SPECIAL PROVISIONS

ROUTE U.S. 1&9 (PULASKI SKYWAY), CONTRACT 3
CONTRACT NO. 051123250
DECK REPLACEMENT
CITY OF JERSEY CITY, HUDSON COUNTY
TOWN OF KEARNEY & CITY OF NEWARK, ESSEX COUNTY

AUTHORIZATION OF CONTRACT

The Contract is authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements thereto, 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 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 106 inclusive.

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 web site at http://lwd.dol.state.nj.us/labor/wagehour/wagehour_index.html The State wage rates in effect at the time of award are part of this Contract, pursuant to Chapter 150, Laws of 1963 (NJSA 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 Wholly State funded project Attachments that are located at the end of these Special Provisions:"

1. State of New Jersey Equal Employment Opportunity Special Provisions for Construction Contracts Funded by Wholly or partially State Funds.
2. Payroll Requirements for 100 Percent State Projects.
3. Americans with Disabilities Act for 100 Percent State Funded Contracts.
4. Small Business Enterprise Utilization Attachment for 100% State Funded Contracts.

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

1. Specific Requirements of Consolidated Rail Corporation For Work On It's Right of Way

DIVISION 100 – GENERAL PROVISIONS

SECTION 101 – GENERAL INFORMATION

101.01 INTRODUCTION
THE FOLLOWING IS ADDED:

Pursuant to NJSA 27:1B-21.6 and USC (United States Code) 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).

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 FY 2013 Capital Program has an item with $ 10 million for the construction of the Project.

The Department anticipates that $140 million dollars in additional funds will be provided during State FY 2014.

The Department anticipates that the balance of the funds necessary to complete the Project will be provided during State FY 2015.

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

101.03 TERMS
THE FOLLOWING TERMS ARE CHANGED.

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.

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

SECTION 102 – BIDDING REQUIREMENTS AND CONDITIONS

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
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:

Structure #/Location	Lead Paint Location(s)
0901-150 & 0704-150 Pulaski Skyway	The entire bridge was originally coated with a lead based paint.

3. Existing Plans and As-Builts.

Existing Plans and As-builts used are as follows:

a. Original Plans for the construction of the Pulaski Skyway dated in the 1930's, in various sections
b. Shop Drawings for portions of the Pulaski Skyway
c. Safety Improvements in the 1970's
   U.S. Route 1&9 (1953)
   Safety Improvements
   Section 2AB & 5H
d. Route US 1 Bus (1953), Section 1K
e. Route US 1&9 (1953), Section 2AH-5J
f. Interim Repairs, Contract #1 (Contract No. 051043220)
g. Interim Repairs, Contract #2 (Contract No. 051083210)
h. Interim Repairs, Contract #3 (Contract No. 051093010)
i. Interim Drainage Repairs, Contract #4 (Contract No. 051093830)
j. Pulaski Contract No. 1 (Contract No. 054114280)

102.10 SUBMISSION OF BIDS

THE FOLLOWING IS ADDED TO THE LIST INCLUDED IN THE SECOND PARAGRAPH:

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.

SECTION 104 – SCOPE OF WORK

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 PARAGRAPH 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 PARAGRAPH 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.

104.04 Contractor Community Affairs Manager

Assign a supervisory-level employee experienced with community outreach, EEO, DBE and payroll programs and has good public speaking abilities as the contractor community affairs manager. Submit the name and applicable experience of this employee to the RE for approval at least 15 days before beginning any construction operations on the Project. Submit written notification and obtain approval from the RE before changing the manager.

The contractor community affairs manager shall have the responsibility and sufficient authority for community outreach efforts and to provide assistance for public project communication and to insure the implementation of project EEO, DBE & payroll requirements. The contractor community affairs manager will work with the Department's Community Relation Manager, Civil Rights Union and the RE to help provide a uniform outreach to the impacted community. The contractor community affairs manager shall coordinate, oversee, and supervise all contractor out-reach efforts to the public in conjunction with the Department's efforts. The contractor community affairs manager will provide coordination for all contractor EEO, DBE & payroll efforts on the Project. This includes both on-site and off-site activities, including those involving subcontractors.

The contractor community affairs manager shall attend all public, traffic, EEO and project progress meetings. Public outreach includes efforts as per the project special provisions related to Specification Section 107.03 and includes obtaining lists of local community groups and leaders, impacted businesses, residences and civic and local hiring organizations. The contractor community affairs manager shall submit a bi-weekly status report on community interaction and outreach efforts and EEO, DBE and payrolls status.

SECTION 105 – CONTROL OF WORK

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. Ensure that working drawings are signed and sealed by a Professional Engineer. After Award, the Department will provide additional formatting information, the number of copies required, and the address of the receiving designated design unit.

THE FOLLOWING ITEMS ARE ADDED INTO TABLE 105.05-1, UNDER THE "CERTIFIED" COLUMN:

Precast Concrete Deck Panels
Exodermic Deck Panels
Aluminum Railing
Steel Bridge Railing
Steel Repair

THE FOLLOWING ITEMS ARE ADDED INTO TABLE 105.05-1, UNDER THE "APPROVED" COLUMN:

Drill and Grout Reinforcement Steel
Adhesive Anchor System
Temporary Jacking System
Temporary structures or gantries for deck panel removal/installation

1. Certified Working Drawings.
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

The Department will require 10 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 10 days for review and approval or rejection and return of working drawings.

105.07.01 Working in the Vicinity of Utilities

A. Initial Notice.

CITY OF JERSEY CITY

TELEPHONE FIBER OPTIC
Mr. Carlo Verdi / Mr. Bill Sohl
Teleport Communications New York
175 West Main Street
Freehold, N.J. 07728

RAILROAD (CONRAIL)
Mr. John Enright
Director of Engineering & Construction
1000 Howard Boulevard, 4 Floor 856-231-2455 (Fax)
Mt. Laurel, New Jersey 08054
856-231-2450

CABLE TV
Mr. Angel Cortez
Comcast Cablevision of Jersey City, Inc.
2121 Kennedy Boulevard
Jersey City, New Jersey 07305

SEWER
Mr. Chris Piersa, P.E.
Jersey City Municipal Utilities Authority
550 Route 440
Jersey City, New Jersey 07305

TELEPHONE FIBER OPTIC
Mr. Michael Brown
Sprint Nextel
480 Williamsport Pike, Suite 3
Martinsburg, WV 25401
304-267-2384

WATER
Mr. Kehjun Lu
Jersey City Municipal Utilities Authority
555 Route 440
Jersey City, New Jersey 07305

ELECTRIC
Mr. Luis Jara
Public Service Electric & Gas Company
Palisades Division
325 County Avenue
Secaucus, New Jersey 07094
201-330-6486

GAS
Mr. Len Pannucci
Public Service Electric & Gas Company
80 Park Plaza 13A
Newark NJ 07102
973-430-5135

TELEPHONE
Mr. Frank Antisell
Verizon-NJ
6000 Hadley Rd.
South Plainfield, NJ 07080
908-412-6160

RAILROAD (NJ TRANSIT)
Mr. Anthony Tanchak
New Jersey Transit Headquarters
1 Penn Plaza, 8th Floor

Newark, New Jersey 07105

RAILROAD (PATH)
Mr. Edward Perara
1 Path Plaza 10th Floor
Journal Square,
Jersey City, New Jersey 07306
(201) 216-6021

TOWN OF KEARNY

SEWER
Mr. Ed Tideman
Passaic Valley Sewerage Commission
600 Wilson Avenue
Newark, New Jersey 07105
973-344-1800

WATER
Mr. Richard Ferraioli
Passaic Valley Water Commission
1525 Main Avenue
Clifton, New Jersey 07011
973-340-4323

CITY OF NEWARK

ELECTRIC
Mr. Bart Regner
Public Service Electric & Gas Company
Metropolitan Division
150 Circle Avenue
Clifton, New Jersey 07011
973-365-5320

WATER
Mr. Richard Haytas
Jersey City Municipal Utilities Authority
555 Route 440
Jersey City, NJ 07305
201-432-1150

CABLE TV
Mr. Glen Hagin
Suburban Cablevision - Comcast
171 River Road
North Arlington, New Jersey 07031

SEWER
Manager Plant Engineering and Maintenance

Passaic Valley Sewerage Commissioners
600 Wilson Avenue
Newark, New Jersey 07105

TELEPHONE
Mr. Daniel J. Nigro
Verizon - New Jersey Inc.
Highlands / Hudson Bergen
900 Clinton Avenue
Irvington, New Jersey 07111

HT, ITS & CCTV
Mr. Gary Mason
The Port Authority of New York & New Jersey
Communications Facility
Two Gateway Center, 15th Floor
Newark, N.J. 07120

NATURAL GAS
Mr. Nash Kalleeny
Division Manager
Transcontinental Gas Pipe Line Corporation
99 Farber Road
Princeton, New Jersey 08540-6233
609-936-2423

B. Locating Existing Facilities.

2.

Bureau of Traffic Operations, North Region (TOCN)
670 River Drive
Elmwood Park, NJ 07407-1347
Telephone: 201-797-3575

3.

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

FOR WEIGH IN MOTION AND TRAFFIC VOLUME SYSTEMS CONTACT:

Bureau of Transportation Data Development
PO Box 600
Trenton, NJ 08625
609-530-3522

FOR ROAD WEATHER INFORMATION SYSTEMS CONTACT:

Bureau of Maintenance Engineering & Support - Electrical Section
PO Box 600
Trenton, NJ 08625

609-530-5728

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.

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.

105.08 ENVIRONMENTAL PROTECTION

THE FOLLOWING IS ADDED:

5. **Diesel Emission Mitigation**
   - **a. Ultra Low Sulfur Fuel.** For all road and non-road diesel equipment used in the performance of the Work, use only Ultra Low Sulfur Diesel (ULSD) fuel that is certified to contain an average sulfur content of no more than 15 parts per million. This requirement applies to owned and rented equipment.
   - **b. Idling.** Ensure heavy duty diesel on-road vehicles and non-road diesel equipment operating within the Project Limits comply with the requirements of N.J.A.C. 7:27-14.1 et seq and N.J.A.C. 7:27-15.1 et seq.
   - **c. Retrofit Filters.** Prior to use within the Project Limits, ensure non-road diesel equipment meeting the USEPA Tier 1 or higher emission standard for non-road diesel engines and having an engine horsepower rating of 100 HP or greater that will be in use for more than 10 days on the project meet the United State EPA Tier 4 non-road emission standards or be equipped with the best available emission control technology to reduce particulate emissions as certified by USEPA, the California Air Resources Board, or the Switzerland BUWAL program (VERT filter list).

     i. Inventory - Prior to starting construction, provide the RE with a list of non-road diesel equipment that will be used within the Project Limits for more than 10 days on the project using forms provided by the Department. Provide the RE with contact information for an Equipment Manager responsible for coordinating the diesel emission mitigation compliance for the Contract.

     Provide the RE with an updated list of non-road diesel equipment that will be used within the Project Limits for more than 10 days as changes occur.

     ii. Less effective retrofit - If, for a piece of equipment, the Department determines that it is not technologically feasible to install emission control technology that will reduce particulate emissions by at least 85%, ensure the engine is equipped with emission control technology that reduce particulate emissions by 50% as certified by USEPA, the California Air Resources Board, or the Switzerland BUWAL program (VERT filter list). If, for a piece of equipment, the Department determines that it is not feasible to install emission control

technology that will reduce particulate emissions by at least 50%, ensure the engine is equipped with emission control technology that will reduce particulate emission by a minimum of 25%.

If, for a piece of equipment, the Department determines that no technology is feasible, to that will reduce particulate emissions by at least 25%, the Department will waive the requirement to equip that piece of equipment with emission control technology.

If the Contractor believes that it is not technologically feasible to install emission control technology that will reduce particulate emission by at least 85%, submit a request to the RE using forms provided by the Department. The Department will evaluate the request and determine the feasibility of installing emission control technology.

iii. **Safety exemption -** If, for a piece of equipment, the Contractor believes that the installation of emission control technology would create a safety hazard, submit a written request using forms provided by the Department to the RE for a waiver from the requirement to equip that piece of equipment with emission control technology. Ensure the request details the reasons why the installation of emission control technology would create a safety hazard. The Department will evaluate the request and if it determines the safety concern to be valid, the Department will waive the requirement to equip that piece of equipment with emission control technology.

iv. **Rental Equipment** – If, for a piece of equipment rented from an equipment rental company for which the Contractor does not have a financial interest, the Contractor may submit a written request to the RE for a waiver from the requirement to equip that piece of equipment with emission control technology if the following is provided: documentation that the equipment rental company does not have equipment that meets the requirement of this Subsection; the equipment rental company does not consent to installation of retrofit filters or the equipment rental company requires the retrofit to be removed prior to return of the equipment. The Department will evaluate the request and if it determines the conditions have been met, the Department will waive the requirement to equip that piece of equipment with emission control technology.

v. **Retrofit filters provided by the Department -** At the Contractor's request, the Department will provide and install emission control technology on non-road diesel equipment meeting the USEPA Tier 1 or higher emission standard for non-road diesel engines and having an engine horsepower rating of 100 HP or greater that will be in use for more than 10 days so that the equipment will meet the requirements of this Subsection. If approved by the Department, the emission control technology will be provided and installed by a vendor provided by the Department at no cost to the Contractor.

Submit the request to the RE at least 10 days prior to the equipment's intended use within the Project Limits. If approved by the RE, contact one of the diesel retrofit installation vendors from the list provided by the Department. If the vendor is unable to provide a best available emission control technology for a specific piece of equipment, contact a second diesel retrofit installation vendor from the list provided by the Department. The vendor will assist the Contractor in selecting appropriate retrofit device for each piece of equipment.

After selecting the diesel retrofit device, submit a request for approval to have the device supplied and installed by the vendor to the RE using forms provided by the Department. If the Department approves the installation of the device, contact the vendor and coordinate the installation of the emission control technology on the non-road diesel equipment. Make the

equipment available to the vendor to conduct a technical evaluation of the equipment including exhaust temperature profiling and opacity testing. If the equipment operates within the retrofit parameters, the vendor will order the diesel retrofit device. Schedule and coordinate the installation of the retrofit device with vendor. Equipment for which the Contractor submitted a request for a retrofit filter provided by the Department may be used within the Project Limits prior to the installation of the emission control device provided that the Contractor diligently works to secure the emission control device.

Department will provide and install emission control technology for a piece of non-road diesel equipment only one time. The Contractor is still responsible for meeting the requirements of this Section if the emission control device is removed or damaged.

If at the sole discretion of the Department, it decides not to provide and install an emission control device on a piece of equipment, the retrofit filter requirements of this Section shall not apply to that piece of equipment.

For emission control technology provided by the Department, operate and maintain the emission control device as per the manufacturer's recommendations. After installation, the emission control device provided by the Department shall be considered the property of the non-road diesel equipment owner. Maintain the emission control device for a minimum of five years from the date of installation.

d. Reporting. Submit quarterly reports on NJDEP forms which can be obtained at www.stoptheshoot.org within 10 days of the end of the quarters ending March 31, June 30, September 30 and December 31.

SECTION 106 – CONTROL OF MATERIAL

106.03 FOREIGN MATERIALS
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.

SECTION 107 – LEGAL RELATIONS

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 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.

107.12.01 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

3. Step III, Claims Committee.
THE SECOND PARAGRAPH IS CHANGED TO:

The Claims Committee will not review a claim or combination of claims valued less than $250,000 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.

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

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

1.

Specialty Items are as listed below:

Above ground highway lighting items.

Above ground sign lighting items.

Above and below bridge deck lighting items.

Electrical wire items.

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.

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

4. Progress schedule as specified in 153.03

108.04 WORK SITE AND STORAGE
THE FOLLOWING IS ADDED:

Do not deliver equipment and materials to the work site during peak traffic periods utilizing any of the following roadways:

Route 139 (M.P. 0.0 to 0.20)
U.S. 1&9 Pulaski Skyway
U.S 1&9 Express
U.S. 1&9 Local
U.S. 1&9T including Raymond Boulevard east of Blanchard Street

The peak traffic periods are defined as those time periods as shown on the Traffic Control Details (Sheet TCD-1) wherein no lane closures are permitted, including during the AM and PM peak periods and Holidays.

At the pre-construction meeting, submit to the RE for approval a written Materials Delivery Plan that outlines the following:

1. Description. Describe in detail how the Materials Delivery Plan will be implemented and monitored. Provide guidelines for protecting traffic from the hazards of material deliveries during project operations and activities. Identify delivery routes and the locations within the project site where materials are to be delivered for the various stages of construction. Identify traffic control measures to be utilized during delivery and off loading periods. Provide an access plan identifying specific access points for materials delivery including a description of the delivery truck circulation paths in entering the work area, materials drop off and exiting of the work area.

2. Responsibility and Identification of Personnel. Identify the qualified individuals responsible for developing, implementing, controlling and monitoring the materials delivery plan.

108.05 SANITARY AND SAFETY PROVISIONS

108.05.02 Safety Program

3. Elements of the Program.
THE FOLLOWING IS ADDED:

n. Contractor Access Plan. Provide a plan detailing how and where the contractor's personnel will gain access to the work site including parking locations and entry points to each work area. Provide guidelines for protecting staff in entering and exiting the work area. Schedule the workday so that employee work shift changes do not occur during peak traffic periods. Work shift changes will not be permitted to occur during peak traffic periods. The peak traffic periods are defined as those time periods as shown on the Traffic Control Details (Sheet TCD-1) wherein no lane closures are permitted, including during the AM and PM peak periods and Holidays.

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.

108.08 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:

Description	**Rate**
Route 1&9 Northbound & Southbound Express lanes	Overrun of "One Lane Maintained" Time Limits - **$10 per minute**
Route 1&9 Northbound Local Lanes	Overrun of "One Lane Maintained" Time Limits - **$150 per minute**
Route 1&9 Southbound Local Lanes	Overrun of "One Lane Maintained" Time Limits - **$80 per minute**
Route 1&9 Southbound Pulaski Skyway	Overrun of "One Lane Maintained" Time Limits - **$40 per minute**

108.10 CONTRACT TIME

A. Complete all work required for Interim Completion for the installation of shielding under Spans Nos. 57 through 71 and 82 through 92 on or before February 14, 2014.

B. Complete all work required for Interim Completion for all work within Zone A on or before July 1, 2014.

C. Complete all work required for Substantial Completion on or before November 15, 2014.

D. Achieve Completion on or before February 13, 2015.

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.

108.14 DEFAULT AND TERMINATION OF CONTRACTOR'S RIGHT TO PROCEED

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 Subpart A of Subsection 108.10 of these Special Provisions, for Interim Completion, the Department will assess liquidated damages in the amount of $10,000.

B. For each day that the Contractor fails to complete the work as specified in Subpart B of Subsection 108.10 of these Special Provisions, for Interim Completion, the Department will assess liquidated damages in the amount of $10,000.

C. For each day that the Contractor fails to complete the work as specified in Subpart C of Subsection 108.10 of these Special Provisions, for Substantial Completion, the Department will assess liquidated damages in the amount of $23,000.

D. For each day that the Contractor fails to achieve Completion as specified in Subpart D of Subsection 108.10 of these Special Provisions, the Department will assess liquidated damages in the amount of $6,500.

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.

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 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 from the previous progress payment and shall be paid the amount due from the current progress payment and that full payment for any retainage withheld from a subcontractor has been or will be made within 30 days after the subcontractor's work has been satisfactorily completed; or

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

109.06 MATERIALS PAYMENTS AND STORAGE

1.
THIS SUBPART IS CHANGED TO THE FOLLOWING:

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.

109.07 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:

Item	*Pay Unit*
PERFORMANCE BOND AND PAYMENT BOND	DOLLAR

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.

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.

6. Marine Liability Insurance.
THE ENTIRE TEXT IS CHANGED TO:

If construction operations require marine operations, 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.

Procure and maintain insurance coverage for the following railroad(s):

Consolidated Rail Corporation (CONRAIL)

Port Authority of New York & New Jersey (PATH)

It is estimated that 0.5 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:

Item	*Pay Unit*
OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY INSURANCE	DOLLAR
RAILROAD PROTECTIVE LIABILITY INSURANCE	DOLLAR
POLLUTION LIABILITY INSURANCE	DOLLAR

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 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 FIRST PARAGRAPH IS CHANGED TO THE FOLLOWING:

The RE will designate the due date for the first schedule update when the baseline schedule is approved. The first update is due 1 month following the baseline schedule approval. The RE will designate the data date to be used for each schedule update. Provide CPM progress schedule updates to the RE on a monthly basis.

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.

153.04 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:

SECTION 155 – CONSTRUCTION FIELD OFFICE

155.03.01 Field Office

4. Communication Equipment.

a. Telephones. Provide 4 cordless phones with auto-switching.

c. Cell Phones. Provide 15 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:

6 computer configurations each meeting the following:

1. Processor having a clock speed of 3.5 GHz or faster, 8 GB RAM, 512 MB Video RAM, 250 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 broad band connection and service with a minimum speed of 3 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. 250 Gigabyte or larger external drive with backup software for MS-Windows, and fifteen corresponding formatted data cartridges corresponding to the tape drive size.
6. 2 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:
8 USB 32 GB Flash/Jump memory drives
100 CD-R 700 MB (or larger) recordable CD's compatible with the CD drive and 100 recordable DVD's.
4 CD/DVD Holders (each holds 50)

2 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.
2. Microsoft Office Professional, latest version.
3. Norton's System Works for Windows, latest version, or compatible software package with future upgrades and latest virus patches.
4. Anti-Virus software, latest version with monthly updates for the duration of the contract.
5. Visio Professional Graphics Software for Windows, latest version
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.

PART (2) AND (3) ARE CHANGED TO:

2. 2 digital camera(s). Ensure each digital camera has auto-focus, with rechargeable batteries and charger, 256 MB memory card, USB Memory Card Reader compatible with camera and field office computer, 1.5 inch LCD monitor, 5 mega pixel resolution, 10x optical zoom lens, built in flash, image stabilization, computer connections, and a carrying case
3. 1 video camcorder(s). Ensure each video camcorder is a mini DVD camcorder with 10x optical zoom, 2" LCD monitor, USB 2.0 compatible and includes USB 2.0 connections.
4. 10 Mini DVD 2.8 GB (or larger) recordable DVD's compatible with the camcorder.

7. Inspection Equipment.

1. 4 Calculators with trigonometric capability
2. 3 Date/ Received stamps and ink pads
3. 3 Electronic Smart levels, 4 foot
4. 3 Electronic Smart levels, 2 foot
5. 10 Carpenter rulers
6. 5 Steel tapes, 100 feet
7. 5 Cloth tapes, 100 feet
8. 2 Illuminated measuring wheels
9. 2 Plumb bobs and cords
10. 2 Line levels and cords
11. 2 Surface thermometers
12. 2 Concrete thermometers
13. 1 Digital infrared asphalt thermometer
14. 1 Direct Tension Indicator (DTI) Feeler Gage, 0.005 inch
15. 1 Sledge hammer, 8lb
16. 1 Self leveling laser level with range of 100 feet and an accuracy of ¼ inch per 100 feet
17. 20 Hard hats - orange, reflectorized hard hats according to ANSI Z89.1.
18. 20 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. 5 Sets of orange rain gear with reflective sheeting
20. 20 Sets of hearing protection with a NRR rating of 22 dB
21. 20 Sets of eye protection according to ANSI Z87.1
22. 1 Sets of fall arrest equipment according to ANSII Z359.1 standards consisting of a full body harness, lanyard and anchor.
23. 1 Light meter - capable of measuring the level of luminance in foot-candles
24. 5 Lantern flashlights, 6V with monthly battery replacements
25. 0 Digital Psychrometer
26. 0 Chain Drag according to ASTM D4580-86
27. 1 Testing equipment and apparatus conforming to AASHTO T23, T119, T152
28. 16 Hard Bound Daily Diaries, 5-½" X 8" minimum with one day per page. To be provided yearly for the duration of the contract.
29. 300 Legal size hanging folders
30. 300 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:

Item	*Pay Unit*
TELEPHONE SERVICE	LUMP SUM

THE THIRD PARAGRAPH IS DELETED.

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:

Item	*Pay Unit*
CONSTRUCTION LAYOUT	DOLLAR

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:
CL = Adjusted payment for CONSTRUCTION LAYOUT.
CL_B = Bid price for CONSTRUCTION LAYOUT.
C_O = Original Contract Price.
C_F = Final Contract Price.
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.
E_O = Total of CL_B
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

159.02.02 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 LAST PARAGRAPH IS CHANGED TO:

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, 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 Cushions.

THE FOLLOWING IS ADDED:

Ensure crash cushions are NCHRP 350, Test Level 3 (55 mph or higher) certified with a width of 24" for Type 3, Width Narrow and maximum length of 22'. Submit working drawings to the RE for approval.

Temporary Crash Cushions, Compressive Barrier are required for the proposed Traffic Control and Staging as shown on the plans and in the summary table below:

Pre-Stage I						
Item No.	**Description**	**Design Speed**	**Product**	**Route and Approximate Station**	**Foundation**	**Back-up System**
159107M	Temporary Crash Cushions, Compressive Barrier, Type 3, Width Narrow	55 mph	Quadguard CZ, 5 Bay, 24" Wide, 19'-1" Length	U.S. 1&9, Northbound Express, Baseline Sta. 370+10 +/-, Right U.S. 1&9 Truck, Northbound, Baseline Sta. 49+60 +/-, Left U.S. 1&9 Truck, Northbound, Baseline Sta. 49+60 +/-, Right	Existing Pavement	Tension
			SCI 100 GM, 24" Wide, 21'-6" Length		Existing Pavement	NA
			TRACC, 21'-3" Length		Existing Pavement	Barrier Curb

The following is a list of manufacturers that are approved for use at the above locations:

Quadguard CZ Crash Cushion System,
Manufactured by:
Transpo Industries
20 Jones Street
New Rochelle, NY 10801
1-800-321-7870
transpo.com

SCI Crash Cushion System,
Manufactured by:
SCI Products Inc.

635 Lucknow Road
Harrisburg, PA 17110
1-800-327-4417

TRACC Crash Cushion System,
Manufactured by:
Trinity Highway Products
600 Prosperity Road
Orangeburg, SC 29115
1-800-835-9307
hhighwayguardrail.com

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:

8. Portable Variable Message Sign w/Remote Communication (PVMSRC). Place the PVMSRC 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 On-Site Configuration. Only display messages authorized by the Department for the Project and make the signs available for use remotely from the Traffic Operation Center (TOC) specified in 105.07.01.B. If the PVMSRC fails to function, repair the equipment within 48 hours of receiving notice from the Department that the PVMSRC is not functioning.

Provide a broadband cellular telephone service plan with data service on an IP based packet network for the intended uninterrupted 24/7 operational and functional requirements of the PVMSRC. Ensure that the PVMSRC has remote operation capability from the specified TOC using the Department's current DMS control software at the time of deployment.

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), and viewable over the internet through a password protected website. Provide for internet access through the website hosted by EarthCam for Department cameras. No substitution is permitted. Provide broadband communication service and On-Site Camera Configuration for remote operation and control from the web site to the field site. Provide continuous viewable image at a minimum of 320H x 240V resolution and 1 frame per sec (fps) through the web site. If required 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 or 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.

10. **Temporary Traffic Control Devices Left in Place.** The Contractor is advised that many of the temporary traffic control devices supplied for the Project must be left in place at the end of this Project. Specific temporary traffic control devices left in place are as shown in the Stage I plans and as enumerated on sheets TCD-2 and TC-1 of the Traffic Control and Staging Plans. The devices to be left in place must meet the requirements stated above in this sub-section, must be in good condition, and must be maintained until the final project acceptance. These devices will become the property of the Department at the completion of the Project.

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

Apply temporary traffic stripes and 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 traffic 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. Ensure TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN and TRAFFIC MARKINGS, THERMOPLASTIC are applied within 14 days of placing temporary traffic stripes and markings unless directed by the RE.

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.

THE FOLLOWING IS ADDED:

159.03.10 Real-Time Work Zone Traffic System

The Real-Time Work Zone Traffic System ("SYSTEM") includes furnishing, installing, relocating, operating and maintaining an automated, portable, real-time work zone traffic SYSTEM meeting the requirements noted herein, and providing the maintenance of the complete SYSTEM for the duration of its use. All equipment and software provided with the SYSTEM shall be National Transportation Communications for ITS Protocol (NTCIP) compliant. The SYSTEM shall supplement and be coordinated with ITS systems that are existing and to be constructed through this Contract and adjacent projects.

The SYSTEM shall monitor traffic conditions through, and leading to, the project's work zones and disseminate real-time information to the traveling public.

The SYSTEM will notify Traffic Operations Center - North (TOCN), and the RE office once the delay through any work zone exceeds a time or queue to be set by TOCN. This duration shall be able to be changed throughout the project. An unlimited number of Department employees shall be notified via their existing mail. E-mail addresses will be furnished after execution of the Contract. The telephone number to contact at the TOCN is (201)-797-3676.

