TO ALL CONCERNED:

The original Contract Documents dated May 2018, for the above-referenced Contract are amended as noted in this Addendum. This Addendum shall become a part of the Contract Documents and is to be attached thereto.

Bidders are reminded that they must acknowledge receipt of all addenda on the designed page (B-16) in the Specifications of the bid documents.

Concerning the Specifications:

1. Appendix A - NJDOT Special Provisions for Federal Aid Projects
   - **Delete:** “Appendix A - NJDOT Special Provisions for Federal Aid Projects” in its entirety
   - **Add:** “Appendix A - NJDOT Special Provisions for Federal Aid Projects Revised 2018” in its entirety, attached.

2. Contractor’s Certification (B-18)
   - **Delete:** “See Exhibits A and B, attached hereto.”
   - **Add:** “See Exhibit B, attached hereto”

3. Contractor’s Certification, Exhibit A (B-19 & B-20)
   - **Delete:** “Exhibit A”, pages B-19 & B-20
SUPPLEMENTARY SPECIFICATIONS
FOR FEDERAL AID PROJECTS
FOR THE FIRST AVENUE STREETSCAPE
IMPROVEMENT PROJECT
IN THE TOWNSHIP OF DENVILLE
COUNTY OF MORRIS
SPECIAL PROVISIONS

AUTHORIZATION OF CONTRACT
The contract for this project is authorized by the provisions of local public contracts law, NJSA 40A: 11-1 et seq and Title 23 of the United States Code - Highways.

SPECIFICATIONS TO BE USED
The 2007 Standard Specifications for Road and Bridge Construction, of the New Jersey Department of Transportation (Department) as amended herein will govern the construction of this Project and the execution of the Contract.

These Special Provisions consist of the following:

- Pages 1 to ____ inclusive.

General wage determinations issued under Davis-Bacon and related acts, published by US Department of Labor, may be obtained from the Wage Determinations online website at http://www.wdol.gov/dba.aspx Select state, county and construction type heading: HIGHWAY where the Project is to be performed then click Search.

Pay the prevailing wage rates determined by the United States Secretary of Labor and the New Jersey Department of Labor and Workforce Development. If the prevailing wage rate prescribed for any craft by the United States Secretary of Labor is not the same as the prevailing wage rate prescribed for that craft by the New Jersey Department of Labor and Workforce Development, pay the higher rate.

State wage rates may be obtained from the New Jersey Department of Labor & Workforce Development (Telephone: 609-292-2259) or by accessing the Department of Labor & Workforce Development’s website at http://lwd.dol.state.nj.us/labor/wagehour/wagerate/prevaling_wage_determinations.html. The State wage rates in effect at the time of award are part of this Contract, pursuant to Chapter 150, Laws of 1963 (N.J.S.A. 34:11-56.25 et seq.)

If an employee of the Contractor or subcontractor has been paid a rate of wages less than the prevailing wage, the Department may suspend the Work, and declare the Contractor in default.

The NJDOT must report all suspected or reported violations to the federal agency providing the funding for the project.

Contractor’s compliance is required with the Copeland “Anti-Kickback” Act, (40 U.S.C. 3145), as supplemented by the Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or In Part by Loans or Grants from the United States”). Each contractor or subcontractor is prohibited from inducing by any means, any person employed in the construction, completion or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The NJDOT must report all suspected or reported violations to the federal agency providing the funding for the project.

The following information is located at the end of these Special Provisions:

1. Disadvantaged Business Enterprise Utilization. (Federal Aid Project Attachment 1)
2. Specific Equal Employment Opportunity Responsibilities on NJDOT Federal Aid Projects. (Federal Aid Project Attachment 2)
3. Requirements for Affirmative Action to Ensure Equal Employment Opportunity on NJDOT Federal Aid Projects. (Federal Aid Project Attachment 3)

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
5. State of New Jersey Mandatory Equal Employment Opportunity Language on NJDOT Federal Aid Projects. (Federal Aid Project Attachment 5)
7. Payroll Requirements for NJDOT Federal Aid Projects. (Federal Aid Project Attachment 7)
8. FHWA-1273 Required Contract Provisions, Federal Aid Construction Contracts. (Federal Aid Project Attachment 8)
9. State Mandatory Addendum to FHWA 1273 Required Contract Provision, Federal Aid Construction Contracts as Amended or Supplemented. (Federal Aid Project Attachment 9)
10. Federal Mandatory Equal Opportunity Language on Federal Aid Projects. (Federal Aid Project Attachment 10)

The following additional project specific Attachments are located at the end of these Special Provisions:

State wage rates may be obtained from the New Jersey Department of Labor & Workforce Development (Telephone: 609-292-2259) or by accessing the Department of Labor & Workforce Development’s website at http://lwd.dol.state.nj.us/labor/wagehour/wagerate/prevailing_wage_determinations.html. The State wage rates in effect at the time of award are part of this Contract, pursuant to Chapter 150, Laws of 1963 (N.J.S.A. 34:11-56.25 et seq.).

If an employee of the Contractor or subcontractor has been paid a rate of wages less than the prevailing wage, the Department may suspend the Work, and declare the Contractor in default.

The following information is located at the end of these Special Provisions:
1. Small Business Enterprise Utilization on Wholly State Funded Projects. (State Funded Project Attachment 1)
3. Requirements for Affirmative Action to Ensure Equal Employment Opportunity on Wholly State Funded Projects. (State Funded Project Attachment 3)
4. Investigating, Reporting and Resolving Employment Discrimination and Sexual Harassment Complaints on Wholly State Funded Projects. (State Funded Project Attachment 4)
5. Payroll Requirements for Wholly State Funded Projects. (State Funded Project Attachment 5)
6. Americans with Disabilities Act Requirements for Wholly State Funded Contracts. (State Funded Project Attachment 6)

The following additional project specific Attachments are located at the end of these Special Provisions:

GENERAL
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All awards shall be made subject to the approval of the New Jersey Department of Transportation. No construction shall start before approval of said award by the New Jersey Department of Transportation. Prior to the start of construction the contractor must submit a Material Questionnaire (DC-2891) listing all sources of materials. Any materials used on the project from a non-approved New Jersey Department of Transportation source will be considered non-participating. The contractor is also notified that the District Office, Division of Local Aid and Economic Development must be notified of the construction commencement date at least five (5) calendar days prior to the start of construction.

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
Award of contract and subletting will not be permitted to, materials will not be permitted from, and use of equipment will not be permitted that is owned and/or operated by, firms and individuals included in the report of suspensions, debarments and disqualifications of firms and individuals as maintained by the Department of the Treasury, General Services Administration, CN-039, Trenton NJ 08625 (609-633-3990).

Payment for a pay item in the proposal includes all the compensation that will be made for the work of that item as described in the contract documents unless the "basis of payment" clause provides that certain work essential to that item will be paid for under another pay item.

Whenever any section, subsection, subpart or subheading is amended by such terms as changed to, deleted or added it is construed to mean that it amends that section, subsection, subpart or subheading of the 2007 Standard Specifications unless otherwise noted.

Whenever reference to page number is made, it is construed to refer to the 2007 Standard Specifications unless otherwise noted.

Henceforth in this supplementary specification whenever reference to the State, Commissioner, Department, Engineer or Inspector is made, it is construed to mean the particular municipality or county executing this contract.

Whenever reference to Title 27 is made, it is construed to mean Title 40.
DIVISION 100 – GENERAL PROVISIONS

SECTION 101 – GENERAL INFORMATION

101.01 INTRODUCTION
THE FOLLOWING IS ADDED:

Pursuant to N.J.S.A. 27:1B-21.6 and USC (United States Code) Title 23 Section 115, the Department intends to enter into a contract for the advancement of the Project. However, sufficient funds for the Project may not have been appropriated, and only amounts appropriated by law may be expended. Payment under the Contract is restricted to the amounts appropriated for a fiscal year (FY).

Pursuant to N.J.S.A. 27:1B-21.6, the Department intends to enter into a contract for the advancement of the Project. However, sufficient funds for the Project may not have been appropriated, and only amounts appropriated by law may be expended. Payment under the Contract is restricted to the amounts appropriated for a fiscal year (FY).

Governing bodies have no legal obligation to make such an appropriation. There is no guarantee that additional funds will be appropriated. Failure by governing bodies to appropriate additional funds will not constitute a default under, or a breach of, the Contract. However, if the Department terminates the Contract or suspends work because funds have not been appropriated, the parties to the Contract will retain their rights for suspension and termination as provided in 108.13, 108.14 and 108.15; except as indicated below.

Do not expend or cause to be expended any sum in excess of the amount allocated in the current fiscal year’s Capital Program (as specified below). The Department will notify the Contractor when additional funding has been appropriated. Any expenditure by the Contractor which exceeds the amount appropriated is at the Contractor's risk and the Contractor waives its right to recover costs in excess of that appropriated amount.

The approved _____ Capital Program has an item with $ _____ million for the construction of the Project.

The Department anticipates that _____ million dollars in additional funds will be provided during State FY _____.

The Department anticipates that the balance of the funds necessary to complete the Project will be provided during State FY _____.

The Department anticipates that _____ million dollars in additional funds will be provided during Federal FY _____.

The Department anticipates that the balance of the funds necessary to complete the Project will be provided during Federal FY _____.

The Federal FY begins October 1 of the previous calendar year and the State FY begins July 1 of the previous calendar each year.

101.02 ABBREVIATIONS
THE FOLLOWING ABBREVIATIONS ARE ADDED:

ADA Americans with Disabilities Act
CFR Code of Federal Regulations
CUF Commercially Useful Function
DCR/AA New Jersey Department of Transportation, Division of Civil Rights and Affirmative Action
EEO Equal Employment Opportunity
GFE Good Faith Effort
OJT On-The-Job-Training
USC United States Code
USDOL United States Department of Labor

101.03 TERMS
THE FOLLOWING TERMS ARE CHANGED.
**Contractor.** The individual, firm, partnership, corporation, joint venture, or any acceptable combination thereof contracting with the Department for performance of the Contract. For the purpose of carrying out the Contract, it also means the Contractor’s representative.

- department: Shall be defined as the contracting agency.
- resident engineer (RE) shall be defined as a representative of the contracting agency.

**pavement structure.** The combination of pavement, base courses, and when specified, a subbase course, placed on a subgrade to support the traffic load and distribute it to the roadbed (see Figure 101-1). These various courses are defined as follows:

1. **pavement.** One or more layers of specified material of designed thickness at the top of the pavement structure.
2. **base course.** One or more layers of specified material of designed thickness placed on the subgrade or subbase.
3. **subbase.** One or more layers of specified material of designed thickness placed on the subgrade.

**Subcontractor.** An individual, firm, partnership, corporation, joint venture, or any acceptable combination thereof, to which the Contractor subcontracts part of the Work pursuant to 108.01.

**THE FOLLOWING TERM IS ADDED.**

**Commercially Useful Function.** Occurrences in which the subcontractor is responsible for the execution of a distinct element of the work of a contract and carrying out its responsibilities by actually performing, managing, and supervising the work involved., and with respect to materials and supplies used on the contract, prepares the estimate, negotiates price, determines quality and quantity, orders the material, arranges delivery, installs (where applicable), and pays for the material and supplies itself for the project.

**Discrimination.** That act (or action) whether intentional or unintentional, through which a person in the United States, solely because of race, creed, color, national origin, age, ancestry, nationality, sex (including pregnancy and sexual harassment), marital status, domestic partnership or civil union status, affectional or sexual orientation, gender identity or expression, atypical hereditary cellular or blood trait, genetic information, liability for military service, or disability has been otherwise subjected to unequal treatment.

**Federal Aid Project.** Any agreement or modification thereof between NJDOT and any applicant and a person for construction work which is paid for in whole or in part with funds obtained from the Federal government or borrowed on the credit of the Federal government pursuant to any program involving a grant, contract, loan, insurance or guarantee under which the NJDOT itself participates in the construction work.

**Federal Aid Project Attachments.** Attachments to the Contract Special Provision document, used for Federal aid projects.

**ITS commissioning.** Completion of Level A testing of an Intelligent Transportation System per 704.03.01. This does not constitute Acceptance by the Department of the work.

**State Funded Project Attachments.** Attachments to the Contract Special Provision document, used for wholly state funded contracts.

**Special Provisions.** Project specific specifications, non-standard specifications, and requirements for the performance of prescribed work which, in addition to the Standard Specifications, is part of the Contract documents.

**101.04 INQUIRIES REGARDING THE PROJECT**

1. **Before Award of Contract.**
THE FIRST PARAGRAPH IS CHANGED TO:

Submit inquiries and/or view other questions/answers by following the format prescribed on the project’s electronic bidding web page.

THE SECOND PARAGRAPH IS CHANGED TO:

The deadline for submitting inquiries is 12:00 noon, 7 days before the opening of bids.

2. After Award of Contract.

North Region
Ms. Chrissa Roessner, Regional Construction Engineer
200 Stierli Court
Mt. Arlington, NJ 07856-1322
Telephone: 973-601-6670

Central Region
Mr. Robert Parker, Regional Construction Engineer
1035 Parkway Avenue
Trenton, NJ 08625
Telephone: 732-625-4207

South Region
Mr. Donald S. Matlack, Regional Construction Engineer
One Executive Suite Route 70 West
Cherry Hill, NJ 08002-4106
Telephone: 856-486-6615

Mr. Wasif Mirza, Director of MSE
1035 Parkway Avenue
Trenton, NJ 08625
Telephone: 609-530-2549

SECTION 102 – BIDDING REQUIREMENTS AND CONDITIONS

102.01 QUALIFICATION TO BID
SECOND CRITERIA IS CHANGED TO:

2. Before the receipt of the bid or accompanying the bid, the Bidder has disclosed ownership as required by N.J.S.A. 52:25-24.2.

102.02 BIDDER REGISTRATION AND DOWNLOADING OF THE PROPOSAL DOCUMENTS
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

The Bidder shall not alter or in any way change the software.

102.03 REVISIONS BEFORE SUBMITTING A BID
THE SECOND PARAGRAPH IS CHANGED TO:

The Bidder shall acknowledge all addenda posted through the Department’s website. The addenda acknowledgement folder is included in the Department’s electronic bidding file. The Department has the right to reject the bid if the Bidder has not acknowledged all addenda posted.

102.04 EXAMINATION OF CONTRACT AND PROJECT LIMITS
102.04 EXAMINATION OF CONTRACT AND PROJECT LIMITS
THE FIRST PARAGRAPH IS CHANGED TO:

The Bidder shall carefully examine the Contract and the Project Limits of the proposed Project before submitting a bid. The Bidder shall provide written notice to the Project Manager, as specified in the Special Provisions, at least 48 hours in advance of any visits to the Project Limits. The Bidder shall ensure that staff visiting the Project Limits have proper identification.

Project Manager: John K. Ruschke, PE, Township Engineer
E-mail Address: john.ruschke@mottmac.com
Mailing Address: 412 Mt. Kemble Ave, Suite G22, Morristown NJ 07960

THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

The structures and the location(s) of lead paint, if any, are listed in the Special Provisions.
The following is a list of structures and the location(s) of lead paint:

<table>
<thead>
<tr>
<th>Structure #/Location</th>
<th>Lead Paint Location(s)</th>
</tr>
</thead>
</table>

1. Evaluation of Subsurface and Surface Conditions.

THE FOLLOWING IS ADDED:

<table>
<thead>
<tr>
<th>Route</th>
<th>Direction</th>
<th>Mile Post From</th>
<th>To</th>
<th>Existing IRI Value</th>
</tr>
</thead>
</table>

This information is the latest available IRI data of the right most through lane from the Pavement Management Unit. The pavement information shown herein was obtained by the Department and is made available to the authorized users only that they may have access to the same information available to the Department. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgment of such authorized users.
NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: ____________________________________________

DRILLER: __________________________________________________________

INSPECTOR: _________________________________________________________

COUNTY/TOWNSHIP: ________________________________________________

DATE STARTED: __________ DATE COMPLETED: ________________

<table>
<thead>
<tr>
<th>CORE NUMBER</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>ROUTE</td>
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<tr>
<td>DIRECTION</td>
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<td>MILE POST</td>
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<td>(MP or Station)</td>
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<td>LANE NO.</td>
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<td>(Left to Right)</td>
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<td>SHOULDER</td>
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<td>(Inside or Outside)</td>
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<tr>
<td>CORE DIAMETER</td>
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<td>(Inches)</td>
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<tr>
<td>TOTAL CORE DEPTH</td>
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<td>(Inches)</td>
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<tr>
<td>CORE DRILLED TO</td>
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<td>SURFACE TYPE</td>
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<td>(AC/PC)</td>
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<tr>
<td>AC THICKNESS</td>
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</tbody>
</table>

* Lane 1 is the left lane in the direction of travel.

The pavement information shown herein was used by the Department for design and estimate purposes.
2. **Utility Agreements.**  
The last sentence is deleted.

3. **Existing Plans and As-Builts.**  
Entire part is changed to:

   The Department will provide a list of existing structures bearing structure numbers within the Project on the Plans. The Department will list the existing plans including structural plans, contour maps and as-built plans used in the development of the Contract in the Special Provisions. The Bidder may download the existing plans including structural plans, contour maps and as-built plans of Department-owned facilities through the electronic bidding process along with the Proposal documents. The Bidder shall obtain plans of municipality-owned or county-owned facilities through the municipality or county. The Bidder shall verify information obtained from the existing documents with regard to its application to bidding and performing the Contract.

   Existing Plans including structural plans, contour maps and as-built plans used are as follows:

   a. **102.07 Preparation of the Bid**  
The following is added after the fifth paragraph:

   On Federal aid projects, all Bidders shall keep records of all DBE and non-DBE firms that provide a bid or quote to the Bidder for the Contract for use in providing the information to the Department in the development of a Bidder’s List. The records will include the name, address, phone number, E-mail address, DBE/ESBE status of the firm, NAICS Code(s) applicable to the kind of work the firm would perform on the project and type of work for subcontracted work for each DBE and non-DBE firm that provides a bid or quote for the Contract. This information shall be made available to the Department upon request.

   For each Federal aid contract that they submit a Bid, each Bidder shall prepare a CR-261 - DBE and non-DBE Firms Providing a Bid or Quote for the Contract form. All Bidders are required to submit this information on a yearly basis to the Department, with the information submitted to the Division of Civil Rights and Affirmative Action by September 30 of each year.

   **102.09 Proposal Bond**  
The fifth paragraph is changed to:

   The Department will not accept Proposal Bonds that do not comply in all respects with the provisions of N.J.A.C. 16:44-7.3(e) and that are not substantiated by a valid power of attorney executed by the Surety.

   **102.10 Submission of Bids**  
The second paragraph is changed to:

   The Bidder shall ensure delivery of its bid with all required components and attachments, including, but not limited to the following:

   1. Schedule of Items.
   4. For wholly State funded contracts, acknowledgement of compliance with the registrations specified in 102.01.
   6. Proposal Bond form.
   7. Other related documents as specified in the Contract.
   8. On the Disclosure of Investment Activities in Iran (Form DC-16) provided by the Department, certify pursuant to N.J.S.A. 52:32-58, that neither the bidder, nor one of its parents, subsidiaries, and/or affiliates (as defined in N.J.S.A. 52:32-56(e)(3)), is listed on the Department of the Treasury's List of Persons or Entities Engaging in Prohibited Investment Activities in Iran and that neither is involved in any of the investment activities set forth in N.J.S.A. 52:32-56(f). If the bidder is unable to so certify, the bidder shall provide a detailed and precise description of such activities to the Department.
THE FOLLOWING IS ADDED TO THE SECOND PARAGRAPH

9. For Federal Aid Projects exceeding a bid amount of $100,000 or more, Bidder shall certify to the Byrd Anti-Lobbying Act requirements under 31 USC 1352.

THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

A directory of certified Disadvantaged Small Businesses Enterprise firms can be found in the New Jersey Unified Certification Program Vendor Certification database, online at https://njucp.dbesystem.com/.

A directory of certified Emerging Small Business Enterprise firms can be found in the Emerging Small Business Program online directory at http://www.state.nj.us/transportation/business/civilrights/pdf/ESBEDirectory.pdf.

A directory of registered Small Businesses Enterprise firms can be found in the New Jersey Selective Assistance Vendor Information (NJSAVI) database online at https://www20.state.nj.us/TYTR_SAVI/vendorSearch.jsp.

All of the above directories are to be used as a source of information only and does not relieve the Bidder of their responsibility to seek out Enterprises not listed, prior to bidding.

102.13 CONSIDERATION OF BIDS
THE FOLLOWING SUBPART IS ADDED:

102.13.01 Bidder Pre-Award Requirements
A. Federal Aid Projects
1. Contract DBE Goal. On projects having a Contract DBE goal, the Bidder shall ensure that DBEs have an equal opportunity to receive and participate in the performance of contracts and subcontracts in Federal aid projects with the Department. The Bidder shall take all necessary and reasonable steps in accordance with 49 CFR, Part 26 to ensure that DBEs are given equal opportunity to compete for and to perform on the Department’s Federal aid projects. The Bidder shall not discriminate in the award and performance of any Contract obligation including, but not limited to, its performance of its obligations on USDOT assisted contracts as specified in Section 107.

a. The Bidder shall demonstrate commitment of meeting the Contract DBE goal that is specified in the Contract.

   (1) Submit to DCR/AA at the time of bid, or within 5 days after bid opening as a matter of responsibility:

   (i) a completed and signed Form CR-266 – Schedule of DB/ESBE/DBE Participation for each DBE firm being used to meet the Contract goal. Revisions to the CR-266 will not be accepted after its initial submission and before award of the Contract.

   (ii) a completed and signed Verification of DBE/ESBE/SBE Firm (Form CR-273) for each firm listed on the CR-266 to demonstrate direct written confirmation from each DBE firm of willingness to participate on the Contract, confirming the kind and amount of work that was provided on the Contractor’s CR-266 and if applicable,

   (iii) a completed and signed DBE/ESBE/SBE Regular Dealer/Supplier Verification (Form CR-272) for all Regular Dealers/Suppliers listed on the CR-266 form, and, if applicable,

   (iv) a completed and signed DBE/ESBE/SBE Trucking Verification (Form CR-274) for all DBE trucking firms listed on the CR-266.

   Firms listed on the CR-266 will not be counted toward the Contract DBE goal unless completed and signed CR-273 form(s), and applicable CR-272 and CR-274 form(s) are submitted to the DCR/AA within the 5 days after bid opening. The CR-273, CR-272, and CR-274 forms must be completed and signed by each respective DBE firm.

   These forms must be submitted through a designated email - DOT-CR_Verifications@dot.nj.gov.

   (2) If, at time of Submission, the commitment to meet the Contract DBE goal is not shown on the CR-266, the Bidder must submit at time of Bid, or within 5 days after bid opening, documented
evidence of good faith effort(s) to attain the Contract DBE goal, for review and approval by the DCR/AA. Submittal of such information does not imply DCR/AA approval. The Department’s DCR/AA has sole authority to determine whether the Bidder met the Contract DBE goal or made adequate good faith efforts to do so.

(i) Good faith efforts are actions taken to achieve a DBE goal or other requirement of the DBE Program which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement, including affirmative action measures designed to implement the established objectives of an affirmative action plan that a Bidder may utilize to obtain DBE participation. Efforts to include firms not certified as DBEs in New Jersey are consequently not good faith efforts to meet the DBE Contract goal. Good faith effort actions include, but are not limited to:

(a) Conducting market research to identify small business contractors and suppliers and soliciting through all reasonable and available means the interest of all certified DBEs that have the capability to perform the work of the Contract. This may include attendance at pre-bid and business matchmaking meetings and events, advertising and/or written notices, posting of Notices of Sources Sought and/or Requests for Proposals, written notices or emails to all DBEs listed in the State's directory of transportation firms that specialize in the areas of work desired (as noted in the DBE directory) and which are located in the area or surrounding areas of the project. The Bidder shall solicit this interest as early in the bidding process as practicable to allow the DBEs to respond to the solicitation and submit a timely offer for the subcontract. The Bidder should determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

(b) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out Contract work items into economically feasible units (for example, smaller tasks or quantities) to facilitate DBE participation, even when the Bidder might otherwise prefer to perform these work items with its own forces. This may include, where possible, establishing flexible timeframes for performance and delivery schedules in a manner that encourages and facilitates DBE participation.

(c) Providing interested DBEs with adequate information about the Plans, specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation with their offer for the subcontract.

(d) Negotiating in good faith with interested DBEs. It is the Bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs 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 DBEs to perform the work.

(d) Bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as Contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a Bidder's failure to meet the Contract DBE goal, as long as such costs are reasonable. Also, 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 DBEs if the price difference is excessive or unreasonable.

(e) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union status) are not legitimate causes for the
rejection or non-solicitation of bids in the Bidder’s efforts to meet the Contract DBE goal. Another practice considered an insufficient good faith effort is the rejection of the DBE because its quotation for the work was not the lowest received. However, nothing in this paragraph shall be construed to require the Bidder to accept unreasonable quotes in order to satisfy the Contract goals.

(e)ii A Bidder’s inability to find a replacement DBE at the original price is not alone sufficient to support a finding that good faith efforts have been made to replace the original DBE. The fact that the Bidder has the ability and/or desire to perform the Contract work with its own forces does not relieve the Bidder of the obligation to make good faith efforts to find a replacement DBE, and it is not a sound basis for rejecting a prospective replacement DBE’s reasonable quote.

(f) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Bidder.

(g) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services, but not directly or indirectly providing equipment, supplies or materials to the DBE.

(h) Effectively using the services of available minority/women community organizations; minority/women 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 DBEs.

(3) If the Department determines that the apparent lowest responsive Bidder has failed to meet the Contract DBE Goal and made adequate good faith efforts to do so, the Department must, before awarding the Contract, provide the Bidder an opportunity for Administrative Reconsideration. The apparent lowest responsive Bidder will have the opportunity to provide written documented evidence or argument concerning the issue of whether it met the Contract DBE goal or made adequate good faith efforts to do so to an official who did not take part in the original determination that the Bidder failed to meet the Contract DBE goal or made adequate good faith effort to do so, pursuant to 49 C.F.R. 26.53(d). The apparent lowest responsive bidder has the opportunity to meet in person with the Reconsideration Official to discuss the issue of whether it met the Contract DBE goal or made adequate good faith efforts to do so.

Within 1 State business day of being notified by the Department that it is not a responsible bidder because it failed to meet the Contract DBE goal and made adequate good faith efforts to do so, a Bidder may make a request for administrative reconsideration in writing to the New Jersey Department of Transportation, Director, Division of Procurement, PO Box 605, Trenton, New Jersey, 08625-0605. The Bidder must specify one of the following types of administrative reconsideration in its request:

(i) **Written Review by the Department.** If the Bidder seeks written review by the Department it must submit written documented evidence or argument proving the Bidder met the Contract DBE goal at time of Bid, or submitted adequate good faith efforts to do so within 5 days after bid opening, to the Department within 2 State business days of the Bidder’s request for Administrative Reconsideration.

(ii) **In-Person Meeting.** If the Bidder seeks an in-person meeting by the Department it must submit written documented evidence or argument proving the Bidder met the Contract DBE goal at time of Bid, or submitted adequate good faith efforts to do so within 5 days after bid opening, to the Department within 2 State business days of the Bidder’s request for Administrative Reconsideration. The in-person meeting will be scheduled by the Department as soon as time permits.

If the timeframe for a Bidder’s request for Administrative Reconsideration, or submission of written documented evidence or argument proving the Bidder met the Contract DBE goal or submitted adequate good faith effort to do so falls on a weekend or holiday, the written requests are due to the Department on the next State business day. The Department, at its discretion, may not
review or consider any documentation or argument in its administrative reconsideration that was not contained in the Bidder’s request for written review or in-person meeting with the Department.

Once the Reconsideration Official has made a determination, the Department will send the Bidder a written decision on reconsideration, explaining the basis for finding that the Bidder did or did not meet the DBE goal or make an adequate good faith effort to do so.

Failure to follow this request procedure may result in the Bidder’s waiver of the right for Administrative Reconsideration under this Section.

The result of the reconsideration process is not administratively appealable to the USDOT.

2. **Contract ESBE Goal.** Where a Contract ESBE goal is set, the Bidder shall follow all requirements and the same administrative reconsideration procedures of Section 102.13.

B. **State Funded Projects**

1. **Contract SBE Goal.** On wholly State funded contracts having a Contract SBE goal, the Bidder shall ensure that SBEs have an equal opportunity to receive and participate in the performance of contracts and subcontracts financed in whole with state funds in performing work with the Department. The Bidder shall take all necessary and reasonable steps to ensure that SBEs are given equal opportunity to compete for and to perform on the Department’s wholly state funded projects. The Bidder shall not discriminate in the award and performance of any Contract obligation including, but not limited to, its performance of its obligations on wholly state funded contracts as specified in Section 107.

   a. The Bidder shall demonstrate commitment of meeting the Contract SBE goal that is specified in the Contract.

   (1) Submit with the bid as a matter of responsiveness, a completed Form CR-266 - Schedule of DBE/ESBE/SBE Participation. Revisions to the CR-266 will not be accepted before award of the Contract. At time of Bid, or within 5 days after bid opening, submit to DCR/AA:

      (i) a completed and signed Form CR-266 – Schedule of DBE/ESBE/DBE Participation for each DBE firm being used to meet the Contract goal. Revisions to the CR-266 will not be accepted after its initial submission and before award of the Contract.

      (ii) a completed and signed Verification of DBE/ESBE/SBE Firm (Form CR-273) for each firm listed on the CR-266 to demonstrate direct written confirmation from each SBE firm of willingness to participate on the Contract, confirming the kind and amount of work that was provided on the Contractor’s CR-266, and, if applicable,

      (iii) a completed and signed DBE/ESBE/SBE Regular Dealer/Supplier Verification (Form CR-272) for all Regular Dealers/Suppliers listed on the CR-266 form, and, if applicable,

      (iv) a completed and signed DBE/ESBE/SBE Trucking Verification (Form CR-274) for all SBE trucking firms listed on the CR-266.

Firms listed on the CR-266 will not be counted toward the Contract SBE goal unless completed and signed CR-273 form(s), and applicable CR-272 and CR-274 form(s) are submitted to the DCR/AA within the 5 days after bid opening.

These forms must be submitted through a designated email: DOT-CR.Verifications@dot.nj.gov.

(2) If, at time of Submission, commitment to meet the Contract SBE goal is not shown on the CR-266, the Bidder must submit at time of Bid, or within 5 days after bid opening, documented evidence of good faith effort(s) to attain the Contract SBE goal, for review and approval by the DCR/AA. Submittal of such information does not imply DCR/AA approval. The Department’s DCR/AA has sole authority to determine whether the Bidder met the Contract SBE goal or made adequate good faith efforts to do so.

   (i) Good faith efforts are actions taken to achieve a SBE goal or other requirement of the SBE Program which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement, including affirmative action measures designed to implement the established objectives of an affirmative action plan that a Bidder
may utilize to obtain SBE participation. Efforts to include firms not registered as SBEs in New Jersey are consequently not good faith efforts to meet the SBE Contract goal. Good faith effort actions include, but are not limited to:

(a) Conducting market research to identify small business contractors and suppliers and soliciting through all reasonable and available means the interest of all certified SBEs that have the capability to perform the work of the Contract. This may include attendance at pre-bid and business matchmaking meetings and events, advertising and/or written notices, posting of Notices of Sources Sought and/or Requests for Proposals, written notices or emails to all SBEs listed in the State's directory of transportation firms that specialize in the areas of work desired (as noted in the SBE directory) and which are located in the area or surrounding areas of the project. The Bidder shall solicit this interest as early in the bidding process as practicable to allow the SBEs to respond to the solicitation and submit a timely offer for the subcontract. The Bidder should determine with certainty if the SBEs are interested by taking appropriate steps to follow up initial solicitations.

(b) Selecting portions of the work to be performed by SBEs in order to increase the likelihood that the SBE goals will be achieved. This includes, where appropriate, breaking out Contract work items into economically feasible units (for example, smaller tasks or quantities) to facilitate SBE participation, even when the Bidder might otherwise prefer to perform these work items with its own forces. This may include, where possible, establishing flexible timeframes for performance and delivery schedules in a manner that encourages and facilitates SBE participation.

(c) Providing interested SBEs with adequate information about the Plans, specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation with their offer for the subcontract.

(d) Negotiating in good faith with interested SBEs. It is the Bidder's responsibility to make a portion of the work available to SBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available SBE subcontractors and suppliers, so as to facilitate SBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of SBEs 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 SBEs to perform the work.

(e) Not rejecting SBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union status) are not legitimate causes for the rejection or non-solicitation of bids in the Bidder's efforts to meet the Contract SBE goal. Another practice considered an insufficient good faith effort is the rejection of the SBE because its quotation for the work was not the lowest received. However, nothing in this paragraph shall be construed to require the Bidder to accept unreasonable offers from SBEs if the price difference is excessive or unreasonable.

(f) A Bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including SBE subcontractors, and would take a firm's price and capabilities as well as Contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using SBEs is not in itself sufficient reason for a Bidder's failure to meet the Contract SBE goal, as long as such costs are reasonable. Also, 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 SBEs if the price difference is excessive or unreasonable.

(g) A Bidder’s inability to find a replacement SBE at the original price is not alone sufficient to support a finding that good faith efforts have been made to replace the original SBE. The fact that the Bidder has the ability and/or desire to perform the
Contract work with its own forces does not relieve the Bidder of the obligation to make good faith efforts to find a replacement SBE, and it is not a sound basis for rejecting a prospective replacement SBE’s reasonable quote.

(f) Making efforts to assist interested SBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(g) Making efforts to assist interested SBEs in obtaining necessary equipment, supplies, materials, or related assistance or services, but not directly or indirectly providing equipment, supplies or materials to the SBE.

(h) Effectively using the services of available minority/women community organizations; minority/women 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 SBEs.

The above pre-award requirements shall be followed on projects where a Contract SBE goal is set.

3. Failure to submit at time of bid or within 5 days of bid opening, a completed and signed CR-266 – Schedule of Disadvantaged Business Enterprise/Emerging Small Business Enterprise/Small Business Enterprise Participation

102.15 DISQUALIFICATION OF BIDDERS
THE ENTIRE SUBSECTION IS CHANGED TO:

The Department will disqualify a Bidder and reject a bid submitted by that Bidder if the Bidder is determined by the Department to lack responsiveness. Failure of a Bidder to follow the requirements of 102.10 demonstrates a lack of responsiveness.

The Department will disqualify a Bidder and reject a bid submitted by that Bidder if the Bidder is determined by the Department to lack responsibility. Factors demonstrating a lack of responsibility include, but are not limited to:

1. Evidence of collusion among Bidders.
2. Uncompleted work, which in the opinion of the Department, might hinder or prevent completion of additional work if awarded.
4. Failure to submit within 5 days of bid opening, proof of documented evidence of good faith efforts to meet the Contract goal, if the Bidder fails to meet the Contract DBE, ESBE or SBE goal.
5. Failure to submit within 5 days of bid opening, a completed and signed Confirmation of DBE/ESBE/SBE Firm (Form CR-273) for each DBE/ESBE/SBE firm listed on the CR-266.
6. Failure to submit within 5 days of bid opening, a completed and signed DBE/ESBE/SBE Trucking Verification (Form CR-274) for each DBE/ESBE/SBE firm listed on the CR-266, if applicable.
7. Failure to submit within 5 days of bid opening, a completed and signed DBE/ESBE/SBE Regular Dealer/Supplier Verification (Form CR-272) for each DBE/ESBE/SBE Regular Dealer/Supplier listed on the CR-266, if applicable.
8. Failure of the bidder to meet the Contract DBE, ESBE or SBE goal, or make adequate good faith efforts to do so.
9. Submission of a materially unbalanced bid. A materially unbalanced bid is a bid where there is a reasonable doubt that award to the Bidder submitting a mathematically unbalanced bid, which is structured on the basis of nominal prices for some work and inflated prices for other work, will result in the lowest ultimate cost to the Department.
10. Lack of competency or lack of adequate machinery, plant, or other equipment.
11. Unsatisfactory performance on previous or current contracts.
12. Questionable moral integrity as determined by the Attorney General of New Jersey or the Department.
13. Any other outward actions or lack of action that demonstrates the Bidder is not responsible.
14. Disqualification, suspension, or debarment of an individual, firm, partnership, corporation, joint venture, or any combination as required by N.J.A.C. 16:44-11.1 for state projects.
15. Disqualification, suspension, or debarment of an individual firm, partnership, corporation, joint venture, or any combination as required by N.J.A.C. 16:44-11.1 or Federal Government’s System for Award Management (SAM), located at https://www.sam.gov/portal/SAM/#1 for federally assisted contracts.

SECTION 104 – SCOPE OF WORK

104.03.01 Authority to Make Changes
THE FOLLOWING PARAGRAPHS ARE ADDED AFTER THE THIRD PARAGRAPH:

DBE, ESBE or SBE goals apply to work performed through Field Orders and Change Orders. On Federal aid projects, the Contractor is responsible for complying with the DBE program, rules and regulations of 49 CFR Part 26, the requirements as specified in 105.02.05, Federal Aid Project Attachments 1 through 7, and FHWA-1273 for this work. On State funded projects, the Contractor is responsible for complying with SBE program rules and regulations, the requirements as specified in 105.02.05, and State Funded Project Attachments 1 through 6 for this work.

Contractor resubmission of CR-266, CR-273, CR-272 and CR-274 may be required on the work performed through Field Orders and Change Orders.

104.03.03 Types of Changes

3. Changes in the Character of Work.

a. Differing Site Condition.
THE SECOND PARAGRAPH IS CHANGED TO:

The Department will make payment for increased costs resulting from a Type 1 or Type 2 Differing Site Condition as a change in the character of work; however, the Department will not consider making payment for a differing site condition unless the resulting change in cost exceeds $7,500. Except, if the Contractor incurs cost as the result of multiple differing site conditions, with the cost of each separate differing site condition having a value of at least $1,500 but not more than $7,500, the Department will consider making payment for such costs if the aggregate cost of the multiple differing site conditions exceeds $7,500. If the change in cost exceeds these amounts, the Department will base the modification on the total cost of the change, and the Department will not deduct the threshold amount of $7,500 from the cost of the change.

104.03.04 Contractual Notice
THE SECOND PARAGRAPH IS CHANGED TO:

Immediately provide written notice to the RE of a circumstance that is believed to be a change to the Contract. If notice is not provided on Contractual Notice (Form DC-161), include the following in the initial written notice:

1. A statement that this is a notice of a change.
2. The date when the circumstances believed to be a change were discovered.
3. A detailed and specific statement describing the nature and circumstances of the change.
4. If the change will or could affect costs to the Department.
5. If the change will or could affect Contract Time as specified in 108.11.01.C.

In addition to the hard copy of the notice, email the notice to the RE. It is not necessary to attach listed documents to the email.

104.03.08 Force Account

7. Equipment.

a. Contractor-Owned Equipment.
PART 1 IS CHANGED TO:

1 The Department will calculate the “rental” hourly rates by dividing the monthly rate by 176. The Department will not use weekly, daily, or hourly rates. The Department will apply rental hourly rates for every hour the equipment is in active use, except that for any 30-day period, the
Department will limit the total amount paid for each piece of equipment to a maximum of the monthly rate.

THE FOLLOWING PART IS ADDED:

6. The Department will make payment for costs for transporting equipment to and from the work site, if said costs are solely required as a direct result of the Force Account activity.

THE SECOND PARAGRAPHS IS CHANGED TO:

The payment established is full payment for all equipment costs, including the cost of fuel, repairs, maintenance, depreciation, storage and incidentals.

10. Subcontractors.
THE SECOND PARAGRAPHS IS CHANGED TO:

The Department will make payment for markup on subcontracted work at the rate of 5 percent applied on the total amount of all costs for subcontracted force account work up to $500,000 and 2% applied on the total amount of all costs for subcontracted force account work over $500,000.

104.03.09 Delay Damages

1. Non-Productive Activity.
   e. Equipment.
   THE FIRST SENTENCE IS CHANGED TO:

   If as the result of the delay, equipment cannot be used for any active work, and is directed by the RE to remain on the work site during the delay, the Department will make payment as specified in 104.03.08.7.a.5.

SECTION 105 – CONTROL OF WORK

105.01 AUTHORITY OF THE DEPARTMENT

105.01.01 RE
THE LAST PARAGRAPHS IS CHANGED TO:

The RE has the authority to suspend the Work wholly or in part and to suspend Estimates, as specified in 109.05, for failure of the Contractor to correct conditions unsafe for the workers or the general public, for failure to carry out provisions of the Contract, including but not limited to DBE/ESBE/SBE program regulations in the administration of the Contract, or for failure to comply with RE direction. The RE also has the authority to suspend the Work wholly or in part for unsuitable weather, for conditions considered unsuitable for the prosecution of the Work or portion of the Work, or for any other condition or reason deemed to be in the interest of the public.

THE FOLLOWING NEW SUBPART IS ADDED:

105.01.03 Contractor Performance Evaluation

Pursuant to N.J.A.C. 16:44-1 et seq., the Department will assign Performance Evaluation ratings to determine the Contractor’s Work Classification Limit.

The RE will perform a Contractor Performance Evaluation using the Department’s form DC-83 that is current at the time of bid. The Department’s form DC-83 is available at http://www.state.nj.us/transportation/eng/forms/. The RE will perform the Contractor Performance Evaluation at the end of the annual rating period, which extends from January 1 through December 31, if the value of work performed is at least 25% of the Total Adjusted Contract Price or has a value of more than $1 million. If a Project is completed prior to the end of the regular annual rating period, the RE will
perform the Contractor Performance Evaluation when the Department initiates a Certificate of Completion. The Department may extend the rating period or decide to not perform a Contractor Performance Evaluation Rating at its sole discretion, and will provide the Contractor with written notification of a decision to extend a rating period or to not perform a Contractor Performance Evaluation Rating. The RE will provide the Contractor with the breakdown and weighting of the Quality/Contract Compliance subcategories at the preconstruction conference. The Contractor Performance Evaluation process is not an administrative process and is contractual in nature.

Meet with the RE to review the Contractor Performance Evaluation rating when requested by the RE. A protest regarding the Performance Evaluation rating will be resolved through the Rating Review meeting process specified in this Subpart and not through the Contractual Claim Resolution Process specified in Subsection 107.12.

The Contractor may only protest a Contractor Performance Evaluation rating of less than 70. If the Contractor receives a Contractor Performance Evaluation rating of less than 70, the Contractor may protest the assigned rating by submitting a request for a Rating Review meeting with the Department Manager as specified in Subsection 101.04 (2) of the Special Provisions, responsible for the administration of the construction. Submit a written request for a Rating Review meeting to the Department Manager within 15 days of receiving the Contractor Performance Evaluation Rating from the RE. Provide with the request for a Rating Review Meeting a specific and detailed statement of the reasons for the protest and provide a copy of any documents that the Contractor wants the Department to consider. The Contractor waives its right to protest a Contractor Performance Evaluation Rating if it does not submit a written request for a Rating Review meeting within 15 days of the Contractor’s receipt of the Contractor Performance Evaluation Rating.

The Department Manager will schedule and hold a meeting to review the Contractor’s Performance Evaluation with the Contractor and hear the Contractor’s protest within 30 days of receiving the Contractor’s request for a Rating Review meeting. The Department Manager will issue a written decision upholding or adjusting the Performance Evaluation rating within 10 days of conducting the Rating Review meeting.

105.02.01 Labor and Equipment
THE FIRST PARAGRAPH OF PART 1 IS CHANGED TO:

1. Labor. Employ workers that have sufficient skill and experience to properly perform the work assigned to them. Do not engage or employ current Department employees or workers that would cause the worker to be in violation of N.J.S.A. 52:13D-17. Do not engage or employ any former federal, state, or municipal worker who has been personally or individually debarred or subject to a forfeiture of public office pursuant to N.J.S.A. 2C:51-2.

THE FOLLOWING SUBPART IS ADDED:

105.02.05 Civil Rights Requirements
The Contractor is obligated to comply with Title VI of the Civil Rights Act of 1964, 49 CFR Part 21 and 28 CFR Section 50.3, 2 C.F.R. Part 200 and 2 C.F.R. Part 200 Appendix II and any other Rules relative to Nondiscrimination as they may be amended from time to time, which are herein and incorporated by reference and made part of the Contract. The Contractor in the performance of the Contract agrees to comply with nondiscrimination regulations and other requirements as specified in Section 107. Failure of a Contractor to comply with the nondiscrimination provisions of the Contract may result in the actions as set forth as specified in Sections 105, 108 and 109.

The source of funding determines which EEO regulations and goals (Federal and/or State goals) apply to a specific project.

1. Federal Aid Projects. On contracts containing Federal funding, Federal EEO regulations and goals apply as specified in Federal Aid Project Attachments 1 through 11. The DCR/AA monitors and reviews these projects on behalf of the Federal Highway Administration (FHWA), under Federal statutes (23 USC 140) and rules (23 CFR 230, 2 CFR Part 200).

Comply with the DBE/ESBE program, rules and regulations of 49 CFR Part 26 in the administration of the Contract. Failure to do so is a material breach of the Contract and may result in termination of the Contract, or other such actions that the Department or the FHWA deem appropriate which may include, but are not limited to, denial or limit of credit toward the Contract goal, payment being delayed or withheld as specified in Section 105, assessing sanctions as set forth in 49 CFR Part 26, and default as specified in Section 108.
Deliberate attempts by the Contractor or subcontractors to circumvent or commit fraud in the DBE/ESBE program may result in termination of the Contract as specified in Section 108, investigation by the Department’s Inspector General, and prosecution by the State Attorney General’s Office.

Ensure compliance with the labor standards provisions of the Contract. Submit weekly certified payrolls as required in the Contract. Monitor and verify the owner-operator status of all DBE and non-DBE truckers working on Federal aid projects used for the Contract. Submit the DBE Trucking Verification (Form CR-274) to the Department. Failure of a Contractor to meet the requirements of this paragraph may result in payment being delayed or withheld as specified in Section 105, default as specified in Section 108, disqualifying the Contractor from future bidding as non-responsible, or termination of the Contract as specified in Section 108.

Obtain subcontract agreements as specified in Section 108. Failure of a Contractor to meet this requirement may result in payment being delayed or withheld as specified in Section 105, default as specified in Section 108, disqualifying the Contractor from future bidding as non-responsible, or termination of the Contract as specified in Section 108.

The Contractor is responsible for compliance by any subcontractor, lower tier subcontractor as specified in Section 108. On Federal aid construction contracts, utilize a DBE that performs a commercially useful function (CUF) and performs the work committed to at the time of Contract award. Monitor and report DBE participation on the Contract, on a monthly basis.

The Contractor is required to make good faith effort as defined in 23 CFR Part 230 and 41 CFR Part 60 in meeting the Equal Employment Opportunity, Affirmative Action, on-the-job training and female and minority work hour goals. Ensure compliance by subcontractors and lower tier subcontractors. Failure of the Contractor, subcontractor or lower tier subcontractor to meet these requirements may result in the denial or limit of credit toward the Contract goal, payment being delayed or withheld as specified in Section 105; default as specified in Section 108, or termination of the Contract as specified in Section 108.

Utilize the specific DBEs listed to perform the work and supply the materials for which each is listed on the CR-266 unless prior written consent from the DCR/AA is obtained. Unless DCR/AA consent is provided, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

The Contractor is responsible for Equal Employment Opportunity requirements of the Contract, including Affirmative Action, EEO workforce and On-The-Job Training. Failure by the Contractor to meet the requirements of the Affirmative Action Program for Equal Employment Opportunity may result in payment being delayed or withheld as specified in Section 105 pending corrective and appropriate measures by the Contractor to the satisfaction of the Department.

The Contractor is responsible for compliance with the Trainee program. Failure to meet this requirement may result in payment being delayed or withheld as specified in Section 105, default as specified in Section 108, disqualifying the Contractor from future bidding as non-responsible, or termination of the Contract as specified in Section 108.

The Contractor and subcontractors are required to provide all information and reports as specified in Section 107.

a. Disadvantaged Business Enterprise/Emerging Small Business Enterprise Goals for this Contract

This Contract includes a goal of awarding a percentage of the Total Contract Price to subcontractors, transaction expeditors, regular dealers, manufacturers and truckers qualifying as certified DBEs/ESBEs as specified in Federal Aid Project Attachment 1 – Disadvantaged Business Enterprise Utilization on Federal Aid Projects or Federal Aid Project Attachment 1 – Emerging Small Business Enterprise Utilization on Federal Aid Projects, of the Special Provisions.

To receive DBE credit toward meeting a contract goal in the context of the contract award process, a DBE firm must be certified before the due date for bids or offers on the Contract, as stated in 49 CFR Part 26.81(c). There may be situations after the award of the Contract, however, in which it is appropriate to count DBE credit for the use of a DBE firm certified after the contract is executed. To be
eligible to obtain DBE credit, a DBE firm must be certified before the subcontract on which it is working is executed.

A Contractor is deemed to have satisfied the requirements of the DBE Program if the Contractor meets the Contract DBE goal or the approved DBE commitment, or demonstrates an adequate GFE. Failure to meet the Contract DBE goal or the approved DBE commitment, without demonstrating an adequate GFE, is considered a material breach of the Contract.

The Contract DBE goal or the approved DBE commitment may be changed by the Department based on changes in the Work that increase or decrease work assigned to approved DBEs, or to create potential DBE subcontracting opportunities regarding the Contract. The Department’s DCR/AA will evaluate these changes in the Work in the same manner that the original Contract DBE goal or the approved DBE commitment was established. Submit a Revised CR-266 when the Contract DBE goal or the approved DBE commitment is increased or decreased; in such circumstances, the Contractor shall meet the Modified DBE goal or demonstrate an adequate GFE.

If the Contractor fails to meet the Contract DBE goal, without demonstrating an adequate GFE, the Department will make a payment reduction from the total amount of payments made to the Contractor equal to the value of the DBE goal not attained as follows:

\[
\text{DBE Goal Payment Reduction} = (\text{CG} - \text{AG}) \times \text{CP}
\]

Where:
- \(\text{CG}\) = Contract DBE Goal percentage, or approved DBE commitment, or if modified by the Department, the Modified DBE Contract Goal percentage.
- \(\text{AG}\) = Attained DBE Goal percentage = (total dollar amount paid to DBE suppliers and DBE subcontractors divided by CP) plus the percent value attributed to the Contractor’s GFE approved by the Department.
- \(\text{CP}\) = Total Adjusted Contract Price less the payment adjustments for FINAL LAYOUT, PERFORMANCE BOND AND PAYMENT BOND, and DBE Goal Payment Reduction.

b. Trainees

This Contract includes a trainee goal which is part of the Contractor’s equal employment opportunity affirmative action program, on-the-job training aimed at developing full journey people in the type of craft or job classification involved on the project as specified in Section H of Federal Aid Project Attachment 2 – Specific Equal Employment Opportunity Responsibilities on NJDOT Federal Aid Projects, of the Special Provisions.


The Contractor is obligated to comply with the SBE program, rules and regulations in the administration of the Contract. Failure to do so is a material breach of the Contract and may result in termination of the Contract, or other such remedy that the Department deems appropriate which may include, but is not limited to, rejection of bids, denial or limit of credit toward the Contract SBE goal, payment being delayed or withheld as specified in Section 105, assessing sanctions, liquidated damages as specified in Section 108, default as specified in Section 108, disqualifying the Contractor from future bidding as non-responsible, or termination of the Contract as specified in Section 108. Deliberate attempts by the Contractor or subcontractor to circumvent or commit fraud in the SBE program may result in termination of the Contract as specified in Section 108, investigation by the Department’s Inspector General, and prosecution by the State Attorney General’s Office.

Ensure compliance with the labor standards provisions of the Contract. Submit weekly certified payrolls as required in the Contract. Monitor and verify the status of all truck owner-operators working on wholly State funded highway construction projects used for the Contract. Failure of a Contractor may result in payment
being delayed or withheld as specified in Section 105; default as specified in Section 108, or termination of the Contract as specified in Section 108.

Obtain subcontract agreements as specified in Section 108. Failure of a Contractor may result in payment being delayed or withheld as specified in Section 105, default as specified in Section 108, disqualifying the Contractor from future bidding as non-responsible, or termination of the Contract as specified in Section 108.

The Contractor is responsible for compliance by any subcontractor, lower tier subcontractor as specified in Section 108. Utilize a SBE that performs a commercially useful function (CUF) and performs the work committed to at the time of contract award. Monitor and report SBE participation on the project, on a monthly basis. Failure of a subcontractor or lower tier subcontractor may result in denial or limit of credit toward the Contract SBE goal, payment being delayed or withheld as specified in Section 105; default as specified in Section 108, or termination of the Contract as specified in Section 108.

The Contractor is required to make good faith effort as defined in N.J.A.C. 17:27-1.1, et seq. in meeting the Equal Employment Opportunity, Affirmative Action, on-the-job training and female and minority work hour goals. Failure of a subcontractor or lower tier subcontractor may result in denial or limit of credit toward the Contract SBE goal, payment being delayed or withheld as specified in Section 105; default as specified in Section 108, or termination of the Contract as specified in Section 108.

Utilize the specific SBEs listed to perform the work and supply the materials for which each is listed on the CR-266 unless prior written consent from the DCR/AA is obtained. Unless DCR/AA consent is provided, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed SBE.

The Contractor is responsible for Equal Employment Opportunity requirements of the Contract, including Affirmative Action, EO workforce and On-The-Job Training. Failure by the Contractor to meet the requirements of the Affirmative Action Program for Equal Employment Opportunity may result in payment being delayed or withheld as specified in Section 105 pending corrective and appropriate measures by the Contractor to the satisfaction of the Department.

The Contractor and subcontractors are required to provide all information and reports as specified in Section 107.

a. Small Business Goals for This Project

NOTE: SUBCONTRACTING GOALS ARE NOT APPLICABLE IF THE CONTRACTOR IS A REGISTERED SMALL BUSINESS ENTERPRISE (SBE) FIRM.

This Contract includes a goal of awarding a percentage of the Total Contract Price to subcontractors, transaction expeditors, regular dealers, manufacturers and truckers qualifying as SBEs as specified in State Funded Project Attachment 1 – Small Business Enterprise Utilization Attachment for Wholly State Funded Projects, of the Special Provisions.

To receive SBE credit toward meeting a contract goal in the context of the contract award process, a SBE firm must be registered before the due date for bids or offers on the Contract. There may be situations after the award of the Contract, however, in which it is appropriate to count SBE credit for the use of a SBE firm registered after the contract is executed. To be eligible to obtain SBE credit, a SBE firm must be registered before the subcontract on which it is working is executed.

If a prospective Small Business Enterprise fails to meet the eligibility standards for participation the department’s Small Business Program, the Contractor shall, make reasonable outreach efforts to replace that ineligible subcontractor with a registered Small Business whose participation is sufficient to meet the goal for the contract.

Prospective Small Businesses whose registration applications are denied or rejected by the New Jersey Commerce and Growth Commission are ineligible for participation on the project to meet Small Business goals, regardless of any pending appeal action in progress.

A Contractor is deemed to have satisfied the requirements of the SBE Program if the Contractor meets the Contract SBE goal or the approved SBE commitment, or demonstrates an adequate GFE. Failure to
meet the Contract SBE goal or the approved SBE commitment, without demonstrating an adequate GFE, is considered a material breach of the Contract.

The Contract SBE goal or the approved SBE commitment may be changed by the Department based on changes in the Work that increase or decrease work assigned to approved SBEs, or to create potential SBE subcontracting opportunities regarding the Contract. The Department’s DCR/AA will evaluate these changes in the Work in the same manner that the original Contract SBE goal or the approved SBE commitment was established. Submit a Revised CR-266 when the Contract SBE goal or the approved SBE commitment is increased or decreased; in such circumstances, the Contractor shall meet the Modified SBE goal or demonstrate an adequate GFE.

If the Contractor fails to meet the Contract SBE goal, without demonstrating an adequate GFE, the Department will make a payment reduction from the total amount of payments made to the Contractor equal to the value of the SBE goal not attained as follows:

\[
\text{SBE Goal Payment Reduction} = (\text{CG} - \text{AG}) \times \text{CP}
\]

Where:

- \(\text{CG}\) = Contract SBE Goal percentage, or approved SBE commitment, or if modified by the Department, the Modified SBE Contract Goal percentage
- \(\text{AG}\) = Attained SBE Goal percentage = (total dollar amount paid to SBE suppliers and SBE subcontractors divided by CP) plus the percent value attributed to the Contractor’s GFE approved by the Department.
- \(\text{CP}\) = Total Adjusted Contract Price less the payment adjustments for FINAL LAYOUT, PERFORMANCE BOND AND PAYMENT BOND, and SBE Goal Payment Reduction.

### 105.05 WORKING DRAWINGS

THE SECOND PARAGRAPH IS CHANGED TO:

Ensure that working drawing submissions also conform to the Department design manuals and other Department standards for the proposed work. After Award, the Department will provide additional formatting information, the number of copies required, and the address of the receiving designated design unit.

THE THIRD PARAGRAPH IS CHANGED TO:

Submit working drawings on 22 × 36-inch sheets. The Department may approve the use of 8-1/2 x 11 inch sheet on a case by case basis. Submit design calculations required for the working drawings on 8-1/2 × 11-inch paper. Submit 7 copies of the working drawings to the designated design unit for review with a copy of the transmittal letter to the RE. For railroad-carrying structures, submit 4 additional copies to the designated design unit. Submit an additional copy for each outside testing agency or authority involved in the Project.

THE NINTH PARAGRAPH IS CHANGED TO:

Submit working drawings for certification or approval as specified in Table 105.05-1. This list is not all inclusive. Ensure that the working drawings submitted for approval are signed and sealed by a Professional Engineer. The working drawings submitted for certification are not required to be signed and sealed by a Professional Engineer unless they alter the original Contract.

TABLE 105.05-1 IS CHANGED TO:

<table>
<thead>
<tr>
<th>Certified</th>
<th>Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakaway I-Beam GA Sign Support Posts</td>
<td>Catalog Cuts (related to landscape Items)</td>
</tr>
<tr>
<td>Bridge Drainage</td>
<td>Change in Structural Steel Details</td>
</tr>
</tbody>
</table>

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
<table>
<thead>
<tr>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Railing and Fencing Anchorage System</td>
<td>Change of Prestressed Concrete Strand Patterns</td>
</tr>
<tr>
<td>Catalog Cuts</td>
<td>Demolition Plans</td>
</tr>
<tr>
<td>Composite Piles</td>
<td>Erection Plans</td>
</tr>
<tr>
<td>DMS Sign Support Structure</td>
<td>High Load Multi-Rotational (HLMR) Bearings</td>
</tr>
<tr>
<td>DMS Standard Ground Mounted</td>
<td>Isolation Bearings</td>
</tr>
<tr>
<td>Elastomeric Bearings Pads</td>
<td>ITS System Drawings, including Block Diagrams</td>
</tr>
<tr>
<td>Electrical Items Not Pre-Qualified</td>
<td>Machinery and Electrical Items for Movable Bridges</td>
</tr>
<tr>
<td>Expansion Deck Joint Assembly Systems</td>
<td>Mechanically Stabilized Earth (MSE) Walls</td>
</tr>
<tr>
<td>Modular Expansion Joint Assembly</td>
<td>Other work shown on the Plans as conceptual</td>
</tr>
<tr>
<td>Precast Prestressed Concrete Beams and Piles Fabrication</td>
<td>Precast Concrete Arch Structures</td>
</tr>
<tr>
<td>Reinforced Elastomeric Bearings</td>
<td>Precast Concrete Box Culverts</td>
</tr>
<tr>
<td>Sign Legends</td>
<td>Prefabricated Modular Walls</td>
</tr>
<tr>
<td>Sign Support Structures</td>
<td>Stay-In-Place Forms</td>
</tr>
<tr>
<td>Structural Steel Fabrication</td>
<td>Temporary Sheeting and Cofferdams</td>
</tr>
<tr>
<td></td>
<td>Temporary Shielding</td>
</tr>
<tr>
<td></td>
<td>Temporary Structures</td>
</tr>
<tr>
<td></td>
<td>Value Engineering Plans</td>
</tr>
</tbody>
</table>

**THE FIRST PARAGRAPH UNDER PART 1 OF TENTH PARAGRAPH IS CHANGED TO:**

1. **Certified Working Drawings.** For working drawings requiring certification, include 2 blank blocks directly above the title block. Designate one block for design unit certification, and designate the other block for the Contractor’s approval stamp and a signed statement stating that the Contract has not been altered. The Department will require 30 days for review and certification or rejection and return of certified working drawings.

2. **Approved Working Drawings.**

**THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:**

The Department will require ___ days for review and approval or rejection and return of working drawings.

**105.07.01 Working in the Vicinity of Utilities**

**A. Initial Notice.**

**B. Locating Existing Facilities.**

**PART (2) IS CHANGED TO:**

2. For the Department’s fiber optic network, Obtain and complete the fiber optic markout request form as specified in the Special Provisions. Submit a fiber optic markout request form to the Traffic Operations location specified in the Special Provisions for the markout. The Traffic Operations will complete the
markout within 15 days of the receipt. Provide the RE a copy of the markout, and maintain the markout until construction operations in the vicinity of the Department’s fiber optic network are completed.

Fiber Optic Markout Form is available at:
http://www.state.nj.us/transportation/eng/elec/ITS/requests.shtml

Bureau of Traffic Operations, North Region (TOCN)
670 River Drive
Elmwood Park, NJ 07407-1347
Telephone: 732-697-7360

Bureau of Traffic Operations, South Region (TOCS)
1 Executive Campus-Route 70 West
Cherry Hill, NJ 08002-4106
Telephone: 856-486-6650

3. Bureau of Electrical Maintenance, North Region
200 Stierli Court
Mt. Arlington, NJ 07856-1322
Telephone: 973-770-5065

3. NJDOT
Central Region Electrical
1035 Parkway Avenue
4th Floor E&O Bldg.
CN 600
Trenton, NJ 08625
Telephone: 732-625-4350

3. Bureau of Electrical Maintenance, South Region
One Executive Campus Route 70 West
Cherry Hill, NJ 08002-4106
Telephone: 856-486-6627

FOR WEIGH IN MOTION AND TRAFFIC VOLUME SYSTEMS CONTACT:

Transportation Data and Safety Unit
PO Box 600
Trenton, NJ 08625
609-530-3508

FOR ROADWAY WEATHER INFORMATION SYSTEMS CONTACT:

Permits, Electrical Maintenance & Claims Unit
PO Box 600
Trenton, NJ 08625
609-530-5728

C. Protection of Utilities.

<table>
<thead>
<tr>
<th>Location</th>
<th>Speed</th>
<th>Number Per Day</th>
<th>Time</th>
</tr>
</thead>
</table>

THE SECOND PARAGRAPH IS CHANGED TO:

Protect and support existing Department electrical and ITS facilities and ensure that there is no interruption of service. Use hand tools only while working within two feet of the fiber optic network. At least 30 days before
beginning the work, submit a plan to the RE for approval showing the method of support and protection. When access to Traffic Operation Centers, communication hubs, ITS cabinets or any other ITS facilities is required to perform work, submit a request for access to ITS facilities. Ensure that the request for access is made at least five working days before any work is scheduled, using the online form as specified in the Special Provisions.

http://www.state.nj.us/transportation/eng/elec/ITS/access.shtm

THE FOURTH PARAGRAPH IS CHANGED TO:

Access within railroad right-of-way is restricted. Before beginning work within the railroad ROW or on railroad facilities, obtain the railroad’s written approval for access, the method of construction, and the schedule of the work. Provide a copy of the submittal and approval to the RE. Comply with the railroad’s requirements for working within the railroad right-of-way.

THE FOLLOWING IS ADDED TO THE SIXTH PARAGRAPH

Ensure that the work is performed following the railroad’s access and safety restrictions.

105.07.02 Work Performed by Utilities

<table>
<thead>
<tr>
<th>Company Name &amp; Address</th>
<th>Contact Person</th>
<th>Number of Days Advance Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage # ____________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Company Name</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Stage Total ____________

SECTION 106 – CONTROL OF MATERIAL

106.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS

THE FIRST PARAGRAPH IS CHANGED TO:

Ensure that materials furnished for the Project are new, unless otherwise specified in the contract. Comply with 2 CFR 200.322 Procurement of Recovered Materials “to the highest percentage of recovered materials practicable” where the purchase price of the covered item listed exceeds $10,000. Use materials that conform to the requirements of the contract. When required by the Contract, use only products and suppliers listed on the QPL. Use sources of materials that have been approved by the Department on a Materials Questionnaire as specified in 106.04.

106.02 DEPARTMENT-FURNISHED MATERIAL

106.03 FOREIGN MATERIALS

1. Wholly State-Funded Projects

THE ENTIRE TEXT IS CHANGED TO:
Due to the requirements of MAP-21 (Moving Ahead for Progress in the 21st Century Act), comply with the Federal Aid Project requirements specified under Subpart 2.

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

For steel and iron products incorporated into the Project, provide a certification from the manufacturer stating the country where the steel or iron product was melted and manufactured including application of coatings which protect or enhance the value of the material. Ensure that 4 copies of the manufacturer’s certification are provided with each delivery of steel and iron products. Retain 1 copy and submit 3 copies to the RE. Ensure that the certification includes, materials description, quantity of material represented by the certification, country of manufacture, and notarized signature of a person having legal authority to bind the supplier. If a Certification of Compliance as specified in 106.07 contains a statement regarding the country of manufacture, a separate certification is not necessary.

106.04 MATERIALS QUESTIONNAIRE
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

For ITS systems as specified in Section 704, obtain approval of system working drawings including individual components and Electrical material instead of submitting a materials questionnaire.

106.07.01 Certification of Compliance
THE ENTIRE TEXT IS CHANGED TO:

Submit manufacturer’s Certifications of Compliance stating that the materials and/or assemblies fully comply with the requirements of the Contract when required by the Contract or requested by the Department.

Ensure that Manufacturer’s Certification of Compliance contains the following information:

1. Project Name.
2. Name of the Contractor.
4. Quantity of material represented by the certification.
5. Means of identifying the consignment, such as label marking or seal number.
6. Date and method of shipment.
7. A statement that the material conforms to the Contract material requirements and that representative samples have been sampled and tested.
8. If the submission is for an assembly of materials, a statement that the assembly conforms to the Contract.
9. Signature of a person having legal authority to bind the supplier.
10. Typed or printed name of the person who signed the certification.

Before incorporating the materials into the Project, obtain 3 copies of the manufacturer's Certifications of Compliance for materials, components, and manufactured items that are accepted by certification. Retain 1 copy and submit 2 copies to the RE. With the Certification of Compliance, provide a transmittal identifying the Item for which it is submitted. For products that contain steel or iron, attach additional documents as required by the certification procedures as specified in 106.07.02. The Contractor may submit the Certifications of Compliance electronically to the RE in a scanned document. Include the transmittal and all backup documentation in the scanned document.

The Department has the right to sample and test materials or assemblies accepted on the basis of Certifications of Compliance at any time. The Department will reject materials or assemblies, whether in place or not, if found not to be in conformance with the Contract requirements.

The Department will not make payment for an Item for which material is accepted on the basis of a Certification of Compliance until the RE has received the required Certification of Compliance and has inspected and accepted the material or assembly.

106.07.02 Certification for Iron and Steel
THE ENTIRE TEXT IS CHANGED TO:

A. Precast Concrete Steel and Concrete Pipe Certification of Compliance. For precast concrete and concrete pipe items, a Buy America Compliance Plan is required to confirm that the material meets the Buy America...
requirements as specified in 106.03. The ME will periodically audit compliance with the program at the precast plant. If the precast concrete item is not inspected by ME, submit a Certification of Compliance for the precast concrete item as required in 106.07.01. When a Certification of Compliance is submitted, ensure that the Certification of Compliance contains a statement that the reinforcing steel used in the precast concrete item complies with the Buy America requirements as specified in 106.03.

B. Step Certification of Compliance. For products that contain steel or iron components and are not covered in 106.07.02.A, step Certification of Compliance is required to confirm that the item meets the Buy America requirements as specified in 106.03. A step certification is a process under which each handler (e.g., supplier, fabricator, manufacturer, processor, coating facility) of the iron and steel components certifies that the steel and iron components were of domestic origin and that their step in the process was domestically performed.

Every step in the process from melting to coating must be performed in the United States in order for the steel or iron component to be considered domestic and must be documented by step certification. If a domestic source for a steel or iron component cannot be found, submit a request for waiver to the Department. Do not purchase non-domestic steel or iron components without the express written consent of the Department.

Ensure that 3 copies of the Contractor’s Certification of Compliance (Form DC-17) and the step Certifications of Compliance are provided for items containing steel or iron. Retain 1 copy and submit 2 copies to the RE. The Contractor may submit the DC-17 and the step certifications electronically in a scanned document.

Ensure that step Certifications of Compliance contain the following information:

1. Name of the Company supplying the material.
2. Name and location of the Company the material was shipped to.
4. Quantity of material represented by the Certification.
5. Means of identifying the consignment, such as label marking or seal number.
6. Date and method of shipment.
7. A statement that the material conforms to the Contract material requirements and to the Buy America requirements in 106.03.
8. A statement that all steel or iron components in the material or assembly were “melted and manufactured in the US”, unless there is non-domestic steel or iron in the material or assembly.
9. If there is non-domestic steel or iron in the assembly, describe in detail the non-domestic steel or iron material and the quantity. Attach a copy of the Department’s approval for the use of non-domestic steel or iron components.
10. Signature of a person having legal authority to bind the supplier.
11. Typed or printed name of the person who signed the certification.

The Department will not make payment for work containing steel or iron materials until the RE has received the required DC-17 and step Certifications of Compliance, has inspected and accepted the material or assembly.

106.09 SUBSTITUTES FOR PROPRIETARY ITEMS

THE FOLLOWING NEW SECTION IS ADDED:

106.10 USE OF UNITED STATES FLAG VESSELS

For Federal-Aid projects, comply with the Cargo Preference Act of 1954 as amended (46 U.S.C. 1241(b)) and the requirements of 46 CFR 381. Use privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liner and tankers) whenever shipping any equipment, material or commodities pursuant to this contract to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels, and ensure that within 20 days following the date of loading for shipments originating within the United States, or within 30 working days following the date of loading for shipments originating outside the United States, submit a legible copy of a rated “on-board” commercial ocean bills-of-lading in English for each shipment of cargo to the RE and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 in accordance with 46 CFR 381.7(a)-(b).

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
SECTION 107 – LEGAL RELATIONS

107.02 DISCRIMINATION IN EMPLOYMENT ON PUBLIC WORKS
THE TITLE AND ENTIRE SUBSECTION IS CHANGED TO:

107.02 NONDISCRIMINATION

Pursuant to N.J.S.A. 10:2-1, the Contractor agrees that in the hiring of persons for the performance of work under the Contract or any subcontract, or for the procurement, manufacture, assembling, or furnishing of materials, equipment, supplies, or services to be acquired under the Contract, the Contractor, subcontractor, or any person acting on their behalf shall not discriminate against any person who is qualified and available to perform the work to which the employment relates by reason of race, creed, color, national origin, age, ancestry, marital or domestic partnership status, gender, disability, liability for military service, veteran’s status, or affectional or sexual orientation.

The Contractor, subcontractor, or any person acting on their behalf shall not, in any manner, discriminate against or intimidate any employee engaged in the performance of the Work under the Contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling, or furnishing of any such materials, equipment, supplies, or services to be acquired under such Contract, by reason of race, creed, color, national origin, age, ancestry, nationality, marital or domestic partnership status, gender, disability, liability for military service, veteran’s status, or affectional or sexual orientation.

The Department has the right to deduct a penalty of $50 for each person for each day that the person is discriminated against or intimidated in violation of the provisions of the Contract pursuant to N.J.S.A. 10:2-1. The Department has the right to terminate the Contract, and any monies due the Contractor under the Contract may be forfeited, for any violation of this Subsection occurring after notice to the Contractor from the Department of any prior violation of this Subsection.

Standard Title VI Assurance. During the performance of this Contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”), in accordance with Title VI /Nondiscrimination Assurance – Appendix A, USDOT Order 1050.2A agrees as follows:

1. Compliance with Regulations: The Contractor will comply with the Acts and Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which herein incorporated by reference and made a part of this Contract.

2. Nondiscrimination: The Contractor, with regard to the Work performed by it during the Contract, will not discriminate on the grounds race, creed, color, national origin, age, ancestry, nationality, marital or domestic partnership status, gender, disability, affectional or sexual orientation, gender identity or expression, religion, liability for military service, veteran’s status, income level or ability to read, write or speak English in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and Regulations, including employment practices when the Contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. Solicitations for Subcontracts, Including Procurement of Materials and Equipment: In all solicitations, either by competitive bidding, negotiation made by the Contractor for Work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor’s obligations under this Contract and the Acts and Regulations relative to nondiscrimination on the grounds of race, creed, color, national origin, age, ancestry, nationality, marital or domestic partnership status, gender, disability, affectional or sexual orientation, gender identity or expression, religion, liability for military service, veteran’s status, income level or ability to read, write or speak English.

4. Information and Reports: The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the FHWA, to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish the
information, the Contractor will so certify to the Recipient or the FHWA, as appropriate, and will set forth what efforts it has made to obtain the information.

5. Sanctions for Non-Compliance: In the event of a Contractor’s noncompliance with the Nondiscrimination provisions of this Contract, the Recipient will impose such Contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
   1. Withholding payments to the Contractor under the Contract until the Contractor complies; and/or
   2. Cancelling, terminating, or suspending a Contract, in whole or in part.

6. Incorporation of Provisions: The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the Contractor may request the United States to enter into the litigation to protect the interest of the United States.

During the performance of this Contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”) in accordance with the Title VI/Nondiscrimination Assurance – Appendix E, USDOT Order 1050.2A, agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

2. The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601);
7. The Civil Rights Restoration Act of 1987, (PL 100-209);
8. Title II and III of the Americans with Disabilities Act (42 U.S.C. § 12131- - 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
9. The Federal Aviation Administration’s Nondiscrimination statute (49 U.S.C. § 47123);
10. Executive Order 12898, Federal Actions to address Environmental Justice in Minority Populations and Low Income Populations;
11. Executive Order 13166, Improving Access to services for Persons with Limited English Proficiency (70 Fed. Reg. at 74087 to 74100);
12. 23 CFR Part 230 (EEO, Affirmative Action & OJT)
13. 49 CFR Part 26
14. Executive Order 11246 as amended
15. Section 503 of the Rehabilitation Act of 1973 as amended
16. Section 4212 of the Vietnam Era Veteran’s Readjustment Assistance Act, as amended
18. New Jersey P.L. 1975 Chapter 27

THE SECOND PARAGRAPH AS IT APPEARS IN THE SI IS CHANGED TO:

Pursuant to N.J.S.A. 10:2-1, the Contractor agrees that in the hiring of persons for the performance of work under this Contract or any subcontract hereunder, or for the procurement, manufacture, assembling, or furnishing of any such materials, equipment, supplies, or services to be acquired under this Contract, no contractor, nor any person acting on their behalf of such contractor or subcontractor, shall by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates;

THE THIRD PARAGRAPH AS IT APPEARS IN THE SI IS CHANGED TO:

No Contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
engaged in the procurement, manufacture, assembling, or furnishing of any such materials, equipment, supplies, or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex.

THE FOURTH PARAGRAPH AS IT APPEARS IN THE SI IS CHANGED TO:

There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of $50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and this contract may be terminated by the Department, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the Contractor from the Department of any prior violation of this section of the contract. It is the policy of the Department that anyone performing work under any program, activity, or Contract with the Department, shall not discriminate on the basis of race, creed, color, national origin, age, ancestry, nationality, marital or domestic partnership status, gender, disability, affectional or sexual orientation, gender identity or expression, religion, liability for military service, veteran’s status, income level or ability to read, write or speak English.

107.03 AFFIRMATIVE ACTION, DISADVANTAGED BUSINESS ENTERPRISES, OR EMERGING SMALL BUSINESS ENTERPRISE
THE TITLE AND ENTIRE SUBSECTION IS CHANGED TO:

107.03 AFFIRMATIVE ACTION, DISADVANTAGED BUSINESS ENTERPRISES OR EMERGING SMALL BUSINESS ENTERPRISES

It is the public policy of the State and of the United States that no individual, group, firm, corporation or joint venture working on or seeking to work on a Public Works Project should be discriminated against on the basis of race, creed, color, national origin, age, ancestry, nationality, marital or domestic partnership status, gender, disability, liability for military service, affectional or sexual orientation, atypical cellular or blood trait, or genetic information (including the refusal to submit to genetic testing). The Department has developed Affirmative Action, Disadvantaged Business Enterprise, or Emerging Small Business Enterprise Programs to implement this policy, and the regulations and requirements applicable to the Contract are contained in the Special Provisions. The Department will resolve conflicts between these regulations and requirements and the other provisions of the Contract to further the above stated public policy.

Contract Assurance. The Contractor, sub-recipient 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 Department deems appropriate, which may include, but is not limited to:

1. Withholding monthly progress payments;
2. Assessing sanctions;
3. Liquidated damages; and/or
4. Disqualifying the Contractor from future bidding as non-responsive.

