SPECIAL PROVISIONS

ROUTE 3, ROUTE 46, VALLEY ROAD AND

NOTCH /RIFLE CAMP ROAD INTERCHANGE, CONTRACT A

ROUTE 46 FROM THE VICINITY OF NOTCH ROAD TO ROUTE 3

ROUTE 3 FROM ROUTE 46 TO GROVE STREET

CONTRACT NO. 059123010

GRADING, PAVING, DRAINAGE & STRUCTURES

CITY OF CLIFTON, BOROUGH OF WOODLAWN PARK & TOWNSHIP OF LITTLE FALLS

PASSAIC COUNTY

FEDERAL PROJECT NO. NHP-0054 (210)

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 170 inclusive.

General wage determinations issued under Davis-Bacon and related acts, published by US Department of Labor, may be obtained from the Web Determinations online web site at http://www.wdol.gov/dba.aspx#0 Select state, county and construction type heading: HIGHWAY where the Project is to be performed then click Search.

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

State wage rates may be obtained from the New Jersey Department of Labor & Workforce Development (Telephone: 609-292-2259) or by accessing the Department of Labor & Workforce Development's 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 (N.J.S.A. 34:11-56.25 et seq.).

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

The following FHWA funded project Attachments that are located at the end of these Special Provisions:

1. Required Contract Provisions, Federal-Aid Construction Contracts (Form FHWA-1273).
2. Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246).

3. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246).

4. State of New Jersey Equal Employment Opportunity for Contracts Funded by FHWA.

5. Disadvantaged Business Enterprise Utilization Attachment, FHWA Funded Contracts

5(A) The Incentive Program, Disadvantaged Business Enterprise Utilization Attachment for FHWA Funded Contracts.

6. Equal Employment Opportunity Special Provisions.

7. Special Contract Provisions for Investigating, Reporting, and Resolving Employment Discrimination and Sexual Harassment Complaints.

DIVISION 100 – GENERAL PROVISIONS

SECTION 101 – GENERAL INFORMATION

101.01 INTRODUCTION
THE FOLLOWING IS ADDED:

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

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 2014 Capital Program has an item with $ 15.046 million for the construction of the Project.

The Department anticipates that $ 24.892 million dollars in additional funds will be provided during Federal 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

102.01 QUALIFICATION TO BID
SECOND CRITERIA IS CHANGED TO:

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

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

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

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

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

102.04 EXAMINATION OF CONTRACT AND PROJECT LIMITS
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.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: Route 46 /Route 3 /Valley Road /Notch Road/Rifle Camp Road – Interchanges
DRILLER: TRC Solutions – Pat Flaherty / Bob Moyer

INSPECTOR: AmerCom Corp. – Christopher Bacchus

COUNTY/TOWNSHIP: Passaic County / Township of Little Falls, Borough of West Paterson and City of Clifton

DATE STARTED: July 19, 2007 **DATE COMPLETED:** November 14, 2007

CORE NUMBER	**1**	**2**	**3**	**4**	**5**
ROUTE	US Route 46	US Route 46	US Route 46	US Route 46	US Route 46
DIRECTION (N, E, S, W)	E	E	E	W	W
MILE POST (MP or Station)	119+89	119+89	119+89	119+89	119+90
LANE NO. (Left to Right)	3	2	1	1	2
SHOULDER (Inside or Outside)	-	-	-	-	-
CORE DIAMETER (Inches)	4	4	4	4	4
TOTAL CORE DEPTH (Inches)	50.4	68.4	60.0	37.2	76.8
CORE DRILLED TO	SUBGRADE	SUBGRADE	SUBGRADE	BASE	SUBGRADE
SURFACE TYPE (AC/PC)	AC	AC	AC	AC	AC
AC THICKNESS (Inches)	12.0	11.0	9.0	13.0	20.75
PC THICKNESS (Inches)	8.5	8.25	-	-	7.75

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

The pavement information shown herein was used by the Department for design and estimate purposes.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: Route 46 /Route 3 /Valley Road /Notch Road/Rifle Camp Road – Interchanges

DRILLER(s): TRC Solutions – Pat Flaherty / Bob Moyer

INSPECTOR(s): AmerCom Corp. – Christopher Bacchus

COUNTY/TOWNSHIP: Passaic County / Township of Little Falls, Borough of West Paterson and City of Clifton

DATE STARTED: July 19, 2007 **DATE COMPLETED:** November 14, 2007

CORE NUMBER	**6**	**7**	**8**	**9**	**10**
ROUTE	US Route 46	US Route 46	US Route 46	US Route 46	US Route 46
DIRECTION (N, E, S, W)	W	E	E	E	W
MILE POST (MP or Station)	119+90	130+19	130+19	130+19	130+19
LANE NO. (Left to Right)	3	3	2	1	1
SHOULDER (Inside or Outside)	-	-	-	-	-
CORE DIAMETER (Inches)	4	4	4	4	4
TOTAL CORE DEPTH (Inches)	75.6	70.8	49.2	62.4	66.0
CORE DRILLED TO	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE
SURFACE TYPE (AC/PC)	AC	AC	AC	AC	AC
AC THICKNESS (Inches)	18.25	12.75	17.5	15.0	8.0
PC THICKNESS (Inches)	8.0	9.5	8.0	-	-

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

The pavement information shown herein was used by the Department for design and estimate purposes.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: Route 46 /Route 3 /Valley Road /Notch Road/Rifle Camp Road – Interchanges

DRILLER(s): TRC Solutions – Pat Flaherty / Bob Moyer

INSPECTOR(s): AmerCom Corp. – Christopher Bacchus

COUNTY/TOWNSHIP: Passaic County / Township of Little Falls, Borough of West Paterson and City of Clifton

DATE STARTED: July 19, 2007 **DATE COMPLETED:** November 14, 2007

CORE NUMBER	**11**	**12**	**13**	**14**	**15**
ROUTE	US Route 46	US Route 46	US Route 46	US Route 46	US Route 46
DIRECTION (N, E, S, W)	W	W	E	E	E
MILE POST (MP or Station)	130+18	130+18	142+50	142+50	142+50
LANE NO. (Left to Right)	2	3	3	2	1
SHOULDER (Inside or Outside)	-	-	-	-	-
CORE DIAMETER (Inches)	4	4	4	4	4
TOTAL CORE DEPTH (Inches)	68.4	42.0	41.0	34.8	42.0
CORE DRILLED TO	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE
SURFACE TYPE (AC/PC)	AC	AC	AC	AC	AC
AC THICKNESS (Inches)	11.5	10.25	12.25	13.25	12.0
PC THICKNESS (Inches)	8.5	8.5	7.75	8.0	-

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

The pavement information shown herein was used by the Department for design and estimate purposes.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: Route 46 /Route 3 /Valley Road /Notch Road/Rifle Camp Road – Interchanges

DRILLER(s): TRC Solutions – Pat Flaherty / Bob Moyer

INSPECTOR(s): AmerCom Corp. – Christopher Bacchus

COUNTY/TOWNSHIP: Passaic County / Township of Little Falls, Borough of West Paterson and City of Clifton

DATE STARTED: July 19, 2007 **DATE COMPLETED:** November 14, 2007

CORE NUMBER	**16**	**17**	**18**	**19**	**20**
ROUTE	US Route 46	US Route 46	US Route 46	US Route 46	US Route 46
DIRECTION (N, E, S, W)	W	W	W	E	E
MILE POST (MP or Station)	142+48	142+48	142+47	153+98	153+95
LANE NO. (Left to Right)	1	2	3	3	2
SHOULDER (Inside or Outside)	-	-	-	-	-
CORE DIAMETER (Inches)	4	4	4	4	4
TOTAL CORE DEPTH (Inches)	38.4	51.6	45.6	50.4	51.6
CORE DRILLED TO	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE
SURFACE TYPE (AC/PC)	AC	AC	AC	AC	AC
AC THICKNESS (Inches)	15.75	15.25	13.75	10.0	10.5
PC THICKNESS (Inches)	-	8.0	8.0	8.5	8.0

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

The pavement information shown herein was used by the Department for design and estimate purposes.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: Route 46 /Route 3 /Valley Road /Notch Road/Rifle Camp Road – Interchanges

DRILLER(s): TRC Solutions – Pat Flaherty / Bob Moyer

INSPECTOR(s): AmerCom Corp. – Christopher Bacchus

COUNTY/TOWNSHIP: Passaic County / Township of Little Falls, Borough of West Paterson and City of Clifton

DATE STARTED: July 19, 2007 **DATE COMPLETED:** November 14, 2007

CORE NUMBER	**21**	**22**	**23**	**24**	**25**
ROUTE	US Route 46	US Route 46	US Route 46	US Route 46	NJ Route 3
DIRECTION (N, E, S, W)	E	W	W	W	E
MILE POST (MP or Station)	153+95	153+95	153+95	153+93	172+19
LANE NO. (Left to Right)	1	1	2	3	4
SHOULDER (Inside or Outside)	-	-	-	-	-
CORE DIAMETER (Inches)	4	4	4	6	4
TOTAL CORE DEPTH (Inches)	67.2	61.2	58.8	60.0	60.0
CORE DRILLED TO	SUBGRADE	SUBGRADE	SUBGRADE	BASE	SUBGRADE
SURFACE TYPE (AC/PC)	AC	AC	AC	AC	AC
AC THICKNESS (Inches)	9.0	13.0	8.5	11.0	2.4
PC THICKNESS (Inches)	8.5	-	8.25	-	9.5

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

The pavement information shown herein was used by the Department for design and estimate purposes.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: Route 46 /Route 3 /Valley Road /Notch Road/Rifle Camp Road – Interchanges

DRILLER(s): TRC Solutions – Pat Flaherty / Bob Moyer

INSPECTOR(s): AmerCom Corp. – Christopher Bacchus

COUNTY/TOWNSHIP: Passaic County / Township of Little Falls, Borough of West Paterson and City of Clifton

DATE STARTED: July 19, 2007 **DATE COMPLETED:** November 14, 2007

CORE NUMBER	**26**	**27**	**28**	**29**	**30**
ROUTE	NJ Route 3	NJ Route 3	NJ Route 3	NJ Route 3	NJ Route 3
DIRECTION (N, E, S, W)	E	E	E	W	W
MILE POST (MP or Station)	172+20	172+19	172+20	172+23	172+24
LANE NO. (Left to Right)	3	2	1	1	2
SHOULDER (Inside or Outside)	-	-	-		
CORE DIAMETER (Inches)	4	4	4	4	8
TOTAL CORE DEPTH (Inches)	60.0	60.0	61.2	61.2	62.4
CORE DRILLED TO	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE
SURFACE TYPE (AC/PC)	AC	AC	AC	AC	AC
AC THICKNESS (Inches)	2.75	2.25	2.5	3.0	3.5
PC THICKNESS (Inches)	9.25	9.75	10.0	10.0	10.0

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

The pavement information shown herein was used by the Department for design and estimate purposes.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: Route 46 /Route 3 /Valley Road /Notch Road/Rifle Camp Road – Interchanges

DRILLER(s): TRC Solutions – Pat Flaherty / Bob Moyer

INSPECTOR(s): AmerCom Corp. – Christopher Bacchus

COUNTY/TOWNSHIP: Passaic County / Township of Little Falls, Borough of West Paterson and City of Clifton

DATE STARTED: July 19, 2007 **DATE COMPLETED:** November 14, 2007

CORE NUMBER	**33**	**34**	**35**	**36**	**37**
ROUTE	US Route 46	US Route 46	Notch Road	Notch Road Ramp	Rifle Camp Road
DIRECTION (N, E, S, W)	W	W	S	E	N
MILE POST (MP or Station)	170+32	170+22	116+76	123+31	119+04
LANE NO. (Left to Right)	1	2	1	1	1
SHOULDER (Inside or Outside)	-	-	-	-	-
CORE DIAMETER (Inches)	4	8	4	4	4
TOTAL CORE DEPTH (Inches)	63.6	63.6	43.2	49.2	54.0
CORE DRILLED TO	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE
SURFACE TYPE (AC/PC)	AC	AC	AC	AC	AC
AC THICKNESS (Inches)	5.0	4.4	4.5	5.75	5.0
PC THICKNESS (Inches)	10.0	10.0	9.75	11.0	10.5

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

The pavement information shown herein was used by the Department for design and estimate purposes.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
PAVEMENT CORE RECORD

PROJECT/ROUTE & SECTION: Route 46 /Route 3 /Valley Road /Notch Road/Rifle Camp Road – Interchanges

DRILLER: TRC Solutions – Pat Flaherty / Bob Moyer

INSPECTOR: AmerCom Corp. – Christopher Bacchus

COUNTY/TOWNSHIP: Passaic County / Township of Little Falls, Borough of West Paterson and City of Clifton

DATE STARTED: July 19, 2007, May 20, 2010 **DATE COMPLETED:** November 14, 2007, May 20, 2010

CORE NUMBER	**38**	**39**	**40**	**41**	**43**
ROUTE	Notch Rd/ Rt 46 WB Ramp	Clove Road	Notch Road	Rt 46 WB/Valley Rd. Ramp	US Route 46
DIRECTION (N, E, S, W)	W	N	W	W	W
MILE POST (MP or Station)	121+17	136+31	147+35	158+36	162+80
LANE NO. (Left to Right)	1	1	1	1	1
SHOULDER (Inside or Outside)	-	-	-	-	-
CORE DIAMETER (Inches)	4	4	4	4	4
TOTAL CORE DEPTH (Inches)	62.4	54.0	54.0	62.4	22.8
CORE DRILLED TO	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE	SUBGRADE
SURFACE TYPE (AC/PC)	AC	AC	AC	AC	AC
AC THICKNESS (Inches)	6.75	5.75	6.0	4.25	13
PC THICKNESS (Inches)	10.0	8.0	-	9.75	-

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

The pavement information shown herein was used by the Department for design and estimate purposes.

2. Utility Agreements.

THE LAST SENTENCE IS DELETED.

3. Existing Plans and As-Builts.

Existing Plans and As-builts used are as follows:

a. State of New Jersey Highway Department, Division of Bridges, Route 6 (1927) Section 8 & 9, Four Bridges, Overpass at Lower Notch Road, Underpass at Mountain Ave., Overpass at Valley Road, Overpass at Route S3 Westbound, Little Falls Twp. & Clifton, Passaic County, March 1939.

b. State of New Jersey Highway Department, Division of Bridges, Route S3 Section 3C, Valley Road Overpass-Widening, City of Clifton, Passaic County, June 1956.

c. State of New Jersey Highway Department, Division of Bridges, Route 6 Section 9, Underpass at Mountain Avenue, Boro of West Paterson, Passaic County, March 1939.

THE LAST SENTENCE IS DELETED.

102.09 PROPOSAL BOND

THE FIFTH PARAGRAPH IS CHANGED TO:

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

102.10 SUBMISSION OF BIDS

THE SECOND PARAGRAPH IS CHANGED TO:

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

1. Schedule of Items.
2. Proposal Electronic Bidding File with Bidder's Certification.
3. For wholly State funded contracts, acknowledgement of compliance with the registrations specified in 102.01.
4. For wholly State funded contracts, acknowledgement of compliance with N.J.S.A. 19:44A-20.13, *et seq.*
5. Proposal Bond form.
6. Other related documents as specified in the Contract.
7. 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.

102.15 DISQUALIFICATION OF BIDDERS

PART (10) IS CHANGED TO:

10. Disqualification, suspension, or debarment of an individual, firm, partnership, corporation, or any combination as required by N.J.A.C. 16:44-11.1.

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.

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. After Award, the Department will provide additional formatting information, the number of copies required, and the address of the receiving designated design unit.

THE THIRD PARAGRAPH IS CHANGED TO:

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

THE NINTH PARAGRAPH IS CHANGED TO:

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

TABLE 105.05-1 IS CHANGED TO:

Table 105.05 1 – Working Drawing Submission Category

Certified	Approved
Breakaway I-Beam GA Sign Support Posts	Catalog Cuts (related to landscape Items)
Bridge Drainage	Change in Structural Steel Details
Bridge Railing and Fencing Anchorage System	Change of Prestressed Concrete Strand Patterns
Catalog Cuts	Demolition Plans
Composite Piles	Erection Plans
DMS Sign Support Structure	High Load Multi-Rotational (HLMR) Bearings
DMS Standard Ground Mounted	Isolation Bearings
Elastomeric Bearings Pads	ITS System Drawings, including Block Diagrams
Electrical Items Not Pre-Qualified	Machinery and Electrical Items for Movable Bridges
Expansion Deck Joint Assembly Systems	Mechanically Stabilized Earth (MSE) Walls
Modular Expansion Joint Assembly	Other work shown on the Plans as conceptual
Precast Prestressed Concrete Beams and Piles Fabrication	Precast Concrete Arch Structures
Reinforced Elastomeric Bearings	Precast Concrete Box Culverts

Sign Legends	Prefabricated Modular Walls
Sign Support Structures	Stay-In-Place Forms
Structural Steel Fabrication	Temporary Sheeting and Cofferdams
	Temporary Shielding
	Temporary Structures
	Value Engineering Plans

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

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

105.07.01 Working in the Vicinity of Utilities

A. Initial Notice.

PSE&G Electric
Ed Elian
Senior Engineering Plant Supervisor
150 Circle Avenue
Clifton, NJ 07011
Phone: (973) 365-2848
Fax: (973) 772-8191
Edward.Elian@pseg.com

PSE&G Gas
Len Panucci
Program Manager
744 Broad Street
13th Floor, M/C 446
Newark, NJ 07102
Phone: (973) 430-5135
Len.Panucci@pseg.com

Verizon
Sandra Rowe
114 Paterson Street
Paterson, NJ 07501
Phone: (973) 925-1480
sandra.l.cruger@verizon.com

NJ American Water
Bradley Cole
1025 Laurel Oak Road
Voorhees, NJ 08043
Phone: (856) 782-2379
bradley.cole@amwater.com

Passaic Valley Water Commission
Kevin Byrne
Principal Engineer
1525 Main Avenue
Clifton, NJ 07011
Phone: (973) 340-4318
Fax: (973) 340-4368
kbyrne@pvwc.com

City of Newark Water
Andrew Pappachen
40 Clinton Street, 4th Floor
Newark, NJ 07102
Phone: (973) 697-5458
Cell: (201) 401-3955
Fax: (973) 697-3770
pappachena@ci.newark.nj.us

Woodland Park
George Galbraith
5 Brophy Lane
Woodland Park, NJ 07424
Phone: (973) 256-1264
Fax: (973) 256-3935
ggalbraith@wpnj.us

Little Falls
Phillip Simone
Superintendent DPW
225 Main Street
Little Falls, NJ 07424
Phone: (973) 256-6815
Fax: (973) 256-6554

City of Clifton
Dominic Villano
Municipal Engineer
900 Clifton Avenue
Clifton, NJ 07013
Phone: (973) 470-5793
Fax: (973) 470-5806
dvillano@cliftonnj.org

Cablevision
Dennis Haney
19 South Street
Warwick, NY 10990
Phone: (845) 595-6819
Cell: (201) 954-3857
Fax: (845) 988-5892

Comcast
Bob Knoepfel
Planning and Design Tech
800 Rahway Avenue

Union, NJ 07083
Phone: (732) 602-7444 ext. 6202293
Cell: (908) 378-0256
Robert_knoepfel@cable.comcast.com

Teleport Communications Group, NY
Tim Fitzpatrick
281 Browertown Road, Suite 201
Woodland Park, NJ 07424
Phone: (908) 670-6925
tfitzpatrick@joemaxtelecom.com

Zayo Group
Brian Kelly
2 Nelson Lane,
Congers, NY 10920
Phone: (845) 661-0067
brian.kelly@zayo.com

Verizon Business (Formerly MCI)
Scott Miller
Verizon Services Operations
Network Engineer
Northeast, NJ & NY
110 S Jefferson Road
Whippany, NJ 07981
Cell: (732) 735-7577
scott.miller1@verizon.com

Fibertech Networks
Robert S. Tarzian
Operations Manager - NJ
126 Center Street
Ramsey, NJ 07446
Phone: (201) 818-2660
Cell: (551) 427-8781
rtarzian@fibertech.com

NJ Transit
Eli Charchar
One Penn Plaza East
Newark, NJ 07105
Phone: (973) 491-8086
Fax: (973) 491-8079

B. Locating Existing Facilities.
PART (2) IS CHANGED TO:

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

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

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

3.

THE FOLLOWING IS ADDED TO PART (3):

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

C. Protection of Utilities.

THE SECOND PARAGRAPH IS CHANGED TO:

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

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

THE FOURTH PARAGRAPH IS CHANGED TO:

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

THE FOLLOWING IS ADDED TO THE SIXTH PARAGRAPH

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

105.07.02 Work Performed by Utilities

Company Name & Address	Contact Person	Number of Day/s Advance Notice
PSE&G Electric 150 Circle Avenue Clifton, NJ 07011	Ed Elian Senior Engineering Plant Supervisor Phone: (973) 365-2848 Fax: (973) 772-8191 Edward.Elian@pseg.com	90 (1 week notice to process outage requests for de-energizing of facilities)
PSE&G Gas 744 Broad Street 13th Floor, M/C 446 Newark, NJ 07102	Len Panucci Program Manager Phone: (973) 430-5135 Len.Panucci@pseg.com	8 weeks
Verizon 114 Paterson Street Paterson, NJ 07501	Sandra Rowe Phone: (973) 925-1480 sandra.l.cruger@verizon.com	30 (8 weeks to order cable)
NJ American Water 1025 Laurel Oak Road Voorhees, NJ 08043	Bradley Cole Phone: (856) 782-2379 bradley.cole@amwater.com	30 (2 weeks notice before any installation and water main shut down)
Passaic Valley Water Commission 1525 Main Avenue	Kevin Byrne Principal Engineer	30 (3 months notice for shutdowns)

Clifton, NJ 07011	Phone: (973) 340-4318 Fax: (973) 340-4368 kbyrne@pvwc.com	
City of Newark 40 Clinton Street, 4th Floor Newark, NJ 07102	Andrew Pappachen Phone: (973) 697-5458 Cell: (201) 401-3955 Fax: (973) 697-3770 pappachena@ci.newark.nj.us	2 weeks (3 months notice for shutdowns)
Woodland Park 5 Brophy Lane Woodland Park, NJ 07424	George Galbraith Phone: (973) 256-1264 Fax: (973) 256-3935 ggalbraith@wpnj.us	30
Little Falls 225 Main Street Little Falls, NJ 07424	Phillip Simone Superintendent DPW Phone: (973) 256-6815 Fax: (973) 256-6554	30
City of Clifton 900 Clifton Avenue Clifton, NJ 07013	Dominic Villano Municipal Engineer Phone: (973) 470-5793 Fax: (973) 470-5806 dvillano@cliftonnj.org	30
Cablevision 19 South Street Warwick, NY 10990	Dennis Haney Phone: (845) 595-6819 Cell: (201) 954-3857 Fax: (845) 988-5892	4 weeks (8-12 weeks to order materials)
Comcast 800 Rahway Avenue Union, NJ 07083	Bob Knoepfel Planning and Design Tech Phone: (732) 602-7444 ext. 6202293 Cell: (908) 378-0256 Robert_knoepfel@cable.comcast.com	30
Teleport Communications Group, NY 281 Browertown Road, Suite 201 Woodland Park, NJ 07424	Tim Fitzpatrick Phone: (908) 670-6925 tfitzpatrick@joemaxtelecom.com	30
Zayo Group 2 Nelson Lane, Congers, NY 10920	Brian Kelly Phone: (845) 661-0067 brian.kelly@zayo.com	30
Verizon Business (Formerly MCI) 110 S Jefferson Road Whippany, NJ 07981	Scott Miller Verizon Services Operations Network Engineer Northeast, NJ & NY Cell: (732) 735-7577 scott.miller1@verizon.com	8 weeks
Fibertech Networks Phone: (201) 818-2660 Cell: (551) 427-8781 rtarzian@fibertech.com	Robert S. Tarzian Operations Manager - NJ 126 Center Street Ramsey, NJ 07446	2 to 3 weeks

Stage #1 _____

Utility Company Name	Work Description	Work Duration (Day/s)	Restrictions
PSE&G Electric	Route 46 WB/Ramp L: Relocate and install new utility poles at the following locations: Route 46 Sta. 117+18± LT, 117+58± LT, 118+94± LT, 119+96± LT, 120+42± LT, 120+90± LT, 122+14± LT, 123+23± LT, 124+32± LT, 125+37± LT, 126+37± LT, 127+33± LT, 128+37± LT, 130+17± LT, 136+10± LT, 136+35± LT, 137+55± LT and Ramp L Sta. L10+36±, L11+30± and L12+28±. Install 390'± of sub-transmission underground cable between proposed utility poles at Route 46 Sta. 117+18± LT and 117+58± LT to proposed manhole #E1 to #E3 to proposed poles at 119+94± LT and 120+42± LT. Install 1,660'± of proposed primary and secondary overhead cable from existing pole at GNR 10+87± (No Number) to proposed utility pole at Route 46 Sta. 118+94± LT to 119+96± LT to 120+42± LT to 120+90± LT to 122+14± LT to 123+23± LT to 124+32± LT to 125+37± LT to 126+37± LT to 127+33± LT to 128+37± LT to proposed pole at L12+28± to L11+30± to L10+36±. From proposed pole at 128+37± to existing pole 61685WP to proposed pole at 130+17± LT to existing pole at 130+94± LT (No Number). From existing pole # 60781WP to proposed 136+10± LT to 136+35± LT to existing pole 61944LF. From propose pole at 137+55± LT to existing pole 60748LF. Also from existing pole 2764LF to proposed pole at Route 46 Sta. 117+18± LT to 117+58± LT. Install 175'± of propose 26kv sub-transmission underground cable from proposed 136+10± LT and 136+35± LT to proposed manhole #E11 to #E12 to propose pole at 137+55± LT and existing pole 60748LF. Route 46 EB: Install proposed utility poles at the following locations: Route 46 Sta. 125+20± RT, 126+37± RT, 128+81± RT, 131+18± RT, 132+37± RT, 132+92± RT, 133+44± RT, 134+59± RT, 135+51± RT, 136+52± RT, 137+66± RT, 137+93± RT, 138+80± RT, 141+02± RT. Install 65' High utility poles at the following locations: Route 46 Sta: 144+85± RT, 146+32± RT, 147+87± RT, 149+38± RT, 150+80± RT, 152+18± RT. Install 1,625'± of proposed sub-transmission and primary overhead cable from propose pole at D15+19± RT to D16+10± RT to 125+20± RT to 126+37± RT to existing pole # 61162LF to propose pole at 128+81± RT to existing pole # 61165LF to propose pole at 131+18± RT to 132+37± RT. From proposed pole at Rt 46 Sta: 137++66± RT to 137+93± RT to existing utility pole # 62080LF to propose pole 138+80± to existing pole # 61784LF to proposed pole at 141+02 to existing pole # 61785LF to # 61786LF. Transfer 1100'± of existing cable between exiting poles 61786LF to 9376C to proposed 65' high pole	60	

Install 675'± of proposed 26kv sub-transmission and primary underground cable from propose utility pole located at Route 46 Sta. 132+37± RT and 132+92± RT and 133+44± to propose manhole #E7. From propose manhole #E7 to #E8 to #E9 to propose pole at 137+66± RT and 137+93± RT and existing pole 62080LF.

Install 642'± of proposed secondary overhead cable from existing utility pole # 2676LF to 2677LF. From proposed utility pole at Route 46 Sta. 132+37± RT to 133+44± RT to 134+59± RT to 135+51± RT to 136+52± RT.

Remove 2,060'± of overhead cable from existing pole # 423LF to 2771 to 2713LF and 61934LF.
From 61160LF to 2461WP and 61162LF to 61781LF and to 61163LF to 61165LF to 61167LF to 61168LF to 61169LF to 61170LF to 61171LF to 62080LF to 61783LF to 61784LF to 61785LF.

Transfer 1100'± of existing cable between exiting poles 61786LF to 9376C to proposed 65' high pole.

Remove 2,830'± of existing overhead fiber optic cables for Joe Max and Zayo Group between existing pole # 61160LF to 61162LF to 61163LF to 61165LF to 61167LF to 61168LF to 61169LF to 61170LF to 61171LF to 62080LF to 61783LF to 61784LF to 61785LF, 61786LF, 62311LF, 62312LF, 62310LF, 62215LF, 70372C and 9376C.

Route 46 WB:
Remove 1,916'± of overhead cable from existing pole # 61618WP to 2448 to 2460WP to 2557LF to 2680LF to 2535LF to 3222WP to 2461WP to 61781LF and 61161LF to 62310WP and 6178LF to 61685WP. From existing pole # 60781WP to 61944LF, to 60748LF. From existing pole # 60605LF to 60745LF.

Remove existing utility pole #'s:
2448, 2460WP 2557LF, 2680LF, 2535LF, 3222WP, 2461WP, 2506WP, existing pole at 139+332± LT (No Number), 2686LF, 2687LF and 6713C.

Ramp D:
Install proposed utility poles at the following locations:
Sta. D13+94± RT, D15+19± RT, D17+10± RT.

Install 715'± of primary underground cable between existing pole #62142LF to propose manhole #E5 to #E6 to proposed utility pole at D15+19± and existing pole at 61156LF.

Transfer secondary overhead cable from existing utility poles to be relocated and proposed pole between existing poles 61152LF and 61160LF along Ramp D.

Transfer overhead cable from existing pole # 61433LF to 61153LF to 2678LF and 61154LF to 61155LF to 2535LF and 61156LF to 61160LF.

Remove 525'± of existing fiber optic cables for each Joe Max and Zayo Group between existing pole # 61433 to 61153LF to 61154LF to 61155LF to 61156LF and 61160LF.

Ramp E:

Install proposed utility poles at the following locations:
Sta. E10+31± RT, E11+00± RT, E11+93± RT, E13+38± RT.

Install 400'± of Primary underground cable from manhole #E8 at Route 46 Sta. 134+10± RT to manhole #E10 at E12+44± RT to propose manhole #E13 located at Clove Road Sta. CR 15+45± LT.

Install 302'± of secondary overhead cable from proposed utility pole at Route 46 Sta. 132+37± RT to E10+31± RT to E11+00± RT to E11+93± RT to E13+38± RT.

Ramp F/Clove Road:
Install proposed utility poles at the following locations:
Sta. F11+56± RT, F12+47± RT, F13+39± RT, F14+27± RT.

Install 249'± of secondary overhead cable from proposed utility pole at Route 46 Sta. 136+52± RT to F13+39± RT to F12+47± RT to F11+56± RT.

Install 975'± of propose primary underground cable from propose poles at GNR 28+42± LT and GNR 29+37± LT to manhole #E14 to manhole #E18 to manhole #E13 to existing pole #60761LF and existing manhole 1281W.

Ramp F:
Remove 546'± of overhead cable from existing pole # 60761LF to 61037 to 61038LF to 61039LF to 61171LF to 61944LF.
Remove/ Abandon existing manhole 1279E and existing conduit and remove cables from pole 61038LF and 61037LF to existing manhole 1279E to manhole 1281W.

Ramp J/Slip Ramp J:
Install proposed utility poles at the following locations Route 46 Sta: 152+97± LT, 152+26± LT, 151+75± LT, 151+20± LT, SRJ10+00± RT, SRJ11+12± RT and SRJ12+06± RT.
Install 665'± of secondary overhead cable from existing pole at Route 46 Sta. 154+00± LT (No Number) to proposed utility pole at Route 46 Sta. 152+97± LT, 152+26± LT, 151+75± LT, 151+20± LT to SRJ10+00± RT to SRJ11+12± RT SRJ12+06± RT and J14+04± RT.

Also 415'± of 26kv-subtransmission and primary from existing pole at Route 46 Sta. 154+00± LT (No Number) to proposed utility pole at Route 46 Sta. 152+97± LT, 152+26± LT, 151+75± LT, 151+20± LT to SRJ10+00± RT to existing pole 2452LF.

Remove 621'± of overhead cable from existing pole at Route 46 Sta. 154+00± LT (No Number) to 6713C to 9275C to 2452 LF.

Remove existing utility pole #'s:
9275C, 2108C and 9276C.

Ramp K:
Relocate and Install new utility poles at the following locations:
Sta. K11+12± LT, K11+76± LT, K12+98± LT and K14+27± LT.

Install 385'± secondary overhead cable from proposed utility pole at VR 6+76± LT to VR 7+90± LT to K11+12± LT to K11+76± LT. Transfer existing overhead cable to poles at K12+98± LT and K 14+27± LT to existing pole #64806C. Also from propose pole at K11+76± LT to existing pole #No Number and pole # 60247C to #9389C.

Relocate existing overhead cable from existing poles at K11+56± LT (No Number), 64701C 64702C, 6718C, 64805C, 64806C.

Lackawanna Avenue:
Install proposed utility poles at the following locations:
Sta. LA3+10± RT, LA3+52± RT, LA4+50± RT, LA5+49± RT, LA 6+80± RT and LA3+55± LT.

Install 638'± of primary and secondary overhead cable from proposed utility pole at LA3+10± RT, to LA3+52± RT, to LA4+50± RT, to LA5+49± RT to LA 6+80± RT to existing to pole # 60704WP. From LA3+52± RT to LA3+55± LT to NR 16+69± LT. Install guy wire at propose pole at LA 6+80± LT and existing pole 60704.

Remove 499'± of overhead cable from existing pole # 60704WP to 64705WP to 60761WP to 60760WP to 61618WP.

Notch Road:
Install proposed utility pole at the following location: Sta. NR16+52± RT, NR16+69± LT.

Install 535'± of underground primary cable between proposed underground conduit starting from existing pole # 62142LF to existing manhole NR 14+13± RT. From existing manhole and existing pole #A61937LF to proposed manhole #E4 to propose manhole #E2, to proposed pole located at Sta. GNR 11+59± LT.

Install 535'± of underground fiber optic cables for PSE&G, Joe Max and Zayo Group between proposed underground conduit starting from existing pole # 62142LF and pole #A61937LF to proposed manhole #E4 to propose manhole #E2, to proposed pole located at Sta. GNR 11+59± LT.

Install 495'± of proposed secondary overhead cable and proposed fiber optic cables for Joe Max and Zayo Group from existing utility pole # 61143LF to 61145LF to 61147LF to 61148LF to 61150LF to 62142LF.

Remove 1097'± of existing overhead secondary cable and existing Joe Max and Zayo Group fiber optic cables from existing pole # 61143LF to 61145LF to 61148LF to 61936LF and 61590 to 61935 to 2254WP to 61618WP and existing pole at GNR10+87± RT (No Number). From 61618WP to 60758WP to 60910.

Remove existing utility pole #: 2254WP.

Rifle Camp Road:
Install proposed utility poles at the following locations:
Sta. RCR3+70± RT, RCR4+06± RT, RCR5+26± RT.

Install 426'± of primary and secondary overhead cable from proposed utility pole at RCR3+70± RT, to RCR4+06± RT, to LA3+10± RT, to proposed pole at RCR 5+26± RT to existing pole # 60764WP.

Remove and/or relocate 367'± of overhead cable from existing pole # 60758WP to 60122 to 60910 and 60123WP to 60124WP.

Old Rifle Camp Road:
Install proposed utility pole at the following location:
Sta. ORCR10+67± LT.

Install/Transfer 90'± of secondary overhead cable from proposed utility pole at ORCR10+67± LT, to existing pole # 60178WP.

Remove/Transfer 90'± of overhead cable from existing pole # 60124WP to 60178WP.

Great Notch Road/Great Notch Road North:
Install proposed utility poles at the following locations: Sta. GNR10+74± RT, GNR10+85± RT, GNR11+58± LT, GNR12+62± LT, GNR13+69± LT, GNR14+66± LT, GNR15+71± LT, GNR16+66± LT, GNR18+03± LT, GNR18+54± LT, GNR19+36± LT, GNR20+69± LT, GNR21+62± LT, GNR22+56± LT, GNR23+81± LT, GNR25+12± LT, GNR26+26± LT, GNR27+33± LT, GNR28+42± LT, GNR29+37± LT, GNR30+29± LT, GNR31+21± LT, GNR32+28± LT, GNR33+35± LT, GNR34+54± LT, GNR35+80± LT, GNR37+03± LT, GNR38+10± LT, GNR39+35± LT, GNR40+10± LT, GNR40+93± LT, GNR41+58± LT, GNR42+69± LT, GNR43+89± LT, GNR44+80± LT, GNR45+74± LT, GNR46+32± RT, GNR47+65± RT, GNN12+55± LT, GNN13+75± LT

Install 4,088'± of proposed sub-transmission, primary and secondary overhead cable along proposed utility pole from existing utility pole located at GNR 10+87 to GNR10+74± RT to GNR11+19± RT to GNR11+58± LT to GNR 10+89± LT and to GNR12+62± LT to GNR13+69± LT to GNR14+66± LT to GNR15+71± LT, GNR16+66± LT to existing pole 61964 and GNR18+03± LT to GNR18+54± LT to GNR19+36± LT to GNR20+69± LT to GNR21+62± LT to GNR22+56± LT to GNR23+81± LT to GNR25+12± LT to GNR26+26± LT to GNR27+33± LT to GNR28+42± LT to GNR29+37± LT to GNR30+29± LT to GNR31+21± LT to GNR32+28± LT to GNR33+35± LT to GNR34+54± LT to GNR35+80± LT to GNR37+03± LT to GNR38+10± LT to GNR39+35± LT, GNR40+16± LT to GNR40+93± LT to GNR41+60± LT to GNR42+69± LT to GNR43+89± LT to GNR44+80± LT to GNR45+74± LT to GNN 12+55± LT to GNN 13+75± LT to existing pole at 60250C and proposed pole at VR7+93± RT. From GNR46+32± LT to GNR47+65± RT to existing Pole #9389C.

Install 90'± of proposed sub-transmission, overhead cable along proposed utility pole at GNR 32+28± LT to existing pole 60605LF.

Install 3735'± of proposed overhead fiber optic cables for Joe Max and Zayo Group between pole at GNR11+20± RT to GNR11+58± LT to GNR12+62± LT to GNR13+69± LT to GNR14+66± LT to GNR15+71± LT to GNR16+66± LT to GNR18+03± LT to GNR18+54± LT to GNR19+36± LT to GNR20+69± LT to GNR21+62± LT to GNR22+56± LT to GNR23+81± LT to GNR25+12± LT to GNR26+26± LT to GNR27+33± LT to GNR28+42± LT to GNR29+37± LT to GNR30+29± LT to GNR31+21± LT to GNR32+28± LT to GNR33+35± LT to GNR34+54± LT to GNR35+80± LT to GNR37+03± LT to GNR38+10± LT to GNR39+35± LT, GNR40+16± LT to GNR40+93± LT to GNR41+60± LT to GNR42+69± LT to GNR43+89± LT to GNR44+80± LT to GNR45+74± LT to GNR46+32± LT to GNR46+59± LT to existing pole at 60250C.
Install 200'± of underground cables from pole 62346WP to exiting handhole 1283W and from pole 62345WP to existing handhole 1285E.

Great Notch Road:
Remove and/or relocate 2,967'± of overhead cable from existing pole at GNR10+87± RT to 62051WP to 60910 to 61167WP to 60499 to 60429 to 62049WP to 62310WP and from 60429 to 61963 to 61964.

From existing pole # 60745Lf to 60744LF to 60743LF to 60742LF to 60741LF to 60740LF to 60739LF to 61640LF to 60429W to 63072C to 63073C to 9278C to 9279C. From existing pole # 63073C to 69632C to 6713 and to existing pole at GNR 46+26± RT to existing pole # 66403C. From existing pole # 69632C to existing pole at GNR 46+86± LT to existing pole # 66403C.

Remove existing utility pole #'s:
9287, 3278, 9278C, 9279C and at Sta. GNR 46+26± RT, and GNR 46+83± LT.

Remove/Abandon 200'± of existing conduit and cables from pole 62346WP to exiting handhole 1283W and from pole 62345WP to existing handhole 1285E.

Valley Road:
Install proposed utility poles at the following locations:
Sta. VR6+64± RT (GNN 13+75± RT), VR6+76± LT, VR7+93± RT, VR7+90± LT, VR8+99LT.

Install 290'± of primary & secondary overhead cable from proposed utility pole at VR6+64± RT to VR 7+93± RT to existing pole # 9389C to # 7135C.

Install 195'± of secondary overhead from existing pole # 9389C to propose pole at GNR 47+65± RT to GNR 46+32± RT. and K11+6± LT. From VR6+76± LT to VR7+90± LT to existing pole # 9389C to 7135C and proposed pole at GNR47+55± RT.

Install 450'± of proposed overhead fiber optic cables for Joe Max and Zayo Group from proposed utility pole at VR6+64± RT to VR 7+93± RT to existing pole # 9389C to # 7135C to # 9376C (Route 46 Crossing). Install 120'± of proposed overhead fiber optic cables for Joe Max from existing pole #9376C to #9405C to #7130C.

Remove 1015'± of primary and secondary overhead cable from existing pole at VR 5+61 (No Number) to existing pole # 60249C to 9279C and 66403C to 69606C and 9287. From 60249C to 69606C to 60247C to 66403C and existing pole at VR 8+90± RT (No Number).

Remove existing utility pole #'s:
9287C, and existing pole at VR 8+90± RT.

Rifle Camp Road:
Install temporary utility poles at the following location:
Sta. RCR5+20± LT.

Install 330± of temporary primary and secondary overhead cable from proposed utility pole at LA3+10± RT, to temporary pole at RCR5+20± LT, to proposed pole at ORCR 10+67± LT to existing pole # 60764WP.

Rifle Camp Road/Old Rifle Camp Road:
Install 105'± of primary and secondary overhead cable from proposed pole at RCR 5+26± RT to proposed pole at ORCR10+67± RT.

Great Notch Road:
Install 555'± of temporary primary and secondary overhead cable from proposed utility pole at LA3+10± RT, to existing pole # 60910 to existing pole #61167WP to existing pole #60499 to proposed pole at GNR 15+71± LT.

Route 46:
Install 140'± of temporary primary and secondary overhead cable from proposed utility pole at Ramp D Sta: D15+18± RT to proposed pole at Route 46 Sta; 123+24± LT.

St. Philips Drive:
Replace the following existing utility pole #'s:
10169, 10170, 69537, 69538, 69539, 69540, 67299, 67298, 67297, 67296, 67295, 67292.

Install new poles as per plan at Valley Road and St Philips Drive.
Transfer existing facilities to relocated poles and install new facilities.

Broad Street:
Relocate the following existing utility pole #'s:
63945, 63944, 63943, 63942, 70723, 70724, 63934, 63933, 63932, 63931, 63930 63929 and 63946.

Transfer existing facilities to relocated poles and install new facilities.

Construct three (3) electrical vaults (E15, E16 and E17) and install underground electrical ducts with risers to adjacent poles.

Install underground facilities.

Install new riser pole adjacent to vault E17.

Utility pole lighting located on poles to be replaced shall be transferred to proposed pole.

Haddenfield Terrace:
Install new 3,300' of 26kv aerial facilities between the following poles:
66331, 66332, 66333, 66334, 66335, 66336, 66337, 66338, 66339, 66340, 66525, 66526, 66527, 67310, 67309, 67308, 67307, 67306, 67305, 67304, 71250, 67303, 71249, 67302 and 67311.

Edwards Road:
Relocate the following existing utility pole #'s:
68155.

Utility pole lighting located on poles to be replaced shall be transferred to proposed pole.

Transfer existing facilities to relocated poles and install new 120' of 26kv aerial facilities.

Grove Street:
Relocate the following existing utility pole #'s:
Pole opposite Woodlawn Ave as per plan, 64055, 64054, 64053, 64052, 64051, 64050, 64049 and 64048.

Transfer existing facilities to relocated poles and install new 700' of 26kv aerial facilities.

Utility pole lighting located on poles to be replaced shall be transferred to proposed pole.

Woodlawn Avenue:
Relocate the following existing utility pole #'s:
61653, 61652, 61651, 61650, 61649, 61648, 66906, 66292, 66293,

62587, 66295, 66296, 66297, 67988, 69523, 69522 and 70460.

Transfer existing facilities to relocated poles and install new 2,100' of 26kv aerial facilities.

Utility pole lighting located on poles to be replaced shall be transferred to proposed pole.

Normal Avenue/Mountain Avenue:
Relocate the following existing utility pole #'s:
60318, 60317, 60316, 60315, 60314, 60313, 60312, 60311, 60310, 60309, 60308, 60307, 60306, 60305 and 62169.

Transfer existing facilities to relocated poles and install new 1,800' of 26kv aerial facilities.

Utility pole lighting located on poles to be replaced shall be transferred to proposed pole.

Route 46 WB:
Install 120'± of propose sub-transmission underground cable from proposed pole at 136+10± LT and proposed pole at 136+35± LT to propose pole at 137+55± LT and existing pole 60748LF.

Route 46 (EB Baseline):
Install proposed utility poles at the following locations:
Route 46 Sta. 172+00 RT, 173+00 RT, 174+36 RT, 175+58 RT, 176+19 RT.

Transfer existing facilities to proposed relocated poles and install new facilities.

Utility pole lighting located on poles to be replaced shall be transferred to proposed pole.

Conklin Drive:
Relocate the following existing utility pole #'s:
69158, 66303, 60663, 66304 and 65911.

Transfer existing facilities to relocated poles and install new facilities.

Utility pole lighting located on poles to be replaced shall be transferred to proposed pole.

Donnalin Place/Ivanhoe Lane:
Relocate the following existing utility pole #'s:
65884, 65885, 65886, 65887, 65888, 65889, 66301, 66699C and 68129C.

Transfer existing facilities to relocated poles and install new facilities.

Utility pole lighting located on poles to be replaced shall be transferred to proposed pole.

Notch Road (Clifton):
Relocate the following existing utility pole #'s:
66077C, 66076C and 66075C.

Transfer existing facilities to relocated poles and install new facilities.

Utility pole lighting located on poles to be replaced shall be transferred

	to proposed pole. Valley Road: Relocate the following existing utility pole #'s: 60208, 60207, 60206, 60205, 60204, 60203, 60201 and 64437. Install 2 new pols at the inter section of Valley Road and Woodlawn Avenue. Transfer existing facilities to relocated poles and install new 1,200' of 26kv aerial facilities. Utility pole lighting located on poles to be replaced shall be transferred to proposed pole. Ramp D/Notch Rd/Great Notch Road: Transfer existing overhead cable from existing pole #61433lF to proposed pole at Ramp D sta. D12+48. Route 46 EB/Route 3 EB: Remove existing fiber optic cable after new cable has been installed.		
PSE&G Gas	Valley Road: Sta. 10+00± to Sta. 17+00± Install 206'± of 2" steel gas main at 15 psi for existing service. 2" main to be sleeved into existing 4" up main. Install gas valve at Great Notch North Sta. 15+12±. Sta. 10+00± to Sta. 17+00± Abandon 204' of 6" CI gas main from Valley Road Sta. 4+28±, 29' Rt. to 5+84±, 21' Lt. Abandon 206'± of 4" UP existing service main. Sta. 10+00± to Sta. 17+00± Abandon and Cap 785' of 8" CI gas main from Valley Road Sta. 3+53±, 23' Lt. to 11+40±, 28' Lt. Remove existing gas main Regulator at Valley Road Sta. 8+28±, 25' Lt. Sta. 10+00± to Sta. 17+00± Install gas main Regulator at the intersection of Valley Road and Rock Hill Road and 60' of 6" plastic main from inlet to Regulator and 20' of 6" steel main from inlet to Regulator. Install 80' of 2" steel main for bypass of Regulator.	30	No work on existing gas facilities between November 15th and April 15th.
Verizon	Rifle Camp Road and Great Notch Road: Install 945'± of Temporary aerial telephone cable between the following utility poles: From proposed pole at ORCR 10+75± LT to temporary poles at RCR 5+10± RT to RCR 4+96± LT to RCR 3+85± LT to proposed pole at LA 3+10± and existing pole 60910 to 61167WP to 60499 to propose pole at GNR 15+74± RT. Also between existing pole 60764WP to temporary pole RCR 5+10±. Notch Road: Remove existing utility pole: 61590 and 200'± of existing overhead cable after other companies vacate poles. Route 46 (Mainline): Remove utility pole #'s 61153LF, 61154LF, 61155LF, 61156LF, 61160LF, 61163LF, 61167LF, 61168LF, 61169LF, 61170LF, 61171LF, 61783LF, 62311LF, 62312LF, 61310LF, 62215LF, 70372C and 3025'± of existing overhead cables after other companies vacate poles. Lackawanna Avenue: Install 425'± of proposed aerial telephone cable between the following proposed utility poles: LA 3+50± RT to LA 4+50± RT to LA 5+50± RT and to existing at	10	

pole 60704WP.