At least 20 days prior to beginning installation, submit working drawings of the SYSTEM for approval with evidence that the Contractor or Subcontractor has successfully completed at least three SYSTEM deployments on projects similar in concept and scope to this Contract. Include names, addresses and telephone numbers of the owner's representatives for verification. Submittal shall include brochures on all components of the SYSTEM, with details of, but not limited to: how and which communication systems shall be used, proposed sensor and sign locations, coordination with existing ITS systems, and the website. Upon approval from the Engineer, the Contractor shall demonstrate the SYSTEM prior to turning on the message signs and website to the viewing public. Training shall be provided to Department staff on the use and operation of both the physical field hardware and the electronic version (website) of the SYSTEM.

The SYSTEM shall be fully operational prior to any construction operations that require lane or shoulder closures on the Project.

Equipment.

The SYSTEM shall consist of the following as a minimum:

1. Installing two (2) dedicated portable Dynamic Message Signs (DMS) remotely controlled via a central computer base station. Each DMS provided with the SYSTEM shall be trailer mounted and meet the following:
    a. The sign message panel shall be at least 7 feet above the pavement, present a level appearance, and be capable of displaying up to ten characters in each of three lines simultaneously at a minimum character height of 18 inches. It shall be capable of displaying variable size characters to provide for any message as directed by TOCN.
    b. The sign message panel shall be visible from 1/4 mile under both day and night conditions. The letters shall be legible from 750 feet.
    c. The sign shall include automatic dimming for nighttime operation and a power supply capable of providing 24 hours of uninterrupted service.
    d. When displaying a message, a sign shall be considered a traffic control device. When not displaying a message, a sign shall be considered equipment.
    e. The sign shall be capable of displaying a hybrid message in which one panel displays an automated SYSTEM message as described, and the other panel displays a TOCN-generated message.
    f. The sign shall be capable of displaying messages automatically timed to changes at various times of the day and days of the week.
2. The SYSTEM shall be integrated with the SWIFT information system managed by TRANSCOM for the Department. Information from the SYSTEM shall be able to be deployed on the Department's SWIFT public website and be coordinated from the SWIFT system to the Department's MIST traffic management system to display messages on existing and proposed permanent DMS and, if requested, to the NJTA's existing and proposed permanent DMS. Contact for TRANSCOM is Tom Batz at 201-963-4033.
3. Displaying the automatically generated SYSTEM messages on the Department's existing DMS on I-78 EB; the proposed DMS on the Garden State Parkway under another project and the proposed DMS on I-78 WB in the adjacent project once operational; and on any of the portable Variable Message Signs provided for in the Contract.
4. Use of the Department and New Jersey Turnpike Authority (NJTA) signs or other existing ITS systems shall not restrict or adversely impact the operation of those systems.
5. Installing portable traffic sensors linked to the central computer base station that are located to address traffic conditions through the work zone and a minimum queue length of 3 miles beyond the limits of the work zone. The sensors shall be redeployed or provided as required to ensure the traffic conditions though the actual queues, the work zone, and to provide for the sign messages specified are accurately depicted.
6. One central base station equipped with appropriate software and either wireless or dedicated phone line communications to "link" with the SYSTEM.
7. The SYSTEM shall be capable of providing current operational and location status (i.e. current traffic data and messages, communications system, signs and sensors) via the central base station computer and via the Internet on a dedicated project website established for the purpose of monitoring the corridor and the SYSTEM equipment. Critical system operator control functions shall be password protected.
8. Through the password-protected website or at the field sites, SYSTEM shall allow the TOCN operators to manually override the automated messaging in order to display a message at any time. The operator shall be able to send a pre-programmed or custom message to one sign or multiple signs without sending the identical message to individual signs. The operator shall be able to cancel this manual override and initiate any and all of the systems automated messaging features at any time. The SYSTEM shall record in the database the time frame and message content of any message overrides.
9. The website shall have the capability of providing a password protected "link" for approved personnel to have access to retrieve the volume and speed data the system is collecting.

10. The website for the SYSTEM shall be capable of verifying and validating the real-time messages on the signs for password approved personnel.
11. The software shall be configured to assess any type of malfunction that has occurred. This assessment includes communicating disruption between any device in the system configuration, sign malfunctioning, speed sensor malfunction, etc. The SYSTEM shall be capable of notifying the Resident Engineer's office, the Contractor, and the TOCN about any system malfunction. The SYSTEM software shall be configured so that appropriate personnel are immediately notified by e-mail once a malfunction has occurred in the system. The SYSTEM shall record these notices in the database.
12. The website address shall be open to the public for viewing only of the speed/travel times and the sign messages and be linked to a Department website, and other regional agency traffic websites as directed. The website shall be in the format as required by the Department's Webmaster. The information shall be presented on a zoom-able map to allow the user to view from the specific device level up to the State level.
13. The dedicated project website shall provide a full color map depicting the project area with current locations of traffic sensors and signs, and include installing icons and links to traffic cameras in the region.
14. Using color-coding, the map shall reflect the current traffic conditions at each traffic sensor and display the entire information message being shown by each sign.
15. The exact locations of all devices shall be determined as part of an on-site analysis with TOCN and the Resident Engineer, and must meet the Department's safety requirements and be coordinated with the other construction operations. The final locations shall be approved by the Engineer, and shall be relocated or repositioned during the deployment if directed by the Engineer. If directed by the Engineer, the devices will be removed from the Project site for any winter shutdown and redeployed within a two week notice by the Engineer.
16. The SYSTEM shall provide Traffic Control or safety protection for the installation and maintenance of any equipment within the clear zone or not covered by existing structures or safety devices.
17. The SYSTEM shall operate continuously (24 hours, 7 days a week) when deployed on the project.
18. The SYSTEM shall be capable of acquiring traffic volume and speed data; developing travel times, queue lengths, and delay times; and selecting motorist information messages automatically without operator intervention after system initialization.
19. Each device shall have a reliable, self-contained power source to ensure uninterrupted operation in all weather conditions. The Contractor shall provide the service and maintenance.

Data Acquisition.

The SYSTEM shall have the following minimum data acquisition capabilities:

1. Each traffic sensor shall communicate with the computer base station to provide the appropriate signs with the specified traffic message.
2. The SYSTEM shall be capable of obtaining and using traffic data from existing ITS systems.
3. The SYSTEM shall be set to display continuous travel times between the locations as specified and as directed by the TOCN. The SYSTEM shall be capable of calculating and having travel time information displayed on the signs within specific points within the project limits, for the entire project limits, and from the designated signs.
4. The SYSTEM shall be capable of calculating and having "real time" delay information displayed on the signs. This "real time" delay shall be calculated and displayed on the signs to the parameters as directed by TOCN (i.e. to the nearest minute for delays up to 15 minutes after the initial 5 minute delay). For delays exceeding 15 minutes, the delay information displayed on the signs shall be rounded to the nearest 5 minute increment. Each traffic sensor shall communicate with the computer base station to activate the appropriate signs whenever the prevailing traffic speed slows to the specified speed or delay time as directed by TOCN. Once activated, the preprogrammed messages shall be automatically displayed on the appropriate signs until the delay drops below a specified time or as directed by TOCN.

5. To allow for motorist information messages of high specificity, the SYSTEM shall acquire quantitative traffic data using an accurate speed measurement technique that includes the capability of detecting stopped traffic, counting traffic volume and lane occupancy, and measuring queue lengths.
6. The SYSTEM's traffic sensors shall be of a type to cover all lanes in at least one direction and whose accuracy is not degraded by inclement weather or degraded visibility conditions including precipitation, fog, darkness, excessive dust, and road debris. The SYSTEM shall be able to provide separate data for express and local lane configurations in the same direction.
7. All traffic data acquired and developed by the SYSTEM shall be archived in a log file with time and date stamps. This information shall be retrievable by the Engineer at any time and the records during full deployment shall be provided to the Engineer on CD-ROM or DVD in Microsoft Excel 2010 format within one week of request.

Motorist Information Messages.

The SYSTEM shall have the following motorist information communication capabilities:

1. The SYSTEM shall be capable of providing speed, delay, length of traffic queue, travel time, and lane closure advisories to motorists.
2. The traffic condition information displayed on the signs shall be updated every 1 minute.
3. The website delay information shall be updated simultaneously with the traffic condition information displayed on the signs. The website shall be capable of displaying more than one type of traffic condition information simultaneously.
4. Records of all motorist information messages displayed by the SYSTEM shall be recorded in log files with time and date stamps. This information shall be retrievable by the Engineer at any time and the records during all deployment shall be provided to the Engineer on CD-ROM or DVD in Microsoft Excel 2010 format within one week of request.
5. The SYSTEM shall have the capacity to preset at least 25 different default or automatic advisory messages for each sign.
6. Default and advisory message content shall be programmable from the central base station.
7. Requests to change the messages on the signs shall be approved by the TOCN.
8. Initial traffic conditions and messages for signs shall be as specified in the Real Time Message Table, with other message content as directed by the TOCN. Travel times will be from the point of the respective sign to the specified location(s) in the message.
9. Messages shall be center justified.

Real Time Message Table

Route/Direction of Traffic	General Location	Existing/New Sign	Display Message (2)
U.S. 1&9 NB	M.P. 45.20 +/-	Existing (Overhead)	TIME TO HOLLAND TUN/ VIA I-78 XX MIN VIA 1&9T XX MIN
I-280 EB	M.P. 16.10 +/-	Existing (Cantilever)	TIME TO HOLLAND TUN/ VIA RT 7 XX MIN VIA 1&9T XX MIN EXIT 15X XX MIN
I-78 EB	To Be Determined(1)	New (Portable)	TRVL TIME HOLLAND TUNNEL/ VIA I-78 XX MIN/ VIA 1&9T XX MIN
U.S. 22 EB	To Be Determined(1)	New (Portable)	TRVL TIME

			HOLLAND TUNNEL/ VIA I-78 XX MIN/ VIA 1&9T XX MIN
Route 440 NB	M.P. 21.70 +/-	Existing (Cantilever)	TIME TO HOLLAND TUN/ VIA I-78 XX MIN VIA 1&9T XX MIN

Notes: 1 see Equipment section Item #15; 2- Travel Time Message may be automatically overridden by queue warning message.

Communications.

SYSTEM intercommunications shall meet the following minimum requirements:

1. Communications between the central computer base station and any individual sign and sensor shall be independent through the full range of deployed locations and shall not rely upon communications with any other sign or sensor.
2. The SYSTEM communication system shall incorporate an error detection/correction mechanism to insure the integrity of all traffic conditions data and motorist information messages.
3. Any required configuration of the SYSTEM communications system shall be performed automatically during SYSTEM initialization.
4. The communications, including coordination with SWIFT, and access and control by the TOCN, shall be provided over a stable and secure system that is not impacted by weather or other users. Included in the Contractor's operational responsibilities are all communication costs such as FCC licensing, cellular telephone, satellite and Internet subscription charges.

Performance.

An "on site" specialist, who is skilled in the operation of all the SYSTEM equipment and software, shall be locally available 24 hours a day, 7 days a week to maintain the system components, move portable devices as necessary and respond to emergency situations within 8 hours. Ensure that this specialist is equipped with sufficient resources to respond to needed corrections of deficiencies within 8 hours of notification.

The speed and travel time displayed on the signs and website shall be accurate to within 3 miles per hour and 3 minutes of actual conditions.

The Contractor shall make all necessary corrections or adjustments to the SYSTEM within 24 hours of notification by the Engineer. For each 24-hour timeframe period that components of the SYSTEM are not fully restored to proper working order, payment reductions from the monthly estimate will be made as follows:

1 day = 5% pay reduction	6 days = 30% pay reduction
2 days = 10% pay reduction	7 days = 40% pay reduction
3 days = 15% pay reduction	8 days = 50% pay reduction
4 days = 20% pay reduction	9 days = 60% pay reduction
5 days = 25% pay reduction	10 days = 75% pay reduction

If any components of the SYSTEM are down for more than 10 total days in a month whether they are consecutive or cumulative, then no payment will be made for that month.

The Department reserves the right to have SYSTEM components removed at any time, or the complete SYSTEM terminated and removed, if it determines the SYSTEM is not performing as specified, in which case no further payment will be made.

The following will be included as a complete turnkey operations and maintenance package for the Department:

(a) Web-based Map with device location and information including:
(b) Dynamic Color coded links based on average speeds versus speed limit
(c) Pop up on each link displaying link name, average speed and speed limit
(d) Real-time chart displaying origin, destination, time stamp, travel-time and speed
(e) 48 hour graphs displaying the following:

1. Travel-Time or Average Speed in 15 minute increments with the following options being displayed on the same graph:
2. # of matches on a bar graph
3. Raw data matches being displayed as tick marks

(f) 12 month rolling data storage
(g) Historical reports showing matched pairs, travel times and speeds based on user defined dates and times
(h) Historical report showing number of unique MAC detects by unit based on user defined dates and times
(i) XML and CSV Feed on all reports
(j) Ability for the Contractor to run a query looking for a specific MAC address for diagnostic purposes
(k) Web-based GUI for Operations and Maintenance
(l) Software Bug Fixes
(m) Software Performance Improvements
(n) Firmware Updates
(o) 24 x 7 Monitoring for each device including providing a real-time XML feed of sensor data in a format approved by TOCS during the working drawing submittal process.
(p) Email/Text/Pager Alerting

Software Diagnostics: The Bluetooth sensors will contain advanced features designed to allow the unit to operate efficiently in a remote environment. Diagnostic heartbeat information such as voltage and temperature monitoring as well as software stability information will be periodically sent along with the MAC addresses such that the health of the sensor is known. The system will automatically reboot if a condition is detected that requires such action. When a total system recovery is required, the sensor will automatically re-image the system memory. In addition, the sensor will have the ability to download software patches and upgrades over the air without the need to physically visit the unit.

159.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION	UNIT.
PORTABLE TRAILER MOUNTED CCTV CAMERA ASSEMBLY	UNIT.
TEMPORARY CRASH CUSHION, COMPRESSIVE BARRIER, TYPE 3, 24” WIDE	UNIT
REAL-TIME WORK ZONE TRAFFIC SYSTEM	MONTH

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
Payment for the real-time work zone traffic system will be made for each month or fraction thereof that the system is required.

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 make separate payment for temporary traffic control devices left in place. Costs associated with turning over the specified devices to the Department at the end of the Project will be paid under the respective traffic control devices.

The Department will make payment for TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN and TRAFFIC MARKINGS, THERMOPLASTIC 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 13 TH AND 15 TH 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 25 TH 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

Items	**Fuel Usage Factor**
NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	2.50 Gallons per Ton
COLOR-COATED NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	2.50 Gallons per Ton

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:

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

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:

Item	*Pay Unit*
FUEL PRICE ADJUSTMENT	DOLLAR
ASPHALT PRICE ADJUSTMENT	DOLLAR

DIVISION 200 – EARTHWORK

SECTION 201 – CLEARING SITE

201.03.01 Clearing Site
THE FOLLOWING IS ADDED:

Dispose of material and debris as specified in 201.03.09.

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:

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.

List of Materials

Description	**Quantity Required**
U-bolt, ⅞-inch diameter by 4-inch, BS fastener	--------
Strap, clevis, 1¼ by 2 inches stock, 12-inch connecting length, 1-inch diameter hole, ⅝-inch diameter bolt, ultimate strength 25 psi, Brewer Tilchener Corp.-3074 C	--------
Dead end eye bolt, compression type steel, use DIE 6010SH, compression tool, 60A ALCOA 9190-332	--------
Jumper cable, compression type aluminum, use DIE 6020AH, compression tool 60A ALCOA 5120-781	--------
Terminal - Bundy AK2C39B1 to 336400 Cable (1)	--------
Ground terminal - Bundy AK2C39B1 to 336400 Cable (2)	--------
Terminal - solid barrier to 0.17 square inch cable Bundy KC28B1	--------
Compound, aluminum to copper connection (ALNOX) CANS	--------
Termination, dead end strand clamp, ALCO 336 4 KCM	--------
Clip, bronze, complete type BC, Ohio brass	--------
Thimble-Bronx 336 4 KCM	--------
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	--------

201.03.03 Temporary Shielding
THE FOLLOWING IS ADDED.

Provide temporary shielding for the full width and length of the bridge except under the Broadway and Kearny Ramps. At the conclusion of the project, leave the temporary shielding in place. The Contractor's Engineer licensed to practice in the State of New Jersey will inspect the condition of the temporary shielding after substantial completion and certify that it is in good working order. Repair any defects to the satisfaction of the RE and remove all debris before final acceptance of the project.

201.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

The Department will not make payment for the Item CLEARING SITE in excess of $500,000 until Completion.

The Department will not make payment for the Item CLEARING SITE, BRIDGE (0704-150) in excess of $20,188,000 until Substantial Completion.

The Department will not make payment for the Item CLEARING SITE, BRIDGE (0901-150) in excess of $8,458,000 until Substantial Completion.

The Department will make payment for CLEARING SITE, BRIDGE based on the percentage of deck length removed compared to the total bridge length at the following percentages of deck length removed: 20%, 40%, 60%, and 80%. Payment will be at the corresponding percentage of the total bid price for CLEARING SITE, BRIDGE (or the corresponding percentage times $28,646,000, whichever is less) upon removal of the defined payment percentages of deck slab. The Contractor shall provide the RE with the calculation of the percent of deck removed, and the RE shall verify the actual removal prior to authorizing such interim payments.

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.

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.

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 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 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

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.

Stage	Max. time interval allowed
All Stages	24 Hours

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
TABLE 401.03.02-1 IS CHANGED TO:

Table 401.03.02-1 Tack Coat Application

Material	Spraying Temp, °F	Gallons per Square Yard	Season
Cut-Back Asphalt:			
RC-70	120 to 190	0.05 to 0.15	Oct 15 to Apr 15

Emulsified Asphalt:			
RS-1	70 to 140	0.05 to 0.15	All year
CRS-1	125 to 185	0.05 to 0.15	All year
SS-1, SS-1h	70 to 140	0.05 to 0.15	All year
CSS-1, CSS-1h	70 to 140	0.05 to 0.15	All year

TABLE 401.03.02-2 IS CHANGED TO:

Table 401.03.02-2 Prime Coat Application

Cut-Back Asphalt	Spraying Temp, °F	Gallons per Square Yard	Season
MC-30	85 to 150	0.1 to 0.5	Oct 15 to Apr 15
MC-70	120 to 190	0.1 to 0.5	Oct 15 to Apr 15
Emulsified Asphalt:			
CSS-1	70 to 140	0.1 to 0.50	All year

401.03.03 HMA Courses

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.

H. Air Void Requirements.
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 PARAGAPH:

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.

J. Ride Quality Requirements.
The Department will not test the longitudinal profiles of the final riding surface for pay adjustment.

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 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.

401.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:

Item	*Pay Unit*
SAWING AND SEALING JOINTS IN HOT MIX ASPHALT OVERLAY	LINEAR FOOT

THE FOLLOWING IS ADDED:

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

Pay Adjustment = Q x BP x 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:

Pay Adjustment = Q x BP x PPA

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

DIVISION 500 – BRIDGES AND STRUCTURES

SECTION 504 – STRUCTURAL CONCRETE

504.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This section also describes the requirements for drilling of holes for dowels and the grouting of the dowels in place.

504.02 MATERIALS

504.02.01 Materials
THE FOLLOWING IS ADDED TO THE LIST OF MATERIALS:

Non-Shrink Grout..... 903.08.02.A
Adhesive Anchor System 906.04
Stainless Steel Reinforcement 905.01.06

504.03 CONSTRUCTION

504.03.01 Reinforcement Steel

A. Handling.
THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

Prior to shipping, ensure that all chains and steel bands will not come into direct contact with the stainless steel reinforcement bars. Place wood or other soft materials, such as thick cardboard, under the tie-downs. Alternatively, use nylon or polypropylene straps to secure the stainless steel reinforcement bars. When bundles of reinforcement steel and stainless steel reinforcement bars must be shipped one on top of the other, load the stainless steel bars on top. Use wooden spacers to separate the two materials. Do not use carbon steel tools, chains, slings, etc. when fabricating or handling stainless steel reinforcement bars. Use only nylon or polypropylene slings.

B. Storing.
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Outside storage of stainless bars is acceptable. Cover the stainless steel reinforcement bars with tarpaulins. Store stainless steel reinforcement bars off the ground or shop floor on wooden supports. Do not store stainless steel reinforcement bars at the work site for more than 60 days unless approved by the RE.

E. Placing and Fastening.
THE FOLLOWING IS ADDED:

Provide tie wires meeting the requirements of 905.01.06 for blocks supporting stainless steel reinforcement. Fabricate metal chairs and continuous metal supports in contact with stainless steel reinforcement from stainless steel conforming to the requirements of ASTM A 493, Type 316, UNS number S31600; or Type 316L, UNS number S31603. Do not tie stainless steel reinforcement to steel reinforcement. Direct contact is not acceptable. When stainless steel reinforcing or dowels must be near steel reinforcing, use nylon or polyethylene spacers to maintain a minimum 1 inch clearance between the two metals and bind them with nylon cable ties. Where insufficient space exists to maintain this minimum, either bar may be sleeved with a continuous polyethylene or nylon tube extending at least 1 inch in each direction past the point of closest contact between the two dissimilar bars.

F. Splices.

THE FOLLOWING IS ADDED:

For stainless steel reinforcement, provide splice samples that meet the requirements of 905.01.06.

THE FOLLOWING IS ADDED:

I. Drilling and Grouting. Submit working drawings of the proposed adhesive anchor system for approval. Include in the submittal the maximum tensile and shear capacity of the system after any applicable reductions for dowel spacing and concrete edge distance as determined by the anchoring system manufacturer. Also include the recommended embedment depth. Perform work to prevent damage to existing structures to remain. Drill holes for dowels at the locations and to the diameter and depth as indicated or as recommended by the adhesive anchor system manufacturer. Grout the dowels in place, using an adhesive anchor system to form a complete bond between the dowels and the concrete. Repair structure damage caused by dowel operations.

504.03.02 Constructing Concrete

G. Removal of Forms and Falsework.

Do not remove forms and false work until the concrete obtains a compressive strength of 4,000 psi and UHPC obtains a compressive strength of 11,600 psi.

504.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEM IS ADDED TO THE LIST OF PAY ITEMS:

Item	*Pay Unit*
REINFORCEMENT STEEL, STAINLESS STEEL	POUND
MODIFICATION OF EXISTING ABUTMENTS	CUBIC YARD

SECTION 505 – PRECAST AND PRESTRESSED STRUCTURAL CONCRETE

505.01 DESCRIPTION

This work shall consist of the furnishing and installing precast lightweight Class P-1 concrete panels, stainless reinforcing steel, removable plywood forms and Type A and Type B grout as shown in the contract plans.

505.02 MATERIALS

505.02.01 Materials

THE FOLLOWING IS ADDED TO THE LIST OF MATERIALS:

Stainless Steel Reinforcement 905.01.06
Lightweight Class P-1 Concrete 903.03
High Performance Grout 903.13

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.

THE FOLLOWING SUBSECTION IS ADDED:

505.03.04 Precast Lightweight Concrete Deck Panels

A. **Working Drawings**. Submit working drawings for approval that include the following:

1. Panel layout plan
2. Panel geometry details
3. Panle labeling and marking details
4. Panel reinforcement details
5. Lifting insert design and details (including any additional reinforcement necessary for lifting of the panels)
6. Railing post anchorage details
7. Scupper attachment and reinforcement details
8. Leveling device design and details

B. **Shipping and Storing.** Notify the RE at least 5 days before shipping. Ship and store panels according to the manufacturer's recommendations. Arrange for adequate space on the project site for storing shipped panels, and follow manufacturer's recommendations for supporting the panels while being stored.

C. Erection Plan. Submit working drawings for certification regarding the erection plan of operations to the RE at least 30 days before the pre-erection meeting. Provide details of all equipment and procedures to be followed to install the panels in their proper location and to the proper elevation.

D. **Erecting.** Notify the RE to schedule a pre-erection meeting at least 20 days before the start of erection. Provide joint spacing between panels as shown on the plans. All equipment proposed for use requires the Engineer's approval prior to the start of the work.

Clean all block-outs, transverse and longitudinal keyways, shear stud pockets using a high pressure water hose prior to placement of the grout in the precast deck panels. Remove excess water by blowing the area with compressed air or with a vacuum hose. Then place the grout in conformance with the manufacturer's recommendations. Sequence of installation shall be as shown in the Contract Plans.

Provide all field testing instruments and equipment necessary to prepare the required specimens and perform the field tests in conformity with these specifications. Three Elcometer Adhesive Test units will be required and shall become the property of the Contractor at the completion of the project.

Ensure that the grout manufacturer's application engineer is present on the site during grout operations so he may assist the Contractor and the Engineer with these operations. Make sure he remains on site until the Engineer is satisfied that the Contractor is familiar with the use of the polymer systems as demonstrated by consistent satisfactory usage and placement. Make the manufacturer's application engineer available at such other times as necessary to provide advice regarding changed conditions (such as low temperatures) or problems.

1. Surface preparation:

The surface preparation of concrete and steel prior to priming, and of primed surfaces before placement of polymer grout, is extremely critical to ensure good adhesion to these substrates. Remove all grease, dirt, paint, and laitance by suitable means proposed by the grout manufacturer and approved by the Engineer. Ensure that all surfaces are clean, sound and dry. Roughen previously primed surfaces, especially on the steel stringers, to meet SSPC-SP2 and SSPC-SP3 and to provide the required substrate for the polymer primer to bond to the stringers properly. Obtain a minimum CSP 5 as described by the International Concrete Repair Institute (ICRI) on concrete surfaces. Do not use a method of surface preparation that will fracture the concrete. Verify the absence of microcracking or bruising in accordance with ICRI Guideline No. 03732.

2. Applicator Qualifications:

Train each applicator by the Manufacturer in all phases of surface preparation and application of the specified grouting system(s).

3. Mock-up Testing

Provide full scale Mock-up Testing a minimum of 60 calendar days prior to the installation of any precast concrete panels. The location of the mock-up testing will be on site or another location approved by the RE. Perform batching, mixing, placement and curing of all materials that will be used in the presence of the RE and in accordance with the Manufacturer's recommendations. Ensure that the Manufacturer's representative for each material is present during the mock-up to assist and approve the mixing and placement procedures. Ensure that sufficient material quantities are available to perform the tests required herein.

The mock-up consists of joining two precast concrete panels together with the same 8-inch wide reinforced joint as shown on the plans. The Department may allow use of black reinforcement steel in the joint for the mock-up. Each of the precast panels will be a minimum of 8 inches thick, 8 feet wide and 24 feet long. One panel will be a Type A panel, and one panel will be a Type AF as shown on the plans. Simulate the stringers and floorbeams using steel sections with similar top flange dimensions as the actual stringers and floorbeams. Use the same concrete mix for the panels as will be used for the production slabs. Simulate the production closure pour and haunch and shear stud blockout grouting consistent with the proposed materials, equipment, mixing, batching, forming, surface preparations, placement, making of test cylinders, quality control, and curing as for the production closure pours and grouting.

The basis of acceptance for the mock-up test will include the RE's over-all approval of the mock-up evaluated for its successful outcome in meeting the criteria set forth in these special provisions and that the forms, placement and workability procedures and curing methods can reliably be used for the production work

4. Pre-Job Meeting

Hold a pre-Job meeting with representatives of the Engineer, Project Designer, Contractor/Applicator, and Material Manufacturer. Include in the agenda a review and clarification of this specification, application procedures, quality control, inspection and acceptance criteria, and production schedules. Applicator is not authorized to proceed until this meeting is held.

5. Mixing, Placement, and Finishing:

Mix the grout in accordance with the manufacturer's instructions to obtain a homogeneous mix which will not separate when poured onto a plane surface. Coordinate the method of mixing with batch size, ambient and substrate conditions, working time (and/or pot life), handling methods and placement techniques to obtain a proper continuous pour for the task at hand. Pre-wet mixers that are used with MMA monomer and thoroughly clean at the completion of each pour or at any time when mixing is suspended for a period in excess of 15 minutes. Discharge pre-wetting and cleaning liquids into waste containers and disposed of in an approved manner.

Ensure ambient and/or substrate temperatures are within the manufacturer's specified range at the time of placement. Remove any moisture from the primed surfaces of the substrate prior to placement of grout. Compact grout as it is placed using a finger joint or stringer vibrator. Exercise care to obtain sufficient compaction to completely fill the forms eliminating any voids or honeycombs, while not causing segregation of the mix.

6. Cleaning of Joints

Clean all grout from exterior surfaces of the concrete panels in such a way as to not damage or stain the concrete surface. Capture excess grout squeezed from the joint and not allowed to free fall from the structure.

7. Caution.

The Contractor is hereby alerted that polymer mortar liquid component contains acrylic monomer which is volatile and flammable. Adequate safety precaution must be observed when these products are used. The products may be irritable to the skin and may have lachrymatory properties. When using the materials, protective clothing, gloves, and goggles should be worn. Keep open fires, flames, and sparking electrical equipment away from the work area. Electrically ground all metallic equipment and containers. Avoid the formation of static electricity when handling the powder component.

Submit copies of the MSDS for approval along with a safety program for the materials and procedures to be used for the grout applications for this project.

