tests at any time. When tests are performed, the results shall indicate that not less than 90% of Standard Proctor Maximum Density is attained in any portion of an embankment, or 95% in a subgrade area, or as specified for other items with a percent maximum density requirement.

   d. Significant rutting under the action of the compactor is not observed on the final passes on a lift. Whenever the Contractor's operations do not conform to the above criteria, or requirements contained in other subparagraphs of this subsection, the Engineer will prohibit placement of an overlying lift until the Contractor takes effective corrective action.

   As part of the Department’s Quality Assurance (QA) program, the Engineer or his representative may verify the adequacy of the compaction at any time through QA testing. When the Engineer determines that QA tests are necessary, the Contractor shall provide any assistance requested to facilitate such tests. Such assistance shall include but will not be limited to excavation and backfill of test pits and holes. This work shall be considered to be incidental construction.

   Damage to any compacted lift at any time during the course of construction such as rutting under the loads imposed by earth moving equipment, shall be fully repaired by the Contractor at his/her own expense prior to placement of any overlying materials.

2. Compaction Equipment. The selection of compaction equipment is the Contractor's responsibility, but shall be subject to meeting the requirements of this subparagraph and approval by the Engineer with respect to its provisions. All compaction equipment shall be marked by a permanently attached manufacturer's identification plate designating the name of the manufacturer, model number and serial number of the machine as minimum identification. This plate shall be installed in a readily visible location. Compaction equipment lacking such an original manufacturer's identification plate, or with altered or illegible plates, will not be recognized as acceptable compaction equipment. Any equipment not principally manufactured for soil compaction purposes and equipment which is not in proper working order in all respects shall not be approved or used. The Engineer will also withhold approval of any compactor for which the Contractor cannot furnish manufacturer's specifications covering data not obvious from a visual inspection of the equipment and necessary to determine its classification.

   The term, “pass,” for any type of compactor, shall denote one direct vertical application of compactor effort over all elemental areas of a lift surface. Terms in common parlance, such as “coverage,” “trips,” etc., have no significance, equivalence, or application under these specifications.

<table>
<thead>
<tr>
<th>TABLE 203-1</th>
<th>PNEUMATIC-TIRED COMPACTOR CLASSIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic</td>
<td>Tire Requirements</td>
</tr>
</tbody>
</table>

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### Compactor Class Table

<table>
<thead>
<tr>
<th>Compactor Class</th>
<th>Tire Size</th>
<th>No. Plys</th>
<th>Pressure (psi)</th>
<th>Loads (lbs. per Wheel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7.50 x 15</td>
<td>4</td>
<td>35</td>
<td>2,000 – 3,000</td>
</tr>
<tr>
<td>B</td>
<td>7.50 x 15</td>
<td>6</td>
<td>60*</td>
<td>2,000 – 4,000</td>
</tr>
<tr>
<td>C</td>
<td>7.50 x 15</td>
<td>14</td>
<td>130*</td>
<td>2,000 – 4,000</td>
</tr>
<tr>
<td>D</td>
<td>9.00 x 20</td>
<td>10</td>
<td>75*</td>
<td>4,000 – 6,000</td>
</tr>
<tr>
<td>E</td>
<td>11.00 x 20</td>
<td>12</td>
<td>90*</td>
<td>6,000 – 8,000</td>
</tr>
<tr>
<td>F</td>
<td>13.00 x 24</td>
<td>18</td>
<td>100*</td>
<td>8,000 – 10,000</td>
</tr>
</tbody>
</table>

* Inflation pressure for not less than the last two passes on each lift. May be reduced during earlier passes and gradually increased to this level.

#### a. Pneumatic-Tired Compactors

This type of compactor shall be classified for use according to the requirements of Table 203-1. For the lift thickness selected by the Contractor, the minimum class and wheel load which will be allowed on that lift thickness, shall be as shown in Figure 203-1.
The minimum effort for all pneumatic compactors shall be 6 passes, at speeds up to 12 ft./sec on no more than the first 2 passes, and all subsequent passes at speeds of 6 ft./sec. or less.

**b. Smooth Drum Vibratory Compactors.** This type of compactor is defined as a machine which primarily develops its compactive effort from the vibrations created and is classified for use according to the developed compactive force rating (CFR) per linear inch of drum width. The CFR is defined as follows:

\[
CFR = \frac{\text{Unsprung Drum Weight (lbs.)} + \text{Dynamic Force (lbs.)}}{\text{Drum Width (in.)}}
\]

The unsprung drum weight is the static weight of the drum and appurtenances without any reaction transmitted to the drum from the main chassis of the compactor. The dynamic force produced is dependent on the frequency of vibration, and therefore, CFR ratings shall be determined for the actual operating frequency of the compactor. Approval for vibratory compactors shall be confined, however, to equipment operating at not less than 1100 vpm, nor more than 1500 vpm, and those where the actual dynamic force at the actual operating frequency is at least 2.5 times the unsprung drum weight.

Conversion of manufacturer's published ratings, at a given frequency, shall be made with the following equation:

\[
F_2 = \frac{F_1(V_2)^2}{(V_1)^2}
\]

where: 
- \( F_1 \) = Dynamic Force at Rated Frequency
- \( F_2 \) = Dynamic Force at Operating Frequency
- \( V_1 \) = Rated Frequency
- \( V_2 \) = Operating Frequency

For the lift thickness selected by the Contractor, the minimum CFR rating and minimum effort on such a lift, shall be as shown in Figures 203-2B&C, respectively. Non-Centrifugal (Vertical force only) types of vibratory compactors shall be approved as above, less 175 lbs./in. before using Figures 203-2 B&C as a minimum number of passes at a single specified speed. An equivalent effort, relating varying numbers of passes to other speeds is given by the equation:

\[
\text{Speed X} = \frac{(\text{Specified Speed}) (\text{Min. Passes at Speed X})}{(\text{Specified Min. Passes})}
\]

The Contractor may choose to alter the specified minimum pass requirement, provided that speed is adjusted to the value given by this equation and does not exceed 6 ft./sec.
Where vibratory compactors are used on a project, the Contractor shall furnish for the exclusive use of the Engineer, one vibrating reed tachometer per project, plus one additional tachometer for each group of two vibratory compactors in excess of two per project. Tachometers shall have a frequency range adequate to cover operating frequencies of all vibratory compactors used on the project and shall...
have scale divisions of 50 vpm or less. Tachometers may be placed on the ground surface near the compactor when making readings, or with suitable damping materials interposed, placed directly on the compactor drum frame.

The dispensations permitted under this specification for vibratory compactors are contingent upon proper operation of the equipment at all times during compaction operations. In any instance where the Engineer encounters any problems with operators rolling without vibration, for any reason, and immediate and effective corrective action is not taken by the Contractor, the Engineer will halt the work until the problem is resolved. If continuing problems of this nature occur, the Engineer may suspend all provisions of this subparagraph and consider the vibratory compactors as smooth steel wheel rollers classified according to their gross weight.

c. Sheepsfoot and Segmented Pad Foot Rollers. This type of compactor shall be defined as a machine which is primarily designed to compact a lift from the bottom to the top.

The maximum loose layer thickness of the material to be compacted shall be equal to the length of the feet plus 15%. The end area size and configuration of the feet shall be selected by the Contractor to suit the characteristics of soil being compacted.

Where sheepsfoot and segmented pad foot rollers are used, with or without vibration, the number of passes required for job control shall be determined by a jobsite test in which the feet penetrate into the loose lifts and, with further passes, eventually and substantially “walk out” of the layer. This job control shall then be established for that machine, lift thickness and material, provided that adequate moisture control is continuously maintained per §203-3.03C. Compaction 3. Moisture Control. Sheepsfoot and segmented pad foot rollers shall be operated at speeds not exceeding 6 ft./sec., when towed and 15 ft./sec. when self-propelled.

d. Smooth Steel Wheel Rollers. Smooth steel wheel rollers shall be considered as primary compactors on layers whose maximum thickness, after compaction, is 8 in. When so used, the roller shall have a nominal gross weight of not less than 10 tons, exert a minimum force of not less than 300 lbs/in. of width on the compression roll faces, and a minimum of 8 passes shall be applied over each lift with the roller operating at a speed not exceeding 6 ft./sec.

When the Contractor employs smooth steel wheel rollers exclusively for surface compaction, leveling or finishing operations on lifts previously compacted by other types of primary compactors, the above restrictions shall not apply.

This section applies to non-vibratory rollers or vibratory rollers operated in the static mode only.

e. Other Type of Compactors. Compactor types other than those classified above, may be employed by the Contractor, subject to approval by the Engineer of the proposed minimum applied effort (minimum number of passes and travel speed) and maximum lift thickness. Such approval by the Engineer will be based upon the results of appropriate on-site field tests.

f. Compaction Equipment for Confined Areas. In areas inaccessible to conventional compactors, or where maneuvering space is limited, impactor rammers, plate or small drum vibrators, or pneumatic buttonhead compaction equipment may be used with layer thickness not exceeding 6 in. before compaction. Hand tampers shall not be permitted. The Engineer may approve or reject any of the above described mechanical devices based upon the results of appropriate on-site field tests.

3. Moisture Control. All fill or backfill material to be compacted, shall be at a moisture content for adequate compaction of that material using the compactor selected by the Contractor to perform the work. The Contractor shall be responsible for determining the appropriate moisture content, and for controlling it within the proper limits as the work is progressed. When water must be added to a material, it may be added on the lift or in the excavation or borrow pit. Water added on the lift, however, shall be applied by use of an approved pressure distributor. Distributors must be approved and documented by the Engineer. Documentation by the Engineer shall be adequate evidence of approval. Water added shall be thoroughly incorporated into the soil, and the soil shall be manipulated to attain uniform moisture distribution. When
the moisture content of a lift about to be compacted exceeds the required amount, compaction shall be deferred until the layer has dried back to the required amount. Natural drying may be accelerated by blending in a dry material or manipulation alone, to increase the rate of evaporation. Increased loose lift thickness caused by blending in a dry material, however, may necessitate a change in compaction equipment and/or methods to meet the minimum provisions of subparagraph 2. *Compaction Equipment* of this subsection.

D. **Proof Rolling in Embankment Sections.** Immediately prior to final trimming of the subgrade surface and placement of subbase materials in embankment sections, all areas of the subgrade surface within roadway limits shall be proof rolled according to the requirements of this subsection. This work, and any delays due to this work, shall be considered incidental to the embankment item.

1. **Equipment.** The proof roller shall consist of a chariot type rigid steel frame with a box body suitable for ballast loading up to 50 tons gross weight, and mounted on four pneumatic tired wheels acting in a single line across the width of the roller on its transverse load center line. The wheels shall be equipped with 18.00 x 24 or 18.00 x 25, 24 ply tires, and shall be suspended on articulated axles such that all wheels carry approximately equal loads when operating over uneven surfaces.

2. **Determination of Roller Stress.** Initially, the gross ballasted weight and tire inflation pressure of the proof roller shall be adjusted to the highest stress level shown in Figure 203-3 based on:
   a. The general description of the subgrade soils.
   b. The estimation of the relative subgrade support within the subgrade soil description range.
EXCAVATION AND EMBANKMENT

The initial roller stress for embankments constructed of rock shall be the maximum level listed in Figure 203-3 (50 Gross Tons, 130 Tire psi).

The roller shall be operated briefly to establish the acceptability of the initial stress level. Proof rolling of the embankment shall be performed at the next lower stress level whenever operation of the roller at a higher stress level is accompanied by consistent lateral displacement of soil out of the wheel paths.

3. Procedure. After an acceptable stress level is established, two complete passes of the roller shall be applied over all elements of the area to be proof rolled. Any deficiencies disclosed during the proof rolling operation shall be corrected. Subsidence depressions shall be filled with material similar to the subgrade soil and then compacted in a normal manner. After compaction, these areas shall be proof rolled again. Corrective work shall be judged complete and accepted by the Engineer when all elements of the subgrade surface over a given embankment show a satisfactory uniform response to the proof roller.

4. Exceptions. Proof rolling of the subgrade surface in embankment sections will not be required in any area where:
   a. Due to restrictions in available access and/or maneuvering space, use of the proof roller may damage adjacent work;
   b. The proof roller will approach a culvert, pipe or other conduit closer than 5 ft. in any direction.

203-3.04 Select Borrow. The management of a select borrow source and the acceptability of all select borrow material shall be in conformance with §203-3.01F. Borrow.

Underwater areas shall be filled with select borrow to 2 ft. above the water surface at the time of placement and in conformance with the details shown on the appropriate Standard Sheet or as noted in the contract documents.

All select borrow placed within the limits of Embankment or the Subgrade Area shall be placed in conformance with §203-3.03B. Embankments or §203-3.01G. Subgrade Area respectively, as appropriate, or where used for fill or backfill at structures, culverts and pipes, in conformance with §203-3.06 Select Granular Fill and §203-3.17 Select Structural Fill.

203-3.05 Select Fill. Underwater areas shall be filled with select fill to 2 ft. above the water surface at the time of placement and in conformance with the details shown on the appropriate Standard Sheet or as noted in the contract documents.

All select fill placed within the limits of Embankment or the Subgrade Area shall be placed in conformance with §203-3.03B. Embankments or §203-3.01G. Subgrade Area respectively, as appropriate, or where used for fill or backfill at structures, culverts and pipes, in conformance with §203-3.06 Select Granular Fill and §203-3.17 Select Structural Fill.

203-3.06 Select Granular Fill. The type of material to be used in bedding, filling and backfill at culverts, pipes, conduit and direct burial cable shall be in conformance with the details shown on the appropriate Standard Sheet or as noted in the contract documents. Do not use RAP. Do not use slabs or pieces of either concrete or asphalt.

Fill or backfill material at culverts and pipes shall be deposited in horizontal layers not exceeding 6 in. in thickness prior to compaction. Compaction of each layer shall be as specified under §203-3.03C. Compaction. A minimum of 95% of Standard Proctor Maximum Density will be required. When placing fill or backfill around culverts and pipes, layers shall be deposited to progressively bury the pipe or culvert to equal depths on both sides. The limits to which this subsection will apply shall be in accordance with the Standard Sheets or as modified in the contract documents.

Fill or backfill for conduit or cable placed in a trench shall be carefully placed in a horizontal layer to a depth of 6 in. over the top of the conduit or cable. This layer of material shall not be compacted, however, the remaining portion of the trench shall be backfilled in accordance with the preceding paragraph. Where cables or conduits are placed and backfilled by a machine in one operation, the above requirements for backfilling do not apply.

Where sheeting has been used for the excavation, and incremental removal of sheeting is not specified in the contract documents, sheeting shall be pulled when the trench has been backfilled to the maximum unsupported trench depth allowed by 29 CFR 1926.
EXCAVATION AND EMBANKMENT

203-3.07 Select Granular Fill Slope Protection. The Contractor shall perform the excavation in accordance with the requirements for “Unclassified Excavation and Disposal” as described elsewhere in these specifications. The Contractor shall then spread material conforming to the requirements given in §733-12 Select Granular Slope Protection, in one layer to its full thickness by a method approved by the Engineer. The work shall be performed where shown in the contract documents or where directed by the Engineer in accordance with the Standard Sheets, and details shown on the contract documents. Compaction of the slope protection is not required. Slope Protection shall be either of two types, as described below:

A. Select Granular Fill, Slope Protection - Type A. Under this type, the Contractor shall furnish and install the slope protection where shown in the contract documents in accordance with the details shown on the Standard Sheets.

B. Select Granular Fill, Slope Protection - Type B. Under this type, the Contractor shall furnish and install the slope protection where directed by the Engineer in accordance with the details shown on the Standard Sheets.

203-3.08 Surface Settlement Gauges. Surface settlement gauges shall be constructed, installed, and maintained where shown in the contract documents and in accordance with the details contained in the geotechnical control procedure “Settlement Gauges and Settlement Rods” covering construction, installation, maintenance, and abandonment of these devices.

Where surface settlement gauges are called for, it will be the Contractor's option to install pipe gauges or manometer gauges, unless a definite type is specified in the contract documents. Surface settlement gauges will be accepted for conformance with the specification requirements on the basis of an inspection of the installation by the Departmental Geotechnical Engineer.

203-3.09 Settlement Rods. Settlement rods shall be constructed, installed, and maintained where shown in the contract documents and in accordance with the details contained in the geotechnical control procedure “Settlement Gauges and Settlement Rods” covering construction, installation, maintenance, and abandonment of these devices.

Settlement rods will be accepted for conformance with the specification requirements on the basis of an inspection of the installation by the Departmental Geotechnical Engineer.

203-3.10 Piezometers. Piezometers shall be constructed, installed, and maintained at the locations shown in the contract documents and in accordance with the detailed drawings included in the contract documents.

203-3.11 Applying Water. None Specified.

203-3.12 Select Granular Subgrade. The type of material to be used in fill or backfill of undercuts shall be in conformance with the details shown in the contract documents or as ordered by the Engineer.

Fill or backfill material shall be deposited in horizontal layers not exceeding 6 in. in thickness prior to compaction. Compaction of each layer shall be as specified under §203-3.03C. Compaction. A minimum of 95% of Standard Proctor Maximum Density will be required.

203-3.13 Select Structural Fill. The type of material to be used in bedding, filling and backfill at structures shall be in conformance with the details shown on the appropriate Standard Sheet or as noted in the contract documents or as ordered by the Engineer. Do not use RAP. Do not use slabs or pieces of either concrete or asphalt.

Fill or backfill material at structures shall be deposited in horizontal layers not exceeding 6 in. in thickness prior to compaction. Compaction of each layer shall be as specified under §203-3.03C. Compaction. A minimum of 95% of Standard Proctor Maximum Density will be required. When filling behind abutments and similar structures, all material shall be placed and compacted in front of the walls prior to placing fill behind the walls to a higher elevation. The limits to which this subsection will apply shall be in accordance with the Standard Sheets or as modified in the contract documents.

Where sheeting has been used for the excavation, and incremental removal of sheeting is not specified in the contract documents, sheeting shall be pulled when the trench has been backfilled to the maximum unsupported trench depth allowed by 29 CFR 1926.
203-3.14 Sand Backfill. The type of material to be used in bedding and filling shall be in conformance with the
details shown in the contract documents or as ordered by the Engineer.

Bedding or fill material shall be deposited in horizontal layers not exceeding 6 in. in thickness prior to
compaction. Compaction of each layer shall be as specified under §203-3.03C. Compaction. A minimum of 95% of
Standard Proctor Maximum Density will be required.

203-4 METHOD OF MEASUREMENT

203-4.01 General. Quantities for all items of work with payment units in cubic yards will be computed from
payment lines shown in the contract documents. Work performed beyond any designated payment line, including
any offset required for the construction of presplit rock slopes in lifts, will not be included in the computation of
quantities for the item involved.

For any item paid for in its final position, no additional quantity will be measured for payment to make up
losses due to foundation settlement, compaction, erosion or any other cause.

Cross-sectioning, for the purpose of determining quantities for payment, will be employed only where payment
lines are not shown in the contract documents or Standard Sheets, and cannot be reasonably established by the
Engineer.

Quantities for benching will be computed for payment from the details and instructions shown on the Standard
Sheet Earthwork Transition and Benching Details.

The excavation of unsuitable materials designated as topsoil under Section 613 Topsoil, will be included in the
quantity measured for the appropriate unclassified excavation item, without distinction.

Where the item, “Embankment in Place,” is designated for the project by the proposal, all borrow of ordinary
suitable materials shall be incidental to the work of that item.

203-4.02 Unclassified Excavation and Disposal. Unclassified excavation and disposal will be measured in
cubic yards, measured to the nearest whole cubic yard, computed in the original position for all excavation within
right-of-way limits. No deduction shall be made for any pipes, culverts, structures, or other obstructions, unless
these are measured for payment under another contract item. Excavation for borrow of suitable materials for
embankment construction, shall not be included in the computation for this work.

203-4.03 Embankment in Place. Embankment in place will be measured in cubic yards, measured to the nearest whole cubic yard, computed in the final compacted position. Any additional quantity of material required to
compensate for embankment settlement shall not be included in the measurement of this item. The quantities of
embankment will exclude the total volume of pipes, culverts, other roadway items, and granular backfill within the
payment lines for such granular backfill.

203-4.04 Select Borrow. Select borrow will be measured in cubic yards, measured to the nearest whole cubic
yard, computed in the original position.

203-4.05 Select Fill. Select fill will be measured in cubic yards, measured to the nearest whole cubic yard,
computed in the final compacted position.

203-4.06 Select Granular Fill. Select granular fill will be measured in cubic yards, measured to the nearest
whole cubic yard, computed in the final compacted position. A deduction shall be made for pipes (based on
nominal diameters) and other payment items when the combined cross-sectional area exceeds 1 ft² unless otherwise
shown in the contract documents. No deduction will be made for the cross-sectional area of an existing facility.

203-4.07 Select Granular Fill Slope Protection. Select granular fill slope protection will be measured in cubic
yards, measured to the nearest whole cubic yard, computed in the final position.

203-4.08 Surface Settlement Gauges. Surface settlement gauges will be measured by the number of devices
satisfactorily installed.
203-4.09 Settlement Rods. Settlement rods will be measured by the number of devices satisfactorily installed.

203-4.10 Piezometers. Piezometers will be measured by the number of devices satisfactorily installed.

203-4.11 Applying Water. The unit of measurement of water will be one pressure distributor per calendar day, denoted hereafter as one p.d.d., for dust control. Where the Contractor works in more than one separate and distinct shift per calendar day, each shift shall be considered as one p.d.d. A single shift plus overtime work, however, shall be considered as one p.d.d. The quantity thus determined shall be applied directly as the quantity to be paid for where the distributors used have a capacity of 3,000 gal. or less.

Provided that the Engineer determines that the total operating distributor capacity (number and sizes of all distributors) employed is reasonably commensurate with the needs for water application, additional payment will be allowed for distributors exceeding 3,000 gal. in capacity as follows:

<table>
<thead>
<tr>
<th>Distributor Capacity</th>
<th>Pressure Distributor per Calendar Day Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,000 gal. &lt; distributor capacity &lt; 5,000 gal.</td>
<td>p.d.d.’s will be multiplied by 1.5</td>
</tr>
<tr>
<td>5,000 gal. ≤ distributor capacity</td>
<td>p.d.d.’s will be multiplied by 2.0</td>
</tr>
</tbody>
</table>

No additional quantity shall be measured for payment for compaction purposes.

203-4.12 Select Granular Subgrade. Select granular subgrade will be measured in cubic yards, measured to the nearest whole cubic yard, computed in the final compacted position.

203-4.13 Select Structural Fill. Select structural fill will be measured in cubic yards, measured to the nearest whole cubic yard, in the final compacted position. A deduction shall be made for pipes (based on nominal diameters) and other payment items when the combined cross-sectional area exceeds 1 ft² unless otherwise shown in the contract documents. No deduction will be made for the cross-sectional area of an existing facility.

203-4.14 Sand Backfill. Sand backfill will be measured in cubic yards, measured to the nearest whole cubic yard, in the final compacted position. A deduction shall be made for pipes (based on nominal diameters) and other payment items when the combined cross-sectional area exceeds 1 ft² unless otherwise shown in the contract documents. No deduction will be made for the cross-sectional area of an existing facility.

203-5 BASIS OF PAYMENT

203-5.01 General-All Items. The unit price bid shall include the cost of furnishing all labor, materials, and equipment as necessary to complete the work, except where specific costs are designated or included in another pay item of work. Incidental costs, such as acquisition of borrow pits or material outside of the right-of-way, rock drilling and blasting, compaction and special test requirements, stockpiling and re-handling of materials, precautionary measures to protect private property and utilities, to form and trim graded surfaces, proof rolling, re-proof rolling, corrective work disclosed by proof rolling and any delays caused by this corrective work, shall be included in the unit price of the pay item where such costs are incurred. The exception is that corrective work ordered in cut sections based on an evaluation of proof rolling will be paid for under the appropriate excavation and backfill items.

Quantities for any additional items of work or substitution of material in accordance with the approved Winter Earthwork submittal shall be furnished at no cost to the State.

203-5.02 Unclassified Excavation and Disposal. The provisions of §203-5.01 General-All Items apply including the following:

The unit price bid shall cover all costs of required excavation within the right of way limits, and all costs of disposal if the excavated materials are not used under another pay item.
203-5.03 Embankment In Place. The provisions of §203-5.01 General-All Items apply.

203-5.04 Select Borrow. The provisions of §203-5.01 General-All Items apply.

203-5.05 Select Fill. The provisions of §203-5.01 General-All Items apply.

203-5.06 Select Granular Fill. The provisions of §203-5.01 General-All Items apply.

203-5.07 Select Granular Fill Slope Protection. The provisions of §203-5.01 General-All Items apply.

203-5.08 Surface Settlement Gauges. The provisions of §203-5.01 General-All Items apply including the following:

The unit price bid shall cover all costs of providing, installing and maintaining each device, including excavation, trenching and backfill during the course of the work. No payment will be made under any other item of the contract for any work associated with these items.

When each installation is completed, 75% of the item unit price will be paid. The remaining 25% will be paid when each device has been properly maintained and is abandoned according to the procedures contained in the geotechnical control procedure “Settlement Gauges and Settlement Rods”. Unless otherwise specified in the proposal, the unit price shall also include the costs of removal.

203-5.09 Settlement Rods. The provisions of §203-5.01 General-All Items apply including the following:

The unit price bid shall cover all costs of providing, installing and maintaining each device, including excavation, trenching and backfill during the course of the work. No payment will be made under any other item of the contract for any work associated with these items.

When each installation is completed, 75% of the item unit price will be paid. The remaining 25% will be paid when each device has been properly maintained and is abandoned according to the procedures contained in the geotechnical control procedure “Settlement Gauges and Settlement Rods”. Unless otherwise specified in the proposal, the unit price shall also include the costs of removal.

203-5.10 Piezometers. The provisions of §203-5.01 General-All Items apply including the following:

The unit price bid shall cover all costs of providing, installing and maintaining each device, including excavation, trenching and backfill during the course of the work. No payment will be made under any other item of the contract for any work associated with these items.

When each installation is completed and the device placed in satisfactory operation, 75% of the unit price will be paid. The remaining 25% will be paid when all earthmoving and slope work is completed in the vicinity of each installation. Any installation rendered inoperative due to damage by construction equipment after partial or full payment, shall be immediately repaired or the full amount of such payment shall be deducted from other monies due the Contractor under the contract.

203-5.11 Applying Water. The unit price bid per one operating pressure distributor per calendar day for applying water shall include the costs of furnishing all labor, material and equipment necessary for dust control.

203-5.12 Select Granular Subgrade. The provisions of §203-5.01 General-All Items apply.

203-5.13 Select Structural Fill. The provisions of §203-5.01 General-All Items apply.

203-5.14 Sand Backfill. The provisions of §203-5.01 General-All Items apply.

Payment will be made under:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>203.02</td>
<td>Unclassified Excavation and Disposal</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>203.03</td>
<td>Embankment In Place</td>
<td>Cubic Yards</td>
</tr>
</tbody>
</table>
## EXCAVATION AND EMBANKMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>203.05</td>
<td>Select Borrow</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>203.06</td>
<td>Select Fill</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>203.07</td>
<td>Select Granular Fill</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>203.081</td>
<td>Select Granular Fill, Slope Protection - Type A</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>203.082</td>
<td>Select Granular Fill, Slope Protection - Type B</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>203.10</td>
<td>Surface Settlement Gauges</td>
<td>Each</td>
</tr>
<tr>
<td>203.12</td>
<td>Settlement Rods</td>
<td>Each</td>
</tr>
<tr>
<td>203.13</td>
<td>Piezometers</td>
<td>Each</td>
</tr>
<tr>
<td>203.161</td>
<td>Applying Water</td>
<td>P.D.D.</td>
</tr>
<tr>
<td>203.20</td>
<td>Select Granular Subgrade</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>203.21</td>
<td>Select Structural Fill</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>203.25</td>
<td>Sand Backfill</td>
<td>Cubic Yards</td>
</tr>
</tbody>
</table>
Make the following changes to the Standard Specifications of May 1, 2008:

Page 192 **Delete** Section 208 (Vacant) and **Replace** it with the following:

“SECTION 208 - STORMWATER MANAGEMENT FACILITIES

208-1 DESCRIPTION. The work in this section shall include work required for stormwater management facilities.

208-2 MATERIALS. Materials shall be as specified in the special specifications.

208-3 CONSTRUCTION DETAILS. The extent of work and construction requirements will be covered by special specifications in the contract documents.

208-4 METHOD OF MEASUREMENT. As specified in the special specifications.

208-5 BASIS OF PAYMENT. As specified in the special specifications.”

Page 277 **Delete** SECTIONS 412 THRU 489 (VACANT) and **Replace** it with the following:

“SECTION 412 - CRACK SEALING ASPHALT PAVEMENTS

412-1 DESCRIPTION. The work in this section shall include work required for crack sealing asphalt pavements.

412-2 MATERIALS. Materials shall be as specified in the special specifications.

412-3 CONSTRUCTION DETAILS. The extent of work and construction requirements will be covered by special specifications in the contract documents.

412-4 METHOD OF MEASUREMENT. As specified in the special specifications.

412-5 BASIS OF PAYMENT. As specified in the special specifications.

SECTIONS 413 THRU 489 (VACANT)”

Page 483 **Delete** Section 601 (Vacant) and **Replace** it with the following:

“SECTION 601 - ARCHITECTURAL PAVEMENTS AND TREATMENTS

See EI 12-004 Note 02158”

Page 556 **Delete** Section 616 AND 617 (Vacant) and **Replace** it with the following:

“SECTION 616 – SOIL BIOENGINEERING AND STREAM RESTORATION

616-1 DESCRIPTION. The work in this section shall include work required for soil bioengineering and stream restoration.

616-2 MATERIALS. Materials shall be as specified in the special specifications.
616-3 CONSTRUCTION DETAILS. The extent of work and construction requirements will be covered by special specifications in the contract documents.

616-4 METHOD OF MEASUREMENT. As specified in the special specifications.

616-5 BASIS OF PAYMENT. As specified in the special specifications.

SECTION 617 - INVASIVE SPECIES CONTROL

617-1 DESCRIPTION. The work in this section shall include work required for invasive species control.

617-2 MATERIALS. Materials shall be as specified in the special specifications.

617-3 CONSTRUCTION DETAILS. The extent of work and construction requirements will be covered by special specifications in the contract documents.

617-4 METHOD OF MEASUREMENT. As specified in the special specifications.

617-5 BASIS OF PAYMENT. As specified in the special specifications.

Page 641 Delete Section 639 (Vacant) and Replace it with the following:

“SECTION 639 - CONSTRUCTION CONTRACT MANAGEMENT SYSTEMS

639-1 DESCRIPTION. The work in this section shall include work required for construction contract management systems.

639-2 MATERIALS. Materials shall be as specified in the special specifications.

639-3 CONSTRUCTION DETAILS. The extent of work and construction requirements will be covered by special specifications in the contract documents.

639-4 METHOD OF MEASUREMENT. As specified in the special specifications.

639-5 BASIS OF PAYMENT. As specified in the special specifications.”
Page 643 Delete Section 641, 642 AND 643 (VACANT) and Replace it with the following:

“SECTION 641 - BRIDGE WASHING

641-1 DESCRIPTION. The work in this section shall include work required for bridge washing.

641-2 MATERIALS. Materials shall be as specified in the special specifications.

641-3 CONSTRUCTION DETAILS. The extent of work and construction requirements will be covered by special specifications in the contract documents.

641-4 METHOD OF MEASUREMENT. As specified in the special specifications.

641-5 BASIS OF PAYMENT. As specified in the special specifications.

SECTION 642 - ROADSIDE MAINTENANCE

642-1 DESCRIPTION. The work in this section shall include work required for roadside maintenance. Examples of the type of work are mowing, litter pick up, cleaning and shaping ditches. Work involving slope repair, asphalt patching, culvert repairs, etc shall be specified in other sections.

642-2 MATERIALS. Materials shall be as specified in the special specifications.

642-3 CONSTRUCTION DETAILS. The extent of work and construction requirements will be covered by special specifications in the contract documents.

642-4 METHOD OF MEASUREMENT. As specified in the special specifications.

642-5 BASIS OF PAYMENT. As specified in the special specifications.

SECTION 643 – NOISE BARRIERS

643-1 DESCRIPTION. The work in this section shall include work involved with construction of noise barriers.

643-2 MATERIALS. Materials shall be as specified in the special specifications.

643-3 CONSTRUCTION DETAILS. The extent of work and construction requirements will be covered by special specifications in the contract documents.

643-4 METHOD OF MEASUREMENT. As specified in the special specifications.

643-5 BASIS OF PAYMENT. As specified in the special specifications.”
Page 738 Delete SECTION 681 THRU 684 (VACANT) and Replace it with the following:

“SECTION 681 AND 682 - (VACANT)

SECTION 683 - INTELLIGENT TRANSPORTATION SYSTEMS

683-1 DESCRIPTION. The work in this section shall include work required for intelligent transportation systems.

683-2 MATERIALS. Materials shall be as specified in the special specifications.

683-3 CONSTRUCTION DETAILS. The extent of work and construction requirements will be covered by special specifications in the contract documents.

683-4 METHOD OF MEASUREMENT. As specified in the special specifications.

683-5 BASIS OF PAYMENT. As specified in the special specifications.

SECTION 684 - (VACANT)”
Make the following changes to the Standard Specifications dated May 1, 2008 as modified by EI 08-046:

Page 204, add the following after Section 211:

SECTION 212 – ROCK SLOPE REINFORCEMENT AND CATCHMENT SYSTEMS

212-1 DESCRIPTION. This work shall consist of furnishing and installing rock slope stabilization techniques or roadside protective measures in conformance with payment lines, type, size, and at the locations specified in the contract documents.

212-1.01 Definitions.

A. General. As outlined in Section 203 Excavation and Embankment, all rock slopes shall be thoroughly scaled and cleaned of unsound material and loose masses of rock. This section provides requirements for specific techniques developed to address situations where a hazardous rock slope situation still exists after stripping and scaling in order to control a rockfall within a designated rockfall catchment area.

B. Rock Fall. A rockfall is the movement of rock from a slope that is so steep the rock continues to move down slope. The movement may be by free falling, bouncing, rolling or sliding.

C. Rock Catchment Area. The rockfall catchment area is defined as the area between the edge of roadway pavement and the base of an adjacent rockslope that is used to restrict rockfall from reaching the roadway. The term catchment area is synonymous with ditch, rockfall ditch, rockfall catch ditch and rock fallout area. The catchment area width is the horizontal distance between the roadway edge of pavement and the base (toe) of a rockslope.

D. Rock Catchment Fences. Rock catchment fences are techniques to control rockfalls within the R.O.W. Rock catchment fences are wire or cable mesh draped from support columns situated to define the catchment area. The catchment fence, or impact section, attenuates the rockfall energy to capture the falling rock and maintain it within the catchment area.

E. Rock Mesh Slope Protection. Rock mesh slope protection is a technique to control rockfalls within the R.O.W. Rock mesh slope protection is the placement of wire or cable mesh on a slope face. The mesh controls the descent of falling rock, which accumulates near the base of the slope within the catchment area.

212-2 MATERIALS

212-2.01 Wire Rope Rock Catchment Fence. The rock catchment fence system, as obtained from the manufacturer, shall have a tested capability of retaining a rock impact of 155 kip-ft of kinetic energy. The result of demonstration tests shall be furnished as required by the Engineer.

A. Net Assembly. Provide a fence consisting of a net conforming to §710-06 Rock Slope Net and Wire Mesh Assemblies, Net Assembly.

Cover all nets with chain link mesh fencing material of a minimum 11 gauge, 2 in. zinc coated mesh, conforming to the requirements of §710-02 Galvanized Steel Fence Fabric.

B. Wire Ropes. Provide the following wire ropes:


4. Anchor Cables. Provide anchor cables conforming to §710-27 Rock Slope Wire Ropes, Anchor Cable. Braking elements in the tieback restraining cable shall incorporate a protective, crushable sleeve as recommended by the manufacturer.

C. Support Columns. Fabricate the net support columns from W8 x 48 wide flange members conforming to
ROCK SLOPE REINFORCEMENT AND CATCHMENT SYSTEMS

the requirements of §715-18 Soldier Piles.

D. Miscellaneous Appurtenances. All steel bolts, nuts and washers shall conform to the requirements of §723-60 Anchor Bolts. All miscellaneous appurtenances such as wire rope clips, thimbles, bolts, etc., shall be galvanized as supplied by the manufacturer.

212-2.02 Chain Link Rock Catchment Fence.

A. Fence Fabric. Provide aluminum coated steel fence fabric a minimum of 6 gauge, chain link type with twist selvage edges, conforming to the requirements of §710-04 Aluminum Coated Steel Fence Fabric, except for gauge.

Vinyl coated steel fence fabric shall be 9 gauge, chain link type with twist selvage edges, conforming to the requirements of §710-03 Vinyl Coated Steel Fence Fabric, Class A Wire Diameter, except color. The color shall be black unless otherwise specified in the contract documents.

B. Cables. Provide galvanized guide rail cables a minimum ¾ in. in diameter, consisting of 3 strands (7 wires per strand) conforming to the requirements of §710-22 Cable Guide Railing and having a minimum tensile strength of 25 kips.

C. Posts. Provide No. 11 steel rebar posts and No. 9 hook bar anchors conforming to the requirements of §709-01 Bar Reinforcement, Grade 420. The rebar posts and hook bar anchors shall be galvanized in accordance with the requirements of §719-01 Galvanized Coatings and Repair Methods, Type I. Exposed cut ends shall be field repaired in accordance with §719-01 Galvanized Coatings and Repair Methods. Hook bar anchors shall have a 180° hook with an outside diameter of 11 in.

No. 11 steel rebar posts shall also conform to the requirements of §709-04 Epoxy-Coated bar Reinforcement, except color. The color shall be as specified on the plans or by the Engineer.

D. Grout. Provide grout to fill the annular space around the No. 11 steel rebar posts, No. 9 hook bar anchors and for backfilling below the anchor angle, conforming to the requirements of §701-05 Concrete Grouting Material.

E. Anchor Angles. Provide 2 ft. long sections of anchor angles of 8 in. by 6 in. by 1 in.steel angle. The steel shall conform to the requirements of §715-01 Structural Steel and shall be galvanized in accordance with §719-01 Galvanized Coatings and Repair Methods, Type I. The anchor angle shall have two 2 in. diameter holes (for the bolts) bored through the 8 in. side. The holes shall be centered 4 in. in from each end along a line 3 in. in from the edge opposite the angle. The anchor angle shall also have three 7/8 in. diameter holes drilled on 4 in. centers along the centerline, with the middle hole located in the center of the 6 in. side for attachment of the steel turnbuckles.

F. Rock Bolt Assembly. Provide 1 ¼ in. nominal diameter, 5 ft. long, rock bolt assembly conforming to the requirements of §731-03 Rock Bolt Assembly.

Provide galvanized and Epoxy-coated 3/8 in. x 2 ½ in. throat by 4 ½ in. depth “U” bolts as shown in Detail’s C1 & C2 of the Standard Sheet 212-4 Chain Link Rock Catchment Fence with 1/8 in. thread length to clamp ¾ in. guide rail cables to No. 11 rebar posts.

G. Miscellaneous Appurtenances.

1. Thimbles. Provide galvanized thimbles for ¼ in. guide rail cable conforming to the requirements of §710-22 Cable Guide Railing and as shown in Detail F of the Standard Sheet 212-5 Chain Link Rock Catchment Fence.

2. Clips. Provide galvanized cable clips for ¾ in. guide rail cable conforming to the requirements of §710-22 Cable Guide Railing and as shown in Detail F of the Standard Sheet 212-5 Chain Link Rock Catchment Fence.

3. Turnbuckles. Provide galvanized steel turnbuckle cable end assemblies conforming to the
requirements of §710-22 Cable Guide Railing and as shown in Detail G of the Standard Sheet 212-5 Chain Link Rock Catchment Fence.

4. **Cable Splices.** Provide galvanized cable splices conforming to the requirements of §710-22 Cable Guide Railing and as shown in Detail H of the Standard Sheet 212-5 Chain Link Rock Catchment Fence.

5. **Wedges.** Provide wedges for cable splices and cable ends conforming to the requirements of §710-22 Cable Guide Railing and as shown in Detail X of the Standard Sheet 212-5 Chain Link Rock Catchment Fence.

6. **Wire Ties.** Provide galvanized steel wire ties (12 gauge).

### 212-2.03 Wire Mesh Slope Protection.

#### A. **Wire Mesh.** Provide wire mesh conforming to §710-06 Rock Slope Net and Wire Mesh Assemblies, Wire Mesh.

#### B. **Cables.** Provide galvanized mesh support cables having a minimum diameter of ⅜ in., 6 x 19 Independent Wire Rope Core (IWRC) construction (or equivalent), conforming to the requirements of §710-22 Cable Guide Railing.

#### C. **Anchors.** Provide galvanized ¼ in. diameter wire rope anchors conforming to the requirements of §710-22 Cable Guide Railing.

Furnish anchor centralizers consisting of plastic, steel or any material not detrimental to the anchor. Do not use wood.

#### D. **Grout.** Provide grout conforming to the requirements of §701-05 Concrete Grouting Material.

#### E. **Miscellaneous Appurtenances.**

1. **Seam Wire Rope.** Provide seam rope conforming to §710-27 Rock Slope Wire Ropes, Seam Rope for Wire Mesh Slope Protection.

2. **Steel Rings.** Provide 1 in. x 4 in. steel rings conforming to the requirements of Federal Specification RR-C71D Type VI.

3. **Clips.** Provide ¼ in. wire rope clips conforming to the requirements of §710-22 Cable Guide Railing.

4. **Thimbles.** Provide ¼ in. thimbles conforming to the requirements of §710-22 Cable Guide Railing.

### 212-2.04 Wire Mesh Drape.

#### A. **Wire Mesh Drape.** Provide wire mesh drape conforming to the requirements of §710-06 Rock Slope Net and Wire Mesh Assemblies, Rock Slope Wire Mesh Drape Assembly.

#### B. **Cables.** Provide galvanized mesh support cables a minimum ¾ in. in diameter, consisting of 3 strands (7 wires per strand) conforming to the requirements of §710-22 Cable Guide Railing and having a minimum tensile strength of 25 kips.

#### C. **Miscellaneous Appurtenances.** Provide appurtenances, galvanized as supplied by manufacturer, as follows:

1. **Tie Wire.** Provide 1/12 in. minimum diameter steel tie wire.

2. **Hog Rings.** Provide 1/8 in. minimum diameter (11 gauge) hog rings or other steel fasteners.

3. **Steel Rings.** Provide welded forged steel rings with a stock diameter of 1 in. and a maximum inside diameter of 4 in.

#### D. **Rock Bolt Assembly.** Provide 1 ¼ in. nominal diameter, 6 ½ ft. long (min.), rock bolt assembly conforming to the requirements of §731-03 Rock Bolt Assembly except resin packages of one setting time only shall be utilized for installation of the mesh support and cable anchor rock bolts.
212-2.05 Temporary Rock Catchment Barrier.

A. Precast Concrete Barrier Units. Provide precast concrete barrier units consisting of three (3) components: precast concrete column supports, precast temporary concrete barriers, and precast concrete beams as detailed on the Standard Sheet 212-9 & 10 Temporary Rock Catchment Barrier.

1. Precast Concrete Column Supports. Provide precast concrete column supports conforming to the requirements of §704-05 Precast Concrete Barrier and to the dimensions and details “F”, “G”, “H”, “I”, and “N” on the Standard Sheet 212-10 Temporary Rock Catchment Barrier. Additional joint connection details shall be as shown on Standard Sheet 619-01 Temporary Concrete Barrier.

   Each column support shall have cast-in-place a 6 in. x 6 in. x ¼ in. structural steel tube to be used for support of the wire rope rock fence. The tube steel shall conform to the requirements of ASTM A500, Grade B or C, and shall conform to the dimensions and detail “N” on the Standard Sheet 212-10 Temporary Rock Catchment Barrier.

2. Precast Temporary Concrete Barriers. Provide precast temporary concrete barriers conforming to the requirements of §704-05 Precast Concrete Barrier and to the dimensions, joint connections, material details, and anchoring details shown on Standard Sheet 619-01 Temporary Concrete Barrier.

3. Precast Concrete Beams. Provide precast concrete beams conforming to the requirements of §704-05 Precast Concrete Barrier and to the dimensions and details “K”, and “M” shown on the Standard Sheet 212-10 Temporary Rock Catchment Barrier.

The Engineer will inspect all precast concrete barrier unit components upon delivery to the project site for conformance to specifications. Any barrier unit component having damage and/or defects in the concrete and/or joint connections will be rejected.

The precast concrete barrier units shall form a smooth and continuous barrier when joined together. Any sections damaged or misaligned while in service shall be corrected or replaced.

B. Net Support Columns. Fabricate the net support columns from W5 x 16 wide flange members conforming to the requirements of §715-18 Soldier Piles

   Each support column shall have four (4) pairs (eight holes) of 1 in. diameter holes drilled on the side facing the rock slope. Two (2) holes shall be situated 3 in. from the top of the post and the remaining three (3) pairs spaced equally approximately 40 in. apart.

   After any required drilling, welding and/or cutting, all support columns and related hardware shall be hot dipped galvanized in accordance with the requirements of §719-01 Galvanized Coatings and Repair Methods, Type I.


D. Wire Rope Netting. Provide wire rope netting conforming to §710-06 Rock Slope Net and Wire Mesh Assemblies, Net Assembly.

   Two (2) aluminum stop sleeves shall be used at all locations where two individual wire ropes are joined together.

   The 8 in. x 8 in. mesh size shall be fabricated using high strength, hot dipped, galvanized steel clips, which are attached so that they are non-moveable. Nets damaged during clipping shall be rejected by the Engineer.

E. Chain Link Fence Fabric. Provide a minimum of 9 gauge chain link fence fabric conforming to the requirements of §710-02 Galvanized Steel Fence Fabric. The galvanized chain link fence fabric shall be 12 ft. high and have a 2 in. mesh size. The chain link fence fabric shall be continuous between wire rope net panels.

F. Synthetic Fabric Layer. Provide a synthetic fabric, 10 ½ ft. in height conforming to the requirements of §737-01A Geotextile Bedding.

G. Cushion Sand. Provide sand conforming to the requirements of §703-06 Cushion Sand.
H. Miscellaneous Material. Provide miscellaneous hardware such as shackles, thimbles, wire clips, bolts, etc. which shall be hot dipped galvanized in accordance with §719-01 Galvanized Coatings and Repair Methods, Type I.

212-2.06 Move Temporary Rock Catchment Barrier. None Specified.

212-3 CONSTRUCTION DETAILS

212-3.01 Wire Rope Rock Catchment Fence. Assemble the wire rope rock catchment fence as detailed on the Standard Sheet 212-1, 2 & 3 Wire Rope Rock Catchment Fence.

Submit to the Engineer for approval not less than two weeks prior to the installation of the wire rope rock catchment fence. Do not begin work prior to approval. Provide the following:

a) Proposed start date, completion date and detailed construction sequence.

b) Proposed anchor drilling method and equipment including hole diameter, method of keeping holes open, and hole clean out procedures.

c) Proposed anchor installation procedure including grout placement procedures, grouting equipment, and the procedure for setting the wire rope anchor centralizers.

d) Method of verifying anchor capacity and equipment setup including details of the jacking frame and appurtenant bracing. Include the calibration data for the stressing device. The calibration shall be performed by an independent testing laboratory within 60 calendar days of the submittal date.

Install grouted wire rope anchors with accompanying centralizers at the top of the rock slope on 12 ft. centers or as indicated by Engineer. Mix grout per manufacturer’s instructions. Wait a minimum of 7 days after grouting before applying any load to the anchors. Proof test each anchor in accordance with §212-3.03 A. Anchor Testing.

Fasten all net braiding with high strength, corrosion resistant clips or other fasteners to produce a permanent, non-movable joint. Damage to the wire rope resulting from the installation of the clips, insofar as it affects the integrity of the system, in the opinion of the Engineer, shall be cause for rejection of the net panel.

Cut the chain link material to fit each wire rope netting panel. Attach the chain link mesh fencing material to the inside face of the wire rope nets with clips to extend a minimum of 3 ft. beyond the bottom of the fence.

Provide and install one braking element per top and bottom net supporting rope per 20 ft. net section. Position the braking element not more than 3 ft. from the column.

Use seam ropes to fasten adjacent wire rope nets and the nets to the net support wire ropes, with at least 1 wrap per 16 in.

The column spacing shall be 20 ft.

Install a tie-back restraining cable to extend from the top of each column in a direction perpendicular to the length of the fence and on the slope side of the fence. Install a braking element in each cable not more than 3 ft. from the column.

For a fence whose length is 120 ft. or less, both end columns shall have a lateral restraining cable without the braking element. This cable shall extend from the top of the column at an angle of 60° from the vertical to the ground. For a fence which is longer, install lateral restraining cables at every multiple of 120 ft., or approximately midway for a fence less than 240 ft.

Paint the fence installation where specified, with the appropriate material and color as directed by the Engineer.

212-3.02 Chain Link Rock Catchment Fence. Assemble the chain link rock catchment fence as detailed on the Standard Sheet 212-4 & 5 Chain Link Rock Catchment Fence.

Install galvanized No. 11 steel rebar posts in 2 in. diameter vertical holes drilled to a minimum depth of 2 ft. into rock. Post spacing shall be 8 ft. Pour a sufficient amount of concrete grouting material into the hole before inserting the post to allow overflow after insertion.

Install anchor angles for terminal sections. The location of the anchor angles shall be in line with the corresponding fence section and shall be determined by the angle (60° minimum) between the top longitudinal cable and the end post. The angle between any longitudinal cable and the end post shall not exceed 90°. Drill bolt holes for anchor angles into the rock spaced 16 in. on-center to a depth of 4 ft. The bolt hole diameter shall be compatible with the bolt/drill hole/resin cartridge diameter, as recommended by the bolt manufacturer, but in no
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case shall the bolt hole diameter exceed the resin cartridge diameter by more than 3/8 in. Install the anchor angle within 90°± 15° to the axis of the rock bolt and in intimate contact with the rock surface for its entire contact area. Acceptable methods of leveling the rock surface include the following:

a) Chipping the rock surface.
b) Applying a special mix supplied by the bolt manufacturer for leveling purposes.
c) A combination of chipping and leveling.

Clean out the bolt hole to its full depth with air or water. Place the appropriate amount of resin in the hole. Insert the bolt into the hole and rotate at approximately 100 rpm while pushing the bolt down through the resin cartridges to the bottom of the hole by a means approved by the Engineer. Rotate the bolt in this position for 30 to 60 seconds to insure mixing of the resin in the hole. Do not rotate the bolt longer than the setting time of the resin. Leave the bolts undisturbed in the hole for the time required for the resin to harden. Place the anchor angle over the bolts on the prepared surface and add the appurtenances. Tension the bolts to 40 kips by means of hollow-ram hydraulic jack, or as ordered by the Engineer. Support the base of the jack at 90°± 2° to the axis of the bolt.

If a failure of the bolt or anchorage occurs, a determination of the cause of failure will be made by a Departmental Engineering Geologist. Correct, as ordered by the Engineer, at no cost to the State, failures attributable to causes other than failure of the rock in the anchorage zone.

The State reserves the right to sample and test delivered materials.

Install No. 9 hook bar anchors on the uphill side of the fence, one hook bar anchor at each post located in a direction normal to the fence alignment. The location of the hook anchor on the ground surface shall be determined by the angle (60°± 5°) between the tie-back cable and the post at the top longitudinal cable. Construct hook bar anchorage according to depth of overburden.

Install No. 9 hook bar anchors at intermediate fence sections. The location of the hook bar anchors shall be in line with the corresponding fence section and shall be determined by the angle between the longitudinal cables and the intermediate anchorage post. This angle shall be between a minimum of 60°± 5° and a maximum of 90°. Construct hook bar anchorages according to depth of overburden.

Secure longitudinal cables to anchor angles at terminal sections with steel turnbuckle cable end assemblies. Secure longitudinal cables at intermediate fence sections to hook bar anchors with one (1) thimble, and four (4) cable clips per cable loop. The maximum distance between terminal sections, and/or intermediate anchorage sections, shall be 200 ft.

Secure ¾ in. longitudinal guide rail cables to rebar posts with “U” bolts so as to have minimum sag without bending posts. Cable splices shall be staggered a minimum of 20 ft. on adjacent cables. Splices shall be spaced a minimum of 100 ft. on the same cable.

Recommended installation sequence:

a) Start with lowest longitudinal cable working from one terminal anchorage toward another or toward an intermediate anchorage, if used.
b) Draw cable taut and secure with “U” bolt to posts.
c) Complete tightening entire length of lower cable between anchorages before starting next higher cable.

Install aluminum fence fabric on uphill side of posts. Attach fence fabric to longitudinal cables with 12 gauge galvanized steel wire ties at 1 ft. intervals. Fence fabric splices shall be overlapped a minimum of four chain link rows. Attach fabric sections by tying both ends of the overlap at 1 ft. intervals, or by a method approved by the Engineer.

Install vinyl coated fence fabric on roadway side of posts. Attach fence fabric to longitudinal cables with 9 gauge vinyl coated steel wire ties at 1 ft. intervals. Fence fabric splices shall be overlapped a minimum of four chain link rows. Attach fabric sections by tying both ends of the overlap at 1 ft. intervals, or by a method approved by the Engineer.

Bottom of fence fabric shall be in contact with the ground surface. Add fence fabric material as necessary. Added material shall be overlapped a minimum of four chain link rows. Tie both ends of the overlap at 1 ft. intervals, or as approved by the Engineer.

Attach tie-back cables on uphill side of rebar posts after longitudinal cables have been tightened and chain link fence fabric has been installed. Tie-back cables shall have a maximum sag of ¾ in. measured at the center.

212-3.03 Wire Mesh Slope Protection. Assemble the wire mesh slope protection as detailed on the Standard Sheet 212-6 & 7 Wire Mesh Slope Protection.
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Design the grouted wire rope anchors so that the design load (P) is at least equal to 30 kips.
Submit shop drawings to the Engineer for approval not less than two weeks prior to the installation of the wire mesh slope protection. Do not begin work prior to approval. Provide drawings including the following:
   a) Proposed start date, completion date and detailed construction sequence.
   b) Details of the wire mesh and anchor layout on the existing slope.
   c) Proposed anchor drilling method and equipment including hole diameter, method of keeping holes open, and hole clean out procedures.
   d) Proposed anchor installation procedure including grout placement procedures, grouting equipment, and the procedure for setting the wire rope anchor centralizers.
   e) Method of verifying anchor capacity and equipment setup including details of the jacking frame and appurtenant bracing. Include the calibration data for the stressing device. The calibration shall be performed by an independent testing laboratory within 60 calendar days of the submittal date.