Remove existing utility poles:
60760WP, 60761WP, 60705WP and 510'± of existing aerial cables.
Old Rifle Camp Road/Great Notch Road/Rifle Camp Road/Old Rifle Camp Road:
Install 640'± of proposed aerial telephone cable:
From proposed pole at GNR 12+65± LT, to existing pole 61167WP.

From proposed pole at RCR 4+06± RT to RCR 5+30± RT to existing pole 60178WP.
Sta. ORCR 10+75± LT to existing pole 60178WP.

From propose pole at RCR 5+30± to existing pole 60764WP.

Old Rifle Camp Road/Rifle Camp Road:
Remove existing utility poles:
60910, 60122, 601023, 60124WP, 60758WP, 62051WP and 720'± of existing overhead cables after other companies vacate poles.

Great Notch Road:
Install 630'± of aerial telephone cable after PSE&G installs the following proposed utility poles for service to Great Notch Inn:
GNR 18+53± LT, GNR 19+36± LT GNR 20+70± LT, GNR 21+62 LT±, GNR 22+55± LT, GNR 23+82± LT.

Rt. 46:
Sta. 138+20± to Sta. 143+60±
Install 340'± of proposed aerial cable from existing pole 62080LF to propose pole at Sta. 138+80± to 61784LF to Sta. 141+00± to 61785LF and reconnect services.

Valley Road:
Remove existing utility poles:
60252C, 60249C, 70073C, 66403C, 69606C, 60247C and 600'± of existing overhead cables after other companies vacate poles.

Ramp K:
Install 370'± of proposed aerial cable from proposed poles at Sta. K10+55± RT to K11+75± LT to K12+95± LT to K14+35± LT and reconnect services.

Remove existing utility pole:
64701C, 64702C, 64805C and 410'± of existing overhead cables after other companies vacate poles.

St Philips Drive:
Remove existing replaced pole:
10169, 10170, 69537, 69538, 69539, 69540, 67299, 67298, 67297, 67296, 67295, 67292.

Route 46 (EB baseline):
Install 660'± of aerial telephone cable to proposed utility poles at the following locations:
Sta. 172+00 RT, Sta. 173+00 RT, Sta. 174+36 RT, Sta. 175+58 RT, Sta. 176+19 RT and connect to existing pole:
68935CC and 65273C

Remove existing pole:
68936C, 65271C, 65272C, 66302C and 660'± of existing overhead cables after other companies vacate poles.

Conklin Drive:
Transfer 415'± of cable to relocated poles on Conklin Drive as shown on plan.

Remove existing poles:
61958, 66303, 60663C, 66304C and 65911 as shown on plan after other companies vacate poles.

Donnalin Place:
Transfer 910'± of existing cable to relocated poles:
65884, 65885, 65886, 65887, 65888, 65889, 66301 and 66699C.

Remove existing pole:
65884, 65885, 65886, 65887, 65888, 65889, 66301 and 66699C after other companies vacate poles.

Notch Road (Clifton):
Transfer 405'± of existing cable to relocated poles:
66077C, 66076C and 66075C.
Connect to existing pole # 66074C.

Remove existing poles:
66077C, 66076C and 66075C after other companies vacate poles.

Broad Street:
Transfer cable to replaced poles:
63930, 63931, 63932, 63933, 63934, 63935, 63936, 62583 and 63937.

Remove existing pole:
63930, 63931, 63932, 63933, 63934, 63935, 63936, 62583 and 63937 after other companies vacate poles.

Transfer cable to replaced poles:
70724, 70723, 63942, 63943, 63944, 63945 and 67311.

Remove existing pole:
70724, 70723, 63942, 63943, 63944, 63945 and 67311 after other companies vacate poles.

Edwards Road:
Transfer cable to replaced poles:
68155

After PE&G replaces utility pole # 68155. Transfer existing facilities between pole #68154 to relocated poles to existing at utility pole #66331.

Remove existing pole:
68155 after other companies vacate poles.

Grove Street:
After PSE&G replaces utility pole #'s NPT, 64054, 64053, 64052, 64051, 64050, and 64049. Transfer existing facilities to proposed poles. Connect to existing at utility pole #'s 64055 and #P.

Remove existing poles:
NPT, 64054, 64053, 64052, 64051, 64050 and 64049 after other companies vacate poles.

Woodlawn Avenue:

	After PSE&G replaces utility pole #'s 66906, 66292, 66293, 62587, 66295, 66296, 66297, 67988, 69523 and 69522. Transfer existing facilities to proposed poles. Connect to existing at utility pole #'s NO, GUY, 67281, 67617, 67614, 67613, 66462, 67989, 69524 and 70319. Remove existing pole: 66906, 66292, 66293, 62587, 66295, 66296, 66297, 67988, 69523 and 69522 after other companies vacate poles. After PSE&G replaces utility pole #'s 61653, 61652, 61651, 61650, 61649 and 61648. Transfer existing facilities to proposed poles. Connect to existing at utility pole #'s 61643 and 61642. Remove existing pole: 61653, 61652, 61651, 61650, 61649, 61648 after other companies vacate poles. Valley Rd: After PSE&G relocates the following existing utility pole #'s: 60208, 60207, 60208, 60205, 60204, 60203, 60201 and 64437. Install 2 new pols at the inter section of Valley Road and Woodlawn Avenue. Transfer existing facilities to relocated poles and installs new facilities between existing pole 60208 to proposed poles and connect to existing at utility pole #'s 60207. Remove existing overhead cable between existing pole: 60208 to 60207 after other companies vacate poles. Normal Avenue: After PSE&G replaces utility pole #'s 60318, 60317, 60316, 60315, 60314, 60313, 60312, 60311, 60310, 60309, 60308, 60307, 60306, 60305 and 62169. Transfer existing facilities to proposed poles. Connect to Existing at utility pole #'s 63046, 65704, and 62363. Remove existing pole: 60318, 60317, 60316, 60315, 60314, 60313, 60312, 60311, 60310, 60309, 60308, 60307, 60306, 60305 and 62169 after other companies vacate poles. Route 46 (EB baseline) and Ramp E: Install temporary utility pole at E14+17± and install 835'± of temporary overhead facilities between existing pole 61165LF to proposed pole at 131+18± to 132+36± to 133+45± to E11+00± to E11+95± to E13+40± to temporary pole at E14+17± to meet existing at existing pole 60761LF. Route 46: Install 155'± of temporary overhead facilities between existing poles 60605LF to 61784LF.		
Passaic Valley Water Commission	Great Notch Road: Provide water main shutdown for the installation of Proposed 30" water main. Location to be determined by PVWC. Provide water main shutdown for the installation of Proposed 16" water main. Location to be determined by PVWC. Provide water main shutdown for the existing 51" main for the installation of Proposed 54" water main. Location to be determined by PVWC.	30	No interruption of service from June to September.

	Great Notch Road: Sta. GNR 26+50 Lt. and GNR 33+91 Rt. Provide water main shutdown for the installation of proposed 48" water main. Sta. GNR 26+40 Lt. and GNR 32+59 Rt. Provide water main shutdown for the installation of proposed 42" water main. Install new Air Relief Valve for 48" steel main at GNR 29+75± Lt.		Shut downs are not to occur during December, January and February.
City of Newark	Install new Air Relief Valve for 48" steel main at GNR 29+75± Lt.	30	
	Lackawanna Ave: Sta. 2+50± to Sta. 6+84± Install 496'± of proposed fire alarm and fiber optic cable from proposed pole at Sta. RCR 4+06± RT to proposed poles at Sta. LA 3+10±, LA 3+52±, LA 4+50±, LA 5+49±, LA6+81± and pole 60704. Relocate existing fire alarm pull box from existing pole number 60758 to proposed pole located at LA 3+52± RT. Sta. 2+50± to Sta. 6+84± Abandon 351'± of existing fire alarm and fiber optic cable from pole 60758 to 60704. Lackawanna Ave: Sta. 2+50± to Sta. 5+75± Great Notch Rd: Sta. 10+50± Notch Road: Sta. 16+57± Abandon existing sanitary sewer manholes at Sta. LA2+74±, LA3+72±, and NR 16+57±. Abandon 300'± of existing 8" sanitary sewer main. Great Notch Rd: Sta. 10+85± to Sta. 18+03± Install 717'± of proposed fire alarm and fiber optic cable between proposed poles at Sta. 10+85±, 11+59±, to 12+63±, to 13+70±, to 14+67±, to 15+71±, to 16+66± and to existing pole 61964. Abandon 715'± of existing fire alarm and fiber optic cable between poles 60758, 60910, 61167, 60499, 60429, existing pole at GNR 16+24± LT. (no number) and pole 61964. Rifle Camp Rd: Sta. 3+00± to Sta. 6+25± Install 282'± of proposed fire alarm and fiber optic cable between proposed pole at Sta. RCR3+70± to RCR4+06± to existing pole 60123 to proposed pole at Sta. 5+26± and to existing pole 60764. Abandon 329'± of existing fire alarm and fiber optic cable between poles 60758, 60122, 60123 and 60764. Old Rifle Camp Rd: Sta. 10+00± to Sta. 10+73± Install 177'± of proposed fire alarm and fiber optic cable between proposed utility pole at Sta. RCR 5+26± to ORCR10+93± to existing pole 60178.		
Woodland Park		30	

	Abandon 225'± of existing fire alarm and fiber optic cable between poles 60123 to 60124 to 60178. Rifle Camp Rd: Install 533' of temporary fire alarm and fiber optic cable from existing pole 60910 to proposed pole at RCR3+83± Lt. to temporary poles at RCR4+96± Lt. to RCR 5+08± Rt. to existing poles 60764 and proposed pole at ORCR10+68± Lt. Great Notch Rd: Install 438' of temporary fire alarm and fiber optic cable from existing pole 60910 to 61167 to 60499 to proposed pole at GNR 15+71± Lt.	
	Notch Road: Install new areal coaxial and fiber optic cable between existing pole 61143LF to 61145LF to 61147LF to 61148LF to 61150LF and to 62142LF. Install new fiber optic for Teleport Communications Group, NY (TCGNY) between existing pole 61147LF to 61148LF to 61150LF and 62142LF. Notch Road/Ramp D/Route 46 (EB)/Oak Hill Road: Remove all existing aerial facilities (including TCGNY facilities within Cablevision's communication zone) between existing pole 61143LF to 61145LF to 61147LF to 61148LF to 61150LF to 62142LF to 61937LF to 61152LF to 61433LF to 61153LF to 61154LF to 61155LF to 61156LF to 61160LF to 61152LF to 61153LF to 61165LF to 61168LF to 61169LF to 61170LF to 61171LF to 62080LF to 61783LF to 61784LF to 61785LF to 61786LF to 62311LF to 62312LF to 62310LF to 62215LF to 70372C to 7132C to 7131C to 7130C to 7129C. Notch Road/Lackawanna Avenue: Remove all existing aerial facilities (including TCGNY facilities within Cablevision's communication zone) between existing poles 661590 to 61935 to 61618WP to 60760WP to 60761WP to 60705WP to 60704WP. Lackawanna Avenue: Install new areal coaxial and fiber optic cables (including TCGNY facilities within Cablevision's communication zone) between proposed pole at NR 16+70±LT to LA3+55± LT to LA3+50± RT to LA4+50± RT to LA5+50± RT to LA6+80± RT to meet existing at existing pole 60704WP. Rifle Camp Road/Old Rifle Camp Road: Install new areal coaxial cables between proposed pole at LA3+50± RT TO RCR3+84± LT TO RCR4+06± RT to RCR5+26± RT to existing pole 60764WP and proposed pole at ORCR10+67± LT to existing pole 60178WP. Install new areal TCGNY fiber optic cables between proposed pole at LA3+50± RT to RCR3+84± LT to RCR 4+06± RT. Remove all existing aerial facilities (including TCGNY facilities within Cablevision's communication zone) between existing pole 60122 to 60123WP to 60764WP and 60124WP to 60178WP. Rifle Camp Road/Old Rifle Camp Rd/Great Notch Road: Install temporary areal coaxial cables between existing 60764WP and 60124WP to temporary pole RCC5+05± RT to RCR4+95± LT to PROPOSED POLE AT RCR3+84± LT to EXISTING POLE 60910 to 61167WP to 60499 to proposed pole at GNR15+71± RT.	
Cablevision		10

Great Notch Road:
Install new areal coaxial and fiber optic (including TCNY fiber optic cables within Cablevision's communication zone) between proposed pole at LA3+50 RT to RCR4+06± RT to GNR10+82± LT to GNR11+58± LT to GNR12+62± LT to GNR13+69± LT to GNR14+66± LT to GNR15+71± LT to GNR16+66± LT to GNR18+03± LT to GNR18+54± LT to GNR19+36± LT to GNR20+69± LT to GNR21+62± LT to GNR22+56± LT to GNR23+81± LT to GNR25+12± LT to GNR26+26± LT to GNR27+33± LT to GNR28+42± LT to GNR29+37± LT to GNR30+29± LT to GNR31+21± LT to GNR32+28± LT to GNR33+35± LT to GNR34+54± LT to GNR35+80± LT to GNR37+03± LT to GNR38+10± LT to GNR39+35± LT to GNR40+10± LT to GNR40+93± LT to GNR41+58± LT to GNR42+69± LT to GNR43+89± LT to GNR44+80± LT to GNR45+74± LT to GNN12+55± LT to GNN13+75± LT to existing pole 60250C.

Great Notch Road/Route 46 (WB):
Remove all existing aerial facilities (including TCGNY facilities within cablevision's communication zone) between existing pole 60910 to 61167WP to 60499 to 60429 to 62049WP to 62310WP to 61161LF to 61781LF to 61685WP to existing pole (NO #) to 2464WP to 2506WP to 60781WP to 61944LF to 60748LF to 60747LF to 60605LF to 60745LF to 60744LF to 60743LF 60742LF to 60741LF to 60740LF to 60739LF to 61640LF to 60429W to 63072C to 63073C to 69632C to existing pole (NO #) to 66403C to 60249C to meet existing at 60250C.

Route 46 (EB):
Install new areal coaxial cables between existing pole 62080LF to proposed pole at Route 46 Sta. 138+83± RT to existing pole 61784LF to proposed pole at 141+03± RT to meet existing at pole 61785LF.

Valley Road:
Remove all existing TCGNY aerial facilities (within Cablevision's communication zone) between existing poles 7129C to 11131C to 60243 to 60242C to 68128C to 68128C to 60240 to 60239 and to 60238.

Install new areal coaxial and fiber optic (including TCNY fiber optic cables within Cablevision's communication zone) between proposed poles at GNN 13+75± LT to proposed pole at vr7+95± LT to existing at pole 9389C to proposed pole 9+00± RT to meet existing pole 60248C. Install new areal TCGNY fiber optic cables between proposed pole at GNN 13+75± LT to proposed pole at VR7+95± LT to existing at pole 9389C to 7135C to 9376C to 9405C to 7130C to 7129C to 11131C to 11132C to 60243 60242C to 68128C to 8128C to meet existing at pole 60240.

Ramp K:
Install new areal coaxial cable between proposed poles at 9+00± RT to K11+78± RT to K12+98± LT to K14+27± LT to meet existing pole 64806C.

Remove all existing aerial facility between existing poles 66403C to 60247C to 64701C to 64702C to 64805C to 64806C.

St. Philips Drive:
Transfer cable to replaced poles:
60252C, 10169, 10170, 69537, 69538, 69539, 69540, 67299, 67298, 67297, 67296, 67295, 67292, 69988C and 68935C.

	Route 46 (EB): Transfer cable to replaced poles: 68935C, 68936C, 65271C, 65272C, 66302C and 65273C. Conklin Drive: Transfer cable to replaced poles: Existing poles 69158, 66303, 60663C, 66304C and 65911. Donnalin Place to Ivanhoe Lane: Transfer cable to replaced poles: 65884, 65886, 65887, 65888, 65889, 66301, 66699c 68129C and 66359. Notch Road (Clifton): Transfer cable to replaced poles65884, 65886, 65887, 65888, 65889, 66301, 66699C 68129C and 66359. Broad Street: Transfer existing facilities to the following relocated and new poles: 63946, 63945, 63944, 63943, 63942, 70723, 70724, 70725, 63934, 63933, 63932, 63931, 63930 and 63929. Grove Street: Transfer cable to replaced poles: pole opposite Woodlawn Avenue as per plan, 64055, 64054, 64053, 64052, 64051, 64050, 64049 and 64048. Edwards Road: Transfer cable to replaced poles: 68155. Woodlawn Avenue: Transfer cable to replaced poles: 61653, 61652, 61651, 61650, 61649, 61648, 66906, 66292, 66293, 62587, 66295, 66296, 66297, 67988, 69523, 69522 and 70460. Normal Avenue: Transfer cable to replaced poles: 62169, 60318, 60317, 60316, 60316, 60315, 60314, 60313, 60312, 60311, 60310, 60309, 60308, 60307, 60306 and 60305. Route 46 (EB)/Ramp E/Clove Road: Install temporary aerial facilities between existing pole 61165LF to proposed pole at 131+18± to 132+36± to 133+45± to e11+00± to e11+95± to e13+40± to temporary pole at E14+17± to meet existing at existing pole 60761LF. Route 46: Install temporary aerial facilities between existing poles 60605l to 61784LF. Valley Road: Transfer cable to replaced poles: 60208, 60207, 60208, 60205, 60204, 60203, 60201 and 64437.	
	Normal Ave: After the following poles have been relocated by PSE&G: 62169, 60305, 60306, 60307, 60308, 60309, 60310, 60311, 60312, 60313, 60315, 60316 and 60317. Transfer 1,625' of existing facilities to relocated poles.	
Comcast	Mountain Ave and Clove Road:	5

	After the following poles have been relocated by PSE&G: 62169, 60318, 61649, 61550, 61551, 61552, 61553, 60265 and 60264. Transfer 1,055' of existing facilities to relocated poles.	
Teleport Communications Group	Lackawanna Ave: Tie-in relocated fiber optic facilities to existing at utility pole # 60704WP after Cablevision relocates existing 96 fiber. Notch Rd: Tie-in relocated fiber optic facilities to existing at utility pole # 61147LF after Cablevision relocates existing 96 fiber. Tie-in relocated fiber optic facilities to existing at utility pole # 61145LF after PSE&G Electric relocates existing 96 fiber. Tie-in relocated fiber optic facilities to existing at utility pole # 61143LF after Cablevision relocates existing 96 fiber. Valley Rd: Tie-in relocated fiber optic facilities to existing at utility pole # 60238 after Cablevision relocates existing 96 fiber. Tie-in relocated fiber optic facilities to existing at utility pole # 60239 after PSE&G Electric relocates existing 96 fiber.	10
Zayo Group	Ramp D/Notch Rd/Great Notch Road: Utilize new Verizon conduit system and install new (3) 1.25" innerducts in (1) 4" conduits within new Verizon conduit. Splice from PSE&G power zone and install new 432ct fiber optic cable from proposed pole at D12+48 to MH V3. Great Notch Road: Install new (3) 1.25" innerducts in (1) 4" conduits within new Verizon conduit. Install new 432ct fiber optic cable from MH V3 to MH V32 to MH V5 to MH V6 to proposed pole at GNR 38+08. Route 46 EB/Route 3 EB: Splice and test at proposed pole at Ramp D sta. D12+48 and at existing pole #70767. Great Notch Road/Valley Road: Install new 432ct aerial fiber optic cable from proposed pole at GNR 38+08, to relocated pole #60252 on Valley Road within Verizon communication zone. St Philip Drive: Install new 432ct aerial fiber optic cable from relocated pole #60252 on Valley Road to existing pole #68935 on Route 46 EB c/o Conklin Dr. within Verizon communication zone. Route 46 EB: Install new 432ct aerial fiber optic cable aerial from existing pole #68935 on Rt. 46 EB to relocated pole #69158 within Verizon communication zone. Conklin Drive: Install new 432ct aerial fiber optic cable from relocated pole #69158 on Rt. 46 EB c/o Conklin Dr. to relocated pole #65911 on Conklin Dr. c/o Donnalin Pl. within Verizon communication zone. Donnalin Place: Install new 432ct aerial fiber optic cable from relocated pole #65911 on Conklin Dr. c/o Donnalin Pl. to relocated pole #66699 on Donnalin Pl.	10

	c/o Notch Rd. within Verizon communication zone. Notch Road: Install new 432ct aerial fiber optic cable from relocated pole #66699 on Donnalin Pl. c/o Notch Rd. to relocated pole #66075 on Notch Rd within Verizon communication zone. Grove Street: Install new 432ct aerial fiber optic cable from existing pole (no number) on Grove St. c/o Notch Rd. To pole #70767 on Rt. 46 EB (west of Grove St. overpass) within Verizon communication zone. Relocate existing slack coil from pole #7524 (not shown) to pole #70767 from existing pole #70767 to proposed hand hole ZG01. Splice new 432ct fiber to existing fiber optic cable and to riser back to power zone.	
Verizon Business (Formerly MCI)	Notch Road and Rifle Camp Road: Install and splice 750'± of 96 fiber optic cable between existing MH 27 to proposed MH M1. Notch Road/Great Notch Road/Rifle Camp Road: Install temporary fiber optic facilities between existing MH 27 to existing pole 62142LF to 61937LF to 61152LF to 2677LF to proposed pole at Route 46 sta. 120+00± LT to GNR 11+25± RT to existing pole 60910 to proposed pole at RCR 3+75± LT to temporary pole at RCR 5+20± LT to existing pole 60764WP to meet existing at proposed MH M1.	10
	Notch Road/Lackawanna Ave/Rifle Camp Road: Splice and install overhead fiber optic (within communication zone) at existing pole B103 to 61143LF to 61145LF to 61147LF to 61150LF to 62142LF to 61937LF to 61152LF to proposed pole at D12+45± RT. Install underground fiber optic (within Verizon's conduit system) between proposed pole at d12+45± rt to proposed Verizon MH V1 to Verizon MH V3 to RCR4+07± RT and splice. Rifle Camp Road: Install temporary fiber optic between proposed RCR3+84± LT to temporary pole at RCR5+25±RT to existing pole 60764WP. Install proposed overhead fiber optic (within communication zone) between proposed pole at RCR4+07±RT to RCR5+25±RT to exiting pole 60764WP. Notch Road/Rifle Camp Road: Remove existing overhead facilities between existing pole B103 to 61143LF to 61145LF to 61147LF to 61150LF to 62142LF to 61937LF to 61935 to 61618WP to 60758WP to 60122. Rifle Camp Road: Remove existing overhead facilities between existing poles 60122 to 60123WP to 60764WP. Great Notch Road: Install temporary fiber optic between proposed RCR3+84±LT to existing pole 60910 to 61167WP to 60499 to proposed pole at GNR15+21±LT.	
Fibertech Networks	Proposed overhead fiber optic (within communication zone) between proposed pole at Sta. GNR10+74±RT, GNR10+85±RT,	10

	GNR11+58±LT, GNR12+62±LT, GNR13+69±LT, GNR14+66±LT, GNR15+71±LT, GNR16+66±LT, GNR18+03±LT, GNR18+54±LT, GNR19+36±LT, GNR20+69±LT, GNR21+62±LT, GNR22+56±LT, GNR23+81±LT, GNR25+12±LT, GNR26+26±LT, GNR27+33±LT, GNR28+42±LT, GNR29+37±LT, GNR30+29±LT, GNR31+21±LT, GNR32+28±LT, GNR33+35±LT, GNR34+54±LT, GNR35+80±LT, GNR37+03±LT, GNR38+10±LT, GNR39+35±LT, GNR40+10±LT, GNR40+93±LT, GNR41+58±LT, GNR42+69±LT, GNR43+89±LT, GNR44+80±LT, GNR45+74±LT, GNR46+32±RT, GNR47+65±RT, GNN12+55±LT, GNN13+75±LT. Ramp D/Route 46 EB: Remove existing overhead facilities between existing pole 61937LF to 61152LF to 61433LF to 61153LF to 61154LF to 61155LF to 61156LF to 61160LF to 61162LF to 61163LF to 61165LF to 61167LF to 61168LF to 61169LF to 61170LF to 61171LF to 62080LF to 61783LF to 61784LF to 61785LF to 61786LF to 62311LF to 62312LF to 62310LF to 62215LF to 70372C to 9376C to 9405C to 11133C. Valley Road: Install proposed overhead fiber optic (within communication zone) between proposed pole GNN13+75±LT to SRK12+02±RT to SRK13+30±RT to SRK14+05±RT to SRK14+75±RT and splice and install to VR8+99±RT to existing pole 60248C. Ramp K: Remove existing overhead facilities between existing poles 60247C to 64701C. Route 3 EB: Transfer existing facilities to the following relocated poles: 63946, 63945, 63944, 63943, 63942, 70723, 70724 and 70725. Ramp E/Clove Road: Install temporary overhead facilities between existing pole 61165lF to proposed pole at 131+18± to 132+36± to 133+45± to E11+00± to E11+95± to E13+40± to temporary pole at E14+17± to meet existing at existing pole 60761lF.	
	Stage Total	___245_____

Stage #2 _____

Utility Company Name	Work Description	Work Duration (Day/s)	Restrictions
PSE&G Electric	Clove Road: Relocate the following existing utility pole #'s: 61549, 61550, 61551, 61552, 61553, 60265, 60264, 60263, 60262, 60261, 60262, 60261, 60260, 60259, 60258, 60257, 60256, 60255, 60254, 60253 and 60252. Transfer existing facilities to relocated poles and install new 2,685' of 26kv aerial facilities. Utility pole lighting located on poles to be replaced shall be transferred to proposed pole.	7	
Verizon	Clove Road: Remove existing utility poles: 61039LF, 61038LF, 61037LF, and 775'± of existing overhead cables after other companies vacate poles.	10	

	After PSE&G relocate the following existing utility pole #'s: 61549, 61550, 61551, 61552, 61553, 60265, 60264, 60263, 60262, 60261, 60262, 60261, 60260, 60259, 60258, 60257, 60256, 60255, 60254, 60253 and 60252. Transfer existing facilities to relocated poles. Remove existing pole: 61549, 61550, 61551, 61552, 61553, 60265, 60264, 60263, 60262, 60261, 60262, 60261, 60260, 60259, 60258, 60257, 60256, 60255, 60254, 60253 and 60252 after other companies vacate poles.	
Cablevision	Clove Road: Remove all existing aerial facilities between existing pole 61171LF to 61039LF to 61038LF and to 61037LF. Transfer cable to replaced poles: 61549, 61550, 61551, 61552, 61553, 60265, 60264, 60263, 60262, 60261, 60262, 60261, 60260, 60259, 60258, 60257, 60256, 60255, 60254, 60253 and 60252.	10
Teleport Communications Group	Clove Road: Tie-in relocated fiber optic facilities to existing hand hole at CR16+55± after Cablevision relocates existing 96 fiber.	10
Fibertech Networks	Clove Road: Splice and install underground fiber optic (within Verizon's conduit system) between proposed Verizon MH V5to Verizon MH V2 to existing pole 60761LF and splice to existing. Remove existing overhead facilities between existing poles 61171LF to 61039LF to 61038LF to 61037LF to 60761LF.	10
	Stage Total	47

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).

(1) 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.

(2) 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.

(3) 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.

(4) 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.

(5) 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.stopthesoot.org within 10 days of the end of the quarters ending March 31, June 30, September 30 and December 31 by e-mail to the RE.

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.

106.07 CERTIFICATION OF COMPLIANCE
THE ENTIRE TEXT IS CHANGED TO:

106.07.01 Certification of Compliance

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

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

1. Project Name.
2. Name of the Contractor.
3. Material description.
4. Quantity of material represented by the certification.
5. Means of identifying the consignment, such as label marking or seal number.
6. Date and method of shipment.
7. A statement that the material conforms to the Contract material requirements and that representative samples

have been sampled and tested.

8. If the submission is for an assembly of materials, a statement that the assembly conforms to the Contract.
9. Signature of a person having legal authority to bind the supplier.
10. Typed or printed name of the person who signed the certification.

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

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

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

106.07.02 Certification for iron and steel

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

B. Incidental Steel or Iron Components and Manufactured Products. Incidental steel and iron components such as lifting hooks, tie wire, chairs, nuts, bolts and screws are not required to be certified for compliance with Buy America requirements. For manufactured products that are not made predominantly of steel, the steel components are not required to be certified for compliance with Buy America requirements.

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

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

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

Ensure that step Certifications of Compliance contain the following information:

1. Name of the Company supplying the material.
2. Name and location of the Company the material was shipped to.
3. Material description.
4. Quantity of material represented by the Certification.
5. Means of identifying the consignment, such as label marking or seal number.
6. Date and method of shipment.
7. A statement that the material conforms to the Contract material requirements and to the Buy America requirements in 106.03.

8. A statement that all steel or iron components in the material or assembly were "melted and manufactured in the US", unless there is non-domestic steel or iron in the material or assembly.
9. If there is non-domestic steel or iron in the assembly, describe in detail the non-domestic steel or iron material and the quantity. Attach a copy of the Department's approval for the use of non-domestic steel or iron components.
10. Signature of a person having legal authority to bind the supplier.
11. Typed or printed name of the person who signed the certification.

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

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:

Drilling and blasting.

Above ground highway lighting items.

Above and below bridge deck lighting items.

Electrical wire items.

ITS items, except for foundations, standards, and junction boxes.

Traffic signal items.
Water main items.
Gas main 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

108.06 NIGHT OPERATIONS

2. Visibility Requirements for Workers and Equipment.

THE FIRST PARAGRAPH IS CHANGED TO:

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

108.07.02 Changes to the Traffic Control Plan (TCP)

THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

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

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 46 Westbound (Three Lanes):	
Overrun of "Two Lanes Maintained" Time Limits	**$50/minute**
Overrun of "One Lane Maintained" Time Limits	**$40/minute**
Route 46 Eastbound (Three Lanes):	
Overrun of "Two Lanes Maintained" Time Limits	**$80/minute**
Overrun of "One Lane Maintained" Time Limits	**$80/minute**
Route 3 Westbound (Three Lanes):	
Overrun of "Two Lanes Maintained" Time Limits	**$10/minute**
Overrun of "One Lane Maintained" Time Limits	**$10/minute**
Route 3 Eastbound (Three Lanes):	
Overrun of "Two Lanes Maintained" Time Limits	**$90/minute**
Overrun of "One Lane Maintained" Time Limits	**$90/minute**

108.09 MAINTENANCE WITHIN THE PROJECT LIMITS

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

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

108.10 CONTRACT TIME

A. Complete all work required for Substantial Completion on or before December 5, 2017.

B. Achieve Completion on or before April 4, 2018.

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.

108.12 RIGHT-OF-WAY RESTRICTIONS

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

Properties and Vacation/Availability Dates

Demolition and/ or Parcel No	Approximate Baseline Station	Offset/Direction	Date
96A	Clove Road Sta. CR 14+00	10’ Rt.	December 31, 2014
ER96B	Route 46 Sta. 139+00	120’ Rt.	December 31, 2014
PE96C	Route 46 Sta. 139+00	120’ Rt.	December 31, 2014
97A	Access Road Sta. AR 11+50	10’ Lt.	December 31, 2014

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 Subsection 108.10 of these Special Provisions, for Substantial Completion, the Department will assess liquidated damages in the amount of $15,900.00.

B. For each day that the Contractor fails to achieve Completion as specified in Subsection 108.10 of these Special Provisions, the Department will assess liquidated damages in the amount of $4,950.00.

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:

- 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
- 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.

THE TENTH PARAGRAPH IS CHANGED TO:

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

109.06 MATERIALS PAYMENTS AND STORAGE
THE TEXT BEFORE THE LIST UNDER THE FIRST PARAGRAPH IS CHANGED TO:

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

109.07 BONDS POSTED IN LIEU OF RETAINAGES
THE FIRST PARAGRAPH IS CHANGED TO:

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

109.09 AUDITS
THE FOLLOWING IS ADDED:

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

DIVISION 150 – CONTRACT REQUIREMENTS

SECTION 151 – PERFORMANCE BOND AND PAYMENT BOND

151.03.01 Performance Bond and Payment Bond
THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Submit the broker's fees, the certified rate schedule, paid invoices and the report of execution for the bond to the RE.

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

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.

B. Types

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.

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):

New Jersey Transit Rail Operations

Eli Charchar
NJ Transit
One Penn Plaza East
Newark, NJ 07105
Phone (973) 491-8086
Fax (973) 491-8079

It is estimated that five 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 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 10 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:

4 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. 1 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:
12 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 Holder (each holds 50)

1 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 (1) AND (2) ARE CHANGED TO:

2. 1 digital camera(s). Ensure each digital camera has auto-focus, with rechargeable batteries and charger, 2 MB memory card, USB Memory Card Reader compatible with camera and field office computer, 1.5 inch LCD monitor, 12 mega pixel resolution, 12 X 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 2.8GB (or larger) recordable DVD's compatible with the camcorder

7. Inspection Equipment.

1. 10 Calculators with trigonometric capability
2. 2 Date/ Received stamp and ink pad
3. 2 Electronic Smart level, 4 foot
4. 2 Electronic Smart level, 2 foot
5. 10 Carpenter rulers
6. 2 Steel tape, 100 feet
7. 2 Cloth tape, 100 feet
8. 2 Illuminated measuring wheel
9. 1 Plumb bob and cord
10. 1 Line level and cord
11. 2 Surface thermometer
12. 2 Concrete thermometer
13. 2 Digital infrared asphalt thermometer
14. 1 Direct Tension Indicator (DTI) Feeler Gage, 0.005 inch
15. 1 Sledge hammer, 8lb

16. 2 Self leveling laser level with range of 100 feet and an accuracy of ¼ inch per 100 feet
17. 10 Hard hats - orange, reflectorized hard hats according to ANSI Z89.1.
18. 10 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. 10 Sets of orange rain gear with reflective sheeting
20. 10 Sets of hearing protection with a NRR rating of 22 dB
21. 10 Sets of eye protection according to ANSI Z87.1
22. 4 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. 8 Lantern flashlight, 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. 10 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. 500 Legal size hanging folders
30. 500 Legal size manila file folders – three tab
31. 6 Magnetic Mount 12 V LED amber lights for vehicles

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, and PERFORMANCE AND PAYMENT BOND.

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

158.02 DESCRIPTION
THE FOLLOWING IS ADDED:

This section also includes the requirement of Bioretention Basin and Sand Filter / Detention Basin sand layer.

158.02 MATERIALS
THE FOLLOWING IS ADDED:

Bioretention basin and Sand Filter / Detention Basin sand layer must consist of clean medium aggregate concrete sand in accordance with AASHTO M-6 / ASTMC-33. Ensure that the sand layer shall have a permeability rate between 6 and 20 inch/hour.

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:

THE FOLLOWING IS ADDED:

158.03.04 Basin Sand Layer

After the RE has approved the installation of the Basin Underdrains and the Gravel Underdrain Layer, install the geotextile as indicated on Construction Details CD-2 of these Contract Documents. Install the Basin Sand Layer on top of the Gravel Underdrain Layer of Sand Filter / Detention at approximately Rifle Camp Road Baseline Station RCR4+50 Left, as indicated on the Construction Plans and Construction Details of these Contract Documents.

During basin construction, precautions must be taken to prevent infiltration sand layer compaction by construction equipment and sediment contamination by runoff. Perform sand placement with equipment placed outside the basin bottom whenever possible. Use light earth moving equipment with oversized tires when the basin bottom must be entered.

158.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
BASIN SAND LAYER	CUBIC YARD

THE FOLLOWING IS ADDED AFTER THE LAST PARAGRAPH:

Sand layer will be measured by the cubic yard using the average end area method according to Section 109.01.

SECTION 159 – TRAFFIC CONTROL

159.02.01 Materials
THE FOLLOWING IS ADDED:

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

Portable Variable Message Sign w/Remote Communication…….……...……1001.04

159.03.02 Traffic Control Devices

5. Temporary Crash Cushion
THE SECOND SENTENCE IS CHANGED TO:

6. Traffic Control Truck with Mounted Crash Cushions.
THE LAST SENTENCE IS CHANGED TO:

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

THE FOLLOWING IS ADDED TO THE SECOND PARAGRAPH:

8. Portable Variable Message Sign 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.

THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

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

Provide for one week of testing by the TOC for remotely operating the PVMSRC before the start of construction operations that require lane or shoulder closures, or other impacts to traffic. At least 10 days

before testing, submit to the RE for approval a plan for any work to be completed in the TOC. Submit a request to the RE at least 4 days in advance to access the TOC for any work.

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 and TRAFFIC MARKINGS 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.

159.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION	UNIT.
TEMPORARY CRASH CUSHION, COMPRESSIVE BARRIER, TYPE___, WIDTH___	UNIT

THE FOLLOWING ITEM IS DELETED:

Item	*Pay Unit*
TEMPORARY CRASH CUSHION, ___	UNIT

THE SECOND PARAGRAPH IS CHANGED TO:

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

THE FOLLOWING IS ADDED

If after being notified by the Department that the PORTABLE VARIABLE MESSAGE SIGN WITH REMOTE COMMUNICATION 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 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.

201.03.03 Temporary Shielding
THE FOLLOWING IS ADDED:

Stay-In-Place (SIP) forms cannot be used for Temporary Shielding.

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

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

Remove following:

Parcel No.	Tank Size	Contents	Tank Registration No.
ER96B, PE96C	6,000 Gallons	Light Diesel Fuel (No. 1-D)	027038
ER96B, PE96C	6,000 Gallons	Unleaded Gasoline	027038
ER96B, PE96C	10,000 Gallons	Unleaded Gasoline	027038
ER96B, PE96C	10,000 Gallons	Unleaded Gasoline	027038

201.03.08 Asbestos Removal

Asbestos removal may be performed on Parcel R76A, also known as 1250 US Highway 46 West, and Parcel ER96B, also known as 455 US Highway 46 East. An asbestos survey will be completed by the Department when the parcels become available (expected in November 2014). Once the survey report is finalized by the Department, the report will be made available.

201.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

The Department will not make payment for the Item CLEARING SITE in excess of $325,000 until Completion.

The payment schedule for CLEARING SITE, BRIDGE (Structure No. 1606-167) will be as follows:

- For the Item CLEARING SITE, BRIDGE (Structure No. 1606-167), the Department will not make payment in excess of $100,000 until Substantial Completion.
- The Department will make payment of fifty percent of the price bid (or $50,000, whichever is less) upon acceptance of Stage I demolition.
- The Department will make payment of fifty percent of the price bid (or $50,000 whichever is less) upon acceptance of Stage II demolition.

The Department will not make payment for the Item CLEARING SITE, BRIDGE (Structure No. 1600-515) in excess of $150,000 until Substantial Completion.

The Department will not make additional payment for the removal and re-installation of temporary shielding. All temporary shielding, for demolition and construction, will be paid for under the price bid for the lump sum pay item TEMPORARY SHIELDING.

SECTION 202 – EXCAVATION

202.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This section describes the requirements for scarification of subsoil in areas of compacted soils prior to topsoiling, fertilizing and seeding and/or planting.

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.

3. Rock Areas.

REPLACE THE SECOND PARAGRAPH WITH THE FOLLOWING:

a. Rock Scaling. Rock Scaling is the removal of loose or unstable blocks or wedges of rock from the top and face of rock slopes. Conduct pre-blast and post-blast scaling. Prior to mobilizing equipment on the site, obtain concurrence from the RE that the method or methods selected for the scaling operation and the maintenance and protection of traffic are appropriate. Submit to the RE for his review a written description of the scaling method or methods selected, including proposed scaling equipment and roadway protection schemes twenty-one (21) days prior to the start of scaling. Scaling may be accomplished by manual and/or mechanical methods. Rock Scaling is considered an incidental item under the terms of this contract and will not be measured for payment.

(1) The scaling operations must be conducted by personnel experienced in scaling work, so as to minimize damage to the surrounding sound rock.

(2) For the purpose of estimating the size of equipment to be required for the scaling operations, it is anticipated that individual rock blocks up to approximately two (2) cubic yards in size may have to be removed from the slope.

(3) Ensure the scaling operations are sufficient to only remove loose rock blocks.

(4) A representative of the RE must be present during all post-blast scaling activities. The RE's representative will:

(a) Approve the method of scaling, if more than one method has been approved, per the Contractor's submittal.
(b) Determine the limits of scaling.
(c) Inspect the new rock face after scaling and determine if additional scaling is required.

(5) Accomplish the scaling work such that all dislodged and falling rock is contained within the work area and that rock or rock fragments are prevented from reaching the travel lanes of the roadway. The precautions required herein are the minimum required, the Contractor may implement any additional precautions he or the RE deems necessary to prevent rock from reaching the travel lanes.

(a) Ensure that falling rock is confined to the construction site between the work zone barrier and the existing toe of the rock slope.
(b) Prior to the start of the scaling operations, place a two-foot thick layer of embankment material (Earth Cushion) between the work zone barrier and the existing toe of the rock slope, to absorb the impact of falling rock. This material must be removed following completion of the blasting, scaling, and excavation work, as further described under Blasting Safety below..
(c) Remove all dislodged material collected at the toe of the slope on the Earth Cushion daily.
(d) Take protective measures as required to ensure the roadway and its appurtenances, including all below grade utilities are protected at all times during construction. Design protective measures to absorb or deflect impact from falling rock. Correct any items damaged in the course of the work to the satisfaction of the RE at no additional cost to the Department.
(e) At all times, protect any existing structures from falling debris within a 200 foot radius of the blast. Obtain approval for the method for protecting the sign structure components from the RE.

(6) Perform the rock scaling operations only with the presence of roadside barrier as described herein under Blasting, Safety (Section E). In addition, utilize traffic slowdowns if the RE or Contractor has safety concerns about the size and location of boulders or large rock blocks to be removed. If directed by the RE, slowdowns must be used for large rock block removal. Do not start scaling operations unless the operation can be completed in the times specified for lane closure, except as approved by the RE.

(7) Dispose of all material removed from the slope in a timely manner to the satisfaction of the RE.

a. Blasting Plan.

THE SUBPART HEADING IS CHANGED TO:

b. Blasting Plan.

REPLACE THE FIRST SENTENCE WITH THE FOLLOWING:

Submit a detailed blasting plan not less than three (3) weeks before commencing drilling and blasting operations.

THE FOLLOWING IS ADDED TO THE EXISTING REQUIREMENTS OF THE BLASTING PLAN (ITEMS 1 THROUGH 9 IN THE NJDOT STANDARD SPECIFICATIONS):

10. Site Plan with location of nearest residential, commercial or other structures.
11. Sequence and schedule of blasting rounds, including the general method of developing the excavation.
12. Specifics of a typical blast round to be implemented.
13. Include the following details for both production holes and perimeter holes:
    (a) Plan of each blast showing hole spacing and delay pattern.
    (b) Diameter and depth of each hole.
    (c) Amount of explosive per hole.
    (d) Total pounds of explosives per delay.
    (e) Total amount of explosives per blast.
    (f) Type of non-electric or electric delays to be used. If electric delay caps are used, submit procedures for checking for stray currents, induced currents, and radio frequency energy.
    (g) Type and amount of stemming in each hole.
    (h) Type of explosive to be used.
    (i) Scaled Distance ($R/W^{½}$) to the nearest structures.
    (j) Estimated maximum PPV at the nearest structures.
14. Type, size, and methods of placing blasting mats to prevent flyrock.
15. Movable Blasting Protection Barriers to be employed to prevent flyrock from entering highway.
16. Method for protection of existing structures, adjacent property, workers, personnel, and the general public from damage or injury from improper handling of explosives or flyrock.
17. Written evidence of the licensing, experience and qualifications of the blasters who will be directly responsible for the loading of each shot and for firing it.
18. Name and qualifications of the person responsible for design and directing the blasting.
19. Name and qualifications of the independent professional engineer responsible for conducting pre- and post-blast condition surveys.
20. Name and qualifications of the independent professional engineer or seismologist responsible for monitoring and reporting blast vibrations.
21. Details of an audible advance signal system to be employed at the job site as a means of informing workers, RE, and the general public that a blast is about to occur.
22. List of the instrumentation proposed for use to monitor vibrations and airblast overpressure levels, complete with performance specifications.
23. Recent calibration certificate(s) (within previous twelve (12) months) for the proposed blast monitoring instrumentation. Calibration shall be a standard traceable to the National Bureau of Standards.
24. Submit a copy of the blasting permit obtained to conduct blasting on the site.
25. A certificate of insurance documenting that the required liability insurance coverage will be in force for the duration of blasting at the sites.
26. Pre- and post-blast condition surveys, as described herein.

27. Listing of instrumentation proposed for use in profiling rock face and for surveying as-drilled locations of blast holes, complete with catalog cuts, performance specifications and operating procedures.
28. Listing of inclinometer type device to be used to accurately position drill angle on all drill rigs, complete with catalog cuts, specifications, and operation procedures.
29. Listing of warning signs and signals as specified by N.J.S.A. Chapter 190 (12.190-7.9).

REPLACE THE LAST SENTENCE OF THE SUBPART WITH THE FOLLOWING:

Review by the RE of blast designs and techniques shall not relieve the Contractor of responsibility for the accuracy, adequacy and safety of the blasting, exercising proper supervision and field judgment, and producing the results within the blasting limits required by these Specifications.

THE FOLLOWING SUBPART IS ADDED:

c. Blast Monitoring Report. Within 24 hours following each blast, submit a Blast Monitoring Report. Include all of the following applicable items in each Blast Monitoring Report:

1. Blast round design data, as indicated in items 12 and 13 above.
2. Blast Monitoring Location Plan, indicating the location from the blast, and the distance of the blast to the monitoring locations.
3. Vibration and airblast overpressure data from each seismograph, including a copy of the strip charge (or other permanent record of velocity/time waveform) with calibration and monitoring record marked with the date, time and location of the blast.

b. Blasting Test Sections.

THE SUBPART HEADING IS CHANGED TO:

d. Blasting Test Sections.

REPLACE THE FIRST PARAGRAPH WITH THE FOLLOWING:

Ensure the initial blast at the site is a series of test blasts, for the purpose of assessing the effectiveness of perimeter control blasting measures. The test blasts will take place at the locations designated by the RE. A minimum scaled distance ($R/W^{1/2}$) of 80 $ft/lb^{1/2}$ shall be used for test blast where R is the distance to the nearest residential structure and W is the maximum charge weight per delay. Remove blast rock from the face at the test blast locations to allow for inspection of perimeter control blasting results.

REPLACE THE SECOND AND THIRD SENTENCES OF THE THIRD PARAGRAPH WITH THE FOLLOWING:

If the results of the test blasting are not satisfactory in the opinion of the RE, modify the procedures, as necessary, and conduct additional test blasts to obtain the required results. Results would be considered unsatisfactory if there is excessive measured vibrations, excessive overbreak, if required half casts are not visible, if rock is thrown into the highway, or if other specification requirements are violated.

REPLACE THE FOURTH PARAGRAPH WITH THE FOLLOWING:

If, at any time during the progress of the work, the methods of drilling and blasting do not produce the desired result of a uniform slope and shear face, within the tolerances specified, drill, blast, and excavate in short sections, not exceeding 50 feet long, until a technique is arrived at that produces the desired results.

c. Safety.

THE SUBPART HEADING IS CHANGED TO:

e. Safety.

THE FOLLOWING IS ADDED TO THE SUBPART:

No requirement of, or omission to require, any safety precautions under this Contract will be deemed to limit or impair any responsibility or obligations assumed by the Contractor under or in connection with this Contract; and at all times maintain adequate protection to safeguard the public and all persons

engaged in the work, and take such precautions as will accomplish such end, without undue interference to the public. The Contractor is responsible for and will pay for any damage to adjacent roadways or structures resulting from work executed under this Section.

