SPECIFICATIONS

FOR

REPLACEMENT OF LOCUST DRIVE CULVERT NEAR TULIP STREET (SU105), CITY OF SUMMIT COUNTY OF UNION, NEW JERSEY

BA#39-2017; UNION COUNTY ENGINEERING PROJECT #2010-005C

AUGUST 2017

UNION COUNTY OFFICIALS
BOARD OF CHOSEN FREEHOLDERS

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Sergio Granados, Vice Chairman
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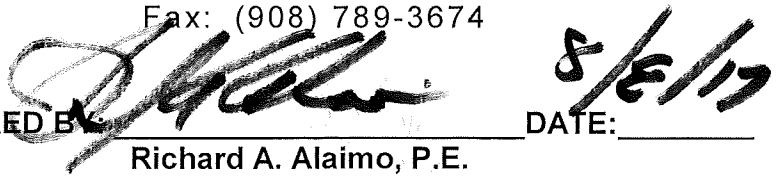
Alfred J. Faella

DEPARTMENT OF ENGINEERING, PUBLIC WORKS AND FACILITIES MANAGEMENT
Joseph A. Graziano, Sr., CPWM
Director, Department of Engineering, Public Works and Facilities Management

COUNTY ENGINEER
DIVISION OF ENGINEERING
Thomas O. Mineo, P.E.
2325 South Avenue
Scotch Plains, New Jersey 07076
Telephone: (908) 789-3675
Fax: (908) 789-3674



PREPARED BY: _____ DATE: 8/2/17

Richard A. Alaimo, P.E.
N.J. Professional Engineer
License No. 13195

Alaimo Group
200 High Street
Mount Holly, New Jersey 08060

COUNTY OF UNION
NOTICE TO BIDDERS

Sealed bids will be received by the director of the Division of Purchasing, or her designee, at the County of Union, New Jersey on September 13, 2017 at 10:30 a.m., prevailing time, in the 3rd Floor Conference Room, U.C. Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey for:

REPLACEMENT OF LOCUST DRIVE CULVERT NEAR TULIP STREET (SU105)
CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY
BA#39-2017; UNION COUNTY ENGINEERING PROJECT #2010-005C

Bid Packages may be obtained at no charge by registering and downloading at http://ucnj.org/bid-specs. Bid Packages may also be obtained in person from the Division of Engineering at 2325 South Avenue, Scotch Plains, New Jersey 07076 between 8:30 a.m. and 4:00 p.m. weekdays upon payment of a non-refundable money order or bank check in the amount of $275.00 made payable to the County of Union. No Personal / Company checks will be accepted. Requests for mailing of specifications will not be honored. For further information please call 908-789-3675.

The County reserves the right to reject any and all bids and to waive any and all informalities in the bid.

Bids shall be submitted in a sealed envelope and clearly marked with the subject of the bid, name and address of the bidder, phone & fax number, and date of the bid opening. Each bid must be delivered to reach the Division of Purchasing prior to the stated time of the opening of the bids. The County will not be responsible for late delivery by the U.S. Mail or any other carrier. If hand delivered, please note that parking and security access at the County Complex may cause delays and bidders should take them into consideration in order to submit a timely bid. **No** late bids will be accepted.

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.S.A.C. 17:27.

LAURA M. SCUTARI, QPA, MPA, DIRECTOR OF PURCHASING

UNION COUNTY BOARD
OF CHOSEN FREEHOLDERS

We're Connected to You!