107.04 NEW JERSEY CONTRACTUAL LIABILITY ACT
THE FOURTH PARAGRAPH IS CHANGED TO:

For purposes of determining the date of “completion of the contract” pursuant to N.J.S.A. 59:13-5, “completion of the contract” occurs on the date that the Contractor provides written notice to the Department of acceptance of the Proposed Final Certificate or conditional acceptance of the Proposed Final Certificate or the 30th day after the Department issues the Proposed Final Certificate, whichever event occurs first.

107.09 INDEPENDENT CONTRACTOR
THE ENTIRE SUBSECTION IS CHANGED TO:

The relationship of the Contractor to the State is that of an independent contractor. Conduct business consistent with such status. Do not hold out or claim to be an officer or employee of the Department by reason hereof. Do not make a
claim, demand, or application to or for the rights or privileges applicable to an officer or employee of the Department, including, but not limited to, Workers Compensation Insurance, unemployment insurance benefits, social security coverage, or retirement membership or credit.

107.11 RISKS ASSUMED BY THE CONTRACTOR

1. Damage Caused by the Contractor.
   THE FOLLOWING IS ADDED:
   For any damages by the Contractor to the fiber optic network along Route _____, MP _____, also notify the G4S Technology LLC at 877-637-2344 within two hours. Only G4S Technology LLC will be allowed to complete repairs on that respective section of the fiber optic network. Directly pay G4S Technology LLC within 30 days from the receipt of G4S Technology LLC’s invoice for such repairs, and provide the RE with a copy of the transmittal letter. If the Contractor does not make payment within 30 days, the Department may recover the costs incurred for repairs from the Contract.

107.12.01 Satisfying the Notice Requirements
   THE FOLLOWING IS ADDED TO THE SECOND PARAGRAPH:
   Upon request, provide the RE with 3 copies of all documentation submitted in support of the claim.

107.12.02 Steps
   THE FOURTH PARAGRAPH IS CHANGED TO:
   The Contractual Claims Resolution Process is sequential in nature and is composed of the following steps:
   1. Step I – Review by the RE.

   THE EIGHTH PARAGRAPH IS CHANGED TO:
   When the value of the claim submitted by the Contractor is $20,000 or less, the Step II review will be the final step in the Contractual Claims Resolution Process. For such claims, the decision of the Regional Claims Review Board is final and terminates the Contractual Claims Resolution Process.

   THE ELEVENTH PARAGRAPH PART 2 AND 3 ARE CHANGED TO:
   2. Step II, Dispute Review Board (DRB).
   THE HEADING AND ENTIRE TEXT IS CHANGED TO:
   2. Step II, Regional Claims Review Board (RCRB). The RCRB is comprised of 3 delegated members of the Department.

   If the Contractor provides a timely written rejection of the RE’s decision and a timely request to forward the claim to Step II, the RE will forward the claim and supporting information previously submitted by the Contractor to the RCRB within 7 days of receipt of the Contractor’s request to forward the claim to the next step. The RCRB will schedule and hold a meeting to review the claim with the Contractor within 30 days of receipt of the claim information from the RE. This time limit may be extended by mutual agreement of the parties. The RCRB will issue a written decision regarding the claim within 20 days of the meeting.

   Within 15 days of the receipt of the decision by the RCRB, the Contractor shall either accept or reject the decision in writing; or upon failure to accept or reject the decision in writing, the Department will terminate the Contractual Claims Resolution Process. If the Contractor rejects the decision and intends to proceed to a Step III review, the Contractor must request a Step III review within 15 days of receipt of the RCRB’s decision. Submit the request to the Secretary of the Department Claims Committee, P.O. Box 600, Trenton, New Jersey 08625-0600 or e-mail to DOT-Secretary.ClaimsCommittee@DOT.NJ.GOV.

The second paragraph as it appears in the SI is changed to:

The Claims Committee will not review a claim or combination of claims valued less than $250,000 or 1 percent of the adjusted Contract Price, whichever is greater, until after the receipt of conditional release as specified in 109.11. If the Contract is 75 percent complete or greater as measured by Contract Time or Total Adjusted Contract Price, the Claims Committee will not review a claim or combination of claims valued more than $250,000 until after receipt of conditional release as specified in 109.11. If the Claims Committee does not review a claim or combination of claims before Completion, the Claims Committee will review the claim or combination of claims at a single session of the Claims Committee after the receipt of the conditional release as specified in 109.11 and all claims have been reviewed at Steps I and II of the Claims Resolution Process. When reviewing a combination of claims, the Claims Committee will not review any individual claim valued less than $20,000.

107.14 Patented Devices, Materials, and Processes

The following is added:

Observe 37 CFR Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts, and Cooperative Agreements” and any implementing regulations set forth by the USDOT, FHWA or FAA if State contract is for the performance of experimental, developmental, or research work funded under a Federal Aid Project.

The following subsection is added:

107.17 Communication with the News Media

Do not communicate with the news media or issue a news release without obtaining a prior written approval from the Department.

Section 108 – Prosecution and Completion

108.01 Subcontracting

The following paragraph is added before the first paragraph:

Do not discriminate on the grounds of race, creed, color, national origin, age, ancestry, nationality, marital/domestic partnership/civil union status, gender, disability, religion, affectional or sexual orientation, gender identity or expression, family status, atypical cellular or blood trait, genetic information, military service, or veterans status, in the selection and retention of subcontractors, including procurement of materials and leases of equipment. In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurement of materials, or leases of equipment, each potential subcontractor or firm will be notified by the Contractor of the Contractor’s obligations under this Contract and the Acts and Regulations relative to Nondiscrimination.

The following is added after the third sentence in the first paragraph:

Ensure that DBEs/ESBEs have an equal opportunity to receive and participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds in performing work with the Department. Ensure that SBEs have an equal opportunity to receive and participate in the performance of contracts financed in whole with State funds in performing work with the Department.

The following is added after the first paragraph:

On Federal aid projects, the Contractor shall not terminate a DBE subcontractor, lower tier DBE subcontractor, DBE transaction expeditor, DBE regular dealer, DBE supplier, DBE manufacturer and DBE trucker or an approved substitute DBE firm without prior written consent of DCR/AA. Prior to replacement of the DBE or ESBE firm, the Contractor shall in writing, notify the DBE or ESBE firm and the DCR/AA of its intent to terminate and/or substitute a DBE or ESBE firm, and the reason for the request. The Contractor must give the DBE or ESBE 5 days to respond to the
Contractor’s notice and advise the DCR/AA and the Contractor of reasons why, if any, it 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 DCR/AA may provide a response period shorter than five days. At the time the Contractor requests termination or replacement of a DBE or ESBE firm, the Contractor must submit documentation to the DCR/AA of its good faith efforts in accordance with 49 CFR Part 26.53 if they are replacing the terminated DBE/ESBE with a non-DBE or non-ESBE firm. The DCR/AA must approve the termination and substitution of all DBE or ESBE subcontractors, lower tier subcontractors, transaction expeditors, regular dealers, suppliers, manufacturers and truckers. The Contractor needs to show they began good faith efforts to replace or substitute with another DBE or ESBE well in advance of the request to terminate or substitute. The Department’s DCR/AA has sole authority to approve the termination, replacement or substitution of DBE/ESBE subcontractors, lower tier subcontractors, transaction expeditors, regular dealers, suppliers, manufacturers and truckers.

On wholly state funded projects, the Contractor shall not terminate a SBE subcontractor, lower tier SBE subcontractor, SBE transaction expeditor, SBE regular dealer, SBE manufacturer and SBE trucker, or an approved substitute SBE firm, without prior written consent of DCR/AA. Prior to replacement of the SBE firm, the Contractor shall in writing, notify the SBE firm and the DCR/AA of its intent to terminate and/or substitute a SBE firm, and the reason for the request. The Contractor must give the SBE 5 days to respond to the Contractor’s notice and advise the Department and the Contractor of reasons why, if any, it 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 DCR/AA may provide a response period shorter than 5 days. At the time the Contractor requests termination or replacement of a SBE firm, the Contractor must submit documentation to the DCR/AA of its good faith efforts if they are replacing the terminated SBE firm with a non-SBE firm. The DCR/AA must approve the termination and substitution of all SBE subcontractors, lower tier subcontractors, transaction expeditors, regular dealers, suppliers, manufacturers and truckers. The Contractor needs to show they began good faith efforts to replace with another SBE well in advance of the request to terminate or substitute. The Department’s DCR/AA has sole authority to approve the termination, replacement or substitution of SBE subcontractors, lower tier subcontractors, transaction expeditors, regular dealers, suppliers, manufacturers and truckers.

1. Values and Quantities.
THE FOLLOWING IS ADDED TO FIRST PARAGRAPH

1.
There are no Specialty Items in this Project.
Specialty Items are as listed below:
Drilling and blasting.
Above ground highway lighting items.
Above ground sign lighting items.
Above and below bridge deck lighting items.
Electrical wire items.
ITS items, except for foundations, standards, and junction boxes.

THE THIRD PARAGRAPH IS CHANGED TO:

If a partial quantity of work for a unit price Item is subcontracted, the Department will determine the value of the work subcontracted by multiplying the price of the Item by the quantity of units to be performed by the subcontractor.

THE FOURTH PARAGRAPH IS CHANGED TO:

If only a portion of work of an Item is subcontracted, the Department will determine the value of work subcontracted based on the value of the work subcontracted as indicated in the subcontract agreement and as shown in a breakdown of cost submitted by the Contractor.

2. Limits and Restrictions.
PART 3 IS CHANGED TO:

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
3. The Contractor is barred from subcontracting to firms and individuals suspended or debarred by the Department or included in the State of New Jersey Consolidated Debarment Report maintained by the Department of the Treasury, Division of Building and Construction, Bureau of Contractor Prequalification. The Contractor must certify that neither the individual, partnership, corporation, joint venture, or limited liability corporation applying to do subcontract work nor any of its corporate officers, stockholders, partners, or members are collectively or individually suspended, debarred, proposed for debarment, disqualified, declared ineligible, or voluntarily excluded from doing business by this or any other State or sub-division thereof or listed in the Federal Government’s System for Award Management (SAM), located at: https://www.sam.gov/portal/SAM/#1.

3. **Subcontract Requirements.**
   THE ENTIRE PART 3 IS CHANGED TO:

3. **Subcontract Requirements.** Ensure that subcontract agreements include the following Contract provisions:

   a. **Federal Aid Projects.** When subcontracting work on a Federal Aid project, ensure the following are included in the subcontract agreement.

   1. Disadvantaged Business Enterprise Utilization (Federal Aid Project Attachment 1), or Emerging Small Business Enterprise Utilization (Federal Aid Project Attachment 1).
   2. Specific Equal Employment Opportunity Responsibilities on NJDOT Federal Aid Projects (Federal Aid Project Attachment 2).
   3. Requirements for Affirmative Action to Ensure Equal Employment Opportunity on NJDOT Federal Aid Projects (Federal Aid Project Attachment 3).
   7. Payroll Requirements for NJDOT Federal Aid Projects (Federal Aid Project Attachment 7).
   8. FHWA-1273 Required Contract Provisions, Federal Aid Construction Contracts as amended or supplemented (Federal Aid Project Attachment 8).
   9. State Mandatory Addendum to FHWA-1273 Required Contract Provisions, Federal Aid Construction Contracts as Amended or Supplemented (Federal Aid Project Attachment 9).
   12. The Standard Title VI Assurance found in Subsection 107.02, as amended or supplemented.
   14. New Jersey Department of Labor Prevailing Wage Rate Determination.
   15. New Jersey Department of Transportation Code of Ethics for Vendors.
   16. Subsection 107.04 as amended or supplemented.
   17. Subsection 106.10 as amended or supplemented.
   18. The Contract Assurance found in Subsection 107.03, as amended or supplemented.

   b. **Wholly State Funded Projects.** When subcontracting work on a wholly State funded project, ensure the following are included in the subcontract agreement.

   1. Small Business Enterprise Utilization on Wholly State Funded Projects (State Funded Project Attachment 1).
   5. Payroll Requirements for Wholly State Funded Projects (State Funded Project Attachment 5).
6. Americans with Disabilities Act Requirements for Wholly State Funded Projects (State Funded Project Attachment 6).
7. New Jersey Department of Labor Prevailing Wage Rate Determination.
8. New Jersey Department of Transportation Code of Ethics for Vendors.
9. Subsection 107.04 as amended or supplemented.
10. The Standard Title VI Assurance found in Subsection 107.02, as amended or supplemented.

108.02 COMMENCEMENT OF WORK
THE SUBPART 4 IN THE FIRST PARAGRAPH IS CHANGED TO:

4. Progress schedule as specified in 153.03

108.06 NIGHT OPERATIONS

2. Visibility Requirements for Workers and Equipment.
THE FIRST PARAGRAPH IS CHANGED TO:

Ensure that workers wear a 360° high-visibility retroreflective safety garment meeting ANSI/ISEA Class 3, Level 2 standards.

108.07.02 Changes to the Traffic Control Plan (TCP)
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Submit requests for changes to the TCP to the RE for approval at least 30 days before the change is needed.

THE FOLLOWING NEW SUBPART IS ADDED:

108.07.03 Lane Rental

Lane and shoulder closures are restricted to the schedule provided in the Traffic Control Details of the plans, and as specified in Subpart 108.07.01. The Contractor may extend the allowable hours for lane and shoulder occupancy as provided by Table 108.07.03-1 with the RE’s written approval. Submit a written request to the RE to rent lanes and shoulders for an extended period at least 14 days prior to the anticipated use. In the request, provide the following information:

1. Route, Direction and milepost limits
2. Closure Description (Lane type/shoulder):
3. Date(s)/Days
4. Start Time(s)
5. Finish Time(s)
6. Reason
7. Calculation of Lane Rental Cost for each closure

The Department will assess the lane rental charge for each hour the Contractor occupies a lane in accordance with Table 108.07.03-1. If the Contractor does not occupy the lane during the extended hours, the Department will not assess a lane rental charge. If the Contractor occupies the lane for fewer hours than requested, the Department will only assess a lane rental charge for the time that the Contractor has actually occupied the lane. If the Contractor occupies a lane for a portion of an hour, the Department will round the occupancy time to the next highest half hour.

The Department will assess a lane rental charge for lane and/or shoulder occupancy of the roadway at the rates provided in Table 108.07.03-1.
Table 108.07.03-1
Lane Rental availability & charge

<table>
<thead>
<tr>
<th>ROADWAY</th>
<th>DIRECTION</th>
<th>CLOSURE DESCRIPTION</th>
<th>CLOSURE TIME</th>
<th>RENTAL RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start Time</td>
<td>Finish Time</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Day(s)</td>
<td>Hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hours</td>
<td>$ per hour</td>
</tr>
</tbody>
</table>

Do not occupy a lane or shoulder beyond the RE’s approved extension of the allowable hours for lane and shoulder occupancy. If the Contractor’s lane closure exceeds the allowable time period, the Department will assess Lane Occupancy Charges in accordance with Section 108.08.

108.08 LANE OCCUPANCY CHARGES
THE SECOND PARAGRAPH IS CHANGED TO:

The RE will keep record of each occurrence as well as the cumulative amount of time that a lane is kept closed beyond the lane closure schedule and provide the record to the Contractor. The Department will calculate the lane occupancy charge by multiplying the length of time of the delayed opening, in minutes, by the rate of $10 per minute per lane, unless otherwise specified in the Special Provisions. The total amount per day for the lane occupancy charge that the Department will collect will not exceed $10,000.00.

THE FOLLOWING IS ADDED:
The rate to calculate the Lane Occupancy Charge is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
</tr>
</thead>
</table>

108.09 MAINTENANCE WITHIN THE PROJECT LIMITS
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

6. Access to ITS devices and their respective controllers and meter cabinets is maintained throughout the duration of the project.

108.10 CONTRACT TIME
A. Complete all work required for Interim Completion for _________ on or before __________.
B. Complete all work required for Substantial Completion on or before __________.
C. Achieve Completion on or before __________.

A. Complete all work required for Interim Completion for __________ in _______ days.
B. Complete all work required for Substantial Completion in ______ days.
C. Achieve Completion in _______ days.

A. Complete all work required for Interim Completion for __________ in ______ working days.
B. Complete all work required for Substantial Completion in ______ working days.
C. Achieve Completion in ______ working days.

108.11.01 Extensions to Contract Time
B. Types of Delays.
   1. Non-Excusable Delays.

THE FOLLOWING IS ADDED:
For work performed by Utilities, delays up to 30 percent of the estimated duration specified in 105.07.02 are considered non-excusable. The duration includes both the advance notice and the completion of the work by the Utility.

For delays caused by Railroads, delays up to 30 percent of the estimated availability specified in 105.07 are considered non-excusable.

2. **Excusable, Non-Compensable Delays.**

   b. **Utilities.**

   **THE FOLLOWING IS ADDED:**

   For delays caused by Railroads, when the availability to access is reduced by more than 30 percent greater than the estimated availability specified in 105.07.

   **THE LAST PARAGRAPH IS CHANGED TO:**

   If approved excusable, non-compensable delays exceed a total of 90 days, the time in excess of 90 days will become excusable and compensable as specified in 108.11.01.B.3.

108.12 **RIGHT-OF-WAY RESTRICTIONS**

The Department has not obtained the following Right-of-Way parcels; the anticipated availability dates are provided:

**Properties and Vacation/Availability Dates**

<table>
<thead>
<tr>
<th>Demolition and/ or Parcel No</th>
<th>Approximate Baseline Station</th>
<th>Offset/Direction</th>
<th>Date</th>
</tr>
</thead>
</table>

108.14 **DEFAULT AND TERMINATION OF CONTRACTOR’S RIGHT TO PROCEED**

**THE FOLLOWING LISTS UNDER THE FIRST PARAGRAPH IS CHANGED TO:**

1. Fails to begin construction operations within ___ days of execution of the Contract.

11. Fails to comply with Contract requirements regarding minimum wage payments, 49 CFR Part 26 et seq., the DBE program requirements, SBE program requirements, and equal employment opportunity requirements.

**THE FOLLOWING IS ADDED AFTER THE 2ND PARAGRAPH:**

If the Department directs the Surety to complete the Contract, and the Surety elects to use a completion-contractor to perform the Work, the Surety must promptly submit to the Department a request for approval of the proposed completion-contractor as a subcontractor as per Section 108.01. The Department has the right to reject a request by the Surety to use the Contractor as the completion-contractor, either directly or under the direction of a consultant to the Surety. In addition, the Department has the right to reject a request by the Surety to contract with employees of the Contractor, directly or under the direction of a consultant to the Surety, to complete the Contract. The Department’s right to reject contained in this paragraph is based on the sole discretion of the Department.

108.19 **COMPLETION AND ACCEPTANCE**

**THE FOLLOWING IS ADDED:**

No Incentive Payment for Early Completion is specified for this project.

108.20 **LIQUIDATED DAMAGES**

Liquidated damages are as follows:

A. For each day that the Contractor fails to complete the work as specified in Subsection 108.10 of these Special Provisions, for Interim Completion, the Department will assess liquidated damages in the amount of $______.
B. For each day that the Contractor fails to complete the work as specified in Subsection 108.10 of these Special Provisions, for Substantial Completion, the Department will assess liquidated damages in the amount of $______.

C. For each day that the Contractor fails to achieve Completion as specified in Subsection 108.10 of these Special Provisions, the Department will assess liquidated damages in the amount of $______.

THE FOLLOWING IS ADDED:

When the Contractor may be subjected to more than one rate of liquidated damages established in this Section, the Department will assess liquidated damages at the higher rate.

SECTION 109 – MEASUREMENT AND PAYMENT

109.01 MEASUREMENT OF QUANTITIES

THE SECOND PARAGRAPH IS CHANGED TO:

The Department will designate Items as Measured Items or as Proposal Items by having a suffix of M or P in the Item number respectively. The Department will measure quantities of Measured Items for payment.

THE LAST SENTENCE OF THE LAST PARAGRAPH IS CHANGED TO:

The Department will measure quantities for Proposal Items that are designated on the Plans as “if and where directed” for payment when the RE directs work using the “if and where directed” quantity.

109.02 SCOPE OF PAYMENT

THE THIRD SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

The Department will not make additional or separate payment for work or portion of work unless specifically provided for in the “Measurement and Payment” Subsection.

109.05 ESTIMATES

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

Pay subcontractors and suppliers for satisfactory performance of their work no later than 30 days from receipt of each payment made by the Department.

Pay subcontractors and suppliers the full amount of retainage no later than 30 days from receipt of payment made by the Department for the subcontractor’s or supplier’s work.

THE SECOND PARAGRAPH IS CHANGED TO:

The RE will provide a summary of the Estimate to the Contractor. Before the issuance of each payment, certify, on forms provided by the Department, that:

1. Each subcontractor or supplier has been paid the amount due, including retainage, from the previous progress payment and will be paid the amount due from the current progress payment, including retainage, for the subcontractor or supplier’s work that was paid by the Department.

2. There exists a valid basis under the terms of the subcontractor’s or supplier’s contract to withhold payments from the subcontractor or supplier, and therefore payment is withheld.

THE FOLLOWING IS ADDED AFTER THE FOURTH PARAGRAPH:

If the Contractor fails to pay the subcontractor or supplier within 30 days after the subcontractor or supplier satisfactorily completes the specified work, the Department may withhold progress payments from the Contractor, until the Contractor pays the subcontractor or supplier all delinquent amounts due, or the Contract is terminated, or the matter is resolved under N.J.S.A. 52:32-40 and N.J.S.A. 52:32-41.
If the Department receives an allegation from a subcontractor or a supplier that the Contractor has not paid the subcontractor or supplier the amount due from a previous progress payment, including retainage, submit to the RE within 10 days of a request made by the RE, evidence that payment has been made.

THE EIGHTH PARAGRAPH IS CHANGED TO:

From the total Estimate amount, excluding amounts for subcontracted work on Federal aid projects, the Department will deduct and retain 2 percent until Substantial Completion.

THE NINTH PARAGRAPH IS CHANGED TO:

In the first Estimate following Substantial Completion, the Department will reduce the retainage withheld to one percent of the Total Adjusted Contract Price, excluding subcontracted work on Federal aid projects, unless it has been determined by the Department that the withholding of additional retainage is required. If retainage is held in cash withholdings, the reduction is to be accomplished by payment under the next Estimate. If retainage is held in bonds, the Department will authorize a reduction in the escrow account.

THE NINTH PARAGRAPH IS CHANGED TO:

In the first Estimate following installation of all landscape work, the Department will reduce the retainage withheld to one percent of the Total Adjusted Contract Price, excluding subcontracted work on Federally aid projects, unless it has been determined by the Department that the withholding of additional retainage is required. If retainage is held in cash withholdings, the reduction is to be accomplished by payment under the next Estimate. If retainage is held in bonds, the Department will authorize a reduction in the escrow account.

THE TENTH PARAGRAPH IS CHANGED TO:

The RE has the right to not process an Estimate when, in the judgment of the RE, the Work is not performed or proceeding as specified in the Contract or following the Department giving the Contractor and Surety notice of default as specified in 108.14.

109.06 MATERIALS PAYMENTS AND STORAGE

THE TEXT BEFORE THE LIST UNDER THE FIRST PARAGRAPH IS CHANGED TO:

The Contractor may request payment for the cost of materials, including the storage cost, not incorporated into the Work. If approved by the RE, the Department will make payment for the cost of materials, including storage costs if such payment exceeds $25,000; however, the amount of payment may not exceed 85 percent of the bid price for the associated Item. The Department will not make payment for such materials until the RE is satisfied that:

109.07 BONDS POSTED IN LIEU OF RETAINAGES

THE FIRST PARAGRAPH IS CHANGED TO:

The Contractor may deposit negotiable bonds of the State or any of its political subdivisions, which have been approved by the Department, in an escrow account to secure release of all or a portion of the retainage withheld as specified in 109.05. Establish the account under the provisions of an escrow agreement to be entered into between the Contractor, the Department, and a bank located in the State that is an authorized depository with a trust department. Pay the charges of the bank for services rendered according to the terms and conditions of the escrow agreement.

109.09 AUDITS

THE FOLLOWING IS ADDED:

Pursuant to N.J.S.A. 52:15C-14(d), relevant records of private vendors or other persons entering into contracts with the Department are subject to audit or review by the New Jersey Office of the State Comptroller. Therefore, the Contractor shall maintain all documentation related to products, transactions or services under the Contract for a period of five years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.
DIVISION 150 – CONTRACT REQUIREMENTS

SECTION 151 – PERFORMANCE BOND AND PAYMENT BOND

151.03.01 Performance Bond and Payment Bond
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:
Submit the broker’s fees, the certified rate schedule, paid invoices and the report of execution for the bond to the RE.

151.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM’S PAY UNIT IS REVISED TO:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFORMANCE BOND AND PAYMENT BOND</td>
<td>DOLLAR</td>
</tr>
</tbody>
</table>

SECTION 152 – INSURANCE

152.03.01 Owner’s and Contractor’s Protective Liability Insurance

A. Policy Requirements.
THE FOURTH SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:
Ensure that policies are underwritten by companies with a current A.M. Best rating of A- with a Financial Size Category of VII or better.

B. Types

THE FOLLOWING IS ADDED:
Ensure the policy names JCP&L, its officers, employees and agents as additional insured.

2. Comprehensive Automobile Liability Insurance.
THE FOLLOWING IS ADDED:
Ensure the policy names JCP&L, its officers, employees and agents as additional insured.

3. Owner’s and Contractor’s Protective Liability Insurance.
THE ENTIRE TEXT IS CHANGED TO:
Procure a separate Owner’s and Contractor’s Protective Liability Insurance Policy with a minimum limit of liability in the amount of $4,000,000 per occurrence as a combined single limit for bodily injury and property damage. Ensure the policy is endorsed to include Severability of Interest/Separation of Insureds clause. Ensure the policy names the State, its officers, employees, and agents as additional insured. Provide documentation from the insurance company that indicates the cost of the Owner’s and Contractor’s Protective Liability Insurance Policy.
Ensure the policy is endorsed to include per project aggregate.

5. Excess Liability Insurance.
THE FOLLOWING IS ADDED:
Ensure the policy names JCP&L, its officers, employees and agents as additional insured.

THE ENTIRE TEXT IS CHANGED TO:
If construction operations require the Contractor to use a boat, procure Marine Liability Insurance with a minimum limit of liability in the amount of $2,000,000 per occurrence. Ensure the policy is endorsed to include:
1. Personal injury.
2. Contractual liability.
3. Waiver of Subrogation for all claims and suits, including recovery of any applicable deductibles.
4. Per project aggregate.

Ensure the policy names the State, its officers, employees, and agents as additional insured.

152.03.02 Railroad Protective Liability Insurance
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:
Ensure the policy is endorsed to include per project aggregate.

THE THIRD PARAGRAPH IS CHANGED TO:
Ensure the policy is endorsed to include Severability of Interest/Separation of Insureds clause. Submit the policy for railroad protective liability insurance and endorsements to the Comprehensive General Liability Insurance to the railroad company for approval. The Department will list the name and address of the railroad company representative in the Special Provisions. Construction operations will not be permitted on railroad property before approval of insurance by the railroad company. Reconcile all policy requirements to the satisfaction of the railroad company and the RE.

Procure and maintain insurance coverage for the following railroad(s):
- National Railroad Passenger Corporation (AMTRAK)
- Consolidated Rail Corporation (CONRAIL)
- New Jersey Transit Rail Operations
- New York Susquehanna & Western Railway Corporation (NYS&W)

It is estimated that ___ percent of the Project cost is located within or adjacent to the railroad right-of-way.

152.03.03 Pollution Liability Insurance
SUBPART 9 IS ADDED TO THE THIRD PARAGRAPH:
9. Per project aggregate.

152.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS’ PAY UNITS ARE REVISED TO:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>OWNER’S AND CONTRACTOR’S PROTECTIVE LIABILITY INSURANCE</td>
<td>DOLLAR</td>
</tr>
<tr>
<td>RAILROAD PROTECTIVE LIABILITY INSURANCE</td>
<td>DOLLAR</td>
</tr>
<tr>
<td>POLLUTION LIABILITY INSURANCE</td>
<td>DOLLAR</td>
</tr>
</tbody>
</table>

THE LAST PARAGRAPH IS CHANGED TO:
The Department will make initial payment for OWNER’S AND CONTRACTOR’S PROTECTIVE LIABILITY INSURANCE, RAILROAD PROTECTIVE LIABILITY INSURANCE, and POLLUTION LIABILITY INSURANCE at the lesser of the bid amount, or actual costs as documented from paid invoices. If the Bid amount is greater than the amount indicated on the documented paid invoices, the Department will make payment for any remainder, up to the Bid amount, with the final monthly Estimate.

SECTION 153 – PROGRESS SCHEDULE

153.03.01 CPM PROGRESS SCHEDULE
THE THIRD PARAGRAPH IS CHANGED TO:
The Contractor may propose alternate staging. Ensure that proposed alternate staging does not interfere with work done by Others without written concurrence from the affected Others. The Department may reject the proposed alternate

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
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staging if it causes an increase to the cost of work done by Others. The Contractor is responsible for the cost of changes or additional work required as a result of completing the work according to the proposed alternate staging.

1. **Preliminary Schedule Submission.**

   THE SECOND PARAGRAPH IS CHANGED TO:
   
   The RE may require 3 color paper copies of the preliminary schedule, Gantt Chart, as specified in 153.03.02.2.e, and a network diagram (PERT) printed on 36 × 22-inch plans detailing the activity relationships.

2. **Baseline Schedule Submission.**

   THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:
   
   The RE may require the Contractor to submit 3 color paper copies of the baseline schedule.

   THE SECOND PARAGRAPH PART 3 IS CHANGED TO:
   
   3. The RE may require 3 color paper copies of the tabular reports, as specified in 153.03.02.2, and a printed network diagram (PERT) on 36 × 22-inch sheets detailing the activity relationships.

**153.03.02 CPM Progress Schedule Updates**

THE LAST PARAGRAPH IS CHANGED TO:

If the project falls behind schedule for nonexcusable delays, so that the schedule indicates that the Work will not be completed by the Completion date, as specified in 108.10, take the necessary steps to improve progress. Under such circumstances, the RE may direct the Contractor to increase the number of shifts, begin overtime operations, work extra days including weekends and holidays, and supplement its construction plant. Furthermore, the RE may require the Contractor to submit for approval a recovery schedule showing how the Contractor proposes to meet the directed acceleration.

2. **Tabular Reports.**

   THE FIRST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:
   
   The RE may require 3 color paper copies of the longest path sort, total float sort, responsibility sort, area sort, and Gantt chart.

**153.03.03 Bar Chart Progress Schedule and Updates**

A. **Schedule.**

   THE THIRD SENTENCE OF THE THIRD PARAGRAPH IS CHANGED TO:
   
   Provide 3 color paper copies of a bar chart progress schedule or similar type that is acceptable to the RE for approval as follows:

   THE FOLLOWING IS ADDED:

   If the project falls behind schedule for nonexcusable delays, so that the schedule indicates that the Work will not be completed by the Completion date, as specified in 108.10, take the necessary steps to improve progress. Under such circumstances, the RE may direct the Contractor to increase the number of shifts, begin overtime operations, work extra days including weekends and holidays, and supplement its construction plant. Furthermore, the RE may require the Contractor to submit for approval a recovery schedule showing how the Contractor proposes to meet the directed acceleration.

**153.04 MEASUREMENT AND PAYMENT**

THE THIRD PARAGRAPH IS CHANGED TO:

If the Contractor’s CPM Progress Schedule update is not approved by the date of the progress meeting for the following update, the Department will assess liquidated damages to recover the Department’s increased administrative costs. The Department will assess damages for each delinquent update as follows:
   a. Telephones. Provide ___ cordless phones with auto-switching.
   c. Cell Phones. Provide ____ cellular phones. Ensure the cellular phone plan provides for unlimited mobile to mobile in-network usage, unlimited push-to-talk/ walkie-talkie usage and an anticipated monthly usage of 900 any-time minutes for each phone. Ensure the phones are on the same plan. Ensure the cellular phone plan has a home rate with no roaming charges within the state. Ensure each cellular phone has the following features:
      1. Push to Talk / Walkie-Talkie capable
      2. Camera with 1 megapixel picture capability
      3. Battery life capable of 180 minutes of continuous use and 72 hours of standby use
      4. Equipped with a hands-free headset
      5. Base charger and car charger
   d. Computer System. Provide a computer system meeting the following requirements:
      ___ computer configurations each meeting the following:
      1. Processor having a clock speed of ___ GHz or faster, ___ GB RAM, ___ MB Video RAM, ___ Gigabyte hard drive designated as drive C, one DVD (+/-) Writer Drive, one CD-R Recordable Drive. Ensure the system is USB 2.0 compatible and has at least two front USB ports. Include Keyboard, optical mouse and 2 piece desktop speakers.
      2. Wired Router with appropriate number of ports and cables and a print server. Ensure there is at least one wired Ethernet switch.
      3. High-speed broadband connection and service with a minimum speed of ___ Megabits per second (mbps) with dynamic IP address for the duration of the project.
      4. 19 inch or larger Flat Screen LCD monitor with tilt/swivel capabilities.
      5. ___ Gigabyte or larger external drive with backup software for MS-Windows, and fifteen corresponding formatted data cartridges corresponding to the tape drive size.
      6. ___ Flatbed USB version 2.0 or greater Color Scanner with automatic document feed.
      7. Uninterruptible power supply (UPS).
      8. Surge protector for the entire computer configuration to be used in conjunction with the UPS.
      9. Computer workstation, chair, printer stand, and/or table having both appropriate surface and chair height.
     10. One can of compressed air and screen cleaning solution every other month of the duration of the contract.

If more than one computer configuration is specified, provide one network interface card for the base computer configuration and hardwire connections between computer configurations as directed by the RE.

Also provide:
   ___ USB ___ GB Flash/Jump memory drives
   ___ CD-R ___ MB (or larger) recordable CD’s compatible with the CD drive and ___ recordable DVD’s.
   ___ CD/DVD Holder (each holds 50)
   ___ color laser printers and supplies as follows:
      1. Minimum of 192 Megabytes of expanded memory, printer cable, and legal size paper tray.
      2. One set of printer ink cartridges every other month for the duration of the construction project for each printer.

Software as follows:
1. Microsoft Windows, latest version with future upgrades for the duration of the entire project.
4. Anti-Virus software, latest version with monthly updates for the duration of the contract.
6. Primavera Project Management, latest version
7. Adobe Acrobat Professional, latest version, or compatible software for Scanner

THE THIRD PARAGRAPH IS CHANGED TO:

When the computer system is no longer required by the RE, the Department will remove and destroy the hard drive, and return the computer system to the Contractor. The Department will retain other data storage media.

6. **Office Equipment.** Provide the following:

PART (1) IS CHANGED TO:

1. A copier with automatic document feed, 15 pages per minute copy speed, variable reduce/enlarge capability, and letter, legal, and ledger size capabilities. Erase the copier hard drive before removing the copier from the field office and provide the RE with a certification stating that the copier hard drive has been erased.

2. ____ digital camera(s). Ensure each digital camera has auto-focus, with rechargeable batteries and charger, ___ MB memory card, USB Memory Card Reader compatible with camera and field office computer, 1.5 inch LCD monitor, ___ mega pixel resolution, ___ X optical zoom lens, built in flash, image stabilization, computer connections, and a carrying case

3. ____ video camcorder(s). Ensure each video camcorder is a mini DVD camcorder with ___ optical zoom, 2” LCD monitor, USB 2.0 compatible and includes USB 2.0 connections.

7. **Inspection Equipment.**

1. ____ Calculators with trigonometric capability
2. ____ Date/ Received stamp and ink pad
3. ____ Electronic Smart level, 4 foot
4. ____ Electronic Smart level, 2 foot
5. ____ Carpenter rulers
6. ____ Steel tape, 100 feet
7. ____ Cloth tape, 100 feet
8. ____ Illuminated measuring wheel
9. ____ Plumb bob and cord
10. ____ Line level and cord
11. ____ Surface thermometer
12. ____ Concrete thermometer
13. ____ Digital infrared asphalt thermometer
14. ____ Direct Tension Indicator (DTI) Feeler Gage, 0.005 inch
15. ____ Sledge hammer, 8lb
16. ____ Self leveling laser level with range of 100 feet and an accuracy of ¼ inch per 100 feet
17. ____ Hard hats - orange, reflectorized hard hats according to ANSI Z89.1.
18. ____ Safety garments – orange, reflectorized, 360º high visibility safety garments according to ANSI/ISEA Class 3, Level 2 standards. To be replaced yearly for the duration of the contract.
19. ____ Sets of rain gear with reflective sheeting
20. ____ Sets of hearing protection with a NRR rating of 22 dB
21. ____ Sets of eye protection according to ANSI Z87.1
22. ____ Sets of fall arrest equipment according to ANSII Z359.1 standards consisting of a full body harness, lanyard and anchor.
23. __ Light meter - capable of measuring the level of luminance in foot-candles
24. __ Lantern flashlight, 6V with monthly battery replacements
25. __ Digital Psychrometer
26. __ Chain Drag according to ASTM D4580-86
27. __ Testing equipment and apparatus conforming to AASHTO T23, T119, T152
28. __ Hard Bound Daily Diaries, 5-1/2” X 8” minimum with one day per page. To be provided yearly for the duration of the contract.
29. __ Legal size hanging folders
30. __ Legal size manila file folders – three tab

155.03.03 Telephone Service
THE CONTENT OF THIS SUBSECTION IS DELETED

155.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TELEPHONE SERVICE</td>
<td>LUMP SUM</td>
</tr>
</tbody>
</table>

THE THIRD PARAGRAPH IS DELETED.

SECTION 156 – MATERIALS FIELD LABORATORY AND CURING FACILITY

156.03 PROCEDURE

156.03.01 Materials Field Laboratory

   c. Cell Phones. Provide ____ cellular phones. Ensure the cellular phone plan provides for unlimited mobile to mobile in-network usage, unlimited push-to-talk/ walkie-talkie usage and an anticipated monthly usage of 900 any-time minutes for each phone. Ensure the phones are on the same plan. Ensure the cellular phone plan has a home rate with no roaming charges within the state. Ensure each cellular phone has the following features:
      1. Push to Talk / Walkie-Talkie capable
      2. Camera with 1 megapixel picture capability
      3. Battery life capable of 180 minutes of continuous use and 72 hours of standby use
      4. Equipped with a hands-free headset
      5. Base charger and car charger

   d. Computer System. Provide a computer system meeting the following requirements:
      ____ computer configurations each meeting the following:
      1. Processor having a clock speed of ___ GHz or faster, ___ GB RAM, ___ MB Video RAM, ___ Gigabyte hard drive designated as drive C, one DVD (+/-) Writer Drive, one CD-R Recordable Drive. Ensure the system is USB 2.0 compatible and has at least two front USB ports.
      2. Wireless Ethernet Hub Switch with appropriate number of ports and cables and a print server.
      3. High-speed broadband connection and service with a minimum speed of ___ Megabytes per second (mbps) with dynamic IP address for the duration of the project.
      4. 19 inch or larger Flat Screen LCD monitor with tilt/swivel capabilities.
      5. ___ Gigabyte or larger external drive with backup software for MS-Windows, and fifteen corresponding formatted data cartridges corresponding to the tape drive size.
      6. ___ Flatbed USB version 2.0 Color Scanner with automatic document feed.
      7. Uninterruptible power supply (UPS).
8. Surge protector for the entire computer configuration to be used in conjunction with the UPS.
9. ___ computer workstations, chair, printer stand, and/or table having both appropriate surface and chair height.
10. One can of compressed air and screen cleaning solution every other month of the duration of the contract.

If more than one computer configuration is specified, provide one wireless network card for the base computer configuration and hardware connections between computer configurations as directed by the RE.

Also provide:
___ USB ___ GB Flash/Jump memory drives
___ CD-R ___ MB (or larger) recordable CD’s compatible with the CD drive and ___ recordable DVD’s.
___ CD/DVD Holder (each holds 50)
___ color laser printers and supplies as follows:
   1. Minimum of 192 Megabytes of expanded memory, printer cable, and legal size paper tray.
   2. One set of printer ink cartridges every other month for the duration of the construction project for each printer.

THE THIRD PARAGRAPH IS CHANGED TO:
When the computer system is no longer required by the ME, the Department will remove and destroy the hard drive, and return the computer system to the Contractor. The Department will retain other data storage media.

6. Office Equipment. Provide the following:

PART (1) IS CHANGED TO:

1. A copier with automatic document feed, 15 pages per minute copy speed, variable reduce/enlarge capability, and letter, legal, and ledger size capabilities. Erase the copier hard drive before removing the copier from the field office and provide the RE with a certification stating that the copier hard drive has been erased.

THE FOLLOWING IS ADDED:

9. Inspection Equipment.
   1. ___ Hard hats - orange, reflectorized hard hats according to ANSI Z89.1.
   2. ___ Safety garments – orange, reflectorized, 360° high visibility safety garments according to ANSI/ISEA Class 3, Level 2 standards. To be replaced yearly for the duration of the contract.
   3. ___ Sets of rain gear with reflective sheeting
   4. ___ Sets of hearing protection with a NRR rating of 22 dB
   5. ___ Sets of eye protection according to ANSI Z87.1
   6. ___ Lantern flashlight, 6V with monthly battery replacements

156.03.05 Nuclear Density Gauge
THE LAST PARAGRAPH IS CHANGED TO:

Provide a nuclear density gauge for the exclusive use of the ME using one of the following methods:

1. Purchase a nuclear density gauge under the Contractor’s New Jersey Department of Environmental Protection (NJDEP) License or the Contractors United States Nuclear Regulatory Commission (USNRC) license.
2. Lease a nuclear density gauge from a New Jersey Department of Environmental Protection (NJDEP) or United States Nuclear Regulatory Commission (USNRC) licensed third party on the Department’s New Jersey Department of Environmental Protection (NJDEP) License.

The Contractor is barred from purchasing gauges on the Department’s New Jersey Department of Environmental Protection (NJDEP) license. Perform calibration and servicing of the gauge, other than routine wipe tests, every 24
months. The ME may direct additional calibrations, when necessary. Supply a replacement gauge for the Department’s use during the calibration and servicing period.

SECTION 157 – CONSTRUCTION LAYOUT AND MONUMENTS

157.03.01 Construction Layout
THE SEVENTH PARAGRAPH IS CHANGED TO:
Provide the Utilities with the layout needed to install relocated utility facilities and coordinate the Work. Ensure that relocated facilities do not conflict with proposed construction, including High Voltage Proximity Act conflicts.

THE FOLLOWING IS ADDED AFTER THE NINTH PARAGRAPH:
For each bridge and sign structure within the Project Limits, provide the RE as-built measurements of the vertical under clearance at each lane line, shoulder line, curb line and edge of pavement line under a structure to the nearest inch. For each bridge structure, provide vertical under clearance measurements at each fascia beam.

157.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM’S PAY UNIT IS REVISED TO:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Layout</td>
<td>Dollar</td>
</tr>
</tbody>
</table>

THE SECOND PARAGRAPH IS CHANGED TO:
The Department will adjust payment for CONSTRUCTION LAYOUT based on the final contract amount and will calculate as follows:

\[
CL = \frac{CL_B \times (C_F - E_F)}{C_O - E_O}
\]

Where:
1. \(CL = \) Adjusted payment for CONSTRUCTION LAYOUT.
2. \(CL_B = \) Bid price for CONSTRUCTION LAYOUT.
3. \(C_O = \) Original Contract Price.
4. \(C_F = \) Final Contract Price.
5. \(E_F = \) Total of \(CL_B\) and the final cost for PERFORMANCE BOND AND PAYMENT BOND, Incentive/Disincentives for completion/interim completion, and claim settlements.
6. \(E_O = \) Total of \(CL_B\), and PERFORMANCE AND PAYMENT BOND.

SECTION 158 – SOIL EROSION AND SEDIMENT CONTROL
AND WATER QUALITY CONTROL

158.03.02 SESC Measures
8. Inlet Filters. Provide Type 1 and Type 2 inlet filters as follows:
   a. Type 1.
   THE ENTIRE TEXT IS CHANGED TO:
   For a new inlet structure without a casting, mold welded steel wire fabric around the inlet walls. Extend the welded steel wire a minimum of 6 inches down each side of the structure. Secure geotextile to the welded wire fabric. Place No. 2 coarse aggregate against the inlet structure to hold the inlet filter in place.
For an inlet structure with a casting and exposed exterior walls, place geotextile under the casting and extend it a minimum of 6 inches below the top of the exposed walls. Place No. 2 coarse aggregate around the drain hole opening.

For an existing inlet structure without exposed exterior walls, place geotextile under the grate and extend the geotextile for a minimum of 6 inches beyond the grate.

For an inlet with a curb piece and without exposed exterior walls, ensure that the opening in the curb piece has a height of 2 inches. If the opening is greater than 2 inches, achieve the 2 inch opening size by wrapping the geotextile around an appropriately sized piece of lumber. Place the lumber against the vertical opening.

19. Oil-Only Emergency Spill Kit.
THE SECOND SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Include Oil-only Emergency Spill Kit, Type 1 consisting of the following:

SECTION 159 – TRAFFIC CONTROL

159.02.01 Materials
THE FOLLOWING IS ADDED TO THE LIST OF MATERIALS REFERENCES:

Box Beam for Construction Barrier Curb ................................................................. 913.04

THE FOLLOWING IS ADDED:
Provide temporary crash cushions, inertial barrier systems as specified in 611.02. Provide temporary compressive crash cushions as specified for compressive crash cushions in 611.02.

159.02.02 Equipment
THE FOLLOWING IS ADDED TO THE LIST OF EQUIPMENT REFERENCES:

Portable Variable Message Sign w/Remote Communication................................................ 1001.04
Portable Trailer Mounted CCTV Camera Assembly......................................................... 1001.05

159.03.02 Traffic Control Devices

2. Construction Barrier Curb.
THE ENTIRE TEXT IS CHANGED TO:

Alternate A or B construction barrier curb may be used interchangeably in any location. The Contractor may use construction barrier curb that is constructed using gray or white concrete. Do not place different colors of construction barrier curb in a continuous run. Do not use construction barrier curb having any of the following deficiencies:

1. Exposed steel at the connector flangeway.
2. Exposed reinforcement steel.
3. Cracking through the cross section.
4. An area of concrete missing larger than a 3-inch by 3-inch right triangle.
5. Debris in the keyway.
7. Non-functioning anchor rod hole.
8. Paint applied to the surface.
9. Objects protruding from the surface.
10. Previous repairs.
11. Do not use damaged, kinked or bent connection key or box beam stiffener.
At least 30 days before delivering construction barrier curb to the Project Limit, provide the RE notice that the barrier curb is available for inspection. The RE will inspect the barrier curb and approve individual pieces for delivery to the Project Limits.

Ensure that anchor pins do not project above the plane of the barrier curb. Install the Construction Barrier Curb stiffened with box beams as indicated in the contract documents.

Replace construction barrier curb that does not meet the specified requirements. Do not patch or repair construction barrier curb.

Provide top and side mounted flexible delineators on the construction barrier curb. For delineators located on the right side when facing in the direction of traffic, ensure that the retroreflective sheeting is white. For delineators located on the left side when facing in the direction of traffic, ensure that the retroreflective sheeting is yellow. Attach flexible delineators according to the manufacturer’s recommendations.

Starting at the beginning of the construction barrier curb section mount top delineators at 100-foot intervals on tangent sections, or curves of radii greater than 1,910 feet, and at 50-foot intervals on curves of radii of 1,910 feet or less.

Mount side delineators at the lead end of each barrier segment with the top of the delineator 3 inches from the top of the barrier.

5. Temporary Crash Cushion
THE SECOND SENTENCE IS CHANGED TO:
Install temporary compressive crash cushions as specified for compressive crash cushions in 611.03.02.

6. Traffic Control Truck with Mounted Crash Cushions.

THE LAST SENTENCE IS CHANGED TO:
Submit drawings to the RE detailing the manner of securing the ballast, signed and sealed by a Professional Engineer, certifying that it is capable of withstanding the impact forces for which the impact attenuator is rated.

THE FOLLOWING IS ADDED TO THE SECOND PARAGRAPH:

8. Portable Variable Message Sign with Remote Communication (PVMSRC). Place the PVMSRC at the locations directed by the RE for the duration of the project. Ensure that a designated representative familiar with the operation and programming of the unit is available on the Project for On-Site Configuration. Only display messages on the PVMSRC authorized by the Department for the Project in accordance with the plans or as directed by the RE and make the signs available for use remotely from the Traffic Operation Center (TOC) specified in 105.07.01.B. Program within 8 hours, any message requested by the RE to be displayed on the PVMS at a scheduled time and verify that the message is displayed correctly and notify the RE. If the PVMSRC fails to function, repair the equipment within 48 hours of receiving notice from the Department that the PVMSRC is not functioning.

Integrate the PVMSRC for remote operation from TOC using Vanguard DMS software or the Department’s central DMS control software at the time of installation as directed by the RE.

Provide for one week of testing by the TOC for remotely operating the PVMSRC before the start of construction operations that require lane or shoulder closures, or other impacts to traffic. At least 10 days before testing, submit to the RE for approval a plan for any work to be completed in the TOC. Submit a request to the RE at least 4 days in advance to access the TOC for any work.

9. Portable Trailer Mounted CCTV Camera Assembly (PTMCCA).

Place the PTMCCA at the location directed by the RE. Ensure that a designated representative familiar with the operation and programming of the unit is available on the Project for initial installation. If the PTMCCA fails to function, repair the equipment within 48 hours of receiving notice from the Department that the PTMCCA is not functioning.
Provide a system that includes a robotic network camera remotely controllable, including Pan, Tilt and Zoom (PTZ). Provide broadband internet service connection and On-Site Camera Configuration for remote operation and control of the camera via the Department’s existing Head-End Camera Control System, Genetec. No other Head-End Camera Control System substitution is permitted. A Management user system is also to be provided for remote system programming to the camera sites. This includes a website that is to be provided and hosted by the vendor. This website is to have secure authentication and is to show the current devices with their location, status, and display links for each device. Provide continuous viewable image at a minimum of 320H x 240V resolution and 1 frame per sec (fps) through the website. As directed by the Traffic Operation Center (TOC) specified in 105.07.01.B, establish password level designations, camera presets, and camera image displays. Provide all incidental equipment and material required for successful remote operation and communications.

Provide for one week of testing by the TOC for remotely operating the PTMCCA before the start of construction operations that require lane or shoulder closures, or other impacts to traffic.

159.03.06 Temporary Traffic Stripes and Temporary Traffic Markings
THE SUBPART HEADING AND THE ENTIRE TEXT IS CHANGED TO:

159.03.06 Traffic Stripes, Latex ,Traffic Markings Lines, Latex and Traffic Markings Symbols, Latex

Apply latex traffic stripes and latex markings when they are required for 14 days or less. Apply epoxy traffic stripes and thermoplastic markings as specified in 610.03.01 and 610.03.02 when they are required for more than 14 days. Apply latex traffic stripes and latex markings when the ambient and surface temperatures are at least 45 °F and rising and the surface temperature is no more than 140 °F. Apply the latex paint in a wet film thickness of 6 ± 1 mil. Apply glass beads to the wet paint in a uniform pattern and at the rate of 12 pounds per gallon of paint.

159.03.08 Traffic Direction
A. Flagger.
THE LAST SENTENCE IS CHANGED TO:
Ensure that the flagger is equipped with a STOP/SLOW paddle and follows MUTCD flagging procedures.

B. Police.
THE FOURTH PARAGRAPH IS DELETED.

159.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION</td>
<td>UNIT</td>
</tr>
<tr>
<td>PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY</td>
<td>UNIT</td>
</tr>
<tr>
<td>TEMPORARY CRASH CUSHION, COMPRESSION BARRIER, TYPE__, WIDTH___</td>
<td>UNIT</td>
</tr>
<tr>
<td>TEMPORARY CRASH CUSHION, LOW MAINTENANCE COMPRESSION BARRIER, TYPE___, WIDTH___</td>
<td>UNIT</td>
</tr>
<tr>
<td>TRAFFIC STRIPES, LATEX ___&quot;</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>TRAFFIC MARKINGS LINES, LATEX ___&quot;</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>TRAFFIC MARKINGS SYMBOLS, LATEX</td>
<td>SQUARE FOOT</td>
</tr>
</tbody>
</table>

THE FOLLOWING ITEMS ARE DELETED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMPORARY TRAFFIC STRIPES, ___&quot;</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>TEMPORARY TRAFFIC MARKINGS</td>
<td>SQUARE FOOT</td>
</tr>
<tr>
<td>TEMPORARY CRASH CUSHION, ___</td>
<td>UNIT</td>
</tr>
</tbody>
</table>

THE SECOND PARAGRAPH IS CHANGED TO:
For traffic control devices measured by the linear foot or unit basis that are specified in 159.03.02, the Department will make payment for the maximum quantity in service at one time as required by the Contract. For CONSTRUCTION
SIGNs, the Department will make payment for the maximum quantity of specific sign types in service at one time as required by the Contract. If a particular sign type has more than one unique text, each sign with a unique text will be considered to be a specific sign type. The Department will make payment for 50 percent of the Contract bid price for traffic control devices specified in 159.03.02 that are measured on a linear foot, square foot or unit basis upon approved placement. The Department will prorate the balance of payment over the duration of the Contract.

THE FOLLOWING IS ADDED

If after being notified by the Department that the PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION or PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY has failed to function and the equipment has not been restored to good working order within 48 hours, the Department will make payment reductions as follows:

For each occasion the equipment was not restored within 48 hours the Department will assess a liquidated damage of $250 for every 48 hours period the equipment is not functioning.

The Department will not include payment for epoxy traffic stripes and thermoplastic traffic markings and symbols under TRAFFIC STRIPES LATEX, TRAFFIC MARKINGS LINES, LATEX and TRAFFIC MARKINGS SYMBOLS, LATEX. The Department will make payment for epoxy traffic stripes and thermoplastic traffic markings under TRAFFIC STRIPES, TRAFFIC MARKINGS LINES, and TRAFFIC MARKINGS SYMBOLS as specified in 610.04.

SECTION 160 – PRICE ADJUSTMENTS

160.03.01 Fuel Price Adjustment

THROUGHOUT THIS SUBPART, TABLE 161.03.01-1 IS CHANGED TO TABLE 160.03.01-1

THE THIRD PARAGRAPH IS CHANGED TO:

If the as-built quantity of an Item listed in Table 160.03.01-1 differs from the sum of the quantities in the monthly Estimates, and the as-built quantity cannot be readily distributed among the months that the Item listed in Table 160.03.01-1 was constructed, then the Department will determine fuel price adjustment by distributing the difference in the same proportion as the Item’s monthly Estimate quantity is to the total of the Item’s monthly estimates.

THE 13TH AND 15TH LINE IN THE TABLE 160.03.01-1 IS CHANGED TO:

| SOIL AGGREGATE BASE COURSE, ___ " THICK | 1 Gallon per Cubic Yard |
| DENSE-GRADED AGGREGATE BASE COURSE, ___ " THICK | 1 Gallon per Cubic Yard |

THE 25TH LINE IN THE TABLE 160.03.01-1 IS CHANGED TO:

| HOT MIX ASPHALT BASE COURSE | 2.50 Gallons per Ton |

THE FOLLOWING ARE ADDED TO TABLE 160.03.01-1

<table>
<thead>
<tr>
<th>Items</th>
<th>Fuel Usage Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-VEGETATIVE SURFACE, HOT MIX ASPHALT</td>
<td>2.50 Gallons per Ton</td>
</tr>
<tr>
<td>COLOR-COATED NON-VEGETATIVE SURFACE, HOT MIX ASPHALT</td>
<td>2.50 Gallons per Ton</td>
</tr>
</tbody>
</table>

160.03.02 Asphalt Price Adjustment

NOTE 1 OF THE THIRD PARAGRAPH IS CHANGED TO:
1. The Department will determine the weight of asphalt binder for price adjustment by multiplying the percentage of new asphalt binder in the approved job mix formula by the weight of the item containing asphalt binder. If a Hot Mix Asphalt item has a payment unit other than ton, the Department will apply an appropriate conversion factor to determine the number of tons used.

THE FOURTH PARAGRAPH IS CHANGED TO:

For TACK COAT and PRIME COAT, the Department will calculate asphalt price adjustments by the following formula:

$$A = B \times \left[ (MA - BA)/BA \right] \times C \times M \times G$$

Where:
A = Asphalt Price Adjustment
B = Bid Price for Tack Coat/Prime Coat
MA = Monthly Asphalt Price Index
BA = Basic Asphalt Price Index
C = Petroleum Content of the Tack Coat and Prime Coat in Percent by Volume:
  Use 100% for cutbacks and Tack Coat 64-22
  60% for Polymer Modified Tack Coat
  60% for RS or similar type emulsions
M = Percentage of Bid Price Applicable to Materials Only: Use 82%
G = Gallons of Tack Coat and Prime Coat Furnished and Applied

160.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS’ PAY UNITS ARE REVISED TO:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUEL PRICE ADJUSTMENT</td>
<td>DOLLAR</td>
</tr>
<tr>
<td>ASPHALT PRICE ADJUSTMENT</td>
<td>DOLLAR</td>
</tr>
</tbody>
</table>
DIVISION 200 – EARTHWORK

SECTION 201 – CLEARING SITE

201.03.01 Clearing Site

B. Clearing and Grubbing.
THE FOLLOWING IS ADDED:

Dispose of material and debris as specified in 201.03.09.

Remove trees and branches within 15 feet of the end of JCP&L pole cross arms. If the resulting tree is rendered hazardous, then remove the entire tree according to SECTION 802.

201.03.02 Clearing Site, Bridge and Clearing Site, Structure

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH.

Only the following equipment is permitted for the work:

1. **Pneumatic or Electric Equivalent Hand Operated Hammers.**
   a. When demolishing concrete not closer than 6 inches to structural members: hammers weighing no more than 90 lbs (exclusive of bit), equipped only with chisel point bits.
   b. When demolishing concrete within 6 inches of structural members: hammers weighing no more than 30 lbs (exclusive of bit).

2. **Saw Cutters.**
   a. When cutting concrete within 6 inches of structural members: concrete cutters and concrete saws. While using water in the cutting operation, provide shielding beneath the cutting operation to prevent water leakage. Continuously collect slurry and dispose of as specified in 201.03.09. Ensure that the slurry does not enter the structure or highway drainage system.

3. **Hydraulic Breakers.** Ram-hoe type breakers, hydraulic breakers, and demolition shears may be used with the following restrictions:
   a. Submit required data to the RE for Department’s analysis of stresses induced to the girders.
   b. Delineate the centerline and limits of the top flange of girders before the equipment operation.
   c. Do not use equipment within 6 inches of the delineated flanges.
   d. Do not pull or twist the reinforcement steel.

4. **Hydraulic Splitters.** Hydraulic splitters.

5. **Other Equipment.** Obtain RE approval before use.
THE FOLLOWING IS ADDED:

The procedure is described below:

1. **Prestressed Concrete Stringers and Concrete Diaphragms.** Repair damage to prestressed concrete stringers and concrete diaphragms using nonshrink grout conforming to Subsection 903.08 before deck placement.

2. **Steel Stringers, Floorbeams, Cross Frames, and Diaphragms.**
   a. Repair procedures to tensile components in conformance with ASTM A 6/A 6M and the following:
      1. Repair gouges up to 1/8 inch by grinding flush in the direction of principal stress.
2 Repair gouges deeper than 1/8 inch by first grinding; then, depositing weld metal and grinding flush with the surface of the metal in the direction of principal stress. Weld using low hydrogen electrodes conforming to current AWS Specifications A5.1 and A5.5.

3 Repair kinks and deformations by flame straightening or a combination of flame straightening and jacking. Ensure flame straightening is performed by personnel having a minimum of three years of documented experience. Submit the names of the personnel to the RE for review and approval prior to performing the work.

b. Repair procedures to compression components for kinks and deformations as outlined in 2.a (3) above. Where more than five percent of the cross-sectional area of the member is damaged, submit a repair procedure to the RE for review and approval.

Clean and paint exposed existing top flanges of beams with prime coat as specified in Subsection 554.03.

Bonding and Grounding for Electrified Railroad. For the required materials, submit a list to the RE for approval 21 days before construction operation. In the list, include: material description, manufacturer and catalog number. After obtaining the RE’s approval, submit the list to the railroad for review and approval. Do not order the materials prior to obtaining the railroad’s approval. Furnish and deliver the materials to the railroad. Obtain a receipt for the materials from the railroad and provide a copy to the RE.

<table>
<thead>
<tr>
<th>List of Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
</tr>
<tr>
<td>U-bolt, 7/8-inch diameter by 4-inch, BS fastener</td>
</tr>
<tr>
<td>Strap, clevis, 1/4 by 2 inches stock, 12-inch connecting length, 1-inch diameter hole, 7/8-inch diameter bolt, ultimate strength 25 psi, Brewer Tilchener Corp.-3074 C</td>
</tr>
<tr>
<td>Dead end eye bolt, compression type steel, use DIE 6010SH, compression tool, 60A ALCOA 9190-332</td>
</tr>
<tr>
<td>Jumper cable, compression type aluminum, use DIE 6020AH, compression tool 60A ALCOA 5120-781</td>
</tr>
<tr>
<td>Terminal - Bundy AK2C39B1 to 336400 Cable (1)</td>
</tr>
<tr>
<td>Ground terminal - Bundy AK2C39B1 to 336400 Cable (2)</td>
</tr>
<tr>
<td>Terminal - solid barrier to 0.17 square inch cable Bundy KC28B1</td>
</tr>
<tr>
<td>Compound, aluminum to copper connection (ALNOX) CANS</td>
</tr>
<tr>
<td>Termination, dead end strand clamp, ALCO 336 4 KCM</td>
</tr>
<tr>
<td>Clip, bronze, complete type BC, Ohio brass</td>
</tr>
<tr>
<td>Thimble-Bronx 336 4 KCM</td>
</tr>
<tr>
<td>U-bolt, 1¼-inch diameter by 1½-inch loop 336 4 KCM 11, 30/7 STR ACSR, ANACONDA insulated aluminum cable having a diameter of 0.17 square inches, ANACONDA</td>
</tr>
</tbody>
</table>

201.03.04 Removing Underground Storage Tanks
THE THIRD PARAGRAPH, SUBPART 2, LAST PARAGRAPH IS CHANGED TO:

Before backfilling, remove and dispose of contaminated water not associated with ground water. If directed, immediately backfill the excavated hole as required per N.J.A.C. 7:26E and obtain documentation for the quality of the fill. In addition, provide certification stating that it is virgin material from a commercial or noncommercial source or decontaminated recycled soil. Backfill the excavation as specified in 201.03.07.5 but use certified clean fill as noted above.

Remove following:


201.03.08 Asbestos Removal
201.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

The Department will not make payment for the Item CLEARING SITE in excess of $_______________ until Completion.

The Department will not make payment for the Item CLEARING SITE, BRIDGE (___) in excess of $_______________ until Substantial Completion.

The Department will not make payment for the Item CLEARING SITE, STRUCTURE (___) in excess of $_______________ until Substantial Completion.

SECTION 202 – EXCAVATION

202.02 MATERIALS
THE FIRST IN THE LIST IS CHANGED TO:

Coarse Aggregate (No. 57, or 67).................................................................................................................................................. 901.03

202.03.03 Excavating Unclassified Material
A. Excavating.
THE FIRST PARAGRAPH IS CHANGED TO:

The Department, as the generator, is solely responsible for the designation of excavated material. Unclassified excavation consists of excavation and management of material of whatever nature encountered, except for regulated material, pavement removal and acid producing soil.

B. Temporarily Storing.
THE FOLLOWING SENTENCE IS ADDED AFTER THE SECOND SENTENCE OF THE FIRST PARAGRAPH:

Do not commingle different types or classifications of material.

202.03.04 Excavating Regulated Material
3. Temporarily Storing.
THE FIRST PARAGRAPH IS CHANGED TO:

Temporarily store regulated or hazardous material in stockpiles within the Project Limits and as shown on the Plans. Construct stockpiles on polyethylene sheeting. Contain stockpiles with haybales or silt fence placed continuously at the perimeter of the stockpiles. For hazardous material, if a stockpile area is not available within the Project Limits, sample and analyze materials in-situ for disposal. Excavate and place the hazardous regulated material directly into trucks, and haul it directly to the approved disposal facility.

202.03.07 Reuse or Disposal of Excess Material
A. Reuse.
THE THIRD PARAGRAPH IS CHANGED TO:

Upon RE’s approval, reuse excavated soil to widen or flatten slopes of embankment, to fade embankments into cuts, or as approved at other locations. Ensure that the excess material is not reused within a wetland, a transition area, a riparian zone, a flood hazard area or other regulated area without obtaining an appropriate NJDEP permit.

B. Disposal.
PARTS 1 AND 2 UNDER THE FIRST PARAGRAPH ARE CHANGED AND PART 3 IS ADDED:

1. At least 10 days before disposing, submit the disposal procedure and location to the RE for approval. Do not dispose of excavation on property proposed to be or used for parks, playgrounds, and other recreational purposes; residential facilities; educational facilities; environmentally sensitive areas such as wetlands; historic sites; or within sight of a State highway during all seasons.
2. Obtain the potential owner’s notarized authorization of the acceptance of the excess material. If the potential owner requires environmental material sampling, obtain RE’s approval at least 7 days before sampling for oversight only. Approval of the sampling does not imply agreement with the sampling results and the Department reserves the right to sample the material for classification. Provide the RE all testing results and documentation associated with the sampling.

3. Load and transport excess material that the RE determines to be excess, unusable or unsuitable for the project according to Federal, State, and local law, rules and regulations.

SECTION 203 – EMBANKMENT

203.02.01 Materials
THIS SUBPART IS CHANGED TO:
Provide materials as specified:
   Soil Aggregate (I-7, I-9, I-10, I-11, I-13, and I-14).................................................................901.11

203.03.01 Constructing Embankment
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:
The ME will determine the classification of the subgrade material specified in Table 203.03.02-1. Compact the subgrade using the directed method as specified in 203.03.02.C for the classification of the subgrade material.

THE FOURTH PARAGRAPH IS CHANGED TO:
Before placing embankment or any other unbound aggregate material, such as subbase or dense graded aggregate, on existing pavement, break the pavement into pieces that are a maximum of 12 inches in all dimensions.
DIVISION 300 – SUBBASE AND BASE COURSES

SECTION 303 – ASPHALT-STABILIZED DRAINAGE COURSE

303.03.01 Asphalt-Stabilized Drainage Course

D. Spreading and Grading

THE SECOND SENTENCE IS CHANGED TO:

Place asphalt-stabilized drainage course at a laydown temperature between 210 °F and 275 °F.
DIVISION 400 – PAVEMENTS

SECTION 401 – HOT MIX ASPHALT (HMA) COURSES

401.02.01 Materials
EMULSIFIED ASPHALT UNDER TACK COAT IS REVISED TO:

  Emulsified Asphalt, Grade RS-1, CRS-1, SS-1, SS-1h, Grade CSS-1 or CSS-1h .............................. 902.01.03

THE FOLLOWING IS ADDED TO THE MATERIALS LIST
  Polymer Modified Tack Coat .............................................................................................................. 902.01.04

401.02.02 Equipment
THE LAST PARAGRAPH IS CHANGED TO:

When an MTV is used, install a paver hopper insert with a minimum capacity of 14 tons in the hopper of the HMA paver.

401.03.01 Preparing Existing Pavement
A. Milling of HMA.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Max. time interval allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

THE FOLLOWING IS ADDED AFTER THE FOURTH PARAGRAPH:

  Sawcut at the limit of paving in driveways and at other limits requiring a neat edge between new and existing HMA.

D. Repairing HMA Pavement
THE ENTIRE TEXT IS CHANGED TO:

  If potholes are discovered, notify the RE immediately. The RE may immediately direct repairs of small areas. The RE may require further evaluation of a large area to determine the need for additional milling and paving.

  Sawcut existing HMA pavement to a maximum depth of 10 inches, or to the full depth of bound layers, whichever is less. Sawcut lines parallel and perpendicular to the roadway baseline and 3 inches away, at the closest point, from the damaged area to be repaired.

  Remove damaged and loose material to a depth of at least 3 and no more than 10 inches below the level of milling within the boundary of the sawcuts to form rectangular openings with vertical sides. Shape and compact the underlying surface to produce a firm, level base. Ensure that the remaining pavement is not damaged.

  Apply polymerized joint adhesive or tack coat to the vertical surfaces of the openings. Spread and grade HMA in the opening as directed by the RE. Ensure that the temperature of the HMA when placed is at least 250 °F, and compact as specified in 401.03.03.F. Compact areas not accessible to rollers with a flat face compactor. Compact until the top of the patch is flush with the adjacent pavement surface.

  Reuse removed material as specified in 202.03.07.A.

401.03.02 Tack Coat and Prime Coat
THE ENTIRE TEXT IS CHANGED TO:

Clean the surface where the HMA is to be placed of foreign and loose material. Immediately before beginning paving operations, ensure that the surface is dry. Do not place tack coat or prime coat unless the weather restrictions, as specified in 401.03.03.B, are met.

Do not apply tack coat or prime coat to asphalt-stabilized drainage course.
For curbs, gutters, manholes, and other similar structures, do not apply tack coat or prime coat. Clean the exposed surfaces of these structures and apply a uniform coating of polymerized joint adhesive to contact surfaces before paving.

In areas inaccessible to distributor spray bars, use hand spraying equipment for tack and prime coat. Do not allow traffic on tack coated or prime coated surfaces. Treat surfaces as follows:

1. **Tack Coat.** Uniformly spray tack coat when placing HMA on paved surfaces. Apply tack coat only to areas to be paved in the same day. Apply tack coat as specified in Table 401.03.02-1:

<table>
<thead>
<tr>
<th>Material</th>
<th>Spraying Temp, °F</th>
<th>Gallons per Square Yard</th>
<th>Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut-Back Asphalt:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RC-70</td>
<td>120 to 190</td>
<td>0.05 to 0.15</td>
<td>Oct 15 to Apr 15</td>
</tr>
<tr>
<td>Emulsified Asphalt:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS-1</td>
<td>70 to 140</td>
<td>0.05 to 0.15</td>
<td>All year</td>
</tr>
<tr>
<td>CRS-1</td>
<td>125 to 185</td>
<td>0.05 to 0.15</td>
<td>All year</td>
</tr>
<tr>
<td>SS-1, SS-1h</td>
<td>70 to 140</td>
<td>0.05 to 0.15</td>
<td>All year</td>
</tr>
<tr>
<td>CSS-1, CSS-1h</td>
<td></td>
<td>0.05 to 0.15</td>
<td>All year</td>
</tr>
</tbody>
</table>

Correct uncoated or lightly coated areas. Blot areas showing an excess of tack coat with sand or other similar material. Remove blotting material before paving. Ensure that the material is not streaked or ribboned.

Before paving, allow tack coat to cure to a condition that is tacky to the touch.

2. **Tack Coat 64-22.** When precipitation has occurred within 24 hours before application, the RE will determine whether to allow the work to proceed, or to wait until the surface is completely dry. Only apply tack coat that can be paved over in the same day. Apply tack coat 64-22 at a rate of 0.06 to 0.14 gallons per square yard and at a spraying temperature of 325 °F. Adjust the spraying temperature and application rate to produce a uniform coating, with no excess material.

Correct uncoated or lightly coated areas and remove excess tack coat from affected areas. Ensure that the material is not streaked or ribboned.

3. **Polymer Modified Tack Coat.** Apply polymer modified tack coat with an ultra-thin paver at a temperature of 140 to 175 °F. Continuously monitor rate of spray, ensuring a uniform application rate over entire width to be overlaid. Apply at the rate of 0.20 ± 0.05 gallons per square yard. Do not allow traffic, equipment, tools, or any other disturbance to the polymer modified tack coat before placing the ultra-thin friction course.

4. **Prime Coat.** Apply prime coat of cut-back asphalt on unpaved surfaces as follows:

<table>
<thead>
<tr>
<th>Material</th>
<th>Spraying Temp, °F</th>
<th>Gallons per Square Yard</th>
<th>Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut-Back Asphalt:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MC-30</td>
<td>85 to 150</td>
<td>0.1 to 0.5</td>
<td>Oct 15 to Apr 15</td>
</tr>
<tr>
<td>MC-70</td>
<td>120 to 190</td>
<td>0.1 to 0.5</td>
<td>Oct 15 to Apr 15</td>
</tr>
<tr>
<td>Emulsified Asphalt:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSS-1</td>
<td>70 to 140</td>
<td>0.1 to 0.50</td>
<td>All year</td>
</tr>
</tbody>
</table>

Apply prime coat at least 12 hours before placement of the HMA and when the base courses are not saturated or frozen. Unless the prime coat is under asphalt-stabilized drainage course, the RE may waive the application of prime coat if more than 5 inches of HMA is placed on the unbound aggregate course before the roadway is opened to traffic. Take measures to prevent prime coat from entering into the drainage system or extending beyond the area to be paved.

401.03.03 HMA Courses

A. **Paving Plan.**

THE FOLLOWING IS ADDED AT THE END OF THE FIRST PARAGRAPH:
15. If applicable, the warm mix asphalt additive or process being used.

C. Test Strip.
THE FOLLOWING IS ADDED AT THE END OF THE FIRST PARAGRAPH:

7. Warm Mix Asphalt. Note the warm mix asphalt additive or process, if used.

D. Transportation and Delivery of HMA.
THE FIRST PARAGRAPH IS CHANGED TO:

Deliver HMA using HMA trucks in sufficient quantities and at such intervals to allow continuous placement of the material. Do not allow trucks to leave the plant within 1 hour of sunset unless nighttime lighting is provided as specified in 108.06. The RE will reject HMA if the HMA trucks do not meet the requirements specified in 1009.02. The RE will suspend construction operations if the Contractor fails to maintain a continuous paving operation. Before the truck leaves the plant, obtain a weigh ticket from a fully automatic scale. Before unloading, submit for each truckload a legible weigh ticket that includes the following:

1. Name and location of the HMA plant.
2. Project title.
3. Load time and date.
4. Truck number.
5. Mix designation.
6. Plant lot number.
7. Tare, gross, and net weight.

E. Spreading and Grading.
THE THIRD PARAGRAPH IS CHANGED TO:

The use of an MTV is optional for the construction of intermediate and surface course in the traveled way. If an MTV is used, ensure that the MTV independently delivers HMA from the HMA trucks to the HMA paver. Operate the MTV to ensure that the axle loading does not damage structures, roadway, or other infrastructure.

THE THIRD PARAGRAPH IS CHANGED TO:

Use an MTV for the construction of intermediate and surface course in the traveled way. Ensure that the MTV independently delivers HMA from the HMA trucks to the HMA paver. Operate the MTV to ensure that the axle loading does not damage structures, roadway, or other infrastructure.

Use an MTV for the construction of surface course in the traveled way. Ensure that the MTV independently delivers HMA from the HMA trucks to the HMA paver. Operate the MTV to ensure that the axle loading does not damage structures, roadway, or other infrastructure.

G. Opening to Traffic.
THE ENTIRE TEXT IS CHANGED TO:

Remove loose material from the traveled way, shoulder, and auxiliary lanes before opening to traffic. Open HMA courses to traffic or construction equipment, including paving equipment, only after the surface temperatures meet the following requirements:

1. When using PG 64-22, do not allow traffic or construction equipment on the HMA course until the surface temperature is less than 140 °F.
2. When using PG 64E-22, do not allow traffic or construction equipment on the HMA course until the surface temperature is less than 170 °F.
3. When using Warm Mix Asphalt, do not allow traffic or construction equipment on the HMA course until the surface temperature is less than 120 °F.

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SECTION 401 –HOT MIX ASPHALT (HMA) COURSES

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
401.03.03 HMA Courses

REPLACE 401.03.03.H WITH THE FOLLOWING:

H. Air Void Requirements.

Pavement lots are defined as approximately 15,000 square yards of pavement in Surface area. If pavement lot area is less than 5000 square yards, the Regional District Local Aid Office may waive the air voids requirements.

The RE will designate an independent testing agency (Laboratory) to perform the quality assurance sampling, testing and analysis. The Laboratory is required to be accredited by the AASHTO Accreditation Program ([www.amrl.net](http://www.amrl.net)). The Laboratory’s accreditation must include AASHTO T 166 and AASHTO T 209.

The Laboratory Technician who performs the quality assurance sampling shall be certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Plant Technologist, Level 1.

The Laboratory will determine air voids from 5 (Five) 6 inch diameter cores taken from each lot in random locations within the traveled way and at least one core in each travel lane. The Laboratory will determine air voids of cores from the values for the maximum specific gravity of the mix and the bulk specific gravity of the core. The Laboratory will determine the maximum specific gravity of the mix according to NJDOT B-3 and AASHTO T 209, except that minimum sample size may be waived in order to use a 6-inch diameter core sample. The Laboratory will determine the bulk specific gravity of the compacted mixture by testing each core according to AASHTO T 166.

The Laboratory will calculate the in-place air voids of each completed lot outside the acceptable range of 2 percent air voids to 8 percent air voids.

The RE will assess a reduction in lot due to nonconformance to air voids according to the Table 401.03.03-3.