(1) Clearing the Danger Area before Blasting: No blasting will be permitted until all personnel in the Danger Area have been removed to a place of safety. The Danger Area will be defined for each blast by the licensed blaster in charge at the site. Devise and implement a loud, audible, warning system to be sounded before each blast. Familiarize all personnel on the project, Police Officers, and RE with the implemented system. Ensure the Danger Area is patrolled before each blast to make certain that it has been completely cleared, and have guards stationed to prevent entry until the area has been cleared by the blaster following the blast. Clearing the Danger Area will be coordinated with the control of traffic.

(2) Store, handle and employ explosives in accordance with Federal, State and Local regulations.

(3) Do not store explosives, caps, detonators or fuses on the site during non-working hours.

(4) Use blasting mats to minimize the possibility of excessive flyrock. Mats should cover the tops of all loaded blast holes in the blast round and the entire slope area being blasted. Replace any damaged mats with mats in good condition before blasting continues. The condition of all mats will be approved by the RE.

(5) The Contractor is advised that the State Police use two-way radios in the vicinity of the project. These radios cannot be turned off during loading operations.

(6) During each blasting, place Moveable Blasting Protection Barrier at the edge of the work zone within the right travel lane, parallel to the work, to prevent flyrock that is not controlled by the mats from entering the adjacent traffic lanes. Provide additional measures as necessary to ensure that falling rock is confined to the construction site between edge of the work zone and the existing toe of the rock slope. Submit drawings and manufacturer information for the barrier system a minimum of three (3) weeks prior to expected deployment for review and approval by the RE. Deployment and use of such protection barriers is considered incidental to the blasting work and will not be measured for payment. The barrier will comply with the following:

   (a) Construct the barrier system to be easily and quickly placed and removed without damage to the right travel lane pavement. A system such as modified large flat bed or other trucks, with appropriate fencing and/or shielding to meet the height and impact requirements, may be utilized, subject to meeting all other requirements below and subject to approval by the RE.
   (b) Ensure the barrier provides protection from the ground surface to a 10–ft height without interruption. Position the barrier such that the top of the barrier is within 4 feet offset from the left edge of the right travel lane.
   (c) Maintain the barrier units in their correct alignment at all times.
   (d) The barrier shall occupy the right travel lane only during the allowed right lane closure periods.
   (e) When the barrier is in place, place a traffic control truck with mounted crash cushion in the right lane a distance of 100 feet behind the barrier.
   (f) Contractor-furnished devices shall remain the property of the Contractor and removed upon completion of the work.
   (g) Prior to the start of the blasting and/or scaling operations, place a two-foot thick layer of Earth Cushion between work zone barrier and the existing toe of the rock slope, to absorb the impact of falling rock. Use material complying with NJDOT Soil Aggregate I-3.This material must be removed following completion of the work. Place the material in a level, uncompacted layer, two feet thick. Place hay bales adjacent to work zone barrier, at the ends of the Earth Cushion and around any drainage inlets to confine the material. Place the Earth Cushion so that the current blast and/or scaling area is covered, and a minimum of 30 feet each way is also covered beyond the limits of the current blast or scaling area. Relocate the Earth Cushion as directed by the RE as the work progresses. Remove the Earth Cushion at the completion of the project, and restore the area as directed by the RE. The temporary earth

cushion shall remain in place until the blasting, scaling and all excavation operations are completed. The Earth Cushion material shall be approved by the R.E. prior to use, and is considered incidental to the blasting work and will not be measured for payment.

(7) The Contractor is responsible for determining any other safety requirements unique to blasting operations at this particular site so as not to endanger life, property, utility services, any existing or new construction, or any property adjacent to the site.

(8) The Contractor's attention is directed to the requirements of N.J.A.C. 12:190, as well as Subsection 105.10 relative to the use of explosives.

(9) No requirement of, or omission to require, any safety precautions under this Contract will be deemed to limit or impair any responsibility or obligations assumed by the Contractor under or in connection with this Contract; and at all times maintain adequate protection to safeguard the public and all persons engaged in the work, and take such precautions as will accomplish such end, without undue interference to the public. The Contractor is responsible for and will pay for any damage to adjacent roadways or structures resulting from work executed under this Section.

d. Methods of Drilling and Blasting.

THE SUBPART HEADING IS CHANGED TO:

f. Methods of Drilling and Blasting.

(2) Production Blasting.

THE FOLLOWING IS ADDED:

(a) Angle the first row of production holes in from the perimeter holes at the same slope as the adjacent perimeter holes unless approved otherwise by the RE.

(b) Do not deviate production holes by more than one percent of the hole depth from the correct alignment.

(c) Drill Rig Inclinometer Equipment: Affix an inclinometer device to the drill mast of all drilling equipment used to drill perimeter and production holes in order to accurately determine the angle of the drill rods. Mount a remote electronic readout to the device at the rig control console capable of reading angles parallel and perpendicular to the line of excavation limits, over a range of +35 degrees to –35 degrees from vertical, with an accuracy of 0.50 degrees over the entire range.

(d) Perimeter control methods shall be used to create the final rock slope face shown in the contract plans, as per Sec. 202.03.03.

THE FOLLOWING IS ADDED:

(3) General Blasting Procedures.

(a) The time during which explosives may be used is restricted to Monday through Friday between the hours of 9:30 AM and 2:30 PM (prevailing time). The use of explosives is not permitted on weekends (Saturday and Sunday), holidays, on the eve of a holiday nor between the hours of 2:30 PM and 9:30 AM, unless approved in writing by the RE. In order to minimize traffic disruptions, schedule blasting such that any two successive blasts detonated anywhere on the project are separated by at least 2 hours. Perform blasting operations using extreme care to minimize the inconvenience and interruption to traffic and damage to highway pavement, structures, guardrail, and surrounding areas.

(b) Coordinate with the New Jersey State Police (NJSP) and the NJDOT Traffic Operations North (732-697-7360) Unit for the shut-down of traffic along both directions of Route 46 during blasting sequences. Submit a Traffic Operations Weekly Lane Closure Request (Form 100) to NJDOT Traffic Operations North no later than 3PM on the Friday before the week of the traffic shut-downs. Also submit a Daily Lane and Shoulder Closure Request (Form 101) to NJDOT Traffic Operations North no later than 12PM on the last working day before any traffic shut-down will occur. Notify the NJDOT by 12 PM of the day prior to any day he plans not to blast where the weekly schedule shows a day of blasting. This does not include changes

due to weather or unexpected equipment breakdowns. Reference Standard Specifications Section 108 and Section 159 when planning for the work.

(c) Coordinate all blasting with the RE on site who shall determine in advance when the charges may be set.

(d) Do not use free flowing, pourable or pumpable explosives. This prohibition includes ammonium nitrate and fuel oil (ANFO). Ensure all explosives are in cartridges or other semi-rigid container.

(e) Blast hole diameter shall be no greater than 4 inches for production blasting holes; Pre-split holes shall be 3 inch diameter maximum.

(f) Do not perform blasting in multiple lifts.

(g) Cooperate with the RE in permitting observation of the Contractor's drilling and loading procedures, as well as providing detailed information on blasting operations.

(h) The maximum time for which eastbound and westbound traffic may be stopped at any single time shall be **ten minutes**, from the time traffic is stopped by police until all travel lanes are cleared of blast debris, to the satisfaction of the RE, and notice is given to the police that traffic may be resumed. The RE will keep the time duration for the shutdown of traffic. The RE will inform the Contractor of the exact start and end time of the allowable 10-minute road closure period. Reduce the size of the blast, change the design and method of the blast, use more mats, or otherwise alter the blasting so that the eastbound and westbound traffic is not stopped for more than **ten minutes**. If, due to the throw of rock onto the highway, or due to other blasting related activities, eastbound or westbound traffic is stopped for more than **ten minutes**, the Contractor will pay a penalty for the total amount of time that traffic is stopped in **each separate** roadway (eastbound or westbound roadways) in excess of the time limits as shown below:

Excess Time	Total Penalty
Up to 1 minute	$400.00
Up to 2 minutes	$800.00
Up to 3 minutes	$1,200.00
Up to 4 minutes	$1,600.00
Up to 5 minutes	$2,000.00
Every additional minute exceeding 5 minutes	$500.00/minute

Total penalties will be deducted from subsequent pay estimates. Whenever the volume of traffic is excessive such that a ten-minute interruption would cause objectionable congestion, in the opinion of the RE, the hours during which blasting may occur will be further restricted.

(i) Immediately after blasting, have sufficient equipment available at the site to clear the pavement of flyrock. Also use, as required, a mechanical sweeper to control dust and small stones.

(j) The Contractor is completely responsible for all damages resulting from the blasting operations and, as a minimum, take whatever measures are necessary to maintain peak airblast overpressure and peak particle velocities within the specified limits noted below. Modifications to blasting and rock excavation methods required to meet these requirements shall be undertaken at no additional cost to the Department.

(4) Quality Assurance.

(a) Blasting Limit Criteria.

1. Peak Particle Velocity Limits. Conduct all blasting activity in such a manner that the maximum peak particle velocity (PPV) does not exceed the safe limits recommended in U.S. Bureau of Mines RI 8506, Appendix B. A scaled distance ($R/W^{1/2}$) of 80 $ft/lb^{1/2}$ shall be used to limit PPV generated by the proposed charge weight per delay, where R is the distance to the nearest residential structure and W is the maximum charge weight per delay.

2. Airblast Overpressure Limit. Conduct all blasting activity in such a manner that the peak airblast overpressure at the nearest structures and at the edge of adjacent

pavement in the vicinity of blasting does not exceed 130 decibels (dB), or 0.013 pounds per square inch (psi).

Comply with the Blasting Limit Criteria during all blasting and rock excavation. Make adjustments to the drilling and blasting program and procedures, to comply with the Blasting Limit Criteria, during execution of the work at no expense to the Department.

(b) Blast Vibration Monitoring.

1. Monitor peak particle velocities and airblast overpressures resulting from each blast at a location adjacent to the nearest structure from the blast, as a minimum requirement. A minimum of two (2) seismographs shall be employed. The location of the seismographs will be proposed by the blasting Subcontractor and approved by the RE.
2. Blast monitoring shall be conducted by qualified professionals with a minimum of 5 years experience and experience with a minimum of 5 similar blasting projects, trained in the use of a seismograph, and records shall be analyzed and results reported by persons familiar with analyzing and reporting the frequency content of a seismograph record.
3. All instrumentation proposed for use on the project shall have been calibrated within the previous twelve (12) months to a standard which is traceable to the National Bureau of Standards. Characteristics of required instrumentation are listed below:
    a. Measure the three (3) mutually perpendicular components of particle velocity in directions vertical, radial, and perpendicular to the vibration source.
    b. Measure and display the maximum peak particle velocity component and airblast overpressure, and the frequencies of each. The readings must be displayed and be able to be read in the field, immediately after each blast.
    c. Furnish a permanent time history record of particle velocity waveforms and airblast overpressure waveforms.
4. Within 24 hours of each blast, a Blast Monitoring Report will be submitted to the RE. Immediately report any vibrations close to or exceeding the specified limits to the RE.

(c) Pre-Blast Condition Surveys of Structures. Prior to and after completion of earth/rock excavation, drilling, or blasting work, engage a qualified by training and experience, independent, professional engineer to conduct pre- and post-blast condition surveys of all existing structures and conditions on the site, adjacent to the site, or in the vicinity of the site. This survey shall extend to such structures or conditions as may be affected by the Contractor's construction operations. The minimum limits for the properties and structures to be surveyed within a 200 ft radius of the proposed blast. At least two (2) weeks prior to the performance of the pre- and post-blast condition survey of structures, submit to the RE the proposed survey program prepared by the Contractor's consultant. Include detailed specifications of the field procedures and survey methods to be utilized in the program description.

1. Coordinate activities, issue notices, obtain clearances and provide whatever photographic and secretarial assistance is necessary to accomplish the survey.
2. Give notice in writing, to the Owner of each property concerned, and tenants of the property. Advise in notice the dates on which surveys are to be made so that they may have representatives present during the examination. Provide copies of all notices to the Department.
3. The survey shall consist of a description of the interior and exterior conditions of the various structures examined. Include all structures, including residences, sheds, garages, pools, etc. in the survey. Descriptions shall locate any cracks, damage, or

other defects existing and include such information so as to make it possible to determine the effect, if any, of the construction operations on the defect. Where significant cracks or damage exist, or for defects too complicated to describe in words, take photographs and make them part of the record.

4. Take photographs of all interior and exterior walls, ceilings, and floors.

Ensure the Contractor's record of the pre- and post-blast condition survey consists of written documentation and photographs of the conditions identified and a good quality video survey with appropriate audio description of conditions and defects. Prior to start of work, submit one copy of the Contractor's record of condition survey to the Department for review and retention.

If any blast damage claims are received in writing, give notice to all interested parties so that they may be present during the examination and make an examination similar to the pre-blast construction survey. Handle arrangements to make the inspections and records of this examination in the same manner as the original pre-construction survey.

Upon completion of all earth/rock excavation and blasting work, make a post-blast examination similar to the pre-blast construction survey and inspection of any wells and conditions where complaints of damage have been received or damage claims have been filed and give notice to all interested parties so that they may be present during the final post-blast examination. Distribute records of the final examination in the same manner as the original pre-construction survey and inspection.

The Contractor shall conduct his own evaluations to predict vibrations and air blast pressures form the drilling and blasting operations and may, at no additional cost to the Department, conduct additional pre- and post blast condition surveys and inspections of wells in the area that he deems warranted.

(5) Indemnity. Notwithstanding full compliance with these specifications, approval of blasting plan, and successful limitation to maximum peak particle velocity and airblast overpressure noted above, the Contractor shall be solely responsible for any damage, direct or indirect, arising from blasting and hold the Department and RE harmless from any costs of defense, arising from such damage, real or alleged. The Department shall be additionally-named insured on any insurance policy covering blasting carried by the Contractor, and this requirement will also be enforced on any subcontractor.

(6) Qualifications.

(a) Persons responsible for blasting shall be licensed blasters in the State of New Jersey. Document, with project descriptions, blast plans, and references, successful experience performing controlled blasting for slopes at least 30 feet in height, adjacent to a high volume, high speed expressway type facility; that included careful perimeter control blasting, measures to prevent damage to pavement or other structures, and measures to eliminate the need for or minimize the length of traffic stoppage. The Blasting Subcontractor shall demonstrate at least three similar projects in the last six years. The person in charge of blasting at the site shall have at least two similar projects in the last six years.

(b) Engage the services of a qualified, <u>independent</u> professional engineer, acceptable to the RE to conduct a pre-blast condition survey of adjacent structures.

(c) Blast monitoring shall be conducted by an independent, qualified professional engineer or seismologist, acceptable to the RE, trained in the use of a seismograph, and records shall be analyzed and results reported by persons familiar with analyzing and reporting the frequency content of a seismograph record.

(7) Codes, Permits, and Regulations.

(a) Comply with all applicable laws, rules, ordinances and regulations of the Federal Government, the State of New Jersey, the Borough of Woodland Park and the Township of Little Falls, governing the transportation, storage, handling and use of explosives. Provide all

labor, materials, equipment and services necessary to make the blasting operations comply with such requirements without additional cost to the Department.

(b) Obtain and pay for all permits and licenses required to complete the work of this section.

(c) In case of conflict between regulations or between regulations and Specifications, comply with the strictest applicable codes, regulations or Specifications.

(8) Rock Excavation and Disposal. At the completion of each blast round, collect the resulting fragmented rock and dispose of all material to the satisfaction of the RE.

THE FOLLOWING SUBPART IS ADDED:

g. Rock Dowel Reinforcement.

(1) Description. The scope of work includes drilling holes in bedrock and furnishing, placing, testing, and grouting passive (unstressed) rock reinforcement elements herein referred to as "rock dowels" or "dowels" at locations provided by the RE and as shown in the contract plans. The purpose of the rock dowel reinforcement is to provide supplemental support for potentially unstable rock blocks within the final blasted rock slope or in other locations as determined by the RE.

(2) Rock Excavation and Disposal. Submit the following to the RE at least 21 days prior to conducting any of the described rock dowel work:

(a) Applicable information from the rock dowel manufacturer showing steel bar, centralizer, tremie tubes, and end hardware.

(b) Details of the proposed cement grout mix design and the source of cement grout.

(c) Description of the proposed equipment and procedures to be used for dowel hole drilling, cleaning, temporary drill hole plug, tremie grouting and hanging dowels.

(d) Description of the proposed equipment and procedures for mixing and placing grout.

(e) Description, manufacturer's cut-sheet, and copy of the certificate of the calibration record for the torque wrench to be used for tightening nuts.

(f) Manufacturer product technical information for epoxy-coating of field-cut steel bar surfaces.

(3) Materials.

(a) Suitably wrap, package or cover materials at the factory or shop for protection against dirt, water, oil, grease and rust contamination.

(b) Protect materials against abrasion or damage during shipment and handling.

(c) Place materials stored at the site above-ground on a well-supported platform and covered.

(d) Store rock dowels in such a manner as to minimize corrosion or any other form of contamination or damage.

(e) Store the steel dowel bars and all tubing in a clean and dry environment prior to installation.

(f) Transportation and storage conditions for the dowels and tubing, including temperature and humidity during storage, shall be as recommended by the suppliers.

(4) Rock Dowel Assemblies.

(a) Perform all rock dowel installation in the presence of the RE.

(b) Complete rock dowel assemblies shall consist of the system and components, as shown and as manufactured by Williams Form Engineering Corp., P.O. Box 7389, Grand Rapids, MI 49510, 616-452-3107, Dywidag (New England Branch), 27 Harvey Road, Unit 17, Bedford, NH 03110, (603) 626-0777, or SAS Stressteel Inc., 100 New Dutch Lane, Fairfield, NJ 07004, or approved equal.

(c) Dowel bar capacity, size and hardware components will include:

1. Dowel Bars.

a. Dowel bars will be continuously threaded bar complying with ASTM A-722 Grade 150 series, and be 1 in. diameter (nominal) with an embedment depth of 15 ft.

b. Dowel bars will all be epoxy-coated in accordance with ASTM 153 and ASTM A-775 or ASTM 934, respectively.

2. **Centralizers.**
    a. Supply bars with approved plastic centralizer rings, capable of supporting the bar in the center of the drill hole and allowing for the continuous passage of grout. Maximum spacing of affixed centralizers shall be 4 feet on-center.
3. **Mechanical Dowel Couplers.**
    a. Use of couplers will not be allowed.
4. **Surface Bearing Plate.**
    a. Supply surface bearing plates with a circular opening sized to receive the dowel, per manufacturer's specifications.
    b. The dimensions of the plates shall be a minimum of 6-in. square, per manufacturers recommendations, and capable of developing the full strength of the bar.
    c. Bearing plates shall be epoxy-coated in accordance with ASTM 153 and ASTM A-775 or ASTM 934, respectively.
5. **Washers.**
    a. Supply washers, as required and recommended by the manufacturer.
    b. Beveled washers and/or hardened flat washers for the dowel rod shall be of a diameter selected to leave the smaller portion of the keyhole shaped opening (or the grout tube opening) exposed to a sufficient degree to pass the grout tube without pinching. Washers shall be epoxy-coated in accordance with ASTM 153 and ASTM A-775 or ASTM 934, respectively.
6. **Nut.**
    a. Supply a heavy-duty hex locking nut (or approved equal) for threaded engagement with the outer end of the dowel rod.
    b. Nuts shall be epoxy-coated per ASTM 153 and ASTM A-775 or ASTM 934, respectively.
7. **Cement Grout.**
    a. Neat cement grout for grouting rock dowels shall be "Wil-X-Cement Grout" as manufactured by Williams Form Engineering Corp., P.O. Box 7389, Grand Rapids, MI 49510, (616) 452-3107, or an approved equal.
        i. Williams Wil-X-Cement Grout is derived from a Portland Cement base with the addition of a calcium sulfo-aluminate type cement, blended during manufacturing.
        ii. Wil-X-Cement conforms to specifications of the Chemically Pre-Stressed Concrete Corporation for shrinkage compensating cement, dated September 1967.
    b. The cement grout mix design is the responsibility of the Contractor.
    c. Submit the proposed mix design to the RE for review, including an example of grout use and performance on previous projects.
    d. Ensure the water content is the minimum necessary for proper placement.
    e. Base the final proportions of grout materials on either the results of compressive testing of grout cubes made from sample mixtures of grout or from documented performance of previous projects (presented as a submittal).
    f. The minimum seven-day compressive strength of two-inch cubes, molded, cured, and tested in accordance with ASTM C-109, shall be 4,000 psi.
    g. There will be a minimum of three (3) cubes cast per test set.
    h. An independent testing laboratory, shall conduct testing at a frequency of one test set for every 6 rock dowels placed. The said testing laboratory is responsible for taking, curing and breaking of grout test

cubes for determining mix design, and for quality control grout testing during construction. The results of all tests will be provided to the RE for review.

i. Grout laboratory testing is the responsibility of the Contractor.

j. Ensure water for the cement grout mix is fresh, clean, potable, and free from injurious amounts of sewage, oil, acid, alkali, salts, or organic matter.

8. Grout Tubes.

a. Grout tubes shall be polyethylene tubing conforming to ASTM D-2737 or as recommended by the rock dowel manufacturer and approved by the RE. Inside diameter of the grout tubes shall be sized accordingly based on cement grout mix design submitted by the Contractor.

(5) Preparation.

(a) Prior to drilling, provide access to the rock faces such that the RE or his representative can make observations as necessary to establish actual dowel locations in the field.

(b) Drill all dowel holes in bedrock with the use of rotary, percussive, or rotary-percussive equipment.

(c) Core drilling is not permitted.

(d) The diameter of the drill hole is the responsibility of the Contractor but shall be no less than 2-¼ in.

(e) Provide a temporary plug for all holes drilled and left open for more than 2 hours prior to installation of the rock dowel.

(f) Ensure dowels have a minimum clear space between dowel tip and the bottom of the drill hole of at least 3 inches.

(6) Performance.

(a) Installation of Rock Dowels.

1. Install rock dowels, of the lengths described herein, at the locations indicated by the RE.
2. Clean drilled holes of all drill cuttings, sludge and debris to the satisfaction of the RE before the rock dowel is inserted into the hole.
3. Insert rock dowels in the hole with the threaded outer end projecting beyond the finished rock face at least 1 inch in addition to the stick-up height require for the nut and plate.
4. Cut excess bar lengths protruding greater than 2 inches above the top of the nut.
5. Repair cut steel surfaces with an approved epoxy-coating patch/repair compound, in accordance with manufacturer's specifications, as provided in the reviewed Contractor submittal.
6. Insert rock dowels vertical, with a tolerance of within +/-2 degrees from the batter angle specified by the RE.

(b) Placement of Bearing Plates, Washers and Nuts.

1. Place the bearing plate flat against the rock face.
2. Where the rock surface is irregular, such that voids exist under the plate, chip the rock to create a flat pad.
3. Tensioning and pull-testing of rock dowels is not required.
4. After grouting, place and align the bearing plate alignment washers (if needed) and nut to provide a uniform setting force.
5. Apply the setting force by tightening of the nut against the washer and plate to remove loose float from the washers and plate using a calibrated torque wrench to a torque of 150 ft-lbs.

(c) Grouting.

1. Grouting of the annular space around the rock dowel by tremie grouting methods (using sufficient pressure to overcome the hydrostatic head) after the bar is in-place, using a portable grout pump.
2. Hopper working capacity shall be at least 10 gallons.
3. Grout dowels until there is a full return of grout around the rock dowel, as observed by the RE.
4. Ensure all grout pipes, tubes and fittings are clean and free from dirt, grease, hardened grout, or other contamination before grouting is commenced for any dowel.
5. Flush or blow all surplus water and diluted grout from all lines before commencing injections.
6. Attach the grout line to the grout injection tube with suitable fittings such that leakage is prevented.

a. Grout Mixer.

i. Ensure the grout mixer is a colloidal grout mixer (Neptune Disc Meter, Model 106, with a 6-inch vertical dial or approved equal) capable of continuous mechanical mixing that will produce uniform and thoroughly mixed grout.

ii. Ensure the mixer is equipped with a suitable water measuring device calibrated to read in cubic feet (and tenths of cubic feet) and so designed that after each delivery, the hands can be conveniently set back to zero.

b. Grout Pump.

i. The grout pump shall be capable of pumping at rates below 20 gallons (2.68 cubic feet) per minute, capable of pumping at a pressure of at least 50 psi at zero flow rate and have a screen with 0.07-inch maximum clearance to sieve the grout before being introduced into the pump.

ii. The pump shall be capable of pumping all neat grout mixes containing 4.5 gallons or more of water per sack of cement.

c. Grout.

i. The grout, placed from the bottom of the drill hole by tremie methods, shall extend continuously from the bottom of the drill hole to the top of the rock face and fully encapsulate the bar in the drill hole. Affix a secondary tremie grout tube to each bar in case the primary tube is compromised.

ii. Pre-grouting of the drill hole followed by insertion of the dowel bar is not permitted.

iii. Place additional grout to make up for grout volume lost in joints or grout column settlement or for other reasons during set time of grout.

iv. Make periodic observations of the exposed rock face, down gradient of the dowel locations, to look for signs of grout leakage through open joints in the rock. Clean and remove excess grout observed down-gradient of the work area.

v. Cut excess grout tubing lengths extending above the bearing plate flush with the plate after completion of grouting. Backfill any minor surface voids left beneath the dowel bearing plate following grouting with dry-packed grout.

202.03.04 Excavating Regulated Material

3. Temporarily Storing.

THE FIRST PARAGRAPH IS CHANGED TO:

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

202.03.07 Reuse or Disposal of Excess Material

A. Reuse.

THE THIRD PARAGRAPH IS CHANGED TO:

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

B. Disposal.

PARTS 1 AND 2 UNDER THE FIRST PARAGRAPH ARE CHANGED TO:

1. At least 10 days before disposing, submit the disposal procedure and location to the RE for approval. Do not dispose of excavation on property proposed to be used for parks, playgrounds, and other recreational purposes; residential facilities, and educational facilities; environmentally sensitive areas such as wetlands, and historic sites; or areas within sight of a State highway during all seasons.

2. Obtain the property owner's notarized authorization of the acceptance of the excess material and where it is being placed.

THE FOLLOWING SUBPART IS ADDED:

202.03.10 Subsoil Scarification

A. Paved Areas. Prior to performing subsoil scarification remove, dispose, and reuse pavement, including base course, in accordance with Section 202. Scarify and cultivate to an average depth of 18 inches, incorporating the existing gravel and sand with the existing subsoil. Repeat operation until the gravel, sand, and subsoil are evenly mixed. Smooth to grade prior to topsoiling, fertilizing and seeding and/or planting. Use wide track or wide tire equipment to minimize compaction of mixed soil.

B. Vegetated Areas. Remove all stumps, brush, weeds, and debris from the surface area to be subsoil scarified and dispose of in accordance with Subsection 201.03.09. Scarify the subsoil to an average depth of 18 inches, with parallel rows spaced 24 inches on center. Smooth to grade prior to topsoiling, fertilizing and seeding and/or planting. Use wide track or wide tire equipment to minimize compaction of mixed soil.

Repair any damage to vegetation, pavement surfaces, structures, utilities or other property at no cost to the State.

202.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
ROCK DOWEL	UNIT
SUBSOIL SCARIFICATION	SQUARE YARD

THE FOLLOWING IS ADDED:

The number and location of rock dowels will be determined in the field by the RE or his representative during construction.

The Department will not make payment for unsuccessful dowel installations.

The Department will make payment for all materials, equipment (including drill rig, crane), personnel, labor, tools, mobilization/demobilization costs, lab fees, procurement of permits, and incidental items necessary to complete the dowel installation under ROCK DOWEL.

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
Controlled Low Strength Material (CLSM)	903.09
Flowable Concrete Fill	919.01

203.02.02 Equipment
THE FOLLOWING IS ADDED:

Concrete Plant and Mixing Equipment	1010.01
Concrete Trucks	1010.02

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.

THE FOLLOWING IS ADDED:

4. **Flowable Concrete Fill**. Place as shown on plans. Ensure materials conform to Subsection 903.09.

203.03.02 Placing and Compacting Methods

D. Density Control Method.
THE FOLLOWING IS ADDED:

For the Clove Road bridge, when over-excavation for foundation and replacement with structural fill (I-9 soil aggregate) is required the over-excavation shall be taken to the minimum depths specified in the plans. The excavation shall then be brought to the bottom of footing elevation by placing and compacting 6-inch layers of structural fill (I-9 soil aggregate) material to 98 percent of the maximum density as determined by AASHTO T-180, Method D. The density of each lift shall be determined from the average of 5 randomly located measurements according to AASHTO T 310 (Direct Transmission Method).

203.04 MEASUREMENT AND PAYMENT
THE FOLLOWING PAY ITEM IS ADDED:

Item	*Pay Unit*
FLOWABLE CONCRETE FILL	CUBIC YARD

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	0 hrs.

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:

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

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.
THIS ENTIRE SUBPART IS CHANGED TO:

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

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

DIVISION 500 – BRIDGES AND STRUCTURES

SECTION 504 – STRUCTURAL CONCRETE

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

Concrete Stain 912.01.04

THE FOLLOWING IS ADDED:

Stain the concrete abutment wall according to Subsection 912.01.04.

THE FOLLOWING SUBSECTION IS ADDED:

504.03.04 Power-washing and Staining of Existing Concrete Surfaces

Stain the existing concrete surfaces to remain at Structure No. 1606-167 (Notch Road Over Route 46) according to Subsection 912.01.04. Power-wash and stain the existing concrete surfaces to remain at Structure No. 1606-167 (Notch Road Over Route 46) at the following locations:

1. Both abutment stems.
2. Wingwalls.

Power-wash until a clean surface is achieved prior to application of stain material.

504.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
PAINTING OF CONCRETE SURFACES	SQUARE YARD

THE FOLLOWING IS ADDED TO THE END OF THE SUBSECTION:

The Department will make payment for all incidental steel armor angles and shear connectors at the approach slab side of both abutment headers under CONCRETE ABUTMENT WALL.

The Department will make payment for all work associated with concrete staining at the concrete abutment wall according to Subsection 912.01.04 under CONCRETE ABUTMENT WALL.

The Department will make payment for the power-washing and staining of existing concrete surfaces under PAINTING OF CONCRETE SURFACES.

SECTION 505 – PRECAST AND PRESTRESSED STRUCTURAL CONCRETE

505.03.01 Prestressed Concrete Structures

C. Erection Plan.
THE FIRST SENTENCE IS CHANGED TO:

Submit working drawings for certification regarding the plan of operations to the RE at least 30 days before the pre-erection meeting.

SECTION 506 – STRUCTURAL STEEL

506.03.01 Structural Steel

B. Erection Plan.

THE ENTIRE TEXT IS CHANGED TO:

At least 30 days before the pre-erection meeting, submit working drawings for certification regarding the plan of operations to the RE. Include, at a minimum, the following in the plan:

1. Number and type of manpower and equipment.
2. Shipping procedures.
3. Lifting procedures.
4. Beam erecting sequence, including method of setting bearings and diaphragms.
5. Temporary bracing.
6. Manufacturer's recommendations.
7. Procedures for employee safety.
8. Traffic control and protection.

E. Installing High-Strength Steel Bolts.

THE ENTIRE TEXT IS CHANGED TO:

Check galvanized bolts and nuts to verify that a visible lubricant is on the threads. Check black bolts and nuts to verify that they are oily to the touch.

Before beginning bolt installation, provide on the project site a Skidmore-Wilhelm calibrator or an acceptable equivalent tension measuring device. Ensure that the manufacturer's representative is present during the first full day of tensioning work to provide technical assistance.

Test assemblies as follows:

1. For bolt assemblies that do not require Direct Tension Indicators (DTI's), perform the rotational capacity test in accordance with 908.02.02.C, on 2 assemblies from each rotational-capacity lot.
2. For bolt assemblies requiring DTI's, install in accordance with the following, and perform the rotational-capacity test as specified in NJDOT S-3 on 3 assemblies from each rotational-capacity lot.

   Ensure that the bolt, nut, and washer are from the same rotational-capacity lot. If the DTI is used under the nut, place an additional washer between the nut and the protrusions on the DTI. If recommended by the bolt manufacturer, the Contractor may use wax lubricant, beeswax, or a water wax emulsion to aid in installation. Hold the bolt head stationary while tightening the nut.

   Install bolts in all of the holes of the connection and tighten to a snug-tight condition to compact the joint. Ensure that the number of spaces on DTIs in which a 0.005-inch feeler gauge is refused after snugging does not exceed the maximum snug-tight refusals as specified in Table 506.03.01-1. If the number of refusals exceeds the maximum, remove the assembly, insert a new DTI, and resnug.

   Tighten the assemblies successively from the most rigid part of the connection to the free edges by turning the nuts while holding the bolts stationary. Tension the assemblies until the number of spaces in which the 0.005-inch thickness gauge is refused meets or exceeds the minimum final tension refusals specified in Table 506.03.01-1.

Table 506.03.01-1 Criteria for DTI Spaces for A 325 Bolts

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.

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

SECTION 507 – CONCRETE BRIDGE DECK AND APPROACHES

507.01 DESCRIPTION

THE FOLLOWING IS ADDED:

This Section also describes the requirements for the construction and installation of stone date panels.

507.02.01 Materials

THE FOLLOWING IS ADDED TO THE LIST OF MATERIALS:

Stone Slab..... 901.03.01
Concrete Stain 912.01.04

THE FOLLOWING IS ADDED:

Provide a granite stone conforming to geologic classification as described in Subsection 901.03.01. Provide granite with a visual color estimation of 90% white and 10% grey and black speckles. The speckles should be evenly distributed throughout the stone.

Submit to the RE prior to installation for approval by the Office of Landscape Architecture:

1. 3 samples of the stone representative of the coloring and texture.

2. Shop drawings showing letters and numbers to be used on the panel, using the date the structure was completed.

3. Final date panel, as a single unit.

THE FOLLOWING IS ADDED:

Stain the concrete bridge parapet according to Subsection 912.01.04.

507.03.02 Constructing Bridge Decks

A. Forms. Construct forms as follows:

2. Removable Forms.

THIS PART IS CHANGED TO:

Construct removable forms as specified in 504.03.02.B. Do not use shoring to support stringers along the span length where the superstructure, under live load and impact loads, is designed for composite action. Do not weld attachments required for placement of the removable forms to the beam.

L. Saw Cut Grooved Surfacing.

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Do not saw cut until after the Department performs Acceptance Testing as specified in Subsection 507.03.02 N.

N. Concrete Deck Surface Requirements

1. Acceptance Testing.

THE FIRST PARAGRAPH IS CHANGED TO:

Construct deck slabs so that less than 9 percent of the measured length of the lot exceeds 1/8 inch tolerance in 10 feet. The ME will test the surface of concrete bridge deck slabs with a Class I Walking Profiler prior to the performance of saw cut grooved surfacing. The ME will calculate the percent defective using a rolling straight edge simulator analysis of the profiler data.

507.03.03 Date Panel

REPLACE THE FIRST PARAGRAPH WITH THE FOLLOWING:

Ensure the stone panel is a single unit cut true and straight. Etch the letters and numbers into the stone as dimensioned in the details. Paint the etched letters and numbers black. Install the date panel using epoxy grout and related anchors. See plans and details for location on parapet.

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 IS ADDED:

The Department will make payment for all work associated with concrete staining at the concrete bridge parapet according to Subsection 912.01.04 under CONCRETE BRIDGE PARAPET, HPC.

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 and REINFORCEMENT STEEL, EPOXY-COATED as specified in 504.04.

THE FOLLOWING IS ADDED:

The Department will make a payment adjustment for concrete surface requirement quality in deck slabs and approach, by the following formula:

Pay Adjustment = Q x BP x PR

Where:
BP = Bid Price
Q= Surface Requirement Lot Quantity
PR= percent reduction as specified in Table 507.03.02-2

SECTION 509 – BRIDGE RAILING AND FENCE

509.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This work includes the design, fabrication, and erection of ornamental picket fences of the types, details and dimensions as shown on the plans. The configuration and dimensions of the fences and all other related elements shall be as shown on the plans. The design of all structural elements of the fences included in this specification shall be in accordance with the following design codes:

1. 2009, 5th Edition, AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.
2. 2012 AASHTO LRFD Bridge Design Specifications, with current interims, as modified by Section 3 of the NJDOT Design Manual for Bridges and Structures, 2009.

Special attention to fencing details is required in order to achieve project architectural objectives. Non- standard and atypical details may be required and must be include in the prices bid for the various Picket Fence items shown on the plans. All picket fence elements for the entire project shall be provided by the same supplier.

Materials and construction operations shall be according to Section 509 of the Standard Specifications and the provisions noted herein.

Fence materials and details shall be as manufactured and constructed by the following suppliers and shall be of solid steel construction:

1. ARC Iron Works, Inc.
   25 Cliff Street
   New Rochelle, NY 10801-1603
   (800) 523-0973

2. Cassidy Bros Forge Inc.
   U.S. Route 1
   Rowley, MA 01969
   (978) 948-7303
   Fax (978) 948-7629

3. Master Halco
   6500 Eastern Ave.
   Baltimore, MD 21224
   (800) 229-5615
   Fax (800) 239-2963

Other suppliers having a minimum of 5 years' experience in the manufacture of ornamental and steel picket fences will be acceptable to the Engineer if they meet the same requirements as the products shown above, as well as the stipulations specified herein.

509.02 MATERIALS
THE FOLLOWING SUBPART IS ADDED:

509.02.01 Picket Fence

Ensure all fence posts, rails, pickets, and base plates are PVC coated or powder coated steel elements. Seal any penetrations of posts, rails or pickets with rubber grommets or welds. Conform any welding to the requirements stipulated in the ANSI/AASHTO/ AWS "Bridge Welding Code" and as stipulated in the Standard Specifications. Final coat color shall be black and shall be Federal Standard Color No. 27038.

Handrails on pedestrian ramps shall be round structural steel tubing conforming to ASTM A500. Support hardware shall be solid steel elements similar to configuration shown on the plans. The provision of Section 509 of the Specifications shall apply.

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.

509.03.02 Chain-Link Fence for Bridge
THE ENTIRE SUBPART IS CHANGED TO:

At least 30 days before beginning the work, submit working drawings for certification. Indicate material specifications for adhesive, anchors, washers, and nuts on the working drawings.

Base the design embedment of the adhesive anchor bolts on a concrete compressive strength of 4000 pounds per square inch. Ensure that the embedment depth of the adhesive anchors shown on the working drawings is sufficient to obtain the required pullout strength as required for the proof load testing as specified in 908.01.04.

Do not use expansion type anchor bolts. Place anchors using one of the following:

1. **Cast-in-Place Type.** Set anchor bolts before placing concrete using a rigid template for each anchor assembly. When placing concrete, ensure that bolts do not move and spacing is maintained between the rigid templates. Ensure that the exposed threaded ends of the anchor bolts remain clean and protected from concrete. Clean the anchor bolts before installing the specified hardware.
2. **Adhesive Type.** Do not drill for installation until the concrete has cured for at least 14 days. Install adhesive anchors according to the manufacturer's recommendations. When drilling, ensure that spalling does not occur and existing utilities are not damaged. Repair damage to the existing concrete, utilities, and reinforcement steel as a result of drilling. Clean and dry drill holes before and during installation of the adhesive anchors.

Erect fencing as shown on the Plans.

THE FOLLOWING SUBPART IS ADDED:

509.03.03 Picket Fence for Bridge

A. Design Calculations and Drawings. Complete design calculations, showing all design assumptions, loads and load combinations, stress checks for all members and connections, and other information necessary for a complete design of the fences, including base plates and anchor bolts, shall be submitted for review and approval. The various configurations of the picket fences shall be as shown on the plans. No other options will be permitted. In order to achieve the desired architectural treatments, special attention must be given to the many non-standard areas of the fencing where special treatments are required. Special details occur at the following locations and situations:

1. Sloped pedestrian ramps, landings and stairs - special elements may be required at the transition areas between stairs and landings, and between ramps and landings.
2. Curved landings on pedestrian bridges - rail elements must be curved.
3. Bridge joints - minimum openings must be maintained.
4. Leveling pads on sloped surfaces and stairs - coordinated size and location with Contractor.
5. All other locations that require non-standard, unusual details.
6. Several different parapet types and sizes.
7. Light pole and other objects of interference.
8. Noise Barrier.

Design shall be based on a wind speed of 110 mph. Drag coefficients shall be based on Table 3.6 of Reference No. 1 shown above. Other loads and load combinations shall be as indicated in the Design Codes listed above.

All calculations shall be prepared, signed and sealed by a Professional Engineer registered in the State of New Jersey.

Provide shop drawings for all picket fences in accordance with Subsection 105.05 of the Standard Specifications. The drawings shall include fence configurations including all post and anchorage locations, design specifications, material designations, member, connection and anchorage details, and all other relevant information pertaining to the design, fabrication and erection of the fencing system.

B. Fabrication and Construction. The picket fence supplier shall coordinate all work with the General Contractor. Final post spacing shall be established by the Contractor and the supplier and shall be in accordance with the general spacing, clearance, and other guidelines shown on the plans. Notify the Engineer if the general dimensional guidelines shown on the plans cannot be held. Anchor bolts may be preset, set in preformed holes, or field drilled and grouted. If bolts are preset or set in preformed holes, anchor bolts and locations shall be provided by the supplier to the Contractor prior to any related concrete pours. The supplier shall provide anchorage designs for the type of installation selected.

Size, location, and elevations of concrete leveling pads shall be coordinated with the Contractor and details shall be shown on the shop drawings.

Picket spacing shall be based on 4 inches clear between pickets unless noted otherwise on plans. Pickets shall be located on the inside of fence facing pedestrian or vehicular traffic. All pickets and posts shall be vertical.

Rails may be bolted to posts. All picket and rail intersections shall be welded.

Posts shall be attached to base plates. Embedment into concrete without the use of base plates will not be permitted. Posts and pickets shall be vertical. Rails shall follow the grade of the supporting structure. Special details may be required for installations on stairs.

Fence details must account for expansion and contraction at bridge and structure joints and for expansion and contraction of the fence itself.

Where applicable, provide a minimum 2 inches clear from base plate to any concrete edge. Provide 6 inches from centerline of anchor bolt any concrete edge.

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*
BRIDGE RAILING (___RAIL, ALUMINUM)	LINEAR FOOT
BRIDGE RAILING (___RAIL, STEEL)	LINEAR FOOT
CHAIN-LINK FENCE, TYPE I, ZINC-COATED STEEL, BRIDGE, __'__" HIGH	LINEAR FOOT
CHAIN-LINK FENCE, TYPE II, ALUMINUM-COATED STEEL, BRIDGE, __'__" HIGH	LINEAR FOOT
CHAIN-LINK FENCE, TYPE III, ALUMINUM ALLOY, BRIDGE, __'__" HIGH	LINEAR FOOT
CHAIN-LINK FENCE, TYPE IV, PVC-COATED STEEL, BRIDGE, __'__" HIGH	LINEAR FOOT
CHAIN-LINK FENCE, TYPE I, ZINC-COATED STEEL, BRIDGE, __'__" HIGH, CURVED TOP	LINEAR FOOT
CHAIN-LINK FENCE, TYPE II, ALUMINUM-COATED STEEL, BRIDGE, __'__" HIGH, CURVED TOP	LINEAR FOOT
CHAIN-LINK FENCE, TYPE III, ALUMINUM ALLOY, BRIDGE, __'__" HIGH, CURVED TOP	LINEAR FOOT

CHAIN-LINK FENCE, TYPE IV, PVC-COATED STEEL, BRIDGE, __'__" HIGH, CURVED TOP	LINEAR FOOT
PICKET FENCE, STEEL, BRIDGE, 6'-3" HIGH, CURVED TOP	LINEAR FOOT
PICKET FENCE, STEEL, BRIDGE, 6'-3" HIGH	LINEAR FOOT

SECTION 513 – RETAINING WALLS

513.01 DESCRIPTION
THE FOLLOWING IS ADDED TO THE END OF THE FIRST PARAGRAPH:

Retaining Walls 1 through 5 and Retaining Walls A through D in this contract will be constructed using the formliner pattern indicated in the plans.

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

Concrete Stain 912.01.04

THE FOLLOWING IS ADDED:

Stain the retaining walls according to Subsection 912.01.04.

THE FOLLOWING IS ADDED:

For MSE Walls, use either Soil Aggregate, I-15 or Coarse Aggregate, No. 57. For Prefabricated Modular Retaining Walls and T-Wall, use either Soil Aggregate, I-9 or Coarse Aggregate, No. 57.

513.03.01 Proprietary Retaining Walls

F. Backfilling.
THE HEADING AND FIRST PARAGRAPH UNDER SUBPART (1) ARE CHANGED TO:

1. Soil Aggregate.

G. Compacting.
THE HEADING AND FIRST PARAGRAPH UNDER SUBPART (1) ARE CHANGED TO:

1. Soil Aggregate. With the exception of the 5-foot zone directly behind the units, compact soil aggregate with large, smooth drum, vibratory rollers using the density control method as specified in 203.03.02.D.

513.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED AFTER THE FIRST PARAGRAPH:

The Department will make payment for reinforcement steel under REINFORCEMENT STEEL, and REINFORCEMENT STEEL, EPOXY-COATED as specified in 504.04 for reinforcement steel in cast-in-place retaining walls.

The Department will make payment for concrete in moment slab under the various RETAINING WALL, LOCATION NO. __ items.

The Department will make payment for all work associated with concrete staining at the retaining walls according to Subsection 912.01.04 under the various RETAINING WALL, LOCATION NO. __ items.

DIVISION 600 – MISCELLANEOUS CONSTRUCTION

SECTION 601 – PIPE

601.02 MATERIALS
THE FOLLOWING IS ADDED TO THE LIST OF MATERIALS:

Ductile Iron Pipe……..…….909.02.08

THE FOLLOWING IS ADDED

Perforated HDPE underdrain pipe shall be corrugated polyethylene drainage tubing conforming to AASHTO M252, Type C. Elbows or tees for connecting underdrains to drainage structures shall be of the same type as the respective underdrain pipe and the joint shall meet with the Engineer's approval.

601.04 MEASUREMENT AND PAYMENT
THE FOLLOWING PAY ITEMS ARE ADDED:

Item	*Pay Unit*
__" PERFORATED REINFORCED CONCRETE PIPE	LINEAR FOOT
__" PERFORATED HIGH DENSITY POLYETHYLENE PIPE	LINEAR FOOT
__" X __" REINFORCED CONCRETE ELLIPTICAL PIPE, CLASS HE-V	LINEAR FOOT
__" DUCTILE IRON PIPE	LINEAR FOOT
INLET, TYPE DOUBLE B	UNIT
MANHOLE	UNIT
OUTLET CONTROL STRUCTURE	UNIT
INLET, TYPE BX	UNIT
INLET, NON-STANDARD	UNIT

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 602 – DRAINAGE STRUCTURES

602.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This Section also describes the requirements for furnishing all labor, materials, equipment and incidentals required and installing the water quality treatment structure and appurtenances in accordance with the drawings and these specifications.

602.02 MATERIALS
THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

Refer to the Construction Details for Manhole, Type DMH2, Trench Drain, Outlet Control Structure, Water Chamber, and Inlets, Type ESP, Double ESP, Double B, and BX.

THE FOLLOWING SUBSECTIONS ARE ADDED:

602.02.03 Water Quality Treatment Structure

A. Quality Control Inspection.

1. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection by the Engineer. Such inspection may be made at the place of manufacture, or on the work site after delivery, or at both places, and the sections shall be subject to rejection at any time if material conditions fail to meet any of the specification requirements, even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the site shall be marked for identification and shall be removed from the site at once. All sections which have been damaged beyond repair during delivery will be rejected and, if already installed, shall be repaired to the Engineer's acceptance level, if permitted, or removed and replaced, entirely at the Contractor's expense.

2. All sections shall be inspected for general appearance, dimensions, soundness, etc. The surface shall be dense, close textured and free of blisters, cracks, roughness and exposure of reinforcement.