505.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
PRECAST LIGHTWEIGHT CONCRETE DECK PANELS	SQUARE FOOT

The Department will include payment for Type A and Type B grouts used for haunches and filling of the pockets, stainless steel reinforcement, scuppers as detailed, removable forms, haunch angles, compressible material, leveling bolts, and anchor bolts for the steel railings in the precast panels under the item PRECAST LIGHTWEIGHT CONCRETE DECK PANELS.

SECTION 506 – STRUCTURAL STEEL

506.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This Section also describes the requirements for furnishing and erecting structural steel to repair existing structural steel elements.

506.03.01 Structural Steel

A. Working Drawings.
THE FOLLOWING IS ADDED:

For areas to be repaired, include field measurements and repair details related to each repair location, including dimensions and locations of deteriorated steel. Base working drawings for areas to be repaired on field measurements of existing structural steel elements.

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.

THE FOLLOWING IS ADDED:

In addition, for areas to be repaired, also include the erection and repair sequence and the fabricator's recommendations.

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

Bolt Diameter, Inches	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2
Number of Spaces on DTIs	4	4	5	5	6	6	7	7	8
Maximum Snug Tight Refusals[1]	1	1	2	2	2	2	3	3	3
Minimum Final Tension Refusals[2]	2	2	3	3	3	3	5	6	7

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.

THE FOLLOWING SUBPART IS ADDED:

G. Erecting.

1. General Requirements. Before making repairs, remove the portion of the deck that contributes dead load to the member. After removal of deck concrete, examine the structure to identify the repair areas. Submit to the RE 2 copies of photo documentation of each proposed repair area. As a minimum, include individual photos of each area of deterioration, labeled according to the framing plan numbering system shown on the Plans. Include a scale for reference in each photo. Submit photos in clear plastic sleeves in a 3-ring binder. Also, as part of the documentation include 2 copies of a field sketch to approximate scale of each member with the areas of deterioration delineated and cross references to the photo numbering system. After the potential repair areas are identified, the RE will examine the structure to verify the repair areas. Provide the RE with

the means to perform the examination. The RE may increase or decrease the repair areas based on the examination. Make structural steel repairs according to the requirements herein and the following:

a. Perform work at one repair location at a time. Do not proceed to another repair location until completing the preceding repair and obtaining RE approval of the repair.

b. Perform work to prevent damage to existing structures to remain. If damage occurs as the result of performing the work, submit a repair plan to the RE for approval. Repair damaged portions of existing structures according to the approved repair plan.

c. Remove existing rivets as necessary to make repairs as shown on the approved working drawings. Flame-cut rivet heads 1/16 inch above the base metal using a rivet scarfing tip or other method approved by the RE that will not damage the existing structures to remain. Use a pneumatic punch to drive out the cut rivet shank. If, in the opinion of the RE, rivet shanks cannot be removed by punching without damaging the base metal, remove the rivet shank by drilling.

d. As approved by the RE, existing rivet holes may be reamed to fit proposed high strength bolts. Do not exceed the minimum edge distance or bolt spacing requirements as specified in AASHTO, Division I, Chapter 10.24.

e. Saw cut existing structural steel as necessary to make repairs as shown on the approved working drawings. Flame cutting of existing structural steel will not be allowed.

f. Clean the structural steel using hand and power tool cleaning according to 554.03. Perform the work according to 554.03. Obtain the RE's approval of the cleaned repair area before field drilling bolt holes or proceeding with the repair.

g. Field drill bolt holes in the existing structural steel as necessary to make repairs as shown on the approved working drawings. Ensure drilled holes are cylindrical and perpendicular to the member and are clean-cut without torn or ragged edges. Remove burrs on the outer surfaces. Control operations to ensure that the offset of a field drilled hole reamed 1/4 inch in any ply of material, measured from an outer ply after the hole has been finished for bolting, does not exceed 1/16 inch and that no more than 10 percent of the holes are offset as much as 1/16 inch. Control operations to ensure that the offset in any hole reamed 1/8 inch full size in any ply of material, measured from an outer ply after the hole has been finished for bolting, does not exceed 1/8 inch and that no more than 10 percent of the holes are offset as much as 1/8 inch. As approved, holes may be overreamed to meet these requirements, and larger bolts installed. Apply the prime coat to the cleaned repair area.

h. Provide structural steel for repairs with shop drilled bolt holes, and that has been shop primed. Repair defects in the prime coating before the repair is made.

i. Install high-strength bolts according to the working drawings.

j. Apply the intermediate and finish paint coats according to 554.03. Perform the work according to 554.03.

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 PARAGRAPH IS CHANGED TO:

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:

Item	*Pay Unit*
SHEAR CONNECTOR, GALVANIZED	UNIT

THE FOLLOWING ITEMS ARE ADDED

Item	*Pay Unit*
STRUCTURAL STEEL REPAIR, TYPE 1	POUND
STRUCTURAL STEEL REPAIR, TYPE 2	POUND

The Department will include payment for disposal of removed materials under Clearing Site, Bridge (___) as specified in 201.04.

The Department will include payment for cleaning and painting and pollution control under the various structural steel repair items.

SECTION 507 – CONCRETE BRIDGE DECK AND APPROACHES

507.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This section also describes the requirements for constructing cast-in-place concrete joints for the precast concrete panels and exodermic deck panels including batching, transportation, casting and curing.

507.02 MATERIALS

507.02.01 Materials
THE FOLLOWING IS ADDED TO LIST OF MATERIALS:

Ultra High Performance Concrete (UHPC)……903.11

507.03 Construction

507.03.01 Joint Assemblies

A. Working Drawings

ADD THE FOLLOWING TO NUMBER 1 IN THE SECOND PARAGRAPH:

Alternatively, design each separation beam with a single support bar for all separation beams. Use a complete penetration welded yoke attachment to connect the separation beam to the support bar. Design the yoke attachment for fatigue and submit the results of a Life Cycle Fatigue Testing by an independent test facility.

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.

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.

ADD THE FOLLOWING SUBSECTION:

P. Cast-in-place joints between precast concrete and exodermic deck panels

1. Pre-pour Meeting. At least 10 days prior to the initial placement of the UHPC, arrange for an onsite meeting with the UHPC representative. Ensure that the RE and the Construction Inspectors attend the site meeting. The objective of the meeting will be to clearly outline the procedures for mixing, transporting, finishing and curing of the UHPC material.

2. Placing UHPC. Arrange for a representative of the UHPC supplier to be on site during the placement of the joints. Ensure that the representative is knowledgeable in the supply, mixing, delivery, placement, and curing of the UHPC material. Batch all UHPC on site with mixing equipment as specified by the material manufacturer.

3. Storage. Assure the proper storage of premix, fibers and additives as required by the supplier's specifications in order to protect materials against loss of physical and mechanical properties.

4. Form Work, Batching and Curing. Ensure that the design and fabrication of forms follow approved installation drawings and the recommendations of the manufacturer. Construct all the forms for UHPC from plywood. Coat the forms to prevent absorption of water. Follow the batching sequence as specified by the supplier and approved by the RE. Ensure that the surface of the UHPC cast-in-place joints are filled flush with the precast

panels to within a tolerance of plus or minus 1/16 inches. Ensure that the concrete in the form is cured according to manufacturer's recommendations until it reaches a compressive strength of 11,000 psi. A continuous curing temperature of a minimum of 60ºF is recommended.

5. Opening to traffic. Do not allow traffic of any kind on the deck panels until the UHPC has reached a compressive strength of 11,000 psi.

The Contractor will have the option to use the Maturity Method to determine in-place concrete strengths needed to open the deck to traffic. The procedure for utilizing the Maturity Method to determine in-place UHPC strengths includes three steps: development of the strength-maturity relationship, monitoring the maturity of the placement, and regular validation of the strength maturity relationship.

Submit a procedure to develop and monitor the strength-maturity relationship to the ME for review and approval. Include in the procedure all necessary information for the development of the strength-maturity relationship as well as requirements for monitoring the maturity of the UHPC in the field. Ensure that all necessary testing to develop the strength-maturity relationship is performed by an AASHTO accredited laboratory. Develop a new strength-maturity relationship after any changes in the mix design, its components, or proportions. Develop the strength-maturity relationship a minimum of one month prior to construction. Continue data collection for the strength-maturity relationship after acceptance of the maturity value until the strength reaches 14,500 psi..

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.

507.03.07 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 ADDED:

Item	*Pay Unit*
CONCRETE BRIDGE DECK, UHPC	CUBIC YARD

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, REINFORCEMENT STEEL, STAINLESS STEEL 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:

$$\text{Pay Adjustment} = Q \times BP \times PR$$

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
Stainless Steel Bolting Materials	908.04
Stainless Steel Flashing	ASTM A240 (Type 316)
Silicone Sealant (Type NS)	914.02
Fiberglass Splash Guards	ASTM C582
Fiberglass Drainage Fittings	ASTM C582

508.03 CONSTRUCTION
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.

At least 30 days before beginning the work, submit working drawings, shop drawings, and catalog cuts for the bridge drainage system, for certification in accordance with Section 105.05. Include all lengths of pipe, pipe slopes, standard and custom angle bends, couplings, supports and necessary ancillary items. Include all shop and field connections for drainage assemblies and the location and type of all pipe guides, hangers, saddles, risers and clamps. Include a detailed procedure that identifies the equipment and methods proposed to erect the drainage elements.

Provide protective sleeves and anchor sleeves at supports as necessary. The pipe manufacturer shall determine all sleeve requirements and shall identify the sleeves on the working drawings. Personnel trained by the manufacturer, or a manufacturer representative shall perform all field installation of sleeves.

Install drainage assemblies to suit field conditions. Customize conveyance pipe assemblies to maximize the angle of the pipe from horizontal. Personnel trained by the manufacturer, or a manufacturer's representative shall perform all field connection and repair of fiberglass drainage elements. Provide the Engineer with a list of field personnel certified by the manufacturer to do such work.

Provide additional pipe, hangers, clamps, risers, and structural supports, beyond those shown on the plans, as needed to establish proper fit or support the pipes according to manufacturer requirements. A representative of the fiberglass manufacturer shall review the shop drawings for compliance with manufacturer standards prior to submission for approval.

508.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
__" FIBERGLASS PIPE (8")	LINEAR FOOT
__" FIBERGLASS PIPE (12")	LINEAR FOOT

THE FOLLOWING ITEM IS DELETED:

Item	*Pay Unit*
SCUPPER	LINEAR FOOT

THE FOLLOWING IS ADDED:

The Department will make payment for SCUPPERS under various deck panel items, as specified in Section 505.04 and Section 516.04.

The Department will make payment for Hanger Beams for the Fiberglass Pipe, including all attachments of the Hanger Beams to existing structural members as STRUCTURAL STEEL, as specified in Section 506.04.

SECTION 509 – BRIDGE RAILING AND FENCE

509.02 MATERIALS
ADD THE FOLLOWING TO THE LIST OF MATERIALS

Stainless Steel Bolting Materials 908.04
Steel Railing 913.03.01
Polyester Powder Coating 913.01

509.03 CONSTRUCTION

509.03.01 Bridge Railing
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.

THE FOLLOWING IS ADDED:

Provide Insulator at any interface between aluminum and either steel or concrete.

Furnish and erect steel bridge railing as shown on the plans an in accordance with the specifications. Submit working drawings for approval at least 30 days before beginning work. Depending on the section of the bridge, indicate material specifications for anchors, washers and nuts on the working drawings. Department will only allow Cast-in-Place Type connection. Fabricate railing elements conforming to the bridge geometry shown on the plans. Department will not allow bending or curving the rail elements in the field in order to fit alignment requirements. The RE may order some bending and curving only for necessary minor adjustments. Department will not allow field welding unless ordered by the RE.

Erect railing such that rails are parallel to each other and to the top of curb. Set posts to be vertical and post base plates to be perpendicular to the posts, use beveled shim plates as necessary. Space posts to the dimensions shown on the plans. Do not exceed post spacing of 8'-3". Ensure that the rails of the two-rail and three-rail are continuous over a minimum of

three posts. RE will allow field drilling of the rails for connection to the posts. Provide Insulator at any interface between stainless steel and either steel or concrete.

Galvanize base plates, posts and railing elements and apply powder coating of paint according to manufacturer's recommendations. The finish color will match Federal Standard 595C Color No. 20460. Submit samples of finish coat color to the RE for approval.Repair any damage to the Polyester Powder Coating during installation. Touch up components requiring limited repair for minor defects with a liquid touch-up to match the polyester powder topcoat. Ensure the material used for the touch-up system is a two part epoxy system designated and color matched for patching the epoxy coating. Use patching material that is available through the manufacturer of the epoxy powder. Ensure the patching material is fully cured one hour after application at 35 degrees F ambient.

Provide the Resident Engineer with a certificate stating that the materials meet all the specifications and pass all tests as required.

Use padded slings or nylon straps when handling coated pieces. Do not use chains.

Ensure working drawings include any alternate details using extruded shapes.

Ensure all structural supports for the railing are painted prior to installing the railing.

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 3000 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:

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 existing deck, 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:

Item	*Pay Unit*
ALUMINUM RAILING, BRIDGE, 5'-6" HIGH	LINEAR FOOT
ALUMINUM RAILING, BRIDGE, 7'-0" HIGH	LINEAR FOOT
STEEL BRIDGE RAILING, TWO-RAIL	LINEAR FOOT
STEEL BRIDGE RAILING, THREE-RAIL	LINEAR FOOT
CHAIN-LINK FENCE, TYPE I, ZINC-COATED STEEL, BRIDGE, 6' 3" HIGH	LINEAR FOOT

THE FOLLOWING NEW SECTION IS ADDED:

SECTION 516 – PRECAST EXODERMIC BRIDGE DECK SYSTEM, LIGHTWEIGHT

516.01 DESCRIPTION

This work consists of furnishing and installing galvanized steel grid panels, galvanized reinforcing steel, metal forms and precast lightweight high-performance concrete as shown in the contract plans. Produce steel grid panels according to Manufacturer's recommendations. Following manufacturers are capable of providing Exodermic deck:

Bailey Bridges, Inc.	Contact: Gene Gilmore	(256) 845-7575
IDSI	Contact: Chris Davis	(412) 682-3041
LB Foster	Contact: Mike Riley	(412) 928-3452

Obtain further information from:

Bridge Grid Flooring Manufacturers' Association (BGFMA)
Attn: Mark Kaczinski
300 East Cherry Street
North Baltimore, OH 45872
Tel: 1-877-257-5499
Fax: 419-257-0332
email: mkaczinski@dsbrown.com

Notify the Engineer of the name, address, telephone number, and contact person of the steel grid panel Manufacturer.

516.02 MATERIALS

A. Provide materials as specified:

Steel Grid Panels:	
Structural Steel	906.01
Galvanized Coatings and Repair Methods	912.02.01
Leveling Bolts	ASTM F568, Class 4.6
Nuts	ASTM A563
Stud Shear Connectors	906.01
Lightweight Class P-1 Concrete	903.03
Lightweight Aggregate	901.06.03
Admixtures:	
Air-Entraining	903.02.01
Chemical	903.02.02
Mineral:	
Fly Ash	903.02.03
Microsilica	903.02.03
Portland Cement	903.01
Water	919.08

B. Use deformed reinforcement bars conforming to 905.01.

C. Ensure that the main bearing bars of the steel grid deck are fabricated from WT structural shapes using ASTM A992 steel, and distribution bars and miscellaneous plates meet the requirements of A572/A709 Grade 50 [A572M/A709M Grade 345] steel. Ensure that welding is in conformance with established grid industry practice, including the permitted use of Gas Metal Arc Welding (MIG). Obtain approval for weld qualification and weld procedures in accordance with AWS D1.5 prior to deck panel fabrication.

D. The Contract Plans show a suggested panel layout. Develop the panel layout and detail it on the shop drawings.

E. Ensure that the concrete is in conformance with Section 903, except that maximum coarse aggregate size is 3/8".

F. Ensure that the reinforcing steel is deformed reinforcement bars conforming to Subsection 905.01.

G. Ensure that the galvanized coatings and any repairs of defects in galvanized coatings conform to Subsection 912.02.01. Do not use repair materials containing aluminum to restore defective areas.

H. Use leveling bolts, nuts, and washers conforming to the specifications of ASTM A307, ASTM A563 and ASTM F844 respectively, unless specified otherwise.

I. Use vertical steel sheet metal form pans installed in the grid prior to galvanizing conforming to the latest specification for ASTM A366/A366M or A1011/A1011M. Ensure that the galvanized steel sheet metal forms installed following grid panel galvanizing conform to the latest specification for ASTM A653/A653M, furnished in the gauge specified on the contract drawings. Protect all metal forms during shipment and site storage to retain their shape until deck panel installation.

J. Ensure that the Ultra-High Performance Concrete for the field transverse panel joints conform to Subsection 903.11. Maximum coarse aggregate will be 3/8". Prior to opening to traffic, ensure that the transverse joint concrete attains the design compressive strength or other design strength allowable in accordance with the manufacturer's recommendations.

K. Use High Performance Grout for the field closure pours over floorbeams and stringers (shear connector block-outs) conforming to Subsection 903.13. Prior to opening to traffic, ensure that the grout attains the design compressive strength or other design strength allowable in accordance with the manufacturer's recommendations.

516.03 CONSTRUCTION

A. Steel Grid Deck

1. Fabricate the steel grid to the dimensions and properties as shown on the plans, shop drawings, and in accordance Subsection 506.03.05. The Department will not allow the use of tertiary or supplemental bars to develop composite action between the concrete deck and steel grid. Ensure that the weld sizes are in conformance with established grid industry practice unless otherwise indicated on the contract plans. Field-verify all dimensions in order to make necessary changes prior to fabrication. Provide due consideration to the placement of leveling devices to provide adequate clearance for their field adjustment from above using a socket wrench and for adequate clearance for field placement of headed shear studs. After the attachment of edge bars, leveling devices, vertical form pans, and other components as described in the plans and specifications, galvanize the grid deck in accordance with Subsection 912.02. Repair defects in galvanizing as specified in Subsection 506.03.06.

2. Fabricate the steel grid deck panels within the following tolerances:

Panel Length (L)	± ¼" (in the direction of main bar)
Panel Width (W)	+0, -1/8" (in the direction of distribution bar)
Squareness (Diagonals 'D1' and 'D2')	$\lvert D1-D2 \rvert \leq ½$"
Longitudinal Camber	0.003*L
Transverse Camber	0.004*W
Sweep (side bow) ('L' in feet, tolerance in inches)	0.025*L (for L ≤ 40'-0") $0.00065*L^2$ (for L > 40'-0")
Main Bar Verticality	0.04*H ('H' = full bar height) (See Note 1)
Distribution Bar Verticality	0.04*H ('H' = full bar height) (See Note 1)
Bar Spacing (Main Bar & Dist. Bar)	±1/8" center to center (See Note 1)

Note 1: No more than 1% of all locations can violate specified tolerance.

3. Install the sheet metal forms in such a manner as to minimize leakage.

4. Include lifting locations and lifting procedures on the shop drawing submission. Take care to avoid twisting of the panels or bending of the panels in the weak (perpendicular to main bar) direction. Use multiple pick points as necessary. Properly block the steel grid panels with wood (with due regard to built-in panel camber) during transportation and storage in order to avoid distortion or other damage.

B. Precast Concrete

1. Use lightweight Class P-1 concrete in accordance with Subsection 903.03 with a minimum 28-day compressive strength of 6000 psi. Use 3/8" maximum coarse aggregate in the mix.

2. Lay out the rebars considering the location of the leveling bolts, providing sufficient clearance for adjustment in the field using a socket wrench. Place the main (top) rebar, which runs in the same direction as the main bearing bars of the steel grid, a minimum of 1" from the web of the main bearing bars. Provide minimum 1 inch cover between rebar and exposed surfaces of precast concrete unless otherwise shown on the plans. Provide anchor bolts for steel bridge railing as shown on the plans.

3. Ensure that the top surface of the precast panel finish is as shown on the plans.

4. Provide provisions for the casting bed and forms for straightening and holding the steel grid panels flat and square prior to placing concrete. Check the steel grid panels for conformity with the required dimensions as to cross slope, and supported them to prevent displacement during precasting operations to obtain the proper concrete thickness

5. Do not remove the precast panels from the forms or move the panels until the concrete has reached the greater of 3500 psi or 75% of the concrete design compressive strength.

6. Properly cure the precast panels until the concrete reaches its 28-day design strength.

7. Ensure that the dimensional tolerances of a completed precast panel in any direction conform to the table given above.

8. After curing, remove all form release material and any other forming materials adhering to the vertical faces of concrete. Sandblast the precast concrete vertical faces with care to avoid damage to the galvanized coatings.

9. Use a rigid lifting frame whenever precast panels are moved. Position the lifting locations to limit stresses in the panel. Consider stresses caused by deflection of the lifting frame in the analysis. Ensure that the proposed handling methods limit the actual concrete tensile stresses to the concrete modulus of rupture based upon the proposed support locations and expected dynamic loading during handling, storage, and transportation of the panels. Take particular care to avoid twisting of the panels or bending of the panels in the weak (perpendicular to the main bar) direction.

10. Mark the completed panels with their proper identification number. Store and ship the panels right side up, and use wood lagging (with due regard to built-in panel camber) to prevent damage to steel, concrete, sheet metal, or galvanized coating. At a minimum, place lagging immediately adjacent to the proposed lifting locations and at the ends of the panel. Preferably, place blocking at all stringer (floor beam) block-outs and at the ends of the panel. Ensure that the blocking between stacked panels are in vertical alignment across the panel width. Stack no more than four precast panels high.

C. Field Installation

1. Ensure that the installation is in accordance with this specification and the most recent version of BGFMA TS-03, "Installation Tolerances and Guidelines for Grid Reinforced Concrete Bridge Decks,"

published by the Bridge Grid Flooring Manufacturers Association. Install the steel grid deck panels within the following tolerances:

a. Alignment: Main bearing bar misalignment between adjacent grid deck panels to be no more than 1/2”

b. Gap: Distance between main bearing bars between adjacent grid deck panels to be as specified, ±1/2” but not to exceed 8”

2. Deliver the panels to the job site free from any defects and bearing the proper identifying marks.

3. When rehabilitating a structure, and prior to deck panel installation, hand/power tool clean the top surfaces of existing floorbeam flanges that will be in contact with new concrete/grout according to Subsection 554.03.02.

4. Place the panels on the structure giving careful consideration to the alignment of each adjacent panel. Center panels on floorbeams around centerline of floorbeams unless indicated otherwise on the drawings. Measure from fixed points to avoid cumulative error. The Department will not allow lifting the panels from the leveling devices, rebar, or distribution.

5. Make adjustment to proper elevation through the use of the built-in leveling bolts as detailed, or shims or other means.

6. After all panels have been adjusted to their proper elevation, and all haunch and miscellaneous forms have been installed, install the welded headed shear studs to the steel stringers, girders, and/or floor beams as detailed on the plans through the openings provided in the deck panels. Alternatively, with careful layout, the RE may allow installation of the studs prior to placing deck panels. Provide a separate welding generator to furnish power to each stud gun in order to assure acceptable welds.

7. After all studs have been installed, clean the top surface of all flanges before any concrete or grout is placed, including breaking the ceramic ferrules around the welded studs.

8. At haunches and areas of full-depth concrete, seal the openings in the main bars using duct tape or other similar material prior to concrete placement. Seal the openings from the haunch or full-depth side.

9. Ultra-High Performance Concrete for field transverse panel joints shall be placed, finished, and cured in accordance with Subsection 507.03.02. Use a pencil vibrator to assure good consolidation.

10. Place High Performance Grout for the field closure pours over the floorbeams and stringers (shear connector block-outs), finish, and cure in accordance with Subsection 903.13. Use a pencil vibrator in the haunch to assure good consolidation.

516.04 MEASUREMENT AND PAYMENT

The Department will measure the Precast Exodermic™ panels as the total gross square footage of the deck slab panel installed and inspected in accordance with the plans and specifications taking measurements from the outside edge to outside edge of the top surface of the deck slab in both directions without making any deductions for block-outs or openings.

The Department will make payment for the Precast Exodermic panels as follows:

Pay Item	*Pay Unit*
PRECAST EXODERMIC BRIDGE DECK SYSTEM, LIGHTWEIGHT	SQUARE FOOT

The Department will include payment for Type A and Type B grouts used for haunches and filling of the pockets, galvanized steel reinforcement, scuppers as detailed, removable forms, haunch angles, compressible material, leveling bolts, and anchor bolts for the steel railings in the precast panels under the item PRECAST EXODERMIC BRIDGE DECK SYSTEM, LIGHTWEIGHT.

THE FOLLOWING SECTION IS ADDED:

SECTION 518 – TEMPORARY JACKING SYSTEM

518.01 DESCRIPTION

This Section describes the requirements for designing, providing, installing, monitoring and removing a temporary jacking system, including temporary strengthening of the existing structure, in preparation for abutment reconstruction and bearing assembly replacement.

518.02 MATERIALS

518.02.01 Materials

Provide materials as specified:

Concrete	903.03
Curing Materials	903.10
Structural Steel	906.01
Structural Steel Fabrication	906.04
Bolts and Bolting Material	908.01
DTI	908.03

518.02.02 Equipment

Provide jacking equipment with a capacity rating at least 1.5 times the maximum total dead load plus live load plus impact reaction for the jack location. Provide equipment with load measuring devices that enable the lifting force to be constantly monitored. If jacks are used, provide jacks with the rated capacity clearly shown on the manufacturer's name plate attached to each jack. If jacks are used, ensure that each jack has a swivel-top bearing plate and a lock nut capable of supporting the entire load independent of the hydraulic system. If using more than one jack per location, operate the jacks from the same jacking source to maintain equal pressure in the jacks.

518.03 CONSTRUCTION

518.03.01 Jacking System

A. Working Drawings and Calculations. At least 30 days before beginning the work, submit the following items, signed and sealed by a Professional Engineer, to the RE for approval:

1. Detailed erection plan including detailed erection instructions, proposed equipment and drawings of all structures and support framing.
2. Detailed jacking system removal plan including detailed removal instructions and proposed equipment.
3. Design calculations and working drawings for the jacking system including temporary support towers, temporary support tower foundations, temporary supports, temporary support bracing and framing, and shims and blocking.
4. Design calculations and working drawings for modifications to existing superstructure framing, temporary strengthening of the existing structure, and temporary lateral supports of the bridge superstructure as required.
5. Substructure analysis where applicable.
6. Loads and jacking forces.
7. Type and grade of all materials.
8. Method of jacking and securing the lift after jacking.
9. Procedure for recording gauge readings and monitoring movements.
10. Details of gauge supports, including locations and methods.
11. Jacking and Structural Bearing Assembly Removal and Replacement Plan.

B. Jacking and Structural Bearing Assembly Removal and Replacement Plan. At least 30 days before beginning the work, submit the following items to the RE for approval:

1. All field measurements used for designing and installing the jacking system, including the temporary strengthening of the existing structure.
2. Field measurements of the existing structural steel and rivet patterns for verification of the required proposed structural bearing assemblies and pedestals. Do not order structural bearing assemblies before receiving approval.
3. Jacking schedule.
4. Detailed sequence of work for the jacking operations, coordinated with related work items and the staging plan.
5. Size, capacity and position of jacking equipment.
6. Schematic hydraulic layout.
7. Jacking plate sizes and thicknesses.

C. Installation.

1. Comply with the applicable requirements of 506.03.01.
2. Perform work to prevent damage to existing structures to remain. If damage occurs as the result of performing the work, submit a repair plan to the RE for approval. Repair damaged portions of existing structures according to the approved repair plan.
3. Jacking will not be allowed except as required related to abutment modification and replacing existing bearing assemblies as shown on the approved working drawings.
4. Provide certification that all jacks and gauges are calibrated and tested to ensure proper performance.
5. Before jacking to perform the work, perform test jacking to 75% of the maximum total dead load. Do not proceed with the work until successful test jacking has been performed. Perform inspection and testing according to Section 6 of the ANSI/AWS D1.5 Bridge Welding Code as modified by Section 506. Maintain the test load for 24 hours. Slippage is not allowed during the test jacking. If slippage occurs during test jacking, modify the assembly and retest until the assembly supports the load without slippage for 24 hours. Live loads will be allowed during test jacking.
6. Limit vertical displacement to the extent necessary to replace the bearing assemblies to the bridge seat elevations shown on the Plans. Limit differential displacement between girders to a maximum of 1/16 inch.
7. Ensure that no live loads are applied during jacking operations until the structure is secured and no longer dependent on the hydraulic system for support. Jack one entire bearing line at a time in order not to cause differential movement. Lifting of the girders will not be allowed. Perform jacking at a slow and uniform rate approved by the RE. Apply the last 30 percent of the jacking load in 5 percent increments and check for movement prior to incremental load application. Halt jacking operations if jacking to 110 percent of the jacking load does not release the bearings. Perform jacking operations only in the presence of the RE.
8. As early as possible during or after each lift, safely secure the structure so that it is not dependent on the hydraulic system for support.
9. Remove existing rivets as shown on the approved working drawings and as specified in 558.03.
10. Field drill bolt holes in the existing structural steel as shown on the approved working drawings. Ensure drilled holes are cylindrical and perpendicular to the member and are clean-cut without torn or ragged edges. Remove burrs on the outer surfaces. Control operations to ensure that the offset of a field drilled hole reamed 1/4 inch in any ply of material, measured from an outer ply after the hole has been finished for bolting, does not exceed 1/16 inch and that no more than 10 percent of the holes are offset as much as 1/16 inch. Control operations to ensure that the offset in any hole reamed 1/8 inch full size in any ply of material, measured from an outer ply after the hole has been finished for bolting, does not exceed 1/8 inch and that no more than 10 percent of the holes are offset as much as 1/8 inch. As approved, holes may be overreamed to meet these requirements, and larger bolts installed.
11. As approved by the RE, existing rivet holes may be reamed to fit proposed high strength bolts. Do not exceed the minimum edge distance or bolt spacing requirements as specified in AASHTO, Division I, Chapter 10.24.
12. Install high-strength bolts according to 506.03.01.