REPLACEMENT OF LOCUST DRIVE CULVERT NEAR TULIP STREET (SU105)
CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY
BA#39-2017; Union County Engineering Project #2010-005C

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UNION COUNTY BOARD OF CHOSEN FREEHOLDERS
INSTRUCTIONS TO BIDDERS AND FORMS

DEFINITIONS

Wherever reference is made to the County, Title of Project, Bidder, or Vendor/Contractor they shall be as follows:

OWNER/COUNTY:
Union County Board of Chosen Freeholders
UC Administration Building, 6th Floor
10 Elizabethtown Plaza
Elizabeth, New Jersey 07207

ADDRESS BIDS AND SUBMIT TO:
Union County Division of Purchasing
UC Administration Building, 3rd Floor
10 Elizabethtown Plaza
Elizabeth, NJ 07207
Attn: Laura M. Scutari, QPA, MPA, Director, Division of Purchasing
Telephone: 908-527-4130
Facsimile: 908-558-2548

TITLE OF PROJECT: Replacement of Locust Drive Culvert Near Tulip Street (Su105)
City of Summit, County of Union, New Jersey
BA#39-2017; Union County Engineering Project #2010-005C

BIDDER: Bidder shall be a single overall contract bidder

ENGINEER: Richard A. Alaimo Engineering Company
200 High Street
Mount Holly, New Jersey 08060

COUNTY ENGINEER AND/OR CONSTRUCTION MANAGER (as applicable):

COUNTY ENGINEER:
Thomas O. Mineo, P.E.
Union County
Division of Engineering
2325 South Avenue
Scotch Plains, NJ 07076
Office: (908) 789-3675
Facsimile: (908) 789-3674
Email: tmineo@ucnj.org

CONSTRUCTION MANAGER:

GENERAL SPECIFICATIONS

1. BID FORM

Bids for this Work will be enclosed in a sealed envelope addressed to the Purchasing Division, County of Union, New Jersey, Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207, with the full name of the Project clearly marked on the outside. Refer to the sheet marked "Notice of Bid (Advertisement)" for the correct name of the Project. Bidders must submit their bids on the attached pricing sheet (Bid Form), in a sealed envelope addressed to the County and bearing on the outside: the name of the Bidder, Bidder's business address, and the title of the Project.

The Division of Purchasing will receive the bids for this Work at the Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey on the date and time noted on the sheet marked "**Notice of Bid (Advertisement)**".

The County will not assume responsibility for bids forwarded by mail. It is the individual's responsibility to see that the bids are presented to the Purchasing Division at the time and at the place designated.

Bids will be accepted only on the Bid Form supplied. Bids on forms other than the original supplied herein will be rejected. The "complete" Bid Documents includes the Bid Bond, Bid Form, Bidder's Checklist, Consent of Surety, Ownership Disclosure Certification, Non-Collusion Affidavit, and any other documents noted in these Instructions to Bidders or Contract Document to be submitted with this Bid.

The bidder will state in the bidding sheet the price per unit of measure for each scheduled Item of Work for which he will agree to carry out the Work, and the Total Bid Price for the construction of the Project.

The prices in the Bid Form shall be typed or written in pen and ink. Erasures or alterations must be initialed by the bidder in ink.

The bidding sheet for this Project may include a fixed amount as a Bid Allowance. If applicable, all bidders are required to add this fixed amount to their base bid and to include this additional amount in their Bid Bond. This sum will be included in the Contract as well as the performance, labor and materials bond. Payment by the County will be made to the Contractor from these funds only upon the completion of extra Work pursuant to a written Change Order(s) signed by the County's Engineer or his designee and the Contractor, prior to the commencement of such Work. Work commenced prior to written approval by the County shall be done at Contactor's risk. Such payment will only be in the amount agreed to by the parties, in writing in the Change Order(s). See Section 37, Change Orders, of these general specifications for further details.

Refer to Bid Document Submission Checklist for all required documents.

In the event there is a discrepancy between the unit price given and the extended total, the unit price will govern. Any discrepancies will be mathematically adjusted.

Insert applicable alternates, if any have been specified, applicable to the Bidder's Work. All alternates MUST be bid upon. Any Bidder's failure to do so will be deemed a material, non-waivable defect and shall render the bid nonresponsive. The Bidder shall clearly designate whether the change in price is an addition or subtraction, by using either a "+" sign or the word "addition", or in the alternative, a "-"sign or the word "minus". If there is no other change in price, the Bidder shall insert "NC" or "No Charge".

When two or more low bids are equal in all respects, awards will be made according to the provisions of N.J.S.A. 40A:11-6.1(d).