3. Imperfections may be repaired, subject to the acceptance of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final acceptance. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi (28 MPa) at the end of 7 days and 5,000 psi (34 MPa) at the end of 28 days when tested in 3 inch (76 mm) diameter by 6 inch (152 mm) long cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs.

B. Shop Drawings. The Contractor shall be provided with dimensional drawings and, when specified, utilize these drawings as the basis for preparation of shop drawings showing details for construction, reinforcing, joints and any cast-in-place appurtenances. Shop drawings shall be annotated to indicate all materials to be used and all applicable standards for materials, required tests of materials and design assumptions for structural analysis. Shop drawings shall be prepared at a scale of not less than 3/16-inches per foot (1:75). Six (6) hard copies of said shop drawings shall be submitted to the Engineer for review and approval.

C. Materials and Design.

1. Concrete for the precast stormwater treatment systems shall conform to ASTM C 857 and C 858 and meet the following additional requirements:

   a. The wall thickness shall not be less than 6 inches (152 mm) or as shown on the dimensional drawings. In all cases the wall thickness shall be no less than the minimum thickness necessary to sustain HS20-44 (MS18) loading requirements as determined by a Licensed Professional Engineer.

   b. Sections shall have tongue and groove or ship-lap joints with a butyl mastic sealant conforming to ASTM C 990.

   c. Cement shall be Type II Portland cement conforming to ASTM C 150.

   d. All sections shall be cured by an approved method. Sections shall not be shipped until the concrete has attained a compressive strength of 4,000 psi (28 MPa) or until 5 days after fabrication and/or repair, whichever is the longer.

   e. Pipe openings shall be sized to accept pipes of the specified size(s) and material(s), and shall be sealed by the Contractor with a hydraulic cement conforming to ASTM C 595M

2. Internal aluminum plate components shall be aluminum alloy 5052-H32 in accordance with ASTM B 209.

3. Sealant to be utilized at the base of the swirl chamber shall be 60 durometer extruded nitrile butadiene rubber (Buna N) and shall be provided to the concrete precaster for installation.

4. Brick or masonry used to build the manhole frame to grade shall conform to ASTM C 32 or ASTM C 139 and shall be installed in conformance with all local requirements.

5. Casting for manhole frames and covers shall be in accordance with ASTM A48, CL.30B and AASHTO M105.

6. A bitumen sealant in conformance with ASTM C 990 shall be utilized in the sealing of the joint between the swirl chamber and the vault at the long wall tangent points. The butyl material shall be 3/4-inch thick by 3/4-inch wide.

C. Performance. Each stormwater treatment system shall adhere to the following performance specifications at the design treatment capacities, as listed below:

Design Treatment Capacity (cfs)/(l/s)	Sediment Storage (yd^3)/(m^3)
0 - 1.6 (0 - 45)	0.7 (0.54)
1.6 - 2.8 (45-80)	1.2 (0.91)
2.8 - 4.5 (80-125)	1.8 (1.38)
4.5 - 6.0 (125-175)	2.4 (1.84)
6.0 - 8.5 (175-240)	3.2 (2.45)
8.5 - 11.0 (240-315)	4.0 (3.06)
11.0 - 14.0 (315-400)	4.8 (3.67)
14.0 - 17.5 (400-495)	5.6 (4.28)
17.5 - 25.0 (495-710)	7.1 (5.43)

Each stormwater treatment system shall include a circular aluminum "swirl chamber" (or "grit chamber") with a tangential inlet to induce a swirling flow pattern that will accumulate and store settleable solids in a manner and a location that will prevent re-suspension of previously captured particulates.

Each stormwater treatment system shall be of a hydraulic design that includes flow controls designed and certified by a professional engineer using accepted principles of fluid mechanics that raise the water surface inside the tank to a pre-determined level in order to prevent the reentrainment of trapped floating contaminants.

Each stormwater treatment system shall be capable of removing **80% of the net annual Total Suspended Solids (TSS)** load based on a 50-micron particle size. Annual TSS removal efficiency models shall be based on documented removal efficiency performance from full scale laboratory tests. Annual TSS removal efficiency models shall only be considered valid if they are corroborated by independent third party field testing. Said field testing shall include influent and effluent composite samples from a minimum of ten storms at one location. The stormwater treatment systems shall have the Design Treatment Capacity listed in Table 2.2, and shall not resuspend trapped sediments or re-entrain floating contaminants at flow rates up to and including the specified Design Treatment Capacity.

Individual stormwater treatment systems shall have usable sediment storage capacity of not less than the corresponding volume listed in Table 2.2. The systems shall be designed such that the pump-out volume is less than ½ of the total system volume. The systems shall be designed to not allow surcharge of the upstream piping network during dry weather conditions.

A water-lock feature shall be incorporated into the design of the stormwater treatment system to prevent the introduction of trapped oil and floatable contaminants to the downstream piping during routine maintenance and to ensure that no oil escapes the system during the ensuing rain event. Direct access shall be provided to the sediment and floatable contaminant storage chambers to facilitate maintenance. There shall be no appurtenances or restrictions within these chambers.

Stormwater treatment systems shall be completely housed within one rectangular structure.

D. Manufacturer. Each stormwater treatment system shall be of a type that has been installed and used successfully for a minimum of 5 years. The manufacturer of said system shall have been regularly engaged in the engineering design and production of systems for the physical treatment of stormwater runoff during the aforementioned period.

602.03.09 Water Quality Treatment Structure

Each Stormwater Treatment System shall be constructed according to the sizes shown on the Drawings and as specified herein. Install at elevations and locations shown on the Drawings or as otherwise directed by the Engineer.

Place the precast base unit on a granular subbase of minimum thickness of six inches (152 mm) after compaction or of greater thickness and compaction if specified elsewhere. The granular subbase shall be checked for level prior to setting

and the precast base section of the trap shall be checked for level at all four corners after it is set. If the slope from any corner to any other corner exceeds 0.5% the base section shall be removed and the granular subbase material re-leveled.

Prior to setting subsequent sections place bitumen sealant in conformance with ASTM C 990 along the construction joint in the section that is already in place.

After setting the base and wall or riser sections, prepare to install the swirl chamber. Place the 3/4-inch (19 mm) thick by 3/4-inch (19 mm) wide butyl mastic seal vertically on the outside of the swirl chamber starting one inch above the bottom of the swirl chamber and continuing to a height equal to the elevation of the bottom of the upper aperture of the swirl chamber. The butyl mastic seal should abut the downstream side of the predrilled mounting holes that attach the swirl chamber to the long walls of the concrete vault. Next, install the extruded Buna N seal on the bottom edge of the 180 degree downstream section of the swirl chamber by first applying a bead of Sikaflex-1a polyurethane elastomeric sealant into the extruded slot then slide the seal onto the swirl chamber. The extruded seal should extend 3-inches (76 mm) upstream of the mounting holes, toward the inlet end of the vault. Set the swirl chamber into position and keep the seal approximately ½-inch (13 mm) above the floor of the concrete vault. Apply a continuous bead of Sikaflex-1a sealant under the cupped bottom of the seal. Set the circular swirl chamber on the floor of the vault and anchor it by bolting the swirl chamber to the side walls of the concrete vault at the three (3) tangent points and at the inlet tab using HILTI brand stainless steel drop-in wedge anchors or equivalent 3/8-inch (10 mm) diameter by 2-3/4 inch (70 mm) minimum length at heights of approximately three inches (3") (76 mm) off the floor and at fifteen inch (15") (381 mm) intervals to approximately the same height of the butyl mastic sealant (at locations of pre-drilled holes in aluminum components). Apply a continuous bead of Sikaflex-1a sealant to the intersection of the inside bottom edge of the extruded seal and the vault floor.

If the oil baffle wall (Baffle A) and flow control wall (Baffle B) are not integrally cast-in to riser/wall sections then the Baffle wall panels shall be placed in the formed keyways or between Vortechs® System Technical Specification SECTION 02721 5 bolted-in-place angle flanges as provided by the manufacturer. Apply non-shrink grout or Sikaflex-1a sealant to each end of Baffle A and Baffle B at the upstream intersection with the side walls of the concrete vault.

Prior to setting the precast roof section, bitumen sealant equal to ASTM C 990 shall be placed along the top of the oil baffle wall (Baffle A), using more than one layer of mastic if necessary, to a thickness at least 1-inch (25 mm) greater than the nominal gap between the top of the baffle and the roof section. The nominal gap shall be determined either by field measurement or the shop drawings. Do not seal the top of Baffle B unless specified on the shop drawings to do so. After placement of the roof section has compressed the butyl mastic sealant in the gap over Baffle A, finish sealing the gap with an approved non-shrink grout on both sides of the gap using the butyl mastic as a backing material to which to apply the grout. If roof section is "clamshell" or "bathtub" halves, then finish sealing the ends of the Baffle walls by applying nonshrink grout or Sikaflex-1a sealant to each end of Baffle A at the upstream intersection with the side walls of the concrete vault and to each end of Baffle B at the downstream intersection with the side walls of the concrete vault.

After setting the precast roof section of the stormwater treatment system, set precast concrete manhole riser sections, to the height required to bring the cast iron manhole covers to grade, so that the sections are vertical and in true alignment with a ¼-inch (6 mm) maximum tolerance allowed. Backfill in a careful manner, bringing the fill up in 6- inch (152 mm) lifts on all sides. If leaks appear, clean the inside joints and caulk with lead wool to the satisfaction of the Engineer. Precast sections shall be set in a manner that will result in a watertight joint. In all instances, installation of Stormwater Treatment Systems shall conform to ASTM specification C 891 "Standard Practice for Installation of Underground Precast Utility Structures".

Holes made in the concrete sections for handling or other purposes shall be plugged with a nonshrink grout or by using grout in combination with concrete plugs.

Where holes must be cut in the precast sections to accommodate pipes, do all cutting before setting the sections in place to prevent any subsequent jarring which may loosen the mortar joints. The Contractor shall make all pipe connections.

602.03.10 Water Meter Chamber

Excavate as specified in 202.03.03. Obtain RE approval before finishing excavating. If the RE determines that the bottom of the excavation is unstable, undercut, backfill, and compact as directed by the RE.

When surrounding grade is below proposed grade, provide temporary drainage into the drainage structure as directed by the RE. Repair temporary openings as necessary. Construct water chamber structures as follows:

1. **Precast.** The Contractor may use precast concrete water chamber. If modifications to precast concrete water chamber are required, obtain RE approval before installation. After installation, fill the lifting holes with mortar.

Backfill and compact using the directed method as specified in 203.03.02.C.

Set the water chamber cover on the casting. If the water chamber cover is loose or wobbles, grind to obtain a tight fit.

602.04 MEASUREMENT AND PAYMENT
THE FOLLOWING PAY ITEM IS ADDED:

Item	*Pay Unit*
MANHOLE	UNIT
WATER QUALITY TREATMENT STRUCTURE	UNIT
WATER METER CHAMBER	UNIT
INLET, NON-STANDARD	UNIT

THE FOLLOWING IS ADDED:

The Department will make payment for Manhole, Type DMH2 under MANHOLE.

The Department will make payment for Inlet, Type ESP and Inlet, Type Double ESP under INLET, NON-STANDARD.

SECTION 606 – SIDEWALKS, DRIVEWAYS, AND ISLANDS

606.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This Section also describes the requirements of furnishing, designing, and installing turf pavers.

606.02.01 Materials
THE FOLLOWING IS ADDED:

Provide materials as specified:

Turf Paver Systems:

1. Geoblock 5150 System; Presto Products, Inc., Appleton, WI
2. Tuff Track Grassroad Paver TT-24; NDS, Inc., Lindsay, CA
3. Grass Pavers; RK Manufacturing, Inc., Jackson, MS
4. Grass pave2; Invisible Structures, Inc., Aurora, CO
5. Or approved equal.

Provide product sample, technical specifications and manufacturer's installation instructions for Department approval.

Course Aggregate……. ..... ……...901.06.01
Fine Aggregate…….. ……901.06.02
Dense-graded Aggregate (DGA)…….. ……..901.10
Soil Aggregate……. ..... ……...901.11
Concrete……. ..... ……903.03
Topsoil……. ..... ……..917.01
Fertilizer……..... ……...917.03
Pulverized Limestone…… ……917. 04
Seed Mixture…….. ..... ……..917.05.01-2
Mulch……..... ……...917.06.01
Tackifiers……. ..... ……917. 07
Geotextiles……. ..... ……..919.01

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.

THE FOLLOWING SUBSECTIONS ARE ADDED:

606.03.04 Stone or Gravel Driveway

To minimize tracking of dirt and other materials into Stormwater Management Facilities and onto existing roadways, provide Maintenance Access Drive consisting of broken stone or washed gravel, 6" thick at each location where maintenance vehicles enter Stormwater Management Facilities as shown on Drainage and Utility Plans (D-1 thru D-14). Construct driveway using six (6) inches of broken stone or washed gravel placed on geotextile. Ensure that the Maintenance driveway is at least 15 feet wide as shown on Construction Detail, CD-12. Maintain the Maintenance Access Drive by top dressing or by excavating and top dressing, as directed by the RE, with additional washed gravel or broken stone.

606.03.05 Turf Pavers

Provide layout, structural design, and installation for each designated location based on manufacturer's design guidelines for Department approval.

1. Design Criteria.

a. Relatively level parking area for minimum 40,000 lb. utility truck. Allot space for truck stabilizers.

b. Provide for safe ingress/egress with turnaround slots where needed.

2. Installation.

a. Install pavers after all footings/foundations and other grading at given site is complete.

b. Prepare subgrade and base as per manufacturer's instructions and design load.

c. Set and anchor turf pavers as per manufacturer's instructions.

d. Infill turf pavers with topsoil or Department approved growing medium as per manufacturer's instructions.

e. Fertilize and seed with Type W seed mix as specified in Section 806.

f. Mulch seeded areas as specified in 809.03.01.

606.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
STONE OR GRAVEL DRIVEWAY, 6" THICK	SQUARE YARD
TURF PAVERS, PLASTIC	SQUARE YARD

SECTION 607 – CURB

607.01 DESCRIPTION
THE FOLLOWING IS ADDED:

This Section also describes the requirements for constructing ground mounted barrier curb.

607.02 MATERIALS
THE FOLLOWING IS ADDED:

Refer to the construction detail for GROUND MOUNTED BARRIER 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.

THE FOLLOWING IS ADDED:

607.03.08 Concrete Barrier Curb

A. Underlayer Preparation. Prepare the underlying surface as specified in 607.03.01.A.

B. Constructing Forms. Construct forms as specified in 607.03.01.B.

C. Installing Joints. Install joints as specified in 607.03.01.C.

D. Placing Concrete. Place concrete for vertical and sloping curb as specified in 607.03.01.D.

E. Finishing Concrete. Finish the top and front face of the curb as specified in 607.03.01.E.

F. Protecting and Curing Concrete. Immediately after finishing the concrete, apply curing compound as specified in 504.03.02.F.1. Protect the concrete as specified in 504.03.02.I.

G. Installing Flexible Delineators. Install flexible delineators as specified in 607.03.01.G.

607.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
GROUND MOUNTED BARRIER CURB	LINEAR FOOT

Reinforcement Steel will not be measured for payment. Include payment in the price bid for GROUND MOUNTED BARRIER CURB.

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

Non-Vegetative Surface Coating…….....……...912.02.04
Herbicide…….....……917.11.03
Polyester Matting…….....……..…..919.15

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.

608.03.06 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

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.

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

610.02.01 Materials
THE FOLLOWING MATERIALS ARE RENAMED TO:

Traffic Stripes	912.03.01
Traffic Markings	912.03.02

610.03.01 Long-Life Traffic Stripes
THE SUBPART HEADING AND THE ENTIRE TEXT IS CHANGED TO:

610.03.01 Traffic Stripes

A. Striping Plan. At least 20 days before beginning the work, submit to the RE for approval a striping plan that includes:

1. Schedule of operations for applying traffic stripes.
2. Number and type of equipment.
3. Manufacturer's recommendations for use of the materials, including, but not limited to, mixing ratios and application temperatures.
4. Details on the means and methods for surface preparation
5. Details on the means and methods for premarking
6. Details on the proposed test strip such as location, length etc

B. Surface Preparation. Immediately before striping the pavement surface, clean the surface of dirt, oil, grease, and foreign material, including curing compound on new concrete. Clean the surface 2 inches beyond the perimeter of the stripes to be placed.

C. Striping Test Strip. Before beginning striping operations, construct 1 or more striping test strips to demonstrate the Contractor's ability to meet the requirements specified in 610.03.01.D. For each striping test strip, apply striping to approximately 500 linear feet of pavement with the same striping procedure that will be used for the Project. Construct a test strip for each applicator unit and epoxy resin material used. Provide the RE with 50 test cards made of heavy stock paper measuring 8 inches by 2 inches, and two wet film thickness gauges. Construct additional test strips when major equipment repairs or adjustments are made or when the traffic stripes are determined to be defective. Construct additional test strips when traffic striping operations are performed on multiple, non-continuous occasions. Perform additional test strips as requested by the RE. When the test strip is in compliance, as determined by the RE, proceed with striping operations. Each test strip may remain in place and become part of the finished stripes subject to the requirements of 610.03.01.E.

D. Applying Striping. Mix epoxy resin with an automatic proportioning and mixing machine, and hot-spray the compound at a temperature of between 100 and 130 °F onto dry surfaces. Apply the compound with a wet film thickness of 20 ± 1 mil. Apply the material during dry weather conditions when the ambient temperature is a minimum of 45 °F and the surface temperature is a minimum of 50 °F. Adjust operations as required for the prevailing ambient and surface conditions to achieve a no-track drying time of 30 minutes or less**.**

Immediately after, or in conjunction with, the compound application, uniformly apply 12 pounds of large glass beads per gallon of epoxy resin to the compound. After applying the large glass beads, uniformly apply 12 pounds of small glass beads per gallon of epoxy resin to the compound.

Remove all compound that has been tracked or spilled outside of the intended placement areas.

E. Performance. Ensure that the traffic Stripes, show no fading, lifting, cracking, chipping for any reason including but not limited to traffic wear, maintenance activities including snow plowing, until Acceptance. Ensure that 60 days after application, traffic stripes have a minimum retroreflectance value of:

375 millicandelas per square meter per lux for white traffic stripe

250 millicandelas per square meter per lux for yellow traffic stripe

F. Defective work. Replace traffic stripes that are determined by the RE before Acceptance to be defective or that are damaged during construction. Remove defective stripes as specified in 610.03.08.

Replace an entire 10-foot skip line if the RE determines the stripe to have a deficiency.

If the RE determines, based upon calculated and measured yields, that the striping has a wet film thickness of less than 19 mils, restripe the entire length with 20 mils of new compound.

Provide the RE with 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. Replace traffic stripes that do not meet the retroreflectance values indicated in 610.03.01.E. Replace the entire length of striping where improper curing or discoloration has occurred. Discoloration is localized areas or patches of brown or grayish colored compound. Where improper curing or discoloration occurs intermittently in intervals of 100 feet or less throughout the striping length, replace the entire length of striping from the beginning of the first occurrence until the end of the last occurrence, plus 5 feet on each end.

Replace the entire length of striping that has failed to bond to the pavement, or has chipped or cracked. Where more than 25 spots of chipping, cracking, or poor bonding have occurred within 1000 linear feet of striping, replace the entire 1000 foot length of striping as indicated in 610.03.01.E.

G. Opening to Traffic. Complete each application of all types of traffic stripes and allow to thoroughly dry before opening to traffic. At a minimum, delineate center lines on undivided roadways and broken lines between lanes before the traveled way is opened. The RE will determine when the traveled way can be opened to traffic.

610.03.02 Thermoplastic Traffic Markings
THE SUBPART HEADING AND THE ENTIRE TEXT IS CHANGED TO:

610.03.02 Traffic Markings

A. Marking Plan. At least 20 days before beginning the work, submit to the RE for approval a marking plan that includes:

1. Schedule of operations for applying traffic markings,
2. Number and type of equipment,
3. Manufacturer's recommendations for use of the materials, including mixing ratios and application temperatures.
4. Details on the means and methods for surface preparation
5. Details on the means and methods for premarking

B. Surface Preparation. Immediately before marking the pavement surface, clean the surface of dirt, oil, grease, and foreign material, including curing compound on new concrete. Clean the surface 2 inches beyond the perimeter of the marking to be placed.

C. Applying Traffic Markings. Place preformed thermoplastic or hot extruded thermoplastic traffic markings on thoroughly dry surfaces and during dry weather conditions. Apply using equipment and procedures that produce markings of the specified color, width, and thickness with well-defined edges, uniform retroreflectivity, and proper bonding to the pavement. Apply the thermoplastic material as follows:

1. Preformed Thermoplastic. Melt the preformed thermoplastic tape to bond the traffic markings permanently in position according to the manufacturer's recommendations.

Meet the minimum initial retroreflectance value, as specified in 610.03.01.D for thermoplastic tape, by applying additional glass beads to the hot-wet material in a uniform pattern as necessary.

2. Extruded Thermoplastic. Uniformly heat the thermoplastic material. When the ambient and surface temperatures are at least 50 °F, apply the melted material at a temperature of between 400 and 425 °F. Extrude the thermoplastic traffic markings on the HMA or concrete pavement ensuring a thickness of 90 ± 1 mils.

Immediately after, or in conjunction with the thermoplastic extrusion, uniformly apply glass beads to the wet material at a minimum rate of 10 pounds per 100 square feet of markings. Apply glass beads by mechanical means only.

D. Performance. Ensure that the traffic markings show no fading, lifting, cracking, chipping for any reason including but not limited to traffic wear, maintenance activities including snow plowing, until Acceptance. Ensure that 60 days after application, traffic markings have a minimum retroreflectance value of:

375 millicandelas per square meter per lux for white traffic markings

250 millicandelas per square meter per lux for yellow traffic markings

E. Defective work. Replace thermoplastic traffic markings that are determined by the RE before Acceptance to be defective or that are damaged during construction. Remove defective markings as specified in 610.03.08.

Replace the entire area of thermoplastic traffic markings determined to be less than the required thickness, to have incorrect color or width, to have failed to bond to the pavement, or to have chipped or cracked. The minimum replacement area is an individual word or symbol, or for longitudinal lines the entire length from where the deficiency first occurs to where it no longer exists.

The RE will determine initial retroreflectance as follows:

Provide the RE with 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 markings. Replace traffic markings that do not meet the retroreflectance values indicated in 610.03.02.D.

F. Opening to Traffic. Complete each application of thermoplastic traffic markings and allow to thoroughly dry before opening to traffic. The RE will determine when the traveled way can be opened to traffic.

610.03.04 Removal of RPMs
THE ENTIRE TEXT IS CHANGED TO:

Remove RPMs as directed by the RE. Dispose of RPMs as specified in 201.03.09. If directed by the RE, fill the hole with HMA patch as specified in 159.03.07 except sawcutting is not required.

610.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:

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

THE FOLLOWING ITEMS ARE THE RENAMED ITEMS:

Item	*Pay Unit*
TRAFFIC STRIPES ___"	LINEAR FOOT
TRAFFIC MARKINGS	SQUARE FOOT

SECTION 611 – CRASH CUSHIONS

611.01 DESCRIPTION
THE FIRST SENTENCE IS CHANGE TO:

This section describes the requirements for providing and constructing inertial barrier systems and compressive crash cushions.

611.02 MATERIALS
THE SECOND PARAGRAPH IS CHANGED TO:

Ensure that the sand has a dry density of 90 to 100 pounds per cubic foot and a 3 percent maximum allowable moisture content. The RE may require the Contractor to test the moisture content of the sand according to AASHTO T 255 and to submit certified test results.

THE THIRD PARAGRAPH IS CHANGED TO:

Provide an inertial barrier system listed on the QPL. Provide a compressive crash cushion as shown on the Plans.

The list of the manufacturers / suppliers is as follows:

QuadGuard	Energy Absorption Systems, Inc.
QuadGuard Elite	Energy Absorption Systems, Inc.
QuadGuard Cz	Energy Absorption Systems, Inc.
REACT 350	Energy Absorption Systems, Inc.
REACT 350 WZ	Energy Absorption Systems, Inc.
SCI	SCI Products Inc.
TAU II	Barrier Systems Inc.
TRACC	Trinity Highway Products

611.03.02 Crash Cushion
THE TITLE OF THE SUBSECTION IS CHANGED TO:

611.03.02 Compressive Crash Cushion
THE SECOND SENTENCE IS CHANGED TO:

Install compressive crash cushions including foundations, backup supports and transitions according to the manufacturer's recommendations and as shown on the Plans.

611.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:

Item	*Pay Unit*
CRASH CUSHION, ___	UNIT

THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
CRASH CUSHION, COMPRESSIVE BARRIER, TYPE___, WIDTH___	UNIT

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.

612.03.01 Regulatory and Warning Signs and Type GA "U" Post Support Guide Signs
THE FOLLOWING IS ADDED TO THE END OF THE SUBPART:

The Contractor is responsible for the following U channel supported sign relocation/reset:

1. Installation of all sign assemblies on new breakaway u-channel supports unless otherwise note on the plans or directed by the RE. Replacement of sign supports for existing signs to be reset or relocated throughout the project.
2. Remove or relocate all conflicting or obstructed signs.

The Contractor is responsible for the following GA guide sign relocation with customized support:

1. Carefully remove the customized sign panel, sign support and mounting material.
2. Install the customized sign panel on existing sign supports. If the sign supports are damaged during removal, provide new customized sign supports to match the existing.

All work is to be performed in accordance with the plans and specifications and as directed by the RE. Any details not specified herein or shown on the plans must conform to details and requirements set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways.

Reset, relocate or remove existing sign assemblies and support posts as designated on the bid documents or as directed by the RE. Ensure all existing sign assemblies, to be reset or relocated, are:

1. Carefully removed, cleaned, temporarily stored, and reinstalled on new u-channel posts or original customized sign support.
2. Located and marked-out so locations can be verified by the Engineer before installation.
3. Ensure all existing sign assemblies, to be removed, are verified for disposal or relocation by the Engineer.
4. Deliver all existing signs and support posts deemed salvageable by the Engineer to NJDOT or as directed by the RE.

612.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:

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

THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
RELOCATE SIGN	UNIT

THE FIRST PARAGRAPH UNDER THE ITEM LIST IS DELETED.

THE FOLLOWING IS ADDED:

The Department will make payment for the relocation of all U channel support signs under by counting the number of steel U channel posts used.

The Department will make payment for the relocation of all GA guide signs with customized sign supports under RELOCATE SIGN by counting the number of sign panels.

THE FOLLOWING SECTION IS ADDED:

SECTION -613 – NOISE BARRIERS

613.01 DESCRIPTION

This Section describes the requirements for manufacturing, furnishing, erecting, constructing and staining precast concrete noise barriers supported by either drilled shaft foundations or on retaining walls. All surfaces of the noise barrier are to be stained according to Subpart 613.02.02.E.

613.02 MATERIALS

613.02.01 Precast Concrete Noise Barriers

Provide materials as specified:

Broken Stone 901.03.01
Washed Gravel 901.03.02
Concrete 903.03
Mortar and Grout 903.08
Structural Precast Concrete 904.03
Reinforcement Steel 905.01
Drilled Shaft Casing 906.03
Bearing Pads 907.03
Bolts and Bolting Material (Steel) 908.01
Anchor Bolts 908.01.03

Use Class B concrete for foundations and pedestals as specified in Section 903.

Use No. 57 size coarse aggregate at the base of drilled shaft foundations conforming to the gradation specified in Table 901.03-1.

Use Class P concrete for precast noise barrier posts and panels as specified in Section 904, except that the use of a superplasticizer admixture containing lignosulfanates is prohibited. A superplasticizer that does not contain lignosulfanates may be used. Should superplasticizers be used, produce two 4-foot by 4-foot by 5-inch sample panels, one sample panel containing the superplasticizer admixture, and the other panel not. Produce each sample panel utilizing the same techniques in batching, finishing and curing at the same time and of how the actual members will be finished and cured. The concrete batching may be done during the verification batching for the Project. A representative of the manufacturer of the concrete admixture must be present at the time of concrete batching. Should the sample panels indicate unacceptable color variations in the concrete, as determined by the ME, the ME may prohibit the use of the superplasticizers for noise barriers. Utilize a consistent source of cement, fine aggregate and coarse aggregate for all precast elements to ensure uniformity of color. Utilize cement of the same brand and coming from the same mill throughout the entire job to minimize color variation.

Prestressed concrete posts and panels may be substituted for the proposed precast posts and panels. Furnish prestressed post and panels conforming to Section 505.

Noise barriers are not to be integrally colored. Field stain all exposed surfaces of the noise barrier posts and panels.

Fabricate precast concrete using coarse and fine aggregate conforming to the requirements of ASTM C 33 and Subsection 901.03. Limit the coarse aggregate to a maximum size of No. 67 as listed in Table 901.03-1 of Subsection 901.03, and be washed. Limit adherent fines to one percent and limit the total adherent and non-adherent fines to 1.5 percent.

Utilize preformed, closed cell, polyethylene foam backer rod joint filler conforming to ASTM D 3204, Type I. Utilize a one-part, low-modulus silicon rubber type cold applied joint sealer conforming to Federal Specifications TT-S-1543, Class A or TT-S-00230C, Type II, Class A with a minimum elongation of 600 percent. Match the color of the cold applied joint sealer to the precast concrete items.

Provide materials and methods of construction not specifically covered in the Plans and Specifications conforming to AASHTO LFRD Bridge Construction Specifications, ACI Manual of Concrete Practice, and the PCI Manual 117. Use the editions and revisions of the standards and specifications that are current at the time of bidding.

613.02.02 Precast Concrete Noise Barriers Manufacture

Provide proof of a minimum of five years experience in manufacturing precast concrete noise barriers with architectural assemblage of similar products to the RE for approval prior to beginning barrier manufacture.

Perform all precasting operations indoors within a controlled environment and from a central batch mixer. A plastic or other temporary structure is acceptable provided it is sturdy enough to endure weather conditions and is able to maintain environmentally controlled conditions. Do not heat the enclosure by fossil-fueled heaters unless the exhaust fumes are vented to the outside away from the enclosure.

If recessed handling inserts are used, galvanize according to ASTM A153.

Deformed Welded Wire Fabric is an alternate to reinforcing bars for precast concrete panels. Provide Welded Wire designation and spacing meeting the minimum area of steel as determined by design. Ship deformed welded wire fabric in mats, not in rolls. Overlap mesh sheets not less than one mesh in width or as required by design, whichever is greater. Fasten overlaps securely at the ends and edges.

A. Test Posts and Panels. Before the start of normal noise barrier fabrication and before the fabrication and construction of the test posts and panels, construct and submit to the Department's Landscape Architecture Unit forcolor approval, two 4-foot by 4-foot by 5-inch sample panels. Construct the sample panels utilizing the approved noise barrier concrete mix design. Include the specified finish on the roadway side of the noise barrier; provide one panel with sound absorptive treatment.

Do not commence fabrication of the test posts and panels until working drawings have been approved by the ME and by the Department's Landscape Architecture Unit. Construct at the precasting plant or at a location determined by the RE if there is more than one precaster involved with the Project, an acceptable sample noise barrier wall consisting of 3 posts and 2 sections of panels. Ensure the barrier is the same size and configuration as the noise barriers to be used on the Project. Construct one of the test panel sections with sound absorptive coating on the roadway side as specified in Section 613. These test sections will be used to determine the acceptability of the various surface treatments, color, and quality of construction of both the roadway and residential sides of the noise barrier.

Produce posts and panels and apply a concrete penetrating stain that is uniform in color consistency and free from discoloration and blemishes. Include the specified finishes for both highway and residential sides, and all panel and post detailing in the sample noise barrier as directed in the Plans.

Notify the RE and the Department's Landscape Architecture Unit in writing, at least 14 days before the construction of the sample noise barrier wall so that the appropriate Department's representatives may be present to determine the acceptability of the finished posts and panels.

The RE in conjunction with the Department's Landscape Architecture Unit, will determine whether the color and various surface treatments of the posts and panels are acceptable. If test sections are found to be unacceptable, manufacture additional samples until an acceptable product is produced.

After approval, retain and use test posts and panels as the standard to determine acceptability of production posts and panels. The panels may be used on the Project at the end of precasting operations when released by the Department.

B. Concrete Placement. Deposit concrete only in the presence of and by methods approved by the Department. Ensure all reinforcement is free of dirt, loose rust, grease, and other deleterious substances. Accurately place all items to be encased in the concrete in the position shown on the Plans and firmly held during the placing and setting of the concrete.

Vibrate concrete either internally or externally, or both, as required. The RE will approve the type, number, and method of application of vibrators. Apply internal vibrations to the concrete for time intervals of approximately ten seconds and at points not more than 18 inches apart. Do not use vibrators to move concrete horizontally in the form. Do not displace any reinforcement inserts with the vibrating.

Ensure form liners, where required, do not leak at the joints and ensure seams are fused according to the manufacturer's recommendations. No unfused seams will be permitted. The placement of seams will be subject to the approval of the RE. Place form liner seams so that the architectural finish will be unbroken and continuous.

Ensure precast concrete posts and panels are free of honeycombing or voids and be true to size and dimensions within the following limits:

1. Casting tolerances (overall height and width measured at the face adjacent to the mold when cast):

   10 feet or under ..... ±1/8 inch
   Over 10 feet ..... + 1/8 inch, - 3/16 inch
   Thickness ..... ±1/8 inch
   Out of square ..... 1/4 inch

2. After casting tolerances:

   Bowing and warpage: 1/360 panel dimension with a maximum of ¾ inch; differential bowing or camber between adjacent members of the same design shall not exceed 3/8" inch.

3. Position of cast-in items:

   Recessed handling

   Inserts..... ± inch
   Reinforcement..... ± ½ inch
   Threaded inserts ..... ± ¼ inch

C. Finishing Concrete Surfaces. Apply a Class 1 surface finish to the cap of all exposed surfaces of the concrete posts and the top concrete panels according to Subsection 504.03.02 H. Apply a finish to the remainder of the exposed surfaces of the posts and panels on the roadway side according to the approved sample panels.

The finish for concrete surfaces is specified on the Plans or in the Special Provisions. Maintain the minimum concrete over the reinforcing bars. The finish for concrete surfaces is specified on the Plans or in the Special Provisions. If a rough finish is specified on the residential side of the noise barrier posts and the concrete panels, provide a fuzzy finish produced in the following manner: When a tight uniform surface has been achieved and as soon as the water sheen has disappeared, texture the surface to a fuzzy (rough) finish. The finish surface is produced with a 2-feet asphalt rake with every other tine removed. This tool is used to rake up the outer face to a depth of about 1 inch with a swirling motion in such a manner as to not gouge the surface or leave any tine marks. Maintain the minimum concrete over the rebars. Allow the concrete to dry normally. Before commencing with panel production, the fuzzy finish will be evaluated and approved according to the Specifications.

Construct form liners in such a manner as to prevent concrete leakage at joints and fuse by a "hotmelt" system. No glue, caulking, or unfused seams will be permitted.

D. Concrete Curing. Cure the precast units by any of the methods specified in Division 3, Section 4 of the PCI Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products. Submit the curing method to be used in writing for approval before the start of fabrication.

If steam is used, Subsection 3.4.2 of the PCI Manual is amended as follows:

1. Delay the application of steam within the enclosure for a period of five to six hours when the air temperature is 50 ºF or lower and delay for a period of three hours when the air temperature is 50 ºF or higher.
2. Wait a period from four to six hours if retarders are used, regardless of the air temperature.
3. Maintain the curing temperature at 145 ± 10 ºF for a period of 12 hours.

Test two concrete test cylinders, similarly cured, after the curing procedure specified. Should the tests indicate that the precast units have not achieved a compressive strength of 5,000 pounds per square inch, cure the precast units further until the required strength is reached.

Remove the forms after the precast units have achieved a compressive strength of 3,000 pounds per square inch.

Perform one compressive strength test from the two concrete cylinders that are taken from each concrete truck or from each batch of concrete that is produced to determine the acceptance or failure of the concrete. Average together the two test results to obtain a single value representing the units. Concrete will be accepted if this averaged single value is equal to or greater than the class design strength as identified in Subsection 903.03, Table 903.03.06-3. Concrete will be accepted with a pay adjustment if the averaged single value is within the range from 1 to 500 pounds per square inch less than the class design strength for the specified concrete class, (i.e. for Class P concrete, this range will be between 5,000 and 5,500 pounds per square inch). The pay adjustment will be according to Section 903.03.05. Concrete will be rejected if the averaged single value is greater than the amount that is 500 pounds per square inch less than the class design strength for the specified concrete class. The RE may use testing results obtained from concrete cores or nondestructive testing before requiring any corrective action or removal and replacement of the concrete. All costs for coring and testing will not be paid.

E. Staining Concrete Surfaces. Stain precast concrete noise barriers by the application of a concrete penetrating stain. Use a single component, water based, thermoplastic acrylic emulsion concrete penetrating stain which carries its color and water repellent protection into the concrete.

Use a penetrating stain conforming to the following performance requirements:

Condition	Physical Properties Results	Test Method
Dry-through Time	25 minutes, maximum	ASTM D 1640
Dry-to-recoat Time	1 hour, maximum	ASTM D 1640
Oil, Wax, and Silicon Content	None 200 pounds per square inch, minimum	ASTM D 4541
Adhesion to Concrete	(Average of five tests)	Elcometer Test
Gloss Flat	No visible	ASTM G 23
Weather-O-Meter	Degradation	Atlas Test
Carbon Arc	500 hours	
Solids by Weight	57 ± 2 percent	
Viscosity	70 to 75 Krebbs Units	ASTM D 562

The surfaces to be stained will be examined, and any areas requiring patching or repair will be brought to the Contractor's attention.

It is the intent of this item to have the formlined concrete areas resemble natural stone or masonry block walls. To realistically achieve that appearance, the stain colors shall not overlap or cover the "joints" between stones or block units so as to give the impression of mortar between the individual units. It is critical to have more than one color represented on each stone or block unit. Neither the natural stone material nor the existing block wall being replicated has only one uniform color but rather they both exhibit a mix of several colors, with one being the dominant. The final color scheme will be approved by the Engineer in the field after reviewing and approving the test panel mock-ups specified elsewhere.

When directed by the Engineer, the stain mixture shall be thinned or "cut" in a proportion sufficient to allow for the stain to be translucent and shall be mixed in equal proportions with material recommended by the manufacturer to allow the stain material to develop the translucency needed to have the various colors of multiple applications remain apparent without excessive mil thickness build up. This adjusted consistency is necessary for the initial stain layer to "bleed through" the second layer, be seen and provide a more mottled look.

All concrete surfaces that are to be stained and any patching that has been done in these areas shall be at least 28 days old. Clean surface prior to application of stain material to assure that surface is free of latency, dirt, dust, grease, efflorescence, paint, or other foreign material, following supplier's instructions for surface preparation. Do not sand blast. Preferred method to remove latency is pressure washing with water. Completed surface shall be free

of blemishes, discoloration, surface voids and unnatural form marks. Any areas requiring repair will be brought to the attention of the Contractor.

Match the unpigmented, clear, non-volatile portion of the stain with the infrared spectrograph on file at the Department Laboratory. Ensure the concrete penetrating stain complies with New Jersey state laws regulating the use of volatile organic compounds and solvents and the following:

1. **Test Staining.** Before any staining operations, complete a test staining program for color acceptance and surface area coverage. Perform this work either at the concrete precaster's plant on the noise barrier test wall or at the Project site on a portion of an erected noise barrier under the same circumstances as the actual staining. Stain one complete noise barrier section, including posts.

   Before ordering, submit a sample for approval of the concrete stain and color. Accompany the sample with the manufacturer's literature including materials specifications, physical properties, including ASTM test methods utilized, manufacturer's recommended application rates for the various surface textures and porosity, current application instructions, and material safety data sheets.

   Apply the stain according to the manufacturer's recommendations, and representing the job site application. Obtain approval of the stain test sample by the RE and the Department's Bureau of Landscape and Urban Design before actual staining operations and the ordering of any further quantities of stain. When approved the sample area will serve as a standard of acceptance for all further work.

   A standard for color will be established based on the approval of the full size noise barrier staining. Designate a stain batch by batch number and date and will remain the standard for the entire Project. Match the final color and form liner finish of the adjacent existing noise barrier components.

2. **Application Procedures.** Apply the concrete penetrating stain according to the manufacturer's written instructions and precautions. Only apply stain to surfaces that are structurally sound, fully cured, clean, dry, and free from dust, curing agents, oil, grease, efflorescence, and any other contaminants that could prevent proper adhesion. If necessary, pressure wash the surfaces to remove all surface contamination. In addition, chemically or mechanically abrade glazed or glossy surfaces to remove gloss to allow adhesion.

   Before use, thoroughly mix the stain using the appropriate mechanical means and mix during spraying operations as required by the manufacturer to maintain uniformity.

   All concrete stain is to be of the same batch and lot. Deliver the stain to the spraying site in original, sealed 5-gallon plastic pails or open head 55-gallon drums, clearly labeled with the manufacturer's name, brand name, type of material, batch and lot numbers, date of manufacture, and color.

   At the time of stain application, both the concrete and air temperatures must be between 45 and 90 ºF. Ensure the concrete is completely dry. Do not apply stain unless weather conditions permit complete drying of material before rain, fog, dew, or temperatures beyond the prescribed limits.

   A single coat will be used at the simulated cap at the top of the noise barrier panels: Use solid color water-based concrete stain, Federal Standard Color No. 35526. The single coat will be applied by airless sprayer, paintbrush or roller, as appropriate to prevent contamination of previously painted adjacent surfaces. Care will be taken as needed to protect adjacent surfaces by taping, plastic or plywood.

   A single coat system will be used at the simulated splitface block finishes for noise wall panels and posts: use solid color water-based concrete stain, Federal Standard Color No. 30166. The base coat will be applied with an airless sprayer and shall provide a uniform base color for that surface (100% coverage). The stain will be allowed to cure, as recommended by the manufacturer, prior to application of any remaining coats required by the Engineer.

   Ensure the completed stain surfaces are consistent with the quality and appearance of the approved sample area. The RE may have all surfaces resprayed if unevenness in color and lines of work termination exist. Carry respraying, if required, to a natural break-off point.

   Apply stain by brush or roller only at locations where over spray would affect adjacent materials and where not practical for spray application. Provide adequate protection to adjacent persons, vehicles, and property from over spray during staining operations.

F. Storage and Transportation. After curing, store, stack, and transport the units in a manner to prevent the development of cracks or other deformities.

Mark the top side of all precast concrete units for identification and proper placement on the erection drawings. In addition, mark on the unit the length, size, and type of reinforcement.

613.03 CONSTRUCTION

613.03.01 Noise Barrier

Before fabrication, submit complete working drawings to the RE for approval. Provide working drawings covering each type of unit to be used showing exact dimensions and handling details.

Furnish working drawings according to Subsection 105.05. Minor variations in details may be permitted subject to approval, however, any major departure from the design shown on the Plans will not be approved. Clearly note minor variations on the working drawings.

Include plan and elevation drawings of the noise barriers on the working drawings. Clearly show the top and bottom elevations of the noise barrier at each post location as well as indicate all steps, post hole diameters and depths. Show post hole casings if they are required. Ensure reinforcement steel patterns in precast panels show proper installation to avoid conflicts. Show details, connections and anchor bolt locations to ensure proper installation and to avoid conflicts. Show anchorage locations and details in the top of the concrete panels and in the concrete posts to ensure proper constructability.

Include design calculations for prestressed concrete posts and panels, lightweight panels, and interim noise barriers with the working drawings.

Provide complete erection plan to the RE for approval including erection details, handling points, anchorage details, erection instructions and sequence of operations. Address method(s) of stabilizing post holes before placing concrete.

Include the width and location of all construction haul roads adjacent to noise barriers being constructed in the working drawings.

A. Precast Concrete Noise Barriers. Construct post holes for noise barriers by augering or core drilling as shown on the Plans. Before excavating post holes, verify the location of any existing utility conduits.

Do not vary the actual location of any post hole from the specified location of the axial center of the post embedded in that hole by more than 1 inch in any direction. The actual diameter of the hole constructed may be larger, but may not be more than 1 inch smaller than the nominal diameter indicated on the Plans.

Take all measures and precautions necessary to prevent the collapse of the post hole sides. Where soil surrounding the post hole is disturbed, remove all disturbed soil as directed by the RE and replace with earth embankment and compact.

Place post hole concrete against undisturbed earth or smooth wall permanent metal casing installed in such a manner that the outside of the permanent casing bears against minimally disturbed earth. A temporary steel casing may be used to keep the post hole open before placing concrete. Remove all water from all the post holes before pouring foundation concrete. Ensure the holes are free of all earth, broken rocks, cobbles, boulders, remnants of abandoned structures, utilities, and other debris and materials.

If, in the RE's opinion, the permanent metal casing has been installed such that a void exists around the casing or the soil has been excessively disturbed, grout the void between the casing and soil. Provide grout according to Subsection 903.08 except that the 1:3 (cement to fine aggregate) ratio and the nonmetallic grout provisions do not apply. Apply grout at a pressure equal to one-half of the overburden pressure at the bottom of the casing. Submit the grout installation procedure to the RE for approval.

Set posts plumb, unless otherwise shown on the Plans, in the holes and secure in place in a precise position to accept the panels. Set posts into the holes a minimum of 6 inches above a layer of coarse aggregate and encased in concrete such that the specified fixed positions of the noise barrier elements are achieved within the following tolerances:

1. Do not vary the plan position of the embedded posts more than ½ inch in any horizontal direction, including out-of-plumbness for the vertical posts, from the theoretically symmetrical and interlocking positions with the panels to be inserted as shown on the Plans.
2. Do not vary the vertical position of the embedded posts more than ½ inch from the position shown on the Plans.
3. Construct the panel seat area such that the top of the panel is level and within ¼ inch of the elevation shown on the Plans.

Do not erect the panel units before the foundation concrete has reached the specified 28-day compressive strength. Take care to prevent foundation concrete from staining the precast posts. Remove any visible foundation concrete splashed onto the posts.

Install precast units according to approved detailed erection drawings. Erect the units in a manner to prevent excessive bending about either axis. Set precast concrete panels with the face of the panel plumb and the top of the panel level. Take special care in setting the bottom panel in an exact horizontal position. Ensure the faces of adjacent units are flush within a tolerance of plus or minus 1/16 inch.

Handle precast structural members carefully at all times so that no overstressing, crazing, chipping, or cracking of the concrete occurs. Analyze the post, panel, and other components to reflect the actual method of construction to be used. Perform the analysis to verify that no adverse conditions to any components, as stated above, occur. If required from the analysis, temporary strengthen the various components. Do not patch damaged panels; replace with new panels. Handle and erect panel units and posts using suitable equipment. After the precast panels are erected, fill all lifting hook holes with grout. Use a colored grout to match the color of the panels.

Erect precast concrete noise barriers ensuring no passage of light after they are erected.

613.04 MEASUREMENT AND PAYMENT

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

Item	*Pay Unit*
NOISE BARRIER, ROADWAY	SQUARE YARD
NOISE BARRIER, FOUNDATION	UNIT

The Department will measure the square yardage of NOISE BARRIER as the total number of square yards of noise barrier in a plane parallel to the front face of the wall. The barrier will be measured from the bottom of the lowest wall panel to the top of the wall panel from end post to end post of each noise barrier.

The Department will make payment for excavation, dewatering, concrete and reinforcement steel in the drilled shafts under NOISE BARRIER, FOUNDATION.

The Department will make payment for all work associated with the construction and acceptance of test posts and panels under NOISE BARRIER, ROADWAY.

The Department will make payment for all work associated with the concrete staining of all surfaces of the noise barrier posts and panels under NOISE BARRIER, ROADWAY.