13. Ensure the temporary jacking system is adequately braced to transmit all stresses imposed by the jacking operation.
14. Do not leave the structure unsupported during jacking operations, abutment modifications or bearing removal. Design, provide and install temporary support for the bridge, other than the primary jacking system, to provide redundancy in case of jacking system failure.
15. Monitor the jacking system while in service and suspend operations at the sign of distress or movement in the superstructure or jacking system.
16. Remove temporary supports when they are no longer required.

D. Monitoring. Use mechanical displacement gauges (accurate to 0.001 inches) to monitor vertical superstructure movement at locations shown on the Plans. Record gauge readings before, during, and after the jacking operation to transfer load to the jacks. Record gauge readings twice daily, at the beginning and end of each day thereafter. Record gauge readings before, during and after jacking operations to transfer the load to the bearings. Record all gauge readings in the presence of the RE.

518.04 MEASUREMENT AND PAYMENT

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

Item	*Pay Unit*
TEMPORARY JACKING SYSTEM	LUMP SUM

The Department will include payment for disposal of removed materials in CLEARING SITE, BRIDGE (STRUCTURE NO. ___) as specified in 201.04.

The Department will make payment for reinforced elastomeric bearing assemblies as REINFORCED ELASTOMERIC BEARING ASSEMBLY as specified in 506.04.

The Department will make payment for abutment modifications as MODIFICATION OF EXISTING ABUTMENTS as specified in 504.04.

DIVISION 550 – STRUCTURE REHABILITATION

SECTION 551 – BRIDGE DECK REHABILITATION

551.01 DESCRIPTION

THE FOLLOWING IS ADDED:

This work also consists of applying a polyester polymer concrete overly to new bridge decks designated on the plans including preparation of the receiving surface and construction of sample panels.

551.02 MATERIALS

551.02.01 Materials

THE FOLLOWING IS ADDED:

Polyester Polymer Concrete (PPC)..... 903.12

551.02.01.01 Certification of Compliance

The Department will accept materials, as specified, on the basis of Certificates of Compliance stating that the materials or assemblies fully comply with the requirements of the Contract.

The Department has the right to sample and test materials or assemblies accepted on the basis of Certificates 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.

Ensure that 4 copies of the manufacturer's Certificates of Compliance are provided with each delivery of materials, components, and manufactured items that are accepted by certification. Retain 1 copy and submit 3 copies to the RE. With the Certificate of Compliance, provide a transmittal identifying the Item for which it is submitted. Ensure that Certificates of Compliance contain the following information:

1. Project Name.
2. Name of the Prime Contractor.
3. Material description.
4. Quantity of material represented by the certificate.
5. Means of identifying the consignment, such as label marking and 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. Signature attested to by a notary public or other properly authorized person.

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

The Polyester Polymer Concrete (PPC) system consists of a particular brand of resin and a particular brand of primer, so as to be compatible with one another and with the aggregate specified herein, and which when mixed with other specified ingredients and applied as specified herein, is capable of producing a concrete overlay meeting the requirements of this specification.

Ensure that all components of the PPC systems are from the same manufacturer to assure compatibility of the material.

551.02.02 Equipment

THE FOLLOWING IS ADDED:

Surface Preparation Equipment 1005.08
Micro-milling equipment 1005.08
Shot blasters 1005.08
Mixing Equipment 1005.08
Finishing Equipment 1005.08

551.03 CONSTRUCTION

THE FOLLOWING IS ADDED:

551.03.03 Polyester Polymer Concrete (PPC) Overlay

1. At least ten (10) days before start of work provide the RE with two (2) copies of the manufacturer's written instructions for the installation of the overlay system.

2. Ensure that the manufacturer's technical representative is made available for up to three (3) working days to make recommendations to facilitate the overlay installation. This includes, but is not limited to, surface preparation, overlay application and overlay cure.

3. Provide proposed testing procedures, forms and criteria for all PPC overlay system materials.

4. Provide specific instructions for storage and handling of material. Include confirmation from the contractor and the manufacturer that these instructions have been reviewed and appropriate equipment and other provisions will be provided.

5. During surface preparation and overlay application, take precaution to assure that traffic is protected from rebound, dust and construction activities. Provide appropriate shielding as required and directed by the RE.

6. During overlay application, provide joint blockout and suitable coverings (e.g. heavy duty drop cloths) to protect all exposed areas not to be overlaid, such as curbs, sidewalks, parapets, etc. Clean and, or repair all damage or defacement resulting from this application to the RE's satisfaction, and at no additional cost.

7. Storage of materials. Store all materials in accordance with the Manufacturer's recommendations to ensure their preservation until used in work. Applicable fire codes may require special storage facilities for some components of the overlay system.

Pre-construction Conference and Seminar

Prior to commencement of work, hold a job site meeting, including the Contractor, RE and the overlay Manufacturer's representative to verify all conditions. The purpose of the meeting is to examine and discuss all prints, drawings, specifications, and procedures affecting the work of this section.

At the pre-construction meeting, ensure that the Manufacturer stages a one-day installation seminar for attendance by the Contractor, RE, and representatives of the Department's Construction and Maintenance Divisions. Ensure that the seminar includes the following:

1. Description of required surface preparation techniques, including representative images of adequately prepared surfaces.

2. Review of proposed surface overlay procedures and recommended tools and techniques. Review various tests that need to be done to install this product.

3. Review of commonly occurring defects and methods for repair.

4. Hands-on fabrication of a sample panel, minimum size to be 10'-0"x10'-0". Provide adequate material, equipment, tools and labor to prepare each sample panel.

Provide the date, time, location and sample presentation documents for the proposed seminar within 2 days of the notice to proceed. Ensure that the seminar is at a location within the project area which is acceptable to the Department and

that the date of the seminar is a minimum of (5) days after the notice to proceed.

Construction Procedures

1. General.

A. Delivery, Storage and handling of materials. Ensure that all materials are delivered in original sealed containers, clearly marked with the Manufacturer's name, product information and batch number. Store all materials in protected areas out of direct sunlight, with no possibility of getting wet and at a temperature between 35 degree F and 80 degree F. Follow all Manufacturer's specific instructions and prudent safety practices for storage and handling. Do not store any materials on the bridge. Comply with all applicable fire codes.

B. Mix Design. At least 45 days before initial production, submit a JMF (Job Mix Formula) for the polyester polymer Concrete on forms supplied by the Department. Include a statement naming the source of each component and a report confirming the results meet the criteria specified in Tables 1 & 2.

C. Packaging and Shipment. Furnish a Material Safety Data Sheet prior to use for each shipment of polyester resin binder and high molecular weight methacrylate resin. Ensure that all components are shipped in strong, substantial containers, bearing the manufacturer's label specifying date of manufacture, batch number, brand name, quantity, and date of expiration or shelf life. In addition, ensure that the mixing ratio is printed on the label of at least one of the system components. If bulk resin is to be used, notify the RE in writing 10 days prior to the delivery of the bulk resin to the job site. Bulk resin is any resin that is stored in containers in excess of 55 Gallons.

D. Basis of Acceptance. Project acceptance of the polyester overlay materials will be based on the following:

1. Delivery of the overlay materials to the project site in acceptable containers bearing the entire label information as required stated above.

2. Receipt of a Manufacturer's certification stating the primer, aggregate and polyester binder meet the material requirements as per Subsection 903.12.

3. Approval by the ME based on conformance with the Material requirements above.

2. Surface Preparation. Prepare all structural slab surfaces that will be in contact with the overlay as follows:

Determine the size of shot, flow of shot, forward speed of shot blast machine and number of passes necessary to provide a surface capable of a tensile bond strength greater than or equal to 250 psi or a failure area, at a depth of 1/8" or more into the base concrete, greater than 50% of the test area. Provide testing as per ACI 503R-93, Appendix.

The RE will designate the location of the test patches.

Before application of the primer, clean the entire deck surface by shot blasting and other means using the approved cleaning practice to remove oils, dirt, rubber, curing compounds, paint, carbonation, laitance, weak surface mortar and other potentially detrimental materials, which may interfere with the bonding or curing of the overlay. Acceptable cleaning is usually achieved by significantly changing the color of the concrete and mortar and beginning to expose coarse aggregate particles. Mortar which is sound and firmly bonded to the coarse aggregate must have open pores due to cleaning to be considered adequate for bond. Use a vacuum cleaner to remove all dust and other loose material.

Return to the approved cleaning methods and re-clean the suspect areas or verify thorough tests that the practice is acceptable if the RE determines that an approved cleaning practice has changed prior to the completion of the overlay application at no additional cost to the State.

Inspect cleaning operations and ensure that they are approved prior to placing the overlay. Remove any contamination of the deck occurring after initial cleaning. Apply the entire overlay system following the cleaning and prior to opening the area to traffic.

Do not expose cleaned pavement surfaces to vehicular or pedestrian traffic other than required by the overlay operation. If the pavement is contaminated before being overlaid, re-clean it by abrasive blasting to the satisfaction of the RE. No additional payment will be made for re-cleaning work.

Ensure that the concrete is dry at the time of application of the overlay.

Clean all steel surfaces that will be in contact with the overlay in accordance with SSPC-SP No. 10, Near-White Blast Cleaning, and do not use wet blasting methods.

Ensure that after the cleaning operation is completed there is no visible evidence of oil grease, dirt, rust, loose particles, spent abrasives or other foreign material on any of the surfaces to be overlaid.

3. Application.

Prime Coat

Prior to applying the prime coat, dry the area and blow clean with oil-free compressed air. Ensure that the surface temperature is at least 50 degree F or as recommended by the manufacturer.

Uniformly apply the prime coat to completely cover the surface to receive the polyester concrete. Ensure that the rate of spread is approximately 1.28 ounces per square foot of deck surface or as recommended by the manufacturer. Allow the prime coat to cure a minimum of 15 minutes before placing polyester concrete.

4. Polyester Polymer Concrete (PPC)

Test Patches

Prior to constructing the overlay, conduct one or more trial overlays on a previously constructed concrete base to determine initial set time and to demonstrate the effectiveness of the mixing, placing, and finishing equipment proposed as well as curing period. Provide each trial overlay measuring 12 ft. wide, at least 6 ft. long, and the same thickness as the overlay to be constructed. Ensure that the conditions during the construction of the overlay and equipment used are similar to those expected and to be used for the construction of the PPC overlay. If the cleaning practice, materials and installation procedure are not acceptable, remove the failed test patches and make the necessary adjustments and test all test areas at no additional cost the Department until satisfactory test results are obtained.

Ensure that the test patch has minimum bond strength of 250 psi as determined by ACI 503R-93, Appendix A to assure that the overlay adheres to the prepared surface. Surface must be capable of tensile bond strength greater than or equal to 250 psi or a failure area, at a depth of 1/8" or more into the base concrete, no greater than 50% of the test area.

Take possession of all material used in the trail overlay, including the concrete test patch and remove (if required) and dispose it at no cost to the Department.

Field Application

Upon acceptance of the test patch by the RE, place the polyester concrete within 3 hours after the prime coat has been applied. Allow the prime coat to cure a minimum of 15 minutes before placing polyester concrete.

Ensure that the polyester concrete contains approximately 12 percent polyester resin by weight of dry aggregate; the exact percentage will be determined by the RE during placement to enable proper finishing and texturing of the overlay surface.

Place the polyester polymer concrete overlay at a minimum thickness as indicated in the plans.

Termination edges of the overlay may require application and finishing by hand trowel due to obstructions such as a curb or to bevel vertical-faced edges. Follow all hand troweling by broadcasting aggregate or surface texturing while the resin is still wet to provide acceptable surface friction characteristics.

Adequately isolate all expansion joints prior to overlaying or saw within four hours after overlay placement, as approved by the RE. The exact time of sawing will be determined by the RE.

Ensure that the amount of initiator used in polyester concrete is sufficient to produce an initial set time between 30-120 minutes during placement. The initial set time can be determined by using an initial-setting time Gilmore needle in accordance with the requirements of ASTM Designation: C 266. Accelerators or inhibitors may be required to achieve proper set times and use them as recommended by the resin supplier.

Initiate and thoroughly blend the resin binder just prior to mixing with aggregate. Mix the polyester concrete as necessary prior to placing.

Place polyester concrete prior to gelling and within 15 minutes following addition of initiator, whichever occurs first. Discard polyester concrete that is not placed within this time.

Ensure that the surface temperature of the area to receive polyester concrete is the same as specified above for the prime coat, a minimum of 50 degrees F or as recommended by the manufacturer.

Use the finishing and texturing equipment with vibratory screed to strike off the PPC to the established grade and cross section. Fit the finishing and texturing equipment with vibrators and tines or other means of consolidating and texturing the polyester concrete to the required compaction. When specified, after the concrete is struck off and before the concrete becomes non –plastic, the surface then receives a transverse texture. Texturing is done by use of a wire broom having a single row of tines or a finned float having a single row of fins. The broom or float must produce transverse grooves that are spaced at intervals of approximately ½" to ¾" center to center. The grooves in the hardened surface are approximately .08 to .12" in width and 0.15 to 0.25" in depth. Ensure that the grooving is applied to the entire deck surface except that area within 18" from the face of the curb.

Apply the finish sand by either mechanical means or hand broadcasting immediately after strike-off, before gelling occurs, at a minimum rate of 2.75 ounces per square foot.

5. Surface and Thickness Requirements. The overlay surface will be checked at random by the RE immediately after it has hardened to assure that no depressions exist that will pond water. The smoothness of the polyester concrete surface will be tested with a straightedge.

Do not allow the surface to vary more than ¼" from the lower edge of a 12-foot long straightedge placed in any direction. Remove any surfaces which fail to conform to the above tolerance by diamond grinding, until the above tolerance is met.

To ensure adequate pavement friction, ensure the completed overlay surface is free of any smooth or "glassy" areas such as those resulting from insufficient quantities of surface aggregate. Repair any such surface defects in the manner recommended by the manufacturer and approved by the RE.

Check the thickness of the overlay prior to its initial set using a ruler. If the RE determines that the minimum thickness has not been attained, apply an additional layer after the overlay hardens. Ensure that this layer is a minimum of ¼" and is applied at no additional cost to the State.

After removal of the joint block outs, provide ¼" chamfer at the joint edges.

6. Curing. Do not allow traffic and equipment on the overlay for a minimum of four (4) hours following final finishing. Protect the overlays from moisture for not less than four (4) hours after finishing. Allow the polyester overlay to reach final cure before subjecting it to traffic loads. Cure time is dependent upon the ambient and deck temperatures. Actual degree of cure and suitability of the overlay for traffic will be as determined by the RE.

MEASUREMENT AND PAYMENT

THE FOLLOWING IS ADDED:

The Department will measure and make payment for the pay item of polyester polymer concrete overlay as follows:

Item	*Pay Unit*
POLYESTER POLYMER CONCRETE OVERLAY	CUBIC FOOT

SECTION 554 – PAINTING EXISTING BRIDGES

554.01 DESCRIPTION

DELETE THIS SUBSECTION AND REPLACE WITH THE FOLLOWING:

This Section describes the requirements for removing existing concrete deck slab and cleaning and painting tops of top flanges of stringers and floorbeams that become exposed after concrete deck slab is removed on existing bridges using an alkyd over coating paint system. Use only primer coat where the top flanges will be in contact with new concrete deck or concrete haunch.

554.02.01 Materials

DELETE THIS SUBSECTION AND REPLACE WITH THE FOLLOWING:

Provide an alkyd coating system consisting of a primer and finish coat only where the structural steel will not be in contact with concrete. Acceptable systems from Carboline, International Paint, PPG and Sherwin-Williams are provided below.

Carboline

Primer: Carbocoat 2900
Finish: Carboline 8215 VOC

International Paint

Primer: Interprime 234
Finish: Interlac 800

PPG

Primer: Speedhide Rust Inhibitive Primer 6-212 Series
Finish: Sil-Shield 95-5000 Series

Sherwin-Williams

Primer: Kem Bond HS B50 Series
Finish: Industrial Enamel HS B54Z-400 Series

The finish color shall match Federal Standard 595C Color No. 20460. Submit samples of the finish coat color to the Engineer for approval.

554.03 CONSTRUCTION

554.03.02 Cleaning and Painting

B. Cleaning.

DELETE SUBSECTION B.1, HAND OR POWER TOOL CLEANING, AND REPLACE WITH THE FOLLOWING:

1. **Power Tool Cleaning.** Before power tool cleaning, remove all visible oil and grease by solvent cleaning as specified in SSPC-SP 1. Remove loose/deteriorated coatings or loose rusted steel by power tool cleaning using vacuum shrouded power tools in accordance with SSPC-SP 3. Feather the surrounding coating at each location for a distance of 1 to 2 inches to provide a smooth, tapered transition into existing, intact coating. Verify that remaining coating is tight and intact by probing with a putty knife in accordance with the requirements of SSPC-SP 3. Determine the SP 3, Power Tool Cleaning condition by the use of a SSPC-VIS 3.

DELETE SUBSECTION B.2, BLAST CLEANING:

D. Conditions for Painting.

THE FOLLOWING IS ADDED:

Do not apply the alkyd coating system when the temperature is below 40°F or when the relative humidity is above 90 percent.

E. Paint Application, Coating Thickness.

THE FOLLOWING IS ADDED:

c. Alkyd Coating System. Apply a full coat of primer at 2 to 3 mils dry film thickness. Apply a full coat of the finish at 2 to 3 mils dry film thickness.

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

606.03.02 Concrete Sidewalks, Driveways, and Islands

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
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:

Item	*Pay Unit*
NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	SQUARE YARD
COLOR-COATED NON-VEGETATIVE SURFACE, HOT MIX ASPHALT	SQUARE YARD
NON-VEGETATIVE SURFACE, BROKEN STONE,___THICK	SQUARE YARD
NON-VEGETATIVE SURFACE, POROUS HOT MIX ASPHALT,___THICK	SQUARE YARD
NON-VEGETATIVE SURFACE, POLYESTER MATTING	SQUARE YARD

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

Item	*Pay Unit*
BURIED GUIDE RAIL TERMINAL	UNIT

SECTION 610 – TRAFFIC STRIPES, TRAFFIC MARKINGS, AND RUMBLE STRIPS

610.03.01 Epoxy Resin Traffic Stripes

THE ENTIRE TEXT IS CHANGED TO:

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

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 epoxy resin traffic striping operations, construct 1 or more striping test strips to demonstrate your 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. 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. Provide the RE with 50 test cards, made of heavy stock paper measuring 8 inches by 2 inches, and two wet film thickness gauges.

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, EPOXY RESIN, 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
250 millicandelas per square meter per lux for yellow

F. **Defective work**. Replace traffic stripes that are determined by the RE before Acceptance to be defective or that are damaged due to sawcutting or sealing of joints in the HMA overlay. Remove defective stripes as specified in 610.03.08.

Replace an entire 10-foot skip line if the RE determines the line 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.

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.

Provide the RE with an LTL-X Reflectometer that has been certified by the manufacturer as being calibrated within the last two years. The RE will test the retroreflectance of TRAFFIC STRIPES, EPOXY RESIN. Replace traffic stripes that do meet the retroreflectance values 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.

610.03.04 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.

610.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:

Item	*Pay Unit*
RPM, BI-DIRECTIONAL, WHITE LENS	UNIT

SECTION 611 – CRASH CUSHIONS

611.02 MATERIALS
THE SECOND PARAGRAPH IS CHANGED TO:

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.

611.03.02 Crash Cushion

Use one of the following Compressive Barrier, energy absorbing Crash Cushion(s) on the project: QuadGuard II, SCI 100 GM or WideTRACC. Design Speed, Type and Width are shown on the plans and in the summary below.

Item No.	Description	Design Speed	Product	Route and Approximate Station	Foundation	Back-up System
611315M	Crash Cushions, Compressive Barrier, Type 3, Width Medium	55 mph	Quadguard II, 4 Bay, 48" Wide, 16'-0" Length	U.S. 1&9, Northbound Express, Baseline Sta. 224+60 +/-, Right	Proposed Bridge Deck	Tension strut, Concrete Parapet
			SCI 100 GM, 48" Wide, 29'-10" Length		Proposed Bridge Deck	NA
			WideTRACC, 41" Wide 21'-03" Length		Proposed Bridge Deck	Concrete Parapet

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:

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:

Item	*Pay Unit*
GUIDE SIGN, TYPE GA, NON-BREAKAWAY SUPPORTS	SQUARE FOOT

DIVISION 700 – ELECTRICAL

SECTION 701 – GENERAL ITEMS

701.03.01 Existing Systems

Deliver and unload salvaged materials to the location(s) directed by the RE.

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.

701.03.04 Rigid Metallic Conduit (Exposed)

THE FOLLOWING IS ADDED:

Ensure all exposed conduit is PVC coated.

THE LAST PARAGRAPH IS CHANGED TO:

Install true tape marked in 1-foot increments for the length of the rigid metallic 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.

701.03.07 Flexible Nonmetallic Conduit

B. Installation.
THE SECOND PARAGRAPH IS CHANGED TO:

Terminate flexible nonmetallic conduit 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 AFTER THE SECOND PARAGRAPH:

Provide advanced notice and coordination with service providers to verify current status of service requests for all required utility services. Perform coordination required to re-establish and revise any service requests that may have expired due to time restraints, or due to a change in system requirements

THE FOLLOWING IS ADDED:

For electrical power wires and conduits scheduled for removal, coordinate with the utility company to de-energize the circuits. Once the meter cabinets have been de-energized, unhook the old service connection; any existing pole risers and service heads and cut back foundations to one foot below grade.

THE FOLLOWING IS ADDED TO THE FOURTH PARAGRAPH:

At Substantial Completion 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 Substantial Completion or as directed by the RE.

701.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
___" RIGID METALLIC CONDUIT, PVC COATED	LF
FOUNDATION, TYPE 3M	UNIT
METER CABINET, TYPE 3M	UNIT
DUAL AIRWAY OBSTRUCTION LIGHT	UNIT

THE FOLLOWING IS ADDED:

If restoration of disturbed areas includes pavement, curb, sidewalk, driveway or island, the Department will make payment for such work as specified in 104.03.03.

When the RE directs the installation of a new conduit or a repair to the defective conduit, the Department will make payment for this work as specified in 104.03.03.

When the RE directs the Contractor to install a tracer wire in existing conduit, the Department will make payment for this work as specified in 104.03.03.

The Department will measure removal of existing lighting system conduit, wires, lighting standards, mast arms, luminaires, junction boxes, Variable Message Signs, cameras, mounting assemblies, cabinets and load centers, etc. in accordance with Section 201.03.01 Clearing Site Part G. Removing Electrical Material and Equipment. Payment for the removal, disposal, and demolition work will be included under the Pay Item CLEARING SITE, BRIDGE( ).

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:

2. Interim Traffic Signal System.
THE FOLLOWING IS ADDED:
The following is specific to the Interim Traffic Signal System at the U.S. 1&9T/Newark Avenue intersection.

Traffic signal assemblies (TSA) designated with the letter “H” shall consist of furnishing and installing a traffic signal head on an existing traffic signal mast arm. The item shall include a mast arm hanger or mounting brackets, safety chain, miscellaneous fittings, No. 14 traffic signal cable from the terminal block of the signal head to the base of the standard, and removal of the existing traffic signal head assembly.

Traffic signal assemblies (TSA) designated with the letters “HC” shall consist of furnishing and installing a traffic signal head on an existing traffic signal standard. The item shall include pole clamps, miscellaneous fittings, the drilling of the traffic signal standard if required, installing the grommet, No. 14 traffic signal cable from the terminal block of the face to the base of the standard, and removal of the existing traffic signal head assembly.

Traffic signal assemblies (TSA) designated with the letters “OP” shall contain an optically programmed traffic signal head.

702.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*

PEDESTRIAN SIGNAL STANDARD, DECORATIVE UNIT

THE FOLLOWING IS ADDED:

Interim traffic signal systems are to be maintained at thirteen (13) locations along U.S. 1&9T. Modifications to the existing traffic signal systems, including phasing and timing changes, shall be paid for under the item INTERIM TRAFFIC SIGNAL SYTEM, LOCATION NO. __, with the location number corresponding to the table below.

Loc. No.	Intersection
1	Hackensack Avenue
2	NJ 440/Communipaw Avenue (West Intersection)
3	NJ 440/Communipaw Avenue (Main Intersection)
4	NJ 440/Communipaw Avenue (South Intersection)
5	NJ 440/Communipaw Avenue (North Intersection)
6	Duncan Avenue
7	Sip Avenue
8	Pulaski Skyway/Halleck Avenue
9	Broadway
10	Newark Avenue
11	NJ 7
12	Tonnele Circle
13	Jacobus Avenue Ramps

SECTION 703 – HIGHWAY LIGHTING

703.02.01 MATERIALS
THE FOLLOWING IS ADDED TO THE MATERIALS LIST:

Aviation and Navigation Lighting	918.14(4)
Control Transformer	918.15

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 malfunction 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 FOLLOWING IS ADDED:

Provide a design for the Temporary lighting system along southbound Pulaski Skyway roadway between stations 179+00 to 355+50, and along the ramp to U.S. Route 1&9 Truck as indicated on Temporary Lighting Plans.

Ensure the temporary highway lighting system along the ramp to U.S. Route 1&9 Truck remains in place at Completion. Prior to Acceptance by the Department, inspect the lighting system with the RE and make all repairs necessary to maintain normal operation as directed by the RE.

THE SIXTH PARAGRAPH IS DELETED.

THE EIGHTH THROUGH TENTH PARAGRAPHS ARE DELETED.

THE FOLLOWING IS ADDED:

703.03.08 Aviation and Navigation Lighting

Perform all work such that the lights are in operation during all hours and periods of fog as required by the FAA, US Coast Guard (USCG), US Department of Homeland Security and the NJDOT. Maintain and repair inoperable or malfunctioning lighting equipment within 2 hours of the observed failure, or upon notification by the RE whichever occurs first.

Perform all work to the requirements of the USCG, FAA, USDHS, and the NJDOT. Ensure all components are securely installed and connected with stainless steel hardware.

Paint exposed conduit, clamps, junction/pull boxes, and associated components used for mounting and functioning of the proposed lighting systems, black. Perform all painting prior to installation of component.

1. **Navigation Lighting System** describes the following types of lighting::
   - Pier marker lights. Includes the luminaires and mounting to the bridge pier fenders.
   - Channel margin lights: includes the luminaires and mounting to the bridge. Ensure that navigation lights are mounted on a swivel suspension system (with counter weights) and that they hang below the structural steel and that the lights can be accessed, raised, and maintained from the existing maintenance catwalk without need for tools, ladders, or equipment. Provide two chains – one chain to be used to raise the light for maintenance, and the other chain to keep the light in the raised position while performing maintenance. Provide locks to prevent unauthorized raising of lights and install as directed by the RE. Mount the channel margin lights at the edges of the navigable channel.
   - Channel center lights. Include the luminaires and mounting to the bridge.
2. **Dual Airway Obstruction Lighting** includes two luminaires, transfer relay, filters, and mounting to the top of the bridge structure.

703.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
LUMINAIRE, DECORATIVE	UNIT
LIGHTING MAST ARM, DECORATIVE	UNIT
LIGHTHTING STANDARD, DECORATIVE	UNIT
PEDESTRIAN SIGNAL STANDARD, DECORATIVE	UNIT
DUAL AIRWAY OBSTRUCTION LIGHTING	UNIT
NAVIGATIONAL LIGHTING SYSTEM	UNIT

TEMPORARY HIGHWAY LIGHTING SYSTEM, LOCATION NO. 1 LUMP SUM

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

The Department will include payment for the various navigation lighting system luminaires, mounting apparatus's, lifting pipes, retrieval and maintenance chains, pipe rests, hangers, hardware, junction/pull boxes, and miscellaneous components in the pay Item NAVIGATION LIGHTING SYSTEM. Conduit and wiring for the navigation lighting systems will be paid per the respective bridge and electrical pay Items.

The Department will include payment for the dual airway obstruction lighting system luminaires, mounting apparatus's, hardware, junction/pull boxes, and miscellaneous components in the pay Item DUAL AIRWAY OBSTRUCTION LIGHTING. Conduit and wiring for the systems will be paid per the respective bridge and electrical pay Items.