Where unit prices have already been established by the Contract Documents, the Bidder agrees that such unit prices shall prevail. All unit prices, whether filled in by the Bidder or established by the Contract Documents, shall become part of the Contract. No bid will be considered or award made, unless applicable unit prices, as required, are filled in.

The County reserves the right to reject any or all bids and also reserves the right to waive any informality in the bids received so long as said waiver is not of a response which is considered to be material and non-waivable pursuant to law.

The County of Union has the right to reject any and all bids from any bidder that is in, or contemplates bankruptcy of any chapter of nature. Said bidder shall notify the County, in writing, of any condition or knowledge of the same.

Conditional bids will not be accepted. Bids may be withdrawn prior to the advertised time for the opening of bids or authorized postponement thereof or in accordance with the provisions of N.J.S.A. 40A:11-23.3 discussed below. Bids received after the advertised time shall not be considered. Bidders shall be solely responsible for premature opening or late delivery of bids not properly marked, addressed, or directed.

2. WITHDRAWAL OF BID DUE TO MISTAKE

N.J.S.A. 40A:11-23.3 authorizes a bidder to request withdrawal of a public works bid due to a mistake on the part of the bidder. A mistake is defined by N.J.S.A. 40A:11-2(42) as a clerical error that is an **unintentional and substantial computational error** or **an unintentional omission of a substantial quantity of labor, material, or both, from the final bid computation.**

A bidder claiming a mistake under N.J.S.A. 40A:11-23.3 must submit a request for withdrawal, **in writing,** by certified or registered mail to Michael M. Yuska, QPA,

Director, Division of Purchasing, County of Union, New Jersey, Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207. The bidder must request withdrawal of a bid due to a mistake, as defined by the law, within five business days after the receipt and opening of the bids. Since the bid withdrawal request shall be effective as of the postmark of the certified or registered mailing, Michael M. Yuska, QPA, Director of the Division of Purchasing or his designee may contact all bidders, after bids are opened, to ascertain if any bidders wish to, or already have exercised a request to withdraw their bid pursuant to N.J.S.A. 40A:11-23.3.

A bidder's request to withdraw the bid **shall** contain evidence, including any pertinent documents, demonstrating that a mistake was made. Such documents and relevant written information shall be reviewed and evaluated by the County's designated staff pursuant to the statutory criteria of N.J.S.A. 40A:11-23.3.

The County will not consider any written request for a bid withdrawal for a mistake, as defined by N.J.S.A. 40A:11-2(42), by a bidder in the preparation of a bid proposal unless the postmark of the certified or registered mailing is within the five business days following the opening of bids.

3. QUALIFICATIONS OF BIDDERS AND REQUIRED SUBMISSIONS

The County may make such investigation as it deems necessary to determine the ability of the Bidders to perform the Work, which includes investigation of any and all subcontractors listed with the bid. The Bidder shall furnish any information and data for this purpose as the County may request.

4. INTERPRETATIONS AND ADDENDA

Any explanation desired by a bidder regarding the meaning or interpretation of the Contract Documents must be requested in writing to the County Engineer or Design Professional as the case may be and with reasonable time allowed for a reply to reach bidders before submission of their bids. Any interpretation or instruction made by the County Engineer will be in the form of an addendum to the Contract Documents or clarification and will be furnished to all prospective bidders. Oral explanations or instructions given before the award of the Contract will not be binding. Bidders are required to bring to the attention of the County Engineer, the discovery of any apparent ambiguity, inconsistency, error, discrepancy, omission in the Contract Documents for interpretation and correction at least ten (10) working days before opening of bids with the exception of Saturdays, Sundays and holidays.

All Addenda issued through the Offices of the County Engineer are amendments to the Contract Documents and shall be considered in preparing bids. Same shall become part of the Contract Documents.

Addenda take precedence over all earlier documents and over each other according to the latest date. Addenda unless themselves interpretive remain subject to interpretation the same as any other document incorporated in the Contract.