Install grouted wire rope anchors with accompanying centralizers at the top of the rock slope on 12 ft. centers or as indicated by Engineer. Mix grout per manufacturer’s instructions. Wait a minimum of 7 days after grouting before applying any load to the anchors. Proof test each anchor in accordance with §212-3.03 A. Anchor Testing.

Connect vertical wire rope tag lines to the anchors. Connect the horizontal support cable(s) to the vertical tag lines with steel rings as shown on the attached drawing for this specification. Do not draw cable taut. Maintain a minimum cable sag of ¾ in. on the horizontal support cable between vertical tag lines.

Attach the mesh to the horizontal support cable by a continuous weave through each of the mesh openings with galvanized 5/16 in. seam wire rope, as shown on the attached drawing for this specification.

Install the wire mesh in vertical strips. Overlay horizontal and vertical laps a minimum of 1 ft. and connect with a continuous weave through each of the mesh openings with galvanized 5/16 in. seam wire rope along the edge of the upper mesh strip. The mesh shall be installed in such a manner that the end of a roll curls into the rock face.

Install the wire mesh to cover the specified area of rock face.

A. Anchor Testing. Proof test each anchor. Perform the proof test by incrementally loading and unloading the anchors to 1.5 times the design load (P) in accordance with Table 212-1 Wire Mesh Slope Protection Proof Test Load Schedule. Record the anchor movements to the nearest 0.025 mm at each load increment.

<table>
<thead>
<tr>
<th>TABLE 212-1 WIRE MESH SLOPE PROTECTION PROOF TEST LOAD SCHEDULE</th>
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<tbody>
<tr>
<td><strong>Load</strong></td>
</tr>
<tr>
<td>AL</td>
</tr>
<tr>
<td>0.25 P</td>
</tr>
<tr>
<td>0.50 P</td>
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<tr>
<td>0.75 P</td>
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<tr>
<td>1.00 P</td>
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<tr>
<td>1.25 P</td>
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<tr>
<td>1.50 P (Load Hold)(^2)</td>
</tr>
</tbody>
</table>

\(^1\)P = Design Load  
\(^2\)AL = Alignment Load. The AL necessary to maintain position of the stressing and testing equipment shall not exceed 0.05 P. Set dial gauges to “zero” after the alignment load has been applied. 

\(^3\)Hold each load increment, except for the 1.5 P load, until the deflection stabilizes.

The load hold portion of the proof test is a maximum test load of 1.50 P, which shall be held constant for 10 minutes. The load hold time shall start when the pump begins to load the anchor from the 1.25 P load to the test load. A load cell shall be used to monitor the constant load. Total movements with respect to an independent fixed reference point shall be recorded at 1 minute, 2, 3, 4, 5, 6, and 10 minutes. If the total movement between 1 minute and 10 minutes exceeds 1/24 in., the test load shall be held for an additional 50 minutes. Total movements shall be recorded at 15, 20, 25, 30, 45 and 60
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No part of the temporary yoke or load frame shall bear within 3 ft. of the anchor.
Plot the movement versus load for each increment.
An anchor will be accepted by the Engineer if the creep rate at 1.5P does not exceed 1/24 in. between the 1 and 10 minute readings or for a load hold time of 60 minutes, the creep rate does not exceed 1/12 in. per log cycle of time. If an anchor fails the proof test, install a new anchor at no cost to the State.

212-3.04 Wire Mesh Drape. Assemble the wire mesh drape as detailed on the Standard Sheet 212-8 Wire Mesh Drape.
Install untensioned resin rock bolts at the top of the rockslope on 50 ft. centers (maximum) or as shown in the contract documents. Proof test the first rock bolt per resin lot number to 20 kips in accordance with §212-3.03 A. Anchor Testing.
Place ¾ in. diameter guide rail cable horizontally across the top of the rock slope, secured by 1 ¾ in. diameter resin rock bolts. Maintain a minimum cable sag of 2 ft. to 3 ft. between rock bolts. Do not draw cable taut. Splices of the guide rail cable will not be allowed.
Fold the mesh over or under the guide rail cable a minimum of 1 ft. and connect the horizontal lap with galvanized tie wire with a continuous weave through each of the mesh openings.
Install the wire mesh in vertical strips, each lapped over the other by a minimum of 1 ft. Connect the adjacent vertical strips by either a continuous weave of galvanized tie wire along the edge of the outer mesh strips only, or with hog rings or metal ties on a 6 in. staggered pattern along the edges of both panels. When used, overlay horizontal laps a minimum of 1 ft. and connect with a continuous weave of galvanized tie wire along the edge of the upper mesh strip.
Install the wire mesh to cover the area of rock face identified in the contract documents.
Repair all damaged galvanized surfaces in accordance with §719-01 Galvanized Coatings and Repair Methods.

212-3.05 Temporary Rock Catchment Barrier. Assemble and maintain the temporary rock catchment barrier as detailed on the Standard Sheet 212-9 & 10 Temporary Rock Catchment Barrier.

A. Precast Concrete Barrier Units. Each run, or bay, of precast concrete barrier units (precast concrete column support, precast temporary concrete barrier and precast concrete beam) shall be fastened together to form a continuous chain. After placement, each successive unit shall be moved longitudinally to remove any slack in the connecting joint. The units at each end of a run or bay shall be connected as shown on Standard Sheet 619-01 Temporary Concrete Barrier. To reduce movement of the barrier in areas where limited deflection is desired, one of the anchoring methods shown on Standard Sheet 619-01 Temporary Concrete Barrier shall be used. Where shown in the contract documents, the ends of the barrier run shall be fitted with an impact attenuation device or a tapered end section and flared back.
The empty space within each concrete barrier unit shall be filled with sand for the full height (32 in.) of the unit. The back of the concrete barrier units shall also be covered with sand to the full height of the unit. The sand shall then be laid back at the angle of repose of the material to a minimum sand thickness of 18 in. as shown in detail “E” on Standard Sheet 212-9 Temporary Rock Catchment Barrier. The cost of installing and removing the sand, including the final cleaning of the pavement and shoulder, shall be included in the bid price for this Item.
The Contractor shall provide and maintain delineation of temporary barriers. This delineation shall make the barrier visible to approaching traffic, as well as to traffic which is adjacent to the barrier. The Contractor shall have the choice of using one or more of the following: warning lights, delineators, pavement marking, reflective tape placed on the barrier, reflective paint, or any other device subject to the approval of the Engineer. The delineation devices shall be maintained dirt and snow free, and be visible throughout the term of the contract including shutdown periods.

B. Net Support Columns. The W5 x 16 posts shall be installed in the 6 in. x 6 in. x ¼ in. structural steel tubes cast in the precast concrete column support units. The columns shall be inserted flush with the bottom of the precast concrete column supports.
C. Net Support and Lateral Anchor Ropes. The 5/8 in. net support wire ropes shall be installed as shown in detail “B” on Standard Sheet 212-9 Temporary Rock Catchment Barrier. The net support wire rope shall have maximum sag of 2 in. At both end sections and at every 125 ft. section of temporary catchment barrier (five precast concrete barrier units) install lateral anchors as shown in detail “C” on Standard Sheet 212-9 Temporary Rock Catchment Barrier. The wire rope loop at a ¾ in. shackle connection shall be secured with three (3) wire rope clips as shown in detail “J” on Standard Sheet 212-10 Temporary Rock Catchment Barrier.

D. Rock Catchment Fence Fabric. The rock catchment fence fabric (wire rope net, chain link fence fabric and synthetic fabric) shall be attached to the support rope after the concrete barrier units have been installed. The wire rope net panels shall be attached to the support ropes with ¾ in. shackles spaced approximately 3 ft. apart. The chain link fence fabric, 12 ft. in height, shall be attached to the wire rope net with hog rings or twist ties. The area between two adjacent wire rope net panels shall be covered with chain link fence fabric. The layer of synthetic fabric, with a minimum height of 10 ½ ft., shall be attached to the chain link fence.

212-3.06 Move Temporary Rock Catchment Barrier. Move and reset the temporary rock catchment barrier in accordance with the requirements of §212-3.05 Temporary Rock Catchment Barrier.

212-4 METHOD OF MEASUREMENT

212-4.01 Wire Rope Rock Catchment Fence. Wire rope rock catchment fence will be measured as the number of linear feet of fencing, measured from center-to-center of end posts.

212-4.02 Chain Link Rock Catchment Fence. Chain link rock catchment fence will be measured as the number of linear feet of fence, measured along the top of the fence between the terminal posts. An allowance of 10 linear feet will be added for each terminal section anchorage and for each intermediate section anchorage installed.

212-4.03 Wire Mesh Slope Protection. Wire mesh slope protection will be measured as the number of square feet of rock face satisfactorily covered. No measurement will be made of wire mesh used in any overlap.

212-4.04 Wire Mesh Drape. Wire mesh drape will be measured as the number of square feet of rock face satisfactorily covered. No measurement will be made of wire mesh used in any overlap.

212-4.05 Temporary Rock Catchment Barrier. Temporary rock catchment barrier will be measured as the number of linear feet of barrier, measured along the centerline of the uppermost concrete barrier surface, from one end anchor to the other.

212-4.06 Move Temporary Rock Catchment Barrier. Moving temporary rock catchment barrier will be measured as the number of linear feet of barrier moved, measured along the centerline of the uppermost concrete barrier surface, from one end anchor to the other.

212-5 BASIS OF PAYMENT

212-5.01 Wire Rope Rock Catchment Fence. The unit price bid per linear feet for wire rope rock catchment fence shall include the costs of furnishing all labor, material and equipment necessary to complete the work.

212-5.02 Chain Link Rock Catchment Fence. The unit price bid per linear feet for chain link rock catchment fence shall include the costs of furnishing all labor, material and equipment necessary to complete the work.

212-5.03 Wire Mesh Slope Protection. The unit price bid per square feet for wire mesh slope protection shall include the costs of furnishing all labor, material and equipment necessary to complete the work, including anchor testing and disposal of any material removed from the slope.

212-5.04 Wire Mesh Drape. The unit price bid per square feet for wire mesh drape shall include the costs of
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furnishing all labor, material and equipment necessary to complete the work, including anchor testing and disposal of any material removed from the slope.

212-5.05 Temporary Rock Catchment Barrier. The unit price bid per linear feet for temporary rock catchment barrier shall include the costs of furnishing all labor, material and equipment necessary to erect, maintain, and remove the required barrier, including any required connection devices, end treatments, delineation or guiding devices, and devices for pinning and connecting temporary precast concrete barrier units.

After placement, 90% of the item unit price will be paid. The remaining 10% will be paid when the rock catchment barrier has been removed.

212-5.06 Move Temporary Rock Catchment Barrier. The unit price bid per linear feet for moving temporary rock catchment barrier shall include the costs of furnishing all labor, material and equipment necessary to remove, transport, erect, and maintain the required barrier, including any required connection devices, end treatments, delineation or guiding devices, and devices for pinning and connecting temporary precast concrete barrier units.

Movements necessary to maintain, realign, or replace damaged units will not be considered as moving temporary rock catchment barrier and shall be done at no additional cost to the State.

Payment will be made under:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
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<td>Wire Rope Rock Catchment Fence (Medium Impact – 6 ft.)</td>
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<tr>
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<td>Wire Rope Rock Catchment Fence (Medium Impact – 8 ft.)</td>
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<td>Wire Rope Rock Catchment Fence (Medium Impact – 10 ft.)</td>
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<td>212.0112</td>
<td>Wire Rope Rock Catchment Fence (Medium Impact – 12 ft.)</td>
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<td>Chain Link Rock Catchment Fence</td>
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<td>Vinyl Coated Chain Link Rock Catchment Fence</td>
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<td>Wire Mesh Slope Protection</td>
<td>Square Feet</td>
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<td>212.04</td>
<td>Wire Mesh Drape</td>
<td>Square Feet</td>
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<tr>
<td>212.0501</td>
<td>Temporary Rock Catchment Barrier (10 ft.)</td>
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</tr>
<tr>
<td>212.0502</td>
<td>Move Temporary Rock Catchment Barrier (10 ft.)</td>
<td>Feet</td>
</tr>
</tbody>
</table>
Make the following changes to the Standard Specification of May 4, 2006 / May 1, 2008:

**Section 501-3.02 D. Delivery Tickets, add** the following line to the top of the bullet list for delivery ticket requirements:

- “SiteManager Mix ID”
Make the following changes to the Standard Specifications dated May 4, 2006 and May 1, 2008:

Delete Section 303 *Optional Flexible Shoulder* in its entirety.

Delete Section 403 *Hot Mix Asphalt (HMA) Pavements for Municipalities* in its entirety.

Delete Section 618 *Bituminous Material* in its entirety.

Delete §703-09 *Reclaimed Asphalt Pavement (RAP)* in its entirety.
Make the following changes to the Standard Specifications dated May 1, 2008:

Pages 209-213, Delete SECTION 304 entirely and Replace it with the following:

SECTION 304 – SUBBASE COURSE

304-1 DESCRIPTION

304-1.01 General. The work consists of furnishing, placing and compacting a subbase course of the specified type in conformity with the lines, grades, thicknesses and typical sections shown in the contract documents.

304-1.02 Optional Type. When the Optional Type subbase item is specified, select any of the four (4) options as follows:

Option A. Subbase construction consisting of two (2) separate layers of Type 4 and Type 3 Subbase Course.

Option B. Subbase construction consisting of a single layer of Type 1 Subbase Course.

Option C. Subbase construction consisting of a single layer of Type 2 Subbase Course.

Option D. Subbase construction consisting of a single layer of Type 4 Subbase Course.

304-1.03 Definitions. Deleterious: Any material that does not consist of concrete, asphalt, glass, brick, stone, sand, gravel, blast furnace slag, or other materials deemed acceptable, when these materials are used in subbase in conformance with the specification requirements, OR any material which will adversely affect the performance of the product either during handling, during construction, or in its final application.

304-2 MATERIALS. Provide subbase material meeting the requirements of §733-04 Subbase Course.

Provide a subbase material meeting the specification requirements and is within the Contractor’s capabilities to place and fine grade to the required tolerances. Should the subbase course become unstable at any time prior to the placement of the overlying course, correct the unstable condition at no additional cost to the State. Perform any required modification prior to placing the material on the grade.

RAP will not be allowed as an acceptable alternate to Types 1, 3 and 4 at intersection locations or in areas with a high percentage of truck traffic as shown in the contract documents, unless Portland Cement Concrete pavement is to be installed as part of the pavement structure. A high percentage of trucks is defined to be 10% or more. For interstates and other freeways, a DDHV of 250 vph is used to indicate a high percentage of trucks.

Earthwork construction operations performed from November 1st thru April 1st with an approved Winter Earthwork submittal as outlined in §203-3.01 A. Winter Earthwork Submittal, allows a transition period where standard earthwork materials can be used only if the air temperature, ground temperature, and material temperature are all above 32° F at the time of placement. This transition stipulation also applies to subbase material. However, when either the air temperature, ground temperature, or material temperature is at or below 32° F at the time of placement, the transition period ends and no subbase shall be placed regardless of material composition.

304-3 CONSTRUCTION DETAILS

304-3.01 General. Notify the Engineer in writing of which placement option, material option (if applicable) and/or material type is proposed for use, at least 14 calendar days prior to performing the work. If it is proposed that more than one option or type is to be used, submit a plan to the Engineer describing where each option or type is proposed for use. This plan must be approved by the Engineer prior to incorporating it into the project. The State reserves the right to disapprove the use of more than one option on a project. Use uniform subbase types and materials within the limits of the roadbed as defined in §101-02 Definition of Terms.

304-3.02 Placement
SUBBASE COURSE

- Place the upper course material on the grade in a manner to minimize segregation, using equipment and procedures approved by the Engineer. Do not perform uncontrolled spreading from piles dumped on the grade.
- The maximum compacted layer thickness shall be as shown in the contract documents. In confined areas, the maximum compacted layer thickness is 6 in. The minimum loose lift thickness is 1.5 times the maximum particle size.
- Place Type 1 with a minimum compacted layer thickness of 6 in.
- Do not place Type 3 material within 4 in. of the bottom of a pavement course.
- Do not place materials blended with glass in contact with synthetic liners, geogrids, geotextiles or other geosynthetics. Ensure that glass incorporated into subbase is thoroughly mixed so that glass constitutes no more than 30 percent by weight anywhere in the subbase.
- When placing material under Option A, place and compact each material in a separate lift.

304-3.03 Compaction. When the moisture content is within the limits for proper compaction, compact the material in accordance with the requirements of §203-3.03 C. Compaction. Density tests are not required for the acceptance of these courses.

If a subbase course is disturbed by frost action prior to paving, re-compact the subbase.

304-3.04 Traffic and Contamination. The movement of highway traffic over the final surface of the subbase may be permitted at locations designated by, and under such restrictions as shown in the contract documents, provided such movements take place prior to the final finishing of this course to the specified tolerance. Do not allow highway traffic to move over subbase containing glass. The movement of construction equipment on this course may be permitted at locations designated by and under such restrictions as ordered by the Engineer. At locations where permission is granted for such movement, place and maintain the temporary surface of the course, upon which the construction traffic is running, at least 2 in. above the final surface of the course. Just prior to paving and after all construction traffic not required for the removal has ceased, remove the 2 in. protective layer, and prepare and compact the exposed surface of the course to the specified tolerance.

No payment will be made for furnishing, placing, maintaining, removing and disposing of the 2 in. thick protective layer. Include the cost thereof in the price bid for Subbase Course.

If the subbase is damaged or mixed with the subgrade or any other material due to the Contractor’s operation, remove such material and replace it with the appropriate subbase material at no additional cost to the State.

304-3.05 Tolerance. Place Types 1, 2 or 4 so that after compaction the top surface of the course does not extend more than ¼ in. above nor more than ¼ in. below true grade for the course at any location. Place Type 3 course so that the finished surface does not extend above the true grade and surface for this course at any location.

304-4 METHOD OF MEASUREMENT

304-4.01 Subbase Course. The quantity is the number of cubic yards of material, computed from payment lines shown in the contract documents.

304-5 BASIS OF PAYMENT

304-5.01 Subbase Course. The unit price bid for this work includes the cost of furnishing all labor, material and equipment necessary to complete the work. Include the cost of applying water in the price bid unless the item for applying water is included in the contract. No direct payment will be made for losses of material resulting from compaction, foundation settlement, erosion, or any other cause. No deductions will be made for the volumes occupied by manholes, catch basins and other such objects.

No additional payment will be made for the protective layer, as stated in 304-3.04.

Progress payments will be made after the subbase course has been properly placed and compacted. Payment will be made at the unit price bid for 75% of the quantity. The balance of the quantity will be paid for after the final finishing to the required tolerance and just prior to the placing of the next course.

Payment will be made under:
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>304.11</td>
<td>Subbase Course, Type 1</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>304.12</td>
<td>Subbase Course, Type 2</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>304.13</td>
<td>Subbase Course, Type 3</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>304.14</td>
<td>Subbase Course, Type 4</td>
<td>Cubic Yards</td>
</tr>
<tr>
<td>304.15</td>
<td>Subbase Course, Optional Type</td>
<td>Cubic Yards</td>
</tr>
</tbody>
</table>
SECTION 401 - PLANT PRODUCTION

Make the following changes to the Standard Specifications dated May 1, 2008:

Delete Section 401 – Plant Production entirely and replace it with the following:

SECTION 401 - PLANT PRODUCTION

401-1 DESCRIPTION. The contractor is responsible for Quality Control (QC). QC is defined as all activities required to produce HMA that meets all specification requirements. The contractor shall incorporate a Quality Control system for all plant production of hot mix asphalt (HMA) and assume responsibilities for all QC activities at the production facilities.

The contractor shall produce the HMA according to the specifications herein and provide production documentation. Quality Adjustment Factors (QAFs) will be used to assess HMA production quality and these factors will be applied to calculate a quality payment adjustment.

The Department is responsible for Quality Assurance (QA). QA is defined as all activities performed by the Department to assure that HMA production meets the specification requirements. The Department will determine quality payment adjustments for each day’s production using a daily QAF obtained from the calculations of the average absolute values for volumetric and non-volumetric mixes in accordance with Materials Procedure (MP) 401, Quality Control and Quality Assurance Procedures for Quality Control Hot Mix Asphalt Production. The daily QAFs measure production variation from the mean of the specification limits.

401-2 MATERIALS. The provisions of §402-2, Materials, apply and are as modified herein. Produce HMA in accordance with the requirements outlined in this specification, including all applicable Test Methods and Materials Procedures. HMA mixture designs must be accepted by the Department prior to any HMA production.

The Department reserves the right to suspend any mixture design when the mixture produces unacceptable paving results or exhibits properties that will affect the anticipated pavement performance.

401-2.01 Hot Mix Asphalt Designs. Formulate and submit a HMA design to the Regional Materials Engineer (RME) that satisfies all design criteria outlined in MM 5.16, Superpave Hot Mix Asphalt Mixture Design and Mixture Verification Procedures. When the submitted HMA design is assigned verification status, the design must be verified during production. Notify the RME at least 24 hours prior to the start of verification status production. When producing under verification status, make necessary adjustments to control the process. Apply daily QAFs to both verification and production status mix designs. Mixtures produced under verification status are allowed for use on State projects.

For any HMA permeable base and shim mixtures required by the contract documents, formulate and submit to the RME a job mix formula that satisfies the General Limits imposed by Table 401-1, Composition of Hot Mix Asphalt Mixtures.

401-2.02 Aggregates. Aggregate must be from a source approved by the Department. Use fine aggregate that consists of materials conforming to the requirements of §703-01, Fine Aggregate. In addition, fine aggregate may consist of screenings, free from deleterious materials and manufactured from sources of stone, gravel, or slag meeting the requirements of §703-02, Coarse Aggregate.

Use coarse aggregate that consists either of crushed stone, crushed gravel, or crushed slag conforming to the requirements of §703-02, Coarse Aggregate and MM 5.16.

Use slag aggregate on State projects only when an alternate pay item which takes the mix yield differential into account is included on the plans or in the itemized proposal.

When coarse aggregates for the mixture are from more than one source or of more than one type of material, proportion and blend them to provide a uniform mixture.
TABLE 401-1 COMPOSITION OF HOT MIX ASPHALT MIXTURES

<table>
<thead>
<tr>
<th>Screen Sizes</th>
<th>Permeable Base</th>
<th>Shim</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type 1</td>
<td>Type 2</td>
</tr>
<tr>
<td></td>
<td>General Limits % Passing¹</td>
<td>Job Mix Tolerance %</td>
</tr>
<tr>
<td>2 in</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>1 1/2 in</td>
<td>95-100</td>
<td>-</td>
</tr>
<tr>
<td>1 in</td>
<td>80-95</td>
<td>±6</td>
</tr>
<tr>
<td>1/2 in</td>
<td>30-60</td>
<td>±6</td>
</tr>
<tr>
<td>1/4 in</td>
<td>10-25</td>
<td>±6</td>
</tr>
<tr>
<td>1/8 in</td>
<td>3-15</td>
<td>±6</td>
</tr>
<tr>
<td>No. 20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No. 40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No. 80</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No. 200</td>
<td>0-4</td>
<td>±2</td>
</tr>
<tr>
<td>Asphalt Content, %²³</td>
<td>2.0-4.0</td>
<td>NA</td>
</tr>
<tr>
<td>Mixing and Compaction Temperature Range °F⁴</td>
<td>225-300</td>
<td>225-300</td>
</tr>
</tbody>
</table>

NOTES:
1. All aggregate percentages are based on the total weight of the aggregate.
2. The asphalt content is based on the total weight of the mix. When using slag aggregates in the mix, the asphalt content shall be increased accordingly, a minimum of 25 percent for an all slag mix.
3. Use the PG binder listed in the proposal or as designated by the Region Materials Engineer following the guidance specified in the Comprehensive Pavement Design Manual, Chapter 6, Section 6.2.5 – Performance Graded Binder Selection.
4. Or as recommended by the PG binder manufacturer.

**A. Coarse Aggregate Type F1 Conditions.** Use one of the following types of coarse aggregate.

1. Limestone, dolomite or a blend of the two having an acid-insoluble residue content of not less than 20.0%.
2. Sandstone, granite, chert, traprock, ore tailings, slag or other similar noncarbonate materials.
3. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag or other similar materials, meeting the following requirements:
   a. 12.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 95.0% of plus 3/8 inch particles must be non-carbonate.
   b. 9.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 95.0% of plus No. 4 particles must be non-carbonate.

**B. Coarse Aggregate Type F2 Conditions.** Use one of the following types of coarse aggregate.

1. Limestone, dolomite, or a blend of the two having an acid-insoluble residue content of not less than 20.0%.
2. Sandstone, granite, chert, traprock, ore tailings, slag or other similar noncarbonate materials.

3. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag or other similar materials, meeting the following requirements:

   - 12.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus 3/8 inch particles must be noncarbonate.
   - 9.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be noncarbonate.

C. Coarse Aggregate Type F3 Conditions. Use one of the following types of coarse aggregate.

1. Limestone or a blend of limestone and dolomite having an acid-insoluble residue content of not less than 20.0%.
2. Dolomite.
3. Sandstone, granite, chert, traprock, ore tailings, slag or other similar noncarbonate materials.
4. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag or other similar materials, meeting the following requirements:

   - 12.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus 3/8 inch particles must be noncarbonate.
   - 9.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8 inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be noncarbonate.

D. Coarse Aggregate Type F9 Conditions. Use coarse aggregate meeting the requirements of §703-02, Coarse Aggregate.

401-2.03 Mineral Filler. Use mineral filler conforming to the requirements of §703-08, Mineral Filler.

401-2.04 Performance-Graded Binder. Use the Performance-Graded Binder (PG Binder) in the production of these mixtures that meets Section 702 – Bituminous Materials.

Initial acceptance of the PG Binder is based on the primary source appearing on the Department’s Approved List for Bituminous Material Primary Sources, A. Performance-Graded Binders for Paving. Acceptance of the PG Binder is contingent upon satisfactory test results from samples taken, as required by the Department’s procedural directives, at the location where the material is incorporated into the work. A primary source is defined as a firm that samples, tests, and certifies by Production Lot that the PG Binder is in conformance with the specifications. The procedural directives for sampling, testing, and certifying the PG Binder, and for achieving and maintaining approved list status, are available from the Materials Bureau.

The temperature of PG Binder delivered to the HMA Production Facility shall not exceed 350°F, unless the PG Binder supplier recommends it.

401-2.05 Reclaimed Asphalt Pavement. Reclaimed Asphalt Pavement (RAP) shall meet the requirements of MM 5.16.

401-3 CONSTRUCTION DETAILS.

401-3.01 Quality Control. Perform all sampling and testing in accordance with Materials Procedure 401. Document all QC test results and records in a legible manner and provide them to the State at the end of each
production season or when requested by the RME. HMA produced without the required sampling, testing and documentation may be rejected.

401-3.02 Production Facility Laboratory. Maintain an approved production facility site laboratory to perform all required HMA sampling and testing according to MP 401.

401-3.03 Plant Lots and Sublots. Determine plant lots and sublots on a daily basis in accordance with MP 401.

401-3.04 Quality Control Sampling and Testing. Obtain and test QC samples as outlined in MP 401.

401-3.05 Production Control. Produce HMA according to MP 401. Make necessary process control adjustments during production according to MP 401.

401-3.06 Production Quantities. Whenever production is made for the Department, notify the Regional Materials office by 3:00 p.m. the business day before the day of production. Maintain a record of each day’s production quantity for each mix design supplied to the project site daily. Retain these records at the production facility. These records must be available to the Department’s representative for review. Ship all production quantities as outlined in §401-3.07 Documentation.

401-3.07 Documentation. Record all QC test data for each plant on the appropriate forms provided by the Department according to MP 401. Also, keep a copy of the plant automation printout at the plant facility for each mix type produced and make them available for review at all times. Transmit a summary of all test data weekly to the RME.

Provide a delivery ticket indicating the total quantity in tons being delivered with each delivery vehicle supplying HMA. The method of determining the delivered quantity is subject to the approval of the RME. Make one legible copy of the delivery ticket available to the Department’s paving inspector prior to the placement of the mixture showing the following minimum information:

- Ticket number
- Plant identification
- Contract number
- Site Manager Mix ID (as outlined in MP 401)
- Mix Code (as outlined in MP 401)
- Quantity of material in vehicle
- Date and Time

The quality assurance technician (QAT) will determine the quality adjustment factor (QAF) for each day’s production in accordance with MP 401.

The Engineer will use the Daily QAF to calculate the payment adjustment for each day’s production according to §402-4 Method of Measurement.

401-3.08 HMA Mixing Plant. HMA mixing plants must meet the requirements in MP 401.

401-3.09 Hot Mix Asphalt Holding Bins. HMA mixtures may be held in holding bins which meet the requirements in MP 401.

401-3.10 Evaluation of Lots Represented by 0.85 QAF. When any material results in a QAF of 0.85, the Engineer will evaluate the subject material to determine if it will be left in place. The Engineer may require the Contractor to core the pavement to determine if the in-place density is acceptable at no additional cost to the State. When cores are required, the Engineer will divide the pavement area being evaluated into 4 sublots in accordance with the requirements of §402-3.08, Pavement Density Samples. The material will be left in-place when either of the following sets of conditions is met.
SECTION 401 - PLANT PRODUCTION

- The calculated plant air voids used for payment are greater than 5.5% and less than or equal to 7.0%, the asphalt content, based on automation, is within 0.2% of the production target, the Contractor achieved field density of 92% to 97%, and there are no defects such as, but not limited to, cracking, raveling, rutting, shoving, or bleeding.
- The calculated plant air voids used for payment are greater than or equal to 1% and less than 1.5%, the validated QC and QA plant air void test results, according to MP 401, average 1.5% to 5.5%, the asphalt content, based on automation, is within 0.2% of the production target, the contractor achieved field density of 92% to 97%, and there are no defects such as, but not limited to, cracking, raveling, rutting, shoving, or bleeding.

If the material does not meet the above conditions or it is unknown, such as for mixes accepted based on gradation or if QA testing was not required, the Engineer will determine if the material in question may remain in-place considering, but not limited to, the following:
- Type of material produced
- The layer in which the material was placed
- The location and traffic volume
- Laboratory test results
- Field test results, such as density

If the subject material is left in-place, it will be assigned a QAF of 0.85. If determined the subject material will not be left in-place, the Contractor shall remove and replace the material at no additional cost to the State.

401-4 METHOD OF MEASUREMENT. The quantity will be the number of tons delivered as determined from the automated proportioning system, the delivery vehicle weigh system, or the HMA holding bin weigh system. The measurement or calculation will be the quantity based on the measured amount and reported to the nearest 0.01 of a ton.
Make the following changes to the Standard Specifications dated May 1, 2008:

Delete Section 402 – Hot Mix Asphalt (HMA) Pavements in its entirety and replace it with the following:

SECTION 402 - HOT MIX ASPHALT (HMA) PAVEMENTS

402-1 DESCRIPTION. These specifications apply to all plant mixed Hot Mix Asphalt (HMA) produced at a production facility under Section 401, Plant Production, irrespective of aggregate gradation, type, and amount of HMA material or use.

This work will consist of providing, placing, and performing density monitoring of one or more courses of HMA pavement constructed on the prepared foundation in accordance with the contract documents or as directed by the Engineer.

402-2 MATERIALS

402-2.01 General. Use aggregate and PG binder from a supplier listed in the Department’s Approved List of Fine and Coarse Aggregates. Use of mineral filler or any other materials for the production of HMA will be accepted in accordance with the State’s written instructions.

A PG Binder grade and the Design Estimated Traffic in 80 kN ESALs will be specified by Special Note in the contract documents.

402-2.02 Composition of Mixtures. Supply HMA for the project meeting the requirements of §401-2 of the Standard Specifications and the mixture design procedure as written in Materials Method (MM) 5.16, Superpave Hot Mix Asphalt Mixture Design and Mixture Verification Procedures.

The Contractor will be responsible for the quality and performance of the mixture created from approved components. The Department reserves the right to take samples at any time and location to assure the materials and workmanship incorporated into each Department project are in conformity with the approved plans and specifications.

402-3 CONSTRUCTION DETAILS. The Engineer will conduct a pre-paving meeting prior to any routine HMA placement. The attendance to this meeting will include Regional Materials Engineer, Paving Foreman, Chief Inspector or Paving Inspector(s), HMA plant representative, density gauge operator, if necessary, and traffic protection personnel. Participants will review all aspects of the specifications requirements including, but not limited to, the following:

- HMA mixture delivery temperature
- Equipment and setup
- Mix codes to assure correct mix is delivered to the project
- Gauge operator certification
- Proper construction practice to provide quality product
- Traffic Control Activities

A certified density gauge operator must be present to monitor pavement density using a density gauge for 50 Series (non-mainline areas), 60 Series, and 70 Series compaction methods. The gauge operator must hold a current Density Gauge Inspector Certification from the Associated General Contractors, New York State, or its equivalent, as determined by the Director, Materials Bureau.

Do not place HMA mixture on any wet surface. Wet surface is defined as one that is moistened, covered, or soaked with water.
402-3.01 Temperature and Seasonal Limitations.

A. Surface Temperature

1. Place HMA only when the pavement surface temperature is equal to or greater than those specified in Table 402-1, Temperature Requirements.

<table>
<thead>
<tr>
<th>Nominal Compacted Lift Thickness</th>
<th>Surface Temperature Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 1 in</td>
<td>50°F</td>
</tr>
<tr>
<td>1 in &lt; Thickness ≤ 3 in</td>
<td>45°F</td>
</tr>
<tr>
<td>&gt; 3 in</td>
<td>40°F</td>
</tr>
</tbody>
</table>

2. Temperature Measurement: Furnish a surface thermometer capable of reading surface temperature to nearest 1°F for the exclusive use of the Engineer. The Engineer will measure pavement surface temperatures on the surface where the mixture is to be placed. The controlling temperature will be the average of three readings taken at locations 25 feet apart utilizing a surface thermometer covered by insulation for 10 minutes or until a constant temperature is reached. Infra Red (IR) temperature guns may be used in lieu of surface thermometer. When IR gun is used and if there is a dispute with the value obtained, the Engineer will determine the temperature using the surface thermometer.

B. Seasonal Limits: Place HMA Top Course on mainline and shoulders between April 1 and November 30 for the counties of Dutchess, Orange, Putnam, Rockland, Westchester, Nassau, Suffolk, and the City of New York. For all other counties, place HMA Top Course between April 15 and October 31. When placing Top Course HMA outside the seasonal limitations, provide a limited warranty against defects in such work. Perform the warranty work in accordance with Materials Procedure (MP) 402-01, Warranty Requirements for Hot Mix Asphalt (HMA) Top Course. Unless specified elsewhere in this specification or contract documents, these seasonal limits do not apply for any other HMA layer placement.

C. Temporary HMA Placements: HMA placement for temporary detours, which are not and will not become part of the permanent pavement, will not be subject to the temperature and seasonal limitations but must be approved by the Engineer when placed outside temperature and seasonal limits.

D. Miscellaneous HMA Placements: The Engineer may allow the placement of HMA mixtures for curbs, driveways, sidewalks, gutters, and other incidental construction below the minimum temperature and outside the seasonal limits to expedite the completion of the project.

E. Scheduling HMA Placement: Schedule paving operations such that all HMA placements are completed within the temperature and seasonal limitations, provide safe and adequate work zone traffic control, and protect previously laid courses. Such scheduling will include expediting construction operations to permit paving within the seasonal limitations or by limiting the length of work so that it can be completed before the seasonal shut-down. Should paving operations not be completed within temperature and seasonal limitations, provide, at no additional cost to the state, all temporary materials and work necessary such as shimming of castings and protrusions, drainage of the roadway, providing acceptable rideability, and other work needed for the adequate work zone traffic control. Base or Binder layers which will be permanently incorporated into the work may be left open to traffic over the winter. However, if there is any damage to these layers, repair any damaged areas prior to placing subsequent layer at no additional expense to the State. This requirement also applies to the repairs deemed necessary by the Engineer on the temporary HMA placements. Clean this pavement course in accordance with Section 633, Conditioning Existing Pavement, at no additional expense to the State, prior to applying a tack coat and overlaying. Apply tack coat in accordance with Section 407, Tack Coat, immediately prior to HMA overlay.

402-3.02 HMA Pavers. Provide pavers capable of spreading and finishing courses of HMA plant mix material in...
lane widths, shoulders, or similar construction applicable to the specified typical section and thicknesses shown on
the plans. Repair or replace immediately any paver found to be worn or defective either before or during its use.
Provide HMA pavers that meet the following requirements:
• Self-powered with an activated screed or strike-off assembly.
• Capable of operating at forward speeds consistent with satisfactory placement of the mixtures.
• Have a receiving hopper with sufficient capacity for uniform spreading operation and with automatic flow
controls to place the mixture uniformly in front of the screed. Heat the screed or strike-off assembly as
necessary to produce a finished surface of the required smoothness and texture without tearing, shoving or
gouging the mixture.
• When screed extensions are necessary for placement of mainline pavement, provide extensions of the same
design as the main screed.
• Mount auger and tunnel extensions on the paver when the screed is extended more than 1 foot for fixed paving
widths wider than 12 feet when mat uniformity is not achieved as determined by the Engineer.
• When used for placing the initial paving layer, Base, Binder, and Top Courses, pavers must be equipped with
approved automatic transverse slope and longitudinal grade screed controls. The controls shall automatically
adjust the screed and increase or decrease the mat thickness to compensate for irregularities in the existing
surface. The controls shall be capable of maintaining the proper transverse slope and be readily adjustable so
transitions and super-elevated curves can be satisfactorily paved. The controls shall operate from suitable fixed
or moving references as prescribed in §402-3.06, Spreading and Finishing.
    When paving mainline, provide a paver with functional automatic transverse slope and longitudinal grade
screed controls that can be operated from either side of the paver. The transverse slope and longitudinal grade
screed controls of the HMA paver may be manually adjusted according to the requirements of §402-3.06,
Spreading and Finishing.
    Engineer will inspect and approve HMA pavers for use prior to the start of paving operations.

402-3.03 Hauling Equipment. Provide HMA transport trucks that have clean, smooth, tight metal beds with
waterproof covers for transporting HMA mixtures to the work site. When a flexible cover is used, provide a cover
that overlaps the vehicle’s sideboards and back by a minimum of 6 inches and is fastened. The inside surface of the
vehicle body may be lightly coated with a release agent listed on the Department’s Approved List for Release
Agents. Petroleum products or solvents are not permitted for use as release agents. All hauling equipment is subject
to the approval by the Engineer.

402-3.04 Rollers. Rollers can either be vibratory, static steel wheel type, or pneumatic tire rollers. The Engineer
will inspect rollers prior to start of paving operations to determine acceptability. A minimum of two rollers, one for
breakdown and one for finish rolling, are required unless the HMA placement is on a bridge deck, bridge
approaches, or other areas where a single steel wheel vibratory roller may be sufficient to achieve required density.
Rollers must be in good mechanical condition, and capable of operating at speeds slow enough to avoid
displacement of the mixture. The use of equipment which results in excessive crushing of aggregate will not be
permitted. All rollers for HMA placement must appear on the Department’s Approved List for Rollers, available
on the Department’s website.

A. Vibratory rollers: These rollers shall be specifically designed for the compaction of HMA mixture. Vibratory
roller models satisfying the specification requirements contained herein will be evaluated by the Materials
Bureau to determine compaction capabilities. If acceptable, the roller model will be placed on the
Department’s Approved List for Hot Mix Asphalt Vibratory Compaction Equipment. Vibratory roller models
appearing on this list will be allowed to be used. Alternate types of rollers may be approved by the Director,
Materials Bureau, upon reviewing the specification of the rollers and demonstration that satisfactory results can
be achieved.

    Provide vibratory rollers that meet the following requirements:

    Nominal Amplitude      0.05 in maximum.
Vibration Frequency 1500 vpm minimum.
Drum Width (dual vibrating drums) 54 inches, minimum
( single vibrating drum) 84 inches, minimum

All vibratory rollers shall be equipped with a speedometer that accurately indicates roller speed in either ½ mph or 50 ft per minute increments (maximum) throughout the specified operating range. Vibratory rollers must also be equipped with a speed control device that can be set to prevent the roller from traveling in excess of 2 ½ mph or 220 ft per minute when the roller is in vibratory mode. The type of speed control device will be subject to the approval of the Director, Materials Bureau. When rollers have pneumatic drive wheels, release agents listed on the Department’s Approved List may be used on the tires to prevent material pickup.

B. Static steel-wheel rollers. These rollers shall be self-propelled and be either 10 to 12 ton three axle types or 8 to 10 ton two axle types.

C. Pneumatic rubber-tired rollers: These rollers shall be self-propelled and consist of two axles on which multiple pneumatic-tired wheels are mounted in such a manner that the rear wheels shall not follow in the tracks of the forward wheels and will be spaced to give essentially uniform coverage with each pass. The axles will be mounted in a rigid frame provided with means for adding ballast. The wheels shall be mounted so as to oscillate individually or in pairs. The tires must be smooth and show no tread pattern, be of equal size and diameter, and be uniformly inflated. Pneumatic rollers shall meet the following requirements unless otherwise approved:

Maximum Wheel Load 5,600 lbs
Tire Compression on Pavement 80±5 psi
Maximum Axle Load 22,400 lbs

402-3.05 Conditioning of Existing Surface. When specified in the contract documents, clean the surface of the existing pavement, fill joints and cracks, and level the surface to a uniform grade and cross slope prior to the application of a new HMA course in accordance with the provisions of Section 633, Conditioning Existing Pavement. Clean any foreign material from the pavement resulting from construction operations at no additional cost to the State.

Prior to placing new HMA, apply a thin, uniform tack coat as specified in Section 407, Tack Coat, to all contact surfaces of existing HMA and Portland Cement Concrete layers including such areas as adjacent pavement edges, curbing, gutters, manholes, and other structures where the HMA will be in contact.

Fill any depressions and wheelpath ruts prior to paving Truing and Leveling course, as directed by the Engineer. Use Table 402-2, Mixture Selection for Filling Wheelruts & Depressions, to select the appropriate mix type.

<table>
<thead>
<tr>
<th>Depth Range (in)</th>
<th>Mixture Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; ¼</td>
<td>No treatment</td>
</tr>
<tr>
<td>¼ ≤ Depth &lt; ¾</td>
<td>Shim</td>
</tr>
<tr>
<td>≥ ¾</td>
<td>9.5 Top Course</td>
</tr>
</tbody>
</table>

If a Truing and Leveling course is specified in the plans or in the itemized proposal, place the course(s) of a minimum variable thickness of proper plant mix necessary to bring the surface of the existing pavement to the same transverse slope and longitudinal grade required for the finished pavement surface. The surface of this course shall be tested in the same manner prescribed in §402-3.10, Surface Tolerance, except that the allowable variation from the true surface after compaction must not exceed ½ inch. Unless a mixture type is specified in the plans, use Table 402-3, Mixture Selection for T&T Course, to select the appropriate mix type such that dragging of stones is minimized during placement of the mixture.
### TABLE 402-3  MIXTURE SELECTION FOR T&L COURSE

<table>
<thead>
<tr>
<th>Compacted Thickness Range (in)</th>
<th>Mixture Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 2</td>
<td>9.5 or 12.5 Top Course</td>
</tr>
<tr>
<td>2 &lt; Thickness ≤ 3</td>
<td>19.0 or 25.0 Binder Course</td>
</tr>
<tr>
<td>3 &lt; Thickness ≤ 5</td>
<td>25.0 Binder Course or 37.5 Base Course</td>
</tr>
</tbody>
</table>

Select a mixture such that dragging of stones at the thin edge is minimized when constructing wedges for super-elevation. If dragging is excessive in any T&L course, the Engineer shall disallow the selected T & L mixture for the application.

#### 402-3.06 Spreading and Finishing

##### A. Surface Tolerance:
The requirements of §402-3.10, *Surface Tolerance*, shall apply.

##### B. Mix Temperature:
For 50, 60, and 70 series compaction methods, select a desired HMA mixture temperature to be delivered within the mixing and compaction range of 250°F and 325°F, or as recommended by the PG Binder manufacturer. Notify the Engineer of the desired delivery temperature. Produce and deliver mixtures to the work site, and incorporate into the work within 20°F of the specified temperature. For 80 Series compaction method, the Contractor will select the desired mix temperature with the concurrence of the Engineer.

##### C. Tack Coat:
Apply tack coat on the contact surfaces between all HMA pavement lifts in accordance with Section 407, *Tack Coat*, prior to placing HMA mixture regardless of time period between lifts. Tack coat is not required on the surface of Permeable Base courses. Paving over a tack coat should not commence until the emulsion has broken (goes from brown to black) or is tacky when touched.

##### D. HMA Mixture from Multiple Plants:
Supply of HMA mixture from multiple plants to a single paver is prohibited.

##### E. Top Course Texture and Color:
Supply Top Course HMA from a single plant for the entire project duration such that the pavement surface has a uniform color and texture as determined by the Engineer. Exception to this requirement is when a contract includes multiple paving sites or the project length is at least 5 miles and supply from multiple plants at discrete points of terminus is practical. In that case, the above requirement will apply to each paving site and locations between discrete points of terminus as approved by the Regional Materials Engineer. Limits of each site will be subject to approval by the Regional Materials Engineer. If a plant breaks down, another plant may supply mixture meeting the requirements of §402-2.02 if the aggregate used for manufacturing of the HMA is from the same source with the concurrence of the Regional Materials Engineer.

##### F. Reference Line:
When the initial pavement course is laid with automatic HMA pavers on a new or a reconstruction project, use a taut reference line positioned at or near the pavement centerline or edge to guide the paver. Erect and maintain the reference line to the satisfaction of the Engineer. Support the reference line at approximately 25 feet intervals on tangent sections and at closer intervals on curves. Tension the line sufficiently to remove any sagging. The Engineer may permit a moving reference of at least 30 feet in length in lieu of a reference line. The moving reference may be a floating beam, ski, or other suitable type such that the resulting pavement layer surface is sufficiently even. A short ski or shoe may also be used for the initial course with the approval of the Engineer if a satisfactory fixed reference such as a curb, gutter, or other fixed reference is adjacent to the pavement. In addition, any course in an adjacent lane may be used as the reference for the use of a short ski. When the proposed floating beam or the short ski does not produce the results similar to those
obtained using a taut reference line, the Engineer shall disapprove the use of these devices. The Engineer has final approval of the method chosen by the Contractor.

The automatic screed controls are not required for shoulders, temporary detours, behind curbs, where existing grades at roadway intersection or drainage structure must be met, or in other areas where its use is impractical.

G. Mix Placement: Use HMA paver(s) to place the mixture either over the entire width or over a partial width that may be practical. Place the mixture on a clean, tack coated surface. Upon arrival at the site, the trucks will deliver the mixture into the paver. Immediately spread and strike off to the required width and appropriate loose depth to established grade, elevation, and to obtain the required compacted thickness at the completion of work. If the areas to be paved are less than 1000 ft² or small and scattered, the HMA mixture may be spread by hand or other method approved by the Engineer. For these areas, dump and spread the mixture such that the compacted thickness meets the thickness specified in the plans.

Place all pavement courses using one of the reference line methods mentioned in §402-3.06 F. Prior to the beginning of rolling, check the loose mat, adjust any irregularities, and remove and replace all unsatisfactory material.

When filling wheel ruts with Shim Course or 9.5 Top Course mixture in an existing pavement, place mixture in each wheelpath rut separately. Use a drag box configuration or approved equal having side forms to shim the ruts. Spread and strike off the Shim Course material to a uniform width of approximately 4 feet. The intent of the operation is to fill the low area only and not to place the material over the pavement's full lane width. The placement equipment wheels and/or other appurtenances must not interfere with the distribution and placement of the Shim Course material.

402-3.07 Compaction. Compact the HMA pavement sufficiently using the appropriate compaction method specified in Table 402-4 Compaction Methods, to achieve pavement densities in a range of 92% to 97%, expressed as a percentage of the mixture’s maximum theoretical density (MMDT).

When placing HMA mixture using 50, 60, or 70 series compaction method, control all operation of the rollers including speed, amplitude settings, vibration frequency, and the type of rollers.

Immediately compact the HMA using rollers meeting the requirements of §402-3.04, Rollers, after the mixture has been placed. Compact the HMA when the mixture is in the proper condition such that the rollers do not cause displacement, cracking, or shoving. Initially, compact all courses with the roller traveling parallel to the centerline of the pavement, beginning at each edge and working toward the center. Compact super-elevated curves starting at the low-side edge and working toward the higher edge.

Correct immediately any displacement occurring as a result of reversing the direction of the roller, or from other causes, using rakes and additional HMA mixture as required. Exercise care in rolling so as not to displace the line and grade of the edges of the HMA mixture. To prevent adhesion of the mixture to the rollers, keep the wheels properly moistened with water, water mixed with small quantities of detergent, or other approved material. Petroleum products or solvents are not permitted.

Upon completion of the HMA placement, there shall be no visible defects in the pavement, such as shallow ruts, ridges, roller marks, cracking, tearing, segregation, bleeding, or any other irregularities. Any defects that become apparent shall be corrected, or the defective pavement replaced, to the satisfaction of the Engineer, at no additional cost to the State.

Along forms, curbs, headers, walls, and other areas not accessible to rollers, compact the mixture thoroughly with mechanical tampers. On depressed areas, use a trench roller or a small vibratory roller with the approval by the Engineer.

Remove any mixture that becomes loose and broken, mixed with dirt, or is in any way defective and replace with fresh HMA mixture. Compact the mixture to conform to the surrounding area. Correct any area showing an excess or deficiency of HMA material.

When Shim Course or 9.5 Top Course is used for filling wheel ruts, make a minimum of three passes of a pneumatic rubber tire roller for compaction. Otherwise, make a minimum of two passes when Shim Course is used as a skim coat. The Engineer may allow the use of other types of rollers.

Do not use vibratory compaction when HMA mixture is placed on structural bridge decks or other structures
with less than 2 feet of cover over the structure or when specified in contract documents. If vibratory compaction is
used, repair all damages which may occur to the highway components and adjacent property, including buried
utility and service facilities, at no additional cost to the State.

Monitor density for 60 and 70 Series projects with density gauges specified in §402-3.07 E, Density Gauges. The
density gauge operator shall possess a current Density Gauge Inspector Certification from The Associated
General Contractors, New York State, or its equivalent, as determined by the Director, Materials Bureau. Any
pavement section placed under 60 or 70 Series which is monitored by a gauge operator whose certification is
revoked for reasons outlined in the New York State Inspector Certification Program manual under
“Decertification”, will be evaluated by sampling and testing of pavement cores in accordance with §402-3.08,
Pavement Density Samples, and subject to payment adjustment in accordance with Table 402-10, Density Quality
Adjustment Factors for 60 Series. The above requirement also applies when a density gauge is used for monitoring
pavement density in the areas other than mainline under 50 Series compaction method.

Table 402-4, Compaction Methods, associates specific item being placed to the required compaction method.

<table>
<thead>
<tr>
<th>Compaction Methods</th>
<th>Item Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A=50 series</td>
<td>402.XX5FQR</td>
</tr>
<tr>
<td>B=60 series</td>
<td>402.XX6FQR</td>
</tr>
<tr>
<td>C=70 series</td>
<td>402.XX7FQR</td>
</tr>
<tr>
<td>D=80 series</td>
<td>402.XX8FQR &amp; other</td>
</tr>
</tbody>
</table>

NOTE: XX = 37, 25, 19, 12, 09, 05, 01
F = Friction requirement (1, 2, 3, 9)
Q = Quality item number (core item = 0, plant = 1, density = 2)
R = Revision number

Below is a detailed requirement for each of the compaction methods:

A. **50 Series Compaction Method.** On the first day of mainline paving, construct the pavement under the
provisions of “Option 1 - Test Section” or “Option 2 – First Day Routine Paving.”

1. **Option 1 - Test Section.** Construct a test section on the project site at a location approved by the Engineer.
The purpose of the test section is to determine if the mixture can be compacted uniformly within the 92-
97% of MMTD. The test section will be the same depth specified for the construction of the course which
it represents. The test section length shall be at least 300 linear feet but not to exceed 1,500 linear feet when
the test section is on the mainline. If required by the Engineer, construct full pavement width to close the
joint(s). Use the first 150 feet of the test section to stabilize the paving operation. Once the test section is
complete, the Engineer will select core locations, excluding the first 150 feet, in accordance with §402-
3.08, Pavement Density Samples. Before the road is open to traffic, take the cores at the marked locations.
Also, take loose mix samples as specified under §402-3.08, Pavement Density Samples. In addition to the
above requirements, the following shall apply to the test section provision:

- Only one test section will be placed per day. Subsequent test sections are subject to approval by the
  Engineer.
- The first 200 tons of quantity placed on a test section will be adjusted by a factor of 1.5 as a Test
  Section Adjustment. The adjusted quantity will be paid based on the Quality Index price. The
  remaining quantity will be paid at the bid price. A maximum of two test sections per item will be
  subject to this adjustment.
The test section adjustment factor of 1.5 shall not apply for a test section if any HMA of 150 tons or more is placed on the same day, on the same project, other than the quantity required for the construction of the test section.

Pavement Density Quality Adjustment Factors (QAF) shall not apply for the first two test sections. Subsequent test section(s) located on the mainline is subject to pavement density QAF.

Placing HMA under “Routine Paving” provisions for this item is not permitted until the results of the cores from the test section have a minimum pavement density QAF of 1.00.

When the pavement density QAF is less than 1.00, the Contractor shall construct another test section in accordance with “Option 1, Test Section.”

When the calculated QAF is 0.60 or less, the Engineer will evaluate the test section to determine if it can be left in place. The guidance for evaluation can be found under §402-4, Method of Measurement. The Test Section Adjustment shall not apply for the test section.

2. Option 2 – First Day Routine Paving. It is not necessary to construct a test section on the first day of paving. Any HMA placed under this provision shall meet the following:

- The test section adjustment of 1.5 shall not apply.
- All material placed will be subject to a pavement density QAF.
- If the pavement density QAF on the first day of paving is less than 1.00, construct a test section in accordance with the provisions of the “Option 1 - Test Section” under this method.
- Evaluate density in accordance with 3. Routine Paving, below.