DIVISION 650 – UTILITIES

SECTION 651 – WATER

651.02 MATERIALS
THE FOLLOWING IS ADDED:

651.02.01 Passaic Valley Water Commission

A. Ductile Iron Pipe and Fittings.

1. Pipe:
   a. Flanged Pipe: Conform to the requirements of AWWA C115.
      1) Thickness: Class 54
   b. Nonflanged Pipe: Conform to the requirements of AWWA C151.
      1) Thickness: Special Thickness Class 54
2. Joints:
   a. Flanged Joints: Conform to the requirements of AWWA C110.
      1) Gaskets: Natural or synthetic rubber, 1/8-inch thick, full face.
      2) Bolts and Nuts: Conform to ANSI B18.2.1 and ANSI B18.2.2, respectively. Exposed bolts and nuts shall be ASTM A307, Grade B. Buried or submerged bolts and nuts shall be Type 304 stainless steel.
   b. Mechanical Joints: Conform to AWWA C111.
      1) Gaskets: Molded rubber supplied with plain tips.
      2) Bolts and Nuts: High strength, low alloy steel, with rolled threads and hexagon heads.
   c. Push-on Joints: Conform to AWWA C111.
      1) Gaskets: Molded Rubber.
      2) Stripes: Each plain end shall be painted with a circular stripe such that it provides for a visual check to determine when the joint is properly assembled.
   d. Restrained Joints:
      1) Restrained joints for mechanical joint piping shall be as per Passaic Valley Water Commission Standard Details for Construction, latest edition.
      2) Restrained joints for push-on joint piping shall be as per Passaic Valley Water Commission Standard Details for Construction, latest edition.
3. Mechanical Joint Fittings: Conform to AWWA C110.
   a. Pressure Rating: Same as connected piping.
   b. Material: Ductile iron or cast iron.
   c. Gaskets: As specified above for joints.
   d. Glands: Use cast-iron glands with cast-iron fittings and ductile-iron glands with ductile-iron fittings.
   e. Bolts and Nuts: As Specified above for joints.
   f. Fittings shall be furnished as short body fittings unless specifically shown or specified as long body fittings.
4. Harnessed Retainer Glands: Conform to ANSI A21.11 and AWWA C111.
   a. Pressure Rating: Same as connected piping.
   b. Material: Ductile iron.
   c. Bolts and Nuts: Conform to ANSI B18.2.1 and ANSI B18.2.2, respectively. Buried or submerged bolts and nuts shall be Type 304 stainless steel.
5. Coatings and Linings:
   a. Inside Wall of Pipe and Fittings shall be provided with the following:
      1) Cement-Mortar Lining:
         a) Pipe, fittings and special shall be lined with a bituminous seal coated Cement-mortar lining in accordance with AWWA C104.
         b) Outside Wall of Pipe and Fittings:
            1) Buried pipe, fittings and specials shall be coated on the outside with a Bituminous coating, approximately 1-mil thick in conformance with AWWA C104.

B. Couplings.

1. General:
   a. Couplings shall be provided at locations shown on the Drawings, as directed by the Engineer, as recommended by the pipe manufacturer, or as required. More specifically, couplings shall be provided such that exposed valves can be removed for servicing, while minimizing the amount of piping needed to be removed, and for ease of installation of the piping system. The Contractor may use any of the couplings that will provide the intended service for exposed piping, except where spacing does not allow the use of flexible couplings or flanged adapters, mechanical couplings shall be used. In buried locations, mechanical couplings shall be used.
   b. Pressure and Service: Same as connected piping.
   c. Gaskets: Standard, best quality gaskets recommended by the coupling manufacturer for the service intended.
2. Sleeve Type Flexible Couplings:
   a. Materials: Cast Iron or Steel.
   b. Bolts and Nuts: Alloy steel, corrosion-resistant, prime coated. Bolt heads and nuts shall be hexagonal.
   c. Harnessing:
      1) Harness couplings as specified or otherwise required to restrain pressure piping.
      2) Couplings shall be harnessed by bolts installed between flanged face of the restrained flanged adapter shall have set screws to secure the gland to the barrel of the pipe. Torque set screws as recommended by manufacturer.
      3) Adjacent flanges shall be tied with bolts of corrosion resistant alloy steel. Provide flange-mounted stretcher bolt plates to be designed by manufacturer, unless otherwise approved.
      4) Conform to dimensions, sizes, spacing and materials for lugs, bolts, washers and nuts as recommended by manufacturer and approved by Engineer for the pipe size, wall thickness and test pressure required. However, the following minimum bolting shall be provided unless otherwise acceptable to Engineer.

Pipe Diameter (Inches)	Number of Bolts	Bolt Diameter (Inches)	Spaced At
Less than 6	2	5/8	180°
6-8	2	3/4	180°
10-12	2	7/8	180°
14-16	2	1	180°

      5) Any harnessing shown on the Drawings is shown schematically only.
         a) Remove pipe stop unless otherwise approved.
         b) The minimum wall thickness of the middle ring or sleeve installed on ductile-iron pipe shall be 5/16-inch for pipe smaller that 10-inches in diameter, and 3/8-inch for pipe 10-inches in diameter and larger.
         c) The minimum length of the middle ring shall be 5-inches for pipe sizes up to 10-inches in diameter, and 7-inches for pipe 10-inches to 30-inches in diameter.
3. Flanged Adapters:
   a. Description: One end of adapter shall be flanged and the other end shall be provided with a sleeve-type flexible coupling.
   b. Material: Cast Iron or Steel.
   c. Bolts and Nuts: Alloy steel, corrosion-resistant, prime coated. Bolt heads and nuts shall be hexagon.
   d. Harnessing:
      1) Harness adapters as specified or otherwise required to restrain pressure piping.
      2) For 12-inch diameter adapters and smaller, provide ½ -inch diameter minimum stainless steel anchor studs installed in pressure-tight anchor boss. Provide number of studs required to suit pressure and service conditions. Harnessing shall be as designed and recommended by the manufacturer of the flanged adapter. However, the following minimum number of anchor studs shall be provided unless otherwise approved by Engineer.

Pipe Diameter (Inches)	Minimum Required

3) Any harnessing shown on the Drawings is shown schematically only.

4. Split-Type Mechanical Couplings, Grooved or Shouldered Ends:
   a. Material: malleable iron or ductile-iron.
   b. Bolts and Nuts: Heat-treated carbon steel, track-head bolts. Nuts shall be hexagonal.
   c. Pipe ends of ductile-iron pipe shall be grooved, unless shouldered ends are required for the pressure rating.

C. Identification. Ductile-iron pipe, fittings and specials shall be marked with the letters "DI" or the Word "Ductile"

D. Specials.

1. Transition Pieces:
   a. Furnish suitable transition pieces for connections to existing piping.
   b. Contractor shall expose existing piping to determine material, dimensions and other data required for transition pieces.
2. Taps: Provide taps where shown or required for small pipe connections. Where the pipe or fittings wall thickness is sufficient to provide required number of threads, a boss or tapping saddle shall be installed. Threads shall be protected with temporary plugs.
3. Pipe Adapters: Where necessary to joint pipe of different type, CONTRACTOR shall provide necessary adapters. Ends shall conform to Specifications for the appropriate type joint.
4. Flanged Outlets: Conform to the provisions of Paragraph 2.A of this Section.
5. Flanged and threaded outlets shall be located only in straight lengths of pipe, unless otherwise shown or specified.

E. Mechanical Joint Gate Valves.

1. Mechanical joint gate valves up to and including 12" shall be resilient wedge valves and meet all the requirements of AWWA Standard C509-01 specifications. Mechanical joint gate valves 16" and larger shall meet all the requirements of AWWA Standard C500-93 specifications. Clifton, Paterson, Passaic are open right valves (red nut). North Arlington and Lodi are open left valves (black nut). Valves on all transmission mains are open right.

2. Valves shall have non-rising stems with O-ring packing, 2-inch square operating nuts, and shall open right (clockwise). Design working pressure and hydrostatic test pressure shall be 150 psig and 225 PSIG, respectively.

F. Tapping Gate Valves.

1. Tapping gate valves shall conform to AWWA C500 and shall have a standard flange on the inlet end and combination flange mechanical joint on the outlet end. Each tapping valve shall be provided with a ¼" raised lip on the inlet face of the valve to fit into a similar groove on the tapping sleeve and shall be provided with a suitable gasket. Mechanical joint accessories shall be supplied with valves. Valves shall open right (clockwise).

G. Butterfly Valves.

1. Butterfly valves shall be rubber-seated and conform in all respects to AWWA Standard C504 for rubber-seated butterfly valves. Butterfly valves shall have "V" or "O" ring type packing and open left (counterclockwise). All butterfly valves shall be supplied with a hand wheel operator and 2" square operating nuts and shall have all gearing totally enclosed. End flanges shall conform in dimensions and drilling to ANSI B16.1, Class 125 cast-iron flanges. Butterfly valves shall be short body, ductile-iron, Class 150.

H. Air and Vacuum Valves.

1. Air and vacuum valves shall be for use under 150-psi pressure.
   a. Materials of construction:
      1) Body, cover and baffle-cast-iron
      2) Float- stainless steel
      3) Seat- Buna –N

2. All internal parts, such as float guides, bushings and baffle, retaining screws, etc., shall be stainless steel or bronze.

I. Check Valves.

1. Check valves shall be iron-body, bronze mounted, metal seated, swing-check valves for ordinary waterworks service and shall conform in all respects to AWWA Standard C508-93. End flanges shall conform in dimensions and drilling to ANSI B16.1, Class 125 cast-iron flanges. Check valves shall be installed in precast concrete chambers minimum size 6ft x 6ft x 6½ft.

J. Fire Hydrants and Appurtenances.

1. Fire Hydrants shall be equipped with the following:
   a. "O" ring seals in bonnet and hold-down nut.
   b. Bronze seat ring shall thread into a bronze drain ring.
   c. Main valve must be removable with a short seat wrench.
   d. Fire hydrants shall be painted "Fire Hydrant Red" above ground level.
2. Fire Hydrants shall be "Traffic Models", manufactured by Mueller Company (Centurion); Clow Model F-2500; M & H Model 929; or approval equal. Fire Hydrants shall meet all requirements of AWWA Specifications C502-94. Hydrant working pressure shall be 150PSI; test pressure 225 PSI.
3. Fire Hydrants shall have a 5-1/4" main valve opening and a 6" mechanical joint inlet connection with two strapping lugs, gaskets, and all accessories for each joint; all meeting the requirements of the latest revision of AWWA Standard C111/A21.11-95.
4. Fire Hydrants shall be three-way, having one pumper nozzle either 4-1/2" or 4", and two 2-1/2" hose nozzles. The operating nut and nozzle cap nuts shall be pentagonal 1-1/2" from the point to flat. All nozzle threads shall be "New York Standard" or "National Pipe Thread", as directed by Engineer.
5. Hydrant Caps shall comply in all respects to those nozzles specified herein.
6. Provide hydrant as follows:
   a. Clifton-Passaic-Lodi-North Arlington
      1) 5 ¼" M.R.V
      2) 2 ½" nozzle New York Standard
      3) 4 ½" Steamer Nozzle
      4) National Standard Thread
      5) Open Left

   b. Paterson
      1) 5 ¼" M.R.V
      2) 2 ½" nozzle New York Standard
      3) 4" Steamer Nozzle
      4) New York Standard
      5) Open Right

K. Full Circle-Repair Clamps and Tapped Repair Clamps. Furnish repair clamp assemblies and tapped repair clamp assemblies, each complete and including, but not limited to, full circumference (single or double as applicable) clamp constructed of AISI Type 304 stainless steel, high strength ASTM A536 lugs, resilient gasket and low alloy bolts and nuts.

For tapped repair clamps, furnish stainless steel outlet shop welded to the band and provided with 2-inch NPT threads as ordered by the Owner.

Furnish clamps of the sizes and ranges listed in the Form of Proposal; all as ordered in writing by the Owner.

Clamp assemblies shall be designed for a working pressure of not less than 300 PSI for sizes up to and including 12" and not less than 150 PSI for sizes greater than 12"; all over a temperature range of -40°F to 212°F. Clamp assemblies shall have sufficient corrosion resistance, flexibility and strength to perform properly in the intended service. Lug arrangement shall be designed to maximize torquing of the bolts and shall include a "drop-in" feature that allows bolts to be preassembled into clamp prior to tightening clamp. Bolts and nuts shall be low alloy steel. Nuts shall be heavy semi-finished hexagon ASTM A563. Bolts shall be ASTM A325 or A242 with rolled threads,

double radius heads and a shoulder of sufficient length or configuration to prevent bolt rotation during tightening, up to and including maximum torque loading.

Gaskets shall be compounded to resist oils, acids, alkalis, most (aliphatic) hydrocarbon fluids, water, and other chemicals. Gasket shall be lap type with molded tapered end to provide proper sealing at lap joint on any pipe within the clamp's range. Gasket shall be designed to accommodate irregularities or pitted areas in the pipe's outer surfaces. Bridge plate shall be constructed of stainless steel, recessed flush and bonded into the gasket so as to prevent wrinkling of the gasket in the lug or other areas. Bridge plate shall provide even gasket pressure at all points around the full circumference of the pipe.

L. Ductile Iron Saddles. Furnish ductile iron saddle assemblies complete and including, but not limited to, bodies, bales, nuts, washers, gaskets, shop finish and appurtenances.

Furnish cast iron saddles of the sizes and ranges listed in the Form of Proposal; all as ordered in writing by the Owner.

Furnish saddle assembly designed for a working pressure of not less than 300 PSI over a temperature range of -40°F to 212°F. Saddle assembly shall be suitable for the intended service and shall be wrap-around design using tangent bales to maximize seal while minimizing crushing action on the pipe.

Furnish body constructed of ASTM A536 ductile iron and bales of carbon steel ASTM-A108 (C1018) electro-galvanized with di-chromate seal (ASTM-B633).

Nuts shall be cold formed semi-finished heavy hex steel ASTM A563 and washers of carbon steel ASTM A108. Nut and washers shall be electro-galvanized with a di-chromate seal (ASTM-B633).

Gaskets shall be compounded to resist oils, acids, alkalis, most (aliphatic) hydrocarbon fluids, water, and other chemicals. Gasket shall be designed to seal as a result of mechanical and hydrostatic pressure and to not be blown out along the pipe. At recommended torques on the bale nuts, gaskets shall be designed to contain pressures in excess of the working pressure of the pipe.

Furnish saddles shop coated with saddle manufacturer's standard enamel.

M. Tapping Sleeves. Furnish tapping sleeve assemblies, complete and including, but not limited to, two-body sections (back half and outlet half designed to bolt together on the pipe), flanges, gaskets, and bolts and nuts.

Furnish tapping sleeves of the sizes and ranges listed in the Form of Proposal; all as ordered in writing by the Owner.

Tapping sleeve assemblies shall be designed for a working pressure of not less than 150 PSI over a temperature range of -40°F to 212°F, and shall be suitable for the intended service.

Body shall be constructed of carbon steel ASTM A285 Grade A, not less than 3/8" in thickness (1/4" top plates and 3/16" bottom plates for 4.50 and 4.80 sizes). Flanges shall be AWWA C207 Class D with ANSI 150 lb. drilling. Outlet shall include a 3/4" NPT connection.

Gaskets shall be compounded to resist, oils, acids, alkalis, most (aliphatic) hydrocarbon fluids, water, and other chemicals. Gasket shall resist rolling and shall be wedge type.

Bolts and nuts shall be high strength, low alloy steel with heavy semi-finished hexagon nuts to ASTM A307 (ANSI A21.11) Standards.

Furnish tapping sleeves shop coated with sleeve manufacturer's standard enamel.

N. End Cap Couplings With 2-Inch IPS Outlets. Furnish end cap coupling assemblies complete and including, but not limited to, sleeve, gaskets, follower flanges, and bolts and nuts.

Furnish end cap couplings of the sizes and ranges listed in the Form of Proposal; all as ordered in writing by the Owner.

End cap coupling assemblies shall conform to AWWA 219 Standards and shall be designed for a working pressure of not less than 150 PSI over temperature range of -40°F to 150°F, and shall be suitable for the intended service.

Sleeve and blind end flange shall be ductile iron ASTM A536 with tapered inside ends designed for uniform gasket seating. Blind end flange shall have 2-inch IPS outlet.

Gaskets shall be compounded of rubber and suitable for water, salt solutions, mild acids, mild bases, and other chemicals. Gaskets shall be designed to provide a firm grip on the pipe and a leak-proof seal.

Follower flanges shall be ductile iron ASTM A536 high strength with thickness based on coupling size.

Bolts and nuts shall be high strength, low alloy steel with semi-finished hexagon nuts to ASTM A307 (ANSI A21.11) Standards.

Furnish end cap couplings shop coated with end cap coupling manufacturer's standard enamel.

O. Transition Gaskets. Furnish transition gaskets to be furnished by the manufacturer of the steel transition couplings. Transition gaskets shall be compatible with said transition couplings and shall be compounded of rubber and suitable for water, salt solutions, mild acids, mild bases, and other chemicals.

P. Steel Transition Couplings. Furnish steel transition coupling assemblies complete and including but not limited to, sleeve, followers, gaskets, and bolts and nuts.

Furnish transition couplings of the sizes, types, ranges, and lengths listed in the Form of Proposal; all as ordered in writing by the Owner.

Transition coupling assemblies shall conform to AWWA C219 Standards and shall be designed for a working pressure of not less than 150 PSI over a temperature range of -40°F to 150°F, and shall be suitable for the intended service.

Sleeve shall be ASTM A53, ASTM A512, or carbon steel having a yield strength of not less than 30,000 PSI. followers shall be ductile iron ASTM A536 or steel AISI C1020.

Gaskets shall be compounded of rubber and suitable for water, salt solutions, mild acids, mild bases, and other chemicals.

Bolts and nuts shall be high strength, low alloy steel with heavy semi-finished hexagon nuts.

Furnish transition couplings shop coated with transition coupling manufacturer's standard enamel.

Q. Compression Couplings. Furnish compression coupling assemblies and including, but not limited to, sleeve, gasket and compression nut.

Furnish compression couplings of the sizes listed in the Form of Proposal; all as ordered in writing by the Owner.

Compression coupling assemblies shall be designed for a working pressure of not less than 150 PSI over a temperature range of -40°F to 212°F, and shall be suitable for the intended service.

Sleeve shall be ductile iron.

Gaskets shall be compounded of rubber and suitable for water, salt solutions, mild acids, mild bases, and other chemicals.

Compression nut shall be malleable iron ASTM A47 Grade 32510.

R. Bell Joint Repair Clamps. Furnish bell joint repair clamp assemblies complete and including, but not limited to, bell-spigot rings, gaskets, and bolts and nuts.

Furnish bell joint repair clamps of the sizes and ranges listed in the Form of Proposal; all as ordered in writing by the Owner.

Bell joint repair clamp assemblies shall be designed for a working pressure of not less than 150 PSI over a temperature range of -40°F to 212°F, and shall be suitable for the intended service.

Bell and spigot ring shall be ductile iron ASTM A536, except for 14" size which shall be carbon steel ASTM A36.

Gaskets shall be compounded to resist oils, acids, alkalis, most (aliphatic) hydrocarbon fluids, water, and other liquids.

Bolts and nuts shall be high strength, alloy steel with heavy semi-finished hexagon nuts to ASTM A307 (ANSI A21.11) Standards, except for 2-inch size clamps which shall have electro galvanized steel studs.

Furnish bolts and nuts having repair clamp manufacturer's standard protective shop coating.

S. Cast Straight Couplings. Furnish cast straight coupling assemblies complete and including, but not limited to, sleeve gaskets, follower flanges, and bolts and nuts.

Furnish cast straight couplings of the sizes and types listed in the Form of Proposal; all as ordered in writing by the Owner.

Cast straight coupling assemblies shall conform to AWWA 219 Standards and shall be designed for a working pressure of not less than 150 PSI, and shall be suitable for the intended service.

Sleeve shall be ductile iron ASTM A536 with tapered inside ends designed for uniform gasket seating.

Gaskets shall be compounded of rubber and suitable for water, salt solutions, mild acids, mild bases, and other chemicals. Gaskets shall be designed to provide a firm grip on the pipe and a leak-proof seal.

Follower flanges shall be ductile iron ASTM A536 high strength with thickness based on coupling size.

Bolts and nuts shall be high strength, low alloy steel with heavy semi-finished hexagon nuts to ASTM A307 (ANSI-A21.11) Standards.

Furnish cast straight couplings shop coated with cast straight coupling manufacturer's standard enamel.

T. Follower Flanges and Gaskets for Steel and Asbestos Cement Pipe. Furnish follower flanges and gaskets for steel pipe and for asbestos cement pipe. Follower flanges and gaskets shall be compatible with cast straight couplings specified herein and shall be designed to accommodate the various ranges indicated by the listed model numbers of the named manufacturer in the Form of Proposal. Products of other manufacturers will be considered acceptable, provided, in the sole opinion of the Owner, they are equal to the named products and further provided that the ranges offered are comparable to those of the named product.

Follower flanges and gaskets shall conform to the applicable requirements of those specified herein for cast straight couplings. Gaskets shall be compounded of rubber and suitable for water, salt solutions, mild acids, mild bases, and other chemicals.

651.02.02 City of Newark

A. Air Valves and Fittings. This work consists of furnishing all plant, labor, equipment and materials necessary to install the piping within the pressure reducing valve chamber, including but not limited to pipe, fittings, vaults or enclosures, and all incidentals as required.

1. Applicable Specifications. The following a specifications and standards are the latest issue form a part of this specification to the extent indicated by reference thereto:

a. American Water Works Association Standards:

AWWA C512-07 for full and equal size inlets and outlets

b. American National Standards Institute:

NSF/ANSI 61 certified and marked for use in drinking water applications

2. Materials.

a. Body and Cover

(1) Standard materials include cast iron ASTM A126 Class B for systems operating at a maximum of 300 psig

(2) Optional materials include ductile iron ASTM A536 grade 65-45-12

(3) Optional materials also include stainless steel ASTM A351 grade CF8M

b. Trim

(1) Type 316 Stainless Steel

c. Coating

(1) Universal Alkyd Primer(internal)

(2) Non-stick Fusion Bonded Epoxy (internal and external)

3. Installation of Air Valves.

a. Cast iron ASTM A536, class B, shall be used for all air valves installed where they are needed. Ductile iron flanged piping, valves and fittings shall be used for all interior exposed piping unless otherwise specified by the City Engineer. Air valves and fittings shall be carefully laid to line and grade.

b. Care shall be taken to keep pipe, and air valves clean of debris and other foreign materials.

c. The exact locations were previously determined and referenced by air valve inspection reports and work orders.

B. Requirements. Air valves of the size and type indicated shall be installed as per air valve inspection reports. These air valves will serve as a mechanism to release built up pressure within the transmission lines that serve the City of Newark and all other cities use water coming through these mains.

1. Water pressure capacity of 150 psi
2. Orifice size: 3/16”
3. Dimensions:
   a. L:10”
   b. W:7”
   c. Inlet size: 1”
   d. Outlet size: 1/2"
4. NSF/ANSI 61 Certified
5. UL listed/FM approved

651.02.03 Passaic Valley Water Commission and City of Newark Steel Water Pipe

A. General.

1. The Contractor shall use steel pipe for the 42 inch, 48 inch and 51 inch water transmission mains. Unless otherwise mentioned in these specifications the contractor must use the class of steel pipe or thickness as stipulated in this specification and the plan drawings.
2. All water mains on this project will be installed using double lap welded restrained joints as noted in the plan drawings.
3. Water Main Testing. Testing shall be done in accordance with Subpart 651.02.04 of the City of Newark and Passaic Valley Water Commission Standard Specifications and the latest edition of AWWA C600 except as modified per Specifications and as specified on the Contract Drawings.
   a. Disinfection of the Water Mains. Disinfection of the water mains shall be performed in accordance with Section of the City of Newark and Passaic Valley Water Commission Standard Specifications and the latest edition of AWWA C651. Any method of disinfection that is different from that spelled out in the Water Commission(s) Specifications must be approved by the Engineer.
   b. Special Comment. Steel Casing Pipe such as Permalok or steel pipe with welded joints shall be used in all casing sections.
4. Buried Pipeline Location Tape. Pipeline non-detectable tape shall be installed continuously along the water transmission pipeline. The tape shall be Lineguard, type III Detectable Tape, as manufactured by Lineguard,

Inc., or approved equal. The tape shall be a minimum of two inches (2") wide, blue in color, imprinted with the words "CAUTION – Water Transmission Main below.

B. Steel Pipe. Provide and install steel pipe of the sizes and in locations shown on the Plans and specified herein.

1. Quality Assurance.

a. All materials shall be furnished and installed using the following standards unless otherwise noted in these Special Provisions:

(1) City of Newark and Passaic Valley Water Commission: for Construction and Materials, latest edition.

(2) City of Newark and Passaic Valley Water Commission Standard Details for Construction, latest edition.

(3) AWWA M11 – steel pipe – a guide for design and installation

(4) AWWA C200 – steel water pipe – standard for 6" and larger

(5) AWWA C205 – cement mortar protective lining and coating for steel water pipe 4" and larger, shop applied

(6) AWWA C206 – field welding of steel water pipe

(7) AWWA C207 – steel pipe flanges for waterworks service

(8) AWWA C208 – dimensions for fabricated steel water pipe fittings

(9) AWWA C209 – cold applied tape coatings for the exterior of special sections, connections, and fittings for steel water pipelines

(10) AWWA C222 – polyurethane exterior coating

(11) AWWA C602 – cement mortar lining of water pipelines in place

(12) AWWA C604 – steel water pipe installation

(13) ASTM 36 – carbon structural steel

(14) ASTM A139 – electric-fusion (Arc) – welded steel pipe

(15) ASTM A283 – low and intermediate tensile strength carbon steel plates

(16) ASTM A570 – steel sheet and strip carbon, hot rolled structural quality

(17) ASTM A572 – high strength, low ally columbium-vanadium structural steel

(18) ASTM A607 – steel, sheet and strip, high strength low alloy, columbium or vanadium, or both, hot rolled and cold rolled

(19) ASTM A907 – specification for steel, sheet and strip, heavy thickness coils, carbon, hot rolled, structural quality

(20) ASTM A935 – steel, sheet and strip, heavy thickness coils, high strength, low alloy, hot rolled with improved formability

(21) ASTM A936 – steel, sheet and strip, heavy thickness coils, high strength, low alloy, columbium or vanadium, or both, hot rolled

(22) ASTM C109 – test method for compressive strength of hydraulic cement mortar

(23) ASTM C138 – test method for unit weight yield and air content of concrete

(24) ASTM C150 – specification of Portland cement

(25) ASTM C495 – test method for compressive strength of lightweight insulating concrete

(26) ASTM C939 – test method for flow of grout for preplaced-aggregate concrete

(27) ASTM E165 – liquid penetrant examination

(28) ASTM E709 – magnetic particle examination

(29) ASTM G109 – determining the effects of chemical admixtures on the corrosion of embedded steel reinforcement in concrete exposed to chloride environments

(30) ASME Section V – nondestructive testing

(31) ASME Section IX – welding and brazing

(32) AWS B2.1 – standard for welding procedure and welding qualifications

(33) AP 1104

b. Additional Tests.

(1) Each length of pipe shall be shop tested by the hydrostatic method, and the stress in the pipe during the test shall be seventy-five percent (75%) of the specified minimum yield point of the steel.

(2) Elbows and pipe sections with manholes and outlets attached after completion of the shop hydrostatic test shall be retested at the stressed neck and girth welds using the magnetic particle or dye penetration test methods.

(3) In addition to the hydrostatic testing to be done in the shop, an air test is to be done on each double weld joint completed in the field according to this specification.

(4) Reports shall be prepared and given the Engineer for the following:
(a) physical and chemical properties of steel
(b) hydrostatic test reports
(c) results of weld tests in shop

(5) The Contractor also shall furnish a certified affidavit of compliance for all pipe and other products or materials as specified in AWWA C200.

2. Pipe Manufacturing.

a. The steel pipe shall be manufactured in the USA by a manufacturer who can meet the listed qualifications which are stated in these Special Provisions. The pipe supplier shall have at least twelve (12) years experience in manufacturing steel pipe in accordance with AWWA C200 and AWWA M11. The supplier shall have directly produced at least 100,000 feet of steel pipe 36" and larger within the past five years. The manufacturer shall have either ISO9001 or SPFA quality control standards in place. Pipe and fabrication fittings must come from the same factory. No third party or sub-contractors will be allowed to produce fabrication pieces other than the original equipment manufacturer.

Pipe manufacturers shall be:
American Spiral Weld
Northwest Pipe Company
Ameron International
Or Equal

b. At various stages of production, the Owner and Engineer reserves the right for one of their authorized representatives to inspect sections of pipe at the place of manufacture. The manufacturer shall ensure that the Water Commission(s) representative shall have safe, uninhibited access to those parts of the manufacturing plant that are necessary to ensure compliance with the reference standards.

The pipe manufacturer shall employ a certified welder inspector (CWI) qualified and certified to AWS QC1 for the implementation of its quality-assurance program to verify that fabrication of steel pipe and specials are in accordance with specified welding procedures. All surfaces shall be free of weld splatter, dirt, grease, oil or any other foreign matter.

c. The coating system shall meet the requirements as outlined in the Corrosion Control Specifications in Section 651.02.01 if not included in the steel pipe section.

3. Shop Drawings, Manufacturer and Handling.

a. Five (5) sets of shop drawings shall be submitted for approval for the following:

(1) Pipe will be manufactured to AWWA C-200. A layout schedule shall be submitted by the Contractor showing location, length, alignment, grade, including invert elevation and station on liner end; wall thickness of each liner segment and specials; mitered segments used; make-up pieces and their locations for maintaining the required horizontal alignment and vertical elevations; and each segment with an individual identification number shall be identified. The layout schedule shall include a list which cross references each liner segment and specials identification number with the heat used to fabricate the liner or special.

(2) Shop Drawings must show complete information necessary for the fabrication of the steel pipe and specials including, but not limited to, material designation, type and size of all welds, groove angle, depth of joint preparation, root spacing, welding procedure identification and sequence for both shop and field, type of weld finish, nondestructive examination, details and locations of grout holes if any, closures, outlets and entry ports, match-up markings, end preparations and finishes, fabrication and installation tolerances. Indicate welds, finishes and required nondestructive examination by standard symbols conforming to AWS A2.4.

(3) Contractor shall submit working drawings, design calculations and installation method for pipe including means to prevent buckling, ovalization, floatation and out of roundness, deflection during storage, and shipping and handling.

(4) Welder certifications and qualifications must be submitted. All welding shall be done by skilled welders, welding operators, and tackers who have had adequate experience in the methods and materials to be used. Welders shall maintain current qualifications under the provisions of ANSI/AWS B2.1 or ASME Section IX. The Contractor shall furnish all material and shall bear the expense of qualifying welders. The list of all qualified welders who will be doing work on this project shall be provided to the Engineer.

(5) Shipping, handling, and storage procedures, including stulling details, must be submitted.

(6) The manufacturer's repair procedure for segments damaged during manufacturing, shipping, or handling must be submitted.

(7) A copy of the manufacturer's quality control check of pipe material and production must be submitted.

4. Steel Pipe Specifications.

a. The steel pipe shall have the following performance and design requirements:

(1) True Inside Diameter for: 42", 48" and 51" (including cement lining)
Working Pressure: 20-55 PSI
Test Pressure: 200 PSI
Surge Pressure Allowance: 150 PSI above working pressure
(Total Surge Pressure of 150 PSI)
Unit Weight of Soil: 120 LBS/CF
Deflection Lag factor 1
E' = 1200 PSI
Bedding Constant K: 0.1
Truck Loading: AASHTO H20 for 2 trucks passing (Live loads shall be computed using an earth cover over top the pipe of 3 feet for all pipe.)
Design Earth Cover: 5 feet and 15 for all pipe
Maximum Allowable Deflection: 3% of the pipe inside diameter
Bedding Class: See Typical Pipe Bedding Detail on Construction Details.
Joining: All steel pipe shall be joined with bell and spigot joints using a double lap weld, on the outside and the inside for restrained joint pipe.

Earth Loads: Earth loads shall be computed using the design for determining loads on steel pipe as outlined in the M11 manual and the AWWA Standard C200 using a trench width of 8.5 feet.

Thickness Requirement: The minimum thickness of all steel pipe and fittings will be 0.500 inches.

Unless indicated otherwise in the Contract Specifications, steel pipe shall be fabricated from steel sheets conforming to ASTM A1011, Grade 40; plates conforming to ASTM A572, Grade 42; or coil conforming to ASTM A139, Grades C or D. In all cases, the minimum yield point for fabricated steel pipe shall be 42,000 psi. All welded seams, whether straight or spiral, shall be butt welded using an approved electric-fusion weld process. Design stress shall be limited to 50% of the specified minimum yield strength at working pressure and 75% minimum yield strength under surge plus working pressure for all steel pipe. Pipe shall be furnished principally in the manufacturer's standard laying lengths with special lengths, field trim pieces and closure pieces as required by plan and profile for location of elbows, tees, reducers and other in-line fittings. Furnished pipe lengths shall be transportable on standard truck trailers.

All steel used for the fabrication of pipe shall have a maximum carbon content of 0.25% and shall have a minimum elongation of 22% in a 2-inch gage length.

In all cases, the highest grade allowable for steel coil , shall be Grade 45.

(2) Prior to lining with cement mortar, each length of each diameter shall be tested at a pressure of at least 75% of the specified yield strength of the pipe steel as per AWWA C-200.

(3) The steel pipe fabricator shall prepare a pipe laying schedule showing the location of each piece by mark number with station and invert elevation at each bell end.

(4) Pipe to be braced to within 1% roundness for shipping. Pipe end roundness shall conform to AWWA C200.

(5) The interior of the pipe and fittings shall be cement mortar lined in accordance with AWWA C205. The pipe exterior, used in open fill areas, shall be coated per Corrosion Control specifications.

(6) The pipe shall be designed, manufactured, tested, inspected and marked in accordance with the provisions of this Specification. All steel used for fabrication shall meet the requirements of AWWA C200.

b. Fittings:

(1) Unless otherwise shown on the Contract Plans, all specials and fittings shall conform to the dimensions of AWWA C208 or may be fabricated into standard pipe lengths. Fittings shall be of the same material and minimum thickness as the pipe.

(2) Fittings fabricated from previously hydrostatically tested straight pipe shall require testing of only those welded seams that were not previously hydrostatically tested in the straight pipe. This testing shall be by the dye penetrant or magnetic particle method.

(3) Fabricated elbows over 0° through 22½° shall be two piece; over 22½° through 45° shall be three piece; over 45° through 67½° shall be four piece; and over 67½° through 90° shall be five piece. Elbows shall have a minimum radius of 2½-times the pipe OD. All tees, laterals, and outlets shall be reinforced in accordance with AWWA M11.

(4) Fittings shall have the same lining and coating as the pipe, unless approved by the Engineer.

5. Coatings, Joints, and Verifications.

a. Coatings.

(1) All exterior coatings on straight pipe sections shall be Polyurethane coated as per AWWA C 222 to 25 mils and done in accordance with the Corrosion Control Specifications. Upon delivery to the site, damaged or unsatisfactory portions of the coating shall be replaced at no additional cost to the owner. Heat shrink sleeves per AWWA C216 shall be applied to all field-welded joints in open

access areas. Fittings shall be coated with tape per AWWA C209 or polyurethane to AWWA C222.

(2) All interior surfaces of the pipe and fittings shall be lined at the factory with cement mortar lining applied centrifugally in conformity with AWWA Standard C205. The thickness of the cement mortar lining shall be 0.500 for 42", 48" and 51" per AWWA C-205.

Fittings will be lined in the shop with cement mortar lining in conformity with AWWA Standard C-205.

b. Joints. As shown on the Contract Drawings, pipe and fittings will be fully restrained for field-welded joints and shall be double- lap welded joints prepared for field welding and shall be in accordance with AWWA C200, except as modified by the Contract Specifications and these Standard Specifications. All double lap welded joints will be tested after welding using an air test. The test shall:

(1) Butt strap joints shall be used where shown on the Approved Layout Schedule for closures or where approved by the Engineer. Single-welded butt joints and double-welded butt joints shall not be permitted.

(2) Bell ends of welded lap joints shall be formed by an expanding press that stretches the steel plate beyond its elastic limit to form a truly round bell of suitable diameter and shape. Forming the bell by rolling will not be permitted.

(3) For lap joint pipe prepared for field welding, both bell and spigot ends shall be sized to provide a difference in circumferential measurement between the outside circumference of the spigot and the inside circumference of the bell of not more than 0.500 inches. The facing surfaces of the bell and spigot shall be essentially parallel; the bell slope shall not vary more than 2° from the longitudinal axis of the pipe.

(4) The standard bell for field-welded lap joints shall provide for a 2½-inch lap with an allowable 1-inch pull resulting in a 1½-inch minimum lap. In no case shall joint deflection or offset exceed the 1-inch limitation without permission from the Engineer.

(5) Design of the joint and welds shall include considerations of stresses induced into the steel wall, the joints, and any field welds caused by thrust at bulkheads, bends, reducers, and line valves resulting from the joint-weld design pressure (sum of working pressure and surge pressure or the field test pressure; whichever is greater). For welded joints, design stresses shall not exceed 50% of the specified minimum yield strength or 75% of the yield strength for surge of the grade of steel utilized for the part when longitudinal thrust is assumed to be uniformly distributed around the circumference of the joint.

(6) Shop-applied exterior coatings shall be held back a minimum of 4.25 inches from the joint at which the weld is to be made.

(7) Shop-applied cement mortar linings shall be held back 2½ inches from the inside and outside welds.

(8) Lap-welded joints shall be welded externally and internally. Welds shall be made with a double (inside and outside) , continuous 5/16" fillet weld, with full penetration into the base metal. Each joint shall be properly prepared and cleaned for welding. Welding shall be in accordance with the Welding Procedure Specifications AWS B2.1 manual and in AWWA C207. Welds up to 3/8" may be made in a single pass. If made in more than one pass, all slag or flux remaining on any bead of welding shall be removed before laying down the next successive bead. Any cracks or blow holes that appear on the surface of any bead of the weld shall be removed by chipping, grinding or gouging before depositing the next successive bead. There shall be no under cutting of the base metal. All slag shall be removed from the finished welds and the welds shall show workmanlike uniform appearance.

(9) Test of the Felt Welded Lab Joints: After the welding of a circumferential field joint is completed, the inside and outside of the joint shall be painted with a soap suds and tested with air at a pressure of 30 psi applied through a ¼" hole at the top of the pipe. The Steel Pipe Manufacturer is

responsible for drilling this hole in their shop prior to delivery of the pipe. Any defect in the weld, indicated by the air leak forming bubbles, shall be repaired by chipping out a section of the weld not less than one inch either side of the defect and replacing the removed section of weld. If, in the opinion of the Engineer, the number of defects disclosed by the test are such as to indicate that the entire circumferential weld is defective, the entire weld shall be chipped out and replaced. Calking of the welds will not be permitted. All joints, in which welding repairs have been made, shall be retested. After field testing, the ¼" hold shall be welded shut even if there is a screw to plug the hole. After satisfactory completion and acceptance of each welded joint, the coating and wrapping of the joints may be completed. Similarly, outlet connections and manholes welded in the field shall be air tested in a similar fashion.

c. Linings and Coatings.

(1) Cement Mortar Lining.

(a) Except as otherwise provided in AWWA Standard C205, interior surfaces of all steel pipe, fittings, and specials shall be cleaned and lined in the shop with cement-mortar lining applied centrifugally in conformity with AWWA Standard C205. Cement shall be Type II and shall be in accordance with ASTM C150. Thickness shall be 3/8 inch for 24-inch – 36-inch pipe and ½ inch for pipe larger than 36 inches in diameter as specified in AWWA C205. The lining machine shall be of the type that has been used successfully for similar work and shall be approved by the Engineer. Every precaution shall be taken to prevent damage to the lining. If the lining is damaged or found faulty at the delivery site, the damaged or unsatisfactory portions shall be replaced with lining conforming to these Specifications and AWWA C 205.

(b) For welded joint pipe, the ends of the shop-applied cement mortar lining to be held back shall be left square and uniform. Feathered or uneven edges will not be permitted. Inside field joints shall be prepared and lined as described by AWWA C205 and C602.

(c) Defective linings, as determined by the Engineer per AWWA C205, shall be removed from the pipe wall and shall be replaced to the full thickness required. Defective linings shall be cut back to a square shoulder in order to avoid feather-edged joints.

(d) The progress of the application of mortar shall be regulated in order that all hand work, including the repair of defective areas and the removal of outlet stoppers and covers, shall be completed and cured in accordance with AWWA Standard C205. Cement mortar for patching shall be the same materials as the mortar for machine lining except that a finer grading of sand and mortar richer in cement shall be used when field inspection indicates that such mix will improve the finished lining of the pipe.

(e) Cement mortar lining shall be kept moist during storage and shipping by the use of suitable end closures.

(f) Field repair of shop-applied cement mortar lining shall be as described in approved Shop Drawing submittal.

(2) Coatings.

(a) All steel pipe, specials, fittings, and other products in open-cut areas shall be externally coated. Predominant method for installation of coatings shall be shop application. Field-applied coatings shall be limited to repairing damage to shop coating and coating exposed metal at joints, fittings, valves, cathodic protection connections, and other appurtenances that are not shop coated.

d. Verifications.

(1) Inspections. All pipe shall be subject to inspection at the place of manufacture in accordance with the provisions of ANSI/AWWA C200 and ANSI/AWWA coating and lining standard as supplemented by the requirements of the Contract Specifications and these Standard Specifications.

(2) Shop Tests on Production Pipe.

(a) The manufacturer's records of required tests and inspections shall include records of materials, manufacturing, examination, repairs, and test data taken before and during fabrication. Whenever tests and examinations are performed on a pipe element or pipe, the

appropriate pipe identification number shall be shown on the report. Copies of all records of tests conducted by the manufacturer, independent laboratory, or material manufacturers shall be submitted to the Engineer in such form as to be appropriate for permanent records.

(b) The Engineer shall have access to all records of tests and inspections related to pipe manufactured for use in the Contract.

(c) All cement mortar-lined pipe shall be inspected prior to shipping. No visible cracks wider than allowed by ANSI/AWWA C205 shall be permitted in the lining of finished pipe. Loose areas of cement mortar linings in a pipe, fitting, or special shall not be accepted.

(d) For Polyurethane Coating used, the batch sampling, testing procedure, and basis of rejection for the coating materials shall be in accordance with ANSI/AWWA C222, A report and the test data shall be generated by the coating supplier. Computer printouts on test data shall be sent to the coating applicator and shall be made available for review.

(e) *Holiday Testing:* Each coated pipe, fitting, and special shall be factory electrically tested for flaws in the polyurethane and/or coating system with a suitable holiday detector. If a pipe section is found with 5 or more holidays, the flawed pipe shall be reblasted and recoated. The pipe joint shall then be rechecked with a holiday detector. The finished pipe, fitting, or special shall have zero holidays detected by a holiday detector. Holiday testing shall be done to NACE standards. Consult the Engineer for voltage settings to be used to test fittings and specials.

(3) Welding Requirements. All welding procedures used to fabricate pipe shall be qualified under the provision of ANSI/AWS B2.1 or ASME Sec. IX. Welding procedures shall be required for, but not limited to, longitudinal and girth or spiral welds for pipe cylinders, spigot and bell ring attachments, reinforcing plates and ring flange welds, and plates for lug connections.

6. Steel Pipe and Fittings.

a. Delivery, Storage and Handling.

(1) Pipe shall be transported on padded bunks with nylon tie-down straps or padded banding to adequately protect the pipe and coating. Coated pipe shall be handled, stored and shipped in a manner that will prevent damage to the coating. Pipe shall be handled with wide belt slings. Chains, cables or other equipment likely to cause damage to the pipe or coating shall not be used.

(2) Stored pipe and fittings shall at all times be supported on pallets, skids, sand berms, padded wood cradles, sand bags, or other suitable support. Supports shall be of sufficient size and softness to prevent contact of the pipe coating with the ground or any other obstruction and to preclude point loading of the outer coating. Rolling the pipe or fittings on the coated surface is not permitted. Pipe and fittings shall not be dropped. No water or earth shall enter the pipe or fittings. Pipe and fittings shall not be stored directly on the ground.

(3) Sufficient struts shall be furnished to maintain the pipe in a round condition and to limit its deflection during storage and transportation to the job site. Struts/stulls shall not be removed until the pipe is installed and backfilled. Stored pipe shall be arranged such that struts/stulls are oriented in the horizontal and vertical directions.

(4) Stored pipe shall be protected from extensive exposure to the sun at all times following procedures recommended by the coating manufacturer. Exposure of more than 18 months or that recommended by the exterior coating manufacturer, whichever is less, will not be allowed.

(5) Caps installed on the ends of cement mortar lined pipe to prevent drying of the mortar shall remain in place until just prior to installation.

(6) Each pipe and fitting shall be placed as near as practical to the point where it will be laid and shall be properly supported so that neither end is touching the ground. They shall be secured in place to prevent movement until required. Pipe shall be stored so that it is protected from damage to the pipe, coating, and pipe ends and so that it is not subject to damage by traffic. All pipe and fittings shall be thoroughly cleaned before laying and shall be kept clean until they are used in the work.

(7) No metal tools or heavy objects shall be permitted to come into contact with either the finished interior lining or the exterior coating. Workmen are not permitted to walk upon any coatings unless approved by the Engineer.

(8) Gaskets for, mechanically coupled joints, and flanged joints shall be stored in a cool location out of direct sunlight. Gaskets shall not come into contact with petroleum products, engine exhausts, sanitary wastes, or cleaning solvents. Gaskets shall be used on a first-in, first-out basis.

b. Installing Steel Pipe and Fittings.

(1) All pipe and fittings, specials and couplings shall be examined by the Contractor and the Engineer prior to installation and no piece shall be installed which is found to be defective.

(2) In addition to the corrosion control requirements, if a holiday is suspected, the Engineering may at any time (including, but not limited to, the time immediately prior to backfilling) require an electrical holiday test; and the Contractor shall immediately stop pipe handling and/or installation and shall perform said test. Pipes or fittings with coatings not passing the holiday test shall not be installed until repaired and retested or, if installed, shall not be backfilled until repaired and retested.

(3) If any defective pipe is discovered after it has been laid, it shall be removed and replaced with a sound pipe in a satisfactory manner.

(4) All interiors of pipe and fittings shall be kept clean during and after installation. When laying is not in progress, open ends of pipe shall be closed by sheeting or plugs. Backfill, sufficient to prevent floatation, shall be placed on pipe and fittings as soon as practicable following acceptance by the Engineer.

(5) Regulate and control equipment and construction operations so that the loading on the pipe does not exceed the loads for which the pipe is designed and manufactured. Pipe found to have a deflection greater than allowable, or defects or cracks in the lining resulting from construction equipment or other loading, which in the sole opinion of the Engineer compromises the long-term integrity or performance of the pipe, shall be removed from the site and shall be replaced with sound pipe and fittings as directed at no additional cost to the Owner (s).

(6) Steel pipe and fittings shall be installed in accordance with the requirements of AWWA C206, AWWA C604, and AWWA Manual M11, except as otherwise specified herein. For this contract to install steel pipe and fittings, the manufacturer shall advise and over-see the Contractor pertaining to the installation of at least the first ten (10) pipe joints and the placement of lining and coating material at the joints. The manufacturer shall make an additional on-site visit when the installation is approximately 50% complete to review the installation procedures. The manufacturer shall certify in writing that the installations observed were satisfactorily completed and that all pipe installation crews were familiar with the proper methods and procedures for pipe installation. The cost for manufacturer supervision and certification shall be included in the price bid for steel pipe.

(7) Pipe and fittings shall be laid to the lines and grades given on the Contract Drawings. All pipe and fittings shall be installed in sequential order as given in the approval laying schedule unless otherwise approved by the Engineer. Deviation in the order of installation given in the laying schedule will be allowed only with written approval from the Engineer.

(8) Contractor shall provide a detailed flushing plan for all new water mains prior to placing main in service.

(9) The Contractor shall have on hand a sufficient supply of assorted short pipe lengths, adaptors, and any other fittings necessary to prevent delays in the pipe laying procedure.