<table>
<thead>
<tr>
<th>Lot Average Air Void Value (Five Samples)</th>
<th>Reduction Per Lot (Percent of Lot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 to 1.9</td>
<td>10</td>
</tr>
<tr>
<td>2.0 to 8.0</td>
<td>0</td>
</tr>
<tr>
<td>8.1 to 9.0</td>
<td>5</td>
</tr>
<tr>
<td>9.1 to 10.0</td>
<td>15</td>
</tr>
<tr>
<td>10.1 to 12.0</td>
<td>30</td>
</tr>
<tr>
<td>Over 12.0</td>
<td>Remove &amp; Replace</td>
</tr>
</tbody>
</table>

If the average air voids for the lot is greater than 12.0 percent, remove and replace the lot. The replacement work is subject to the same requirements as the initial work.

REPLACE 401.03.03.I WITH THE FOLLOWING:
I. Thickness Requirements.

Thickness requirements will apply when full-depth, uniform-thickness HMA pavement construction is shown.

Pavement lots are defined as approximately 15,000 square yards of pavement area. The Engineer will not include areas consisting of different HMA mixtures or thicknesses in the same lot. If thickness lot area is less than 5000 square yards, the Regional District Local Aid Office may waive the thickness requirements.

The RE will designate an independent testing agency (Laboratory) to perform the quality assurance sampling, testing and analysis. The Laboratory is required to be accredited by the AASHTO Accreditation Program (www.amrl.net). The Laboratory’s accreditation must include AASHTO T 166 and AASHTO T 209.

The Laboratory Technician who performs the quality assurance sampling shall be certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Plant Technologist, Level 1.

The Laboratory will test for thickness using the full-depth cores taken for surface course air voids, evaluated according to NJDOT B-4. The Laboratory will base acceptance on total thickness and thickness of the surface course.

1. Total Thickness. The Laboratory will calculate the percent defective (PD) as the percentage of the lot that is less than the design thickness. The Department will base total thickness acceptance on the percentage of the lot estimated to fall below the specified thickness as follows:

   a. Sample Mean (\( \bar{X} \)) and Standard Deviation (S) of the N Test Results (X₁, X₂,..., Xₙ).

      \[
      \bar{X} = \frac{(X₁ + X₂ + ... + Xₙ)}{N}
      \]

      \[
      S = \sqrt{\frac{(X₁ - \bar{X})^2 + (X₂ - \bar{X})^2 + ... + (Xₙ - \bar{X})^2}{N - 1}}
      \]

   b. Quality Index (Qᵢ).

      \[
      Qᵢ = (\bar{X} - T_{des})/S,
      \]

      \( T_{des} \) is the design thickness.

   c. Percent Defective (PD). Using NJDOT ST - Statistical Tables (NJDOT Standard Specs for Roads and Bridges 2007-NJDOT TEST METHODS) for the appropriate sample size, determine the percentage of material (PD) falling below the design thickness associated with \( Qᵢ \) (lower limit).

   d. Reduction in Payment. The Department will determine the reduction in payment based on the quantity of the surface course multiplied by the percent reduction in payment from Table 401.03.03-5.

<table>
<thead>
<tr>
<th>Percent Defective</th>
<th>Percent Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 25.0</td>
<td>0</td>
</tr>
<tr>
<td>25.1 to 30.0</td>
<td>2</td>
</tr>
<tr>
<td>30.1 to 35.0</td>
<td>5</td>
</tr>
<tr>
<td>35.1 to 40.0</td>
<td>10</td>
</tr>
<tr>
<td>40.1 to 45.0</td>
<td>20</td>
</tr>
<tr>
<td>Over 45.0</td>
<td>Remove &amp; Replace</td>
</tr>
</tbody>
</table>

   e. Removal and Replacement. If the lot PD ≥ 45, remove and replace, or mill and overlay, the lot. The replacement work is subject to the same requirements as the initial work.
2. **Surface Course Thickness.** The Laboratory will evaluate the surface course solely to determine whether a remove-and-replace or an overlay condition exists, not for pay adjustment. The Laboratory will calculate the percent defective (PD) as the percentage of the lot that is less than the allowable thickness for the nominal maximum aggregate used in the surface course. The Laboratory will accept pavement lots with PD ≤ 25 and will reject pavement lots with PD > 25.

The Laboratory will base surface thickness acceptance on the percentage of the lot estimated to fall below the allowable thickness as follows:

a. **Sample Mean (X̄) and Standard Deviation (S) of the N Test Results (X₁, X₂,..., Xₙ).** Calculate using the formula as specified in 401.03.03.I.1.

b. **Quality Index (Q).**

\[ Qₗ = (\bar{X} - T_{all})/S \]

where \( T_{all} \) is the minimum allowable thickness from Table 401.03.03-6.

c. **Percent Defective.** Using NJDOT ST - Statistical Tables (NJDOT Standard Specs for Roads and Bridges 2007-NJDOT TEST METHODS) for the appropriate sample size, determine the percentage of material (PD) falling below the allowable thickness associated with \( Qₗ \) (lower limit).

d. **Removal and Replacement.** If the surface course fails to meet the acceptance requirement with a PD ≤ 25, the Department will require removal and replacement of the lot. The replacement work is subject to the same requirements as the initial work.

ADD THE FOLLOWING FOR RESURFACING PROJECTS.

***

ADD THE FOLLOWING FOR NEW CONSTRUCTION, COMPLETE RECONSTRUCTION OR WIDENINGS GREATER THAN EIGHT FEET.

***

REPLACE 401.03.03.J WITH THE FOLLOWING:

J. **Ride Quality Requirements.** The Department may evaluate the HMA surface course placed in travel lanes using the International Roughness Index (IRI) according to ASTM E 1926. Other areas will be tested with a
ten foot straight edge. The Department will use the measured IRI and straight edge to compute pay adjustment (PA). The PA will be negative for defective work.

The RE will designate an independent testing agency to perform the ride quality testing and analysis. The testing agency is required to comply with certification requirements according to NJDOT R-1.

The Department will calculate the Pay Adjustment (PA) as specified in Table 401.03.03-7 and will base PA on lots of 0.01 mile length for each travel lane.

1. Smoothness Measurement.

   The testing agency will test the longitudinal profile of the HMA surface course for ride quality with a Class 1 Inertial Profiling System according to AASHTO MP 11 approved according to AASHTO PP 49.

   The testing agency will test the full extent of the pavement in the direction of travel in each wheel path. The single IRI value reported for each 0.01-mile lot of pavement is the average of 3 runs.

2. Other Areas.

   In addition to the above, a 10-foot straightedge shall be used for the following areas: transverse profile of the finished riding surface, longitudinal and transverse profile of shoulders and ramps, utility hardware, drainage inlets and manholes, and any other areas so designated in the Special Provisions. Any areas that have more than a 1/4-inch deviation between any two contact points of the straightedge shall be corrected by the Contractor using infrared heating to rework the material in a manner approved by the Engineer. Following correction, the area will be retested to verify compliance, each individual non-complying location will be assessed $250 negative PA.


   Perform control testing during HMA placement to ensure compliance with the ride quality requirements specified in Table 401.03.03-7.

4. Preparation for IRI Testing.

   Provide the necessary traffic control when the testing agency performs IRI testing. Perform required mechanical sweeping of the surface course before IRI testing. To facilitate auto triggering on laser profilers, place a single line of preformed traffic marking tape perpendicular to the roadway baseline 300 feet before the beginning of each lane to be tested.

5. Acceptance.

   The Engineer will determine acceptance and make payment adjustments based on the following:

   i. Pay Adjustment.

      The pay equations in Table 401.03.03-7 express the pay adjustment in dollars per lot of 0.01 mile. For lots of any other length, the Engineer will scale the pay adjustment up or down in proportion to the actual length of the lot. IRI numbers are in inches per mile.

<table>
<thead>
<tr>
<th>Table 401.03.03-7 Pay Equations for IRI Ride Quality for 0.01 Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Roadways with Posted Speed ≥ 45 MPH</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

FIRST AVENUE STREETScape IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
ii. Retest provision.

After testing, if the IRI exceeds the Remove and Replace value (RRV) in Table 401.03.03-7, the testing agency will retest the lot. The testing agency will average the IRI values from the initial test and the retest to determine the final result.

iii. Removal and Replacement.

If the average IRI is greater than the RRV after a retest is performed, remove and replace the lot. Any replacement work is subject to the same requirements as the initial work. If only a small percentage (less than 8 percent) of paving lots falls under the RRV, the RE may allow the Contractor to submit a plan for corrective action. If the Contractor’s plan for corrective action is not approved, the RE may require removal and replacement, or may allow the lot to remain in place and the lot will be subject to the pay adjustment as computed in Table 401.03.03-7. If the Contractor’s plan for corrective action is approved and the lot is reworked, the testing agency will test and evaluate it as a new lot that must meet the same requirements as the initial work.

### H. Air Void Requirements.

**THE FIRST PARAGRAPH IS CHANGED TO:**

Mainline lots are defined as the area covered by a day’s paving production of the same job mix formula for the traveled way and auxiliary lanes. The RE may combine daily production areas less than 1000 tons with previous or subsequent production areas. If a day’s production is greater than 4000 tons, the RE may divide the area of HMA placed into 2 lots with approximately equal areas.

**THE FOLLOWING IS ADDED TO THE THIRD PARAGRAPH:**

Inside shoulders less than 6 feet in width will not be included in other lots unless requested by the RE.

**THE FOLLOWING IS ADDED AFTER THE THIRD PARAGRAPH:**

If areas of existing shoulders are found to be insufficient to support the proposed HMA pavement and the required compaction cannot be achieved, notify the RE immediately. The RE may either direct additional milling and paving to provide a suitable base to pave the proposed HMA or waive coring and air void requirements in such shoulder areas.

**SUBPART 5 & 7 ARE CHANGED TO:**

5 **Outlier Detection.** If PD < 10, the ME will not screen for outliers. If PD ≥ 10, the ME will screen acceptance cores for outliers using a statistically valid procedure. The following procedure applies only for a sample size of 5 or 10.

1. The ME will arrange the core results in ascending order, in which X₁ represents the smallest value and Xₕ represents the largest value.
2. If Xₕ is suspected of being an outlier, the ME will calculate:
3. If $X_i$ is suspected of being an outlier, the ME will calculate:

$$R = \frac{X_N - X_{(N-1)}}{X_N - X_1}$$

4. For $N=5$ if $R > 0.642$, the value is judged to be statistically significant and the core is excluded. For $N = 10$ if $R > 0.412$, the value is judged to be statistically significant and the core is excluded.

If an outlier is detected and no retest is warranted, the Contractor may replace that core by taking an additional core at the same offset and within 5 feet of the original station. If an outlier is detected and a retest is justified, take a replacement core for the outlier at the same time as the 5 additional retest cores are taken. If the outlier replacement core is not taken within 15 days, the ME will use the initial core results to determine PPA.

If an outlier is detected for $N = 10$, the Contractor may replace that core by taking an additional core at the same offset and within 5 feet of the original station. If the outlier replacement core is not taken within 15 days, the ME will use the initial core results to determine PPA.

7 **Removal and Replacement.** If the final lot PD ≥ 75 (based on the combined set of 10 cores or 5 cores if the Contractor does not take additional cores), remove and replace the lot and all overlying work. The replacement work is subject to the same requirements as the initial work.

For shoulder lots, instead of removal and replacement, the Department will assess the calculated PPA, and the Contractor shall perform a fog seal of the lot as specified in 422.03.01.

J. **Ride Quality Requirements.**

THIS ENTIRE SUBPART IS CHANGED TO:

When the Project exceeds one mile in continuous length, the Department will evaluate the final riding surface using the International Roughness Index (IRI) according to ASTM E 1926. The final riding surface is defined as the last lift of the pavement structure where traffic will be allowed. The Department will use the measured IRI to compute the appropriate pay adjustment (PA). The PA will be positive for superior quality work or negative for inferior quality work.

The Department will calculate the PA as specified in Table 401.03.03-7 and will base PA on lots of 0.01 mile length for each lane, ramp, and shoulder and 0.005 mile for each overlaid bridge structure.

1 **Smoothness Measurement.** The Department will test the longitudinal profile of the final riding surface for ride quality with a Class 1 Inertial Profiling System according to AASHTO M 328 and NJDOT R-1. If project conditions preclude the use of the Class 1 Inertial Profiling System, the Department will use a Class 1 walking profiler or lightweight profiler.

The IRI value reported for each lot is the average of 3 runs of each wheel path, unless otherwise directed by the Department.

2. **Quality Control Testing.** Perform control testing during lift placement to ensure compliance with the ride quality requirements specified in Table 401.03.03-7.

3. **Preparation for IRI Testing.** Provide traffic control when the Department performs IRI testing. Perform mechanical sweeping of the surface before IRI testing. To facilitate auto triggering on laser profilers, place a single line of preformed traffic marking tape perpendicular to the roadway baseline 300 feet before the beginning and after the end of each lane, shoulder, and ramp to be tested or at the direction of the Department. Submit the actual stationing for each traffic marking tape location to the RE.

4. **Quality Acceptance.** The Department will determine acceptance and provide PA based on the following:

a. **Pay Adjustment.** The pay equations in Table 401.03.03-7 express the PA in dollars per lot of 0.01 mile or 0.005 mile as shown in the table. The number of lots for final pay adjustment will be reduced by the
number of lots excluded for each segment shown in Table 401.03.03-7. Lots excluded from final PA will be those with the highest recorded IRI numbers for respective roadway and bridge deck segments. IRI numbers are in inches per mile.

<table>
<thead>
<tr>
<th>Route __ from MP ____ to MP ____</th>
<th>Excluded Lots</th>
<th>Pay Equation(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>**Lane 1 - **</td>
<td>PA on lots of 0.01 mile length</td>
<td></td>
</tr>
<tr>
<td>**Lane 2 - **</td>
<td>IRI &lt; ___</td>
<td>PA = $50</td>
</tr>
<tr>
<td></td>
<td>___ ≤ IRI &lt; ___</td>
<td>PA = $___ - ($2.50 × IRI)</td>
</tr>
<tr>
<td></td>
<td>___ ≤ IRI ≤ ___</td>
<td>PA = $0</td>
</tr>
<tr>
<td></td>
<td>___ &lt; IRI ≤ ___</td>
<td>PA = (IRI - ___) x (-$7.1429)</td>
</tr>
<tr>
<td></td>
<td>IRI &gt; ___</td>
<td>Remove &amp; Replace</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Route __ Ramps and Shoulders</th>
<th>None</th>
<th>Pay Equation(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PA on lots of 0.01 mile length</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IRI ≤ 120</td>
<td>PA = $0</td>
</tr>
<tr>
<td></td>
<td>120 &lt; IRI ≤ 170</td>
<td>PA = (IRI-120) x (-$10.00)</td>
</tr>
<tr>
<td></td>
<td>IRI &gt; 170</td>
<td>Remove &amp; Replace</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overlaid Bridge Decks on Route __ Between MP ____ and MP ____</th>
<th>None</th>
<th>Pay Equation(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PA on lots of 0.005 mile length</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IRI ≤ 120</td>
<td>PA = $0</td>
</tr>
<tr>
<td></td>
<td>120 &lt; IRI ≤ 170</td>
<td>PA = (IRI - 120) x (-$5.00)</td>
</tr>
<tr>
<td></td>
<td>IRI &gt; 170</td>
<td>Remove &amp; Replace</td>
</tr>
</tbody>
</table>

b. **Removal and Replacement.** If the final IRI is greater than the Remove and Replace Value (RRV), remove and replace the lot. Replacement work is subject to the same requirements as the initial work.

If less than 8 percent of paving lots exceeds the RRV, submit a plan for corrective action. If the corrective action plan is not approved by the RE, remove and replace the designated lots. If the corrective action plan is approved and the lots are reworked, the lots are subject to the requirements of subpart 401.03.03.J Ride Quality Requirements except that the lots are not eligible for positive PA. The RE may allow the lots to remain in place and apply the pay adjustment as computed in Table 401.03.03-7.

401.03.04 **Sawcutting and Sealing of Joints in HMA Overlays**
THE TEXT OF THIS SUBPART IS DELETED.

THIS SUBPART IS INTENTIONALLY LEFT BLANK

401.03.05 **Core Samples**
THE FIRST PARAGRAPH IS CHANGED TO:

Upon completion of an HMA lot, drill cores at random locations determined by the RE at least 12 hours after paving. Take cores in the presence of the RE. Do not drill additional core samples unless directed by the RE.
THE FIRST PARAGRAPH AS IT APPEARS IN THE SI IS CHANGED TO:
Upon completion of an HMA lot, drill cores at random locations determined by the RE at least 12 hours after paving. Take cores in the presence of the RE.

THE LAST SENTENCE OF THE 2ND PARAGRAPH IS CHANGED TO THE FOLLOWING:
Apply an even coating of tack coat to sides of the hole. Place HMA in maximum lifts of 4 inches in the hole and compact each lift. Ensure that the final surface is 1/4 inch above the surrounding pavement surface.

THE FIFTH AND SIXTH PARAGRAPHS ARE CHANGED TO:
At least 24 hours prior to coring, provide a tamper proof core sample box for the RE’s inspection and approval. Ensure that the core sample box can be locked and sealed and is tamper proof in such a manner that it cannot be opened without removing the seals. Ensure that the core sample box provides protection for the cores from being disturbed or damaged during transit. Mark the Department assigned core number on the side of the sample. Place core samples and corresponding forms, including a completed and signed Form DC-286 Contractor’s certificate of compliance Core sample delivery, in the core sample box. Ensure Form DC-286 is also signed by a Department witness. Before sealing the core sample box, ensure that the RE has recorded the seal number on the laboratory form. Transport the sealed core sample boxes to the Department Laboratory. The RE at his discretion may decide to deliver the core samples as indicated above.

The Department will not accept damaged core samples for testing. If the core sample box exhibits indications of tampering, the core samples will be rejected. If the Department rejects any core samples, drill a replacement core at the same offset and within 5 feet of the original station and deliver to the laboratory as specified above within 48 hours.

401.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:
<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAWING AND SEALING JOINTS IN HOT MIX ASPHALT OVERLAY</td>
<td>LINEAR FOOT</td>
</tr>
</tbody>
</table>

THE FOLLOWING ITEM IS ADDED:
<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYMER MODIFIED TACK COAT</td>
<td>GALLON</td>
</tr>
</tbody>
</table>

THE FOURTH PARAGRAPH IS CHANGED TO:
The Department will measure TACK COAT, TACK COAT 64-22, PRIME COAT and POLYMER MODIFIED TACK COAT by the volume delivered, converted to the number of gallons at 60 °F as calculated by the temperature-volume correction factors specified in 902.01.

THE FOLLOWING IS ADDED:
The Department will make a payment adjustment for HMA air void quality by the following formula:

\[ \text{Pay Adjustment} = Q \times BP \times PPA \]

Where:
BP = Bid Price
Q= Air Void Lot Quantity
PPA= air void PPA as specified in 401.03.03H.

The Department will make a payment adjustment for HMA thickness quality by the following formula:

\[ \text{Pay Adjustment} = Q \times BP \times PPA \]

Where:
BP = Bid Price
Q= Thickness Lot Quantity
PPA= thickness PPA as specified in 401.03.03I

The Department will make a payment adjustment for HMA ride quality, as specified in 401.03.03J.

SECTION 402 – HMA FRICTION COURSE

402.01 DESCRIPTION
THE ENTIRE TEXT IS CHANGED TO:

This Section describes the requirements for constructing open-graded friction courses (OGFC), modified open-graded friction courses (MOGFC) and asphalt-rubber open-graded friction courses (AR-OGFC).

402.02.01 Materials
THE FOLLOWING IS ADDED TO LIST OF MATERIALS
Asphalt-Rubber Open-Graded Friction Course ................................................................. 902.07

402.02.02 Equipment
THE FOLLOWING IS ADDED TO LIST OF EQUIPMENT
Asphalt-Rubber Binder Blending Equipment...................................................................... 1009.03

402.03 CONSTRUCTION
THE FOLLOWING SUBPART IS ADDED AFTER 402.03.01:

402.03.02 AR-OGFC
A. Paving Plan. At least 20 days before beginning placing the AR-OGFC, submit to the RE for approval a detailed plan of operation as specified in 401.03.03.A.

B. Weather Limitations. If within the 12 hours before paving, the National Weather Service locally forecasts a 50 percent chance or greater of precipitation during the scheduled placement, postpone the placement of AR-OGFC. Do not place AR-OGFC if it is precipitating and do not allow trucks to leave the plant when precipitation is imminent. The Contractor may resume paving operations when the chance of precipitation is less than 50 percent and the surface is dry.

Do not pave if the surface temperature of the underlying pavement is below 50 °F.

C. Test Strip. Construct a test strip as specified in 401.03.03.C. The Department will not require quality control cores or nuclear density testing.

D. Transportation and Delivery of AR-OGFC. Transport and deliver AR-OGFC as specified in 401.03.03.D.

E. Spreading and Grading.
Apply tack coat 64-22 as specified in 401.03.02. Place AR-OGFC at a laydown temperature between 275 °F and 330 °F maximum. Spread and grade AR-OGFC as specified in 401.03.03.E, except do not apply polymerized joint adhesive or tack coat to longitudinal joints.

F. Compacting. Immediately after spreading and strike-off, compact AR-OGFC with a minimum of 1 pass of a non-vibratory, 2-axle roller. The RE may direct additional passes to eliminate roller marks. The Contractor may use a vibratory roller if it is operated in static mode.

Orient the drive axles of the roller towards the paver during the compaction operation. Operate rollers at a slow, uniform speed not exceeding 2-1/2 miles per hour. If necessary to prevent adhesion of the AR-OGFC to the rollers, keep the wheels moistened with water mixed with small quantities of detergent or fabric softener.

Remove and replace AR-OGFC that becomes loose, broken, or otherwise defective or that shows an excess or deficiency of asphalt-rubber binder material.
When paving in echelon, keep the rollers for the first lane approximately 6 inches from the unconfined edge adjacent to the second paving operation. After AR-OGFC from the second paver is placed against the uncompacted edge of the mat from the first paver, compact the AR-OGFC on both sides of the joint.

Prevent lateral or vertical displacement of the unconfined edge during the compaction operation. Ensure that the edge of the drums of the rollers extends over the free edge of the mat by at least 6 inches.

When compacting the butt joint, while paving the adjacent lane, place the roller on the newly placed AR-OGFC and overlap the joint by approximately 6 inches.

G. **Curing.** Following compaction, spray 1 to 3 applications of lime water (a minimum of 50 pounds of pulverized limestone per 2,000 gallons of water) to prevent material pick-up. Apply lime water in a manner that uniformly covers the entire surface of the paving pass. Prior to applying the lime water, do not allow traffic on the AR-OGFC, including the lime water applicator.

H. **Opening to Traffic.** Remove loose material from the traveled way, shoulder, and auxiliary lanes before opening to traffic. Before opening AR-OGFC to traffic or construction equipment, ensure that the lime water has been applied, the surface is tack free and the surface temperature is less than 140 °F.

I. **Ride Quality Requirements.** The Department will evaluate the AR-OGFC as specified in 401.03.03.J.

### 402.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPHALT-RUBBER OPEN-GRADED FRICTION COURSE</td>
<td>TON</td>
</tr>
</tbody>
</table>

The Department will measure ASPHALT-RUBBER OPEN-GRADED FRICTION COURSE by the ton as indicated on the certified weigh tickets, excluding unused material.

The Department will make payment for TACK COAT 64-22 as specified in 401.04.

The Department will make a payment adjustment for HMA thickness quality by the following formula:

\[
\text{Pay Adjustment} = Q \times BP \times PPA
\]

Where:

BP = Bid Price
Q= Thickness Lot Quantity
PPA= thickness PPA as specified in 401.03.03I

The Department will make a payment adjustment for HMA ride quality, as specified in 401.03.03J.

### SECTION 403 – ULTRA-THIN FRICTION COURSE

#### 403.02.02 Equipment

THE FOLLOWING IS ADDED TO THE EQUIPMENT LIST

Materials Transfer Vehicle (MTV).......................................................................................................................... 1003.01

#### 403.03.01 Ultra-Thin Friction Course

THE ENTIRE TEXT IS CHANGED TO:

A. **Paving Plan.** At least 20 days before the start of placing the ultra-thin friction course, submit a detailed plan of operation to the RE for approval as specified in 401.03.03.A.

B. **Weather Limitations.** Do not place ultra-thin friction course if it is precipitating. Do not allow trucks to leave the plant when precipitation is imminent. The Contractor may resume operations when the precipitation has stopped and the surface is free of water.
Do not pave if the base temperature is below 50 °F.

C. **Test Strip.** Construct a test strip for the first 700 to 1200 square yards placed of ultra-thin friction course. Operate spray paver without mix to determine tack coat application rate for the project. Ensure that the polymer modified tack coat has been placed as specified in 401.03.02. Transport and deliver, spread and grade, and compact as specified in 403.03.02.D, 403.03.02.E, and 403.03.02.F, respectively, and according to the approved paving plan. While constructing the test strip, record the following information and submit to the RE:

1. **Ambient Temperature.** Measure ambient temperature at the beginning and end of each day’s paving operation.

2. **Base Temperature.** Measure the surface temperature of the existing base before paving.

3. **Polymer Modified Tack Coat.** Measure to verify the proper application of tack coat and the rate for compliance.

4. **HMA Temperature.** Measure the temperature of the ultra-thin HMA immediately after placement.

5. **Roller Pattern.** Provide details on the number of rollers, type, and number of passes used on the test strip.

6. **Quality Control Cores for Yield and Thickness.** Take 3 randomly selected quality control cores to test for compliance to the specified yield in 403.03.02.E.
   Use drilling equipment with a water-cooled, diamond-tipped, masonry drill bit that shall produce 6-inch nominal diameter cores for the full depth of the pavement. Remove the core from the pavement without damaging it. After removing the core, remove all water from the hole. Fill the hole with HMA or cold patching material, and compact the material so that it is 1/4 inch above the surrounding pavement surface.

Submit test strip results to the RE. The RE will analyze the test strip results in conjunction with the ME’s results from the HMA plant to approve the test strip. Do not proceed with production paving until receiving written permission from the RE.

If the test strip does not meet requirements, make adjustments and construct a second test strip. If the second test strip does not meet requirements, suspend paving operations until written approval to proceed is received.

Before making adjustments to the paving operations, notify the RE in writing.

D. **Transportation and Delivery of HMA.** Transport and deliver HMA as specified in 401.03.03.D.

E. **Spreading and Grading.** Use of an MTV is required for the construction of ultra-thin friction course. Ensure that the surface where the ultra-thin friction course is placed is clean of foreign and loose material. Clean the surface of existing pavement using a self-propelled power broom equipped with a vacuum collection system before placing the ultra-thin friction course. Ensure that the surface is dry when the paving operations are about to start.

Apply polymer modified tack as specified in 401.03.02. Do not allow traffic, equipment, tools, or any other disturbance to the polymer modified tack coat before placing the ultra-thin friction course.

Ensure that the temperature of the ultra-thin friction course behind the screed is between 280 °F and 325 °F. Within 3 seconds of applying the polymer modified tack coat, place ultra-thin friction course at a rate of 65 to 95 pounds per square yard.

Construct longitudinal joints as specified in 401.03.03.E.1. If constructing a cold longitudinal joint, construct a butt joint and do not use polymerized joint adhesive. Construct transverse joints as specified in 401.03.03.E.2.

F. **Compacting.** Compact ultra-thin friction course as specified in 401.03.03.F. Use a minimum of two 10-ton steel-wheel rollers. If vibratory compaction causes aggregate breakdown or forces liquid asphalt binder to the surface, operate rollers in static mode only.

G. **Opening to Traffic.** Remove loose material from the traveled way before opening to traffic. Do not allow construction equipment or traffic on the ultra-thin friction course until the mat cools to a temperature of less than 140 °F.
H. **Thickness Requirements.** When required for thickness determination, drill cores as specified in 401.03.05. The Department will calculate total thickness as specified in 401.03.03.I. The Department will not evaluate surface thickness.

I. **Ride Quality Requirements.** The Department will evaluate the surface course placed in the traveled way as specified in 401.03.03.J.

### 403.04 MEASUREMENT AND PAYMENT

**THE FOLLOWING IS ADDED:**

The Department will make payment for POLYMER MODIFIED TACK COAT as specified in 401.04.

The Department will make a payment adjustment for HMA thickness quality, by the following formula:

\[
\text{Pay Adjustment} = Q \times BP \times PPA
\]

Where:
- \(BP\) = Bid Price
- \(Q\) = Thickness Lot Quantity
- \(PPA\) = thickness PPA as specified in 401.03.03I

The Department will make a payment adjustment for HMA ride quality, as specified in 401.03.03J.

### SECTION 404 – STONE MATRIX ASPHALT (SMA)

#### 404.03.01 SMA

**H. Air Void Requirements.**

**THE ENTIRE PART IS CHANGED TO:**

Drill cores as specified in 401.03.05.

Mainline lots are defined as the area covered by a day’s paving production of the same job mix formula for the traveled way and auxiliary lanes. The RE may combine daily production areas less than 1000 tons with previous or subsequent production areas. If a day’s production is greater than 4000 tons, the RE may divide the area of HMA placed into 2 lots with approximately equal areas.

Ramp pavement lots are defined as approximately 10,000 square yards of pavement in ramps. The RE may combine ramps with less than the minimum area into a single lot. If 2 or more ramps are included in a single lot, the RE will require additional cores to ensure that at least 1 core is taken from each ramp.

Other pavement lots are defined as approximately 10,000 square yards of pavement in shoulders and other undefined areas.

The ME will calculate the percent defective (PD) as the percentage of the lot outside the acceptable range of 1 percent air voids to 7 percent air voids. The acceptable quality limit is 10 percent defective. For lots in which PD < 10, the Department will award a positive pay adjustment. For lots in which PD > 10, the Department will assess a negative pay adjustment.

The ME will determine air voids from 5 cores taken from each lot in random locations. The ME will determine air voids of cores from the values for the maximum specific gravity of the mix and the bulk specific gravity of the core. The ME will determine the maximum specific gravity of the mix according to NJDOT B-3 and AASHTO T 209, except that minimum sample size may be waived in order to use a 6-inch diameter core sample. The ME will determine the bulk specific gravity of the compacted mixture by testing each core according to AASHTO T 166.

The ME will calculate pay adjustments based on the following:

1. **Sample Mean** (\(\overline{X}\)) and **Standard Deviation** (\(S\)) of the \(N\) Test Results (\(X_1, X_2, \ldots, X_N\)).

\[
\overline{X} = \frac{(X_1 + X_2 + \ldots + X_N)}{N}
\]

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\[ S = \sqrt{\frac{(X_1 - \bar{X})^2 + (X_2 - \bar{X})^2 + \ldots + (X_N - \bar{X})^2}{N - 1}} \]

2. **Quality Index (Q).**

\[ Q_L = \frac{(\bar{X} - 1.0)}{S} \]

\[ Q_U = \frac{(7.0 - \bar{X})}{S} \]

3. **Percent Defective (PD).** Using NJDOT ST for the appropriate sample size, the Department will determine PD_L and PD_U associated with Q_L and Q_U, respectively. PD = PD_L + PD_U

4. **Percent Pay Adjustment (PPA).** Calculate the PPA for traveled way and ramp lots as specified in Table 401.03.03-3.

<table>
<thead>
<tr>
<th>Quality</th>
<th>PPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td></td>
</tr>
<tr>
<td>PD &lt; 10</td>
<td>PPA = 4 − (0.4 PD)</td>
</tr>
<tr>
<td>10 ≤ PD &lt; 30</td>
<td>PPA = 1 − (0.1 PD)</td>
</tr>
<tr>
<td>PD ≥ 30</td>
<td>PPA = 40 − (1.4 PD)</td>
</tr>
<tr>
<td>Intermediate and Base</td>
<td></td>
</tr>
<tr>
<td>PD &lt; 30</td>
<td>PPA = 1 − (0.1 PD)</td>
</tr>
<tr>
<td>PD ≥ 30</td>
<td>PPA = 40 − (1.4 PD)</td>
</tr>
</tbody>
</table>

Calculate the PPA for other pavement lots as specified in Table 401.03.03-4.

<table>
<thead>
<tr>
<th>Quality</th>
<th>PPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Courses</td>
<td></td>
</tr>
<tr>
<td>PD &lt; 50</td>
<td>PPA = 1 − (0.1 PD)</td>
</tr>
<tr>
<td>PD ≥ 50</td>
<td>PPA = 92 − (1.92 PD)</td>
</tr>
</tbody>
</table>

5. **Outlier Detection.** If PD < 10, the ME will not screen for outliers. If PD ≥ 10, the ME will screen all acceptance cores for outliers using a statistically valid procedure. The following procedure applies only for a sample size of 5 or 10.

1. The ME will arrange the core results in ascending order, in which X_1 represents the smallest value and X_N represents the largest value.

2. If X_N is suspected of being an outlier, the ME will calculate:

\[ R = \frac{X_N - X_{(N-1)}}{X_N - X_1} \]

3. If X_1 is suspected of being an outlier, the ME will calculate:

\[ R = \frac{X_2 - X_1}{X_N - X_1} \]

4. For N=5 if R > 0.642, the value is judged to be statistically significant and the core is excluded. For N = 10 if R > 0.412, the value is judged to be statistically significant and the core is excluded.
If an outlier is detected and no retest is warranted, the Contractor may replace that core by taking an additional core at the same offset and within 5 feet of the original station. If an outlier is detected and a retest is justified, take a replacement core for the outlier at the same time as the 5 additional retest cores are taken. If the outlier replacement core is not taken within 15 days, the ME will use the initial core results to determine PPA.

If an outlier is detected for \( N = 10 \), the Contractor may replace that core by taking an additional core at the same offset and within 5 feet of the original station. If the outlier replacement core is not taken within 15 days, the ME will use the initial core results to determine PPA.

6. **Retest.** If the initial series of 5 cores produces a percent defective value of \( PD \geq 30 \) for mainline or ramp lots, or \( PD \geq 50 \) for other pavement lots, the Contractor may elect to take an additional set of 5 cores at random locations chosen by the ME. Take the additional cores within 15 days of receipt of the initial core results. If the additional cores are not taken within the 15 days, the ME will use the initial core results to determine the PPA. If the additional cores are taken, the ME will recalculate the PPA using the combined results from the 10 cores.

7. **Removal and Replacement.** If the final lot \( PD \geq 75 \) (based on the combined set of 10 cores or 5 cores if the Contractor does not take additional cores), remove and replace the lot and all overlying work. The replacement work is subject to the same requirements as the initial work.

For shoulder lots, instead of removal and replacement, the Department will assess the calculated PPA, and the Contractor shall perform a fog seal of the lot as specified in 422.03.01.

### 404.04 MEASUREMENT AND PAYMENT

**THE FOLLOWING IS ADDED:**

The Department will make a payment adjustment for HMA air void quality by the following formula:

\[
\text{Pay Adjustment} = Q \times BP \times PPA
\]

Where:
- \( BP = \) Bid Price
- \( Q = \) Air Void Lot Quantity
- \( PPA = \) air void PPA as specified in 401.03.03H.

The Department will make a payment adjustment for HMA thickness quality by the following formula:

\[
\text{Pay Adjustment} = Q \times BP \times PPA
\]

Where:
- \( BP = \) Bid Price
- \( Q = \) Thickness Lot Quantity
- \( PPA = \) thickness PPA as specified in 401.03.03I

The Department will make a payment adjustment for HMA ride quality, as specified in 401.03.03J

### SECTION 405 – CONCRETE SURFACE COURSE

#### 405.03.02 Concrete Surface Course

**I. Thickness Requirements.**

**THIS PART IS CHANGED TO:**

**I. Thickness Requirements.** The ME will divide the concrete pavement into lots of approximately 5000 square yards. The ME will divide each lot into 5 equal sections. The RE will direct the Contractor to drill 1 core, as specified in 405.03.03, from a randomly selected location within each section. The ME will test these cores for thickness as specified in ASTM C 174.

The Department will determine conformance with thickness requirements as follows and will either assess the greater of the pay reduction for average core thickness or individual core thickness, or the Department will direct the Contractor to remove and replace the lot:
1. **Average Core Thickness.** If the average core thickness is greater than or equal to the specified core thickness, the Department will not apply a payment reduction. If the average thickness is less than the specified thickness, but is greater than or equal to the specified thickness minus 1/2 inch, the Department will determine payment reduction by the following formula:

\[
\text{Payment Reduction} = Q \times BP \times PPR
\]

Where:
- \(Q\) = Thickness Lot Quantity
- \(BP\) = Bid Price
- \(T_s\) = Specified Thickness
- \(T_A\) = Average Thickness
- \(PPR\) = Percent Payment Reduction = \(\frac{T_s - T_A}{T_s}\)

2. **Individual Core Thickness.** When more than 2 individual cores in the lot are less than the specified thickness minus 1/4 inch, the Department will determine the payment reduction using the above noted formula and using a \(PPR = 2\) percent.

3. **Remove and Replace.** If the average thickness is less than the specified thickness minus 1/2 inch, the RE will require that the lot be removed and replaced.

405.04 MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

The Department will make a payment adjustment for Concrete Surface thickness quality, as specified in 405.03.02.

The Department will make a payment adjustment for HMA ride quality, as specified in 401.03.03J

THE FOLLOWING SECTION IS ADDED TO DIVISION 400:

**SECTION 406 – HIGH PERFORMANCE THIN OVERLAY (HPTO)**

406.01 DESCRIPTION

This Section describes the requirements for constructing high performance thin overlay (HPTO).

406.02 MATERIALS

406.02.01 Materials

Provide materials as specified:
- Tack Coat:
  - Emulsified Asphalt, Grade RS-1, SS-1, SS-1h, Grade CSS-1 or CSS-1h .................................................. 902.01.03
  - HPTO ......................................................................................................................... 902.08

406.02.02 Equipment

Provide equipment as specified:
- Materials Transfer Vehicle (MTV) ................................................................. 1003.01
- HMA Paver ........................................................................................................... 1003.03
- Ultra-Thin Paver ................................................................................................. 1003.04
- HMA Compactor ............................................................................................... 1003.05
- HMA Plant .......................................................................................................... 1009.01
- HMA Trucks ....................................................................................................... 1009.02
406.03 CONSTRUCTION

406.03.01 High Performance Thin Overlay (HPTO)

A. **Paving Plan.** At least 20 days before the start of placing the HPTO, submit a detailed plan of operation to the RE for approval as specified in 401.03.03.A.

B. **Weather Limitations.** If within the 3 hours before paving the National Weather Service locally forecasts a 50 percent chance or greater of precipitation during the scheduled placement, postpone the placement of HPTO. Do not place HPTO if it is precipitating and do not allow trucks to leave the plant when precipitation is imminent. The Contractor may resume paving operations when the chance of precipitation is less than 50 percent and the surface is dry.

Do not pave if the surface temperature of the underlying pavement is below 50 °F.

C. **Test Strip.** At least 14 days prior to production of the HPTO, construct a test strip as specified in 401.03.03.C except for the allowance to continue paving. Submit test strip results to the RE. The RE will analyze the test strip results in conjunction with the ME’s results from the HMA plant to approve the test strip. Do not proceed with production paving until receiving written permission from the RE.

If paving HPTO only on a bridge deck, then the test strip is not required.

D. **Transportation and Delivery of HMA.** Transport and deliver HMA as specified in 401.03.03.D.

E. **Spreading and Grading.** Do not start paving of the HPTO until the RE has approved the underlying surface. Apply tack coat as specified in 401.03.02. Place HPTO at the laydown temperature recommended by the supplier of the asphalt binder or the supplier of the asphalt modifier without exceeding 330 °F maximum discharge temperature. Spread and grade HPTO as specified in 401.03.03.E.

F. **Compacting.** Compact as specified in 401.03.03.F. If vibratory compaction causes aggregate breakdown, forces liquid asphalt to the surface or creates a surface with undesirable ride quality, then operate rollers in static mode only. If compacting HPTO on a bridge deck, then operate rollers in static mode only.

G. **Opening to Traffic.** Remove loose material from the traveled way before opening to traffic. Do not allow construction equipment or traffic on the HPTO until the mat cools to a temperature of less than 140 °F.

H. **Air Void Requirements on Roadway.**

**THE ENTIRE PART IS CHANGED TO:**

Drill cores as specified in 401.03.05. Mainline lots are defined as the area covered by a day’s paving production of the same job mix formula for the traveled way and auxiliary lanes. The RE may combine daily production areas less than 500 tons with previous or subsequent production areas. If a day’s production is greater than 2000 tons, the RE may divide the area of HMA placed into 2 lots with approximately equal areas.

Ramp pavement lots are defined as approximately 10,000 square yards of pavement in ramps. The RE may combine ramps with less than the minimum area into a single lot. If 2 or more ramps are included in a single lot, the RE will require additional cores to ensure that at least 1 core is taken from each ramp.

Other pavement lots are defined as approximately 10,000 square yards of pavement in shoulders and other undefined areas.

The ME will calculate the percent defective (PD) as the percentage of the lot outside the acceptable range of 1 percent air voids to 7 percent air voids. The acceptable quality limit is 10 percent defective. For lots in which PD ≤ 10, the Department will award a positive pay adjustment. For lots in which PD > 10, the Department will assess a negative pay adjustment.

The ME will determine air voids from 5 cores taken from each lot in random locations. The ME will determine air voids of cores from the values for the maximum specific gravity of the mix and the bulk specific gravity of the core. The ME will determine the maximum specific gravity of the mix according to NJDOT B-3 and AASHTO T 209, except that minimum sample size may be waived in order to use a 6-inch diameter core sample. The ME will determine the bulk specific gravity of the compacted mixture by testing each core according to AASHTO T 166.

The ME will calculate pay adjustments based on the following:
1. Sample Mean ($\bar{X}$) and Standard Deviation ($S$) of the N Test Results ($X_1, X_2, \ldots, X_N$).

$$\bar{X} = \frac{(X_1 + X_2 + \ldots + X_N)}{N}$$

$$S = \sqrt{\frac{(X_1 - \bar{X})^2 + (X_2 - \bar{X})^2 + \ldots + (X_N - \bar{X})^2}{N-1}}$$

2. Quality Index ($Q$).

$$Q_L = \frac{\bar{X} - 1.0}{S}$$

$$Q_U = \frac{7.0 - \bar{X}}{S}$$

3. Percent Defective (PD). Using NJDOT ST for the appropriate sample size, the Department will determine $PD_L$ and $PD_U$ associated with $Q_L$ and $Q_U$, respectively. $PD = PD_L + PD_U$

4. Percent Pay Adjustment (PPA). Calculate the PPA for traveled way and ramp lots as specified in Table 401.03.03-3.

<table>
<thead>
<tr>
<th>Quality</th>
<th>PPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD &lt; 10</td>
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</table>

Intermediate and Base

<table>
<thead>
<tr>
<th>Quality</th>
<th>PPA</th>
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</thead>
<tbody>
<tr>
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Calculate the PPA for other pavement lots as specified in Table 401.03.03-4.

<table>
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<tr>
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</tr>
<tr>
<td>PD ≥ 50</td>
<td>PPA = 92 - (1.92 PD)</td>
</tr>
</tbody>
</table>

5. Outlier Detection. If PD < 10, the ME will not screen for outliers. If PD ≥ 10, the ME will screen all acceptance cores for outliers using a statistically valid procedure. The following procedure applies only for a sample size of 5 or 10.

1. The ME will arrange the core results in ascending order, in which $X_1$ represents the smallest value and $X_N$ represents the largest value.

2. If $X_N$ is suspected of being an outlier, the ME will calculate:

$$R = \frac{X_N - X_{(N;1)}}{X_N - X_1}$$

3. If $X_1$ is suspected of being an outlier, the ME will calculate:

$$R = \frac{X_2 - X_1}{X_N - X_1}$$
\[ X_N - X_1 \]

4. For \( N = 5 \) if \( R > 0.642 \), the value is judged to be statistically significant and the core is excluded. For \( N = 10 \) if \( R > 0.412 \), the value is judged to be statistically significant and the core is excluded.

If an outlier is detected and no retest is warranted, the Contractor may replace that core by taking an additional core at the same offset and within 5 feet of the original station. If an outlier is detected and a retest is justified, take a replacement core for the outlier at the same time as the 5 additional retest cores are taken. If the outlier replacement core is not taken within 15 days, the ME will use the initial core results to determine PPA.

If an outlier is detected for \( N = 10 \), the Contractor may replace that core by taking an additional core at the same offset and within 5 feet of the original station. If the outlier replacement core is not taken within 15 days, the ME will use the initial core results to determine PPA.

6. **Retest.** If the initial series of 5 cores produces a percent defective value of \( PD \geq 30 \) for mainline or ramp lots, or \( PD \geq 50 \) for other pavement lots, the Contractor may elect to take an additional set of 5 cores at random locations chosen by the ME. Take the additional cores within 15 days of receipt of the initial core results. If the additional cores are not taken within the 15 days, the ME will use the initial core results to determine the PPA. If the additional cores are taken, the ME will recalculate the PPA using the combined results from the 10 cores.

7. **Removal and Replacement.** If the final lot \( PD \geq 75 \) (based on the combined set of 10 cores or 5 cores if the Contractor does not take additional cores), remove and replace the lot and all overlying work. The replacement work is subject to the same requirements as the initial work.

For shoulder lots, instead of removal and replacement, the Department will assess the calculated PPA, and the Contractor shall perform a fog seal of the lot as specified in 422.03.01.

**I. Air Void Requirements on Bridge Deck.** The RE may waive the coring of HPTO constructed on a bridge deck or may require that the Contractor to test bridge decks with the thin lift nuclear density gauge. If required by RE, perform nuclear density gauge testing according to ASTM D 2950 at 5 random locations per bridge deck. Use the maximum specific gravity determined at the HMA plant according to AASHTO T 209 to determine percent air voids. If the average air voids for the bridge deck are 8 percent or greater, the RE will require a revised paving plan for any subsequent bridge deck placement of HPTO and may require the HPTO to be removed and replaced.

**J. Ride Quality Requirements.** The Department will evaluate the HPTO as specified in 401.03.03.J.

**406.04 MEASUREMENT AND PAYMENT**

The Department will measure and make payment for Items as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIGH PERFORMANCE THIN OVERLAY</td>
<td>TON</td>
</tr>
</tbody>
</table>

The Department will measure HIGH PERFORMANCE THIN OVERLAY by the ton as indicated on the certified weigh tickets, excluding unused material.

The Department will make payment for TACK COAT as specified in 401.04.

The Department will make payment for CORE SAMPLES, HOT MIX ASPHALT as specified in 401.04.
THE FOLLOWING DIVISION IS ADDED:
DIVISION 420 – PAVEMENT PRESERVATION TREATMENTS

THE FOLLOWING SECTION IS ADDED:

SECTION 421 – MICRO SURFACING AND SLURRY SEAL

421.01 DESCRIPTION
This section describes the requirements for micropaving joints, micro surfacing and slurry seal.

421.02 MATERIALS

421.02.01 Materials
Provide materials as specified:
- Tack Coat: Emulsified Asphalt, Grade SS-1, SS-1h, Grade CSS-1, CSS-1h ................................................................. 902.01.03
- Micro Surfacing................................................................................................................... 902.09
- Slurry Seal ............................................................................................................................ 902.10

421.02.02 Equipment
Provide equipment as specified:
- Bituminous Material Distributor ...................................................................................... 1003.07
- Pneumatic-Tired Compactor ............................................................................................ 1002.01
- Mechanical Sweeper ......................................................................................................... 1008.03
- Micro Surfacing and Slurry Seal Paver ............................................................................... 1012.01

Provide hand squeegees, shovels, and other equipment necessary to perform the work. Provide cleaning equipment such as power brooms, air compressors, water flushing equipment, and hand brooms adequate for surface preparation.

421.03 CONSTRUCTION

421.03.01 Micro Surfacing Rut Filling.
Fill ruts in the wheel paths and restore the designed profile of the pavement cross section as shown on the Plans and as directed by the RE. Fill ruts which are 1/2” or less with a single full lane micro surfacing operation. Fill ruts which are greater than 1/2” in depth with a separate rut filling operation. Fill ruts which are greater than 1 1/2” in depth with multiple applications utilizing a rut filling equipment. Do not over fill rut areas. Cure rut filling and level-up material for at least twenty-four (24) hours before additional material is placed.

421.03.02 Micropaving Joints.
Clean the joint, removing unsound patches and loose material. Use micro surfacing Type II as specified in 902.09 and rut filling equipment modified to provide a 2 feet wide application of material to fill in open longitudinal joints and rumble strips as shown on the plans and as directed by the RE. For joint filling greater than 2” in depth perform multiple applications to even out settlement of the material after curing. Avoid excess crowning and over filling of joints and rumble strips. Cure each pass of material under traffic for at least twenty-four (24) hours before additional material is placed.

421.03.03 Micro Surfacing
A. Micro Surfacing Plan. At least 20 days before beginning placement of material, submit a detailed plan of operation to the RE for approval that includes the following:
   1. Paving contractor’s superintendent qualifications with a list of at least 5 successful projects, including project

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owner contact information.
2. Size and description of crew.
3. Number, type, model of equipment and material control/metering devices along with the current calibration documentation.
4. Lighting plan for nighttime operations as specified in 108.06 for milling and paving.
5. Method of locating, protecting and maintaining manholes, inlets, other utilities and RPM’s.
6. Paving procedures for maintaining continuous operation as specified.
7. Paving sequence. Indicate that the surface is to be constructed for the full lane width as a single paving operation.
8. Schedule, hours of operation, and production rates for the Project.
10. Method of maintaining modified emulsion temperature during transportation.
11. Method of constructing joints.
12. Quality control plan outlining the material testing, number and frequency planned in order to ensure compliance.
13. Mix design of the mixture, the AASHTO accredited laboratory used and the test results of the mixture.

Do not begin paving until the RE approves this plan. Submit an adjusted plan before making adjustments to the paving operation.

B. Weather Limitations. Do not place material if the surface temperature of the underlying pavement is below 50 °F or if the National Weather Service is forecasting temperatures below 50 °F during installation or within 3 hours after installation.

Do not place material if the existing surface is wet. Do not place material if it is precipitating and when precipitation is imminent. If within the 3 hours of placement, the National Weather Service locally forecasts a 50 percent chance, or greater, of precipitation during the scheduled placement, then postpone the placement of material. The Contractor may resume operations when the chance of precipitation is less than 50 percent, and the surface is dry.

C. Test Strip. Construct a test strip of at least 500 feet in length on the roadway before initial placement commences. Ensure that the tack coat has been placed as specified in 401.03.02. Ensure the test strip is performed during weather and sunlight conditions which represents project production placement of the material. While constructing the test strip, record the following information and submit to the RE:

1. Ambient Temperature. Measure the ambient temperature at the beginning and end of each day’s operation.
2. Base Temperature. Measure the surface temperature of the existing pavement at the beginning and end of each day’s operation.
3. Weather Conditions. Document the wind speed, weather conditions, time of day, and humidity at the time of placement.
4. Tack Coat. Measure to verify the proper application rate, coverage and temperature of tack coat for compliance.
5. Material Quantities. Measure to verify the proper proportions of emulsion, cement, aggregate, additives (if any) and temperature of the mixture during placement. Measure to verify the proper application rate of the mixture for compliance.
6. Roller Pattern. Provide details on the number of rollers, type, and number of passes used on the test strip.
7. Initial Set Time. Record the initial time of placement. Verify that the mixture has achieved initial set within 30 minutes of placement.
8. Performance Under Traffic. Verify that the surface shows no visual signs of distress when exposed to traffic after curing for 1 hour.

Submit test strip results to the RE. The RE will analyze the test strip results in conjunction with the approved mix
design to approve the test strip. Do not proceed with production placement until receiving written permission from the RE.

If the test strip does not meet requirements, make adjustments and construct a second test strip. If the second test strip does not meet requirements, suspend operations until written approval to proceed is received from the RE.

Before making adjustments to the operations, notify the RE in writing. The RE may require a new test strip to verify the performance of the adjusted operations.

D. Surface Preparation. Ensure repairs are completed prior to beginning installation. Ensure rut filling and micropave joints have cured for at least 24 hours prior to applying material.

Ensure that manholes, inlets, utilities, curbs, RPM’s, structures, rumble strips, traffic striping and traffic markings to remain are protected by methods approved by the RE. Do not proceed with placement until the RE approves the prepared surface.

Clean the surface of the pavement to remove all dust, debris, oil, and any other materials that may prevent bonding of the treatment to the existing surface. Ensure that the surface is clean and dry.

Apply tack coat prior to application of the treatment as specified in 401.03.02.

E. Micro Surfacing Application. Apply the mixture over the full lane width as specified in table 421.03.03-1.

<table>
<thead>
<tr>
<th>Aggregate Type (See Table 902.09.03-1)</th>
<th>Location</th>
<th>Application Rate (lbs./yd²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type II</td>
<td>Surface Course</td>
<td>16 – 22</td>
</tr>
<tr>
<td></td>
<td>Intermediate Course</td>
<td>10 – 20</td>
</tr>
<tr>
<td>Type III</td>
<td>Rut filling</td>
<td>20 – 40 (See ISSA¹ A143)</td>
</tr>
</tbody>
</table>

1. International Slurry Seal Association (ISSA)

Operate equipment to prevent the loss of the mixture on super-elevated curves. Spread the mixture to fill cracks and minor surface irregularities and leave a uniform high-skip resistant application of aggregate and asphalt on the surface. Operate spreader box so a uniform consistency is achieved without causing skips, lumps or tears in the finished surface.

Carry a sufficient amount of material, at all times, in all parts of the spreader box, so complete coverage is obtained. Water may be sprayed into spreader box to facilitate spreading without harming the mix. No lumping, balling or unmixed aggregate is permitted in the finished surface.

Adjustments to the additive may be required for slow setting where hand spreading is needed. Use squeegees and lutes to spread the mixture in areas inaccessible to the spreader box and areas requiring hand spreading. When hand spreading, pour the mixture in a small windrow along one edge of the surface to be covered and then spread uniformly by a hand squeegee or lute. Make a neat appearing seam where two passes join. Ensure transverse joints of micro surfacing are made straight, clean, and perpendicular to the direction of travel. The maximum overlap of longitudinal lane line joints is 3 inches. Ensure micro surfacing longitudinal joints are parallel to, and not offset by more than 3 inches maximum from, the final traffic striping. Immediately remove excess material from ends of each run.

Do not leave streaks in the finished surface. If streaking develops, stop the operation and submit a corrective action plan to the RE. Do not resume operations until the RE approves the plan.

F. Compaction. Do not roll until the material has cured sufficiently to avoid damage by the roller. Use a pneumatic-tired compactor as specified in 1002.01, except ensure the roller is equipped with a water-spray system. Roll the material with a minimum of at least 2 passes of the pneumatic-tired compactor. The RE may direct additional passes to eliminate roller marks or facilitate compaction of rut filled areas.

G. Opening to Traffic. Allow the material sufficient curing time before opening to traffic. Remove loose material.
from the traveled way before opening to traffic. If the material becomes damaged replace the damaged area.

H. Applying Striping and Traffic Markings. Allow material to cure for at least 2 weeks before applying permanent traffic striping and traffic markings. Use temporary traffic striping and markings as directed by the RE until the material has cured.

I. Surface Quality Requirements. Ensure that there is no excess buildup, uncovered areas, or rough areas on the pavement surface including the longitudinal and transverse joints. The RE will visually inspect the pavement for approval. The RE may reject areas of pavement that are unsatisfactory based on visual inspection. Correct areas of the pavement that the RE rejects. Visual inspection by the RE is considered sufficient grounds for such rejection.

The RE may use a 10 foot straightedge to verify transverse profiles of finished surfaces. Correct areas that have more than 1/4 inch deviation between any 2 contact points of the straightedge in a manner approved by the RE. Following correction, retest the area to verify conformance with this requirement.

J. Ride Quality Requirements. The Department will evaluate the final surface placed in the traveled way as specified in 401.03.03.J.

421.03.04 Slurry Seal

A. Slurry Seal Plan. At least 20 days before beginning placement of slurry seal, submit a detailed plan of operation to the RE for approval as specified in 421.03.03.A

B. Weather Limitations. Place slurry seal in weather as specified in 421.03.03.B.

C. Test Strip. Construct a test strip as specified in 421.03.03.C.

D. Surface Preparation. Prior to starting slurry seal, prepare the existing surface as specified in 421.03.03.D.

E. Slurry Seal Application. Apply the slurry seal mixture as specified in 421.03.03.E, except that application rate should be as specified in table 421.03.04-1.

<table>
<thead>
<tr>
<th>Aggregate Type (See Table 902.10.03-1)</th>
<th>Location</th>
<th>Application Rate (lbs./yd²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>Surface Course Intermediate Course</td>
<td>10 - 14</td>
</tr>
<tr>
<td>Type II</td>
<td>Surface Course Intermediate Course</td>
<td>16 – 20</td>
</tr>
</tbody>
</table>

1. International Slurry Seal Association (ISSA)

F. Compaction. Roll slurry seal as specified in 421.03.03.F.

G. Opening to Traffic. Open to traffic as specified in 421.03.03.G.

H. Applying Striping and Traffic Markings. Apply traffic striping and traffic markings as specified in 421.03.03.H.

I. Surface Quality Requirements. The Department will evaluate the surface quality of slurry seal as specified in 421.03.03.I.

J. Ride Quality Requirements. The Department will evaluate the final surface placed in the traveled way as specified in 401.03.03.J.

421.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for Items as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICRO SURFACING AGGREGATE, TYPE II</td>
<td>TON</td>
</tr>
<tr>
<td>MICRO SURFACING AGGREGATE, TYPE III</td>
<td>TON</td>
</tr>
<tr>
<td>MICRO SURFACING AGGREGATE, TYPE III RUT-FILLING</td>
<td>TON</td>
</tr>
<tr>
<td>MICRO SURFACING EMULSION</td>
<td>GALLON</td>
</tr>
</tbody>
</table>
The Department will make payment for TACK COAT as specified in 401.04.

The Department will make payment for REMOVAL OF TRAFFIC STRIPES, REMOVAL OF TRAFFIC MARKINGS, TRAFFIC STRIPES, and TRAFFIC MARKINGS as specified in 610.04.

The Department will measure MICRO SURFACING EMULSION and SLURRY SEAL EMULSION by the volume delivered, converted to the number of gallons at 60 °F as calculated by the temperature-volume correction factors specified in 902.01, with the exception that micro surfacing emulsion required for MICROPAVING JOINTS is included in the price per linear foot.

The Department will measure MICRO SURFACING AGGREGATE TYPE II, MICRO SURFACING AGGREGATE TYPE III, MICRO SURFACING AGGREGATE TYPE III RUT-FILLING, SLURRY SEAL AGGREGATE TYPE I, and SLURRY SEAL AGGREGATE TYPE II by the ton as indicated on the certified weigh tickets, excluding unused material.

THE FOLLOWING SECTION IS ADDED:

SECTION 422–FOG SEAL

422.01 DESCRIPTION

This section describes the requirements for furnishing and applying a fog seal surface treatment with a fine aggregate cover. This section also describes the requirements for applying a fog seal strip over centerline rumble strips (CLRS) and HMA longitudinal cold joints.

422.02 MATERIALS

422.02.01 Materials

Provide materials as specified:

Fine Aggregate for Fog Seal………………………………………………………………………………………………………………………………. 901.07.02

1 Asphalt Emulsion. For fog seal surface treatment, fog seal of centerline rumble strips and HMA longitudinal cold joint provide emulsified asphalt of grades SS-1, SS-1h, RS-1 or RS-2 in accordance with AASHTO M 140; or provide cationic emulsified asphalt of grades CSS-1, CSS-1h, CRS-1, or CRS-2 in accordance with AASHTO M 208; and ensure all emulsified asphalts are provided as specified in 902.01.03.

2 Polymerized Maltene Emulsion. As an alternative for asphalt emulsion specified above for fog seal strip of centerline rumble strips and HMA longitudinal cold joints, provide JOINTBOND® emulsion. JOINTBOND® is proprietary to Pavement Technology, Inc. of Westlake, OH, telephone number (800)333-6309. For new pavements, use JOINTBOND®. For pavements that are more than 12 months old, use JOINTBOND® PM.

Slow setting emulsified asphalts may be diluted 1 part emulsion to 1 part water. All dilution must be done at the place of manufacture.

Other emulsified asphalt designed specifically for fog sealing may be used if approved by the Bureau of Materials. Determine the application rate by the amount of residual asphalt required as specified in 422.03.01.E.

422.02.02 Equipment

Provide equipment as specified:

Bituminous Material Distributor ……………………………………………………………………………………………………………………… 1003.07

Mechanical Sweeper……………………………………………………………………………………………………………………………………1008.03
422.03 CONSTRUCTION

422.03.01 Fog Seal Surface Treatment

A. Fog Sealing Plan. At least 20 days before beginning placement of fog sealing, submit a detailed plan of operation to the RE for approval that includes the following:

1. Fog sealing contractor’s superintendent’s qualifications with a list of at least 5 successful projects, including project owner contact information.
2. Size and description of crew.
3. Number, type, model of equipment and material control/metering devices along with the current calibration documentation.
4. Fog seal material type, dilution amount, manufacturer, MSDS, handling and installation guidelines, weather limitations and Quality Control plan.
5. Lighting plan for nighttime operations as specified in 108.06 for paving.
6. Schedule, hours of operation, and production rates for the Project.
7. Plant or storage locations for fog sealing emulsion, sand and additives.
8. Method of maintaining fog-sealing emulsion temperature during transportation and operation.
9. Quality control plan outlining the material testing, number and frequency planned in order to ensure compliance.
10. Method of protecting manholes, valve boxes, drop inlets and other service entrances are protected from the fog sealing.
11. Method of protecting RPMs from fog sealing

Do not begin fog sealing until the RE approves the plan. Submit an adjusted fog sealing plan to the RE for approval before making adjustments to the fog sealing operation.

B. Weather Limitations. If within the 3 hours of fog sealing, the National Weather Service locally forecasts a 40 percent chance or greater of precipitation during the scheduled placement, postpone the placement of fog seal. Do not fog seal if it is precipitating or when precipitation is imminent. The Contractor may resume fog sealing operations when the chance of precipitation is less than 40 percent, and the surface is dry.

Do not place fog sealing if the surface temperature of the underlying pavement is below 50 °F.

C. Test Strip. Construct a test strip of at least 100 feet in length on the roadway before initial placement commences. Ensure the test strip is performed during weather and sunlight conditions which will represent project production placement of the fog sealing mixture. While constructing the test strip, record the following information and submit to the RE:

1. Ambient Temperature. Measure the ambient temperature at the beginning and end of the fog sealing operation.
2. Base Temperature. Measure the surface temperature of the existing pavement at the beginning and end of the fog sealing operation.
3. Weather Conditions. Document the wind speed, weather conditions, time of day, and humidity at the time of placement.
4. Emulsion Temperature. Measure the temperature of the emulsion in the distributor truck. Ensure that the emulsion is heated to the optimum application temperature as per the manufacturer prior to starting.
5. Application Rate Verification. With the RE present, check the application rate setting in the bituminous material distributor. With the RE present, verify the temperature of the fog sealing mixture during placement. With the RE present, verify application rate calibration using ASTM test method D2995 except that the tiles should be 3 feet by 3 feet in dimension. After the emulsion has completely cured, weigh the tiles again to verify asphalt residual.
6. Set Time. Record the initial time of placement. Notify the RE when the material has completely set and is ready to be opened to traffic.
7. **Performance Under Traffic.** Do not allow traffic on the fog seal until it has completely cured. Verify that the fog sealing shows no visual signs of distress when exposed to traffic.

Upon completion of the test strip, submit test strip documentation to the RE. The RE will review the test strip documentation and visually assess the coverage of the fog seal application. Do not proceed with production fog sealing until receiving approval from the RE.

Before making adjustments to the fog sealing operations, notify the RE in writing. The RE may require a new test strip to verify the performance of the adjusted fog sealing operations.

D. **Surface Preparation.** Ensure all repairs and rumble strips are completed prior to beginning fog seal installation. Clean the surface of existing pavement to remove all dust debris, oil and any other materials that may prevent bonding of the fog seal. Ensure that the surface is clean and dry. Remove traffic stripes and traffic markings as specified in 610.03.08.

Ensure that manholes, inlets, utilities, curbs, RPM’s, structures, traffic striping, and traffic markings to remain are protected from the fog seal by methods approved by the RE. Do not proceed with placement of the fog seal until the RE approves the prepared surface.

E. **Fog Sealing Application.** Ensure that the temperature of the emulsion prior to starting is at the application temperature recommended by the manufacturer but not exceeding 160 °F. Apply the fog seal uniformly at the rate determined during the test strip to provide a residual asphalt of between 0.06 to 0.10 gallons per square yard using a bituminous distributor.

Ensure that the fog seal material completely covers the pavement surface and is not streaked or ribboned. Ensure that the distribution is even with no uncoated areas or puddles of excess emulsion. Correct uncoated or lightly coated areas by applying additional fog seal emulsion. Blot areas showing an excess of fog seal with sand approved by the RE. Remove excess sand and emulsion material. In areas inaccessible to distributor spray bars, use hand spraying equipment.

The RE may reject areas where fog seal has been applied that is uncoated, ribboned, streaked or has excess emulsion material and rendered unsatisfactory. Visual inspection by the RE is considered sufficient grounds for such rejection.

F. **Fine Aggregate Application.** Immediately after the fog seal has been applied, apply fine aggregate at a rate of 0.25 to 0.5 pounds per square yard. Ensure sand is applied uniformly over the area where fog seal has been applied. Remove excess material by sweeping prior to opening to traffic.

The RE may reject areas where fine aggregate has been applied that is not sufficiently covered or has excess fine aggregate material and rendered unsatisfactory. Visual inspection by the RE is considered sufficient grounds for such rejection.

G. **Opening to Traffic.** Allow the material sufficient curing time, as recommended by the manufacturer, before opening to traffic. Sweep to remove loose and excess aggregate by methods approved by and to the satisfaction of the RE before opening to traffic.

H. **Applying Striping and Traffic Markings.** Allow fog seal to cure for at least 2 weeks before applying permanent traffic striping and traffic markings. Use temporary traffic striping and markings as directed by the RE until the fog seal has cured.

I. **Surface Quality Requirements.** Ensure that there is no excess buildup, uncovered areas, or rough areas on the fog seal. The RE will visually inspect the fog seal for approval. The RE may reject areas of fog seal that are unsatisfactory based on visual inspection. Areas where fog seal has been applied that do not have sufficient aggregate cover or have excess aggregate material may be rendered unsatisfactory. Correct areas of the fog seal that the RE rejects. Visual inspection by the RE is considered sufficient grounds for such rejection.

422.03.02 Fog Seal Strip

A. **Fog Sealing Plan.** At least 20 days before beginning placement of fog sealing, submit a detailed plan of operation to the RE for approval as specified in 422.03.01.A.

B. **Weather Limitations.** Fog seal in weather as specified in 422.03.01.B.
C. **Test Strip.** Construct a test strip of at least 100 feet in length on the roadway before initial placement commences as specified in 422.03.01.C, except that the tiles as specified in 422.03.01.C.5 should be 2 feet by 2 feet in dimension.

D. **Surface Preparation.** Prepare the existing surface as specified in 422.03.01.D. When using polymerized maltene emulsion, the Contractor may leave the existing traffic stripes and traffic markings in place and may install new traffic stripes and markings as specified in 610.03 prior to fog seal.

E. **Fog Sealing Application.** Ensure that the temperature of the asphalt emulsion prior to starting is at the application temperature recommended by the manufacturer but not exceeding 160 °F. If using asphalt emulsion, apply the fog seal uniformly at the rate determined during the test strip to provide a residual asphalt of between 0.06 to 0.10 gallons per square yard using a bituminous distributor. If using polymerized maltene emulsion, apply according to manufacturer’s recommendations.

Apply fog seal in a 2 feet wide strip centered over the center line rumble strip or HMA longitudinal cold joint, ensuring complete coverage of the rumble strip or HMA longitudinal cold joint. Ensure that the fog seal material completely covers the pavement surface and is not streaked or ribboned. Ensure that the distribution is even with no uncoated areas or puddles of excess emulsion. Correct uncoated or lightly coated areas by applying additional fog seal emulsion. Blot areas showing an excess of fog seal with sand approved by the RE. Remove excess sand and emulsion material. In areas inaccessible to distributor spray bars, use hand spraying equipment.

The RE may reject areas where fog seal has been applied that is uncoated, ribboned, streaked or has excess emulsion material and rendered unsatisfactory. Visual inspection by the RE is considered sufficient grounds for such rejection.

F. **Applying Striping and Traffic Markings.** If using asphalt emulsion, place striping as specified in 159.03.06 prior to opening to traffic. If permanent striping was not applied prior to fog sealing, allow fog seal to cure for at least 2 weeks before applying permanent traffic striping and traffic markings.

G. **Opening to Traffic.** Open to traffic as specified in 422.03.01.G.

H. **Surface Quality Requirements.** Ensure fog seal strip meets the requirements specified in 422.03.01.I.

422.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for Items as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOG SEAL SURFACE TREATMENT</td>
<td>GALLON</td>
</tr>
<tr>
<td>FOG SEAL STRIP</td>
<td>LINEAR FOOT</td>
</tr>
</tbody>
</table>

The Department will make payment for REMOVAL OF TRAFFIC STRIPES and REMOVAL OF TRAFFIC MARKINGS as specified in 610.04.

The Department will make payment for TRAFFIC STRIPES, ___” as specified in 610.04.

The Department will measure FOG SEAL SURFACE TREATMENT by volume of residual asphalt by converting the quantity of emulsion to the number of gallons at 60 °F as calculated by the temperature-volume correction factors specified in 902.01 and then multiplying by the % residual asphalt in the emulsion from the certificate of compliance from the manufacturer.
DIVISION 450 – CONCRETE PAVEMENT REHABILITATION

SECTION 453 – FULL DEPTH CONCRETE PAVEMENT REPAIR

453.03.01 Full Depth Repair Using Concrete

A. Preparation.
THE FOLLOWING IS ADDED AS THE FIRST PARAGRAPH:

Arranged a meeting with the RE at the project site to establish the limits of repair. Additional repairs, not delineated by the RE during the project site meeting with the Contractor, may be required if the need for them is established by the RE.

C. Setting Forms, Joint Ties, and Dowels.
THE THIRD SENTENCE OF THE SEVENTH PARAGRAPH IS CHANGED TO:

Slowly withdraw the tube as the hole is filled.

453.03.02 Full Depth Repair Using HMA

A. Preparation.
THE ENTIRE TEXT IS CHANGED TO:

Arrange a meeting with the RE at the project site to establish the limits of repair. Additional repairs, not delineated by the RE during the project site meeting with the Contractor, may be required if the need for them is established by the RE.

If milling and paving is also specified within the areas requiring full depth repair, then perform the repair work first and as a separate operation from the milling and paving. Ensure that the top of the repaired concrete surface is flush with the existing unrepaired pavement. The Contractor may request approval of the RE to perform the repair work, milling and paving as one operation.

Sawcut full depth at the limits of the repair. Remove existing concrete or composite pavement using the lift out method. Do not use in-place breaking to remove concrete. Ensure that spalling of the remaining concrete does not occur during the lifting. Reuse removed pavement as specified in 202.03.07.A. The Contractor may sawcut the slab and drill the lift out holes up to 5 days before the concrete removal. Only remove concrete that can be replaced during the workday. Repair any damage to remaining pavements.

After the existing concrete has been removed, the RE will examine underlying material to determine its condition. If water or excess moisture exists in the area, remove the underlying material to the depth specified by the RE. Place and compact coarse aggregate using the directed method as specified in 203.03.02.C. Grade the underlying surface so that the thickness of the repair matches the existing slab thickness.

B. Weather Limitations.
THE HEADING AND THE ENTIRE TEXT IS CHANGED TO:

B. Placing Limitations. Comply with the limitations as specified in 453.03.01.B.
DIVISION 500 – BRIDGES AND STRUCTURES

SECTION 502 – LOAD BEARING PILES

502.03.03 Driving Piles

B. Methods of Driving.

THE FOLLOWING IS ADDED TO THE LAST PARAGRAPH:

4. Cast-In-Place Piles. Ensure that reinforcement steel is installed as specified in 504.03.01. Place concrete as specified in 504.03.02. Clean out open end piles to the elevation shown on Plans. Weld closure plates for closed-end pipe piles as shown on Plans.

C. Test Piles.

1. Static Pile Load Test.

Apply a total of _____ tons of static test load to the piles.


SECTION 503 – DRILLED SHAFT FOUNDATIONS

THE ENTIRE SECTION IS CHANGED TO:

SECTION 503 – DRILLED SHAFT FOUNDATIONS

503.01 DESCRIPTION

This Section describes the requirements for installing and testing drilled shafts.

503.02 MATERIALS

503.02.01 Materials

Provide materials as specified:

Concrete ........................................................................................................................................ 903.03
Self Consolidating Concrete (SCC)................................................................................................ 903.06.01
Grout............................................................................................................................................. 903.08.02
Reinforcement Steel ...................................................................................................................... 905.01.01
Drilled Shaft Casing .................................................................................................................... 906.03
Steel
Tube............................................................................................................................................. 906.08
Structural Steel Paint (Organic Zinc) ........................................................................................ 912.01.01
Water ........................................................................................................................................... 919.08

Provide clay-mineral based slurry (processed attapulgite or bentonite) for mineral slurry. Ensure that the mineral slurry has a mineral grain size that will remain in suspension and has sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. Ensure that the percentage and specific gravity of the material used to make the mineral suspension is sufficient to maintain the stability of the excavation and to allow proper concrete placement.

Provide polymer slurry as recommended by the manufacturer.

Perform control tests on the mineral slurry in the presence of the RE to determine density, viscosity, and pH. Adjust the slurry to meet the requirements shown in Table 503.02.01-1:
Table 503.02.01-1 – Mineral Slurry

| Property                                      | Range              | Test                                                                 |
|-----------------------------------------------|--------------------|Adam                                                                 |
| Density at time of slurry introduction        | 64.3 – 69.1 lbs/ft³| API 13B, Bentonite Slurry Section (Mud Balance)                       |
| Density in hole at time of concreting         | 64.3 – 75.0 lbs/ft³| API 13B, Bentonite Slurry Section (Mud Balance)                       |
| Viscosity at time of slurry introduction      | 28 – 45 sec/quart  | API 13B, Section 2 (Marsh Funnel and Cup)                            |
| Viscosity in hole at time of concreting       | 28 – 45 sec/quart  | API 13B, Section 2 (Marsh Funnel and Cup)                            |
| Sand content by volume                        | 4% max             | API 13B, Section 4 (Sand Screen Set)                                 |
| pH at time of slurry introduction             | 8 – 11             | API 13B, Section 6                                                   |
| pH in hole at time of concreting              | 8 – 11             | (Paper Test Strips or Glass-Electrode pH Meter)                     |

1. Increase by 2 lbs/ft³ in salt water.
2. Standard measurements are in seconds per quart. One sec/quart = 1.06 sec/liter.
   a. Perform tests when the slurry temperature is above 40 °F.
   b. Ensure that the sand content does not exceed 4 percent (by volume) at any point in the borehole as determined by the API sand content test when the slurry is introduced.
3. Perform tests to determine density, viscosity and pH value during the shaft excavation to establish a consistent working pattern. Perform a minimum of 4 sets of tests during the first 8 hours of slurry use. When the results show consistent behavior, the Contractor may decrease the testing frequency to 1 set per every 4 hours of slurry use.

503.02.02 Equipment

Provide equipment as specified:

Concrete Batching Plant ................................................................. 1010.01
Concrete Trucks ............................................................................. 1010.02

Provide Crosshole Sonic Logging (CSL) test equipment as per ASTM D6760.

503.03 CONSTRUCTION

503.03.01 Furnishing Drilled Shaft Equipment

Ensure that equipment does not introduce uncontrolled exhaust fumes into the surrounding areas, or other occupied areas adjacent to the work site. Use crane and drilling equipment that is fitted with their own separate exhaust systems to adequately vent engine exhaust fumes to the atmosphere away from all confined work sites.

Ensure that equipment used for final bottom cleaning does not have a centralizing guide at the tip.

Use excavation and drilling equipment having adequate capacity, including power, torque, and down thrust to excavate a hole of both the maximum specified diameter and equal to the deepest shaft shown in the Plans, plus 15 feet or three times the shaft diameter, whichever is greater.