Provide spare lighting equipment as follows:

Five (5) lighting standards
Five (5) lighting arms
Ten (10) luminaires
One (1) pedestal signal standard

The Department will include payment for all spare lighting equipment under pay Items LIGHTING STANDARD, DECORATIVE, LIGHTING ARM, DECORATIVE, LUMINAIRE DECORATIVE, AND PEDESTRIAN SIGNAL STANDARD, DECORATIVE.

DIVISION 900 – MATERIALS

SECTION 901 – AGGREGATES

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

902.02.02 Composition of Mixtures

TABLE 902.02.02-2 IS CHANGED TO:

Table 902.02.02-2 Additional Fine Aggregate Requirements for HMA

Tests	Test Method	Minimum Percent
Uncompacted Void Content of Fine Aggregate	AASHTO T 304, Method A	45
Sand Equivalent	AASHTO T 176	45

902.02.04 Sampling and Testing

B. Sampling.

THIS ENTIRE PART IS CHANGED TO:

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.

902.03.02 Mix Design

THE FOURTH PARAGRAGH 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.

902.04.03 Sampling and Testing
THE FIRST PARAGRAPH 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.

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 draindown tests as directed by the ME.

902.05.01 Composition of Mixture
THE FIFTH PARAGRAPH IS CHANGED TO:

For fine aggregate, use 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.

902.05.02 Mix Design
THE FIRST PARAGRAPH IS CHANGED TO:

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 902.05.02-2 IS CHANGED TO:

Table 902.05.02-2 SMA Mixtures Volumetrics For Design and Plant Production

Property	Production Control Tolerances	Requirement
Air Voids	±1%	4.0%
Voids in Mineral Aggregate (VMA)	–	17.0% minimum
VCA_{mix}	–	Less than VCA_{dry}
Draindown @ production temperature	–	0.30% maximum
Asphalt Binder Content (NJDOT B-5)	±0.15%	6% minimum
Asphalt Binder Content (AASHTO T 308)	±0.40%	6% minimum
Tensile Strength Ratio (AASHTO T 283)	–	80% minimum

902.05.03 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 at the plant, the ME will take a sample from each 700 tons of production to verify composition and air voids. Conduct draindown, VCAmix, VCAdry, and VMA testing as directed by the ME. Perform tests according to AASHTO R 46.

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. 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.

902.06.03 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, 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.

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 draindown tests as directed by the ME.

SECTION 903 – CONCRETE

903.03.06 Tables

Table 903.03.06-2 Requirements for Structural Concrete Items

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.

THE FOLLOWING SUBSECTIONS ARE ADDED:

903.11 ULTRA-HIGH PERFORMANCE CONCRETE (UHPC)

903.11.01 Composition

Use a self-leveling, self-consolidating cementitious UHPC. Ensure that all of the components of the UHPC mixture are supplied by a single material manufacturer with a minimum of 5 years' experience in manufacturing and the commercial supply of UHPC.

903.11.02 Mix Design and Qualification Testing

At least 90 days prior to the planned start of the joint construction, submit the mix design to the ME for approval. Provide UHPC consisting of the following components all from the same supplier:

Fine aggregate
Cementitious material
Super plasticizer
Accelerator
Steel Fibers, specifically made for steel reinforcement, ½" x 0.008", deformed

The steel fibers will be a high-carbon steel with a minimum tensile strength of 290,000 psi. Minimum steel fiber content will be 2 % by volume of premix.

The water will be as per section 919.08. If ambient temperatures rise above 80˚F use ice cubes as required to decrease mix temperature.

Ensure that the UHPC is gray in color to match the color of adjacent deck concrete.

Provide a UHPC mix that meets the following requirements (at 28 days unless otherwise noted):

Minimum Compressive Strength (ASTM C39)	
24-hour moist cure	≥ 5,700 psi
4-day moist cure	≥ 11,600 psi
28-day moist cure	≥ 14,500 psi
Prism Flexural Tensile toughness (ASTM C1018; 12 inch span)	I 30 ≥ 48
Long-Term Shrinkage (ASTM C157; initial reading after set)	≤ 800 microstrain
Chloride Ion Penetrability (ASTM C1202) (56 days)	≤ 250 coulombs
Chloride Ion Penetrability (AASHTO T259; ½ inch depth)	< 1.7 lb/yd^3
Scaling Resistance (ASTM C672)	y < 3
Abrasion Resistance (ASTM C944 2x weight; ground surface)	< 0.03 ounces lost
Freeze-Thaw Resistance (ASTM C666A; 600 cycles)	RDM > 96%
Alkali-Silica Reaction (ASTM C1260; tested for 28 days)	Innocuous

Prepare 9 cylinders 12 inches in diameter and 8 inches deep. Each cylinder shall have one 2'-8" long stainless steel reinforcing bar meeting the requirements of Section 905.01.06, Type XM-10, cast in the center of the circular face. The axis of the bar shall be perpendicular to the formed surface. Three of the bars shall be #19 bars embedded 6 inches deep, three of the bars shall be #16 bars embedded 5 inches deep, and three of the bars shall be #13 bars embedded 4 inches deep. Keep these cylinders wet for four days. This test is a pullout test following ASTMC 900. Perform the test as soon as practical after the corresponding samples reach 14,500 psi. The samples pass if the bars yield, then fail without the concrete failing and without the bars pulling out of the concrete.

Submit results of all the tests above, conducted by an AASHTO accredited testing lab, to the ME for approval at least 90 days prior to the start of field placement. Provide to the ME a list of bridge projects in which the proposed UHPC material has been used for bridge joints (within or outside the USA). The ME reserves the right to reject a proposed UHPC material which lacks a proven track record for use in bridge joints.

903.11.03 Quality Control

Measure the slump flow on each batch of UHPC. Conduct the slump flow using a mini-slump cone in accordance with ASTM C230. Ensure that the flow for each batch is between 7 in. and 10 in. Record the slump flow for each batch in the QA/QC log. Provide a copy of the log to the RE.

Take four sets of compressive strength test samples for each day of placement. Each set consists of 3 cylinders 3 inch x 6 inch. Provide molds as required. Cure all sets in an environment similar to the material they represent. Perform the following tests:

Perform the compressive strengths according to ASTM C 39. Ensure that the timing of the testing is as required to demonstrate design strength prior to loading of the deck. Perform the testing of the second set at 28 days. Submit the third set to the Materials Bureau between the 4th day and the 14th day. Treat the fourth set as a reserve set.

UHPC is a non-pay-adjustment item. All requirements and procedures of Section 903.03.05 F apply. The re-test limit is 11,600 psi.

903.12 POLYESTER POLYMER CONCRETE (PPC)

1. Primer. Provide the prepared surface with a wax-free low odor, high molecular weight methacrylate prime coat. Ensure that the prime coat is a resin and that it has a maximum volatile content of 30 percent prior to adding the initiator, when tested in accordance with ASTM designation D 2369, and conforming to the following:

Table 903.12-1 High Molecular Weight Methacrylate (HMWM) Resin

Property	Requirement	Test Method
Viscosity*	4 x 10^{-6} psi) maximum (Brookfield RVT with UL adapter, 50 RPM at 77 degree F)	ASTM D 2196
Specific Gravity*	0.90, minimum, at 77 degrees F	ASTM D 1475
Flash Point*	180 degrees F, minimum	ASTM D 3278
Vapor Pressure*	0.04 inch Hg, maximum, 77 degrees F	ASTM D 323
Tack-Free Time	400 minutes maximum at 77 degrees F	ASTM C 679
PCC Saturated Surface-Dry Bond Strength	507 psi minimum, at 24 Hrs 70±1 degree F	BOND TEST

*Tested prior to adding initiator

Provide a prime coat promoter/initiator consisting of a metal drier and peroxide. If supplied separately from the resin, do not mix the metal drier directly with the peroxide. Store the containers in a manner that will not allow leakage or spillage from one material to contact the containers or material of the other.

2. Aggregate: Ensure that the aggregate for polyester concrete and finishing sand conforms to the requirements of JMF (Job Mix Formula) except the gradation meets the following:

Table 903.12-2 Job Mix Formula Requirements for PPC

Sieve Size	Percent Passing
3/8”	100
#4	70
#8	50

#16	44
#30	30
#50	5-20
#100	7
#200	3

Ensure that the aggregate retained on the #8 sieve has a maximum of 45 percent crushed particles when tested in accordance with AASHTO Test Method T27. Provide fine aggregate consisting of only natural sand.

Ensure that aggregate absorption does not exceed one percent as determined by AASHTO Test Methods T84 and T85.

Ensure that at the time of mixing with the resin, the moisture content of the aggregate, as determined by AASHTO Test Method T255, does not exceed one half of the aggregate absorption.

Provide finish sand as dry No. 8/20 commercial quality blast sand.

3. Polyester Binder. Provide polyester concrete consisting of polyester resin binder and dry aggregate. Provide an unsaturated isophthalic polyester-styrene co-polymer resin conforming to the following:

Table 903.12-3 Polyester Resin Binder

Property	Requirement	Test Method
Viscosity*	0.1 x 10^{-5} to 2.9 x 10^{-5} psi (RVT No. 1 Spindle, 20 RPM at 77degree F)	ASTM D 2196
Specific Gravity*	1.05 to 1.10 at 77 degree F	ASTM D 1475
Elongation	35 percent, minimum Type I at 0.45"/min. Thickness=1/4"±0.04" Sample conditioning: 18/25/50 + 5/70	ASTM D 618
Tensile Strength	2538 psi minimum Type I at 45"/min Thickness =1/4" ± 0.04" Sample conditioning: 18/25/50 + 5/70	ASTM D 638 ASTM D 618
Styrene Content*	40 percent to 50 percent (by weight)	ASTM D 2369
Silane Coupler	1.0 percent, minimum (by weight of polyester styrene resin)	
PCC Saturated Surface Dry Bond	507 psi minimum at 24 hours and 70±1degree F	

*Tested prior to adding initiator

Values are based on specimens or samples cured or aged at 77 degree F unless otherwise indicated.

Provide a silane coupler that is an organosilane ester, gammamethacryloxypropyltrimethoxysilane.

Ensure that the promoter is compatible with methyl ethyl ketone peroxide (MEKP) and cumene hydroperoxide (CHP) initiators.

4. Initiator. Ensure that the initiator system for the methacrylate resin consists of a metal drier and peroxide.

If supplied separately from the resin, do not mix the metal drier with the peroxide directly. Do not store containers in a manner that allows leakage or spillage to contact the containers or materials of the other.

5. Accelerators; Inhibitors. Accelerators or inhibitors may be required to achieve proper set times. Use as recommended by the resin supplier.

6. Samples. Provide samples 60 days prior to placement of the PPC overlay.

903.13 HIGH PERFORMANCE GROUT

903.13.01 Materials

Provide a two part methyl methacrylate (MMA) resin based system that meets all the material specifications contained herein. Provide references that demonstrate that the product has been successfully used on similar sized projects for grouting of precast concrete panels with female to female joints and shear stud pockets. Provide bridge owners, project designations, and points of contact to the Engineer.

Distinctly pigment the powder component of the grout so that mixing produces a third color similar to the concrete in the precast deck panels. Ensure the grout is insensitive to damp conditions during application (concrete surfaces must be dry, maximum 5% moisture content), and after curing, the grout exhibits high bonding strength to cured concrete, good water resistance, low creep characteristics and tensile strength greater than the concrete used for fabricating the precast deck panels.

Prepackage the approved polymer system into components, including packaging of aggregates, for shipping and mixing at the job site. Color-code the packages and identify them for the specific application.

Provide a MMA primer for both concrete and steel, manufactured by the same supplier as the grout, with a curing time of 20 to 60 minutes. Apply the primer in accordance with the manufacturer's recommendations. The minimum adhesive strength between the primer and substrate is 250 psi as determined by the Elcometer Adhesive Test.

Provide the following two types of grout as shown on the plans:

- Type A Grout – neat gout
- Type B Grout – grout with pea gravel

Maximum aggregate size is 1/16" for the neat grout mix and up to 3/8" in diameter for the grout with pea gravel (up to 50% extension by weight and maximum moisture content in the aggregates shall not exceed 10%). Proportion and mix grout in accordance with the manufacturer's recommendations. Additives necessary to meet the Project requirements may be added as required, but these must be included in and approved with the systems submitted for testing.

Minimum performance criteria for the primer and polymer grout are listed below:

Table 903.13-1 Primer

Property	Test Method	Requirement
Reactive Resin Content		100%
Tensile Strength, Min.	ASTM D638	3,660psi
Tensile Elongation, Min.	ASTM D638	18%
Water Absorption, percent by wt. Max.	ASTM D570	0.39%
Shore D Hardness, 25°C Min.	ASTM 2240	70 D
VOC Emissions Max.	40 CFR 59	0.087 lb./gal
Max. Cure Time, minutes @ 68°F	---	60
Adhesion to Concrete	ASTM 1583	100% (Failure concrete)

Table 903.13-2 Polymer Grout

Property	Test Method	Requirement

Percentage Reactive Resin		100%
Percentage Solids:		100%
Water Absorption, % Wt.	ASTM D570	< .02%
Abrasion Resistance	ASTM C501	grams lost per 1000 cycles: 3.5
Compressive Strength, psi	ASTM C579	2,500 (120 min)
Compressive Modulus, psi X 106	ASTM C469	0.6
Tensile Strength, psi	ASTM D638 Type 1	1,150
Flexural Strength, psi	ASTM D790	5,900
Coefficient of Thermal Expansion	ASTM C531	3.8 (in./in./deg.F.X10-7)
Shrinkage, Linear	DuPont Shrinkage Gage	Mortar: < 0.14% Concrete: < 0.10%

Table 903.13-3 Compressive and Tensile Strength Development

Age at Testing	Type of Test	Test Method	Strength of grouting material, psi
120 mins.	Compression	ASTM C579	2,500
7 days	Compression	ASTM C579	8,500
	Tension	ASTM D638	1,000
28 days	Compression	ASTM C579	9,000
	Tension	ASTM D 638	1,200

Prepare laboratory trial batches of the proposed grout mix using the same materials to be used on the job site. Subject trial batches to the tests described in this Section at a Laboratory approved by the Engineer to demonstrate that the proposed grout mix meets the requirements of this Specification. Perform testing using personnel experienced in testing of grouts, and under temperature and humidity conditions expected at the site. Submit the results of the tests to the Engineer for approval.

Since the ambient and/or substrate temperature range during the application may be from 14º F to 104º F, and setting time is critical to the construction operations, test the polymer grout systems for compressive strength at 120 minutes after casting. For each system (with or without pea gravel) provide molds at the lowest temperature proposed for that system. Store the samples at that temperature for the 120 minutes, then perform test without delay. Ensure the average strength of a minimum of three cylinders tested exceeds 2,500 psi. Perform this test periodically as directed by the Engineer on systems stored at the site, particularly on material stored over an extended period or subjected to adverse temperatures or moisture conditions.

Ensure that the working time and pot life of the mixed grout systems is adequate to permit placement, compacting and finishing by the methods to be utilized by the Contractor for the several applications on the project and that the workability of the systems is consistent throughout the ambient and substrate temperatures when these materials will be used. Take appropriate, as prescribed by the manufacturer, to ensure that the polymer grout properly cures within the anticipated temperature ranges.

SECTION 904 – PRECAST AND PRESTRESSED CONCRETE

904.01.02 Fabrication
THE LAST SENTENCE OF PART 2 IS CHANGED TO:

If using SCC, minimize or eliminate the use of vibrators to prevent segregation.

904.02.06 Quality Control and Acceptance Requirements
STEP 2 IN THE THIRD PARAGRAPH IS CHANGED TO:

2. Dimensions not conforming to the tolerances specified in Table 904.02.02-1.

SECTION 905 – REINFORCEMENT METALS

905.01.03 Welded Wire Reinforcement
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.

THE FOLLOWING SUBSECTION IS ADDED:

905.01.06 Stainless Steel Deformed Bar Reinforcement

Deformed bar reinforcement shall conform to the requirements of ASTM A615 except Section 6, Chemical Composition; Section 9, Tensile Requirements; Section 12, Finish; and Section 20, Marking do not apply. The chemical composition, tensile requirements, and finish of reinforcement shall conform to the Uniform Numbering System for Metals and Alloys (UNS) designation listed in Table 905.01-1.

Table 905.01.06-1 Stainless Steel Alloys for Reinforcing Bars and Dowels		
UNS Designation	**S24100**	
AlSl Type	XM-28	
Common or Trade Name	EnduraMet® 32	
Required Condition	As Rolled	
Grade	60	75
Minimum Tensile Strength (ksi)	90	95
Minimum Yield Strength (ksi)	60	75
Minimum elongation in 2 inches (%)	25	20

Provide mechanical splices which develop at least 90% of the specified minimum ultimate strength of the reinforcing bars in compression and in tension. Where bars of different sizes or strengths are connected, the governing strength shall be the strength of the smaller or weaker bar. The total slip of reinforcing bars within a splice sleeve shall not exceed 0.040 inch, measured between gauge points clear of the splice sleeve, when the reinforcing bars are loaded in tension to 67% of the specified minimum yield strength of the reinforcing bar. The splice sleeve and connection hardware shall be fabricated from stainless steel alloy Type 2205, UNS designation S31803.

Tie wire used to tie stainless steel reinforcement shall be l6gauge wire fabricated from stainless steel alloy Type 316L, UNS designation S31603, dead soft annealed, annealed at size.

905.03.03 Dowel Bars
THE FIRST PARAGRAPH IS CHANGED TO:

For dowel bars in transverse joints, use zinc-coated, Grade 60, plain reinforcement steel according to ASTM A 615 or stainless steel reinforcement according to ASTM A955, Grade 75 Type XM-28 as shown on the plans. 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 FOLLOWING MATERIALS ADDED TO THE TABLE 906.01-1:

Table 906.01-1 Structural Steel Materials Requirements		
Product	**Test Method**	**Type/ Grade/ Class**
Rail Tubes, Tube Rail Splices	ASTM A500	Grade B
Rail End Caps	ASTM A36 (A709)	Grade 36

Base Plates, Solid Rail Splices, Angles, Splice Plates and Railing Posts[8]	ASTM A572 (A709)	Grade 50
Anchor Plates	ASTM A36 (A709)	Grade 36
Plate Shims	ASTM A36 (A709)	Grade 36

[8]Ensure that all post material, including base plates are furnished to minimum Charpy V-notch toughness requirements.

SECTION 909 – DRAINAGE

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 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 911.02.02-1 Materials for Breakaway Sign Supports

Item	Test Method	Type or Grade	Galvanizing
Aluminum Materials (other than bracket)	911.01.01		
Bracket	B308	6061-T6	
Structural steel shapes	ASTM A709	Grade 36	ASTM A123
Steel Sheet	ASTM A1011	Grade 36	ASTM A 653
Bolts (except special bolt for coupling)	ASTM A325		ASTM A153
Special bolt for coupling	ASTM A449		ASTM A153
Cap Screw	ASTM A307		ASTM A153
Lock Washer	ANSI B18-21-1		ASTM A153
Nut	ASTM A563	Grade DH	ASTM A153
Coupling	AMS 6378 F		ASTM A153
Steel Hinge Plate	AISI 4130		ASTM 123
Anchor Rod	AISI 1045		
Anchor Coil	AISI 1008		
Anchor Washer	908.04		
Anchor Ferrule	908.04		

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.

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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 × 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.

b. Guide Rail Mounted.
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

B. Glass Beads.
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 200 ppm of arsenic.

912.03.02 Thermoplastic Traffic Markings
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 200 ppm of arsenic.

912.04.01 Latex Paint
THE FOLLOWING IS ADDED TO THE SECOND PARAGRAPH:

Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 200 ppm of arsenic.

SECTION 913 – GUIDE RAIL, FENCE, AND RAILING

913.01 BEAM GUIDE RAIL
ADD THE FOLLOWING:

Use a Polyester Powder Coating over all pertinent railing elements and hardware including the cleaning of surfaces prior to the application. Ensure the color is black matching the existing paint.

Apply the polyester powder coating as an electrostatically charged dry powder spray system using an electrostatic spray system. Ensure the polyester powder coating thickness after cure is 6 mils plus or minus 2 mils.

Apply the epoxy zinc rich primer to a minimum 3 mils and ensure it is fully cured so that all solvents in the primer are removed prior to powder application.

Ensure the total thickness of coating, primer plus polyester powder coating is 7 mils to 12 mils.

After coating, randomly check the components for continuity using a 67.5 colt wet sponge detector to check for holidays, pinholes and discontinuities. Ensure the coating thickness is checked with a properly calibrated magnetic gauge.

Ensure the coating process is as specified in ASTM M775M Class A or ASTM M884M Class A for Fusion-Bonded epoxy.

913.01.01 Rail Element
THE FOLLOWING IS ADDED BEFORE THE FIRST PARAGRAPH:

For two-rail and three-rail steel bridge railing, use rail tubes, tube rail splices and rail end caps as specified in 906.01.

913.01.03 Posts and Blockouts
THE FOLLOWING IS ADDED BEFORE THE FIRST PARAGRAPH:

For two-rail and three-rail steel bridge railing, use posts as specified in 906.01.

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 FOLLOWING IS ADDED BEFORE THE LAST PARAGRAPH:

4. Use Stainless Steel Bolts and Bolting Materials as specified in 908.04.

913.03 BRIDGE RAILING

913.03.02 Aluminum Railing
THE THIRD SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Use Stainless Steel Bolts and Bolting Materials as Specified in 908.04.

ADD THE FOLLOWING:

Use a Polyester Powder Coating over all pertinent railing elements and hardware including the cleaning of surfaces prior to the application. Ensure the color is black matching the existing paint.

Apply the polyester powder coating as an electrostatically charged dry powder spray system using an electrostatic spray system. Ensure the polyester powder coating thickness after cure is 6 mils plus or minus 2 mils.

Apply the epoxy zinc rich primer to a minimum 3 mils and ensure it is fully cured so that all solvents in the primer are removed prior to powder application.

Ensure the total thickness of coating, primer plus polyester powder coating is 7 mils to 12 mils.

After coating, randomly check the components for continuity using a 67.5 colt wet sponge detector to check for holidays, pinholes and discontinuities. Ensure the coating thickness is checked with a properly calibrated magnetic gauge.

Ensure the coating process is as specified in ASTM M775M Class A or ASTM M884M Class A for Fusion-Bonded epoxy.

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 918 – ELECTRICAL MATERIALS

918.01 CONDUIT AND FITTINGS

THE FOLLOWING IS ADDED:

5. **Rigid Metallic Conduit, PVC Coated**. Prior to coating shall conform to Federal Spec. WWC-581E, ANSI Spec. C80.1 and UL 6. The conduit shall be hot dipped galvanized inside and out throughout its entire length including the threads. The interior of the conduit shall have a blue urethane coating of a nominal thickness of .002" (2 mils). The exterior of the conduit shall have PVC coating of a minimum thickness of .040" (40 mils) applied by dipping in liquid plastisol. All coated conduit shall conform to NEMA Standard no. RN-1. The conduit shall be bendable without damage to either interior or exterior coating. A .002" (2 mils) nominal thickness coating of blue urethane shall be applied to the exterior, the interior and the threads of all fittings and coupling. A .040" (40 mils) minimum thickness of coating of PVC shall be applied to the exterior of all fittings. All hub fittings and couplings shall have a PVC sleeve extending one pipe diameter or 2" whichever is less. The ID of the sleeve to be equal to the OD of the uncoated pipe. The bond between the coating and the metal shall be greater than the tensile strength of the coatings. A loose coupling shall be supplied with

each length of conduit and the coupling shall have longitudinal ribs to enhance installation. Special tools as recommended by the coated conduit manufacturer shall be utilized during installation.

918.10 PANEL BOARDS AND CIRCUIT BREAKERS

B. Highway And Sign Lighting And Its Device.
THE FOLLOWING IS ADDED:

4. 277/480-VOLT. For 277/480-volt installations, use panel boards that are 3 phase, 4-wire, 125 Amp main circuit breaker, copper main busses, rated as designated, are the size and type indicated and conform to Federal Specification W-P-115C, Type 1, Class 1. Use circuit breakers that are UL listed and comply with NEMA Standards. Ensure that the circuit breakers are manually operated, molded-case units conforming to Federal Specification W-C-375B for Class 13B. Use only compression lugs.

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 and highway lighting standards with materials according to the appropriate ASTM standard and the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. Ensure they match the decorative style and color of the luminaires per 918.14 Part 2.

THE FOLLOWING IS ADDED:

Ensure the traffic signal pole shaft is fabricated from 6063-T4 aluminum tube and heat treated to T6 condition after welding. Paint the shaft and decorative component surfaces black. Ensure the traffic signal pole and decorative components are fabricated by the same manufacturer of the decorative highway lighting standards, and mast arms in order to provide a matching style and color of the equipment.

918.14 LAMPS

2. Highway Lighting.

THIS SUBSECTION PART IS REPLACED WITH THE FOLLOWING:

Use light emitting diode (LED) lamps that have electrical, physical, and photometric characteristics that conform to ANSI Standards. Ensure that the lamps are rated for 65,000 hours of average life at 25 degrees C.

Ensure the luminaires are manufactured by Philips Hadco and are model LEDGINE LED Teardrop (TXF9) with the flat brim. No exceptions permitted. Ensure the following characteristics are provided:

Wattage = 47W
Lumens = 3684
Voltage = 277V
LED's = 40
Finish = Black
Color Temperature = 5700K

Wattage = 92W
Lumens = 7112
Voltage = 277V
LED's = 80
Finish = Black
Color Temperature = 5700K

THE FOLLOWING IS ADDED:

4. Airway Obstruction and Navigation Lighting. Ensure the lighting system components comply with all the requirements of the U.S. Department of Homeland Security, United States Coast Guard, US Department of Transportation FAA, and NJDOT. Provide the following:

Housing and base:

Heavy duty cast aluminum aviation lights
Heavy duty cast silicon bronze navigation lights
Suitable for outdoor marine environment
Corrosion resistant
Porcelain sockets mounted on shock absorbers
NEMA 4X
Hinge for easy maintenance access

Lens guards:

Pier marker - Expanded metal (aluminum or stainless steel) construction

Hardware

Ensure mounting plates, bolts angles, washers, nuts and other hardware are stainless steel.

Lens:

Tempered Fresnel glass construction, 177mm
Sectioned for the application as follows:

- 8 inch, 180 degrees red for bridge mounted margin lights
- 8 inch, 360 degrees green for the bridge mounted channel center marker lights
- FAA Type L810 for aviation lights

Lamps:

LED type, silicon filled, 100,000 hours rated life
10 Watts Maximum
120VAC

- Center channel - Green LED, 4 tier
- Margin - Red LED, 4 tier
- Pier marker - Red LED, 4 tier
- Aviation - Steady-burning Red LED Obstruction Light

Mounting components:

- Ensure the 2 inch diameter pipe is schedule 40, stainless steel, approx. 4' in length, and the swivel systems and bases are heavy duty corrosion resistant cast silicon bronze construction. Use #25 stainless steel service chains.

- Ensure the swivel system has an automatic anti-swing breaking mechanism.

THE FOLLOWING IS ADDED:

918.15 CONTROL TRANSFORMER.

- Ensure the transformers are totally enclosed and dry type, designed for indoor/outdoor applications, suitable for wall or floor mounting as required, meet the phase, primary and secondary voltage and tap requirements indicated on the Plans and in the Special Provisions, and are rated for 3KVA.
- Ensure the insulation material is Class H which will not permit a temperature rise of 115 ºC above the 40 ºC ambient, when tested in accordance with ANSI and NEMA standards, and that the core and coil assemblies are epoxy encapsulated.
- Design and test the transformers in accordance with applicable requirements of NEMA-ST20, NEMA-TR27 AND UL-506 transformer standards, and shall bear the UL label.
- Degrease, prime, and finish the transformer enclosures with a coat of outdoor enamel paint in conformance with manufacturer's standards.

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

Provide a NTCIP compliant portable variable message sign as described under 1001.02 equipped with broadband cellular modem.

THE FOLLOWING IS ADDED:

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 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.

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.
3. Un–guyed.
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).
4. Backlight compensation.
5. Image stabilization.
6. Light Sensitivity 0.02 lux NIR Mode.
7. Auto Focus with Manual Focus capability.
8. Auto White Balance with Manual White Balance capability.
9. Motorized Zoom up to 16x optical, 10x digital.
10. Motorized Pan-Tilt, pan 360°, tilt 180°.
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 1005 – CONCRETE SITE EQUIPMENT

1005.08 POLYESTER POLYMER CONCRETE (PPC) OVERLAY EQUIPMENT

THE FOLLOWING IS ADDED:

General: Ensure that the equipment used for delivery and application of the product strictly adheres to the load limitations to avoid overloading the existing structure. Do not utilize equipment that introduces excessive vibrations during operation. Mobilize multiple work crews to complete the work within the required time. Prepare a detailed plan for delivery of materials and equipment required to complete the work and for coordinating work areas to ensure that access can be provided to all work areas at all times and for insuring that all weight limitations are also satisfied. Furnish and operate equipment as approved by RE.