3. Routine Paving. Place all HMA beyond the “Option 1 - Test Section” using the provisions described below.

A paving lot is defined as a day’s production of at least 200 tons. Each paving lot will be equally divided into four sublots in accordance with Materials Procedure (MP) 402-02, Hot Mix Asphalt (HMA) Pavement Density Determination. The Engineer will select and mark a core location in each sublot in accordance with §402-3.08, Pavement Density Samples once the compaction operation is completed. The Engineer will exclude the first 150 feet of the day’s paving. Extract a core at the marked location in each sublot. Take four loose mix samples representing the lot. Pavement cores and loose mix samples will be tested and analyzed by the Department in accordance with MP 402-02 to determine the pavement density QAF. If the quantity placed is less than 200 tons on any day, pavement cores and loose mix samples are not required. The density QAF for that day will be reported as 1.00, provided the density gauge used on previous sections is utilized and the Engineer is satisfied that the procedures used in these areas to obtain pavement densities are similar to previously placed pavement sections. When paving is continuous within a 24-hour period, a new lot will result when a change occurs in the paving crew. When a project includes multiple paving operations, each paving operation will be considered a lot and evaluated separately.

When consecutive lots are found to have a density QAF equal to or less than 0.85, stop paving operations and immediately construct a new test section in accordance with the provisions of “Option 1 - Test Section”, described previously in this section.

The density QAF shall not apply to material placed on shoulders, maintenance widening, crossovers, bridges and ramps with a uniform full-width section of less than 1250 feet in length. Payment for these areas shall be based on satisfactory placement and compaction. Placement and compaction procedures will be satisfactory when the procedures used in these areas obtain pavement density similar to that obtained on the mainline pavement sections. When the shoulder shows signs of distress during compaction, decrease the compaction effort until no further damage occurs to the shoulder or subbase. If density gauge(s) is used to monitor mainline paving, use the same gauge(s) to monitor density on the above referenced areas.

B. 60 Series Compaction Method. On the first day of mainline paving, construct the pavement under the provisions of “Option 1 - Test Section” or “Option 2 – Test Section and Continue Paving.” The Engineer will approve the location of the test section. Placement of HMA under this method will not be allowed unless both a
density gauge and a certified operator are present.

1. **Option 1 - Test Section Only.** Prior to routine paving operations for this item, construct a test section at a location approved by the Engineer. The purpose of constructing a test section is to determine a Project Target Density (PTD) for this item and correlation of a density gauge(s) to the cores. It is advisable to use the same equipment and procedures to construct the test section which will be used in the construction of the remainder of the course being laid. The test section will be the same depth specified for the construction of the course which it represents. The test section length shall be at least 300 linear feet but no more than 1,500 linear feet. If required by the Engineer, construct full pavement width to close the joint(s). Use the first 150 feet of the test section to stabilize the paving operation. At the conclusion of the test section, the Engineer will randomly select four 6-inch core locations on the test section in accordance with §402-3.08, *Pavement Density Samples* excluding the first 150 feet and mark the locations.

   During construction of the test section, take loose mix samples in accordance with §402-3.08, *Pavement Density Samples* such that they represent the material placed on the test section. Take density gauge(s) readings at each core location prior to drilling the cores in accordance with Materials Procedure (MP) 402-02, *Hot Mix Asphalt (HMA) Pavement Density Determination*, based on the type of density gauge used. Take cores at each of the marked core location.

   Deliver the cores, loose mix samples, and the four density gauge readings with the gauge type, model, and serial number to the Regional Materials Engineer in accordance with §402-3.08, *Pavement Density Samples*. The Regional Materials Engineer will test the samples and establish a PTD for each density gauge in accordance with Materials Procedure (MP) 402-02 within one business day of the delivery of the samples and density gauge readings. In addition to the above requirements, the following shall apply to the test section provision:

   - Only one test section will be placed per day. Subsequent test sections are subject to approval by the Engineer.
   - The first 200 tons of quantity placed on a test section will be adjusted by a factor of 1.5 as a Test Section Adjustment. The adjusted quantity will be paid based on the Quality Index price. The remaining quantity will be paid at the bid price. A maximum of two test sections per item will be subject to this adjustment.
   - The test section adjustment factor of 1.5 shall not apply for a test section if any HMA of 150 tons or more is placed on the same day, on the same project, other than the quantity required for the construction of the test section.
   - Placing HMA under “Routine Paving” provisions for this item is not permitted until a Project Target Density has been established.
   - When the average density of the four cores is less than 88% of the maximum theoretical density, the Engineer may evaluate the test section to determine if it should be left in place. The guidance for evaluation can be found under §402-4, *Method of Measurement*. The Test Section Adjustment shall not apply for the test section.

2. **Option 2 – Test Section and Continue Paving.** The following shall apply when HMA is placed on the first day under this option:

   - Construct a test section as described under “Option 1 - Test Section Only.” Establish an Interim PTD as described in Materials Procedure (MP) 402-03 based on the density gauge used. Use this Interim PTD to monitor pavement density until the Actual PTD is established by the Regional Materials Engineer.
   - The test section adjustment factor of 1.5 shall not apply.
   - All material placed after the test section for that day shall be subject to a payment adjustment.
   - Take additional loose mix samples, other than those taken under the “Test Section” provisions, in accordance with §402-3.08 and store these samples at the plant.
• Take density gauge(s) readings over the entire day’s placement in accordance with Materials Procedure (MP) 402-02.

• When this option is selected and if the density readings at two consecutive locations fall below 96% or above 103% of the Interim PTD or if the moving average of the last 10 nuclear density readings falls below 98% of the Interim PTD, stop routine paving operations and wait for the Actual PTD.

• Submit a copy of the appropriate BR form(s) at the end of the first day’s paving to the Engineer as described in Materials Procedure (MP) 402-02. The Engineer will determine whether the density readings taken using the Interim PTD are acceptable, based on the Actual PTD in accordance with Materials Procedure (MP) 402-02. If not, the Engineer will randomly select four core locations over the entire placement under Interim PTD, excluding the test section, and drill cores at the selected locations. Prior to drilling these cores, take density readings at each core location. Deliver the core samples, density gauge readings, and the loose mix samples to the Regional Laboratory in accordance with §402-3.08, Pavement Density Samples. If the average density of the pavement cores is not between 92% and 97% of the mixture’s maximum theoretical density, the Engineer will make a payment adjustment in accordance with Table 402-10, Density Quality Adjustment Factors for 60 Series, to the material placed on that day and the subsequent days, excluding the material placed on the test section. Otherwise, continue under “Routine Paving”.

3. Routine Paving. Use only the density gauge(s) that has been correlated with cores during the construction of the test section and a PTD has been determined by the Regional Materials Engineer for pavement density monitoring during routine paving operations. Construct a new test section under the provisions of “Test Section” to establish a PTD for other gauge(s). Compact the pavement sufficiently to achieve the PTD value at each test location. Take density gauge readings at each location in accordance with Materials Procedure (MP) 402-02. The test locations will be every 200 feet along the length of the pavement for each paver pass randomly selected by the Engineer in accordance with Materials Procedure (MP) 402-02. Record these density values on the appropriate BR form based on the type of gauge used. The minimum acceptable density reading is 96% and no greater than 103% of the PTD at a single test location and 98% of the PTD calculated as a moving average of the last 10 test locations.

If density gauge readings over two consecutive locations fall below 96% or above 103% of the PTD or if the moving average of the last 10 density gauge readings falls below 98% of the PTD, stop routine paving operations and construct a new test section in accordance with requirements of “Option 1- Test Section Only.”

Placement and compaction on shoulders, ramps, maintenance widenings and crossovers, and bridges will be deemed satisfactory by the Engineer when the procedures used in these areas obtain pavement density similar to that obtained on the mainline pavement sections. Monitor and record the density of the above referenced areas with the same density gauge to insure the PTD is achieved. If the shoulder subbase is structurally insufficient to sustain the level of compaction such that the shoulder shows signs of distress, decrease the compaction effort until no damage occurs to the shoulder or subbase.

In addition to the daily density monitoring with a gauge, additional set(s) of pavement cores and loose mix samples are required for pavement density verification at the frequency specified in Table 402-5, Additional Pavement Samples. The frequency is based on the days of mainline HMA placement. Take density samples from the same day’s placement. The Engineer will select the day of coring and will notify the Contractor 24 hrs prior to the day of coring. When notified, take these samples in accordance with §402-3.08, Pavement Density Samples. Before drilling the cores, take density gauge readings and record on the appropriate forms based on the type of gauge used. Deliver all the samples and the density gauge readings to the Regional Materials Engineer for testing.

<table>
<thead>
<tr>
<th>HMA Placement Days</th>
<th>Set of Pavement Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or Less</td>
<td>None</td>
</tr>
<tr>
<td>3 – 5</td>
<td>One Set</td>
</tr>
<tr>
<td>More than 5</td>
<td>Two Sets</td>
</tr>
</tbody>
</table>
Based on the additional Pavement Samples, the Regional Materials Engineer will establish a new PTD if different from the original PTD. The Engineer shall evaluate core density results using Table 402-10, *Density Quality Adjustment Factors for 60 Series*, and make payment adjustment, if necessary. When a contract includes multiple sites, the requirement under Table 402-05 applies to each paving site.

The Engineer may request pavement samples in accordance with §402-3.08, *Pavement Density Samples*, for density verification from HMA placed under the following situations:

- Insufficient number of density readings recorded, either at a specific location or at the required frequency.
- Paving completed after the only correlated density gauge on site breaks down.
- Gauge readings do not seem to accurately represent the HMA density.
- When the plant production QAF is 0.85 and need to evaluate the pavement section in accordance with §401-4.03, *Evaluation of Sublots Represented by 0.85 QAF*, whether to keep it in place.

When pavement samples are requested for the above situation(s), the Engineer will randomly select core locations. Take cores and density gauge readings at each core location in accordance with §402-3.08, *Pavement Density Samples*, and deliver them to the Regional Materials Laboratory. The Regional Materials Engineer may establish a new PTD based on these cores. The material placed under the above situations will be subject to a payment adjustment in accordance with Table 402-10.

The Engineer may also request additional pavement samples to verify PTD used on the project for the situations listed below and the material placed under these situations will not be subject to payment adjustment:

- Changes in condition of existing pavement being overlaid.
- Excessive plant mix variations.
- Using a different Job Mix Formula or a different HMA plant other than the one used to produce mix for the Test Section, as long as the aggregate and PG Binder sources do not change.

4. Multiple Paving Sites. When a project includes multiple paving sites, a test section will be constructed at the initial paving site to establish a PTD. For the rest of the paving sites, the Engineer will require pavement cores, loose mix samples, and gauge readings on the first day to verify PTD unless it is specified in the contract documents to construct a test section.

A test section may be requested by the Engineer when a different HMA plant other than the one used at previous site(s) is supplying the mixture using different aggregate and PG Binder sources. The provisions of 1.5 test section incentive shall apply.

C. 70 Series Compaction Method. On the first day of paving, construct a test section on the project site at a location approved by the Engineer using the same equipment and procedures to be used in the construction of the remainder of the course being laid. HMA placement under this method, including the construction of the test section, will not be allowed unless both a density gauge and a certified operator are present. The test section is for determining the Project Target Density (PTD) using the “peak” method. Routine paving operations may begin immediately following the construction of the test section once a PTD has been established by the Engineer based on the evaluation of density readings in accordance with the provisions of “Test Section” below.

1. Test Section. To establish a PTD prior to routine paving, construct a test section of at least 300 linear feet on the mainline which has the same depth specified for the construction of the course it represents. The maximum length is 1,500 linear feet. Use the first 150 feet of the test section to stabilize the paving operation. Use the remainder of the test section length to determine the Project Target Density (PTD). Initially, compact the pavement with a breakdown roller once sufficient HMA is placed in the testable area. Make four vibratory passes or as recommended by the Engineer. If non-vibratory compaction is specified in the contract documents, make four static passes. The Engineer will select three random locations in accordance with Materials Procedure (MP) 402-02 based on the type of density gauge used and mark these sites so that subsequent density testing can be performed at the same locations. Use either the intermediate
or the finish roller for further rolling the test section. Take density readings at the three selected sites after every additional machine pass until the increase in density is less than 2 lbs/ft$^3$, or until the Engineer stops further compaction because the pavement shows signs of distress.

The Engineer will determine PTD by calculating the average of the highest density reading from each of the random locations. Use the resulting PTD to monitor the pavement density for the project.

2. **Routine Paving.** Use only density gauge(s) that is correlated during the construction of the test section and the PTD determined by the Engineer to monitor pavement density during routine paving operations. Construct a new test section under the provisions of “Test Section” to establish a PTD for other gauge(s).

Begin routine paving immediately after the PTD has been established. Compact the pavement sufficiently to achieve the PTD value at each test location. The minimum acceptable density reading will be 96% or maximum of 103% of the PTD in a single test location and 98% of the PTD calculated as a moving average of the last 10 test locations as determined by a density gauge. Take density gauge readings at each location, randomly selected by the Engineer, in accordance with the Materials Procedure (MP) 402-02, approximately every 200 feet along the length of the pavement for each pass of the paver. Record these values on the appropriate BR form based on the type of gauge used.

If density gauge readings over two consecutive locations fall below 96% or above 103% of the PTD or if the moving average of the last 10 density gauge readings falls below 98% of the PTD, stop routine paving operations and immediately construct a new test section in accordance with requirements of the Test Section.

Placement and compaction on shoulders, ramps, maintenance widenings and crossovers, and bridges will be deemed satisfactory by the Engineer when the procedures used in these areas obtain pavement density similar to that obtained on the mainline pavement sections. Monitor the density of areas with the same density gauge to insure the PTD is achieved. If the shoulder subbase is structurally insufficient to sustain the level of compaction such that they show signs of distress, decrease the compaction effort until no damage occurs to the shoulder or subbase.

D. **80 Series Compaction Method.** Use one of the compaction options listed below for this method. The rollers used for compaction of the HMA mixtures under this method must be on the Department’s Approved List for Rollers.

The number of passes listed in Table 402-6, *Number of Passes*, are recommended and may be increased or decreased by the Engineer to obtain adequate density. One vibratory pass is defined as one movement of a single drum of the roller over the pavement section in each direction. One static pass is defined as one movement of the roller over the pavement in each direction. Complete all breakdown roller passes before the mat temperature falls below 250°F. Remove all ruts, ridges, roller marks, or other irregularities from the surface using static rolling. All turning of the rollers must be performed on material which has had a minimum of one roller pass. The Engineer may approve alternate compaction procedures for areas where the specified procedures are not practical.

<table>
<thead>
<tr>
<th>Pavement Courses</th>
<th>Option 1 Three Roller Train (Static)</th>
<th></th>
<th>Option 2 Vibratory Rollers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Steel Wheel Rollers</td>
<td>Pneumatic Roller</td>
<td>Vibratory Passes</td>
</tr>
<tr>
<td>37.5 Base (Each Lift)</td>
<td>8</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>25.0 Binder</td>
<td>8</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>19.0 Binder</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12.5 Top</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.5 Top</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Permeable Base$^2$</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
1. Based on 12-foot lane width.
2. For the Permeable Base course, the mixture shall be compacted between 140°F and 230°F. Up to 2 additional passes may be required to obtain adequate density.

1. **Option 1 - Static Compaction.** Use this option only when the compacted thickness of the finished mat is 4 inches or less. The roller speeds shall not exceed 3 mph and will move at a uniform speed. The roller drive wheel or drum shall be nearest to the paver. When paving multiple lanes simultaneously, increase the required number of rollers proportionately for each additional full lane width unless otherwise approved by the Engineer. Under this option, compact the HMA mixtures with steel-wheel rollers operating in a static mode. Each pass shall overlap the previous roller pass by one-half the width of the roller.

   Initially, compact the HMA with a steel-wheel roller immediately followed with a pneumatic rubber-tired roller. A minimum of 3 passes of the rubber-tired roller will be required. One pass is defined as one movement of the roller over any point of the pavement in either direction.

   Use a steel-wheel roller for finish rolling the HMA to remove all shallow ruts, ridges, roller marks, and other irregularities from the surface.

   When the compaction procedure fails to produce acceptable results, adjust the procedure to obtain the desired results.

2. **Option 2 - Vibratory Compaction.** Furnish a vibrating reed tachometer for the exclusive use of the Engineer. The vibrating reed tachometer must have a frequency range of 1,000 to 4,000 vpm with a minimum reed interval of 50 vpm between 1,000 and 4,000 and a minimum reed interval of 100 vpm between 2,000 vpm and 4,000 vpm.

   Operate the vibratory rollers at a uniform speed not to exceed 2 ½ mph (220 ft per minute) on all pavement courses. If satisfactory compaction is not obtained, or damage occurs to highway components and/or adjacent property using vibratory compaction equipment, immediately cease using this equipment and proceed with the work in accordance with compaction procedures stipulated under Option 1 at no additional cost to the State.

### E. Density Gauges

1. **Nuclear Density Gauge.** Use a nuclear density gauge to monitor the pavement density in accordance with this sub-section and Materials Procedure (MP) 402-03. Submit a Safety Control plan at least two weeks prior to using the gauge. The nuclear density gauge shall meet the following requirements:
   - The gauge shall consist of a radioactive source, scaler, and other basic components housed in a single backscatter unit.
   - The gauge must be calibrated at least every two years.
   - Must be operated by personnel trained in the principles of nuclear testing and safety practices.

2. **Non-nuclear Density Gauge.** Use a non-nuclear density gauge to monitor the pavement density in accordance with this sub-section. The non-nuclear density gauge shall meet the following requirements:
   - Must be capable of functioning in the temperature and moisture levels experienced during HMA paving.
   - Shall contain the internal circuitry to determine the density of HMA pavements by measuring changes in the electromagnetic field resulting from the HMA compaction process.
   - The gauge must be calibrated at least every two years.

### 402-3.08 Pavement Density Samples

**A. Pavement Cores.** The Engineer will select one pavement core location for each subplot in accordance with Materials Procedure MP 402-02, *Hot Mix Asphalt (HMA) Statistical Pavement Density Determination*, to represent each paving subplot. The Engineer will select a total of four 6-inch diameter core locations. The pavement core samples will be taken from within the 6-inch diameter circles outlined. Under no circumstances
will the Engineer designate the coring locations before the rolling operation is completed. The rolling operation
is completed when all compaction equipment has moved off the sublot designated for coring. Obtain the 6-inch
diameter pavement core samples no later than a day following placement of the lot. If necessary, cool the
pavement so that the core samples are not damaged during coring. If the core sample does not de-bond during
coring, do not intentionally separate the pavement core from the underlying material. The Regional Materials
Laboratory will separate the pavement core layer required for testing from the underlying material by sawing, if
necessary.

Extraction of companion cores is not allowed. Additional cores may be taken under the following:

- As described in §402-3.08 G, Dispute Resolution,
- If it is necessary to establish an interim target density on the first day of paving. In that case, take a core
  at no more than two core locations during the construction of a test section or two cores within the first
  150 feet when a test section is not constructed
- To perform a quality control tests during routine paving. A maximum of two cores is allowed with
  prior permission of the Engineer. Core(s) shall not be adjacent to the project cores.

B. Filling Core Holes. Backfill all core holes with a similar HMA material immediately after extracting the cores
or before opening the lane to traffic. Prior to backfilling, wipe the core hole with a cloth to remove any standing
water. Place HMA in the core hole in layers of 3 inches or less and compact each layer with 10-18 lb slide
hammer with a diameter of at least 4 inches but less than 6 inches. Use of a shovel or similar method is not
allowed. The Engineer may approve alternative method if it will provide acceptable results. If core holes are
not filled within 2 business days of placement, the Engineer will stop routine paving until the core holes are
filled.

C. Loose Mix Samples. On each paving day when pavement cores are required, take four loose mix samples in
accordance with AASHTO T168, Standard Test Method for Sampling Bituminous Paving Mixtures. Take these
samples such that they represent the day’s HMA placement. Loose mix maximum theoretical specific gravity
values from plant HMA QC/QA testing may be included as part of the required loose mix samples with prior
approval of the RME. When HMA placement is less than the anticipated quantities, it is recommended that a
minimum of three loose mix samples be obtained before placement is terminated. When operational conditions
cause HMA placement to be terminated before the specified number of samples have been taken, the following
procedures will be used:

1. If three samples are taken, the loose mix maximum theoretical specific gravity density will be based on the
   average of the samples taken.
2. When HMA is placed under 50 Series and if only one or two samples are taken, the day’s production will
   be added to the next day’s production and sublots determined based on the total quantity placed during the
two days. Therefore, a maximum of six loose mix samples will be used to determine the loose mix
maximum specific gravity.

D. Securing Cores. The Engineer will secure the cores which will be tested by the Regional Materials Laboratory
in accordance with MP 402-02 once they have been extracted from the pavement by the Contractor.

E. Sample Delivery. Deliver the cores, loose mix samples, and gauge density readings, when required, to the
Regional Laboratory no later than the end of the following day’s placement. Pavement cores and loose mix
samples required under 50 Series or 60 Series methods must be submitted together at the end of the day’s
placement but no later than a day following placement of the lot. If these samples are not submitted together
for any paving lot, the QAF will be assigned a 1.00 or less for that lot when a QAF is applicable. If, for any
reason, a delay occurs in the delivery of the lot samples for three consecutive lots, paving operations for the
item will not be permitted to continue until the samples are delivered and tested.
F. **Unacceptable Pavement Cores.** Cores arriving at the Regional Laboratory for testing that are damaged or with a damaged or missing security seal will not be tested. The Engineer will select new core(s) within a foot from the original core location(s) at the same offset. The provision of selecting new core location also applies to core(s) that get damaged during extraction.

G. **Process for Dispute Resolution.** The following items may be disputed:

1. When a core(s) is located in the area that is believed not to represent the entire sublot’s placement, notify the Engineer immediately.
2. When the test results of the cores and loose mix samples obtained by the Regional Materials Laboratory are in question, notify the Engineer and the Regional Materials Engineer, in writing, within two business days upon receipt of the results. The notification must include details of the dispute such as the specific test result(s) being disputed and the reason. The Main Office Materials Bureau will review the information and advise the Engineer and the Regional Materials Engineer on how to proceed with the resolution.

The dispute resolution must be initiated in a timely manner as described above.

402-3.09 **Joints.** The finished pavement at all joints must comply with the surface tolerance requirements and exhibit the same uniformity of texture and compaction as other sections of the course. Do not pass rollers over the unprotected edges of a freshly laid mixture unless permitted by the Engineer.

Construct all joints, excluding the tapered wedge joint, such that the exposed edge of the newly placed layer is full thickness of the layer and straight unless the exposed joint will not be part of the joint. If the edge of the newly placed layer is unacceptable to the Engineer, correct the edge by using a power driven saw or other approved tools to cut a neat line. Prior to placing the adjacent layer, apply a light tack coat, in accordance with Section 407, to all pavement edges in order to provide bonding with the newly laid pavement.

Place successive HMA courses over a full depth HMA pavement such that all longitudinal joints are offset no more than 6 inches from the joint of the lower pavement course, unless otherwise approved by the Engineer. Place successive HMA courses on the existing PCC pavement such that all longitudinal joints are stacked on top of the joint of the lower PCC pavement.

A. **Transverse.** Place the courses as continuously as possible to limit the number of transverse joints. Stagger the transverse joints in adjacent lanes a minimum of 10 feet. Form the transverse joint by cutting back the previous run to expose the full depth of the course.

Set up the paver such that material is laid to overlap the previously placed edge by 2 to 3 inches. The thickness of the overlap material will be approximately one-fourth the compacted thickness of the course. Bump back the overlapped material onto the adjacent hot mat using a rake so that the roller operator can crowd the material into the hot side of the joint resulting in a smooth and well compacted joint after rolling.

Broadcasting of the overlap material onto the fresh mat is not allowed. If the overlap is excessive, trim off the excess material so that the material along the joint is uniform. Remove and discard the coarse particles of aggregate in the overlap material if deemed necessary by the Engineer.

Compact the transverse joint in static mode with the roller parallel to the joint and perpendicular to traffic. Place boards of proper thickness at the edge of the pavement for the off pavement movement of the roller. Make the first pass with the roller operating on the previously laid material with 6 to 8 inches of its drum(s) overlapping onto the non-compacted mix. Then make successive passes with the roller drum(s) moving approximately one foot onto the hot material per pass until half the width of the roller is on the hot mat.

If a vibratory roller with pneumatic drive wheels is used, align the first pass with one of the pneumatic wheels directly on the joint and the drum operating in static mode. Then make successive passes with the roller drum moving approximately one foot per pass onto the hot mat until half the width of the roller is on the hot mat.

B. **Longitudinal.** Ensure that the longitudinal joints in the Top Course will correspond with the edges of the
proposed traffic lanes. Other joint arrangements will require approval of the Engineer. If a dual-drum vibratory roller is used during construction of a longitudinal joint using either Option 1 or 2, operate the roller in vibratory mode, unless static rolling is required. Rollers must be as close to the paver as practical. Make the first pass with the roller traveling toward the paver and operating on the hot mat with 6 to 8 inches of the roller drum overlapping onto the cold mat. Apply a second pass to the joint as it travels back away from the paver. If a single-drum vibratory roller with pneumatic drive wheels is used, operate the roller in vibratory mode and follow the same procedure except that the roller will be aligned on the joint so that the pneumatic drive wheels travels on the joint. All turning movements of the roller will be done on previously compacted material. After applying two roller passes on the longitudinal joint, proceed with the roller to the low side of the lane and compact as described in §402-3.07, Compaction.

For all HMA layers, other than Top Course, place the mixture such that no more than 100 feet of the longitudinal pavement joint is exposed at the end of the working day when traffic is maintained on the roadway during paving operations. For Top Course of 2 inches or less, refer to §402-3.09C, Exposed Longitudinal Joint.

When paving Top Course, select one of the following options to construct the longitudinal joint. Use Option A for all other HMA courses:

1. **Option A - Butt Joint.** Under this option lay the HMA such that it uniformly overlaps the adjacent cold mat 2 to 3 inches. The thickness of the overlap material will be approximately one-fourth the compacted thickness of the course. Bump back the overlapped material onto the adjacent hot lane using a rake so that the roller operator can crowd the material into the hot side of the joint resulting in a smooth and well compacted joint after rolling. Broadcasting of the overlap material onto the fresh mat is not allowed. If the overlap is excessive, trim off the excess material so that the material along the joint is uniform. Remove and discard the coarse particles of aggregate in the overlap material if necessary.

   Bumping is not required when the use of a rake is a safety concern, as determined by the Engineer. Instead, place the HMA in a manner such that the thickness of the uncompacted layer is approximately 25% more than the compacted thickness of the adjacent cold HMA layer with a ½ to 1 inch overlap.

2. **Option B - Tapered Wedge Joint.** Use this option when placing Top Course only. Place the HMA mixture for the first mat with an attachment to the paver to provide a sloping wedge with a vertical step-down at the longitudinal pavement joint. Extend a wedge of material from the bottom of the step-down to the existing surface at a slope of 1 on 8 or flatter. Compact the first mat such that the roller compacts up to but does not extend past the step-down. The vertical step-down will be ½ inch minimum after compaction of the mat. Place the second mat such that it uniformly overlaps the adjacent cold mat 1 to 1 ½ inches. The thickness of the overlap material will be approximately one-fourth the compacted thickness of the HMA layer. Bump back the overlapped material onto the adjacent hot lane using a rake so that the roller operator can crowd the material into the hot side of the joint resulting in a smooth and well compacted joint after rolling. Do not broadcast the overlap material onto the lane. If the overlap is excessive, trim off the excess material so that the material along the joint is uniform. Remove and discard the coarse particles of aggregate in the overlap material if deemed necessary by the Engineer.

   Bumping is not required when the use of a rake is a safety concern, as determined by the Engineer. Instead, place the HMA in a manner such that the thickness of the uncompacted layer is approximately 25% more than the compacted thickness of the adjacent cold HMA layer with a ½ to 1 inch overlap.

![Diagram of Tapered Wedge Joint](image-url)
C. **Exposed Longitudinal Joint.** The longitudinal joint for the entire day may be exposed to traffic overnight when the HMA placement is Top Course of up to 2 inches. Exposed joints will not be permitted for more than one night, over the weekends, holidays, or when there are other concerns, such as pending wet weather. Leaving exposed joints for any other HMA layers below the Top Course is not allowed. If the exposed joint is left open, the following applies:

- Place UNEVEN LANES (W8-11) warning signs posted in advance of the condition, at each ramp, and roadway intersection, and repeated every ½ mile, supplemented with NEXT [X] MILES (W16-4) auxiliary signs to alert drivers of the uneven edge.
- Use Option B, Tapered Wedge Joint, except when the thickness is 1 inch or less where a butt joint is allowed.
- If the exposed longitudinal pavement joint becomes damaged due to rounding of the notched wedge, saw-cut the joint prior to placing the adjacent lane.

**402-3.10 Surface Tolerance.** Construct each pavement course to a ¼ inch surface tolerance. The Engineer may test the surface with a 16-foot straight edge or string line placed parallel to the centerline of the pavement and with a 10-foot straight edge or string line placed transversely to the centerline of the pavement on any portion of the pavement. Variations exceeding 6 mm will be satisfactorily corrected or the pavement removed and replaced at no additional cost to the State.

**402-3.11 Thickness Tolerance.** The thickness indicated for each of the various courses of HMA pavement is the nominal thickness. Construct the pavement so that the final compacted thickness is as near to the nominal thickness as is practical, and within the tolerances specified below.

The Engineer may request cores to determine the thickness of the completed pavement layer for final acceptance and payment. Provide work zone traffic control and take cores at no additional cost to the State. Take cores and fill the all core holes in accordance with §402-3.08, *Pavement Density Samples*. The Engineer may use another acceptance method such as yield calculations to determine the final thickness for acceptance and payment.

HMA mixture, placed as a Truing and Leveling course as described in §402-3.05, *Conditioning of Existing Surface*, will not be considered in pavement thickness determinations. The allowable tolerance for HMA specified under a single pay item is as follows:

- ¼ inch or less for a required course whose nominal thickness is 4 inches or less
- ½ inch or less for a course or courses whose nominal thickness is over 4 inches

The tolerance for the total thickness of all HMA mixture courses is as follows:

- ¼ inch or less when the total nominal thickness indicated on the plans is 4 inches or less
- ½ inch or less when the total nominal thickness is over 4 inches but not more than 8 inches
- ⅝ inch or less when the total nominal thickness is more than 8 inches

When the HMA mixture is placed on newly constructed subbase material, an additional tolerance of ¼ inch will be allowed both in the nominal thickness of the course placed directly on the subbase and the total pavement thickness.

No payment will be made for any material placed in excess of the permissible tolerance. Tolerances indicated for the thicknesses of individual layers of multilayer pavements (including composite pavements) are guides which should be met as closely as practical. Tolerance for the total thickness of such pavement is also a guide.

The Regional Director may accept and pay for HMA placed under the following conditions:

- When the individual layer placed does not meet the thickness tolerance but substantially conforms to the plans and specifications, true to line and grade in order to attain a smooth riding pavement.
• When the total thickness of such pavements is less than the specified thickness including tolerances but substantially conforms to the plans and specifications.
• When the total thickness of such pavements is greater than the specified thickness and the excess thickness is necessary to attain a smooth riding pavement surface.

Payment for excess thickness necessary to achieve a smooth riding surface will be considered only in cases where an existing pavement surface has been resurfaced.

402-3.12 Paver and Equipment Cleaning. Do not clean tools and equipment used for HMA placement on the pavement surface, or near streams, ponds, drainage structures or other areas that are tributaries to waterways. Use an area approved by the Engineer for cleaning all paving equipment and tools. If possible, remove solid pieces of asphalt by scraping or other mechanical means prior to application of a cleaning agent. If a petroleum product is used for cleaning, contain all liquid products during cleaning operations using tarpaulins, sand pads, pails, or other collection methods to prevent spillage or accidental release. Use hand sprayers or other similar devices to minimize the amount of petroleum product applied. Properly dispose of sand and collected petroleum products as petroleum contaminated soil at no additional cost to the State.

402-3.13 Shoulder Edge Wedge. When specified, construct a shoulder edge wedge as detailed in the Contract Documents. Place HMA on the pavement shoulders where the outside edge of Top and Binder Course consist of an angle of 35° or flatter measured from finished grade to the preceding layer surface. Construct the shoulder edge wedge by using a device attached to the screed. Hand work should be minimized. The top of the tapered section shall begin at the end of the shoulder width as specified in contract documents such that the tapered section will be an additional width of material outside of the paved shoulder width. The shoulder edge wedge is optional at locations where guiderails are installed.

402-4 METHOD OF MEASUREMENT. Provisions of §401-4 Method of Measurement, apply, including the following:

The HMA will be measured in tons of compacted mixture. Quality payment adjustments are measured in Quality Units. Quality Units will be determined for each day’s production and placement by using the daily Quality Adjustment Factor (QAF) for plant production, pavement density, longitudinal joint density, pavement smoothness, and the quantity placed.

\[
\text{Quality Units} = (\text{Quality Adjustment Factor} - 1.00) \times \text{HMA Placed (Tons)}
\]

Quality Units will be determined for test sections for 50 and 60 Series compaction methods, when applicable, by using a factor of 1.5 for the first 200 tons placed on the test section.

\[
\text{Quality Units} = 0.5 \times \text{HMA Placed (Tons)} \text{ (not to exceed 200 tons)}
\]

When the pavement density QAF applies, use one of the following methods of measurement in Table 402-7, Method of Measurement, corresponding to the item used on the project:

<table>
<thead>
<tr>
<th>Method Type</th>
<th>Pay Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A=50 series</td>
<td>402.XX5FQR</td>
<td>QAF based on calculated PWL using four cores.</td>
</tr>
<tr>
<td>B=60 series</td>
<td>402.XX6FQR</td>
<td>QAF based on average of four core densities.</td>
</tr>
</tbody>
</table>

The quantity of the HMA mixture subject to adjustment will be determined from quantity placed on the mainline and ramps of uniform width longer than 1250 feet. When shoulders and mainline are placed together, the mainline quantity may be determined using typical sections shown in the contract documents.
The pavement density QAF will not apply to HMA placed on ramps with a uniform full width section less than 1250 feet in length, shoulders, widenings, crossovers, and bridges. Payment in these areas will be a QAF of 1.00 based on satisfactory placement and compaction.

When a QAF of a paving lot for 50 Series or 60 Series is calculated to be 0.60, the lot will be evaluated by the RME to determine if it can be left in place. The type of material produced (i.e. Binder, Top), the layer in which it is used, and the location of use (i.e., mainline or a non-critical area) will be primary considerations in the determination of whether the HMA can be left in place. If the RME determines that the HMA can be left in place, the Engineer will apply a QAF of 0.60. If the HMA cannot be left in place, remove and replace at no cost to the State.

A. **50 Series Method.** The RME will determine the paving lot’s Percent Within Limits (PWL) in accordance with MP 402-02 and determine the density QAF as shown in Table 402-8, *Quality Payment Schedule for 50 Series*. The Engineer will use the QAF to calculate the Quality Units for the accepted HMA quantity.

<table>
<thead>
<tr>
<th>Percent Within Limits (PWL)</th>
<th>Quality Adjustment Factor (QAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWL(_{92-97} &gt; 93)</td>
<td>1.05</td>
</tr>
<tr>
<td>PWL(_{92-97} \leq 93)</td>
<td>(\sum) (PWL(<em>\text{Segment}) x Pay Factor(</em>\text{Segment}))^\1 )</td>
</tr>
</tbody>
</table>

1. PWL\(_\text{Segment}\) will be calculated for each of the nine density ranges in Table 402-9, *Density Segment Pay Factors*, using the standard deviation and average density for the lot.

<table>
<thead>
<tr>
<th>Density Segment</th>
<th>Segment Pay Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>88 – 89</td>
<td>0.60</td>
</tr>
<tr>
<td>89 – 90</td>
<td>0.70</td>
</tr>
<tr>
<td>90 – 91</td>
<td>0.80</td>
</tr>
<tr>
<td>91 – 92</td>
<td>0.90</td>
</tr>
<tr>
<td>92 – 93</td>
<td>1.00</td>
</tr>
<tr>
<td>93 – 96</td>
<td>1.05</td>
</tr>
<tr>
<td>96 – 97</td>
<td>1.00</td>
</tr>
<tr>
<td>97 – 98</td>
<td>0.90</td>
</tr>
<tr>
<td>98 – 99</td>
<td>0.80</td>
</tr>
</tbody>
</table>

B. **60 Series Method.** When pavement density samples are taken and if payment adjustment is applicable, the Engineer will make the adjustment in accordance with Table 402-10, *Density Quality Adjustment Factors for 60 Series*. The Engineer shall make full payment when the average density of the four cores is between 92% and 97% of the mixture's average daily maximum theoretical density. If the average density fails to meet this limit, a payment adjustment will be made, based on Index Price, to all the material placed on the mainline for the day the cores represent, excluding the material placed on the test section.

<table>
<thead>
<tr>
<th>Average Core Density</th>
<th>Quality Adjustment Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\leq 92) Density (\leq 97)</td>
<td>1.00</td>
</tr>
<tr>
<td>91.0 (\leq) Density (&lt; 92.0) or 97.0 (&lt;) Density (\leq 98.0)</td>
<td>0.95</td>
</tr>
<tr>
<td>90.0 (\leq) Density (&lt; 91.0)</td>
<td>0.90</td>
</tr>
<tr>
<td>88.0 (\leq) Density (&lt; 90.0)</td>
<td>0.85</td>
</tr>
<tr>
<td>Density (&lt; 88.0) or Density (&gt; 98.0)</td>
<td>0.60</td>
</tr>
</tbody>
</table>
402-5 BASIS OF PAYMENT. The unit price bid for all pavement courses shall include the cost of all material, labor and equipment necessary to complete the work, including obtaining the pavement cores, filling and compaction of all core holes. Quality Units may apply to the hot mix asphalt items as calculated in §402-4. Payment of Quality Units will be made based on the Index Price listed in the contract documents. The Index Price shown in the itemized proposal for each Quality Unit is considered the price bid. The unit (index) price is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figure will be disregarded and the original price will be used to determine the total amount bid for the Contract.

Payment will be made under:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>402.010902</td>
<td>Type 1 F9, Asphalt-Treated Permeable Base Course</td>
<td>Ton</td>
</tr>
<tr>
<td>402.010912</td>
<td>Plant Production Quality Adjustment to 402.010902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.011902</td>
<td>Type 2 F9, Asphalt-Treated Permeable Base Course</td>
<td>Ton</td>
</tr>
<tr>
<td>402.011912</td>
<td>Plant Production Quality Adjustment to 402.011902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.017902</td>
<td>True &amp; Leveling F9, Superpave HMA, 70 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.017912</td>
<td>Plant Production Quality Adjustment to 402.017902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.018902</td>
<td>True &amp; Leveling F9, Superpave HMA, 80 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.018912</td>
<td>Plant Production Quality Adjustment to 402.018902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.058902</td>
<td>Shim Course F9, Hot Mix Asphalt</td>
<td>Ton</td>
</tr>
<tr>
<td>402.058912</td>
<td>Plant Production Quality Adjustment to 402.058902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.095102</td>
<td>9.5 F1 Top Course HMA, 50 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.095112</td>
<td>Plant Production Quality Adjustment to 402.095102</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.095122</td>
<td>Pavement Density Quality Adjustment to 402.095102</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.095152</td>
<td>Test Section Adjustment to 402.095102</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.095202</td>
<td>9.5 F2 Top Course HMA, 50 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.095212</td>
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<td>Quality Unit</td>
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<tr>
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<td>Pavement Density Quality Adjustment to 402.095202</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.095252</td>
<td>Test Section Adjustment to 402.095202</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.096102</td>
<td>9.5 F1 Top Course HMA, 60 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.096112</td>
<td>Plant Production Quality Adjustment to 402.096102</td>
<td>Quality Unit</td>
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<tr>
<td>402.096122</td>
<td>Pavement Density Quality Adjustment to 402.096102</td>
<td>Quality Unit</td>
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<tr>
<td>402.096152</td>
<td>Test Section Adjustment to 402.096102</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.096202</td>
<td>9.5 F2 Top Course HMA, 60 Series Compaction</td>
<td>Ton</td>
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<td>Quality Unit</td>
</tr>
<tr>
<td>402.096252</td>
<td>Test Section Adjustment to 402.096202</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.096302</td>
<td>9.5 F3 Top Course HMA, 60 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.096312</td>
<td>Plant Production Quality Adjustment to 402.096302</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.096322</td>
<td>Pavement Density Quality Adjustment to 402.096302</td>
<td>Quality Unit</td>
</tr>
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<td>Test Section Adjustment to 402.096302</td>
<td>Quality Unit</td>
</tr>
<tr>
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<td>Ton</td>
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<tr>
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<td>Plant Production Quality Adjustment to 402.097102</td>
<td>Quality Unit</td>
</tr>
<tr>
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<td>402.097302</td>
<td>9.5 F3 Top Course HMA, 70 Series Compaction</td>
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<td>402.097312</td>
<td>Plant Production Quality Adjustment to 402.097302</td>
<td>Quality Unit</td>
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<tr>
<td>402.098102</td>
<td>9.5 F1 Top Course HMA, 80 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.098112</td>
<td>Plant Production Quality Adjustment to 402.098102</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.098202</td>
<td>9.5 F2 Top Course HMA, 80 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.098212</td>
<td>Plant Production Quality Adjustment to 402.098202</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.098302</td>
<td>9.5 F3 Top Course HMA, 80 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Unit</td>
</tr>
<tr>
<td>---------</td>
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<tr>
<td>402.098312</td>
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<td>Quality Unit</td>
</tr>
<tr>
<td>402.098902</td>
<td>9.5 F9 Top Course HMA, Shoulder Course, 80 Series Compaction</td>
<td>Ton</td>
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<tr>
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<tr>
<td>402.125102</td>
<td>12.5 F1 Top Course HMA, 50 Series Compaction</td>
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<tr>
<td>402.125122</td>
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<td>Quality Unit</td>
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<tr>
<td>402.125152</td>
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</tr>
<tr>
<td>402.125202</td>
<td>12.5 F2 Top Course HMA, 50 Series Compaction</td>
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</tr>
<tr>
<td>402.125212</td>
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<td>Quality Unit</td>
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<tr>
<td>402.125222</td>
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<td>Quality Unit</td>
</tr>
<tr>
<td>402.125252</td>
<td>Test Section Adjustment to 402.125202</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.126102</td>
<td>12.5 F1 Top Course HMA, 60 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.126112</td>
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<td>402.126122</td>
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<tr>
<td>402.126202</td>
<td>12.5 F2 Top Course HMA, 60 Series Compaction</td>
<td>Ton</td>
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<tr>
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</tr>
<tr>
<td>402.126222</td>
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<td>Quality Unit</td>
</tr>
<tr>
<td>402.126252</td>
<td>Test Section Adjustment to 402.126202</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.126302</td>
<td>12.5 F3 Top Course HMA, 60 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.126312</td>
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<tr>
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<td>402.126352</td>
<td>Test Section Adjustment to 402.126302</td>
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</tr>
<tr>
<td>402.127102</td>
<td>12.5 F1 Top Course HMA, 70 Series Compaction</td>
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<tr>
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<td>Quality Unit</td>
</tr>
<tr>
<td>402.127202</td>
<td>12.5 F2 Top Course HMA, 70 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.127212</td>
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<td>Quality Unit</td>
</tr>
<tr>
<td>402.127302</td>
<td>12.5 F3 Top Course HMA, 70 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.127312</td>
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<td>Quality Unit</td>
</tr>
<tr>
<td>402.128102</td>
<td>12.5 F1 Top Course HMA, 80 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.128112</td>
<td>Plant Production Quality Adjustment to 402.128102</td>
<td>Quality Unit</td>
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<tr>
<td>402.128202</td>
<td>12.5 F2 Top Course HMA, 80 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.128212</td>
<td>Plant Production Quality Adjustment to 402.128202</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.128302</td>
<td>12.5 F3 Top Course HMA, 80 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.128312</td>
<td>Plant Production Quality Adjustment to 402.128302</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.128902</td>
<td>12.5 F9 Top Course HMA, Shoulder Course, 80 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.128912</td>
<td>Plant Production Quality Adjustment to 402.128902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.195902</td>
<td>19 F9 Binder Course HMA, 50 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.195912</td>
<td>Plant Production Quality Adjustment to 402.195902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.195922</td>
<td>Pavement Density Quality Adjustment to 402.195902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.195952</td>
<td>Test Section Adjustment to 402.195902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.196902</td>
<td>19 F9 Binder Course HMA, 60 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.196912</td>
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<td>Quality Unit</td>
</tr>
<tr>
<td>402.196952</td>
<td>Test Section Adjustment to 402.196902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.197902</td>
<td>19 F9 Binder Course HMA, 70 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.197912</td>
<td>Plant Production Quality Adjustment to 402.197902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.198902</td>
<td>19 F9 Binder Course HMA, 80 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.198912</td>
<td>Plant Production Quality Adjustment to 402.198902</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>402.255902</td>
<td>25 F9 Binder Course HMA, 50 Series Compaction</td>
<td>Ton</td>
</tr>
<tr>
<td>402.255912</td>
<td>Plant Production Quality Adjustment to 402.255902</td>
<td>Quality Unit</td>
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<tr>
<td>402.255922</td>
<td>Pavement Density Quality Adjustment to 402.255902</td>
<td>Quality Unit</td>
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</table>
**SECTION 402 - HOT MIX ASPHALT (HMA) PAVEMENTS**

<table>
<thead>
<tr>
<th>Mix Type – XX</th>
<th>Compaction Series - Y</th>
<th>Friction - Z</th>
<th>Quality Adjustment - Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5 Top - 09</td>
<td>50 series - 5</td>
<td>F1 - 1</td>
<td>HMA Item - 0</td>
</tr>
<tr>
<td>12.5 Top - 12</td>
<td>60 Series - 6</td>
<td>F2 - 2</td>
<td>Plant – 1</td>
</tr>
<tr>
<td>19.0 Binder - 19</td>
<td>70 Series - 7</td>
<td>F3 - 3</td>
<td>Density – 2</td>
</tr>
<tr>
<td>25.0 Binder - 25</td>
<td>80 Series - 8</td>
<td>F9 - 9</td>
<td>Test Section – 5</td>
</tr>
<tr>
<td>37.5 Base - 37</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
“GENERATOR KNOWLEDGE” FOR DISPOSAL OF TREATED WOOD

The U.S. Environmental Protection Agency (EPA) and New York State Department of Environmental Conservation (NYSDEC) technique for evaluating whether a material is hazardous for toxicity is the Toxicity Characteristic Leaching Procedure (TCLP). TCLP testing of pentachlorophenol ("penta") and creosote treated wood by the Electric Power Research Institute, Association of American Railroads, and others has conclusively demonstrated that treated wood products are not a hazardous waste. Under EPA’s and NYSDEC’s rules, such “generator knowledge” can be utilized in place of testing to determine that a waste is not hazardous. This information can be used as evidence that treated wood products can be disposed as non-hazardous waste, based on generator knowledge, in lieu of physical testing.

Generator knowledge information, obtained from the American Wood Preservers Institute (AWPI) can be viewed at their web site located at www.awpi.org. AWPI’s information comes from studies conducted by the Electric Power Research Institute (EPRI), the Washington Public Ports Association (WPPA), and the Association of American Railroads (AAR). EPRI test results are for both penta-treated and creosote-treated wood. WPPA and AAR test results are for creosote-treated wood.

NOTE: Arsenically-treated (e.g., chromated copper arsenate [CCA]) wood products disposed by the end user are exempt from classification as a federal hazardous waste regardless of the TCLP results for specified constituents from any individual sample. Also, wood products treated with preservatives that contain no TCLP constituents (e.g., Kodiak Preserved Wood containing Copper Dimethylthiocarbamate) are not hazardous waste.

Additional questions regarding generator knowledge can be directed to the Hazardous Waste/Groundwater Section of the Environmental Analysis Bureau at (518) 457-5672.
HMA WITH CRUSHED GLASS

SCOPE. This specification covers the requirements for the addition of crushed glass to hot mix asphalt mixtures. The provisions of Section 402 - Hot Mix Asphalt (HMA) Pavements applies except that the Contractor has the option of blending of the crushed glass in the following mixes:

1 1/2 inch  Nominal Max. Size
1 inch  Nominal Max. Size
3/4 inch  Nominal Max. Size
Truing and Leveling Course

If the Contractor chooses the crushed glass option, the following modifications to the Standard Specifications shall apply:

MATERIAL REQUIREMENTS

Crushed glass shall be subject to the approval of the Regional Materials Engineer prior to its use. The crushed glass shall contain no more than 1% (by weight) contaminants and shall meet the following gradation:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 inch</td>
<td>100</td>
</tr>
<tr>
<td>1/4 inch</td>
<td>90 - 100</td>
</tr>
<tr>
<td>No. 30</td>
<td>0 - 20</td>
</tr>
</tbody>
</table>

Note: The gradation requirements may be modified upon approval by the Regional Materials Engineer.

Crushed glass may be included in the mixture up to 5%, maximum, of the total aggregate weight. The crushed glass, aggregate, and Performance-Graded Binder (PGB) shall meet the requirements specified in the Standard Specification §401-2.01 Hot Mix Asphalt Designs and §401-2.04 Performance-Graded Binder.

CONSTRUCTION DETAILS

The crushed glass shall be proportioned from a separate feed bin approved by the Regional Materials Engineer. In addition, all requirements pertaining to aggregate shall apply to crushed glass including the equipment requirements for automatic proportioning and recording as stipulated for aggregate in §401-3.08.

METHOD OF MEASUREMENT. The provisions of §401-4 and §402-4, Method of Measurement, shall apply.

BASIS OF PAYMENT. The provisions of §402-5, Basis of Payment, shall apply.
SECTIONS 407 – TACK COAT, AND 702 – BITUMINOUS MATERIALS

Make the following changes to the Standard Specifications dated May 1, 2008:

Page 207, Delete “§302-3.04, Mixing for Option A” Fifth Paragraph. Replace it with “The application temperature of the bituminous material shall be designated by the Engineer and be within the range of 130°F to 170°F.”

Page 269, Delete Section 407 in its entirety, and Replace it with the following:

“SECTION 407 - TACK COAT

407-1 DESCRIPTION. This work shall consist of preparing and treating an existing Portland cement concrete surface or hot mix asphalt surface with tack coat in accordance with the Contract documents and as directed by the Engineer.

407-2 MATERIALS. The tack coat shall meet the applicable requirements of §702. Use of alternative tack coat material requires prior approval by the Director, Materials Bureau.

407-3 CONSTRUCTION DETAILS.

407-3.01 Equipment. A distributor shall be used for applying tack coat. The distributor shall be capable of applying the tack coat uniformly on variable widths of surface up to 15 feet.

The distributor equipment shall include a quantity measuring system and a thermometer for measuring temperature of tank contents. Prior to being used on a project, this equipment shall be calibrated in accordance with ASTM D 2995 Standard Practice for Estimating Application Rate of Bituminous Distributors or an equivalent calibration procedure acceptable to the Engineer. The Engineer will witness the equipment calibration or require the Contractor to provide documentation certifying the calibration.

Distributors shall be equipped with circulation spray bars which shall be adjustable both laterally and vertically. An attached bristle broom that drags on the pavement behind the spray bars may be attached to the distributor. If the broom is used, it shall be adjustable laterally and vertically so that the full width of the applied tack coat is bristled uniformly into the pavement surface.

A bituminous material sampling valve shall be attached to the distributor. The distributor tank shall be equipped with an agitator that is capable of ensuring the tack coat remains homogeneous.

Tack coat stored in the distributor tank shall be heated and maintained at a temperature between 85ºF and 160ºF.

Hand operated spray units will be permitted only in areas where the use of a distributor is impractical. The Engineer will determine the final acceptance of all equipment used for applying the tack coat.

407-3.02 Application of Tack Coat. The tack coat contained in the distributor tank shall be homogeneous.

The tack coat shall be applied to a prepared clean pavement. Material shall be applied uniformly across the width of the designated area.

The tack coat shall not be applied on a wet pavement surface or when the pavement surface temperature is below 40°F.

The application rate shall be as determined in Table 407-1 Tack Coat Application Rates. These are recommended application rates for tack coat on various surface types and may be modified by the Engineer.
TABLE 407-1 – TACK COAT APPLICATION RATES

<table>
<thead>
<tr>
<th>Surface Type</th>
<th>Application Rate (gal/yd²)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diluted Tack Coat</td>
</tr>
<tr>
<td>New Hot Mix Asphalt</td>
<td>0.05 - 0.06</td>
</tr>
<tr>
<td>Milled Surfaces and Existing Hot Mix Asphalt</td>
<td>0.08 - 0.10</td>
</tr>
<tr>
<td>Portland Cement Concrete</td>
<td>0.08 - 0.10</td>
</tr>
<tr>
<td>Vertical Surfaces (curbs, drainage structures, and appurtenances)</td>
<td>0.09 - 0.11</td>
</tr>
</tbody>
</table>

407-3.03 Sampling. The Engineer will request samples from the Contractor at the frequency listed in Materials Method 702-2 Asphalt Emulsion - Quality Assurance. The Engineer will witness the Contractor sampling the material. The sample will represent all material from the same certified lot, placed that day.

407-4 METHOD OF MEASUREMENT. The quantity to be measured for payment will be in gallons of tack coat measured at 60ºF to the nearest gallon. The following formula will be used to calculate material quantity at 60ºF:

\[
\text{Volume @ 60}^\circ\text{F} = \text{Volume}_D \times [1 - (\Delta T \times 0.00025)]
\]

\[
\Delta T = \text{Delivered Temperature (}^\circ\text{F)} - 60
\]

\[
\text{Volume}_D = \text{Quantity at Delivered Temperature (gallons)}
\]

407-5 BASIS OF PAYMENT. The unit price bid per gallon for tack coat shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

The Regional Materials Engineer will evaluate material represented by failing samples. If the Engineer elects to leave the material in place, the Contractor shall receive a pay reduction of 75% of the tack bid price, for the pavement section represented by the failing sample.

Payment will be made under:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>407.0102</td>
<td>Diluted Tack Coat</td>
<td>Gallon</td>
</tr>
<tr>
<td>407.0103</td>
<td>Straight Tack Coat</td>
<td>Gallon</td>
</tr>
</tbody>
</table>

Page 539, Delete “§609-3.07 Preparation of Surface” Replace in its entirety with

“B. Preparation of Surface. When hot mix asphalt curb is constructed on a freshly laid hot mix asphalt surface, the surface shall be clean. When curb is to be laid on a cured or aged concrete base, hot mix asphalt pavement, or performance graded binder treated base, the surface shall be thoroughly swept and cleaned by compressed air.

The surface shall be thoroughly dried and, immediately prior to placing of the hot mix asphalt mixture, shall receive a tack coat meeting the requirements of Table 702-8. The tack coat shall be applied at a rate of 0.05 to 0.15 gallons per square yard. The tack coat shall be prevented from spreading to areas outside of the area to be occupied by the curb.
SECTION 702 - BITUMINOUS MATERIALS

SCOPE. These specifications cover the material requirements and testing methods of bituminous materials:

1. Performance-Graded (PG) Binders for Paving.
2. Miscellaneous Asphalt Cements.
3. Synthetic Resins.
5. Polymer-Modified Asphalt Emulsions.