(10) Use laser beam equipment, surveying instruments, or other methods to maintain alignment and grade. Take at least one elevation reading on each length of pipe. Make periodic elevation measurements with surveying instruments to verify accuracy of grades if laser beam equipment is used. Prevent or minimize further thermal deflections if such measurements indicate thermal

deflection of laser beam due to differences between ground temperature and air temperature within pipe.

(11) The length of a standard section of pipe is 20 feet. However, the Contractor may use longer lengths, up to 50 feet long, provided clearances for transportation and shipping and handling requirements have been met.

(12) The Contractor shall leave special closure pieces for steel pipe exposed in the pipe trench pit overnight to permit a closure weld to be made the next morning if required. The Contractor shall be responsible for furnishing and installing all necessary closure pieces.

(13) At least 30 days prior to the scheduled arrival date of the initial pipe, fittings, and appurtenances, the manufacturer shall provide to the Engineer and to the Contractor (for informational purposes only) complete instructions for installation and repair of pipe, fittings, and appurtenances. These instructions should be AWWA C604 Installation Manual or equal.

(14) Care shall be taken when installing heavy fittings and valves on steel pipe providing good foundations to that the steel pipe does not carry the weight of the fitting or the valve.

c. Jointing Steel Pipe.

(1) Restrained Welded Joints in the field shall be performed in accordance with AWWA C206. As each length of pipe is placed in the trench, the Contractor shall assemble the joint, check for stab depth, and bring the pipe to correct line and grade. After the joint is fully engaged, insure the gap is equally distributed. Deflect the joint, if required, within the limits shown on the approved laying schedule. Proceed with welding of the joint as described in this specification followed by required testing of each weld. Upon successful weld testing, apply required linings and coatings at joints. The pipe shall be secured in place with approved backfill material.

(a) Wire brush the exposed ends of joint surfaces to be welded. The plain end shall extend into the expanded bell to provide the minimum overlap according to the Contract Specifications at any location around the joint circumference. Prior to welding, the joint gap shall be equalized around the full circumference in accordance with the requirements of ANSI/AWWA C206 and tacked in place.

(b) Welding for pipe joints shall be a full fillet weld for the entire pipe circumference. Weld thickness shall be equal to pipe wall thickness. Weld areas shall be preheated per AWWA C206.

(c) Special joint configurations, such as internal and external butt strap connections for closures, shall be full fillet welded, both internally and externally, for the entire pipe circumference unless indicated otherwise by the Contract Documents.

(d) During welding, the coating shall be protected by supporting an 18-inch wide strip of heat resistant material around the pipe on each side of the coating holdback to avoid damage to the coating by hot-weld spatter. No welding ground shall be made on the coated part of the pipe.

(e) Field welding shall be done as soon as practicable following pipe installation. Weld spatter shall be vacuumed out of the pipe immediately after each weld. Welds shall be ground smooth.

(f) Weld lead ports if internal welding; where required, shall be factory-installed outlets; field installation of weld lead ports is strictly prohibited. The location of all weld lead ports shall be identified clearly on the laying schedule. Following use of the weld outlet, it shall be closed with a threaded steel cap and welded closed. The interior mortar lining shall be repaired properly.

(g) All welding shall be performed by skilled welders, welding operators, and tackers who have had adequate experience in the methods and materials to be used. Welders shall maintain current qualifications under the provisions of ANSI/AWS B2.1 or ASME Section IX. The Contractor shall furnish all material and shall bear the expense of certifying welders. Prior to any welding occurring on the Contract, the Contractor shall submit to the Engineer for review a list of all welders who will be performing work on the Contract. Included with the list of welders shall be their AWS or ASME certifications and their work experience.

(h) The Contractor shall retain the services of a certified independent testing agency (approved by Engineer) to visually inspect each field weld and watch each air test. The cost for this testing of field-welded joints shall be included in the unit price for steel pipe. Welds found defective shall be repaired by the Contractor at no additional cost to the City of Newark and Passaic Valley Water Authoirty. The cost associated with reinspection and/or retesting of defective welds shall be paid for by the Contractor. The independent testing laboratory shall furnish two (2) bound copies of all results to the Engineer for permanent record.

(i) The Contractor shall assist, coordinate, and cooperate with all aspects of the weld inspection and shall provide any necessary access, electrical power, or ventilation. All surfaces to be tested shall be free of weld spatter, dirt, grease, oil, or any other foreign matter and shall have a contour permitting a sound contact.

(2) Mechanically-coupled joints shall be made in strict accordance with the manufacturer's instructions and AWWA C604, except as modified by these Standard Specifications.

(a) Clean the working area of pipe ends. Place coupling flanges on pipe ends. Clean gaskets and install with lubricant suitable for application on potable water systems. Beveled edge of gaskets shall face pipe ends. Center the coupling sleeve over pipe ends while maintaining the gap between pipe ends as recommended by the coupling manufacturer. Slide the gaskets against the sleeve, followed by the flanges. Install the bolts and hand tighten the nuts. Using a calibrated torque wrench, gradually tighten the nuts to the proper torque valve given by the manufacturer. Tighten by alternating between opposite sides of the coupling, keeping all parts centered about the pipe and evenly compressing the gaskets.

(b) Mechanically coupled joints shall not be backfilled until the pipeline has passed all pressure or leakage testing. Following successful pressure and leakage testing (but prior to backfilling), recheck all bolt torque values regardless of the results of initial pressure and leakage testing.

(c) Standard (flexible) couplings do not restrain against axial pipe movement and shall not be used to connect restrained joint pipe. Consult the Engineer for coupling requirements for connecting restrained joint pipe.

(3) Flanged joints shall be made in accordance with AWWA C604 except as modified by these Standard Specifications.

(a) Before assembly, verify that all flanged pipe, fittings, valves, and appurtenances to be joined together have the same bolt circle and bolt hole drilling; ANSI B16.1 Class 125 flanges *cannot* be joined with ANSI B16.1 Class 250 flanges.

(b) Clean flange faces prior to installing gaskets. Gaskets shall be assembled dry; do not use joint or gasket compounds with flanged joints. To aid in assembly, the gasket may be glued to the face of the flange to keep the gasket in place. Glue, if used, shall have no deleterious effect on the gasket and shall be NSF61 certified safe for contact with potable water.

(c) Install flanged joints by first bringing adjacent sections into alignment, inserting the bolts, and hand-tightening the nuts. Keep the gap between the flanges approximately uniform while tightening. Tighten the bolts to the torque recommended by the manufacturer in several steps, alternating from one side to the other. A calibrated torque wrench shall be used to tighten the bolts. After joint completion, a minimum of one complete both thread shall project beyond each nut.

d. Cement mortar lining of field joints shall be made in accordance with AWWA C205 and these Standard Specifications.

(1) Clean the joint surfaces to receive the cement mortar lining, including adjacent edges of factory-lined pipe or fittings.

(a) For welded joints, either power brush or hand brush all bare metal surface immediately prior to lining.

(b) Welding for pipe joints shall be a full fillet weld for the entire pipe circumference. Weld thickness shall be equal to pipe wall thickness. Weld areas shall be preheated per AWWA C206.

(2) Coat all surfaces to be in contact with cement mortar lining with a high-strength, moisture-insensitive epoxy bonding agent safe for contact with potable water.

(3) Complete the interior joint by mortaring the space between adjacent shop-applied interior linings with a stiff concrete mix or non-shrink grout. When complete, the entire pipeline shall have a smooth, continuous mortar lining.
   (a) A stiff concrete mix is composed of one-part Portland cement (Type II) to one-part plaster-grade sand by weight, dry mixed, and moistened with sufficient water to permit packing and troweling without crumbling.

(4) Perform cement mortar lining of field joints only after backfilling above pipe. Interior cement mortar lining of field joints shall not be conducted within four (4) joints of pipe-laying operations.

e. Coating of field joints shall be performed by the Contractor utilizing products that shall bond to the adjacent factory-installed coatings and be completely compatible with them.

(1) Field Repairs of Linings and Coatings. Unless indicated otherwise by the Contract Documents, all sand pockets, voids, spalls, blisters, areas of lining thinner than specified, and all cracks wider than 1/16 inch in the cement mortar lining shall be repaired to the satisfaction of the Engineer.
   (a) Following placement of cement mortar lining at field joints, backfilling, and removal of struts/stulls, all pipe shall be visually inspected by the Contractor in the presence of the Engineer regardless if field repairs have been made to pipe sections prior to installation.
   (b) Small defective areas shall be repaired by manual removal of the defective lining. Cracks, wider than 1/16 inch but less than ¼ inch, shall be repaired without removal of the lining provided the lining is firmly adhered to the steel cylinder. Defective areas encompassing the full diameter of the pipe shall be cause for rejection of the entire pipe section or fitting unless the Engineer approves alternative repair methods.
   (c) Clean surfaces to be repaired in order to remove all loose or foreign matter that could interfere with the adherence of the cement mortar.
   (d) Coat all surfaces to be repaired with high-strength, moisture insensitive epoxy bonding agent safe for contact with potable water. Complete the installation by applying a stiff concrete mix (see 2.07 D for description) or non-shrink grout to the area or crack requiring repair.

(2) Prior to backfilling, all pipe and fittings shall be holiday tested by the Contractor according to the Corrosion Control procedures outlined in Section 16640.
   (a) Conduct electrical holiday tests using the following minimum voltages for each respective factory coating system: For polyurethane holiday testing, AWWA C222 standards shall be used at 100 volts per mil.
   (b) Perform field repairs on Polyurethane coated pipe with special heat shrink sleeve band-aid, tape coating per AWWA C209 or approved epoxy-polyurethane patch repair kit.
      - Coatings with minor damage shall be repaired in the following manner: Proceed with repairing the damaged area by using one of the following methods:
         - Install one wrap of cold-applied tape (C209) 35 mils thick over the damaged area, overlapping the cut-back area a minimum of 4 in. Ensure one wrap of tape is sufficient to span the damaged area (including the minimum 4-inch lap on each side)
         - Install one layer of heat shrink wrapping in accordance with AWWA C216 except that minimum overlap (after final application) onto undamaged factory-applied pipe coating shall be 4 inches. Heat-shrink wrapping shall be Type II (wraparound type with a minimum as supplied thickness of 60 mils) or Type III (tape type with a minimum as supplied thickness of 45 mils). The Contractor shall provide certification that all workers involved in the installation of heat-shrink wrapping have been trained in the installation of heat-shrinkable coating systems.
      - Polyurethane Patch Repair Kit as approved by Coating applicator and polyurethane manufacturer.

651.02.04 Passaic Valley Water Commission and City of Newark Testing of Piping

A. General:

1. Test all piping except as otherwise authorized by Owner.
2. Notify Owner 48 hours in advance of testing.
3. Provide all testing apparatus, including pumps, hoses, gages, and fittings.
4. Unless otherwise noted, pipelines shall hold specified test pressure for a period of two hours.
5. Repair and retest pipelines which fail to hold specified test pressure or which exceed the allowable leakage rate.
6. Unless otherwise specified, test pressures required are at the lowest elevation of the pipeline section being tested.
7. Conduct all tests in the presence of Owner.
8. Advise local authorities having jurisdiction if their presence is required during testing.

B. Pressure Test Procedure:

1. Complete backfill and compaction at least to the pipe centerline before testing, unless otherwise required or approved by Owner.
2. Allow concrete for thrust blocks to reach design strength before testing.
3. Fill section to be tested slowly with water and expel all air. Install corporation cocks, if necessary, to remove all air.
4. Test only one section of pipe at a time.
5. Apply specified test pressure for two hours and observe pressure gage. Check carefully for leaks while test pressure is being maintained.

C. Cleaning:

1. Thoroughly clean all piping and flush prior to placing in service in a manner approved by Owner.
2. Piping 24 inches diameter and larger shall be inspected from inside and all debris, dirt and foreign matter removed.
3. If piping which requires disinfection has not been kept clean during storage or installation, Owner will require Contractor to swab each section individually before installation with a five percent hypochlorite solution, to ensure clean piping.

D. Disinfection:

1. Disinfect all potable and finished water piping.
2. A suggested procedure for accomplishing complete and satisfactory disinfection is specified below. Other procedures will be considered and must be approved by the Owner.
    a. Thoroughly flush piping prior to disinfection with water.
    b. Conform to procedures described in AWWA C601. Continuous feed method of disinfecting shall be used unless alternative method is acceptable to Owner.
3. Water for initial flushing, testing and chlorination will be furnished by the Owner. Contractor shall provide all temporary piping, hose, valves, appurtenances and services required. Cost of water required for redisinfection will be paid by Contractor to Owner at Owner's standard rates.
4. Chlorine will be supplied by Contractor.
5. Bacteriologic tests will be performed by Owner. A certified test laboratory report will be available to Contractor, if requested.

6. Chlorine concentration in the water entering the piping shall be between 50 and 100 parts per million, such that a minimum residual concentration of 25 mg/l will be left after a 24-hour retention period. Care shall be taken to ensure disinfection of the piping in all its parts. The operation shall be repeated as necessary to provide complete disinfection

7. After the required retention period, the heavily chlorinated water shall be dechlorinated then flushed to drain, unless otherwise directed.

651.02.05 Passaic Valley Water Commission and City of Newark Line Stops

A. Line Stopping Pipe – General Requirements:

1. With the exception of goods and services specifically listed in the Technical Specifications herein as being provided by the Owner, the Contractor shall provide all materials, tools, equipment, appurtenances, labor and all other goods and services required to properly provide line stops that result in effective shutdowns of the Owner's pipelines while under pressure and so as to provide the Owner with a pipe on the downstream side of the line stop having leakage sufficiently reduced or stopped so as to enable the Owner to perform required work such as pipe cutting for installation of valves, couplings and the like. Where the term "cast iron" is used in these Technical Specifications and elsewhere in the Contract Documents with regard to piping, it shall be deemed to mean pit cast iron pipe as well as cast iron pipe.

2. The installation of the line stops shall be performed by factory trained personnel. The Commission reserves the right to videotape all work. All labor and support services, on-site or otherwise, with the exception of the Additional On-Site Support Services set forth below, will be considered as having been included in the various Bid Prices for the appropriate Bid Items in the Form of Proposal.

3. The line stopping shall provide a means of temporary plugging a pressurized pipe without disrupting pressure or service upstream of the line stop. A pressure tap shall be first made in the main, allowing insertion of the line stop plugging device into the main under pressure. Through the use of a special fitting, the tapping valve can later be recovered after the plugging head has been removed from the main.

4. The Owner will make available to the Contractor existing information pertaining to the pipe to be line stopped, specifically pipe material and outside diameter.

5. For steel, riveted steel cast iron and ductile iron pipe, following excavation and trench protection, the Contractor will field measure "caliper" the outside dimensions of the pipe at not less than four (4) diameters of the pipe as required to determine ovality. Delivery and placement of the line stop equipment and appurtenances required for each line stop installation ordered in writing by the Owner, shall be completed by the Contractor as quickly as possible. In no case will the total turnaround time (from the time that the Owner places the order to the time that the line stop equipment is lowered into the excavation) be permitted to exceed 48 hours for line stops of nominal size piping smaller than 30-inch and not more than 3 weeks for line stops of nominal size piping 30-inch and greater.

6. Following ordering and delivery of the line stop equipment to the site the Contractor shall assemble the line stop fittings around the main, and shall install drain nozzle(s) and saddle(s) to the main.

7. The Contractor shall perform pressure testing to ensure that the saddle assembly will withstand the pressures without leaking or failing. Information pertaining to test pressure and duration (and allowable pressure drop over time, if any), will be provided by the Owner to the Contractor. The said information will be based on the working pressure of the main, taking into consideration any anticipated surge conditions. The Contractor shall provide support and reaction blocking suitable to provide proper support and thrust restraint to the piping as well as the line stop equipment.

8. The Contractor shall mount temporary tapping valve(s) to the line stop fitting(s). If there are two (2) or more line stop fittings in the same line being installed, the Contractor shall install the downstream plugging head first, and then shall test for shutdown at the drain nozzle.

9. Following successful shutdown, for each line stop being performed, the Owner will complete the Owner's work that required the line stop (i.e. such as cutting of the downstream main, installing valves, fittings, and appurtenances, etc.). When the Owner's work on the pipeline has been completed, the Owner will advise the

Contractor to remove the line stop plugging head, close the temporary valves, remove line stop machine, install completion machine and open valve, insert completion plug into nozzle of line stop fitting, remove completion machine and temporary valve, and install blind flange(s) onto nozzle of line stop fitting(s) and onto drain valve(s).

10. In cases of multiple line stop installations required for a single shutdown to enable the Owner to complete the Owner's work in a particular excavation, the Contractor shall install pressure taps not less than 6" in nominal size between the line stops to allow drainage of leakage that may pass the line stop, to allow quick determination of shutdown adequacy, and to provide equalization while the plugging head is being removed from the pipe. To the extent feasible, velocities in the main will be limited to not more than 0.3 feet per second for steel, riveted steel, cast iron, and ductile iron pipe. The Contractor shall have the option of recovering the drain valves by using line stop tapping nozzles with completion plugs, or abandoning the valves by leaving them attached to the nozzles. In either case, the Contractor shall seal the outlet of each nozzle or flange using a blind flange, mechanical joint plug, or a screwed pipe cap.

11. The drain tapping valve shall consist of a saddle plate with an integral flanged nozzle to which a tapping valve can be attached in a pressure tight manner.

12. Due to the likelihood of internal corrosion and deposits in the mains, the line stop may not provide a "bottle tight" shutdown. However, the line stop shutdown will be considered acceptable to the Owner if the leakage past the line stop is limited such that the work is, in the sole opinion of the Owner, able to be reasonably accomplished (i.e. valve replacement, etc.) using typical drainage pumps to dewater excavations with workmen wearing boots and raingear, if necessary.

13. In the event that a line stop is required by the Owner to be abandoned by the Contractor, the Contractor shall submit a written request to the Owner for consideration regarding reimbursement, and if the requirement to abandon the line stop is through no fault of the Contractor (in the sole opinion of the Owner), reimbursement to the Contractor for the line stop will be made by the Owner.

B. Line Stopping Carbon Steel, Riveted Steel, Cast Iron and Ductile Iron Pipe – Additional Requirements:

1. Conform to the applicable requirements above and the following for carbon steel and riveted steel pipe:

   a. As a minimum requirement, weld a ¼-inch thick steel plate rolled to the outside diameter of the pipe that is 4 times the area of the tapping flange opening with a tapping flange. Contractor will be responsible for supplying all additional supports, including concrete encasement to adequately protect the pipe during the line stop installation.

2. Conform to the applicable requirements above and the following for cast iron and ductile iron pipe:

   a. The fitting shall be full encirclement type tapping sleeve, consisting of two halves (an upper line stop saddle half and a lower bottom solid half) with bolting arrangement for fastening to the upper half.

   b. The interior of the upper saddle plate, adjacent to and concentric with the O.D. of the nozzle, shall be grooved to retain a gasket to seal the saddle plate to the exterior of the main. This gasket shall constitute the only seal between the main and the fitting. At the Contractor's option, the saddle plate shall consist of a steel weldment in general conformity with the additional requirements set forth below. Saddle shall be clamped to the main by not less than two (2) "U" shaped steel strap/stud assemblies of sufficient cross-section and configuration to contain a line pressure of up to 200 psig.

   c. For line stop flange, the outlet of each fitting shall be machined from a 150 lb. forged steel flange conforming to ASTM A181 or ASTM A105, or from pressure vessel quality steel plate conforming to ASTM A285, Grade C; flat faced and drilled per ANSI B16.5. The Contractor shall provide suitable independently operated locking devices in the periphery of the flange to secure the completion plug.

   d. The line stop nozzle (which lies between the saddle and the flange) shall be fabricated from steel pipe conforming to ASTM A234. After welding and stress relief, the nozzle shall be accurately bored to accommodate the line stop plugging head by machining an internal circular shoulder to seat against the circumferential gasket carried on the plugging head.

e. The completion plug shall be machined from a stress relieved carbon steel weldment, and shall contain two (2) circumferential grooves, one to receive the locking devices from the line stop and the second to contain a compressible "O" ring to seal pressure tight against the bore of the flange.

f. Each line stop fitting shall be closed with a blind flange. Facing and drilling of the blind flange shall be compatible with that of the line stop flange. The thickness of the blind flange shall be not less than that set forth in AWWA Spec. 207, Class D.

g. Saddle alignment marking shall consist of each saddle half being matched and marked with serial numbers to ensure proper alignment in the field.

h. For fasteners on the line stop and on the drain/equalization fittings, furnish all bolts, studs, and nuts of the "Heavy" series.

i. The Contractor shall have the Manufacturer exercise extreme care to ensure that weldments are of adequate strength, properly shaped, securely reinforced, and free from distortion that could stress the main during installation, pressure tapping, or other line stopping operations. All steel furnished by, or through, the Contractor shall meet or exceed the requirements of ASTM A36. All weldments shall be securely braced and stress relieved.

j. All gaskets shall be molded from elastomer compounds that resist compression setting and are compatible with water in the 32 to 140 degree F temperature range.

k. Saddle plate for the line stop saddle shall be not less than 0.375" in thickness and shaped to be concentric to the outside of the main. The smallest I.D. of the saddle and its interior rings shall exceed the O.D. of the main such that the ovality of the main is accommodated.

l. The line stop nozzle shall be not less than 0.375" in thickness and shall be securely welded to the saddle plate.

m. The line stop flange shall be securely welded to the nozzle. After welding, the assembly shall be braced, stress relieved, and bored to receive the completion plug and the circumferential gasket of the line stop machine plugging head. Bolt, nut of stud, nut and washer assemblies shall be furnished to draw the upper and lower saddles together for sealing. Bolting brackets shall be gusseted.

n. The lower saddle plate shall be not less than 0.375" in thickness and shall be shaped to be concentric to the outside brackets and shall match the upper half.

651.02.06 New Jersey American Water

A. Notes.

1. Pipe is class 350 ductile iron double cement lined tyton joint. All fittings to be used are mechanical joint bell by bell restrained with mega-lug wedge style retainer glands and appropriate lengths of restrained pipe joint pipe, based on DIPRA with a safety factor of at least two. All main branches will be valved in all three directions of the tee, and all public fire hydrants will be separated by an in line main valve.

2. Contractors or their sub-contractors performing work on water facilities must be pre-qualified by the Water Company.

3. All installations must be to Water Company and AWWA standards, and be inspected by Water Company personnel and/or an approved consulting engineer's inspector. All pipelines will be properly disinfected and pressure tested to Water Company specifications and AWWA standards. Water Company personnel will take all samples for required bacteriological tests, which tests will be performed by the Water Company's state certified lab. All water used for disinfection must be de-chlorinated prior to proper disposal.

4. All damaged storm and sanitary sewer lines will be repaired under the supervision of and to the specifications of the jurisdictional authority, as well as, the Water Company's specifications and details for any lines in the same trench as the water line.

6. Minimum pipe size for new or replacement mains shall be 8" except where there is no fire protection required and water quality would suffer (i.e.- dead end main with minimal domestic demand, less than 500' in length, no fire service or fire hydrant, and no chance of extending).

7. New Jersey American Water Company can be reached for emergencies:

   a. in the Union, Essex, Passaic, Morris, and Somerset County areas at 973-564-5739 during normal business hours,

   b. and during non-business hours at 1-800-987-5325.

8. The New Jersey American Water Co office can be reached during work hours at 973-564-5739 or 973-564-5703 for services & relocations, and 973-564-5713 for new main installations.

9. In most cases where the main must go under a utility or around something, it should be "walked" by gradually deflecting at the joints at 2/3 tolerance in lieu of bends. Deflecting is normally for 3' or less deflection, which takes about 3 lengths or less. It is understood that bends are sometimes unavoidable. Tees, bends, dead-ends, valves, etc. where thrust restraint is needed, will be restrained through the use of adequate joint restraint, including but not limited to – Mega Lugs, Field Lock Gaskets, TR-Flex pipe, and Snap-Lock pipe, or approved equal.

10. All excavations in the rights-of-ways and easements of the township shall be compacted in 6" lifts so as to eliminate the possibility of settlement using equipment designed for this purpose, such as jumping jacks, vibra-rollers, pneumatic tampers, etc.

11. Service locations will be determined prior to installation to allow coordination and placement best suited to each property owner's needs. All services from the main to the curb shut off will be either 1" type L soft copper or 2" type K soft copper. All fittings should be flare type. All stops shall be flare type 1/4 turn ball valve with T shut off. Curb stops will be non-draining and located outside the pavement, but within the right-of-way.

12. New Jersey One-Call will be properly notified for utilities location by each contractor or subcontractor at 1-800-272-1000, at least 4 working days before the commencement of any work.

B. Fittings and Standards. Below is the list of most fittings and current standards, which includes meeting all applicable AWWA and ANSI standards for material for potable water. All fittings and standards must conform to New Jersey American Water Standard Details.

1. Pipe - Class 350 Tyton joint DI double cement lined with paint seal coat and tar coated on the outside. Suspended pipe on roller supports on bridges shall be Class 56 Restrained joint DI double cement lined with paint seal coat and tar coated on the outside.

2. Fittings - Class 350 DI MJ double cement lined with paint seal coat and tar coated on the outside.

3. Gate Valves (incl. Tapping valves)- MJ iron body resilient seated valves with non rising stem and epoxy coated.

4. Hydrants - 5 ¼" valve opening with a 6" branch, traffic model dry barrel hydrant with two 2½" hose nozzles, and one steamer nozzle. Must meet township thread and nut specifications.

5. Tapping sleeves - Iron body with asphalt tar varnish.

6. Valve boxes - 5 ¼" cast iron slide type

7. Curb boxes – 2 ½" plastic slide type (without rod)

8. Copper tubing - 1" Type L soft copper or 2" Type K soft copper

9. Service fittings - all brass fittings with copper compression connections including non draining ¼ turn ball valves.

10. Retainer glands - Wedge style. (Thrust restraint using concrete blocking is acceptable, however we normally prefer restrained joints on the pipe for the required distance around MJ fittings with wedge style retainer glands used on those MJ fittings.)

11. Air releases and flushing points will be 2" brass fittings with 2" Iron outlet corps and 2" Iron x Iron outlet curb stops.

12. Support rollers for the pipe shall have extended threaded rods with both top and bottom rollers or equivalent. Support hangers for the pipe shall have extended threaded rods with both top and bottom rollers or equivalent. Use of insulation shields is needed. Per DIPRA recommendations, supports should be placed immediately behind the bell of each length (up to 20 foot lengths).

13. Insulation of exposed pipes shall be 2" thick rigid polyisocyanurate foam insulation wrapped with aluminum jacketing 1/64" thick minimum with integrally bonded moisture barrier over entire surface that contacts insulation.

14. Casings and sleeves shall be to NJ-DOT minimum thickness and strength, and in any case a minimum of .250" thick bare wall steel with 35,000 psi yield strength. Casing IDs shall be a minimum 4" larger in diameter than the carrier pipe joint ODs, and shall be centered using steel casing insulators Model C18/C12 with compatible runners. Spacing shall be to material specs, but at a minimum shall be placed one foot from each side of a joint. Ends shall be sealed with boot style casing seals.

15. Abutment sleeves shall be to NJ-DOT standards at least 4" greater than the outside diameter of the carrier pipe at the joints, and the carrier pipe shall be centered using steel casing insulators Model C18/C12 with compatible runners. If the sleeves need to be watertight around the carrier, then link seals shall be installed to NJ-DOT specs.

16. Pipe suspended from bridges where road salts, etc may contact the pipe or insulation shall be protected from corrosion by wrapping the outside of the insulation with poly-wrap from the pipe manufacturer sized to allow for the additional 4" OD of the insulation, and installed with any open end facing down.

651.03.09 Passaic Valley Water Commission and City of Newark Line Stops

A. Installation of Line Stop Fittings and Appurtenances – General Requirements

1. General: In addition to installation and other requirements set forth elsewhere in these Technical Specifications, the Contractor, and through him the Manufacturer, shall provide all goods and services required to perform the following Work:

    a. The Contractor shall evaluate the condition of the exterior pipe and provide cleaning when necessary.

    b. Contractor shall fit upper and lower saddle plate assemblies to main, and shall thoroughly check for proper fit to main.

    c. Under no circumstances shall Contractor attempt to force, reshape, or bend saddle plates by excessive tightening of saddle studs while line stop fitting is assembled around the main. Any retrofitting shall be accomplished with the fitting removed from the main. Any damage to fittings, accessories, or main shall be repaired to the satisfaction of the Owner by the Contractor at the Contractor's sole cost and expense.

B. Installation of Line Stop Fittings and Appurtenances for Carbon Steel, Riveted Steel, Cast Iron and Ductile Iron Pipe – Additional Requirements

1. Conform to the applicable requirements above and the following for carbon steel and riveted steel pipe:

    a. The welded steel saddle (hot flange) shall be fillet welded along the entire perimeter of the saddle.

2. Conform to the applicable requirements above and the following for cast iron and ductile iron pipe:

    a. As part of assembly of line stop fittings, the upper and lower saddle plates shall be bolted together, and entire periphery of the main shall be power ground for the length of the line stop fitting. The upper and lower saddle halves shall be drawn together by stud assemblies, and the saddle plates shall be bolted together in the horizontal position.

    b. The Contractor shall install suitable thrust and support restraint prior to mounting temporary tapping valve and pressure tapping machinery.

c. Drilling equipment shall be in good condition, and equipped with power drive in ensure smooth cutting, and to minimize shock and vibration. Cutting equipment shall be carbide tipped and capable of being replaced without removal from the jobsite.

d. The line stop machinery equipment shall consist of a plugging head attached to a carrier body. For steel pipe, provide full size, solid plugging head. The body shall be advanced and retracted from the main by means of a linear actuator. When retracted, the plugging head and carrier shall be housed in an adapter, bolted pressure tight between the tapping valve and the actuator.

(1) The plugging head shall be articulated with a carrier body. When completely seated, the head shall lie in a perpendicular plane to the bore of the main.

(2) The sealing element shall be monolithically molded from a suitable polyurethane compound. The element shall be flat in a plane perpendicular to the flow in the main and shaped so that upstream water pressure shall increase contact between the periphery of the seal and the interior of the main.

(3) The plugging head shall be designed to break and dislodge tuberculation and other deposits in the bore of the main which might interfere with a satisfactory line stop.

e. Test of completion plug sealing shall be accomplished through bleed-off in machine housing. Temporary valve shall be removed and installation of the blind flange shall be completed.

651.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
12” DUCTILE IRON WATER PIPE, CLASS 54	LINEAR FOOT
16” DUCTILE IRON WATER PIPE, CLASS 54	LINEAR FOOT
30” DUCTILE IRON WATER PIPE, CLASS 54	LINEAR FOOT
WET TAP	UNIT
LINE STOP AND TIE-IN	UNIT
8” VALVES AND BOXES	UNIT
12” VALVES AND BOXES	UNIT
42” STEEL WATER PIPE	LINEAR FOOT
48” STEEL WATER PIPE	LINEAR FOOT
51” STEEL WATER PIPE	LINEAR FOOT
8” DUCTILE IRON PIPE, CLASS 350	LINEAR FOOT

THE LAST PARAGRAPH IS DELETED.

THE FOLLOWING IS ADDED:

The Department will measure 8” DUCTILE IRON PIPE by the linear foot including the lengths of tees, sleeves, and valves measured parallel to the water pipe outside the limit of a structure.

The Department will make payment for gate valves and air release valves in the price bid for the various water pipe items.

THE FOLLOWING IS ADDED TO THE END OF THE SUBSECTION:

A. Line Stopping Cast Iron and Ductile Iron Pipe for the Various Nominal Sizes of Piping.

1. The unit prices bid shall be full compensation for providing all Work related to single and double line stopping, respectively of the applicable nominal size of pit cast iron, cast iron and ductile iron piping; all as indicated, specified or required by the Contract Documents or which can be reasonably inferred therefrom; exclusive of Work stipulated elsewhere herein as being included under other Unit Price Bid Items, and exclusive of work specifically stipulated in the Contract Documents as being performed by the Owner; and all as ordered in writing by the Owner. A Single Line Stop represents all equipment, labor, and materials to install one line stop of the listed nominal diameter. A Double Line Stop represents all equipment, labor, and materials to install two line stops of the listed nominal diameter at the same work site. The unit price shall include saw cutting of pavement, excavation and disposal of pavement and earth materials, sheeting of trench,

dewatering of trench as necessary, installing line stop(s) including preparation of pipe surface, disinfection and pressure testing saddle assembly in accordance with manufacturers specifications, backfill and compaction, and place temporary pavement (supplied by PVWC). Typical cover on water mains is 4 to 5 feet. The Contractor shall provide all mobilization and demobilization, disposal of materials, calling for utility mark-outs, equipment and appurtenances such as cranes, flat-bed trucks and the like that are required to furnish, deliver F.O.B. jobsite, place, relocate (if required), and subsequently disassemble and remove all line stop equipment that is not incorporated into the Work. The unit prices will also include traffic control measures (signs, barriers) and shall be all-inclusive.

B. Line Stopping Steel and Riveted Steel Pipe for the Various Nominal Sizes of Piping.

1. The unit prices bid shall be full compensation for providing all Work related to single and double line stopping of the applicable nominal size of carbon steel and riveted steel piping; all as indicated, specified or required by the Contract Documents or which can be reasonably inferred therefrom; exclusive of Work stipulated elsewhere herein as being included under other Unit Price Bid Items, and exclusive of work specifically stipulated in the Contract Documents as being performed by the Owner; and all as ordered in writing by the Owner. A Single Line Stop represents all equipment, labor, and materials to install one line stop of the listed nominal diameter. A Double Line Stop represents all equipment, labor, and materials to install two line stops of the listed nominal diameter at the same work site. The unit price shall include saw cutting of pavement, excavation and disposal of pavement and earth materials, sheeting of trench, dewatering of trench as necessary, installing line stop including preparation of pipe surface, disinfection and pressure testing saddle assembly in accordance with manufacturers specifications, backfill and compaction, and place temporary pavement (supplied by PVWC). Typical cover on water mains is 4 to 5 feet. The Contractor shall provide all mobilization and demobilization, disposal of materials, calling for utility mark-outs, equipment and appurtenances such as cranes, flat-bed trucks and the like that are required to furnish, deliver F.O.B. jobsite, place, relocate (if required), and subsequently disassemble and remove all line stop equipment that is not incorporated into the Work. The unit prices will also include traffic control measures (signs, barriers) and shall be all-inclusive.

SECTION 652 – SANITARY SEWERS

652.02 MATERIALS

A. Sanitary Sewer Pump Station. Furnish complete factory-built and tested Pump Station, consisting of two grinder pumps with check valves, HDPE (high density polyethylene) tank and controls. Provide the pump station conforming to the following specifications:

1. Motor. 1 hp, 1,725 rpm, high torque, capacitor start, thermally protected, 120/240V, 60 Hz, 1 phase.

2. Inlet Connections. 4-inch inlet grommet standard for DWV pipe. Other inlet configurations available from the factory.

3. Discharge Connections. Pump discharge terminates in 1 ¼-inch NPT female thread. Can easily be adapted to 1 ¼-inch PVC pipe or any other material required by local codes.

4. Discharge.

a. 15 gpm at 0 psig (.75 lps at 0 m TDH)

b. 11 gpm at 40 psig (.63 lps at 20 m TDH)

c. 7.8 gpm at 80 psig (.47 lps at 42 m TDH)

652.03.01 Sewer Pipe

F. Thrust Blocks.

THE THIRD SENTENCE IS CHANGED TO:

Ensure that thrust blocks do not come in contact with other utilities or structures without the approval of the RE.

652.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
1-1/4" SANITARY FORCE MAIN	LINEAR FOOT
2" POLYVINYL CHLORIDE SEWER PIPE	LINEAR FOOT
SANITARY SEWER PUMP STATION	LUMP SUM
AIR RELEASE VALVE CHAMBER	UNIT

THE FOLLOWING IS ADDED:

The Department will measure ___" SANITARY FORCE MAIN by the linear foot including the lengths of tees, valves and bends measured parallel to the sewer pipe outside the limit of a structure.

The Department will measure ___" POLYVINYL CHLORIDE SEWER PIPE by the linear foot including the lengths of tees, sleeves, and valves measured parallel to the water pipe outside the limit of a structure.

THE LAST PARAGRAPH IS DELETED.

SECTION 653 – GAS

653.01 DESCRIPTION
THIS SUBSECTION IS CHANGED TO:

The work for these items shall consist of the Contractor hiring a prequalified gas Subcontractor to perform the work as specified within. For these items of work Subcontractor shall mean any of the qualified gas contractors listed under the construction requirements noted below and hired by the Contractor to perform the installation of gas mains and appurtenances for the gas utility company.

However, the Contractor shall perform construction layout, traffic control, sawcutting, pavement removal, removal of excess gas excavation unclassified, temporary pavement, final pavement restoration, sidewalk or landscape restoration as necessary for this project.

This actual work shall consist of the construction of new gas lines, valves, vents, and appurtenances. The Subcontractor shall furnish all supervision, labor, tools and equipment to pick up and/or unload pipe, fittings and miscellaneous materials supplied by Public Service Electric and Gas Company (PSE&G). The Subcontractor shall excavate, sheet and dewater excavations, place and tamp backfill. The Subcontractor shall place backfill up to the bottom of the proposed pavement, sidewalk or in a landscape area the bottom of topsoil. The Subcontractor shall fabricate, weld, lay, pig pipe and internally clean pipe. The Subcontractor shall also clean, sandblast, coat and wrap all buried pipe and joints, perform an air test, pour concrete pads for valves and line stops.

This work shall also include the Subcontractor assisting PSE&G crews to perform cutout, hot taps, line stops and make gas main tie-ins. Any material, equipment, or related work required for the completion of the pipe installation which is not indicated or specified herein, shall be provided at no additional cost. This shall also include the placement and removal of any temporary fencing or steel plates used to keep any gas excavation open overnight.

This work may also consist of the excavation and placement of gas line bedding and the placement of a permanent gas protective steel plate to protect an existing gas main that will remain in place.

This also does not preclude the Contractor from hiring the gas contractor or some other Subcontractor to perform the work of construction layout, traffic control, sawcutting, pavement removal, removal of excess gas, line excavation unclassified, temporary pavement, final pavement restoration, sidewalk or landscape restoration at no additional cost to the State.

653.02 MATERIALS
THE FOLLOWING IS ADDED AFTER THE LAST PARAGRAPH:

All material for gas work will be supplied by PSE&G except for the necessary gas backfill, aggregates, minor accessories and concrete. Pipe and large fittings will be delivered directly to the job site by PSE&G. These materials shall also include the gas protective steel plate if required to protect an existing or proposed gas main. The Contractor shall be responsible for the delivery of the pipe within the jobsite unless, where possible, other delivery arrangements can be made in which the Subcontractor must then supply unloading equipment and personnel. Other material required to complete the work on this project may have to be picked up by the Subcontractor at 5000 Bordentown Avenue, Old Bridge, NJ 08857. Miscellaneous materials shall be picked up at PSE&G's Store Rooms located at pertinent District Headquarters and/or other PSE&G designation for delivery to the job site. The Subcontractor shall be responsible for the adequate storage and protection of the pipe after acceptance by a representative of the Subcontractor.

All nonstandard pipe elbows will be supplied by PSE&G as standard elbows. The Subcontractor shall cut the standard elbows, 45 or 90 degrees, to match the required elbow as shown on the Construction Drawings or as field conditions may warrant.

PSE&G shall make every reasonable effort to make available materials to be furnished by PSE&G to avoid delays in the Contractor's work. However, should PSE&G for any reason, fail to make available any such item, and delay shall result, the Contractor shall not be entitled to additional compensation on account of such delay.

The Contractor shall be held responsible for removing all surplus pipeline materials from the job site. All excess pipe, fittings and other miscellaneous materials furnished by PSE&G shall be returned to the pertinent District Headquarters and/or other PSE&G designation.

The concrete support pad for line stops and valves shall be Class B concrete as specified in Section 903.

Gas, earth excavation for tests pits shall be backfilled in accordance with Subsection 201.03.07.5.

Materials for gas, line bedding shall conform to Subsection 909.01.02 for Class B Bedding.

Materials for broken stone or washed gravel shall conform to Subsection 901.03.01 for broken stone and Subsection 901.03.02 for washed gravel.

Materials for gas, coarse aggregate, size no. 57 shall conform to Subsection 901.03 and Table 901.03-1.

Materials for gas, main installation backfill shall conform to Subsection 901.11 for soil aggregate with a soil designation I – 13.

653.03.01 Gas Main
THE SUBPART IS CHANGED TO:

A. Qualified Gas Contractors. State's Contractor shall subcontract this gas work to one of PSE&G's qualified gas contractors. For list of current pre-approved operator qualified contractors, contact the assigned PSE&G Project Manager or Program Manager. It is the responsibility of the Contractor to obtain any one or all of the qualified contractors when preparing their Proposal for the Project.

List of pre-qualified subcontractors is as follows:

J.F. Creamer & Son, Inc.
V#23446
Jorge Pires
Art Hobble (OQ)
1701 East Linden Avenue
Linden, NJ 07036
Phone (908) 925-3200
Fax (908) 925-3350

Danella Line Services, Inc.
V#28541
Bob Brust
2290 Butler Pike
Plymouth Meeting, PA 19462
Phone (610) 397-1139

Fax (610) 397-1250
www.danella.com

DiClemente Contractors
V#1905
Nunu DiClemente
Gigi (OQ)
3100 Dell Avenue
No. Bergen, NJ 07047
Phone (201) 319-0900
Fax (201) 319-9312

Elk/Crown Pipeline Construction Company
V#20566
Bob Williams
Mary Sketchley (OQ)
3345 Delsea Drive
P.O. Box 39
Franklinville, NJ 08322
Phone (856) 694-9200
Fax (856) 694-9201

Ferreira Construction
V#25046
Tino Garcia
31 Tannery Road
Branchburg, NJ 08876
Phone (908) 534-8655
Fax (908) 534-7763
Tel: (609) 971-3302

Henkels & McCoy, Inc.
V#2676
Ken Carmelia
Pete Janco
Dennis Condon (OQ)
George Andriko (OQ)
Elbow Lane
P.O. Box 218
Burlington, NJ 08016
Phone (609) 387-9000
Fax (609) 387-9682

J.F. Kiely Construction Co.
V#10482
Jim Pagano
700 McClellan Street
Long Branch, NJ 07740
Phone (732) 222-4400
Fax (732) 229-2353

Kemsco Construction, Inc.
V#6828
Ralph Serpe (OQ)
Tony Perricho
139 Harper Street
P.O. Box 10019

Newark, NJ 07101
Phone (973) 733-2255
Fax (973) 642-2928

Lantier Construction Co.
V#10233
Bill Phillips
145 Dey Grove Road
Monroe Twp., NJ 08831
Phone (973) 628-9302
Cell (732) 674-7981
Fax (609) 784-8764

Miller Pipeline Corp.
V#1178
Greg Ritsick
Brad Heck (OQ)
378 Whitehead Avenue
South River, NJ 08882
Phone (484) 256-4619
Fax (732) 238-2265

Napp Grecco Company
V#3565
Joseph Napp
Phil Testa (OQ)
1500 McCarter Highway
Newark, NJ 07104
Phone (973) 482-3500
Fax (973) 268-3639

Roman E&G Corp.
V#23546
Joe Belott
Mike Lamorgese
14 Ogden Street
Newark, NJ 07104
Phone (973) 482-1113
Fax (973) 482-2501

Joseph M. Sanzari, Inc.
V#24804
Rich Egan
Pete Isoldi (OQ)
19 Wallace Street
Elmwood Park
Phone (201) 538-6615

Skoda Contracting
V#18182
Frank Evans
Jaymee Mauceri (OQ)
147 Gold Mine Road
Flanders, NJ 07836
Phone (800) 507-9601
Fax (973) 691-2005

South State Inc.
Keith Kology
202 Reeves Road
Bridgeton, NJ 08302
Phone (856) 451-5300 x136
www.southstateinc.com

U.S. Pipeline Inc.
V#24355
(DP&C projects only)
Lowell Brien
Kelly Osborn
11767 Katy Freeway
Suite 100
Houston, TX 77079
Phone
(713) 300-2277
(405) 452-3545

Waters & Bugbee, Inc.
V#4560
Dennis Brophy
75 South Gold Drive
Hamilton, NJ 08691
Phone (609) 584-1100
Fax (609) 584-2200

B. Compliance with PSE&G Specifications and Standards. All gas work on this contract shall be performed in accordance with PSE&G General Specifications 94-5000 and 2007-D-100 and Gas Distribution Standards Manual. Only the PSE&G qualified gas contractors may obtain a copy of these PSE&G documents for security reasons. Upon completion of the work, the Subcontractor shall submit to PSE&G as-built drawings as per PSE&G's criteria which includes plans and profiles in MicroStation format. As-built drawings shall be completed by the Subcontractor and accepted by PSE&G before the Engineer will issue a Certificate of Completion in accordance with Subsection 108.19 to the Contractor.

C. Scheduling of Work and Interruption to Utilities and PSE&G Operations.

1. Contractor shall provide the Engineer and PSE&G with a detailed schedule of the work to be performed in accordance with Section 153 to include the work being performed by the Subcontractor. This schedule shall include the number of crews to be working, work locations, and time of day work shall be performed (night shift, day shift, weekends, etc.). The Subcontractor shall coordinate closely with PSE&G once construction begins. The Contractor shall notify PSE&G, through the Engineer, at least two weeks prior to construction of any gas activities. The Subcontractor shall be required to supply the labor and other resources necessary to meet the projected work schedule of the Contractor.

2. The work to be performed under this contract requires special attention to the scheduling and conduct of work in connection with the existing PSE&G (gas) utilities and the NJDOT's operations. No work is to be performed on gas facilities from October 1 through April 31. This period can be extended based on weather conditions and system demand requirements as determined by PSE&G.

3. The Subcontractor shall perform the work as specified herein in a diligent and timely fashion so as to minimize any adverse impact with PSE&G's activities and inconvenience to their operations and personnel. Hence, the Contractor shall coordinate all his operations, but most importantly gas construction activities with PSE&G, affording all reasonable cooperation and taking all prudent precautions in order to prevent excess hardship, noise or other nuisance.

4. Insofar as practicable, the Subcontractor's operations shall be confined to the immediate area. The Subcontractor shall not use any more space than reasonably required for gas work and shall perform the complete work returning each area to normal usage as soon as practicable.

D. Safety. All excavation work shall be performed in accordance with 29 CFR Part 1926, Occupational Safety and Health Standards – Excavation. The Subcontractor is required to work in compliance with the Minimum Federal Safety Standards for Gas Lines (Part 192, TITLE 49, Code of Federal Regulations). Work shall be in compliance with all State, County or Municipal Ordinances.

E. Environmental. Work shall conform to all Federal, State and Local environmental requirements, as well as to PSE&G Specifications and the Contract Special Provisions. All applicable permit requirements for physical site protection measures must be adhered to throughout construction. During the construction period, the Contractor shall assume full responsibility for site dust control measures and for any and all pollutants caused by this work which may be detrimental to the environment.

F. Gas Excavation in General. The Contractor shall provide traffic control, construction layout, sawcutting the existing pavement or sidewalk where gas lines are to be installed and remove these materials. The Contractor is also required to remove and or use on the project any excess gas line excavation unclassified excavated by the Subcontractor and not used as backfill. The Contractor shall also remove any unsuitable excavation and miscellaneous debris that is determined to be unsatisfactory for the project. However, when the Contractor has the Subcontractor performing this work the Subcontractor shall follow the plan established by the Contractor for such removal. If no plan has been established by the Contractor then the Contractor shall develop the plan, have it approved by the Engineer and require the Subcontractor to follow it. If the soil is determined to be contaminated the Contractor shall remove and dispose of the soil in accordance with Section 202 of the Specifications as approved by the Engineer. Any acceptable excess excavated materials may be used on the project as approved by the Engineer.

G. Verification of Contract Documents. The Contractor and his Subcontractor shall examine the Drawings and Specifications before submitting a proposal, and shall identify the conditions under which the Subcontractor shall be obliged to operate. Any items of work not listed below shall be at no additional cost to the State. If the Subcontractor finds any errors or omissions during their evaluation of the plans for this project that are normally included as part of a gas contract they shall be brought to the attention of the State during the advertising period for this project.