A. Surface Preparation Equipment: Provide power-driven concrete saws for sawing joints and as required for surface texture. Provide the saws and related equipment with proven adequacy and design to perform efficiently and to be subject to immediate replacement if the specified results are not obtained. The Department will not allow scarification of concrete deck but will permit shot blasting of the concrete deck only.

B. Micro-milling equipment: Furnish rotary grinding machines with a gross operational mass of less than 32Mg using carbide cutting tools in a rotary drum. Provide equipment with tooth spacing of not more than 0.25 inch, capable of leaving a smooth, uniform pattern of striations. Limit forward speed to 2.5 ft/minute. Operate a drum speed of at least 120 rpm.

C. Shot blasters: Provide shot-blasting equipment that is capable of removing paste, residue, stains and oil and to conform to EPA air pollution requirements by all containing dust and steel abrasive media.

D. Mixing Equipment: If approved by the RE, furnish mechanically operated continuous mixers specifically or modified for PPC concrete.

Mixers are to:

*Employ an augur screw/chute device.

*Be equipped with a positive-displacement pump connected to an adjustable catalyst pump.

*Be equipped with a metering device that automatically measures and records the aggregate mass and the corresponding resin mass.

* Have a readout gauge, visible to the RE at all times, that displays the volume being recorded. Record the volume at no greater than five minute intervals along with the time and date of each recording. Furnish a printout of the recordings to the RE at the end of each work shift.

E. Finishing Equipment: Use slip-form finishing equipment with an automatic grade control device to strike off the polyester polymer (PPC) concrete to the established grade and cross section. Finishing equipment must be fitted with vibrators or other means of consolidating the PPC.

Furnish and operate miscellaneous equipment as approved by RE.

SECTION 1009 – HMA PLANT EQUIPMENT

1009.01 HMA PLANT

A. Requirements for HMA Mixing Plants.

THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAGH:

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.

SECTION 1011 – PRECAST AND PRESTRESSED CONCRETE PLANT EQUIPMENT

1011.03 ME'S OFFICE

THE SECOND PARAGRAPH SUBPART 2 &3 ARE CHANGED TO:

2. One high-speed broad band connection with a minimum speed of 3 megabits per second (mbps) with dynamic IP address (DSL, Cable, etc.).
3. Two desks and 2 chairs.

NJDOT TEST METHODS

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 ^{o}F (0 to 35 ^{o}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 maker 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

STATE ATTACHMENT NO. 1

STATE OF NEW JERSEY EQUAL EMPLOYMENT OPPORTUNITY SPECIAL PROVISIONS FOR CONSTRUCTION CONTRACTS FUNDED BY WHOLLY OR PARTIALLY STATE FUNDS

I. GENERAL

It is the policy of the New Jersey Department of Transportation (hereafter "NJDOT") that its contracts should create a workforce 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's 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's 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 State Job bank website, managed by the Department of Labor and Workforce Development, available online at http://NJ.gov/jobCentralNJ;

   Note: Posting shall not be required where the employer intends to fill the job opening with a present employee, a laid-off former employee, or a job candidate from a previous recruitment, where pre-existing legally binding collective bargaining agreements provide otherwise, or where an exception has been granted to the NJDOT by the Department of Labor and Workforce Development.

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 solicitation 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.

The Contractor is required to implement and maintain a specific Affirmative Action Compliance Program of Equal Employment Opportunity in support of the New Jersey "*Law Against Discrimination*", N.J.S.A. 10:5-31 et seq., and according to the Affirmative Action Regulations set forth at N.J.A.C. 17:27-1.1 et seq.

The provisions of N.J.S.A. 10:2-1 through 10:2-4 and N.J.S.A. 10:5-31 et seq., as amended and supplemented) dealing with discrimination in employment on public contracts, and the rules and regulations promulgated pursuant thereunto, are hereby made a part of this contract and are binding upon the Contractor.

Noncompliance by the Contractor with the requirements of the Affirmative Action program for Equal Employment Opportunity may be cause for delaying or withholding monthly and final payments pending corrective and appropriate measures by the Contractor to the satisfaction of the Department.

The Contractor will cooperate with the state agencies in carrying out its Equal Employment Opportunity obligations and in their review of its activities under the contract.

The Contractor and all its subcontractors, not including material suppliers, holding subcontracts of $2,500 or more, will comply with the following minimum specific requirement activities of Equal Opportunity and Affirmative Action set forth in these special provisions. The Contractor will include these requirements in every subcontract of $2,500 or more with such modification of language in the provisions of such contracts as is necessary to make them binding on the subcontractor.

During the performance of this contract, the contractor agrees as follows:

1. 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 Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

2. 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.

3. The Contractor or subcontractor, where applicable, will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided 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.

4. 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.

5. 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 The Division of Public Contracts Equal Employment Opportunity Compliance (hereafter "Division") 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 Division is satisfied that the Contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Division, 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 subcontractor 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 subcontractor agrees to afford equal employment opportunities to 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 or is so notified by the Division 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 Division, 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 State and Federal court decisions;
   (6) To adhere to the following procedure when minority and women workers apply or are referred to the Contractor or subcontractor:
      (i) The contractor or subcontractor shall interview the referred minority or women worker.
      (ii) 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 Division. 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.

(iii) 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 paragraph (i) above whenever vacancies occur. At the request of the Division, the Contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) 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 Division.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, and on forms made available by the Division and submitted promptly to the Division upon request.

c. The Contractor or subcontractor agrees that nothing contained in (b) above shall preclude the Contractor or subcontractor from complying with the hiring hall or apprenticeship 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 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 Public Agency Compliance Officer and the Division an initial project workforce report (Form AA 201) provided to the public agency by the Division for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7.

The Contractor and each subcontractor must submit monthly employment and wage data to the Department via a web based application using electronic Form CC-257R. Instructions for registering and receiving the authentication code to access the web based application can be found at:
http://www.state.nj.us/transportation/business/Civilrights/pdf/CC257.pdf

Instructions on how to complete Form CC-257R are provided in the web application. Submit Form CC-257R through the web based application within 10 days following the end of the reporting month.

All employment and wage data must be accurate and consistent with the certified payroll records. The Contractor is responsible for ensuring that their subcontractors comply with these reporting requirements. Failure by the Contractor to submit Monthly Employment Utilization Reports may impact the contractor's prequalification rating with the Department.

d. The Contractor and its subcontractors shall furnish such reports or other documents to the Division of Public Contracts Equal Employment Opportunity Compliance as may be requested by the Division 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 Division of Public

Contracts Equal Employment Opportunity Compliance for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code (NJAC 17:27)**.

e. The Contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and off-the-job programs for outreach and training of minority and female trainees employed on the construction projects.

II. EQUAL EMPLOYMENT OPPORTUNITY POLICY

The Contractor agrees that it will accept and implement during the performance of this contract as its operating policy the following statement which is designed to further the provision of Equal Employment Opportunity to all persons without regard to their age, race, color, religion, creed, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex and to promote the full realization of Equal Employment Opportunity through a positive continuing program:

> "It is the policy of this company that it 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 and that it will take Affirmative Action to ensure that applicants are recruited and employed 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 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."

III. EQUAL EMPLOYMENT OPPORTUNITY OFFICER

The Contractor will designate and make known to the Department contracting officers an Equal Employment Opportunity Officer (hereafter "EEO Officer") who will have the responsibility for and must be capable of effectively administering and promoting an active Equal Employment Opportunity program and be assigned adequate authority and responsibility to do so.

IV. DISSEMINATION OF POLICY

A. All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend 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 that the above agreement will be met, the following actions will be taken as a minimum:

1. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every 6 months, at which time the Contractor's Equal Employment Opportunity Policy and its implementation will be reviewed and explained. The EEO Officer or other knowledgeable company official will conduct the meetings.

2. All new supervisory or personnel office employees 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.

3. All personnel who are 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 women workers.

B. In order 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., the Contractor will take the following actions:

1. Notices and posters setting forth in the Contractor's Equal Employment Opportunity policy, as set forth in Section 2 of these Equal Employment Opportunity Special Provisions will be placed in conspicuous places readily accessible to employees, applicants for employment and potential employees.

2. The Contractor's Equal Employment Opportunity 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 channels.

V. RECRUITMENT

A. In all solicitations and advertisements for employees placed by or on behalf of the Contractor, the Contractor will 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. All such advertisements will be published in newspapers or other publications having a large circulation among minorities and women in the area from which the project workforce would normally be derived.

B. 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 minority and women applicants, including, but not limited to state employment agencies, schools, colleges and minority and women organizations. To meet this requirement, the Contractor will, through his/her EEO Officer, identify sources of potential minority and women employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the Contractor for employment consideration.

C. In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the Contractor's compliance with Equal Employment Opportunity contract provisions. (The US Department of Labor has held that where implementations 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).

D. In the event that the process of referrals established by such a bargaining agreement fails to provide the Contractor with a sufficient number of minority and women referrals within the time period set forth in such an agreement, the Contractor shall comply with the provisions of "Section IX Unions" of the EEO Special Provisions.

VI. ESTABLISHMENT OF GOALS FOR CONSTRUCTION CONTRACTORS

A. The New Jersey Department of Transportation has established, pursuant to N.J.A.C. 17:27-7.2, the minority and women goals for each construction contractor and subcontractor based on availability statistics as reported by the New Jersey Department of Labor, Division of Planning and Research, in its report, "EEO Tabulation - Detailed Occupations by Race/Hispanic Groups" as follows:

MINORITY AND WOMEN EMPLOYMENT GOAL OBLIGATIONS FOR CONSTRUCTION CONTRACTORS AND SUBCONTRACTORS

COUNTY	MINORITY % PERCENTAGE	WOMEN % PERCENTAGE
Atlantic	18	6.9
Bergen	22	6.9
Burlington	15	6.9
Camden	19	6.9
Cape May	5	6.9
Cumberland	27	6.9
Essex	53	6.9
Gloucester	9	6.9
Hudson	60	6.9
Hunterdon	3	6.9
Mercer	30	6.9
Middlesex	24	6.9
Monmouth	15	6.9
Morris	16	6.9
Ocean	7	6.9
Passaic	36	6.9
Salem	10	6.9
Somerset	20	6.9
Sussex	4	6.9
Union	45	6.9
Warren	5	6.9

The Division of Public Contracts Equal Employment Opportunity Compliance has interpreted Section 7.2 of the State of New Jersey Affirmative Action Regulations as applicable to work hour goals for minority and women participation.

If a project is located in more than one county, the minority work hour goal will be determined by the county which serves as the primary source of hiring or, if workers are obtained equally from one or more counties, the single minority goal shall be the average of the individual goal for the affected counties.

B. The State Division of Public Contracts Equal Employment Opportunity Compliance may designate a regional goal for minority membership for a union that has regional jurisdiction. No regional goals shall apply to this project unless specifically designated elsewhere herein.

C. When hiring workers in the construction trade, the Contractor and/or subcontractor agree to attempt, in good faith, to employ minority and women workers in each construction trade, consistent with the applicable county or, in special cases, regional goals.

D. It is understood that the goals are not quotas. If the Contractor or subcontractor has attempted, in good faith, to satisfy the applicable goals, he will have complied with his obligations under these EEO Special Provisions. It is further understood that if the Contractor shall fail to attain the goals applicable to this project, it will be the Contractor's obligation to establish to the satisfaction of the Department of Transportation that it has made a good faith effort to satisfy such goals. The

Contractor or subcontractor agrees that a good faith effort to achieve the goals set forth in these special provisions shall include compliance with the following procedures:

1. Requests shall be made by the Contractor or subcontractor to each union or collective bargaining unit with which the Contractor or subcontractor has a referral agreement or arrangement for the referral of minority and women workers to fill job openings. Requests shall also be made for assurances for the referral of minority and women workers to fill job openings. Requests shall also be made for assurances from such unions or collective bargaining units that they will cooperate with the Contractor or subcontractor in fulfilling the Affirmative Action obligations of the Contractor or subcontractor under this contract. Such requests shall be made prior to the commencement of construction under the contract.
2. The Contractor and its subcontractors shall comply with Section IX, Unions of these EEO Special Provisions and, in particular, with Section IX, Paragraph D, if the referral process established in any collective bargaining arrangement is failing to provide the Contractor or subcontractor with a sufficient number of minority and women referrals.
3. The Contractor and its subcontractors shall notify the Department's Compliance Officer, the Division of Public Contracts Equal Employment Opportunity Compliance of the Department of Treasury and at least one approved minority referral organization of the Contractor's or subcontractors work force needs and of the Contractor's or subcontractor's desire for assistance in attaining the goals set forth herein. The notifications should include a request for referral of minority and women workers.
4. The Contractor and its subcontractors shall notify the Department's Compliance Officer and the Division of Public Contracts Equal Employment Opportunity Compliance of the Department of Treasury in the event that a union or collective bargaining unit is not making sufficient minority and women referrals to enable the Contractor or subcontractor to attain the workforce goals for the Project.
5. The Contractor and its subcontractors shall make standing requests to all local construction unions, the state training and employment service and other approved referral sources for additional referrals of minority and women workers until such time as the project workforce is consistent with the work hour goals for the project.
6. The Contractor and its subcontractors shall make standing requests to all local construction unions, the state training and employment service and other approved referral sources for additional referrals of minority and women workers until such time as the project workforce is consistent with the work hour goals for the project.
7. In the event that it is necessary to lay off some of the workers in a given trade on the construction site, the Contractor and its subcontractors shall ensure that fair layoff practices are followed regarding minority, women and other workers.
8. The Contractor and its subcontractors shall comply with the other requirements of these EEO Special Provisions.

VII. 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 age, race, color, creed, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. The following procedures shall be followed:

A. The Contractor will conduct periodic inspections of project sites to ensure 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 his/her 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 his/her avenues of appeal.

VIII. TRAINING AND PROMOTION

The Contractor will assist in locating, qualifying, and increasing the skills of minority group and women workers, and applicants for employment.

Consistent with the Contractor's workforce requirements and as permissible under 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. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

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

The Contractor will periodically review the training and promotion potential of minority group and women workers and will encourage eligible employees to apply for such training and promotion.

IX. UNIONS

If the Contractor relies in whole or in part upon unions as a source of employees, the Contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and women workers. 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 send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract of understanding, a notice advising the labor union or workers' representative of the Contractor's commitments under both the law against discrimination and this contract and shall post copies of the notice in conspicuous places readily accessible to employees and applicants for employment. Further, the notice will request assurance from the union or worker's representative that such union or worker's representative will cooperate with the Contractor in complying with the Contractor's Equal Employment Opportunity and Affirmative Action obligations.

B. The Contractor will use their best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

C. The Contractor will use their best efforts 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 their age, race, color, creed, sex, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, or nationality.

D. The Contractor is to obtain information as to the referral practices and policies of the labor union except to the extent that 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 NJDOT and shall set forth what efforts have been made to obtain such information.

E. In the event the union is unable to provide the Contractor with a reasonable flow of minority and women 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 age, race, color, creed, sex, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, or nationality making full efforts to obtain qualified and/or qualifiable minority group persons 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 NJDOT.

X. SUBCONTRACTING

A. The Contractor will use his best efforts to solicit bids from and to utilize minority group and women subcontractors or subcontractors with meaningful minority group and women representation among their employees. Contractors may use lists of minority owned and women owned construction firms as issued by the NJDOT and/or the New Jersey Unified Certification Program (NJUCP).

B. The Contractor will use his best efforts to ensure subcontractor compliance with their Equal Employment Opportunity obligations.

XI. RECORDS AND REPORTS

A. The Contactor will keep such records as are necessary to determine compliance with the Contractor's Equal Employment Opportunity obligations. The records kept by the Contractor will be designed to indicate:

1. The 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 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 workforce);

3. The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and women workers; and

4. The progress and efforts being made in securing the services of minority group and women subcontractors or subcontractors with meaningful minority and women representation among their employees.

B. All such records 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 NJDOT.

C. The Contractor shall submit monthly reports to the NJDOT after construction begins for the duration of the project, indicating the work hours 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 a form supplied by the NJDOT.

XII SPECIAL CONTRACT PROVISIONS FOR INVESTIGATING, REPORTING AND RESOLVING EMPLOYMENT DISCRIMINATION AND SEXUAL HARASSMENT COMPLAINTS

The Contractor hereby agrees to the following requirements in order to implement fully the nondiscrimination provisions of the Supplemental Specifications:

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:

1. Within one (1) working day commence an investigation of the complaint, which will 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.
2. Prepare and keep for its use and file a detailed written investigation report which includes the following information:
   a) Investigatory activities and findings.
   b) Dates and parties involved and activities involved in resolving the complaint.
   c) Resolution and corrective action taken if discrimination or sexual harassment is found to have taken place.
   d) 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 NJDOT all other records, including, but not limited to, interview memos and statements.)
3. Upon the request of the NJDOT provides to the NJDOT within ten (10) calendar days a copy of its detailed written investigative report and all other records on the complaint investigation and resolution.
4. Take appropriate disciplinary actions 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 project's contract requirements.
5. Take appropriate disciplinary action against any Contractor employee, official or agent who retaliates, coerces or intimidates any complainant 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 in an investigation is a subcontractor's employee, then the Contractor is required to attempt to effectuate corrective and/or disciplinary action taken by the subcontractor in order to establish compliance with the project's contract requirements.
6. 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.
7. In conjunction with the above requirements, the Contractor herein agrees to develop and post a written sexual harassment policy for its workforce.
8. The Contractor also agrees that its failure to comply with the above requirements may be cause for the New Jersey Department of Transportation to institute against the Contractor any and all enforcement proceedings and/or sanctions authorized by the contract or by state and/or federal law.

STATE ATTACHMENT NO. 2

PAYROLL REQUIREMENTS FOR 100% STATE PROJECTS

1. 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:
   A. Each employee's full name and the last four digits of social security number of each such employee.
   B. Each employee's specific work classification (s).
   C. Entries indicating each employee's basis hourly wage rate(s) and, where applicable, the overtime hourly wage rate(s). Any fringe benefits paid to the employee in cash must be indicated.
   D. Each employee's daily and weekly hours worked in each classification, including actual overtime hours worked (not adjusted).
   E. Each employee's gross wage.
   F. The itemized deductions made.
   G. The net wages paid.
2. 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 New Jersey Prevailing Wage Act 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 New Jersey Department of Transportation Form FA-7 "Statement of Compliance," or the same certification set forth on (1) U.S. Department of Labor Form WH-348, (2) the reverse side of U. S. Department of Labor Form WH-347, or (3) any form with identical wording.
3. 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.

STATE ATTACHMENT NO. 3

AMERICANS WITH DISABILITIES ACT
100% STATE FUNDED CONTRACTS

Equal Opportunity For Individuals With Disabilities.

The CONTRACTOR and the STATE do hereby agree that the provisions of Title II of the American With Disabilities Act of 1990 (the "ACT") (42 U.S.C. Section 12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereunto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the STATE pursuant to this contract, the CONTRACTOR, agrees that the performance shall be in strict compliance with the Act. In the event that the CONTRACTOR, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the CONTRACTOR shall defend the STATE in any action or administrative proceeding commenced pursuant to this Act. The CONTRACTOR shall indemnify, protect, and save harmless the STATE, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The CONTRACTOR shall, at its own expense, appear, defend, and pay any and all charges for legal services and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the STATE'S grievance procedure, the CONTRACTOR agrees to abide by any decision of the STATE which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the STATE or if the STATE incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the CONTRACTOR shall satisfy and discharge the same at its own expense.

The STATE shall, as soon as practicable after a claim has been made against it, give written notice thereof to the CONTRACTOR along with full and complete particulars of the claim. If any action or administrative proceeding is brought against the STATE or any of its agents, servants, and employees, the STATE shall expeditiously forward or have forwarded to the CONTRACTOR every demand, complaint, notice, summons, pleading, or other process received by the STATE or its representatives.

It is expressly agreed and understood that any approval by the STATE of the services provided by the CONTRACTOR pursuant to this contract will not relieve the CONTRACTOR of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the STATE pursuant to this paragraph.

It is further agreed and understood that the STATE assumes no obligation to indemnify or save harmless the CONTRACTOR, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the CONTRACTOR expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the CONTRACTOR'S obligations assumed in this Agreement, nor shall they be construed to relieve the CONTRACTOR from any liability, nor preclude the STATE from taking any other actions available to it under any other provisions of this Agreement or otherwise at law.

STATE ATTACHMENT NO. 4

SMALL BUSINESS ENTERPRISE UTILIZATION ATTACHMENT
100% STATE-FUNDED CONTRACTS

I. UTILIZATION OF SMALL BUSINESS ENTERPRISE (SBE) BUSINESSES AS CONTRACTORS, MATERIAL SUPPLIERS AND EQUIPMENT LESSORS.

The New Jersey Department of Transportation advises each contractor or subcontractor that failure to carry out the requirements set forth in this attachment shall constitute a breach of contract and, after notification to the applicable State 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 included in all subcontract agreements in accordance with State of New Jersey requirements.

II. POLICY

It is the policy of the New Jersey Department of Transportation that Small Business Enterprises, as defined in N.J.A.C. 12A: 10A-1.2 et seq., and N.J.A.C. 17:14-1.2 et seq., shall have the maximum opportunity to participate in the performance of contracts financed wholly with 100% state funds.

III. CONTRACTOR'S SMALL BUSINESS OBLIGATION

The New Jersey Department of Transportation and its Contractor agree to ensure that Small Business Enterprises (SBE), as defined in N.J.A.C. 12A: 10A-1.2 et seq., and N.J.A.C. 17:14-1.2 et seq., have maximum opportunity to participate in the performance of contracts and subcontracts financed wholly with 100% state funds. In this regard, the New Jersey Department of Transportation and all Contractors shall take all necessary and reasonable steps to ensure that Small Business Enterprises are utilized on, compete for, and perform on NJDOT construction contracts. The New Jersey Department of Transportation and its Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of State-funded contracts.

IV. COMPLIANCE

To signify and affirm compliance with the provisions of this attachment, the bidder shall complete the Schedule of Small Business Participation "Form CR-266S" included in the Proposal and all forms and documents required in Sections VII and VIII of these provisions which will be made a part of the resulting contract.

V. SMALL BUSINESS GOALS FOR THIS PROJECT

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

A. This project includes a goal of awarding **12** % percent of the total contract value to subcontractors qualifying as **SMALL BUSINESSES.**

B. Only Small Business Enterprises registered prior to the date of bid, or prospective Small Business Enterprises that have submitted to the New Jersey Commerce and Economic Growth Commission on or before the day of bid, a completed "State of New Jersey Small Business Vendor Registration Form" and all the required support documentation, will be considered in determining whether the contractor has met the established goals for the project. Early submission of required documentation is encouraged.

C. If a prospective Small Business Enterprise fails to meet the eligibility standards for participation the department's Small Business Program, the contractor shall, prior to the award, 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.

D. 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.

E. A directory of registered Small Businesses Enterprise firms is available upon request to the New Jersey Commerce and Growth Commission or the New Jersey Department of Transportation, Division of Civil Rights/Affirmative Action. The directory is to be used as a source of information only and does not relieve the Contractor of their responsibility to seek out Small Businesses Enterprises not listed.

VI. COUNTING SMALL BUSINESS ENTERPRISE PARTICIPATION

A. Each Small Business Enterprise (SBE) is subject to a registration procedure to ensure their SBE eligibility prior to the award of contract. In order to facilitate this process, it is advisable for the bidder to furnish the names of proposed SBEs to the Department before bid opening. Once a firm is determined to be a bona fide SBE by the New Jersey Commerce and Growth Commission, the total dollar value of the contract awarded to the SBE is counted toward the applicable goal.

B. The Contractor may count toward its SBE goal only expenditures to SBEs that perform a commercially useful function in the work of a contract. A SBE is considered to perform 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 determine whether a SBE is performing a commercially useful function, the Contractor shall evaluate the amount of work subcontracted, industry practice and other relevant factors.

C. If an SBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the SBE subcontracts 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, you must presume that it is not performing a commercially useful function.

D. If a Contractor is part of a Joint Venture and one or more of the Sole Proprietorships, Partnerships, Limited Liability companies or Corporations comprising the Joint Venture is a registered SBE, the actual payments made to the Joint Venture for work performed by the SBE member, will be applied toward the goal. Payments made to the Joint Venture for work performed by a non-small business firm will not be applied toward the applicable goal.

E. If the Contractor is a registered SBE, payments made to the Contractor for work performed by the Contractor will be applied toward the SBE goal. Payments made to the Contractor for work performed by non-SBE's will not be applied toward the goal.

F. When a SBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted towards the SBE goals only if the SBE's subcontractor is also a SBE. Work that a SBE subcontracts to a non-SBE firm does not count toward the assigned goal.

VII. SUBMISSION OF CONTRACTOR'S AFFIRMATIVE ACTION PLANS

A. Contractors are required to submit annually on their due date, their firm's Affirmative Action Program to the Division of Civil Rights/Affirmative Action. Contractors must have an **approved** Affirmative Action Program in the Division of Civil Rights/Affirmative Action no later than seven (7) State business days after receipt of bids. No recommendations to award will be made without an approved Affirmative Action Program on file in the Division of Civil Rights/Affirmative Action.

B. The Annual Affirmative Action Program will include, but is not limited to the following:

1. The name of the company's Liaison Officer who will administer the Small Business Enterprise Program.

2. An explanation of the affirmative action methods used in seeking out and considering Small Business Enterprises as subcontractors, material suppliers or equipment lessors.

3. An explanation of affirmative action methods which will be used in seeking out future Small Business Enterprises as subcontractors, material suppliers or equipment lessors after the award of the contract and for the duration of said project.

C. The following shall be submitted either with the bid or to the Division of Civil Rights/Affirmative Action no later than seven (7) state business days after the receipt of bids.

1. SBE FORM CR-266S Schedule of SBE Participation. The Contractor shall list all SBEs that will participate in the contract including scope of work, actual dollar amount and percent of total contract to be performed. This form should be submitted only if the goal level established for the contract has been met or exceeded;

Note: If a change occurs to the Contractor's original Form A submission which was previously approved by the Division of Civil Rights/Affirmative Action, a Revised Form CR-266S must be submitted naming the replacement Small Business Enterprise subcontractors. A written explanation should be included with the submission of the revised Form CR-266S.

2. Request for Exemption - In the event the Contractor is unable to meet the specified goal level, that Contractor must submit a written request for a partial or full exemption from the SBE goal. This request shall include the names of all SBE firms that the contractor will utilize on the contract and shall describe the specific work to be performed by each SBE together with the actual dollar amount of that work. Additionally, this request must address the Contractor's efforts to make Reasonable Outreach Efforts as enumerated in Section VIII.

3. Additional Information - The Department in its sole discretion may request additional information from the Contractor prior to award of the contract in order to evaluate the Contractor's compliance with the SBE requirements of the bid proposal. Such information must be provided within the time limits established by the department. The Contractor shall, prior to the award of the contract, submit a completed SBE "Form CR-266S", even if it has been granted an exemption from the SBE goal.

VIII. REASONABLE OUTREACH EFFORTS

If a Contractor fails to meet the goal for Small Business Enterprise participation, the Contractor shall document its reasonable outreach efforts to meet the SBE goal. Reasonable outreach shall include, but not be limited to the following:

A. Attendance at a pre-bid meeting, if any, scheduled by the Department to inform SBE's of subcontracting opportunities under a given solicitation.

B. Advertisement in general circulation media, trade association publications, and small business enterprise-focus media for at least 20 days before bids are due. If 20 days are not available, publication for a shorter reasonable time is acceptable.

C. Written notification to SBE's that their interest in the contract is solicited;

D. Efforts made to select portions of the work proposed to be performed by SBEs in order to increase the likelihood of achieving the stated goal;

E. Efforts made to negotiate with SBE's for specific sub-bids including at a minimum

1. The names, addresses and telephone numbers of SBE's that were contacted;

2. A description of the information provided to SBE's regarding the plans and specifications for portions of the work to be performed; and

3. A statement of why additional agreements with SBE's were not reached;

F. Information regarding each SBE the bidder contacted and rejected as unqualified and the reasons for the bidder's conclusion;

G. Efforts made to assist the SBE in obtaining bonding or insurance required by the Bidder or the Department.

IX. ADMINISTRATIVE RECONSIDERATION

A. If the Division of Civil Rights/Affirmative Action determines that the apparent successful bidder has failed to make reasonable outreach efforts to meet the requirements of this section, the Department must, before awarding the contract, provide the bidder an opportunity for administrative reconsideration.

B. As part of this reconsideration, the bidder will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so. NJDOT will send the bidder a written decision on reconsideration, explaining the basis for finding that the bidder did or did not meet the SBE goal or make an adequate good faith effort to do so.

C. Within seven (7) State business days of being informed by the Division of Civil Rights/Affirmative Action that it is not a responsible bidder because it has not made or documented sufficient outreach efforts to SBEs, a bidder may make a request in writing to the Director, Division of Procurement, PO Box 605, Trenton, New Jersey, 08625-0605; Telephone (609) 530-6355. The Director, Division of Procurement, does not participate in the initial determination of whether reasonable outreach was performed by the Contractor.