503.03.02 Demonstration Drilled Shaft

A. Installation Plan. No later than 30 days after the date of the Notice to Proceed, submit to the RE for approval an installation plan that includes the following:

1. A summary of the Contractor’s or specialized drilled shaft subcontractor’s experience and qualifications. The Contractor or subcontractor must have a minimum of 5 years experience in installation of drilled shaft foundations. The Contractor performing the work described herein must have installed shafts of similar diameter, length, capacity and working environment to those shown on the Plans.
2. The boring subcontractor and qualifications to perform the test boring at the demonstration shaft location and the boring at the production shafts when borings are required during the drilled shaft excavation.
3. The Contractor or subcontractor to install the reinforcement cage into the drilled shaft.
4. The Contractor or subcontractor to perform the placement of the drilled shaft concrete.
5. A list containing the description, type, size, capacity and number of equipment to be used.
6. Detail description of the overall construction operation sequence and the proposed sequence of shaft construction.
7. Details of planned drilled shaft excavation methods including the proposed drilling methods. Ensure the excavation method is suitable given the anticipated site.
8. Details of the methods to ensure shaft stability during excavation and concrete placement. Include a review of method suitability to the anticipated work site and subsurface conditions. If casings are proposed or required, provide casing dimensions, detailed procedures for permanent casing installation, and procedures for temporary casing installation and removal.
9. When slurry is specified or proposed, provide details of the methods for mixing, placing, circulating, and desanding the slurry. Also include the method of monitoring and continuously maintaining the slurry level. Provide the method of disposal.
10. Details of methods to clean and maintain the shaft excavation, including removal of loose rock and sediment from the shaft bottom.
11. Details of proposed methods to check shaft bottom cleanliness.
12. Details of steel reinforcement lifting, splicing if necessary in a hanging position, insertion and securing, including support and centralization methods.
13. Mix design of the concrete and documentation showing that the mix design meets the approved mix and strength requirements.
14. The method used to fill or eliminate voids between the plan shaft diameter and excavated shaft diameter, or between the shaft casing and surrounding soil, if permanent casing is specified.
15. Methods to determine drilled shaft dimensions and the deviation from vertical for the entire depth of the drilled shaft. Details of casing removal when removal is required, including minimum concrete head in casing during removal.
16. Procedures for control and removal of spoils on land, over water, or both.
17. Details of concrete batching and/or delivery to the work site, and concrete placement, including proposed operational procedures for concrete pump or tremie. Discuss the initial placement, raising tremie pipe(s) during placement, overfilling of the shaft concrete, the proposed method to accurately monitor the volume of concrete being placed at all times during the pour, and provisions to prepare the completed shaft top at its final shaft top elevation.
18. The qualification records of the testing organization, consisting of the name, title, responsibilities and specific site experience with bi-directional projects. The organization must provide proof of at least 10 successful bi-directional load tests and 3 successful lateral load tests.
19. The qualification records of the testing organization to perform the CSL test, consisting of the name, title, responsibilities and specific site experience with CSL testing.
20. Details of procedures, materials, and equipment for performing the bi-directional Load Test and the CSL. Provide a certificate of calibration for the load cell from an approved testing laboratory. Ensure that the calibration was performed for all ranges of proposed loading within the 2 months preceding the load tests. Ensure that the certified accuracy of the load cell is within 1 percent of the true load. Concrete core drilling equipment and procedures to retrieve the core specimens that may be required to determine the integrity of concrete placed in the drilled shaft.

The RE will schedule a review meeting between the Contractor, designer, and the Department (construction, project manager, geotechnical engineering) after reviewing the installation plan and at least 15 days before the start of work.

Within 30 days after receipt of the plan, the RE will notify the Contractor of additional information required and changes that may be necessary.

If the RE rejects the plan or a part of the plan, submit revisions to the RE for reevaluation. The RE will approve or reject the resubmission within 10 days after receipt of proposed changes of their approval or rejection.

B. Installation. Perform a demonstration drilled shaft to verify the Contractor’s methods, techniques and equipment by successfully constructing a demonstration shaft.
Before demonstration shaft excavation, perform an exploratory test boring at the demonstration shaft location. Extend the test boring(s) at least 10 feet or three times the shaft diameter whichever is greater below the tip elevation of the demonstration shaft. Provide detailed information on the underlying bedrock if encountered.

Perform standard penetration test (SPT) and split-barrel sampling of soils in accordance with ASTM Standard D1586 and if rock is encountered, rock core drilling and sampling of rock for site investigation in accordance with ASTM Standard D2113. Prepare the boring logs, place the rock samples in core boxes, mark, and pack them in accordance with ASTM Standard D5079. Submit the results of the test borings, SPT tests, and photographs of each labeled core box to the Department prior to drilled shaft excavation. If the drilled shafts are rock socketed or bearing on rock, the Department will require unconfined compression tests on a minimum of four samples in accordance with ASTM Standard D7012. Submit the test results to the Department. The Department will evaluate the rock mass strength and classify the rock using GSI and Hoek-Brown failure criterion based on AASHTO LRFD Bridge Design Specifications, 2014, Section 10.4.6.4, and determine the top of competent rock.

Install the demonstration shaft as shown on the Plans or as directed by the RE, but not less than a clear distance of three drilled shaft diameters from the closest production shaft. Excavate the demonstration shaft to the depth of the deepest and maximum diameter of the production shaft as shown on the Plans. Perform soil sampling and analyses of regulated material including solids from dewatered slurry as specified in 202.03.04. Dispose of regulated material including solids from dewatered slurry as specified in 202.03.08. Construct the demonstration shaft as specified in 503.03.07. Include CSL as specified in 503.03.04.

Load tests and evaluation of the results must be completed and approved prior to installing the production drilled shafts.

Failure to demonstrate the adequacy of methods and equipment to the RE may require the installation of an additional demonstration shaft with appropriate alterations in equipment, methods by the Contractor, or both to eliminate unsatisfactory results. An additional demonstration shaft and all testing required to demonstrate the adequacy of method or equipment will be at Contractor’s expense.

Cut-off the concreted demonstration shafts 2 feet below finished grade or 3 feet below the mudline if in water. Restore disturbed areas at demonstration shaft holes to their original condition.

503.03.03 Load Test

If required, perform Axial and Lateral load tests according to ASTM D1143, D3966 or D7383.

A. **Bi-Directional Load Cell Installation.** Ensure that the installation and execution of the bi-directional load tests are supervised by a Professional Engineer and comply with the bi-directional load cell manufacturer recommendations, instructions and procedure manuals as approved by the Department. Ensure that the bi-directional load cell, vibrating wire strain gauges, hydraulic supply, and other attachments are assembled according to the manufacturer’s recommendations. Provide a reinforcement steel cage, as specified in 503.03.07.J, to attach the bi-directional load cell. Excavate the shaft using the approved method at the location shown on the Plans. After excavating the shaft, and obtaining approval from the RE, place a seating layer of concrete in the base of the drilled shaft. While the seating concrete is still plastic, install the reinforcement steel cage with the bi-directional load cell in the test shaft so that the bi-directional load cell rests firmly in the concrete. Build the bi-directional load cell into the steel reinforcing cage at a predetermined elevation approved by the Department.

After seating the bi-directional load cell assembly, place concrete in the drilled shaft as specified in 503.03.07.K. The ME will take at least 6 concrete compression test cylinders from the concrete used in the shaft. At least 1 day before the load test, the ME will test at least 1 of the cylinders. The ME will test at least 2 cylinders on the day of the load test. Do not perform the bi-directional load test until 7 days after placing the concrete and the concrete achieves the specified compressive strength.

B. **Load Testing and Reporting.** Do not perform Axial or Lateral Load testing until CSL test results have been approved. Perform Axial Load test according to ASTM D 1143 unless otherwise specified in the Contract Documents. If the test apparatus shows signs of negative effects due to the construction activities, immediately cease testing and do not resume until the conditions are favorable for testing.

Take direct movement indicator measurements of the following:
1. Two Linear Variable Displacement Transducers (LVDT) vibrating wire displacement gauges, attach to each load cell to monitor the expansion and contraction of the load cell.
2. Two Linear Variable Displacement Transducers (LVDT) gauges, mount on an independent reference beam and set on opposite sides of the top of the test shaft to monitor the axial shaft displacement.
3. Vibrating wire strain gauges, placed in pairs on opposite sides of the reinforcement cage at elevations shown on the Plans.

Limit the deflection of the cage to a maximum of 2 feet between pick points while lifting the cage from the horizontal position to vertical. Provide additional support, bracing, strong backs, etc. to maintain the deflection within the specified tolerance.

Apply loads in increments of 5 percent of the maximum test load as shown on the Plans. The maximum test load is limited to the maximum axial resistance of the shaft above or below the cell or the maximum capacity of the cell or the maximum expansion of the bi-directional load cell, whichever comes first.

In addition to the requirements of ASTM D 1143, at each load increment, or decrement, take readings of the movement indicators at 1.0, 2.0, 4.0 & 8.0 minute intervals while holding the load constant. Ensure that strain gauge readings are concurrent with shaft movement readings. The RE may direct additional cycles of loading and unloading using similar procedures following the completion of the test cycle.

Ensure that dial gauges or LVDTs used to measure end bearing, side shear movement, and shaft compression have a minimum travel of 8 inches and are capable of being read to the nearest 0.0001 inch division. The Contractor may alternately monitor end bearing movement using LVDTs capable of measuring the expansion of the bi-directional (6 inches). Ensure that the reference beam has a minimum length equal to 6 times the drilled shaft diameter. Monitor the reference beam for movement during load testing using a surveyor’s level.

Provide the performance results of each load test to the RE the day after performing the load tests. Provide a final report of the load test results to the RE within 10 days of completing the test.

Ensure that the report includes, but is not limited to, the following:

1. Test shaft identification and location
2. Date(s) of testing
3. Description of the test shaft details, instrumentation and test procedures
4. Tables presenting all instrumentation data
5. Plots of load versus displacement (up and down) for each load cell level and for each stage of the test
6. Plots of load along the length of the drilled shaft determined from the strain gauge data for at least ten applied load increments
7. Summary of unit side resistance along the drilled shaft and end bearing resistance
8. Plots of creep displacement for each load increment
9. Plot of equivalent top-of-shaft displacement for the test shaft, developed from the load test data

Within 20 days, the Department will notify the Contractor if revisions to the foundation lengths and installation procedures will be made based on the results of the load tests. Do not begin construction of production drilled shafts without the Department’s approval.

C. Post-Test Grouting Procedures. Grout the interior of the bi-directional cell and annular space around the outside of the bi-directional cell according to the manufacturer’s recommendations.

The Contractor does not have to grout test shafts that will not be used as production shafts.

503.03.04 Crosshole Sonic Logging

Perform the Non-Destructive Integrity Crosshole Sonic Logging (CSL) testing on completed shafts including rock socket in accordance with ASTM D 6760 (Standard Test Method for Integrity Testing of Concrete Deep Foundations by Ultrasonic Crosshole Testing).

Begin CSL on demonstration and all production drilled shafts 72 hours after placing concrete in the shaft. RE may specify a longer minimum time if concrete mix designs or other factors results in slower setting concrete. Ensure that the testing is completed within 20 days after placing concrete.
The number of access tubes is provided in the drilled shaft detail in the contract Plans.

A. **Installation.** Ensure the tubes are 1.610 to 2.067 inch inside diameter schedule 40 steel pipe. Ensure that the CSL tubes are watertight and have a round, regular, internal diameter free of defects or obstructions, including at tube joints, to allow the free, unobstructed passage of 1.3-inch diameter source and receiver probes. Ensure the tubes are free from corrosion with clean internal and external faces to ensure passage of the probes and a good bond between concrete and the tubes.

Ensure that each pipe is fitted with a watertight shoe at the bottom and a removable cap at the top. Attach the pipes securely to the interior of the reinforcement cage with a minimum cover of 4 inches or as shown in the contract Plans. Install the tubes as near to parallel as possible.

Ensure that the tubes extend from 6 inches above the shaft bottoms to at least 3 feet above the shaft tops. If the shaft top is sub-surface, extend the tubes at least 2 feet above the ground surface. Ensure that joints required to achieve full-length tubes are watertight.

Ensure that the tubes are not damaged during reinforcement steel cage installation. As the cage is being lowered into the shaft, monitor the tubes to ensure that they are vertical and parallel, and that connections are watertight. After installing the reinforcement cage, immediately fill the tubes with potable water. After the tubes are filled with water, cap or seal the tube tops.

Before placing concrete, plumb at least 1 tube per shaft and record the tube length. Note the stickup of the tubes above the shaft tops.

Do not remove the seals or caps until the concrete in the shaft has set. Remove the caps or plugs after installation and ensure not to apply excess torque, hammering, or other stresses that could break the bond between the tubes and the concrete.

Grout the access tube after the final acceptance of the drilled shaft.

B. **CSL Testing and Reporting.** Perform the CSL tests between all of the possible pairs of tubes in the drilled shaft concrete. Perform the CSL tests with the source and receiver probes in the same horizontal plane, unless the RE directs that the defect is evaluated with the source and receiver probes in different horizontal plane. Take CSL measurements at depth intervals of 2 inches or less, from the bottom of the tubes to the top of each shaft. Pull the probes simultaneously, starting from the bottoms of the tubes, over a depth measuring device. Remove slack from the cables before pulling to provide for accurate depth measurements of the CSL records.

Provide the RE the preliminary results of the testing on site prior to the CSL Consultant leaving the site. Submit a detailed CSL test report and test data signed and sealed by a Professional Engineer to the RE within seven days, which includes recommendations as to the acceptability, unacceptability, soundness and further evaluation of the drilled shaft.

In addition to the report requirements in ASTM D 6760, the CSL report needs to include, but not be limited to, the following:

1. Project Identification and Date of Testing.
2. Description of the testing apparatus unit and probes.
3. Name of the person responsible for the validity of the test report.
4. A table and schematic showing shafts tested with accurate identification of CSL tube coordinates and their top elevation.
5. Number of days between concrete placement and CSL testing.
6. The Data Logs: Include XY plots of Velocity, First Arrival Time (FAT) and signal strength. The signal strength needs to be expressed in units of decibels (dB).

Evaluation of the CSL Tests will be based on the following table:
### Table 503.03-1 – Concrete Condition Rating Criteria

<table>
<thead>
<tr>
<th>Concrete condition Rating</th>
<th>Velocity reduction VR(%)</th>
<th>Signal distortion/Strength</th>
<th>Indicative conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good (G)</td>
<td>0 to 10</td>
<td>none/normal energy reduction ≤ 6 dB</td>
<td>Acceptable quality concrete</td>
</tr>
<tr>
<td>Questionable (Q)</td>
<td>10 to 20</td>
<td>Minor/lower energy reduction 6.1 to 9 dB</td>
<td>Minor contamination, intrusion, and/or poor quality concrete</td>
</tr>
<tr>
<td>Poor/defect (P/D)</td>
<td>&gt;20</td>
<td>Severe/much lower energy reduction &gt; 9 dB</td>
<td>Contamination, intrusion, and/or poor quality concrete</td>
</tr>
<tr>
<td>No Signal (NS)</td>
<td>No Signal</td>
<td>None</td>
<td>Intrusion or severe defect: could also be caused by tube debonding</td>
</tr>
<tr>
<td>Water (W)</td>
<td>≥ 60</td>
<td>Severe/much lower energy reduction ≥12 dB</td>
<td>Water intrusion or water-filled gravel intrusion with few or no fines</td>
</tr>
</tbody>
</table>

### C. Evaluation of the CSL Test Results

The Department will evaluate the CSL test results and determine whether or not the drilled shaft construction is acceptable. If the RE determines that the drilled shaft is acceptable, dewater and grout the CSL tubes. Use the grout with the same strength or higher than the strength of the concrete used in the original drilled shaft.

If the tests indicate potential defects, the RE may direct the Contractor to perform additional tests for further evaluation.

### D. Further Evaluation

Perform Tomography, Shaft Coring or other investigated methods as directed by the RE for further evaluation. Submit a report signed and sealed by a Professional Engineer registered in the State of New Jersey providing the results of further evaluation and recommendations to accept or repair the shaft within 14 days. The report must contain recommendations for modification of construction procedures to prevent defects for subsequent shaft installation.

### E. Corrective Measures

If the Department determines that the drilled shaft is unacceptable, submit working drawings for approval of proposing corrective measures. Do not begin corrective measures until the Department approves the working drawings. Repair all detected defects as per working drawings and conduct post repair integrity testing using CSL tests and 2-D and 3-D Tomography tests. Submit test results to RE within five days of tests completion for approval. The Department will not pay for these additional tests or repairs or provide an increase in contract time.

Do not proceed with construction above a drilled shaft until the quality of the shaft, as represented by the core samples, is determined to be acceptable and the RE provides notification to continue construction.

### 503.03.05 Tomography

Use the same equipment and access tubes as the CSL method. Submit the Tomography analysis results to RE for review. Provide the two dimensional (2-D) horizontal and vertical slices and three dimensional (3-D) tomographs for the entire shaft between the respective tube pairs. Present these images in color and coded to identify the variations in sonic velocity. Include the complete discussion of the Tomography tests results in the report.

### 503.03.06 Shaft Coring

If the Department determines the drilled shafts are unacceptable based on CSL test results or CSL test results and tomographic analyses, or observed problems during drilled shaft construction, the RE will direct the Contractor to core the drilled shaft concrete to obtain samples in the area of the possible defects for further evaluation of accepting, repairing or replacing the drilled shaft. The Department will determine the number, location and depth of cores required. Ensure the concrete core samples are obtained in accordance with ASTM D2113. Drill cores at a diameter between 2-4 inches.

Keep an accurate coring log, properly mark cores with the depth at each interval of core recovery, and place the cores in a crate. Perform strength test on core samples that exhibit questionable concrete as determine by Department.
503.03.07 Constructing Drilled Shafts

A. Installation Plan. Submit an installation plan, as specified in 503.03.02. Do not begin constructing drilled shafts until the RE approves the plan.

Once approval has been given to construct production shafts, do not change the personnel, methods, or equipment that were used to construct the approved demonstration shaft without written approval of the RE.

B. Alignment and Tolerances. For bridge foundations, ensure that the center axis of the poured shaft at the top of the drilled shaft or mudline, whichever is lower, is within the following tolerances:

<table>
<thead>
<tr>
<th>Drilled Shaft Diameter</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 2'-0&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>&gt; 2'-0&quot; &lt; 5'-0&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>≥ 5'-0&quot;</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

During construction, periodically, check the verticality of the excavation by holding a 4-feet level on the Kelly bar or other suitable method. Ensure that the vertical alignment of a shaft excavation in soil does not vary from the alignment shown in the Plans by more than 1.5% of the shaft length. Ensure that the vertical alignment of the shaft excavation in rock does not vary from the alignment shown in the Plans by more than 2.0% of the shaft length.

For bridge foundations, after placing all the concrete, ensure that the top of the reinforcing steel cage is no more than 6 inches above and no more than 3 inches below the plan position.

Recommended concrete cover to reinforcing steel:

<table>
<thead>
<tr>
<th>Drilled Shaft Diameter</th>
<th>Minimum Concrete Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 3'-0&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>&gt; 3'-0&quot; &lt; 5'-0&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>≥ 5'-0&quot;</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

Ensure that the reinforcing cage is concentric with the shaft within a tolerance of 1 inch.

C. Construction Sequence Limitations. Excavate to the bottom of the footing elevation before beginning shaft construction. When constructing drilled shafts and placing embankment, construct drilled shafts after the placement of embankment. Repair disturbances caused by shaft installation to a subsequent drilled shaft area before beginning shaft construction.

Do not excavate a shaft if an adjacent shaft in the same substructure unit is open unless the RE’s written approval is obtained. Do not perform blasting or vibrate to place casings until the concrete in adjacent shafts has reached 80 percent of the required 28-day compressive strength. Once the excavation of a shaft has begun, do not stop the excavation until the excavation is completed. If the excavation is stopped for more than 24 hours, maintain shaft stability as detailed in the installation plan.

D. Excavation Log. Maintain an excavation log during shaft excavation that includes at least the following:

1. Name of the inspector, date, time and names of changes in the inspector.
2. Identification number of each shaft.
3. Location and surface elevation at each shaft.
4. Description and approximate top and bottom elevation of each soil or rock material encountered during shaft excavation.
5. Elevations at which seepage or groundwater flow are encountered, and remarks.
6. The type and dimension of tools and equipment used for the excavation.
7. Changes in the type of tools and equipment used for excavation.
8. Type of drilling fluid used during the shaft excavation, if used.
9. Problems that are encountered during the shaft excavation.
10. Elevation changes in drilled shaft diameter.
11. Method used for bottom of the shaft cleaning.
12. Final bottom elevation of the shaft.

Ensure that discrepancies noted on the log by the RE are resolved by the end of each day. Provide 2 copies of the final log to the RE within 24 hours after a shaft excavation is completed and approved.
Reuse excavated material as specified in 202.03.07.A.

E. **Excavating.** Use the appropriate method for constructing drilled shafts as follows:

1. **Dry Method.** Only use the dry method where the groundwater level and soil conditions allow construction of the drilled shaft in a relatively dry excavation, and where the sides and bottom of the shaft may be visually inspected by the RE before placement of reinforcement and concrete. The dry method will consist of drilling the shaft excavation, removing all accumulated water and loose material from the excavation, placing the reinforcement cage, and concreting the shaft in less than 3 inches of water.

2. **Wet Method.** Construct drilled shafts using the wet method where dry excavation cannot be maintained. The wet method will consist of using water or slurry, as specified in 503.03.07.G, to maintain stability of the drilled shaft perimeter while excavating to finished depth, placing the reinforcement cage, and concreting the shaft. The Contractor may use the static or circulation process of the wet method.

When the material encountered cannot be drilled using conventional earth drilling tools and equipment, provide rock drilling equipment, including air tools, approved blasting materials, and other equipment as necessary to construct the shaft excavation to the size and depth required. Obtain the RE’s approval before switching from earth to rock drilling tools and equipment. Obtain the RE’s approval before blasting.

The Contractor may over ream with a grooving tool, overreaming bucket, or other RE approved equipment. The RE will direct the thickness and extent of sidewall overreaming.

The Department will require sidewall overreaming between 1/2 and 3 inches when the sidewall of the hole has either softened due to excavation methods, swollen due to delays in concreting, or degraded because of slurry cake buildup.

Drilling tools lost in the excavation will not be considered as obstructions. Immediately remove drilling tools that are lost in the excavation.

F. **Constructing Using Casings.** Construct drilled shafts using casings where shown on the Plans or where the dry or wet construction methods are inadequate to prevent caving or excessive deformation of the hole. When downsizing of permanent casing is required, do not overlap more than 6 feet of casing.

When constructing drilled shafts in open water, extend the exterior casings from above the water elevation into the ground to protect the shaft concrete from water action during placement and curing of the concrete. Install the casing to ensure a positive seal at the bottom of the casing so that no seepage of water or other materials occurs into or from the shaft excavation.

When casings are not shown on the Plans, but the Contractor believes that casings are necessary, submit details of the proposed casing method in the installation plan (including casing lengths and diameters) and the proposed procedures of casing installation to the RE for review. If the Contractor does not determine the need for casings until after work on the shafts has begun, submit to the RE for review a revised installation plan proposing the casing installation method for review.

Ensure that casings are clean, round, straight, and free of weld breaks and holes that would allow passage of water or plastic concrete. With RE approval, the Contractor may provide casings larger in diameter than shown on the Plans.

If splices are needed, make splices for steel casing by full penetration butt welding in the entire cross section as per AASHTO/AWS D1.1 and as shown on the contract Plans.

1. **Temporary Casings.** Casings are temporary unless shown as permanent casings on the Plans. Telescoping, predrilling with slurry, and overreaming to beyond the outside diameter of the casing may be required to install casing.

   Remove temporary casing before completing concrete placement in the drilled shaft. Before withdrawing the casing, ensure that the level of plastic concrete in the casing is at least 5 feet above either the hydrostatic water level in the formation or the level of drilling fluid in the annular space behind the casing, whichever is higher. As the casing is withdrawn, maintain an adequate level of concrete within the casing so that fluid trapped behind the casing is displaced upward and discharged at the ground surface without contaminating or displacing the shaft concrete.
If the Contractor removes a specified diameter or length of casing and substitutes a longer or larger diameter casing through caving soils, the Contractor shall stabilize the excavation using a slurry or backfill before the new casing is installed.

If temporary casings become bound or fouled during shaft construction and cannot be practically removed, the Department will designate the drilled shaft defective. Submit working drawings for approval proposing corrective measures.

Do not begin corrective measures until the Department approves the working drawings.

2. **Removable Casing.** When the shaft extends above ground or through a body of water, the Contractor may use suitable, removable casing for the portion exposed above ground or through a body of water except when permanent casing is specified. Strip removable casing from the shaft and ensure that the concrete is not damaged.

The Contractor may remove casings when the concrete has attained a strength of at least 2800 pounds per square inch as determined from 2 concrete cylinders field cured according to AASHTO T 23, provided that curing of the concrete is maintained, as specified in 504.03.02.F. Do not expose the shaft concrete to salt water or moving water for 7 days.

3. **Permanent Casings.** When not shown on the Plans, the Contractor may use permanent casing if approved by the RE. Ensure casings are continuous between the top and bottom elevations shown on the Plans. After installation is complete, cut off the permanent casing at the specified elevation.

After installing the casings, repair damage to coated surfaces of the casings exposed to the air by applying an organic zinc prime coat from the same manufacturer as the shop-applied inorganic zinc prime coat.

G. **Constructing Using Slurries.** When using slurry to construct drilled shafts, the Contractor may use mineral or polymer slurries. During construction, maintain the level of the slurry at a height sufficient to prevent caving of the shaft excavation. Use a temporary surface casing in the upper soils. Maintain the slurry level inside the shaft above the groundwater level during installation and cleaning out. In the event of a sudden significant loss of slurry to the hole, cease the construction until either a method to stop slurry loss or an alternate construction procedure has been approved by the RE.

Pump slurry into holding tanks to ensure that no slurry spills or contaminates the site. Provide physical or chemical treatment of the slurry according to the manufacturer’s recommendations.

During construction, maintain the level of mineral slurry in the shaft at least 4 feet above the highest expected piezometric pressure head that is along the depth of the shaft. Maintain the level of polymer slurry at least 5 feet above the highest expected piezometric pressure head that is along the shaft. If the selected slurry construction method fails, in the opinion of the RE, to produce the desired final results, cease this method and propose an alternate method to the RE for approval.

Ensure that a heavily contaminated slurry suspension, which could impair the free flow of concrete, has not accumulated in the bottom of the shaft. Before placing concrete for shaft excavation, take slurry samples using a sampling tool approved by the RE. Take slurry samples from the bottom of the shaft and at intervals not exceeding 10 feet up the slurry column in the shaft, until 2 consecutive samples produce acceptable values for density, viscosity, sand content, and pH at each sampling depth.

When slurry samples are unacceptable, take corrective actions. Do not place concrete until the slurry is re-sampled and test results are approved.

If the slurry remains in the shaft for more than 12 hours or if caking develops, roughen or re-ream the shaft with appropriate new bottom cleaning and slurry testing before concreting. Place concrete on the same day as the completion of the excavation of the drilled shaft to the bottom elevation.

Perform soil sampling and analyses of regulated material including solids from dewatered slurry as specified in 202.03.04. Dispose of regulated material including solids from dewatered slurry as specified in 202.03.08.

1. **Mineral Slurry.** During shaft excavation, premix mineral slurry with water and allow time for hydration according to the manufacturer’s recommendations. Provide slurry tanks of adequate capacity for slurry
circulation, storage, and treatment. Do not substitute excavated slurry pits with slurry tanks without obtaining approval from the RE. Do not mix the slurry in the shaft.

Monitor the properties of the pre-mixed slurry as it is introduced into the borehole and periodically thereafter, including a final check of a bottom sample before placing concrete to verify that the density and sand content are within the limits for the proper slurry displacement during concreting. Use desanding equipment to control slurry sand content to less than 4 percent by volume at all points in the borehole at the time the slurry is introduced.

2. **Polymer Slurry.** Provide a slurry management plan to the RE that includes a set of the slurry manufacturer’s written recommendations and results of the following tests, as a minimum:

   1. Density Test (API 13B-1, Section 1).
   2. Viscosity Test (Marsh funnel and cup, API 13B-1), Section 2.2 or approved viscometer.
   3. pH Test (pH meter, pH paper).
   4. Sand Content Test (API sand content kit, API 13B-1, Section 5).

   Also include the tests to be performed, the frequency of those tests, the test methods, and the maximum and minimum property requirements that must be met to ensure that the slurry meets its intended functions. Ensure that test reports are signed, and provide them to the RE on completion of each drilled shaft.

H. **Rock Socketing.** If subsurface exploration is required, core drill and obtain samples of rock in accordance with ASTM Standard D2113. Prepare the boring logs and place the rock samples in core boxes, mark and pack them in accordance with ASTM Standard D5079. Submit the results of the test borings and photographs of each labeled core box to the Department prior to Drilled Shaft excavation. Perform Unconfined Compressive Strength test on a minimum of four samples retrieved from each boring. Submit the results of Unconfined Compression test results. The Department will evaluate the Rock Mass Strength and classify the rock with GSI and Hoek-Brown failure criterion based on AASHTO LRFD Bridge Design Specifications, 2014.

If the top surface of the sound rock is found to be inclined across the width of the shaft, immediately notify the RE. Prepare rock socket for concrete placement by roughening with drilling tools or by overreaming. Rotate roughening tools against the rock socket area to remove accumulated slurry cake, to scale off loose rock fragments, and to roughen the finished rock socket surface.

I. **Excavation Cleaning and Verification.** Unless otherwise approved by the RE, ensure that at least 50 percent of the base of each shaft has less than 1/2 inch of sediment at the time of concrete placement. Ensure that the maximum depth of sediment or debris on the base of the shaft does not exceed 1-1/2 inches.

In the presence of the RE, determine the cleanliness of the bottom of the shaft by the use of sounding, probe data, miniature drilled shaft inspection device (mini-SID), tape with weight, or other methods approved by the RE. After final cleaning, determine the dimensions, depth, and alignment as directed by the RE. For uncased drilled shafts, determine shaft dimensions, depth and alignment with a sonar caliper. Inspect the bottom of each shaft including demonstration shaft before and after placing the rebar cage in the drilled shaft. If the cleanliness of the excavation does not meet the requirements, remove the rebar cage and clean until the above requirements are satisfied.

J. **Constructing Reinforcement Steel Cages.** Completely assemble and place the reinforcement steel cage, consisting of longitudinal and transverse bars, ties, cage stiffeners, spacers, centralizers, and other necessary appurtenances as a unit shown on the Plans immediately after the excavation is inspected and approved and immediately prior to concrete placement.

Use concrete spacers or other approved noncorrosive spacing devices at sufficient vertical intervals, near the bottom, and at intervals not exceeding 10 feet up the shaft, to ensure concentric location of the cage within the shaft. If the size of the spacers is not shown on the Plans, provide spacers that will create a minimum 3-inch annular space. Ensure that flat or crescent shaped centralizers (“sleds”) are not used in an uncased shaft.

Provide reinforcing cage bottom support to ensure that the bottom of the cage is maintained at the specified distance above the base. Use approved non corrosive devices such as cylindrical concrete feet, mortar or plastic chairs as the bottom supports.
K. Concrete Placement. Place concrete according to the limitations specified in 504.03.02.C. Place the concrete within 24 hours after completing all excavation, cleaning the shaft bottom, inspecting and finding it satisfactory. Place concrete immediately after placing reinforcing steel cage and inspecting and finding it satisfactory. Continuously place the concrete from the bottom of the shaft excavation to the top elevation of the shaft.

L. Time Limitations. Ensure the concrete placement in the shaft is completed within 2 hours.

The RE may allow the concrete placement time to exceed 2 hours if the Contractor demonstrates that the slump of the concrete will be as specified in Table 903.03.06-2 during the entire time of concrete placement.

In cases when Self-Consolidated concrete is used, the RE may allow the concrete placement time to exceed 2 hours if the Contractor demonstrates that the slump flow of the Self Consolidated concrete will be as specified in Section 903.06.01B.

M. Concrete Placement Methods. Place the concrete using tremie pipe method or pump method from the bottom of the excavation. Do not allow the concrete placement by free fall method.

Check the elevation of the top of the steel cage before, during, and after concrete placement. If the final upward displacement of the rebar cage exceeds 6 inches or if the downward displacement exceeds 3 inches, the RE will reject the drilled shaft. Correct the shaft to the satisfaction of the RE. Do not construct additional shafts until the rebar cage support system is corrected.

1. Tremie Method. Ensure that tremie tubes are of sufficient length, weight, and diameter to discharge concrete at the shaft base elevation. Ensure that the inside surface of the tremie is clean and smooth to minimize drag on the concrete flow during concrete placement. Ensure that the outside surface of the tremie is smooth to avoid entanglement with the reinforcement cage. Ensure that the tremie tube’s inside diameter is at least 6 times the maximum size of aggregate used in the concrete mix. Do not use tremie tubes less than 10 inches in diameter. Ensure that the tremie tube thickness is adequate to prevent crimping or sharp bends. Do not use tremie tubes that have aluminum parts that will come in contact with concrete. Ensure that tremie tubes are watertight to prevent inflow of slurry during concrete placement.

Do not begin placing concrete under the drilling fluid (water, slurry or other fluids) until the tremie is placed to the shaft base elevation. In wet excavation and with a closed tremie, the Contractor may seal the bottom of the tremie pipe with a sacrificial cover plate. In closed end tremie, ensure that the discharge end of tremie (valves or bottom cover plate) is within 6 to 12 inches of the bottom of the concrete placement when the concrete discharge begins. For open tremie, the Contractor may use a traveling plug to act as a separator in between the drilling fluid and concrete in order to prevent mixing as the concrete travels down the tremie pipe. Remove plugs from the excavation or construct them using a material that will not cause a defect in the shaft if not removed. Ensure that the plug is not so compressible that it fails to perform its function as a separation within the tremie pipe under the anticipated hydrostatic pressure. Construct the discharge end of the tremie to allow the free radial flow of concrete during placement operations.

Ensure that the tremie tube discharge end is immersed at least 10 feet in concrete at all times after starting the flow of concrete. Use a weighted tape and a marked tremie pipe to monitor whether tremie is at least 10 feet in the concrete all the time. However, excessive embedment of the tremie into the concrete can cause the reinforcing cage to start to lift along with the rising column of concrete. Maintain a continuous flow of the concrete at a positive pressure differential to prevent water or slurry intrusion into the shaft concrete. Maintain the continuous flow of concrete until the work is completed.

If the tremie tube discharge end is removed from the plastic concrete and discharges concrete above the rising concrete level, the RE will consider the drilled shaft defective.

2. Pumped Method. Concrete pumps and lines are used for concrete placement by either the wet or dry construction method. Ensure that the pump lines in the shaft are typically a rigid steel pipe, have a minimum diameter of 4 inches and are constructed with watertight joints. Ensure that the pump line is immersed at least 10 feet in concrete as with after starting the flow of concrete.

When lifting the pump line during concreting, temporarily reduce the line pressure until the discharge end has been repositioned at a higher level in the excavation.
If during the concrete pour the pump line discharge end is removed from the fluid concrete column and discharges concrete above the rising concrete level, consider the shaft defective. In such case, remove the reinforcement cage and concrete, complete necessary sidewall removal directed by the RE, and replace the shaft.

When using a concrete pump to place concrete for the drilled shaft, provide a standby pump that is immediately available if there is a pump failure.

When using SCC to construct drilled shafts, only place SCC using the tremie method.

N. Drilled Shaft top preparation during the completion of concrete placement. Continue placing concrete until the waste concrete is pushed upward and ejected completely out of the top of the casing and wasted; or, place an additional 24 inches of concrete above the planned shaft top level and allow to cure in place for removal later. Remove waste concrete at the top of the shaft to maintain a uniform appearance and to consider the top-most concrete placed in the shaft as waste concrete and either:

1. Push upward and eject completely out of the top of the casing and waste as final concrete is placed. Do not channel or bleed off waste concrete using notches, holes, or cuts in the casing top. The Contractor may remove or pump out fresh concrete in the casing at a level above the Plan shaft top level after ejecting all waste concrete to the Plan top elevation while still plastic by methods and equipment approved by the Department or allow to cure in place for removal later.

2. Pump upward to a level at least 2 feet clear distance above the Plan shaft top level and allow to cure in place to remove later.

Waste concrete is the top 24 inches of the initial concrete placed, plus the height of additional volume of waste concrete deposited in the shaft where concrete placement was halted and restarted, plus all additional amount necessary to produce full strength, non-segregated concrete at the Plan shaft top level.

Commence the final shaft top preparation only once the drilled shaft concrete obtains an average unconfined compression strength of at least 2500 psi, or, in lieu of concrete strength testing, after seven full days from completion of concrete placement. Final top preparation consist of:

1. Cutting off extra permanent casing above the top of casing Plan elevation
2. Cutting off cured over-pour concrete to the Plan shaft top elevation by approved methods
3. Verification by the RE that the exposed concrete consists of full strength concrete with typical, non-segregated mortar and aggregate distribution
4. Approved non-destructive strength testing where required by the RE to verify that the concrete has obtained full design strength

O. Approval. Compare the computed theoretical volume of the excavation with the actual volume of concrete placed, and create a plot of depth versus volume. Provide results to the RE.

After placing the concrete, ensure that the top elevation of the reinforcement steel cage is within −3 inches and +6 inches of the Contract Plan elevation. Ensure that the top elevation of the completed drilled shaft is within −3 inches and +1 inch of the Contract Plan elevation.

The RE may reject drilled shafts because of damage; failure to advance through; mislocation, misalignment, or failure to install the drilled shaft to the proper bearing stratum; or results of CSL testing indicating defects.

If the CSL records indicate any anomalies, the RE may require further evaluation to confirm the location of the defect. The RE may also require shaft coring, testing of core samples or excavation of the shaft to verify shaft conditions. If a defect is confirmed, with further evaluation (Tomography, shaft coring, testing of core samples or excavation), the Department will not pay for costs including shaft coring, testing of core samples, remediation, or grouting.

If no defect is encountered, the Department will pay for all shaft coring, testing of core samples and excavation costs, including grouting all core holes. The coring and grouting of core holes will be paid for at the Contract bid price per linear foot for coring of shafts including grouting core holes.
For each rejected drilled shaft, submit to the RE for approval a plan showing how to correct the problem and prevent its reoccurrence. Repair, augment, or replace the drilled shaft. To mitigate or remedy rejected drill shafts, the Contractor may be required to provide additional drilled shafts or supplement drilled shafts to meet specified requirements at no cost to the Department. If the RE rejects a drilled shaft, the Contractor shall cease the construction of all other drilled shafts until the Contractor demonstrates the ability to construct an approved drilled shaft.

Within 10 days after completing the installation of all drilled shafts, and before removing the drilled shaft installation equipment from the Project Limits, provide the RE with a plan certified by a land surveyor registered in the State of New Jersey showing the as-installed location of drilled shafts. The RE will analyze the total loads on individual drilled shafts based on the survey data. If the load on each drilled shaft exceeds 10 percent of the specified load capacity, correct the drilled shaft as directed by the RE. The corrections may include installation of additional drilled shafts.

Do not place substructure concrete on a drilled shaft until the concrete in the shaft reaches a minimum of 80 percent of the required 28-day compressive strength and until all CSL test results are approved and the CSL tubes have been dewatered and grouted.

503.03.08 Obstructions Removal

The RE will determine if an object is considered an obstruction. Remove surface and subsurface obstructions at drilled shaft locations. The Contractor may need to use special procedures and tools when the obstruction cannot be removed using conventional augers fitted with soil or rock teeth, drilling buckets or underreaming tools. Special procedures and tools may include: chisels, boulder breakers, core barrels, air tools, hand excavation, temporary casing, and increasing the hole diameter. Do not blast without obtaining written approval from the RE.

503.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for Items as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>FURNISHING DRILLED SHAFT EQUIPMENT</td>
<td>LUMP SUM</td>
</tr>
<tr>
<td>DEMONSTRATION DRILLED SHAFT</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>LOAD TEST</td>
<td>UNIT</td>
</tr>
<tr>
<td>CROSSHOLE SONIC LOGGING</td>
<td>UNIT</td>
</tr>
<tr>
<td>TOMOGRAPHY</td>
<td>UNIT</td>
</tr>
<tr>
<td>SHAFT CORING</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>DRILLED SHAFT IN SOIL ___&quot; DIAMETER</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>DRILLED SHAFT IN ROCK ___ &quot; DIAMETER</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>OBSTRUCTION REMOVAL</td>
<td>LINEAR FOOT</td>
</tr>
</tbody>
</table>

The Department will make payment for each load test completed and accepted.

The Department will not include payment for tomography under CROSSHOLE SONIC LOGGING. If the RE directs Tomography, the Department will make payment for the number of 3-D evaluations performed and accepted under TOMOGRAPHY.

The Department will make payment under SHAFT CORING if the drilled core confirms that the shaft is acceptable. The Department will not make payment for SHAFT CORING if the core confirms that there is a defect.

The Department will make payment for 60 percent of the lump sum price bid for furnishing drilled shaft equipment when the equipment necessary for drilling shafts is furnished and drilling of shafts has begun. The Department will make payment for the remaining 40 percent when all shafts have been drilled and all shaft concrete has been placed to the top of the shafts.

The Department will not make payment for sampling and analysis for regulated waste under DEMONSTRATION DRILLED SHAFT, DRILLED SHAFT IN SOIL or DRILLED SHAFT IN ROCK.

The Department will make payment for sampling and analysis for regulated waste, including solids from dewatered slurry, under Soil Sampling and analyses, regulated as specified in 202.04.
The Department will not make payment for off-site transport and disposal and recycling of regulated waste or hazardous waste, including solids from dewatered slurry, under DEMONSTRATION DRILLED SHAFT, DRILLED SHAFT IN SOIL or DRILLED SHAFT IN ROCK. The Department will make payment for off-site transport and disposal and recycling of regulated waste or hazardous waste, including solids from dewatered slurry, under Disposal of Regulated Material or Disposal of Regulated Material, Hazardous as specified in 202.04.

The Department will not include payment for removal of obstructions under DRILLED SHAFT IN SOIL. If an obstruction is encountered, the Department will make payment for removal of the obstruction under OBSTRUCTION REMOVAL.

**SECTION 504 – STRUCTURAL CONCRETE**

504.02.01 Materials
THE FOLLOWING MATERIAL REFERENCE IS CHANGED TO:
Grit for Epoxy Waterproofing ................................................................. 901.07.01

504.03.02 Constructing Concrete
D. Placing and Consolidating Concrete.
THE FIRST SENTENCE OF THE FIFTH PARAGRAPH IS DELETED
G. Removal of Forms and Falsework.
Do not remove forms and false work until the concrete obtains a compressive strength of ____ psi.

**SECTION 505 – PRECAST AND PRESTRESSED STRUCTURAL CONCRETE**

505.03.01 Prestressed Concrete Structures
C. Erection Plan.
THE FIRST SENTENCE IS CHANGED TO:
Submit working drawings for certification regarding the plan of operations to the RE at least 30 days before the pre-erection meeting.

**SECTION 506 – STRUCTURAL STEEL**

506.03.01 Structural Steel
B. Erection Plan.
THE ENTIRE TEXT IS CHANGED TO:
At least 30 days before the pre-erection meeting, submit working drawings for certification regarding the plan of operations to the RE. Include, at a minimum, the following in the plan:

1. Number and type of manpower and equipment.
2. Shipping procedures.
3. Lifting procedures.
4. Beam erecting sequence, including method of setting bearings and diaphragms.
5. Temporary bracing.
6. Manufacturer’s recommendations.
7. Procedures for employee safety.
8. Traffic control and protection.

E. Installing High-Strength Steel Bolts.
THE ENTIRE TEXT IS CHANGED TO:
Check galvanized bolts and nuts to verify that a visible lubricant is on the threads. Check black bolts and nuts to verify that they are oily to the touch.

Before beginning bolt installation, provide on the project site a Skidmore-Wilhelm calibrator or an acceptable equivalent tension measuring device. Ensure that the manufacturer’s representative is present during the first full day of tensioning work to provide technical assistance.

Test assemblies as follows:

1. For bolt assemblies that do not require Direct Tension Indicators (DTI’s), perform the rotational capacity test in accordance with 908.02.02.C, on 2 assemblies from each rotational-capacity lot.

2. For bolt assemblies requiring DTI’s, install in accordance with the following, and perform the rotational-capacity test as specified in NJDOT S-3 on 3 assemblies from each rotational-capacity lot.

   Ensure that the bolt, nut, and washer are from the same rotational-capacity lot. If the DTI is used under the nut, place an additional washer between the nut and the protrusions on the DTI. If recommended by the bolt manufacturer, the Contractor may use wax lubricant, beeswax, or a water wax emulsion to aid in installation. Hold the bolt head stationary while tightening the nut.

   Install bolts in all of the holes of the connection and tighten to a snug-tight condition to compact the joint.

   Ensure that the number of spaces on DTIs in which a 0.005-inch feeler gauge is refused after snugging does not exceed the maximum snug-tight refusals as specified in Table 506.03.01-1. If the number of refusals exceeds the maximum, remove the assembly, insert a new DTI, and resnug.

   Tighten the assemblies successively from the most rigid part of the connection to the free edges by turning the nuts while holding the bolts stationary. Tension the assemblies until the number of spaces in which the 0.005-inch thickness gauge is refused meets or exceeds the minimum final tension refusals specified in Table 506.03.01-1.

   **Table 506.03.01-1 Criteria for DTI Spaces for A 325 Bolts**

<table>
<thead>
<tr>
<th>Bolt Diameter, Inches</th>
<th>1/2</th>
<th>5/8</th>
<th>3/4</th>
<th>7/8</th>
<th>1</th>
<th>1-1/8</th>
<th>1-1/4</th>
<th>1-3/8</th>
<th>1-1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Spaces on DTIs</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Maximum Snug Tight Refusals</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Minimum Final Tension Refusals</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

1. If the DTI is coated and under the nut, the maximum snug tight refusals is the number of spaces on the DTI minus one.
2. If the DTI is coated and under the nut, the minimum final tension refusals is the number of spaces on the DTI.

If an assembly is tightened so that there are no visible gaps remaining in any of the spaces on the DTI, the assembly has been over-tightened. Remove and replace over-tightened assemblies.

If assemblies do not meet the above rotational capacity requirements when tested at the work site, the Contractor may clean and relubricate the bolt assemblies in the rotational-capacity lot. After cleaning and relubricating, retest the assemblies for compliance to the above rotational capacity requirements.

For painted steel, apply 3 coats of an organic paint system, supplied by the same manufacturer as the originally applied inorganic zinc system, to the field bolted connections.

506.03.02  Bearings

C. **Installing Bearings.** Install bearings as follows:

1. **Anchor Bolts.**

   THE SECOND SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

   If using anchor bolt sleeves, ensure that they are circumferentially corrugated and are galvanized steel or plastic.

506.03.03  Shear Connectors

THE FIRST PARAGRAPHS IS CHANGED TO:

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
Ensure that shear connectors conform to Section 7 of the ANSI/AWS D1.5 Bridge Welding Code.

**506.03.06 Repair Galvanizing**

THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

If painting is directed, treat the galvanized surface according to the manufacturer’s recommendations, then apply the epoxy intermediate and urethane finish coats only.

**506.04 MEASUREMENT AND PAYMENT**

THE FOLLOWING ITEM IS DELETED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHEAR CONNECTOR, GALVANIZED</td>
<td>UNIT</td>
</tr>
</tbody>
</table>

SECTION 507 – CONCRETE BRIDGE DECK AND APPROACHES

THIS SECTION IS RENAMED TO:

SECTION 507 – CONCRETE BRIDGE DECK, BRIDGE PARAPET AND APPROACHES

**507.02.01 Materials**

THE FOLLOWING IS DELETED FROM MATERIALS LIST:

4-Bar Open Steel Parapet .......................................................... 906.07

THE FOLLOWING ARE ADDED TO MATERIALS LIST:

Steel Bar Bridge Railing .................................................................. 906.07
Anchor
Bolts .......................................................................................... 908.01.03

**507.03.02 Constructing Bridge Decks**

**A. Forms.** Construct forms as follows:

**2. Removable Forms.**

THIS PART IS CHANGED TO:

Construct removable forms as specified in 504.03.02.B. Do not use shoring to support stringers along the span length where the superstructure, under live load and impact loads, is designed for composite action. Do not weld attachments required for placement of the removable forms to the beam.

**L. Saw Cut Grooved Surfacing.**

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Do not saw cut until after the Department performs Acceptance Testing as specified in Subsection 507.03.02.

**N. Concrete Deck Surface Requirements**

1. **Acceptance Testing.**

THE FIRST PARAGRAPH IS CHANGED TO:

Construct deck slabs so that less than 9 percent of the measured length of the lot exceeds 1/8 inch tolerance in 10 feet. The ME will test the surface of concrete bridge deck slabs with a Class I Walking Profiler prior to the performance of saw cut grooved surfacing. The ME will calculate the percent defective using a rolling straight edge simulator analysis of the profiler data.
507.03.05 Concrete Parapet and Barrier Curb
THE SECOND PARAGRAPH IS CHANGED TO:
Cure using curing compound as specified 504.03.02.F. If drilling is required for subsequent construction, allow the concrete to cure for a minimum of 14 days before drilling.

507.03.06 4-Bar Open Steel Parapet
SUBPART IS RENAMED AND CHANGED TO:

507.03.06 Steel Bar Bridge Railing
Ensure that the deck has cured for at least 14 days before placing concrete for steel bar bridge railing. Place concrete as specified in 504.03.02.D. Install as shown on the Plans. Construct anchor bolt system as specified in 509.03.01-1.

507.03.07 Concrete Bridge Approach
THE FOLLOWING IS ADDED:
Ensure the concrete conforms to the surface requirements as specified in 507.03.02 N, except each lot will be equal to the number of cubic yards of approach concrete placed in the lane.

507.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:
4-BAR OPEN STEEL PARAPET LINEAR FOOT

THE FOLLOWING ITEM IS ADDED:
STEEL __-BAR BRIDGE RAILING LINEAR FOOT

THE SECOND PARAGRAPH IS CHANGED TO:
The Department will include payment for epoxy coated reinforcement steel for the bridge approach under the item CONCRETE BRIDGE APPROACH; for other concrete items, the Department will make payment for reinforcement steel under REINFORCEMENT STEEL, REINFORCEMENT STEEL, EPOXY-COATED, and REINFORCEMENT STEEL, GALVANIZED as specified in 504.04.

THE FOLLOWING IS ADDED:
The Department will make a payment adjustment for concrete surface requirement quality in deck slabs and approach, by the following formula:
Pay Adjustment = Q x BP x PR
Where:
BP = Bid Price
Q= Surface Requirement Lot Quantity
PR = percent reduction as specified in Table 507.03.02-2

SECTION 508 – BRIDGE DRAINAGE

508.02 MATERIALS
THE FOLLOWING IS ADDED TO LIST OF MATERIALS:
Fiberglass Pipe ................................................................. 909.02.09

THE FOLLOWING SUBPART IS ADDED:

508.03.03 Fiberglass Pipe and Fittings
Ensure that pipe supports are located at spacings that do not exceed the pipe manufacturer’s recommendations. Avoid supports that have point contact or narrow supporting areas. Standard sling, clamp, and clevis hangers and shoe supports designed for use with steel pipe may be used. Ensure that the minimum strap width of all pipe hangers meets the pipe
manufacturer’s recommendations. Ensure that straps have a minimum of 120 degrees of contact with the pipe. On pipe supported on surface with less than 120 degrees of contact use a split fiberglass pipe protective sleeve bonded in place with adhesive.

Ensure that all connections of pipes and fittings shown on the plans to facilitate future removal for maintenance cleanout or flushing are made with a threaded, gasketed coupler or a bolted gasketed flange system. Use only female – male threaded plugs for cleanouts.

508.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>___” FIBERGLASS PIPE</td>
<td>LINEAR FOOT</td>
</tr>
</tbody>
</table>

SECTION 509 – BRIDGE RAILING AND FENCE

THIS SECTION IS RENAMED TO:

SECTION 509 – BRIDGE COMBINATION RAILING, MISCELLANEOUS RAILINGS AND FENCE

509.01 DESCRIPTION
THE ENTIRE SUBSECTION IS CHANGED TO:

This Section describes the requirements for constructing metal railing, fence, and guide rail on bridges. Metal railing includes metal railing components for combination traffic railing system, combination non-traffic railing system, non-traffic pedestrian or bicycle railing, ornamental railing and other railing not subject to vehicular impact.

509.03.01 Bridge Railing
THE THIRD PARAGRAPH IS CHANGED TO WITHOUT PARTS 1 & 2:

Ensure that the railing is fabricated to allow for minor adjustments in both horizontal and vertical directions. Install 1 or 2-rail aluminum or steel railing on top of the concrete parapet as shown on the Plans. Install other types of metal railing on concrete sidewalk or deck as shown on the Plans. Do not use expansion type anchor bolts.

THE THIRD PARAGRAPH SUBPART 2 IS CHANGED TO:

2. **Adhesive Type.** Do not drill for installation until the concrete has cured for at least 14 days. Install adhesive anchors according to the manufacturer’s recommendations. When drilling, ensure that spalling does not occur and existing utilities are not damaged. Repair damage to the existing concrete, utilities, and reinforcement steel as a result of drilling. Clean and dry drill holes before and during installation of the adhesive anchors.

509.03.02 Chain-Link Fence for Bridge
THE ENTIRE SUBPART IS CHANGED TO:

At least 30 days before beginning the work, submit working drawings for certification. Indicate material specifications for adhesive, anchors, washers, and nuts on the working drawings.

Base the design embedment of the adhesive anchor bolts on a concrete compressive strength of 4000 pounds per square inch. Ensure that the embedment depth of the adhesive anchors shown on the working drawings is sufficient to obtain the required pullout strength as required for the proof load testing as specified in 908.01.04.

Do not use expansion type anchor bolts. Place anchors using one of the following:

1. **Cast-in-Place Type.** Set anchor bolts before placing concrete using a rigid template for each anchor assembly. When placing concrete, ensure that bolts do not move and spacing is maintained between the rigid
templates. Ensure that the exposed threaded ends of the anchor bolts remain clean and protected from concrete. Clean the anchor bolts before installing the specified hardware.

2. **Adhesive Type.** Do not drill for installation until the concrete has cured for at least 14 days. Install adhesive anchors according to the manufacturer’s recommendations. When drilling, ensure that spalling does not occur and existing utilities are not damaged. Repair damage to the existing concrete, utilities, and reinforcement steel as a result of drilling. Clean and dry drill holes before and during installation of the adhesive anchors.

Erect fencing as shown on the Plans.

**509.04 MEASUREMENT AND PAYMENT**

The entire subsection is changed to:

The Department will measure and make payment for Items as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRIDGE COMBINATION RAILING (___RAIL, ALUMINUM)</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>BRIDGE COMBINATION RAILING (___RAIL, STEEL)</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>CHAIN-LINK FENCE, TYPE I, ZINC-COATED STEEL, BRIDGE, ___” HIGH</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>CHAIN-LINK FENCE, TYPE II, ALUMINUM-COATED STEEL, BRIDGE, ___” HIGH</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>CHAIN-LINK FENCE, TYPE III, ALUMINUM ALLOY, BRIDGE, ___” HIGH</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>CHAIN-LINK FENCE, TYPE IV, PVC-COATED STEEL, BRIDGE, ___” HIGH</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>CHAIN-LINK FENCE, TYPE I, ZINC-COATED STEEL, BRIDGE, ___” HIGH, CURVED TOP</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>CHAIN-LINK FENCE, TYPE II, ALUMINUM-COATED STEEL, BRIDGE, ___” HIGH, CURVED TOP</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>CHAIN-LINK FENCE, TYPE III, ALUMINUM ALLOY, BRIDGE, ___” HIGH, CURVED TOP</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>CHAIN-LINK FENCE, TYPE IV, PVC-COATED STEEL, BRIDGE, ___” HIGH, CURVED TOP</td>
<td>LINEAR FOOT</td>
</tr>
</tbody>
</table>

**SECTION 510 – TIMBER STRUCTURES**

**510.03.02 Sheeting and Wales**

**510.04 METHOD OF MEASUREMENT**

This subsection heading is changed to:

**510.04 MEASUREMENT AND PAYMENT**

**SECTION 511 – BULKHEAD, FENDER, AND DOLPHIN SYSTEMS**

**511.02.01 Materials**

14 th on the list is changed to:

Fiberglass Reinforced Plastic Lumber (FRPL)............................................................................................................. 916.01

**511.03.01 Bulkhead, Fender, and Dolphin Systems**

C. **Coating Steel**

The second paragraph part 1 is changed to:

1. Immediately after blast cleaning, apply 2 coats of coal tar epoxy paint at a maximum coverage rate of 125 square feet per gallon. Ensure that the total dry film thickness of the 2 coats is not less than 16 mils at any point. Apply the coating by brush, roller, or spray. The Contractor may thin the first coat with a maximum of 10 percent of solvent according to the coating manufacturer; however, the Contractor may not thin the second coat. Allow the first coat to thoroughly dry before applying the second coat. Allow the second coat to dry and harden before handling the steel.
SECTION 512 – SIGN SUPPORT STRUCTURES

512.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANTILEVER SIGN SUPPORT, DMS STRUCTURE NO. ____</td>
<td>UNIT.</td>
</tr>
<tr>
<td>BUTTERFLY SIGN SUPPORT, DMS STRUCTURE NO. ____</td>
<td>UNIT.</td>
</tr>
</tbody>
</table>

THE FOLLOWING IS ADDED:

The Department will make payment for drilled shaft foundations for sign supports under DRILLED SHAFT FOR SIGN STRUCTURE FOUNDATION as specified in 51X.04.

SECTION 513 – RETAINING WALLS

513.02.01 Materials
THE FOLLOWING IS ADDED:

For MSE Walls, use either Soil Aggregate, I-15 or Coarse Aggregate, No. 57. For Prefabricated Modular Retaining Walls and T-Wall, use either Soil Aggregate, I-9 or Coarse Aggregate, No. 57.

513.03.01 Proprietary Retaining Walls
F. Backfilling.
THE HEADING AND FIRST PARAGRAPH UNDER SUBPART (1) ARE CHANGED TO:

1. Soil Aggregate.

G. Compacting.
THE HEADING AND FIRST PARAGRAPH UNDER SUBPART (1) ARE CHANGED TO:

1. Soil Aggregate. With the exception of the 5-foot zone directly behind the units, compact soil aggregate with large, smooth drum, vibratory rollers using the density control method as specified in 203.03.02.D.

513.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

The Department will make payment for reinforcement steel under REINFORCEMENT STEEL, and REINFORCEMENT STEEL, EPOXY-COATED as specified in 504.04 for reinforcement steel in cast-in-place retaining walls.

THE FOLLOWING SECTION IS ADDED:

SECTION 51 - DRILLED SHAFT FOUNDATIONS FOR SIGN SUPPORT STRUCTURES

51.01 DESCRIPTION
This work describes the requirements for installing drilled shafts for sign support structures.
51.02 MATERIALS

51.02.01 Materials

Provide materials as specified:

Concrete .................................................................................................................. 903.03
Self Consolidating Concrete .................................................................................. 903.06.01
Grout ....................................................................................................................... 903.08.02
Reinforcement Steel ............................................................................................... 905.01.01
Drilled Shaft Casing ............................................................................................... 906.03
Structural Steel Paint (Organic Zinc) ................................................................. 912.01.01
Water ...................................................................................................................... 919.08

Provide clay-mineral based slurry (processed attapulgite or bentonite) for mineral slurry. Ensure that the mineral slurry has a mineral grain size that will remain in suspension and has sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. Ensure that the percentage and specific gravity of the material used to make the mineral suspension is sufficient to maintain the stability of the excavation and to allow proper concrete placement.

Provide polymer slurry as recommended by the manufacturer.

51.02.02 Equipment.

Provide equipment as specified:

Concrete Batching Plant .......................................................................................... 1010.01
Concrete Trucks ....................................................................................................... 1010.02

Ensure that equipment does not introduce uncontrolled exhaust fumes into the surrounding areas, or other occupied areas adjacent to the work site. Crane and drilling engine exhaust fumes will require their own separate exhaust systems adequately vented to the atmosphere away from any confined work sites.

Ensure that equipment used for final bottom cleaning does not have a centralizing guide at the tip.

Use excavation and drilling equipment having adequate capacity, including power, torque, and down thrust to excavate a hole of both the maximum specified diameter and to a depth of 20 percent beyond the depths shown on the plans when operated at rated capacity.

Provide Crosshole Sonic Logging (CSL) test equipment that includes the following components:

1. A microprocessor-based CSL system for display of individual CSL records, analog-digital conversion and recording of CSL data, analysis of receiver responses, and printing of CSL logs.
2. Ultrasonic source and receiver probes for 1.5- or 2-inch inner diameter pipe, as appropriate.
3. An ultrasonic voltage pulser to excite the source with a synchronized triggering system to start the recording system.
4. A depth measurement device to determine and record depths.
5. Appropriate filter/amplification and cable systems for CSL testing.

51.03 CONSTRUCTION

51.03.01 Working Drawings and Calculations.

Submit six (6) copies of the following items to the RE for approval:

1. A summary of the Contractor's or his specialized drilled shaft Subcontractor's experience on projects of a similar nature and scope. Select and obtain approval from the RE for the use of a specialty subcontractor. Approval will be based on qualifications and previous experience on similar projects.
2. List and size of proposed equipment including cranes, drills, augers, bailing buckets, final cleaning equipment, desanding equipment, slurry pumps, concrete pumps, temporary steel casing, slurry sampling and testing equipment.
3. Details of equipment and procedures for drilled shaft installation, including drawings showing consecutive steps of drilled shaft installation and drawings with measurements showing that the proposed equipment can perform the specified work. Identify in the drawings the areas that are planned to be used for staging the work. Specify the proposed sequence of the drilled shaft installation including details of concrete placement and splicing and centering devices for reinforcement steel.

4. Approval for the concrete mix design that is to be used for the work.

5. Slurry details including proposed methods of mixing, placing and circulating.

6. Details of shaft excavation methods.

7. Details of proposed methods to clean the shaft after initial excavation.


9. Details of shaft reinforcement steel, including methods to ensure centering, required cover, cage integrity during placement, placement procedures and cage support.

10. Details of concrete placement including proposed operational procedures for concrete pump or tremie including initial placement, raising during placement, overfilling of the shaft concrete and provisions to prepare the completed shaft top at its final shaft top elevation.

51.03.02 Shaft Drilling.

Perform the excavations required for the shafts through whatever materials are encountered, to the dimensions and elevations shown in the plans or otherwise required by these specifications. Ensure that the equipment is capable of constructing shafts to a depth equal to the deepest shaft shown in the plans plus 15 feet or three times the shaft diameter, whichever is greater.

Provide, for all drilled shafts, an approved fixed template that is adequate to maintain the shaft position and alignment during all excavation and concreting operations.

Install a suitable temporary casing for the full depth of the drilled shaft. Ensure that all drilled shafts meet construction tolerance criteria and are installed in accordance with the dimensions as shown on the plans, or as directed by the RE.

Ensure that the top center of each drilled shaft does not vary from the plan location by more than 3 inches. At the top of the drilled shaft, ensure that reinforcement steel does not vary in plan distance from the plan shaft by more than 1 inch. Ensure that the drilled shaft does not vary from the vertical by more than one percent of its length, as measured above ground and is not out of the required position at the top by more than 3 inches.

Protect any existing utility that is to remain within the drilled shaft installation work zone in accordance with the requirements of authorities having jurisdiction over same. Repair or replace any construction-induced damage to the satisfaction of the governing authority.

Employ within the contract bid price, a licensed registered Land Surveyor, experienced in the type of work, who will establish lines and grades. Assume responsibility for the correct location of drilled shafts and for keeping a record of drilled shafts that are installed.

Locate the drilled shaft locations and provide a stake out of the locations prior to the start of installation work. Maintain all location stakes along with required elevation designations.

51.03.03 Shaft Concrete.

Ensure that the handling, measuring, proportioning, mixing and placing of concrete conforms to these Specifications. Place concrete only in the presence of the RE.

Place concrete by using concrete pumps or a tremie pipe from the bottom of the excavation upward so as to avoid segregation. Do not inject air, water or slurry into the shaft concrete during placement. Use a disposable foam or rubber plug in the concrete pump line or tremie pipe to separate the fresh concrete from the slurry at the start of concrete placement. Insert the plug so that the first flow of concrete pushes the plug out of the pipe and prevents slurry mixing and contamination as the concrete placement commences. Ensure that the concrete pump line or tremie consists of a tube constructed in sections that have flanged couplings fitted with gaskets. Ensure the means of supporting the concrete pump line or tremie so as to permit free movement of the discharge end over the entire top of the concrete and to permit its being lowered rapidly when necessary to choke off or retard the flow. If used, fill the tremie by a method that prevents washing of the concrete. Submerge the discharge end completely in the concrete at all times after initiation of
the concrete placement flow. Ensure that the concrete line contains sufficient concrete to prevent any water entry. Maintain the concrete level at the top of the drilled shaft until the concrete has set.

If concrete flow is halted and the concrete line’s discharge end is for any reason raised out of the shaft concrete, reinitiate the placement only after fully recharging the concrete line with fresh concrete by

1. Inserting a foam or rubber plug or pig into the concrete line at the concrete hopper end,
2. Placing the discharge end approximately 6 inches above the top of the shaft concrete,
3. Recharging the pump or tremie line and depositing what will be classified as waste concrete on the top of the previously placed concrete,
4. Discharging waste concrete until the line is fully recharged with fresh concrete and the pig is pushed completely through the line,
5. Without halting the flow of fresh concrete plunging the discharge end of the concrete line into the shaft concrete to within 6 inches or less of the shaft bottom or to a level as directed by the RE,
6. Continuing the concrete placement without further interruption, and
7. Placing a final volume of additional concrete in the shaft that is no less than the volume of waste concrete placed to recharge the line in the process of resuming the concrete flow.

Apply this procedure without exception as necessary to avoid injecting any air, any water, any slurry, or any concrete that has flowed through a line filled with air, water, or slurry into the shaft concrete.

Do not initiate boring a new shaft hole that is within five drilled shaft diameters of a previously installed drilled shaft, until the concrete has been in place for a minimum of 2 days.

51.03.04 Shaft Construction Timing.

Make every effort to plan, coordinate and carry out the work to minimize the time between the start of excavation and completion of shaft concrete placement. In general, the time between shaft excavation and completion of concrete placement is expected to be eight (8) continuous hours or less.

For cases where two (2) or more continuous hours elapse between completion of excavation and commencement of concrete placement, remove any reinforcement steel already placed in the shaft, clean the shaft bottom, replace the reinforcement steel in the shaft and immediately commence the placement of the concrete.

51.03.05 Shaft Reinforcement Steel.

Where shafts are extended at the direction of the RE to final authorized tip elevations that are lower than the estimated minimum tip elevations, extend no fewer than one-half of the vertical reinforcement steel (every other bar around the circumference) to the authorized tip elevation by lap splicing or mechanical splicing. Firmly tie lap splices so as to support the full weight of the cage above the lap zone. Add horizontal bands in the bottom extension zone at a vertical spacing that is no more than 6 inches center to center.

51.03.06 Shaft Top Preparation.

If tremie concrete is used, consider the top-most concrete placed in the shaft to be waste concrete and either:

1. Completely eject out of the top of the casing the wasted concrete or,
2. Pump the waste upward to a level that is at least 2 feet clear distance above the plan shaft top level and allow it to cure in place for removal later.

Consider waste concrete to be the top 2 feet of initial concrete that is placed, plus

1. The height of any additional volume of waste concrete deposited in the shaft where concrete placement was halted and restarted, plus
2. Any additional amount necessary to produce full strength non-segregated concrete at the plan shaft top level.

Where the above waste concrete alternative 1 is selected, permit the waste concrete to evenly overflow the full top circumference of the casing. Do not channel or bleed off by notches or holes cut in the casing top. Any fresh concrete in the casing at a level above the plan shaft top level after ejecting all waste concrete may be dipped or pumped out to the plan top elevation while still plastic by methods and equipment approved by the RE, or be allowed to cure in place for removal later.
Final shaft top preparation may commence only after the drilled shaft concrete obtains its verification strength. In lieu of concrete strength testing, the preparation may begin seven (7) full days after completion of concrete placement. Final top preparation steps will consist of:

1. Cutting off any extra casing above the top of casing elevation,
2. Cutting off any cured over pour concrete to the plan shaft top elevation by approved methods,
3. Dressing the final shaft top surface,
4. Verification by the RE that the exposed concrete consists of full strength concrete with a typical, non-segregated mortar and aggregate distribution,
5. Approved non-destructive strength testing by the Contractor where required by the RE to verify that concrete has attained its full design strength,
6. Removal of additional concrete below the plan shaft top level as necessary to reach full-strength, non-segregated concrete, and
7. Preparation of the shaft top key recess.

51.03.7 Shaft Acceptance.

Provide a comparison of the computed volume of the excavation (theoretical) with the volume of concrete actually placed. Plot depth versus volume chart. Provide cooperation and whatever assistance necessary to accurately monitor the volume of concrete that is placed at all times during the pour.

Unaccepted drilled shafts are drilled shafts that are rejected by the RE because of damage, failure to advance through obstructions, mislocation, misalignment or failure to install the drilled shaft to the proper bearing stratum. Submit a written plan of action to the RE for approval showing how to correct any problem and how to prevent a reoccurrence. Repair the drilled shaft or replace it to the satisfaction of the RE. To mitigate and/or to remedy unaccepted drilled shafts, the Contractor may be required to provide additional drilled shafts or supplement drilled shafts to meet specified requirements at no cost to the State.

When acceptably installed drilled shafts exceed specified tolerances, provide an accurate as-built survey. If the load on any drilled shaft exceeds 10 percent of the specified load capacity, make as directed corrections.

51.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
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</thead>
<tbody>
<tr>
<td>DRILLED SHAFT FOR SIGN STRUCTURE FOUNDATION</td>
<td>LINEAR FOOT</td>
</tr>
</tbody>
</table>
DIVISION 550 – STRUCTURE REHABILITATION

SECTION 554 – PAINTING EXISTING BRIDGES

554.04 MEASUREMENT AND PAYMENT

THE SECOND PARAGRAPH IS CHANGED TO:

The Department will base payment for TESTING, IF AND WHERE DIRECTED on the actual cost as evidenced by paid receipts from the testing laboratory.
DIVISION 600 – MISCELLANEOUS CONSTRUCTION

SECTION 601 – PIPE

601.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

The Department will make payment for restoring the pavement structure for trenches in the traveled way and shoulder under various Items of the Contract.

SECTION 606 – SIDEWALKS, DRIVEWAYS, AND ISLANDS

606.03.01 HMA Sidewalks, Driveways, and Islands
THE THIRD AND FOURTH PARAGRAPHS ARE CHANGED TO:

For sidewalks and islands, construct the base course using DGA as specified in 302.03.01. Construct the HMA course, as specified in 401.03.03. Compact using at least 1/2 ton rollers.

For driveways, if directed by the RE, construct a base course using DGA as specified in 302.03.01 to the thickness directed by the RE. Construct the HMA course as specified in 401.03.03. Compact using at least 1/2 ton rollers.

606.03.02 Concrete Sidewalks, Driveways, and Islands

F. Placing Concrete.
THE ENTIRE PART F. IS CHANGED TO:

Obtain RE approval of forms and joint placement before placing concrete. Place concrete according to the limitations specified in 504.03.02.C. To place concrete between November 1 and March 15, submit to RE for approval a plan detailing the method of protecting the concrete from salt for at least 30 days after placing. Do not begin placing concrete until this plan is approved. Place concrete across the formed area to minimize rehandling. Ensure that concrete is not discharged into windrows or piles. Continuously place concrete between transverse joints without the use of intermediate bulkheads. To prevent bowing or misalignment of the transverse joints, place concrete simultaneously on both sides of transverse joints without disturbing the joints. Consolidate the concrete by hand spading or using internal mechanical vibrators. If a slab is not completed from transverse joint to transverse joint, remove the incomplete slab and replace. Terminate each day’s placement at a transverse joint. If concrete becomes segregated during placement, cease operations and correct handling operations. Protect concrete as specified in 504.03.02.I.

H. Protection and Curing.
THE LAST SENTENCE IS CHANGED TO:

Ensure vehicles and other loads are not placed on sidewalks, islands, and driveways until the concrete has attained compressive strength of 3000 pounds per square inch, as determined from 2 concrete cylinders field cured according to AASHTO T 23.

SECTION 607 – CURB

607.03.01 Concrete Barrier Curb

D. Placing Concrete.
THE THIRD SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

To place concrete between November 1 to March 15, submit to RE for approval a plan detailing the method of protecting the concrete from salt for at least 30 days after placing.

607.03.02 Concrete Vertical Curb and Concrete Sloping Curb

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
D. Placing Concrete.
THE ENTIRE TEXT IS CHANGED TO:

Place concrete for vertical curb and sloping curb as specified in 607.03.01.D, except that consolidation may be achieved by hand spading or internal mechanical vibrators.

607.03.04 Concrete Vertical Curb and Concrete Sloping Curb, Dowelled

D. Placing Concrete.
THE ENTIRE TEXT IS CHANGED TO:

Place concrete for vertical and sloping curb as specified in 607.03.02.D.

SECTION 608 – NON-VEGETATIVE SURFACES
THE ENTIRE SECTION IS CHANGED TO:

608.01 DESCRIPTION

This Section describes the requirements for constructing non-vegetative surfaces of HMA; color-coated HMA; porous HMA; broken stone, and polyester matting.

608.02 MATERIALS

608.02.01 Materials

Provide materials as specified:

- Broken Stone, Coarse Aggregate No. 3 ................................................................. 901.03
- HMA (9.5M64) ........................................................................................................ 902.02
- Asphalt-Stabilized Drainage Course ................................................................. 902.06
- Non-Vegetative Surface Coating ........................................................................ 912.02.04
- Herbicide ............................................................................................................. 917.11.03
- Polyester Matting ............................................................................................ 919.15

Provide Non-Vegetative Surface, Porous HMA conforming to the requirements of Asphalt-Stabilized Drainage Course.

608.02.02 Equipment

Provide equipment as specified:

- HMA Compactor .................................................................................................. 1003.05
- Vibratory Drum Compactor ................................................................................ 1003.06
- HMA Plant ......................................................................................................... 1009.01
- HMA Trucks ....................................................................................................... 1009.02

608.03 CONSTRUCTION

608.03.01 Non-Vegetative Surface, HMA

Excavate as specified in 202.03.03. Shape and compact the underlying material to produce a firm, even surface. Obtain RE approval before finishing excavation. If the RE determines that the bottom of the excavation is unstable, undercut, backfill, and compact as directed by the RE.

Construct the non-vegetative surface, HMA before installing guide rail. Obtain RE approval for alternate methods of construction.

Deliver HMA as specified in 401.03.03.D. Construct non-vegetative surfaces 4 inches thick. Place and compact the material to produce a surface free of roller marks and ridges. Spread and grade the HMA as specified in 401.03.03.E. Ensure that the finished surface is smooth, even, and graded to drain away from the guide rail. Compact HMA as
specified in 401.03.03.F. Spread, rake, and lute areas not accessible to pavers and rollers with hand tools and compact with dynamic compactors.

Repair non-vegetative surface damaged by guide rail installation with HMA. Use hand tampers around posts and other obstacles where mechanical compactors are not accessible.

608.03.02 Color-Coated Non-Vegetative Surface, HMA

Construct color-coated non-vegetative surfaces as specified in 608.03.01.

Uniformly apply the final color at the rate of 0.3 to 0.5 gallons per square yard by spraying, brushing, or squeegeeing over the HMA surface course. Ensure that the surface is clean and dry at the time of application. Reapply the coating to any missed spots or areas to obtain a uniform coating.

Avoid spilling the color coating on adjacent surfaces. If the color coating spills, immediately clean it with water before the coating dries. If the coating dries, repair as directed by the RE.

The RE will not allow traffic on the color-coated surface until it is dry.

608.03.03 Non-Vegetative Surface, Broken Stone

Ensure that areas to receive non-vegetative surface, Broken Stone, are free from vegetation. Vegetation removal may require manual removal, herbicide treatment as specified in 608.03.06 or both.

Apply a pre-emergent herbicide to the area before placement of broken stone. Spread broken stone, aggregate size No. 3, in a uniform layer, to prescribed thickness.

608.03.04 Non-Vegetative Surface, Porous HMA

Ensure that areas to receive non-vegetative surface, Porous HMA, are free from vegetation. Vegetation removal may require manual removal, herbicide treatment as specified in 608.03.06 or both. Excavate as specified in 202.03.03. Shape and compact the underlying material to produce a firm, even surface. Obtain RE approval before finishing excavation. If the RE determines that the bottom of the excavation is unstable, undercut, backfill, and compact as directed by the RE.

Construct the non-vegetative surface, porous HMA before installing guide rail. Obtain RE approval for alternate methods of construction.

Construct porous HMA surface course to prescribed thickness according to the requirements of Section 303 except for the application of prime coat. Repair non-vegetative surface damaged by guide rail installation with porous HMA. Use hand tampers around posts and other obstacles where mechanical compactors are not accessible.

608.03.05 Non-Vegetative Surface, Polyester Matting

Install polyester matting according to the manufacturer’s requirements by manufacturer certified workers.

Ten days before installation, submit to the RE a list of manufacturer certified workers and one copy of the “engineering package” including demonstration compact discs and samples of product components; such as foot prints, finished seams, etc. The manufacturer may elect to train the workers and Department inspectors on a test section on the worksite.