Addenda may be issued by the County Engineer up to seven (7) working days prior to the opening of bids. Failure of any bidder to receive an addendum shall not relieve such bidder from the obligation imposed by such addendum. Bidders are to keep themselves currently acquainted with the Contract Documents during the entire bidding period and make inquiry on their own initiative as to issuance of any Addenda. Receipts of all Addenda shall be acknowledged on the "*Acknowledgement of Receipt of Changes*" included in the bid package and must be submitted with the bid.

5. OBLIGATION OF BIDDER TO INSPECT SITE AND CONTRACT DOCUMENTS

At the time of the opening of bids, each Bidder will be presumed to have inspected the site(s) and to have read, and be thoroughly familiar with the Contract Documents. The failure or neglect of any Bidder to receive or examine any form, instrument, or document shall in no way relieve any Bidder from any obligation in respect to its bid.

The Bidder shall examine the contents of the Project Manual and the set of Drawings and assure itself that all pages of the Specifications, Drawings, and other Contract Documents are included in the documents obtained for bidding purposes. Should the Specifications, Drawings, and other Contract Documents be incomplete, the Bidder shall notify the County Engineer in writing, who will supply the Bidder with any missing pages of Specifications, Drawings, or other Contract Documents. The lack of such written notification by the Bidder will be construed as evidence that the Specifications, Drawings, or other Contract Documents supplied it for bidding purposes are full and complete and as a waiver of any subsequent claim to the contrary.

6. BID AND PERFORMANCE GUARANTEE

Each bidder must furnish a Bid Bond, Certified Check or Bank Cashier's Check in the amount of ten percent (10%) of the Bid. Checks shall be drawn to the order of the County of Union, New Jersey, not to exceed $20,000.

Each bidder must furnish with the bid a certificate from a Surety Company, i.e. Consent of Surety, stating that in the event of the contract being awarded to said bidder, such Surety Company will provide the Contractor with Bonds guaranteeing the faithful performance of the Work in accordance with the plans and specifications, and the payment for labor, materials, and all other indebtedness which may accrue on the account of this Work. A Performance, Labor and Materials bond will be furnished by the Contractor upon an award of Contract, and will be in the amount of 100% of the contract price.

A one-year Maintenance Bond will be required upon acceptance of the Project by the County in the amount as stated in Section 15 of the General Specifications. Bonds will be written by a firm authorized to issue the bonds under the laws of the State of New Jersey and be in a form acceptable to the County Counsel.

N.J.S.A. 40A:11-1.1 et. seq. allows the prime Contractor to furnish the Performance Security for his Subcontractors. The County of Union requires Performance Security to be furnished by the prime contractor for the entire job in the total amount of the contract.

The County of Union shall award the contract or reject all bids within sixty (60) days; except that the bids of any bidders who consent thereto may, at the request of the County be held for consideration for such longer periods as may be agreed.

The County will return all certified checks or cashier's checks after the proposals have been opened, read, tabulated and checked except those of the three (3) bidders who have bid the lowest total price for carrying out the Project. The County will return the checks of these bidders when a contract is awarded to the successful bidder within ten (10) days after the award of the contract.

If the successful bidder refuses or neglects to sign the said Agreement and furnish the required bonds, the Bid Bond will be held and used by the County to offset any damages for such refusal or neglect.

7. COMMENCEMENT AND COMPLETION

Work will not commence until a Notice to Proceed is received from the County Engineer.

Upon substantial completion of the Project, the Contractor must request a joint inspection with the County Engineer. Upon completion of this inspection, the County Engineer will prepare a list of incomplete or incorrect items (punch list) and have Contractor initial and date same. The Contractor shall rectify all deficiencies noted on the punch list within 30 calendar days of receipt of the list. The County Engineer may approve extensions for extenuating circumstances.

8. BIDDER AFFIDAVIT

All Bidders are required to complete, sign, and submit with their Bid, the attached "Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders". (See form enclosed)

9. BID SECURITY

All Bidders are required to submit a form of Bid Security with their bids.
(Bid Bond or Certified Funds)

The Bid Security shall be in the amount of ten percent (10%) of the Bid, but not in excess of Twenty Thousand Dollars ($20,000.00), and payable to the order of the "County of Union."