GENERAL. The bituminous material volume shall be measured at 60°F. The specific gravity at 60°F shall be included with each shipment of bituminous material to a plant or project site.

MATERIAL REQUIREMENTS. Bituminous materials shall meet the following requirements.

1. Performance-Graded (PG) Binders for Paving. PG binder, designated PG XX-YY, is defined as the range of pavement temperatures expressed in degrees Celsius, maximum to minimum, over which the PG binder can be expected to provide acceptable performance. The PG binder shall be manufactured by refining crude petroleum and blending with a modifier, if necessary, to meet the required performance grade. PG binders shall meet the requirements of Table 702-1 Performance-Graded Binders for Paving. The PG binder supplier shall certify that the PG binder meets NYSDOT requirements. If the PG binder is modified, the supplier shall include type of modification and any special handling instructions in the certification. The PG binder supplier shall provide the design mixing and compaction temperatures on Form BR 320, SUPERPAVE Performance Graded Binder Temperature Viscosity Data. Also, the supplier shall provide AASHTO M 320 test data and all necessary shipping documents in accordance with the Department’s Materials Method 702-1 Quality Assurance Procedure for Performance-Graded (PG) Asphalt Binders.

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION</th>
<th>702-5828</th>
<th>702-5834</th>
<th>702-6422</th>
<th>702-6428</th>
<th>702-7022</th>
<th>702-7622</th>
</tr>
</thead>
</table>

SPECIFICATIONS FOR PERFORMANCE-GRADED (PG) BINDER
Silicone additives will be permitted in paving binders. Silicone may be introduced into the PG binder in accordance with the manufacturer’s recommendations either at the refinery, terminal, or at a mixing plant storage tank. PG binder treated with silicone shall conform to the specifications for untreated PG binder.

Any PG binder previously approved that has been stored in the mixing plant tank over the winter shall be re-sampled and accepted by the Department before it is used.

2. Miscellaneous Asphalt Cements. Asphalt cements shall meet the requirements in Table 702-2 Miscellaneous Asphalt Cements. The asphalt cement shall be homogeneous, free from water, and shall not foam when heated to 350°F. The supplier shall provide material test results and shipping documents that state the volume of material certified.

<table>
<thead>
<tr>
<th>Test Requirements</th>
<th>AASHTO M 320</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>PERFORMANCE GRADE</th>
<th>PG 58</th>
<th>PG 64</th>
<th>PG 70</th>
<th>PG 76</th>
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<tr>
<td>-28</td>
<td>-34</td>
<td>-22</td>
<td>-22</td>
<td>-22</td>
</tr>
</tbody>
</table>

TABLE 702-2 MISCELLANEOUS ASPHALT CEMENTS

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION</th>
<th>Test Requirements</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>702-0700</td>
<td>Penetration, 77°F (25°C), 100 g, 5 second (AASHTO T 49)</td>
<td>18</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Flash Point, COC, °F (AASHTO T 48)</td>
<td>393</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Solubility in trichloroethylene, % (AASHTO T 44)</td>
<td>99.5</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Softening Point, °F (AASHTO T 53)</td>
<td>130</td>
<td>167</td>
</tr>
<tr>
<td></td>
<td>Loss on Heating, 325°F (163°C), 5 hour, % (AASHTO T 47)</td>
<td>-</td>
<td>1.0</td>
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<tr>
<td></td>
<td>Penetration of Residue, % of Original (AASHTO T 49)</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Ductility, 77°F (25°C), 5 cm/minute, cm (AASHTO T 51)</td>
<td>5</td>
<td>-</td>
</tr>
</tbody>
</table>

3. Synthetic Resins. The synthetic resins covered under these specifications are two types: synthetic resin binder and rapid curing synthetic resin liquid. The synthetic resin binder is a light insensitive liquid used in colored synthetic resin binder concrete. The rapid curing synthetic resin liquid is a tack coat for the resin binder concrete and shall be light colored and compatible with the resin binder concrete placed over it. The synthetic resin shall be homogeneous and shall meet the requirements in Table 702-3 Synthetic Resins.

TABLE 702-3 SYNTHETIC RESINS

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION</th>
<th>Test Requirements</th>
<th>Min.</th>
<th>Max.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>702-7000</td>
<td>Penetration, 77°F (25°C), 100 g, 5 second</td>
<td>75</td>
<td>100</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Viscosity, 140°F (60°C), m²/s (x 10⁶)</td>
<td>-</td>
<td>-</td>
<td>8</td>
<td>30</td>
</tr>
</tbody>
</table>
SECTIONS 407 – TACK COAT, AND 702 – BITUMINOUS MATERIALS

Flash Point, COC, °F 400 - - -
Solubility in trichloroethylene, % 99.5 - 99.5 -
Loss of Heating, 325°F (163°C), 5 hr., % - 1.0 - -
Water, % - 0.0 - 0.2 -
Color, (30% binder/70% toluene) Gardner Standard Color Scale, (ASTM D 1544) - 16 - -
Test on Residue from Thin Film Oven Test, (AASHTO T 179) 47 - - -
Residue from Evaporation, 221°F (105°C), 3 hr., (ASTM D 1644), % - - 50 -
Suggested Spraying Temperature, °F - - 50 120 -
Typical Uses Hot Plant Mix Tack Coat

4. Anionic and Cationic Asphalt Emulsions. The emulsion shall be homogeneous and show no separation of asphalt, after thoroughly mixing, within 30 days after delivery. The asphalt emulsion shall be agitated or circulated to ensure a homogeneous emulsion prior to sampling or application of material. Material that has separated due to freezing is unacceptable at any time.

Asphalt emulsions shall meet the requirements shown in Table 702-4 Anionic Asphalt Emulsions, or Table 702-5 Cationic Asphalt Emulsions. Test data and shipping documents shall be provided by the supplier in accordance with the Department's Materials Method 702-2 Asphalt Emulsion – Quality Assurance.

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION</th>
<th>702-3001</th>
<th>702-3021</th>
<th>702-3101</th>
<th>702-3102</th>
<th>702-3201</th>
<th>702-3301</th>
<th>702-3401</th>
<th>702-3402</th>
<th>702-3501</th>
<th>702-3601</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRADE</td>
<td>RAPID SETTING</td>
<td>MEDIUM SETTING</td>
<td>SLOW SETTING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MIN.</td>
<td>MAX.</td>
<td>MIN.</td>
<td>MAX.</td>
<td>MIN.</td>
<td>MAX.</td>
<td>MIN.</td>
<td>MAX.</td>
<td>MIN.</td>
<td>MAX.</td>
</tr>
<tr>
<td>Emulsion(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity, Saybolt, 77°F (25°C), second</td>
<td>20</td>
<td>100</td>
<td>20</td>
<td>100</td>
<td>20</td>
<td>100</td>
<td>20</td>
<td>100</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Viscosity, Saybolt, 122°F (50°C), second</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Storage Stability Test, 1 Day</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Durability, 30 mL, 0.02 N, CaCl2, %</td>
<td>60</td>
<td>-</td>
<td>60</td>
<td>-</td>
<td>60</td>
<td>-</td>
<td>60</td>
<td>-</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>Cement Mixing Test(2) %</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Slow Test, %</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Residue by Distillation, %</td>
<td>55</td>
<td>55</td>
<td>63</td>
<td>63</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>57</td>
<td>57</td>
</tr>
<tr>
<td>Oil Distillate, Volume Total Emulsion, %</td>
<td>1.5</td>
<td>1.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Residue from Distillation Test(3)</td>
<td>100 200 40 90 100 200 100 200 40 90 100 200 100 200 40 90 100 200 40 90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetration, 77°F (25°C), 100 g, 5 seconds</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Ductility, 77°F (25°C), 5 cm/minute, cm</td>
<td>40</td>
<td>-</td>
<td>40</td>
<td>-</td>
<td>40</td>
<td>-</td>
<td>40</td>
<td>-</td>
<td>40</td>
<td>-</td>
</tr>
<tr>
<td>Solubility in trichloroethylene, %</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
</tr>
<tr>
<td>Float Test, 140°F (80°C), second</td>
<td>1200</td>
<td>-</td>
<td>1200</td>
<td>-</td>
<td>1200</td>
<td>-</td>
<td>1200</td>
<td>-</td>
<td>1200</td>
<td>-</td>
</tr>
</tbody>
</table>

1. All tests performed per AASHTO T 59 unless otherwise noted.
2. The Cement Mixing test is waived if the emulsion will be used for soil stabilization.
3. Float Test AASHTO T 50, except that the residue from distillation shall be poured immediately into the float collar at 500°F (260°C)

TABLE 702-4 ANIONIC ASPHALT EMULSIONS

TABLE 702-5 CATIONIC ASPHALT EMULSIONS

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION</th>
<th>TYPE</th>
<th>RAPID SETTING</th>
<th>MEDIUM SETTING</th>
<th>SLOW SETTING</th>
<th>QUICK SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emulsion** (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity, Saybolt Furol, 77°F (25°C), second</td>
<td>20</td>
<td>100</td>
<td>20</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Viscosity, Saybolt Furol, 122°F (50°C), second</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Storage Stability Test, 1 Day</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>(Difference in % Residue)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sieve Test, %</td>
<td>-</td>
<td>0.10</td>
<td>-</td>
<td>0.10</td>
<td>-</td>
</tr>
<tr>
<td>Cement Mixing Test(3), %</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Residue by Distillation, %</td>
<td>60</td>
<td>-</td>
<td>60</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Oil Distillate, Volume Total Emulsion, %</td>
<td>-</td>
<td>1.5</td>
<td>1.5</td>
<td>2.5</td>
<td>10</td>
</tr>
<tr>
<td>Residue from Distillation Test(4)</td>
<td>Penetration, 77°F (25°C), 100 g, 5 second</td>
<td>100</td>
<td>250</td>
<td>40</td>
<td>90</td>
</tr>
<tr>
<td>Ductility, 77°F (25°C), 5 cm/minute, cm</td>
<td>40</td>
<td>-</td>
<td>40</td>
<td>40</td>
<td>-</td>
</tr>
<tr>
<td>Solubility in trichloroethylene, %</td>
<td>97.5</td>
<td>-</td>
<td>97.5</td>
<td>-</td>
<td>97.5</td>
</tr>
</tbody>
</table>

1. All tests performed per AASHTO T 68 unless otherwise noted.
2. If the Particle Charge test is inconclusive, material having a maximum pH value of 6.7 will be accepted.
3. The Cement Mixing test is waived if the emulsion will be used for soil stabilization.

5. Polymer-Modified Asphalt Emulsions. Polymer-modified asphalt emulsions shall meet the requirements of Table 702-4 and 702-5 except as modified in Table 702-6 Polymer Modified Asphalt Emulsions.

The polymer modifier shall be milled or blended into the base asphalt or emulsifying agent prior to the emulsification process.

TABLE 702-6 POLYMER MODIFIED ASPHALT EMULSIONS

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION</th>
<th>Test Requirement</th>
<th>702-XXXXP(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQS-1h – 702-4601</td>
<td>Elastic Recovery at 50°F(10°C)(2,3), %</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Softening Point, °F(4)</td>
<td>140</td>
</tr>
<tr>
<td>All Other Polymer Modified Emulsions</td>
<td>Elastic Recovery at 50°F(10°C)(2,3), %</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Softening Point, °F(4)</td>
<td>140</td>
</tr>
</tbody>
</table>

1. XXXX shall be the four digit code matching the appropriate emulsion grade listed in table 702-4 & 702-5
2. Elastic Recovery procedure: Use ASTM D 6084 Testing Procedure “A.” Samples will be tested at 50°F (10°C).
3. Recover emulsion’s asphalt residue according to ASTM D 6997 except as modified herein, when the lower temperature reaches approximately 275°F (135°C), move the ring burner approximately level with the bottom of the still. Increase the temperature to a maximum 350°F +/- 10°F (177°C +/− 5°C), maintaining this temperature for 15 minutes.
4. According to AASHTO T 53

6. Asphalt Emulsion – Diluted Tack Coat. Diluted tack coat emulsion shall be agitated or circulated to ensure a homogeneous emulsion prior to sampling or application of material. The consistency
of the diluted tack coat shall be appropriate for pumping and uniform application.

Only the grades of emulsions meeting the requirements of Table 702-7 Diluted Tack Coat shall be allowed. These diluted tack coats may be produced by diluting the base asphalt emulsion grade with an emulsifier and/or water and thoroughly mixing into a homogeneous liquid.

### TABLE 702-7 DILUTED TACK COAT

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION</th>
<th>702-XXXXXT(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emulsion Grades</td>
<td>Test Requirements(2)</td>
</tr>
<tr>
<td>702-3401</td>
<td>Sieve Test</td>
</tr>
<tr>
<td>702-3601</td>
<td>Residue by Distillation, %</td>
</tr>
<tr>
<td>702-4501</td>
<td>Oil Distillate, Volume of Total Emulsion, %</td>
</tr>
<tr>
<td></td>
<td>Test on Residue from Distillation:</td>
</tr>
<tr>
<td></td>
<td>Penetration, 77°F (25°C), 100 g, 5 seconds</td>
</tr>
</tbody>
</table>

1. XXXX = 3401, 3601 or 4501
2. All tests performed per AASTHO T59

7. **Asphalt Emulsion – Straight Tack Coat.** Straight tack coat emulsion shall be agitated or circulated to ensure a homogeneous emulsion prior to sampling or application of material. The consistency of the straight tack coat shall be appropriate for pumping and uniform application.

Only the grades of emulsions meeting the requirements of Table 702-8 Straight Tack Coat shall be allowed in straight tack coat applications. These tack coats shall not be further diluted with water.

### TABLE 702-8 STRAIGHT TACK COAT

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION</th>
<th>702-XXXXXT(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emulsion Grades</td>
<td>Test Requirements(2)</td>
</tr>
<tr>
<td>702-3002</td>
<td>Sieve Test, %</td>
</tr>
<tr>
<td>702-4002</td>
<td>Residue by Distillation – Grade 702-3002, %</td>
</tr>
<tr>
<td></td>
<td>Residue by Distillation – Grade 702-4002, %</td>
</tr>
<tr>
<td></td>
<td>Oil Distillate, Volume of Total Emulsion, %</td>
</tr>
<tr>
<td></td>
<td>Test on Residue from Distillation:</td>
</tr>
<tr>
<td></td>
<td>Penetration, 77°F (25°C), 100 g, 5 seconds</td>
</tr>
</tbody>
</table>

1. XXXX = 3002 or 4002
2. All tests performed per AASTHO T59

8. **High Volume Chip Seal Emulsions.** The following emulsion grades are modified when used in certain Chip Seal applications. The material shall meet the requirements of Table 702-4, Table 702-5 and Table 702-6 except as modified in Table 702-9 High Volume Chip Seal Emulsions.
SECTIONS 407 – TACK COAT, AND 702 – BITUMINOUS MATERIALS

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION</th>
<th>702-XXXXC(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emulsion Grades</strong></td>
<td><strong>Test Requirements</strong></td>
</tr>
<tr>
<td>702-3101</td>
<td>Penetration 77°F (25°C)</td>
</tr>
<tr>
<td>702-3102</td>
<td>Penetration 77°F (25°C)</td>
</tr>
<tr>
<td>702-4101</td>
<td>Penetration 77°F (25°C)</td>
</tr>
</tbody>
</table>

1. XXXX = 3101, 3102 or 4101
2. Perform penetration per AASTHO T59.

9. **Asphalt Rejuvenating Agent** – Asphalt rejuvenating agents are used for heater scarification or hot in-place recycling projects.

Use ASTM D 4552, *Standard Practice for Classifying Hot-Mix Recycling Agents*, grades RA25 and RA75 petroleum-based recycling agents specifically designed as a rejuvenator meeting the requirements in Table 702-10 Recycling Agent. Use *Emulsified Recycling Agents*, grades ERA25 (an emulsified RA25) and ERA75 (an emulsified RA75) petroleum-based recycling agents specifically designed as a rejuvenator meeting the requirements in Table 702-11 *Emulsified Recycling Agent*.

**TABLE 702-10 RECYCLING AGENT**

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION (GRADE)</th>
<th>702-5030 (RA25)</th>
<th>702-5050 (RA75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Requirements</td>
<td>Test Method</td>
<td>Min</td>
</tr>
<tr>
<td>Tests on Residue from Distillation:</td>
<td>T 201</td>
<td>901</td>
</tr>
<tr>
<td>Viscosity, 140°F (60°C), cSt Flash Point, CSC, °F</td>
<td>T48</td>
<td>426</td>
</tr>
<tr>
<td>Test on Residue from RTFO, 325°F (163°C):</td>
<td>T 240</td>
<td>--</td>
</tr>
<tr>
<td>Viscosity Ratio</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>Weight Change, %</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>T 228</td>
<td>Report</td>
</tr>
</tbody>
</table>

**TABLE 702-11 EMULSIFIED RECYCLING AGENT**

<table>
<thead>
<tr>
<th>MATERIAL DESIGNATION (GRADE)</th>
<th>702-5031 (ERA25)</th>
<th>702-5051 (ERA75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Requirements</td>
<td>Test Method</td>
<td>Min</td>
</tr>
<tr>
<td>Tests on Residue from Distillation:</td>
<td>T 201</td>
<td>901</td>
</tr>
<tr>
<td>Viscosity, 140°F (60°C), cSt Flash Point, CSC, °F</td>
<td>T 48</td>
<td>426</td>
</tr>
<tr>
<td>Test on Residue from RTFO, 325°F (163°C):</td>
<td>T 240</td>
<td>--</td>
</tr>
<tr>
<td>Viscosity Ratio</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>Weight Change, %</td>
<td>--</td>
<td>4</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>T 228</td>
<td>Report</td>
</tr>
<tr>
<td>Saybolt Furol</td>
<td>T 59</td>
<td>20</td>
</tr>
</tbody>
</table>
BASIS OF APPROVAL. The procedural directives for sampling, testing, and certifying the bituminous material, and for achieving and maintaining Approved List status, are available from the Materials Bureau.

BASIS OF ACCEPTANCE. PG binder will be accepted based on the Primary Source appearing on the approved list and the source’s certification and satisfactory test results from samples taken where the material is incorporated into the work.

Miscellaneous asphalt cements and synthetic resins will be accepted based on the manufacturer’s certification.

Asphalt Emulsions, including Tack Coat, will be accepted based on the Primary Source appearing on the approved list, the source’s certification, and satisfactory test results from samples taken where the material is incorporated into the work.

Asphalt Rejuvenating Agent will be accepted based on the manufacturer’s certification. The use of any other grade of recycling agent requires prior approval from the Director, Materials Bureau.”
EXTERNALLY STABILIZED CUT STRUCTURES

Make the following changes to the Standard Specifications dated May 1, 2008:

Delete Section 552- Support and Protection Systems entirely and Add the following:

SECTION 552 – EXTERNALLY STABILIZED CUT STRUCTURES

552-1 DESCRIPTION

552-1.01 Permanent Sheeting. Under this work, the Contractor shall furnish and install permanent sheeting of the type, at the locations and to the elevation(s) shown in the contract documents or as directed by the Engineer.

All the sheeting and supports will be left in place as a finished structure unless removal of waling and bracing is called for in the contract documents.

552-1.02 Temporary Sheeting. Under this work, the Contractor shall furnish, install, maintain and remove temporary sheeting of the type, at the locations and to the elevation(s) shown in the contract documents or as directed by the Engineer. It may be left in place only with the written permission of the Engineer.

552-1.03 Interim Sheeting. Under this work, the Contractor shall furnish, install, maintain, cut off and remove sheeting of the type, at the locations and to the elevation(s) shown in the contract documents or as directed by the Engineer.

The interim sheeting shall be cut off and removed only to the elevation shown in the contract documents. The remaining material shall be left in place.

552-1.04 Excavation Protection System. Under this work, the Contractor shall design, furnish, place, maintain and remove an excavation protection system (EPS) at locations shown in the contract documents or as directed, in writing, by the Engineer. Details of the EPS must conform to the requirements of 29 CFR 1926 and installation shall be in accordance with the State and Federal Safety Codes. A sloping (layback) option will not be allowed.

Sheeting, shoring, a shield system, i.e. trench box or trench shield or other pre-engineered protective system may be used to prevent cave-ins. The requirements of any protective system shall be as contained in 29 CFR 1926. It may be left in place only with the written permission of the Engineer.

552-1.05 Soldier Pile and Lagging Wall. Under this work, the Contractor shall furnish and place a soldier pile and lagging wall in accordance with the contract documents; cut off walls located within the roadway limits to the elevation shown in the contract documents and leave the remainder in place unless removal is granted, in writing, by the Engineer; completely remove walls outside the roadway limits if noted on the plans; and dispose of removed material.

552-1.06 Alternate Design. The Contractor may submit to the Department a construction alternate other than that presented in the contract documents as a Value Engineering Change Proposal. Slope layback will not be allowed. A simple material substitution involving a sheeting section modulus or soldier pile designation greater than that shown in the contract documents will be considered for acceptance. However, all proposed changes to details shown in the contract documents must be approved,
EXTERNALLY STABILIZED CUT STRUCTURES

in writing, by the Deputy Chief Engineer for Technical Services.

Any geotechnical analysis for a flexible support system shall be done in accordance with the procedures contained in the geotechnical design procedure “Geotechnical Design Procedure for Flexible Wall Systems”.

552-2 MATERIALS

552-2.01 Permanent Sheeting

A. Permanent Timber Sheeting. Permanent timber sheeting shall be new and unused and consist of any acceptable species which can be placed satisfactorily in accordance with the requirements of §712-14 Stress Graded Timber and Lumber. Timber sheeting shall be treated in accordance with §708-31 Wood Preservative - Waterborne and applied in conformance with American Wood Preservers Association (AWPA) Use Category Designation UC4B. The timbers shall meet or exceed the actual cross section or stress grade shown in the contract documents. The timbers shall be sound and free from any defects which might impair its strength or tightness. The materials shall include all necessary waling and bracing required.

B. Permanent Steel Sheeting. Steel sheeting shall be new and unused conforming to the provisions of §715-17 Steel Sheeting. Waling and bracing shall be new and unused conforming to the provisions of §715-01 Structural Steel. Stock steel may be used.

552-2.02 Temporary Sheeting

A. Temporary Timber Sheeting. Temporary timber sheeting shall consist of any acceptable species which can be placed satisfactorily in accordance with the requirements of §712-14 Stress Graded Timber and Lumber.

Temporary timber sheeting may consist of new or used, treated or untreated material but must be in satisfactory condition and suitable for the intended use. The Engineer will reject unsatisfactory used materials.

B. Temporary Steel Sheeting. The steel sheeting, waling and bracing may consist of new or used material but must be in satisfactory condition and suitable for the intended use. The materials shall include all necessary waling and bracing required. The Engineer will reject unsatisfactory used materials.

552-2.03 Interim Sheeting

A. Interim Timber Sheeting. Interim timber sheeting may consist of new or used, treated or untreated material but shall be in satisfactory condition and suitable for the intended use. The Engineer will reject unsatisfactory used materials.

B. Interim Steel Sheeting. The steel sheeting, waling and bracing may consist of new or used material but must be in satisfactory condition and suitable for the intended use. The materials shall include all necessary waling and bracing required. The Engineer will reject unsatisfactory used materials.
EXTERNALLY STABILIZED CUT STRUCTURES

552-2.04 Excavation Protection System. The selection of EPS materials shall be the Contractor's option. The Engineer will reject unsatisfactory materials.

552-2.05 Soldier Pile and Lagging Wall.

A. Soldier Pile. Soldier piles shall be as shown on the contract documents and conform to the requirements of §715-18 Soldier Piles. Waling and bracing shall be as shown in the contract documents and conform to the requirements of §715-01 Structural Steel. Each pile shall consist of one continuous steel section. No pile splices will be allowed unless approved, in writing, by the Deputy Chief Engineer for Technical Services.

Used material is permitted for temporary walls unless otherwise noted on the plans, provided the material is in conformance with the specification and is acceptable to the Engineer.

B. Lagging. Lagging type(s) shall be as shown in the contract documents:

1. Treated Wood. Treated wood shall meet or exceed the full dimension thickness shown in the contract documents and graded for an extreme fiber stress of at least 1000 psi conforming to the material requirements of §712-14 Stress Graded Timber and Lumber. Timbers shall be treated in accordance with §708-31 Wood Preservative - Waterborne. The treatment shall be applied in conformance with American Wood Preservers Association (AWPA) Use Category Designation UC4B.

2. Untreated Wood. Untreated wood shall be graded for an extreme fiber stress of at least 1000 psi conforming to the provisions of §712-14 Stress Graded Timber and Lumber and shall meet or exceed the full dimension thickness shown in the contract documents.

3. Precast Concrete Panels. Precast concrete panels shall conform to the provisions of §704-24 Precast Concrete Panels.

4. Steel Sheeting. Steel sheeting shall conform to the provisions of §552-2.01 B. Permanent Steel Sheeting.

C. Backfill for Holes. Backfill material shall be as shown in the contract documents:

1. Concrete Backfill. Concrete backfill shall be Class G concrete conforming to the provisions of Section 555 Structural Concrete.

2. Grout Backfill. Grout backfill shall be a workable mixture capable of stabilizing the hole being excavated. The Contractor shall use either:

   i. Controlled Low Strength Material. Material meeting the requirements for Controlled Low Strength Material as stated in §733-01 Flowable Fill.
**EXTERNALLY STABILIZED CUT STRUCTURES**

**ii. Controlled Low Strength Material (No Fly Ash).** Material meeting the requirements for Controlled Low Strength Material (No Fly Ash) as stated in §733-01 Flowable Fill.

**iii. Grout.** Cement, concrete sand and water conforming to Table 552-1 Grout Backfill Requirements.

<table>
<thead>
<tr>
<th>TABLE 552-1 GROUT BACKFILL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
</tr>
<tr>
<td>Portland Cement Type 2</td>
</tr>
<tr>
<td>Concrete Sand</td>
</tr>
<tr>
<td>Water</td>
</tr>
</tbody>
</table>

**552-3 CONSTRUCTION DETAILS**

**552-3.01 General.** The Contractor shall install sheeting having a section modulus not less than that shown in the contract documents. The Contractor shall install soldier piles meeting the size designation shown in the contract documents.

Any material which stops the driving of sheeting or soldier piles within a depth of 10 feet from the ground surface at the time of driving shall be removed by the Contractor. Payment for removal of such material and any backfill required to fill the resulting void will be made under the appropriate pay items. If very compact material or boulders prevent the progression of the sheeting or soldier piles to the design tip elevation at a greater depth, the Contractor shall notify the Engineer.

The Contractor shall perform work in a manner that causes no subsidence of the surrounding ground surface. If subsidence should occur, the Contractor shall cease work and provide a written plan to prevent subsidence for approval by the Engineer. The Contractor shall repair all damage that resulted from the subsidence at no additional cost to the State.

**552-3.02 Temporary Sheeting.** The Contractor shall install temporary sheeting having a section modulus which meets or exceed that shown in the contract documents.

After its function is no longer required, the Contractor shall remove the sheeting placed under this work, or with the written permission of the Engineer, leave it in place after cutting off the tops at an agreed elevation.

**552-3.03 Interim Sheeting.** The Contractor shall install interim sheeting having a section modulus which meets or exceed that shown in the contract documents.

The Contractor shall cut off the interim sheeting and remove it to the elevation shown in the contract documents. The remaining material shall be left in place.

**552-3.04 Excavation Protection System.** The Contractor shall install an Excavation Protection System in accordance with the contract documents.

The EPS installed under this work shall be of sufficient size and strength to meet the requirements of 29 CFR 1926 and the Live Load requirement as contained in the AASHTO Standard Specifications for Highway Bridges. A sloping (layback) option will not be allowed. Prior to use, the Contractor shall
supply the Engineer with documentation of compliance. The EPS may be left in place only with the written permission of the Engineer.

All damage to the adjacent pavement or ground caused by the use of the chosen EPS (e.g. voids beneath the pavement or shoulder, pavement or shoulder cracking or subsidence, ground settlement) shall be repaired at no additional cost to the State. Severe damage which directly affects the safety of the public shall be immediately repaired. The operation shall be halted until a satisfactory prevention method is instituted.

**552-3.05 Soldier Pile and Lagging Wall.** The Contractor shall install Soldier Piles meeting the size designation shown in the contract documents either by driving or by placing them in holes as indicated on the plans in accordance with Table 552-2 Soldier Pile and Lagging Wall Pile Tolerances. For each pile out of tolerance, provide a satisfactory replacement or provide a modification approved by the Engineer prior to proceeding. No pile splices will be allowed unless approved, in writing, by the Deputy Chief Engineer of the Office of Technical Services.

<table>
<thead>
<tr>
<th>Survey Location</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>3 inches at the top of pile.</td>
</tr>
<tr>
<td>Vertical</td>
<td>Vertical tolerance of $\frac{1}{8}$ inch per foot on each axis of the soldier pile shown on the plans. Verify the axis on the top 5 feet of the soldier pile with a straight edge (5 feet minimum length) and a level (4 feet minimum length).</td>
</tr>
</tbody>
</table>

**A. Driving Piles.** Soldier piles shall be equipped with shoes in conformance with provisions of §551-3.01 C.1.a. Preparation of Piles, Shoes, Steel Bearing Piles, and driven in conformance with provisions of §551-3.01 D. Equipment for Driving Piles, except that submission of Form BD 138 is not required.

**B. Creating Holes for Pile Installation.** The Contractor shall provide equipment capable of establishing and maintaining holes of the minimum diameter and to the depth or elevation shown in the contract documents. Temporary sleeves or casings are permitted and may be required as per the plans. Jetting is not permitted.

If the top of socket elevation shown in the contract documents varies by more than 2 feet, the Contractor shall stop work and notify the Engineer. The Engineer will notify the Geotechnical Engineering Bureau and obtain written recommendations prior to allowing the work to proceed.

Upon completion of the hole, the Contractor shall install the soldier pile in accordance with Table 552-2 Soldier Pile and Lagging Wall Pile Tolerances.

**C. Backfilling.** After placing the piles, the Contractor shall backfill holes with the backfill(s) indicated in the contract documents.

**1. Concrete Backfill.** The Contractor shall place backfill in accordance with the provisions of §555-3.04 Handling and Placing Concrete and §555-3.05 Depositing Structural Concrete Under
EXTERNALLY STABILIZED CUT STRUCTURES

Water as shown in the contract documents. The Contractor shall allow a minimum curing time of one day before placing any lagging.

2. Grout Backfill. The Contractor shall place backfill in accordance with the provisions of §555-3.04 Handling and Placing Concrete and §555-3.05 Depositing Structural Concrete Under Water. The Contractor shall allow a minimum curing time of one day before placing any lagging.

D. Lagging. The Contractor shall install horizontal lagging so that the unsupported soil height does not exceed 3 feet at any time. If the method chosen for attaching the lagging to the soldier piles requires reattachment of lagging to the soldier piles due to planned excavation on both sides of the wall, the Contractor shall reattach the lagging at no additional cost to the State.

The Contractor shall fabricate the precast concrete lagging to the shape and size shown in the contract documents.

E. Wall Removal. The Contractor shall cut off soldier piles placed within the roadway limits at the subgrade surface unless otherwise noted in the contract documents. Soldier piles placed outside the roadway limits may be removed or cut off a minimum of 2 feet below final ground surface unless otherwise noted in the contract documents.

If lagging is to be removed, the Contractor shall remove the lagging so that the unsupported soil height does not exceed a maximum of 3 feet at any time. This maximum height may be reduced, based on specific site conditions, in order to prevent collapse and loss of ground.

552-4 METHOD OF MEASUREMENT

552-4.01 General. When the support system is used in stage construction, the quantity of support system will be the maximum number of square feet satisfactorily installed between the payment lines shown in the Contract Documents measured on either, but not both sides, of adjacent construction stages.

552-4.02 Permanent Sheeting. The quantity of sheeting to measure for payment will be the number of square feet, to the nearest square foot, obtained by multiplying the vertical length of sheeting between the payment lines herein described, by the horizontal length of sheeting shown in the contract documents. The vertical length of sheeting is that length measured between the upper and lower payment lines. The upper payment line will be the original ground at the time of commencing work. The lower payment line will be the elevation shown in the contract documents as the minimum embedment depth.

The horizontal length will be measured along a projection of the sheeting on a plane parallel to and midway between the front and rear face of the sheeting wall.

552-4.03 Temporary Sheeting. The quantity of sheeting to measure for payment will be the number of square feet, to the nearest square foot, obtained by multiplying the vertical length of sheeting between the payment lines herein described, by the horizontal length of sheeting shown in the contract documents. The vertical length of sheeting is that length measured between the upper and lower payment lines. The upper payment line will be the original ground at the time of commencing work. The lower payment line will be the elevation shown in the contract documents as the minimum embedment depth.

The horizontal length will be measured along a projection of the sheeting on a plane parallel to and midway between the front and rear face of the sheeting wall.
EXTERNALLY STABILIZED CUT STRUCTURES

552-4.04 Interim Sheeting. The quantity of sheeting to measure for payment will be the number of square feet, to the nearest square foot, obtained by multiplying the vertical length of sheeting between the payment lines herein described, by the horizontal length of sheeting shown in the contract documents. The vertical length of sheeting is that length measured between the upper and lower payment lines. The upper payment line will be the original ground at the time of commencing work. The lower payment line will be the elevation shown in the contract documents as the minimum embedment depth.

The horizontal length will be measured along a projection of the sheeting on a plane parallel to and midway between the front and rear face of the sheeting wall.

552-4.05 Excavation Protection System. The quantity of protection system to measure for payment will be the number of square feet, to the nearest square foot, obtained by multiplying the vertical length between the payment lines herein described, by the horizontal length of EPS shown in the contract documents. The upper payment line will be the ground surface existing at the site prior to the beginning of the work. The lower payment line will be the bottom of the excavation shown on the plans immediately adjacent to the protection system. The horizontal length will be the length of protection system installed measured along the payment lines as shown in the contract documents. Both sides of the excavation will be measured and computed for payment.

552-4.06 Soldier Pile and Lagging Wall.

A. Holes in Earth. The quantity to be measured for payment will be in feet of holes in earth installed. The upper payment limit is the intersected grade or ground line whichever is lower. For holes requiring rock sockets, the lower payment limit is the top of rock. For holes without rock sockets, the lower payment limit is the pile tip elevation.

B. Rock Sockets. The quantity to be measured for payment will be in feet of sockets in rock installed. The upper payment limit is the top of rock as shown on the plans. The lower payment limit is the pile tip elevation.

C. Soldier Piles. The quantity to be measured for payment will be in feet of soldier piles installed. The upper payment limit is the pile top elevation. The lower payment limit is the pile tip elevation.

D. Lagging. The quantity of lagging to measure for payment will be the number of square feet, to the nearest square foot, between the payment lines shown in the contract documents.

552-5 BASIS OF PAYMENT

552-5.01 General. When the support system is used in stage construction, the unit price bid for the support system shall be the maximum number of square feet satisfactorily installed on either, but not both sides, of adjacent construction stages.

552-5.02 Permanent Sheeting. The unit price bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including driving equipment, waling, and bracing. The cost of maintaining the excavated area free from earth, water, ice,
and snow will be included in the price bid for the appropriate excavation item.

552-5.03 Temporary Sheeting. The unit price bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including driving equipment, waling, and bracing. The cost of maintaining the excavated area free from earth, water, ice, and snow will be included in the price bid for the appropriate excavation item. Progress payments in the amount of 75% of the bid amount will be made upon installation of the sheeting with the remainder paid upon its satisfactory removal. If the Contractor leaves all or part of the sheeting in place, it will be at no additional cost to the State and the remaining 25% of the bid amount will be paid after its function is no longer required.

552-5.04 Interim Sheeting. The unit price bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including driving equipment, waling, and bracing. The cost of maintaining the excavated area free from earth, water, ice, and snow will be included in the price bid for the appropriate excavation item. Progress payments in the amount of 75% of the bid amount will be made upon installation of the sheeting with the remainder paid upon satisfactory removal of that portion specified in the contract documents. If the support system is to be left in place in its entirety, the remainder will be paid after its function is no longer required. The cost of any work necessary to cut off and remove the specified portion shall be included in the unit price bid.

552-5.05 Excavation Protection System. The unit price bid for this work shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including driving equipment, waling, bracing, and design services when employed.

If the Engineer directs, in writing, that the EPS be left in place, this will be classified as extra work.

552-5.06 Soldier Pile and Lagging Wall.

A. Holes in Earth. The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including progressing the hole through obstructions.

B. Rock Sockets. The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.

C. Soldier Piles. The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including pile driving equipment, pile shoes, backfilling the hole and cutting off the soldier pile where required. No additional payment will be made for complete pile removal, where allowed. Splices approved, in writing, by the Deputy Chief Engineer for Technical Services will be paid for under the appropriate pay item.

D. Lagging. The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including waling, bracing, connections and lagging removal, where required. No additional payment will be made when a wall is excavated on both sides. No additional payment will be made if wood lagging is placed behind concrete.
**EXTERNALLY STABILIZED CUT STRUCTURES**

*Payment will be made under:*

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>552.10</td>
<td>Permanent Timber Sheeting</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.11</td>
<td>Permanent Steel Sheeting</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.12</td>
<td>Temporary Timber Sheeting</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.13</td>
<td>Temporary Steel Sheeting</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.14</td>
<td>Interim Timber Sheeting</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.15</td>
<td>Interim Steel Sheeting</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.16</td>
<td>Excavation Protection System</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.20nn</td>
<td>Holes in Earth for Soldier Pile and Lagging Wall</td>
<td>Foot</td>
</tr>
<tr>
<td>552.21nn</td>
<td>Rock Sockets for Soldier Pile and Lagging Wall</td>
<td>Foot</td>
</tr>
<tr>
<td>552.22nn</td>
<td>Soldier Piles for Soldier Pile and Lagging Wall</td>
<td>Foot</td>
</tr>
<tr>
<td>552.2301nn</td>
<td>Treated Wood Lagging for Soldier Pile and Lagging Wall</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.2302nn</td>
<td>Untreated Wood Lagging for Soldier Pile and Lagging Wall</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.2303nn</td>
<td>Precast Concrete Panel Lagging for Soldier Pile and Lagging Wall</td>
<td>Square Foot</td>
</tr>
<tr>
<td>552.2304nn</td>
<td>Steel Sheeting Lagging for Soldier Pile and Lagging Wall</td>
<td>Square Foot</td>
</tr>
</tbody>
</table>

Note: nn denotes serialized pay item. Each wall and its associated components will be serialized.
STAINLESS STEEL REINFORCEMENT

Make the following changes to Standard Specifications Construction and Materials of May 1, 2008.

Page 352, Replace 556-1 DESCRIPTION with the following:

556-1 DESCRIPTION. The work will consist of furnishing and placing reinforcing steel for concrete structures, or stud shear connectors, in accordance with the contract documents, and in a manner satisfactory to the Engineer. Reinforcing steel for concrete structures may be uncoated, epoxy-coated, galvanized, or stainless steel, as indicated in the contract documents.

Page 352, Remove from 556-2 Materials:
Stainless-Steel-Clad Bar Reinforcement 709-12

Page 352, Replace the second paragraph of 556-2.01 with:
When forms are to be removed in their entirety, uncoated steel chairs equipped with snug-fitting, high-density, polyethylene tips which provide 1/4” clearance between the metal and any exposed surface may be used, except that uncoated steel chairs shall not be used in contact with stainless steel.

Page 352, Replace the title of 556-3.01 B with the following:
B. Handling and Storage

Page 353, Add the following under Section 556-3.01 B:
3. Stainless Steel Bar Reinforcement. Stainless Steel Bar Reinforcement shall be stored separately and shall be handled using tools that are not used on carbon steel.


Page 355, Add the following to the end of the second paragraph of 556-3.03.C:
Mechanical connectors for stainless steel shall be stainless. Welding stainless steel will not be permitted unless the proposed welding technique is submitted to and approved by the DCES.

Page 355, Add the following to the end of the second paragraph of 556-3.03.D:
Stainless steel reinforcement shall not be in direct contact with uncoated steel reinforcement, nor with galvanized reinforcement. This does not apply to stainless steel wires and ties.

Page 356, Payment Section, Remove:
556.0204 Stainless-Steel-Clad Bar Reinforcement for Structures Pound

Page 849, §709-10 – Mechanical Connectors for Reinforcing Bar Splices, General, Replace the third paragraph with the following:
“Mechanical connectors for Stainless Steel Reinforcement shall be fabricated from any alloy of stainless steel that is on the Approved List for 709-13. Connectors must be made from the same alloy of stainless steel as the bars they are connecting.”

Page 849, §709-10 Replace the “Basis of Acceptance” paragraph with the following:

BASIS OF ACCEPTANCE. Mechanical connectors for Reinforcing Bar Splices will be accepted on the basis of the manufacturer’s name and location appearing on the Department’s Approved List and a material certification that states the product conforms to this specification or, at the discretion of the Department, based on sampling and testing in accordance with the procedural directives of the Materials Bureau. Buy America requirements apply.

Page 850 - 851, Replace §709-12 and §709-13 with the following:
STAINLESS STEEL REINFORCEMENT

709-12 VACANT

709-13 STAINLESS STEEL BAR REINFORCEMENT

SCOPE. This specification covers the material requirements for stainless steel reinforcing bars used in portland cement concrete.

MATERIAL REQUIREMENTS

Material Properties. The stainless steel shall meet the requirements of ASTM A955 and its designated grade, either 60 or 75. Alloys of stainless steel which meet all the testing and process requirements of ASTM A955 but are not listed in ASTM A955 Table 2 are acceptable if they meet the chemical requirements of ASTM A276, are either austenitic or austenitic-ferritic, and have a UNS designation beginning with either ‘S2’ or ‘S3’.

A) Deformed Bar Reinforcement - Steel reinforcement shall be deformed billet stainless steel bars or deformed billet stainless steel coils meeting the requirements of ASTM A955 and its designated grade, either 60 or 75.

B) Plain Rounds - Reinforcement when specified for dowels, structural ties, and supports shall be plain billet stainless steel bars or coils meeting the requirements of ASTM A955 and its designated grade, either 60 or 75.

C) Spirals – Spirals shall be plain or deformed stainless steel bars in coils or cut lengths meeting the requirements ASTM A955 and its designated grade, either 60 or 75.

BASIS OF ACCEPTANCE. Stainless steel bar reinforcement will be accepted on the basis of the manufacturer’s name and location and the fabricator’s name and location (where required) appearing on the Department’s Approved List and a material certification that states the product conforms to this specification or, at the discretion of the Department, based on sampling and testing in accordance with the procedural directives of the Materials Bureau. Buy America requirements apply.
Make the following changes to the Standard Specifications of May 1, 2008:

**Page 299.** Section 502 – PORTLAND CEMENT CONCRETE PAVEMENT, 502-2 MATERIALS AND EQUIPMENT, **Delete:** “Form Insulating Materials for Winter Concreting 711-07”, and **Replace** it with “Form Insulating Materials for Cold Weather Concreting 711-07”.

**Page 338.** Section 555 – STRUCTURAL CONCRETE, 555-2 MATERIALS, Section 555-2.01 General, **Delete:** “Form Insulating Materials for Winter Concreting 711-07”, and **Replace** it with “Form Insulating Materials for Cold Weather Concreting 711-07”.

**Page 347.** Delete Section 555 – STRUCTURAL CONCRETE, 555-3.08 Curing – C. Provisions for Curing in Cold Weather, and **Replace** it with the following:

**“C. Provisions for Curing in Cold Weather.”** If the ambient air temperature falls, or is expected to fall below 45°F, the requirements of Table 555-2 shall apply.

<table>
<thead>
<tr>
<th>Ambient Temperature (AT) at time of concrete placement and as anticipated during curing duration</th>
<th>Curing requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>32°F &lt; AT &lt; 45°F for less than 24 consecutive hours</td>
<td>Contractor proposed/Engineer approved method for maintaining temperatures used</td>
</tr>
<tr>
<td>32°F &lt; AT &lt; 45°F for more than 24 consecutive hours</td>
<td>Heated enclosure required</td>
</tr>
<tr>
<td>AT &lt; 32°F</td>
<td>Heated enclosure required</td>
</tr>
</tbody>
</table>

Prior to use, all proposed methods must meet the approval of the Engineer. If the curing temperature falls below 32°F at any time during the curing period, the concrete will be rejected.

To provide assurance of the curing temperatures, the Contractor shall supply thermometers meeting the requirements of §555.3.08A. Temperature measurements will be taken by the Engineer and a record will be maintained for the curing period. As a minimum, thermometers shall be placed adjacent to forms at the bottom, middle, and top of a placement. Additional thermometers may be placed in areas where extreme cold or heat, from external sources, can be expected.

If the existing method employed by the Contractor to maintain the curing temperature fails, the Contractor shall modify the existing method immediately to reestablish an acceptable curing temperature.

The length of the curing period will be extended until the required number of curing days are accumulated.

1. **General.** When approval is granted in writing by the Engineer for cold-weather concreting, the curing temperature shall be maintained between 45°F and 85°F for the curing durations stated by provision of external heat or utilization of heat of hydration retained by insulated forms. Only when temperatures are maintained between 45°F and 85°F will the time be considered acceptable curing hours.

2. **Provision of External Heat.** If the Contractor is required, or elects, to maintain curing temperatures by this method, the Contractor shall furnish sufficient canvas and framework, or other type of housing, to enclose and protect the structure. The enclosure and heat source(s) shall be established in such a way that the air surrounding the fresh concrete, on all sides, be kept at a temperature between 45°F and 85°F for the specified curing period. At the end of the curing period, the heat shall be gradually reduced at a rate not to exceed 1 degree F per hour until the temperature within the enclosure equals the temperature outside the enclosure. Materials and equipment necessary to erect the enclosure and provide external heat shall be present on the job site and approved by the Engineer before any concrete is placed.

External heat shall be provided by means of stoves, salamanders, heated hoses, steam equipment, warmed curing water, or other equipment supplied by, operated by the Contractor. Heating appliances shall not be placed in such a manner as to endanger formwork, centering, or expose any area of concrete...
to drying out or damage due to excessive temperatures. Sufficient equipment shall be supplied to continuously maintain the specified temperature with a reasonable degree of uniformity in all parts of the enclosure. The enclosures shall be properly vented to prevent surface disintegration of fresh concrete due to an accumulation of carbon dioxide gas. All exposed concrete surfaces within the heated area shall be protected from drying by one of the following methods:

- Use of live steam.
- Continuous wet burlap or wet burlap used with curing covers.
- Curing compounds used with curing covers.

**TABLE 555-3 INSULATION REQUIREMENTS FOR CONCRETE WALLS, PIERS AND ABUTMENTS ABOVE GROUND**

<table>
<thead>
<tr>
<th>Wall Thickness (Inches)</th>
<th>Minimum ambient air temperatures (°F) allowable for concrete placed at 50°F (Thermal Resistance Values (R): hr·ft²·F/Btu)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R = 2</td>
</tr>
<tr>
<td>Portland Cement Content: 400 lb/cy</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>47</td>
</tr>
<tr>
<td>12</td>
<td>43</td>
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<td>18</td>
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<td>24</td>
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<td>36</td>
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<td>48</td>
<td>10</td>
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<tr>
<td>60</td>
<td>10</td>
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<tr>
<td>Portland Cement Content: 500 lb/cy</td>
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<td>10</td>
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<tr>
<td>60</td>
<td>10</td>
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<td>Portland Cement Content: 600 lb/cy</td>
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<td>Portland Cement Content: 700 lb/cy</td>
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<td>36</td>
<td>5</td>
</tr>
<tr>
<td>48</td>
<td>-4</td>
</tr>
<tr>
<td>60</td>
<td>-4</td>
</tr>
<tr>
<td>Portland Cement Content: 800 lb/cy</td>
<td></td>
</tr>
</tbody>
</table>

L01/12/12
3. Heat Retention by Insulated Forms. Insulated forms may be used to maintain acceptable curing temperatures in accordance with the provisions of Table 555-2, when ambient temperatures will not drop below 32°F. If the Contractor elects to maintain curing temperatures by this method, sufficient insulation shall be furnished to protect and maintain the temperature between the insulation and formwork within the range of 45°F to 85°F for the specified curing period.

Discontinuance of protection shall be accomplished in such a manner that the drop in temperature of any portion of the concrete shall be gradual. The surface temperature of concrete sections more than 2 feet in thickness shall not drop faster than 18°F in a 24-hour period. The surface temperature of concrete sections less than 2 feet in thickness shall not drop faster than 36°F in a 24-hour period.

Forms may be removed without restriction, providing the temperature difference between the air and the surface of the concrete is not more than 30°F. If possible, forms shall be removed about the middle of the day to take advantage of the generally higher afternoon temperatures.

Form insulating material shall be installed on the forms in such a manner so as to achieve the full benefit of its insulating properties and at the same time provide against the infiltration of wind and water. All portions of steel forms shall be covered by insulating material so that no steel is exposed to the air. Any tears or damaged areas in the insulating material shall be repaired. Special attention shall be given to ensure that all corners and angles are properly insulated and protected against wind damage.

Where tie rods extend through the form insulating material, a plywood washer (¾ x 6 x 6 inches approx.) shall be placed over the tie rod and secured against the insulating material.

After placement of the concrete, the exposed concrete surfaces shall be covered with insulating blankets, except for areas where protruding reinforcing bars make the use of blankets impracticable. These areas may be covered with hay or other acceptable insulating material. Tarpaulins shall be used to protect the insulating material.

Insulating material shall be insulating blankets, solid foam, or sprayed foam meeting the requirements of §711-07, Form Insulating Materials for Cold Weather Concreting. The appropriate R value of material shall be used to insulate the concrete according to Table 555-3.

Multiple layers of insulation may be used to attain the desired level of insulation (R value), to maintain the required curing temperatures. Extra care shall be taken in insulating edges and corners where additional layers or overlaps are required.
## TABLE 555-4 MINIMUM TIME FOR FORM REMOVAL/FORMING/LOADING LIMITATIONS –SUBSTRUCTURES (1)

<table>
<thead>
<tr>
<th>SUBSTRUCTURE ELEMENT</th>
<th>STRIPPING (2)</th>
<th>FORMING NEXT PLACEMENT</th>
<th>LOADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Footings</td>
<td>2 days</td>
<td>2 days</td>
<td>4 days before next placement</td>
</tr>
<tr>
<td>Abutment stems, backwalls</td>
<td>2 days if less than 10 feet (avg.). Add 1 day for each additional 5 feet to 5 days, maximum.</td>
<td>2 days</td>
<td>5 days before placing backwall on stem. 7 days before backfilling, 14 days before placing superstructure loads. (3)</td>
</tr>
<tr>
<td>Pier Columns, Pier Plinths</td>
<td>2 days if less than 10 feet high (avg.). Add 1 day for each additional 5 feet.</td>
<td>4 days – columns, 2 days if forming pedestal</td>
<td>Columns – 7 days before placing cap beam. Plinth – 2 days before pedestal placement. 21 days before placing superstructure loads. (3)</td>
</tr>
<tr>
<td>Pier cap beams</td>
<td>8 days (bottom) 3 days (sides)</td>
<td>2 days</td>
<td>5 days before pedestal placement. 21 days before placing superstructure loads. (3)</td>
</tr>
<tr>
<td>All pedestals</td>
<td>2 days</td>
<td>___</td>
<td>7 days (class A) 3 days (class F) (4)</td>
</tr>
<tr>
<td>Wingwalls or Retaining walls</td>
<td>Same as abutment stems.</td>
<td>___</td>
<td>14 days before backfilling (3)</td>
</tr>
<tr>
<td>Arch centers</td>
<td>8 days</td>
<td>___</td>
<td>14 day (3)</td>
</tr>
<tr>
<td>Centering under beams</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

1. The minimum times for loading in this table are NOT applicable when using concrete that contains fly ash or ground, granulated blast furnace slag that is placed and/or cured when ambient temperatures are 60°F or less. The provisions in Note 3 are required for casting, curing, and testing of compressive strength cylinders for concrete that contains fly ash or ground, granulated blast furnace slag that is placed and/or cured when the ambient temperature is 60°F or less. The compressive strength results will be the basis of determining when loading can occur.

2. All concrete shall be cured for a minimum of seven curing days. A “Day” is a curing day as defined in Subsection 555-3.08A. Concrete surfaces being cured using forms, covers, or blankets from which the covers are removed for any purpose prior to the full cure period shall be sprayed with an approved clear (fugitive dye) curing compound within ten minutes of cover removal.

3. When early loading is requested, the minimum time requirements for loading may be reduced (or extended) based on test cylinder compressive strength results. The DCES will establish requirements for early loading upon request. The Contractor shall notify the Engineer, in writing, at least 10 days prior to placement, that early loading is being requested, so that arrangements for test cylinders can be made. Test cylinders shall be prepared in accordance with Materials Method 9.2 – Field Inspection of Portland Cement Concrete. Two test cylinders shall be prepared for each anticipated testing period. These cylinders shall be cured in the same manner as the substructure element which they represent. After the first compression test, the Engineer shall determine subsequent testing periods based on the results of the first test. No more than three tests for each substructure element shall be allowed.

4. Minimum time for loading pedestals shall not compromise minimum loading times specified for other placements. 

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**D262276**

**PROVISIONS FOR STRUCTURAL CONCRETE CURING IN COLD WEATHER**

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01714b=2008.502-2,555-2,-3.08C,711-07       Page 4 of 5                     EI 11-006

L01/12/12
Make the following changes to the Standard Specifications of May 1, 2008.

Page 872, **Delete** Section 711-07 FORM INSULATING MATERIALS FOR WINTER CONCRETING, in its entirety and **Replace** it with the following:

**“711-07 FORM INSULATING MATERIALS FOR COLD WEATHER CONCRETING”**

**SCOPE.** This specification covers the material requirements for form insulating materials used for cold weather concreting operations.

**GENERAL.** Insulating materials shall be:
- Impervious to moisture penetration and absorption
- Uniform in thickness
- Durable
- Easy to apply
- Capable of maintaining consistent concrete temperature
- Be in good condition with no ragged or open edges, cracks or holes

**MATERIAL REQUIREMENTS.**

**Insulation Blankets:** Shall be clearly labeled with the manufacturer’s name and the material’s thermal resistivity (R value).

**Foam Boards:** Boards must be made of Expanded Polystyrene and shall be clearly labeled with the manufacturer’s name and the material’s thermal resistivity (R value).