Ensure that the surface areas to receive the matting are smooth, firm, stable and free of rocks, clods, foliage, roots or other material which might prevent the matting from lying in direct contact with the ground surface, free of wrinkles or bulges. Existing non-vegetative surface or HMA that is in the same location as proposed polyester matting may be left in place as long as its surface area is properly prepared as previously stated. Mow grass as low as possible prior to installation of matting. Install the matting immediately following installation of guide rail posts and prior to installation of the guide rail hardware by lifting the matting above the posts and allowing it to drop to the ground with the posts passing through prefabricated openings.

Stake the matting along its edges in accordance with the manufacturer’s recommendations.

Seal matting openings with a separate prefabricated piece of matting that will provide a snug fit around the post and completely cover the opening. Ensure that seams are sealed.
Ensure that the matting surface is vegetation-free from installation until final acceptance. Vegetation removal may require herbicide treatment, mechanical removal, or both, as specified in 608.03.06.

608.03.06 Post-Emergent Weed Control of Non-Vegetative Surfaces

Manually remove or spray vegetation growing on the non-vegetative surface with a post-emergent non-selective herbicide treatment for total control of vegetation on the non-vegetative surface area, as directed by the RE. Select post-emergent herbicides for control of targeted vegetation based on the manufacturer’s recommendations and product label. Begin the work associated with vegetation removal as early as the conditions permit. Herbicides must be applied by, or under the direct supervision of, a Certified Commercial Pesticide Applicator, according to the manufacturer’s recommendations. Restore areas where herbicide has been applied and not intended to its prior existing condition at no cost to the State. Do not apply herbicide in the rain or when wet weather is expected within 24 hours. Do not apply herbicide after rain until approved by the RE.

The RE will notify the ME after Acceptance for inclusion of the non-vegetative surface in its herbicide spraying program including the date that the herbicide was last applied on the project section.

608.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for Items as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
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<tbody>
<tr>
<td>NON-VEGETATIVE SURFACE, HOT MIX ASPHALT</td>
<td>SQUARE YARD</td>
</tr>
<tr>
<td>COLOR-COATED NON-VEGETATIVE SURFACE, HOT MIX asphalt</td>
<td>SQUARE YARD</td>
</tr>
<tr>
<td>NON-VEGETATIVE SURFACE, BROKEN STONE, ___THICK</td>
<td>SQUARE YARD</td>
</tr>
<tr>
<td>NON-VEGETATIVE SURFACE, POROUS HOT MIX ASPHALT, ___THICK</td>
<td>SQUARE YARD</td>
</tr>
<tr>
<td>NON-VEGETATIVE SURFACE, POLYESTER MATTING</td>
<td>SQUARE YARD</td>
</tr>
</tbody>
</table>

When the RE directs undercutting of unstable material in the excavation area, the Department will make payment, as specified in 104.03.03, for the additional excavation. The Department will also make payment, as specified in 104.03.03, for the additional bedding if there is not an excess of excavated material available for use as bedding.

SECTION 609 – BEAM GUIDE RAIL

609.03.01 Beam Guide Rail

THE SEVENTH PARAGRAPH IS CHANGED TO:

Install flexible delineators with white retroreflective sheeting on the right side of the direction of traffic. Install flexible delineators with yellow retroreflective sheeting on the left side of the direction of traffic. Mount flexible delineators on the blockout of beam guide rail using either a “U” channel base on the I-beam blockout or a flat base attached to a wood, polymer, or other solid top blockout. Attach the base to the blockout using an adhesive recommended by the manufacturer of the base and panel.

609.03.03 Terminals and Anchorages

THE FOLLOWING IS ADDED:

Excavate cut slope as specified in 202.03.03 within the limits of the buried guide rail terminal. Drive beam guide rail posts for buried guide rail terminal to the required position. Ensure that posts are driven plumb, properly spaced, and to the line and grade shown. Attach the beam guide rail element to the spacer at every post. Attach the beam guide rail element and plate to the terminal posts. Align the top edge of the beam guide rail element in a straight line. Where a vertical transition is required, ensure that the top edge of the beam guide rail element forms the chords of a smooth vertical curve. Backfill with excavated material as specified in 203.03.02C.

609.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEM IS ADDED
SECTION 610 – TRAFFIC STRIPES, TRAFFIC MARKINGS, AND RUMBLE STRIPS

610.02.01 Materials
THE FOLLOWING MATERIALS ARE RENAMED TO:

Traffic Stripes...........................................................................................................912.03.01
Traffic Markings........................................................................................................912.03.02

610.03.01 Long-Life Traffic Stripes
THE SUBPART HEADING AND THE ENTIRE TEXT IS CHANGED TO:

610.03.01 Traffic Stripes

A. Striping Plan. At least 20 days before beginning the work, submit to the RE for approval a striping plan that includes:

1. Schedule of operations for applying traffic stripes.
2. Number and type of equipment.
3. Manufacturer’s recommendations for use of the materials, including, but not limited to, mixing ratios and application temperatures.
4. Details on the means and methods for surface preparation
5. Details on the means and methods for premarking
6. Details on the proposed test strip such as location, length etc

B. Surface Preparation. Immediately before striping the pavement surface, clean the surface of dirt, oil, grease, and foreign material, including curing compound on new concrete. Clean the surface 2 inches beyond the perimeter of the stripes to be placed.

C. Striping Test Strip. Before beginning striping operations, construct 1 or more striping test strips to demonstrate the Contractor’s ability to meet the requirements specified in 610.03.01.D. For each striping test strip, apply striping to approximately 500 linear feet of pavement with the same striping procedure that will be used for the Project. Construct a test strip for each applicator unit and epoxy resin material used. Provide the RE with 50 test cards made of heavy stock paper measuring 8 inches by 2 inches, and two wet film thickness gauges. Construct additional test strips when major equipment repairs or adjustments are made or when the traffic stripes are determined to be defective. Construct additional test strips when traffic striping operations are performed on multiple, non-continuous occasions. Perform additional test strips as requested by the RE. When the test strip is in compliance, as determined by the RE, proceed with striping operations. Each test strip may remain in place and become part of the finished stripes subject to the requirements of 610.03.01.E.

D. Applying Striping. Mix epoxy resin with an automatic proportioning and mixing machine, and hot-spray the compound at a temperature of between 100 and 130 °F onto dry surfaces. Apply the compound with a wet film thickness of 20 ± 1 mil. Apply the material during dry weather conditions when the ambient temperature is a minimum of 45 °F and the surface temperature is a minimum of 50 °F. Adjust operations as required for the prevailing ambient and surface conditions to achieve a no-track drying time of 30 minutes or less.

Immediately after, or in conjunction with, the compound application, uniformly apply 12 pounds of large glass beads per gallon of epoxy resin to the compound. After applying the large glass beads, uniformly apply 12 pounds of small glass beads per gallon of epoxy resin to the compound.

Remove all compound that has been tracked or spilled outside of the intended placement areas.

E. Performance. Ensure that the traffic stripes, show no fading, lifting, cracking, chipping for any reason including but not limited to traffic wear, maintenance activities including snow plowing, until Acceptance. Ensure that 60 days after application, traffic stripes have a minimum retroreflectance value of:

375 millicandelas per square meter per lux for white traffic stripe
250 millicandelas per square meter per lux for yellow traffic stripe

F. **Defective work.**

THE FIRST SENTENCE IN THE FOURTH PARAGRAPH IS CHANGED TO:

Replace traffic stripes that are determined by the RE before Acceptance to be defective or that are damaged during construction. Remove defective stripes as specified in 610.03.08.

Replace an entire 10-foot skip line if the RE determines the stripe to have a deficiency.

If the RE determines, based upon calculated and measured yields, that the striping has a wet film thickness of less than 19 mils, restripe the entire length with 20 mils of new compound.

Provide the RE with a Reflectometer that meets a 30 meter geometry as specified in ASTM E 1710, capable of measuring wet and dry conditions as specified in ASTM E 2176 and ASTM E 2177, and that has been certified by the manufacturer as being calibrated within the last two years. The RE will test the retroreflectance of traffic stripes. Replace traffic stripes that do not meet the retroreflectance values indicated in 610.03.01.E. Replace the entire length of striping where improper curing or discoloration has occurred. Discoloration is localized areas or patches of brown or grayish colored compound. Where improper curing or discoloration occurs intermittently in intervals of 100 feet or less throughout the striping length, replace the entire length of striping from the beginning of the first occurrence until the end of the last occurrence, plus 5 feet on each end.

Replace the entire length of striping that has failed to bond to the pavement, or has chipped or cracked. Where more than 25 spots of chipping, cracking, or poor bonding have occurred within 1000 linear feet of striping, replace the entire 1000 foot length of striping as indicated in 610.03.01.E.

G. **Opening to Traffic.** Complete each application of all types of traffic stripes and allow to thoroughly dry before opening to traffic. At a minimum, delineate center lines on undivided roadways and broken lines between lanes before the traveled way is opened. The RE will determine when the traveled way can be opened to traffic.

**610.03.02 Thermoplastic Traffic Markings**

THE SUBPART HEADING AND THE ENTIRE TEXT IS CHANGED TO:

**610.03.02 Traffic Markings**

**Lines, Traffic Markings Symbols and Traffic Markings Route Symbols**

A. **Marking Plan.** At least 20 days before beginning the work, submit to the RE for approval a marking plan that includes:

1. Schedule of operations for applying traffic markings,
2. Number and type of equipment,
3. Manufacturer’s recommendations for use of the materials, including mixing ratios and application temperatures.
4. Details on the means and methods for surface preparation
5. Details on the means and methods for premarking

B. **Surface Preparation.** Immediately before marking the pavement surface, clean the surface of dirt, oil, grease, and foreign material, including curing compound on new concrete. Clean the surface 2 inches beyond the perimeter of the marking to be placed.

C. **Applying Traffic Markings.** Place preformed thermoplastic or hot extruded thermoplastic traffic markings on thoroughly dry surfaces and during dry weather conditions. Apply using equipment and procedures that produce markings of the specified color, width, and thickness with well-defined edges, uniform retroreflectivity, and proper bonding to the pavement. Apply the thermoplastic material as follows:

1. **Preformed Thermoplastic.** Melt the preformed thermoplastic tape to bond the traffic markings permanently in position according to the manufacturer’s recommendations.

   Meet the minimum initial retroreflectance value, as specified in 610.03.01.D for thermoplastic tape, by applying additional glass beads to the hot-wet material in a uniform pattern as necessary.

2. **Extruded Thermoplastic.** Uniformly heat the thermoplastic material. When the ambient and surface temperatures are at least 50 °F, apply the melted material at a temperature of between 400 and 425 °F.
Extrude the thermoplastic traffic markings on the HMA or concrete pavement ensuring a thickness of 90 ± 1 mils.

Immediately after, or in conjunction with the thermoplastic extrusion, uniformly apply glass beads to the wet material at a minimum rate of 10 pounds per 100 square feet of markings. Apply glass beads by mechanical means only.

**D. Performance.** Ensure that the traffic markings show no fading, lifting, cracking, chipping for any reason including but not limited to traffic wear, maintenance activities including snow plowing, until Acceptance. Ensure that 60 days after application, traffic markings have a minimum retroreflectance value of:

- 375 millicandelas per square meter per lux for white traffic markings
- 250 millicandelas per square meter per lux for yellow traffic markings

**E. Defective work.**

THE FIRST SENTENCE IN THE FOURTH PARAGRAPH IS CHANGED TO:

Replace thermoplastic traffic markings that are determined by the RE before Acceptance to be defective or that are damaged during construction. Remove defective markings as specified in 610.03.08.

Replace the entire area of thermoplastic traffic markings determined to be less than the required thickness, to have incorrect color or width, to have failed to bond to the pavement, or to have chipped or cracked. The minimum replacement area is an individual word or symbol, or for longitudinal lines the entire length from where the deficiency first occurs to where it no longer exists.

The RE will determine initial retroreflectance as follows:

Provide the RE with a Reflectometer that meets a 30 meter geometry as specified in ASTM E 1710, capable of measuring wet and dry conditions as specified in ASTM E 2176 and ASTM E 2177, and that has been certified by the manufacturer as being calibrated within the last two years. The RE will test the retroreflectance of traffic markings. Replace traffic markings that do not meet the retroreflectance values indicated in 610.03.02.D.

**F. Opening to Traffic.** Complete each application of thermoplastic traffic markings and allow to thoroughly dry before opening to traffic. The RE will determine when the traveled way can be opened to traffic.

**610.03.04 Removal of RPMs**

THE ENTIRE TEXT IS CHANGED TO:

Remove RPMs as directed by the RE. Dispose of RPMs as specified in 201.03.09. If directed by the RE, fill the hole with HMA patch as specified in 159.03.07 except sawcutting is not required.

**610.03.06 Ground Mounted Flexible Delineators**

THE FIRST PARAGRAPH IS CHANGED TO:

Use white retroreflective sheeting for delineators located on the right side when facing in the direction of traffic. Use yellow retroreflective sheeting for delineators located on the left side when facing in the direction of traffic.

**610.03.07 Rumble Strip**

THE ENTIRE SUBPART IS CHANGED TO:

At least 20 days before constructing rumble strips, submit a plan for cutting rumble strips and debris collection/removal to the RE for approval.

Construct rumble strips on newly constructed pavement after it has cooled sufficiently to allow the cutting to be done cleanly without causing damage to the adjacent pavement.

Clean the area where rumble strips are to be constructed. Construct rumble strips by cutting indentations into the pavement perpendicular to the traveled way without disturbing the surrounding pavement. Collect cuttings and reuse or dispose of as specified in 202.03.07.
Ensure that the centerline rumble strips are constructed before placing TRAFFIC STRIPES. After cutting centerline rumble strips and collecting the debris, apply Fog Seal over the centerline rumble strip as specified in 422.03.02.

Do not construct rumble strips 200 feet linear feet before and after the approximate midpoint of Weigh-in-Motion (WIM) systems in the roadway as listed in the Special Provisions.

<table>
<thead>
<tr>
<th>Route</th>
<th>Weigh-in-Motion (WIM) Systems Midpoint Station</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

610.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE DELETED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM, BI-DIRECTIONAL, WHITE LENS</td>
<td>UNIT</td>
</tr>
<tr>
<td>TRAFFIC STRIPES, LONG-LIFE, EPOXY RESIN ___&quot;</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>TRAFFIC MARKINGS, THERMOPLASTIC</td>
<td>SQUARE FOOT</td>
</tr>
</tbody>
</table>

THE FOLLOWING ITEMS ARE ADDED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAFFIC STRIPES, ___&quot;</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>TRAFFIC MARKINGS LINES, ___&quot;</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>TRAFFIC MARKINGS SYMBOLS</td>
<td>SQUARE FOOT</td>
</tr>
<tr>
<td>TRAFFIC MARKINGS ROUTE SYMBOLS</td>
<td>SQUARE FOOT</td>
</tr>
</tbody>
</table>

THE SECOND PARAGRAPH IS CHANGED TO:
The Department will measure TRAFFIC STRIPES and TRAFFIC MARKINGS LINES by the linear foot for each specified width of stripe. The Department will not measure gaps in striping.

THE FOLLOWING IS ADDED AT THE END OF THE SUBSECTION:
The Department will measure rumble strip by the linear foot measured in the longitudinal direction of the rumble strip without deducting the interval spacing between rumble strips and the gaps for RPM placement and make payment under the Item RUMBLE STRIP.

The Department will not include payment for traffic stripes in RUMBLE STRIP. The Department will make payment for traffic stripes placed in conjunction with constructing a centerline rumble strip under TRAFFIC STRIPES as specified in 610.04.

The Department will not include payment for fog seal in RUMBLE STRIP. The Department will measure and make payment for FOG SEAL STRIP as specified in 422.04.

The Department will not measure the gaps such as WIM locations in the Rumble Strip.

SECTION 611 – CRASH CUSHIONS

611.01 DESCRIPTION
THE FIRST SENTENCE IS CHANGE TO:
This section describes the requirements for providing and constructing inertial barrier systems and compressive crash cushions.

611.02 MATERIALS
THE SECOND PARAGRAPH IS CHANGED TO:

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
Ensure that the sand has a dry density of 90 to 100 pounds per cubic foot and a 3 percent maximum allowable moisture content. The RE may require the Contractor to test the moisture content of the sand according to AASHTO T 255 and to submit certified test results.

THE THIRD PARAGRAPH IS CHANGED TO:

Provide an inertial barrier system listed on the QPL. Provide a compressive crash cushion as shown on the Plans.

The list of the manufacturers / suppliers is as follows:

QuadGuard ................................................................. Energy Absorption Systems, Inc.
QuadGuard Elite ............................................................ Energy Absorption Systems, Inc.
QuadGuard Cz ............................................................... Energy Absorption Systems, Inc.
REACT 350 ................................................................. Energy Absorption Systems, Inc.
REACT 350 WZ ............................................................. Energy Absorption Systems, Inc.
SCI ........................................................................ SCI Products Inc.
TAU II ....................................................................... Barrier Systems Inc.
TRACC .................................................................... Trinity Highway Products

**611.03.02 Crash Cushion**

THE TITLE OF THE SUBSECTION IS CHANGED TO:

**611.03.02 Compressive Crash Cushion**

THE SECOND SENTENCE IS CHANGED TO:

Install compressive crash cushions including foundations, backup supports and transitions according to the manufacturer’s recommendations and as shown on the Plans.

**611.04 MEASUREMENT AND PAYMENT**

THE FOLLOWING ITEM IS DELETED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRASH CUSHION, ___</td>
<td>UNIT</td>
</tr>
</tbody>
</table>

THE FOLLOWING ITEMS ARE ADDED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRASH CUSHION, COMPRESSION BARRIER, TYPE__, WIDTH__</td>
<td>UNIT</td>
</tr>
<tr>
<td>CRASH CUSHION, LOW MAINTENANCE COMPRESSION BARRIER, TYPE__, WIDTH__</td>
<td>UNIT</td>
</tr>
</tbody>
</table>

**SECTION 612 – SIGNS**

**612.02 MATERIALS**

THE FOLLOWING IS DELETED FROM THE MATERIALS LIST.

Non-Breakaway Sign Supports ........................................................................................................... 911.02.03

THE SECOND PARAGRAPH IS DELETED.

**612.03.02 Type GA Breakaway and Non-Breakaway Support Guide Signs**

THE SUBPART HEADING IS CHANGED TO:

**612.03.02 Type GA Breakaway Support Guide Signs**

**612.03.02 Type GA Breakaway Support Guide Signs**

C. Constructing Pedestals

THE SUBPART IS CHANGED TO:

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
Place reinforcement steel as specified in 504.03.01 before placing the concrete. Ensure that concrete placement complies with the limitations as specified in 504.03.02.C. Place concrete as specified in 504.03.02.D. Cure concrete as specified in 504.03.02.F.

D. Erecting Posts

THE SUBPART IS CHANGED TO:

Erect posts as specified in 512.03.01.G.

THE FOLLOWING IS ADDED:

F. Constructing Anchor, Hinge, Bracket and Coupling Assemblies.. At least 10 days before beginning the work, submit the manufacturer’s installation guide and installer’s certification to the RE.

Ensure that the installer is certified by the manufacturer.

Ensure that the manufacturer’s representative is present during the foundation pour and the installation of the first sign. Install anchor, hinge, bracket and coupling assemblies according to the manufacturer’s recommendations. The RE may require the system manufacturer’s representative to be present at all times during the installation to provide on-site technical support.

612.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEM IS DELETED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUIDE SIGN, TYPE GA, NON-BREAKAWAY SUPPORTS</td>
<td>SQUARE FOOT</td>
</tr>
</tbody>
</table>

THE FOLLOWING SECTION IS ADDED:

SECTION 61 – NOISE BARRIERS

THE FOLLOWING SECTION IS ADDED:

SECTION 61 – ARCHITECTURAL TREATMENTS

THE FOLLOWING SECTION IS ADDED:

SECTION 61 – RUBBLE WALLS
DIVISION 650 – UTILITIES

SECTION 651 – WATER

651.02 MATERIALS

651.03.02 Water Pipe, Bridge

651.04 MEASUREMENT AND PAYMENT
THE LAST PARAGRAPH IS DELETED.

SECTION 652 – SANITARY SEWERS

652.02 MATERIALS

652.03.01 Sewer Pipe
F. Thrust Blocks.

THE THIRD SENTENCE IS CHANGED TO:
Ensure that thrust blocks do not come in contact with other utilities or structures without the approval of the RE.

G. Sewer Pipe Testing.
1. Gravity Main Sewer Testing.

652.03.02 Sanitary Sewer Pipe, Bridge

652.04 MEASUREMENT AND PAYMENT
THE LAST PARAGRAPH IS DELETED.

SECTION 653 – GAS

653.03.01 Gas Main
A. Prequalification.
   List of pre-qualified subcontractors is as follows:

C. Handling and Storing.

J. Air-Pressure Test.
653.04 MEASUREMENT AND PAYMENT
THE LAST PARAGRAPH IS DELETED.

THE FOLLOWING SECTION IS ADDED:

SECTION 65– JCP&L FACILITY

65.01 DESCRIPTION
This Section describes the requirements for installing, relocating and removing Jersey Central Power and Light (JCP&L) electric utility facilities including conduits, manholes, transformer vaults, handholes, and appurtenances and also includes the requirements for transferring electric services.

65.02 MATERIALS
Except for the materials noted below, JCP&L will supply all materials necessary for the work at no cost to the Contractor. Provide JCP&L written notice 30 days in advance of when materials will be required. Ensure the electric subcontractor takes delivery of the materials from JCP&L’s storage facility within two weeks of the notice from JCP&L indicating that the material is available. Materials may be located at more than one JCP&L storage facility. If the electric subcontractor fails to take delivery, the material may not be available, and the electric subcontractor may be required to provide an additional request for materials. The Contractor is responsible for compensating the Department for any additional handling costs incurred by JCP&L resulting from the failure to take delivery within the time required.

The electric subcontractor is responsible for loading the material, delivering it to the job site, and all subsequent handling and delivery within the jobsite. Store and protect all materials received from JCP&L. Return and deliver all excess materials furnished by JCP&L to JCP&L’s storage facility. Obtain a receipt for all material received from JCP&L, maintain a documented inventory of materials used and obtain a receipt for all material returned to JCP&L.

Provide materials as specified:
- Tack Coat 64-22: PG 64-22.......................................................... 902.01.01
- Concrete ...................................................................... 903.03
- Curing Materials.............................................................. 903.10
- Controlled Low Strength Material (CLSM)................................. 903.09
- Hot Mix Asphalt (HMA)...................................................... 902.02
- Sealer, Hot-Poured ......................................................... 914.02
- Polymerized Joint Adhesive.................................................. 914.03

65.03 CONSTRUCTION

65.03.01 Electric
A. Prequalification.
THE ENTIRE TEXT IS CHANGED TO:

Only a prequalified electric subcontractor, approved by JCP&L, may construct and relocate JCP&L electric facilities. The following is a list of electric subcontractors that have been previously approved by JCP&L. This list is provided as information only, and is not an endorsement by the Department of any subcontractor. The Contractor is responsible for soliciting from a subcontractor that will be approved by JCP&L when preparing its Bid. Work restricted to the electric subcontractor does not preclude the Contractor from performing the work of layout, traffic control, sawcutting, pavement removal, temporary or final pavement restoration, and landscape restoration associated with the work of installing or relocating JCP&L electrical facilities.

APPROVED ELECTRICAL SUBCONTRACTOR
DX (Distribution) & TX (Transmission) OVERHEAD

Hawkeye, LLC
100 Marcus Blvd
Hauppauge, NY 11788
Tel: 631-447-3100
Fax: 631-776-1847
Att: Rick Reed – Mgr-Operations
email: rreed@hawkeye LLC.com

Tri-M Corp
PO Box 69
204 Gale Lane
Kennett Square, PA 19348
Tel: 610-444-1001 ext 200
Fax: 484-731-0209
Attn: Katie Bleiler
email: kbleiler@energtest.com

Henkels & McCoy, Inc
985 Jolly Road
Blue Bell, PA 19422
Tel: 215-283-7707
Fax: 215-283-7573
Att: Alan L. Lippy - Director, Power Operations East
email: alippy@henkels.com

Richardson & Wayland
PO Box 12648
Roanoke, VA 24027
Tel: 540-344-3244
Attn: Andy Euclide
email: aeuclide@rwec.com

JBL Electric Inc.
3001 South Clinton Avenue
South Plainfield, NJ 07080
Tel: 800-525-4628
Att: Jerry Reid
email: jreid@jblelectric.com
Cell 973-900-2871

SREC Resources
PO Box 7250
Sussex, NJ 07461
Attn: Chris Reese
Tel: 973-875-5101 x123
FAX: 973-875-2394
email: creese@sussexrec.com

M.J. Electric, Inc.
1047 Shoemaker Avenue

J Wm Foley
340 Chestnut Avenue
West Berlin, NJ 08091
Attn: Bob Dougherty
Tel: 856-768-8800
FAX: 856-768-8884
email: rdougherty@jwmfoley.com

MYR (Harlan & The L.E. Myers Company)
1416 Trindle Road 3-A
Carlisle, PA 17013-9718
Tel: 717-243-4600
Fax: 717-243-3633
Att: Jon Arganbright
email: jarganbright@myrgroup.com

J Wm Foley
340 Chestnut Avenue
West Berlin, NJ 08091
Attn: Bob Dougherty
Tel: 856-768-8800
FAX: 856-768-8884
email: rdougherty@jwmfoley.com

M.J. Electric, Inc.
1047 Shoemaker Avenue

Riggs Distler & Co., Inc
4 Esterbrook Lane, Cherry Hill, NJ 08003

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
PO Box 310  
Shoeemaker, PA 19555-310  
Tel: 610-562-7570 x 4802  
Fax: 610-562-1375  
Att: Mike Troutman  
email: mtroutman@mjelectric.com  

POC: Scott Zemaitatis  
Office: 856-433-6007  
Fax: 856-433-6035  
Cell: 609-254-3858  
email: scottzemaitatis@riggsdistler.com  

Demeter Electric  
896 Bushkill Center Rd  
Nazareth, PA 18064  

Asplundh  
161 Second Street  
Wilkes Barre, PA 18702  
Tel: 570-947-1101  
Fax: 570-822-0770  
Att: Vincent Stanbro  
email: v.stanbro@asplundh.com  

POC: Rich Demeter  
Office: 610-759-4513  
Fax: 610-759-5799  
Cell: 484-634-0265  
email: demeterelectric@verizon.net,  

**DX & TX -UG (Underground) (CIVIL & ELECTRICAL)**

Henkels & McCoy, Inc.  
985 Jolly Road  
Blue Bell, PA 19422  
Tel: 215-283-7707  
Fax: 215-283-7573  
Att: Alan L. Lippy - Director, Power Operations East  
email: alippy@henkels.com  

JBL Electric Inc.  
250 Lackawanna Ave  
West Paterson, NJ 07424  
Tel: 973-774-4218  
Att: Jim Leary – President  
email: jleary@jblelectric.com  
Cell 908-310-7726  

SREC Resources  
PO Box 7250  
Sussex, NJ 07461  
Att: Chris Reese
Tel: 973-875-5101 x123
FAX: 973-875-2394
email: creese@sussexrec.com

J Wm Foley
340 Chestnut Avenue
West Berlin, NJ 08091
Attn: Bob Dougherty
Tel: 856-768-8800
FAX: 856-768-8884
email: rdougherty@jwmfoley.com

DX & TX-UG (CIVIL ONLY – NON ELECTRICAL)

Union Paving & Construction
1140 Globe Ave
Mountainside, NJ 07092
Tel: 908-232-0738
Fax: 908-232-4100
Attn: Scott Woodfield - CFO
email: swoodfield@unionpaving.com

J. Fletcher Creamer & Son, Inc
1701 E. Linden Avenue
Linden, NJ 07036
Tel: 908-925-3200
Fax: 908-925-3350
Attn: Ted Paliwoda
email: tpaliwoda@jfcson.com

W&B
75 South Gold Drive
Hamilton, NJ 08691
Tel: 609-584-1100
Attn: C. Waters – Principal
email: cwaters@watersandbugbee.com
George Harms Construction Co, Inc
PO Box 817
Farmingdale, NJ 07727
Tel: 732-938-4004
Fax: 732-938-2782
Attn: James Duffe – Vice President Project Management
e-mail: jduffe@ghcci.com

J Wm Foley
340 Chestnut Avenue
West Berlin, NJ 08091
Attn: Bob Dougherty
Tel: 856-768-8800
FAX: 856-768-8884
e-mail: rdougherty@jwmfoley.com

HC Constructors
PO Box 855
Whitehorse Station, NJ 08889
Tel: 908-534-3833
FAX: 908-534-3851
Attn: Harry Chowansky - VP
e-mail:hchowansky@hcconstructors.com

DIRECTIONAL BORING

J. Fletcher Creamer & Son, Inc.
1701 E. Linden Avenue
Linden, NJ 07036
Tel: 908-925-3200
Fax: 908-925-3350
Attn: Ted Paliwoda
e-mail: tpaliwoda@jfcson.com

W&B
75 South Gold Drive
Hamilton, NJ 08691
Tel: 609-584-1100  
Attn: C. Waters – Principal  
email: cwaters@watersandbugbee.com

EM Utility Contractors LLC  
2425 South Front Street  
Allentown PA 18103  
Attn: Michael Marino  
Office: 4842275774  
Fax: 7326266685  
Cell: 6105739352  
email: mmarino@emutilitycontractors.com

Delaware Valley Utility Contractors, Inc.  
Michael Zeller  
General Manager  
225 Warren Street  
Reading, PA 19601  
Office: 610-372-7390 EXT. 232  
Fax: 610-822-0665  
Cell: 484-332-7982  
email: mzeller@esreading.com

Kline Construction Company  
240 Waveland Avenue, Galloway NJ 08025  
Poc: Pete Deirocini  
Office # 856-728-7773  
Fax# 867-728-4868  
Cell# 609-703-8335  
Email: pete@klineconstruction.net

**GENERAL CONTRACTORS**

Henkels & McCoy, Inc.  
985 Jolly Road  
Blue Bell, PA 19422  
Tel: 215-283-7707
B. **Indemnification.** The Contractor agrees to indemnify and hold harmless JCP&L, its officers, employees and agents from liability and claims related to the work described under Section 654. This requirement does not establish JCP&L as a third party beneficiary; the provisions specified in Section 107.10 are unaltered.

C. **Scheduling of Work and Interruption to Utilities.** Provide the RE and the designated JCP&L representative with a detailed schedule of when the electric utility work will be performed. Indicate in the schedule for each activity the following information: the work locations; the number of crews; and whether the work will be performed during a day shift or night shift, or on weekends. Coordinate all electric utility work with the JCP&L representative, and notify the RE and the JCP&L representative at least two weeks prior to starting electric utility work. Do not interrupt existing electric service until approved by the JCP&L representative.

Weather conditions may prevent connections to existing systems between June 1 and September 30. Do not perform work which will require electric transmission service interruptions from June 1 through September 30 without the approval of JCP&L. JCP&L may extend this period based on weather conditions and system demand. Notify JCP&L at least one month in advance of commencing conductor work.
If service transfers are required, coordinate service transfers with the JCP&L representative. Notify the property owner and all tenants affected by service interruptions or transfers prior to making the service transfer. Minimize disruption to normal operations of existing facilities and minimize any interruption of electric service to JCP&L customers. Protect existing facilities during construction and installation of the service transfer.

D. Quality Control and Quality Assurance. Provide access to the work for the JCP&L representative at all times. Perform all electric utility work in a manner acceptable to the JCP&L representative. Perform all electric utility work in accordance with JCP&L standards and details.


F. Abandonment and Removal. Prior to beginning work, review the condition of all existing electric utility facilities noted to be removed with the JCP&L representative. If the JCP&L representative designates the material to be salvaged, remove the material and deliver it to a JCP&L storage facility. Remove and dispose of all other electrical utility material designated for removal.

G. Excavation. When excavation is required in areas having existing pavement and sidewalk, sawcut to the full depth of the existing pavement and sidewalk. Excavate trenches for conduit, manholes and vaults and appurtenances. Provide vertical sides for excavations within the traveled way, shoulder, sidewalk areas, and where existing facilities require protection. Remove unstable material at the bottom of the excavation and backfill with granular material. Do not excavate trenches more than 300 feet in advance of installing conduit unless approved by the RE. Provide and maintain trench crossings where necessary to maintain access. Do not leave trenches open overnight unless protected by temporary fencing or steel plates. Remove and dispose of excess or unsuitable material as specified in 202.03.07.

H. Backfill. Backfill with suitable material in lifts not exceeding 6 inches thick, loose measurement. If the backfill is predominantly granular material, compact the backfill material with a vibratory plate compactor. For material that is not predominately granular, compact the backfill material with a vibratory rammer compactor. If it is not possible to compact the backfill material, the Contractor may backfill with CLSM with the approval of the JCP&L representative. If using CLSM, install as specified in 601.03.01.F.

I. Restoration. Restore areas disturbed in the performance of electrical utility relocations to its original condition. In areas that are disturbed for which the plans provide final grading, pavement or landscaping, provide temporary restoration to the satisfaction of the RE. If open-cut trenching across a road is required, restore the pavement with in-kind construction.

J. Field Testing. Perform a high-potential test (also known as a dielectric voltage withstand test) on all cables and splices prior to energizing. Testing must be performed by a person who is qualified to operate the test equipment, and is familiar with the cable system. Ensure that the cables are disconnected from non-cable systems equipment, and that adequate physical clearances are maintained between all cable ends, energized cables, and electrical grounds and all other equipment during the test. Prior to performing the test, verify that all taps or laterals in the circuit are cleared. In the event hot poured compound filled splices and terminations are involved, do not perform testing until they have cooled to ambient temperature. Set the relays in the high voltage direct current test equipment to operate between 5 and 25 milliamperes leakage. The shape of the leakage curve under constant voltage is more important than the absolute leakage current of a “go or no go” withstand test result. The field test voltage is related to the final factory applied dc potentials using a factor of 80 percent. Ensure the high potential test is performed in the presence of the JCP&L representative. Apply a direct current field test voltage according to the following table:

<table>
<thead>
<tr>
<th>Field Test Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Voltage</td>
</tr>
<tr>
<td>Phase to Phase</td>
</tr>
<tr>
<td>Phase</td>
</tr>
<tr>
<td>5000</td>
</tr>
<tr>
<td>8000</td>
</tr>
</tbody>
</table>

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
After the voltage has been applied and the test level reached, record the leakage current at one-minute intervals. If the leakage current decreases or stays steady after it has leveled off, the cable is considered satisfactory. If the leakage current starts to increase, excluding momentary spurts due to supply-circuit disturbances, extend the test to see if the rising trend continues. At the conclusion of the test, discharge the circuit through the test set and voltmeter circuit. After the potential drops below 95% of the test value, ground the cable and discharge the circuit. Leave the grounds on all conductors for a minimum of four times as long as the test voltage was applied.

Remove and replace cables that fail to meet the requirements of the direct current field test. The Contractor is responsible for reimbursing the Department for any additional material costs incurred by the Department resulting from the failure to meet the requirements of the direct current field test.

K. **Energizing Lines.** Energize lines with the guidance of the JCP&L representative. Prior to energizing lines, submit a request to JCP&L. Switching orders may only originate from JCP&L employees. Submit a request for permission to energize transmission lines 10 days in advance of when the work will be performed. Request permission to energize distribution lines in a manner that will permit the JCP&L representative to submit a request to JCP&L’s Dispatch Office by noon the previous business day.

L. **As-builts.** Upon completion of the work, submit to JCP&L as-built drawings in accordance with JCP&L standards. Prints of construction drawings, marked to show the final location, are acceptable. Provide a copy of the as-built drawings to the RE.

### 65.04 MEASUREMENT AND PAYMENT

The Department will measure and make payment for Items as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRICAL UTILITY RELOCATION, JCP&amp;L</td>
<td>LUMP SUM</td>
</tr>
</tbody>
</table>

Note: If the leakage current quickly stabilizes, the duration may be reduced to 10 minutes.
DIVISION 700 – ELECTRICAL

SECTION 701 – GENERAL ITEMS

701.03.01 Existing Systems
THE FIFTH PARAGRAPH IS CHANGED TO:

If removal of existing above ground electrical material is required, deliver salvaged materials to the nearest Department electrical maintenance yard and unload the salvaged materials as directed. Dispose of salvaged materials rejected by the Department from the Project Limits as specified in 201.03.09.

Deliver and unload salvaged ITS materials to:

Mobility Management North (MMN)- ITS Maintenance
670 River Drive
Elmwood Park, NJ 07407-1347
Telephone: 732-697-7360

Mobility Management South (MMS) – ITS Maintenance
One Executive Suite Route 70 West
Cherry Hill, NJ 08002-4106
Telephone: 856-486-6615

THE FOLLOWING IS ADDED:

If new cable or wire is designated to be installed into existing conduit systems, clean and swab the conduit system prior to installing the cable or wire. After cleaning, test each conduit by pulling through a metal ball with a diameter at least 85 percent of the nominal inside diameter of the conduit to ensure the conduit is free of any obstruction or foreign material. If the ball fails to pass through the conduit, repair or replace the defective conduit as directed by the RE. Restore disturbed areas to original condition.

701.03.02 Rigid Metallic Conduit (Earth)
B. Installation.
THE FOLLOWING IS ADDED:

In rigid metallic conduit used exclusively for fiber optic cable, install a tracer wire continuously for the entire run of conduit, including through the junction boxes, mounting it on the wall. Splice the tracer wire only in the junction box. Seal the ends of rigid metallic conduit carrying the tracer wire. If wire or cable is not scheduled to be installed within 6 months of conduit installation, cap and seal the other conduits leaving the true tape inside. Install warning tape in the trench above the conduit.

701.03.03 Rigid Metallic Conduit (Roadway)
THE FOLLOWING IS ADDED:

In rigid metallic conduit used exclusively for fiber optic cable, install a tracer wire continuously for the entire run of conduit, including through the junction boxes, mounting it on the wall. Splice the tracer wire only in the junction box. Seal the ends of rigid metallic conduit carrying the tracer wire. If wire or cable is not scheduled to be installed within 6 months of conduit installation, cap and seal the other conduits leaving the true tape inside. Install warning tape in the trench above the conduit.

701.03.05 Rigid Nonmetallic Conduit
B. Installation.
THE LAST PARAGRAPH IS CHANGED TO:

Install true tape marked in 1-foot increments for the length of the rigid non-metallic conduit. Install a tracer wire continuously for the entire run of conduit, including through the junction boxes, mounting it on the wall. Splice the tracer wire only in the junction box. Seal the ends of rigid nonmetallic conduit carrying the tracer wire. If wire or
cable is not scheduled to be installed within 6 months of conduit installation, cap and seal the other conduits leaving the true tape inside. Install warning tape in the trench above the conduit.

701.03.06 Flexible Metallic Conduit
THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

Install liquidtight flexible metallic conduit according to NEC requirements. Cut liquidtight flexible metallic conduit according to manufacturer’s recommendations. Ensure that conduit used for fiber optic cables meets the minimum bend and radius requirements as specified in the Contract and according to the fiber optic cable manufacturer. Utilize NEMA-4X weather-tight hubs for conduit connections to ITS and electrical enclosures.

701.03.07 Flexible Nonmetallic Conduit
B. Installation.
THE SECOND PARAGRAPH IS DELETED.

THE THIRD PARAGRAPH IS CHANGED TO:

Construct flexible nonmetallic conduit runs so that there are no joints or splices in the conduit between adjacent junction boxes. Ensure flexible nonmetallic conduit runs are terminated in the junction boxes according to manufacturer’s recommendations.

THE LAST PARAGRAPH IS CHANGED TO:

Install true tape marked in 1-foot increments for the length of the flexible non-metallic conduit. Install a tracer wire continuously for the entire run of conduit, including through the junction boxes, mounting it on the wall. Splice the tracer wire only in the junction box. Seal the ends of flexible nonmetallic conduit carrying the tracer wire. If wire or cable is not scheduled to be installed within 6 months of conduit installation, cap and seal the other conduits leaving the true tape inside. Install warning tape in the trench above the conduit.

701.03.15 Cable and Wire
A. Installing.
THE FOLLOWING IS ADDED

Test the existing tracer wire in the conduit for continuity. If there is no existing tracer wire in any of the conduits in the same trench, then install a continuous tracer wire between the adjacent junction boxes without any splice when installing the cable and wire as directed by the RE.

C. Connection and Coordination with Utility Services.
THE FOLLOWING IS ADDED:

Obtain and provide for utility services required for testing and operation of ITS systems until interim acceptance of each system or device. Utility Services may be governed by differing Authorities Having Jurisdiction (AHJ). Along with Utility Requirements, comply with all AHJ requirements. Upon successful completion of level C testing and acceptance of any device, provide the RE with a letter requesting transfer of utility services providing the latest copy of the utility bill from each utility company. Such transfers are to be effective beginning the next monthly billing cycle after completion of successful ITS system testing as specified in Section 704 and interim acceptance of the device or as directed by the RE.

Once new utility services have been energized or activated and the utility company has de-energized and unhooked the old service connection; remove existing pole risers and service heads, cut back one foot below grade, and plug the conduits.

<table>
<thead>
<tr>
<th>Service Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Device Site No.</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
701.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

The Department will not include payment for restoring disturbed areas in the various Items of this Section. The Department will pay for restoring disturbed areas (pavement, curb, sidewalk, driveway or island) as specified in 104.03.03.

The Department will not include payment when the RE directs the installation of a new conduit or a repair to the defective conduit in the various Items of this Section. The Department will pay for the installation, when directed by the RE, of a new conduit or a repair to the defective conduit as specified in 104.03.03.

The Department will not include payment when the RE directs the installation of a tracer wire in existing conduit in the various Items of this Section. The Department will pay for the installation, when directed by the RE, of a tracer wire in existing conduit as specified in 104.03.03.

SECTION 702 – TRAFFIC SIGNALS

702.03 CONSTRUCTION
THE FOLLOWING IS ADDED:

After placing a new, temporary or interim traffic signal system into operation, inspect the traffic signal system every 2 months. Fill out a Contractor Maintenance Traffic Signal Inspection Report (Form EL-16C) when the traffic signal system becomes operational, when the traffic signal system is modified, and at every 2-month inspection.

Maintain as-built drawings of each signal modification. Place copies of the as-built drawings for each traffic signal system modification, Forms EL-16C, and Forms EL-11C in a plastic pocket mounted inside the cabinet door of each controller cabinet. Also provide a copy of all forms and as-built drawings to the RE.

If a new, temporary or interim traffic signal system fails or becomes damaged, repair and restore the traffic signal system to normal operation. Begin repair of the traffic signal system within 2 hours of receiving notice of damage or malfunction from the Department, State police, or local authorities. Ensure that workers assigned to such repair work continuously until the traffic signal resumes normal signal operation.

For each response to a system failure or damage, fill out a Contractor Maintenance Emergency Call Record (Form EL-11C) and place it in a plastic pocket mounted inside the cabinet door of each controller cabinet.

If the Contractor fails to respond to a failure or damage notification and begin work within 2 hours of notification, or does not continue to work until the traffic signal system resumes normal operation, the Department, in the interest of safety, will respond with its own forces to restore normal operation. If the Department mobilizes its forces to effect repairs, the Contractor agrees to pay the Department a sum of $3000 for costs of mobilizing its forces and equipment. In addition, the Contractor must pay the Department the actual cost of material used for the repair and pay the actual costs of police traffic protection.

702.03.11 Temporary and Interim Traffic Signal Systems
THE FIRST THROUGH FIFTH PARAGRAPHS ARE DELETED:

SECTION 703 – HIGHWAY LIGHTING

703.03 CONSTRUCTION
THE FOLLOWING IS ADDED:

Maintain up-to-date as-built drawings of the highway lighting system and temporary highway lighting system. Place copies of the as-built drawings in a plastic pocket mounted inside the meter cabinet, and provide a copy to the RE.

If the highway lighting system or temporary highway lighting system fails or becomes damaged, repair and restore the system to normal operation. Begin repair of the signal system within 2 hours of receiving notice of damage or
malfuction from the Department, State police, or local authorities. Ensure workers assigned to such repair work continuously until the lighting system is restored to normal operation.

For each response to a system failure or damage, fill out a Contractor Maintenance Emergency Call Record (Form EL-11C) and place it in a plastic pocket mounted inside the cabinet door of each controller cabinet.

If the Contractor fails to respond to a failure or damage notification and begin work within 2 hours of notification, or does not continue to work until the lighting system is restored to normal operation, the Department, in the interest of safety, will respond with its own forces to restore normal operation. If the Department mobilizes its forces to effect repairs, the Contractor agrees to pay the Department a sum of $3000 for costs of mobilizing its forces and equipment. In addition, the Contractor must pay the Department the actual cost of material used for the repair and pay the actual costs of police traffic protection.

703.03.07 Temporary Highway Lighting System

The Contractor must design the Temporary lighting system at ____________________________

Deliver and unload salvaged materials to:  
THE SIXTH PARAGRAPH IS DELETED:  
THE EIGHTH THROUGH TENTH PARAGRAPHS ARE DELETED:

SECTION 704 – INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

THE ENTIRE SECTION TEXT IS CHANGED TO:

704.01 DESCRIPTION

This Section describes the requirements for providing, installing, configuring, calibrating, testing and placing into operation Advanced Traveler Information Systems (ATIS) and Advanced Traffic Management Systems (ATMS).

704.02 MATERIALS

704.02.01 Materials

Provide materials as specified in:

<table>
<thead>
<tr>
<th>Material</th>
<th>Section Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse Aggregate (No. 57)</td>
<td>901.03</td>
</tr>
<tr>
<td>Concrete</td>
<td>903.03</td>
</tr>
<tr>
<td>Grout</td>
<td>903.08.02.A</td>
</tr>
<tr>
<td>Precast Concrete</td>
<td>904.01</td>
</tr>
<tr>
<td>Reinforcement Steel</td>
<td>905.01</td>
</tr>
<tr>
<td>Anchor Bolts</td>
<td>908.01.03</td>
</tr>
<tr>
<td>Miscellaneous Hardware</td>
<td>908</td>
</tr>
<tr>
<td>Coal Tar Epoxy Paint</td>
<td>912.01.03</td>
</tr>
<tr>
<td>Guide Rail, Fence, and Railing</td>
<td>913</td>
</tr>
<tr>
<td>Landscaping Materials</td>
<td>917</td>
</tr>
<tr>
<td>Conduit and Fittings</td>
<td>918.01</td>
</tr>
<tr>
<td>Cable and Wire</td>
<td>918.02</td>
</tr>
<tr>
<td>Loop Detector Lead</td>
<td>918.02.01</td>
</tr>
<tr>
<td>Loop Wire</td>
<td>918.02.02</td>
</tr>
<tr>
<td>Bonding and Grounding Materials</td>
<td>918.03</td>
</tr>
<tr>
<td>Resin Splicing Kits</td>
<td>918.05</td>
</tr>
<tr>
<td>Electrical Tape</td>
<td>918.06</td>
</tr>
<tr>
<td>Cable Racks</td>
<td>918.07</td>
</tr>
<tr>
<td>Cabinets</td>
<td>918.09</td>
</tr>
<tr>
<td>Panel Boards and Circuit Breakers</td>
<td>918.10</td>
</tr>
<tr>
<td>Standards</td>
<td>918.12</td>
</tr>
</tbody>
</table>

Follow the accepted standards of ANSI, NEMA, UL, NEC, ITE, and ASTM for materials not specified in the Contract.

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAP-1126(300)
For fittings and mounting hardware not specified, follow the manufacturer’s recommendations.

Provide materials as specified in the Contract and in the New Jersey Electrical Materials Specifications that are available on the Department’s website. A listing of pre-qualified materials is also available on the QPL.

Submit the system working drawings in a complete package for approval. The complete package of the system working drawings includes but is not limited to the ITS System Block Diagrams, Fiber Assignment Diagrams, and Rack/Cabinet Equipment Layout Diagrams; Certified Structural Details & Calculations. All components must be approved in the system working drawings before use on the Contract. List the ITS and EE approval numbers of each component in the equipment list on the system block diagram when a pre-approved product from the QPL is proposed to be used. For all components that are proposed without a pre-approved number, submit eight copies of catalog cut sheets along with the working drawings. Submit all structural components that are not listed on QPL separately for structural review and approval with the required certification and include a copy of all approvals when submitting the system working drawings to meet the complete package requirement. For materials furnished and installed, provide a minimum 2-year warranty from the date of Completion against any imperfections in workmanship, components and materials. Submit a warranty certificate to the RE from each material manufacturer, with the Department named as holder of the certificate.

704.02.02 Equipment

Provide equipment as specified in:
- Traffic Control Equipment .......................................................... 1001
- Vibrator ............................................................................. 1005.04
- Pavement Saw ................................................................. 1008.04
- Hot-Air Lance .................................................................. 1008.06
- Concrete Batching Plant ....................................................... 1010.01
- Concrete Trucks ................................................................. 1010.02

704.03 CONSTRUCTION

704.03.01 General System (GS)

A. Components. A GS consists of the specified Items needed to modify an existing system or construct a proposed system. The system includes, but is not limited to, electronic and electrical devices, cabinets, wiring, programming, configuration, communication and electric service connections, service charges, utility software, grounding, and surge protection.

B. Installation. Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown will begin at 10 P.M. daily and continue through to 4 A.M. on weekdays, 5 A.M. on Saturdays, and 6 A.M. on Sunday mornings unless otherwise noted in the Special Provisions. The Department will recover the cost of damages for exceeding the allowable time frames as specified in 107.16. When installing a new system or modifying an existing system, ensure the respective manufacturer’s certified field representative of ITS components and related equipment is on site to commission the equipment into operation. Restore the operation of the overall system to its original condition, the conditions specified in the Contract, or as directed by the RE.

When leased services are specified to be used, provide advance notice to Internet Service Providers to verify current status of service requests for all required ISP services. Perform necessary coordination required to re-establish and revise any service requests that may have expired due to time constraints, or due to a change in the system requirements.

1. Junction Box ITS.
   a. Installation. Excavate as specified in 202.03.02. Install junction boxes only in areas where the slope is not less than 22H:1V. Place junction boxes on 10 inches of coarse aggregate No. 57. With each junction box, provide six (6) coiling brackets, inserts and fasteners, and a ground rod and clamp. Backfill and compact using the directed method as specified in 203.03.02.C. Restore disturbed areas to the original conditions, the conditions specified in the Contract, or as directed by the RE.
b. **Relocation.** Submit plans showing the proposed method of relocation of junction box including provisions for maintaining network operation and/or cut-over during the process to the RE for approval. Remove existing ITS junction box by excavating around the junction box, cutting back conduits, pulling the cable slack equally to adjacent junction boxes and notching the portion of junction box below the conduits sufficient to slide the fiber optic cable. After removal of the junction box, re-couple the conduit(s), and terminate them using approved conduit repair kits and backfill with approved material and compact using the directed method as specified in [203.03.02.C](#). Install the Junction Box after approval by the RE. Ensure that the cut conduit ends are terminated at the entrance of the junction box wall using a manufacturer recommended kit depending upon the type of conduits. Ensure that the fiber optic cable is pulled back from the adjacent junction boxes in equal length to maintain the required slack for immediate and future splicing. Ensure that a ground rod and clamp are installed.

2. **Communication Cable.** Install communication cable from the utility pole or manhole to the controller. Provide and install the material necessary to provide a complete installation, including a weather-tight terminal block enclosure on the utility pole as required by the Utility, cable ties, cable tags, labels, clamps, jumpers, and connectors. Ensure that there are no splices in the section of cable between the terminal block and the devices.

Provide the standard allowable slack for cable and wire, as specified in [701.03.15.A](#), within the in-ground rectangular junction boxes. Provide 3 feet of slack with an appropriate connector in the cabinet for connection to devices and utility service. Provide 10 feet of slack to allow for the Utility to make their connections in the manholes or on utility poles.

3. **Foundation ITS.** Construct the foundation as specified in [701.03.12](#).

4. **Controller ITS.** At least 30 days before beginning the work, submit working drawings for approval that include a block wiring diagram illustrating the interconnections of the system components from the field location to the designated control center. Identify each component by manufacturer and model number. Securely bolt the controller, equipped with communications and electronic devices for a fully functional and operational system, to the foundation in a vertical position using stainless steel hardware.

5. **Communication Hub.** At least 30 days before beginning the work, submit working drawings for approval that include a block wiring diagram illustrating the interconnections of the system components from the field location to the designated communication hub or control center or both. Identify each component by manufacturer and model number. Procure technicians that are certified by the existing operating system providers to integrate the ITS devices into existing operating systems. Coordinate with NJ Office of Information Technology (NJOIT) through the RE to establish Firewall/Network/IP addresses as required. Ensure that a fully functional and operational system is provided.

6. **Control Center System.** At least 30 days before beginning the work, submit working drawings for approval that include a block wiring diagram illustrating the interconnections of the system components from the field location to the designated communication hub or control center or both. Identify each component by manufacturer and model number. Procure technicians that are certified by the existing operating system providers to integrate the ITS devices into existing operating systems. Coordinate with NJOIT through the RE to establish Firewall/Network/IP addresses as required. Ensure that a fully functional and operational system is provided. Ensure the ITS System Network working drawing is submitted in a format acceptable to the Department. Sample ITS Working Drawings are available at:

   [http://www.state.nj.us/transportation/eng/elec/ITS/pdf/sampledrawings.pdf](http://www.state.nj.us/transportation/eng/elec/ITS/pdf/sampledrawings.pdf)

   Ensure the working drawing contains the following information:

   1. Affected network nodes are shown in nodal format with Latitude/Longitude.
   2. Each node shows equipment type and the proposed communication links between them.
   3. Distances between Ethernet switches and calculated dB loss between them.
4. A Communication Network Assignment Table specifying Equipment Location (Node, Site ID, Lat/Long, Plan sheet reference, Route, Mile Post), Equipment Information (Item No., Description, Function, VLAN No., Subnet Mask, and IP Address). Supply and install equipment, software, software revisions, firmware, miscellaneous wiring and cabling, at the specified Control Centers to ensure the remote operation and control of all ITS field devices from the Traffic Operation Centers. Comply with building installation requirements, restrictions, access, and security requirements in the performance of work. The material and work required for the integration of the various ITS installations into the various existing operating systems or subsystems used by the Department includes, but is not limited to, the following:

a. At least 5 (five) business days in advance of requiring access to the designated Control Center, submit a Facility Daily Access Request Form available on Department’s ITS website.

b. Ensure complete functionality with field devices. Coordinate with the Department for access, rack space, and LAN connections to Client Workstations, respectively.

c. Ensure CCTV encoders are compatible with approved camera system especially for PTZ and focus control and CCTV Controller Software.

d. Ensure CCTV Controller Software is updated by integrating new cameras installed and ensure video and control is available to all necessary Traffic Operations personnel.

e. Ensure DMS signs are integrated and remotely operable by the DMS Controller Software.

f. Ensure TTS Devices are integrated and operational in accordance with Contract requirements. Develop the required travel time routes and the appropriate travel time sign messages as directed by the Department.

g. Ensure CTSS components are fully integrated and all the necessary functionality is demonstrated in the designated CTSS Controller Software.

h. Secure and provide all necessary Network configurations and assignments as directed by the Department.

i. Provide and install other electronic equipment that may become necessary as a result of network protocol translation, electrical signal transmission degradation or communications media translation (fiber optic, coax, DSL interface, network interface, etc.)

j. Provide for software support to integrate new ITS devices into new and existing platforms for workstations and servers utilized by DOT operators. This includes work required from each of the software suppliers for workstations located remotely from the Traffic Operation Centers. The Department will provide information regarding the respective system, on particulars for authorized remote users.

k. Provide for the installation of network assignments for field devices as well as enabling the network and device management protocols as directed by the Department.

l. Ensure that network support requests through the RE to the Department are made at least 60 days prior to the installation of all devices to be included in the network.

m. For RWIS, integrate weather station(s) into the appropriate password protected website as directed by the Department.

n. For WIMS, integrate the system for live data retrieval by the designated staff with password protected website as directed by the Department.

7. **Meter Cabinet ITS.** Install cabinets, meters, control and distribution systems, including the grounding of all materials, and internal wire and wiring. Install the metering systems as required by the Utility.

8. **ITS Conduits.** Install Flexible Nonmetallic Conduits as specified in 701.03.07 with the following exceptions:

a. Do not install mechanical joints on conduit runs between junction boxes.

b. Obtain RE approval for fusion joints that may be permitted under special circumstances on conduit runs between junction boxes.

c. Provide an as-built list indicating the location of all joints to the RE.

d. Install a continuous tracer wire without any splice in the conduits and from junction box to a termination point in the field cabinet.
e. Ensure that conduits and ducts entering a junction box, foundation, cabinet, hub, or building are terminated based on manufacturer’s recommendation and are rodent proofed and sealed around cables, or plugged if conduit is built for future use.

f. Ensure that the ITS Conduits facilitate the various means of cable and wire installations including but not limited to pulling, jetting, and blowing of fiber optic cable and electrical wires.

g. Install conduits simultaneously with proposed curb work and prior to constructing resurfacing courses.

h. Install true tape marked in 1-foot increments for the length of the ITS Conduit.

i. Install warning tape in the trench above the conduit.

j. Restore disturbed areas to the original conditions, the conditions specified in the Contract, or as directed by the RE.

9. **Fiber Cross-Connect Cabinet.** Submit working drawings for approval that include a block wiring diagram illustrating the interconnection of the system components within the cabinet. Identify each component by manufacturer and model number. Install a Fiber Cross Connect Cabinet on Foundation ITS Type A with concrete pads on front and back of the cabinet. Ensure all fiber optic cables entering this cabinet are terminated into individual patch panels. Provide and install jumpers between multiple patch panels as required to complete the fiber network continuity.

10. **ITS Integration.** Procure the services of a Systems Integrator to ensure ITS systems and individual components are integrated as shown on the plans and in the specifications. Submit proof of the integrator’s qualifications demonstrating 3 years of experience on similar ITS construction projects and on similar magnitude to the RE for review and approval. Provide certifications and credentials demonstrating the integrator is certified as a Professional and authorized by Cisco® to provide the services required for the network devices. Ensure that all ITS network drawings are prepared and certified by the Systems Integrator.

**C. Testing.** Perform wiring and cable testing, as specified in 701.03.15.D, before performing other testing. Complete the device and system testing as indicated on the Department provided forms and instructions. Provide trained personnel to test the system and subsystems. This includes providing manufacturer certified representatives to ensure complete functionality of said systems and subsystems. The period of testing under this section and in the various testing forms available from the Department's website are in terms of working days. The test will be extended if there are state holidays during the designated testing period. When a device fails during any phase of the testing period, the testing period will be rescheduled to progress again starting from day one of that phase after the problem is addressed for the testing time period specified.

1. **Device Testing.** Before beginning system testing, complete individual device testing as follows:

   a. **Level A.** Demonstrate that the individual devices at each work site are fully operational.

   b. **Level B.** Demonstrate that each device is fully operational from the designated control center to the work site with the original equipment manufacturer software. The Department will operate and monitor the device for a minimum of 7 working days to observe its functionality.

   c. **Level C.** Demonstrate that each device is fully operational from the designated control center to the device work site after integration into the designated control center software management systems. Conduct a test to verify that the device and communications meet the specified requirements of the Contract. After the Contractor’s verification test, the Department will conduct a 14-day observational and functional test period. Provide support as needed during this testing, including adjustments to or replacements of the equipment and materials installed, modified, or otherwise disturbed until the full 14-day observation period is completed without failure as determined by the Department.

   Upon successful completion of level C testing of a device, the Department will accept the device on an interim basis and will pick up the cost of associated utility services for that device from the next billing cycle as specified in 701.03.15.

2. **Project Testing.** After completion of device testing, verify the operation of the individual devices from all locations interconnected and functioning as a complete and integrated system by exercising control with the central control software of Level C. In the presence of the RE, ensure that the manufacturer’s authorized technician is present to assist with installation, configuration, and testing of system hardware and software.
After the Contractor’s verification test, the Department will conduct a 14-day observational and functional test period of all systems on the Project. Provide support including adjustments to or replacements of equipment and materials until the 14-day observation and functional test period is completed.

In the event of a failure as determined by the RE, the RE will suspend the observation and functional test period until corrective action is completed. After the corrective action is completed, the RE will resume the observation and functional test period.

D. **Maintenance.** Perform maintenance as follows:

1. **Regular Maintenance.** Perform regular maintenance and repairs as specified in 108.09 after interim acceptance of a device or project testing or both until acceptance of the project and as follows:
   1. Troubleshoot malfunctioning equipment within 48 hours of failure notification by the RE.
   2. If the Contractor cannot complete the repairs in the time specified by the RE, the Department may repair the equipment and recover the cost as specified in 107.16. The Department will assess liquidated damages at a minimum of $1000 per hour for each hour after the specified time until the completion of the repair.
   3. Record the work performed and submit the record to the RE. Include an explanation of the exact repairs made and identification of parts replaced by part number and circuit number.

   If the Contractor fails to respond to a failure or damage notification and begin work within 2 hours of notification, the Department may respond with its own forces to restore normal operation. If the Contractor begins the work but does not finish the work within a reasonable time period as determined by the RE, the Department will also respond with its own forces to restore normal operation. If the Department mobilizes its forces to perform repairs, the Contractor agrees to pay the Department’s cost of performing the work including the cost of material and labor used for the repair and the actual costs for police traffic protection and maintenance and protection of traffic.

2. **Operational Maintenance.** If an Item has completed system device testing before Substantial Completion, perform operational maintenance in 6 month intervals as follows:
   1. Exercise the equipment functionality, including uploads, downloads, fans, lights, and sensors.
   2. Replace filters, clean lenses, and check communications.
   3. Run diagnostics.
   4. Record all work and submit it to the RE.

E. **Final Documentation.** Submit 2 sets of the complete schematics and maintenance manuals of the equipment for each type of device provided. Include a complete sub-component parts list with each maintenance manual. Place one complete set of manuals of each device in the respective controller cabinet installed in the field, and provide a set to the RE. Also, send an electronic set to the RE. Provide documentation listed under this section at or prior to Substantial Completion of the project.

   Submit as-built documentation showing the function and detail of each individual fiber and termination connection installed. Submit as-built drawings for each subsystem, including wiring and set up configurations, and software versions.

   Provide drawings and diagrams in the Department’s CADD format in accordance with the file structure and standards of the Department. Provide reports in MS Word format.

   At a minimum, also include the following documentation:
   1. Controller equipment layout and wiring.
   2. System wiring diagram that illustrates the connections and cross-connections between equipment components from the field device through to the designated control center equipment and rack profiles. Include work site and designated control center set up configurations and firmware versions installed.
   3. Licensed copies of the software needed for complete operation and testing of the system. Include software necessary to read the electronic files of the test results and documentation and needed to program and configure devices for any software not covered by an existing Department license. Ensure software is compatible with the Department’s current operating software.
   4. Controller communication protocol and System Development Kit.
5. As-Built (GPS) Inventory Report on forms provided by the Department and in the required format.
6. The original signature certification from an independent laboratory that the devices have been tested and comply with the NTCIP protocol requirements of this Contract.
7. 2 CD-R copies of the final documentation and 2 paper copies. Compile and organize the test results in 3-ring binders.
8. Troubleshooting guidelines that identify symptoms, rank their possible causes in order of highest probability, and recommend remedial actions and the required testing equipment.
9. Installation, operation, configuration, programming, maintenance, data, and schematic manuals.
10. Certification of successful deployment of ITS components from the respective equipment manufacturers with complete details of any repair work performed under warranty.
11. Commissioning reports.
12. Warranty certificates.

F. Equipment Training. Provide, for use by the Department, equipment necessary for proper instruction, demonstration, and testing of the system materials. Submit software used for testing to the Department for use in equipment maintenance. The software will become the property of the Department.

Provide training for installation, control, testing, and maintenance of the systems for ten (10) Department personnel. Schedule the training with the designated control center personnel to avoid interruption of daily Department operations. If necessary, conduct the training over several sessions or in multiple groups.

G. Warranty. In addition to the provisions set forth in 108.21, procure a service agreement for parts and labor to cover the period between the commissioning of the device by the manufacturer and Completion. Document the repairs made, by the manufacturer or its designated representative, to the device prior to Completion. Include an explanation of the exact repairs made and identification of parts replaced by part number and circuit number. Provide the necessary equipment for safe access to the installed device along with traffic control promptly upon request by the manufacturer to perform the repairs under the service agreement during this period. Provide the Department with a complete record of the repairs made to each device as part of the Final Documentation. Ensure that a minimum two-year warranty certificate by the manufacturer is provided and transferred to the Department with documentation as set forth in 704.02.01 for any repairs to be performed by the manufacturer after the date of Completion. Ensure that the start and end dates of the warranty are clearly stated on the certificate. Ensure the warranty includes shipping costs, a statement for the repair or replacement of all failed components or both to be performed by a factory authorized depot repair facility located in the United States, and that the components are returned to the Department within two weeks of the date of receipt at the repair depot. Ensure that unlimited technical support from the manufacturer or authorized dealer is provided within 4 hours of the time a call is made by the Department.

H. Networking Requirements. Provide ITS network devices as directed by both the Department and the State Office of Information Technology (OIT) to ensure the efficient operation, security and diagnostic capability of the ITS network being installed or modified. Provide trained personnel with the proper credentials (specifically with a Cisco Certified Network Professional certification) to properly interface and configure the ITS network to the State’s network and to also interface with OIT and the Department’s IT staff. Ensure the Cisco Certified Network Professional (CCNP) has at least three 3 years of experience on similar ITS networks with similar in size, complexity, and scope of this contract. Provide credentials of the CCNP to the Department for approval. Obtain a Virtual Private Network (VPN) into the Department’s network to set up and monitor the network under construction by CCNP. This includes, but is not limited to the following:

1. Providing necessary Layer 3 configurations
2. Obtaining and installing network assignments
3. Security provisions
4. Multiple Virtual Local Area Network’s (VLAN’s) for IP switches, routers and ITS devices as directed
5. Enabling Rapid Spanning Tree protocols
6. Internet Group Management Protocol (IGMP)
7. Setting up VPNs, White lists, and Black lists
8. NATting, multicasting,
9. Configuring routers for broadband services
10. Other settings as deemed necessary by the Department
12. Other hardware configurations that are required at the behest of the Department and OIT

Ensure the correct Fiber Optic Transceiver is utilized for each switch and the correct transceiver power is used based on distance and dB loss.

Ensure all Internetwork Operating System (IOS) and protocols for the network devices are compatible across the network.

Ensure that the default IP addresses and passwords set from the manufacturer are changed for all electronic devices where applicable and forward that information to the RE for each device. This includes but is not limited to ITS devices, IP switches, routers, modems and wireless equipment.

Provide an Ethernet Networking Block Diagram along with an Excel spreadsheet that includes the networking devices and the descriptions of device type, Network Assignment, and corresponding switch port and other requirements as it pertains to Ethernet networking.

I. IT Requirements. At least three (3) months prior to systems roll-out supply the RE with the software systems installation CD/DVDs, End User License Agreement (EULA) & other applicable licenses, instructions and configurations/settings that are required. Turn over the licenses indicating NJDOT as being the licensee at the time of acceptance.

Provide the above information in an acceptable way for NJDOT’s Division of Information Technology’s Security and Services personnel to perform the Server-side and Client-side installation, support and troubleshoot of the application without the need of a third-party. Refer to 704.03.01.F Equipment Training for the required training.

Failure to comply with this time-constraint will result in delayed Substantial and Final Completion. The Department reserves the right to seek Liquidated Damages, as specified in 108.20 of the Special Provisions, for each day delayed for Substantial and Final Completion.

704.03.02 Camera Surveillance System (CSS)

A. Components. CSS consists of the specified components in order to provide a complete system capable of processing video and control data to and from the designated control center. The system also includes but is not limited to wiring, communication and power connections, network equipment, encoder/decoder, service charges, software, grounding, and surge protection.

B. Installation. Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown and cost of damages for exceeding the allowable time frames will be as specified in 704.03.01.B. If directed by the RE, provide a bucket truck with safety equipment that can reach the height of the camera. Operate the bucket truck for the Department to use to determine the camera’s final location and orientation, and for testing.

Construct components as follows:

1. Foundation CSS. Construct the foundation as specified in 701.03.12.

   Ensure that the anchor bolts are placed after verifying the orientation of the camera lowering system to minimize the obstruction of desired camera view by the Camera Standard.

2. Camera Standard. Bolt the standard securely to the foundation, and erect the standard with sufficient rake to assume a vertical position after all attachments and appurtenances are in place. Install a ground wire that extends to the ground rod from the standard.

At least 30 days before beginning construction, submit working drawings for approval that include structural calculations meeting the specified criteria. Ensure the calculations are signed and sealed by a Professional Engineer.

3. Camera. Mount the camera housing and camera according to the manufacturer’s recommendation. Ensure that the camera’s field of view is unobstructed. Perform tree trimming and site clearing to provide an unobstructed field of view as directed by the RE. Set up “On Screen Display” to indicate the quadrant views with directional titles (e.g. NB view, EB view, SB view, WB view) displayed in the bottom right corner of the screen for each camera. Leave the display blank for any quadrant not representing any highway view. For a
camera with multiple highway views, include route and directional title (e.g. Rt 1 NB view). Also, establish a pan and tilt zones system and set up 4 presets for quick pan-tilt-zoom views prior to level B testing. At least 6 days prior to Level C testing, submit a request to the RE for the Department to integrate each camera into the designated control center CSS control software management system in use at the time of construction.

Ensure the camera is equipped with video and control cables that have weatherproof connectors and strain relief. Ensure cables are factory assembled and tested according to the camera manufacturer’s recommendations. Make all wire and cable camera connections to the camera controller.

Apply a polymer spray recommended by the camera manufacturer to enhance rainwater sheeting and runoff on the dome and positional housing.

4. **Controller, Camera.** Submit working drawings for approval that include a block wiring diagram illustrating the interconnections of the required CSS components for successful transmission of video from the field location to the designated control center and the remote operation from TOC using central CSS software. Identify each component by manufacturer and model number.

Mount the camera controller cabinet to a foundation as specified in 704.03.01.B.4. Ensure that the conduit entry points are properly closed off with duct sealing compound. Install the controller according to the manufacturer’s recommendations. Provide and install all required components.

C. **Testing.** Perform testing as specified in 704.03.01.C.

D. **Maintenance.** Perform maintenance as specified in 704.03.01.D.

E. **Final Documentation.** Provide the documentation specified in 704.03.01.E.

F. **Equipment Training.** Provide training as specified in 704.03.01.F and in the Special Provisions.

G. **Warranty.** Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

H. **Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H.

I. **IT Requirements.** Comply with the IT requirements and perform work as specified in 704.03.01.I and in the Contract documents.

### 704.03.03 Fiber Optic Cable

A. **Components.** When installing fiber optic cable, provide a complete communications path between 2 or more ITS devices. Installing fiber optic cable includes, but is not limited to, providing and installing conduit, junction boxes, cables, splicing, communication and power connections, service charges, terminations, software, and grounding.

At least 30 days before beginning work, submit to the RE for approval a fiber optic installation plan that lists the following items and includes a brief narrative on each:

1. Cable layout with splice locations and linear distances between splice points.
2. Fiber specific connection assignments to devices.
3. Catalog cut of the cable lubricant.
4. The manufacturer's minimum allowable cable and fiber strand bending radii.
5. Pulley wheel sizes.
6. Manufacturer's maximum outer jacket pulling tensions and monitoring device.
7. If using an air pressure system, list the blowing pressures applied to each cable size and conduit type.
8. Provide certifications from the fiber optic splice unit, OTDR, and power meter equipment manufacturer that verify the qualifications of each individual employed to perform the work.

B. **Installation.** Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown and cost of damages for exceeding the allowable time frames will be as specified in 704.03.01.B.

Provide and install the material necessary for a complete, functional installation including cables, cable ties, jumpers, cable identification tags, pigtails, breakout kits, connectors, patch panels, splices, splice enclosures,
testing, end caps, consumables, attenuators, and related documentation. Ensure that cable tags follow the industry standard CLEI GR-485-CORE format and nomenclature for communications and electronic components.

After the connections are completed, provide the minimum amount of slack for each cable that enters a junction box or termination enclosure as specified in Table 701.03.15-1. Provide additional slack as required to meet the proposed installation as follows:

1. For an ITS Junction Box provide a total of sixty (60) feet of slack (30 feet from each entry point.)
2. For a Hub provide 10 feet of slack
3. For a Cabinet provide 3 feet of slack

Attach cable tags to cables at junction boxes that contain multiple cables and at all cabinets. Secure them with nylon cable ties.

For armored cables, install a ground rod, ground and bond all armor casings at any existing or proposed junction box at which electrical power conductors are also present.

Before installing the tracer wire, obtain RE approval of the installation locations of the tracer wire. Install a continuous tracer wire in the conduit. Do not splice tracer wire in the conduit. Provide 10 feet of slack in each junction box. If approved by the RE, the Contractor may splice the tracer wire in the junction box. If more than one conduit is installed in a single trench, the Contractor may install the tracer wire in only one conduit. When installing fiber optic cable in existing conduits, install a tracer wire as specified in 701.03.15.A. Perform testing of existing tracer wires for continuity and perform splicing as required in junction boxes to ensure access to the tracer wire from cabinet to cabinet.

Ensure that splices are fusion splices. Install splices only in ITS junction boxes or ITS cabinets. Use splice enclosures for splices made in junction boxes. For mid-span termination cable entry, cut only those individual fiber bundle/strands needed (ring cut) for connection to the devices. For those fibers designated for trunk line communications, do not cut the fibers or install cables that require splices at lengths less than 2500 feet.

Splice a manufacturer recommended fiber optic breakout kit with connectors to each end of the strands for a cable that terminates at a device cabinet. Label each strand using machine-printed, laminated, self-adhesive labels. Fully document the connections and individual splices in the as-built drawings.

C. Testing. Perform wiring and cable testing as specified in 701.03.15.D before performing any other testing. The Department will provide forms detailing the testing requirements for the following tests:

1. **Level 1.** Test each splice with the fusion splicing unit at the time the splice is made. Record each splice decibel value electronically with the splicing machine at 1310 nanometers. Provide 2 paper copies and 1 electronic copy of the results immediately to the RE for review and approval. Clearly identify each fiber on the report. Ensure that the maximum splice loss does not exceed 0.05 decibels. If the 0.05-decibel value cannot be reached in 3 attempts, the RE may employ a third party vendor to redo the work. The Department will recover the cost as specified in 107.16. Provide the RE with certification from the equipment manufacturer that the splice machine was calibrated within 3 months of its use on the Contract. Recalibrate the splice machine at 6-month intervals from the initial calibration by the manufacturer.

2. **Level 2.** Perform the following Level 2 tests:
   a. **OTDR.** Test each individual fiber after completion of splicing and connections. Perform the testing at 1310 and 1550 nanometers in both directions. Ensure that the maximum decibel loss for any single event is not greater than 0.3 decibels at 1310 nanometers; however, ensure that the OTDR machine threshold is set to record events greater than or equal in absolute value to 0.05 decibels along the positive and negative axes. Events revealed by the OTDR machine bi-directional trace average to exceed 0.3 decibels are cause for the rejection of the cable. If directed, remove and replace the cable.

   Ensure that the net result of the bi-directional trace average at 1310 nanometers across a splice event is not greater than 0.15 decibels. Redo splices revealed by the OTDR machine to be greater than 0.15 decibels up to 2 additional times in order to achieve 0.15 decibels or less. If the 0.15-decibels value cannot be reached in 3 attempts, the RE may employ a third party vendor to redo the work. The Department will recover the cost as specified in 107.16.
Ensure that reflectance at each connector is better than (−55) decibels. Ensure the fiber loss across each fiber segment is not greater than 0.4 decibels per kilometer when tested at 1310 nanometers.

Also test, and include in the report, the dark fiber segments that are not being utilized by the signal transmission equipment. Provide connectors as necessary to test unterminated fibers.

Provide 2 paper copies and 1 electronic copy of the results immediately to the RE for review and approval. Clearly identify each fiber on the report. Provide the RE with certification from the equipment manufacturer that the OTDR was calibrated within 3 months of its use on the Contract. Recalibrate the OTDR at 6-month intervals.

b. **Power Meter.** Measure and record fiber segment optical budgets including each end connector, according to the meter manufacturer instructions. Compile the test results in a binder and submit 2 copies with the final documentation. Perform power meter tests at 1310 nanometers and 1550 nanometers in both directions after completion of cable and connector splicing. Ensure that the maximum connector loss tested at 1310 nanometers is 0.8 decibels with the average of all connectors in the tested fiber segment being 0.5 decibels.

Provide 2 paper copies and 1 electronic copy of the results immediately to the RE for review and approval. Clearly identify each fiber on the report and the work site location of the end points. Provide the RE with a certification from the equipment manufacturer that the power meters were calibrated within 3 months of their use on the Contract. Recalibrate at 6-month intervals.

After completion of Level 1 and 2 tests, perform network communication system testing and demonstrate that the communication system is fully operational to meet the material specifications and project requirements. Complete the testing as specified on the Department provided forms and instructions.