10. LABOR AND MATERIALS

The prices will cover all costs of any nature incident to and growing out of the Work, including all labor, material, equipment, transportation, loss by damage or destruction of the Project, settlement of damages, and for replacement of defective work or materials. N.J.S.A. 54:32B-1 et seq. exempts all materials sold to the County of Union from sales or use taxes and should not be included in the prices provided on the Bidding Sheet.

11. INSURANCE REQUIREMENTS

The County of Union requires all contractors to be able to comply with the following insurance requirements. In the event a bid is accepted by the County, the contractor must accept the applicable insurance requirements, as set forth below, as part of any contract awarded to it by the County.

Contractor shall carry and maintain at all times while the contract is in full force and effect, the following insurance coverage with an insurance company or companies acceptable to the County, with limits not less than those shown below. A Certificate of Insurance shall be filed with the County prior to commencement of any Work indicating the following:

a) Commercial General Liability (CGL): Coverage for all operations including, but not limited to, contractual, products and completed operations, and personal injury with limits no less than $5,000,000 per occurrence/$10,000,000 aggregate. The County of Union, its Board of Chosen Freeholders, officers, employees, agents and servants shall be included as an additional insured. Coverage is provided on a primary and non-contributory basis to the County of Union, et al.

b) Automobile Liability: Coverage for all owned, non-owned and hired vehicles with limits not less than $5,000,000 per occurrence, combined single limits (CSL) or its equivalent.

c) Workers Compensation: As required by the State of New Jersey and Employers Liability with limits not less than $1,000,000 per accident for bodily injury or disease.

d) Professional Liability (if design/build): Coverage with limits not less than $1,000,000 per occurrence or claim, $2,000,000 aggregate

e) Contractor's Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors & Omissions (if project involves environmental hazards): Coverage with limits no less than $1,000,000 per occurrence or claim/$2,000,000 aggregate.

f) Builders Risk (for major renovations): During the course of construction utilizing an "All Risk" coverage form with limits equal to the completed value of the project and no coinsurance penalty provisions.

Where applicable, a waiver of subrogation in favor of the County of Union, its Board of Chosen Freeholders, officers, employees, agents, servants and the State of New Jersey is to be included in those policies of insurance where permitted by law.

Notice of Cancellation: Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the Entity.

Special Risks or Circumstances: The County reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

12. INDEMNIFICATION REQUIREMENTS

The County of Union requires all bidders to accept the following indemnification requirements in the event the County accepts their bid. The Contract awarded by the County to the successful bidder will contain the following provision:

> "To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the owner and the owner's consultants, agents, representatives, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys' fees, legal costs and legal expenses arising out of or resulting from the performance of the Contractor's work under this contract, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of the Contractor, anyone directly or indirectly employed or retained by the Contractor, or anyone for whose acts the Contractor may be liable regardless of whether caused in part by the negligent act or omission of a party indemnified hereunder provided it is not caused by the sole negligence of a party indemnified hereunder. Contractor shall further indemnify and hold harmless the County and the County's consultants, agents, representative, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys' fees, legal costs and legal expenses, arising out of or resulting from performance of the work, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of

the County or the County's consultants, agents, representatives, or employees and arises out of this project and provided such claim, damage, loss, cost, or expense is not caused by the sole negligence of a party indemnified hereunder."

13. ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall hold the County harmless from loss on account thereof.

14. PLANS AND SPECIFICATIONS

In carrying out the Work, the plan(s) and the specifications will be followed by the Contractor. Minor alterations in the plan may be made or permitted by the County Engineer from time to time and, if no additional Work is necessary, there will be no additional charge for carrying out such minor alterations.

The Contractor shall provide the County Engineer a set of reproducible as-built drawings upon completion of the Project. The Contractor shall maintain an updated construction progress plan in the Project field office at all times.