**Sprayed Foam:** This product must meet the requirements of ASTM C1029.

**BASIS OF ACCEPTANCE.** The Contractor shall provide a material certification from the manufacturer that the insulating material meets the requirements of this specification and that the product R value is the same as labeled on the product.”
BRIDGE PEDESTAL REPAIR AND REPLACEMENT CONCRETE

Make the following changes to the Standard Specifications dated May 1, 2008:

Add the following text after the first sentence of Section 555-2.02 Concrete for Structures:

“Mixtures using a CA2 gradation shall be used when the minimum placement dimension is 5 inches or greater, except for pedestal repairs, where Class D or DP concrete may be used when placement dimensions are greater than 1½ inches but do not exceed 12 inches.”

Add the following sentence after the first sentence of the second paragraph of Section 555-3.04B. Conveyance:

“Concrete pumps with smaller hose diameters may be used for small placements, where mixtures using a CA1 gradation (smaller aggregates) are allowed, and where access is limited.”

Delete the content of Section 582-3.01 A. Horizontal or Essentially Horizontal Locations in its entirety and replace it with the following:

“Class A, Class D or Class DP concrete shall be used. Class A concrete shall be placed only at locations where removal depths average greater than 5 inches. Class D concrete shall be placed only at locations where removal depths average between 1 ½  and 5 inches. Class D or DP may be used for pedestal repairs when access is limited and where placement dimensions are greater than 1½ inches but do not exceed 12 inches. Average depth shall be determined by a measurement procedure acceptable to the Engineer”

Delete the content of Section 582-3.01 C. Overhead in its entirety and replace it with the following:

“Class A, Class D or approved patching material shall be used when formwork is provided. Concrete classes shall be restricted to the depth limitations noted for horizontal locations. Approved patching material may be used without formwork provided lift thicknesses do not exceed 1 inch. Anchoring devices shall be used when patching material is used for repair depths of 1½ inches or greater.”
Make the following changes to the Standard Specifications of May 1, 2008

Page 359

Under §557-3.05 Handling and Placing Concrete, delete line 5 and replace it with the following: For placements proposed between October 1st and April 1st the Preplacement Meeting should additionally review cold weather concreting operations including, but not limited to, the following:

Line 8; under §557-3.05 Handling and Placing Concrete, delete the 3rd bullet that begins “Engineers permission…”

Line 11; under §557-3.05 Handling and Placing Concrete, delete “September 15” and replace it with “October 1”.

Page 364

Delete §557-3.12. Provisions For Concreting In Cold Weather and replace it with the following:

557-3.12 Provisions for Concreting in Cold Weather. Cold-weather concreting provisions shall apply when the ambient air temperature below 45°F for 24 consecutive hours, or drops below 32°F at any time, during the curing or drying periods of the concrete.

When cold-weather concreting of superstructure slabs is progressed, curing shall be maintained in accordance with §555-3.08C Provisions for Curing in Cold Weather, except as modified here:

A. Superstructure Slabs.

The curing duration shall be 14 days (336 hours). Conditions may occur which prevent an entire 24 hour day from qualifying as a curing day, but do not prevent portions of that day from reaching temperatures that qualify as curing temperatures. If these conditions occur the Contractor may aggregate curing hours. An aggregation of 24 curing hours will be credited as one curing day based on the Engineer’s acceptance of monitored temperature data. Any aggregations of less than 24 curing hours will not be credited as a curing day. A curing hour is defined as any hour during which the curing temperature remains at, or above 45°F. Curing temperature is defined as the temperature of the air measured at the surface of the curing concrete.

Curing temperatures shall be maintained in accordance with the requirements of Table 555-2, Cold Weather Curing Requirements. If ambient air temperatures are expected to fall below 45°F, materials and equipment necessary to maintain required curing temperatures shall be present on the site or readily available. The contractor shall provide protection in a timely manner to maintain acceptable curing.

External heat and enclosures to maintain curing temperatures may be required, as determined by the contractors proposed curing methods documented at the Preplacement Meeting. Enclosures are defined as those materials, combinations of materials, or systems that provide for uniform temperature and curing management of the concrete. If enclosures are required, they shall be constructed in such a way that all surfaces of the fresh concrete shall be maintained between 45°F and 80°F for the curing period. On structures where bottom formwork is not required, the existing superstructure materials may be considered for their insulating values provided all curing temperature requirements are maintained. If the Contractor expects to, or will, perform work when ambient temperatures are below 45°F, the enclosure shall be constructed in such a manner that work can be performed inside the enclosure without exposing any concrete to a temperature below 45°F. All concrete surfaces within heated areas shall be protected from drying by the use of live steam or use of continuously wetted burlap. All concrete surfaces within heated areas shall be protected from surface disintegration of fresh concrete due to an accumulation of carbon dioxide gas by properly venting the enclosure or use of non-combustion type heating systems.

Continuously recording thermometers shall be placed on both the top and underside of the deck to monitor areas where extreme cold or heat can be expected. Multiple thermometers may be required as directed by the Engineer. On structures where bottom formwork is not required and the existing superstructure materials are
PROVISIONS FOR CONCRETING IN COLD WEATHER

considered for their insulating value, temperatures shall be monitored at the interface between the existing superstructure materials and new concrete using continuously recording thermocouples and thermometers. A maximum temperature differential of 30° F between any two locations within any form of enclosure, heated or otherwise, shall be maintained at all times.

When the ambient temperature is 45°F or greater, an enclosure may be removed for access to progress additional work providing there is a temperature difference of 30 Fahrenheit degrees or less between the air and the surface of the concrete. If the temperature difference between the air and the surface of the concrete is greater than 30 Fahrenheit degrees, temperatures shall be gradually reduced at a rate not to exceed 1°F /hr until the temperature difference is equal to or less than 30 Fahrenheit degrees. If an enclosure is removed, all heating in other areas shall cease until such time that the enclosure is replaced. Upon completion of the incidental work and replacement of the enclosure, the Contractor shall reestablish acceptable curing temperature differentials, with a maximum temperature differential not more than 30 Fahrenheit degrees between any two locations within the enclosure.

After seven (7) curing days, the Contractor may perform work on the structure to complete sidewalks, safety walks, curbs, and barriers. Work shall progress only when ambient temperatures are 45°F or greater or within an enclosure as described above. Incidental work shall not cause damage to the structure.

For all incidental work, the requirements of §557-3.14, Loading Limitations for Superstructure Slabs, shall apply.

B. Structural Approach Slabs, Curbs, Sidewalks and Safety Walks on Bridges.
The provisions of 557-3.12 A Superstructure Slabs shall apply except the curing duration shall be 7 days (168 hours). After three (3) curing days, the Contractor may perform work on approach slabs to complete sidewalks, safety walks, curbs, and barriers. Work shall progress only when ambient temperatures are 45°F or greater or within an enclosure as described above. Incidental work shall not cause damage to the structure.

For structural approach slabs, the requirements of §557-3.15 Loading Limitations for Structural Approach Slabs, Sidewalks, and Safety Walks on Bridges, shall apply.

C. Saw Cut Grooving.
When concrete is placed, cured, or dried under cold weather provisions, and a surface treatment option requiring saw cut grooving is used, saw cut grooving may be commenced after 7 curing days and shall be completed prior to commencing the drying period. Work shall progress only when ambient temperatures are 45°F or greater or within an enclosure as described in §557-3.12 A. Care shall be taken to prevent damage to the structure and no chipping or spalling of concrete shall occur at the sawcut edges.

D. Winter Surface Treatment - Superstructure Slabs and Structural Approach Slabs.
Upon completion of the curing period, the Contractor shall progress one of the following two options:

1. Option 1. The top surface and fascias of the superstructure slab shall be air dried for 10 days before being sealed with a penetrating sealer or exposed to freezing temperatures. Saw cut grooving shall be completed, as described above, prior to application of penetrating sealer. External heat and enclosures to maintain drying temperatures may be required. Drying shall be achieved by the following:

   a. Providing free air flow and maintaining temperatures between 45°F and 80°F to the top surface and fascias (vertical faces) of the superstructure slab. Fascia forms shall be removed to allow for free air flow.
   b. Drying of the underside of the structure, and of the fascias when a concrete barrier is to be placed on the superstructure slab, will not be required. However, ambient temperatures shall be maintained between 45°F and 80°F in these areas for the duration of the drying period.
   c. The drying period shall be continuous except that aggregate drying hours may be allowed when a contractor ceases free air flow for any reason but protects the drying concrete from exposure to any additional water. Exposure to any additional water, beyond minor leakage thru an enclosure in limited
areas, will require the drying period to re-commence for 10 days. Any 3 hour period of time, or fraction thereof, when the concrete is exposed to minor leakage shall not be counted as part of the drying period. Minor leakage shall be defined as water that dries or evaporates in 3 hours or less. Limited areas are defined as areas less than 100 ft². The total area of allowable minor leakage shall not exceed 5% of the concrete area under drying conditions. The same area of concrete shall not be exposed to minor leakage more than twice. Areas that exceed 100 ft² or are exposed to additional water that does not dry or evaporate in less than 3 hours, may be dried independently to accommodate removal of the original enclosure. Any independent enclosures shall be maintained under the same temperature and air flow requirements as the original enclosure for 10 days.

d.  Means of accelerating the drying process will be considered by the Director, Materials Bureau, to achieve an internal moisture content of 85% relative humidity or less, measured at a depth of 1 inch from any concrete surface.

Once the drying period is complete, temperatures shall be gradually reduced at a rate not to exceed 1°F/hr until the temperature within the enclosure equals the temperature outside the enclosure. Application of a penetrating sealer, in accordance with other items shall be completed before opening the superstructure slab to traffic.

2. Option 2. The top surface and fascias of the superstructure slab shall be air dried for 24 hours before being sealed with an interim application of penetrating sealer or being exposed to freezing temperatures. No saw cut grooving will be performed. External heat and enclosures to maintain drying temperatures may be required. Work shall be progressed by doing the following:

a. Providing free air flow and maintaining temperatures between 45°F and 80°F to the top surface and fascias of the superstructure slab. Fascia forms shall be removed to allow for free air flow.

b. Drying of the underside of the structure, and of the fascias when a concrete barrier is to be placed on the superstructure slab, will not be required. However, ambient temperatures shall be maintained between 45°F and 80°F in these areas for the duration of the 24 hour drying period. Application of interim penetrating sealer shall be completed before opening the superstructure slab to traffic.

c. After April 1st the contractor shall clean the deck of debris and provide necessary site access. The Department will inspect the superstructure slab for freeze / thaw or scaling damage. Damage shall be defined as:

(1) Delaminations
(2) Surface defects as follows:
   • Total combined area greater than 50 ft² with a scaling rating of 3 or greater as defined by ASTM C-672.
   • Total combined area greater than 10 ft² where the surface distress is greater than 3/16 inch deep.
(3) Pop-outs – surface imperfections greater than 3/4 inch in diameter

d. If the above described damage exists, the Contractor shall repair any damaged or defective concrete greater than 3/16 inch deep by saw cutting the perimeter of the area to a depth of 3/4 inch, chipping any unsuitable material to 1-1/2 inch or sound concrete (whichever is deeper) with light, hand held, pneumatic tools, at a 45 degree angle into the repair area. Clean all repair area surfaces thoroughly by blast cleaning. Repair small areas 3 ft² or less using approved concrete repair material that provides a permeability less than 1200 coulombs, Item 701-04, preparing the surface according to the material manufacturer’s recommendations. Repair larger areas using Class DP concrete, preparing the surface according to §584-3.02 and 584-3.03. Cure Class DP concrete for 7 days.

e. After all necessary repairs are completed, the Contractor shall perform diamond grinding to the
entire superstructure slab and approach slabs, to within 1 foot of any curb or barrier. Diamond grinding shall be performed as follows:

1. The depth of the grinding shall be approximately 3/16 inch to obtain a smooth texture.
2. In all travel lanes, use equipment having gang-mounted diamond saw blades on a multi-blade arbor specifically designed for PCC pavement or superstructure production grinding. Using equipment capable of producing a 3 ft wide (minimum) grinding pass that is equipped with a vacuum system capable of removing slurry from the bridge deck surface, such as the Target 3800, Boart-Longyear (Kushion Kut) PC5000 or PC600, or equal as approved by the Director, Materials Bureau. Smaller diamond grinding equip shall be used as necessary to complete grinding adjacent to curbs or barriers. The Contractor shall submit requests to use other equipment at least 7 days prior to the start of grinding operations.
3. Begin and end diamond grinding lines normal to the bridge deck centerline. Grind the bridge deck longitudinally such that at least 95% of the bridge deck surface is ground and the bridge deck is in the same plane across a joint or crack when measured with a 3 ft (minimum) straightedge. When steel joints are specified, joints shall be placed to allow for the required grinding of 3/16 inch. Feathering of the grinding operation at steel joints shall be kept to a minimum. Provide surface drainage by maintaining the proper cross-slope on the finished surface and by blending adjacent passes. Regrind the bridge deck if an acceptable surface is not being obtained.
4. Continuously remove slurry from the bridge deck using the vacuum system on the grinding equipment. If required, provide equipment capable of transporting the slurry from the job site to an acceptable waste area or facility, without spilling.
5. Traffic may be allowed on ground areas after slurry removal is complete or on decks where only partial diamond grinding is complete.
6. After diamond grinding is complete, concrete shall be saw cut grooved according to contract documents and specifications for saw cut grooving, followed by penetrating sealer application placed in accordance with contract documents and specifications for penetrating sealers.

E. Winter Surface Treatment – Curbs, Sidewalks and Safety Walks on Bridges.

Upon completion of the curing period, concrete shall be air dried for 24 hours by providing free air flow and maintaining temperatures between 45°F and 80°F to all concrete surfaces. The drying period shall be continuous. Upon completion of drying, curbs, sidewalks and safety walks shall be sealed with a penetrating sealer in accordance with contract documents.

Page 366  Under §557-3.15, Loading Limitations for Structural Approach Slabs, Sidewalks, and Safety Walks on Bridges, add the following before the first sentence:

During the curing period, approach slabs may be subjected to a vehicle load not to exceed 10 tons, or a wheel load not to exceed 3 tons.

Page 367  Delete §557-4, METHOD OF MEASUREMENT, and replace it with the following:

557-4  METHOD OF MEASUREMENT.  The work will be measured for payment in square yards of superstructure slab, approach slab, or sidewalk and safety walks installed, measured to the nearest 0.1 square yards.

Winter surface treatment of superstructure and approach slabs will be measured for payment in square yards of superstructure and approach slab, measured to the nearest 0.1 square yard.

Page 367  Delete §557-5, BASIS OF PAYMENT and Replace it with the following:

557-5  BASIS OF PAYMENT.  The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work. Unless otherwise provided, the unit price bid shall include the cost of
furnishing and placing bar reinforcement, wire fabric for concrete reinforcement, copper flashing, flexible water stops, mechanical connectors where specified, sheet packing, water for wetting, joint sealing compounds, joint fillers, concrete curing materials, including any materials for temperature management during the curing period and the cost of screed rail supports and other brackets or braces necessary to support finishing machines.

If permanent metal forms are used, the cost of furnishing all facilities required for access, removing the permanent forms for inspection or repair purposes, painting the cut edges of the forms and repairing the concrete as required herein shall be included in the price bid for this work.

No extra compensation for corrective finishing or repairs to damaged or defective concrete will be paid.

Progress payments will be made on a per-span basis as follows:
Forty (40) percent of the area will be paid for after all reinforcing is properly placed. Forty (40) percent of the area will be paid for after the concrete has been properly placed and proper curing applications have been instituted. The remainder will be paid for after completion of all curing, and necessary corrective work.

The unit price bid for Surface Treatment of Superstructure and Approach Slabs shall include all labor, materials and equipment necessary to satisfactorily complete the work including work zone traffic control for work associated with deck cleaning, evaluation, and diamond grinding. The cost for interim penetrating sealer applied under §557-3.12C.2., prior to the concrete being exposed to freezing conditions, shall be included in this item. The cost for saw cut grooving and final application of penetrating sealer will be paid for under separate items and paid for only once.

Winter Surface treatment – Superstructure Slabs and Structural Approach Slabs shall only be paid when environmental conditions related to temperature and moisture protection during the drying period require use of enclosures.

Page 367 Add the following contract pay item to the list:

| 557.29  | Winter Surface Treatment – Superstructure Slabs and Structural Approach Slabs | Square Yard |
Make the following changes to the Standard Specifications of May 1, 2008:

**Page 402**, Section 568-1 Description, **delete** the second and third paragraphs, and **replace** with the following:

“As soon as the Contract is awarded, the Contractor shall notify the DCES of the name and address of the Fabricator of all bridge railing in accordance with §106-01 Sources of Supply. This notification shall list the specific shop or shops in which the railing will be fabricated.”

**Page 402**, Section 568-2 Materials, **delete** the second paragraph, beginning with, “When Steel Bridge Railing - Rustic . . .”

**Page 405**, Section 568-5.01 Material Requirements, **replace** the list of items with the following:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>568.50</td>
<td>Steel Bridge Railing (Two-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.51</td>
<td>Steel Bridge Railing (Four-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.52</td>
<td>Steel Bridge Railing (Five-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.53</td>
<td>Steel Bridge Railing (Two-Rail) with Handrail</td>
<td>Foot</td>
</tr>
<tr>
<td>568.54</td>
<td>Steel Bridge Railing (Three-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.60</td>
<td>Steel Bridge Railing - Brown (Two-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.61</td>
<td>Steel Bridge Railing - Brown (Four-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.62</td>
<td>Steel Bridge Railing - Brown (Five-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.63</td>
<td>Steel Bridge Railing - Brown (Two-Rail) with Handrail</td>
<td>Foot</td>
</tr>
<tr>
<td>568.64</td>
<td>Steel Bridge Railing - Brown (Three-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.70</td>
<td>Transition Bridge Railing</td>
<td>Foot</td>
</tr>
<tr>
<td>568.71</td>
<td>Transition Bridge Railing – Brown</td>
<td>Foot</td>
</tr>
<tr>
<td>568.80</td>
<td>Pedestrian and Bicycle Railing (One-Rail)</td>
<td>Foot</td>
</tr>
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<td>568.81</td>
<td>Pedestrian and Bicycle Railing (Two-Rail)</td>
<td>Foot</td>
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<td>568.82</td>
<td>Pedestrian and Bicycle Railing (Three-Rail)</td>
<td>Foot</td>
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<td>568.83</td>
<td>Pedestrian and Bicycle Railing (Four-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.84</td>
<td>Pedestrian and Bicycle Railing (Five-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.85</td>
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<tr>
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<tr>
<td>538.87</td>
<td>Pedestrian and Bicycle Railing - Brown (Three-Rail)</td>
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<tr>
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<td>Pedestrian and Bicycle Railing - Brown (Four-Rail)</td>
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<td>Bicycle Railing (Two-Rail)</td>
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<td>Bicycle Railing - Brown (Two-Rail)</td>
<td>Foot</td>
</tr>
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<td>568.92</td>
<td>Bicycle Railing (Four-Rail)</td>
<td>Foot</td>
</tr>
<tr>
<td>568.93</td>
<td>Bicycle Railing - Brown (Four-Rail)</td>
<td>Foot</td>
</tr>
</tbody>
</table>

**Pages 861, §710-23 Material Requirements**, **replace** the list of materials with the following:

Rail Tubes | A500 Grade B
Rail End Caps | A36 (A709 Grade 36)
Base Plates 1 | A572 Grade 50 (A709 grade 50)
Anchor Studs | A325 or A449 Grade 1
Splice Bolts | A325 or A449 Grade 1
Round Head Bolts | A325 or A449 Grade 1
Nuts 2 | A563
Washers²  F436
Lock Washers  High Carbon Heat Treated Spring Steel: ASME B18.2
Anchor Plates  A36 (A709 Grade 36)
Plate Shims  A36 (A709 Grade 36)
Tube Rail Splices  A500 Grade B
Solid Rail Splices  A572 Grade 50 (A709 grade 50)
Angle¹  A572 Grade 50 (A709 grade 50)
Splice Plates  A572 Grade 50 (A709 grade 50)
Railing Post¹  A572 Grade 50 (A709 grade 50)
Tubular Posts  A500 Grade B

1 All post material, including base plates, shall be furnished to minimum Charpy V-notch toughness requirements as required by §715-01, under Charpy V-Notch Impact test.
2 Use the following nut and washers for the given bolt class:

<table>
<thead>
<tr>
<th>Bolt or Stud Class</th>
<th>NUT A563 (class &amp; Dimension style of nut)</th>
<th>Washer A563 Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.6</td>
<td>5 H1</td>
<td>1or 3</td>
</tr>
<tr>
<td>8.8</td>
<td>10S HH</td>
<td>1or 3</td>
</tr>
</tbody>
</table>

Page 821, §710-23 E. Galvanizing, fourth paragraph, *replace* “When paint is used to obtain a rustic appearance”, with the following:

*F. Brown Rail.* When brown rail is specified”
DISPOSAL OF PAINT REMOVAL WASTE

Make the following changes to the Standard Specifications dated May 1, 2008:

Page 422, Delete Section 571 Treatment and Disposal of Paint Removal Waste in its entirety and Replace it with the following:

SECTION 571 - DISPOSAL OF PAINT REMOVAL WASTE

571-1 DESCRIPTION. The work shall consist of managing, accumulating, packaging, labeling, loading, transporting, treating, and disposing paint removal waste.

571-1.01 Paint Removal Waste. Paint removal waste consists of removed paint particles combined with material used to remove the paint and any organic or inorganic materials from bridge surfaces, by either bridge washing or blast cleaning operations, without use of any added chemical solvents. All testing of the paint removal waste necessary to satisfy the requirements of the waste transporter or disposal facility shall be the responsibility of the contractor.

Paint removal waste does not include used tyvek suits, respirator filters, tarpaulins or incidental trash. These incidental wastes generated by the Contractor in completing the work are covered by §107-10 Managing Surplus Material and Waste.

A. Hazardous Paint Removal Waste Containing Lead. This shall apply to spent abrasives, coatings and paint chips removed from steel substrates on bridges designated in the contract documents as being lead-based. This does not include waste containing a mixture of lead and asbestos. Waste containing a mixture of lead and asbestos shall be disposed of in accordance with Section 210 Removal and Disposal of Asbestos-Containing Material (Buildings, Bridges and Highways).

B. Non-Hazardous Industrial Solid Paint Removal Waste. This shall apply to spent abrasives and coatings removed from steel substrates on bridges designated in the contract plans as being non-lead-based.

571-2 MATERIALS. The Contractor shall use containers or roll-offs acceptable to the Waste Disposal Facility. The capacity of each container shall be clearly marked on each container in an easily visible location.

571-3 CONSTRUCTION DETAILS.

571-3.01 General. The Engineer will provide the Contractor with the Generator site identification number(s) issued by the USEPA. All paint removal waste shall be deposited and sealed in containers or roll-offs concurrent with generation. The paint removal waste shall be accumulated in clean, dry, weatherproof, watertight containers or roll-offs furnished by the Contractor and shall not be left exposed to the elements at the end of the working shift. All equipment and containers or roll-offs shall meet the requirements of USDOT for transport.

Paint removal waste shall be accumulated, handled, packaged, documented, loaded, transported, treated and disposed in accordance with all applicable Federal and State laws, rules, and regulations.
DISPOSAL OF PAINT REMOVAL WASTE

571-3.02 Paint Removal Waste Composition.

A. Hazardous Paint Removal Waste Containing Lead. Paint chips are known to contain lead and the combined paint removal waste stream is therefore categorized as hazardous waste. The Department has presumed that the waste will test as hazardous. The Contractor shall ensure that only solid paint removal waste is deposited into the containers or roll-offs. The determination has been made that such waste contains less than 2% by weight of organic material. Disposal facilities may refuse to accept paint removal waste that is different than the Typical Paint Waste Composition. Paint removal waste containing additional contaminants added by the Contractor or by the Contractor’s operations shall be the responsibility of the Contractor. All testing of the paint removal waste necessary to satisfy the requirements of the chosen Disposal Facility or Transporter shall be the responsibility of the Contractor.

Provided is typical lead-based paint waste information which provides typical chemical and physical properties of paint removal waste based on previous testing, as follows:

Lead-Based Paint Waste Profile: Lead-based paint waste generated by the removal of paint consists of a mixture of abrasive blast media such as boiler slag or steel grit and paint chips. This supplemental information about the waste is provided in accordance with Resource Conservations and Recovery Act (RCRA) regulations. This composition profile does not include waste resulting from removal by chemical strippers for which the resulting waste will contain components of the stripper. Based on the knowledge of the process and the resulting waste material, and on previous testing of typical waste by independent laboratories approved by the NYS Department of health, this composition waste material information has been developed for typical lead-based paint waste.

Process Generating Waste: The waste results from removal of lead-based coatings from painted structures, typically steel bridges, by abrasive blasting, manual, shrouded mechanical, or high-pressure (hp) water methods. The North American industry Classification System Code (NAICS) typically assigned for the site is 23731-Highway, Street, and Bridge Construction.

Composition: To the Department’s knowledge, the waste does not contain PCBs, pesticides, cyanides, organic TCLP constituents, dioxins, asbestos, ozone depleting substances, volatile organics or greater than 1000 ppm halogenated organic compounds. The waste is not a RCRA reactive, corrosive or ignitable, or source-listed or chemical product-listed waste. It is not radiological, etiological, explosive, water reactive, or shock sensitive. The specific composition will vary based on the removal method used, abrasive used, the proportion of paint chips to abrasives and other variables determined by the Contractor’s operation. For wastes resulting from any chemical stripping of paint, the Contractor shall consider the components and properties of the stripper and the resulting waste mixture to characterize the waste.

The waste typically contains the following:

<table>
<thead>
<tr>
<th>Removal Method</th>
<th>Approximate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiler Slag (an amorphous mixture of Fe, Al and Ca silicates)</td>
<td>90-95% Abrasive, 5-10% Paint Chips</td>
</tr>
<tr>
<td>Steel Grit (% varies by degree of grit recycling)</td>
<td>40-90% Abrasive, 10-60% Paint Chips</td>
</tr>
</tbody>
</table>
DISPOSAL OF PAINT REMOVAL WASTE

No Abrasive (manual, shrouded mechanical and water methods)  0%   100%

Paint Chips: Paint chips contain basic lead silico chromate, titanium dioxide, chromate dioxide, magnesium silicate, linseed oil, alkyd resin, fillers, driers, and other miscellaneous materials.

Other Components: Water may be present from water used during removal. Iron oxide (rust, mill scale) may be present. Animal waste (i.e., feces, guano, nesting materials, etc.) and dirt/miscellaneous debris may also be potentially present.

RCRA Metals: The waste is presumed to contain lead at levels exceeding the regulatory limit of 5 milligrams per liter (approximately 5 ppm) by the Toxicity Characteristic Leaching Procedure (TCLP) test for lead (unless contract documents provided for testing to determine lead toxicity characteristic). Chromium is considered present as an underlying characteristic.

Typical Physical Characteristics:
Physical State – Solid
Color – Black for boiler slag component, or metallic grey/black for steel grit component.
Odor – None
pH – Not Applicable
Liquid Flash Point – Not Applicable
Specific Gravity – Approximately 2.7 (boiler slag) and Approximately 7.5 (steel grit)
Bulk Density – Approximately 1.2 kg/l (boiler slag)
Free Liquids – None (moisture may be present from water added during removal)

Consolidated Hazardous Waste Information: The following consolidated information for hazardous lead-based paint waste can be used in completing the required items needed for its proper shipment and disposal:

• USDOT Shipping Description – RQ Hazardous Waste, Solid, n.o.s. (D008); 9; NA3077; PG III
  n.o.s. = Not Otherwise Specified, PG = Packing Group
• Hazard Label on containers – Class 9
• Placard for shipments exceeding 455 kg or bulk – Class 9
• Hazardous Waste due to the Characteristic Lead Toxicity, Waste Code D008
• Constituents of Concern – Lead and Chromium
• Treatability Group – Non-wastewater
• Treatment Standard – 0.75 mg/L Lead and 0.06 mg/L Chromium by TCLP test
• Reportable Quantity – 4.54 kg or greater
• Markings on Container –
  Hazardous waste, solid, n.o.s. (D008); NA3077
  HAZARDOUS WASTE – Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the Environmental Protection Agency.
  Generator’s Name: NYSDOT Region (  )
  EPA ID Number (  )
  Manifest Document Number (  )
DISPOSAL OF PAINT REMOVAL WASTE

Accumulation Start Date (                )
USDOT Emergency Response Guidebook Guide: 171, Substances (Low to Moderate Hazard)

B. Non-Hazardous Industrial Solid Paint Removal Waste. The Contractor shall ensure that only solid paint removal waste is deposited into the containers or roll-offs. All testing of the paint removal waste necessary to satisfy the requirements of the disposal facility or transporter shall be the responsibility of the Contractor.

571-3.03 Hazardous Paint Removal Waste Containing Lead - Management Requirements. Employees handling hazardous paint removal waste shall be trained in accordance with 6 NYCRR Part 373-3.2(g) in hazardous waste management procedures including hazardous waste accumulation, preparedness and prevention, contingency and emergency procedures. The Contractor’s Preparedness and Prevention Plan, Contingency Plan and Emergency Procedures, and Personnel Training Records, as required by 6 NYCRR Part 373-1.1(d)(1)(iii), shall be submitted to the Engineer for acceptance prior to the generation of any hazardous waste. Containers in storage shall be inspected on at least a weekly basis in accordance with 6 NYCRR Part 373-3.9(b)-(d).

571-3.04 Containers and Labeling. No roll-off shall be filled to a capacity in excess of that marked on the roll-off as the maximum capacity. Once the Engineer determines the quantity within a specific container or roll-off, that container or roll-off shall be properly sealed and not thereafter be tampered with. No additional waste shall be placed in it, nor shall any be removed from it (except for analytical sampling). All containers or roll-offs shall be located in a place secured from traffic and in a manner acceptable to the Engineer. The Contractor shall take measures to prevent the blowing or dispersion of the waste during each loading operation and while being transported.

The Contractor shall label, mark, and placard all containers or roll-offs prior to shipment in accordance with USDOT and NYSDEC regulations. Each container shall have an appropriate label prior to filling with the applicable words identifying its contents as paint removal waste and providing the presumed waste classification of hazardous or non-hazardous industrial waste. The accumulation start date shall be completed at the time when waste is first deposited into each container. All label markings shall be permanent, printed in English, and displayed on a background of contrasting color un-obscured by other labels or attachments. Labeling shall be located away from other markings that could substantially reduce its effectiveness.

571-3.05 Document Preparation.

A. Hazardous Paint Removal Waste Containing Lead. The Contractor shall prepare and distribute all documentation including the Uniform Hazardous Waste Manifest. The Engineer will sign the Generator's Certification on the Uniform Hazardous Waste Manifest. The LDR (Land Disposal Restricted) certification shall be completed and attached to the manifest, as required by 40 CFR Part 268 Land Disposal Restrictions.

B. Non-Hazardous Industrial Solid Paint Removal Waste. The Contractor shall prepare and distribute all documentation, including the disposal record forms.
DISPOSAL OF PAINT REMOVAL WASTE

571-3.06 Paint Removal Waste Transport. All paint removal waste shall be in transit to the
disposal site from the site of generation no later than 45 calendar days unless otherwise approved by the
Engineer, but no longer than 90 days. Any additional required shipment information, including manifest
number, shall be entered on the container label(s) prior to shipment offsite. The Contractor shall present
evidence that the vehicle that will be used for the shipment is permitted to transport the designated waste
in accordance with 6NYCRR Part 364.

Conditions for hazardous paint removal waste transporting vehicles to pick up paint waste debris, in
bulk, from one or more bridge sites (multiple collection) for delivery to an authorized Treatment, Storage
and Disposal Facility (TSDF) include the following:

A. Hazardous Paint Removal Waste Containing Lead.
   • The materials picked up at each site shall be essentially identical in physical and chemical
     characteristics. No materials, other than paint waste debris, may be included if wastes from
     several individual generating sites are to be combined on the same truck.
   • All of the component shipments are presumed to be D008 hazardous wastes, and disposed as
     such.
   • A manifest is prepared for each generating bridge site. Each manifest shall reflect a bulk
     shipment, and all manifests being carried by the same transporting vehicle must express the
     quantity in pounds. In sum total, the manifests accompanying the shipment shall account for the
     entire quantity transported.
   • All component shipments are intended to be conveyed to the same TSDF, and the TSDF has
     agreed to accept consolidated bulk loads.
   • All component shipments shall have originated at sites where the Department is the waste
     generator. No loads may be included that were generated at a site for which another agency is the
     waste generator.
   • Measures shall be taken to prevent the blowing or dispersion of the paint removal waste during
     each loading operation and while being transported.
   • The weight of waste from each individual site (BIN) shall be provided by the disposal facility.

transporting vehicles to pick up paint waste debris, in bulk, from one or more bridge sites (multiple
collection) for delivery to an authorized disposal facility include the following:
   • The materials picked up at each site shall be essentially identical in physical and chemical
     characteristics. No materials, other than paint waste debris, may be included if wastes from
     several individual generating sites are to be combined on the same vehicle.
   • All component shipments are intended to be conveyed to the same disposal facility, and the
     disposal facility has agreed to accept consolidated bulk loads.
   • All component shipments shall have originated at sites where the Department is the waste
     Generator. No loads may be included that were generated at a site for which another agency is the
     waste Generator.
   • Measures shall be taken to prevent the blowing or dispersion of the waste during each loading
     operation and while being transported.
   • The weight of waste from each individual site (BIN) shall be provided by the disposal facility.
DISPOSAL OF PAINT REMOVAL WASTE

571-3.07 Conditionally Exempt Small Quantity Generator (CESQG) Exemption. Shipments of non-hazardous paint removal wastes of less than 500 pounds shipped in a single load may be transported without a waste transporter permit as allowed by the Small Quantity Waste Transporter Exemption at 6 NYCRR Part 364.1(e). For activities with generation of hazardous paint removal wastes that meet Conditionally Exempt Small Quantity Generator (CESQG) status (generate less than 220 pounds in any month and store less than 2205 pounds on site at any time), no USEPA ID number is required, the waste can be shipped without a manifest, and a CESQG can self-transport up to 220 pounds of waste in any calendar month to a disposal facility. CESQGs can dispose of their waste at a permitted hazardous waste facility or municipal or industrial solid waste facilities that are permitted to accept that type of waste.

571-3.08 Hazardous Paint Removal Waste Containing Lead Stabilization. Treatment of hazardous paint removal waste, as required by Federal regulations, is presumed to require stabilization of the waste such as mixing it with portland cement and water at a permitted Hazardous Waste Treatment or Disposal Facility. The stabilized waste shall meet the treatment standards of the Federal regulations prior to disposal in a permitted Hazardous Waste Disposal Facility.

571-3.09 Non-Hazardous Industrial Solid Paint Waste Sampling and Analysis. The Contractor shall conduct all sampling and analysis as required by the designated authorized disposal facility as soon as feasible upon waste generation at each non-hazardous designated bridge. Sampling shall be conducted by individuals thoroughly trained in sampling protocols, handling and chain of custody procedures, and laboratory requirements. Accepted sampling practices shall be used to obtain representative composite sample(s) as required for the specific analysis to be completed. Each composite sample shall include a minimum of four distinctly different sampling points. Analyses shall be completed at a NYSDOH Environmental Laboratory Accreditation Program (ELAP) certified laboratory using NYSDEC Analytical Services Protocols (ASPs). The analysis must include, at a minimum, the RCRA heavy metals analysis using the Toxicity Characteristic Leaching Procedure (TCLP) and a total weight analysis. If analytical results indicate that the waste is hazardous, the waste shall be disposed of as such and the hazardous waste pay item shall be used.

571-3.10 Waste Disposal Facility.

A. Hazardous Paint Waste Containing Lead. Prior to generating any hazardous paint removal waste, the Contractor shall provide the Engineer with a letter from a permitted Hazardous Waste Disposal Facility, stating that the Facility has agreed to accept the hazardous waste generated by the work requirements of this contract; is authorized to accept the hazardous waste under the laws of the State of residence; has the required capacity to treat and dispose of the material; and will provide, or assure the ultimate disposal method indicated on the Uniform Hazardous Waste Manifest. The letter shall be signed by a representative of the Disposal Facility who is legally authorized to sign such an agreement.

B. Non-Hazardous Industrial Solid Paint Waste. Prior to generating any non-hazardous paint removal waste, the Contractor shall provide the Engineer, in writing, the name and location of the permitted solid waste management facility selected for disposal.
DISPOSAL OF PAINT REMOVAL WASTE

571-4 METHOD OF MEASUREMENT.

571-4.01 Hazardous Paint Waste Containing Lead. The quantity of paint removal waste to be measured for payment will be in net pounds of waste disposed of, based on disposal facility weight tickets of the waste as manifested, not including the weight of the containers.

571-4.02 Non-Hazardous Industrial Solid Paint Waste. The quantity of paint removal waste to be measured for payment will be in net pounds of waste disposed of, based on disposal facility weight tickets, not including the weight of the containers.

571-5 BASIS OF PAYMENT.

571-5.01 Hazardous Paint Waste Containing Lead. The unit price bid per pound of paint removal waste shall include the cost of all labor, materials, equipment, sampling, testing, and fees necessary to complete the work based on the assumption that treatment by stabilization will satisfy the applicable Federal regulations. Only waste for which manifest copies (not applicable for CESQG exemption) and weight ticket(s) are returned to the Engineer by the Contractor and Disposal Facility will be authorized for payment. If the Department is fined or penalized as a result of the Contractor's performance or lack thereof, in addition to other remedies the Department may possess, said fine or penalty will be deducted from monies due the Contractor.

571-5.02 Non-Hazardous Industrial Solid Paint Waste. The unit price bid per pounds of paint removal waste shall include the cost of all labor, materials, equipment, sampling, testing, and fees necessary to complete the work. Only waste for which weight ticket(s) are returned to the Engineer by the Contractor and Disposal Facility will be authorized for payment. If the Department is fined or penalized as a result of the Contractor's performance or lack thereof, in addition to other remedies the Department may possess, said fine or penalty will be deducted from monies due the Contractor.

Payment will be made under:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>571.03</td>
<td>Disposal of Hazardous Paint Removal Waste Containing Lead</td>
<td>Pound</td>
</tr>
<tr>
<td>571.04</td>
<td>Disposal of Non-Hazardous Industrial Solid Paint Removal Waste</td>
<td>Pound</td>
</tr>
</tbody>
</table>
STRUCTURAL STEEL, GALVANIZED AND ALUMINUM SURFACES PAINTING

Make the following changes to the Standard Specifications Construction and Materials of May 1, 2008:

Page 426, Replace the last two sentences of §572-2.01 Paints with the following:

All new paint applied to a single structure shall be the same paint system produced by the same manufacturer. The Contractor shall assure this to be the case in the event that multiple paint items are specified on a single structure. This includes both shop and field components of the structure.

Page 426, Replace the first sentence of §572-2.01 A. Shelf Life with the following two sentences:

The shelf life of all components of the coating system shall be a maximum of 12 months from the date of manufacture. The shelf life of factory sealed containers of thinner shall be the manufacturer’s recommendation or 3 years from the date of manufacture, whichever is less, and a maximum of 7 months after the factory seal has been broken.

Page 426, Replace §572-2.01 D. Data Sheets in its entirety with the following:

D. Data Sheets. The Contractor shall supply the Department’s representative with the paint manufacturer’s material safety data sheets for each paint to be applied. The material safety data sheets shall be delivered to the Department’s representative a minimum of five work days prior to beginning of work. The Department’s representative and Contractor shall use the product data sheets posted on the Structural Steel Paints Class 1 Approved List.

Page 428, Add the following to the end of the first paragraph of §572-3.03 PAINTING:

Painted steel shall not be placed outside the shop until all paint coats have dried “through / to-handle” or “minimum time to recoat” per paint manufacturer’s recommendations, whichever is greater.

Page 428, Replace §572-3.03 A. Atmospheric Conditions in its entirety with the following:

A. Atmospheric Conditions. Paint shall be applied only if surface and ambient temperatures are greater than or equal to 40°F and rising. Paint shall not be applied when surface or ambient temperatures are greater than 100°F. If the temperature range listed on the manufacturer’s data sheets is more restrictive, the manufacturer’s range shall be used. The use of accelerator additives is prohibited. No paint shall be applied unless the receiving surface is dry.

Paint shall not be applied when the relative humidity is more than 85% or the receiving surface is less than 5°F above the dew point temperature. If the manufacturer’s data sheets have a more restrictive range then they shall be followed.

Page 428, Replace the second and third sentences of the first paragraph of §572-3.03 C. Solvents and Thinners with the following:

The primer shall not be thinned such that the resulting VOC level exceeds the maximum allowable limit set by 6 NYCRR Part 205, §205.3 for metallic pigmented coatings. Intermediate and finish coats shall not be thinned where the resulting VOC level exceeds the maximum allowable §205.3 limit for industrial maintenance coatings.
STRUCTURAL STEEL, GALVANIZED AND ALUMINUM SURFACES PAINTING

Page 428, **Replace** the first sentence of the second paragraph of §572-3.03 D. *Paint Application* with the following:

All steel surfaces that will be in contact with concrete shall not be painted.

Page 429, **Replace** the last sentence of the first paragraph of §572-3.03 F. *Paint Film Thickness* with the following two sentences:

Dry film thickness gauges shall be calibrated over a blasted, approved surface on the structure using two NIST traceable shims as described in the “two point calibration adjustment” section of Appendix 2 of SSPC-PA 2. The two shims must be just below and above the recommended thickness range of the prime coat, or the combined thickness of successive coats, as applicable.

Page 429, **Add** the following sentence at the end of the second paragraph of §572-3.03 F. *Paint Film Thickness*:

At least one of the spot measurements shall be performed on the bottom face of the bottom flange of stringers, girders or floor beams if these elements are in the work area.

Page 429, **Replace** §572-3.03 F. *Paint Film Thickness, Slip-Critical Connections* in its entirety with the following:

**Slip-Critical Connections.** The policy for coating slip-critical contact surfaces is specified in the New York State Steel Construction Manual. All metal to metal, slip-critical contact surfaces shall not be painted unless specified in the Contract Documents and allowed by the New York State Steel Construction Manual.

Page 429, **Replace** the third paragraph of §572-3.03 G. *Painting Schedule* with the following:

If the steel has become dirty between coats, the Contractor shall wash the structure at no additional cost to the State.

Page 430, **Replace** §572-4 METHOD OF MEASUREMENT and §572-5 BASIS OF PAYMENT in their entirety with the following:

### 572-4 METHOD OF MEASUREMENT

**572-4.01 Shop Applied – Square Feet.** The measurement of this item will include the area requiring surface preparation and painting to the nearest whole square foot.

**574-4.02 Shop Applied – Lump Sum.** The work under this item will be measured on a lump sum basis, per structure.

**572-5 BASIS OF PAYMENT.** The unit or lump sum price bid shall include the cost of all labor, materials, and equipment necessary to complete the work.
STRUCTURAL STEEL, GALVANIZED AND ALUMINUM SURFACES PAINTING

Progress payments will be made for 80% of total payment quantity upon delivery of shop painted steel to the job site. Shop painted steel will be considered properly painted only when accompanied by the Engineer’s or Inspector’s written certification. The remaining 20% of payment will be made upon completion of cleaning and field painting all bolt heads, nuts, washers, bolt thread extensions, and damaged areas.

Payment will be made under:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>572.01nnnn</td>
<td>Structural Steel Painting: Shop Applied</td>
<td>Square Foot</td>
</tr>
<tr>
<td>572.02nnnn</td>
<td>Structural Steel Painting: Shop Applied</td>
<td>Lump Sum</td>
</tr>
</tbody>
</table>

Page 431, Replace the last two sentences of §573-2.01 Paints with the following:

All new paint to be applied to a single structure shall be the same paint system produced by the same manufacturer. The Contractor shall assure this to be the case in the event that multiple paint items are specified on a single structure. This includes both shop and field painted components of the structure.

Page 431, Replace the first sentence of §573-2.01 A. Shelf Life with the following two sentences:

The shelf life of all components of the coating system shall be a maximum of 12 months from the date of manufacture. The shelf life of factory sealed containers of thinners shall be per manufacturer’s recommendations or 3 years from the date of manufacture, whichever is less, and a maximum of 7 months after the factory seal has been broken.

Page 431, Replace §573-2.01 D. Technical Data in its entirety with the following:

D. Data Sheets. The Contractor shall supply the Department’s representative with the paint manufacturer’s material safety data sheets for each paint component to be applied. The material safety data sheets shall be delivered to the Department’s representative a minimum of five work days prior to beginning of work. The Department’s representative and Contractor shall use the product data sheets posted on the Structural Steel Paints Class 1 Approved List.

Page 434, Replace the first paragraph of §573-3.03 A. Atmospheric Conditions with the following:

A. Atmospheric Conditions. Paint shall be applied only if surface and ambient temperatures are greater than or equal to 40°F and rising. Paint shall not be applied when surface or ambient temperatures are greater than 100°F. If the temperature range listed on the manufacturer’s data sheets is more restrictive, the manufacturer’s range shall be used. The use of accelerator additives is prohibited. No paint shall be applied unless the receiving surface is absolutely dry.

Page 435, Replace the first sentence of the second paragraph of §573-3.03 A. Atmospheric Conditions with the following:

Paint shall not be applied when the relative humidity is more than 85% or the surface temperature is less than 5°F above the dew point. If manufacturer’s requirements are more restrictive then they shall be followed.
Page 435, Replace the second and third sentences of the first paragraph of §573-3.03 C. Solvents and Thinners with the following:

The primer shall not be thinned such that the resulting VOC level exceeds the maximum allowable limit set by 6 NYCRR Part 205, §205.3 for metallic pigmented coatings. Intermediate and finish paints shall not be thinned such that the resulting VOC level exceeds the maximum allowable §205.3 limit for industrial maintenance coatings.

Page 436, Replace the last sentence the first paragraph of §573-3.03 F. Paint Film Thickness with the following two sentences:

Dry film thickness gauges shall be calibrated over a blasted, approved surface on the structure using two NIST traceable shims as described in the “two point calibration adjustment” section of Appendix 2 of SSPC-PA 2. The two shims must be just below and above the recommended thickness range of the prime coat, or the combined thickness of successive coats, as applicable.

Page 436, Add the following sentence at the end of the second paragraph of §573-3.03 F. Paint Film Thickness:

At least one of the spot measurements shall be performed on the bottom face of the bottom flange of stringers, girders or floor beams if these elements are in the work area.

Page 436, Replace the first sentence of the second paragraph of §573-3.03 G. Painting Schedule with the following:

Each area as defined by §573-3.02, B. 7 shall receive an intermediate coat of paint within 72 hours after priming.

Page 437, Replace first two paragraphs of §574-2.01 Paints with the following:

574-2.01 Paints. Paints shall meet the requirements of §708-02 Structural Steel Paints Class 2 and shall appear on the Department’s Approved List, Structural Steel Paints – Class 2 for localized and overcoat painting, or on the Structural Steel Paints – Class 1 Approved List for localized painting only.

All new paint to be applied to a single structure shall be the same paint system produced by the same manufacturer. The Contractor shall assure this to be the case in the event that multiple paint items are specified on a single structure. This includes both shop and field painted components of the structure.

Page 437, Replace the first sentence of §574-2.01 A. Shelf Life with the following two sentences:

The shelf life of all components of the coating system shall be a maximum of 12 months from the date of manufacture. The shelf life of factory sealed containers of thinners shall be per manufacturer’s recommendations or 3 years from the date of manufacture, whichever is less, and a maximum of 7 months after the factory seal has been broken.

Page 437, Replace §574-2.01 D. Technical Data in its entirety with the following:
STRUCTURAL STEEL, GALVANIZED AND ALUMINUM SURFACES PAINTING

D. Data Sheets. The Contractor shall supply the Department’s representative with the paint manufacturer’s material safety data sheets for each paint to be applied. The material safety data sheets shall be delivered to the Department’s representative a minimum of five work days prior to beginning of work. The Department’s representative and Contractor shall use the product data sheets posted on the Structural Steel Paints Class 1 or Class 2 Approved List, as applicable.

Page 437, Replace item number 4. of §574-2.04 Paint Inspection Equipment with the following:


Page 438, Replace the entire first paragraph of §574-3 CONSTRUCTION DETAILS with the following:

574-3 CONSTRUCTION DETAILS. Overcoating is defined as treating corroded areas by spot cleaning and applying two coats of primer, followed by applying intermediate and topcoats of paint to all prepared steel surfaces, both cleaned and primed previously corroded areas and cleaned existing intact painted surfaces. Localized cleaning and painting is defined by spot cleaning and applying four coats of paint, including two coats of primer, intermediate and topcoat, to spot-cleaned steel only.

Page 439, Add the following sentence to the end of the second paragraph of §574-3.02 B 2. Steel Cleanliness and Profile:

The anchor profile shall be measured in accordance with ASTM D4417, Method C.

Page 440, Replace the first sentence of the second paragraph of §574-3.04 A. Atmospheric Conditions with the following:

A. Atmospheric Conditions. Paint shall be applied only if surface and ambient temperatures are greater than or equal to 40°F and rising. Paint shall not be applied when surface or ambient temperatures are greater than 100°F. If the temperature range listed on the manufacturer’s data sheets is more restrictive, the manufacturer’s range shall be used. The use of accelerator additives is prohibited. No paint shall be applied unless the receiving surface is absolutely dry.

Page 440, Replace the first sentence of the second paragraph of §574-3.04 A. Atmospheric Conditions with the following:

Paint shall not be applied when the relative humidity is more than 85% or the surface temperature is less than 5°F above the dew point. If the manufacturer’s requirements are more restrictive they shall be
followed.

Page 441, Replace the second and third sentences of the first paragraph of §574-3.04 C. Solvents and Thinners with the following:

The primer, if classified as metallic pigmented, shall not be thinned such that the resulting VOC level exceeds the maximum allowable limit set by 6 NYCRR Part 205, §205.3 for metallic pigmented coatings. All other coats of paint shall not be thinned such that the resulting VOC level exceeds the maximum allowable §205.3 limit for industrial maintenance coatings.

Page 441, Replace the last sentence of the first paragraph of §574-3.04 E. Paint Film Thickness with the following two sentences:

Dry film thickness gauges shall be calibrated over a cleaned, approved surface on the structure using two NIST traceable shims as described in the “two point calibration adjustment” section of Appendix 2 of SSPC-PA 2. The two shims must be just below and above the recommended thickness range of the prime coat, or the combined thickness of successive coats, as applicable.

Page 441, Add the following sentence at the end of the second paragraph of §574-3.04 E. Paint Film Thickness:

At least one of the spot measurements shall be performed on the bottom face of the bottom flange of stringers, girders or floor beams if these elements are in the work area.

Page 441, Replace the first two sentences of §574-3.04 F. Painting Schedule with the following:

F. Painting Schedule. Primer shall be applied as per §574-3.02, B.5 of this specification. The second coat of primer shall be applied within 72 hours of the application of the initial prime coat.

The intermediate coat shall be applied within 72 hours of prime coating of the areas as defined by §574-3.02, B.5. All areas of adherent existing paint to be overcoated shall receive the intermediate coat within 72 hours of that area’s cleaning operation.

Page 441, Replace the first sentence of the third paragraph of §574-3.04 F. Painting Schedule with the following:

To prevent intercoat adhesion failure, top coat must be applied within the manufacturer’s recommended recoat window, or 14 days, whichever is shorter.

Page 442, Replace the first paragraph of §574-3.05 Painting for Localized Cleaning and Painting with the following:

574-3.05 Painting for Localized Cleaning and Painting. The paint shall appear on the Department’s Structural Steel Paints – Class 1 Approved List, or Structural Steel Paints – Class 2 Approved List and be approved for localized application.

Page 442, Replace the second paragraph of §574-3.05 Painting for Localized Cleaning and Painting with the following:
The Contractor shall apply each coat of paint in the order listed on the Department’s Approved List.

Page 691, Replace §657-2.02 Paint for Use On Aluminum Surfaces with the following:

657-2.02 Paint for Use On Aluminum Surfaces. The portions of aluminum or aluminum alloys that will be in contact with cast or projected concrete shall be painted with at least two coats of a polyamide epoxy recommended by the manufacturer for use over aluminum surfaces to reduce alkali attack. The surface shall be brush-off blast cleaned to SSPC-SP 7 and painted with two or more coats to achieve a total 20 mils DFT coating. Other than that, all other preparation and application procedures recommended by the paint manufacturer shall be followed.

Surfaces not in contact with concrete shall be painted as described in the contract documents with:

708-07 Paint for Aluminum Surfaces

Page 692, Add the following bullet item at the end of §657-2.05 Paint Inspection Equipment:

• Profile micrometer with coarse replica tape.

Page 692, Change the pressure value in the first sentence of the first paragraph of §657-3.01 A. Weathered Galvanized Surfaces from 1800 PSI to 1450 PSI.

Page 692, Change the maximum time between blasting and priming in the first and second sentences of the last paragraph of §657-3.01 B. Newly Galvanized Surfaces from 12 hours to 1 hour.

Page 692, Replace the first sentence of §657-3.01 C. Aluminum Surfaces with the following:

Aluminum surfaces shall be prepared using methods and technologies as described in the section on preparation of aluminum in the latest version of SSPC-SP COM, Surface Preparation Commentary for Steel and Concrete Substrates.

Page 693, Replace §657-3.02 A. Atmospheric Conditions with the following:

A. Atmospheric Conditions. Paint shall be applied only if surface and ambient temperatures are greater than or equal to 40°F and rising. Paint shall not be applied when surface or ambient temperatures are greater than 100°F. If the temperature range listed on the manufacturer’s data sheets is more restrictive, the manufacturer’s range shall be used. The use of accelerator additives is prohibited. No paint shall be applied unless the receiving surface is absolutely dry.

Paint shall not be applied when the relative humidity is more than 85% or the surface temperature is less than 5°F above the dew point. If the manufacturer’s requirements are more restrictive then they shall be followed. No paint shall be applied during rain.

Page 693, Replace the second sentence of the first paragraph of §657-3.02 C. Solvents and Thinners with the following:

Under no circumstances should the paint be thinned where the resulting VOC level exceeds the maximum allowable limit set by 6 NYCRR Part 205, §205.3 for industrial maintenance coatings.
STRUCTURAL STEEL, GALVANIZED AND ALUMINUM SURFACES PAINTING

Page 693, Add the following subsection after §657-3.02 E. Paint Film Thickness:

657-3.03 Repair of Damaged Areas. All visible dirt, grease, and other foreign matter shall be removed first by pressure washing and solvent cleaning as per SSPC-SP 1 as needed. Areas exhibiting damaged or deteriorated paint not extending to the metal substrate shall be hand or power tool cleaned as necessary to remove damaged or deteriorated, loosely adhered paint. Loosely adhered paint will lift when scraped with a dull putty knife. All edges of paint surrounding the repair area shall be tightly adherent and feathered. These edges and the surrounding painted surfaces to receive a repair topcoat(s) shall be abraded to provide a suitable anchor profile for the paint. Areas that exhibit damage of the paint system down to the metal substrate shall be cleaned with power tools to SSPC-SP 11, minimizing zinc galvanizing removal, and shall exhibit a suitable anchor profile for the primer paint. All power and blasting tools will be vacuum-sealed units. All surrounding structure that has been previously painted in the shop shall be protected from damage during cleaning operations. Repairs shall be smoothly transitioned into surrounding new paint.