D. **Maintenance.** Perform maintenance as specified in 704.03.01.D.

E. **Final Documentation.** Provide the following:

1. Individual splice connection as-built drawings in the format specified by the Department.
2. Splice machine, OTDR, and power meter readings with manufacturer’s software disks to read the test results. Include power meter test results for each individual fiber section showing the optical budget between the termination point connectors. Include all unused fibers. Include OTDR electronic trace files and computer software so that the user can set any threshold values desired for all parameters and can view all ranges of events.
3. Cable identification key sheet.
4. Spreadsheets that identify the file names of the same fiber shot in both directions. Identify the individual common events and calculate the true event loss by averaging the point value of the fiber traces from each direction. Include this calculation in the spreadsheet tables. Supply 2 CD-R copies of the final documentation and 2 paper copies. Compile and organize the test results in 3-ring binders.
5. Licensed copies of splice and test equipment software. Ensure that the software is compatible with Windows XP operating system.
6. Communications system equipment fiber optic interconnections, including patch panel cross connections.
7. Inventory Report on the form provided by the Department.

F. **Equipment Training.** Provide training as specified in 704.03.01.F and in the Special Provisions.

**704.03.04 Controlled Traffic Signal System (CTSS)**

A. **Components.** CTSS consists of the Items needed to provide a complete system that is capable of controlling a series of interconnected signalized intersections and processing control data to and from the designated control center. The system also includes, but is not limited to, electronic and electrical devices, network equipment, servers, cabinet, wiring, programming, configuration, communication and electric service, service charges, connections, software, grounding, and surge protection.

B. **Installation.** Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown and cost of damages for exceeding the allowable time frames
will be as specified in 704.03.01.B. Prior to beginning any work, coordinate with Traffic Operations and NJOIT to confirm the system architecture and placement of the specified servers.

Construct components as follows:

1. **Controller, CTSS.** Submit working drawings for approval that include a block wiring diagram that illustrates the interconnections of the CTSS components from the field location to the designated control center. Identify each component by manufacturer and model number.

   Construct as specified in 702.03.01 and configure the CTSS software.

   Configuration of the CTSS software includes the following at a minimum:
   
   a. Setup of intersection parameters, coordination parameters, system parameters, and graphics including all GIS shape files and aerials
   b. Configuration of control operations and coordination
   c. Development of intersection operational databases
   d. Configuring and programming local traffic controllers
   e. Inputting the timing plans into the CTSS software and traffic controller software to be utilized as a fallback backup for intersections that are not running in the adaptive mode
   f. Integration of the CTSS server, workstations and local traffic controllers with the communication network
   g. Integration of the Image Detection units and System Detection units with traffic controller.
   h. Configuration and calibration of Image Detection units
   i. Configuration and calibration of System Detection units
   j. Integration of the Image Detection server and Image Detection units with the communication network
   k. Configuration of Image Detection System
   l. Integration of the System Detection server and System Detection units with the communication network
   m. Configuration of System Detection System

2. **CTSS Controller Unit.** Submit working drawings that include a block wiring diagram that illustrates the interconnections of the CTSS components from the field location to the designated control center. Identify each component by manufacturer and model number.

   Provide and install a traffic controller unit, NEMA “D” panel and harness to maintain compatibility in the existing traffic signal controller cabinet. Perform: the required wiring; CTSS software configuration, programming and testing; and remove the existing controller unit from the traffic signal control cabinet. Provide and install traffic signal controller module hardware and software necessary to satisfy the communications and manufacturer requirements of the requested type of CTSS. Clean dust, dirt, and debris from the inside of the cabinet and replace air filters and light fixtures. Employ a manufacturer’s certified representative to program and configure the controllers with the timing plan directive parameters. Place the intersection into cabinet flash during installation of the CTSS controller unit.

   Configure the CTSS software as specified in 704.03.04.B.1. Controller, CTSS.

3. **Controller, CTSS Turn On.** Controller CTSS Turn On consists of supplying a technician authorized by the controller manufacturer at the work site when each controller is placed into flash mode and into final operation. Provide the RE a letter at least 48 hours in advance of the work, from the controller manufacturer, stating the technician is authorized and qualified to perform the work. Ensure that the technician is available at all times during flash mode testing. Ensure that traffic signals complete a successful flash period for 3 consecutive days as part of the required testing. The Department will allow the signal to be on flash mode between 11:00 pm and 4:00 am. Program the Department’s existing signal timing directives as a fallback for when the system is not running in adaptive operation.

4. **System Detector, Type Radar.** At least 30 days before beginning construction, submit working drawings for approval that include structural calculations for the pole-mounted System Detector equipment. Ensure the calculations are signed and sealed by a NJ-licensed Professional Engineer. Submit a block wiring diagram and cabinet layout diagram for integration of the System Detectors in the applicable traffic signal cabinet back
panels, the existing Department Traffic Management System, and the CTSS. Identify each component by manufacturer and model number. Provide and install a local disconnect switch and grounding components in accordance with NEC requirements. Ensure that the work conforms to the NEC and does not violate the High Voltage Proximity Act.

Mount the radar detectors as displayed on the Plans. Provide and install the required components at the System Detector locations and in the CTSS controller cabinets, including but not limited to communications components, firmware, contact closures, and applicable network components.

Provide and install pole-mounted cabinet enclosures and hardware required to house equipment at System Detector locations. Provide and install material, equipment, and wiring required to control and power the equipment.

Obtain and provide software licensing required to successfully interface and integrate the radar detectors with NJDOT’s head-end traffic data storage server, existing Traffic Management System, and CTSS. Provide for the transmission of detector-collected data to the NJDOT storage server. Coordinate with NJOIT and the Department to determine and verify data port assignments in the field and at the server to automatically transmit the archived data to an FTP server.

C. Testing. Perform testing as specified in 704.03.01.C and in accordance with the Verification Plan and Department Testing and Certification Procedures using the forms found at the following link:

http://www.state.nj.us/transportation/eng/elec/ITS/testing.shtml

After the Contractor’s verification testing of the Adaptive CTSS is completed in accordance the Verification Plan and the Department’s CTSS Testing and Certification forms, the Department will conduct an observational and functional “burn-in” test period of the systems on the Project which may last up to 6 months. During this period the Department will validate the CTSS in accordance with the Validation Plan with the contractor providing assistance and support where necessary.

Also, before delivery to the Project Limits, perform a 168-hour burn in test period for the assembled, programmed and configured CTSS controller and CTSS controller unit following the requirements of 702.03.01 for continuous operation without failure.

D. Maintenance. Perform maintenance as specified in 704.03.01.D.

E. Final Documentation. Provide the documentation specified in 704.03.01.E and the following:

1. For CTSS controller, provide a detailed drawing of the controller back panel and subpanel wiring and equipment layout. For CTSS controller unit, provide the detailed “D” harness wiring drawing and the connections to the back panel.
2. Original signature certification of the CTSS controller and CTSS controller unit to verify that the equipment has been programmed, configured, wired, functions, and operates as specified in the Contract.
3. For Image Detectors and System Detectors, provide configuration and calibration parameters for each detector.
4. Provide documents and information related to installation of CTSS devices, servers and workstations communicating on the NJDOT network as required by OIT and IT.

F. Equipment Training. Provide training as specified in 704.03.01.F and in the Special Provisions.

G. Warranty. Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

H. Networking Requirements. Comply with the networking requirements and perform work as specified in 704.03.01.H and in the Special Provisions.

I. IT Requirements. Comply with the IT requirements and perform work as specified in 704.03.01.I and in the Special Provisions.

704.03.05 Travel Time Systems (TTS)

A. Components. A TTS consists of the specified components needed to provide a complete system that is capable of measuring traffic speed, time, and volume, can process data to and from the designated control center and is
integrated into the central control system for the purpose of determining and reporting travel time information. The system also includes, but is not limited to, the electronic and electrical equipment, wiring, central system database configurations, communication and electric service connections, service charges, software, grounding, and surge protection.

B. **Installation.** Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown and cost of damages for exceeding the allowable time frames will be as specified in 704.03.01.B.

Construct components as follows:

1. **Foundation, TTS.** Construct the foundation as specified in 701.03.12.
2. **Detector Standard.** Bolt the standard securely to the foundation, and erect the standard with sufficient rake to assume a vertical position after the attachments and appurtenances are in place. Install a ground wire that extends to the ground rod from the standard.
3. **Controller, TTS.** Submit working drawings for approval that include a block wiring diagram that illustrates the interconnections of the TTS components from the field location to the designated control center. Identify each component by manufacturer and model number.

   Securely bolt the controller cabinet to the foundation in a vertical position using stainless steel hardware. Seal the underground conduit entrance to the controller with a sealing compound.
4. **TTS Detector.** Submit working drawings for approval that include a block wiring diagram that illustrates the interconnections of the TTS components from the field location to the designated control center. Identify each component by manufacturer and model number.

   Install the detector according to the manufacturer’s recommendations.

   Mark wire and cable detector connections to the controller.

C. **Testing.** Perform testing as specified in 704.03.01.C. Ensure that the system demonstrates accurate posting of travel times during AM, Midday, and PM peaks in accordance with TTS test forms and specified requirements.

D. **Maintenance.** Perform maintenance as specified in 704.03.01.D.

E. **Final Documentation.** Provide the documentation specified in 704.03.01.E, including configuration data and parameters with channel assignments per traveled lane.

F. **Equipment Training.** Provide training as specified in 704.03.01.F and in the Special Provisions.

G. **Warranty.** Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

H. **Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H and in the Contract documents.

I. **IT Requirements.** Comply with the IT requirements and perform work as specified in 704.03.01.I and in the Contract documents.

704.03.06 Road Weather Information System (RWIS)

A. **Components.** A RWIS consists of the specified components needed to provide a complete system that is capable of processing sensor and control data to and from the designated control center for wind speed and direction, gusts, precipitation, visibility, humidity, pavement surface, and subsurface temperature. The system also includes, but is not limited to, the electronic and electrical equipment, cabinet, wiring, configuration, communication and power connections, service charges, software, grounding, and surge protection.

B. **Installation.** Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown and cost of damages for exceeding the allowable time frames will be as specified in 704.03.01.B.

Construct components as follows:

1. **Weather Station.** Construct the foundation as specified in 701.03.12.
Submit working drawings for approval that include a block wiring diagram that illustrates the interconnections of the RWIS components from the field location to the designated control center. Identify each component by manufacturer and model number.

Install RWIS devices and materials, including cabinet enclosure, camera, electric power devices, remote microprocessor controlled unit, software, back panel, main power disconnect, surge suppression, communication modems, atmospheric sensors, road, subsurface and bridge sensors, sensor leads, grounding, and wires and incidental material. Aim the camera for proper functioning of the system. Follow the manufacturer’s recommended installation, calibration, and configuration instructions.

Install sensors embedded in the pavement according to the manufacturer’s recommendations. Sawcut the pavement, pressure wash, and dry the sawcut before installing the sensors. Install each cable from the sensor in a separate individual sawcut to the conduit at the curb leading to the nearest junction box. Install bridge sensors according to the manufacturer’s recommendations.

Do not splice cables and sensor leads.

If not connected into the fiber optic network, obtain and provide communications with a utility service provider from the field microprocessor to the existing Department RWIS designated control center.

2. **Weather Station, Roadway Devices.** Install sensors embedded in the pavement and on bridges according to the manufacturer’s requirements for connections into existing weather stations. Sawcut the pavement, pressure wash, and dry the sawcut before installing the sensors.

Install each cable from the sensor in a separate individual sawcut to the conduit at the curb leading to the nearest junction box. Do not splice cables and sensor leads.

C. **Testing.** Perform testing as specified in 704.03.01.C.

D. **Maintenance.** Perform maintenance as specified in 704.03.01.D.

E. **Final Documentation.** Provide the documentation specified in 704.03.01.E and the following:
   1. Configuration data and parameters, port and channel assignments for each traveled lane.
   2. Calibration coefficient data for each sensor.

F. **Equipment Training.** Provide training as specified in 704.03.01.F and in the Special Provisions.

G. **Warranty.** Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

H. **Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H and in the Contract documents.

I. **IT Requirements.** Comply with the IT requirements and perform work as specified in 704.03.01.I and in the Contract documents.

**704.03.07 Dynamic Message System (DMS)**

A. **Components.** DMS consists of the specified components needed to provide a complete system that is capable of processing control data to and from the designated control center. The system also includes, but is not limited to, wiring, communication and power connections, networking equipment, service charges, software, grounding, and surge protection.

The following are the Model numbers for the various DMS to be provided and installed in this project:

<table>
<thead>
<tr>
<th>Location</th>
<th>Communication Type</th>
<th>DMS Type</th>
<th>Manufacturer/Model No.</th>
</tr>
</thead>
</table>

Ensure that the designated Model numbers for the various DMS signs are provided as specified in the Contract documents.
Ensure that Controller, DMS is purchased with pre-installed controller, pre-wired with the equipment listed below along with specialized communications cables (minimum 120' Fiber Optic Cable with Connectors for each sign).

As part of the specified model numbers, ensure the DMS manufacturer supplies the cabinet and controller for each DMS sign with pre-installed uninterruptable power supply (UPS), a media converter and a TCP/IP wireless modem conforming to the wireless provider requirements. Provide other equipment not listed here but required for the remote operation of the DMS.

Ensure that the installation of DMS is coordinated with the power service company in such a manner that the DMS sign is powered up within two weeks of installation. If this is not achieved, provide a generator on site for electrical power along with needed maintenance of the generator and refueling until the electrical service by the power company is installed.

When the final communication using fiber or other leased ISP services is delayed by more than two weeks upon initial installation of DMS sign, activate the wireless service for temporary or interim use until final communications service is installed so the TOC can use the DMS during this delay beyond two weeks.

For DMS sign that will be communicating over fiber optic communication media, provide and install an Ethernet Switch Type B and a fiber optic cable patch panel with interconnecting cables for each DMS controller.

For DMS sign that will be communicating over leased ISP services, provide and install a Router as specified in the Special Provisions and in the Contract Documents.

**B. Installation.** Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown and cost of damages for exceeding the allowable time frames will be as specified in 704.03.01.B.

Construct the DMS sign mounting structure and foundation as specified in Division 500.

Construct components as follows:

1. **DMS Sign.** At least 30 days before beginning construction, submit working drawings for approval that include sign mounting and lifting calculations. Ensure the calculations are signed and sealed by a Professional Engineer. Mount the sign on the standard or structure and install the controller according to the manufacturer’s recommendations. Securely bolt the controller to the foundation in a vertical position using stainless steel hardware. Seal the underground conduit entrance to the controller with a sealing compound. Install cables and wire connections between the sign and controller according to the manufacturer’s recommendations. Ensure that the conduit entry points are properly closed off with duct sealing compound. Provide sign manufacturer technician for commissioning the sign and coordinate with the sign manufacturer by providing access and support during commissioning and for any warranty work covered by the DMS manufacturer.

   Ensure control cables are factory assembled and tested according to the sign manufacturer’s recommendations. Make wire and cable connections to the DMS sign controller according to the sign manufacturer’s recommendations.

   Perform tree trimming and site clearing to provide an unobstructed field of view up to 1000 feet from the sign as directed by the RE.

2. **Controller, DMS.**

   At least 30 days before beginning construction, submit working drawings for approval that include a block wiring diagram that illustrates the interconnections of the DMS components from the field location to the designated control center. Identify each component by manufacturer and model number.

   Securely bolt the controller to the foundation in a vertical position using stainless steel hardware. Seal the underground conduit entrance to the controller with a sealing compound.

   Install cables and wire connections between the sign and controller according to the manufacturer’s recommendations. Ensure that the conduit entry points are properly closed off with duct sealing compound.

3. **Testing.** Perform testing as specified in 704.03.01.C.
For DMS, perform both Level B and Level C Testing after integration into the Central DMS control software system.

D. **Maintenance.** Perform maintenance as specified in 704.03.01.D.

E. **Final Documentation.** Provide the documentation specified in 704.03.01.E.

F. **Equipment Training.** Provide training as specified in 704.03.01.F and in the Special Provisions.

G. **Warranty.** Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

H. **Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H and in the Contract documents.

I. **IT Requirements.** Comply with the IT requirements and perform work as specified in 704.03.01.I and in the Contract documents.

704.03.08 Weigh in Motion System (WIMS)

A. **Components.** A WIMS consists of the specified components needed to provide a complete system that is capable of processing pavement sensor and control data to and from the control center in Trenton. The WIMS is composed of electronic and electrical equipment, pavement sensors, cables, wiring, control cabinet, site processor, remote communication modems, operating software, and software used to process and generate reports on the collected raw vehicle record files. The system also includes, but is not limited to, wiring, cabinet, foundation, communication and power connections, service charges, software, grounding, and surge protection.

B. **Installation.** Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown will begin at 10 P.M. daily and continues through to 4 A.M. on weekdays, 5 A.M. on Saturdays, and 6 A.M. on Sunday mornings unless otherwise noted in the Special Provisions and the cost of damages for exceeding the allowable time frames is specified in the Special Provisions. The Department will recover the cost as specified in 107.16.

If not connected into the fiber optic network, obtain and provide communications with a Utility service provider from the field microprocessor to the Department WIMS control center in Trenton.

Make operational electronic and electrical components to monitor volume, speed, length, gap, headway, vehicle type classification by axle configuration, and axle weights. The roadway sensors are composed of inductive loop detectors, loop leads, weight sensors, and temperature sensor. The WIMS electronics are installed at each work site with electrical power and communications for remote station programming, monitoring and failure diagnosis, and data retrieval.

Construct components as follows:

1. **Controller, WIMS.** Construct the foundation as specified in 701.03.12.

   At least 30 days before beginning construction, submit working drawings for approval that include a block wiring diagram that illustrates the interconnections of the WIMS components from the field location to the control center in Trenton. Identify each component by manufacturer and model number.

   Securely bolt the controller cabinet to the foundation in a vertical position using stainless steel hardware. Seal the underground conduit entrance to the controller with a sealing compound.

2. **WIM Roadway Devices.** Install the devices according to the manufacturer’s requirements. Pressure wash and dry the sawcut as recommended by the manufacturer. Ensure that sensors, loop detector wires, and cables are installed in separate conduit per type of device and that conduit is waterproofed and sealed. Ensure that the temperature sensor is installed in a schedule 80 PVC conduit in the shoulder of the roadway. Maintain at least 3 feet of space between the sawcut loops and the sensors. After completion of the HMA, re-establish the location of each loop edge to facilitate and mark for cutting of the slot for the axle weight sensor. Ensure that the lengths of weight sensors do not exceed the width of the lanes. Do not splice cables. Grind the top of the encapsulation material flushed with the road.

   Ensure that the piezoelectric sensors are installed perpendicular to the flow of traffic and are without twists or curls. Position shorter sensors (6 feet length) to one side in a wheel path, not in the center of the lane; position...
longer sensors in the center of the lane. Cut a slot for the sensor that is 8 inches longer than the sensor. Do not mix or place the epoxy until the RE has approved the cleaning operations.

C. **Testing.** Perform testing as specified in 704.03.01.C, except do not perform Level B as specified in 704.03.01.C.1.b. Also perform the testing as follows:

Use an LCR Meter to measure the capacitance, resistance, and dissipation factor of each sensor. When the lane is opened to traffic, perform a functional test on the sensor using an oscilloscope.

Provide a 5-axle tractor-trailer combination (3-axle tractor and 2-axle semi-trailer) and driver for calibration of the WIM system. Weigh the calibration truck on a certified, multi-draft public scale. Also weigh the steering axle, drive tandem axles, and trailer tandem axles. Record and provide the weight data to the RE at the start of the test. Include the total gross weight of the combination. Ensure that the truck has an air-ride suspension and is in good mechanical condition. Ensure that the trailer is a dry van type and loaded with a non-shifting load so that the gross weight of the tractor-trailer combination is between 75,000 and 80,000 pounds. Ensure that the axle-loads do not exceed New Jersey Title 39 limits, and do not violate the Federal Bridge Formula.

Drive the truck over each lane a minimum of 5 times and record the axle and gross weights as determined by the WIM system by each sensor for each pass. Use the average values among the 5 passes to calculate a calibration factor for each sensor. Perform this test twice.

After the calibration, ensure that the average values recorded by the WIM system are within 10 percent of each axle weight (average axle weight of each axle group) and within 5 percent of the gross weight of the combination of the weights recorded at the public scale.

If the system cannot be properly calibrated after 3 attempts, the RE may employ a third party vendor to redo the work. The Department will recover the cost as specified in 107.16.

D. **Maintenance.** Perform maintenance as specified in 704.03.01.D.

E. **Final Documentation.** Provide the documentation specified in 704.03.01.E and the following:

1. Configuration data and parameters, port and channel assignments for each traveled lane.
2. Calibration coefficient data for each sensor.

F. **Equipment Training.** Provide training as specified in 704.03.01.F and in the Special Provisions.

G. **Warranty.** Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

H. **Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H and in the Contract documents.

I. **IT Requirements.** Comply with the IT requirements and perform work as specified in 704.03.01.I and in the Contract documents.

**704.03.09 Traffic Volume System (TVS)**

A. **Components.** A TVS consists of the specified components needed to provide a complete system that is capable of processing traffic control data to and from the control center in Trenton including pavement loop and vehicle detectors, electronic devices to measure and record vehicle volume, speed, length, gap, and headway in each lane connected to the respective monitoring devices in a cabinet. The system also includes wiring, cabinet, foundation, communication and power connections, service charges, software, grounding, and surge protection.

B. **Installation.** Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown will begin at 10 P.M. daily and continues through to 4 A.M. on weekdays, 5 A.M. on Saturdays, and 6 A.M. on Sunday mornings unless otherwise noted in the Special Provisions and the cost of damages for exceeding the allowable time frames is specified in the Special Provisions. The Department will recover the cost as specified in 107.16.

The Department will allow existing TVS system shutdowns from ______.

If not connected into the fiber optic network, obtain and provide communications with a Utility service provider from the field microprocessor to the Department TVS control center in Trenton.
Construct components as follows:

1. **Controller, TVS.** Construct the foundation as specified in 701.03.12.
   
   Submit working drawings for approval that include a block wiring diagram that illustrates the interconnections of the TVS components from the field location to the control center in Trenton. Identify each component by manufacturer and model number.
   
   Make operational electronic and electrical components to monitor volume, speed, length, gap, and headway. Ensure the roadway sensors are composed of inductive loops and loop leads. Ensure the TVS electronics are installed at each work site with electrical power and communications for remote station programming, monitoring and failure diagnosis, and data retrieval.
   
   Securely bolt the controller cabinet to the foundation in a vertical position using stainless steel hardware. Seal the underground conduit entrance to the controller with a sealing compound.

2. **TVS Roadway Devices.** Sawcut the pavement. Pressure wash then dry the sawcut according to the manufacturer’s recommendations. Ensure that sensors, loop detector wires, and cables are installed in separate conduit per type of device and that the conduit is waterproofed and sealed. Maintain at least 3 feet of space between the sawcut loops and the sensors. Do not splice cables. Grind the top of the encapsulation material flush with the road.

C. **Testing.** Perform testing as specified in 704.03.01.C, except do not perform Level B as specified in 704.03.01.C.1.b. Also perform the testing as follows:
   
   Use an LCR Meter to measure the capacitance, resistance, and dissipation factor of each sensor. When the lane is opened to traffic, perform a functional test on the sensor using an oscilloscope.
   
   Measure the ratio of loop inductance to lead inductance and ensure it is within the requirements of the sensor manufacturer.

D. **Maintenance.** Perform maintenance as specified in 704.03.01.D.

E. **Final Documentation.** Provide the documentation specified in 704.03.01.E and the following:
   
   1. Configuration data and parameters, port and channel assignments.
   2. Calibration data for each sensor.

F. **Equipment Training.** Provide training as specified in 704.03.01.F and in the Special Provisions.

G. **Warranty.** Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

H. **Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H and in the Contract documents.

I. **IT Requirements.** Comply with the IT requirements and perform work as specified in 704.03.01.I and in the Contract documents.

704.03.10 Variable Speed Limit System (VSLS)

A. **Components.** A VSLS consists of the specified components needed to provide a complete system that is capable of processing traffic speed data to and from the control center, including electronic devices to measure and record vehicle speed in each lane connected to the respective monitoring devices in a cabinet. The system also includes wiring, cabinet, foundation, communication and power connections, service charges, software, grounding, and surge protection.
   
   Ensure that the designated Model numbers for the various VSLS signs are provided as specified in the Special Provisions and the Contract Plans.
   
   Procure VSLS auxiliary control panel with the speed limit sign from the VSLS manufacturer. Install VSLS auxiliary control panel inside VSLS, Controller. Provide Ethernet cables from VSLS sign to controller, VSLS (length as required per contract plans). Provide other equipment not listed here but required for the remote operation of the VSLS.
B. **Installation.** Before beginning the work and during the work, comply with the requirements of 701.03.01. The allowable time frame for existing system shutdown and cost of damages for exceeding the allowable time frames will be as specified in 704.03.01.B.

Construct components as follows:

1. **VSLS Sign.** Submit working drawings for approval that include a block wiring diagram that illustrates the interconnections of the VSLS components from the field location to the control center. Identify each component by manufacturer and model number. Mount the sign on the VSLS sign support structure as specified in the contract documents and install the controller according to the manufacturer’s recommendations. Construct the foundation for Controller VSLS as specified in 701.03.12 and as per contract documents. Securely bolt the controller to the foundation in a vertical position using stainless steel hardware. Seal the underground conduit entrance to the controller with a sealing compound. Install cables and wire connections between the sign and controller according to the manufacturer’s recommendations. Ensure that the conduit entry points are properly closed off with duct sealing compound. Provide a manufacturer technician for commissioning the VSLS and coordinate with the manufacturer by providing access and support during commissioning and for warranty work covered by the VSLS manufacturer under their service agreement with the contractor.

Make operational electronic and electrical components of VSLS to display the desirable speed limit based on field conditions collected by roadway sensors and as per specific information provided by NJDOT during designated times of the day and based on other criteria specified in the contract documents. Ensure that the VSLS signs are installed at the designated locations with power and communications for remote operation of programming, monitoring, failure diagnosis, and data retrieval.

2. **Controller, VSL.**

At least 30 days before beginning construction, submit working drawings for approval that include a block wiring diagram that illustrates the interconnections of the VSLS components from the field location to the designated control center. Identify each component by manufacturer and model number.

Securely bolt the controller to the foundation in a vertical position using stainless steel hardware. Seal the underground conduit entrance to the controller with a sealing compound.

Install cables and wire connections between the sign and controller according to the manufacturer’s recommendations. Ensure that the conduit entry points are properly closed off with duct sealing compound.

C. **Testing.** Perform testing as specified in 704.03.01.C and in the Special Provisions.

D. **Maintenance.** Perform maintenance as specified in 704.03.01.D.

E. **Final Documentation.** Provide the documentation specified in 704.03.01.E.

F. **Equipment Training.** Provide training as specified in 704.03.01.F and in the Special Provisions.

G. **Warranty.** Perform repairs under warranty and provide documentation as specified in 704.03.01.G.

H. **Networking Requirements.** Comply with the networking requirements and perform work as specified in 704.03.01.H and in the contract documents.

I. **IT Requirements.** Comply with the IT requirements and perform work as specified in 704.03.01.I and in the Contract document.

**704.04 MEASUREMENT AND PAYMENT**

The Department will measure and make payment for Items as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUNCTION BOX ITS TYPE ___</td>
<td>UNIT</td>
</tr>
<tr>
<td>JUNCTION BOX ITS, RELOCATION</td>
<td>UNIT</td>
</tr>
<tr>
<td>COMMUNICATION CABLE</td>
<td>LINEAR FOOT</td>
</tr>
<tr>
<td>FOUNDATION ITS TYPE ___</td>
<td>UNIT</td>
</tr>
<tr>
<td>CONTROLLER, ITS</td>
<td>UNIT</td>
</tr>
</tbody>
</table>
The Department will consider ITS CONDUITS, TYPE ____ as a single conduit comprised of multiple individual conduits as shown in details along with a tracer wire and will be measured as one pay unit.

The Department will make payment for each item, except for FIBER OPTIC CABLE, TYPE____, STANDARDS, JUNCTION BOXES, and FOUNDATIONS, as follows:

<table>
<thead>
<tr>
<th>Work Completed</th>
<th>Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing the Item</td>
<td>60% of Total Contract Price</td>
</tr>
<tr>
<td>Successful completion of Level A testing</td>
<td>10% of Total Contract Price</td>
</tr>
<tr>
<td>Successful completion of Level B testing</td>
<td>10% of Total Contract Price</td>
</tr>
<tr>
<td>Successful completion of Level C testing</td>
<td>10% of Total Contract Price</td>
</tr>
<tr>
<td>Successful completion of Project testing</td>
<td>10% of Total Contract Price</td>
</tr>
</tbody>
</table>

If a level of testing is not required, the Department will include the percentage specified for that level of payment in the Installing the Item percentage.

The Department will make payment for FIBER OPTIC CABLE, TYPE____, as follows:

<table>
<thead>
<tr>
<th>Work Completed</th>
<th>Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing the fiber optic cable</td>
<td>80% of Total Contract Price</td>
</tr>
<tr>
<td>Successful completion of Level 1 testing</td>
<td>10% of Total Contract Price</td>
</tr>
<tr>
<td>Successful completion of Level 2 testing</td>
<td>10% of Total Contract Price</td>
</tr>
</tbody>
</table>
DIVISION 800 – LANDSCAPING

SECTION 811 – PLANTING

811.03.01 Planting

E. Excavation for Plant Pits and Beds.

THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

Obtain RE approval before reusing topsoil from the excavated pits.

I. Watering.

THE FIRST PARAGRAPH IS CHANGED TO:

Water plants with sufficient frequency and quantity to ensure that the soil surrounding the root system remains moist but not saturated.

811.03.02 Plant Establishment Period

THE THIRD AND FOURTH PARAGRAPHS ARE CHANGED TO:

The Department will reinspect the plants annually for ____ years, beginning approximately 1 year after the start of the plant establishment period. If the Department determines that plants need to be replaced after each inspection, replant plants as specified in 811.03.01 within 3 weeks of notification. If replacing outside of the optimal planting season as specified in Table 811.03.01-1, only use containerized or balled and burlapped plants that are certified as being dug dormant.

2. Maintenance Bond.

Provide a bond to the Department in the amount of $__________.
DIVISION 900 – MATERIALS

SECTION 901 – AGGREGATES

THE ENTIRE SUBSECTION IS CHANGED TO:

901.07 GRIT

901.07.01 Grit for Epoxy Waterproofing. Use grit for spreading over the epoxy waterproofing that is a subangular, natural, 98 percent silica sand. Ensure that 90 percent of the total sample by weight falls between the No. 4 and No. 30 sieves, with 0 percent passing the No. 30 sieve.

901.07.02 Fine Aggregate for Fog Seal. Use fine aggregate for spreading over fog seal that conforms to 901.05.02 and the gradation requirements in Table 901.07.02-1:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 8</td>
<td>100</td>
</tr>
<tr>
<td>No. 16</td>
<td>90 - 100</td>
</tr>
<tr>
<td>No. 50</td>
<td>70 - 100</td>
</tr>
<tr>
<td>No. 200</td>
<td>0 - 2</td>
</tr>
</tbody>
</table>

901.11 SOIL AGGREGATE

1. Composition of Soil Aggregate.

THE FOLLOWING IS ADDED TO THE LAST PARAGRAPH:

For Designation I-14, the Contractor may use up to 30 percent steel slag by weight of the coarse aggregate portion of the soil aggregate. Obtain steel slag from a source listed on the QPL as specified in 901.01. Use steel slag that was produced as a co-product of the steel making process. Ensure that the steel slag consists of tough, durable pieces that are uniform in density and quality. Stockpile steel slag as specified in 901.02. Ensure steel slag for blending with I-14 Soil Aggregate does not exceed 0.50 percent expansion from hydration when tested according to ASTM D 4792.

SECTION 902 – ASPHALT

902.01.01 Asphalt Binder

THE SECOND PARAGRAPH IS CHANGED TO:

When specified, use PG 64E-22 asphalt binder that is a storage-stable and conforms to AASHTO MP 19 (AASHTO M 332), including compliance with the elastic response requirement in Appendix 1.

THE FOLLOWING SUBPART IS ADDED:

902.01.05 Warm Mix Asphalt (WMA) Additives and Processes

Use a WMA additive or process that is listed on the Northeast Asphalt User/Producer Group (NEAUPG) Qualified WMA Technologies List which can be found at the following website: http://www.neaupg.uconn.edu/

If an approved HMA mix design is used, a separate mix design with WMA additives or processes is not required.

Submit information on the WMA additive or process with the Paving Plan required in 401.03.03.A. For controlled foaming systems, also submit the operating parameters of the system including accuracy of the meter, operating range, and temperature of the binder. Provide the target and operating tolerances for the percent water injection and temperatures for the binder. Provide a method for validating this with changing production rates.

FIRST AVENUE STREETScape IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
Ensure that a technical representative of the manufacturer is on-site or available for consultation for the first day or night of production.

902.02.01 Mix Designations
THE ENTIRE SUBPART IS CHANGED TO:

The requirements for specific HMA mixtures are identified by the abbreviated fields in the Item description as defined as follows:

HOT MIX ASPHALT 12.5ME SURFACE COURSE

1. “HOT MIX ASPHALT” “Hot Mix Asphalt” is located in the first field in the Item description for the purpose of identifying the mixture requirements.

2. “12.5” The second field in the Item description designates the nominal maximum size aggregate (in millimeters) for the job mix formula (sizes are 4.75, 9.5, 12.5, 19, 25, and 37.5 mm).

3. “M” The third field in the Item description designates the design compaction level for the job mix formula based on traffic forecasts as listed in Table 902.02.03-2 (levels are L=low and M=medium).

4. “E” The fourth field in the Item description designates the high temperature designation of the performance-graded binder. Options are “64” for PG 64-22 and “E” for PG 64E-22.

5. “SURFACE COURSE” The last field in the Item description designates the intended use and location within the pavement structure (options are surface, intermediate, or base course).

902.02.02 Composition of Mixtures
THE ENTIRE SUBPART IS CHANGED TO:

Provide materials as specified:

Aggregates for Hot Mix Asphalt ................................................................. 901.05
Asphalt Binder ....................................................................................... 902.01.01
Warm Mix Additives and Processes (optional) ..................................... 902.01.05

If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer’s recommendations for percentage of WMA additive needed.

Mix HMA in a plant that is listed on the QPL and conforms to the requirements for HMA Plants as specified in 1009.01. Composition of the mixture for HMA surface course is coarse aggregate, fine aggregate, and asphalt binder, and may also include mineral filler, WMA additive, and up to 15 percent Reclaimed Asphalt Pavement (RAP). For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive. Ensure that the finished mix does not contain more than a total of 1 percent by weight contamination from Crushed Recycled Container Glass (CRCG). The composition of the mixture for HMA base or intermediate course is coarse aggregate, fine aggregate, and asphalt binder, and may also include mineral filler, WMA additive and up to 35 percent of recycled materials. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive. The 35 percent of recycled materials may consist of a combination of RAP, CRCG, Ground Bituminous Shingle Material (GBSM), and RPCSA, with the following individual limits:
Combine the aggregates to ensure that the resulting mixture meets the grading requirements specified in Table 902.02.03-1. In determining the percentage of aggregates of the various sizes necessary to meet gradation requirements, exclude the asphalt binder.

Ensure that the combined coarse aggregate, when tested according to ASTM D 4791, has less than 10 percent flat and elongated pieces retained on the No. 4 sieve and larger. Measure aggregate using the ratio of 5:1, comparing the length (longest dimension) to the thickness (smallest dimension) of the aggregate particles.

Ensure that the combined fine aggregate in the mixture conforms to the requirements specified in Table 902.02.02-2. Ensure that the material passing the No. 40 sieve is non-plastic when tested according to AASHTO T 90.

### Table 902.02.02-1 Use of Recycled Materials in HMA Base or Intermediate Course

<table>
<thead>
<tr>
<th>Recycled Material</th>
<th>Maximum Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAP</td>
<td>25</td>
</tr>
<tr>
<td>CRCG</td>
<td>10</td>
</tr>
<tr>
<td>GBSM</td>
<td>5</td>
</tr>
<tr>
<td>RPCSA</td>
<td>20</td>
</tr>
</tbody>
</table>

### Table 902.02.02-2 Additional Fine Aggregate Requirements for HMA

<table>
<thead>
<tr>
<th>Tests</th>
<th>Test Method</th>
<th>Minimum Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncompacted Void Content of Fine Aggregate</td>
<td>AASHTO T 304, Method A</td>
<td>45</td>
</tr>
<tr>
<td>Sand Equivalent</td>
<td>AASHTO T 176</td>
<td>45</td>
</tr>
</tbody>
</table>

### 902.02.03 MIX DESIGN

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

UNLESS OTHERWISE APPROVED BY THE ENGINEER, ONLY ONE SOURCE OF SUPPLY FOR HOT MIX ASPHALT SURFACE COURSE MAY BE USED ON THE PROJECT.

### 902.02.04 SAMPLING AND TESTING

***

DETERMINATION OF CONFORMANCE TO THE VOLUMETRIC PROPERTIES BY SAMPLING AND TESTING AT THE HMA PLANT BY AN INDEPENDENT TESTING AGENCY AND/OR LABORATORY IS PREFERRED; HOWEVER, THE FOLLOWING CHANGES TO SUBSECTION 902.02.04 MAY BE USED AS AN ALTERNATE TO THE SAMPLING AND TESTING PROVISIONS LISTED IN SUBSECTION 902.02.04 TO DETERMINE CONFORMANCE TO THE SPECIFICATION REQUIREMENTS.

***

THE FOLLOWING IS ADDED TO 902.02.04:

**F. Acceptance of HMA.** The Department may accept the HMA as specified in 902.02.04.A through 902.02.04 E by employing staff or an independent testing agency at the HMA plant during production. The inspector who performs the quality assurance sampling shall be certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Plant Technologist, Level 2.

Alternatively, the Department may accept the HMA by Certification of Compliance according to 106.07.
902.02.03 Mix Design
TABLES 902.02.03-2, AND 902.02.03-3 ARE CHANGED TO:

<table>
<thead>
<tr>
<th>Compaction Level</th>
<th>ESALs(^1) (millions)</th>
<th>(N_{des})</th>
<th>(N_{max})</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>&lt; 0.3</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>M</td>
<td>≥ 0.3</td>
<td>75</td>
<td>115</td>
</tr>
</tbody>
</table>

1. Design ESALs (Equivalent (80kN) Single-Axle Loads) refer to the anticipated traffic level expected on the design lane over a 20-year period.

---

<table>
<thead>
<tr>
<th>Compaction Levels</th>
<th>Required Density (% of Theoretical Max. Specific Gravity)</th>
<th>Voids in Mineral Aggregate (VMA), % (minimum)</th>
<th>Voids Filled With Asphalt (VFA)(^1) %</th>
<th>Dust-to-Binder Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>@(N_{des})^2</td>
<td>@(N_{max})</td>
<td>37.5</td>
<td>25.0</td>
</tr>
<tr>
<td>L</td>
<td>96.0</td>
<td>≤ 98.0</td>
<td>11.0</td>
<td>12.0</td>
</tr>
<tr>
<td>M</td>
<td>96.0</td>
<td>≤ 98.0</td>
<td>11.0</td>
<td>12.0</td>
</tr>
</tbody>
</table>

1. For 37.5-mm nominal maximum size mixtures, the specified lower limit of the VFA is 64 percent for all design traffic levels.
2. As determined from the values for the maximum specific gravity of the mix and the bulk specific gravity of the compacted mixture. Maximum specific gravity of the mix is determined according to AASHTO T 209. Bulk specific gravity of the compacted mixture is determined according to AASHTO T 166. For verification, specimens must be between 95.0 and 97.0 percent of maximum specific gravity at \(N_{des}\).

---

THE FOURTH PARAGRAPH IS CHANGED TO:

At the ME’s request, test the mix design to ensure that it meets a minimum tensile strength ratio of 80 percent, when tested according to AASHTO T 283. The ME will require tensile strength ratio testing for new aggregate sources and for aggregates or mixes suspected of stripping susceptibility.

902.02.04 Sampling and Testing
THE ENTIRE TEXT IS CHANGE TO:

A. **General Acceptance Requirements.** The RE or ME may reject and require disposal of any batch or shipment that is rendered unfit for its intended use due to contamination, segregation, improper temperature, lumps of cold material, or incomplete coating of the aggregate. For other than improper temperature, visual inspection of the material by the RE or ME is considered sufficient grounds for such rejection.

For PG 64-22, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 290 °F when the ambient temperature is less than 50 °F or is at least 275 °F when the ambient temperature is greater than or equal to 50 °F. For PG 64E-22, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 10 °F above the manufacturer’s recommended laydown temperature. For mixes produced using a WMA additive or process, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 10 °F above the WMA manufacturer’s recommended laydown temperature.

Do not allow the mixture temperature to exceed 330 °F at discharge from the plant.

Combine and mix the aggregates and asphalt binder to ensure that at least 95 percent of the coarse aggregate particles are entirely coated with asphalt binder as determined according to AASHTO T 195. If the ME determines that there is an on-going problem with coating, the ME may obtain random samples from 5 trucks and will determine the adequacy of the mixing on the average of particle counts made on these 5 test portions. If the requirement for 95 percent coating is not met on each sample, modify plant operations, as necessary, to obtain the required degree of coating.
If used, ensure that the equipment for controlled asphalt foaming system is running according to the manufacturer’s recommendations. Ensure that the metering of water to foam the asphalt is controlled to produce a uniform mixture.

B. Sampling. The ME will take a random sample from each 700 tons of production for volumetric acceptance testing and to verify composition. The ME will perform sampling according to AASHTO T 168, NJDOT B-2, or ASTM D 3665.

C. Quality Control Testing. The HMA producer shall provide a quality control (QC) technician who is certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Technologist, Level 2. The QC technician may substitute equivalent technician certification by the Mid-Atlantic Region Technician Certification Program (MARTCP). Ensure that the QC technician is present during periods of mix production for the sole purpose of quality control testing and to assist the ME. The ME will not perform the quality control testing or other routine test functions in the absence of, or instead of, the QC technician.

The QC technician shall perform sampling and testing according to the approved quality control plan, to keep the mix within the limits specified for the mix being produced. The QC technician may use acceptance test results or perform additional testing as necessary to control the mix.

To determine the composition, perform ignition oven testing according to AASHTO T 308 and aggregate gradation according to AASHTO T 30.

For each acceptance test, perform maximum specific gravity testing according to AASHTO T 209 on a test portion of the sample taken by the ME. Sample and test coarse aggregate, fine aggregate, mineral filler, and RAP according to the approved quality control plan for the plant.

When using RAP, ensure that the supplier has in operation an ongoing daily quality control program to evaluate the RAP. As a minimum, this program shall consist of the following:

1. An evaluation performed to ensure that the material conforms to 901.05.04 and compares favorably with the design submittal.
2. An evaluation of the RAP material performed using a solvent or an ignition oven to qualitatively evaluate the aggregate components to determine conformance to 901.05.
3. Quality control reports as directed by the ME.

D. Acceptance Testing and Requirements. The ME will determine volumetric properties at Ndes for acceptance from samples taken, compacted, and tested at the HMA plant. The ME will compact HMA to the number of design gyrations (Ndes) specified in Table 902.02.03-2, using equipment according to AASHTO T 312. The ME will determine bulk specific gravity of the compacted sample according to AASHTO T 166. The ME will use the most current QC maximum specific gravity test result in calculating the volumetric properties of the HMA.

The ME will determine the dust-to-binder ratio from the composition results as tested by the QC technician.

Ensure that the HMA mixture conforms to the requirements specified in Table 902.02.04-1, and to the gradation requirements in Table 902.02.03-1. If 2 samples in 5 consecutive samples fail to conform to the gradation or volumetric requirements, immediately initiate corrective action.

The ME will test a minimum of 1 sample per 3500 tons for moisture, basing moisture determinations on the weight loss of an approximately 1600-gram sample of mixture heated for 1 hour in an oven at 280 ± 5°F. Ensure that the moisture content of the mixture at discharge from the plant does not exceed 1.0 percent.

<table>
<thead>
<tr>
<th>Compaction Levels</th>
<th>Required Density (% of Theoretical Max. Specific Gravity)</th>
<th>Voids in Mineral Aggregate (VMA), % (minimum)</th>
<th>Dust-to-Binder Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>@Ndes</td>
<td></td>
<td>Nominal Max. Aggregate Size, mm</td>
<td></td>
</tr>
<tr>
<td>L, M</td>
<td>95.0 – 97.0</td>
<td>37.5, 25.0, 19.0, 12.5, 9.5, 4.75</td>
<td>0.6 - 1.3</td>
</tr>
</tbody>
</table>

1. As determined from the values for the maximum specific gravity of the mix and the bulk specific gravity of the compacted mixture. Maximum specific gravity of the mix is determined according to AASHTO T 209. Bulk specific gravity of the compacted mixture is determined according to AASHTO T 166.
902.03.01 Composition of Mixtures
THE ENTIRE TEXT IS CHANGED TO:
Mix OGFC and MOGFC in a plant that is listed on the QPL and conforms to the requirements for HMA plants as specified in 1009.01.

Composition of mixture for OGFC and MOGFC is coarse aggregate, fine aggregate and asphalt binder and may include a WMA additive. Ensure that the mixture conforms to the following requirements:

1. Use aggregate for OGFC and MOGFC that conforms to 901.05, except, for coarse aggregate, use broken stone of gneiss, granite, quartzite, or trap rock. Do not use RAP, CRG, GBSM, or RPCSA.
2. Use asphalt binder for OGFC and MOGFC that is PG 64E-22 as specified in 902.01.01.
3. If used, ensure that WMA additives or processes conform to 902.01.05. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer’s recommendations for percentage of WMA additive needed. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive.
4. For MOGFC, add a stabilizing additive consisting of mineral fiber or cellulose fiber to the mix. Use a stabilizing additive that conforms to the requirements for stabilizing additives in AASHTO M 325. Use only 1 type per mix design. If using mineral fibers, use a dosage rate of 0.4 percent by weight of total mix. If using cellulose fibers, use a dosage rate of 0.3 percent by weight of total mix. The dosage rate may be increased, as necessary, to prevent draindown as measured by the visual draindown determination of asphalt content in NJDOT B-8. Accurately control proportioning the fibers into the mixture within ±10 percent of the required weight, and use equipment that ensures uniform dispersion of the fibers. Store fibers in a dry location with a storage temperature not to exceed 120 °F. The supplier of the cellulose or mineral fibers shall provide a certification of compliance, as specified in 106.07, that the material supplied conforms to AASHTO M 325. Ensure that a technical representative from the additive supplier is at the work site for the first full day of construction for technical assistance.

902.03.02 Mix Design
THE FOURTH PARAGRAPH IS CHANGED TO:
The ME will test 2 specimens to verify that the final JMF produces a mixture that has a minimum void content as specified in Table 902.03.03-1. The ME will determine percent air voids according to AASHTO T 209, and either NJDOT B-6 or AASHTO T 331.

902.03.03 Sampling and Testing
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:
Ensure that the mix meets the requirements as specified in 902.02.04.A, otherwise the RE or ME will reject the material.

THE SECOND PARAGRAPH IS CHANGED TO:
During production, the ME will take one random acceptance sample from each 700 tons of production to verify composition. Conduct air voids and draindown tests as directed by the ME.

THE FOURTH PARAGRAPH IS CHANGED TO:
The ME will perform sampling according to NJDOT B-2 or ASTM D 3665, and will perform testing for composition according to AASHTO T 308 or NJDOT B-5. Perform testing for air voids according to AASHTO T 209 and either NJDOT B-6 or AASHTO T 331. Perform testing for draindown according to NJDOT B-7 or NJDOT B-8.

902.04.01 Composition of Mixture
THE ENTIRE SUBSECTION TEXT IS CHANGED TO:
Mix ultra-thin HMA in a plant listed on the QPL conforming to the requirements for HMA plants specified in 1009.01.
Use ultra-thin HMA that consists of coarse aggregate, fine aggregate, and polymer modified asphalt binder and that may contain mineral filler and a WMA additive. Do not add RAP, CRCG, GBSM, or RPCSA. Combine the material in such proportions that the total aggregate and asphalt binder conform to the composition percentages specified in Table 902.04.02-1.

To produce the ultra-thin HMA, use aggregates and asphalt binder that conforms to the following:

1. For asphalt binder, use PG 64E-22 conforming to the requirements of 902.01.01.
2. If used, ensure that WMA additives or processes conform to 902.01.05. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer’s recommendations for percentage of WMA additive needed. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive.
3. For fine aggregate, use 100 percent stone sand conforming to 901.05.02. Ensure that the combined gradation with coarse aggregate conforms to Table 902.04.02-1.
4. Use coarse aggregate that conforms to 901.05.01 and Table 902.04.01-1. Permissible geologic classifications for coarse aggregate are argillite, gneiss, granite, quartzite, or trap rock. Ensure that the combined gradation with fine aggregate conforms to Table 902.04.02-1.

<table>
<thead>
<tr>
<th>Tests</th>
<th>Test Method</th>
<th>Minimum Percent</th>
<th>Maximum Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of wear, Los Angeles Abrasion Test</td>
<td>AASHTO T 96</td>
<td>-</td>
<td>25</td>
</tr>
<tr>
<td>Flakiness Index</td>
<td>BS(^1) 812, part 105.1</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>Clay Lumps and Friable Particles</td>
<td>ASTM C 142</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Asphalt Affinity*</td>
<td>ASTM D 3625</td>
<td>95</td>
<td>-</td>
</tr>
</tbody>
</table>

\(^1\) British Standard Test Method

5. Use mineral filler, if necessary, that conforms to 901.05.03.

902.04.02 Mix Design
THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

For the mix design of the ultra-thin HMA, submit lab qualifications and references to the ME for approval prior to beginning work. Ensure that a technical representative from the lab which will perform the mix design is present during production to make adjustments as needed for mix compliance.

At least 30 days before the initial production date, submit the mix design to the ME for approval on forms supplied by the Department, including JMF for the ultra-thin HMA performed by an AASHTO accredited lab with at least five successfully completed ultra-thin HMA friction course projects greater than 5,000 tons each. Include a statement naming the source of each component and a report with the results for the criteria specified in Table 902.04.01-1 and 902.04.02-1.

If the source of any component material changes, submit a new JMF and obtain ME approval before using the new material. When unsatisfactory results or other conditions make it necessary, the ME may require a new JMF.

Design the ultra-thin HMA so that it has a draindown of less than 0.1 percent when tested according to AASHTO T 305.

When tested for moisture sensitivity according to AASHTO T 283, ensure that the ultra-thin HMA has a tensile strength ratio of at least 80 percent. Prepare specimens according to AASHTO T 312, and test according to T 283 except for the following:

1. Before compaction, condition the mixture for 2 hours according to AASHTO R 30, Section 7.1.
2. Compact specimens with 75 gyrations.
3. Extrude specimens as soon as possible without damaging.
4. Use AASHTO T 269 to determine void content.
5. Record the void content of the specimens.
6. If less than 55 percent saturation is achieved, repeat the procedure, unless the difference in tensile strength between duplicate specimens is greater than 25 pounds per square inch.
7. If visual stripping is detected, modify or readjust the mix.

Size, uniformly grade, and combine aggregate fractions in proportions so that the grading of total aggregate and asphalt binder in the JMF conform to the composition by mass percentages specified in Table 902.04.02-1.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Total % Passing By Mass</th>
<th>Production Control Tolerances from JMF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>100</td>
<td>±6.0</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>75-100</td>
<td>±5.5</td>
</tr>
<tr>
<td>¼&quot;</td>
<td>30-45</td>
<td>±5.5</td>
</tr>
<tr>
<td>No. 4</td>
<td>24-37</td>
<td>±5.5</td>
</tr>
<tr>
<td>No. 8</td>
<td>21-26</td>
<td>±4.5</td>
</tr>
<tr>
<td>No. 16</td>
<td>15-23</td>
<td>±4.0</td>
</tr>
<tr>
<td>No. 30</td>
<td>11-16</td>
<td>±4.0</td>
</tr>
<tr>
<td>No. 50</td>
<td>8-14</td>
<td>±4.0</td>
</tr>
<tr>
<td>No. 100</td>
<td>5-10</td>
<td>±3.0</td>
</tr>
<tr>
<td>No. 200</td>
<td>5.0-7.0</td>
<td>±2.0</td>
</tr>
<tr>
<td>Asphalt %</td>
<td>4.9-6.0</td>
<td>Ignition Oven ±0.40</td>
</tr>
</tbody>
</table>

During the construction of the test strip, take samples to confirm that the plant mixed material meets the requirements of the mix design. The ME will not grant final approval of the mix design until a successful verification of the plant produced mix and construction test strip.

902.04.03 Sampling and Testing
THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

Ensure that the mix meets the requirements as specified in 902.02.04.A, otherwise the RE or ME will reject the material. Maintain the temperature of the mix between 300 °F and 330 °F. Perform and meet requirements for quality control testing as specified in 902.02.04.C.

Ensure that a technical representative from the lab which designed the mix is present during production to make adjustments as needed for mix compliance. During production, the ME will take one random acceptance sample from each 700 tons of production to verify composition. Conduct draindown tests as directed by the ME.

If the composition testing results are outside of the production control tolerances specified in Table 902.04.02-1 for an acceptance sample, determine if a plant adjustment is needed and immediately run a quality control sample. If the quality control sample is also outside of the control tolerances in Table 902.04.02-1, immediately take corrective action to bring the mix into compliance. Take additional quality control samples after the corrective action to ensure that the mix is within the production control tolerances. If 2 consecutive acceptance samples are outside the tolerances specified in Table 902.04.02-1, immediately stop production. Obtain ME approval of a plant correction plan before resuming production. Upon restarting production, do not transport mixture to the Project Limits before the results of a QC sample from the mixture indicate that the mixture meets JMF tolerances. The ME will reject mixture produced at initial restarting that does not meet tolerances.

The ME will perform sampling according to NJDOT B-2 or ASTM D 3665, and will perform testing for composition according to AASHTO T 308. Perform testing for draindown according to NJDOT B-7 or NJDOT B-8.

902.05.01 Composition of Mixture
THE ENTIRE TEXT IS CHANGED TO:

Mix SMA in a plant that is listed on the QPL and conforms to the requirements for HMA plants as specified in 1009.01.
The composition of the SMA mixture is coarse aggregate, fine aggregate, mineral filler, mineral fibers or cellulose fibers, and polymer modified asphalt binder and may include a WMA additive.

Use asphalt binder for SMA that is PG 64E-22 as specified in 902.01.01.

For coarse aggregate in SMA, use crushed stone conforming to 901.05.01 and Table 902.05.01-1. Use at least 2 stockpiles of crushed stone with differing gradations to allow adjustments to meet the JMF.

<table>
<thead>
<tr>
<th>Test</th>
<th>Test Method</th>
<th>Maximum Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of wear, Los Angeles Abrasion Test</td>
<td>AASHTO T 96</td>
<td>30</td>
</tr>
<tr>
<td>Flat and Elongated,  5 to 1 (Material Retained on the No. 4 Sieve)</td>
<td>ASTM D 4791</td>
<td>5</td>
</tr>
<tr>
<td>Flat and Elongated, 3 to 1 (Material Retained on the No. 4 Sieve)</td>
<td>ASTM D 4791</td>
<td>20</td>
</tr>
</tbody>
</table>

For fine aggregate, use 100 percent stone sand conforming to 901.05.02. Ensure that the combined fine aggregate in the mixture conforms to the requirements in Table 902.02.02-2.

For mineral filler, use rock dust or crushed limestone conforming to AASHTO M 17. Ensure that the mineral filler has a plasticity index of less than 4 percent when tested according to AASHTO T 90.

Do not add RAP, CRCG, GBSM, or RPCSA to the mixture.

Add stabilizing fibers consisting of mineral fiber or cellulose fiber conforming to AASHTO M 325. Use only one type per mix design. If using mineral fibers, use between 0.4 and 0.6 percent by weight of total mix. If using cellulose fibers, use between 0.3 and 0.4 percent by weight of total mix. Provide control to accurately proportion the fibers into the mixture within ±10 percent of the required weight, and use equipment that ensures uniform dispersion of the fibers. If using pre-packaged bags of fibers added to the pugmill during the dry mix cycle, follow the manufacturer’s recommendations for the dry and wet mixing time. Store fibers in a dry location with a storage temperature not to exceed 120 °F. The supplier of the cellulose or mineral fibers shall provide a certification of compliance, as specified in 106.07, for the fibers. Ensure that a technical representative from the fiber supplier is at the HMA plant for the first full day of production for technical assistance.

If used, ensure that WMA additives or processes conform to 902.01.05. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer’s recommendations for percentage of WMA additive needed. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive.

902.05.02 Mix Design

Design the SMA to meet the requirements in Table 902.05.02-1 and Table 902.05.02-2. Prepare the JMF according to AASHTO R 46. Determine the JMF at 4 percent air voids and 75 gyrations of the Superpave gyratory compactor.

<table>
<thead>
<tr>
<th>Production Control Tolerances²</th>
<th>Sieve Size</th>
<th>19 mm % Passing</th>
<th>12.5 mm % Passing</th>
<th>9.5 mm % Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>1&quot;</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>±5%</td>
<td>3/4&quot;</td>
<td>90-100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>±5%</td>
<td>1/2&quot;</td>
<td>50-88</td>
<td>90-100</td>
<td>100</td>
</tr>
<tr>
<td>±5%</td>
<td>3/8&quot;</td>
<td>25-60</td>
<td>50-80</td>
<td>70-95</td>
</tr>
<tr>
<td>±4%</td>
<td>No. 4</td>
<td>20-28</td>
<td>20-35</td>
<td>30-50</td>
</tr>
<tr>
<td>±4%</td>
<td>No. 8</td>
<td>16-24</td>
<td>16-24</td>
<td>20-30</td>
</tr>
<tr>
<td>±4%</td>
<td>No. 16</td>
<td>–</td>
<td>–</td>
<td>0-21</td>
</tr>
<tr>
<td>±3%</td>
<td>No. 30</td>
<td>–</td>
<td>–</td>
<td>0-18</td>
</tr>
</tbody>
</table>

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
Table 902.05.02-2 SMA Mixtures Volumetrics For Design and Plant Production

<table>
<thead>
<tr>
<th>Property</th>
<th>Production Control Tolerances</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Voids</td>
<td>±1%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Voids in Mineral Aggregate (VMA)</td>
<td>–</td>
<td>17.0% minimum</td>
</tr>
<tr>
<td>VCA\text{mix}</td>
<td>–</td>
<td>Less than VCA\text{dry}</td>
</tr>
<tr>
<td>Draindown @ production temperature</td>
<td>–</td>
<td>0.30% maximum</td>
</tr>
<tr>
<td>Asphalt Binder Content (AASHTO T 308)</td>
<td>±0.40%</td>
<td>6% minimum</td>
</tr>
<tr>
<td>Tensile Strength Ratio (AASHTO T 283)</td>
<td>–</td>
<td>80% minimum</td>
</tr>
</tbody>
</table>

902.05.03 Sampling and Testing

The entire text is changed to:

Perform quality control testing as specified in 902.02.04.C. Ensure that the mix meets the requirements as specified in 902.02.04.A, otherwise the RE or ME will reject the material.

During production at the plant, the ME will take a sample from each 700 tons of production to verify composition and air voids. Conduct draindown, VCA\text{mix}, VCA\text{dry}, and VMA testing as directed by the ME. Perform tests according to AASHTO R 46.

If the testing results are outside of the production control tolerances specified in Table 902.05.02-1 and Table 902.05.02-2 for an acceptance sample, determine if a plant adjustment is needed and immediately run a quality control sample. If the quality control sample is also outside of the control tolerances in Table 902.05.02-1, immediately take corrective action to bring the mix into compliance. Take additional quality control samples after completing the corrective action to ensure that the mix is within tolerances. If 2 consecutive acceptance samples are outside the tolerances specified in Table 902.05.02-1 and Table 902.05.02-2, immediately stop production. Obtain ME approval of a plant correction plan before resuming production. Upon restarting production, do not transport mixture to the Project Limits before the results of a QC sample from the mixture indicate that the mixture meets JMF tolerances. The ME will reject mixture produced at initial restarting that does not meet tolerances.

The ME will perform sampling according to NJDOT B-2 or ASTM D 3665, and will perform testing for composition according to AASHTO T 308. The ME will determine bulk specific gravity of the compacted sample according to AASHTO T 166 or AASHTO T 331. The ME will use the most current QC maximum specific gravity test result, obtained according to AASHTO T 209, in calculating the volumetric properties of the SMA. Perform testing for draindown according to AASHTO T 305.

902.06.01 Composition

The entire text is changed to:

Mix ASDC in a plant that is listed on the QPL and conforms to the requirements specified in 1009.01.

The mixture shall consist of asphalt binder and aggregate and may contain a WMA additive. Use asphalt binder that is PG 64-22 as specified in 902.01.01. Use aggregate that conforms to 901.05.01 or 901.05.02 and the gradation requirements specified in Table 902.06.01-1.

If used, ensure that WMA additives or processes conform to 902.01.05. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively...
impact the grade of asphalt binder. Follow the manufacturer’s recommendations for percentage of WMA additive needed. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive.

<table>
<thead>
<tr>
<th>Production Tolerance (Variation From JMF)</th>
<th>Sieve Size</th>
<th>JMF (Percent Passing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.0</td>
<td>1&quot;</td>
<td>100</td>
</tr>
<tr>
<td>±6.0</td>
<td>3/4&quot;</td>
<td>95 - 100</td>
</tr>
<tr>
<td>±5.5</td>
<td>1/2&quot;</td>
<td>85 - 100</td>
</tr>
<tr>
<td>±5.5</td>
<td>3/8&quot;</td>
<td>60 - 90</td>
</tr>
<tr>
<td>±5.5</td>
<td>No. 4</td>
<td>15 - 25</td>
</tr>
<tr>
<td>±4.5</td>
<td>No. 8</td>
<td>2 - 10</td>
</tr>
<tr>
<td>±2.0</td>
<td>No. 200</td>
<td>2 - 5</td>
</tr>
</tbody>
</table>

Design the mixture to have an asphalt binder content of 3 ± 1/2 percent by weight of dry aggregate.

902.06.03 Sampling and Testing
THE ENTIRE TEXT IS CHANGED TO:

Perform quality control testing as specified in 902.02.04.C. Ensure that the mix meets the requirements as specified in 902.02.04.A, except that the temperature of the mix at discharge is required to be between 230 °F and 275 °F, otherwise the RE or ME will reject the material. For mixes produced using a WMA additive or process, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 10 °F above the WMA manufacturer’s recommended laydown temperature.

During production, the ME will take one random acceptance sample from each 700 tons of production to verify composition. Conduct draindown tests as directed by the ME.

If the composition testing results are outside of the production control tolerances specified in Table 902.06.01-1 for an acceptance sample, determine if a plant adjustment is needed and immediately run a quality control sample. If the quality control sample is also outside of the control tolerances specified in Table 902.06.01-1, immediately take corrective action to bring the mix into compliance. Take additional quality control samples after the corrective action to ensure that the mix is within tolerances. If 2 consecutive acceptance samples are outside the tolerances specified in Table 902.06.01-1, immediately stop production. Obtain ME approval of a plant correction plan before resuming production. Upon restarting production, do not transport mixture to the Project before the results of a QC sample from the mixture indicate that the mixture meets JMF tolerances. The ME will reject mixture produced at initial restarting that does not meet tolerances.

The ME will perform sampling according to NJDOT B-2 or ASTM D-3665 and will perform testing for composition according to AASHTO T 308. If directed by the ME, perform testing for draindown according to AASHTO T 305.

THE FOLLOWING SUBSECTIONS ARE ADDED

902.07 ASPHALT-RUBBER OPEN- GRADED FRICTION COURSE (AR-OGFC)

902.07.01 Composition of Mixture
Mix AR-OGFC in a plant listed on the QPL and conforming to the requirements for HMA plants specified in 1009.01. Ensure the HMA plant is equipped with asphalt-rubber binder blending equipment as specified in 1009.03.

Composition of mixture for AR-OGFC is coarse aggregate, fine aggregate and asphalt-rubber binder. Ensure that the mixture conforms to the following requirements:

1. Use aggregates that conform to 901.05. Use fine aggregate that is 100 percent stone sand and conforms to Table 902.02.02-2.
2. Do not use RAP, CRCG, GBSM, or RPCSA.
3. Use asphalt-rubber binder that conforms to 902.07.02.
902.07.02  Asphalt-Rubber Binder

A. Materials. Use the following materials:

1. Ground Crumb Rubber. Ensure that the ground crumb rubber has a specific gravity of 1.15 ± 0.05, is free of wire or other contaminating materials, and contains not more than 0.5 percent fabric. Use crumb rubber that is ambient ground and conforms to the gradation requirements specified in Table 902.07.02-1. Ensure that the moisture content is less than 0.75 percent. The Contractor may add up to four percent calcium carbonate by weight of the granulated rubber, to prevent the particles from sticking together.

| Table 902.07.02-1  Ground Crumb Rubber Gradation |
|----------------------|------------------|
| Sieve Size | Percent Passing1, 2 |
| No. 8 | 100 |
| No. 16 | 65 – 100 |
| No. 30 | 20 – 100 |
| No. 50 | 0 – 45 |
| No. 200 | 0 – 5 |

1. Perform gradation according to AASHTO T 27 using a minimum 50 gram sample.
2. Ensure that the gradation is performed as specified in NJDOT B-11.

Submit to the ME a certification of compliance, as specified in 106.07, for the ground crumb rubber. In addition, ensure that the certificates confirm that the rubber is a crumb rubber, derived from processing whole scrap tires or shredded tire materials; and the tires from which the crumb rubber is produced are taken from automobiles, trucks, or other equipment owned and operated in the United States. Include with the certifications verifications that the processing did not produce, as a waste product, casings, or other round tire material that can hold water when stored or disposed of above ground.

2. Asphalt Binder.

a. Use asphalt binder that conforms to AASHTO M 320, Table 1; PG 64-22, PG 58-28 or an approved blend of both grades. The asphalt binder producer is required to provide the asphalt binder quality control plan annually to the ME for approval. Ensure that the quality control plan conforms to AASHTO R 26. Submit to the ME a certification of compliance, as specified in 106.07, for the asphalt binder. The ME will perform quality assurance sampling and testing of each asphalt binder lot as defined in the approved quality control plan.

b. Use one or more of the following types of warm mix asphalt (WMA) additives or processes:

1. Organic additives such as a paraffin wax or a low molecular weight esterified wax.

2. Chemical additive that acts as a surfactant or dispersing agent.

Do not use controlled asphalt foaming systems or any other steam injection processes or steam introducing additives. WMA is a method of producing asphalt pavement at a mixing and compaction temperatures at least 30 °F lower than Hot Mix Asphalt (HMA) by using one or more of the types of WMA additives listed above. Submit information on the WMA additive or process with the Paving Plan required in 402.03.02.A. Include in the submission, the name and description of the additive or process, the manufacturer’s recommendations for usage of the additive or process, recommendations for mixing and compaction temperatures, and details on at least one project on which the additive was successfully used in the United States on a crumb rubber modified asphalt mixture. In the details of a project, include tonnage, type of mix, dosage, mixing and compaction temperatures, available test results, and contact information for project. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. The ME will evaluate the impacts to performance grade of the asphalt binder based upon certification from manufacturer in conjunction with laboratory data indicating the
effects of the additive on the asphalt binder properties. Follow the manufacturer’s recommendations for the dosage of WMA additive needed and approved blending method(s).

Ensure that a technical representative of the WMA additive manufacturer is on-site or available for consultation during the production and placement of the AR-OGFC with the warm mix additive.

B. Mixing. Using the asphalt-rubber binder blending equipment in 1009.03, produce the asphalt-rubber binder to contain at least 17 percent ground rubber by the weight of total asphalt binder (asphalt + crumb rubber). Ensure that the temperature of the asphalt cement is between 350 and 400 °F at the time of addition of the ground rubber. Ensure that there are no agglomerations of rubber particles in excess of two inches in the least dimension in the mixing chamber.

Document that the proportions are accurate and that the rubber has been uniformly incorporated into the mixture. Report as directed by the ME. Ensure that the crumb rubber and asphalt-cement are thoroughly mixed before beginning the one-hour reaction period. Rubber floating on the surface or agglomerations of rubber particles is evidence of insufficient mixing. Maintain the temperature of the asphalt-rubber binder immediately after mixing between 325 and 375 °F. Maintain the temperature of the asphalt-rubber binder for at least one hour before using.

C. Properties. Prepare asphalt-rubber binder using the “wet process.” Physical properties are required to comply with the requirements of ASTM D 6114, Type II, except for the properties specified in Table 902.07.02.

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Procedure</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience: 77 °F; %, minimum</td>
<td>ASTM D 5329</td>
<td>25</td>
</tr>
<tr>
<td>Rotational Viscosity1 350 °F; cP</td>
<td>NJDOT B-12</td>
<td>2000 – 4000</td>
</tr>
</tbody>
</table>

1. The viscotester used must be correlated to a Rion (formerly Haake) Model VT-04 viscotester using the No. 1 Rotor. The Rion viscotester rotor, while in the off position, is required to be completely immersed in the binder at a temperature from 350 ± 3 °F for a minimum heat equilibrium period of 60 seconds, and the average viscosity determined from three separate constant readings (± 500 cP) taken within a 30 second time frame with the viscotester level during testing and turned off between readings. Continuous rotation of the rotor may cause thinning of the material immediately in contact with the rotor, resulting in erroneous results.

D. Handling and Testing. Once the asphalt-rubber binder has been mixed, thoroughly agitate during periods of use to prevent settling of the rubber particles. During production, maintain asphalt-rubber binder between 325 and 375 °F. Ensure that asphalt-rubber binder is not held at 325 °F or higher for more than 16 hours. Allow asphalt-rubber binder held for more than 16 hours to cool. To reuse, gradually reheat to between 325 and 375 °F. Do not cool and reheat more than one time. Do not store asphalt-rubber binder above 250 °F for more than four days.

For each load or batch of asphalt-rubber binder, provide the RE with the following:

1. The source, grade, amount, and temperature of the asphalt cement before the addition of rubber.
2. The source and amount of rubber and the rubber content expressed as percent by the weight of the asphalt cement.
3. Times and dates of the rubber additions and resultant viscosity test.
4. A record of the temperature, with time and date reference for each load or batch. The record begins at the time of the addition of rubber and continue until the load or batch is completely used. Take readings and record every temperature change in excess of 20 °F, and as needed to document other events that are significant to batch use and quality.

902.07.03 Mix Design

Submit binder and mix designs including JMF for each mixture performed by an AASHTO accredited lab with at least five successfully completed asphalt-rubber open-graded friction course projects greater than 5,000 tons each. Include a statement naming the source of each component and a report with the results for the criteria specified in Table....
Include a report detailing the rotational viscosity of the asphalt-rubber binder at 60, 90, 135, 240, and 1440 minutes. Submit lab qualifications and references to the ME for approval prior to beginning work.

Design the mix to meet the criteria in Table 902.07.03-1.

| Table 902.07.03-1 JMF Master Ranges and Mixture Requirements AR-OGFC |
|-------------------------|----------------------|
| Sieve Sizes             | AR-OGFC             |
| 1/2”                    | 100                 |
| 3/8”                    | 90 – 100            |
| No. 4                   | 20 – 40             |
| No. 8                   | 5 – 10              |
| No. 200                 | 0 – 3.0             |
| Minimum asphalt-rubber binder, % | 8.4 |
| Minimum % Air Voids, design | 15 |

1. Aggregate percent passing to be determined based on dry aggregate weight.
2. Asphalt-rubber binder content to be determined based on total weight of mix.

Determine and verify the JMF according to NJDOT B-8. Ensure that the JMF is within the master range specified in Table 902.07.03-1.

Prepare compacted test specimens for submittal to the ME at least 30 days before the initial production date. Prepare these specimens from material mixed according to the final JMF, using 50 gyrations of the Superpave gyratory compactor according to AASHTO T 312.

The ME will test 2 specimens to verify stone-on-stone contact according to NJDOT B-8 and that the final JMF produces a mixture that has a minimum void content as specified in Table 902.07.03-1. The ME will determine percent air voids according to AASHTO T 209 and AASHTO T 331.

The ME will test 2 test specimens for abrasion and impact resistance using a modified L.A. Abrasion Test according to NJDOT B-8. The maximum allowable loss as calculated by this method is 30 percent.

Do not modify, which includes changing the asphalt cement supplier, the JMF unless the ME approves the modification.

902.07.04 Sampling and Testing

A. General Acceptance Requirements. General Acceptance Requirements. The RE or ME may reject and require disposal of any batch or shipment that is rendered unfit for its intended use due to contamination, segregation, improper temperature, lumps of cold material, or incomplete coating of the aggregate. For other than improper temperature, visual inspection of the material by the RE or ME is considered sufficient grounds for such rejection.

For AR-OGFC with WMA additive, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins meets the WMA additive manufacturer’s recommendations. Do not allow the mixture temperature to exceed 300 °F at discharge from the plant. For mixes produced using a WMA additive or process, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 10 °F above the WMA manufacturer’s recommended laydown temperature.

Combine and mix the aggregates and asphalt-rubber binder to ensure that at least 95 percent of the coarse aggregate particles are entirely coated with asphalt-rubber binder as determined according to AASHTO T 195. If the ME determines that there is an on-going problem with coating, the ME may obtain random samples from 5 trucks and will determine the adequacy of the mixing on the average of particle counts made on these 5 test portions. If the requirement for 95 percent coating is not met on each sample, modify plant operations, as necessary, to obtain the required degree of coating.

B. Quality Control Testing. The HMA producer is required to provide a quality control (QC) technician who is certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Technologist, Level 2. The QC technician may substitute equivalent technician certification by the Mid-Atlantic Region Technician Certification Program (MARTCP). Ensure that the QC technician is present during periods of mix production for the sole...
purpose of quality control testing and to assist the ME. The ME will not perform the quality control testing or other routine test functions in the absence of, or instead of, the QC technician.

The QC technician is required to perform sampling and testing according to the approved quality control plan, to keep the mix within the limits specified for the mix being produced. The QC technician may use acceptance test results or perform additional testing as necessary to control the mix.

For each acceptance test, perform maximum specific gravity testing according to AASHTO T 209 on a test portion of the sample taken by the ME. Sample and test coarse aggregate, fine aggregate and mineral filler according to the approved quality control plan for the plant.

C. Acceptance Testing. During production, the ME will take one random acceptance sample from each 700 tons of production to verify composition. The ME will perform sampling according to NJDOT B-2 or ASTM D 3665, and will perform testing for composition according to AASHTO T 308. Perform testing for air voids according to T 209 and either B-6 or T 331. Perform testing for draindown according to NJDOT B-8.

Conduct air voids and draindown tests as directed by the ME.

If the composition testing results are outside of the production control tolerances specified in Table 902.07.04-1 for an acceptance sample, determine if a plant adjustment is needed and immediately run a quality control sample. If the quality control sample is also outside of the control tolerances in Table 902.07.04-1, immediately take corrective action to bring the mix into compliance. Take additional quality control samples after the corrective action to ensure that the mix is within the production control tolerances. If two consecutive acceptance samples are outside the tolerances specified in Table 902.07.04-1, immediately stop production. Obtain ME approval of a plant correction plan before resuming production. Upon restarting production, do not transport mixture to the Project Limits before the results of a QC sample from the mixture indicate that the mixture meets JMF tolerances. The ME will reject mixture produced at initial restarting that does not meet tolerances.

### Table 902.07.04-1 Production Control Tolerances for AR-OGFC Mixtures

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Production Control Tolerances from JMF&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>±6.0</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>±5.5</td>
</tr>
<tr>
<td>No. 4</td>
<td>±5.5</td>
</tr>
<tr>
<td>No. 8</td>
<td>±4.5</td>
</tr>
<tr>
<td>No. 200</td>
<td>±2.0</td>
</tr>
<tr>
<td>Asphalt-rubber binder, % (AASHTO T 308)</td>
<td>±0.40</td>
</tr>
</tbody>
</table>

Minimum % Air Voids 1.0% less than design requirement

1. Production tolerances may fall outside of the wide band gradation limits in Table 902.07.03-1.

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902.08 HIGH PERFORMANCE THIN OVERLAY (HPTO)

902.08.01 Composition of Mixture

Mix HPTO in a plant that is listed on the QPL and conforms to the requirements for HMA Plants as specified in 1009.01. The composition of the mixture for HPTO is coarse aggregate, fine aggregate, and asphalt binder, and may also include mineral filler and a WMA additive. Do not use Reclaimed Asphalt Pavement (RAP), Ground Bituminous Shingle Material, Remediated Petroleum Contaminated Soil Aggregate, or Crushed Recycled Container Glass (CRCG). Use asphalt binder and aggregates that meet the following requirements:

1. For the asphalt binder, use PG 64E-22 as specified in 902.01.01.

2. If used, ensure that WMA additives or processes conform to 902.01.05. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer’s recommendations.
for percentage of WMA additive needed. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive.

3. Use coarse aggregate that is argillite, gneiss, granite, quartzite, or trap rock and conforms to 901.05.01.

4. For fine aggregate, use 100 percent stone sand conforming to 901.05.02 and having an uncompacted void content of at least 45 percent when tested according to AASHTO T 304, Method A. In addition, the minimum sand equivalent is 45 percent when tested according to AASHTO T 176.