H. Roadway Lane Closings. Roadway lane closings shall be required when work is being performed in the roadway. The Contractor shall coordinate and schedule the lane closures with the NJDOT, as appropriate, in accordance with the Traffic Control Plans, NJDOT Standard Traffic Control Plans and Section 159 of the Specifications. Before performing any work the Subcontractor shall insure the Contractor has all the necessary traffic control devices in place.

I. Staging Areas. Certain areas shall be designated as construction lay down/staging areas. The Subcontractor in coordination with the Contractor is required to provide whatever physical security is necessary to secure the material storage areas utilized for which additional payment will not be made.

J. Temporary Fencing and Plates. Temporary fencing and/or plates shall be required to secure excavations that are to remain open overnight. The Subcontractor shall supply and install temporary fencing and plates, as necessary. Plates shall be utilized when and where necessary or as directed by PSE&G to secure excavations required to remain open over night. The Subcontractor shall install and maintain these plates in accordance with local Municipal, State and/or County specifications at no additional cost to the State.

K. Site Supervision. It is the responsibility of the Subcontractor to have a competent person at the job site to determine the need for sheeting and shoring of the trench excavation. Additional payment will not be made for any sheeting or shoring required to perform the work.

L. Quality Control. PSE&G shall furnish an inspector on site to inspect the construction of the work by the Contractor's Subcontractor. All work shall be done in a workmanship like manner and shall be subject to the requirements, inspections, and approval of the PSE&G inspector in coordination with the State's inspector and the Engineer. PSE&G's inspector shall also track materials taken from PSE&G storerooms. PSE&G's inspector shall immediately notify the State's Engineer of any work being performed by the Subcontractor that does not meet the requirements of the Contract Agreement between the State and PSE&G including but not limited to the Drawings, Permits and Specifications. The State's Engineer will be responsible for directing the Contractor to have the Subcontractor correct defective work to meet the requirements herein. The PSE&G inspector shall immediately notify the PSE&G Engineer if the requirements of the Contract Agreement between the State and PSE&G remain

unresolved or the correction of the defective work does not meet the requirements herein. If the PSE&G Engineer is not satisfied that the work meets the requirements of the Contract Agreement between the State and PSE&G, the PSE&G Engineer shall notify the Department's Project Field Manager and the Department's Utility Engineer in the Utility and Railroad Engineering Unit immediately. If the PSE&G Engineer is still not satisfied that the work meets the requirements of the Contract Agreement between the State and PSE&G, the PSE&G Engineer shall notify the Regional Construction Engineer and the Manager of the Utility and Railroad Engineering Unit immediately to resolve the problems.

M. Damage. All work shall be performed without damage to adjacent structures, property, and/or equipment. This includes, but is not limited to buildings, fences, roads, parking lots, bridges, culverts, drainage ditches, waterways, and wetlands. However, should damage occur, the Subcontractor shall repair and restore the damaged item to its original condition at no additional cost to the State or PSE&G.

N. Clean-Up. The clean-up procedure of the job site is subject to the approval of the Engineer. The Subcontractor shall, at all times, keep the site free from accumulations of waste materials and rubbish. A waste receptacle and recyclable receptacle shall be provided and maintained on the job site. There shall not be any disposal of waste in the trench excavation for any gas work.

O. Existing Utilities and Structures.

1. The Subcontractor shall be responsible for determining the location, protection and permanent support of all surface and subsurface structures encountered in the work area, including but not limited to underground electric, water, sewer or storm drains.

2. The Subcontractor shall notify the Engineer and the PSE&G Inspector when excavation is required within ten feet of any gas, oil, water lines, telephone, electrical, or fiber optic cables. The notice shall be provided whether such lines belong to PSE&G, or are foreign; in order that PSE&G and Subcontractor may agree upon and approve an excavation method for their protection.

3. The Contractor shall coordinate with the Subcontractor to provide prior notice to the PSE&G Inspector, through the Engineer, when crossing foreign lines. This allows the PSE&G Inspector time to notify the owner of any possible pipeline or other facility crossing and provide that owner the option to have a representative present at the time of excavation or other construction.

4. In work areas that are adjacent to or under overhead power line rights of way, the Contractor and Subcontractor shall be aware of the hazards of operating their equipment and take precautions to insure the safety of personnel and the integrity of the existing power line facilities.

5. All work shall be performed in accordance with N.JS.A. 34:6-47 "High Voltage Proximity Act".

6. All street signs, mailboxes and similar items shall be appropriately removed and reinstalled by the Subcontractor in accordance with Section 201 as required.

P. Restoration and Landscaping in General. The Contractor shall be responsible for all temporary and final restoration or landscaping within the right-of-way. The Subcontractor shall be responsible for all temporary and final restoration or landscaping outside the right-of-way. However, the placement of steel plates over gas excavations to remain open overnight shall also be the responsibility of the Subcontractor. When the work is inside the right-of-way the Subcontractor shall backfill up the bottom of a temporary pavement box, permanent pavement box, sidewalk box or the bottom of topsoil. The Contractor shall be required to place all materials in the temporary pavement box, its removal, the final pavement box, sidewalk box or topsoil and fertilizing and seeding. When the restoration area is outside the right-of-way the Subcontractor shall be responsible for construction layout, excavation and all other operations necessary up to a complete restoration of the areas impacted by their work to the satisfaction of the Resident Engineer. Landscaping shall conform to the requirements under Division 800 of the Specifications. The Subcontractor shall also provide fencing and/or steel plates for any gas excavations left open overnight. Final restoration by the Contractor, inside the right-of-way, shall conform to the Construction Drawings and Specifications for the project. The Subcontractor shall restore all areas impacted by their work, outside the right-of-way, to its original condition and satisfaction of the Resident Engineer. Separate payment will not be made to the Subcontractor for this excavation, restoration or landscaping work which may also include replacement of sidewalks and driveways.

Q. Tie-in and Gas Out. Subcontractor shall make and have available all equipment and personnel needed to make simultaneous cutout and tie-in of both ends of the new pipe. PSE&G shall be responsible for purging and cutting the pipeline. Once started, the work shall continue until completed. Tie-in excavations shall be left open and/or plated as required, or until PSE&G has completed all its work.

R. Sheeting and Dewatering. The Subcontractor shall be responsible for the design and installation of all solid tight sheeting. The Subcontractor shall provide all dewatering required affecting the work to be performed as part of this contract in conformance with Subsection 158.03.02.12.

S. Pressure (Air) Test. The Subcontractor shall perform an air pressure test on all new piping in the field. The proper time, method, and sequence of operation for the testing of the line shall be in coordination with the Engineer at PSE&G's direction and under direct PSE&G supervision as per the PSE&G Gas Distribution Standards (GDS). The minimum test duration times are based on the size of pipe, the length, and the field condition as noted in the PSE&G Gas Distribution Standards (GDS). PSE&G will provide the Subcontractor with the test duration times upon request. The cost of this test, including but not limited to appropriate excavations, and the passing of a scraper barrel pig (steel mains) or poly pig (plastic mains), shall be included in the overall cost of the proposed items, noted below, for this work scheduled in the Proposal.

1. The Subcontractor shall supply all required small fittings, valves, hoses, pipe, etc. to connect the test equipment. The Subcontractor shall also supply two (2) compressors to attain the required test pressures, canvas or burlap to cover the exposed piping, qualified personnel and equipment required to install, operate, and remove equipment and temporary piping at no additional cost to the State.

2. A PSE&G representative shall supervise the test after the piping is pressurized. The section under test should be allowed to reach equilibrium before the test is started. If pressure loss is observed, the Contractor shall be responsible for locating and repairing any and all leaks at no additional cost to the State.

3. All steel mains shall be pigged using a scraper barrel (pig) driven by compressed air to remove internal pipe debris prior to placing the main in service. The Subcontractor is also required to furnish the pig in a new or near-new condition and all other necessary equipment for its operation. All these costs shall be included in the cost of the pipe installation.

4. If deficiencies are found, they shall be corrected and re-tested as soon as possible. All work and material required to rectify the deficiencies shall be performed at no additional cost to the State.

T. Installation of Gas Mains. This work shall consist of all work required for the installation of gas mains. This work includes breaking out the pavement, excavating, laying the pipe, welding or fusing the pipe, installing elbows and associated fittings and appurtenances, cathodic protection, testing, and backfilling. When sufficient excavated materials are not available, the Subcontractor shall provide and install gas backfill. The Contractor shall construct a temporary riding pavement final pavement or a landscaped surface as required. This work may also include any sheeting and dewatering associated with laying the pipe to be provided by the Subcontractor, PSE&G shall perform all gas main tie-ins.

1. Trench width is determined based on the diameter of the gas main being installed as per PSE&G Specification 2007-D-100.

2. Installation of the pipe shall conform to Section 601 where applicable, the contract documents and with the following construction sequencing:

3. All pipe shall be installed at the nominal cover of 36", except when crossing drains, culverts, etc. as shown on the Contract Drawings or as field conditions permit. Except for the placement of sand 6" below and 12" above the main, the trench shall be backfilled with excavated material. The use of quarry process stone or additional sand may be approved at the direction of the PSE&G Inspector. Backfill shall be well compacted under and around the sides of the pipe, and thereafter in 6" lifts. Excess soil must be removed and disposed of at the Contractor's expense.

4. It shall be the responsibility of the Subcontractor to ensure the gas mains are installed within the established boundaries as shown on the Construction Plans. However, the Contractor is responsible for construction layout.

5. Insulating joints, valves, valve risers, miscellaneous fittings, locating wire, pipeline markers, test stations, and/or any other necessary appurtenances shall be installed as directed by PSE&G in coordination with the Engineer and shall be incorporated into the price bid for the various items for gas pipe installation noted below. There shall be no additional compensation for this work.

6. Cathodic protection on steel pipes shall be installed as shown on the Contract Plans. This includes pipe coating, anodes or rectifiers, insulating joints, and test stations. The Subcontractor shall install the anodes at a lower elevation than the pipe (in or below the water table where possible) and shall be offset as far as practical from the pipe. The anode shall not be placed so that some other metallic structure, such as conduit, cable, pipe, etc., is between the main and the anode. Backfill shall be the existing soil tamped into position around the anode. The Subcontractor shall not backfill around the anodes installed with sand padding that may be used in the main trench.

7. The open cut method for installing gas pipe within a casing shall consist of all work required for the installation of a steel gas casing and the steel gas main through the means of open cut trenching. This work includes excavation of the trench, installation of a steel casing, welding the steel casing, inserting a steel carrier pipe, and welding the steel carrier pipe. This work also includes sheeting and dewatering the trench, and sealing and venting the casing, and installation of spacers within the casing.

8. Jacking method for installing pipe shall consist of all work required for the installation of a steel gas main within a steel casing through the means of jacking and boring. This work includes excavating both a jacking and a receiving pit, jacking a steel casing, welding the steel casing, inserting a steel pipe, and welding the steel pipe. This also includes sheeting and dewatering the pits, sealing, and venting the casing. Jacking shall conform to Subsection 601.03.02.

9. All gas pipe passing over the AMTRAK tracks, shall be encased in a steel casing pipe supplied by PSE&G. The gas pipe shall be installed on centering cradles and insulating spacers. The casing shall also be sealed on both ends and vented. The installation of an expansion joint and expansion joint pit are required. The pipeline in the bridge (both temporary and permanent) shall be installed within a casing. The casing on the temporary bridge shall be "bare" pipe and painted in accordance with PSE&G Gas Distribution Standards, Section 2.12, page 1. The casing in the permanent bridge shall be epoxy coated. All joints shall be coated with a two part epoxy in accordance with the pipe manufacturer's recommendations. The casing shall be supported and installed as shown on the structural plans and detail drawings. The installation of both the temporary and permanent casings shall be in compliance with the AMTRAK bonding and grounding requirements as shown in AMTRAK'S "Plate 5, Specifications for Bonding and Grounding of Pipelines in Electrified Territory" dated, November 1987.

U. Service Installations. Service installation may be completed by PSE&G or Subcontractor at the discretion of PSE&G. The work associated with installing a gas service shall consist of all work required for the transfer/installation of a gas service, permanent or temporary. This work includes breaking out the existing pavement and its removal by the Contractor. The Subcontractor shall excavate the trench, lay the bedding, lay the pipe, fusing the pipe, assisting PSE&G tie into the main and backfilling, including final restoration and landscaping outside the right-of-way. The Contractor shall provide a temporary riding pavement, final pavement, sidewalk or a landscaped surface as required inside the right-of-way. The Subcontractor shall also be required to perform all associated work with the transfer service. This work includes the excavation of one (1) tie-in hole for direct burial and transfer installations and two (2) tie-in holes for insert installations. Any additional excavation pits required for service installation work will be paid for on a cubic yard basis under the pay item gas line excavation unclassified.

1. Only the Subcontractor’s personnel trained by PSE&G and carrying an up-to-date qualification card shall make fused or mechanical connections on plastic service pipe.

2. All service installations shall be 0.5” through 1.25” plastic tubing and 2”, 3”, 4”, and 6” plastic pipe. The services shall be installed by either inserting plastic in the existing service or by directly burying plastic tubing/pipe. PSE&G shall witness and record the pressure testing of the services. Pressure test the service as required and soap test all fuses and mechanical connections.

3. The Subcontractor shall be responsible to perform all work associated with the service installation by using direct burial plastic pipe. This shall include, but is not limited to, the following steps:

a. Use pressure control equipment to shut the gas off at the service tee on the existing main prior to cutting the existing service pipe.

b. Disconnect the service pipe inside the building before the meter. Support the meter set to avoid stress on the house piping.

c. Excavate and install the replacement/new direct burial plastic service, including location wire, from the main to the building. This shall include a curb shut off behind the curb and a meter shut off at the head of the meter. Seal the hole in the foundation wall surrounding the service pipe with cement and/or water plug grout.

d. Electrofuse/weld the self-tapping tee to the new main and connect it to the new plastic service using Electrofuse/mechanical fittings.

e. Pressure test the service as required soap test all fuses and mechanical connections. When the air test is satisfactory, release pressure, tap self-tapping tee and gas out service through the hose from the meter shut off to the outside of the building until a 95% to 100% gas reading is obtained on a combustible gas indicator. Install tee cap and soap test.

4. The Subcontractor shall be responsible to perform all work associated with service installation by plastic insertion. Trenching or direct burial from the existing gas main to the point of insertion shall be paid for under the work performed for gas service insertion. This work shall include, but is not limited to, the following steps:

   a. Use pressure control equipment to shut the gas off at the service tee on the existing main prior to cutting the existing service pipe.

   b. Excavate and remove any curb shut off, offset, swing or service drip that may impede the insertion of the plastic pipe.

   c. Disconnect the service pipe inside the building before the meter. Support the meter set to avoid stress on the house piping.

   d. Ream the existing service, from the building to the main, with the appropriate sized reamer. Once the service is reamed, air blow the service from the house to the main.

   e. Insert the plastic tubing from main to the house or building receiving the service. This shall include the installation of a curb shut off and a meter shut off valve at the head of the service. The meter shut off valve shall be left in the open position with the plug installed.

   f. Electrofuse/weld the self-tapping tee to the new main and connect it to the new plastic service using Electrofuse/mechanical fittings.

   g. Pressure test the service as required and soap test all fuses and mechanical connections. When the air test is satisfactory, release pressure, tap self-tapping tee and gas out service through the hose from the meter shut off to the outside of the building until a 95% to 100% gas reading is obtained on a combustible gas indicator. Install tee cap and soap test.

5. The Subcontractor shall also be responsible to perform all work associated with the service transfer. This shall include, but is not limited to, the following steps:

   a. Use pressure control equipment to shut the gas off at the service tee on the existing main prior to cutting existing service pipe.

   b. Disconnect the service pipe inside the building before the meter. Support the meter set to avoid stress on the house piping. Install plug in meter shut off valve and leave valve open.

   c. Electrofuse/weld the self-tapping tee to the new main and connect it to the existing service using Electrofuse/mechanical fittings.

   d. Pressure test the service as required and soap test all fuses and mechanical connections. When the air test is satisfactory, release pressure, tap self-tapping tee and gas out service through the hose from the

meter shut off to the outside of the building until a 95% to 100% gas reading is obtained on a combustible gas indicator. Install tee cap and soap test.

V. Steel Gas Pipe.

1. The steel pipe used for the installation shall be single and/or double random lengths. The Subcontractor is responsible for the adequate storage and protection of the pipe during construction.
2. All welding shall be performed in accordance with the latest edition of API Standard 1104, "Standard for Field Welding of Pipelines".
3. Before any pipe welding is performed, the Subcontractor shall submit a copy of the welders' Performance Qualification Record in accordance with API 1104 showing that the welders have been tested and approved by an authorized PSE&G representative. Welders previously qualified by test may be accepted without requalification subject to approval of the PSE&G Inspector.
4. The Subcontractor shall utilize existing PSE&G Welding Procedures as detailed in the Gas Distribution Standards Manual.
5. PSE&G may require preheat of welding at any time because of atmospheric conditions, pipe chemistry, and/or sections of heavy wall thickness.
6. Tacking of ground clamps and other devices to the pipe is not permissible.
7. Arc burn damage to pipe parent material shall be ground smooth when the depth of the physical defect is no greater than 8% of the nominal wall thickness of the pipe.
8. When the depth of an arc burn physical defect is greater than 8% of the nominal wall thickness, the combination of physical and metallurgical defect shall be considered excessive and the defect and adjacent girth weld shall be removed from the pipeline at no cost to the State or PSE&G.
9. Welding repairs shall not be made on gouges, scratches, arc burns or other defects in the parent metal of the pipe. Field repair for gouges and grooves in the parent metal of the pipe may be made by grinding. The grinding shall not reduce the wall thickness at any point to less than 92% of the nominal wall thickness of the pipe.
10. A dent which contains a stress concentration, such as a scratch, gouge, groove or arc burn shall be removed by cutting out the damaged portion of the pipe.
11. A minimum of five percent (5%) of the joints will be x-rayed by PSE&G and one hundred percent (100%) of all joints of the carrier pipe will be x-rayed on all bridge crossings. Unacceptable welds shall be removed or repaired at the Contractor's expense. PSE&G will make the necessary arrangements with the Contractor to x-ray the joints. The Contractor shall provide adequate space to perform the testing at the site of all welding operations.
12. The Contractor's bid prices, provided by the Subcontractor, to install pipe shall also include costs to apply and/or repair pipe coating where necessary so that all pipe coatings pass the holiday detector test. The Subcontractor shall make provisions so the coating can be checked prior to lowering the new pipe section into the trench. Any damage to the pipe coating incurred during lowering shall be repaired by the Subcontractor at no additional cost to the State.
13. All field welds and fittings shall be sealed with Raychem Unisleeve or with a double layer of cold applied, 4" wide, corrosion protective tape in coordination with the Resident Engineer at the direction of PSE&G Raychem sleeves, primer and tape will be supplied by PSE&G.
14. The Subcontractor shall be paid for each additional weld that is required due to unanticipated alignment changes not identified on the Contract Plans as approved by the PSE&G inspector in coordination with the Engineer or his inspector.

W. Plastic Gas Pipe.

1. The Subcontractor shall have two qualified fusers (laborer, foreman, etc.) on the job site when installing plastic mains and/or plastic services. All fuses must be inspected by another qualified fuser who is not performing the fusing operation.

2. The plastic pipe supplied by PSE&G will be heat fusible, high density, polyethylene PE-3408/PE4710 material. The Subcontractor's personnel fusing and inspecting butt fusion joints must be certified by PSE&G in accordance with the "Minimum Federal Safety Standards for Gas Lines", Part 192, TITLE 49, and must carry a fusion qualification card with them at all times. It shall be the Subcontractor's responsibility to supply the heat fusion equipment that has been inspected and certified by PSE&G before use.

3. Lengths of Polyethylene pipe shall be adequately supported every 10 feet during storage and while being transported to and from the jobsite.

X. Gas Excavation Unclassified.

1. Prior to the Subcontractor beginning their excavation the Contractor shall have completed the pavement sawcutting and pavement or sidewalk removal. The Subcontractor shall then perform their gas line excavation, excavation for pits required for line stop, flow stop, bagging and venting, hot taps, purging and the tie-in. The Subcontractor shall excavate for the pits and backfill to the bottom of the pavement box, sidewalk box or bottom of topsoil for work inside the right-of-way. The Contractor shall provide a temporary riding pavement, final pavement, sidewalk or a landscaped surface when gas main is complete and or the pit is no longer required. The Subcontractor shall also provide sheeting and dewatering of the pits as required. PSE&G will perform line stop, flow stop, bagging and venting, hot taps, purging of the gas, and tie-in. The Subcontractor shall perform the thrust restraint and bell joint encapsulation work as required.

2. The excavation pits may be left open and/or plated as required, or until PSE&G has completed its work. A temporary skid resistant structural steel plate shall be used as required. This structural plate shall conform to the requirements of Subsection 917.10 of the Standard Specifications.

3. Line stop, bag and vent, and tie-in pits shall be made accessible for a period of several weeks for PSE&G or as directed based on field conditions.

Y. Thrust Restraints and Bell Joint Encapsulations. Whenever excavation on a Cast Iron main system occurs, the use of Thrust Restraint devices and encapsulation devices is usually necessary. Thrust restraint and bell joint encapsulation pits shall be performed prior to excavating other pits. The number of devices is dependent upon field conditions and the location of the tie-in and live gas excavations. The final number and location of Thrust Restraint devices and encapsulation devices will be determined in the field by the Engineer as directed by PSE&G. The installation of a Thrust Restraint device and/or a Bell Joint Encapsulation device shall include all work necessary to complete the installation including but not limited to the excavating and stockpiling of the soil, hand locating all underground facilities, installing the thrust restraint device and/or the encapsulation device, backfill the trench with the stockpiled material (dispose of any excess material) and tamping in 6" lifts. The Contractor shall be required to break and remove any existing pavement and restore the pavement with a temporary riding pavement or a landscaped surface as required. The Subcontractor shall be paid for as one unit no matter the amount of devices that are installed in each excavated pit.

Z. Line Stop and Tie-in Assistance. Line Stop assistance shall consist of the Subcontractor supplying labor and equipment necessary to perform the work and handle the pipe, in coordination with the Engineer, as specified by the PSE&G line stop specialists in performing the line stop and also by PSE&G for the tie-in.

1. Manpower required for 2" thru 16" pipe one (1) Forman two (2) Labors one (1) Machine Operator (1) welder as required or directed by PSE&G.

2. Equipment rubber tire backhoe.

3. Manpower required for 20" thru 42" pipe one (1) Forman three (3) Labors one (1) Machine Operator\Crane Operator (2) welders as required or directed by PSE&G.

4. Equipment required full-size Crawler Excavator or greater\4 ton Crane or greater.

AA. Hot Tap Preparation. Hot Tap Preparation shall consist of the Subcontractor supplying labor and equipment to prepare the existing main for a hot tap that will be performed by PSE&G. This includes but is not limited to

welding the spherical tee, three way tee, line stop fitting or other fitting on the existing steel main, installing the split sleeve collar, line stop fitting, or other fitting on the existing cast iron main. The Subcontractor shall have the Contractor notify the Engineer two weeks prior to welding the fitting so that PSE&G can supply an inspector and a qualified welder to oversee the welds. If PSE&G staff are not on site the work will not be approved.

BB. Concrete Support Pad. The Subcontractor shall construct a Class B concrete pad under the pipe being worked on for the line stop in advance to the Line Stop crew's arrival. The concrete pad shall be constructed to the specifications of the specialized line stop crew. The Subcontractor shall also construct a concrete pad under valves as required to support the valve.

CC. Fabrication of Tie-in Pieces. The Subcontractor shall be required to fabricate all tie-in pieces. This work includes measuring the existing pipe at the tie-in location and modifying a standard tie-in piece to fit connection requirements.

DD. Gas Protective Steel Plate. In areas where the existing gas main will remain in place or where adequate cover cannot be maintained over the proposed main as shown on the Construction Drawings or as determined by the Engineer and PSE&G Inspector the Subcontractor shall excavate to the top of the main and center such excavation based on the with of the proposed steel plate. The Subcontractor shall place 3" of gas pipe bedding to the width and length called for on the plans. The Subcontractor shall place the steel plates in 4' lengths and backfill with approved excavated materials from the excavation up to the bottom of the proposed pavement, sidewalk or in a landscape area the bottom of topsoil. The Contractor shall be responsible to Restore the pavement, construct the sidewalk or place topsoil and fertilize and seed the area excavated.

653.04 MEASUREMENT AND PAYMENT

THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
GAS MAIN, TIE-IN ASSISTANCE	MAN HOURS
GAS LINE EXCAVATION, UNCLASSIFIED	CUBIC YARD
GAS MAIN INSTALLATION, BACKFILL	CUBIC YARD
GAS LINE BEDDING	CUBIC YARD
GAS EXPANSION CHAMBER	UNIT
GAS MAIN INSTALLATION, EXCAVATION FOR TEST PITS	CUBIC YARD
GAS MAIN INSTALLATION, COARSE AGGREGATE, #57	CUBIC YARD

THE LAST PARAGRAPH IS DELETED.

THE FOLLOWING SECTION IS ADDED:

SECTION 655 – TELECOMMUNICATIONS

655.01 DESCRIPTION

This Section describes the requirements for installing conduit and manholes for Verizon Business.

655.03 CONSTRUCTION

A. Prequalification. Only a pre-qualified contractor approved by Verizon Business (formerly MCI) may construct the telecommunication facilities.

List of pre-qualified subcontractors is as follows:

J.F. Creamer & Son, Inc.
Jorge Pires
Senior Project Manager
Construction Management
1701 East Linden Avenue
Linden, NJ 07036

Work (908) 986-5719
Mobile (201) 954-7366
JPires@jfcson.com

DIVISION 700 – ELECTRICAL

SECTION 701 – GENERAL ITEMS

701.03.01 Existing Systems
THE FIFTH PARAGRAPH IS CHANGED TO:

If removal of existing above ground electrical material is required, deliver salvaged materials to the nearest Department electrical maintenance yard and unload the salvaged materials as directed. Dispose of salvaged materials rejected by the Department from the Project Limits as specified in 201.03.09.

THE FOLLOWING IS ADDED:

Modify the existing electrical distribution equipment at Great Notch Inn as shown on the plans.

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.

701.03.05 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.

701.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
5" RIGID NONMETALLIC CONDUIT	LINEAR FOOT
MODIFY EXISTING LOAD CENTER	LUMP SUM

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 not make separate payment for equipment required to modify the existing system at Great Notch Inn, such as; couplings, boxes, conduit, cable, connectors, splices, etc. The Department will make payment for the various items under MODIFY EXISTING LOAD CENTER.

SECTION 702 – TRAFFIC SIGNALS

702.02.01 Materials
THE FOLLOWING IS ADDED:

Provide poles, mast arms, and bases that are powder-coated with a black finish.

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.

702.03.01 Controller
THE FOLLOWING IS ADDED:

Mount each controller assembly on an 18-inch aluminum skirt with adjustable shelves. Ensure the 18-inch aluminum skirt and the controller cabinet comes from the same manufacturer.

Include in controller assemblies, 8 phase an uninterruptible power source (UPS) unit in each controller cabinet installed. Ensure the UPS unit conforms to the following criteria:

1. All interconnecting harnesses are heavy duty with military type connectors.
2. Battery back up units are programmed to maintain FULL normal signal operation for 50% of the total calculated run time of the unit under full load. After that, the signal reverts to emergency flash operation for the duration of the battery reserve or until utility power is restored.
3. The Battery back up unit will be warranted for a minimum of 2 years.
4. Ensure the UPS unit is compatible with all other equipment in the controller cabinet.

Provide shelf-mounted UPS unit and shelf mounted battery pack on the side wall of the controller cabinet skirt.

Provide full generator auto-bypass system.

Heavy Duty handle/fastener welded on lower side of controller cabinet (meter service cabinet side) in order to secure a generator with a chain.

External 30 amp twist-lock generator male input plug (in a lockable door similar to police panel door) mounted on power panel side of controller cabinet.

Internal means of disconnect for the generator plug cord from the input plug.

Battery backup power-on indicator light located on controller cabinet at a place determined in the field, color of the indicator to be determined.

Submit catalog cuts and provide a fully wired cabinet for review and acceptance depicting placement of a fully equipped controller cabinet with UPS equipment and battery pack before final approval is given to proceed with the installation.

702.03.07 Push Button
THE SECOND PARAGRAPH IS DELETED:

THE FOLLOWING IS ADDED:

The push button shall be ADA complaint and include APS (Accessible Pedestrian Signal) with button actuated timer (BAT), customized voice message features and conform to the following specifications:

1. Include a set of push button station connected to a central control unit.
2. Use NJDOT standard 2 wiring push button cables.
3. Vibro-tactile ADA complaint 2” push button.
4. Recessed weather-proof speaker with vandal resistant screen.
5. Sunlight-visible LED light.
6. All mounting hardware.
7. Die-cast aluminum, power coated black.
8. Provide push button station extender if it is applicable.
9. Software of monitoring and maintenance utilities to support the APS.
10. Operation environment: -40 ºF (-40 ºC) to 150 ºF (65ºC).

During operation, the push button shall provide the following features:

1. Provide push button locator tone per MUTCD and should not be sounding when signals are operating in a flashing mode or not functioning.
2. Confirmation of push button via latching LED, sound, and vibro-tactile bounce.
3. Customized voice message during walk interval by giving name of street the pedestrian is crossing or per direction of the residence engineer.
4. Customized clearance sound or verbally countdown per direction of the residence engineer.
5. Independent minimum and maximum sounds and voice messages volume setting. The volume shall be set per MUTCD.
6. Extended push priority (mutes entire intersection except selected crosswalk to minimize confusion caused by other sounds).
7. Synchronized sounds throughout intersection.
8. Can provide customized special message throughout intersection.

702.03.11 Temporary and Interim Traffic Signal Systems
THE FIRST THROUGH FIFTH PARAGRAPHS ARE DELETED:

702.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

The costs for UPS unit with battery pack and 18-inch aluminum skirt are included in the various pay items for controller assemblies.

The Department will measure interim traffic signal by each intersection. The Department will not make separate payment for any modifications, repairs, or replacement of the interim traffic signal during the construction period. All costs associated will be included under interim traffic signal.

SECTION 703 – HIGHWAY LIGHTING

703.02.01 Materials
THE FOLLOWING IS ADDED:

Provide poles, mast arms, bases and light fixture housings that are powder-coated with a black finish.

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 lighting 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 Contractor must design the Temporary lighting system at Rifle Camp Road.

THE SIXTH PARAGRAPH IS DELETED:
THE EIGHTH THROUGH TENTH PARAGRAPHS ARE DELETED:

703.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
LIGHTING STANDARD DECORATIVE	UNIT
LUMINAIRE DECORATIVE	UNIT

DIVISION 800 – LANDSCAPING

SECTION 811 – PLANTING

811.02 MATERIALS
THE FOLLOWING IS ADDED:

Specimen Quality Trees……..... ……..917.10

811.03.01 Planting

D. Planting Beds.
ADD THE FOLLOWING TO THE THIRD PARAGRAPH:

Install specimen quality trees where designated on the landscape plans.

1. **Prior to Planting Narcissus.** Submit for approval to the Office of Landscape Architecture (OLA) working layout drawings for the areas of Narcissus in Turf in the roundabout infields. Submit working layout drawings for approval 2 weeks (14 days) prior to planting. Notify OLA 10 days prior to layout operations to ensure OLA staff will be present. Layout the Narcissus in Turf design for the roundabout infields for approval by OLA.
2. **Planting Narcissus.** Plant bulbs in established turf or in bed areas where designated as Narcissus in Turf at the required depth prior to Fertilizing and Seeding operations at the direction of the RE. Maintain the desired grade; do not use heavy equipment on these areas once the bulbs have been set.

E. Excavation for Plant Pits and Beds.
THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

Obtain RE approval before reusing topsoil from the excavated pits.

THE FOLLOWING IS ADDED TO THE END OF THE SECOND PARAGRAPH:

In areas where planting is proposed on top of pavement being removed increase the planting pit to a minimum of 3 times the width of the root ball and no deeper than the root ball as measured from the bottom of the trunk flare to the bottom of the of the ball. Do not use augers in these areas to dig the planting pits.

H. Backfilling.
ADD THE FOLLOWING TO THE END:

Topsoil for backfill and supplemental topsoil shall be clean and approved by the State Contract Manager prior to use, and shall have a water retaining polymer incorporated at the time of planting as per manufacturer's recommendation. No additional payment shall be made for topsoil backfill.

I. Watering.
THE FIRST PARAGRAPH IS CHANGED TO:

Water plants with sufficient frequency and quantity to ensure that the soil surrounding the root system remains moist but not saturated.

811.03.02 Plant Establishment Period
THE FOURTH PARAGRAPH IS CHANGED TO:

2. Maintenance Bond.

Provide a bond to the Department in the amount of $55,000.

811.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
SMALL DECIDUOUS TREE, 3’ HIGH, #2 CONTAINER	UNIT
SMALL DECIDUOUS TREE, 6-7’ HIGH B&B	UNIT
EVERGREEN TREE, 7-8’ HIGH B&B	UNIT

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
THE SEVENTH LINE UNDER CAST-IN-PLACE ITEMS IS CHANGED TO:

Table 903.03.06-2 Requirements for Structural Concrete Items

	Concrete Class	Slump[1] (inches)	Percent Air Entrainment for Coarse Aggregate[1]	
			No. 57 & No. 67	No. 8
Decks, Sidewalks, Curbs, Parapets, Concrete Patch	A	3 ± 1	6.0 ± 1.5	7.0 ± 1.5

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.

SECTION 904 – PRECAST AND PRESTRESSED CONCRETE

904.01.02 Fabrication
THE ENTIRE SUBPART IS CHANGED TO:

Fabricate precast concrete at a plant as specified in 1011.01 and listed on the QPL.

1. **Placing Reinforcement Steel.** Before placing the concrete, place reinforcement steel in position as shown on the approved working drawings and as specified in 504.03.01. Firmly tie the reinforcement to prevent displacement during placing of the concrete.
2. **Placing Concrete.** Place concrete as specified in 504.03.02.D and 504.03.02.E. Before placing concrete, ensure that reinforcement steel and any other embedded materials are free of loose rust, frost, dirt, oil, or contaminants that may prevent a bond with the concrete. Consolidate concrete with internal vibrators. The fabricator may use external vibration to supplement internal vibration. If using SCC, minimize or eliminate

the use of vibrators to prevent segregation.

904.01.06 Quality Control and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

904.02.02 Fabrication
THE SECOND SENTENCES IN THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate precast concrete at a plant as specified in 1011.01 and listed on the QPL.

904.02.06 Quality Control and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.
STEP 2 IN THE THIRD PARAGRAPH IS CHANGED TO:

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

904.03.02 Fabrication
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate precast concrete at a plant as specified in 1011.01 and listed on the QPL.

904.03.06 Quality Control and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

THE FOLLOWING IS ADDED AFTER THE LAST PARAGRAPH:

If the ME does not inspect the precast concrete item, submit certifications of compliance as specified in 106.07.

904.04.02 Fabrication
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate prestressed concrete at a plant as specified in 1011.02 and listed on the QPL.

904.04.06 Quality Control, Quality Assurance, and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

THE FOLLOWING IS ADDED AFTER THE LAST PARAGRAPH:

If the ME does not inspect the precast concrete item, submit certifications of compliance as specified in 106.07.

SECTION 905 – REINFORCEMENT METALS

905.01 REINFORCEMENT STEEL
THE ENTIRE SUBPART IS CHANGED TO:

Provide reinforcement steel manufactured at an AASHTO NTPEP (National Transportation Product Evaluation Program) certified mill. For a list of NTPEP certified mills, see the following webpage:

http://data.ntpep.org/Module/REBAR/Overview.aspx .

For reinforcement steel, submit a certification of compliance as specified in 106.07. Attach copies of the mill certifications for each heat of reinforcement steel. The ME will randomly sample and test heats of reinforcement steel for quality assurance. The ME will randomly inspect and sample galvanized and epoxy coated reinforcement steel for quality assurance.

905.01.03 Welded Wire Reinforcement
THE SECOND PARAGRAPH IS CHANGED TO:

When approved as an alternate to galvanized reinforcement bars, use galvanized welded wire reinforcement that meets the requirements of ASTM A 641, Table 1, Class 1.

905.01.05 Dowels
THE ENTIRE SUBPART IS CHANGED TO:

Use plain reinforcement bars according to ASTM A 615, Grade 60. Galvanize according to ASTM A 123.

905.03.03 Dowel Bars
THE FIRST PARAGRAPH IS CHANGED TO:

For dowel bars in transverse joints, use epoxy-coated, Grade 60, plain reinforcement steel according to ASTM A 615. If shown on the Plans, use dowel bars fitted with end caps. Ensure that the end caps are non-metallic and designed to prevent the entrance of grout or mortar into the expansion void.

SECTION 909 – DRAINAGE

909.02.01 Reinforced Concrete Pipe
THE FOLLOWING IS ADDED BEFORE THE FIRST SENTENCE:

Manufacture reinforced concrete pipe at a plant listed on the QPL.

THE LAST PARAGRAPH IS CHANGED TO:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

For concrete pipe that is less than 60 inches in diameter, submit a certification of compliance as specified in 106.07. The ME will randomly inspect and test small-diameter concrete pipe for quality assurance.

For concrete pipe that is 60 inches or more in diameter, notify the ME at least 2 weeks before shipping pipe to the Project. The ME will inspect and approve large-diameter pipe in the supplier's yard after manufacture. Perform 3-point loading in the supplier's yard as directed by the ME. If the ME does not inspect the concrete pipe, submit certifications of compliance as specified in 106.07.

909.02.02 HDPE Pipe
THE SECOND PARAGRAPH IS CHANGED TO:

Use HDPE pipe from a manufacturer who is an AASHTO NTPEP (National Transportation Product Evaluation Program) certified manufacturer. For a list of NTPEP certified manufacturer, see the following webpage: http://data.ntpep.org/Module/PIPE/Overview.aspx .

SECTION 910 – MASONRY UNITS

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.

THIS SUBPART IS INTENTIONALLY LEFT BLANK

SECTION 912 – PAINTS, COATINGS, TRAFFIC STRIPES, AND TRAFFIC MARKINGS

912.01.04 Concrete Stain
THE FOLLOWING IS ADDED TO THE END OF THE SUBPART:

This work shall consist of the application of color stain to the smooth concrete faces of parapets, pylons, retaining walls, abutment stems, and other areas as described herein and as shown on the plans. All concrete surfaces that are to be stained and any patching that has been done in these areas shall be at least 28 days old. Clean surface prior to application of stain material to assure that surface is free of latency, dirt, dust, grease, efflorescence, paint, or other foreign material, following supplier's instructions for surface preparation. Do not sand blast. Preferred method to remove latency is pressure washing with water. Completed surface shall be free of blemishes, discoloration, surface voids and unnatural form marks.

The surfaces to be stained will be examined, and any areas requiring patching or repair will be brought to the Contractor's attention.

1. **Stain Application Procedures for Simulated Cut Stone Finishes.** It is the intent to have the formlined concrete areas resemble natural stone walls. To realistically achieve that appearance, the stain colors shall not overlap or cover the "joints" between stones or block units so as to give the impression of mortar between the individual units. It is critical to have more than one color represented on each stone or block unit. The natural stone material being replicated does not have only one uniform color but rather exhibit a mix of several colors, with one being the dominant. The final color scheme will be approved by the Engineer in the field after reviewing and approving the test panel mock-ups specified elsewhere.

   When directed by the Engineer, the stain mixture shall be thinned or "cut" in a proportion sufficient to allow for the stain to be translucent and shall be mixed in equal proportions with material recommended by the manufacturer to allow the stain material to develop the translucency needed to have the various colors of multiple applications remain apparent without excessive mil thickness build up. This adjusted consistency is necessary for the initial stain layer to "bleed through" the second layer, be seen and provide a more mottled look.

   Locations: On Retaining Walls 1 through 5, Retaining Walls A through D, and on the faces of both abutment stems at Structure No. 1600-515 (Clove Road Over Route 46).

   A 3-coat system will be used at the simulated cut stone finishes:

   a. **Base Coat.** Use solid color water-based concrete stain, Federal Standard Color No. 30318. The base coat will be applied with an airless sprayer and shall provide a uniform base color for that surface (100% coverage). The stain will be allowed to cure, as recommended by the manufacturer, prior to application of remaining coats.

   b. **Highlight Coat.** Use solid color water-based concrete stain, Federal Standard Color No. 30227. The highlight coat will be applied over the base coat with a rag, a sponge or a roller. The highlight coat will be applied by the stain technician's feel and is meant to accent the simulated stone finish (20% coverage). The stain will be allowed to cure, as recommended by the manufacturer, prior to application of remaining coat.

   c. **Shadow/Sweep Coat.** Use solid color water-based concrete stain, Federal Standard Color No. 30145. The shadow/sweep coat will be applied over the base and highlight coat with a rag, a sponge or a roller. The shadow/sweep coat will be applied by the stain technician's feel and is meant to give depth to the simulated stone finish (5% coverage).

   d. **Mortar Joints.** Use solid color water-based concrete stain, Federal Standard Color No. 36306. The single coat will be applied by paint brush.

2. **Stain Application Procedures for Smooth Concrete Areas and Mortar Joints.** When directed by the Engineer, the stain mixture shall be thinned or "cut" in a proportion sufficient to allow for the stain to be translucent and shall be mixed in equal proportions with material recommended by the manufacturer to allow the stain material to develop the translucency needed.

   A single coat application will be used for the following components:

   a. **Smooth Concrete Areas.**

      (1) **Locations.**

         (a) **Structure No. 1606-167 (Notch Road Over Route 46).** Rectangular and jersey barrier parapets, and smooth faces at both abutment stems and wingwalls.
         (b) **Structure No. 1600-515 (Clove Road Over Route 46).** Pylons, rectangular and jersey barrier parapets, and smooth faces at both abutment stems.
         (c) **Retaining Walls 1 through 5.** Fluted Columns, and lower portions.
         (d) **Retaining Walls A through D.** Lower portions.

   b. **Mortar Joints.** Use solid color water-based concrete stain, Federal Standard Color No. 36306. The single coat will be applied by paint brush.

912.03.01 Epoxy Traffic Stripes
THE SUBPART HEADING IS CHANGED TO:

912.03.01 Traffic Stripes

A. Epoxy Resin.
THE FIRST SENTENCE IS CHANGED TO:

For pavement striping, use an epoxy resin that is a 2 component, 100 percent solids formulation conforming to the following requirements:

B. Glass Beads.
THE FIRST PARAGRAPH IS CHANGED TO:

Submit certifications of compliance as specified in 106.07 for each lot of glass beads used on the Contract. For each lot of glass beads, submit test results indicating the parts per million of lead, antimony and arsenic as determined by testing according to Environmental Protection Agency testing method 3052 and testing method 6010B or 6010C. Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 100 ppm of arsenic.

912.03.02 Thermoplastic Traffic Markings
THE SUBPART HEADING IS CHANGED TO:

912.03.02 Traffic Markings
THE ENTIRE SUBPART TEXT IS CHANGED TO:

For traffic markings, use either preformed or hot extruded thermoplastic conforming to AASHTO M 249, except that for preformed thermoplastic, the minimum thickness requirement is 90 mils. Use beads conforming to AASHTO M 247, Type 1, with a moisture resistant coating. Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 100 ppm of arsenic.

Submit certifications of compliance, as specified in 106.07, for each batch of materials used on the Contract. For each lot of glass beads, submit test results indicating the parts per million of lead, antimony and arsenic as determined by testing according to Environmental Protection Agency testing method 3052 and testing method 6010B or 6010C.

912.04.01 Latex Paint
THE ENTIRE SUBPART TEXT IS CHANGED TO:

For temporary traffic stripes, use latex traffic paint that is a fast-drying white, or non-lead yellow, ready-mixed pigmented binder emulsified in water and capable of anchoring reflective glass beads that are separately applied. Ensure that the color matches FED-STD-595B color chip No. 33538 for yellow and No. 37886 for white. Ensure that the paint has a maximum no-track time of 120 seconds when applied in a wet film thickness of 15 ± 1 mil, at 140 °F, and with 12 pounds per gallon of glass beads. In addition, ensure that the finished product meets the following:

1. Volume of solids is a minimum 61 percent.
2. Total solids are a minimum of 77.5 percent total non-volatiles by weight, when tested according to ASTM D 2369.
3. Weight per gallon is a minimum 14 ± 0.2 pounds per gallon for each color.
4. Hegman Grind is a minimum of 2 Hegman when tested according to ASTM D 1210.
5. Viscosity is between 70 and 95 Krebs Units at 77 °F, when tested according to ASTM D 562.

Use glass beads conforming to AASHTO M247, Type 1, with a moisture resistance coating. Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 100 ppm of arsenic.

Submit a certification of compliance, as specified in 106.07, for latex and glass beads. For each lot of glass beads, submit test results indicating the parts per million of lead, antimony and arsenic as determined by testing according to Environmental Protection Agency testing method 3052 and testing method 6010B or 6010C.

SECTION 913 – GUIDE RAIL, FENCE, AND RAILING

913.01.01 Rail Element
THE SECOND PARAGRAPH IS CHANGED TO:

Submit a certification of compliance as specified in 106.07.

913.01.02 End Treatments
THE SECOND PARAGRAPH IS CHANGED TO:

Submit a certification of compliance as specified in 106.07.

913.01.03 Posts and Blockouts
THE FOURTH PARAGRAPH IS CHANGED TO:

Provide certifications of compliance, as specified in 106.07.

913.01.04 Rub Rail
THE SECOND PARAGRAPH IS CHANGED TO:

Submit a certification of compliance as specified in 106.07.

913.01.05 Miscellaneous Hardware
SUBPART 3 OF THE FIRST PARAGRAPH IS CHANGED TO:

3. Use plates for guide rail on bridges and buried guide rail terminals conforming to ASTM A 36 and galvanized according to ASTM A 123.

THE SECOND PARAGRAPH IS CHANGED TO:

Submit a certification of compliance as specified in 106.07. The ME may randomly inspect hardware for quality assurance.

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 917 – LANDSCAPING MATERIALS

917.02 SOIL ADDITIVES
THE FOLLOWING IS ADDED:

Provide a hydrogel/wetting agent made with potassiumpropenoate-propenamide copolymer hydrogel from the following manufacturers or approved equal:

- Gelscape
  Amereq Corporation
  50 North Harrison
  Congers, NY 10920
- Soilmoist

JRM Chemical Inc.
13600 Broadway Avenue
Cleveland, OH 44125

- Supersorb
  Aqueatrols Corporation
  5 North Olney Avenue
  Cherry Hill, NJ 08003

917.05.01 Grass Seed Mixtures

REPLACE TABLE 917.05.01-7 TYPE W WETLAND GRASS SEED MIXTURE WITH THE FOLLOWING TABLE:

Fertilizing and Seeding, Type W			
Scientific Name	Common Name	% of mix	50 lbs/acre
Acorus americanus	Sweetflag, MW U.S. Ecotype	4%	2.0
Agrostis perennans	Upland/Autumn Bentgrass	5%	2.5
Anemone canadensis	Canada Anemone, IA Ecotype	2%	1.0
Aquilegia Canadensis	Red/Eastern Columbine	1%	0.5
Asclepias incarnata	Swamp Milkweed, PA Ecotype	2%	1.0
Panicum rigidulum	Redtop Panic Grass, PA Ecotype	5%	2.5
Carex lupulina	Hop Sedge, PA Ecotype	3%	1.5
Elymus virginicus*	Virginia Wild Rye, PA Ecotype	24%	12.0
Juncus effusus	Common/Soft Rush	10%	5.0
Lobelia cardinalis	Red Lobelia/Cardinal Flower, IA Ecotype	1%	0.5
Mimulus rigens	Allegheny/Square Stemmed Monkey Flower	3%	1.5
Panicum virgatum 'Shawnee'	Shawnee Switchgrass	10%	5.0
Poa palustris	Fowl Bluegrass	15%	7.5
Scirpus atrovirens	Green Bulrush, PA Ecotype	5%	2.5
Scirpus cyperinus	Woolgrass, PA Ecotype	3%	1.5
Verbena hastata	Swamp Verbena/ Blue Vervain, PA Ecotype	7%	3.5
Seeding Rate: 50 Lbs per acre		100%	50.0

917.10 PLANT MATERIALS

B. Quality Requirements.

1. Trees.

THE FOLLOWING IS ADDED:

6. Specimen Quality Trees:

   a. Trees are the same height within each species.

b. Tree trunks have less than a 5 degree bow.
c. Trees are branched up to 7 feet for Acer, Ulmus and Fraxinus, and up to 6 feet for Prunus.
d. Scaffold branches are not located directly above another.
e. Scaffold branches are spaced at least 4-6”apart both radially and vertically along the trunk.
f. 60 inches diameter minimum canopy spread for Acer and Ulmus (3-3.5” caliper specimen quality trees)
g. 48 inches diameter minimum canopy spread for Fraxinus and Prunus (2-2.5” caliper specimen quality trees)
h. Trees are obtained from a nursery specializing in specimen trees.