Areas of the structure exhibiting damage not extending down to the metal substrate shall receive a finish coat of paint only. Damage extending to the metal substrate shall receive two coats of paint: primer and finish coat. These coats of paint shall be applied at a dry film thickness as recommended by the paint manufacturer for such repair application.

Page 838, Replace the single sentence second paragraph of the MATERIAL REQUIREMENTS section of §708-01 with the following:

The paint shall be a 3-coat system whose primer is an organic zinc-rich epoxy with pigment primarily consisting of zinc dust.

Page 838, Replace the first sentence of the third paragraph of the MATERIAL REQUIREMENTS section of §708-01 with the following:

The paint shall have undergone National Transportation Product Evaluation Program (NTPEP) testing and meet NEPCOAT Qualified Products List B approval criterion and the requirements of Materials Method NY 6.

Page 838, Add the following sentence to the end of the last paragraph of the MATERIAL REQUIREMENTS section of §708-01:

The manufacturer’s data sheet, and addendum if applicable, will be posted on the Department’s Approved List, Structural Steel Paints, Class 1, as the official reference for New York State.

Page 838, Replace the first two paragraphs of the MATERIAL REQUIREMENTS section of §708-02 with the following:

MATERIAL REQUIREMENTS: The system shall be able to be applied in the field over an SSPC SP-10 blasted or an SSPC SP-11 power tool cleaned surface, or a properly prepared, previously painted surface.

The paint shall have undergone National Transportation Product Evaluation Program (NTPEP) testing, and meet NEPCOAT Qualified Products List B approval criterion and the requirements of
STRUCTURAL STEEL, GALVANIZED AND ALUMINUM SURFACES PAINTING

Materials Method NY 6. The coating manufacturers shall submit NTPEP results, field histories of the coating, Material Safety Data Sheets, and Technical Data Sheets to the Materials Bureau.

Page 839, Add the following sentence to the end of the last paragraph of the MATERIAL REQUIREMENTS section of §708-02:

The manufacturer’s data sheet, and addendum if applicable, will be posted on the Department’s Approved List, Structural Steel Paints, Class 2, as the official reference for New York State.
BRIDGE (BIN) PLATE

One Bridge Identification Number (BIN) plate will be required for each bridge in this contract. For each bridge there may, or may not, be an existing BIN plate.

Therefore, one of the following conditions will exist with regard to BIN plates for any particular structure:

**Condition No. 1.** A BIN plate is attached to the structure but the nature of the work to be done does not require its removal.

**Condition No. 2.** A BIN plate is attached to the structure and the nature of the work to be done requires its removal.

**Condition No. 3.** A BIN plate is attached to the structure and is defaced, or otherwise damaged or incorrect.

**Condition No. 4.** A BIN plate is not attached to the structure.

Under **Condition No. 1**, the Contractor's sole obligation shall be to protect the plate from damage during the course of the work.

Under **Condition No. 2**, the Contractor shall be required to remove and store the BIN plate until such time as the BIN plate may be reinstalled without danger of damage. This requirement shall also apply if the BIN plate is being transferred from an existing abandoned bridge to a new in-service bridge. The Contractor shall furnish all necessary expansion anchors.

Under **Condition No. 3**, the Contractor shall be required to furnish and install a new BIN plate, and remove the damaged BIN plate. The Contractor shall furnish the panel with reflective background, numerals and expansion anchors. **IF** the BIN number cannot be deciphered the Engineer will supply the number.

Under **Condition No. 4**, the Contractor shall be required to furnish and install a BIN plate on the completed structure. The Engineer will supply the Bridge Identification Number. The Contractor shall furnish the panel with reflective background, numerals and expansion anchors.

Regardless of which condition governs the BIN plate installation, should damage occur to the BIN plate and the Engineer determines it cannot be repaired, the Contractor shall furnish a new plate consisting of the panel with reflective background, numerals, and expansion anchors at no expense to the State. **IF** the Engineer determines the BIN plate may be repaired, repair shall be done at no expense to the State. This requirement applies to all four conditions.

The material requirements for the three parts of the BIN plate are:

**Panel with reflective background.** The aluminum panel and reflective background shall conform to the material and fabrication requirements of Material Specification 730-01, Aluminum Sign Panels.
BRIDGE (BIN) PLATE

background material shall be green reflective sheeting conforming to Materials Specification 730-05.01 (Class A Sheeting). The size of the panels shall be 1/8 inch thick by 3 inch by 12 inch. The panels shall have two 5/16 inch drilled or punched holes for mounting, located 1/2 inch from the ends of the panel and 1 1/2 inch from the top or bottom of the panel. The reflective sheeting used to form the background shall be a minimum of 3 inches wide by 10 inches long, or may be a full 12 inches long.

Numbers. The numbers shall be reflective sheeting conforming to Materials Specification 730-05.01 (Class A Sheeting), except that the adhesive shall be pressure-sensitive such that the numbers can be applied to the background in the field. The numbers shall be 2 inches high and silver-white in color conforming to FHWA series C dimensions.

Prior to placing the cutout numbers on the panel, the reflective background shall be clean and free of dirt and oil which may adversely affect proper adhesion. The numbers shall be placed on the reflective background, perpendicular to the longitudinal axis of the panel, and vertically centered. The reflective background and numbers shall be coated and/or edge sealed in accordance with the recommendations of the sheeting manufacturer.

Expansion Anchors. 1/4 inch diameter by 1 1/2 inch long stainless steel nail drive expansion anchors meeting GSA Specification A-A-1922 shall be used to attach the BIN plates to concrete and masonry surfaces.

The BIN plates shall be attached to the beginning abutment of the bridge using expansions anchors. The plate shall be placed high on the abutment, near the fascia of the bridge.

The cost of this work shall be included in the various items of the contract.
Make the following changes to the Standard Specifications of May 1, 2008:

Page 469 to 472

*delete* Section 586 in its entirety and *replace* it with the following:

**SECTION 586 - MISCELLANEOUS STRUCTURAL RECONSTRUCTION**

**586-1 DESCRIPTION.** The work of this section shall consist of the following:
- Drilling and Grouting Bolts, or Reinforcing Bars.
- Removal of Rivets-Replacement with High Strength Bolts.
- Field Drill Holes in Existing Structural Steel.

**586-1.01 Drilling and Grouting Bolts, or Reinforcing Bars.** For the purposes of this section the terms bolts and reinforcing bars are identical.

**586-1.02 Field Drill Holes in Existing Structural Steel.** Existing structural steel is that structural steel in service prior to the beginning of construction.

**586-2 MATERIALS**

**586-2.01 Drilling and Grouting Bolts.** Grout material used in overhead applications, or where a sustained tensile load will exist, shall conform to §701-05 Concrete Grouting Material. Grout used in other applications shall conform to §701-07 Anchoring Materials - Chemically Curing.

**586-2.02 Removal of Rivets - Replacement with High Strength Bolts.** High strength bolts, nuts and washers shall meet the requirements of §715-14 High Strength Bolts, Nuts and Washers. If paint color is not specified, the color selected shall match the existing paint. Paint shall be selected from the Department’s Approved List for Structural Steel Paint - Class 2.

**586-3 CONSTRUCTION DETAILS**

**586-3.01 Drilling and Grouting Bolts**

**A.** All holes shall be drilled by means of a rotary impact drill. If reinforcing steel is encountered, the reinforcing steel shall be cut and removed by means of a core drill. The remainder of the drilling shall be done with the rotary impact drill.

**B.** Drilling with a lubricant will not be permitted. Water is not considered a lubricant. Drilling methods shall not cause spalling, or other damage to concrete. Concrete spalled, or otherwise damaged by the Contractor's operations shall be repaired at no additional cost to the State.

**C.** Holes shall be surface dry and shall have had all foreign and loose material removed immediately prior to grout placement.

**D.** Grout shall be stored, mixed, and placed in strict accordance with the manufacturer's instructions, unless modified here, or elsewhere, in the contract documents. No grout shall be placed at a temperature below that recommended by the grout manufacturer.

**E.** Prior to bolt placement in the grouted hole, all material which might interfere with bond between the bolt and the grout shall have been removed. This includes, but is not limited to: moisture, grease,
dirt, mill scale and rust. Rust which cannot be removed even by vigorous scrubbing with a wire brush is considered firmly bonded and may remain. The hole diameter shall be in accordance with the grout manufacturer's recommendation. The length of any plastic sleeve used as an aid to grout placement shall not be included in the length of the bolt hole. The bolts shall be inserted full depth into the hole and shall be manipulated and rotated to ensure complete coverage by the grout. After insertion of the bolt, all excess grout shall be struck off flush with the concrete face. Care shall be taken to prevent grout from running out of the drilled hole. Should the grout fail to fill the hole after bolt insertion, additional grout shall be added to the hole to allow a flush strike-off.

F. If the bolt is inserted in a hole with an axis that is predominantly horizontal, care shall be taken to prevent grout from running down the face of the concrete.

G. If approved by the Engineer, hole locations may be moved to avoid encountering reinforcing steel.

H. The Contractor may increase the embedment length beyond that required by the contract documents if approved by the Engineer, at no additional cost to the State. The bottom of the hole shall be at least 1 5/8 inches from the nearest free surface of a structural element, unless otherwise shown in the contract documents.

**586-3.02 Pull-Out Testing**

**A. Testing.** Table 1 gives the number of anchors (N1) to be tested for any lot size. The Engineer will randomly choose the anchors to be tested. Testing of anchors in a lot shall not begin until all the anchors in the lot are installed. If any (N1) anchors fail, N2 indicates the number of additional anchors that must be tested. If only one anchor fails, the lot will be accepted. If a second anchor fails, all remaining anchors must be tested.

A lot size is determined by the Contractor, but must meet the following criteria:

1. A lot size shall not exceed 600 anchors.
2. All anchors in a lot must be installed within a two-month period.
3. Any anchors installed beyond the two-month period set forth in 2 above shall be part of another lot.
4. A lot shall only include anchors grouted with a single product
5. A lot shall only include anchors of the same type, diameter and embedment depth.

<table>
<thead>
<tr>
<th>LOT SIZE</th>
<th>N1</th>
<th>N2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-30</td>
<td>All the anchors in the lot</td>
<td>-</td>
</tr>
<tr>
<td>31-50</td>
<td>30</td>
<td>All remaining anchors</td>
</tr>
<tr>
<td>51-75</td>
<td>38</td>
<td>All remaining anchors</td>
</tr>
<tr>
<td>76-100</td>
<td>44</td>
<td>21</td>
</tr>
<tr>
<td>101-200</td>
<td>49</td>
<td>26</td>
</tr>
<tr>
<td>201-300</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>301-600</td>
<td>55</td>
<td>30</td>
</tr>
</tbody>
</table>

**B. Equipment.** The equipment shall consist of a load cell, jacking system, a frame to distribute the jack load, couplers to connect the jack to the anchors, and appropriate safety devices. A calibrated pressure gauge with hydraulic ram is equivalent to a load cell. Prior to starting the testing, the
Contractor shall supply the Engineer with a certificate of calibration for the load cell performed within the previous six months by an independent testing agency. Supports for the frame used to distribute the jack load shall be located outside a circle centered at the anchor. The circle shall have a diameter equal to 2 inches plus twice the anchor embedment length, but need not exceed 24 inches. The frame and jack shall be positioned so that the load is applied along the axis of the anchor. Chains or cables shall be used to connect the various pieces of the tensioning system so that free flying projectiles will not be created by the failure of an anchor coupling or other portion of the testing system.

**C. Test Load.** The test load for anchor bolts shall be 90% of the ASTM proof load, unless otherwise specified in the contract documents. When no proof load is given in the ASTM specifications for anchor bolt steel, use the yield strength. The test load for reinforcement shall be 90% of the yield strength unless otherwise specified in the contract documents. Listed below are the test loads for the most commonly used anchor bolts and rebar steels, and anchor types.

<table>
<thead>
<tr>
<th>Diameter (inches)</th>
<th>Test Load (kips)</th>
<th>Size</th>
<th>Test Load (kips)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>11</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>5/8</td>
<td>17</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>3/4</td>
<td>26</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>7/8</td>
<td>35</td>
<td>7</td>
<td>32</td>
</tr>
<tr>
<td>1</td>
<td>46</td>
<td>8</td>
<td>43</td>
</tr>
<tr>
<td>1 1/8</td>
<td>51</td>
<td>9</td>
<td>54</td>
</tr>
<tr>
<td>1 1/4</td>
<td>65</td>
<td>10</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
<td>122</td>
</tr>
</tbody>
</table>

Anchors shall be deemed to pass if the specified test load is attained without permanently displacing the anchors. Concrete spalled or otherwise damaged by the load testing shall be repaired. Such repair shall be done at no additional cost to the State. All anchors which fail a load test, or are otherwise damaged, shall be replaced at no additional cost to the State. All such replaced anchors shall be load tested.

NOTE: THIS LOAD TESTING IS DESIGNED TO BE NON-DESTRUCTIVE. LOADING SHALL BE STOPPED AS SOON AS THE TEST LOAD IS REACHED.

**586-3.03 Removal of Rivets-Replacement with High Strength Bolts**

**A. Paint Removal.** If the steel is painted, then prior to the beginning of any other work operations, the paint shall be removed for a minimum distance of 4 inches on each side of the centerline of work location. The paint removal work shall be done in accordance with the requirements of Section 574, *Structural Steel Painting: Localized.*

**B.** Unless otherwise noted in the contract documents, all bolts shall be the same diameter as the rivets they replace.

**C.** Rivets shall be removed by one of the following methods:
1. Shear rivet head using a pneumatic rivet breaker (helldog), and drive out rivet shank with a pneumatic punch.
2. Flame cut rivet head 0.079 inches above the base metal using a rivet scarfing tip, and drive out shank using a pneumatic punch. If punching will damage the base metal, the shank shall be removed by drilling.

D. High strength bolts shall be installed after the nicks, burrs and foreign substances that might interfere with seating of the bolt head and nut washers are removed. Light grinding may be required.

E. Installation and inspection of high strength bolts shall be done in accordance with the New York State Steel Construction Manual requirements.

F. If it becomes necessary to disconnect, or adjust, steel remaining as part of the structure to complete the work the Contractor shall obtain the Engineer's approval prior to performing disconnections or adjustments.

G. If the bolt will not fit the rivet hole, the hole may be reamed sufficiently to accommodate the bolt.

H. If the contract does not include an item(s) for cleaning, priming and painting of structural steel, cleaning and painting of the bolt and immediate surrounding area shall be done as part of this work. Cleaning and painting shall be done in accordance with the requirements of Section 574, Structural Steel Painting: Localized. All steel exposed by the cleaning operations shall be painted. However, at least 2 inches in every direction, measured from the washer's edge, shall be painted.

586-3.04 Field Drill Holes in Existing Structural Steel

A. The requirements of §586-3.03A Paint Removal shall apply.

B. The required hole diameter will be indicated on the contract documents.

C. No flame cutting, or flame drilling will be permitted.

D. All damage to existing steel shall be repaired by the Contractor, at no additional cost to the State.

586-4 METHOD OF MEASUREMENT

586-4.01 Drilling and Grouting Bolts. The quantity to be measured for payment will be the number of holes into which grout and bolts have been inserted.

586-4.02 Removal of Rivets - Replacement with High Strength Bolts. The quantity to be measured for payment will be the number of high strength bolts installed.

586-4.03 Field Drill Holes in Existing Structural Steel. The quantity to be measured for payment will be each hole drilled.

586-5 BASIS OF PAYMENT

586-5.01 Drilling and Grouting Bolts

A. The unit price bid per hole shall include the cost of all labor, materials, and equipment necessary
to complete the work.

**B.** Payment will not be made for holes which do not contain both grout and bolts.

**C.** The cost of the bolts will be paid for under a separate, appropriate item.

### 586-5.02 Removal of Rivets - Replacement with High Strength Bolts

**A.** The unit price bid for each installed bolt shall include the cost of all labor, material and equipment necessary to complete the work including paint removal and when appropriate painting.

**B.** Payment will be made for each installed bolt regardless of whether or not a rivet had been removed from the location in question.

### 586-5.03 Field Drill Holes in Existing Steel

**A.** The unit price bid for each hole drilled shall include the cost of all labor, equipment and materials necessary to complete the work, including paint removal when required.

**B.** No extra compensation will be paid for holes drilled through different thicknesses, or through different numbers of plates.

**Payment will be made under:**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>586.02</td>
<td>Drilling and Grouting Bolts or Reinforcing Bars</td>
<td>Each</td>
</tr>
<tr>
<td>586.03</td>
<td>Drilling and Grouting Bolts or Reinforcing Bars with Pullout Test</td>
<td>Each</td>
</tr>
<tr>
<td>586.04</td>
<td>Drilling and Grouting Bolts, Overhead or Sustained Tension, with Pullout Test</td>
<td>Each</td>
</tr>
<tr>
<td>586.05</td>
<td>Removal of Rivets-Replacement with High Strength Bolts</td>
<td>Each</td>
</tr>
<tr>
<td>586.10</td>
<td>Field Drill Holes in Existing Structural Steel</td>
<td>Each</td>
</tr>
</tbody>
</table>
Make the following changes to the Standard Specifications of May 1, 2008 (U.S. Customary Units):

Page 503, in §606-2, Delete the line “Guide Rail and Median Barrier Systems (Rustic) 710-25”

Page 504, in §606-2.01, Delete the last sentence “Similar hardware associated with Rustic barrier systems shall meet the requirements of §710-25.”

Page 504, Replace §606-2.03 through §606-2.05 with the following:

“606-2.03 Fasteners. Bolts, nuts and washers shall conform to the following, unless specified otherwise on the plans, standard sheets, manufacturer’s drawings”, or in the contract documents.
Bolts ASTM A307 Grade A
Nuts ASTM A563 Grade A or Better
Washers ASTM F436

Bolts, nuts and washers shall be galvanized in accordance with the provisions of §719-01 Galvanized Coatings and Repair Methods, Type II.

606-2.04 I-Beam Posts for Existing Highway Barrier. I-beam posts for existing highway barrier shall conform to the requirements of §710-14 Galvanized Steel Barrier Posts. Posts shall conform to the details shown on the plans or the latest edition of the standard sheet for the guide railing or median barrier affected. Hardware (nuts, bolts, “J” bolts, offset beams or block-outs, back up plates, washers, and shelf angles) necessary shall conform to the requirements of the current specifications and standard sheets for the highway barrier affected.

606-2.05 Extra Long Guide Rail Posts. Extra long Guide Rail Posts shall conform to the requirements of §710-14 Galvanized Steel Barrier. The posts shall conform to the details for extra long posts shown on the standard sheets or plans.”

Page 505, Replace §606-2.10 and §606-2.11 with the following:

“606-2.10 Corrugated Beam Guide Rail Transition To Bridge Rail, Concrete Barrier and Concrete Parapets. Corrugated beam rail sections shall conform to the requirements of §710-20. All remaining material shall conform to the requirements of §710-23 except that:
A. Block-outs and stiffening channels shall conform to ASTM A36.
B. All components shall be galvanized in accordance with §719-01 Galvanized Coating and Repair Methods, Type I or Type II. If required by the plans, the components shall be painted to match the existing railing. Painting shall be done in accordance with Section 657 except that:
1. Painting with rollers will not be permitted.
2. Spray painting will be allowed only if the components are painted at a location, away from the work site, acceptable to the Engineer.
C. Shop drawings will not be required. Approval of the system will be made by the Engineer.

606-2.11 Vacant.”

Page 514 and 515, Delete §606-3.17 in its entirety Replace with the following: “606-3.17 Vacant.”

Page 517, in §606-5.01, Delete the third paragraph “Payment for box beam guide rail terminating and buried in a backslope with the posts embedded in rock shall have a payment factor of 2 for the last 20 feet.”

Page 863, in §710-24, A. GENERAL, Delete the second paragraph “Rustic versions of box beam bursting style Type III End Assembling shall comply with the above requirements except the metal parts exposed to view shall be painted in accordance with ”740-03 Painting Galvanized Surfaces”
Section 606 – Type 0 Guide Rail End Terminal

Page 864 through 867, *Delete 710-25 GUIDE RAIL AND MEDIAN BARRIER SYSTEMS (RUSTIC)* in its entirety and *Replace* with the following: “710-25 Vacant.”
Make the following changes to the Standard Specifications of May 1, 2008:

Page 515, in §606-5, **delete** the pay items “606.1201 Box Beam Guide Railing End Assembly Type I” and “606.1202 Box Beam Guide Railing End Assembly Type II” and **add** the following:

- 606.120101 Box Beam End Piece
- 606.120102 Box Beam Guide Railing End Assembly Type I
- 606.120103 Box Beam Guide Railing End Assembly Type I with 18 ft Extension
- 606.120201 Box Beam Guide Railing End Assembly Type IIA

Page 858, in 710-20 CORRUGATED BEAM GUIDE RAILING AND MEDIAN BARRIER, under MATERIAL AND FABRICATION REQUIREMENTS **add** the following paragraph:

"**General:** For new installations all components shall be new."

Page 859, in 710-21 BOX BEAM GUIDE RAILING AND MEDIAN BARRIER, under MATERIAL REQUIREMENTS **add** the following paragraph:

"**General:** For new installations all components shall be new."

Page 860, in 710-22 CABLE GUIDE RAILING, under MATERIAL REQUIREMENTS **add** the following paragraph:

"**General:** For new installations all components shall be new."
Make the following changes to the Standard Specifications dated May 1, 2008:

Page 507, Delete the last two sentences and Table 606-1 under §606-3.01D. Erection, and Replace them with the following:

“Box beam to be installed on a curved alignment shall be shop bent or shop curved in accordance with Table 606-1.

<table>
<thead>
<tr>
<th>Barrier Type</th>
<th>Shop Bending Required</th>
<th>Shop Mitering Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box Beam Guide Railing</td>
<td>Radius over 20 ft and less than 720 ft</td>
<td>Radius of 20 ft or less</td>
</tr>
<tr>
<td>Box Beam Median Barrier</td>
<td>Radius over 30 ft and less than 1525 ft</td>
<td>Radius of 30 ft or less</td>
</tr>
</tbody>
</table>

When shop bending or shop mitering of box beam guide railing or box beam median barrier is required, the rail element shall be shop-worked to the radius that the barrier will be installed on.

Corrugated beam guide railing and median barrier shall require shop curving if the radius is equal to or less than 150 feet. When shop curving of corrugated beam is required, the rail element shall be shop-worked to the radius that the barrier will be installed on.”

Page 515, Delete §606-4.01 and Replace it with the following:

“606-4.01 Cable, Corrugated Beam or Box Beam Guide Railing and Median Barrier. The quantity to be measured for payment will be in feet to the nearest foot of guide railing or median barrier installed, measured along the axis of the railing and between its pay limits as shown on the plans and/or standard sheets. The quantity to be measured for payment will be in feet to the nearest foot of shop bent or shop mitered guide railing or median barrier installed.

If the guide railing does not terminate at an anchorage unit, end assembly, or transition to another type of barrier, but is anchored to a structure, the railing will be measured up to the structure.”

Page 517, Delete the second paragraph of §606-5.01 and Replace it with the following:

“Payment for corrugated guide rail and median barrier, or bent box beam guide rail, will be determined using the payment factors for the various typical post spacings listed in Table 606-2. Payment will be the sum of the products obtained by multiplying the unit price bid for a rail or median barrier by the payment factors listed in Table 606-2 for the relevant post spacings and multiplying each of those products by the length of rail having that given post spacing.

Payment for mitered box beam and median barrier with 6 foot post spacings will be made at the unit prices bid. If a reduced post spacing of 3 feet is used for mitered box beam guide rail, the payment will be determined by multiplying the unit price bid by a payment factor of 1.1 for the length installed.”

Page 519, Remove the following items from the list of pay items

| 606.100001 | Box Beam Guide Railing (Shop Curved) |
| 606.100101 | Box Beam Guide Railing With Extra Long Posts (Shop Curved) |
| 606.110001 | Box Beam Median Barrier (Shop Curved) |
SECTION 606 – GUIDE RAILING
SHOP BENT AND SHOP MITERED BOX BEAM GUIDE RAIL AND MEDIAN BARRIER

Page 519, Add the following pay items:

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>606.100002</td>
<td>Box Beam Guide Railing (Shop Bent or Shop Mitered)</td>
<td>Foot</td>
</tr>
<tr>
<td>606.100003</td>
<td>Box Beam Guide Railing (Shop Mitered)</td>
<td>Foot</td>
</tr>
<tr>
<td>606.100102</td>
<td>Box Beam Guide Railing with Extra Long Posts (Shop Bent or Shop Mitered)</td>
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<td>606.100103</td>
<td>Box Beam Guide Railing with Extra Long Posts (Shop Mitered)</td>
<td>Foot</td>
</tr>
<tr>
<td>606.110002</td>
<td>Box Beam Median Barrier (Shop Bent or Shop Mitered)</td>
<td>Foot</td>
</tr>
<tr>
<td>606.110003</td>
<td>Box Beam Median Barrier (Shop Mitered)</td>
<td>Foot</td>
</tr>
</tbody>
</table>

Page 860, §710-21 BOX BEAM GUIDE RAILING AND MEDIAN BARRIER, Insert the following section immediately prior to BASIS OF ACCEPTANCE:

“FABRICATION. Curved box beam guide rail or median barrier shall be shop bent or shop mitered in accordance with the following. At the fabricator’s option, the shop mitering process may be used instead of a shop bending process. However, shop bending may not be used in place of shop mitering.

1. Shop Bent Box Beam Guide Railing. Box beam guide rail installed on a curved alignment with a radius above 20 and up to 720 feet shall be shop bent prior to galvanizing. In order to achieve a smooth arc, the bend points shall be placed no farther apart than two feet when the radius is from 20 to 50 feet, no farther apart than three feet when the radius is between 50 and 150 feet, and no farther apart than four feet when the radius is 150 feet or greater.

2. Shop Mitered Box Beam Guide Railing. Box beam guide railing installed on a curved alignment with a radius of 20 feet or less shall be miter cut and welded in the shop prior to galvanizing. For radii less than 12 feet, the average spacing of the cuts shall be approximately 18 inches. For radii from 12 feet to 20 feet, the average spacing of the cuts shall not exceed 24 inches. Cut locations shall be adjusted as needed to avoid bolt holes and post brackets. After the miter cuts are completed, backer bars shall be tack welded to one side of the cut and the miter shall be closed to within a quarter of an inch (+ 0", -1/8") and butt welding performed in accordance with AWS D1.1. Section 3.

3. Shop Bent Median Box Beam Barrier. Box beam median barrier installed on a curved alignment with a radius above 30 and up to 1525 feet shall be shop bent prior to galvanizing. For radii between 30 and 60 feet, the bending shall be performed prior to cutting the slots for the post support paddles. In order to achieve a smooth arc, the bend points shall be placed no farther apart than 18 inches.

4. Shop Mitered Box Beam Median Barrier. Box beam median barrier installed on a curved alignment with a radius of 30 feet or less shall be miter cut and welded in the shop prior to galvanizing. For radii less than 12 feet, the average spacing of the cuts shall be approximately 18 inches. For radii of 12 feet or greater, the average spacing of the cuts shall not exceed 24 inches. Cut locations shall be adjusted as needed to avoid post support slots. After the miter cuts are completed, backer bars shall be tack welded to one side of the cut and the miter shall be closed to within a quarter of an inch (+ 0", -1/8") and butt welding performed in accordance with AWS D1.1. Section 3.”
ENERGY-ABSORBING END TERMINALS FOR CORRUGATED BEAM SYSTEMS

Make the following changes to the Standard Specifications dated May 1, 2008.

Page 503, add the following materials specifications to the list in §606-2 MATERIALS:

“Corrugated Beam Guide Railing End Terminal (Energy-Absorbing) 710-17
Heavy Post Blocked-Out Corrugated Beam Guide Railing End Terminal (Energy-Absorbing) 710-18
Heavy-Post, Blocked-Out Corrugated Beam Median Barrier End Terminal (Energy-Absorbing) 710-19”

Page 507, at the start of §606-3.01 General, F. End Terminals and Assemblies, insert the following as the first sentence:

“Installation of all proprietary products shall follow the manufacturer’s instructions.”

Page 507, at the end of §606-3.01 General, F. End Terminals and Assemblies, add the following subsection:

“5. Reflective Sheeting. End terminals and assemblies which have a vertical face towards approaching traffic and are located on or closely adjacent to the shoulder shall be provided with reflective sheeting in accordance with Section 2C.65 of the MUTCD. The yellow and black stripe widths shall be 4 inches.”

Page 515, at the end of §606-4.02 Anchorage Units, End Terminals and Transitions for Guide Railing or Median Barrier, add the following three paragraphs:

“The limits of payment for the Corrugated Beam Guide Railing End Terminal (Energy-Absorbing) will extend a distance of 100 feet from the outer end of the terminal. At that point, payment will begin for corrugated beam guide railing.

The limits of payment for Heavy Post Blocked-Out Corrugated Beam Guide Railing End Terminal (Energy-Absorbing) will extend a distance of 50 feet from the outer end of the terminal. At that point, payment will begin for heavy post blocked-out corrugated beam guide railing.

The limits of payment for Heavy-Post, Blocked-Out Corrugated Beam Median Barrier End Terminal (Energy-Absorbing) will extend a distance of 50 feet from the outer end of the terminal. At that point, payment will begin for heavy post blocked-out corrugated beam median barrier.”

Page 520 insert the following payment items:

“606.26 Corrugated Beam Guide Railing End Terminal (Energy-Absorbing) Each
606.27 Heavy Post Blocked-Out Corrugated Beam Guide Railing End Terminal (Energy-Absorbing) Each
606.28 Heavy-Post, Blocked-Out Corrugated Beam Median Barrier End Terminal (Energy-Absorbing) Each”

Page 858, delete:

02430=2008: (606-2,-3.01F5,-4.02,-5,710-15 to -19)
ENERGY-ABSORBING END TERMINALS FOR CORRUGATED BEAM SYSTEMS

“710-15 THRU 710-19 (VACANT)”

and insert the following:

“710-15 AND 710-16 (VACANT)

710-17 CORRUGATED BEAM GUIDE RAILING END TERMINAL (ENERGY-ABSORBING)

SCOPE. This specification covers the material and performance requirements for energy-absorbing corrugated beam end terminals.

MATERIALS REQUIREMENTS. All metal components and hardware shall be new and galvanized to meet or exceed the requirements of §719-01 Galvanized Coatings and Repair Methods, Type I.

BASIS OF APPROVAL. End Terminal systems tested before December 31, 2010 shall be either NCHRP 350 approved or MASH approved. Systems tested after December 31, 2010 shall be MASH approved. End terminals acceptable at TL-3 will also be acceptable at TL-2.

Manufacturers or material suppliers desiring to have products considered for inclusion on the Approved List shall prepare and submit copies of drawings, specifications, test reports, and Federal Acceptance Letters to the Director of the Materials Bureau. Upon approval, the name of the manufacturer and the product will be placed on the Approved List.

BASIS OF ACCEPTANCE. Corrugated Beam End Terminals (Energy-Absorbing) will be accepted at the contract site on the basis of the manufacturer’s name and product brand name appearing on the Approved List, conformance to the appropriate Materials Details Sheets, and the manufacturer’s certification that the product delivered is in conformance with these specifications.

710-18 HEAVY POST BLOCKED-OUT CORRUGATED BEAM GUIDE RAILING END TERMINAL (ENERGY-ABSORBING)

SCOPE. This specification covers the material and performance requirements for energy-absorbing end terminals for HPBO corrugated beam end terminals.

MATERIALS REQUIREMENTS. All metal components and hardware shall be new and galvanized to meet or exceed the requirements of §719-01 Galvanized Coatings and Repair Methods, Type I.

BASIS OF APPROVAL. End Terminal systems tested before December 31, 2010 shall be either NCHRP 350 approved or MASH approved. Systems tested after December 31, 2010 shall be MASH approved. End terminals acceptable at TL-3 will also be acceptable at TL-2.

Manufacturers or material suppliers desiring to have products considered for inclusion on the Approved List shall prepare and submit copies of drawings, specifications, test reports, and Federal Acceptance Letters to the Director of the Materials Bureau. Upon approval, the name of the manufacturer and the product will be placed on the Approved List.

BASIS OF ACCEPTANCE. Corrugated Beam End Terminals (Energy-Absorbing) will be accepted at the contract site on the basis of the manufacturer’s name and product brand name appearing on the
ENERGY-ABSORBING END TERMINALS FOR CORRUGATED BEAM SYSTEMS

Approved List, conformance to the appropriate Materials Details Sheets, and the manufacturer’s certification that the product delivered is in conformance with these specifications.

710-19 HEAVY POST BLOCKED-OUT CORRUGATED BEAM MEDIAN BARRIER END TERMINAL (ENERGY-ABSORBING)

SCOPE. This specification covers the material and performance requirements for energy-absorbing end terminals for HPBO corrugated beam median barriers.

MATERIALS REQUIREMENTS. All metal components and hardware shall be new and be galvanized to meet or exceed the requirements of §719-01 *Galvanized Coatings and Repair Methods, Type I.*

BASIS OF APPROVAL. End Terminal systems tested before December 31, 2010 shall be either NCHRP 350 approved or MASH approved. Systems tested after December 31, 2010 shall be MASH approved. End terminals acceptable at TL-3 will also be acceptable at TL-2.

Manufacturers or material suppliers desiring to have products considered for inclusion on the Approved List shall prepare and submit copies of drawings, specifications, test reports, and Federal Acceptance Letters to the Director of the Materials Bureau. Upon approval, the name of the manufacturer and the product will be placed on the Approved List.

BASIS OF ACCEPTANCE. Corrugated Beam End Terminals (Energy-Absorbing) will be accepted at the contract site on the basis of the manufacturer’s name and product brand name appearing on the Approved List, conformance to the appropriate Materials Details Sheets, and the manufacturer’s certification that the product delivered is in conformance with these specifications.”
Make the following changes to the Standard Specifications dated May 1, 2008:

Pages 527 through 535, **Delete** Section 608 – *Sidewalks, Driveways and Bicycle Paths* entirely and **replace** it with the following:

**SECTION 608 - SIDEWALKS, DRIVEWAYS, BICYCLE PATHS, AND VEGETATION CONTROL STRIPS**

**608-1 DESCRIPTION.** This work shall consist of the construction of Portland cement concrete sidewalks and driveways; hot mix asphalt (HMA) sidewalks, driveways, bicycle paths, and vegetation control strips; or furnishing and placing precast concrete paving, brick paving or grouted stone block paving. Furnish and install detectable warnings on sidewalk curb ramps and other locations as detailed in the contract documents or as directed by the Engineer. All work shall be in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or established by the Engineer.

**608-2 MATERIALS.** Materials shall meet the requirements specified in the following subsections of Section 700 – *Materials and Manufacturing*:

- **Portland Cement** 701-01
- **Bituminous Materials** 702-00
- **Fine Aggregates** 703-01
- **Coarse Aggregates** 703-02
- **Mortar Sand** 703-03
- **Cushion Sand** 703-06
- **Concrete Sand** 703-07
- **Mineral Filler** 703-08
- **Brick Pavers** 704-08
- **Stone Blocks** 704-09
- **Precast Concrete Driveway and Sidewalk Pavers** 704-13
- **Premoulded Resilient Joint Filler** 705-07
- **Masonry Mortar** 705-21
- **Wire Fabric for Concrete Reinforcement** 709-02
- **Fibers for Concrete Reinforcement** 711-01
- **Membrane Curing Compound** 711-05
- **Form Insulating Materials for Winter Concrete (Blankets)** 711-07
- **Water** 712-01
- **Surface-applied Detectable Warning Units** 726-01
- **Embedded Detectable Warning Units** 726-02

**608-2.01 Portland Cement Concrete Sidewalks and Driveways.**

**A. Reinforcement.** Welded wire fabric reinforcement shall be made of W2.9 or W3 wire at 6 inch centers transversely and longitudinally.

**B. Conventionally Formed Concrete.** Conventionally formed concrete shall meet the requirements for Class D in accordance with Section 501 *Portland Cement Concrete - General*. All concrete shall contain a water-reducing admixture meeting the requirements of §711-08 *Admixtures* in such a quantity as to provide a minimum 10% reduction of the design water content by using a normal range water-reducer.

**C. Machine-Formed Concrete Sidewalks.** Machine-formed concrete shall meet the requirements for Class J in accordance with Section 501 *Portland Cement Concrete - General* with the exception that fibers shall be incorporated in the mix.
D. Accelerated-Cure Sidewalks and Driveways. When specified in the plans that an accelerated cure sidewalk and/or driveway is required at a commercial driveway, a mix design must be submitted to the Materials Bureau by the Contractor for approval a minimum of 14 days prior to anticipated sidewalk or driveway construction. Supply data indicating that the mix achieves a compressive strength of 2,000 psi in less than 24 hours. Also supply data indicating that the mix will have a scaling rating of one or less when tested in accordance with ASTM C672.

608-2.02 Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips. The requirements for these items shall either be 9.5 mixture for surface course or 19.0 mixture for any course below the surface. These mixtures shall be designed for <0.3 million ESALs and produced in accordance with Section 401 using coarse aggregate Type F9. The number of courses and course thicknesses shall be as given in Table 608-1 Hot Mix Asphalt Composition except for vegetation control strips which have a minimum thickness requirement of 3 inches of a 9.5 mix that may be placed in one course. The PG binder grades specified will be PG 64-22. Alternate PG binder grades may be allowed by the RME in lieu of PG 64-22. Upstate use of polyphosphoric acid (PPA) to modify the PG binder properties is prohibited. This prohibition also applies to the use of PPA as a cross-linking agent for polymer modification. Upstate is defined as all other counties not designated as downstate. Downstate is defined as Orange, Putnam, Rockland, Westchester, Nassau, Suffolk Counties and the City of New York. Downstate use of polyphosphoric acid (PPA) to modify the PG binder properties is prohibited for mixtures containing limestone, limestone as an aggregate blend component, limestone as a constituent in crushed gravel aggregate, or recycled asphalt pavement (RAP) that includes any limestone. This prohibition also applies to the use of PPA as a cross-linking agent for polymer modification.

<table>
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<tr>
<th>Total Paved Thickness</th>
<th>9.5 Mix</th>
<th>19.0 Mix</th>
<th>Number of Courses</th>
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<td>1 1/2 inch</td>
<td>1 1/2 inch</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2 inch</td>
<td>2 inch</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>≥3 inch</td>
<td>1 1/2 inch</td>
<td>≥1 1/2 inch</td>
<td>≥2</td>
</tr>
</tbody>
</table>

NOTES:
1. For the 19.0 mixture, the maximum thickness that can be placed in one pass is 3 inches.
2. A course shall consist of one or more separate lifts of hot mix asphalt, as directed by the Engineer, to attain the indicated thickness.

608-2.03 Brick-Paved Sidewalks and Driveways. Brick pavers shall meet the requirements of §704-08 Brick Sidewalk and Driveway Pavers and shall be the size(s), shape(s) and color(s) as specified in the contract documents.

A. Neoprene-Modified Asphalt Adhesive. Neoprene-modified asphalt adhesive shall consist of 2% neoprene, grade WM1, oxidized asphalt with an R & B softening point of 155°F minimum and a penetration of 80, and 10% asbestos-free fibers.

B. Mortar for Brick Paving. Mortar for brick paving shall meet the requirements outlined in §705-21 Masonry Mortar.

C. Sand-Cement Setting Bed. Sand-Cement Setting Bed shall consist of 1 part Portland Cement Type 2, §701-01 and 6 parts of Fine Aggregate, §703-01 by volume.

608-2.04 Grouted Stone Block Paved Sidewalks and Driveways. Stone Blocks shall meet the requirements of §704-09 and shall be the size(s), shape(s) and color(s) as specified in the contract documents.

A. Sand-Cement Setting Bed. Sand-cement setting bed shall consist of 1 part Portland Cement Type 2, §701-01 and 6 parts of Fine Aggregate, §703-01 by volume.
B. Mortar for Stone Block Paving. Mortar for stone block paving shall meet the requirements outlined in §705-21 *Masonry Mortar*.

**608-2.05 Precast Concrete Block Paved Sidewalks and Driveways.** Precast Concrete Driveway and Sidewalk Pavers shall meet the requirements of §704-13 and shall be the size(s), shape(s) and color(s) as specified in the contract documents. Unless otherwise specified in the contract documents the setting bed material shall consist of hard, durable, uncoated particles of soil or rock, free from lumps of clay and all deleterious substances.

Setting Bed Material shall meet the following gradation requirements:

<table>
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<th>Sieve Size</th>
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<tbody>
<tr>
<td>1/4 inch</td>
<td>100</td>
</tr>
<tr>
<td># 10</td>
<td>50-85</td>
</tr>
<tr>
<td># 40</td>
<td>20-45</td>
</tr>
<tr>
<td># 200</td>
<td>3-10</td>
</tr>
</tbody>
</table>

**608-2.06 Surface-Applied Detectable Warning Units.** Surface-Applied Detectable Warning Units shall meet the requirements of §726-01 and shall be the color as specified in the contract documents to provide the required contrast, light-on-dark or dark-on-light, with the adjacent surface. If no color is specified, the color shall be dark gray Federal Standard 595B #36081 or darker. Setting bed material and/or surface preparation materials for installation of detectable warning units shall be in accordance with the manufacturer’s recommendations.

**608-2.07 Embedded Detectable Warning Units.** Embedded Detectable Warning Units shall meet the requirements of §726-02 and shall be the color as specified in the contract documents to provide the required contrast, light-on-dark or dark-on-light, with the adjacent surface. If no color is specified, the color shall be dark gray Federal Standard 595B #36081, or darker. Setting bed material and/or surface preparation materials for installation of detectable warning units shall be in accordance with the manufacturer’s recommendations.

**608-2.08 Stamped Concrete Detectable Warnings.** Imprinted or stamped concrete detectable warning units shall comply with the specifications for Class D concrete as outlined in Section 501 *Portland Cement Concrete - General*. The color of the constructed detectable warning shall be uniform over the entire surface. The color shall be an approximate visual match to the color specified in the contract documents. If no color is specified, the color shall be dark gray Federal Standard 595B #36081 or darker. The color shall be incorporated into the concrete surface immediately prior to stamping the detectable warnings, or integrally incorporated throughout the mix. Color admixtures for integrally colored concrete shall meet the requirements of ASTM C979.

Imprinting tools shall be capable of imprinting the surface of the concrete with a uniform and aligned pattern meeting the required dimensions.

**608-3 CONSTRUCTION DETAILS**

**608-3.01 Portland Cement Concrete Sidewalks and Driveways.** When the contract includes 65 cubic yards or more of sidewalk and driveway concrete, provide an American Concrete Institute (ACI) certified concrete flatwork finisher to supervise all finishing. Provide proof of ACI flatwork certification to the Engineer prior to concrete placement. The general construction details for manufacturing and transporting concrete shall meet the requirements of Section 501 *Portland Cement Concrete - General*. Concrete placement operations may be started when the ambient air temperature is 40º F or higher when measured in the shade within an accuracy of ± 2º F. Discontinue placement when the air temperature falls below 40º F. The temperature of the base material must be 40º F or higher. The base material shall not have any snow, ice, frost, or standing water on its surface. The use of insulating materials and heating equipment may be required before concreting begins. Do not place concrete in the rain.

Install a *Premoulded Resilient Joint Filler*, §705-07, at all joints between sidewalk and curb, pavement, building, etc. and at all transverse construction joints.
Sidewalks and driveways may be conventionally formed or machine formed. Concrete reinforcement shall be welded wire fabric or fiber reinforcement except, at all commercial driveways both the sidewalk and the driveway must be reinforced with welded wire fabric. They may be additionally reinforced with fiber reinforcement.

When using fiber reinforcement, it shall be added to the concrete at a rate of 1.5 pounds of fibers per cubic yard of concrete. Fibers shall be added to the concrete during batching under supervision of the Regional Materials Engineer, or using a method approved by the Director, Materials Bureau. Batch an appropriate volume of concrete such that whole standard size bags or packages of fibers are used. It is the responsibility of the producer to indicate on each delivery ticket the amount of fibers added to the concrete.

**A. Conventionally Formed Sidewalks and Driveways.** Forms shall be free from warp, extend to the full depth of the sidewalk or driveway, and be secured so no displacement will occur during the placement of concrete. Reinforcement may be either fiber or wire fabric. When using wire fabric for concrete reinforcement, embed it at mid-depth in the slab.

Place the concrete in one course to the full depth shown in the contract documents. Immediately after placement of the concrete thoroughly compact the concrete with internal mechanical vibrating equipment. Internal mechanical vibrators shall be adequately powered, capable of transmitting vibration to the concrete in frequencies of not less than 5,000 vibrations per minute while inserted in concrete and shall produce a vibration of sufficient intensity to consolidate the concrete into place without separation of the ingredients. The vibrating element shall be vertically inserted in the concrete mass at a depth sufficient to vibrate the entire depth. It shall be withdrawn completely from the concrete before being advanced to the next point of application. Vibrate at evenly spaced intervals not farther apart than the radius over which the vibration is visibly effective and at a distance close enough to the forms to effectively vibrate the surface concrete. The time of vibration shall be of sufficient duration to accomplish thorough consolidation, produce dense, smooth surfaces free from aggregate pockets, honeycombing, and air bubbles; and to work the concrete into all angles and corners of the forms. However, over-vibration shall be avoided. Vibration shall be continued in one place until the concrete has become uniformly plastic, but not to the extent that pools of grout are formed. Vibration shall be supplemented by working or spading by hand in the corners and angles of forms and along form surfaces while the concrete is plastic. Vibrators shall not be used to push or distribute the concrete laterally.

The use of mechanical screeding or finishing equipment (such as a jitterbug) shall not be allowed. Only hand screeding and finishing shall be allowed.

**B. Machine-Formed Sidewalk.** Machine-formed paving consists of a single paver capable of placing, spreading, consolidating, screeding, and finishing the concrete such that hand finishing is kept to a minimum. Use equipment guided by a reference system that ensures the pavement is placed to the specified line, grade, and cross section. Use a self-propelled paver equipped with rigid side forms that laterally support the concrete and minimize edge slumping, a full-width finishing pan, and attached internal vibrators capable of consolidating the entire concrete placement. The equipment proposed for use by the Contractor shall demonstrate the capability of placing the concrete in accordance with these specifications.

Apply the provisions of §569-3.05 E. *Central and Transit Mixed Concrete* to maintain desired slump during the concrete placement. The reinforcement shall be fibers. Water additions at the point of deposition may be made according to §569-3.05 E.

**C. Finishing.** Only magnesium floats and trowels are allowed. The use of aluminum or steel finishing trowels and tools is prohibited. The concrete shall be finished to produce a smooth surface and then lightly broomed to a uniform texture. The edges and scored joints of all sidewalk slabs shall be tooled with an edging tool having a ¼ inch radius.

Unless otherwise specified in the contract documents, the concrete surface shall be scored and tooled at intervals of 5 feet. Score the concrete a minimum ¼ inch to a maximum ¼ inch in width and to a minimum depth of one-third the total thickness.

**D. Curing.** Immediately after finishing, and not more than 30 minutes after concrete placement, apply a clear
with fugitive dye Membrane Curing Compound meeting §711-05 at a rate of 1 gallon per 150 square feet. Do not apply curing compound in the rain. If rain damages the curing compound before it sets, reapply curing compound immediately after the concrete surface dries. Alternative curing methods shall be approved by the Director, Materials Bureau.

Concrete must be cured for a minimum of six days in colder weather. Colder weather and the methods of curing during colder weather are described as follows: If the ambient air temperature falls, or is expected to fall below 40º F anytime during the curing period of the concrete placement, a supply of blankets meeting §711-07 Form Insulating Materials for Winter Concreting must be provided at the work site that is sufficient to cover all concrete placed. Use material capable of maintaining a surface temperature of 55º F. Apply the insulating material to prevent the newly placed concrete from being exposed to ambient air temperatures at the surface below 36º F during the curing period. Secure and overlap the insulation tight to the concrete surface to prevent air intrusion beneath the insulation. Extend these materials a minimum of 12 inches beyond the edge of the concrete. Place recording surface thermometers provided by the Contractor between the concrete surface and the insulating material and 12 inches from the outside edge of concrete wherever insulation is used. Use four equally spaced thermometers for each day’s placement. When insulation is needed it must remain in place for the curing period. Do not subject the concrete to a temperature drop in excess of 50º F during the first 24 hours after removing the insulation. If the concrete temperature falls below 32º F or the concrete is cold-weather damaged as determined by the Engineer, it shall be removed and replaced at the Contractor’s expense.

Cure all driveways and sidewalks at driveways for a minimum of three days prior to opening to vehicle traffic. In colder weather, as defined above, extend the curing period to six days unless other provisions to determine strength are provided and approved by the Director, Materials Bureau.

If saw cutting is necessary, use diamond blade saws capable of making straight cuts to the dimensions required. Saws must be equipped with cutting guides, blade guards, water cooling systems, dust controls, and cut depth control.

**E. Accelerated-Cure Sidewalks and Driveways.** When specified in the plans that an accelerated-cure sidewalk and/or driveway is required at a commercial driveway all the provisions for constructing sidewalks and driveways outlined above shall apply with the following exceptions: Only conventional forming with wire fabric reinforcing is allowed. Apply curing compound as outlined in “D” above. To reduce the time needed to reach the required opening compressive strength the concrete must be covered with blankets meeting §711-07 Form Insulating Materials for Winter Concreting such that the concrete curing temperature reaches a minimum 25º F above ambient air temperature. Secure the insulation tight to the concrete surface to prevent air intrusion beneath the insulation. Extend these materials a minimum of 12 inches beyond the edge of the concrete. Place recording surface thermometers between the concrete surface and the insulating material and 12 inches from the edge of concrete wherever insulation is used. Use four thermometers for each day’s placement. These thermometers may be equally spaced at one location or placed at separate locations depending on the nature of the placements. Also, use one recording thermometer for ambient air temperature. At the request of the Contractor, external heat meeting the requirements of §555-3.08 C, 2. Provision of External Heat may be applied to the concrete.

Compressive strength cylinders for determining strength gain must be cast at the time of placement. These cylinders must be kept insulated with the placement. Cylinders shall be broken at times requested by the Contractor until the minimum compressive strength of 2,000 psi is reached. Alternate means to determine concrete maturity may be considered with approval of the Director, Materials Bureau by coordinating cylinder compressive strengths to concrete curing temperature.

**608-3.02 Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips.** The provisions under §402-3 Construction Details for Hot Mix Asphalt (HMA) Pavements, shall apply. For compaction requirements, the provisions under §402-3.07 Compaction D. 80 Series Compaction Method shall apply.

The sidewalks, driveways, bicycle paths, and vegetation control strips shall be constructed as indicated in the contract documents (including the Standard Sheets).
608-3.03 Brick-Paved Sidewalks and Driveways. All brick pavers shall be laid in the pattern shown in the contract documents or as directed by the Engineer to provide a uniformly even surface. Joints shall be hand tight unless otherwise specified. No brick pavers shall be laid or grouted in freezing weather.

A dry mixture of mortar for brick paving shall be swept over the brick pavers until the joints are completely filled. The joints shall be lightly wetted with water. Brick pavers shall be cleaned of excess mortar, and joints shall be finished prior to the mortar setting up. All brick paving shall be kept moist for 4 days after filling the joints with mortar. After the 4 day curing period, removal of remaining mortar film may be accomplished by the use of a light acid wash (10% solution of hydrochloric or muriatic acid) followed by flushing clean with water or as approved by the Engineer. Care shall be taken to avoid the use of acid in areas where runoff could damage trees or other vegetation.

All brick pavers used over tree pits shall be laid in a 3 inch bed of Cushion Sand, §703-06 with sand filled joints.

A. Brick-Paved Sidewalks and Driveways (Sand Setting Bed). Brick pavers shall be laid in a properly compacted 2 inch bed of cushion sand over the specified subbase or subgrade.

B. Brick-Paved Sidewalks and Driveways (Mortar Setting Bed). Brick pavers shall be laid in a bed of mortar with a minimum thickness of 1 inch over the specified concrete or bituminous subbase.

C. Brick-Paved Sidewalks and Driveways (Bituminous Setting Bed). Brick pavers shall be laid in a ¾ inch thick bituminous setting bed over the specified concrete or bituminous subbase. The setting bed shall consist of PG binder 64-22 mixed with fine aggregate meeting the requirements of §703-01. Alternate PG binder grades may be allowed by the RME in lieu of PG 64-22. The PG binder will meet the requirements outlined in Section 702 Bituminous Materials, Table 702-1 Performance-Graded Binders for Paving. The PG binder shall be 7.0% of the total batch weight. The mix shall be heated to approximately 325º F. A coating of neoprene-modified asphalt adhesive shall be applied by mopping, squeegeeing or troweling over the top surface of the setting bed to provide bond under the bricks.

D. Brick-Paved Sidewalks and Driveways (Sand-Cement Setting Bed). Brick pavers shall be laid on a 2 inch setting bed of sand-cement over the specified subbase. The sand-cement setting bed shall not be placed more than 4 hours prior to installing the brick paving.

E. Brick-Paved Sidewalks and Driveways (Optional Concrete Setting Bed). The Contractor shall have the option of installing Brick Paved Sidewalks and Driveways by one of the following methods:

1. Bricks shall be laid on a bed of cement concrete as specified in the contract documents. The bricks shall be laid in the cement concrete while it is still fresh as approved by the Engineer and they shall be firmly positioned to provide a uniformly even surface, and solid bedding under each brick.

2. Bricks shall be laid as provided for under “Brick-Paved Sidewalks and Driveways (Mortar Setting Bed)” provided the finished surface shall conform to the lines and grades shown in the contract documents.

608-3.04 Grouted Stone Block Paved Sidewalks and Driveways. All grouted stone block pavers shall be laid in the pattern shown in the contract documents or as directed by the Engineer to provide a uniformly even surface. Joints between blocks shall be a maximum of 1¼ inch or as specified. No blocks shall be laid or grouted in freezing weather.