X. RESPONSIBILITY AFTER AWARD OF THE CONTRACT

If at any time following the award of 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, said Contractor shall take affirmative action:

A. To notify the RE, in writing, of the type and approximate value of the Contractor intends to accomplish by such subcontract, purchase order or lease.

B. To signify and affirm compliance with the provisions of this Section, the Contractor shall submit the Post-Award SBE Certification Form to the Regional Supervising Engineer with his application to sublet or prior to purchasing material or leasing equipment. Post Award SBE forms may be obtained from the RE.

C. To give small business enterprise firms equal consideration with non-small business firms in negotiation for any subcontracts, purchase orders or leases.

XI. CONSENT BY DEPARTMENT TO SUBLETTING

A. The Department will not approve any subcontracts proposed by the Contractor unless and until said contractor has complied with the terms of this SBE Utilization Attachment.

B. The Contractor shall provide the RE with a listing of firms, organizations or enterprises to be used as subcontractors on the proposed project. Such listing shall clearly delineate which firms are classified as SBEs.

C. Notification of a subcontractor's termination shall be sent to the Department by the Contractor through the RE.

XII. CONCILIATION

In cases of alleged discrimination regarding these and all equal employment opportunity provisions and guidelines, investigations and conciliation will be undertaken by the Division of Civil Rights/Affirmative Action, New Jersey Department of Transportation.

XIII. DOCUMENTATION

A. Records and Reports

The Contractor shall keep such records as are necessary to determine compliance with its Small Business Enterprise Utilization obligations. The records kept by the Contractor will be designed to indicate:

1. The names of the small business enterprise subcontractors, equipment lessors and material suppliers contacted for work on this project.
2. The type of work to be done, materials to be utilized or services to be performed other than by the prime contractor on the project.
3. The actual dollar amount of work awarded to SBE's.
4. The progress and efforts being made in seeking out and utilizing Small Business Enterprise firms. This would include solicitations, quotes and bids regarding project work items, supplies, leases, etc.
5. Documentation of all correspondence, contacts, telephone calls, etc, to obtain the services of Small Business Enterprise firms on this project.

B. The contractor shall submit reports, as required by the Department, on those contracts and other business transactions executed with Small Business Enterprise firms in such form and manner as may be prescribed by the Department.

C. All such 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.

XIV. PAYMENT TO SUBCONTRACTORS

The Contractor agrees to pay its subcontractors in accordance with the Specifications.

XV. SANCTIONS

Failure of a Contractor to comply with these provisions may result in bid rejection, reduced classification, suspension, debarment, or the institution of other appropriate action by the New Jersey Department of Transportation.

SPECIFIC REQUIREMENTS

OF

CONSOLIDATED RAIL CORPORATION

FOR

WORK ON ITS RIGHT OF WAY

APPROVED:

2/1/97

G. A Thelen - Assistant Vice President
Engineering

SCOPE

It must be clearly understood that Conrail owns and uses its right of way for the primary purpose of operating a railroad. All work shall therefore be done in a manner such that the rail operations and facilities are not interfered with, interrupted or endangered. In addition, any facilities that are a result of the proposed work shall be located to minimize encumbrance to the right of way so that Conrail will have unrestricted use of its property for current and future operations.
The sponsor of the project shall be ultimately responsible for assuring that its agents, consultants, contractors and sub-contractors fully comply with the specifications contained herein. The term 'sponsor' used throughout these specifications shall mean the sponsor, its employees, its agents, consultants, contractors, sub-contractors, etc.
The following terms and conditions shall apply to any project which requires performance of work on the right of way or other property of Conrail.

RIGHT OF ENTRY ON CONRAIL PROPERTY

No entry upon Conrail property shall be permitted without the proper authorization by Conrail to the sponsor in the form of an agreement or a proper permit-to-enter prepared by Conrail. The applicant shall pay the associated fees and execute the permit-to-enter prior to entering Conrail property. The location and design of that portion of the access route to the project site that is on Conrail property shall be shown clearly on any plans for the project and approved by Conrail.
It is to be clearly understood that the issuance of a permit-to-enter does not constitute authority to proceed with any construction work. Construction cannot begin until a formal agreement between Conrail and the sponsor is executed, and the sponsor receives permission from Conrail's representative to proceed with the work.

INSURANCE

In addition to any other forms of insurance or bonds required under the terms of any contract or specifications and except to the extent that any of the requirements of this section are expressly waived or revised in writing by Conrail, prior to the commencement of any work, contractor, at his own cost and expense, shall maintain insurance of the following kinds and amounts and deliver to Conrail satisfactory evidence of such insurance as indicated herein:

1. Public Liability Insurance
Public Liability Insurance, including contractual liability insurance of not less than $5,000,000 combined single limit for bodily injury and/or property damage for damages arising out of bodily injuries to or death of all persons in any one occurrence and for damage to or destruction of property, including the loss of use thereof, in any one occurrence. Conrail shall be named as an additional insured under this insurance.
2. Automobile Liability Insurance
Automobile Liability Insurance with a limit of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence. Conrail shall be named as an additional insured under this insurance.
3. Workers' Compensation / Employers' Liability Insurance
Employers' Liability and Occupational Disease Insurance with limits of $1,000,000 each accident, $1,000,000 policy limit and $1,000,000 each employee. Such policy shall include a waiver of subrogation in favor of Conrail.

4. General Contractors Pollution Legal Liability Insurance
General Contractor's Pollution Liability Insurance with limits of not less than $5,000,000 per occurrence / $5,000,000 aggregate bodily injury, property damage and cleanup expenses resulting from pollution conditions. Conrail shall be named as an additional insured under this insurance.

5. Railroad Protective Liability Insurance
With respect to the operations performed by it or any of its' subcontractors, contractor shall provide Railroad Protective Liability Insurance (ISO-RIMA FORM) in the name of Consolidated Rail Corporation *, with a limit of not less than $2,000,000 per occurrence, combined single limit for bodily injury and/or property damage, for damages arising out of bodily injuries to or death of all persons and for damage to or destruction of property, including the loss of use thereof. Such insurance shall also contain an aggregate of not less than $6,000,000 for damages arising out of more than one occurrence. * Conrail shall be the "Named Insured" on this policy.

The insurance specified above shall be carried until the project is satisfactorily completed and formally accepted by Conrail. The above indicated insurance coverages shall be effected under standard form policies issued by insurers of financial responsibility that are rated "A" or better by Best's Insurance Reports, "AA" or better by Standard & Poor's Insurance Rating Service, and "Aa" or better by Moody's Investors Service. Conrail reserves the right to reject as inadequate any insurance coverage provided by an insurance company that is rated less than the ratings above by any of the aforementioned rating services. The above indicated insurance coverages shall be enforceable by any legitimate claimant after the termination or cancellation of the project, whether by expiration of time, by operation of law or otherwise, so long as the basis of the claim against the insurance company occurred during the project and when the insurance was in force. Contractor shall furnish Conrail with certificates of insurance evidencing the insurance coverages required in sections 1, 2, 3, & 4, and shall also furnish the original Railroad Protective Liability Insurance policy referred to in section 5 at least thirty (30) days prior to commencement of the project. All insurance policies shall be endorsed to provide that the insurance company shall give thirty (30) days prior written notice to Conrail if the policies are to be terminated or if any changes are to be made which shall in any way affect the insurance requirements of the project. Certificates, policies or notices should be sent to Manager - Insurance, Consolidated Rail Corporation, 2001 Market Street - 6A, PO Box 41406, Philadelphia, PA 19101-1406.

CHANGES IN RAILROAD FACILITIES

Temporary and permanent changes of signal, communication, power transmission lines, trailers, drainage and other railroad facilities required in connection with the project to clear temporary and/or permanent work of the sponsor as shown on the approved construction plans, shall be made or caused to be made by Conrail at the sole cost and expense of the sponsor in accordance with Conrail's force account estimate. Any other changes made or services furnished by Conrail at the request of the sponsor shall be the sole cost and expense of the sponsor.

PROTECTION OF RAILROAD OPERATIONS

The sponsor shall conduct the work in such a manner as to safeguard the operations, facilities, right of way and property of Conrail. All work affecting the above items shall be subject to the approval of Conrail. The sponsor's operations adjacent to, over or under Conrail's tracks,

facilities, right of way, and property shall be governed by Conrail's standards and by such other requirements as specified by Conrail's representative so as to insure the safe operation of trains, prevent delay to trains and insure the safety of all concerned, including the sponsor's forces.

An operating track shall be considered obstructed or fouled when any object is brought closer than fifteen (15) feet (4.6 m) horizontally from the centerline of track and projects above the top of tie or as determined by Conrail's representative. A power line shall be considered fouled when any object is brought to a point less than eight (8) feet (2.5 m) therefrom. A signal line shall be considered fouled when any object is brought nearer than six (6) feet (1.8 m) to any wire or cable. Cranes, trucks and other equipment shall be considered as fouling the track, power line or signal line when failure of equipment, whether working or idle, with or without load, will obstruct the track or other Conrail facilities.

Equipment used by the sponsor shall be in first-class condition to preclude any failure that would cause interference with the operation of Conrail trains or damage to its facilities. The sponsor's equipment shall not be placed or put in operation adjacent to the tracks or facilities of Conrail without obtaining clearance from Conrail's representative. All such equipment shall be operated by the sponsor in a manner satisfactory to Conrail. No equipment or material shall be stored on Conrail property.

In general, a hazard occurs and a flagman is necessary in the following circumstances: (1) the driving of sheeting or piles within twenty five (25) feet (7.6 m) of the tracks, (2) the removal or demolition of all or part of an overhead or adjacent structure, (3) the erection of any structural material, or (4) the performance of any other operation that could obstruct or foul (as described above) the tracks or other facilities of Conrail as determined by Conrail's representative.

Minimum overhead and lateral clearances as specified by Conrail, shall be maintained during the performance of all work. Existing overhead and lateral clearances shall be maintained during construction unless a temporary reduction in clearance for construction purposes is approved, in writing, by Conrail. The sponsor shall erect a highly visible construction fence no closer than fifteen (15) feet (4.6 m) from the centerline of the track through the work area to insure that the lateral clearance requirement is being met.

All wire and attachments shall be treated as live unless notified by Conrail's representative that same have been grounded and de-energized. Particular attention shall be given to the use of hand lines containing metal strands which cannot be used when working near or above exposed live wires. When working over wires, tools and materials not in use shall be stored in a manner to prevent them from falling. Tools or materials shall not be thrown to or by men working over the wires. The sponsor shall be responsible for locating and protecting all underground facilities.

Painting and paint removal procedures shall be approved by the Conrail and inspected by Conrail's representative prior to beginning the work over railroad right of way. The sponsor shall protect the track structure and railroad property from any material used in conjunction with performing the work. A flagman shall be required whenever the above described work fouls or is likely to foul the track, as previously defined.

The sponsor shall give notice to Conrail's representative at least fourteen (14) days in advance of the time work is to be commenced. Conrail shall assign, at the sole cost and expense of the

sponsor, conductors and/or flagmen, or other similar qualified employees to protect Conrail's trains and facilities when in the opinion of its representative, the construction work will cause or may cause a hazard to Conrail facilities and the safe operation of trains. No operations of the sponsor shall be carried out without all the necessary protection to properly safeguard the work.

The minimum hours per day for railroad employees engaged in flagging service shall be eight (8) hours. The overtime rate will be charged for all time in excess of eight (8) hours. Flagmen are paid from the time they leave headquarters until they arrive back at headquarters. The travel time to and from project site is known as "deadheading" and is paid at full rate of pay, plus travel expenses. No conductor or flagman may remain on duty longer than twelve (12) hours in any twenty-four (24) hour period.

The providing of flagmen or inspectors or the taking of other precautionary measures, shall not, however, relieve the sponsor from liability for payment of damages caused by their operations. The sponsor must obtain permission from the flagman before fouling or obstructing any track.

The sponsor shall be responsible for damage to Conrail facilities or property arising out of the execution of its work. Conrail shall undertake any necessary repair work at the sole cost and expense of the sponsor. Billing for the work shall be in accordance with Conrail's standard billing procedures.

Conrail labor shall be charged to sponsor at actual rate plus amount paid for insurance, railroad retirement, excise tax, vacation allowance, holidays, health and welfare benefits, small tools, 401k payment and overhead in accordance with Conrail's standard billing procedures. Materials shall be charged to the sponsor at actual cost to Conrail plus transportation costs, handling expense and applicable taxes.

RAILROAD ENGINEERING AND INSPECTION

Conrail, at its sole discretion, may assign an engineer or inspector for the general protection of railroad property and operations during the construction of the project. This inspection service shall be supplied at the sole cost and expense of the sponsor.

PAYMENT OF RAILROAD SERVICES

It is a requirement that the sponsor shall reimburse Conrail in full for work undertaken by Conrail in accordance with any provision of these special requirements. Final contract payment shall not be made by the sponsor to its contractor, sub-contractor, consultant or agent, until Conrail certifies that all railroad bills against them, if any, have been paid in full.

TEMPORARY GRADE CROSSING

Under most circumstances, a grade crossing of our track will not be permitted. Should the sponsor demonstrate a necessity for a temporary grade crossing of Conrail's tracks, the sponsor shall be required to apply for and execute the standard private grade crossing agreement for each crossing required. Application for the crossing shall be made to Conrail at least twelve (12) weeks before the crossing is required and addressed to:

Consolidated Rail Corporation
2001 Market Street -12B
PO Box 41412
Philadelphia, Pennsylvania 19101-1412

A letter size plan showing the location, size, construction details, and access to the requested crossing should accompany the letter of application. The plan shall be fully detailed and dimensioned with all Conrail facilities shown and referenced. The sponsor shall state the purpose for which the crossing is needed and the expected life of the crossing. All application fees, construction, maintenance, protection and removal costs shall be at the sole cost and expense of the sponsor. The roadbed and all other Conrail facilities will be restored to the original condition subject to the approval of Conrail's designated representative.

SHEETING AND SHORING REQUIREMENTS

The following items are to be included in the design and construction procedures for all permanent and temporary facilities adjacent to Conrail tracks:

1) Footings for all piers, columns, walls or other facilities shall be located and designed so that any temporary sheeting and shoring for support of adjacent track or tracks during construction shall not be closer than ten (10) feet (3.0 m) from the centerline of the nearest track.
2) When excavation for construction of the above mentioned facilities is within the theoretical railroad embankment line (see Conrail Drawing SK-1, attached), interlocking steel sheet piling, driven prior to excavation, must be used to protect track stability. The use of trench boxes or similar devices is not acceptable. Soldier piling and lagging will be considered for supporting adjacent track(s) only when its use is approved by Conrail. Consideration for the use of soldier piling and lagging shall be made if the required penetration of steel sheet piling cannot be obtained and when dry, non-running, stable material will be encountered.
3) The sheeting shall be designed to support all lateral forces caused by the earth, railroad and other surcharge loads. The railroad loading to be applied is an E-80 loading. This loading consists of 80 Kip (356 KN) axles spaced five (5) feet (1.5 m) on centers. The lateral forces acting on the sheeting shall be computed as follows:
   a. The Rankine Theory shall be used to compute the active earth pressure due to the weight of the soil.
   b. The Boussinesq analysis shall be used to determine the lateral pressure caused by the railroad loading. The load on the track shall be taken as a strip load with a width equal to the length of the ties (8'-6" or 2.6 m). The vertical surcharge, q (psf), caused by each axle, shall be uniform and equal to the axle weight divided by the tie length and the axle spacing (5'-0" or 1.5 m). For an E-80 loading, this results in: $q = 80{,}000 / (8.5 \times 5) = 1882$ psf (90.1 KPa). The horizontal pressure due to the live load surcharge at any point on the sheet piling wall is Ph and can be calculated by the following: $Ph = (2q/\pi)(\beta - \sin\beta \cos 2\alpha)$ (see Conrail Drawing SK-2, attached).
4) Deflection design criteria is as follows:
   a. 1/2" (1.27 cm) maximum deflection for sheet piling ten (10) feet (3.0 m) from centerline of the nearest track.
   b. 1" (2.54 cm) maximum deflection for sheet piling greater than ten (10) (3.0 m) feet from centerline of the nearest track.
   c. Use K (at-rest earth pressure) for design of all braced and tie-back excavations.

5) The allowable stresses for the sheet piling and other steel members (wales, struts, etc.) shall be in accordance with AREA Chapter 15, Part 1. These allowable stresses may be increased ten percent (10%) due to the temporary nature of the installations. A factor of safety of at least 1.5 must be used on temporary sheeting for the embedment length (i.e. multiply calculated embedment depth by 1.5).
6) Where soil or rock anchors are used, all anchors must be tested. Testing shall be in accordance with industry standards with ten percent (10%) of the anchors "Performance Tested" and all others "Proof Tested". All tie-back anchor stresses are to be in accordance with AREA Chapter 8, Part 20.5.7.
7) Exploratory trenches, three (3) feet (0.9 m) deep and fifteen (15) inches (0.4 m) wide in the form of an "H" with outside dimensions matching the outside of sheeting dimensions are to be hand dug, prior to placing and driving steel sheeting, in areas where railroad underground installations are known to exist. These trenches are for exploratory purposes only and are to be backfilled with the backfill compacted immediately. This work must be done in the presence of Conrail's representative.
8) Absolute use of track is required while driving sheeting within fifteen (15) feet (4.6 m) from centerline of a live track. The procedure for arranging the use of track shall be as outlined on pages Three and Four.
9)Cavities adjacent to the sheet piling, created by the driving of sheet piling, shall be filled with sand and any disturbed ballast must be restored and tamped immediately.
10)Sheet piling shall be cut off at the top of tie during construction. After construction and backfilling has been completed, piling within ten (10) feet (3.0 m) from centerline of track, or when bottom of excavation is below a line extending a 1:1 slope from end of tie to point of intersection with sheeting, shall be cut off eighteen (18) inches (0.5 m) below existing ground line and left in place.
11)Any excavation adjacent to track shall be covered and ramped and provided with barricades as required by Conrail. A lighted walkway with a handrail must be provided adjacent to the track for any excavation within ten (10) feet (3.0 m) of the centerline.
12)Final backfilling of excavation shall be as required by project specifications.
13)The sponsor is to advise Conrail of the time schedule of each operation and obtain approval of Conrail for all work to be performed adjacent to Conrail tracks so that it may be properly supervised by railroad personnel.
14)All drawings for temporary sheeting and shoring shall be prepared and stamped by a Registered Professional Engineer and shall be accompanied by complete design computations when submitted for approval.
15)Where physical conditions of design impose insurmountable restrictions requiring the placing of sheeting closer than specified above, the matter must be submitted to Conrail for approval of any modifications.
16)Five (5) copies of the submission are to be sent to Conrail's Area Engineer. The sponsor is advised to expect a minimum thirty (30) day review period from the day the submission is received by the Area Engineer.
17)Conrail's representative must be present at the site during the entire sheeting and shoring procedure period. The sponsor must notify the railroad representative at least seventy-two (72) hours in advance of the work. No changes will be accepted after that time.

ERECTION, HOISTING AND DEMOLITION REQUIREMENTS

1) A plan showing the locations of cranes, horizontally and vertically, operating radii, with delivery or disposal locations shown. The location of all tracks and other railroad facilities should also be shown.
2) Crane rating sheets showing cranes to be adequate for 150% of the actual weight of the pick. A complete set of crane charts, including crane, counterweight, and boom nomenclature is to be submitted.
3) Plans and computations showing weight of picks must be submitted. Where beams are being removed over Conrail facilities, the weight shall include the weight of concrete or other material that will be included in each pick. Calculations shall be made from plans of the existing and/or proposed structure showing complete and sufficient details with supporting data for the demolition or erection of the structure.
4) If the sponsor can prove to Conrail that plans do not exist and weights must be calculated from field measurements, the field measurements are to be made under the supervision of the Registered Professional Engineer submitting the procedure and he shall include sketches and estimated weight calculations with his procedure. If possible, field measurements shall be taken with a Conrail representative present. Weights shall include the weight of concrete, or other material, that will be included in the lifts.
5) If the procedure involves either the cutting of steel or the bolting of joints which would affect Conrail operations, a detailed staging plan with estimated durations will be required.
6) A location plan showing all obstructions such as wires, poles, adjacent structures, etc., must be provided to show that the proposed lifts are clear of these obstructions.
7) A data sheet shall be prepared listing the type, size and arrangements of slings, shackles, or other connecting equipment. Include copies of a catalog or information sheets for specialized equipment.
8) A complete procedure is to be included, indicating the order of lifts and any repositioning or rehitching of the crane or cranes.
9) Demolition shield submittals must include a plan showing the details of the shield, a written installation and removal procedure and design calculations verifying the capacity of the shield. The shield should be designed for a minimum load of fifty (50) pounds/sq.ft (245 kgs./sq.m) plus the weight of the equipment, debris and any other load to be carried.
10) Temporary support of any components (overhead or undergrade) or intermediate stages is to be shown and detailed. A guardrail (railroad) will be required to be installed in a track where a temporary bent is located within twelve (12) feet (3.7 m) from the centerline of that track.
11) A time schedule of the various stages must be shown as well as a schedule for the entire lifting procedure.
12) All bridge erection or demolition procedures submitted will be prepared, signed and sealed by a Registered Professional Engineer.
13) Five (5) copies of the lifting procedures are to be sent to Conrail's Area Engineer. The sponsor is to expect a minimum thirty (30) day review period from the day the submission is received by The Area Engineer.
14) Conrail's representative must be present at the site during the entire demolition and erection procedure period. The sponsor must notify the railroad representative at least seventy-two (72) hours in advance of the work. No changes will be accepted after that time.
15) The name and experience of the employee supervising the operation must be supplied to Conrail.

OVERGRADE BRIDGE REQUIREMENTS

CLEARANCES

1) The minimum vertical clearance above the top of the higher rail shall be twenty three (23) feet (7 m) at all times. In areas where the railroad has been electrified with a catenary wire, and areas which are likely to be electrified, the minimum vertical clearance must be twenty four (24) feet, six (6) inches (7.5 m) above the top of the higher rail.
2) The minimum horizontal clearance measured from the centerline of track to the near face of the obstruction must be twenty (20) feet (6.1 m) for tangent track and twenty one (21) feet (6.4 m) for curves. See Conrail Standard Plan 48754-B, attached.
3) Whenever practicable, bridge structures must have the piers and abutments located outside of the railroad right of way. All piers located less than twenty five (25) feet (7.6 m) from the centerline of track require a crashwall designed in accordance with specifications outlined in the current AREA manual.
4) All piers should be located so that they do not interfere with ditches. Where special conditions make this impossible, an explanation of these conditions must be submitted with the drainage plans for review by Conrail.
5) The permanent clearances should be correlated with the methods of construction so that temporary construction clearances will not be less than the minimum allowed.
6) Bridge structures shall provide sufficient lateral and vertical clearance for anticipated future tracks, changes in track centers and raising of tracks for maintenance purposes. The locations of these tracks shall be determined by inquiry to Conrail.
7) The profile of the top of rail should be examined to determine if the track is in a sag at the location of the bridge. If the track is in a sag, the vertical clearance from the track to the bridge should be increased sufficiently to allow raising the track to remove the sag.
8) Plans for bridges must show dimensioned locations of all utilities which might be located on the railroad right of way.
9) Vertical and horizontal clearances must be adjusted so that the sight distance to railroad signals is not reduced from what is existing.
10) All proposed temporary clearances which are less than those listed above must be submitted to Conrail for review and must be approved by Conrail prior to construction.
11) Clearances are subject to the requirements of the state in which the construction takes place and must be approved by the State and Conrail if less than those prescribed by law.

DRAINAGE

1) Maintaining the existing drainage and providing for future drainage improvements is of the utmost importance. Conrail will give special attention to reviewing drainage details.
2) Drainage plans must be included with the general plans submitted to Conrail for approval. These plans must include hydrologic and hydraulic studies and computations showing the frequency and duration of the design storm used, as well as the method of analysis such as Soil Conservation Service or the Rational method. Conrail uses storms with a 100-year recurrence interval as the minimum design storm.
3) Lateral clearances must provide sufficient space for construction of the required track ditch parallel to the standard roadbed section. If the ditch cannot be provided, or the

pier will interfere with the ditch, then a culvert of sufficient size must be provided. See Conrail Standard Plans 48754-B and 48747, attached.

4) Ditches and culverts must be sized to accommodate all increased run-off due to the construction and the increased size must continue to the natural outlet of the ditch. Ditches must be designed in accordance with good drainage engineering practices and must meet all local codes and ordinances.
5) No scuppers or other deck drains, roadway drainage, catch basins, inlets or outlets are permitted to drain onto Conrail property. Any variation of this policy must have the prior approval of Conrail. If an exception is ultimately granted, maintenance of such should not be Conrail's. Drainage from scuppers and deck drains must be conveyed through pipes, preferably to a point which is off Conrail property. If the drainage must be conveyed into a railroad ditch, calculations must be provided to Conrail which indicate the ability of the ditch to carry the additional run-off.
6) Additional drainage may require the installation of a pipe or pipes, new ditch or reprofiling of the existing ditch.

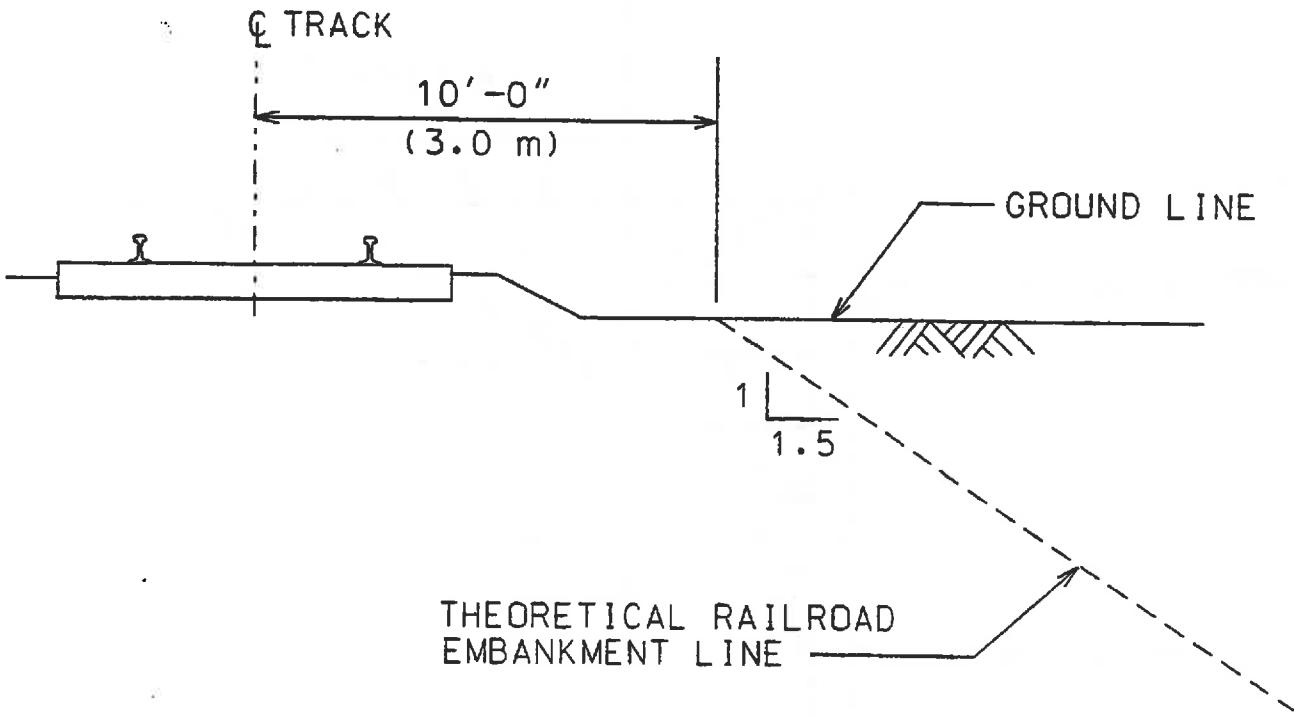
EROSION CONTROL

1) Embankment slopes on Conrail property adjacent to the track must have a slope of 2:1 or less and be paved for a minimum of two (2) feet (0.6 m) beyond the outside edge of the bridge foundation structure. The purpose of the pavement is to minimize erosion of the embankment material and to reduce deterioration of the sub-grade material by drainage water. The pavement shall consist of a prepared sub-base and/or filter fabric with grouted rip-rap on the surface.
2) The general plans for the bridge should indicate the proposed methods of erosion control during construction and must specifically address means to prevent silt accumulation in ditches and culverts and to prevent fouling the track ballast and sub-ballast. If the plans do not show erosion control, the contractor must submit a proposed method of erosion control and must have this method approved by Conrail prior to beginning any grading on the site.
3) Existing track ditches must be maintained at all times throughout the construction period. After the construction has been completed, all erosion and siltation must be removed and the ditches must be restored.
4) Conrail's approval of drainage and erosion control plans will not relieve the sponsor submitting these plans from ultimate responsibility for a satisfactory plan.