3. Perennial Plants.

3.

THE FOLLOWING IS ADDED:

Choose Narcissus in Turf according to availability from the following list of early bloomers. Choose one or more varieties from each group in order to fulfill the total quantity required in the contract. Use one variety per planting bed.

TRUMPET NARCISSUS	LARGE-CUPPED NARCISSUS	SMALL-CUPPED NARCISSUS
King Alfred	Early Bride	Barrett Browning
Rijnveld’s Early Sensation	Johann Strauss	Birma
Foresight	St. Keverne	

H. Inspection.

THE SECOND PARAGRAPH IS CHANGED TO:

The Department may inspect plant materials before delivery to the Project Limits and upon delivery to the Project Limits before installation. The Department may seal the inspected plant materials. For plant material originating from nurseries farther than 100 miles from the Project Limits, stock plant material at a Contractor-provided holding yard that is acceptable to the Department. The Department may inspect plant material originating from nurseries within 100 miles of the Project Limits at the nursery. Ensure that all plant material is untied and located so that trunk or stem and branch structure can be easily inspected. Provide sufficient notice to allow Department inspection at the nursery or holding yard and to allow time for Contractor reordering of rejected material. Notify the RE at least 10 days in advance of delivery to the Project Limits for installation. The Department will reject materials arriving with broken or missing seals, broken or loose balls, broken or pruned leaders, insufficient protection, or that have been damaged in transit. The Department may randomly inspect the root system of the plant material by breaking open the earth balls. Provide necessary assistance during Department inspections.

SECTION 918 – ELECTRICAL MATERIALS

918.01 CONDUIT AND FITTINGS

4. Flexible Nonmetallic Conduit.

THIS PART IS CHANGED TO:

Use coil able HDPE conduit made from virgin HDPE resin as per the minimum standard of PE345440E according to ASTM D3350. Ensure conduit is circular and of uniform cross sectional area and dimensions in accordance with ASTM F2160. Ensure conduit is of continuous length containing no welds or joints coiled on a reel. Additionally, conduit’s inner and outer walls are to be smooth and the inner wall is to be lubricated with manufacturer’s recommended lubricant. Conduit colors are to be integrally extruded throughout the conduit in the manufacturing process. Ensure conduit is permanently marked with a laser ink imprinter or heat embossed white lettering showing the diameter, size, sequential length marks, owners name, ASTM, SDR, and/or Schedule rating. Additional markings of date-of-manufacture, time, and batch-of-resin are to be identified and referenced to certifications and quality control test results. Ensure manufacturer provides certification of the properties specified and mark/label the reels with purchase order, project name and/or

other information for tracking and receiving. Applicable material standards are required based on the following applications:

a. **Direct Burial**. Use conduit material with a rating of Schedule 80 conforming to ASTM F2160, NEMA TC-7 EPEC-80 and certified for its intended use.

b. **Innerduct**. Use conduit material with a rating of Schedule 40 conforming to ASTM F2160, NEMA TC-7 EPEC-40.

Submit a certificate of compliance, as specified in 106.07, for all materials, components, and assemblies.

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.

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

NJDOT B-11- DETERMINING GRADATION OF CRUMB RUBBER FOR ASPHALT MODIFICATION

A. Scope. This method is used to determine the gradation of the crumb rubber for asphalt-rubber binder

B. Apparatus. Use the following apparatus:

1. Oven capable of maintaining a temperatures of 140 ± 10 °F for drying sample to a constant weight.
2. Rubber balls having a weight of 8.5 ± 0.5 grams, a diameter of 24.5 ± 0.5mm mm, and a Shore Durometer "A" hardness of 50 ± 5 per ASTM Designation D 224
3. No. 8, 16, 30, 50, 100, and 200 sieves conforming to AASHTO M 92.
4. Mechanical sieve shaker conforming to AASHTO T 27.
5. Balance conforming to AASHTO M 231 and having a minimum capacity of 100 grams with a precision of 0.1 gram.

C. Procedure. The crumb rubber for asphalt rubber binder is required to conform to the gradations specified below when tested in accordance with ASTM Designation C 136 except as follows:

1. Obtain 100 ± 5 grams from the crumb rubber sample and dry to a constant weight at a temperature of not less than 135 °F nor more than 145 °F and record the dry sample weight.
2. Place the crumb rubber sample and 5.0 grams of talc in a one pint jar, then shake it by hand for a minimum of one minute to mix the crumb rubber and the talc. Continue shaking or open the jar and stir until the particle agglomerates and clumps are broken and the talc is uniformly mixed.
3. Place one rubber ball on each sieve. After sieving the combined material for 10 ± 1 minutes, disassemble the sieves. Brush remaining material adhering to the bottom of a sieve into the next finer sieve. Weigh and record the weight of the material retained on the No. 8 sieve and leave this material (do not discard) on the scale or balance. Ensure that observed fabric balls remain on the scale or balance and are placed together on the side of the scale or balance to prevent the fabric balls from being covered or disturbed when placing the material from finer sieves on to the scale or balance. Add the material retained on the next finer sieve (No. 16 sieve) to the scale or balance. Weigh and record that weight as the accumulative weight retained on that sieve (No. 16 sieve). Continue weighing and recording the accumulated weights retained on the remaining sieves until the accumulated weight retained in the pan has been determined. Before discarding the crumb rubber sample, separately weigh and record the total weight of the fabric balls in the sample.
4. Determine the weight of material passing the No. 200 sieve (or weight retained in the pan) by subtracting the accumulated weight retained on the No. 200 sieve from the accumulated retained weight in the pan. If the material passing the No. 200 sieve (or weight retained in the pan) has a weight of 5 grams or less, cross out the recorded number for the accumulated weight retained in the pan and copy the number recorded for the accumulated weight retained on the No. 200 sieve and record that number (next to the

crossed out number) as the accumulated weight retained in the pan. If the material passing the No. 200 sieve (or weight retained in the pan) has a weight greater than 5 grams, cross out the recorded number for the accumulated weight retained in the pan, subtract 5 grams from that number and record the difference next to the crossed out number. The adjustment to the accumulated with retained in the pan is made to account for the 5 grams of the talc added to the sample. For calculation purposes, the adjusted accumulated weight is the same as the adjusted accumulated weight retained in the pan. Determine the percent passing based on the adjusted total sample weight and recorded to the nearest 0.1 percent.

D. Report. Report all test results on ME provided forms.

NJDOT B-12 – DETERMINING ROTATIONAL VISCOSITY OF ASPHALT RUBBER BINDER

A. Scope. This method presents procedures for sampling and testing of asphalt-rubber binder in the field using a hand held portable rotational analog or digital viscometer.

B. Apparatus. Use the following apparatus:

1. **Viscometer.** A hand held high range rotational viscometer. Analog models with indicator needles and scaled dial displays or digital read out viscometers may be used. Analog models that have been found acceptable include Rion Model VT-04E and Haake Model, VT-02. Digital models that have been found acceptable include Haake VT 2 Plus.
2. **Rotor.** A cylinder with a diameter of 24 ± 1.1 millimeters, height of 53 ± 0.1 millimeters, and a vent hole attached to a spindle or shaft with length of 87 ± 2 millimeters that is compatible with the selected viscometer. Acceptable rotors include Rion No. 1, Haake No 1, or an equivalent.
3. **Thermometer.** Digital with metal jacket probe accurate to 1 °F.
4. **Sample Containers.** Clean 1 gallon metal cans with lids and wire bale.
5. **Viscosity Standard Oils.** Fluids calibrated in absolute viscosity centipoise (cP).
6. **Viscometer Holder.** Clean metal container or stand for safely storing the viscometer between tests.
7. **Level Surface.** Level surface not directly on the ground.
8. **Heat Source.** A controllable heat source (i.e. a hot plate, gas stove, or burner) to maintain the temperature of the asphalt-rubber sample at 350 ± 3 °F while measuring viscosity.
9. **Personal Equipment.** Eye protection and heat resistant gloves.

C. Procedure. Perform the following steps:

1. **Calibration of Equipment.** Calibrate the equipment as follows:

   a. Verify the accuracy of the viscometer by comparing the viscosity results obtained with the hand held viscometer to 3 separate calibration fluids of known viscosities ranging from 1000 cP to 5000 cP. The known viscosity value are based on the fluid manufacturer's standard test temperature or based on the test temperature versus viscosity correlation table provided by the fluid manufacturer.

   b. The viscometer is considered accurate if the values obtained are within 300 cP of the known viscosity.

   c. Verify the calibration of the rotational viscometer using viscosity standards before use at each site.

2. **Sampling Asphalt-Rubber Binder.** Provide new sample containers and ensure that they are clean before using. Before sampling, draw at least 1 gallon from an appropriate sample valve on the interaction tank and discard. Then reopen the sample valve and draw at least 3/4 of a gallon for testing.

3. **Preparing Asphalt-Rubber Binder Samples for Testing.** Prepare the asphalt-rubber binder as follows:

   a. Immediately transport the sample to the testing area. Ensure that the testing area is close to the sampling location to reduce the potential for temperature loss.

   b. Set the open asphalt-rubber binder sample container on the level surface on or over the heat source.

   c. To prevent scorching or burning, manually stir the asphalt-rubber binder sample using a metal stir rod or the temperature probe.

d. Continue stirring until a consistent asphalt-rubber binder temperature of 350 ± 3 °F is achieved. Record the actual test temperature with the corresponding viscosity measurement.

e. Insert the viscometer spindle and rotor into the hot asphalt-rubber binder sample near the edge of the can. Ensure that the spindle and rotor are not inserted deeper than the immersion depth mark on the shaft and are not plugging the vent hole. During insertion, the spindle and rotor may be tilted slightly to keep the vent hole clear.

f. Allow the rotor to acclimate to the temperature of the asphalt-rubber binder for approximately 1 minute. During acclimation, stir the sample thoroughly and measure the temperature.

g. Orient the sample and the rotor so that the rotor is near the center of the sample, align the depth mark on the shaft with the asphalt-rubber binder surface, and level the viscometer in order to measure viscosity.

4. Testing. Analog viscometers include a level bubble to help orient the device to ensure that the rotor and shaft remain vertical. Digital viscometers may not include a level bubble. If a level bubble is not included, attach a small adhesive bubble to the viscometer or use a framework with a level bubble.

Test the asphalt-rubber binder as follows:

a. As soon as the viscometer is leveled and the depth mark is even with the asphalt-rubber binder surface, begin rotor rotation. When using a digital viscometer, activate the continuous digital display according to the manufacturer's recommendations. Read and record the peak viscosity value (The peak measurement typically represents the viscosity of the asphalt-rubber binder; report and log that value. As the rotor continues to turn, it "drills" into the sample and spins rubber particles out of its measurement area. This may cause thinning of the material in contact with the rotor erroneously indicating a drop in the apparent viscosity of the asphalt-rubber binder) from the graduated scale labeled with the corresponding rotor number or from the digital display.

b. After completing the first measurement, move the viscometer rotor away from the center of the sample can without removing it from the asphalt-rubber binder sample. Turn off the rotor rotation.

c. Stir the asphalt-rubber binder sample thoroughly.

d. Repeat Steps 1, 2, and 3. Take 3 measurements and average the results to determine the viscosity.

e. Return the viscometer to its holder with the rotor suspended in a suitable solvent. Before using the rotor again, wipe off the solvent and dry the rotor to avoid solvent contamination of the next sample.

D. Calculations. Some meters read in units of mPa·s (0.001 Pascal·seconds) or dPa·s (0.1 Pa·s), while others may read in centipoise (cPs) units. The conversion is 1 Pa·s = 1000 cPs.

E. Report. Include the following items in the report:

1. Date and time sampled.
2. Location of asphalt-rubber binding blending plant.
3. Test temperature and viscosity.
4. Rotor designation.
5. Viscometer model and serial n

NJDOT R-1 – OPERATING INERTIAL PROFILER SYSTEMS FOR EVALUATING PAVEMENT PROFILES

THIS ENTIRE TEST METHOD IS CHANGED TO:

A. Scope. This test method describes the procedure for operating, verifying the calibration of an ASTM E 950 Class 1 Inertial Profiler System (IPS) and testing riding surface for pavement profiles evaluation.

B. Apparatus. Use an IPS that meets the requirements of AASHTO M 328 and ASTM E 950, Class 1 and the following:

1. Certify the IPS according to AASHTO R 56 at least every 2 years. If a system component is replaced, re-certify the system. Perform the certification at a site approved by the Department.
2. The data system provides the raw profile data in an ASCII format acceptable to the Department.
3. The computer program uses a high-pass filter set at 300 feet and reads an ASCII or text file for computing the International Roughness Index (IRI) in inches per mile.
4. The current version of *ROADRUF*, *ProVal*, or other Department approved pavement profile analysis software is used to compute the IRI.

C. Procedure. Perform the following steps:

1. Operate the IPS according to AASHTO R 57 and ASTM E 950.
2. On a daily basis before data collection, check the equipment and operating system for operational stability and calibration. Perform necessary calibration procedures according to equipment manufacturer's procedures and applicable standards. Operators shall maintain a log documenting the calibration history.
3. Ensure that the operators of the IPS have completed a profile training course, such as NHI Course 131100, have been trained specifically on the IPS they will be operating, and are proficient in the operation of the IPS.
4. Make provisions to automatically start and stop the IPS recording at the beginning and end of testing.
5 Ensure retroreflective traffic striping tape or other approved mechanism is placed at the beginning and end of each direction of travel for automatically triggering the start and stop of profile measurements.
6. Collect at least 0.05-mile of data before the area to be tested to allow the system to stabilize before profile measurements are obtained. Collect data in a continuous run through the length to be tested. If the run is interrupted, discard the results and re-run the length.
7 Test the full extent of each wheel path of each lane in the longitudinal direction of travel. The wheel path is defined as being located approximately 3 feet on each side of the centerline of the lane and extending for the full length of the lane. Lanes are defined by striping.
8 Run three tests each wheel path and report average of three runs each wheel path.
9. Exclude locations where the traffic striping includes turn lanes that cause the through traffic lane to cross over a longitudinally paved joint, ramps, and lanes such as acceleration and deceleration lanes of less than 1,000 feet of continuous through treatment.
10 Report single IRI value average of 3 runs unless otherwise directed. The single IRI value shall be each 0.01 mile length for each lane, ramp, and shoulder and 0.005 mile for each overlaid bridge structure.

FHWA ATTACHMENT NO. 1

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

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

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

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

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

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

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

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

II. NONDISCRIMINATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

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

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

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

1. Minimum wages

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

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

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

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

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

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

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

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

will notify the contracting officer within the 30-day period that additional time is necessary.

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

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

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

2. Withholding

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

3. Payrolls and basic records

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

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

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

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

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

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

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

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

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

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

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

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

b. Trainees (programs of the USDOL).

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

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

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

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

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

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

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

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

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

10. Certification of eligibility.

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

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

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

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

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

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

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

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

VI. SUBLETTING OR ASSIGNING THE CONTRACT

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

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

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

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

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

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

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

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

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

VII. SAFETY: ACCIDENT PREVENTION

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

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

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

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

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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

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

18 U.S.C. 1020 reads as follows:

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

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

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

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

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

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

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

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

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

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

1**. Instructions for Certification – First Tier Participants:**

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

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

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

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

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

* * * * *

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

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

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

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

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

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

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

2. **Instructions for Certification - Lower Tier Participants:**

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

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

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

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

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

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

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

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

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

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

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

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

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

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

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

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

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

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

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

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

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

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

FHWA ATTACHMENT NO. 2

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these Specifications:
   a. Covered area means the geographical area in which the Project is located.
   b. Director means Director, Office of Federal Contract Compliance Programs, United States Department of Labor or any person to whom the Director delegates authority.
   c. Employer identification number means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, US Treasury Department Form 941.
   d. Minority includes:
      (1) Black (a person having origins in any of the black African racial groups not of Hispanic origin);
      (2) Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race);
      (3) Asian and Pacific Islander (a person having originals in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (4) American Indian or Alaskan Native (a person having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participating or community identification).
2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. The Contractor shall implement the specific affirmative action standards provided in paragraphs 6a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction Contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
4. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minorities or women shall excuse the Contractor's obligations under these Specifications, Executive Order 111246, or the regulations promulgated pursuant thereto.
5. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the US Department of Labor.
6. The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foreman, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment with specific attention to minority or female individual working at such sites or in such facilities.

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

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

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

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the source compiles under 6b above.

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

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

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

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

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

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

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

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

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

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

7. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (6a through p). The efforts of a Contractor association, joint contractor union, Contractor-Community, or other similar group of which the Contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 6A through p of these Specifications provided that the Contractor actively participates in the group, make every effort to assure that the group has a positive impact on the employment of minorities and females in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, make a good faith effort to meet its individual goals and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

8. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women both minority and nonminority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

9. The Contractor shall not use the goals or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

10. The Contractor shall not enter any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

11. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspensions, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246 as amended.

12. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 6 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the

Contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

13. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (such as mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

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

15. 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.

FHWA ATTACHMENT NO. 3

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The goals for minority and female participation, in the covered area, expressed in percentage terms for the Contractor's aggregate work force in each trade, on all construction work are as shown on Page 2.

   These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

   The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4. (3) a, and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

2. The Contractor will provide the Department with written notification in triplicate within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification will list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

3. As used in this Notice and in the Contract resulting from this solicitation the covered area is the county or counties in which the Project is located.

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

WORK HOUR GOALS IN EACH TRADE FOR MINORITY AND FEMALE PARTICIPATION

COUNTY	MINORITY PARTICIPATION PERCENT	FEMALE PARTICIPATION PERCENT
Atlantic	18.2	6.9
Bergen	15	6.9
Burlington	17.3	6.9
Camden	17.3	6.9
Cape May	14.5	6.9
Cumberland	16	6.9
Essex	17.3	6.9
Gloucester	17.3	6.9
Hudson	12.8	6.9
Hunterdon	17	6.9
Mercer	16.4	6.9
Middlesex	15	6.9
Monmouth	9.5	6.9
Morris	17.3	6.9
Ocean	17	6.9
Passaic	12.9	6.9
Salem	12.3	6.9
Somerset	17.3	6.9
Sussex	17	6.9
Union	17.3	6.9
Warren	1.6	6.9

FHWA ATTACHMENT NO. 4

STATE OF NEW JERSEY EQUAL EMPLOYMENT OPPORTUNITY FOR CONTRACTS FUNDED BY FHWA

The parties to this Agreement do hereby agree that the provisions of N.J.S.A. 10:2-1 through 10:2-4 and N.J.S.A. 10:5-31 et seq (PL 1975, c 127, 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 them.

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

a. 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 or sex. The Contractor will take affirmative action to ensure that such 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 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. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Division of Civil Rights/Affirmative Action setting forth provisions of this nondiscrimination clause;

b. 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 or sex;

c. 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 Division of Civil Rights/Affirmative Action, 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.

d. In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates;

e. No contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;

f. There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of $50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and

g. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

The notices referred to in paragraphs a and c may be obtained at the preconstruction conference.

FHWA ATTACHMENT NO. 5

DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION ATTACHMENT
FHWA FUNDED CONTRACTS

I UTILIZATION OF DISADVANTAGED BUSINESSES AS CONTRACTORS, MATERIAL SUPPLIERS AND EQUIPMENT LESSORS.

The New Jersey Department of Transportation (NJDOT) 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 the notification of the applicable federal agency, may result in termination of the agreement or contract by the Department or such remedy as the Department deems appropriate. Requirements set forth in this section shall also be physically included in all subcontracts in accordance with USDOT requirements.

II POLICY

It is the policy of NJDOT that Disadvantaged Business Enterprises, as defined in 49 CFR, Part 26; Titles I & V of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA); the Transportation Equity Act for the 21st Century (TEA-21); and Section V, Part B below, shall have equal opportunity to participate in the performance of contracts financed in whole or in part with federal funds under this agreement. Consequently, the DBE requirements of 49 CFR, Part 26, Subsections A, C and F apply to this agreement.

III CONTRACTOR'S DBE OBLIGATION

The NJDOT and its Contractor agree that Disadvantaged Business Enterprises, as defined in 49 CFR Part 26, Subpart A; and in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21), and Section V, Part B below, have equal opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds provided under this agreement. In this regard, the NJDOT and all Contractors shall take all necessary and reasonable steps in accordance with 49 CFR, Part 26 to ensure that Disadvantaged Businesses are given equal opportunity to compete for and to perform on NJDOT federally funded contracts. The NJDOT and its Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of USDOT assisted contracts.

IV COMPLIANCE

To signify and affirm compliance with the provisions of this attachment, the bidder shall complete the Schedule of DBE Participation (Form CR-266F) included in the bid package 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 GOALS FOR THIS PROJECT

A. This Project includes a goal of awarding 8 percent of the total contract value to subcontractors, equipment lessors and/or material suppliers that qualify as Disadvantaged Business Enterprises (DBEs).

   1. Failure to meet the minimum goal placed on this project, or to provide a "good faith effort" to meet the minimum goal, may be grounds for rejection of the bid as being non-responsive.

   2. As a source of information only, a Disadvantaged Business Enterprise Directory is available from the Division of Civil Rights and Affirmative Action. Use of this listing does not relieve the Contractor of their responsibility to seek out other DBE's not listed, prior to bid. If a contractor proposes to use a DBE contractor not listed in the DBE Directory, the proposed DBE firm must submit a completed certification application to the Division of Civil Rights and Affirmative Action, fifteen (15) days prior to bid date.

B. DEFINITIONS

1. Disadvantaged Business Enterprise is a firm, “Owned and controlled” by socially and economically disadvantaged individuals that is also a small business concern, as defined pursuant to Section 3 of the Small Business Act and Small Business Administration Regulations (13 CFR, Part 121) which also does not exceed the revenue cap on averaged annual gross receipts applicable to the firm’s particular Standard Industrial Classification (SIC Code).

2. Owned and Controlled is defined as a firm which is at least fifty-one (51%) percent owned by one or more disadvantaged individuals, or in the case of a publicly owned business, at least fifty-one (51%) percent of the stock is owned by one or more disadvantaged individuals, and whose management and daily business operations are controlled by one or more such individuals.

3. Any individual in one of the following groups who is also a U.S. Citizen or lawfully admitted permanent resident presumed to be socially and economically disadvantaged under the DBE Program.
   (a) Black Americans – includes any persons having origins in any of the black racial groups of Africa;
   (b) Hispanic Americans - includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture; or origin, regardless of race;
   (c) Native American - includes persons who are American Indians, Eskimos, Aleuts or Native Hawaiians;
   (d) Asian-Pacific Americans - includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau) the Commonwealth of the Northern Mariana Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, Federated States of Micronesia or Hong Kong;
   (e) Subcontinent Asian Americans - includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
   (f) Women - regardless of race;
   (g) Other - Any additional groups whose members are designated as socially and economically disadvantaged by the Small Business Administration, at such time as the SBA designation becomes effective; or a determination made by the NJDOT’s Division of Civil Rights and Affirmative Action, on a case-by-case basis;

VI COUNTING DBE PARTICIPATION

A. Each DBE is subject to a certification procedure to ensure its DBE eligibility status prior to award of contract. In order to facilitate this process it is advisable for the bidder to furnish the names of proposed DBE’s to the Department fifteen (15) days before bid opening. Once a firm is determined to be a bona fide DBE by the Division of Civil Rights and Affirmative Action, the total dollar value of the contract awarded to the DBE is counted toward the applicable DBE goal.

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

C. If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own workforce, or the DBE 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 the prime Contractor is a certified DBE, payments made to the Contractor for work performed by the Contractor will be applied toward the DBE goal. Payments made to the Contractor for work performed by non-DBE's will not be applied toward the goal.

E. The prime Contractor may count 60 percent of its expenditures to DBE suppliers who are not Manufacturers, provided that the DBE supplier performs a commercially useful function in the supply process. The contractor may count 100% of its expenditure to DBE suppliers who are also manufacturers. Manufacturers receive 100% credit toward the DBE goal.

F. When a DBE subcontractor sublets part of the work of its contract to another firm, the value of the subcontract work may be counted towards the DBE goals only if the subcontractor itself is a DBE. Work that a DBE subcontractor subcontracts to a non-DBE firm, does not count toward DBE goals.

VII GOOD FAITH EFFORT

To demonstrate sufficient reasonable efforts to meet the DBE contract goals, a bidder shall document the steps it has taken to obtain DBE participation, including but not limited to the following:

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

B. Advertisement in general circulation media, trade association publications, as well as minority-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 DBE's that their interest in the contract is solicited;

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

E. Efforts made to negotiate with DBE's for specific sub-bids including at a minimum:
   1. The names, addresses and telephone numbers of DBE's that were contacted;
   2. A description of the information provided to DBE's regarding the plans and Specifications for portions of the work to be performed; and
   3. A statement of why additional agreements with DBE's were not reached;

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

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

NOTE: If the Division of Civil Rights and Affirmative Action determines that the apparent successful low bidder has failed to meet the requirements of this section, the bidder will be afforded the opportunity for administrative consideration prior to the award or rejection of the contract. As part of the administrative reconsideration process, 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 goal or make adequate good faith efforts to do so. The result of the reconsideration process is not administratively appealable to the USDOT.

VIII AFFIRMATIVE ACTION PLANS

A. General contractors are required to submit their firm's Affirmative Action Program annually to the Division of Civil Rights and Affirmative Action. Until such time as these programs are submitted and approved, Contractors must have their programs in the Division of Civil Rights and Affirmative Action no later than seven (7) State business days after the date of receipt of bids.

B. This program will include, but is not limited to the following:
   1. The name of the Contractor's D/ESBE Liaison Officer to administer the firm's Disadvantaged Business Program.

2. An explanation of the affirmative action methods used in seeking out and considering Disadvantaged Business Enterprises as subcontractors, material suppliers or equipment lessors.
3. An explanation of affirmative action methods intended to be used in seeking out and considering Disadvantaged Business Enterprises as subcontractors, material suppliers or equipment lessors. This refers to the Contractor's ongoing responsibility, i.e., Disadvantaged Business Enterprise/Affirmative Action activities after the award of the contract and for the duration of said project.

C. The following shall be submitted either with the bid or to the Division of Civil Rights and Affirmative Action no later than seven (7) State business days after the date of receipt of bids.
1. DBE Form CR-266F- Schedule of DBE Participation. List all DBE's participating in the contract listing the scope of work, dollar value and percent of total contract to be performed.
2. Supplement to DBE Form CR-266F - A list of all subcontractors who submitted bids or quotes on this project.
3. Request for Exemption - In the event that the bidder fails to meet the specified goal, they must submit within seven State business days of the bid, a written request for exemption to the goal. This request must include a written statement addressing Items A through G in Article VII of this attachment in addition to an accounting of the reason(s) why each items in the bid proposal was not subcontracted. Submittal of such request does not imply Departmental approval. An assessment of the material will be conducted by the Department's Division of Civil Rights and Affirmative Action.

IX AFFIRMATIVE ACTION 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:

1. To notify the RE, in writing, of the type and approximate value of the work which the Contractor intends to accomplish by such subcontract, purchase order or lease.
2. To signify and affirm compliance with the provisions of this Section, the Contractor shall submit the Post-Award DBE Certification Form to the Regional Supervising Engineer with his application to sublet or prior to purchasing material or leasing equipment. Post Award DBE forms may be obtained from the RE.
3. To give disadvantaged firms equal consideration with non-minority firms in negotiation for any subcontracts, purchase orders or leases.
4. If a prime contractor fails to meet its original DBE obligation, they must request an exemption to the goal following criteria in Section VIII (C)(4) and provide a good faith effort thereof. This request must include a written statement addressing each of the Good Faith Efforts outlined in Section VII, A-G.

X CONSENT BY DEPARTMENT TO SUBLETTING

The Department will not approve any subcontract proposed by the Contractor unless and until said Contractor has complied with the terms of this attachment.

XI SELECTION AND RETENTION OF SUBCONTRACTORS

A. The Contractor is further obligated to provide the RE with a listing of firms, organizations or enterprises solicited and those utilized as subcontractors on the proposed project. Such listing shall clearly delineate which firms are classified as disadvantaged.

B. Efforts made to identify and retain a Disadvantaged Business Enterprise as a substitution subcontractor when the arrangements with the original DBE proved unsuccessful, shall be submitted in writing to the Department's D/ESBE Liaison Officer for approval. Work in the category concerned shall not begin until such approval is granted in writing.

C. Notification of a subcontractor's termination will be sent to the Department by the Contractor through the RE. Said termination notice will include the subcontractor's ethnic classification and reason for termination.

XII CONCILIATION

In cases of alleged discrimination regarding these DBE provisions and guidelines, an investigation will be undertaken by the Federal Office of Contract Compliance in conjunction with the Division of Civil Rights and Affirmative Action of the New Jersey Department of Transportation and the Federal Highway Administration.

XIII DOCUMENTATION

A. The Department or the federal funding agencies may at any time require such information as is deemed necessary in the judgment of the Department to ascertain the compliance of any bidder or contractor with the terms of these provisions.

B. Record and Reports.

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

1. The names of disadvantaged 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 the work of the prime contractor on the project.
3. The actual dollar value of work subcontracted and awarded to DBE's.
4. The progress being made and efforts taken in seeking out and utilizing Disadvantaged Business Enterprises. 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 Disadvantaged Business Enterprises on this project.
6. Records of all DBE's and non-DBEs who have submitted quotes/bids to the Contractor on the project.

C. Submit reports, as required by the Department, on those contracts and other business transactions executed with Disadvantaged Business Enterprises in such form and manner as may be prescribed by the Department.

D. 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 NON-COMPLIANCE

Failure by the bidder to comply with the Specifications may result in rejection of the bid. The Contractor may further be declared ineligible for future Department contracts.

FHWA ATTACHMENT NO. 5 (A)

INCENTIVE PROGRAM DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION ATTACHMENT FOR FHWA FUNDED CONTRACTS

I PURPOSE.

To ensure that certified Disadvantaged Business Enterprises (DBE's), as defined in 49 CFR Part 26, have the maximum opportunity to compete for and perform on Department construction projects.

II INTENT.

To encourage prime contractors to utilize the services of DBE's who have not previously been prime contractors or subcontractors on Department projects, and afford DBE's the opportunity to again experience in Department construction contract work.

III ELIGIBILITY.

Only prime contractors and DBE's certified prior to the date of bid, or prospective DBE's that have submitted to the Division of Civil Rights/Affirmative Action on or before the day of bid a completed "New Jersey Department of Transportation Disadvantaged Business Enterprise Disclosure Affidavit" (PR-131) and all required documentation and have never been either prime contractor or subcontractor on Department construction projects will be eligible for participation in this program. A list of those eligible DBE's will be available from the Division of Civil Rights/Affirmative Action. Any bidder who submits the name of a certified first-time DBE as part of its goal commitment is also eligible. Any DBE participating in the program must submit to the prime contractor a certification that they have never been either a prime contractor or subcontractor on a Department construction project under their present name or any other name. The prime contractor shall submit this certification with their required DBE submission.

IV INCENTIVE.

Prime contractors utilizing first-time DBE's will be given a credit toward their goal percentage identified in companion document "*Disadvantaged Business Enterprise Utilization Attachment For FHWA Funded Contracts*", dated September 1987, revised January 1989, September 1992 and May 1995, equal to the actual dollar amount subcontracted to a first time DBE with the total project credit limited to two percent (2%) of the total bid price but not to exceed $200,000. This extra credit will reduce the goal percentage award as well as be applicable to the reduced goal percentage.

V PROGRAM REQUIREMENTS.

A. A prime contractor may present any number of first time DBE's for each project. Credit will be given only for the actual amount subcontracted up to the limits established in IV above.

B. The prime contractor shall be responsible for the entire DBE goal percentage established for the project.

C. Failure to use a first time DBE shall cause the original goal award percentage prior to applying first time DBE credits to remain in effect.

D. Failure to meet the goal award percentage, coupled with a lack of good faith effort as determined by the Division of Civil Rights/Affirmative Action, will be considered to be non-compliance on the part of the prime contractor who may be placed in show cause and subsequently be grounds for rejection of the bid as nonresponsive.

FHWA ATTACHMENT NO.6

EQUAL EMPLOYMENT OPPORTUNITY SPECIAL PROVISIONS

1. General

   a. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375 are set forth in Required Contract Provisions (Form FHWA-1273) and these Special Provisions which are imposed pursuant to Section 140 of Title 23 USC, as established by Section 22 of the Federal Aid Highway Act of 1968. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for project activities under this contract and supplement the Equal Employment Opportunity requirements set forth in the Required Contract Provisions.

   b. The Contractor will work with the State agencies and the Federal Government in carrying out Equal Employment Opportunity obligations and in their review of activities under the contract.

   c. The Contractor and all subcontractors holding subcontracts, not including material suppliers, of $10,000 or more, will comply with the following minimum specific requirement activities of Equal Employment Opportunity. The Contractor will include these requirements in every subcontract of $10,000 or more with such modification of language as is necessary to make them binding on the subcontractor. (The equal employment opportunity requirements of Executive Order 11246, as set forth in Volume 6, Chapter 4, Section 1, Subsection 1 of the Federal-Aid Highway Program Manual, are applicable to material suppliers as well as contractors and subcontractors).

   d. 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.

2. Equal Employment Opportunity Policy

   The Contractor will accept as its operating policy the following statement which is designed to further the provisions of equal employment opportunity to all persons without regard to their race, color, religion, sex, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program:

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

3. Equal Employment Opportunity Officer

   The Contractor will designate and make known to the Department contracting officers an equal opportunity officer (hereinafter referred to as the EEO Officer) who will have the capability, authority and responsibility to effectively implement and promote an active contractor program of equal employment opportunity.

4. Dissemination of Policy

   a. All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommended such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the Contractor's equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To ensure compliance, the following minimum actions will be taken:

(1) An initial project site meeting with key supervisory and office personnel will be conducted before or at the start of work, and then not less than once every 6 months, at which time the Contractor's equal employment opportunity program will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.
(2) All new supervisory and office personnel will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official covering all major aspects of the Contractor's equal employment opportunity obligations within 30 days following their reporting for duty with the Contractor.
(3) All personnel engaged in direct recruitment for the project will be instructed by the EEO Officer or appropriate company official concerning the Contractor's procedures for locating and hiring minority and female employees.

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 the Contractor's equal employment opportunity policy will be placed in areas 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, and/or other appropriate means.

5. Recruitment

a. When advertising for employees, the Contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer". All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force 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 female applicants, including, but not limited to, State employment agencies, schools, colleges and minority-oriented organizations. To meet this requirement, the Contractor will, through his EEO Officer, identify sources of potential minority and female employees, and establish procedures with such sources whereby applicants may be referred to the Contractor for employment consideration.

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 the equal employment opportunity contract provisions. (The US Department of Labor has held that where implementation of such agreements have the effect of discriminating against minorities or females, or obligates the Contractor to do the same, such implementation violates Executive Order 11246, as amended).

c. The Contractor will encourage his present employees to refer minority and female applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures pertaining to the referral of applicants will be discussed with employees.

6. Personnel Actions

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

a. The Contractor will conduct a project site inspection at the start of work, and periodically thereafter, to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

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

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

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

7. Training Special Provisions

As part of the Contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The Contractor shall provide on-the-job training aimed at developing full journey people in the type of craft or job classification involved.

The number of training positions will be__11__, where feasible, consisting of at least__3__ APPRENTICES and __8__TRAINEES. TRAINEE HOURS=__6,610___.

Apprentices are defined as registered members of an approved apprenticeship program recognized by the United States Department of Labor (USDOL) Bureau of Apprenticeship and Training (BAT) or a New Jersey State apprenticeship agency recognized by USDOL BAT (e.g., New Jersey Department of Education). Graduates of the Pre-Apprenticeship Training Cooperative Program shall be classified as apprentices. Trainees are defined as skilled, semi-skilled or lower level management individuals receiving training per one of the approved NJDOT "Revised Standard Training Guidelines" (available from the Division of Civil Rights).

Where feasible, at least 50% of the training positions will be assigned to Skilled Crafts which include but are not limited to Carpenters, Dockbuilders, Electricians, Ironworkers and Operating Engineers.

a. Contractor Submission and NJDOT Approval of the Initial Training Program.

At or after the preconstruction conference and prior to the start of work, the Contractor shall submit a training program to the RE for his or her review and comments prior to Division of Civil Rights review and approval. The Contractor's training program shall include:
(1) the number of trainees or apprentices to be trained in all selected Training Positions,
(2) the Standard Program Hours for all positions,
(3) an estimate of the Minimum Available Hours actually feasible on the project toward completion of the Standard Program Hours per position,
(4) a training schedule of Estimated Start Dates for the apprentices or trainees, developed and coordinated with the project's work progress schedule,
(5) Training Guidelines for all positions, and
(6) which training will be provided by the Contractor and which by Subcontractors.

The number of apprentices and trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeypeople in the various crafts within a reasonable area of recruitment. The Contractor shall submit timely, revised training programs as required throughout the project to ensure that feasible and Maximum Available Training is provided. Maximum Available Training is defined as bringing each apprentice or trainee onto the project when work first becomes available in his/her craft and providing all available training until hours are no longer available.

b. Assignment of Training to Subcontractors

In the event that portions of the contract work are subcontracted, the Contractor shall determine how many, if any, of the apprentices or trainees are to be trained by subcontractors, provided,

however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by these Training Special Provisions. The Contractor shall also ensure that these Training Special Provisions are made applicable to such subcontracts.

c. Requirements for Recruitment, Selection and Approval of Apprentices and Trainees
   (1) Apprentices or trainees should be in their first year of apprenticeship or training. The Contractor shall interview and screen trainee candidates to determine if their actual work experience is equivalent to or exceeds that offered by the training program prior to submitting candidates, via the RE, to the Division for review and approval or disapproval.
   (2) Training and upgrading of minorities (e.g., Blacks, Asians or Pacific Islanders, Native Americans or Alaskan Natives, Hispanics) and females toward journeyperson status is a primary objective of these Training Special Provisions. Accordingly, the Contractor shall make every effort to enroll minorities and females, by conducting systematic and direct recruitment through public and private sources likely to yield minority and female apprentices or trainees, to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.
   (3) No employee shall be employed as an apprentice or trainee in any position in which he or she has successfully completed a training course leading to journeyperson status or in which he or she has been employed as a journeyperson. The Contractor shall satisfy this requirement by including appropriate questions in the employment application or by other suitable means and by submitting an accurate and complete “Apprentice/Trainee Approval Memorandum.” (Form CR-1) Regardless of the methods used, the Contractor’s records should document the findings in each case.
   (4) Skilled craft trainees may complete up to 3,000 total training hours on NJDOT projects, with an extension of an additional 1,000 hours permitted on a case-by-case basis. Semi-skilled and lower-level management trainees attain journeyperson status upon completion of a training guideline and may complete up to three (3) different positions.

d. Apprenticeship and Training Programs
   (1) The minimum length and type of training for each position will be established in the training program selected by the Contractor and approved by NJDOT and the Federal Highway Administration. NJDOT will approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average apprentice or trainee for journeyperson status in the craft concerned by the end of the training period.
   (2) Apprenticeship programs registered with the US Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by USDOL BAT and training programs approved but not necessarily sponsored by the US Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided such programs are being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the NJDOT Division of Civil Rights prior to commencing work on the positions covered by the Contractor’s training program. The Division will review guidelines developed by the Contractor for approval or disapproval in accordance with the Training Guideline Approval Process described in the “Revised Standard Training Guidelines”. The Division will also review existing guidelines for revision based on the same process.
   (3) It is the intention of these provisions that training be provided in construction crafts rather than clerk-typist or secretarial-type positions. Training is permitted in lower level management positions (e.g., timekeepers), where the training is oriented toward project site applications. Training in semi-skilled laborer positions is permitted provided that significant and meaningful training is available on the project site. Some offsite, classroom training (e.g., safety, first aid instruction) may be permitted as long as such training is an integral part of an approved training program and does not comprise a significant part of the overall training.

e. Reimbursement of the Contractor for Providing Training

(1) The Contractor will be credited for each apprentice or trainee employed on the construction site who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such apprentices or trainees as provided hereinafter. Payment will be made under the pay item Trainees at the bid price in the Proposal per person-hour of training given an employee on this contract in accordance with an approved training program. If approved, payment will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other sources do not specifically prohibit the Contractor from receiving other reimbursement. Offsite, classroom training reimbursement may only be made to the Contractor when the company does one or more of the following and the apprentices or trainees are concurrently employed on a Federal-aid project: contributes to the cost of the training and/or provides instruction to apprentices or trainees or pays their wages during the offsite, classroom training (e.g., safety, first aid instruction) period.

(2) The Contractor shall pay apprentices and trainees according to the project-specific New Jersey Department of Labor & Workforce Development Prevailing Wage Rate Determination for the project.

f. Documentation Required to be Signed by Apprentices or Trainees and provided to NJDOT

(1) At the start of training, the Contractor shall provide the RE and each apprentice or trainee with an applicable “Training Guideline” and, at the conclusion of training, an accurate and complete “Training Certificate for Reporting Hours to NJDOT” (Form CR-3), showing hours of training satisfactorily completed.

(2) The Contractor shall maintain and submit an accurate and complete “NJDOT Contractor’s 1409 Quarterly Training Report” (Form-CR-1409) to the RE within ten (10) days of the end of each training quarter (e.g., January 10, April 10, July 10, October 10); a copy shall also be given to each apprentice or trainee.

(3) The Contractor shall maintain and submit accurate and complete “Biweekly Training Reports” (Form CR-2) to the RE, and each apprentice or trainee, as periodic reports documenting performance under these Training Special Provisions.

g. Training and Promotion

(1) The Contractor shall assist in locating, qualifying, and increasing the skills of minority and female employees, and applicants for employment.

(2) The Contractor shall advise employees and applicants for employment of available training programs and entrance requirements.

(3) The Contractor shall periodically review the training and promotion potential of minority and female employees and encourage eligible employees to apply for such training and promotion.

h. Determining Good Faith Compliance

(1) Per the approved program or guideline, the Contractor shall provide Maximum Available Training to apprentices and trainees by beginning their training as soon as feasible with the start of craft work utilizing the skill involved on the project construction site and by retaining them as long as training opportunities exist in their crafts or until their training program positions are completed.

(2) The Contractor shall recall apprentices or trainees released due to reductions in force when the work scope permits and they are available to return. When they are unavailable to resume training on the project site, the Contractor shall submit written proof of recall efforts and replacement candidates and/or positions in a timely manner. The Contractor shall not terminate apprentices or trainees prior to completion of their training program positions without NJDOT consultation and authorization. Apprentices or trainees are not required to be on board for the entire length of the contract.

(3) The Contractor shall have fulfilled the contractual responsibilities under these Training Special Provisions if the company has provided Acceptable Training to the number of apprentices or trainees specified in this contract and/or by providing the remaining hours required to complete training positions begun by apprentices or trainees on other projects. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

(4) The Contractor shall be responsible for demonstrating all steps that have been taken in pursuance of enrolling minorities and females in the training program positions, prior to a determination as to whether the Contractor is in compliance with these Training Special Provisions.
(5) The Contractor shall submit to the RE written training program summaries at the 50% time and/or cost stage of the contract and also prior to project completion, describing all good faith actions and particularly addressing Maximum Available Training for incomplete training positions, per the procedure found in the revised "Instructions for Implementing the Training Special Provisions".

i. Enforcement Measures and Contractor's Rating
(1) Payment will not be made if either the failure to provide the required training or the failure to hire the apprentice or trainee as a journeyperson is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of these Training Special Provisions.
(2) Per established procedures and scheduled Contract Compliance Reviews, the Contractor's performance will be rated and reviewed periodically by the Department.
(3) Noncompliance with these Training Special Provisions 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, per Item 1d of these EEO Special Provisions.

8. Unions

If the Contractor relies in whole or in part upon unions as a source of employees, the Contractor will make maximum effort to obtain the cooperation of such unions to increase opportunities for minorities and females within the unions, and to effect such union referrals to the construction project. Actions by the Contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The Contractor will use maximum effort to develop, in cooperation with the unions, joint training programs aimed at qualifying more minorities and females for union membership and increasing their skills in order to qualify for higher paying employment.

b. The Contractor will use maximum effort to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, or national origin.

c. The Contractor will obtain information concerning the referral practices and policies of the labor unions except that to the extent such information is within the exclusive possession of the labor unions and they refuse to furnish this information to the Contractor, the Contractor shall so certify to the Department and shall set forth what efforts have been made to obtain this information.

d. In the event the unions are unable to provide the Contractor with a reasonable flow of minority and female referrals within the time limit set forth in the collective bargaining agreement, the Contractor will through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, or national origin, making full efforts to obtain qualified and/or qualifiable minorities and females. (The US Department of Labor has held that it shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees). In the event the union referral practice prevents the Contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such Contractor shall immediately notify the Department.

9. Subcontracting

a. The Contractor will use maximum effort to solicit bids from and to utilize minority subcontractors or subcontractors with meaningful minority and female representation among their employees. Contractors may use lists of minority-owned construction firms as issued by the Department.

b. The Contractor will use maximum effort to ensure subcontractor compliance with the equal employment opportunity obligations.

10. Documents and Reports

a. The Contractor will maintain such documents as are necessary to determine compliance with the contract's equal employment opportunity requirements. Documents will include the following:
   (1) the number of minorities, non-minorities, and females 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 females (applicable only to Contractors who rely in whole or in part on unions as a source of their work force).
   (3) the progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and
   (4) the progress and efforts being made in securing the services of minority and female subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. All such documents must be retained for a period of 3 years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Department and the Federal Highway Administration.

c. 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 CC257 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. Submission of this form also satisfies the requirement of the form FHWA 1391.

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 Report may impact the contractor's prequalification rating with the Department.

FHWA ATTACHMENT NO.7

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 shall include but not be limited to interviewing the complainant, the respondent, and all possible witnesses to the alleged act or acts of discrimination or sexual harassment.
2. Prepare and keep for its use and file a detailed written investigative 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 Department all other records, including but not limited to, interview memos and statements.
3. Upon the request of the Department, provides to the Department within ten (10) calendar days a copy of its detailed written investigative report and all other records on the complaint investigation and resolution.
4. Take appropriate disciplinary action against any contractor employee, official or agent who has committed acts of discrimination or sexual harassment against any contractor employee or person working on the project. If the person committing the discrimination is a subcontractor employee, then the contractor is required to attempt to effectuate corrective and/or disciplinary action by the subcontractor in order to establish compliance with project's contract requirements.
5. Take appropriate disciplinary action against any contractor employee, official or agent who retaliates, coerces or intimidates any complaint and/or person who provides information or assistance to any investigation of complaints of discrimination or sexual harassment. If the person retaliating, coercing or intimidating a complainant or other person assisting an investigation is a subcontractor's employee, then the contractor is required to attempt to effectuate corrective and/or disciplinary action by the subcontractor in order to establish compliance with the 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.

In conjunction with the above requirements, the contractor shall develop and post a written sexual harassment policy for its work force.

Failure by the contractor 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.

June 2014
April 2012
August 2011
November 2009
Interim Revision - March 2009
January 2007