Unless otherwise approved by the Engineer, a dry mixture of mortar as specified for Brick-Paved Sidewalks and Driveways, §608-2.03, shall be swept over the stone blocks until the joints are completely filled and the joints lightly wetted with water prior to the mortar setting up. All grouted stone block paving shall be kept moist for four days after filling the joints with mortar. After the four day curing period, removal of remaining mortar film may be accomplished by the use of a light acid wash (10% ± solution of hydrochloric acid) followed by flushing clean with water, or as approved by the Engineer. Care shall be taken to avoid the use of acid in areas where runoff could damage trees or other vegetation.
All blocks used over tree pits shall be laid in a 1 inch bed of cushion sand with sand filled joints.

A. Grouted Stone Block Paved Sidewalks and Driveways (Sand Setting Bed). Blocks shall be laid in a 3 inch bed of cushion sand over the specified subbase or subgrade.

B. Grouted Stone Block Paved Sidewalks and Driveways (Mortar Setting Bed). Blocks shall be laid in a bed of mortar with a minimum thickness of 1 inch over the specified concrete or bituminous subbase.

C. Grouted Stone Block Paved Sidewalks and Driveways (Sand-Cement Setting Bed). Blocks shall be laid on a 2 inch setting bed of sand-cement over the specified subbase. The sand-cement setting bed shall not be placed more than 4 hours prior to installing the block paving.

D. Grouted Stone Block Paved Sidewalks and Driveways (Optional Concrete Setting Bed). The Contractor shall have the option of installing Grouted Stone Block Paved Sidewalks and Driveways by one of the following methods:

1. Blocks shall be laid on a bed of cement concrete as specified in the contract documents. The blocks shall be laid in the cement concrete while it is still fresh as approved by the Engineer and they shall be firmly positioned to provide a uniformly even surface, and solid bedding under each stone block.
2. Blocks shall be laid as provided for under “Grouted Stone Block Paved Sidewalks and Driveways (Mortar Setting Bed)” provided the finished surface shall conform to the lines and grades shown in the contract documents.

608-3.05 Precast Concrete Block Paved Sidewalks and Driveways. Precast Concrete Driveway and Sidewalk Pavers shall be laid in the pattern shown in the contract documents or as directed by the Engineer to provide a uniformly even surface. Joints shall be hand tight unless otherwise specified. No pavers shall be laid in freezing weather.

After the pavers are in place, an approved sand joint filler shall be swept over the pavers until the joints are completely filled.

Unless otherwise specified in the contract documents, or directed by the Engineer, the Contractor shall install the pavers in accordance with the manufacturer's recommended procedures.

Precast Concrete Block Paved Sidewalks and Driveways (Granular Material Setting Bed). Unless otherwise specified in the contract documents, Precast Concrete Driveway and Sidewalk Pavers shall be laid on a setting bed not to exceed 2 inches of uniformly compacted material placed over the specified subbase.

608-3.06 Surface-Applied Detectable Warning Units. Surface-applied detectable warning units may be applied to existing curb ramps, formed and bonded to existing curb ramps, or as otherwise directed by the manufacturer or specified in the Contract Documents.

Follow all applicable manufacturer’s requirements for environmental conditions, surface preparation, installation procedures, curing procedures, and materials compatibility.

608-3.07 Embedded Detectable Warning Units. Embedded detectable warning units may be installed in plastic concrete, installed directly on existing subbase prior to placing concrete, inlaid on prepared concrete surfaces or as otherwise directed by the manufacturer or specified in the Contract Documents.

Follow all applicable manufacturers’ requirements for environmental conditions, surface preparation, installation procedures, curing procedures, and materials compatibility.

608-3.08 Stamped Concrete Detectable Warnings. Apply §608-3.01 with the following modifications:

Prior to the start of work, the Contractor shall provide a contract-site sample that meets the dimensional requirements of the current Standard Sheet for Detectable Warnings and meets the approval of the Engineer. The sample may be constructed as part of the contract.

Color hardening powder, if used to color the surface of the concrete, shall be applied to the finished
concrete in accordance with the manufacturer’s recommendations.
If required, construct as many test panels as are necessary to achieve a sample panel that is satisfactory to the Engineer. All completed surfaces shall conform to the appearance of the approved sample.

608-4 METHOD OF MEASUREMENT

608-4.01 Portland Cement Concrete Sidewalks and Driveways. Portland Cement concrete sidewalks and driveways will be measured by the number of cubic yards of cement concrete installed, measured to the nearest 0.1 cubic yard.

608-4.02 Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips. Hot mix asphalt sidewalks, driveways, bicycle paths, and vegetation control strips will be measured by the number of tons of hot mix asphalt furnished and incorporated in the work. A QAF of 1.00 will be assigned to material meeting the specification requirements as certified by the QCT. A QAF of 0.85 will be assigned to material that fails to meet the specification as tested by the QAT. Quality Units will be determined when there is a disincentive and will be calculated as per §402-4, Method of Measurement.

608-4.03 Brick-Paved Sidewalks and Driveways. Brick paving shall be measured as the number of square yards installed, measured to the nearest 0.1 square yard.

608-4.04 Grouted Stone Block Paved Sidewalks and Driveways. Grouted stone block paving shall be measured as the number of square yards installed, measured to the nearest 0.1 square yard.

608-4.05 Precast Concrete Block Paved Sidewalks and Driveways. Precast concrete paving will be measured by the number of square yards installed, measured in the field to the nearest 0.1 square yard.

608-4.06 Surface-Applied Detectable Warning Units. Surface-applied detectable warning units will be measured as the number of square yards installed, measured in the field to the nearest 0.1 square yard.

608-4.07 Embedded Detectable Warning Units. Embedded Detectable Warning Units will be measured as the number of square yards installed, measured in the field to the nearest 0.1 square yard.

608-4.08 Stamped Concrete Detectable Warnings. Stamped concrete detectable warnings will be measured as the number of square yards installed, measured in the field to the nearest 0.1 square yard.

608-5 BASIS OF PAYMENT

608-5.01 Portland Cement Concrete Sidewalks and Driveways. The unit price bid per cubic yard shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work, including preparing the subgrade, saw cutting and wire fabric reinforcement, except that any necessary excavation and subbase course will be paid for under their appropriate items.
Payment at the unit bid price will be made after the concrete sidewalk or driveway, and curing application have been properly placed.

608-5.02 Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and Vegetation Control Strips. The unit price bid per ton shall include the cost of preparing the subgrade and all materials, equipment and labor (including milling, cleaning surfaces, tack coat, saw cut, truing and leveling courses, etc.) necessary to complete the work as specified except that any necessary excavation and subbase course will be paid for under their appropriate items. When there is a disincentive, the payment adjustment will be made based on the Index Price listed in the contract documents. The index price shown in the itemized proposal for each Quality Unit shall be considered the price bid. The unit (index) price is NOT to be altered in any manner by the bidder. Should the bidder alter the price shown, the altered figure will be disregarded and the original price will be used to determine
the total amount bid for the contract.

608-5.03 **Brick-Paved Sidewalks and Driveways.** The price bid per square yard shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including setting bed material, except that any necessary excavation and subbase course will be paid for under their appropriate items.

608-5.04 **Grouted Stone Block Paved Sidewalks and Driveways.** The unit bid per square yard shall include the cost of furnishing all labor, materials and equipment necessary to satisfactorily complete the work, including setting bed material, except that any necessary excavation and subbase course will be paid for under their appropriate items.

608-5.05 **Precast Concrete Block Paved Sidewalks and Driveways.** The unit price bid per square yard shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work, including setting bed material, except that any necessary excavation and subbase course will be paid for under their appropriate items.

608-5.06 **Surface-Applied Detectable Warning Units.** The unit bid price per square yard shall include all labor, material, and equipment necessary to satisfactorily complete the work, including surface preparation.

608-5.07 **Embedded Detectable Warning Units.** The unit bid price per square yard shall include all labor, material, and equipment necessary to satisfactorily complete the work, including bedding material. No adjustment shall be made for concrete removed to accommodate embedded units.

608-5.08 **Stamped Concrete Detectable Warnings.** The unit bid price per square yard shall include all labor, material, and equipment necessary to satisfactorily complete the work, including construction of contract site sample(s).

**Payment will be made under:**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>608.0101</td>
<td>Concrete Sidewalks and Driveways</td>
<td>Cubic Yard</td>
</tr>
<tr>
<td>608.0102</td>
<td>Accelerated-Cure Sidewalks and Driveways</td>
<td>Cubic Yard</td>
</tr>
<tr>
<td>608.020102</td>
<td>Hot Mix Asphalt (HMA) Sidewalks, Driveways, Bicycle Paths, and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vegetation Control Strips</td>
<td></td>
</tr>
<tr>
<td>608.020112</td>
<td>Plant Production Quality Adjustment to 608.020102</td>
<td>Quality Unit</td>
</tr>
<tr>
<td>608.03</td>
<td>Brick-Paved Sidewalks and Driveways (Sand Setting Bed)</td>
<td>Square Yard</td>
</tr>
<tr>
<td>608.04</td>
<td>Brick-Paved Sidewalks and Driveways (Mortar Setting Bed)</td>
<td>Square Yard</td>
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<tr>
<td>608.05</td>
<td>Brick-Paved Sidewalks and Driveways (Bituminous Setting Bed)</td>
<td>Square Yard</td>
</tr>
<tr>
<td>608.06</td>
<td>Brick-Paved Sidewalks and Driveways (Sand-Cement Setting Bed)</td>
<td>Square Yard</td>
</tr>
<tr>
<td>608.07</td>
<td>Brick-Paved Sidewalks and Driveways (Optional Concrete Setting Bed)</td>
<td>Square Yard</td>
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<tr>
<td>608.08</td>
<td>Grouted Stone Block Paved Sidewalks and Driveways (Sand Setting Bed)</td>
<td>Square Yard</td>
</tr>
<tr>
<td>608.09</td>
<td>Grouted Stone Block Paved Sidewalks and Driveways (Mortar Setting Bed)</td>
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<td>608.10</td>
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</tr>
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<td>608.11</td>
<td>Grouted Stone Block Paved Sidewalks and Driveways (Optional Concrete Setting Bed)</td>
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<td>608.12</td>
<td>Precast Concrete Block Paved Sidewalks and Driveways (Granular Material Setting Bed)</td>
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</tr>
<tr>
<td>608.20</td>
<td>Surface-Applied Detectable Warning Units</td>
<td>Square Yard</td>
</tr>
<tr>
<td>608.21</td>
<td>Embedded Detectable Warning Units</td>
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</tr>
<tr>
<td>608.22</td>
<td>Stamped Concrete Detectable Warning Units</td>
<td>Square Yard</td>
</tr>
</tbody>
</table>
LANDSCAPE DEVELOPMENT

Make the following changes to the Standard Specifications dated May 1, 2008. Pages 541 to 556, Delete Sections 610 – 615 in their entirety and, Replace them with the following:

SECTION 610 – GROUND VEGETATION – PREPARATION, ESTABLISHMENT AND MANAGEMENT

610-1 DESCRIPTION.

610-1.01 Topsoil. This work shall consist of furnishing, screening, storing, stockpiling and placing topsoil in accordance with the contract documents and as directed by the Engineer.

610-1.02 Preparation of Subsoil for Turf Establishment. This work shall consist of ground preparation when topsoil is not included in the work prior to establishment of turf in accordance with the contract documents and as directed by the Engineer.

610-1.03 Turf Establishment. The work shall consist of ground preparation and establishing turf in accordance with the contract documents and as directed by the Engineer.

610-1.04 Wildflower Seeding. The work shall consist of ground preparation, furnishing and placing wildflower seeding materials and caring for wildflower areas in accordance with the contract documents and as directed by the Engineer.

610-1.05 Sod. The work shall consist of ground preparation, furnishing, installing and caring for sod in accordance with the contract documents and as directed by the Engineer.

610-1.06 Soil Amendments. The work consists of furnishing and placing soil amendments in accordance with the contract documents and as directed by the Engineer.

610-1.07 Compost. The work consists of furnishing, placing and incorporating compost in accordance with the contract documents and as directed by the Engineer.

610-1.08 Mulch for Planting. The work consists of furnishing and placing mulch, in accordance with the contract documents and as directed by the Engineer.

610-1.09 Permeable Weed Control Landscape Fabric. The work consists of furnishing and placing permeable landscape fabric for weed control, in accordance with the contract documents and as directed by the Engineer.

610-1.10 Watering Vegetation. This work shall include watering turf, sod, wildflower seeding, trees, shrubs, ground covers, vines, other plants, and filling portable drip irrigation systems in accordance with the contract documents and as directed by the Engineer.

610-1.11 Weed Removal. This work shall consist of removal and disposal of all native and non-native weeds including roots from newly established turf and sod areas, wildflower seeded areas, tree and shrub pits and plant beds in accordance with the contract documents and as directed by the Engineer.
610-1.12 Mowing. This work shall consist of mowing newly established seeded or sodded areas including the removal and disposal of any debris and litter which has accumulated prior to or between mowings, in accordance with the contract documents and as directed by the Engineer.

610-1.13 Mowing Limits Markers. This work consists of furnishing and installing mowing limit markers in accordance with the contract documents and as directed by the Engineer.

610-2 MATERIALS

610-2.01 Topsoil. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing. Excavated material from earthwork operations defined in Section 203 Excavation and Embankment that is unsuitable for embankments but conforms to §713-01 Topsoil is acceptable.

<table>
<thead>
<tr>
<th>Material</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topsoil</td>
<td>713-01</td>
</tr>
</tbody>
</table>

610-2.02 Preparation of Subsoil for Turf Establishment. None specified.

610-2.03 Turf Establishment. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

<table>
<thead>
<tr>
<th>Material</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>712-01</td>
</tr>
<tr>
<td>Seeds</td>
<td>713-04</td>
</tr>
<tr>
<td>Mulch For Turf Establishment and Erosion Control</td>
<td>713-11</td>
</tr>
<tr>
<td>Mulch anchorage</td>
<td>713-12</td>
</tr>
<tr>
<td>Straw</td>
<td>713-19</td>
</tr>
</tbody>
</table>

610-2.04 Wildflower Seeding. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

<table>
<thead>
<tr>
<th>Material</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
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<td>713-12</td>
</tr>
<tr>
<td>Straw</td>
<td>713-19</td>
</tr>
</tbody>
</table>

610-2.05 Sod. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

<table>
<thead>
<tr>
<th>Material</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>712-01</td>
</tr>
<tr>
<td>Topsoil</td>
<td>713-01</td>
</tr>
<tr>
<td>Sod</td>
<td>713-14</td>
</tr>
</tbody>
</table>

610-2.06 Soil Amendment. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

<table>
<thead>
<tr>
<th>Material</th>
<th>Section</th>
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</thead>
<tbody>
<tr>
<td>Water</td>
<td>712-01</td>
</tr>
<tr>
<td>Limestone</td>
<td>713-02</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>713-03</td>
</tr>
<tr>
<td>Mycorrhizal Fungi</td>
<td>713-09</td>
</tr>
<tr>
<td>Moisture Retention Additive</td>
<td>713-10</td>
</tr>
<tr>
<td>Sulfur</td>
<td>713-17</td>
</tr>
</tbody>
</table>
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610-2.07 Compost. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

Compost 713-15

610-2.08 Mulch for Planting. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

Mulch for Planting 713-05

610-2.09 Permeable Weed Control Landscape Fabric. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

Weed Control Barriers 713-18

610-2.10 Watering Vegetation. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

Water 712-01

610-2.11 Weed Removal. None specified.

610-2.12 Mowing. None specified.

610-2.13 Mowing Limits Markers. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

Materials for the Protection of Plants 713-08

610-3 CONSTRUCTION DETAILS

610-3.01 Topsoil.

A. General. The subsoil within the areas to be covered by topsoil shall be graded so that the completed work after the topsoil is placed shall conform to the specified lines and grades. The Contractor shall scarify or till the surface of the subsoil to a depth of 6 inches before the topsoil is placed to permit bonding the topsoil with the subsoil. Tillage by disk, harrowing, raking or other approved methods shall be accomplished in such a manner that depressions and ridges formed by tillage shall be parallel to the contours.

Topsoil in an unworkable condition due to excessive moisture, frost, or other conditions shall not be placed until its consistency is workable for spreading. Topsoil shall be placed on the designated area and spread to the depth specified in the contract documents or a minimum of 4 inches for turf areas and 3 inches for sod areas.

The finished surface shall be maintained for subsequent contract work such as seeding, sodding, mulching or planting.

The sites of all stockpiles shall be graded and maintained for subsequent contract work. Surplus topsoil will become the property of the Contractor.

Roots and top growth of non-native weeds or invasive species that emerge from topsoil stockpiles or after placement of the topsoil shall be eradicated and disposed of in accordance with §610-3.11 Weed Removal immediately upon emergence. Weed removal, treatment and disposal of invasive species will be paid for separately.
B. Topsoil – Reuse On-Site Materials. Topsoil stripping shall be completed prior to starting the general excavation in an area. The Contractor shall take reasonable care that the topsoil is not contaminated during the stripping and other handling operations.

Topsoil identified for reuse that has a known, established population of invasive species shall be treated to eliminate the presence of invasive species per §610-3.11 Weed Removal. The invasive species material shall be disposed appropriately and then the resulting topsoil may be used within the limits. Treatment and disposal of invasive species will be paid for separately.

C. Topsoil – Roadside, Lawn, Special Planting Mix and Acidic. The Contractor shall place topsoil only from approved stockpiles.

D. Topsoil – On-Site Wetland and Wetland Off-Site or Manufactured. The Contractor shall not use topsoil wetlands materials which exhibit the presence of invasive species. Care shall be taken not to impact wetland areas remaining.

On-site wetland topsoil stripping shall be completed prior to starting the general excavation in an area. After stripping, on-site wetland topsoil shall be placed within 24 hours or stored within the contract limits at a location approved by the Engineer.

610-3.02 Preparation of Subsoil for Turf Establishment. Prior to establishment of turf in areas that are not to receive topsoil or other permanent erosion control measures, the Contractor shall remove all loose stones and other objects over 2 inches in size to a 4 inch depth. The Contractor shall mix compost with subsoil in accordance with §610-3.07 B. Turf Establishment With No Topsoil/On Subsoil within the areas to be seeded and grade the surface so that the completed work shall conform to the specified finished lines and grades. Compost will be paid for separately.

610-3.03 Turf Establishment. The Contractor shall coordinate establishment of turf with other site and construction activities.

The Contractor shall clean all equipment involved in turf establishment to remove plants, seeds and propagules prior to commencement of work. Any work to clean equipment shall be at no additional cost to the State.

The Contractor shall apply the seed mix at one and one half to two times the manufacturer’s recommended rate. Any method of sowing that does not injure the seeds and achieves even coverage in the process of spreading will be acceptable.

The Contractor shall perform the initial watering and shall spread straw uniformly in a continuous blanket to hide the soil from view or mulch Types I – V as specified in the contract documents. Rolled Erosion Control products shall be installed according to manufacturer’s recommendations and paid for separately. Mulch anchorage shall be applied.

The Contractor shall water, mow, and weed the turf establishment areas for the duration of the contract or until turf areas are accepted. Watering, mowing, and weeding to care for the turf will be paid for separately. Any work required to correct initial seeding (installation) shall be done at no additional cost to the State.

A. Turf Establishment – Roadside. Areas will be accepted when:

- free from thin or bare ground greater than one foot in diameter;
- at least 80 percent of the ground surface is covered with established specified permanent turf grass species;
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• they have had one mowing cycle in accordance with §610-3.12 unless conditions prevent mowing, in which case turf grass shall be an average minimum height of 5 inches; and
• they exhibit healthy green color.

B. Turf Establishment - Lawns. Areas will be accepted when:
• free from thin or bare spots greater than six inches in diameter;
• at least 90 percent of the ground surface is covered with established specified permanent turf grass species;
• they have had one mowing cycle in accordance with §610-3.12 unless conditions prevent mowing, in which case turf grass shall be an average minimum height of 3 inches; and
• they exhibit healthy green color.

610-3.04 Wildflower Seeding. The Contractor shall clean all equipment involved in wildflower seeding to remove plants, seeds and propagules prior to commencement of work at no additional cost to the State.

The Contractor shall install wildflower seeding materials in accordance with the contract documents. Any method of sowing that does not injure the seeds and provides soil contact in the process of spreading will be acceptable. The Contractor shall apply the seed mix at twice the seed supplier’s recommended rate.

The Contractor shall perform the initial watering and spread straw or mulch Types I – V as specified in the contract documents, uniformly at a rate consistent with seed supplier recommendations. Mulch anchorage is required unless otherwise specified in the contract documents. Wildflower seeding areas will be accepted after the seeding operation is complete. Any work required to correct initial seeding (installation) shall be done at no additional cost to the State.

The Contractor shall water the wildflower seeding areas for the duration of the contract. Watering to care for the wildflower seeding areas will be paid for separately.

610-3.05 Sod. The Contractor shall generally place sod during the seasons identified in Table 610-1 Sodding Seasons. The Contractor may request extension of seasons, provided the other conditions are met.

<table>
<thead>
<tr>
<th>TABLE 610-1 SODDING SEASONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic locations</td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>R1 - Essex, Warren (north of towns of Bolton &amp; Warrensburg), R2 - Hamilton, Herkimer (towns of Ohio and Webb), R7 - Lewis, St. Lawrence, Franklin, Clinton, Jefferson (east of Rte 81)</td>
</tr>
<tr>
<td>R1 – Greene, Rensselaer, Schenectady, Saratoga, Washington, Albany, Warren (towns of Bolton &amp; Warrensburg &amp; south) R2- Montgomery, Fulton, Oneida, Madison, Herkimer (south of town of Ohio) R3, 6, 9 – All counties R7- Jefferson (west of Route 81)</td>
</tr>
<tr>
<td>R4, 5 &amp; 8- All counties</td>
</tr>
<tr>
<td>R10, 11- All counties</td>
</tr>
</tbody>
</table>
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The subgrade of areas to be sodded shall be excavated and firmed to a sufficient depth below the finished grade of the sod to accommodate the tamped or rolled thickness of topsoil and sod. No frozen sod shall be placed nor shall sod be placed on frozen ground surface.

The Contractor shall exercise care to retain the soil existing on the roots of the sod during transporting, handling and transplanting operations.

Sod shall be placed on a minimum of 3 inches of moist topsoil. The topsoil will be paid for separately.

The finished sod soil surface shall be flush with surface of the adjacent soil and adjacent structures. It shall meet the finished grades as shown in the contract documents.

Sod will be accepted when:

- It has been in place a minimum of 60 days after installation,
- It is 95 percent covered with permanent grass species,
- It has had one mowing cycle in accordance with §610-3.12 Mowing,
- It exhibits healthy green color,
- It is free from thin, bare or brown spots greater than 6 inches in diameter, and
- It is firmly rooted in the soil.

Sod not meeting the standards for acceptance, shall be re-sodded until a satisfactory turf has been established, at no additional expense to the State.

The Contractor shall water, mow and weed the sodded areas as necessary until contract final acceptance. These items will be paid for separately.

610-3.06 Soil Amendments. The Contractor shall place, apply or incorporate fertilizer, limestone, mycorrhizal fungi, sulfur and/or moisture retention additive where shown in the contract documents.

When mycorrhizal fungi are specified, application rates for turf shall ensure an even distribution of 100,000 propagules minimum per acre for drill seeding and 1,000,000 propagules minimum per acre for hydroseeding. Application rates for planting and Tree Root Zone Treatment, as well as any other aspects of distributing and/or incorporating mycorrhizal fungi, shall be in accordance with the manufacturer’s recommendations.

All other amendments shall be mixed with topsoil prior to placing, spread evenly over the surface of turf, wildflower or sod areas, applied within shrub saucers or applied over the plant beds as appropriate, at the rates recommended by the manufacturer or as specified in the contract documents. The method of application shall ensure an even distribution. When hydraulic application is used, the minimum rate of water application shall be in accordance with manufacturer’s recommendation.

Trees shall be fertilized using Method No. 1, No. 2 or No. 3 in accordance with the contract documents.

A. Method No. 1. Holes shall be made in the earth about 18 inches deep and 18 inches apart, and located in the outer two-thirds (as measured on the radius) of the circular area lying under the limits of the tree branches. The holes shall be made with a crowbar, soil auger, pneumatic equipment or other approved tools and care shall be taken to avoid injury to the roots. Fertilizer shall be applied at the rate specified; placing equal amounts of fertilizer in the lower 12 inches of each hole.

B. Method No. 2. Fertilizer shall be applied to soil’s surface hydraulically at the rate specified with sufficient water to saturate the soil for the area and depth of the tree roots without creating air pockets.
C. Method No. 3. Fertilizer rate and method of application shall be as specified in the contract documents.

610-3.07 Compost.

A. Existing Soil: The Contractor shall spread 2 inches of Compost Type A or E within the limits shown in the contract documents and tilled into existing soil to a total depth of six inches.

B. Turf Establishment With No Topsoil/On Subsoil. The Contractor shall spread 2 inches of Compost Type A, D or E within the limits shown in the contract documents and tilled into subsoil to a minimum depth of four inches.

C. Turf Establishment With Topsoil. The Contractor shall mix Compost Type A, D or E with topsoil as specified in the contract documents.

D. Plant Pits or Beds: Compost Type A, D or E shall be applied at a ratio of 1 part compost to 5 parts existing soil.

610-3.08 Mulch for Planting. The Contractor shall apply mulch consisting of wood chips, pine nuggets or shredded bark to the surface of the beds and tree pit areas in accordance with the contract documents. The Contractor shall apply mulch to a uniform depth of 3 inches over the shrub bed and tree pit areas and 2 inches over groundcover beds. The mulch shall be distributed so as to create a smooth, level cover over the exposed soil. Mulch shall not cover plants or be in contact with tree root flare, tree trunks, and plant stems.

610-3.09 Permeable Weed Control Landscape Fabric. Areas where landscape fabric is to be installed shall be smooth, firm, stable and free of rocks, clods, foliage, roots, trash, debris or other material that will prevent the matting from lying in direct contact with the soil surface.

The landscape fabric shall be placed where shown in the contract documents and as required by the manufacturer.

610-3.10 Watering Vegetation. The Contractor shall provide water without damage to plants, mulch, stakes, plant saucers, sod or other areas to be watered. Damage resulting from watering operations shall be repaired at no additional cost to the State.

Watering shall be applied in accordance with §610-3.03 Turf Establishment, §610-3.04 Wildflower Seeding, §610-3.05 Sod or §611-3.01 General. Watering for existing vegetation shall be as specified in the contract documents.

Watering shall be applied at the following rates:

A. Turf, Wildflowers, Sod, Planting Beds. In the absence of 1 inch of rainfall within 5 consecutive calendar days the Contractor shall water all turf, wildflowers, sod and planting beds once a week to a depth of 1 inch.

B. Trees and Planting Pits. Between April 1st and November 15th, in the absence of 1 inch of rainfall within 5 consecutive calendar days, the Contractor shall apply water to trees and planting pits
once per week, except during July and August, when water shall be applied twice per week, with a
minimum of 2 days between applications. Soil saucers or portable drip irrigation systems shall be
filled once per watering.

610-3.11 Weed Removal. The Contractor shall perform weed removal in accordance with the contract
documents. The Contractor shall remove and dispose of weeds including roots prior to flowering and seed
formation by manual, chemical or mechanical means. Any method of weed removal that leaves live roots
in the soil will not be permitted. An appropriately licensed applicator is required for chemical weed
control methods. The Contractor shall ensure the preservation of desirable vegetation. Treatment and
removal of invasive species will be paid for separately.

610-3.12 Mowing. The schedule may be modified to accommodate prevailing or forecast weather
conditions. The Contractor shall be responsible, prior to each mowing, for the removal and disposal of
any debris and litter which has accumulated since the last mowing. Care shall be taken to avoid damage to
existing plant materials.

A. Roadside. The Contractor shall mow all turf establishment areas to a height of 5 inches
whenever growth reaches 8 inches for the duration of the contract. Clippings shall be left in place.

B. Lawns. The Contractor shall mow all turf establishment areas to a height of 3 inches after initial
growth reaches 5 inches, and then mowed to a height of 3 inches whenever a 5 inch height is reached
thereafter for the duration of the contract. Clippings shall be mulched in place.

C. Sod. The Contractor shall mow all sodded areas to a height of 3 inches after initial
growth reaches 5 inches, and then mowed to a height of 3 inches whenever a 5 inch height is reached
thereafter for the duration of the contract. Clippings shall be mulched in place.

610-3.13 Mowing Limits Markers. The Contractor shall install mowing limit markers plumb to a
depth in accordance with the manufacturer’s instruction.

610-4 METHOD OF MEASUREMENT

610-4.01 Topsoil. The quantity to be measured for payment will be in cubic yards of each type of
topsoil measured to the nearest whole cubic yard of topsoil placed, from payment lines shown in the
contract documents.

Cross sectioning, for the purpose of determining quantities for payment, will be employed only where
payment lines are not shown on the Plans and cannot be reasonably established by the Engineer.

610-4.02 Preparation of Subsoil for Turf Establishment. The quantity to be measured for
payment will be in square yards on slope to the nearest whole square yard of subsoil area prepared for turf
establishment.

610-4.03 Turf Establishment. The quantity to be measured for payment will be in square yards on
slope to the nearest whole square yard of turf established.

610-4.04 Wildflower Seeding. The quantity to be measured for payment will be in square yards on
slope to the nearest whole square yard of wildflower seeding.
610-4.05 **Sod.** The quantity to be measured for payment will be in square yards on slope to the nearest whole square yard of sod placed.

610-4.06 **Soil Amendments.** The quantity to be measured for payment will be in pounds to the nearest whole pound or in gallons to the nearest whole gallon of soil amendments (fertilizer, limestone, mycorrhizal fungi, sulfur and/or moisture retention additive) applied.

610-4.07 **Compost.** The quantity to be measured for payment will be in cubic yards to the nearest whole cubic yard of compost placed or incorporated.

610-4.08 **Mulch for Planting.** The quantity to be measured for payment will be in cubic yards to the nearest whole cubic yard of mulch placed.

610-4.09 **Permeable Weed Control Landscape Fabric.** The quantity to be measured for payment will be in square yards on slope to the nearest whole square yard.

610-4.10 **Watering Vegetation.** The quantity to be measured for payment will be in 1000 gallons (MGal) to the nearest MGal of water applied, determined from approved measuring devices, or by measurement in tanks or containers of known capacity.

610-4.11 **Weed Removal.** The quantity to be measured for payment will be in square yards on slope weeded per occurrence to the nearest whole square yard.

610-4.12 **Mowing.** The quantity to be measured for payment will be the number of square yards on slope mowed per occurrence to the nearest whole square yard.

610-4.13 **Mowing Limits Markers.** The quantity to be measured for payment will be by the number of complete markers satisfactorily installed.

610-5 **BASIS OF PAYMENT**

610-5.01 **Topsoil.** The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work, including the handling, storing, stockpiling, and placement.

610-5.02 **Preparation of Subsoil for Turf Establishment.** The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work.

610-5.03 **Turf Establishment.** The unit price bid shall include the cost of all labor, materials and equipment including initial water, mulch and mulch anchorage as necessary to satisfactorily complete the work.

610-5.04 **Wildflower Seeding.** The unit price bid shall include the cost of all labor, materials and equipment including initial water, mulch and mulch anchorage necessary to satisfactorily complete the work.
LANDSCAPE DEVELOPMENT

610-5.05 Sod. The unit price bid shall include the cost of all labor, materials and equipment including initial water, necessary to complete the work. Topsoil bed placed under the sod shall be paid for separately.

610-5.06 Soil Amendments. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work, including water for hydraulic application.

610-5.07 Compost. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work.

610-5.08 Mulch for Planting. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work.

610-5.09 Permeable Weed Control Landscape Fabric. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

610-5.10 Watering Vegetation. The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work.

610-5.11 Weed Removal. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

610-5.12 Mowing. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

610-5.13 Mowing Limits Markers. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

Payment will be made under:

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<tr>
<th>Item No.</th>
<th>Item</th>
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<tbody>
<tr>
<td>610.0501</td>
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<td>Fertilizer</td>
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<td>Limestone</td>
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<td>Mulch for Planting Type E – Pine Nugget</td>
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<td>610.1202</td>
<td>Permeable Weed Control Landscape Fabric with Herbicide</td>
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<td>610.1402</td>
<td>Topsoil - Roadside</td>
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610.1403 Topsoil - Lawns Cubic Yard
610.1404 Topsoil - Special Planting Mix Cubic Yard
610.1405 Topsoil – Acidic Cubic Yard
610.1406 Topsoil – On-Site Wetland Materials Cubic Yard
610.1407 Topsoil – Wetland Materials Cubic Yard
610.15 Preparation of Subsoil for Turf Establishment Square Yard
610.1601 Turf Establishment - Roadside Square Yard
610.1602 Turf Establishment - Lawns Square Yard
610.17 Wildflower Seeding Square Yard
610.18 Sodding Square Yard
610.19 Watering Vegetation 1,000 Gallons
610.21 Mowing Square Yard
610.22 Mowing Limits Markers Each

SECTION 611 – PLANTING, TRANSPLANTING AND POST PLANTING CARE

611-1 DESCRIPTION.

611-1.01 General. Vacant

611-1.02 Planting. This work consists of furnishing, and planting trees, shrubs, vines, groundcovers and other plants in accordance with the contract documents and as directed by the Engineer.

611-1.03 Transplanting. This work consists of transplanting existing plants from existing locations to new locations in accordance with the contract documents and as directed by the Engineer.

611-1.04 Portable Drip Irrigation System. This work shall consist of furnishing, delivering, placing and removing Portable Drip Irrigation System (PDIS) for watering around newly planted trees and other vegetation in accordance with the contract documents and as directed by the Engineer.

611-1.05 Post-Planting Care. This work consists of the care of newly planted and transplanted trees, shrubs, vines, groundcovers and other plants in accordance with the contract documents and as directed by the Engineer.

611-1.06 Rodent Guards. This work shall consist of furnishing, delivering and placing rodent guards around newly planted trees and other vegetation in accordance with the contract documents and as directed by the Engineer.

611-2 MATERIALS

611-2.01 General. Materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

- Water 712-01
- Topsoil 713-01
- Mulch for Landscape Bedding 713-05
- Materials for the Protection of Plants 713-08
LANDSCAPE DEVELOPMENT

Compost 713-15

611-2.02 Planting. Trees, shrubs, vines, groundcovers and other plants shall be as specified under '713-06 and as further specified in the contract documents.

611-2.03 Transplanting. Plants shall be existing plants in accordance with '713-06.

611-2.04 Portable Drip Irrigation System. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing. Materials may be new or previously used that meet the following material requirements.

   Materials for the Protection of Plants 713-08

611-2.05 Post Planting Care. Materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

   Pesticides 713-13

611-2.06 Rodent Guards. Materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

   Materials for the Protection of Plants 713-08

611-3 CONSTRUCTION

611-3.01 General. Locations for plants shall be as specified in the contract documents. All plants for planting and transplanting shall be protected from damage and drying out, including during transportation, handling or while in temporary storage. No planting or transplanting shall be done when the soil is frozen, saturated (except in wetland conditions) or otherwise in an unsatisfactory condition for working. Planting seasons represent average times of suitable conditions between weather extremes. In general, planting or transplanting shall occur during these seasons. The Contractor may request an extension of the planting seasons.

<table>
<thead>
<tr>
<th>TABLE 611-1 PLANTING SEASONS</th>
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</thead>
<tbody>
<tr>
<td>Planting Seasons</td>
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<tr>
<td>Geographic locations (\text{NYSDOT Regions and Counties)}</td>
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</table>

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### LANDSCAPE DEVELOPMENT

<table>
<thead>
<tr>
<th>Locations</th>
<th>Start Date</th>
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<td>(USDA 5a-6a) R4, 5 &amp; 8 - All counties</td>
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<td>(USDA 6b-7a) R10, 11 - All counties</td>
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<td>3/1-5/31</td>
<td>8/15-10/31</td>
<td>10/1-12/15</td>
<td>8/15-12/15</td>
</tr>
<tr>
<td>All Locations</td>
<td>Bare Root stock shall be planted while dormant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Locations for plants and outlines of areas to be planted shall be staked or marked out on the ground by the Contractor and approved by the Engineer before any plant pits or plant beds are dug. Where non-movable underground obstructions are encountered, the plant pits shall be relocated as approved by the Engineer.

Existing vegetation shall be removed from all new planting beds.

Where an impervious layer of soil (hardpan, fragipan and soils with greater than 20% clay content) is encountered during the excavation of plant pits or beds, all such soil shall be removed up to a depth of one foot beyond required plant pit depth in order to provide adequate drainage for the plant. The pits or beds shall be backfilled with topsoil. Any additional excavation required to properly plant or transplant in impervious soils will be considered extra work.

Planting soil shall be unamended existing soil excavated from the plant pit unless otherwise specified. Watering shall accompany backfilling of plant. The Contractor shall perform the initial watering for backfilling plant so that no voids occur in the plant pit.

No tree shall be staked, guyed or anchored unless otherwise specified in the contract documents.

Mulch shall Type A or B unless otherwise specified in the contract documents and shall be placed at the time of planting or transplanting.

The Contractor shall water, weed and maintain mulch at no cost to the state until the newly planted or transplanted material is accepted.

Plants will be accepted when all specified plants meet the following conditions:
- Species has been verified and plant is in its designated location
- Planted or transplanted in accordance with ANSI A 300, Part 1, 2, 3 and 6 Standard Practices
- Planted or transplanted in accordance with 611 Standard sheets
- Living, healthy, unimpaired and in an undamaged condition

Watering, if specified, shall begin upon acceptance of the planting or transplanting and unless otherwise specified continue for one year or the duration of the contract, which ever is later. Watering after acceptance shall be performed as required in Section 610-3.09 Watering Vegetation and paid for separately. Installation of rodent guards if specified are paid for separately.
LANDSCAPE DEVELOPMENT

Plants that die after acceptance at any time during the contract duration shall be removed and unless otherwise specified, the surface area shall be restored to the condition of the adjacent surface at no additional cost to the state.

**611-3.02 Planting.** The Contractor shall notify the Engineer at least four calendar days before intended delivery of plants or planting materials to the site. The Contractor shall furnish the Engineer legible copies of the certificates of inspection of plant materials and documentation for each shipment showing point of origin, sizes, scientific names, quantities, and kinds of materials supplied.

Planting shall be in accordance with ANSI A300 Part 1, 2 and 3 *Standard Practices*.

Pruning at the time of planting shall be limited to the removal of dead, conflicting and broken branches; and to other pruning consistent with good horticultural practice in accordance with ANSI A300 Part 1 *Standard Practices*.

**611-3.03 Transplanting.** Transplanting shall be in accordance with ANSI A300 Part 1, 2, 3 and 6 *Standard Practices* and accomplished by a digging method intended to preserve the root system intact to the extent practicable. Planting soil shall be unamended existing soil excavated from the plant pit unless otherwise specified. Transplanted stock shall be pruned prior to transplanting in accordance with ANSI A300 Part 1 *Standard Practices*.

The Contractor shall take appropriate measures to avoid damage to plant during the transplanting operation including:

1. Provide trunk and branch Protection.
2. Treat plant with an anti-desiccant prior to being dug up
3. Protect all roots from drying out.
4. Prune damaged plant roots greater than 1 inch in diameter

Plants shall be set in a vertical position.

Where the contract duration allows plants greater than 6 inch DBH shall be root pruned up to one year prior to transplanting.

**611-3.04 Portable Drip Irrigation System (PDIS).** After the requirements for planting under Section 611 *Planting, Transplanting and Post Planting Care* are completed; the Contractor shall supply and install the required number and size of PDIS as recommended by the manufacturer for the trees planted. Watering shall be performed as required in Section 610-3.09 *Watering Vegetation* and paid for separately. All PDIS that are damaged and or missing shall be replaced at no added cost to the State.

The Contractor shall remove PDIS in the fall prior to the first frost. The PDIS shall remain the property of the Contractor.

**611-3.05 Post-Planting Care.** If specified, the Contractor shall care for planting as needed for one year following the satisfactory completion of all of the planting and/or transplanting or for the duration of the contract, which ever is later. The contractor shall prepare and submit a post-planting care work schedule for approval.

Post-planting care shall consist of:
1. Mulching – with materials to match those used in initial planting, twice to maintain a depth of 3 inches.
2. Weeding - twice
3. Integrated vegetation and pest management- in the event of threat of serious damage from insects or diseases the plants shall be treated by preventative or remedial measures.
4. Pruning (ANSI A300 Part 1) - once to prune dead or damaged branches.
LANDSCAPE DEVELOPMENT

5. Maintenance/Replacement of tree support system if present – once every six months
6. Removal of tree support system if present at the end of the post-planting care period.
7. Removal of rodent guards if present at the end of the post-planting care period

611-3.06 Rodent Guards. Vacant

611-4 METHOD OF MEASUREMENT.

611-4.01 Planting. The quantity to be measured for payment will be the number of plants placed.

611-4.02 Transplanting. The quantity to be measured for payment will be the number of plants placed.

611-4.03 Portable Drip Irrigation System (PDIS). The quantity of PDIS to be measured for payment will be the number of PDIS placed.
   The quantity of Removal of Portable Drip Irrigation System to be measured for payment will be the number of PDIS removed.

611-4.04 Post-Planting Care. The quantity to be measured for payment will be the number of plants cared for or nearest whole square yard on slope of plants cared for.

611-4.05 Rodent Guards. The quantity to be measured for payment will be the number of rodent guards placed.

611-5 BASIS OF PAYMENT.

611-5.01 Planting. The unit price bid for each plant shall include the cost of all labor, materials, and equipment, including initial watering and mulch, compost, plants and plant protection materials and topsoil necessary to satisfactorily complete the work.

611-5.02 Transplanting. The unit price bid for each plant shall include the cost of all labor, materials, and equipment, including initial watering, mulch, compost, plant and plant protection materials and topsoil necessary to satisfactorily complete the work.

611-5.03 Portable Drip Irrigation System. The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

611-5.04 Post-Planting Care. The unit price bid for each plant shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work. Progress payments for work satisfactorily performed may be paid at the mid point of the post-planting care in amounts not to exceed forty percent (40%) of the unit price bid for the respective work.

611-5.05 Rodent Guards. The unit price bid shall include the cost of all labor, materials, and equipment, necessary to satisfactorily complete the work.

Payment will be made under:

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<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
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<tbody>
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<td>611.011x</td>
<td>Planting - Major Deciduous Trees – size as specified</td>
<td>Each</td>
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### Landscape Development

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<td>Planting - Major Deciduous Trees – 1 ½ inch Caliper</td>
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<td>Planting - Major Deciduous Trees – 1 ¾ inch Caliper</td>
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<td>Planting - Deciduous Shrubs – 15 inch Height/Spread</td>
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<td>611.043</td>
<td>Planting - Deciduous Shrubs – 18 inch Height/Spread</td>
<td>Each</td>
</tr>
<tr>
<td>611.044</td>
<td>Planting - Deciduous Shrubs – 2 foot Height/Spread</td>
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</tr>
<tr>
<td>611.045</td>
<td>Planting - Deciduous Shrubs – 3 foot Height/Spread</td>
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</tr>
<tr>
<td>611.046</td>
<td>Planting - Deciduous Shrubs – 4 foot Height/Spread</td>
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<tr>
<td>611.047</td>
<td>Planting - Deciduous Shrubs – 5 foot Height/Spread</td>
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<td>611.048</td>
<td>Planting - Deciduous Shrubs – 6 foot Height/Spread</td>
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<tr>
<td>611.051</td>
<td>Planting - Evergreen Shrubs – As Specified</td>
<td>Each</td>
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<tr>
<td>611.052</td>
<td>Planting - Evergreen Shrubs – 15 inch Height/Spread</td>
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<td>Planting - Evergreen Shrubs – 18 inch Height/Spread</td>
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<tr>
<td>611.054</td>
<td>Planting - Evergreen Shrubs – 2 foot Height/Spread</td>
<td>Each</td>
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<tr>
<td>611.055</td>
<td>Planting - Evergreen Shrubs – 2 ½ foot Height/Spread</td>
<td>Each</td>
</tr>
<tr>
<td>611.056</td>
<td>Planting - Evergreen Shrubs – 3 foot Height/Spread</td>
<td>Each</td>
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<tr>
<td>611.057</td>
<td>Planting - Evergreen Shrubs – 3 ½ foot Height/Spread</td>
<td>Each</td>
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<tr>
<td>611.058</td>
<td>Planting - Evergreen Shrubs – 4 foot Height/Spread</td>
<td>Each</td>
</tr>
<tr>
<td>611.059</td>
<td>Planting - Evergreen Shrubs – 5 foot Height/Spread</td>
<td>Each</td>
</tr>
</tbody>
</table>

x = Root Specification  
1 = Ball & Burlap, Field Potted or Field Boxed,  
2 = Container or Box Grown,  
02528=2008: 610-615,713
LANDSCAPE DEVELOPMENT

3 = Bare Root, 4 = In Ground Fabric Bag Grown

611.061y Planting – Vines, Groundcovers – As Specified Each
611.062y Planting – Vines, Groundcovers – Number SP3 Container Each
611.063y Planting – Vines, Groundcovers – Number SP4 Container Each
611.064y Planting – Vines, Groundcovers – Number SP5 Container Each
611.065y Planting – Vines, Groundcovers – Number 1 Container Each
611.066y Planting – Vines, Groundcovers – Number 2 Container Each
611.071y Planting - Herbaceous Plants – As Specified Each
611.072y Planting - Herbaceous Plants – Number SP4 Container Each
611.073y Planting - Herbaceous Plants – Number SP5 Container Each
611.074y Planting - Herbaceous Plants – Number 1 Container Each
611.075y Planting - Herbaceous Plants – Number 2 Container Each

y = Type Specification
1 = Container Grown, 2 = Bare Root
3 = Field Potted,

611.10 Transplanting 0 to 48 inch in height Each
611.11 Transplanting over 48 inch to 72 inches in height Each
611.12 Transplanting, over ¾ inch to 3 inches Diameter at Breast Height Each
611.13 Transplanting, over 3 inches to 6 inches Diameter at Breast Height Each
611.14 Transplanting over 6 inches to 12 inches Diameter at Breast Height Each
611.15 Transplanting Vines, Groundcovers, Each
611.16 Transplanting Herbaceous Plants Each
611.17 Portable Drip Irrigation System Each
611.18 Removal of Portable Drip Irrigation System Each
611.19 Post-Planting Care Each
611.20 Post-Planting Care Square yard
611.21 Rodent Guard Each

Refer to the Contract Proposal for full item number and full description

SECTION 612 - (VACANT)

SECTION 613 - (VACANT)

SECTION 614 - PRUNING, IMPROVING AND REMOVING EXISTING VEGETATION

614-1 DESCRIPTION.

614-1.01 Pruning Existing Trees. This work shall consist of pruning existing trees as shown in the contract documents and as directed by the Engineer.
LANDSCAPE DEVELOPMENT

614-1.02 Improvement of Vegetated Areas. This work shall consist of cutting, disposing of all wood and debris, stump removal, or mechanical or chemical treatment of specified trees and woody vegetation within the area shown in the contract documents and as directed by the Engineer.

614-1.03 Tree Removal. The work shall consist of felling trees over 4 inch in diameter at breast height, disposing of all wood and debris, and may require topping, stump removal and other work as shown in the contract documents and as directed by the Engineer.

614-1.04 Existing Stump Removal. The work shall consist of removing existing stumps, disposing of all wood and debris, as shown in the contract documents and as directed by the Engineer.

614-1.05 Tree Root Zone Treatment (Vertical Mulching/Aeration). This work shall consist of treating the root zone of trees through aeration and/or mulching of the roots as shown in the contract documents and as directed by the Engineer.

614-1.06 Tree Root Pruning. This work shall consist of cleanly pruning, existing tree roots severed during construction operations, typically related to linear excavation, as shown in the contract documents and as directed by the Engineer.

614-2 MATERIALS

614-2.01 Pruning Existing Trees. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

- Water 712-01

614-2.02 Improvement of Vegetated Areas. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

- Topsoil 713-01
- Pesticides 713-13

614-2.03 Tree Removal. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

- Topsoil 713-01

614-2.04 Existing Stump Removal. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

- Topsoil 713-01

614-2.05 Tree Root Zone Treatment (Vertical Mulching/Aeration). The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

- Mortar Sand 703-03
- Mycorrhizal Fungi 713-09
- Compost 713-15

614-2.06 Tree Root Pruning. The materials shall meet the requirements of the following subsections of Section 700 Materials and Manufacturing.

- Water 712-01
614-3 CONSTRUCTION DETAILS

614-3.01 Pruning Existing Trees

A. Equipment. Workers shall employ accepted tree climbing methods, and shall not climb trees with climbing spurs. All tools used and methods employed in accordance ANSI A300 Part 1 Standard Practices, except that no anvil type pruners will be permitted. The cutting surfaces of all tools, ladders, ropes, soles of workers shoes and other objects coming into contact with the tree shall be disinfected with a 2% bleach solution and dried completely prior to the start of any work on a tree to prevent the spread of plant diseases.

B. Pruning. Pruning shall be in accordance ANSI A300 Part 1 Standard Practices. When specified the quantity of trees as shown in the contract documents shall be pruned so the resulting crown retains the growth habit of the tree species. Any and all branches interfering with or hindering the healthy growth of the tree shall be removed. All diseased branches and all dead branches 1 inch or more in diameter shall be removed. Any branch which may be partly dead, yet has a healthy lateral branch at least one-third the diameter of the parent branch shall be removed beyond the healthy branch. All stubs or improper cuts resulting from former pruning shall be removed. All cuts shall be cleanly made with sharp tools as close to the parent trunk or limb as possible without disturbing the branch bark ridge or callus collar. All existing nails, spikes, wire, plastic or other materials found driven into or fastened to the trunk or branches shall be removed or if approved they shall be cut flush in a manner to permit complete healing over.

614-3.02 Improvement of Vegetated Areas. All trees and shrubs specified for removal will be designated by the Engineer either by separate marking, marking in sample areas, or otherwise. Unless otherwise specified, all stumps shall be cut to a height of about 6 inches above the ground. Unless otherwise specified, an approved herbicide shall be applied to all live stumps in accordance with the manufacturer's recommendations. An approved dye shall be added to the herbicide mixture to identify treated stumps and stubble. Where stump removal is specified, all stump holes shall be backfilled with topsoil, unless otherwise specified in the contract documents, and backfill shall be compacted. Unless otherwise specified in the contract documents, grass shall be established on stump holes and will be paid for separately.

Care shall be taken in the felling of trees and the operation of equipment to prevent injury to trees and shrubs which are to be preserved. All injuries to the limbs, bark and roots of such plants shall be repaired in accordance with ANSI A300 Part 1 Standard Practices Pruning and ANSI Z133.1 Arboricultural Operations Safety.

Improvement of vegetated areas shall be completed in any area before any planting, seeding or other landscape work is begun in that area unless otherwise approved.

All wood, stumps, brush and other debris resulting from the work shall be disposed of as specified in Section 201 Clearing and Grubbing.

614-3.03 Tree Removal. No tree shown in the contract documents or listed for removal shall be cut until it is approved by the Engineer. The contractor shall be responsible to coordinate all work involving utilities with the respective utility company. All trees shall be topped and limbed before felling unless otherwise approved. All injuries to the limbs, bark and roots of plants to remain shall be repaired in
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accordance with ANSI A300 Standard Practices Pruning and ANSI Z133.1 Arboricultural Operations Safety.

The Contractor shall field measure all trees at 4 ½ feet above the ground, commonly referred to as Diameter Breast Height (DBH) before they are cut.

Stumps of trees removed under this item for removal shall be grubbed, cut, ground to the depth of six inches below grade or as specified in the contract documents. All stump holes shall be backfilled with topsoil, unless otherwise specified in the contract documents and backfill shall be compacted. Unless otherwise specified in the contract documents, grass shall be established on stump holes and will be paid separately.

614-3.04 Existing Stump Removal. Existing stumps listed for removal in the contract documents shall be ground to the depth of 6 inches below grade unless otherwise specified in the contract documents. Stumps shall include all visible wood and roots. Backfill to finished grade with topsoil, unless otherwise specified in the contract documents. The backfill shall be compacted. Unless otherwise specified in the contract documents, grass shall be established on stump holes and will be paid separately.

614-3.05 Tree Root Zone Treatment (Vertical Mulching/Aeration). Locations of work shall include areas within the dripline or wider root zone of existing trees to be preserved as shown on the contract documents.

Appropriate drilling tools shall be used for drilling of holes for root zone restoration. Drilling equipment shall be hand held or light weight devices (no heavy machinery) so as to avoid further impact to tree roots through compaction.

Holes shall be drilled and existing soil removed within a zone beginning 3 feet from the trunk of the specified tree and extending to its dripline on an approximately 2 foot x 2 foot grid. Dimensions of holes or drill size shall be approximately 2 inches in diameter and a minimum of 12 inches deep. Efforts should be made to minimize drilling through large tree roots (especially near the trunk). When woody roots are encountered, the drill hole shall be moved to avoid root damage.

The hole shall be completely filled to original grade as follows:
Method 1: with mortar sand
Method 2: with mortar sand amended with Mycorrhizal Fungi.
Method 3: with compost.
Method 4: with compost amended with Mycorrhizal Fungi.

When mycorrhizal fungi are specified, they shall be a dry granular powder specifically designed for vertical mulching applications. Apply in accordance with the manufacturer’s recommendations at a rate of 3 ounces per hole or when pre-mixed in bulk 5 pounds per cubic yard of sand or compost.

614-3.06 Tree Root Pruning. Existing tree roots greater than 1 inch in diameter, measured at the edge of excavation, shall be pruned within 24 hours of the time they have been damaged by construction activity. The severed root shall be pruned at the edge of excavation, or 1 inch beyond the entire damaged portion of the tree root if damaged root extends beyond the edge of excavation into undisturbed soil. Pruning shall be in accordance with ANSI A300 Part 1 Standard Practices Pruning and ANSI Z133.1 Arboricultural Operations Safety. All cuts shall be cleanly made with sharp tools. The cutting surfaces of all tools, ladders, ropes, soles of workers shoes and other objects coming into contact with the tree roots shall be washed with a disinfectant at the start of any work on a tree to prevent the spread of plant diseases.
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The excavated area around the existing tree roots shall be backfilled as soon as construction activities permit with the specified or approved materials. If the excavated area around the existing tree roots is not backfilled within 24 hours, all roots shall be kept moist, to prevent dessication.

614-4 METHOD OF MEASUREMENT

614-4.01 Pruning Existing Trees. The quantity to be measured for payment will be the number of trees pruned.

614-4.02 Improvement of Vegetated Areas. The quantity to be measured for payment will be in square yards measured to the nearest whole square yard of area improved.