5. If necessary, use mineral filler as specified in 901.05.03.

902.08.02 Mix Design

At least 45 days before initial production, submit a job mix formula for the HPTO on forms supplied by the Department. Include a statement naming the source of each component and a report showing the results meet the criteria specified in Tables 902.08.03-1 and 902.08.03-2.

For the job mix formula for the HPTO mixture, establish the percentage of dry weight of aggregate passing each required sieve size and an optimum percentage of asphalt binder based upon the weight of the total mix. Determine the optimum percentage of asphalt binder according to AASHTO R 35 and M 323 with an Ndes of 50 gyrations. Before maximum specific gravity testing or compaction of specimens, condition the mix for 2 hours according to the requirements for conditioning for volumetric mix design in AASHTO R 30, Section 7.1. If the absorption of the combined aggregate is more than 1.5 percent according to AASHTO T 84 and T 85, condition the mix for 4 hours according to AASHTO R 30, Section 7.2 prior to compaction of specimens (AASHTO T 312) and determination of maximum specific gravity (AASHTO T 209). Ensure that the job mix formula is within the master range specified in, Table 902.08.03-1.

Ensure that the job mix formula provides a mixture that meets a minimum tensile strength ratio (TSR) of 85 percent when prepared according to AASTHO T 312 and tested according to AASHTO T 283 with the following exceptions:

1. Before compaction, condition the mixture for 2 hours according to AASHTO R 30 Section 7.1.
2. Compact specimens with 40 gyrations.
3. Extrude specimens as soon as possible without damaging.
4. Use AASHTO T 269 to determine void content.
5. Record the void content of the specimens.
6. If less than 55 percent saturation is achieved, the procedure does not need to be repeated, unless the difference in tensile strength between duplicate specimens is greater than 25 pounds per square inch.
7. If visual stripping is detected, modify or readjust the mix.

For each mix design, submit three gyratory specimens and one loose sample corresponding to the composition of the job mix formula, including the design asphalt content. The ME will use these samples for verification of the properties of the job mix formula. Compact the specimens to the design number of gyrations (Ndes). To be acceptable all three gyratory specimens must comply with the gradation and asphalt content requirements in Table 902.08.03-1 and with the control requirements in Table 902.08.03-2. The ME reserves the right to be present at the time of molding the gyratory specimens.

In addition, submit 6 gyratory specimens and a 5 gallon bucket of loose mix to the ME. Compact the additional gyratory specimens according to AASHTO T 312. Ensure that the 6 gyratory specimens are 77 millimeters high and have an air void content of 5.0 ± 0.5 percent. The ME will use the additional samples for performance testing of the HPTO mix. The ME will test the specimens using an Asphalt Pavement Analyzer according to AASHTO T 340 at 64 °C, 100 pounds per square inch hose pressure, and 100 pound wheel load. The ME will approve the job mix formula if the average rut depth for the 6 specimens in the asphalt pavement analyzer testing is not more than 4 millimeters in 8,000 loading cycles. If the job mix formula does not meet the APA criteria, redesign the HPTO mix.

If unsatisfactory results for any specified characteristic of the work make it necessary, establish a new job mix formula for approval. In such instances, if corrective action is not taken, the ME may require an appropriate adjustment.
If a change in sources is made or a change in the properties of materials occurs, the ME will require that a new job mix formula be established and approved before production can continue.

902.08.03 Sampling and Testing

A. General Acceptance Requirements. The RE or ME may reject and require disposal of any batch or shipment that is rendered unfit for its intended use due to contamination, segregation, improper temperature, lumps of cold material, or incomplete coating of the aggregate. For other than improper temperature, visual inspection of the material by the RE or ME is considered sufficient grounds for such rejection.

Ensure that the temperature of the HPTO at discharge from the plant or surge and storage bins is maintained between 300 and 330 °F. For mixes produced using a WMA additive or process, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 10 °F above the WMA manufacturer’s recommended laydown temperature.

Combine and mix the aggregates and asphalt binder to ensure that at least 95 percent of the coarse aggregate particles are entirely coated with asphalt binder as determined according to AASHTO T 195. If the ME determines that there is an on-going problem with coating, the ME may obtain random samples from 5 trucks and will determine the adequacy of the mixing on the average of particle counts made on these 5 test portions. If the requirement for 95 percent coating is not met on each sample, modify plant operations, as necessary, to obtain the required degree of coating.

B. Sampling. The ME will take a sample of HPTO for volumetric acceptance testing from each 700 tons of a mix. The ME will perform sampling according to AASHTO T 168, NJDOT B-2, or ASTM D 3665.

C. Quality Control Testing. The HMA producer is required to provide a quality control (QC) technician who is certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Technologist, Level 2. The QC technician may substitute equivalent technician certification by the Mid-Atlantic Region Technician Certification Program (MARTCP). Ensure that the QC technician is present during periods of mix production for the sole purpose of quality control testing and to assist the ME. The ME will not perform the quality control testing or other routine test functions in the absence of, or instead of, the QC technician.

The QC technician is required to perform sampling and testing according to the approved quality control plan, to keep the mix within the limits specified for the HPTO mix being produced. The QC technician may use acceptance test results or perform additional testing as necessary to control the mix.

To determine the composition, perform ignition oven testing according to AASHTO T 308. For each acceptance test, perform maximum specific gravity testing according to AASHTO T 209 on a test portion of the sample taken by the ME. Sample and test coarse aggregate, fine aggregate, mineral filler, and RAP according to the approved quality control plan for the plant.

D. Acceptance Testing and Requirements. The ME will determine volumetric properties at Ndes for acceptance from samples taken, compacted, and tested at the HMA plant. The ME will compact HPTO to 50 gyrations, using equipment according to AASHTO T 312. The ME will determine bulk specific gravity of the compacted sample according to AASHTO T 166. The ME will use the most current QC maximum specific gravity test result in calculating the volumetric properties of the HPTO.

The ME will determine the dust-to-binder ratio from the composition results as tested by the QC technician.

Ensure that the HMA mixture conforms to the requirements specified in Table 902.08.03-2, and to the gradation requirements in Table 902.08.03-1. If 2 samples in 5 consecutive samples fail to conform to the gradation or volumetric requirements, immediately initiate corrective action.

The ME will test a minimum of 1 sample per 3500 tons for moisture, basing moisture determinations on the weight loss of an approximately 1600-gram sample of mixture heated for 1 hour in an oven at 280 ± 5 °F. Ensure that the moisture content of the mixture at discharge from the plant does not exceed 1.0 percent.

E. Performance Testing. Provide 6 gyratory specimens and a 5 gallon bucket of loose mix to the ME. Compact the additional gyratory specimens according to AASHTO T 312. Ensure that the 6 gyratory specimens are 77 millimeters high and have an air void content of 5.0 ± 0.5 percent. The first sample is required to be taken in the first 1500 tons of production. Thereafter, random samples every 10,000 tons is required to be sampled. The ME
will use the samples for performance testing of the HPTO mix. The ME will test the specimens using an Asphalt Pavement Analyzer according to AASHTO T 340 at 64 °C, 100 pounds per square inch hose pressure, and 100 pounds wheel load. If the HPTO mix exceeds the APA criteria of 5 mm in 8000 loading cycles, the ME may stop production until corrective action is taken. If the HPTO mix exceeds the APA criteria of 12 mm in 8000 loading cycles, the RE may require removal and replacement of the HPTO.

<table>
<thead>
<tr>
<th>Table 902.08.03-1 HPTO Grading of Total Aggregate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Size</td>
</tr>
<tr>
<td>3/8&quot;</td>
</tr>
<tr>
<td>#4</td>
</tr>
<tr>
<td>#8</td>
</tr>
<tr>
<td>#16</td>
</tr>
<tr>
<td>#30</td>
</tr>
<tr>
<td>#50</td>
</tr>
<tr>
<td>#100</td>
</tr>
<tr>
<td>#200</td>
</tr>
</tbody>
</table>

Minimum Percent Asphalt by Mass of Total Mix: 7

<table>
<thead>
<tr>
<th>Table 902.08.03-2 Volumetric Requirements for Design and Control of HPTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Density (%) of Max. Sp. Gr.</td>
</tr>
<tr>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Ndes (50 gyrations)</td>
</tr>
<tr>
<td>Design Requirements</td>
</tr>
<tr>
<td>Control Requirements</td>
</tr>
</tbody>
</table>

THE FOLLOWING SUBSECTIONS ARE ADDED

**902.09 MICRO SURFACING**

**902.09.01 Composition of the Mixture**

Ensure that the micro surfacing mixture components conform to the following:

1. **Micro Surfacing Emulsion.** Use polymer modified emulsified asphalt. Ensure that the emulsified asphalt and emulsified asphalt residue is a quick set polymer modified asphalt emulsion conforming to the requirements of AASHTO M 208 for a CQS-1h emulsion and the following:
   a. Use a minimum of 3 percent polymer material, by weight of asphalt.
   b. Ensure that the polymer material is milled or blended into the asphalt prior to the emulsification process by an emulsification manufacturer approved by the ME.
   c. Ensure that the polymer modifier and any additives enable the micro surfacing material to receive normal traffic within one hour without causing damage to the surface. The cement mixing test is waived for this emulsion. 
   d. Ensure that the emulsified asphalt and the emulsified asphalt residue meet all of the quality test criteria in section 4.1.2 of the International Slurry Surfacing Association (ISSA) “Recommended
Performance Guideline for Micro Surfacing”; A 143

2. **Aggregate.** Use only manufactured stone sand and crushed stone that conform to 901.05. Ensure that the fine aggregate has a Sand Equivalent value of 65 percent minimum when tested according to AASHTO T 176.

3. **Mineral Filler.** Use mineral filler that conforms to ASTM D 242 and is free of lumps.

4. **Water.** Use water that conforms to 919.08.

5. **Other Additives.** The Contractor may use other additives to provide control of the break/set time in the field. Ensure that the type of additive is specified in the mix design.

**902.09.02 Mix Design of Micro Surfacing Mixture**

**A. Mix Design Requirements.** Ensure that an AASHTO accredited lab, with at least five successfully completed micro surfacing projects greater than 5,000 square yards each, performs the mix design. Submit the mix design and certified test results of the micro surfacing mixture for approval in accordance with the provisions of ASTM D 6372, Standard Practice for Design, Testing, and Construction of Micro Surfacing and the following:

1. Ensure that the aggregate used in the job mix formula is from the same source and representative of the material proposed for use on the project.

2. Ensure that the compatibility of the aggregate, micro surfacing emulsion, water, mineral filler, and other additives is evaluated in the mix design. Perform the mix design using materials consistent with those supplied by the contractor for the project. Ensure the micro surfacing mix conforms to the requirements as specified in Table 902.09.02-1.

3. Ensure proportioning of the mix design is within the limits in Table 902.09.02-2:

**Table 902.09.02-1 Micro Surfacing Mixture Requirements**

<table>
<thead>
<tr>
<th>Tests</th>
<th>ISSA Test Method</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mix Time @ 77 °F</td>
<td>TB 113</td>
<td>Controllable to 120 seconds minimum</td>
</tr>
<tr>
<td>Mix Time @ 100 °F</td>
<td>TB 113</td>
<td>Controllable to 35 seconds minimum</td>
</tr>
<tr>
<td>Wet Cohesion @ 30 minutes minimum (set)</td>
<td>TB 139</td>
<td>12 kg-cm minimum</td>
</tr>
<tr>
<td>Wet Cohesion @ 60 minutes minimum (traffic)</td>
<td>TB 139</td>
<td>20 kg-cm or near spin minimum</td>
</tr>
<tr>
<td>Wet Stripping</td>
<td>TB 114</td>
<td>90 % minimum</td>
</tr>
<tr>
<td>Wet-Track Abrasion Loss</td>
<td>TB 100</td>
<td>50 g/ft² (538 g/m²) maximum</td>
</tr>
<tr>
<td>One-hour soak</td>
<td>TB 100</td>
<td>75 g/ft² (807 g/m²) maximum</td>
</tr>
<tr>
<td>Six-day soak</td>
<td>TB 100</td>
<td>2.10 maximum</td>
</tr>
<tr>
<td>Specific Gravity after 1,000 cycles of 125</td>
<td>TB 147</td>
<td>5% maximum</td>
</tr>
<tr>
<td>pounds (56.71 kg)</td>
<td>TB 147</td>
<td>2.10 maximum</td>
</tr>
<tr>
<td>Excess Asphalt by LWT Sand Adhesion</td>
<td>TB 109</td>
<td>50 g/ft² (538 g/m²) maximum</td>
</tr>
<tr>
<td>Classification Compatibility</td>
<td>TB 144</td>
<td>11 grade points minimum (AAA, BAA)</td>
</tr>
</tbody>
</table>

4. Ensure that the proportions of aggregate and mineral filler are provided and within the limits of Table 902.09.03-1.

**B. Mix Design Report.** Submit the final mix design in the following format:

1. Source of each individual material.
2. Aggregate:
   a. Gradation
   b. Sand Equivalent
   c. Abrasion Resistance
   d. Soundness

3. Field Simulation Tests:
   a. Wet Stripping Test
   b. Wet Track Abrasion Loss
   c. Classification Compatibility
   d. Trial Mix Time @ 77 °F and 100 °F

4. Interpretation of Results and the Determination of a Job Mix Formula (JMF):
   a. Percentage of Mineral Filler (minimum and maximum)
   b. Percentage of Water, including aggregate moisture (minimum and maximum)
   c. Percentage of Mix Set Additive (if required)
   d. Percentage of Modified Emulsion
   e. Residual Content of Modified Emulsion
   f. Percentage of Residual Asphalt
   g. Combined Aggregate Gradation (JMF)

5. Signature and date

902.09.03 Sampling and Testing

The ME will perform sampling and testing of the aggregate at least 10 days prior to the start of work. The ME will sample aggregate from stockpiles designated and constructed for each mixture type on the project. The ME will sample the aggregate according to AASHTO T 2 and test according to AASHTO T 11 and T 27 using the following sampling frequency:

1. When the project quantity for the specified mixture type is less than 500 tons, designate the entire quantity as one lot and divide into three equal sublots for sampling. Obtain one sample from each sublot and submit to the ME for testing. The ME will randomly select only one of the three samples and test for compliance with Table 902.09.03-1. If the sample tested meets the specification, the entire lot is acceptable for use on the project. If the sample fails, the ME will test the remaining two samples. If the two samples both meet specification, the entire lot is acceptable for use on the project. If either of the two additional samples fails to meet the specification, the entire lot is rejected.

2. When the project quantity for the specified mixture type is 500 tons or greater, divide the aggregate into equal lots at the discretion of the ME, but in no case is the lot size to exceed 1,000 tons. Divide each lot into three equal sublots and obtain one sample for each sublot. The ME will randomly select only one of the three samples and test for compliance with Table 902.09.03-1. If the sample tested meets the specification, the entire lot is acceptable for use on the project. If the sample fails, the ME will test the remaining two samples. If the two samples both meet specification, the entire lot is acceptable for use on the project. If either of the two additional samples fails to meet the specification, the entire lot is rejected.

Take precautions to ensure that approved stockpiles of aggregate do not become contaminated at the jobsite. Screen oversize aggregate or foreign materials from the aggregate prior to delivery to the mixer.

During the micro surfacing application, in the presence of the inspector, sample the mixture twice daily or as directed from the pug mill discharge chute. Use a rectangular non-absorptive container, such as a loaf pan, of sufficient size to obtain a sample from the entire cross section of the mixture being discharged. Ensure that an AASHTO accredited lab, with at least five successfully completed micro surfacing projects greater than 5,000 square yards each, analyzes the mix for binder content and compliance with specifications. Submit certified results to the ME. The ME may perform independent testing.

Ensure that the asphalt content is within ± 0.40 of the JMF. If the asphalt content is outside of the allowable tolerance, recalibrate or adjust the mixing machine. The RE may stop the micro surfacing operation if two or more samples fail to conform to the tolerance. Take corrective action or re-design the micro surfacing mixture. Resume operations only after
RE has approved the corrective action.

Use aggregate, including mineral filler, which conforms to the gradation in Table 902.09.03-1.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Type II Percent Passing</th>
<th>Type III Percent Passing</th>
<th>Stockpile Tolerances from JMF</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>100</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>No. 4</td>
<td>90-100</td>
<td>70-90</td>
<td>±5%</td>
</tr>
<tr>
<td>No. 8</td>
<td>65-90</td>
<td>45-70</td>
<td>±5%</td>
</tr>
<tr>
<td>No. 16</td>
<td>45-70</td>
<td>28-50</td>
<td>±5%</td>
</tr>
<tr>
<td>No. 30</td>
<td>30-50</td>
<td>19-34</td>
<td>±5%</td>
</tr>
<tr>
<td>No. 50</td>
<td>18-30</td>
<td>12-25</td>
<td>±4%</td>
</tr>
<tr>
<td>No. 100</td>
<td>10-21</td>
<td>7-18</td>
<td>±3%</td>
</tr>
<tr>
<td>No. 200</td>
<td>5-15</td>
<td>5-15</td>
<td>±2%</td>
</tr>
</tbody>
</table>

902.10 SLURRY SEAL

902.10.01 Composition of the Mixture

Ensure that the slurry seal mixture components conform to the following:

1. **Slurry Seal Emulsion.** Use polymer modified emulsified asphalt. Ensure that the emulsified asphalt and emulsified asphalt residue is a quick set polymer modified asphalt emulsion conforming to the requirements of AASHTO M 208 for a CQS-1h emulsion and the following:
   a. Use a minimum of 3 percent polymer material, by weight of asphalt.
   b. Ensure that the polymer material is milled or blended into the asphalt prior to the emulsification process by an emulsion manufacturer approved by the ME.
   c. Ensure that the polymer modifier and any additives enable the slurry seal material to receive normal traffic within one hour without causing damage to the surface.
   d. Ensure that the emulsified asphalt and the emulsified asphalt residue material conform to the requirements in table 902.01.01-1.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Type II Percent Passing</th>
<th>Type III Percent Passing</th>
<th>Stockpile Tolerances from JMF</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Tests on Emulsified Asphalt</th>
<th>Test Method</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Stability, 24 hours, percent</td>
<td>AASHTO T 59</td>
<td>1 % maximum</td>
</tr>
<tr>
<td>Residue by Distillation¹, percent</td>
<td>AASHTO T 59</td>
<td>62 % minimum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tests on Asphalt Residue</th>
<th>Test Method</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softening Point by Ring and Ball</td>
<td>AASHTO T 53</td>
<td>135 °F minimum</td>
</tr>
</tbody>
</table>

¹. Test temperature held at 350 °F for 20 minutes.

2. **Aggregate.** Use only manufactured stone sand and crushed stone that conform to 901.05. Ensure that the fine aggregate has a Sand Equivalent value of 45 percent minimum when tested according to AASHTO T 176.

3. **Mineral Filler.** Use mineral filler that conforms to ASTM D 242 and is free of lumps.

4. **Water.** Use water that conforms to 919.08.

5. **Other Additives.** The Contractor may use other additives to provide control of the break/set time in the field. Ensure that the type of additive is specified in the mix design.

902.10.02 Mix Design of Slurry Seal Mixture

A **Mix Design Requirements.** Ensure that an AASHTO accredited lab, with at least five successfully completed slurry seal projects greater than 5,000 square yards each, performs the mix design. Submit the mix design and certified test results of the slurry seal mixture for approval in accordance with the provisions of ASTM D 3910, Standard Practice for Design, Testing, and Construction of Slurry Seal and the following:
1. Ensure that the aggregate used in the job mix formula is from the same source and representative of the material proposed for use on the project.

2. Ensure that the compatibility of the aggregate, slurry seal emulsion, water, mineral filler, and other additives is evaluated in the mix design. Perform the mix design using materials consistent with those supplied by the contractor for the project. Ensure the slurry seal mix conforms to the requirements as specified in Table 902.10.02-1.

<table>
<thead>
<tr>
<th>Tests</th>
<th>ISSA Test Method</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mix Time @ 77 °F</td>
<td>TB 113</td>
<td>Controllable to 120 seconds minimum</td>
</tr>
<tr>
<td>Mix Time @ 100 °F</td>
<td></td>
<td>Controllable to 35 seconds minimum</td>
</tr>
<tr>
<td>Slurry Seal Consistency</td>
<td>TB 106</td>
<td>0.79 to 1.18 inches</td>
</tr>
<tr>
<td>Wet Cohesion</td>
<td>TB 139</td>
<td>12 kg-cm minimum</td>
</tr>
<tr>
<td>@ 30 minutes minimum (set)</td>
<td></td>
<td>20 kg-cm or near spin minimum</td>
</tr>
<tr>
<td>@ 60 minutes minimum (traffic)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wet Stripping</td>
<td>TB 114</td>
<td>90% minimum</td>
</tr>
<tr>
<td>Wet-Track Abrasion Loss</td>
<td>TB 100</td>
<td>50 g/ft² (538 g/m²) maximum</td>
</tr>
<tr>
<td>One-hour soak</td>
<td>TB 147</td>
<td>75 g/ft² (807 g/m²) maximum</td>
</tr>
<tr>
<td>Six-day soak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Gravity after 1,000 cycles of 125</td>
<td>TB 147</td>
<td>2.10 maximum</td>
</tr>
<tr>
<td>pounds (56.71 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess Asphalt by LWT Sand Adhesion</td>
<td>TB 109</td>
<td>50 g/ft² (538 g/m²) maximum</td>
</tr>
<tr>
<td>Classification Compatibility</td>
<td>TB 144</td>
<td>11 grade points minimum (AAA, BAA)</td>
</tr>
</tbody>
</table>

3. Ensure proportioning of the mix design is within the limits in Table 902.10.02-2:

<table>
<thead>
<tr>
<th>Component Materials</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual asphalt</td>
<td>7.5 to 13.5% by dry weight of aggregates</td>
</tr>
<tr>
<td>Mineral filler</td>
<td>0.0 to 3% by dry weight of aggregates</td>
</tr>
<tr>
<td>Polymer-based modifier</td>
<td>min. of 3% polymer solids based on bitumen weight content</td>
</tr>
<tr>
<td>Additives</td>
<td>as needed</td>
</tr>
<tr>
<td>Water</td>
<td>as required to ensure proper mix consistency</td>
</tr>
</tbody>
</table>

4. Ensure that the proportions of aggregate and mineral filler are provided and within the limits of Table 902.10.03-1.

**B Mix Design Report.** Submit the final mix design in the following format:

1. Source of each individual material.
2. Aggregate:
   a. Gradation
   b. Sand Equivalent
   c. Abrasion Resistance
   d. Soundness
3. Field Simulation Tests:
   a. Wet Stripping Test
   b. Wet Track Abrasion Loss
   c. Classification Compatibility
   d. Trial Mix Time @ 77 °F and 100 °F
4. Interpretation of Results and the Determination of a Job Mix Formula (JMF):
   a. Percentage of Mineral Filler (minimum and maximum)
   b. Percentage of Water, including aggregate moisture (minimum and maximum)
c. Percentage of Mix Set Additive (if required)  
d. Percentage of Modified Emulsion  
e. Residual Content of Modified Emulsion  
f. Percentage of Residual Asphalt  
g. Combined Aggregate Gradation (JMF)  

5. Signature and date

902.10.03 Sampling and Testing

The ME will perform sampling and testing of the aggregate at least 10 days prior to the start of work. The ME will sample aggregate from stockpiles designated and constructed for each mixture type on the project. The ME will sample the aggregate according to AASHTO T 2 and test according to AASHTO T 11 and T 27 using the following sampling frequency:

1. When the project quantity for the specified mixture type is less than 500 tons, designate the entire quantity as one lot and divide into three equal sublots for sampling. Obtain one sample from each sublot and submit to the ME for testing. The ME will randomly select only one of the three samples and test for compliance with Table 902.10.03-1. If the sample tested meets the specification, the entire lot is acceptable for use on the project. If the sample fails, the ME will test the remaining two samples. If the two samples both meet specification, the entire lot is acceptable for use on the project. If either of the two additional samples fails to meet the specification, the entire lot is rejected.

2. When the project quantity for the specified mixture type is 500 tons or greater, divide the aggregate into equal lots at the discretion of the ME, but in no case is the lot size to exceed 1,000 tons. Divide each lot into three equal sublots and obtain one sample for each sublot. The ME will randomly select only one of the three samples and test for compliance with Table 902.10.03-1. If the sample tested meets the specification, the entire lot is acceptable for use on the project. If the sample fails, the ME will test the remaining two samples. If the two samples both meet specification, the entire lot is acceptable for use on the project. If either of the two additional samples fails to meet the specification, the entire lot is rejected.

Take precautions to ensure that approved stockpiles of aggregate do not become contaminated at the jobsite. Screen oversize aggregate or foreign materials from the aggregate prior to delivery to the mixer.

During the slurry seal application, in the presence of the inspector, sample the mixture twice daily or as directed from the pug mill discharge chute. Use a rectangular non-absorptive container, such as a loaf pan, of sufficient size to obtain a sample from the entire cross section of the mixture being discharged. Ensure that an AASHTO accredited lab, with at least five successfully completed slurry seal projects greater than 5,000 square yards each, analyzes the mix for binder content and compliance with specifications. Submit certified results to the ME. To ensure mix compliance, the ME may perform independent testing.

Ensure that the asphalt content is within ± 0.40% of the JMF. If the asphalt content is outside of the allowable tolerance, recalibrate or adjust the mixing machine. The RE may stop the slurry seal operation if two or more samples fail to conform to the tolerance. Take corrective action or re-design the slurry seal mixture. Resume operations only after RE has approved the corrective action.

Use aggregate, including mineral filler, which conforms to the gradation in Table 902.10.03-1.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Type I Percent Passing</th>
<th>Type II Percent Passing</th>
<th>Type III Percent Passing</th>
<th>Stockpile Tolerances from JMF</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>No. 4</td>
<td>100</td>
<td>90-100</td>
<td>70-90</td>
<td>±5%</td>
</tr>
<tr>
<td>No. 8</td>
<td>90-100</td>
<td>65-90</td>
<td>45-70</td>
<td>±5%</td>
</tr>
<tr>
<td>No. 16</td>
<td>65-90</td>
<td>45-70</td>
<td>28-50</td>
<td>±5%</td>
</tr>
<tr>
<td>No. 30</td>
<td>40-65</td>
<td>30-50</td>
<td>19-34</td>
<td>±5%</td>
</tr>
<tr>
<td>No. 50</td>
<td>25-42</td>
<td>18-30</td>
<td>12-25</td>
<td>±4%</td>
</tr>
<tr>
<td>No. 100</td>
<td>15-30</td>
<td>10-21</td>
<td>7-18</td>
<td>±3%</td>
</tr>
<tr>
<td>No. 200</td>
<td>10-20</td>
<td>5-15</td>
<td>5-15</td>
<td>±2%</td>
</tr>
</tbody>
</table>
SECTION 903 – CONCRETE

903.02.04 Viscosity Modifying Admixture
THE FIRST SENTENCE IS CHANGED TO:
Use a viscosity modifying admixture that is listed on the QPL and that, when evaluated according to the test methods and mix design proportions in AASHTO M 194, conforms to the following physical requirements:

903.03.05 Control and Acceptance Testing Requirements
E. Acceptance Testing for Strength for Pay-Adjustment Items.
Concrete Items which are subject to pay adjustment and the base prices are as follows:

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>BASE PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>507021P</td>
<td>CONCRETE BRIDGE DECK</td>
<td>CY</td>
<td>$500.00</td>
</tr>
<tr>
<td>507036P</td>
<td>CONCRETE BRIDGE PARAPET</td>
<td>LF</td>
<td>$305.00</td>
</tr>
<tr>
<td>505039P</td>
<td>PRESTRESSED CONCRETE SLAB BEAM, (TYPE SII-36), 36” X 15”</td>
<td>LF</td>
<td>$125.00</td>
</tr>
<tr>
<td>505042P</td>
<td>PRESTRESSED CONCRETE SLAB BEAM, (TYPE SIII-36), 36” X 18”</td>
<td>LF</td>
<td>$130.00</td>
</tr>
<tr>
<td>505015P</td>
<td>PRESTRESSED CONCRETE BOX BEAM, (TYPE BI-36), 36” X 27”</td>
<td>LF</td>
<td>$170.00</td>
</tr>
<tr>
<td>505045P</td>
<td>PRESTRESSED CONCRETE SLAB BEAM, (TYPE SIV-36), 36” X 21”</td>
<td>LF</td>
<td>$160.00</td>
</tr>
<tr>
<td>505018P</td>
<td>PRESTRESSED CONCRETE BOX BEAM, (TYPE BII-36), 36” X 33”</td>
<td>LF</td>
<td>$170.00</td>
</tr>
<tr>
<td>505021P</td>
<td>PRESTRESSED CONCRETE BOX BEAM, (TYPE BIII-36), 36” X 39”</td>
<td>LF</td>
<td>$175.00</td>
</tr>
<tr>
<td>505024P</td>
<td>PRESTRESSED CONCRETE BOX BEAM, (TYPE BIV-36), 36” X 42”</td>
<td>LF</td>
<td>$185.00</td>
</tr>
<tr>
<td>505003P</td>
<td>PRETENSIONED PRESTRESSED CONCRETE BEAM, 45”</td>
<td>LF</td>
<td>$155.00</td>
</tr>
<tr>
<td>505006P</td>
<td>PRETENSIONED PRESTRESSED CONCRETE BEAM, 54”</td>
<td>LF</td>
<td>$155.00</td>
</tr>
<tr>
<td>505048P</td>
<td>PRESTRESSED CONCRETE SLAB BEAM, (TYPE SH-48), 48” X 15”</td>
<td>LF</td>
<td>$160.00</td>
</tr>
<tr>
<td>505051P</td>
<td>PRESTRESSED CONCRETE SLAB BEAM, (TYPE SHII-48), 48” X 18”</td>
<td>LF</td>
<td>$135.00</td>
</tr>
<tr>
<td>505009P</td>
<td>PRETENSIONED PRESTRESSED CONCRETE BEAM, 63”</td>
<td>LF</td>
<td>$185.00</td>
</tr>
<tr>
<td>505027P</td>
<td>PRESTRESSED CONCRETE BOX BEAM, (TYPE BI-48), 48” X 27”</td>
<td>LF</td>
<td>$215.00</td>
</tr>
<tr>
<td>505054P</td>
<td>PRESTRESSED CONCRETE SLAB BEAM, (TYPE SIV-48), 48” X 21”</td>
<td>LF</td>
<td>$215.00</td>
</tr>
<tr>
<td>505030P</td>
<td>PRESTRESSED CONCRETE BOX BEAM, (TYPE BII-48), 48” X 33”</td>
<td>LF</td>
<td>$185.00</td>
</tr>
<tr>
<td>505033P</td>
<td>PRESTRESSED CONCRETE BOX BEAM, (TYPE BIII-48), 48” X 39”</td>
<td>LF</td>
<td>$220.00</td>
</tr>
<tr>
<td>505036P</td>
<td>PRESTRESSED CONCRETE BOX BEAM, (TYPE BIV-48), 48” X 42”</td>
<td>LF</td>
<td>$230.00</td>
</tr>
<tr>
<td>505012P</td>
<td>PRETENSIONED PRESTRESSED CONCRETE BEAM, 72”</td>
<td>LF</td>
<td>$200.00</td>
</tr>
<tr>
<td>502045M</td>
<td>CAST-IN-PLACE CONCRETE PILE, DRIVEN, 12” DIAMETER</td>
<td>LF</td>
<td>$50.00</td>
</tr>
<tr>
<td>502090M</td>
<td>PRECAST CONCRETE PILE, DRIVEN, 12” X 12”</td>
<td>LF</td>
<td>$90.00</td>
</tr>
<tr>
<td>502132M</td>
<td>PRESTRESSED CONCRETE PILE, DRIVEN, 12” X 12”</td>
<td>LF</td>
<td>$50.00</td>
</tr>
<tr>
<td>502135M</td>
<td>PRESTRESSED CONCRETE PILE, DRIVEN, 14” X 14”</td>
<td>LF</td>
<td>$50.00</td>
</tr>
<tr>
<td>502138M</td>
<td>PRESTRESSED CONCRETE PILE, DRIVEN, 16” X 16”</td>
<td>LF</td>
<td>$50.00</td>
</tr>
<tr>
<td>502141M</td>
<td>PRESTRESSED CONCRETE PILE, DRIVEN, 18” X 18”</td>
<td>LF</td>
<td>$50.00</td>
</tr>
<tr>
<td>502144M</td>
<td>PRESTRESSED CONCRETE PILE, DRIVEN, 20” X 20”</td>
<td>LF</td>
<td>$75.00</td>
</tr>
<tr>
<td>502147M</td>
<td>PRESTRESSED CONCRETE PILE, DRIVEN, 22” X 22”</td>
<td>LF</td>
<td>$75.00</td>
</tr>
<tr>
<td>502150M</td>
<td>PRESTRESSED CONCRETE PILE, DRIVEN, 24” X 24”</td>
<td>LF</td>
<td>$75.00</td>
</tr>
<tr>
<td>502151M</td>
<td>PRESTRESSED CONCRETE PILE, DRIVEN, 30” X 30”</td>
<td>LF</td>
<td>$75.00</td>
</tr>
<tr>
<td>502156M</td>
<td>PRESTRESSED CONCRETE PILE, DRIVEN, 54” DIAMETER</td>
<td>LF</td>
<td>$200.00</td>
</tr>
</tbody>
</table>

THE FIFTH PARAGRAPH IS CHANGED TO:
If the Department elects not to core, the Contractor may accept the PPA calculated by Equation 1 or 2, as appropriate, or, when approved by the Department, the Contractor may take cores as specified in Table.
903.03.06-4. Take the cores within 90 days from the date of concrete placement. The Department will not award a positive pay adjustment based on core samples taken more than 90 days from the date of concrete placement. If electing to core, perform the coring as directed by the ME, and provide the cores to the ME for testing.

F. Acceptance Testing for Strength for Non-Pay-Adjustment Items.
THE FIFTH PARAGRAPH IS CHANGED TO:

If cores are taken, the Department will use the core results to determine the final disposition of the lot. If, based on the core results, the lot is determined to be at a quality level of PD < 75, the Department will compute the pay-adjustment as specified in 903.03.05.E. The Department will not award positive pay adjustment for non-pay-adjustment Items. If the lot is confirmed to be at a quality level of PD ≥ 75, the ME will reject the lot and the RE may do one of the following:

1. Require the Contractor to remove and replace the defective lot
2. Allow the Contractor to leave the defective lot in place and receive a PPA computed by Equation 2.
3. Allow the Contractor to submit a plan, for approval, for corrective action.

903.03.06 Tables

Table 903.03.06-2 Requirements for Structural Concrete Items
THE SEVENTH LINE UNDER CAST-IN-PLACE ITEMS IS CHANGED TO:

<table>
<thead>
<tr>
<th>Concrete Class</th>
<th>Slump (inches)</th>
<th>Percent Air Entrainment for Coarse Aggregate</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3 ± 1</td>
<td>6.0 ± 1.5</td>
</tr>
</tbody>
</table>

903.05.04 Control and Acceptance Testing Requirements
THE SUPERSCRIPT REFERENCE NO. 4 UNDER TABLE 903.05.04-1 IS CHANGED TO:

4. For chloride permeability testing, the ME will mold 4 additional cylinders, taking 2 cylinders each from 2 randomly selected delivery trucks for testing at 56-days.

THE FOURTH PARAGRAPH IS CHANGED TO:

If, upon testing at 56 days, 1 or more individual test results exceed 2000 coulombs, the RE may:

1. Require that the Contractor remove and replace the defective lot, or
2. Allow the Contractor to submit a corrective action plan for approval.

903.06.02 SCC For Precast Concrete
THE ENTIRE PART B. IS CHANGED TO:

B. Mix Design and Verification. Design the mix, as specified in 903.03.02 or 903.05.02, to conform to the strength, water-cement ratio, and air content requirements for the specified class of concrete for the item that is being cast. In addition, ensure that the SCC conforms to the requirements specified in Table 903.06.02-1.

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slump Flow</td>
<td>NJDOT C-4</td>
<td>16 to 24 inches</td>
</tr>
<tr>
<td>Visual Stability Index</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic Concrete</td>
<td>NJDOT C-4</td>
<td>1 maximum</td>
</tr>
</tbody>
</table>
Perform mix design verification as specified in 903.03.02 or 903.05.02. For the verification batch, ensure that the air content is in the top half of the allowable range and the slump flow is between 22 and 24 inches. Perform air content, slump flow, and visual stability index (plastic concrete) testing on the verification batch. Make concrete cylinders for compression testing as specified in 903.03.02 or 903.05.02 and make 2 additional 4 × 8 inch cylinders for visual stability index on the hardened concrete. Saw the additional cylinders length-wise according to NJDOT C-5. The ME will perform the compressive strength testing and the visual evaluation to assign a visual stability index in order to approve the mix.

SECTION 904 – PRECAST AND PRESTRESSED CONCRETE

904.01.01 Component Materials
THE FOLLOWING SENTENCE IS ADDED AT THE END:

For Precast Concrete, the minimum cement content specified in Table 903.03.06-3 is not required for Class A or Class B concrete.

904.01.02 Fabrication
THE ENTIRE SUBPART IS CHANGED TO:

Fabricate precast concrete at a plant as specified in 1011.01 and listed on the QPL.

1. Placing Reinforcement Steel. Before placing the concrete, place reinforcement steel in position as shown on the approved working drawings and as specified in 504.03.01. Firmly tie the reinforcement to prevent displacement during placing of the concrete.

2. Placing Concrete. Place concrete as specified in 504.03.02.B, 504.03.02.C, 504.03.02.D, and 504.03.02.E. Before placing concrete, ensure that reinforcement steel and any other embedded materials are free of loose rust, frost, dirt, oil, or contaminants that may prevent a bond with the concrete. Consolidate concrete with internal vibrators. The fabricator may use external vibration to supplement internal vibration. If using SCC, minimize or eliminate the use of vibrators to prevent segregation.

904.01.06 Quality Control and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

904.02.01 Component Materials
THE FOLLOWING SENTENCE IS ADDED AT THE END:

For Precast Concrete, the minimum cement content specified in Table 903.03.06-3 is not required for Class A or Class B concrete.

904.02.02 Fabrication
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Place concrete as specified in 504.03.02.C, 504.03.02.D, and 504.03.02.E.

THE SECOND SENTENCES IN THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate precast concrete at a plant as specified in 1011.01 and listed on the QPL.

904.02.06 Quality Control and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.
STEP 2 IN THE THIRD PARAGRAPH IS CHANGED TO:

2. Dimensions not conforming to the tolerances specified in Table 904.02.02-1.

904.03.01 Component Materials
THE FOLLOWING IS ADDED AT THE END:

For Precast Concrete, the minimum cement content specified in Table 903.03.06-3 is not required for Class A or Class B concrete.

904.03.02 Fabrication
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate precast concrete at a plant as specified in 1011.01 and listed on the QPL.

2. Placing Concrete.
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Place concrete as specified in 504.03.02.B, 504.03.02.C, 504.03.02.D, and 504.03.02.E.

904.03.06 Quality Control and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

THE FOLLOWING IS ADDED AFTER THE LAST PARAGRAPH:

If the ME does not inspect the precast concrete item, submit certifications of compliance as specified in 106.07.

904.04.02 Fabrication
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate prestressed concrete at a plant as specified in 1011.02 and listed on the QPL.

3. Placing Concrete.
THE SECOND SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Place concrete as specified in 504.03.02.B, 504.03.02.C, 504.03.02.D, and 504.03.02.E.

904.04.06 Quality Control, Quality Assurance, and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

THE FOLLOWING IS ADDED AFTER THE LAST PARAGRAPH:

If the ME does not inspect the precast concrete item, submit certifications of compliance as specified in 106.07.

SECTION 905 – REINFORCEMENT METALS

905.01 REINFORCEMENT STEEL
THE ENTIRE SUBPART IS CHANGED TO:

Provide reinforcement steel manufactured at an AASHTO NTPEP (National Transportation Product Evaluation Program) certified mill. For a list of NTPEP certified mills, see the following webpage: https://data.ntpep.org/REBAR/Audits.
For reinforcement steel, submit a certification of compliance as specified in 106.07. Attach copies of the mill certifications for each heat of reinforcement steel. The ME will randomly sample and test heats of reinforcement steel for quality assurance. The ME will randomly inspect and sample galvanized and epoxy coated reinforcement steel for quality assurance.

905.01.03 Welded Wire Reinforcement
THE FIRST PARAGRAPH IS CHANGED TO:
Use plain or deformed steel welded wire reinforcement according to ASTM A1064. When used for concrete pavement, use welded wire reinforcement mats at least 5 feet in width.
THE SECOND PARAGRAPH IS CHANGED TO:
When approved as an alternate to galvanized reinforcement bars, use galvanized welded wire reinforcement that meets the requirements of ASTM A 641, Table 1, Class 1.

905.01.05 Dowels
THE ENTIRE SUBPART IS CHANGED TO:
Use plain reinforcement bars according to ASTM A 615, Grade 60. Galvanize according to ASTM A 123.

905.03.03 Dowel Bars
THE FIRST PARAGRAPH IS CHANGED TO:
For dowel bars in transverse joints, use epoxy-coated, Grade 60, plain reinforcement steel according to ASTM A 615. If shown on the Plans, use dowel bars fitted with end caps. Ensure that the end caps are non-metallic and designed to prevent the entrance of grout or mortar into the expansion void.

SECTION 906 – STRUCTURAL STEEL

906.01 STRUCTURAL STEEL MATERIALS
THE ENTIRE SUBSECTION IS CHANGED TO:
Provide structural steel materials conforming to the requirements in Table 906.01-1 and as shown on the Plans.

<table>
<thead>
<tr>
<th>Product</th>
<th>Test Method</th>
<th>Type/Grade/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Steel Plate1</td>
<td>ASTM A 709</td>
<td>Grade 36, 50, 50W, or HPS70W2</td>
</tr>
<tr>
<td>Tie rods, plate washers, tie backs, turnbuckles, plates, shapes, and shims</td>
<td>ASTM A 709</td>
<td>Grade 36</td>
</tr>
<tr>
<td>Steel tube and pipe for Sign Structures 3, 4, 5</td>
<td>ASTM A 53</td>
<td>Type S, Grade B or Type E, Grade B</td>
</tr>
<tr>
<td>or</td>
<td>ASTM A 500</td>
<td>Grade B or C</td>
</tr>
<tr>
<td>Steel Piles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steel H-piles</td>
<td>ASTM A 572</td>
<td>Grade 50</td>
</tr>
<tr>
<td>Steel sheet piles</td>
<td>ASTM A 572</td>
<td>Grade 50</td>
</tr>
<tr>
<td>Steel pipe piles</td>
<td>ASTM A 252</td>
<td>Grade 2</td>
</tr>
<tr>
<td>Casings for Drilled Shafts6</td>
<td>ASTM A 252</td>
<td>Grade 2</td>
</tr>
<tr>
<td>Flooring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid Flooring</td>
<td>ASTM A 709</td>
<td>Grade 36</td>
</tr>
<tr>
<td>Formed Steel Flooring</td>
<td>ASTM A 1011</td>
<td>Grade 30</td>
</tr>
<tr>
<td>Steel Forgings</td>
<td>ASTM A 668</td>
<td>Class C</td>
</tr>
<tr>
<td>Shear Connector Studs7</td>
<td>ASTM A 108</td>
<td>Grades G1015, 1018, or 1020</td>
</tr>
<tr>
<td>Stay-In-Place (SIP) Forms8</td>
<td>ASTM A 653</td>
<td>Grades 33, 37, 40, 49, or 80</td>
</tr>
</tbody>
</table>

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
Table 906.01-1 Structural Steel Materials Requirements

<table>
<thead>
<tr>
<th>Product</th>
<th>Test Method</th>
<th>Type/Grade/Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. For steel used in tension zones, ensure that the steel conforms to Zone 2 impact testing requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. For the manufacture of Grade HPS70W, the Department will allow the use of the Thermo-Mechanical Controlled Process.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. For sizes less than or equal to 24 inches in diameter, only use electric resistance welded single seam pipe.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. For pipe with wall thickness greater than 1/2 inch, the fabricator may substitute API Specification 5L, Grade B.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. ASTM A 500 Grade B or C is approved for use only with equivalent tensile and yield strengths as that specified for ASTM A 53 Grade B, Type E or S, with additional CVN testing for materials with wall thickness ½ inch or greater. Provide mill certs for approval by the ME prior to fabrication.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. For casings, use smooth, non-corrugated steel pipe.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. For shear connector studs, use cold-drawn bars that are killed or semi-killed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. For SIP, use a galvanized coating designation G235 or Z700.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Before using, submit to the ME a representative sample of each size for material testing and approval. Provide a mill certification that indicates the chemical and physical properties for each heat of material. For SIP forms, steel forgings and shear connector studs, submit certifications of compliance, as specified in 106.07, with the mill certifications attached.

906.04.01 AISC Certification
THE ENTIRE SUBPART IS CHANGED TO:

Ensure that the structural steel fabricating plant is certified under the AISC Quality Certification Program in the applicable categories by the type of work performed. See the following web page:
http://www.aisc.org/content.aspx?id=5388

906.04.05 Quality Control and Acceptance
THE FOURTH PARAGRAPH IS CHANGED TO:
Inspect and test structural steel bridge members according to ANSI/ AASHTO/ AWS D1.5 Bridge Welding Code, as modified by the following:

1. Assembly and fabrication may not continue until completed work has been inspected and accepted by the ME.
2. Grind flush complete-penetration butt welds scheduled for ultrasonic testing.
3. Test 100 percent of complete joint penetration groove and butt welds, including butt welds in longitudinal stiffeners.

906.07 4-BAR OPEN STEEL PARAPET
SUBSECTION IS RENAMED AND CHANGED TO:

906.07 STEEL BAR BRIDGE RAILING
For steel bar bridge railing, including NJDOT standard steel 4-bar bridge railing, provide anchor bolts, washers, and exposed bolts as specified in 908.01.03, and all other bolts and nuts as specified in 908.01.01 and 908.01.02. Provide rail bars according to ASTM A 500 Grade B, rail post according to ASTM A 709, Grade 50, and all other shapes and plates according to ASTM A 709, Grade 36.

Fabricate steel bar bridge railing according to 906.04 and paint according to 906.06 or galvanize according to 912.02.01. Prohibit welded splices for steel rail tubes.

SECTION 908 – BOLTS AND BOLTING MATERIAL

908.03 DIRECT TENSION INDICATORS (DTI)
THE ENTIRE SUBSECTION IS CHANGED TO:

Use direct tension indicators conforming to ASTM F 959. If galvanizing of the bolt assembly is required, mechanically galvanize DTIs according to ASTM B 695, Class 50. Test DTIs according to ASTM F 959 and verify according to NJDOT S-3.

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
Provide manufacturer’s certification and attach test results.

SECTION 909 – DRAINAGE

909.02.01 Reinforced Concrete Pipe
THE FOLLOWING IS ADDED BEFORE THE FIRST SENTENCE:
Manufacture reinforced concrete pipe at a plant listed on the QPL.

THE LAST PARAGRAPH IS CHANGED TO:
Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

For concrete pipe that is less than 60 inches in diameter, submit a certification of compliance as specified in 106.07. The ME will randomly inspect and test small-diameter concrete pipe for quality assurance.

For concrete pipe that is 60 inches or more in diameter, notify the ME at least 2 weeks before shipping pipe to the Project. The ME will inspect and approve large-diameter pipe in the supplier’s yard after manufacture. Perform 3-point loading in the supplier’s yard as directed by the ME. If the ME does not inspect the concrete pipe, submit certifications of compliance as specified in 106.07.

909.02.02 HDPE Pipe
THE SECOND PARAGRAPH IS CHANGED TO:
Use HDPE pipe from a manufacturer who is an AASHTO NTPEP (National Transportation Product Evaluation Program) certified manufacturer. For a list of NTPEP certified manufacturer, see the following webpage: http://data.ntpep.org/Module/PIPE/Overview.aspx.

THE FOLLOWING SUBPART IS ADDED:

909.02.09 Fiberglass Pipe for Bridge Storm Drainage
Fabricate fiberglass pipe conforming to ASTM D2996, RTRP-12EA1-2122 and fiberglass pipe fittings conforming to ASTM D3840.

Ensure that all fiberglass pipe, fittings and adhesives use pigmented resin throughout the wall and the color is concrete gray or designated color with UV stabilized resin. Painted gel-coat or exterior coating is not acceptable.

Ensure that adhesives are in accordance with the pipe manufacturer and adhesive manufacturer’s recommendations.

SECTION 910 – MASONRY UNITS

910.04 STONE CURB

910.05 STONE FACING FOR PIER SHAFTS

910.06 STONE PAVING BLOCK

SECTION 911 – SIGNS, SIGN SUPPORTS, AND DELINEATORS

911.02.02 Breakaway Sign Supports for Ground Mounted Signs
THE ENTIRE SUBPART IS CHANGED TO:
Fabricate and construct breakaway sign supports for ground mounted signs using materials conforming to the requirements in Table 911.02.02-1.

<table>
<thead>
<tr>
<th>Item</th>
<th>Test Method</th>
<th>Type or Grade</th>
<th>Galvanizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Materials (other than bracket)</td>
<td>911.01.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bracket</td>
<td>B308</td>
<td>6061-T6</td>
<td>ASTM A123</td>
</tr>
<tr>
<td>Structural steel shapes</td>
<td>ASTM A709</td>
<td>Grade 36</td>
<td>ASTM A653</td>
</tr>
<tr>
<td>Steel Sheet</td>
<td>ASTM A1011</td>
<td>Grade 36</td>
<td>ASTM A153</td>
</tr>
<tr>
<td>Bolts (except special bolt for coupling)</td>
<td>ASTM A325</td>
<td>Grade 36</td>
<td>ASTM A153</td>
</tr>
<tr>
<td>Special bolt for coupling</td>
<td>ASTM A449</td>
<td></td>
<td>ASTM A153</td>
</tr>
<tr>
<td>Cap Screw</td>
<td>ASTM A307</td>
<td></td>
<td>ASTM A153</td>
</tr>
<tr>
<td>Lock Washer</td>
<td>ANSI B18-21-1</td>
<td></td>
<td>ASTM A153</td>
</tr>
<tr>
<td>Nut</td>
<td>ASTM A563</td>
<td>Grade DH</td>
<td>ASTM A153</td>
</tr>
<tr>
<td>Coupling</td>
<td>AMS 6378 F</td>
<td></td>
<td>ASTM A153</td>
</tr>
<tr>
<td>Steel Hinge Plate</td>
<td>AISI 4130</td>
<td></td>
<td>ASTM 123</td>
</tr>
<tr>
<td>Anchor Rod</td>
<td>AISI 1045</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anchor Coil</td>
<td>AISI 1008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anchor Washer</td>
<td>908.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anchor Ferrule</td>
<td>908.04</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Submit mill certificates for the component materials.

**911.02.03 Non-Breakaway Sign Supports for Ground Mounted Signs**

THE TEXT OF THIS SUBPART IS DELETED.

**911.03 FLEXIBLE DELINEATORS**

1. **Delineator Dimensions.**
   b. **Guide Rail Mounted.**

THE ENTIRE TEXT IS CHANGED TO:

Ensure that the unit for beam guide rail mounted flexible delineators has a minimum width of 3 inches and a minimum thickness of 0.100 inch. Use units of a height that will ensure that the top of the reflective area is 5 ± 2 inches above the top of post.

Design the base of the unit to mount over the I-beam blockout or to the top of a wood or synthetic blockout, of the beam guide rail.

c. **Barrier Curb Mounted.**

THE ENTIRE TEXT IS CHANGED TO:

For barrier curb mounted flexible delineators, use a delineator that is 3-1/2 x 3-1/2 inches, with a minimum thickness of 0.100 inch, and that has a base that forms a “T” shape with the panel for mounting on the side of the barrier curb, and is flexible or hinged so as to return to its original position after being struck.

THE FOLLOWING IS ADDED:

d. **Construction Barrier Curb Mounted.** For construction barrier curb top mounted flexible delineators, use a delineator that is 6 x 12 inches with a minimum thickness of 0.100 inch. For construction barrier curb side mounted flexible delineators, use a delineator that is 3-1/2 x 3-1/2 inches with a minimum
thickness of 0.100 inch, and that has a base that forms a “T” shape with the panel for mounting on the barrier curb and is flexible or hinged so as to return to its original position after being struck.

4. Retroreflective Sheeting.
   THE ENTIRE TEXT IS CHANGED TO:

   Ensure that the sheeting is a minimum of 3 inches square and is mounted on the upper portion of the delineator.

THE FOLLOWING IS ADDED:

d. Construction Barrier Curb Mounted. Ensure that the sheeting for top mounted flexible delineators is 6 x 12 inches and the sheeting for side mounted flexible delineators is 3-1/2 x 3-1/2 inches.

Submit a certification of compliance, as specified in 106.07, for delineators.

SECTION 912 – PAINTS, COATINGS, TRAFFIC STRIPES, AND TRAFFIC MARKINGS

912.03.01 Epoxy Traffic Stripes
THE SUBPART HEADING IS CHANGED TO:

912.03.01 Traffic Stripes

A. Epoxy Resin.
THE FIRST SENTENCE IS CHANGED TO:

   For pavement striping, use an epoxy resin that is a 2 component, 100 percent solids formulation conforming to the following requirements:

B. Glass Beads.
THE FIRST PARAGRAPH IS CHANGED TO:

   Submit certifications of compliance as specified in 106.07 for each lot of glass beads used on the Contract. For each lot of glass beads, submit test results indicating the parts per million of lead, antimony and arsenic as determined by testing according to Environmental Protection Agency testing method 3052 and testing method 6010B or 6010C. Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 100 ppm of arsenic.

912.03.02 Thermoplastic Traffic Markings
THE SUBPART HEADING IS CHANGED TO:

912.03.02 Traffic Markings
THE ENTIRE SUBPART TEXT IS CHANGED TO:

For traffic markings, use either preformed or hot extruded thermoplastic conforming to AASHTO M 249, except that for preformed thermoplastic, the minimum thickness requirement is 90 mils. Use beads conforming to AASHTO M 247, Type 1, with a moisture resistant coating. Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 100 ppm of arsenic.

Submit certifications of compliance, as specified in 106.07, for each batch of materials used on the Contract. For each lot of glass beads, submit test results indicating the parts per million of lead, antimony and arsenic as determined by testing according to Environmental Protection Agency testing method 3052 and testing method 6010B or 6010C.

912.04.01 Latex Paint
THE ENTIRE SUBPART TEXT IS CHANGED TO:
Use latex traffic paint that is a fast-drying white, or non-lead yellow, ready-mixed pigmented binder emulsified in water and capable of anchoring reflective glass beads that are separately applied. Ensure that the color matches FED-STD-595B color chip No. 33538 for yellow and No. 37886 for white. Ensure that the paint has a maximum no-track time of 120 seconds when applied in a wet film. In addition, ensure that the finished product meets the following:

1. Volume of solids is a minimum 61 percent.
2. Total solids are a minimum of 77.5 percent total non-volatiles by weight, when tested according to ASTM D 2369.
3. Weight per gallon is a minimum 14 ± 0.2 pounds per gallon for each color.
4. Hegman Grind is a minimum of 2 Hegman when tested according to ASTM D 1210.
5. Viscosity is between 70 and 95 Krebs Units at 77 °F, when tested according to ASTM D 562.

Use glass beads conforming to AASHTO M247, Type 1, with a moisture resistance coating. Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 100 ppm of arsenic.

Submit a certification of compliance, as specified in 106.07, for latex and glass beads. For each lot of glass beads, submit test results indicating the parts per million of lead, antimony and arsenic as determined by testing according to Environmental Protection Agency testing method 3052 and testing method 6010B or 6010C.

SECTION 913 – GUIDE RAIL, FENCE, AND RAILING

THIS SECTION IS RENAMED TO:

SECTION 913 – GUIDE RAIL, FENCE, RAILING AND BOX BEAM

913.01.01 Rail Element
THE SECOND PARAGRAPH IS CHANGED TO:
Submit a certification of compliance as specified in 106.07.

913.01.02 End Treatments
THE SECOND PARAGRAPH IS CHANGED TO:
Submit a certification of compliance as specified in 106.07.

913.01.03 Posts and Blockouts
THE FOURTH PARAGRAPH IS CHANGED TO:
Provide certifications of compliance, as specified in 106.07.

913.01.04 Rub Rail
THE SECOND PARAGRAPH IS CHANGED TO:
Submit a certification of compliance as specified in 106.07.

913.01.05 Miscellaneous Hardware
SUBPART 3 OF THE FIRST PARAGRAPH IS CHANGED TO:

3. Use plates for guide rail on bridges and buried guide rail terminals conforming to ASTM A 36 and galvanized according to ASTM A 123.

THE SECOND PARAGRAPH IS CHANGED TO:
Submit a certification of compliance as specified in 106.07. The ME may randomly inspect hardware for quality assurance.

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
913.03.01 Steel Railing  
THE ENTIRE SUBPART IS CHANGED TO:

Fabricate steel bar bridge railing and steel railing components of combination railing system from structural steel as specified in 906.01 and 906.04. For non-traffic steel railing, construct welds according to the requirements of AWS D1.1 Structural Welding Code. Use bolts and bolting materials as specified in 908.01. When specified, paint as specified in 906.06 or galvanize as specified in 912.02.01. Submit certifications of compliance, as specified in 106.07 and copies of mill certifications.

THE FOLLOWING SUBSECTIONS IS ADDED:

913.04 BOX BEAM FOR CONSTRUCTION BARRIER CURB.

Ensure that the box beam is made of cold-formed welded and seamless structural tubing. Ensure that the box beam conforms to ASTM A500, Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes, Grade B.

Ensure that the box beam is tested in accordance with ASTM E436 on a 2 x 9 inch galvanized specimen at -0.4°F and provide certified test result to the ME.

The Department will reject the material if the average percent shear area falls below 50.

Ensure that the identification number/information is placed on the material at an interval of 4 feet or less.

Ensure that the box beam is galvanized in accordance with ASTM A123. Fasteners are galvanized and conform to the following unless specified otherwise in the contract documents: Bolts ASTM A307 Grade A, nuts ASTM A563 Grade A or better, and washers ASTM F844.

SECTION 914 – JOINT MATERIALS

914.04.01 Preformed Elastomeric (Compression Type)

B. Joint Sealer.

THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

If splicing of a sealer is allowed, ensure that the sealer at the splice point has no significant misalignment at its sides or top and that misalignment at the bottom does not exceed half of the bottom wall thickness.

SECTION 915 – TIMBER AND TIMBER TREATMENT

915.05 TIMBER TREATMENT

THE ENTIRE SUBSECTION IS CHANGED TO:

Treat wood species according to AASHTO M 133 and AWPA Standards U1-11 and T1-11 as summarized in Table 915.05-1, Table 915.05-2, and Table 915.05-3.

<table>
<thead>
<tr>
<th>Type of Wood</th>
<th>Location/Environment</th>
<th>Allowable Treatments</th>
<th>AWPA Standard Reference for Minimum Retention Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Pine</td>
<td>Soil or Fresh Water</td>
<td>CCA or Pentachlorophenol</td>
<td>UC4A</td>
</tr>
<tr>
<td>Douglas Fir</td>
<td>Soil or Fresh Water</td>
<td>ACZA</td>
<td>UC4A</td>
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</tbody>
</table>

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
Notify the ME at least 14 days before treating timber. If directed by the ME, perform an assay to determine the retention of preservative according to AASHTO M 133. Submit certification of compliance as specified in 106.07. Attach the assay report to the certification.

SECTION 917 – LANDSCAPING MATERIALS

917.10 PLANT MATERIALS

H. Inspection.
THE SECOND PARAGRAPH IS CHANGED TO:

The Department may inspect plant materials before delivery to the Project Limits and upon delivery to the Project Limits before installation. The Department may seal the inspected plant materials. For plant material originating from nurseries farther than 100 miles from the Project Limits, stock plant material at a Contractor-provided holding yard that is acceptable to the Department. The Department may inspect plant material originating from nurseries within 100 miles of the Project Limits at the nursery. Ensure that all plant material is untied and located so that trunk or stem and branch structure can be easily inspected. Provide sufficient notice to allow Department inspection at the nursery or holding yard and to allow time for Contractor reordering of rejected material. Notify the RE at least ___(hours or days)___ in advance of delivery to the Project Limits for installation. The Department will reject materials arriving with broken or missing seals, broken or loose balls, broken or pruned leaders, insufficient protection, or that have been damaged in transit. The Department may randomly inspect the root system of the plant material by breaking open the earth balls. Provide necessary assistance during Department inspections.

SECTION 918 – ELECTRICAL MATERIALS

918.01 CONDUIT AND FITTINGS

4. Flexible Nonmetallic Conduit.
THIS PART IS CHANGED TO:

Use coil able HDPE conduit made from virgin HDPE resin as per the minimum standard of PE345440E according to ASTM D3350. Ensure conduit is circular and of uniform cross sectional area and dimensions in accordance with ASTM F2160. Ensure conduit is of continuous length containing no welds or joints coiled on a reel. Additionally, conduit’s inner and outer walls are to be smooth and the inner wall is to be lubricated with manufacturer’s recommended lubricant. Conduit colors are to be integrally extruded throughout the conduit in the manufacturing process. Ensure conduit is permanently marked with a laser ink imprinter or heat embossed white lettering showing the diameter, size, sequential length marks, owners name, ASTM, SDR, and/or Schedule rating. Additional markings of date-of-manufacture, time, and batch-of-resin are to be identified and referenced to certifications and quality control test results. Ensure manufacturer provides
certification of the properties specified and mark/label the reels with purchase order, project name and/or other information for tracking and receiving. Applicable material standards are required based on the following applications:

a. Direct Burial. Use conduit material with a rating of Schedule 80 conforming to ASTM F2160, NEMA TC-7 EPEC-80 and certified for its intended use.

b. Innerduct. Use conduit material with a rating of Schedule 40 conforming to ASTM F2160, NEMA TC-7 EPEC-40.

ITS conduits used for the installation of Fiber Optic Cable including tracer wire, are to be extruded integrally colored orange to indicate its use for Communications.

ITS conduits designated for electrical use are to be extruded integrally colored red to indicate its use for Electrical wiring.

Submit a certificate of compliance, as specified in 106.07, for all materials, components, and assemblies.

918.12 PEDESTALS, POLES, TRANSFORMER BASES, AND MAST BRACKET ARMS
THE FIRST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate pedestals, poles, transformer bases, and mast bracket arms for traffic signal, highway lighting, and camera standards with materials according to the appropriate ASTM standard and the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

SECTION 919 – MISCELLANEOUS

THE FOLLOWING IS ADDED:

919.15 POLYESTER MATTING

Provide polyester matting of commercial quality that is a composite of polyester base fiber and vinyl chloride resin and is permeable to air and water, but shall prevent sunlight from reaching the soil. Ensure that the matting resists ultraviolet light, mildew and algae. Ensure that the matting is self-extinguishing when removed from flame. Ensure that the matting has a minimum thickness of 1/4 inch.
DIVISION 1000 – EQUIPMENT

SECTION 1001 – TRAFFIC CONTROL EQUIPMENT

THE FOLLOWING SUBSECTION IS ADDED:

1001.04 PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION

THE ENTIRE SUBSECTION IS CHANGED TO:

Provide a NTCIP compliant portable variable message sign as described under 1001.02 with the exceptions noted below and each equipped with broadband cellular modem.

Ensure that the sign panel is color full matrix model that displays a combination of letters and graphic images.

Ensure that the sign panel is capable of displaying three lines of text with variable size characters.

Ensure nine characters are displayed per line for posting travel times. For this nine character requirement, smaller size characters may be allowed that meets MUTCD guidelines.

Ensure that the panel is also capable of displaying eight (8) characters per line with a minimum character height of eighteen (18) inches.

Ensure that the PVMSRC can be integrated with the Department’s central DMS control software for remote operation.

1001.05 PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY

Provide a Portable Trailer Mounted CCTV Camera Assembly (PTMCCA) with the following:

A. Trailer Platform
   1. Maximum size, including tongue, 14 feet long by 7 feet wide by 8 feet high.
   2. NJDOT approved lighting package to include electrical brake and marker lights with wire connections.
   3. Primed and painted with powder coated orange color.
   4. Fitted with manual telescoping outriggers with adjustable jacks sized to counter full mast extension.
   5. Four 3500 pounds, drop leg, top wind screw jacks.
   6. All equipment secured to prevent theft or separation from platform.
   7. 24/7 operation in all weather conditions.
   8. One locking NEMA-4 equipment box for operational controls.
   9. Removable wheels (with wheel locks) when trailer is in deployed position.
   10. Operation manual with a copy placed in the storage bin.

B. Mast
   1. 150 pounds payload capacity.
   2. 29 feet to 32 feet of extension with capability to mount antenna at 20 feet, 25 feet or at the top, 10 feet maximum nested length of mast - 3 to 9 sections.
   4. Driven by galvanized steel cable.
   5. Spiral conduit for cables.
   6. Compactly retractable when nested into storage container at the bottom & foldable for easy transport.
   7. Operated by a power winch with a safety brake.
8. Capable of being raised or lowered during sustained wind speeds of 30 miles per hour.

C. **Power Source**

Equip the PTMCCA with either a diesel charged or a solar charged battery system. Ensure that the PTMCCA is also capable of operating on 120-volt AC electrical service. The Department may require a solar charged battery system in noise sensitive areas. Provide the power with a battery backup system capable of providing continuous operation when the primary power source fails. Ensure that the power source meets the following requirements:

1. Diesel. Ensure that the fuel tank is capable of operating the sign for a period of 72 hours without refueling. Equip with an exhaust muffler and a United States Department of Forestry approved spark arrester. Ensure that the engine is shock mounted to reduce vibration and locked in a ventilated enclosure.

2. Solar. Provide solar panels capable of recharging the batteries at a rate of 4 hours of sun for 24 hours of camera usage. Ensure that the battery capacity is capable of operating the sign for a period of 18 days without sunlight.

D. **Electronics**

1. Cellular (CDMA), microwave, or 802.11 bandwidth option.
2. Work lights in all cabinets.
3. Remote trailer diagnostics (battery level, charging output, etc.).

E. **Camera and Software**

Ensure that the camera has the following characteristics:

1. Dome Camera in a heavy duty plastic dome or with a weather resistant case.
2. Impact resistant viewing window.
3. Minimum resolution of NTSC 704 (H) x 480 (V).
5. Image stabilization.
6. Light Sensitivity 0.02 lux NIR Mode.
7. Auto Focus with Manual Focus capability.
9. Motorized Zoom up to 16x optical, 10x digital.
11. Thermostatically controlled heater and defroster -50° to 140°F operating range.
12. Windshield wiper.
13. 24/7 operation in all weather conditions.
14. Time and date stamp.

Ensure the software provides the following functionality:

1. Remote control of pan, tilt and zoom.
2. Display of streaming video in MPEG format, motion-JPEG, and single snapshot JPEG images, remotely interchangeable by using central software.
3. Preset controls of pan/tilt/zoom combinations. Ensure all presets are accessible from a drop-down menu with descriptive name of preset. Set first 8 presets with quick-launch icons with graphical representation of the preset views.
4. Display of all the project’s web cams in a single view screen.
5. Display of local time and weather conditions including temperature and humidity.
6. Saving images and sending e-mail images.
7. Viewing archived images via a graphical calendar control and storing archived images at least every five minutes.
8. Three levels of password protection: administrator, user, and guest, individual user accounts.
9. Monitoring and controlling the cameras using web access.

SECTION 1009 – HMA PLANT EQUIPMENT

1009.01 HMA PLANT
A. Requirements for HMA Mixing Plants.
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

The HMA producer is required to have a quality control (QC) program plan approved annually by the ME as per Materials Approval Procedure MAP-102. The HMA producer is required to ensure that the QC plan conforms to the requirements outlined in the report entitled “Hot Mix Asphalt Quality Control Program Plan” prepared by the Department of Transportation and New Jersey Asphalt Paving Association. Failure to follow these requirements will result in rejection of HMA materials supplied by the HMA producer and removal of the HMA supplier from the QPL.

THE FOLLOWING SUBSECTION IS ADDED AFTER 1009.02:

1009.03 ASPHALT-RUBBER BINDER BLENDING EQUIPMENT
Provide equipment for preparation of Asphalt-Rubber Binder. Ensure that the unit is equipped with a crumb rubber feed system capable of continuously supplying the asphalt cement feed system, and is capable of fully blending the individual crumb rubber particles with the asphalt cement. Use an asphalt-rubber binder storage tank that is equipped with a heating system capable of maintaining the temperature of the binder between 325 and 375 °F during the reaction. Ensure the asphalt-rubber binder storage tank is also equipped with an internal auger mixing device, oriented horizontally in the tank, capable of maintaining a uniform mixture of the asphalt-rubber binder.

Ensure that the tanks for storage of asphalt-rubber binder are equipped to uniformly heat the material to the required temperature under effective and positive control at all times. Ensure that heating is accomplished so that no flame comes in contact with the heating tank.

Provide a circulating system of sufficient capacity for the binder to ensure continuous circulation between the storage tank and proportioning units during the entire operating period. Ensure that the discharge end of the binder circulating pipe is maintained below the surface of the binder in the storage tank to prevent discharge of hot binder into the open air.

Ensure that pipe lines and fittings are steam or oil jacketed, electrically or otherwise heated, and insulated to prevent heat loss.

Provide valves according to AASHTO T 40, except ensure that a sampling valve is also located in the lowest third of each storage tank.

If the plant has been equipped with a water injection type asphalt foaming system, ensure that the system will allow the proper amount of asphalt rubber binder to be supplied continuously or provide a by-pass to ensure that the proper amount of asphalt rubber binder is supplied to the mix.

SECTION 1011 – PRECAST AND PRESTRESSED CONCRETE PLANT EQUIPMENT

1011.03 ME’S OFFICE
THE SECOND PARAGRAPH SUBPART 2 &3 ARE CHANGED TO:

FIRST AVENUE STREETSCAPE IMPROVEMENT PROJECT
FEDERAL PROJECT NUMBER: TAF-1126(300)
2. One high-speed broadband connection with a minimum speed of 3 megabits per second (mbps) with dynamic IP address (DSL, Cable, etc.).
3. Two desks and 2 chairs.

THE FOLLOWING SECTION IS ADDED:

SECTION 1012 – PAVEMENT PRESERVATION EQUIPMENT

1012.01 Micro Surfacing and Slurry Seal Paver

Provide fully automated self-propelled continuous flow type equipment that is specifically designed, equipped, calibrated, and operated for mixing and spreading slurry seal and micro surfacing conforming to the approved mix design and application rate. Immediately correct defects that adversely affect the functioning of the equipment or quality of the mixture. Perform calibration in the presence of the ME. Ensure that the documentation includes an individual calibration of each material at various settings that can be related to the machine metering devices. Any component replacement affecting material proportioning requires that the machine be recalibrated. Do not use a machine on the project until the calibration has been completed and accepted. Ensure the paver is equipped with the following:

1. **Mixing Equipment.** Ensure that the machine is specifically designed and manufactured to mix micro surfacing and slurry seal materials. Mix the material in an automatic-sequenced, self-propelled, micro surfacing and slurry seal mixing machine. Ensure that it is a continuous-flow mixing unit that accurately proportions and delivers the mix components, within 2% of the required amount as per the mix design, into a revolving multi-blade double-shafted mixer. Sufficient storage capacity for all mix components is required to maintain an adequate supply to the proportioning controls.

   Ensure that the machine is capable of loading materials while continuing to apply micro surfacing and slurry seal. Ensure that the continuous-run machine is equipped to provide the operator with full control of the forward and reverse speeds during application and is equipped with opposite-side driver stations to assist in alignment. Ensure that the self-loading device, opposite-side driver stations, and forward and reverse speed controls are of original-equipment-manufacturer design.

   Provide material control devices, readily accessible and so placed that the inspector may determine the amount of each material used at any time.

   Provide machine with a water pressure system and nozzle type spray bar to provide a water spray ahead of and outside the spreader box.

   Locate mineral filler feed so the proper amount of mineral filler is dropped on the aggregate before discharge into mixer.

2. **Spreading Equipment.** Provide spreading equipment that agitates and spreads the mixture uniformly in the surfacing box by means of twin shafted paddles or spiral augers fixed in the spreader box. Ensure that a front seal is provided such that there is no loss of the mixture at the road contact point. Ensure that there is an adjustable rear seal which will act as a final strike-off. Ensure that the spreader box and rear strike-off is designed and operated so that a uniform consistency is achieved and a free flow of material is provided to the rear strike-off. Ensure that the spreader box has suitable means provided to side shift the box to compensate for variations in the pavement geometry.

   Ensure that a secondary strike-off is provided to improve surface texture. Ensure that the secondary strike-off is adjustable to match the width of the spreader box and allows for varying pressures to control the surface texture.

3. **Electronic Mix Control and Diagnostic (EMCAD) System.** Ensure the paver is equipped with a computer mix control and diagnostic system that records, displays, and prints the following:
   1. Individual sensor counts for emulsion, aggregate, mineral filler, water, and additive.
   2. Aggregate, emulsion and mineral filler output in pounds per minute.
   3. Spread rate in pounds per square yard.
   4. Percentages of emulsion, mineral filler, water, and additive.
5. Cumulative total quantities of aggregate. Emulsion, mineral filler, water, and additive.
6. Scale factor for all materials.

Ensure the computer system is functional and capable of printing reports.

4. **Rut, Longitudinal Joint and Rumble Strip Filling Equipment.** Provide rut filling equipment with a steel V-configuration screed rut box commercially designed and manufactured to fill ruts as required. Ensure that the rut box can be adjusted to provide a mixture spread width of between 2 feet to 6 feet and have a moveable steel strike-off to control crown.

**1012.02 Mechanical Fine Aggregate Spreader**

Provide fully automated self-propelled fine aggregate spreading equipment with positive controls that is specifically designed, equipped, calibrated, and operated for spreading fine aggregate uniformly at the required width and application rate. Immediately correct defects that adversely affect the functioning of the equipment or quality of the fine aggregate application. Perform calibration in the presence of the ME. Ensure that the calibration documentation includes the fine aggregate at various application rate settings that can be related to the machine metering devices. Any component replacement affecting application rate requires that the machine be recalibrated. Do not use a machine on the project until the calibration has been completed and accepted.
NJDOT TEST METHODS

NJDOT B-3 – SELECTING CORES FOR MAXIMUM SPECIFIC GRAVITY TESTING IN AIRVOIDS DETERMINATION

B. Procedure.
THE FOLLOWING NOTE IS ADDED AFTER STEP 3:

NOTE: For Recore Lots and Statistical Outlier Lots, do not randomly select a core for maximum specific gravity testing. The entire core lot must be tested for maximum specific gravity.

THE FOLLOWING STEP IS ADDED AFTER STEP 9:

10. If the lot has an outlier or is a recore lot, the entire lot must be tested for maximum specific gravity. Calculate air voids using each individual core maximum specific and bulk specific gravity.

NJDOT B-8 – DETERMINING JOB MIX FORMULA FOR MODIFIED OPEN-GRADED FRICITION COURSE MIXES

C. Procedure.
3. Relative VMA Asphalt Content.
THE FOURTH SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Determine the bulk specific gravity, Gmb from each specimen according to NJDOT B-6 or AASHTO T 331.

THE FOOTNOTE FOR GMB IN THE SECOND EQUATION IS CHANGED TO:

Gmb = the bulk specific gravity of the specimen as determined by NJDOT B-6 or AASHTO T 331.

THE FOLLOWING TEST METHODS ARE ADDED:

NJDOT B-10 – OVERLAY TEST FOR DETERMINING CRACK RESISTANCE OF HMA
A. Scope. This test method is used to determine the susceptibility of HMA specimens to fatigue or reflective cracking. This test method measures the number of cycles to failure.

B. Apparatus. Use the following apparatus:

1. Overlay Tester. An electro-hydraulic system that applies repeated direct tension loads to specimens. The machine features two blocks, one is fixed and the other slides horizontally. The device automatically measures and records a time history of load versus displacement every 0.1 sec at a selected test temperature.

   The sliding block applies tension in a cyclic triangular waveform to a constant maximum displacement of 0.06 cm (0.025 in.). This sliding block reaches the maximum displacement and then returns to its initial position in 10 sec. (one cycle).

2. Temperature Control System. The temperature chamber must be capable of controlling the test temperature with a range of 32 to 95 °F (0 to 35 °C).

3. Measurement System. Fully automated data acquisition and test control system. Load, displacement, and temperature are simultaneously recorded every 0.1 sec.

4. Linear Variable Differential Transducer (LVDT). Used to measure the horizontal displacement of the specimen (+/- 0.25 in.). Refer to manufacturer for equipment accuracy for LVDT.

5. Electronic Load Cell. Used to measure the load resulting from the displacement (5000 lb capacity). Refer to manufacturer for equipment accuracy for load cell.
6. **Specimen Mounting System.** Used two stainless steel base plates to restrict shifting of the specimen during testing. The mounting jig holds the two stainless steel base plates for specimen preparation.

7. **Cutting Template.**

8. **Two Part Epoxy.** Two part epoxy with a minimum 24 hour tensile strength of 600 psi (4.1 MPa) and 24 hour shear strength of 2,000 psi (13.8 MPa).