REFERENCES

1) In areas where underground utilities may be affected, Conrail's C.E. 8, "Specifications for Pipeline Occupancy" will govern.
2) In areas where power or communication lines will be affected, Conrail's C.E. 4, "Specifications for Wire, Conduit and Cable Occupations" will govern.

CE-6 prepared by F. X. Giacoma, Civil Engineer, Conrail Engineering Department.



REQUIREMENTS FOR TEMPORARY SHEET PILING ADJACENT TO TRACK

1. STEEL SHEET PILING FOR TRACK SUPPORT IS NOT REQUIRED FOR EXCAVATION OUTSIDE THE THEORETICAL RAILROAD EMBANKMENT LINE. SHORING IN ACCORDANCE WITH OSHA REQUIREMENTS SHALL BE USED IN THIS AREA.

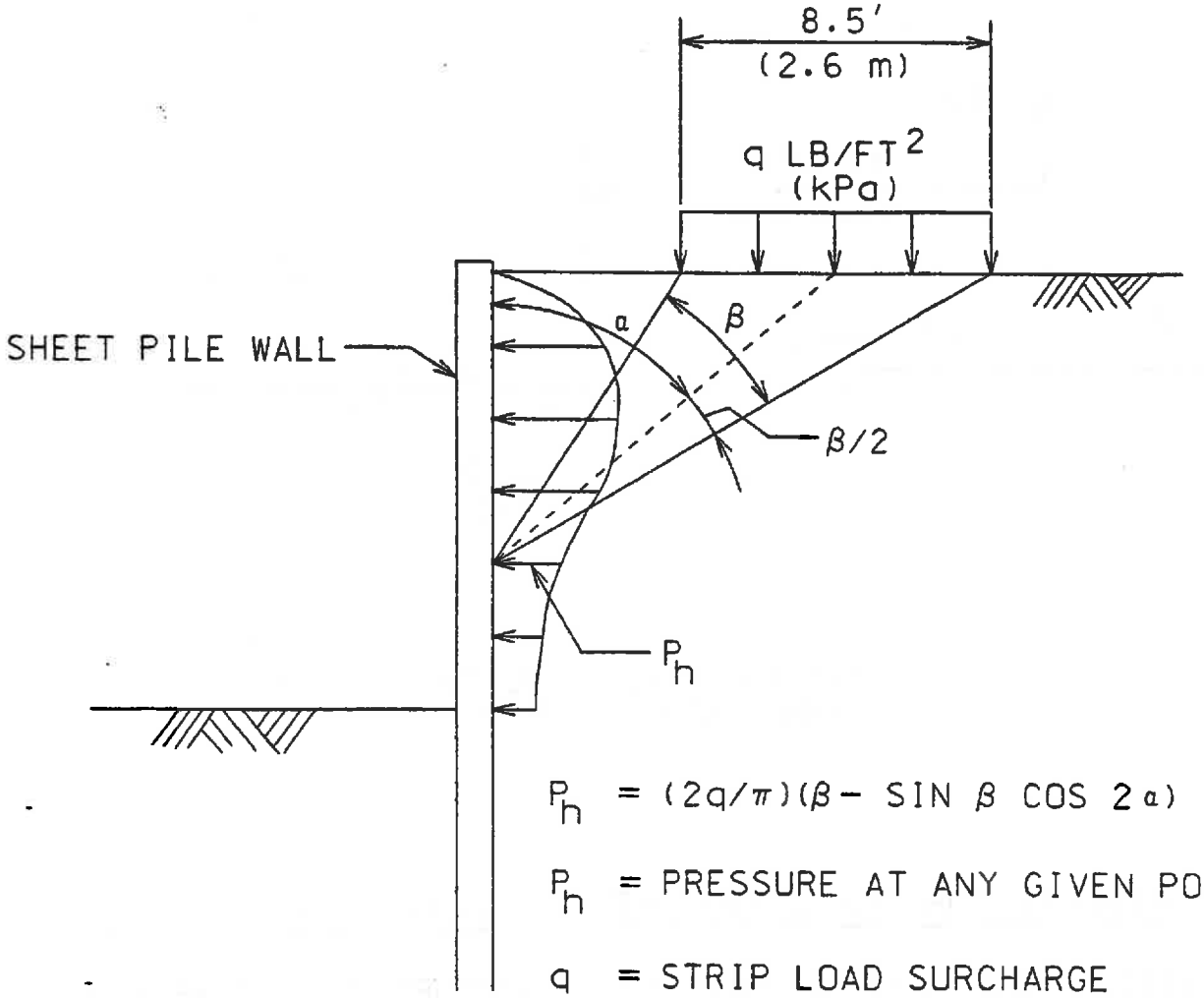
2. STEEL SHEET PILING, DRIVEN PRIOR TO EXCAVATION, IS REQUIRED WHEN EXCAVATION IS WITHIN THE THEORETICAL RAILROAD EMBANKMENT LINE.

3. ALL SHEET PILING IS TO BE DESIGNED FOR AN E-80 LOADING. THE BOUSSINESQ ANALYSIS IS TO BE USED TO DETERMINE THE LATERAL PRESSURE CAUSED BY THE RAILROAD LOADING.

OFFICE OF CHIEF ENGINEER - D & C

FEB 1, 1995 DWG. NO.: SK-1

LATERAL PRESSURE DIAGRAM



$P_h = (2q/\pi)(\beta - \text{SIN } \beta \text{ COS } 2\alpha)$

P_h = PRESSURE AT ANY GIVEN POINT

q = STRIP LOAD SURCHARGE

α = ANGLE IN DEGREES

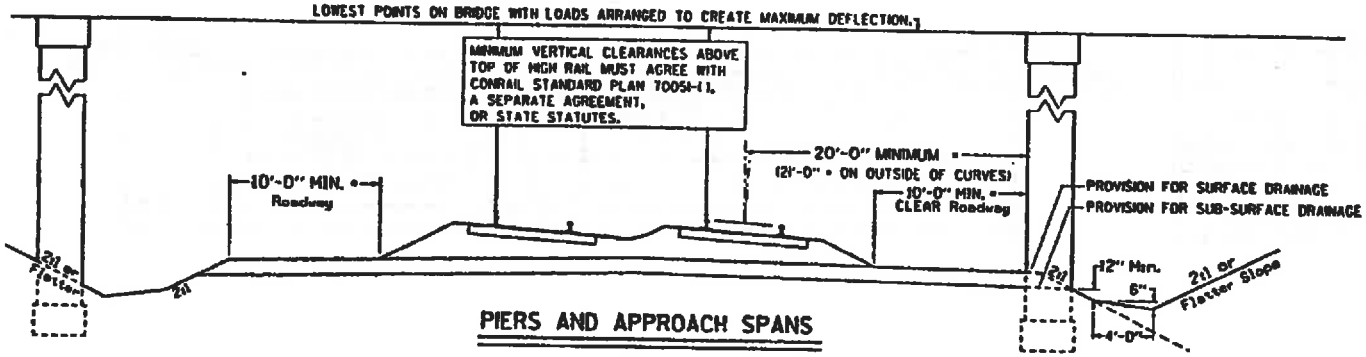
β = ANGLE IN RADIANS

LATERAL PRESSURE DUE TO STRIP LOAD

OFFICE OF CHIEF ENGINEER - D & C

FEB 1, 1995 DWG. NO.: SK-2

RAIN WATER RUNOFF MUST NOT BE DEPOSITED ONTO THE RAILROAD RIGHT OF WAY.
DECK DRAINS AND SCUPPERS ARE PROHIBITED BETWEEN THE TRACK DITCHES.



PIERS AND APPROACH SPANS

ALL SIDE SLOPES THROUGH THE BRIDGE AREA MUST BE COVERED WITH RIP-RAP.

DITCHES AND SLOPES THROUGH THE BRIDGE AREA MUST MEET THE EXISTING DRAINAGE FACILITIES AND MATCH OR EXCEED THEM IN HYDRAULIC CAPACITY.

PIERS LOCATED LESS THAN 25 FEET FROM THE CENTERLINE OF ANY TRACK MUST BE PROTECTED BY CRASH WALLS IN ACCORDANCE WITH THE SPECIFICATIONS IN CHAPTER 8, PART 2.4.5 OF THE A.R.E.A. MANUAL FOR RAILWAY ENGINEERING.

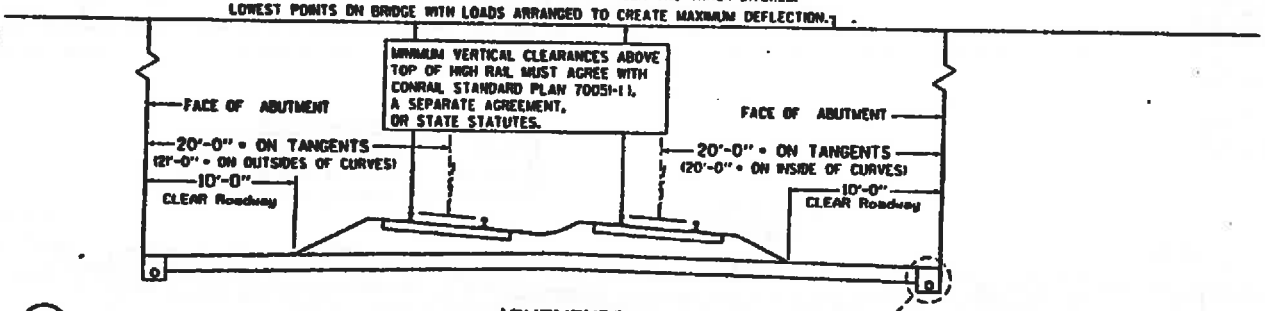
• - LATERAL CLEARANCES MARKED "•" MAY BE REDUCED BY 2 FEET IF A ROADWAY IS NOT REQUIRED.

ADDITIONAL CLEARANCE MAY BE REQUIRED TO ACCOMODATE COMMUNICATION AND SIGNAL POLE LINES, OR AS OTHER FIELD CONDITIONS REQUIRE.

FLAT BOTTOM DITCHES, AS SHOWN, ARE TO BE USED. "V" BOTTOM DITCHES ARE PERMITTED ONLY IN CONJUNCTION WITH A DRAINAGE PIPE. THE PIPE MUST HAVE AT LEAST 4 FEET OF COVER, OR BE AT AN ELEVATION MEETING THE EXISTING DITCHES, AND MUST BE AT LEAST 24" DIAMETER.

THE DITCH SECTION SHOWN IS THE MINIMUM ACCEPTABLE SECTION. DITCH SIZES MUST BE INCREASED WHEN NECESSARY AS DETERMINED BY HYDROLOGIC AND HYDRAULIC STUDIES, OR IF THE DRAINAGE PATTERN IS ALTERED BY CONSTRUCTION.

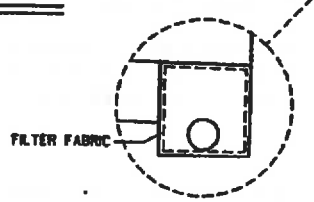
RAIN WATER RUNOFF MUST NOT BE DEPOSITED ONTO THE RAILROAD RIGHT OF WAY.
DECK DRAINS AND SCUPPERS ARE PROHIBITED BETWEEN THE TRACK DITCHES.



ABUTMENTS

DRAINAGE PIPE - 24" MINIMUM DIAMETER

DRAINAGE PIPE - 24" MINIMUM DIAMETER PIPES SHOULD BE PROVIDED ON BOTH SIDES TO PERMIT CONTINUITY OF ROADBED DITCHES.



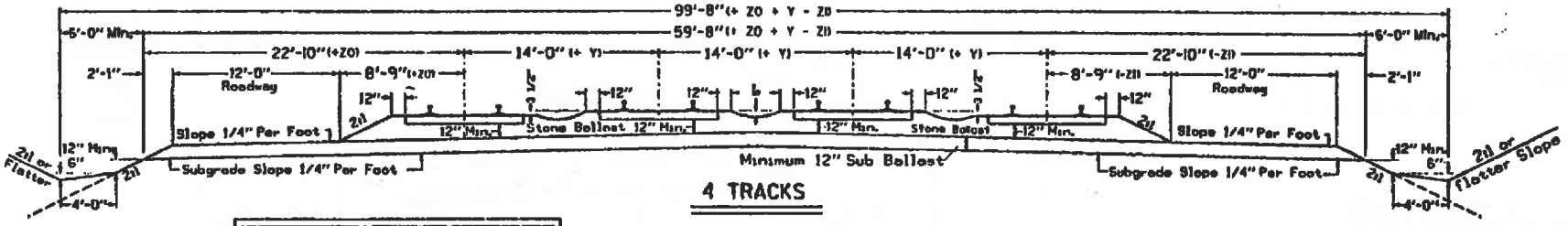
18" X 18" DRAINAGE AREA WITH OPEN GRADED STONE AND 6" DIA. PERFORATED PIPE SLOPED TO DRAIN, (WITH FILTER FABRIC WHEN REQUIRED).

CONRAIL 48754-B

OVERHEAD BRIDGE MINIMUM CLEARANCE DIAGRAM

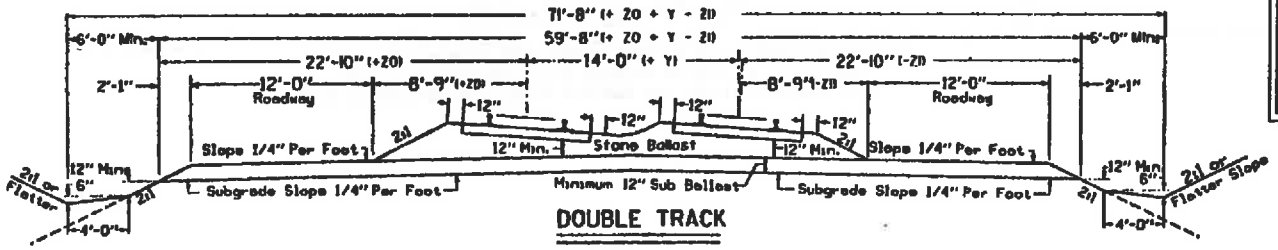
CHIEF ENGINEER D&C

FEBRUARY, 1990



4 TRACKS

Note: Z0 and Z1 are indicated for tracks which curve to the right.



DOUBLE TRACK

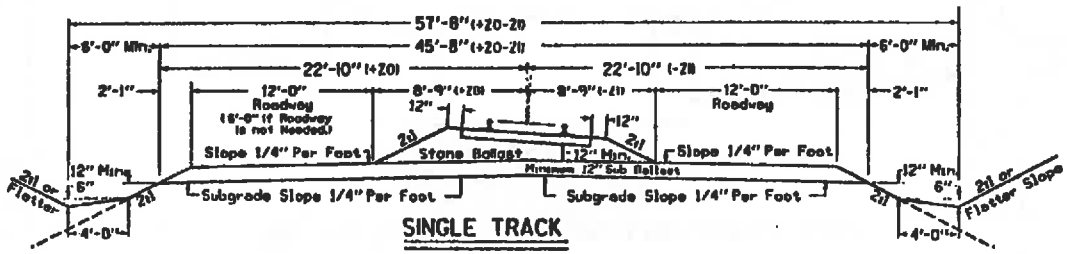
Y DIMENSION

On adjacent tracks where the super-elevation is the same or the outer track has less, Y=2" per degree of curve.

Where super-elevation is greater on the outer track, Y = 2" per degree of curve added to 3 1/2 times the amount of difference in super-elevation.

Z Dimensions
2 or More Tracks

Super-Elevation	Z0 - Outside of Curve	Z1 - Inside of Curve
0"	0"	0"
1"	4"	1"
2"	7"	5"
3"	10"	6"
4"	1'-1"	7"
5"	1'-4"	8"
6"	1'-7"	10"



SINGLE TRACK

Z Dimensions
Single Track

Super-Elevation	Z0 - Outside of Curve	Z1 - Inside of Curve
0"	0"	0"
1"	2"	2"
2"	5"	4"
3"	8"	5"
4"	11"	6"
5"	1'-3"	7"
6"	1'-6"	9"

CONRAIL

48747

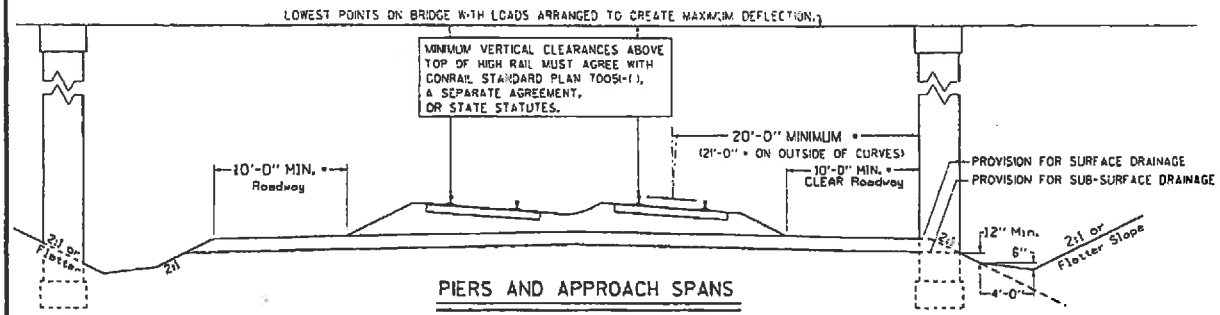
TYPICAL

ROADBED AND BALLAST SECTIONS

AUGUST, 1988

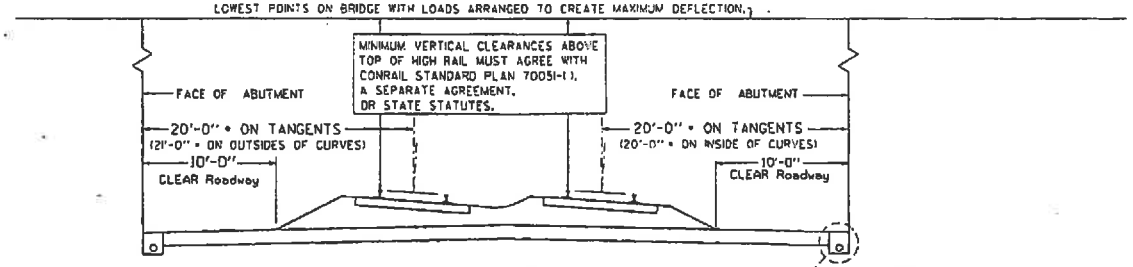
CHIEF ENGINEER ENC

RAIN WATER RUNOFF MUST NOT BE DEPOSITED ONTO THE RAILROAD RIGHT OF WAY.
DECK DRAINS AND SCUPPERS ARE PROHIBITED BETWEEN THE TRACK DITCHES.



PIERS AND APPROACH SPANS

RAIN WATER RUNOFF MUST NOT BE DEPOSITED ONTO THE RAILROAD RIGHT OF WAY.
DECK DRAINS AND SCUPPERS ARE PROHIBITED BETWEEN THE TRACK DITCHES.
LOWEST POINTS ON BRIDGE WITH LOADS ARRANGED TO CREATE MAXIMUM DEFLECTION.)



ABUTMENTS

DRAINAGE PIPE - 24" MINIMUM DIAMETER

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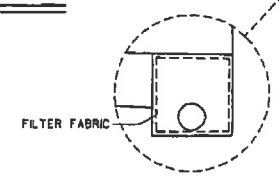

18" X 18" DRAINAGE AREA WITH OPEN GRADED STONE AND 6" DIA. PERFORATED PIPE SLOPED TO DRAIN, (WITH FILTER FABRIC WHEN REQUIRED).

ALL SIDE SLOPES THROUGH THE BRIDGE AREA MUST BE COVERED WITH RIP-RAP.

DITCHES AND SLOPES THROUGH THE BRIDGE AREA MUST MEET THE EXISTING DRAINAGE FACILITIES AND MATCH OR EXCEED THEM IN HYDRAULIC CAPACITY.

PIERS LOCATED LESS THAN 25 FEET FROM THE CENTERLINE OF ANY TRACK MUST BE PROTECTED BY CRASH WALLS IN ACCORDANCE WITH THE SPECIFICATIONS IN CHAPTER 8, PART 2.1.5 OF THE A.R.E.A. MANUAL FOR RAILWAY ENGINEERING.

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CONRAIL 48754-B

OVERHEAD BRIDGE MINIMUM CLEARANCE DIAGRAM

CHIEF ENGINEER D&C

FEBRUARY, 1990

INTERGRAPH FILE SECTION.DGN

Revisions
B - Nov. 1979
C - May, 1986
D - May, 1987
E - Mar., 1989
F - Oct., 1991
G - Aug., 1992

GENERAL INSTRUCTIONS

Clearance requirements shown on this plan apply only to new construction or reconstruction. Existing structures and tracks may be maintained and extended at present clearances, unless otherwise required by Local or State Authorities.

Structures must not be located nearer to the track than the minimum clearance limits shown on this plan and these distances should be exceeded where possible. Consideration should be given to the probability of increased distance between track center lines, widening roadbed shoulders and widening and deepening ditches, and the structures located accordingly.

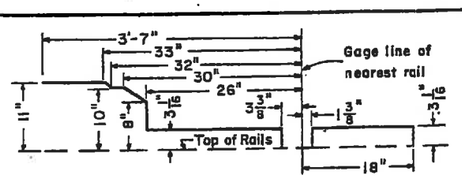
For standard distances between track center lines and the spacing of tracks where intertrack clearance limiting objects are located, see M.W. 4, Paragraphs 62.0 to 62.3 inclusive.

Where physical conditions impose insurmountable restrictions, necessitating clearances closer than those specified, the matter must be submitted to the Chief Engineer - Maintenance of Way for any modifications, and also to the Local or State Authorities, if necessary, over the signature of the General Manager.

Minimum clearances shown on this plan are from level tangent track. For curved track the following provisions apply:

Vertical - Same as for tangent track measured vertically above top of high rail, except above top of near rail for passenger and freight platforms.

Lateral - Outside and inside clearances shall be measured radially and horizontally and increased by 1 inch per degree of curvature over that shown for tangent track. In addition, the inside clearance for superelevated track shall be further increased by 1 inch per inch of superelevation for each 5 feet of height above the top of low rail.

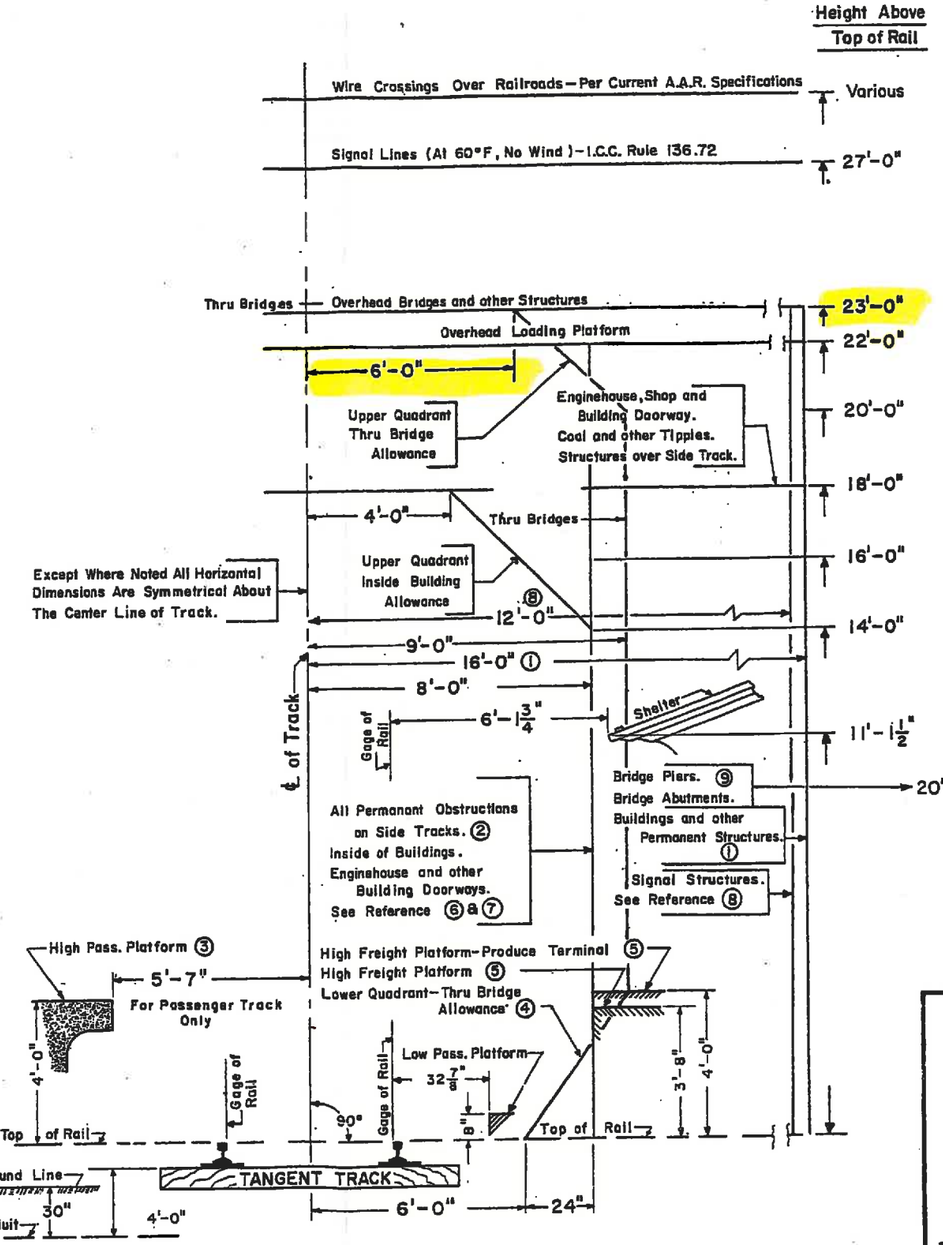


Limits of Car Retarder

REFERENCES

⑧ - Signal masts will be 12'-0" from centerline of track.

⑨ Bridge piers and abutments to be min. of 20'-0" from centerline of track on tangents and inside of curves, and 21'-0" on outside of curves where 10' roadway is provided.



REFERENCES

① - On main running tracks, where practicable, a lateral clearance of 18'-0" instead of 16'-0" is desired.

② - On private side tracks the standard clearance to platforms, of 8'-0" to be obtained if possible. Where the industry demands a less than standard clearance for platforms, a minimum of 6'-6" from center line of track maybe used, subject to State approval where required, on one side of such tracks only, provided a full 8'-6" clearance is maintained on the opposite side of track, or track centers to adjacent tracks are not less than 14'-0". The State of Illinois prohibits freight platform clearance between 6'-2" and 8'-0" unless P.U.C. approval for other clearance is obtained. Reduced clearances on private sidings are permissable only where industry signs the Conrail "Standard Side Track Agreement" and will erect and maintain Close Clearance signs illuminated at night.

③ - Unless authorized by the Chief Engineer - Maintenance of Way high passenger platforms must not be constructed on track having curvature in excess of 1°-40' or where speed requires elevation of outer rail in excess of 1". High-Level platforms will not be constructed adjacent to any freight-only tracks, or freight/passenger joint tracks without approval from the Senior Vice President - Operations.

④ - Request must be made for encroachment of upper and lower quadrants from 8'-0" horizontal clearance of thru bridges in the States of Indiana, Massachusetts and Ohio.

⑤ - Safety lines, yellow or white, 8'-6" from center line of track are required on freight platforms in the District of Columbia. These lines are recommended in Delaware, Maryland and Pennsylvania.

⑥ - For side clearance to handrails on bridges, trestles and turntables see appropriate Standard Plan.

⑦ - State Clearance Requirements at Variance with Dimensions Shown on This Plan

Location	General Clearances		Inside Bldgs. & Doorways	
	Horizontal	Vertical	Horizontal	Vertical
Canada	8'-4 1/4"	22'-0"	8'-4 1/4"	22'-0"
Connecticut	8'-6"	22'-6"	8'-0"	22'-6"
Delaware; Maryland; D.C.	8'-6"	22'-0"	8'-0"	18'-0"
Illinois	8'-0"	21'-6"	8'-0"	H
Indiana; West Virginia	8'-0"	22'-0"	8'-0"	22'-0" *
Massachusetts; Michigan	8'-6"	22'-6"	8'-6"	22'-6"
New Jersey; Virginia	No Regulations - Use Conrail Dimensions			
Ohio	8'-0"	21'-0"	8'-0"	21'-0"
Pennsylvania	12'-0"	22'-0"	8'-0"	18'-0"
Rhode Island	8'-6"	18'-0"	8'-0"	18'-0"
New York	8'-6"	22'-0"	8'-0"	22'-0"
Kentucky	—	22'-0"	—	—

H = Height of cars governs.

* = West Virginia, 22'-0" building doors and 18'-0" inside of buildings.

Clearances tabulated from A.R.E.A. "Legal Clearance Requirements" page 28-3-25 dated 1986.

CONRAIL

70051-G

STANDARD

MINIMUM ROADWAY CLEARANCES

AUGUST, 1979

R H Smith
Chief Engineer - Maintenance of Way

Chief Engineering Officer