614-4.03 Tree Removal. The quantity to be measured for payment will be the number of trees, including their stumps if specified.

614-4.04 Pre-Existing Stump Removal. The quantity to be measured for payment will be the number of pre-existing stumps removed.

614-4.05 Tree Root Zone Treatment (Vertical Mulching/Aeration). The quantity to be measured for payment will be in square yards treated within the zone, measured to the nearest square yard.

614-4.06 Tree Root Pruning. The quantity to be measured for payment will be in feet to the nearest whole foot, along excavation line.

614-5 BASIS OF PAYMENT

614-5.01 Pruning Existing Trees. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

614-5.02 Improvement of Vegetated Areas. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

614-5.03 Tree Removal. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

When trees are specified in the contract documents for removal, payment for each tree removal will include removal of the stump.

614-5.04 Existing Stump Removal. The unit price bid shall include the cost of labor, materials, and equipment necessary to satisfactorily complete the work.

614-5.05 Tree Root Zone Treatment. The unit price bid shall include the cost of labor, materials, equipment and incidentals necessary to complete the work. Mycorrhizal Fungi and mulch will be paid for separately.

614-5.06 Tree Root Pruning. The unit price bid shall include the cost of labor, materials, equipment and incidentals necessary to complete the work.
LANDSCAPE DEVELOPMENT

Payment will be made under:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>614.0411</td>
<td>Care of Trees up to 12” Diam. at Breast Height – Pruning</td>
<td>Each</td>
</tr>
<tr>
<td>614.0421</td>
<td>Care of Trees Over 12” to 24” Diam. at Breast Height - Pruning</td>
<td>Each</td>
</tr>
<tr>
<td>614.0431</td>
<td>Care of Trees Over 24” to 36” Diam. at Breast Height - Pruning</td>
<td>Each</td>
</tr>
<tr>
<td>614.0441</td>
<td>Care of Trees Over 36” to 48” Diam. at Breast Height – Pruning</td>
<td>Each</td>
</tr>
<tr>
<td>614.0451</td>
<td>Care of Trees Over 48” to 60” Diam. at Breast Height – Pruning</td>
<td>Each</td>
</tr>
<tr>
<td>614.0461</td>
<td>Care of Trees Over 60” Diam. at Breast Height – Pruning</td>
<td>Each</td>
</tr>
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<td>614.05</td>
<td>Improvement of Vegetated Areas</td>
<td>Square Yard</td>
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<td>614.0601nn</td>
<td>Tree Removal Over 4” to 6” Diam. Breast Height</td>
<td>Each</td>
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<td>Tree Removal Over 6” to 12” at Breast Height</td>
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</tr>
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<td>Tree Removal Over 12” to 18” at Breast Height</td>
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<td>Tree Removal Over 18” to 24” at Breast Height</td>
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<td>Tree Removal Over 24” to 36” at Breast Height</td>
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<tr>
<td>614.0606nn</td>
<td>Tree Removal Over 36” to 48” at Breast Height</td>
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<td>614.0607nn</td>
<td>Tree Removal Over 48” to 60” at Breast Height</td>
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<tr>
<td>614.0608nn</td>
<td>Tree Removal Over 60” to 72” at Breast Height</td>
<td>Each</td>
</tr>
</tbody>
</table>

nn = Stump Treatment
01 = Stumps Cut to Above Grade, 02 = Stumps Cut Flush,
03 = Stumps Cut to Below Grade, 04 = Stumps Grubbed

<table>
<thead>
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<th>Item No.</th>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>614.0701</td>
<td>Pre-Existing Stump Removal up to 24” diameter at 6 inches above grade</td>
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<td>614.0702</td>
<td>Pre-Existing Stump Removal over 24” to 48” diameter at 6 inches above grade</td>
<td>Each</td>
</tr>
<tr>
<td>614.0703</td>
<td>Pre-Existing Stump Removal over 48” diameter at 6 inches above grade</td>
<td>Each</td>
</tr>
<tr>
<td>614.08</td>
<td>Tree Root Zone Treatment (Vertical Mulching/Aeration)</td>
<td>Square Yard</td>
</tr>
<tr>
<td>614.09</td>
<td>Tree Root Pruning</td>
<td>Feet</td>
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</table>

SECTION 615 LANDSCAPE APPURTEYNANCES

615-1 DESCRIPTION. The work in this section shall include all work required for furnishing, placing, and/or special construction of landscape appurtenances.

615-2 MATERIALS. As specified in the special specifications.

615-3 CONSTRUCTION DETAILS. As specified in the special specifications.

615-4 METHOD OF MEASUREMENT. As specified in the special specifications.

615-5 BASIS OF PAYMENT. As specified in the special specifications.

Make the following changes to the Standard Specifications dated May 1, 2008. Pages 893 to 906, Delete Section 713 in its entirety and Replace it with the following:

SECTION 713 - LANDSCAPE DEVELOPMENT MATERIALS
713-01 TOPSOIL

SCOPE. This specification covers the material requirements for topsoil for use in turf establishment, wildflower seeding, sodding, and planting.

MATERIAL REQUIREMENTS. Topsoil may be naturally occurring or may be manufactured. If naturally occurring topsoil exists on the site it shall be the surface layer of soil at a depth specified in the contract documents or approved by the engineer.

Manufactured topsoil is a mixture of materials comprised of a mineral(soil) component that by itself does not exhibit the properties and characteristics of topsoil, an organic material component consisting of compost(s) meeting the requirements of §713-15 Compost, and amendment(s), such as limestone meeting the requirements of §713-02 Limestone that, when combined together, meet the requirements for topsoil. For manufactured topsoil the contractor shall thoroughly mix the organic portion with the granular portion under dry conditions.

Topsoil shall be free from refuse, material toxic or otherwise deleterious to plant growth, subsoil, sod clumps, seeds or other viable propagules of invasive plants, woody vegetation and stumps, roots, brush, refuse, stones, clay lumps, or similar objects. Construction and demolition debris as classified under 6 NYCRR Part 360, other than uncontaminated land clearing debris, shall not be used to manufacture or amend topsoil. Sod and herbaceous growth such as grass and non-invasive weeds need not be removed but shall be thoroughly broken up and mixed with the soil during handling or manufacturing operations.

A. Topsoil-Reuse of On-Site Materials. Existing topsoil stripped and reclaimed in accordance with Section 203 Excavation and Embankment taken from sites within the contract limits. The general limits and depth of the material to be utilized for topsoil will be indicated in the Contract documents. Where no depth is indicated it shall be 6 inches. Topsoil shall be stored on site. Based on visual inspection by the Engineer, topsoil may require screening to meet this requirement.

| Gradation: | 
| Sieve Size | Percent Passing by Weight |
| 2 inch | 100 |
| 1 inch | 85 to 100 |

B. Manufactured or Offsite Materials.

1. Topsoil -Roadside
   - The pH of the material shall be between 5.5 and 7.6.
   - The organic content shall be not less than 3% or more than 8%

| Gradation: | 
| Sieve Size | Percent Passing by Weight |
| 2 inch | 100 |
| 1 inch | 85 to 100 |
| 1/4 inch | 65 to 100 |
| No. 200 | 20 to 65 |
| 2 Micron | 0 to 20 |

2. Topsoil -Lawn
   - The pH of the material shall be between 5.5 and 7.6.
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-The organic content shall be not less than 6% or more than 12%

<table>
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<tr>
<th>Sieve Size</th>
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<tbody>
<tr>
<td>1 inch</td>
<td>100</td>
</tr>
<tr>
<td>No. 10</td>
<td>90 to 100</td>
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<tr>
<td>No. 40</td>
<td>45 to 80</td>
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<tr>
<td>No. 200</td>
<td>25 to 70</td>
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<tr>
<td>2 Micron</td>
<td>5 to 35</td>
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</tbody>
</table>

3. Topsoil - Special Planting Mix
-The pH of the material shall be between 5.5 and 7.0.
-The organic content shall be not less than 10% or more than 15%.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing by Weight</th>
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<tbody>
<tr>
<td>2 inch</td>
<td>100</td>
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<tr>
<td>1 inch</td>
<td>85 to 100</td>
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<tr>
<td>1/4 inch</td>
<td>65 to 100</td>
</tr>
<tr>
<td>No. 200</td>
<td>20 to 40</td>
</tr>
<tr>
<td>2 Micron</td>
<td>5 to 35</td>
</tr>
</tbody>
</table>

4. Topsoil - Acidic
-The pH of the material shall be between 4.8 and 6.0.
-The organic content shall be not less than 6% or more than 15%.

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<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing by Weight</th>
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</thead>
<tbody>
<tr>
<td>1 inch</td>
<td>100</td>
</tr>
<tr>
<td>No. 10</td>
<td>90 to 100</td>
</tr>
<tr>
<td>No. 40</td>
<td>25 to 70</td>
</tr>
<tr>
<td>No. 200</td>
<td>5 to 10</td>
</tr>
<tr>
<td>2 Micron</td>
<td>5 to 35</td>
</tr>
</tbody>
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C. Topsoil - Wetland

1. Topsoil - On-Site Wetland Materials. Existing wetland soil stripped and reclaimed from existing impacted delineated wetlands sites in accordance Section 203 Excavation and Embankment taken from within the contract limits and to the depth specified in the contract documents. This wetland soil shall be exempt from the Sampling & Testing requirements.

2. Topsoil - Offsite or Manufactured Wetland Materials. These materials shall meet the following requirements:
The pH of the material shall be between 5.0 and 7.0.
The organic content shall be not less than 15% or more than 20% dry weight basis and be comprised of leaf or well rotted manure compost meeting the requirements of §713-15 Compost. Granular material shall be naturally occurring mineral soil

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing by Weight</th>
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</table>
STOCKPILING, SAMPLING & TESTING.

Topsoil-Reuse of On-Site Materials and Topsoil- On-Site Wetland Materials: Topsoil acquired from sites that are designated in the contract documents are not subject to requirements for stockpiling, sampling, and testing.

Topsoil Types Roadside, Lawns & Special Planting Mix, Acidic, and Topsoil - Manufactured or Offsite Wetland Materials are subject to the requirements for stockpiling, sampling and testing.

Stockpiling. The details for stockpiling methods and requirements may be obtained from the Landscape Architecture Bureau.

Sampling. The details for sampling methods and requirements may be obtained from the Landscape Architecture Bureau.

Samples taken for topsoil amended or manufactured with approved composted biosolids shall be identified as such.

Contractors who believe that an error was made in sampling the topsoil shall, within one work day, indicate the alleged error in writing to the Engineer. The Engineer will respond within 7 calendar days.

TESTING.

Composted Biosolids. Composted biosolids used to amend or manufacture topsoil shall conform to the applicable requirements of §713-15 Compost. Composted biosolids shall require a certificate, from a laboratory approved by the NYS Department of Health, verifying compliance with all applicable laws, rules, and regulations. The certification shall be provided to the Engineer by the Contractor prior to the delivery of any composted biosolids, topsoil containing composted biosolids, or other such regulated material to the contract site. The material shall be approved before it is used.

The Contractor shall have topsoil that has been amended with approved composted biosolids or other such regulated material tested to ensure compliance with the pH organic content, and gradation requirements certified by a nationally recognized entity which provides soils laboratory services and provide the laboratory results to the Engineer.

Topsoil Testing. All other material tests required by this section, will be performed by the Department or its designated representative, in conformance with the procedures contained in the appropriate Department publications or test methods. The details for testing methods and requirements may be obtained from the Materials Bureau.

Stockpiles meeting all requirements for pH, organic and gradation may be accepted and used.

Stockpiles that when tested fail to meet requirements for pH or organic may be amended in place. A stockpile that fails to meet gradation requirements may not be accepted. The Contractor shall provide a plan for amending pH and/or organic to the Engineer certified by a nationally recognized entity which provides soils laboratory services. Once the Department accepts the plan and certification the Contractor may amend the stockpile. Re-testing of the stockpile is not required prior to placing the topsoil materials.
BASIS OF ACCEPTANCE. Topsoil-Reuse of On-Site Materials and Topsoil- On-Site Wetland
Materials will be accepted on the basis of a visual inspection.
   Topsoil - Roadside, Topsoil – Lawns, Topsoil - Special Planting Mix, Topsoil - Acidic, and Topsoil -
Manufactured or Offsite Wetland Materials will be accepted on the basis of the stockpile meeting all the
requirements or the stockpile material meeting all gradation requirements and a plan and certification
approved by Engineer for amending pH and organic requirements.

713-02 LIMESTONE

SCOPE. This specification covers the material requirements for limestone.

MATERIAL REQUIREMENTS. Limestone shall be ground limestone having a minimum total
neutralizing value of 88% calcium carbonate equivalence. A minimum of 90% shall pass the No. 20 sieve
and a minimum of 60% shall pass the No. 100 sieve.

PACKAGING. Packaged agricultural limestone packed in the manufacturer's standard containers shall
weigh not over 100 lbs each, with the name of the material, net weight of contents and the manufacturer's
name and guaranteed analysis appearing on each container.

BULK DELIVERY. Bulk delivery of limestone shall be accompanied by a certificate providing the
names, weight and analysis as specified herein for packaged material.

BASIS OF ACCEPTANCE. Limestone will be accepted on the basis of the manufacturer's label or
certificate and visual inspection for compliance with the material requirements.

713-03 FERTILIZER

SCOPE. This specification covers the material requirements for fertilizers.

MATERIAL REQUIREMENTS. Fertilizers may be either fluid or dry formulations of commercial
carriers of available plant nutrients. Fertilizers may also be provided in standardized packets designed to
control the release of their contents over a specified period of time.
   The following mixed commercial fertilizers shall contain total nitrogen, phosphoric acid and soluble
potash in the ratios stated:

   Type A. 2-1-1 or 3-1-1 (approximate analysis). Minimum of 50% water insoluble nitrogen and
with a salt index of less than 50.

   Type B. 1-2-1 (approximate analysis) 50 % Organic/IBDU (Isobutydine diurea)/ or coated for
slow release with a water in-soluble nitrogen (WIN).

   Type C. Nitrate of soda containing a minimum of 16% nitrogen or Ammonium sulfate containing
a minimum of 20.5% nitrogen as appropriate to soil conditions.
LANDSCAPE DEVELOPMENT

Type D.  Bonemeal shall be commercial steamed bonemeal, finely ground with a minimum of 1.0% nitrogen and a minimum of 20% phosphoric acid.

Type E.  13-0-0 (approximate analysis) shall be a commercial slow release organic nitrogen fertilizer such as blood meal

PACKAGING.  Packaged fertilizers shall be in the manufacturer's standard containers or packets. Containers shall weigh not more than 100 lbs and shall include a label stating the name of the material, the net weight of the contents, the manufacturer's name, and the guaranteed analysis of the fertilizer. Labels on containers of fluid fertilizers shall state the net volume of the container. Packets shall include a label stating the name of the material, the net weight of the contents, the manufacturer's name, and the guaranteed analysis of the fertilizer.

BULK DELIVERY.  Bulk delivery of fertilizer shall be accompanied by the manufacturer's certificate stating the name of the manufacturer, the guaranteed analysis and the weight of the shipment. Certificates accompanying bulk deliveries of fluid fertilizers shall also state the net volume of the shipment.

BASIS OF ACCEPTANCE.  Fertilizer will be accepted on the basis of the manufacturer's label or certificate indicating conformance with this specification and visual inspection. Material that has become caked or otherwise damaged will be rejected.

713-04 SEEDS

SCOPE.  This specification covers the material requirements for seeds for grasses, legumes, wildflowers and cereals.

MATERIAL REQUIREMENTS.  All species and their cultivars or varieties must be disease and insect resistant, not considered noxious or invasive, guaranteed hardy and adapted for the locality, and among the top 25% of commercially-available seed types as rated by NTEP (National Turfgrass Evaluation Program). Cultivars infected with non-pathogenic (non-disease causing) fungal endophytes are preferred, if available. Experimental varieties should be excluded.

Material other than pure live seed shall comprise only nonviable seed, chaff, hulls, live seed of crop plants other than those specified, harmless inert matter and non-noxious, non-invasive weed species seeds. Non-noxious, non-invasive species weed seeds will be permitted up to 1% of the gross weight of each seed mixture.

Seeding mixtures shall be composed of perennial (except for annual rye) grasses suited to the site conditions, use, soils, moisture and local climate. All seeds of leguminous plants requiring inoculation shall be inoculated prior to mixing or sowing unless otherwise specified or approved or unless accompanied by a certificate of preinoculation. The Contractor may propose a dormant seed additive for cold weather seeding at no additional cost to the state. The Contractor may propose an alternate range for a component of a given mix based on regional and commercial availability.

A. General Roadside Seed Mix

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Variety</th>
<th>Percent by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Fescue (2 varieties min. must include creeping red)</td>
<td>Festuca rubra var.</td>
<td>Commercial</td>
<td>50-70</td>
</tr>
<tr>
<td>Perennial Ryegrass (2 var. min.)</td>
<td>Lolium perenne</td>
<td>Commercial “turf” type</td>
<td>15-40</td>
</tr>
</tbody>
</table>

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### LANDSCAPE DEVELOPMENT

#### B. Restoration/High-Traffic Seed Mix

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Variety</th>
<th>Percent by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky Bluegrass (2 var. min.)</td>
<td>Poa pratensis</td>
<td>Commercial</td>
<td>5-20</td>
</tr>
<tr>
<td>Fine Fescue (2 var. min.; must include creeping red)</td>
<td>Festuca rubra var.</td>
<td>Commercial</td>
<td>15-40</td>
</tr>
<tr>
<td>Tall Fescue (2 var. min.)</td>
<td>Festuca arundinacea</td>
<td>Commercial “turf” type</td>
<td>25-50</td>
</tr>
<tr>
<td>Perennial Ryegrass (2 var. min.)</td>
<td>Lolium perenne</td>
<td>Commercial “turf” type</td>
<td>10-30</td>
</tr>
<tr>
<td>Annual Ryegrass</td>
<td>Lolium multiflorum</td>
<td>Commercial</td>
<td>5-15</td>
</tr>
<tr>
<td>Ticklegrass (or, if unavailable, Redtop)</td>
<td>Agrostis scabra</td>
<td>Commercial</td>
<td>0-15</td>
</tr>
<tr>
<td>Clover (White preferred)</td>
<td>Trifolium repens</td>
<td>Commercial</td>
<td>0-5</td>
</tr>
</tbody>
</table>

#### C. Lawn Seed Mix

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Variety</th>
<th>Percent by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky Bluegrass (3 var. min.)</td>
<td>Poa pratensis</td>
<td>Commercial</td>
<td>15-40</td>
</tr>
<tr>
<td>Fine Fescue (2 var. min. must include creeping red)</td>
<td>Festuca rubra var.</td>
<td>Commercial</td>
<td>30-50</td>
</tr>
<tr>
<td>Perennial Ryegrass (2 var. min.)</td>
<td>Lolium perenne</td>
<td>Commercial “turf” type</td>
<td>15-40</td>
</tr>
<tr>
<td>Annual Ryegrass</td>
<td>Lolium multiflorum</td>
<td>Commercial</td>
<td>5-15</td>
</tr>
</tbody>
</table>

#### D. Salt-Tolerant Seed Mix

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Variety</th>
<th>Percent by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Fescue (must include creeping red and hard fescue)</td>
<td>Festuca rubra var. &amp; Festuca longifolia*</td>
<td>Commercial</td>
<td>10-25</td>
</tr>
<tr>
<td>Perennial Ryegrass (2 var. min.)</td>
<td>Lolium perenne</td>
<td>Commercial “turf” type</td>
<td>10-40</td>
</tr>
<tr>
<td>Tall Fescue (2 var. min., selected for maximum salt tolerance)</td>
<td>Festuca arundinacea</td>
<td>Commercial “turf” type</td>
<td>25-45</td>
</tr>
<tr>
<td>Ticklegrass (or, if unavailable, Redtop)</td>
<td>Agrostis scabra</td>
<td>Commercial</td>
<td>5-10</td>
</tr>
<tr>
<td>Alkaligrass (weeping preferred)</td>
<td>Puccinellia distans</td>
<td>Commercial</td>
<td>15-40</td>
</tr>
</tbody>
</table>

*aka. F. trachyphylla Krajina; F. brevripila Tracey

**Wildflower Seed Mix.** Wildflower seed mix shall be as specified in contract documents

**Nomenclature.** The common and scientific names of grasses, legumes, wildflowers and cereals specified in the contract documents shall conform to one or more of the authorities on botanical nomenclature recognized by the American Association of Nurserymen.

**Stratification.** Seeds in Wildflower Seed Mixes that require cold and/or warm stratification in order to germinate shall be prepared prior to sowing or used only in fall planting mixes.
**LANDSCAPE DEVELOPMENT**

**Legume Inoculants.** Legume seeds requiring inoculation shall be accompanied by adequate amounts of their proper inoculants unless accompanied by certification of preinoculation. Inoculants for treating legume seeds shall be a standard culture of nitrogen fixing bacteria that is not more than one year old. Each inoculant shall be the specific culture required for each legume. Inoculants shall be supplied only from suppliers licensed by the Department of Agriculture and Markets to sell legume inoculants in New York State.

**PACKAGING.** Seeds shall be furnished and delivered in labeled containers or bags that are acceptably sealed or sewn tight. All seed and seed labels shall be in accordance with Agriculture and Markets Law. Container or bag labels shall not be removed prior to the time of sowing nor shall container labels be altered, obliterated or otherwise illegible.

When seeds are to be accepted by certification, they may be mixed prior to delivery. The certification shall consist of the label that shall be attached to each container of seed in accordance with the provisions of the Agriculture and Markets Law. Seeds will not be accepted by certification unless the test dates shown on the seed container labels are within the twelve months prior to the date that the seeds are sown.

Seeds shall be furnished damage free, with no mold, rot or deterioration, as a result of handling, transit or storage. After delivery to the Contractor, seed shall be stored so that it is protected from damage or deterioration from any source.

**BASIS OF ACCEPTANCE.** Seeds will be accepted on the basis of the manufacturer's label or certificate indicating conformance with this specification and Agriculture and Markets Law.

**713-05 MULCH FOR PLANTING**

**SCOPE.** This specification covers the material requirements for wood and bark chips used as mulch, landscape bedding or erosion control.

**MATERIAL REQUIREMENT.** Wood and bark chips used for mulch, landscape bedding or erosion control may be the following.

**TYPE A Seasoned Wood Chips.** This shall be derived from 100% first generation hardwood or softwood. The chips shall be seasoned (aged a minimum of 1 year), free from leaves, young growth, unchipped branches, twigs 1 inch or greater in diameter, wood shavings, sawdust or foreign materials such as stones, nails, plastic, etc. Wood chips shall not exceed 3 inches in the greatest dimension.

**TYPE B Recycled or Green Wood Chips.** Shall be wood chips derived from unadulterated construction and/or demolition waste wood. Wood chips derived from construction and/or demolition waste wood shall not be contaminated with paint, chemicals, asphalt shingles, glass, nails, etc. Wood chips shall not exceed 3 inches in the greatest dimension.

**TYPE C USDA-APHIS Protocol Wood Chips.** USDA-APHIS (United States Department of Agriculture- Animal and Plant Health Inspection Service) Protocol wood chips shall be wood chips from current construction activities derived from trees removed and chipped according to USDA-APHIS protocol. Wood is chipped or mulched to less than 1 inch in at least two dimensions or apply an APHIS approved method.
Type D Shredded Bark Mulch. Shredded bark mulch shall be commercially available double or triple-processed aged bark mulch made from a mixture of hardwood and/or softwood. It shall be created by regrinding the mulch in a tub grinder and be finely screened to a uniform particle size. It shall be composed of bark and have a low wood content with no hidden woods from construction and demolition debris or pressure treated lumber.

Type E Pine Bark Chunks or Nuggets. Pine Bark chunks or nuggets shall be commercially available, manufactured from 100% pine bark and shall not exceed 3 inches.

BASIS OF ACCEPTANCE. Wood and bark chips will be accepted on the basis of visual inspection, upon delivery, for compliance with the materials requirements and applicable certification of compliance with 6 NYCRR Part 360. Shredded bark mulch will be accepted on the basis of a visual inspection for compliance with the material requirements.

713-06 TREES, SHRUBS AND VINES

SCOPE. This specification covers the material requirements for trees, shrubs, vines, and other plants

MATERIAL REQUIREMENT.

Nomenclature. The common and scientific nomenclature for plants shall be in conformity with the American Nursery and Landscape Association’s American Standard for Nursery Stock (ANSI Z60.1).

Quality and Size. Plants, including root spread and ball size, shall be in accordance with the American Standard for Nursery Stock (ANSI Z60.1). All plants shall have a normal habit of growth and be typically characteristic of their respective kinds. The specified plant sizes shall be the minimum size allowed and shall include plants from that size up to but not including the next larger size. Plants shall not be pruned at the time of digging or before delivery and no plants shall be cut back from larger sizes to meet the sizes specified. Plants shall be free from injury, insect damage, infestation and disease. Plants except those for transplanting shall be nursery and/or field grown and shall bear evidence of proper nursery care, including adequate transplanting and root pruning. Containers shall be sufficiently rigid to hold the ball shapes and protect the root balls during handling and shipping. Plants shall have been grown in the container long enough for new fibrous roots to have developed so that the root ball is firm and will retain its shape and hold together when removed from the container. The plants shall be in a healthy growing condition with tops which are of good quality, and shall have been adequately hardened off before shipment. The plants shall have been grown in similar climatic conditions to the planting location.

Digging Plants. Digging shall avoid all possible injury to, or loss of roots, but when required, roots cut shall be cleanly cut. No cold storage plants will be accepted unless approved in writing prior to delivery. Plants stored temporarily shall be properly heeled in or otherwise protected from injury.

Root Protection. After plants are dug, their roots shall be protected from injury such as caused by heat, sun, wind and freezing temperatures.

Trees. Pruning cuts on nursery and/or field grown trees shall be healed over. There shall be no cut back crowns or leaders and no abrasions of the bark. Any stem to rootstock grafts shall be healed. Trees must
have good fibrous root systems characteristic of the kind. Deciduous trees shall have normal spread of
crowns unless otherwise specified. Bare root trees shall not require earth adhering to the roots except as
required under Root Protection above.

Balled and burlapped trees shall be properly dug and protected to preserve the natural earth in contact
with the roots. No processed balls will be accepted. The balls shall be of the required size, firmly wrapped
and tied with approved materials. No balled plants will be acceptable if the ball is cracked or broken.

The tops of trees shall be well formed structurally, but they are not required to have more than
reasonably straight trunks, nor better than average well balanced crowns, nor be of specimen or street tree
quality consistent with ANSI Z60.1 unless those requirements are specified on the plans.

**Shrubs.** Shrubs shall have good fibrous root systems. The quality of balled and burlapped shrubs and
container grown shrubs shall be as specified in ANSI Z60.1.

**Vines.** Vines shall be as specified in ANSI Z60.1. Vines shall be field grown unless otherwise specified.
Pot grown plants shall be vigorous, well-developed plants, well established in pots with sufficient roots to
hold the earth intact after removal from containers but they shall not be rootbound.

**Plants for Transplanting.** Plants, including root spread and ball size, shall be in accordance with
ANSI Z60.1 for Collected Plant.

**LABELING.** Labeling shall be in accordance with currently accepted nursery labeling practice except
that the Contractor shall upon request supply positive identification by genus and species of any plant.

**TRANSPORTATION.** Tarpaulins or other covers shall be placed over plants transported by open
vehicles. Closed vehicles shall be ventilated to avoid overheating and the doors shall be kept closed
during shipment to prevent plants from drying. The heads of trees shall be tied-in carefully to prevent
fracturing or breaking the branches. Trunks and branches shall be adequately supported and padded to
avoid scraping or bruising.

**INSPECTION.** The Contractor shall be responsible to supply current, valid certificates of inspection of
plant materials which may be required by federal, state, provincial or other authority to accompany
shipments of plants.

The Department will identify by suitable non-injurious means such as painting, marking by various
methods, etc. all plant material rejected upon delivery to the contract site.

**BASIS OF ACCEPTANCE:** Acceptance will be based on visual inspection, upon delivery to site, by
the Engineer for compliance with the materials requirements.

### 713-07 ROLLED EROSION CONTROL PRODUCTS AND SOIL STABILIZERS

**SCOPE.** This specification covers the material requirements for Rolled Erosion Control Products and
Soil Stabilizers.

**MATERIAL REQUIREMENTS**

- **Class I (Short-Term)** Light-duty, organic, or synthetic erosion control products.
Type A. No minimum shear stress is required. The product shall be capable of withstanding moderate foot traffic without tearing or puncturing.

Type B. No minimum shear stress is required.

Type C. Products shall have the ability to protect soil from hydraulically induced shear stresses under bench scale conditions for at least 1.5 psf (pounds force per square foot) at ½ inch soil loss.

Class II (Intermediate-Term) Erosion control products.

Type A. Jute Mesh. Jute mesh shall be of a uniform, open, plain weave of undyed and unbleached, single-jute yarn. Jute mesh shall be woven as follows:
Approximately 55 warp ends per yard width.
Approximately 37 weft ends per linear yard.
Mass of jute mesh shall average 1.0 (± 5%) pound per square yard.

Type B. Products shall have the ability to protect soil from hydraulically induced shear stresses under bench scale conditions for at least 1 psf at ½ inch soil loss.

Type C. Products made entirely of organic materials. Only 100% organic materials are allowed. Products shall have the ability to protect soil from hydraulically induced shear stresses under bench scale conditions for at least 1 psf at ½ inch soil loss.

Type D. Organic or nonorganic products shall have the ability to protect soil from hydraulically induced shear stresses under bench scale conditions for at least 2 psf at ½ inch soil loss.

Class III (Permanent) Nondegradable synthetic [fibers, filaments, or nettings] which may be supplemented with degradable natural fiber components).

Type A. TRM (Turf Reinforcement Mat) mat products shall have the ability to protect soil from hydraulically induced shear stresses under bench scale conditions for at least 2 psf at ½ inch soil loss.

Type B. TRM mat products shall have the ability to protect soil from hydraulically induced shear stresses under bench scale conditions for at least 3 psf at ½ inch soil loss.

Type C. TRM mat (which includes a composite) products shall have the ability to protect soil from hydraulically induced shear stresses under bench scale conditions for at least 2.25 psf at ½ inch soil loss.

Type D. TRM mat (which includes a composite) products shall have the ability to protect soil from hydraulically induced shear stresses under bench scale conditions for at least 3 psf at ½ inch soil loss.

Class IV Soil Stabilizers. Soil stabilizers are short-term duration, erosion control products. When used alone, they shall be used on slopes 1:2 or flatter. They shall not be used in channels or in areas of concentrated flow. Type A, B, and C soil stabilizers may be used alone or in combination with Class
III, Types A and B Turf Reinforcement Materials where those products are used on slope applications.

**Type A.** Type A Soil Stabilizer shall be a soil binding system consisting of one of the following:

A Cementitious soil binder which is added to wood cellulose fiber mulch, a Bonded Fiber Matrix (BFM), intended to form a thick, heavy-bodied crust or mat-like barrier that controls storm water and wind induced erosion. BFM's last up to six months and require a cure time up to 48 hours, without rain, to develop intimate soil contact.

A Soil stabilizing polymer which is added to wood cellulose fiber mulch, a Polymer Stabilized Fiber Matrix (PSFM), intended to form a matrix that is designed to work directly with soil to maintain its stability by preserving existing soil structure, flocculating fine sediment being dislodged by storm water or wind, and to prevent splash erosion. PSFMs last up to six months and require a cure time up to 24 hours.

**Type B.** An anionic polyacrylamide (PAM) and calcium solution intended to reduce the erodibility of bare soils during construction activities or to enhance the performance of mulching on permanent slopes. Soil stabilizers, Type B, shall bond soil particles and shall effectively increase the soil particle size to 3/64 inch or larger. Soil stabilizers, Type B, shall reduce the movement of soil due to chemical bonding, thereby increasing the particle size rendering silt fence/sediment trapping devices more effective, and increase the water absorption of the soil.

**Type C.** A soil binder which may be made up of wood fibers, straw fibers, cotton fibers, interlocking fibers, polymers and hydro-colloid tackifiers, a Flexible Growth Medium (FGM) or Cotton Fiber Reinforcement Matrix (C-FRM). Intended to form a thick, heavy-bodied crust or mat-like barrier that controls storm water and wind induced erosion. FGMs/C-FRMs last up to a year and require no cure time to develop intimate soil contact.

**BASIS OF APPROVAL.** Application for approval shall be submitted to the Materials Bureau by the manufacturer. Upon approval by the Materials Bureau, the product will be placed on the Approved List.

**BASIS OF ACCEPTANCE.** Materials will be accepted on the basis of the manufacturer’s name and location appearing on the Approved List and a material certification that specifies the product conforms to this specification.

713-08 MATERIALS FOR PROTECTION OF PLANTS

**SCOPE.** This specification covers the material requirements for materials used in planting and protection of plant operations.

**MATERIAL REQUIREMENTS**

**Rodent Guards.** Shall be a commercially available horticultural product created for this activity.

**Stakes for Supporting Trees**

**A. Above Ground Support.** Shall be wooden stakes, commercially available product or system developed for supporting trees. Wooden stakes shall be 8 to 10 feet long with a minimum diameter of
LANDSCAPE DEVELOPMENT

2 to 2 1/2 inches or stakes 12 feet long which shall have a minimum diameter of 3 inches. The maximum diameter of stakes shall not exceed 4 inches. Stakes shall be pointed at one end. All wooden stakes shall be sound and free from insects and fungi.

**B. Underground Support.** Shall be a commercially available product or system developed for supporting trees.

**Wire.** Wire for guying plants shall be annealed steel wire (either galvanized or ungalvanized).

**Hose.** Hose for protecting the bark from guy wires shall be braided rubber, plastic, or reinforced materials. Hose shall be at least 3/4 inch outside diameter.

**Straps for Protecting Tree Bark.** Straps for protecting tree bark from guy wires shall be stretch resistant nylon or polypropylene fabric. Straps shall be 1 inch wide, shall have soft woven edges to assure abrasion resistance and shall have metal grommets at each end for the purpose of attaching guy wires. Straps shall be of sufficient length to assure guy wires will not be in contact with the tree. Straps for guying trees up to and including 2 inch in diameter shall have a minimum breaking strength of 1,000 lbs. Straps for guying trees up to and including 6 inches in diameter shall have a minimum breaking strength of 4,000 lbs.

**Anti-Desiccants.** Anti-desiccants shall be emulsions or other materials which will provide a protective film over plant surfaces, permeable enough to permit transpiration.

**Portable Drip Irrigation System (PDIS).** PDIS shall allow slow even watering. PDIS shall be a slow release watering system with accommodation for even watering. The fill opening shall accommodate a standard hose diameter. PDIS watering systems shall be constructed so that they can be attached to the trees, provide water from two drip points (minimum) and have a zipper or similar method to attach securely to the tree. PDIS watering system or bags shall be UV treated reinforced Polyethylene material. Each shall be sized according to manufacture’s recommendation for plant size and type.

**Mowing Markers.**

**A. Type A.** Mowing limit markers shall be any commercially available semi-rigid composite fiber reinforced plastic posts or flexible co-extruded polyethylene posts with U.V. inhibitors. Posts shall not crack at -20 °F. Posts shall have adhesive decals meeting the following requirements and conforming to the attached details:

- Posts or post assemblies shall be such that they can withstand wind and shall be approved by the Engineer.
- Approximate Width: 2.5 to 3 inches
- Length: 4 feet above ground
- Color: Medium to dark brown or black.
- Anchor Device: Manufacturer’s standard anchor system

Decals shall be brown or black and shall match the color of the posts. Decals shall be cast vinyl sheeting, adhesive on one side, with inks suitable for outdoor use and shall be covered with a laminate protective layer that provides resistance to weather, graffiti, vandalism and discoloration. Letters shall be white and of a size and weight to fully utilize the full dimension of the decal and shall be legible.
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B. Type B. Mowing limit markers shall be any commercially available glass fiber reinforced polyester stakes, manufactured with UV inhibitors and shall not crack at -22°F. Tubular stakes shall be 3/16 inch (ID), with a 1/16 inch wall thickness, approximately 6 feet in length, and sealed on top with a cap or similar method. Color shall be olive drab green. Note: Solid glass fiber stakes which have the same length and color may be substituted with the approval of the Engineer.

Reflective Tapes. Material shall be reflective safety tape rated for 5 to 7 years of outdoor life meeting ASTM specifications D4596. Tape shall be 2 inch wide, reflective tape, in red or yellow.

BASIS OF ACCEPTANCE. Material for the protection of plants will be accepted on the basis of a visual inspection.

713-09 MYCORRHIZAL FUNGI

SCOPE. This specification covers the materials requirements for mycorrhizal fungi.

MATERIAL REQUIREMENTS. Mycorrhizal fungi shall be commercially available products suited to and labeled for the intended purpose.

Products for turf establishment shall be granular (when mixed directly with soil), or soluble powder or liquid (when mixed with seeds for drill seeding or hydroseeding) and shall typically include:
- Endomycorrhizal fungi. Live propagules (spores, colonized roots, hyphae) of vesicular arbuscular (VA) fungi including Glomus intraradices and at least two other Glomus species shown to be biologically adapted to grass.

Products for planting pits, beds and Tree Root Zone Treatment (Vertical Mulching/Aeration) shall typically be granular and shall typically include:
- Endomycorrhizal fungi. Live propagules (spores, colonized roots, hyphae) of vesicular arbuscular (VA) fungi including Glomus intraradices and at least two other Glomus species.
- Ectomycorrhizal fungi. Live spores of Pisolithus tinctorius and at least four Rhizopogon species.

Products may also include any or all of:
- Biostimulants such as Dry soluble yucca extract (yucca schidigera), soluble sea kelp extract (ascophylum, nodosum) and humic acid (leonardite humates)
- Amino acids, vitamins, enzymes, beneficial bacteria, microbial metabolites, trichoderma fungi.
- Water management gels/polymers (for planting pits, beds and Tree Root Zone Treatment – typically not for turf applications).

PACKAGING. Mycorrhizal fungi shall be delivered in the manufacturer’s standard containers. Containers shall include a label stating the name of the material, species, propagule counts, application rates, expiration date, the net weight of the contents, and the manufacturer’s name.

BASIS OF ACCEPTANCE. Mycorrhizal fungi will be accepted on the basis of the manufacturer’s label or material certification indicating compliance with these specifications. The Department reserves
the right to reject any material that has become caked or otherwise damaged. Material that has expired will be rejected.

713-10 MOISTURE RETENTION ADDITIVE

SCOPE. This specification covers the material requirements for moisture retention additive.

MATERIAL REQUIREMENTS. Moisture retention additives shall be commercially available Polyacrylamide or Co-polymer of Acrylamide Hydro gel polymer products.

PACKAGING. Moisture retention additives shall be delivered in the manufacturer’s standard containers. Containers shall include a label stating the name of the material, application rates, expiration date, the net weight of the contents, and the manufacturer’s name.

BASIS OF ACCEPTANCE. Moisture retention additives will be accepted on the basis of the manufacturer’s label or material certification indicating compliance with these specifications.

713-11 MULCH FOR TURF ESTABLISHMENT AND EROSION CONTROL

SCOPE. This specification covers the material requirements for organic mulch materials used in conjunction with turf establishment or erosion control.

MATERIAL REQUIREMENTS.

General
Mulch shall be manufactured so that the materials will remain uniformly suspended in water under agitation and will blend with seeds, fertilizer and other additives to form homogeneous slurry. It shall have the characteristics which, upon hydraulic application, shall form a blotter-like ground coating with moisture absorption and percolation properties and the ability to cover and hold seeds in contact with the soil. Mulch shall contain no growth or germination inhibiting factors.

Type I. Wood Fiber Mulch. Wood fiber shall be a first generation product manufactured directly from 100 percent wood which has been recovered or diverted from solid waste.

Wood fiber shall be manufactured from unadulterated wood that is not contaminated with paint, chemicals, non-wood shingles, plastic or other foreign materials. Wood fiber mulch shall not be manufactured exclusively from paper.

Type II Cellulose Mulch. Cellulose or Paper mulch shall be composed of 100% clean recycled cellulose fiber and free of plastic netting.

Water Holding Capacity >1000%
Moisture Content 12% +/- 3
Organic Matter >93%
Ash Content <7%
pH Range 6.5 +/- 2
Non toxic dye
LANDSCAPE DEVELOPMENT

**Type III Cellulose and Wood Fiber Blend Mulch.** Cellulose and Wood fiber blend shall be composed of biodegradable recycled 100% wood fibers and recycled paper, phyto-sanitized and free from plastic netting.
- Wood fiber 70% Minimum
- Paper fiber 30% Maximum
- Water Holding Capacity >1000%
- Moisture Content 12% +/- 3
- Organic Matter >93%
- Ash Content <7%
- pH Range 5.5 +/- 2

**Type IV Cotton Hydro Mulch.** Cotton hydro mulch shall be a blend of processed straw and reclaimed cotton plant materials.
- Straw 80% Maximum
- Reclaimed Cotton Plant Material 17% Minimum
- Additives, Activators and Tackifiers Range 3 to 10%
- Moisture Content 12% +/- 3
- Organic Matter ≥90%

**Type V Pelletized Hydro Mulch.** Cellulose and Wood fiber blend shall be composed of clean cellulose fiber and raw lumber chips manufactured from unadulterated wood that is not contaminated with paint, chemicals, non-wood shingles, plastic or other foreign materials.
- Wood fiber 20% Minimum
- Paper fiber 80% Maximum
- Water Holding Capacity >850%
- Moisture Content Range 12 to 15% +/- 3
- Organic Matter >93%
- Ash Content <7%
- pH Range 7.0 +/- 2

**PACKAGING AND LABELING.** Mulch shall be supplied in the manufacturer's standard containers, with the name of the material, net weight of contents, the manufacturer's name and the air dry weight of fiber (equivalent to 10% moisture) appearing on each container.

**STORAGE AND HANDLING.** Store and handle in compliance with manufacturer’s instructions and recommendations. Protect from damage, weather, excessive temperatures and construction operations.

**BASIS OF ACCEPTANCE.** Mulch will be accepted on the basis of the manufacturer’s product label, including methods and rates of applications, and material certification indicating compliance with these specifications and any applicable regulatory requirements pertaining to solid waste management.

713-12 MULCH ANCHORAGE

**SCOPE.** This specification covers the material requirements for mulch anchorage.

**MATERIAL REQUIREMENTS.** Mulch anchorage shall be 713-07 Class IV Soil Stabilizers or any non-asphaltic, non-toxic commercially available products formulated for the purpose of anchoring or
LANDSCAPE DEVELOPMENT

tacking straw mulch. The paper content of paper-based hydraulic mulch anchorage shall be 100 percent post consumer recovered from solid waste.

PACKAGING. Mulch Anchorage shall be furnished in the manufacturer's standard containers with the name of the material, net weight of contents, the manufacturer's name and the dry weight of fiber (equivalent to 10% moisture) appearing on each container. The instructions for mixing and application shall also appear on each container.

BASIS OF ACCEPTANCE. Mulch Anchorage will be accepted on the basis of the manufacturer's product label or product literature that indicates compliance with this specification. Materials that have become wet, caked, frozen, separated or otherwise unfit for use will be rejected.

713-13 PESTICIDES

SCOPE. This specification covers the material requirements for pesticides used to manage vegetation, insects, rodents and/or other target pests.

MATERIAL REQUIREMENTS. Pesticides shall be approved commercially available products that are currently registered by the US Environmental Protection Agency and the NYS Department of Environmental Conservation. Pesticides shall also have all required labels indicating that they are approved for the intended use.

Pesticides shall be mixed and used in strict conformance with the instructions on the label or supplemental labels.

PACKAGING. Pesticides shall be delivered and securely stored until used in the manufacturer's standard containers that have legible labels affixed. Pesticides that do not meet these packaging requirements will be rejected.

Pesticide containers shall be sealed. Containers with breaks, damage; or altered, obliterated, illegible, or missing labels will not be accepted.

BASIS OF ACCEPTANCE. Pesticides will be accepted on the basis of the original, sealed, and properly labeled pesticide containers; and two copies of sample labels and supplemental labels that include instructions for the intended use of the pesticide. Pesticides that have become wet, caked or otherwise unfit for use will be rejected.

713-14 SOD

SCOPE. This specification covers the material requirements for sod.

MATERIAL REQUIREMENTS. Sod shall be commercially grown sod and shall be accompanied by a certificate indicating compliance with the regulations of the NYS Department of Agriculture and Markets. Sources of sod shall be made known to the Engineer at least five calendar days before cutting. Sod shall be cut into squares or rectangular portions which shall be a minimum of 12 inches wide, or as approved, and may vary in length, but shall be of a size which will permit them to be lifted without breaking. Height of the grass shall not exceed 3 inches. The sod shall be cut to a minimum thickness of 3/4 inch. The sod shall be reasonably free from weeds in conformance with accepted commercial practice.
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The sod shall consist of a mixture of at least three permanent grasses such as bluegrass and fine leaved fescues, unless otherwise specified. Sod that is heat damaged or fermenting will be rejected.

DELIVERY AND HANDLING. Sod shall be delivered to the job within 24 hours after being cut and installed within 48 hours after being cut. The sod, when delivered to the contract site and during the time it is held on site, shall be sufficiently moist so the soil will adhere firmly to the roots when it is handled.

BASIS OF ACCEPTANCE. Sod will be accepted based on inspection for compliance with the material requirements.

713-15 COMPOST

SCOPE. This specification covers the material requirements for organic material used in conjunction with amending or manufacturing topsoil and for erosion control products.

MATERIAL REQUIREMENTS. Compost shall be the material resulting from the biological and biochemical decomposition of biosolids, source-separated organic waste, yard waste, leaves or agricultural waste. These composts shall have been commercially or municipally produced. Compost and composting facilities shall be in compliance with all federal laws (40 CFR Part 503 and others), Article 10 of the Agriculture and Markets Law and 6 NYCRR Part 360.

Biosolids, including mixed solid waste, septage and other sludges, are the solid or semi-solid organic material generated by a wastewater treatment plant. Source-separated organic waste (SSOW) is readily decomposable material that is separated at the point of waste generation, and may include, but not be limited to, food scraps, food processing residues, soiled and/or unrecyclable paper, and other compostable materials. Yard waste includes grass clippings, leaves and other similar readily-compostable organic material.

Compost shall be reasonably free of sticks, stones, refuse, materials deleterious to soil structure, or any material toxic or detrimental to plant germination and growth. Compost containing foreign material may be rejected on the basis of a visual examination.

Composted biosolids shall have a certificate from a laboratory approved by the NYSDOH verifying compliance with all applicable laws, rules, and regulations. Only facilities permitted to compost biosolids under 6 NYCRR Part 360 will be allowed to furnish biosolid compost. The certification shall be supplied by the Contractor prior to the delivery of any composted biosolids, topsoil containing composted biosolids, or other such regulated material to the contract site.

**Type A. Compost for Turf Establishment, Sodding, and Planting.** Compost for Turf Establishment, Sodding, and Planting shall have a minimum organic-matter content of 30% (dry-weight basis) as determined by loss on ignition.

- Product shall be loose and friable, not dusty, and have a moisture content of 35% - 60%, (wet weight basis).
- Particle size shall be < 1/2 inch, (100% passing).
- Soluble salts concentration shall be < 4.0 mmhos/cm (ds/m), maximum.
- Compost shall be stable to very stable.
- pH shall be between 6.0-8.5.
LANDSCAPE DEVELOPMENT

Type B. Compost for Erosion/Sediment Control Filter Berms. Compost for Erosion/Sediment Control Filter Berms shall meet the requirements of AASHTO Designation MP 9-03 and as follows:

Minimum organic matter content 25% - 65% (dry-weight basis) surfaces to be vegetated; 25% - 100% (dry weight basis) surfaces to be left unvegetated.

<table>
<thead>
<tr>
<th>Gradation:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Sieve Size</td>
<td>Percent Passing by Weight</td>
</tr>
<tr>
<td>3 inch</td>
<td>100</td>
</tr>
<tr>
<td>1 inch</td>
<td>90 to 100</td>
</tr>
<tr>
<td>3/4 inch</td>
<td>70 to 100</td>
</tr>
<tr>
<td>1/4 inch</td>
<td>30 to 75</td>
</tr>
</tbody>
</table>

Maximum particle length; 6 inch

Soluble salt concentration shall be 5 mmhos/cm; (ds/m) maximum.

Compost shall be stable to very stable

pH shall be between 5.0 - 8.5.

Type C. Compost for Erosion/Sediment Control Compost Blankets (Mulch for Seeded Areas). Compost for Erosion/Sediment Control Compost Blankets, (mulch for seeded areas), shall meet the requirements of AASHTO Designation MP 10-03 and as follows:

For surfaces to be vegetated, minimum organic matter content 25% - 65% (dry weight basis); for surfaces to be left unvegetated 25% - 100% (dry-weight basis).

<table>
<thead>
<tr>
<th>Gradation:</th>
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</thead>
<tbody>
<tr>
<td>Sieve Size</td>
<td>Percent Passing by Weight</td>
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<tr>
<td>3 inch</td>
<td>100</td>
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<td>1 inch</td>
<td>90 to 100</td>
</tr>
<tr>
<td>3/4 inch</td>
<td>65 to 100</td>
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<tr>
<td>1/4 inch</td>
<td>0 to 75</td>
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</tbody>
</table>

Maximum particle length; 6 inch

Soluble salt concentration shall be 5 mmhos/cm; (ds/m) maximum.

Compost shall be stable to very stable.

pH shall be between 5.0 - 8.5.

Type D. Leaf Compost. The material shall consist exclusively of deciduous leaf material.

Compost material that contains food waste, sewage waste, or other waste material is unacceptable.

The leaf compost shall be mature (actively composted for 6 months minimum, and temperature slightly above air temperature) and humic (organic material is no longer rapidly degrading). Mature compost material shall be a dark, friable, partially decomposed substance that has an earthy odor. Visible fibers should be short and dark with no discernable particles of leaf material. Because not all items decompose at the same rate screening may be necessary to remove larger partially decomposed material and/or undecomposed material.

<table>
<thead>
<tr>
<th>Organic Content –</th>
<th>25% to 100% by dry weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Inert Material -</td>
<td>&lt;5% by dry weight of woody or green yard debris material.</td>
</tr>
<tr>
<td>Man Made Inert Material -</td>
<td>&lt;1% by dry weight of man made material such as glass or plastic.</td>
</tr>
<tr>
<td>Bulk Density –</td>
<td>636 to 812 kg/m3</td>
</tr>
<tr>
<td>Moisture Content –</td>
<td>30% to 60% by total weight</td>
</tr>
</tbody>
</table>
LANDSCAPE DEVELOPMENT

<table>
<thead>
<tr>
<th>Gradation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Size</td>
</tr>
<tr>
<td>1/2 inch</td>
</tr>
<tr>
<td>No 16</td>
</tr>
<tr>
<td>Maximum particle length: 6 inch</td>
</tr>
</tbody>
</table>

**Type E. Well Rotted Manure.** The material shall consist of animal excreta with litter material. The well rotted manure shall be mature (aged a minimum of one year), dark brown or black in color, crumbly in texture, and shall not have an objectionable odor. The material’s moisture content shall be such that no visible free water or dust is produced when handling it. It shall contain no visible admixture of refuse or other physical contaminates or any material toxic to plant growth.

**BASIS OF ACCEPTANCE.** Compost will be accepted on the basis of a Producer’s label or a certificate of analysis by a laboratory certified by a nationally recognized entity indicating compliance with the material requirements and visual inspection.

Composted biosolids will be accepted on the basis of a material certification by a NYSDOH approved laboratory that the product conforms to this specification and all applicable regulations.

Compost supplied or manufactured by participants in the US Composting Council’s Seal of Testing Approval Program will be accepted on the basis of the Program’s Compost Technical Data Sheets. The data shall represent a minimum of one year of testing results and the most recent test shall have been conducted with ninety days of material acceptance.

Compost supplied or manufactured by suppliers that do not participate in the US Composting Council Seal of Testing Approval Program will be accepted on the basis of a material certification by a laboratory certified by a nationally recognized entity, that the product conforms to this specification.

The Department reserves the right to sample and test the materials subsequent to delivery.

713-16 (VACANT)

713-17 SULFUR

**SCOPE.** This specification covers the material requirements for elemental sulfur (flowers of sulfur).

**MATERIAL REQUIREMENTS.**

**PACKAGING.** Agricultural sulfur packed in the manufacturer's standard containers shall weigh not over 100 lbs each, with the name of the material, net weight of contents and the manufacturer's name and guaranteed analysis appearing on each container. Sulfur shall be commercially available products.

**DELIVERY.** Bulk delivery of sulfur shall be accompanied by a certificate providing the names, weight and analysis as specified herein for packaged material.

**BASIS OF ACCEPTANCE.** Sulfur will be accepted on the basis of the manufacturer's label or certificate and visual inspection for compliance with the material requirements.

713-18 WEED CONTROL BARRIERS
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SCOPE. This specification covers the material requirements for landscape fabrics, mats and Geotextiles specifically manufactured to control weed growth.

MATERIAL REQUIREMENTS. Weed control barriers shall be commercially available products.

Type A. Permeable Landscape Fabric. Permeable Landscape Fabric shall be a permeable weed blocking geotextile resistant to rot, mold, chemicals and micro-organisms which allows the free flow of water, air, fertilizers and nutrients.

Type B. Permeable Landscape Fabric with Herbicide. Permeable Landscape Fabric with Herbicide shall be durable, nonwoven, polypropylene geotextile fabric with permanently attached nodules containing a slow release herbicide with a maximum EPA toxicity rating of class IV.

Type C. Permeable Weed Barrier Mat. Permeable Weed Barrier Mat shall be a commercial weed control product. The mat shall prevent sunlight, water, or vegetation nutrients from reaching the soil underneath. The mat shall contain no herbicides and shall resist ultraviolet light, mildew, and algae. The mat shall be self-extinguishing when removed from flame.

The mat shall be a polyester matting system a minimum of 0.2 inches thick, with a minimum weight of 1.8 pounds per square yard, able to support pedestrian traffic and commercial tractor mowing equipment’s wheels and skid plates without displacement.

BASIS OF ACCEPTANCE. Weed control mats or fabric will be accepted on the basis of the manufacturer’s label or certificate and visual inspection for compliance with the material requirements.

713-19 STRAW

SCOPE. This specification covers the materials requirements for straw.

MATERIAL REQUIREMENTS. Straw for mulching shall be stalks of oats, wheat, rye or other similar crops which are free from noxious and invasive species. Straw shall show no signs of excessive moisture and be visually free of mold or mildew.

BASIS OF ACCEPTANCE. Straw will be accepted on the basis of a visual inspection for compliance with the material requirements.