9. **10 lb weight (4.5 kg).** Used to place on top of specimens while being glued to specimen platens.

10. **¼ inch Width Adhesive Tape.** Placed over gap in plates to prevent the epoxy from bonding the plates together.

11. **Paint or Permanent Marker.** Used to outline specimens on platens for placement of epoxy.

12. **3/8-in. Socket Drive Handle with a 3-in. (7.6 cm) extension.**

### C. Procedure

Perform the following steps:

1. **Sample Preparation.**

   a. **Laboratory Molded Specimens** - Use cylindrical specimens that have been compacted using the gyratory compactor (AASHTO T 312). Specimen diameter must be 6 inches (150 mm) and a specimen height must be 4.5 inches +/- 0.2 inches (115 +/- 5 mm).

   Note 1 - Experience has shown that molded laboratory specimens of a known density usually result in a greater density (or lower air voids) after being trimmed. Therefore, it is recommended that the laboratory technician produce molded specimens with an air void level slightly higher than the targeted trimmed specimen. Determine the density of the final trimmed specimen in accordance with AASHTO T 166.

   b. **Core Specimens** – Specimen diameter must be 6 inches +/- 0.1 inch (150 mm +/- 2 mm). Determine the density of the final trimmed specimen in accordance with AASHTO T166.

2. **Trimming of Cylindrical Specimen.** Before starting, refer to the sawing device manufacturer’s instructions for cutting specimens.

   a. Place the cutting template on the top surface of the laboratory molded specimen or roadway core. Trace the location of the first two cuts by drawing lines using paint or a permanent marker along the sides of the cutting template.

   b. Trim the specimen ends by cutting the specimen perpendicular to the top surface following the traced lines. Discard specimen ends.

   c. Trim off the top and bottom of the specimen to produce a sample with a height of (1.5 inches +/- 0.02 inches (38 mm +/- 0.5 mm).

   d. Measure the density of the trimmed specimen in accordance with AASHTO T 166. If the specimen does not meet the density requirement as specified for performance testing for the mix being tested, then discard it and prepare a new specimen.

   e. Air dry the trimmed specimen to constant mass, where constant mass is defined as the weight of the trimmed specimen not changing by more than 0.05% in a 2 hour interval.

3. **Mounting Trimmed Specimen to Base Plates (Platens).**

   a. Mount and secure the base plates (platens) to the mounting jig. Cut a piece of adhesive tape approximately 4.0 inches (102 mm) in length. Center and place the piece of tape over the gap between the base plates.

   b. Prepare the epoxy following manufacturer’s instructions.

   c. Cover a majority of the base plates (platens) with epoxy, including the tape. Glue the trimmed specimen to the base plates.

   d. Place a 10 lb (4.5 kg) weight on top of the glued specimen to ensure full contact of the trimmed specimen to the base plates. Allow the epoxy to cure for the time recommended by the manufacturer. Remove the weight from the specimen after the epoxy has cured.
e. Turn over the glued specimen so the bottom of the base plates faces upward. Using a hacksaw, cut a notch through the epoxy which can be seen through the gap in the base plates. The notch should be cut as evenly as possible and should just begin to reach the specimen underneath the epoxy. Great care should be taken not to cut more than 1/16 inch (1.58 mm) into the specimen.

f. Place the test sample assembly in the Overlay Tester’s environmental chamber for a minimum of 1 hour before testing.

4. **Start Testing Device.** Please refer to manufacturer’s equipment manual prior to operating equipment.
   a. Turn on the Overlay Tester. Turn on the computer and wait to ensure communication between the computer and the Overlay Tester occurs.
   b. Turn on the hydraulic pump using the Overlay Tester’s software. Allow the pump to warm up for a minimum of 20 minutes.
   c. Turn the machine to load control mode to mount the sample assembly.

5. **Mounting Specimen Assembly to Testing Device.** Enter the required test information into the Overlay Tester software for the specimen to be tested.
   a. Mount the specimen assembly onto the machine according to the manufacturer’s instructions and the following procedural steps.
      1. Clean the bottom of the base plates and the top of the testing machine blocks before placing the specimen assembly into the blocks. If all four surfaces are not clean, damage may occur to the machine, the specimen, or the base plates when tightening the base plates.
      2. Apply 15 lb-in of torque for each screw when fastening the base plates to the machine.

6. **Testing Specimen.**
   a. Perform testing at a constant temperature recommended by the New Jersey Department of Transportation for the mixture in question. This is typically either 59 °F (15 °C) or 77 °F (25 °C).
      
      **Note 3** – Ensure the trimmed specimen has also reached the constant temperature required.
   b. Start the test by enabling the start button on the computer control program. Perform testing until a 93% reduction or more of the maximum load measured from the first opening cycle occurs. If 93% is not reached, run the test until a minimum of 1,200 cycles.
   c. After the test is complete, remove the specimen assembly from the Overlay Tester machine blocks.

D. **Report.** Include the following items in the report:
   1. Date and time molded or cored.
   2. NJDOT mixture identification.
   3. Trimmed specimen density.
   4. Starting Load.
   5. Final Load.
   6. Percent decline (or reduction) in Load.
   7. Number of cycles until failure.
   8. Test Temperature

**NJDOT B-11- DETERMINING GRADATION OF CRUMB RUBBER FOR ASPHALT MODIFICATION**

A. **Scope.** This method is used to determine the gradation of the crumb rubber for asphalt-rubber binder

B. **Apparatus.** Use the following apparatus:
   1. Oven capable of maintaining a temperatures of 140 ± 10 °F for drying sample to a constant weight.
2. Rubber balls having a weight of 8.5 ± 0.5 grams, a diameter of 24.5 ± 0.5 mm, and a Shore Durometer “A” hardness of 50 ± 5 per ASTM Designation D 224.
3. No. 8, 16, 30, 50, 100, and 200 sieves conforming to AASHTO M 92.
4. Mechanical sieve shaker conforming to AASHTO T 27.
5. Balance conforming to AASHTO M 231 and having a minimum capacity of 100 grams with a precision of 0.1 gram.

C. Procedure. The crumb rubber for asphalt rubber binder is required to conform to the gradations specified below when tested in accordance with ASTM Designation C 136 except as follows:

1. Obtain 100 ± 5 grams from the crumb rubber sample and dry to a constant weight at a temperature of not less than 135 °F nor more than 145 °F and record the dry sample weight.
2. Place the crumb rubber sample and 5.0 grams of talc in a one pint jar, then shake it by hand for a minimum of one minute to mix the crumb rubber and the talc. Continue shaking or open the jar and stir until the particle agglomerates and clumps are broken and the talc is uniformly mixed.
3. Place one rubber ball on each sieve. After sieving the combined material for 10 ± 1 minutes, disassemble the sieves. Brush remaining material adhering to the bottom of a sieve into the next finer sieve. Weigh and record the weight of the material retained on the No. 8 sieve and leave this material (do not discard) on the scale or balance. Ensure that observed fabric balls remain on the scale or balance and are placed together on the side of the scale or balance to prevent the fabric balls from being covered or disturbed when placing the material from finer sieves on to the scale or balance. Add the material retained on the next finer sieve (No. 16 sieve) to the scale or balance. Weigh and record that weight as the accumulative weight retained on that sieve (No. 16 sieve). Continue weighing and recording the accumulated weights retained on the remaining sieves until the accumulated weight retained in the pan has been determined. Before discarding the crumb rubber sample, separately weigh and record the total weight of the fabric balls in the sample.
4. Determine the weight of material passing the No. 200 sieve (or weight retained in the pan) by subtracting the accumulated weight retained on the No. 200 sieve from the accumulated retained weight in the pan. If the material passing the No. 200 sieve (or weight retained in the pan) has a weight of 5 grams or less, cross out the recorded number for the accumulated weight retained in the pan and copy the number recorded for the accumulated weight retained on the No. 200 sieve and record that number (next to the crossed out number) as the accumulated weight retained in the pan. If the material passing the No. 200 sieve (or weight retained in the pan) has a weight greater than 5 grams, cross out the recorded number for the accumulated weight retained in the pan, subtract 5 grams from that number and record the difference next to the crossed out number. The adjustment to the accumulated with retained in the pan is made to account for the 5 grams of the talc added to the sample. For calculation purposes, the adjusted accumulated weight is the same as the adjusted accumulated weight retained in the pan. Determine the percent passing based on the adjusted total sample weight and recorded to the nearest 0.1 percent.

D. Report. Report all test results on ME provided forms.

NJDOT B-12 – DETERMINING ROTATIONAL VISCOSITY OF ASPHALT RUBBER BINDER

A. Scope. This method presents procedures for sampling and testing of asphalt-rubber binder in the field using a hand held portable rotational analog or digital viscometer.

B. Apparatus. Use the following apparatus:

1. Viscometer. A hand held high range rotational viscometer. Analog models with indicator needles and scaled dial displays or digital read out viscometers may be used. Analog models that have been found acceptable include Rion Model VT-04E and Haake Model, VT-02. Digital models that have been found acceptable include Haake VT 2 Plus.
2. Rotor. A cylinder with a diameter of 24 ± 1.1 millimeters, height of 53 ± 0.1 millimeters, and a vent hole attached to a spindle or shaft with length of 87 ± 2 millimeters that is compatible with the selected viscometer. Acceptable rotors include Rion No. 1, Haake No 1, or an equivalent.
3. **Thermometer.** Digital with metal jacket probe accurate to 1 °F.
4. **Sample Containers.** Clean 1 gallon metal cans with lids and wire bale.
5. **Viscosity Standard Oils.** Fluids calibrated in absolute viscosity centipoise (cP).
6. **Viscometer Holder.** Clean metal container or stand for safely storing the viscometer between tests.
7. **Level Surface.** Level surface not directly on the ground.
8. **Heat Source.** A controllable heat source (i.e. a hot plate, gas stove, or burner) to maintain the temperature of the asphalt-rubber sample at 350 ± 3 °F while measuring viscosity.
9. **Personal Equipment.** Eye protection and heat resistant gloves.

C. **Procedure.** Perform the following steps:

1. **Calibration of Equipment.** Calibrate the equipment as follows:
   a. Verify the accuracy of the viscometer by comparing the viscosity results obtained with the hand held viscometer to 3 separate calibration fluids of known viscosities ranging from 1000 cP to 5000 cP. The known viscosity value are based on the fluid manufacturer’s standard test temperature or based on the test temperature versus viscosity correlation table provided by the fluid manufacturer.
   b. The viscometer is considered accurate if the values obtained are within 300 cP of the known viscosity.
   c. Verify the calibration of the rotational viscometer using viscosity standards before use at each site.

2. **Sampling Asphalt-Rubber Binder.** Provide new sample containers and ensure that they are clean before using. Before sampling, draw at least 1 gallon from an appropriate sample valve on the interaction tank and discard. Then reopen the sample valve and draw at least 3/4 of a gallon for testing.

3. **Preparing Asphalt-Rubber Binder Samples for Testing.** Prepare the asphalt-rubber binder as follows:
   a. Immediately transport the sample to the testing area. Ensure that the testing area is close to the sampling location to reduce the potential for temperature loss.
   b. Set the open asphalt-rubber binder sample container on the level surface on or over the heat source.
   c. To prevent scorching or burning, manually stir the asphalt-rubber binder sample using a metal stir rod or the temperature probe.
   d. Continue stirring until a consistent asphalt-rubber binder temperature of 350 ± 3 °F is achieved. Record the actual test temperature with the corresponding viscosity measurement.
   e. Insert the viscometer spindle and rotor into the hot asphalt-rubber binder sample near the edge of the can. Ensure that the spindle and rotor are not inserted deeper than the immersion depth mark on the shaft and are not plugging the vent hole. During insertion, the spindle and rotor may be tilted slightly to keep the vent hole clear.
   f. Allow the rotor to acclimate to the temperature of the asphalt-rubber binder for approximately 1 minute. During acclimation, stir the sample thoroughly and measure the temperature.
   g. Orient the sample and the rotor so that the rotor is near the center of the sample, align the depth mark on the shaft with the asphalt-rubber binder surface, and level the viscometer in order to measure viscosity.

4. **Testing.** Analog viscometers include a level bubble to help orient the device to ensure that the rotor and shaft remain vertical. Digital viscometers may not include a level bubble. If a level bubble is not included, attach a small adhesive bubble to the viscometer or use a framework with a level bubble.

Test the asphalt-rubber binder as follows:
   a. As soon as the viscometer is leveled and the depth mark is even with the asphalt-rubber binder surface, begin rotor rotation. When using a digital viscometer, activate the continuous digital display according to the manufacturer’s recommendations. Read and record the peak viscosity value (The peak measurement typically represents the viscosity of the asphalt-rubber binder; report and log that value. As the rotor continues to turn, it “drills” into the sample and spins rubber particles out of its measurement area. This may cause thinning of the material in contact with the rotor erroneously
indicating a drop in the apparent viscosity of the asphalt-rubber binder) from the graduated scale labeled with the corresponding rotor number or from the digital display.

b. After completing the first measurement, move the viscometer rotor away from the center of the sample can without removing it from the asphalt-rubber binder sample. Turn off the rotor rotation.

c. Stir the asphalt-rubber binder sample thoroughly.

d. Repeat Steps 1, 2, and 3. Take 3 measurements and average the results to determine the viscosity.

e. Return the viscometer to its holder with the rotor suspended in a suitable solvent. Before using the rotor again, wipe off the solvent and dry the rotor to avoid solvent contamination of the next sample.

D. Calculations. Some meters read in units of mPa·s (0.001 Pascal-seconds) or dPa·s (0.1 Pa·s), while others may read in centipoise (cPs) units. The conversion is 1 Pa·s = 1000 cPs.

E. Report. Include the following items in the report:

1. Date and time sampled.
2. Location of asphalt-rubber binding blending plant.
3. Test temperature and viscosity.
4. Rotor designation.
5. Viscometer model and serial n

NJDOT C-2 – QUICK-SETTING PATCH MATERIALS

C. Procedure.

2. Tests. Test materials according to the following:

THE B. IS CHANGED TO:

b. Strength Development. For Type 1 and 2, test 2 cubes per test according to AASHTO T 106. For Type 1A and 1B, make two 4 × 8-inch cylinders per test according to AASHTO R 39. Cure specimens covered with a plastic cover over the cylinder for 3 hours and then cure without the plastic cover at 70.4 to 76.4 °F and 50 percent relative humidity until testing. Test according to AASHTO T 22.

NJDOT R-1 – OPERATING INERTIAL PROFILER SYSTEMS FOR EVALUATING PAVEMENT PROFILES

THIS ENTIRE TEST METHOD IS CHANGED TO:

A. Scope. This test method describes the procedure for operating, verifying the calibration of an ASTM E 950 Class 1 Inertial Profiler System (IPS) and testing riding surface for pavement profiles evaluation.

B. Apparatus. Use an IPS that meets the requirements of AASHTO M 328 and ASTM E 950, Class 1 and the following:

1. Certify the IPS according to AASHTO R 56 at least every 2 years. If a system component is replaced, re-certify the system. Perform the certification at a site approved by the Department.
2. The data system provides the raw profile data in an ASCII format acceptable to the Department.
3. The computer program uses a high-pass filter set at 300 feet and reads an ASCII or text file for computing the International Roughness Index (IRI) in inches per mile.
4. The current version of ROADRUF, ProVal, or other Department approved pavement profile analysis software is used to compute the IRI.

C. Procedure. Perform the following steps:

1. Operate the IPS according to AASHTO R 57 and ASTM E 950.
2. On a daily basis before data collection, check the equipment and operating system for operational stability and calibration. Perform necessary calibration procedures according to equipment
manufacturer’s procedures and applicable standards. Operators shall maintain a log documenting the calibration history.

3. Ensure that the operators of the IPS have completed a profile training course, such as NHI Course 131100, have been trained specifically on the IPS they will be operating, and are proficient in the operation of the IPS.

4. Make provisions to automatically start and stop the IPS recording at the beginning and end of testing.

5. Ensure retroreflective traffic striping tape or other approved mechanism is placed at the beginning and end of each direction of travel for automatically triggering the start and stop of profile measurements.

6. Collect at least 0.05-mile of data before the area to be tested to allow the system to stabilize before profile measurements are obtained. Collect data in a continuous run through the length to be tested. If the run is interrupted, discard the results and re-run the length.

7. Test the full extent of each wheel path of each lane in the longitudinal direction of travel. The wheel path is defined as being located approximately 3 feet on each side of the centerline of the lane and extending for the full length of the lane. Lanes are defined by striping.

8. Run three tests each wheel path and report average of three runs each wheel path.

9. Exclude locations where the traffic striping includes turn lanes that cause the through traffic lane to cross over a longitudinally paved joint, ramps, and lanes such as acceleration and deceleration lanes of less than 1,000 feet of continuous through treatment.

10. Report single IRI value average of 3 runs unless otherwise directed. The single IRI value shall be each 0.01 mile length for each lane, ramp, and shoulder and 0.005 mile for each overlaid bridge structure.
FEDERAL AID PROJECT ATTACHMENT 1

DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION

A. Utilization of Disadvantaged Business Enterprises as Subcontractors, Transaction Expeditors, Regular Dealers, Manufacturers and Truckers. The Department advises the Contractor and subcontractors that failure to carry out the requirements in this attachment constitutes a material breach of Contract and, after the notification of the applicable Federal agency, may result in termination of the agreement or Contract by the Department or such remedy as the Department deems appropriate. Requirements set forth in this section shall also be physically included in all subcontracts in accordance with USDOT requirements.

B. Policy. It is the policy of the Department that Disadvantaged Business Enterprises, as defined in 49 CFR, Part 26; Titles I & V of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA); MAP-21, Moving Ahead for Progress in the 21st Century Act (P.L. 112-141); FAST-ACT, Fixing America's Surface Transportation Act (P.L. 114-94, December 4, 2015); and Section III below, shall have an equal opportunity to participate in the performance of contracts financed in whole or in part with Federal funds under this agreement. The Disadvantaged Business Enterprise requirements of 49 CFR, Part 26 et seq. apply to this agreement.

C. Definitions

1. Disadvantaged Business Enterprise (DBE). A for-profit small business concern:
   a. That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and
   b. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it, and who do not exceed the personal net worth criteria established in 49 CFR Part 26.

2. Socially and economically disadvantaged individual. Any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who has been subjected to racial or ethnic prejudice or cultural bias within American society because of his or her identity as a member of groups and without regard to his or her individual qualities. The social disadvantage must stem from circumstances beyond the individual’s control.
   a. Any individual who a recipient finds to be a socially and economically disadvantaged individual on a case-by-case basis. An individual must demonstrate that he or she has held himself or herself out, as a member of a designated group;
   b. Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
      (1) Black Americans,” which includes persons having origins in any of the Black racial groups of Africa
      (2) Hispanic Americans,” which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race
      (3) Native Americans,” which includes persons who are enrolled members of a Federally or State recognized Indian tribe, Alaska Natives, or Native Hawaiians
      (4) Asian-Pacific Americans,” which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), Republic of the Northern Marianas Islands, Samoa, Macao, Fiji, Tonga, Kirbati, Tuvalu, Nauru, Federated States of Micronesia, or Hong Kong
      (5) Subcontinent Asian Americans,” which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka
      (6) Women
(7) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

(8) Being born in a particular country does not, standing alone, mean that a person is necessarily a member of one of the groups listed in this definition.

3. Commercially Useful Function (CUF). A DBE performs a commercially useful function when it is responsible for execution of a distinct element of the work of a contract and carrying out its responsibility by actually performing, managing and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for preparing the estimate, negotiating price, determining quality and quantity, ordering the material, arranging delivery, installing (where applicable), and paying for the material and supplies itself for the project.

4. Transaction expediter (broker). A DBE who arranges or expedites transactions and who arranges for material drop shipments.

5. DBE regular dealers. A firm that must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. In addition, a regular dealer must own, operate or maintain a store, warehouse, or other establishment in which the materials, supplies, articles or equipment required under this Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

6. DBE manufacturer. A firm that operates or maintains a factory or establishment that produces on the premises, the materials, supplies, articles, or equipment required for the Contract.

7. Good faith effort (GFE). Efforts to achieve a DBE goal or other requirement of 49 CFR Part 26, which by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement. Efforts to include firms not certified as DBEs in the state where the contract is being let are consequently not good faith efforts to meet a DBE contract goal.

8. Affirmative Action Plan. An outline of the steps a contractor or subcontractor will implement to achieve equal employment opportunity and affirmative action and/or to correct its equal employment and affirmative action program deficiencies.

D. Compliance. The Contractor is responsible for compliance as specified in Section 105.

E. Contractor’s DBE Obligations. Ensure that DBEs have an equal opportunity to receive and participate in contracts and subcontracts financed in whole or in part with Federal funds in performing work with the Department. Take all necessary and reasonable steps in accordance with 49 CFR, Part 26 and the Contract to ensure that DBEs are given equal opportunity to compete for and to perform on the Department’s Federal aid projects. Do not discriminate in the award and performance of any Contract obligation including, but not limited to, performance of obligations on USDOT assisted contracts, as specified in Section 107.

1. Post Award Obligations
   a. Give DBEs equal consideration with non-minority firms in negotiation for any subcontracts, purchase orders or leases.
   b. Attempt to obtain qualified DBEs to perform the work. A directory of certified Disadvantaged Small Businesses Enterprise firms can be found in the New Jersey Unified Certification Program Vendor Certification database, online at: https://njucp.dbesystem.com/.

2. Affirmative Action After Award of the Contract
   a. Subletting. If at any time following the award of the Contract, the Contractor intends to sublet any portion(s) of the work under said Contract, or intends to purchase material or lease equipment not contemplated during preparation of bids, take affirmative action:
      (1) Notify the RE, in writing, of the type and approximate value of the work which the Contractor intends to accomplish by such subcontract, purchase order or lease.
      (2) Submit the Post-Award Minority Certification (Part IV of the DC-18A Request for Approval to Sublet on Projects Utilizing the 2007 Specifications Form) to the Regional Supervising Engineer with the application to sublet, or prior to purchasing material or leasing equipment. Obtain Post Award Minority Certifications from the RE.
      (3) Efforts made to identify and retain a DBE as a replacement subcontractor, lower tier subcontractor, transaction expediter, regular dealer, supplier, manufacturer or trucker when the arrangements with
the original DBE prove unsuccessful, shall be as specified in Section 108. Work in the category concerned shall not begin until such approval is granted in writing by the Department.

(4) Notification of a DBE firm’s termination will be as specified in Section 108. Send notice in writing to the Department through the RE. Said termination notice will include the firm’s ethnic classification, whether the firm is a DBE and the detailed reason(s) for termination.

b. Selection and Retention of Subcontractors. Do not discriminate in the selection and retention of subcontractors, including procurement of materials and leases of equipment as specified in 108.01. Provide the RE with a listing of firms, organizations or enterprises solicited and those utilized as subcontractors on the proposed project. Such listing shall clearly delineate which firms are classified as DBEs. Provide the RE with subcontract agreements for all subcontractors performing work on the Contract as specified in Section 108.

(1) Efforts made to identify and retain a DBE as a replacement subcontractor, lower tier subcontractor, transaction expeditor, regular dealer, supplier, manufacturer or trucker when the arrangements with the original DBE prove unsuccessful, shall be submitted as specified in Section 108. Work in the category concerned shall not begin until such approval is granted in writing by the Department.

(2) Notification of a DBE firm’s termination will be as specified in Subsection 108.01. Send notice in writing to the Department through the RE. Said termination notice will include the firm’s ethnic classification, whether the subcontractor is a DBE and the detailed reason(s) for termination.

c. Meeting Contract DBE Goal. Demonstrate attainment toward meeting the Contract DBE goal by reporting monthly, all DBE participation, to the Department’s RE and DCR/AA Contract Compliance Unit using the CR-267 – Monthly DBE Utilization Form. The form is due by the 5th of the month, and must list all DBEs used on the Contract, the specific Contract work items each DBE is performing, whether the DBE is performing full or partial work on the items, and the amount paid to each DBE each month. Failure to report the information, and accurately report it may result in payment being delayed or withheld as specified in Section 105, assessing sanctions, or termination of the Contract as specified in Section 108.

d. Termination, Substitution or Replacement of DBEs. Make good faith efforts to replace a DBE that is terminated or has otherwise failed to complete its work on the Contract with another certified DBE, to the extent needed to meet the Contract DBE goal. Notify the DCR/AA immediately of the DBE’s inability or unwillingness to perform and provide reasonable documentation. Prior to termination, substitution or replacement of a DBE subcontractor, lower tier subcontractor, transaction expeditor, regular dealer, supplier, manufacturer or trucker, submit a Revised Form CR-266 to the Department naming the replacement DBE firm(s), type of work performed, specific Contract work items, whether the DBE is performing full or partial work on the items, dollar value and percent of total Contract for each DBE firm. Submit detailed written explanation of why each change is being made, including documented evidence of good faith effort(s) with the submission of the revised Form CR-266. Submit along with the revised CR-266: 1) a completed Confirmation of DBE Firm (Form CR-273) to demonstrate direct written confirmation from each DBE firm participating on the Contract, confirming the kind and amount of work that was provided on the Contractor’s CR-266, and if applicable; 2) a completed DBE Regular Dealer/Supplier Verification (Form CR-272) for all DBE Regular Dealers/Suppliers listed on the revised CR-266; and if applicable, 3) a completed DBE Trucking Verification (Form CR-274) for all DBE truckers listed on the revised CR-266. Termination, substitution or replacement of DBEs shall be made as specified in Section 108. Termination or replacement of DBEs cannot be made without prior written approval of the Department as per 108.01.

e. Submission of Good Faith Effort Documentation. If the Contractor is unable to meet the Contract goal for DBE participation, submit to the DCR/AA for review and approval, documented evidence of good faith efforts along with the monthly CR-267 form. This submission must include written details addressing each of the good faith efforts outlined in the Contract. Submittal of such information does not imply DCR/AA approval. The Department’s DCR/AA has sole authority to determine whether the Contractor is meeting the Contract DBE goal or made adequate good faith efforts to do so.

F. DBE Goals for the Contract. This Contract includes a goal of awarding eight (8) percentage of the Total Contract Price to subcontractors, transaction expeditors, regular dealers, manufacturers and truckers qualifying as DBEs.
The Department’s DCR/AA has sole authority to determine whether the Contractor met the goal or made adequate good faith efforts to do so. If the DCR/AA determines that the Contractor has failed to meet the Contract DBE goal or made adequate good faith efforts to do so, the Department will follow Section 105.

G. Counting DBE Participation.

1. Each DBE is subject to a certification procedure to ensure its DBE eligibility status prior to the award of the Contract. All DBEs working on the Contract must be certified DBEs. To receive DBE credit toward meeting a contract goal in the context of the contract award process, a DBE firm must be certified before the due date for bids or offers on the Contract, as stated in 49 CFR Part 26.81(c). There may be situations after the award of the Contract, however, in which it is appropriate to count DBE credit for the use of a DBE subcontractor certified after the contract is executed. To be eligible to obtain DBE credit, a DBE subcontractor must be certified before the subcontract on which it is working is executed.

2. The Department determines the percentage of DBE participation that will be counted toward the Contract DBE goal in accordance with 49 C.F.R. Part 26.55 et seq.

3. The Contractor will count DBE participation toward the Contract DBE goal only the value of the work actually performed by a certified DBE and only if the DBE performs a commercially useful function in the work of a contract as per 49 CFR, Subpart C, Part 26.55(c) and the Contract.

4. The Department will count DBE participation for DBE trucking firms in accordance with 49 C.F.R. Part 26.55 et seq. The DBE can count the entire value of services performed by DBE trucks. The DBE can count the value of non-DBE trucking services up to the value of services performed by DBE trucks used on the Contract. DBE participation can be counted for the value of services of non-DBE trucks that exceed the value of the services performed by DBE trucks only in the amount of the fee or commission a DBE receives as a result of the lease arrangement.

5. The Department will count DBE participation for DBE regular dealers, manufacturers and transaction expeditors in accordance with 49 C.F.R Part 26.55 et seq. Transaction expeditors/brokers will not receive DBE credit for any portion of the cost of the materials and supplies themselves toward the Contract DBE goal. For brokers, only the DBE’s fee or commission, and no part of the cost of the goods, count towards DBE goals. The Department will determine if the fees are reasonable and not excessive as compared with fees customarily allowed for similar services. If a certified firm acts as a “regular dealer” in a given transaction, it is awarded DBE credit equivalent to 60 percent of the value of the items it supplies on that contract. This credit is awarded in recognition of the value the DBE adds to transaction and the risks that it takes.

6. If the Contractor is a certified DBE, payments made to the Contractor for work performed by the Contractor will be applied toward the Contract DBE goal. Payments made to the Contractor for work performed by non-DBEs will not be applied toward the Contract DBE goal.

7. When a DBE subcontractor sublets part of the work of its contract to another firm, the value of the subcontract work may be counted towards the Contract DBE goal only if the subcontractor itself is a certified DBE. Work that a DBE subcontractor subcontracts to a non-DBE firm, cannot be counted towards the Contract DBE goal.

H. Commercially Useful Function

1. Performance of Work. The DBE must perform the work with their own permanent employees, or employees recruited through traditional recruitment and/or employment centers. DBEs must employ and control their own workforce, and cannot share employees with the Contractor, other subcontractors on the present project, or the renter-lessee of equipment being used on the present project. The DBE firm must be responsible for all payroll and labor compliance requirements for all of their employees performing work on the Contract. Direct or indirect payments by any other contractor are not allowed.

2. Managing Work. The DBE must manage the work themselves including the scheduling of work operations, ordering of equipment and materials, hiring/firing of employees, including supervisory employees, and preparing and submitting certified payrolls. The DBE must supervise their portion of daily work operations of the project. With respect to materials and supplies used on the Contract, the DBE must be responsible for preparing the estimate, negotiating price, determining quantity and quality, ordering the material, arranging delivery; installing, (where applicable), and paying for the material and supplies itself, for the project.

3. Responsibility of Work. A DBE must perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own workforce. The DBE must not subcontract a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved.

4. Equipment of DBE. The DBE must perform the work stated in the subcontract with their own equipment, whether owned or leased and operated on a long term agreement, not an ad hoc or contract by contract
agreement. The equipment must be owned by the DBE firm, or leased/rented from traditional equipment lease/rental sources. The equipment will not belong to the Contractor, any other subcontractor or lower tier subcontractors on the current project, or supplier of materials being installed by the DBE firm.

5. **Lease of Equipment.** A DBE firm may lease specialized equipment from a contractor, but not from the Contractor, if it is consistent with normal industry practices and at rates competitive for the area. Rental agreements must be for short periods of time, specify the terms of the agreement and involve specialty equipment to be used at the job site. The lease may allow the operator to remain on the lessor’s payroll, if it is the generally accepted industry practice but the operation of the equipment must be subject to full control by the DBE. The DBE is expected to provide the operator for non-specialized equipment, and is responsible for all payroll and labor compliance requirements. A separate lease agreement is required.

6. **DBE Trucking.** DBE trucking companies must perform a commercially useful function in accordance with 49 CFR Part 26.55 et seq. Contrived arrangements for the purpose of meeting DBE goals will not be allowed. The DBE must be responsible for the management and supervision of the entire trucking operation on a contract-by-contract basis, and must own and operate at least one fully, licensed, insured and operational truck used on the Contract.

The DBE trucking firm is not permitted to obtain trucks from the Contractor to perform work on the project. The DBE may lease trucks from a subcontractor working on the project, provided the trucks are obtained from the subcontractor prior to the project letting. The DBE may lease trucks from another DBE, including an owner-operator that is certified as a DBE. The DBE may also lease trucks from non-DBEs and owner-operators. Bona fide lease agreements must be for the length of time needed by the DBE on the Contract and signed by both the DBE and the firm(s), either certified DBE or non-DBE, from which the trucks will be leased. Leases must indicate that the DBE has exclusive use and control over the truck. As per 49 CFR Part 26.55(d)(7), all leased trucks, including non-DBE trucks, must display the name and USDOT identification number issued for interstate commerce, of the DBE firm on the outside of the truck. DBE firms are expected to use the same trucks for DBE credit on all projects so use of leased vehicles on a project-by-project basis is not permitted.

The Contractor shall have signed Hiring Agreements. Submit copies of these signed Hiring Agreements, and copies of all signed lease agreements to the RE prior to the trucking firm’s commencing work on the project. Prior to the DBE trucking firm beginning work on the Contract, DBE Trucking firms will be required to complete the DBE Trucking Verification (Form CR-274). The DBE and Contractor must sign the form and the Contractor submit the original CR-274 form directly to the Department’s RE, with a copy submitted to the DCR/AA. The Contractor must prepare, sign and submit with the CR-267, a Monthly Trucking Verification form (CR-271), identifying each truck owner, DBE Certification number, company name and address, truck number, and commission or amount paid for all DBE and non-DBE truckers performing work on the project. Also, submit the form to the Department as per Section E of this Special Provision for DCR/AA review, approval and determination of credit toward the Contract goal. Failure to submit the forms may result in denial or limit of credit toward the Contract DBE goal, payment being delayed or withheld as specified in Section 105, assessing sanctions or termination of the Contract as specified in Section 108.

7. **DBE Regular Dealers.** DBE regular dealers must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale of the products in question. In addition, a regular dealer must own, operate or maintain a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under this Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

When the Contractor seeks credit toward the Contract DBE goal using DBE regular dealers, the DBE Regular Dealer/Supplier Verification (Form CR-272) must be completed and signed by the DBE regular dealer and then signed by the Contractor. Submit the form to the Department as per Section E of this Special Provision for the DCR/AA’s review, approval and determination of credit toward the Contract DBE goal.

8. **DBE Manufacturers.** DBE manufacturers must be a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required for this Contract.
9. The Contractor shall not use a DBE solely for the purpose of acting as an extra participant in a transaction, a contract or the Contract through which funds are passed in order to obtain the appearance of DBE participation.

I. **Good Faith Effort.** To demonstrate good faith efforts to meet the Contract DBE goal, a Contractor shall, on an ongoing basis, document the steps it takes to obtain DBE participation in accordance with 49 CFR Part 26.53 and Appendix A, including but not limited to the following:

1. Conducing market research to identify small business contractors and suppliers and soliciting through all reasonable and available means the interest of all certified DBEs that have the capability to perform the work of the Contract. This may include attendance at pre-bid and business matchmaking meetings and events, advertising and/or written notices, posting of Notices of Sources Sought and/or Requests for Proposals, written notices or emails to all DBEs listed in the State’s directory of transportation firms that specialize in the areas of work desired (as noted in the DBE directory) and which are located in the area or surrounding areas of the project.

   Should solicit this interest as early in the acquisition process as practicable to allow the DBEs to respond to the solicitation and submit a timely offer for the subcontract. Determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

2. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out Contract work items into economically feasible units (for example, smaller tasks or quantities) to facilitate DBE participation, even when the Contractor might otherwise prefer to perform these work items with its own forces. This may include, where possible, establishing flexible timeframes for performance and delivery schedules in a manner that encourages and facilitates DBE participation.

3. Providing interested DBEs with detailed information about the plans, specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation with their offer for the subcontract. Attempt to contact all potential subcontractors on the same day and use similar methods to contact them;

4. Negotiating in good faith with interested DBEs. Make a portion of the work available to DBE subcontractors and suppliers and select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs 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 DBEs to perform the work.

   Consider a number of factors in negotiating with subcontractors, including DBE subcontractors. Take a firm’s price and capabilities as well as Contract goals into consideration. The fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for failure to meet the contract DBE goal, as long as such costs are reasonable. The ability or desire of a Contractor to perform the work of a Contract with its own organization does not relieve the responsibility to make good faith efforts. Contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

5. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor’s standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor’s efforts to meet the Contract DBE goal. Another practice considered an insufficient good faith effort is the rejection of the DBE because its quotation for the work was not the lowest received. However, nothing in this paragraph shall be construed to require the Contractor to accept unreasonable quotes in order to satisfy the Contract DBE goal.

   Inability to find a replacement DBE at the original price is not alone sufficient to support a finding that good faith efforts have been made to replace the original DBE. The fact that the Contractor has the ability and/or desire to perform the contract work with its own forces does not relieve the Contractor of the obligation to make good faith efforts to find a replacement DBE, and it is not a sound basis for rejecting a prospective replacement DBE’s reasonable quote.

   Attempt, wherever possible, to negotiate prices with potential subcontractors which submitted higher than acceptable price quotes.
Keep a record of efforts, including the names of businesses contacted and the means and results of such contacts.

6. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
7. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
8. Effectively using the services of available minority/women community organizations; minority/women 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 DBEs.

If the Contractor fails to meet the Contract DBE goal, they must submit documented evidence of good faith effort(s) with the CR-268 final DBE Report to the DCR/AA for review and approval. Submittal of such information does not imply DCR/AA approval. The Department’s DCR/AA has sole authority to determine whether the Contractor met the Contract DBE goal or made adequate good faith efforts to do so. If the DCR/AA determines that the Contractor has failed to meet the Contract DBE goal or made adequate good faith effort to do so, the Department will follow Section 105.

J. Submission of Affirmative Action Program

Contractors, subcontractors and professional service firms performing work for the Department are required to submit their company’s Affirmative Action Program annually to the DCR/AA. Contractors must have an approved Affirmative Action Program on file in the DCR/AA no later than seven (7) State business days after the date of bid opening. No recommendations to award will be made without an approved Affirmative Action Program on file in the DCR/AA.

The Annual Affirmative Action Program will include, but is not limited to the following:

2. Copy of document designating the company’s corporate EEO Officer, including the name, address and contact telephone number for the officer.
3. Copy of the company’s EEO Policy Statement.
4. Copy of the company’s Sexual Harassment Policy.
5. The name of the company’s DBE Liaison Officer to administer the firm’s Disadvantaged Business Program.
6. DBE Affirmative Action Plan which is an explanation of affirmative action methods intended to be used to seek out and consider DBEs as subcontractors, material suppliers or equipment lessors. This refers to the Contractor’s ongoing responsibility, i.e., Disadvantaged Business Enterprise/Affirmative Action activities after the award of the Contract and for the duration of the Contract.

K. DBE Liaison Officer. Designate a DBE Liaison Officer who shall be responsible for the administration of your DBE program in accordance with the Contract, and ensuring that the Contractor complies with all provisions of 49 CFR Part 26.

L. Consent by Department to Subletting. The Department will not approve any subcontract proposed by the Contractor unless and until said Contractor has complied with the terms of the Contract.

M. Conciliation. Allegations of breach of any obligation contained in these DBE provisions and guidelines, will be investigated by the DCR/AA, the Federal Highway Administration and/or the USDOT.

N. Documentation

1. Requiring of Information. The Department or the Federal funding agencies may at any time require information as specified in Section 107 and deemed necessary in the judgment of the Department to ascertain the compliance of any Bidder, Contractor or subcontractor with the terms of the Contract.
2. Records and Reports. The Contractor, subcontractors and other sub-recipients will keep such records as are necessary to determine compliance with its Disadvantaged Business Enterprise Utilization obligations. These records kept will be designed to indicate:
   a. The names of DBE contractors, subcontractors, transaction expeditors and material suppliers contacted for work on the Contract, including when and how contacted, and the specific Contract work items and other information provided to each.
b. Work, services and materials which are not performed or supplied by the Contractor.

c. The actual dollar value of work subcontracted and awarded to DBEs, including specific Contract work items and cost of each work item.

d. The progress being made and efforts taken in seeking out and utilizing DBEs to include: solicitations, specific Contract work items and the quotes and bids regarding those specific Contract work items, supplies, leases, or other contract items, etc.

e. Detailed written documentation of all correspondence, contacts, telephone calls, etc., including names and dates/times, to obtain the services of DBEs on the Contract.

f. Records of all DBEs and non-DBEs who have submitted quotes/bids to the Contractor on the Contract.

g. Monthly reports required for submission to the Department, hiring agreements, subcontracts, lease agreements, supply tickets and other records documenting DBE utilization on the Contract.

h. Documentation outlining EEO workforce information for the Contract.

i. Documentation outlining EEO and Affirmative Action efforts made in the administration and performance of the Contract.

3. **Submission of Reports, Forms and Documentation.** Submit reports, forms and documentation, as required by the Department, on those contracts and other business transactions executed with DBEs in such form and manner as may be prescribed by the Department. Failure to submit the required forms, reports or other documentation as required may result in payment being delayed or withheld as specified in Section 105, assessing sanctions, or termination of the contract as specified in Section 108. Submission of falsified forms, reports or other required documentation may result in termination of the Contract as specified in Section 108, investigation by the Department’s Inspector General, and prosecution by the State Attorney General’s Office.

4. **Maintaining Records.** All records must be maintained for a period of three (3) years following acceptance of final payment and will be available for inspection by the Department, or the Federal funding agencies.

O. **Prompt Payment to Subcontractors.** On Federal aid projects, payment to subcontractors, equipment lessors, suppliers and manufacturers is made in accordance with Section 109.

P. **Non-Compliance.** Failure by the Contractor to comply with the DBE program, rules and regulations of 49 CFR Part 26 in the administration of the Contract may result in denial or limit of credit toward the Contract DBE goal, payment being delayed or withheld as specified in Section 105, assessing sanctions, liquidated damages as specified in Section 108, default as specified in Section 108, debarment, or termination of the Contract as specified in Section 108. The Contractor may further be declared ineligible for future Department contracts.
FEDERAL AID PROJECT ATTACHMENT 2

SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES ON NJDOT FEDERAL AID PROJECTS

(23 CFR, PART 230, SUBPART A, APPENDIX A TO SUBPART A - SPECIAL PROVISIONS)

The Contractor is obligated to comply with the policies, procedures and guidelines relative to the implementation of an Equal Employment Opportunity Program on Federal and Federal Aid Highway construction contracts, except for those contracts awarded under 23 U.S.C. 117, and to the preparation and submission of reports pursuant thereto as per 23 CFR, Part 230, Subpart A, Appendix A to Subpart A - Special Provisions.

A. General

1. Equal Employment Opportunity Requirements. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375 are set forth in Required Contract, Provisions (Form FHWA-1273 or 1316, as appropriate) and these Special Provisions which are imposed pursuant to 23 USC 140, as established by Section 22 of the Federal Aid Highway Act of 1968. The requirements set forth in the Contract constitute the specific affirmative action requirements for project activities under this Contract and supplement the equal employment opportunity requirements set forth in the Required Contract Provisions.

2. The Contractor will work with the State agencies and the Federal Government in carrying out Equal Employment Opportunity obligations and in their review of activities under the contract.

3. The Contractor, and all subcontractors holding subcontracts, not including material suppliers, of $10,000 or more, will comply with the following minimum specific requirement activities of Equal Employment Opportunity: (The equal employment opportunity requirements of Executive Order 11246, as set forth in Volume 6, Chapter 4, Section 1, Subsection 1 of the Federal-Aid Highway Program Manual, are applicable to material suppliers, as well as contractors and subcontractors.) The Contractor will include these requirements in every subcontract of $10,000 or more with such modification of language as is necessary to make them binding on the subcontractor.

B. Equal Employment Opportunity Policy. The Contractor will accept as its operating policy the following statement which is designed to further the provisions of equal employment opportunity to all persons without regard to their race, color, religion, sex, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program:

“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, sexual orientation, gender identity, 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.”

C. Equal Employment Opportunity Officer. The Contractor will designate and make known to the Department contracting officers an Equal Employment Opportunity Officer (hereinafter referred to as the EEO Officer) who will have the responsibility for and must be capable of effectively administering and promoting an active EEO contractor program and who must be assigned adequate authority and responsibility to do so.

D. Dissemination of Policy

1. Implementation. All members of the Contractor’s staff who are authorized to hire, supervise, promote, and discharge employees, or who recommended such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the Contractor’s equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To ensure compliance with the above agreement, the following actions will be taken as a minimum:

   a. Initial Project Site Meeting. Conduct an initial project site meeting with key supervisory and office personnel before or at the start of work, and then not less than once every 6 months, at which time the
Contractor’s Equal Employment Opportunity policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. EEO Obligations. All new supervisory and office personnel will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official covering all major aspects of the Contractor’s equal employment opportunity obligations within 30 days following their reporting for duty with the Contractor.

c. All personnel engaged in direct recruitment for the project will be instructed by the EEO Officer or appropriate company official in the Contractor’s procedures for locating and hiring minority and female employees.

2. Take the following actions to make the Contractor’s equal employment opportunity policy known to all employees, prospective employees and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc.:

a. Place notices and posters setting forth the Contractor’s equal employment opportunity policy in areas readily accessible to employees, applicants for employment and potential employees.

b. Bring the Contractor’s equal employment opportunity policy and the procedures to implement such policy to the attention of employees by means of meetings, employee handbooks, and/or other appropriate means.

E. Recruitment

1. When advertising for employees, include in all advertisements for employees the notation: “An Equal Opportunity Employer”. Publish all such advertisements in newspapers or other publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

2. Unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority and female applicants, including, but not limited to, State employment agencies, schools, colleges and minority-group organizations. To meet this requirement, the Contractor will, through their EEO Officer, identify sources of potential minority and female group employees, and establish procedures with such identified sources whereby minority and female group applicants may be referred to the Contractor for employment consideration.

3. In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he/she is expected to observe the provisions of that agreement to the extent that the system permits the Contractor’s compliance with the equal employment opportunity contract provisions. (The US Department of Labor has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the Contractor to do the same, such implementation violates Executive Order 11246, as amended).

4. Encourage present employees to refer minority and female applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures pertaining to the referral of applicants will be discussed with employees.

F. 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, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

1. Conduct a project site inspection at the start of work, and periodically thereafter, to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

2. Periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

3. 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.

4. Promptly investigate all complaints of alleged discrimination made to the Contractor in connection with its obligations under this Contract, and will resolve or attempt to resolve such complaints, 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, inform complainants of all their avenues of appeal.

G. Training and Promotion

1. Assist in locating, qualifying, and increasing the skills of minority and women who are applicants for employment or current employees.
2. Advise employees and applicants for employment of available training programs and entrance requirements for each.
3. Periodically review the training and promotion potential of minority and female employees and encourage eligible employees to apply for such training and promotion.

H. On-the-Job Training. The Contractor, as part of their equal employment opportunity affirmative action program, shall provide on-the-job training aimed at developing full journey people in the type of craft or job classification involved on the project.

1. Apprenticeship and Training Programs

The minimum length and type of training for each position will be established in the training program selected by the Contractor and approved by the Department and the Federal Highway Administration. The Department will approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average apprentice or trainee for journeyperson status in the craft concerned by the end of the training period.

Apprenticeship programs registered with the US Department of Labor, Bureau of Apprenticeship and Training, (BAT) or with a State apprenticeship agency recognized by USDOL BAT and training programs approved but not necessarily sponsored by the US Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided such programs are being administered in a manner consistent with the equal employment obligations of Federal-aid highway contracts. Approval or acceptance of a training program shall be obtained from the DCR/AA prior to commencing work in the classifications covered by the Contractor’s training program. The Division will review guidelines developed by the Contractor for approval or disapproval in accordance with the Training Guideline Approval Process described in the “Revised Standard Training Guidelines”. The Division will also review existing guidelines for revision based on the same process.

It is the intention of these provisions that training be provided in construction crafts rather than clerk-typist or secretarial-type positions. Training is permitted in lower level management positions (e.g., timekeepers), where the training is oriented toward project site applications. Training in semi-skilled laborer positions is permitted provided that significant and meaningful training is available on the project site and approved by DCR/AA. Some offsite, classroom training (e.g., safety, first aid instruction) may be permitted as long as such training is an integral part of an approved training program and does not comprise a significant part of the overall training.

2. Contractor Submission and Department Approval of the Initial Training Program

At or after the preconstruction conference, and prior to the start of Work, submit a Training Program to the RE for review and comments prior to DCR/AA review and approval. The Contractor’s training program shall include:

a. Number of trainees or apprentices to be trained in all selected Training Positions,
b. Standard Program Hours for all positions,
c. Estimate of the Minimum Available Hours actually feasible on the project toward completion of the Standard Program Hours per position,
d. Training schedule of Estimated Start Dates for the apprentices or trainees, developed and coordinated with the project’s work progress schedule,
e. Training Guidelines for all positions, and
f. Training that will be provided by the Contractor and provided by Subcontractors.

The number of apprentices and trainees shall be distributed among the work classifications on the basis of the Contractor’s needs and the availability of journey people in the various crafts within a reasonable area of recruitment. Submit timely, revised Training Programs, as required throughout the project to ensure that
feasible and Maximum Available Training is provided. Maximum Available Training is defined as bringing each apprentice or trainee onto the project when work first becomes available in his/her craft and providing all available training until hours are no longer available.

3. Assignment of Training to Subcontractors

In the event that portions of the Contract work are subcontracted, determine how many, if any, of the apprentices or trainees are to be trained by subcontractors, provided, however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by these Training Special Provisions. Ensure that these Training Special Provisions are made applicable to such subcontracts.

4. Reimbursement of the Contractor for Providing Training

The Contractor will be credited for each apprentice or trainee employed on the construction site who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such apprentices or trainees as provided hereinafter. Payment will be made under the pay item Trainees at the bid price in the Proposal per person-hour of training given an employee on this contract in accordance with an approved training program. If approved, payment will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other sources do not specifically prohibit the Contractor from receiving other reimbursement. Offsite, classroom training reimbursement may only be made to the Contractor when the company does one or more of the following and the apprentices or trainees are concurrently employed on a Federal-aid project: contributes to the cost of the training and/or provides instruction to apprentices or trainees or pays their wages during the offsite, classroom training (e.g., safety, first aid instruction) period.

Pay apprentices and trainees according to the project-specific New Jersey Department of Labor Prevailing Wage Rate Determination for the project. Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the Contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

I. Apprentice/Trainee Requirements of the Contract

The number of training positions will be zero (0), where feasible, consisting of at least zero (0) APPRENTICES and zero (0) TRAINEES. TRAINEE HOURS = zero (0).

Apprentices are defined as registered members of an approved apprenticeship program recognized by the United States Department of Labor (USDOL) Bureau of Apprenticeship and Training (BAT) or a New Jersey State apprenticeship agency recognized by USDOL BAT (e.g., New Jersey Department of Education). Graduates of the Pre-Apprenticeship Training Cooperative Program shall be classified as apprentices. Trainees are defined as skilled, semi-skilled or lower level management individuals receiving training per one of the approved NJDOT “Revised Standard Training Guidelines” (available from the DCR/AA).

Where feasible, assign at least 50% of the training positions to Skilled Crafts which include but are not limited to Carpenters, Dockbuilders, Electricians, Ironworkers and Operating Engineers.

1. Requirements for Recruitment, Selection and Approval of Apprentices and Trainees

Apprentices or trainees should be in their first year of apprenticeship or training. Interview and screen trainee candidates to determine if their actual work experience is equivalent to or exceeds that offered by the training program prior to submitting candidates on the Apprentice/Trainee Approval Memorandum (Form CR-1), via the RE, to the Division for review and approval or disapproval.

Training and upgrading of minorities (e.g., Blacks, Asians or Pacific Islanders, Native Americans or Alaskan Natives, Hispanics) and women toward journeyperson status is a primary objective of these Training Special Provisions. Accordingly, the Contractor shall make every effort to enroll minorities and women, by conducting systematic and direct recruitment through public and private sources likely to yield minority and female apprentices or trainees, to the extent that such persons are available within a reasonable area of
recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as an apprentice or trainee in any position in which he or she has successfully completed a training course leading to journeyperson status or in which he or she has been employed as a journeyperson. The Contractor shall satisfy this requirement by including appropriate questions in the employment application or by other suitable means and by submitting an accurate and complete “Apprentice/Trainee Approval Memorandum” (Form CR-1) prior to the apprentice or trainee starting work on the project. Regardless of the methods used, the Contractor’s records should document the findings in each case.

Skilled craft trainees may complete up to 3,000 total training hours on Department projects, with an extension of an additional 1,000 hours permitted on a case-by-case basis. Semi-skilled and lower-level management trainees attain journeyperson status upon completion of a training guideline and may complete up to three (3) different positions.

2. Documentation Required to be Signed by Apprentices or Trainees, and provided to the Department

Prior to the apprentice/trainee starting work on the project, submit an accurate, complete and signed Apprentice/Trainee Approval Memorandum for each apprentice/trainee to the RE for review, and final approval by DCR/AA. Once the notice that said apprentice/trainee has been approved to work on the Contract, said apprentice/trainee may start work on the Contract. No credit will be given for apprentices/trainees prior to said apprentice/trainee being approved by DCR/AA.

At the start of training, provide the RE and each apprentice or trainee with an applicable “Training Guideline” and, at the conclusion of training, an accurate and complete “Training Certificate for Reporting Hours to NJDOT” (Form CR-3), showing hours of training satisfactorily completed.

Maintain and submit an accurate and complete “NJDOT Contractor’s 1409 Quarterly Training Report” (Form-CR-1409) to the RE within ten (10) days of the end of each training quarter (e.g., January 10, April 10, July 10, October 10); also provide a copy to each apprentice or trainee.

Maintain and submit accurate and complete “Biweekly Training Reports” (Form CR-2) to the RE, and each apprentice or trainee, as periodic reports documenting their performance under the Contract.

3. Determining Good Faith Compliance of Contract Apprentice/Trainee Program

Per the approved program or guideline, provide Maximum Available Training to apprentices and trainees by beginning their training as soon as feasible with the start of craft work utilizing the skill involved on the project construction site and by retaining them as long as training opportunities exist in their crafts or until their training program positions are completed.

Recall apprentices or trainees released due to reductions in force when the work scope permits and they are available to return. When they are unavailable to resume training on the project site, submit written proof of recall efforts and replacement candidates and/or positions in a timely manner. Do not terminate apprentices or trainees prior to completion of their training program positions without Department consultation and authorization. Apprentices or trainees are not required to be on board for the entire length of the Contract.

The Contractor shall have fulfilled the contractual responsibilities under these Training Special Provisions as specified in 23 CFR 230, Appendix B to Subpart A of Part 230 if the company has provided Acceptable Training to the number of apprentices or trainees specified in this contract and/or by providing the remaining hours required to complete training positions begun by apprentices or trainees on other projects. The number trained shall be determined on the basis of the total number enrolled on the Contract for a significant period.

Demonstrate all steps that have been taken in pursuance of enrolling minorities and women in the training program positions, prior to a determination as to whether the Contractor is in compliance with the Training Special Provisions of the Contract.

Submit to the RE written training program summaries at the 50% time and/or cost stage of the contract and also prior to project completion, describing all good faith efforts and particularly addressing Maximum Available Training for incomplete training positions, per the procedure found in the revised “Instructions for Implementing the Training Special Provisions”.

Federal Aid Project Attachment 2 - Specific Equal Employment Opportunity Responsibilities
4. **Enforcement Measures and Contractor’s Rating**

Payment will not be made if either the failure to provide the required training or the failure to hire the apprentice or trainee as a journeyperson is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of the Contract.

Per established procedures and scheduled Contract Compliance Reviews, the Contractor’s performance will be rated and reviewed periodically by the Department.

Failure of a Contractor to comply with the Training Special Provisions of the Contract, and as specified in 23 CFR Part 230, Appendix B to Subpart A of Part 230, may result in the actions as set forth as specified in Section 105.

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

1. Use maximum effort to develop, in cooperation with the unions, joint training programs aimed at qualifying more minorities and women for union membership and increasing their skills in order for them to qualify for higher paying employment.
2. Use maximum effort to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.
3. Obtain information concerning the referral practices and policies of the labor unions except that to the extent such information is within the exclusive possession of the labor unions and such labor unions refuse to furnish this information to the Contractor, certify to the Department and set forth what efforts have been made to obtain this information.
4. In the event the unions are unable to provide the Contractor with a reasonable flow of minority and female referrals within the time limit set forth in the collective bargaining agreement, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability, making full efforts to obtain qualified and/or qualifiable minorities and women. (The US Department of Labor has held that it shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees). 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 Department.

**K. Subcontracting**

1. Use maximum effort to solicit bids from and to utilize minority subcontractors or subcontractors with meaningful minority and female representation among their employees. The Contractor may use lists of minority-owned construction firms as issued by the Department.

**L. Records and Reports**

1. Maintain records necessary to determine compliance with the Contractor’s equal employment opportunity requirements. Documents will include the following:
   a. Number of minorities, non-minorities, and women employed in each work classification on the Contract.
   b. Progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and women (applicable only to Contractors who rely in whole or in part on unions as a source of their work force).
   c. Progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and
   d. Progress and efforts being made in securing the services of minority and female subcontractors or subcontractors with meaningful minority and female representation among their employees.
2. All such documents must be retained for a period of 3 years following completion of the Contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Department and the Federal funding agencies.
FEDERAL AID PROJECT ATTACHMENT 3

REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY ON NJDOT FEDERAL AID PROJECTS

(MINORITY AND WOMEN WORK EMPLOYMENT GOAL OBLIGATIONS)

A. Employment Goals.

The goals for minority and female participation, in the covered area, expressed in percentage terms for the Contractor’s aggregate work force in each trade, on all construction work are:

<table>
<thead>
<tr>
<th>County</th>
<th>Minority Participation</th>
<th>Women Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic</td>
<td>18.2</td>
<td>6.9</td>
</tr>
<tr>
<td>Bergen</td>
<td>15</td>
<td>6.9</td>
</tr>
<tr>
<td>Burlington</td>
<td>17.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Camden</td>
<td>17.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Cape May</td>
<td>14.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Cumberland</td>
<td>16</td>
<td>6.9</td>
</tr>
<tr>
<td>Essex</td>
<td>17.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Gloucester</td>
<td>17.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Hudson</td>
<td>12.8</td>
<td>6.9</td>
</tr>
<tr>
<td>Hunterdon</td>
<td>17</td>
<td>6.9</td>
</tr>
<tr>
<td>Mercer</td>
<td>16.4</td>
<td>6.9</td>
</tr>
<tr>
<td>Middlesex</td>
<td>15</td>
<td>6.9</td>
</tr>
<tr>
<td>Monmouth</td>
<td>9.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Morris</td>
<td>17.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Ocean</td>
<td>17</td>
<td>6.9</td>
</tr>
<tr>
<td>Passaic</td>
<td>12.9</td>
<td>6.9</td>
</tr>
<tr>
<td>Salem</td>
<td>12.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Somerset</td>
<td>17.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Sussex</td>
<td>17</td>
<td>6.9</td>
</tr>
<tr>
<td>Union</td>
<td>17.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Warren</td>
<td>1.6</td>
<td>6.9</td>
</tr>
</tbody>
</table>

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its Federally involved and non-Federally involved construction.
The Contractor’s compliance with the Executive Order 11246 and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4(3)a, and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade. Make a good faith effort to employ minorities and women evenly on each project. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for sole purpose of meeting the Contractor’s goals is a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

If a project is located in more than one county, the minority work hour goal, only, will be determined by the county which serves as the primary source of hiring or, if workers are obtained almost equally from one or more counties, the single minority goal will be the average of the affected county goals.

B. Reporting Requirements.

1. Provide the Department with written notification in triplicate within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification will list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

2. Directly provide the Department with employment workforce data of the number and work hours of minority and non-minority group members and women employed in each work classification for the Contract. The Contractor, subcontractors, professional service firms and others working on the project must submit this information via a web-based application through the New Jersey portal, Vendor Workforce Reporting Manager. Instructions on how to complete Form CC-257R are provided within the web application. Instructions for registering and receiving the authentication code to access the web based application can be found at the Contractor Manpower Project Reporting CC-257R website at: http://www.state.nj.us/transportation/business/civilrights/pdf/cc257.pdf.
   a. On a monthly basis, submit Form CC-257R through the web based application within 10 days following the end of each reporting month.
   b. In addition to the above, submit a hard copy of the electronic Form CC-257R to the RE within 10 days following the end of each reporting month
   c. Submit a copy of the confirmation e-mail of the successful submission of Monthly Employment Utilization Report to the RE within 10 days following the end of each reporting month.

3. All employment data must be accurate and consistent with the certified payroll records. The Contractor is responsible for ensuring compliance with these reporting requirements. Failure of the Contractor, subcontractors, professional service firms and others working on the Contract, to report monthly employment data may result in payments being delayed or withheld as per 105.01, or impact the Contractor’s prequalification rating with the Department.
FEDERAL AID PROJECT ATTACHMENT 4

FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONTRACT SPECIFICATIONS FOR NJDOT FEDERAL AID PROJECTS

(AS REQUIRED PER EXECUTIVE ORDER 11246 AS AMENDED BY EXECUTIVE ORDER 11375 AND IMPLEMENTING REGULATIONS AT 41 C.F.R. PART 60)

A. As used in these Specifications:
   1. Covered area means the County or Counties in which the Project is located.
   2. Director means Director, Office of Federal Contract Compliance Programs, United States Department of Labor or any person to whom the Director delegates authority.
   4. Minority includes:
      a. Black (a person having origins in any of the black African racial groups not of Hispanic origin);
      b. Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race);
      c. Asian and Pacific Islander (a person 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 (a person having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participating or community identification).

B. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

C. Implement the specific affirmative action standards provided in paragraphs F1 through 16 of these specifications. The goals set forth in the solicitation from which this contract resulted 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. Covered Construction Contractors performing construction work in geographical areas where they do not have a Federal or Federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

D. 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 excuses the Contractor’s obligations under these Specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

E. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the US Department of Labor.

F. Take specific affirmative action to ensure 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. 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. Where possible, assign two or more women to each construction project. Specifically ensure that all foreman, superintendents, and other on-site 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 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 back to 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 Director 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 the Department of Labor. The Contractor shall provide notice of these programs to the source compiled under F2 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 minority and female 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 on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job 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 a Contractor’s work force.

11. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
12. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

13. Ensure that seniority practices, job classifications, work assignments and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor’s obligations under these specifications are being carried out.

14. Ensure that all facilities and company activities are provided in a manner such that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, cannot result. Do not require such segregated use by written or oral policies, nor tolerate such use by employee custom. Provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction 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.

G. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (F1 through 16). 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 any one or more of its obligations under F1 through 16 of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor’s minority and female work force 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.

H. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women both minority and nonminority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

I. Do not use the goals and timetables or affirmative action standards to discriminate against any person because of race, creed, color, national origin, age, ancestry, nationality, gender, disability, sex, affectional or sexual orientation, gender identity or expression, religion, and liability for military service.

J. Do not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

K. Carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspensions, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246 as amended.

L. Implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph F of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

M. Designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (such as mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked
per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

N. 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 (such as those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

O. Failure of the Contractor or subcontractors to comply with the nondiscrimination provisions of the Contract may result in payment being delayed or withheld as specified in 105.01; default as specified in 108.14, liquidated damages as specified in 108.20, or termination of the Contract as specified in 108.15.02 pending corrective and appropriate measures taken by the Contractor to the satisfaction of the Department.
During the performance of this contract, the contractor agrees as follows:

The Contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the Contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity 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 agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Department setting forth provisions of this nondiscrimination clause.

The Contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The Contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The Contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the Contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program, may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B, and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the Contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active “card carrying” members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The Contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

A. If the Contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the Contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the Contractor or sub-contractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the Contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the Contractor or sub-contractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the Contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the Contractor or
subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under “B” below; and the Contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

B. If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of “A” above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the Contractor or subcontractor agrees to take the following actions:

1. To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;
2. To notify any minority and women workers who have been listed with it as awaiting available vacancies;
3. Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the Contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;
4. To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the Contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;
5. If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and non-discrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;
6. To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:
   a. The Contractor or subcontractor shall interview the referred minority or women worker.
   b. If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The Contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a Contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Dept. of LWD, Construction EEO Monitoring Program. If necessary, the Contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of “C” below.
   c. The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the Contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.
   d. If, for any reason, said Contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the Contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program. At the request of the Contractor or subcontractor, the Dept. of LWD, Construction EEO Monitoring Program shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.
7. To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Dept. of LWD, Construction EEO Monitoring Program and submitted promptly to the Dept. of LWD, Construction EEO Monitoring Program upon request.

C. The Contractor or subcontractor agrees that nothing contained in “B” above shall preclude the Contractor or subcontractor from complying with the union hiring hall or apprentice-ship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the
exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the Contractor or subcontractor shall consider for employment persons referred pursuant to “B” above without regard to such agreement or arrangement; provided further, however, that the Contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the Contractor or subcontractor agrees that, in implementing the procedures of “B” above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the Contractor shall submit to the Department and the Department of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the Department by the Department of LWD, Construction EEO Monitoring Program, through its web-site, for distribution to and completion by the Contractor, in accordance with N.J.A.C. 17:27-7. The Contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Dept. of LWD, Construction EEO Monitoring Program, and to the Department.

The Contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

D. The Contractor and its subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

It is the policy of the NJDOT that its contracts should create a work-force that reflects the diversity of the State of New Jersey. Therefore, contractors engaged by the NJDOT to perform under a construction contract shall put forth a good faith effort to engage in recruitment and employment practices that further the goal of fostering equal opportunities to minorities and women.

The Contractor must demonstrate to the NJDOT satisfaction that a good faith effort was made to ensure that minorities and women have been afforded equal opportunity to gain employment under the NJDOT contract with the Contractor. Payment may be withheld from a Contractor’s contract for failure to comply with these provisions.

Evidence of a “good faith effort” includes, but is not limited to:

1. The Contractor shall recruit prospective employees through the New Jersey Career Connections website, managed by the Department of Labor and Workforce Development, available online at: http://careerconnections.nj.gov/careerconnections/for_businesses.shtml
2. The Contractor shall keep specific records of its efforts, including records of all individuals interviewed and hired, including the specific numbers of minorities and women;
3. The Contractor shall actively solicit and shall provide the NJDOT with proof of solicitations for employment, including but not limited to advertisements in general circulation media, professional service publications and electronic media; and
4. The Contractor shall provide evidence of efforts described at 2 above to the NJDOT no less frequently than once every 12 months.
5. The Contractor shall comply with the requirements set forth at N.J.A.C. 17:27-1.1 et seq.
FEDERAL AID PROJECT ATTACHMENT 6

INVESTIGATING, REPORTING AND RESOLVING EMPLOYMENT DISCRIMINATION AND SEXUAL HARASSMENT COMPLAINTS ON NJDOT FEDERAL AID PROJECTS

The Contractor and subcontractors agrees to the following requirements in order to implement fully the nondiscrimination provisions of the Contract.

The Contractor agrees that in instances when it receives from any person working on the project site a verbal or written complaint of employment discrimination, prohibited under N.J.S.A. 10:5-1 et seq., 10:2-1 et seq., 42 U.S.C. 2000(d) et seq., 42 U.S.C. 2000 (e) et seq. and Executive Order 11246, it shall take the following actions:

A. Within one (1) working day commence an investigation of the complaint which shall include but not be limited to interviewing the complainant, the respondent, and all possible witnesses to the alleged act or acts of discrimination or sexual harassment.

B. Prepare and keep for its use and file a detailed written investigative report which includes the following information:
   1. Investigatory activities and findings.
   2. Dates and parties involved and activities involved in resolving the complaint.
   3. Resolution and corrective action taken if discrimination or sexual harassment is found to have taken place.
   4. A signed copy of resolution of complaint by complainant and Contractor.

In addition to keeping in its files the above-noted detailed written investigative report, the Contractor shall keep for possible future review by the Department all other records, including but not limited to, interview memos and statements.

C. Upon the request of the Department, provides to the Department within ten (10) calendar days a copy of its detailed written investigative report and all other records on the complaint investigation and resolution.

D. Take appropriate disciplinary action against any Contractor employee, official or agent who has committed acts of discrimination or sexual harassment against any contractor employee or person working on the project. If the person committing the discrimination is a subcontractor employee, then the Contractor is required to attempt to effectuate corrective and/or disciplinary action by the subcontractor in order to establish compliance with the Contract.

E. Take appropriate disciplinary action against any Contractor employee, official or agent who retaliates, coerces or intimidates any complaint and/or person who provides information or assistance to any investigation of complaints of discrimination or sexual harassment. If the person retaliating, coercing or intimidating a complainant or other person assisting an investigation is a subcontractor’s employee, then the Contractor is required to attempt to effectuate corrective and/or disciplinary action by the subcontractor in order to establish compliance with the Contract.

F. Ensure to the maximum extent possible that the privacy interests of all persons who give confidential information in aid of the Contractor’s employment discrimination investigation are protected.

In conjunction with the above requirements, the Contractor shall develop and post a written sexual harassment policy for its work force.

Failure by the Contractor and subcontractors to comply with the above requirements may be cause for the Department to institute against the Contractor any and all enforcement proceedings and/or sanctions authorized by the Contract or by State and/or Federal law.
PAYROLL REQUIREMENTS FOR NJDOT FEDERAL AID PROJECTS

A. Payroll Reports. Each Contractor and subcontractor shall furnish the RE with payroll reports for each week of contract work. Such reports shall be submitted within 10 days of the date of payment covered thereby and shall contain the following information:

1. Each employee’s full name and an individually identifying number, (e.g. the last four digits of the employee’s social security number) of each such employee.
2. The ethnicity and gender of each employee.
3. Each employee’s specific work classification(s).
4. Entries indicating each employee’s basis hourly wage rate(s) and, where applicable, the overtime hourly wage rate(s). Any fringe benefits paid to approved plans, funds or programs on behalf of the employee must be indicated. Any fringe benefits paid to the employee in cash must be indicated.
5. Each employee’s daily and weekly hours worked in each classification, including actual overtime hours worked (not adjusted).
6. Each employee’s gross wage.
7. The itemized deductions made.
8. The net wages paid.

B. Statement of Wages. Each Contractor or subcontractor shall furnish a statement each week to the RE with respect to the wages paid each of its employees engaged in contract work covered by the Copeland Act, as amended during the preceding weekly payroll period. The statement shall be executed by the Contractor or subcontractor or by an authorized officer or employee of the Contractor or subcontractors who supervises the payment of wages. Contractors and subcontractors must use the certification set forth on the Department’s CR-347, or any form with identical wording. Each payroll submitted must be accompanied by a signed “Statement of Compliance”.

C. Maintaining Records. Contractor and subcontractor shall maintain complete social security numbers and home address for employees. Government agencies are entitled to request or review all relevant payroll information, including social security numbers and addresses of employees. Contractors and subcontractors are required to provide such information upon request.

D. Lack of Compliance. Failure of the Contractor or subcontractor to comply with the payroll requirements may result in payment being delayed or withheld as specified in Section 105, default as specified in Section 108 or termination of the Contract as specified in Section 108.
FEDERAL AID PROJECT ATTACHMENT 8

FHWA-1273

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

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 (excluding 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
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 this contract. The contractor will adopt the standards for the contractor's project activities under this contract. 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.

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

   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.

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. 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.

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 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 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 services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This includes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

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 unconditionally 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 under 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 contracting 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)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) 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 1001 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 approved 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 actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

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 journeyman 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, fringe benefits 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 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.

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 Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees 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.

d. Apprentices and Trainees (programs of the U.S. DOT).

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 therefore 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 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 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.

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 may include 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 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:

"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 required by this clause. The prospective first tier 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.

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.epls.gov/), which is compiled by the General Services Administration.

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 third 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.epis.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.
ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

   a. To the extent that qualified persons regularly residing in the area are not available.

   b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

   c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.
FEDERAL AID ATTACHMENT 9

STATE MANDATORY ADDENDUM TO FHWA-1273 REQUIRED CONTRACT PROVISIONS, FEDERAL AID CONSTRUCTION CONTRACTS AS AMENDED OR SUPPLEMENTED

ALL CONTRACTORS MUST PROVIDE THIS LANGUAGE IN ANY CONTRACT WITH THEIR SUBCONTRACTORS AS REQUIRED BY 2 CFR PART 200 AND 2 CFR PART 200 APPENDIX II AND IS CURRENTLY NOT INCLUDED IN FHWA-1273, BUT IS REFLECTED IN PROPOSED AMENDMENTS NOT YET FINALIZED.

FHWA-1273 shall be read to include:

1. All references to “race, religion, sex, color, national origin, age or disability” shall be read to include “sexual orientation and gender identity”.
2. SECTION IV. DAVIS-BACON ACT AND RELATED ACT PROVISIONS shall apply if the project is defined to be on a Federal Aid highway, regardless of the location of the project in compliance with 23 USC 133(i).
3. SECTION IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT shall require in conformance with 2 CFR Part 200 and 2 CFR Part 200 Appendix II that contractors on all Federal Aid construction contracts in excess of $150,000 and all related subcontracts, supply contracts and vendor contracts “comply with all related standards, orders or regulations issued pursuant to the Clean Air Act (42 USC 7401-7671q) and the Federal Water Pollution Control Act as amended (33 USC 1251-1387) as required by 2 CFR 200.326.
4. SECTION X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION shall be read to comply with 2 CFR Part 200 and 2 CFR Part 200 Appendix II to replace the Excluded Parties List System with the System For Award Management (SAM) as required by 2 CFR Part 180.
5. If the work requires that cargo be shipped by oceanic transport or across the Great Lakes, in compliance with Section 3511 of the Duncan Hunter National Defense Authorization Act of 2009 amending the Cargo Preference Act, each contract shall require that cargoes financed “in any way with Federal funds for the account of any persons unless otherwise exempted” requires the use of US-flag vessels to transport the materials or equipment acquired for a specific Federal Aid construction project.
FEDERAL AID ATTACHMENT 10

FEDERAL MANDATORY EQUAL OPPORTUNITY LANGUAGE ON FEDERAL AID PROJECTS

(AUTHORITY SUBJECT TO 41 CFR 60-1.4 IN COMPLIANCE WITH 2 CFR PART 200 AND 2 CFR PART 200 APPENDIX II)

All Contractors regardless of the value of the contract shall have this mandatory clause with their subcontractors:

The Contractor/Subcontractor hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action 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 agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which he 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 under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said 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 Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may
be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that 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 administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.
FEDERAL AID ATTACHMENT 11

BYRD ANTI-LOBBYING CERTIFICATION

Pursuant to 31 USC 1352 and 49 CFR part 21, Contractor and all subcontractors are required to comply with this Attachment. Contractor and all subcontractors shall be responsible to fill out Disclosure of Lobbying Activities Standard Form – LLL (as contained in this Attachment) and report it to the NJDOT Contract Compliance Unit for appropriate disclosure to the Federal Government.

All Contracts and subcontracts over $100,000 shall require the following mandatory language in every contract:

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No federal appropriate 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 an 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.

2. 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 agency, a Member of Congress, or any employee of a Member of Congress in connection with this Federal contract, grant, loan or cooperative agreement, the undersigned shall complete and submit Disclosure of Lobbying Activities Standard Form – LLL (Federal Aid Attachment Form 11) in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

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

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

(See revenue for public burden disclosure)

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<th>10. a. Name and Address of Lobbying Entity</th>
<th>b. Individuals Performing Services (including address of different from No. 10a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>if individual, last name, first name, M/Li:</td>
<td>Last name, first name, M/Li:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11. Amount of Payment (check all that apply):</th>
<th>12. Form of Payment (check all that apply):</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ actual ☐ planned</td>
<td>☐ a. cash</td>
</tr>
<tr>
<td></td>
<td>☐ b. in-kind; specify: nature __________ value</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13. Type of Payment (check all that apply):</th>
<th>14. Brief Description of Services Performed or to be Performed and Date(s) of Service,</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ a. retainer</td>
<td>including officer(s), employee(s),</td>
</tr>
<tr>
<td></td>
<td>or Member(s) contacted, for Payment Indicated in Item 11:</td>
</tr>
<tr>
<td>☐ b. one-time fee</td>
<td></td>
</tr>
<tr>
<td>☐ c. commission</td>
<td></td>
</tr>
<tr>
<td>☐ d. contingent fee</td>
<td></td>
</tr>
<tr>
<td>☐ e. deferred</td>
<td></td>
</tr>
<tr>
<td>☐ f. other; specify:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. Continuation Sheet(s) SF-LLL-A attached:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Yes ☐ No</td>
<td>Signature:</td>
</tr>
</tbody>
</table>

| 16. Information requested through this form is authorized by title 5 U.S.C. section 552. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the contractor when this contract was made or awarded. This disclosure is required pursuant to 31 U.S.C. 1352. The information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $1,000 and not more than $10,000 for each such failure. |
|-----------------|-----------------|

(attach Continuation Sheet(s) SF-LLL-A if necessary)

<table>
<thead>
<tr>
<th>Federal Use Only:</th>
<th>Authorized for local reproduction</th>
</tr>
</thead>
</table>

Federal Aid Attachment 11 – Byrd Anti-Lobbying Certification Page 2 of 4
INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to Title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, state, and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee", then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known, for example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., “RFP-DE-90-001.”
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.
   (b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a).
11. Enter Last Name, First Name, and Middle Initial (MI).
12. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
13. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
14. Include a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the dates(s) of any services rendered. Include all preparatory and related activity, not just time spent in actual contact with Federal officials. Identify the Federal official(s) or employee(s) contacted or the officer(s), employee(s), or Member(s) of Congress that were contacted.
15. Check whether or not a SF-LLL-A Continuation Sheet(s) is attached.
16. The certifying official shall sign and date the form, print his/her name, title, and telephone number.