When applicable, The New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, as amended, and Supplemental Specifications for State Aid Projects, herein after referred to as the "Standard Specifications", are made a part of these specifications and contract for the improvements, and will govern the construction of this Project, the material used and the execution of this Project, except as revised and modified herein. The references to these specifications are given herein for the purpose of aiding in the rapid location of the description of the various items herein specified. The entire Work must be carried on and completed to the satisfaction of the County. The Standard Specifications are amended as follows:

"Any reference to the Commissioner, Department, Department Laboratory, Engineer or Inspector should be redefined to be the County of Union".

15. GUARANTEE AGAINST DEFECTIVE WORK

Prior to final payment being made or before the release of the performance security required by Section 3 above, the Contractor and Surety shall execute and deliver to the County an original Maintenance Bond with an original signature and seal having a penal sum equal to:

A) One hundred percent (100%) of the final adjusted Contract amount, if such amount is $50,000.00 or less;

B) Fifty percent (50%) of the final adjusted Contract amount, if such amount be greater than $50,000.00 but less than $250,000.00; and,

C) Twenty-five percent (25%) of the final adjusted contract amount, if such amount is $250,000.00 or more.

The Bond and Surety shall be satisfactory to the Union County Counsel. The Surety shall hold a Certificate of Authorization to do business in the State of New Jersey and shall conform to P.L. 1995 c.384, codified as N.J.S.A. 2A:44-143, 144. The Surety Disclosure Statement and Certification required by N.J.S.A. 2A: 44-143, 144, shall be attached to the Bond. Such Maintenance Bond shall remain in full force and effect for a period of one (1) year from the date of Final Completion. Such Maintenance Bond shall also provide that the Contractor and the Surety guarantee to replace for the said period of one (1) year from the date of Final Completion, all Work performed and/or all materials furnished that were not performed or were not furnished in accordance to the terms and performance requirements of the Contract Documents, and will make good any defects thereof which become apparent before the expiration of one (1) year. If, during that period, any part of the Project, in the judgment of the Engineer, is found defective, the Contractor will repair or replace same within five (5) days of receipt of notice from the County Engineer. If the Contractor refuses or neglects to do such Work in the time specified, the County Engineer may have the Work done by others and the Contractor or his Surety thereof will pay the cost.

The Contractor will furnish the County a Maintenance Bond for a percentage of the final adjusted contract price, as stated above. The one (1) year period will start the day of Final Completion of Project by the County. Final payment is conditional on the receipt of a maintenance bond in a form acceptable to County Counsel.

16. TRAFFIC AND STREET MAINTENANCE

The Work must be started and performed by the Contractor in such a manner as to minimize delays to the traveling public. It must be completed in a timely fashion, with little or no inconvenience to traffic and pedestrians, where such inconvenience may be avoided.

All municipal, county, and state roadways shall remain open to traffic unless otherwise provided for in the technical specifications.

If modified traffic patterns are authorized in order to provide a safe working or traveling environment, the Contractor is responsible for providing all equipment, barrels, cones, signs, and barricades to implement the work zone and detours, unless otherwise specified in the technical specifications. All work zones and detours shall be established in accordance with the technical plans and specifications if provided or in strict compliance with the current version of the Manual for Uniform Traffic Control Devices (MUTCD). The Contractor shall obtain approval for these work zones and

detour plans from the Municipal Police or applicable police agency and the Union County Bureau of Traffic Maintenance prior to implementation.

All traffic control plans shall provide for safe movement of vehicular, bicycle, and pedestrian traffic. Particular attention shall be given to requirements of the Americans with Disabilities Act.

No portion of any street or alleyway may be used for the storage of any materials or equipment without the approval of the Municipal Police or other applicable police agency. Sidewalks, gutters, drains, fire hydrants and private drives shall be maintained for their intended use unless specifically approved by the County Engineer.

Upon suspension of Work, at the end of the day or for protracted periods, the Contractor shall remove all rubbish and materials from the Work site to the approved storage/staging location. All road cuts, saw cuts, and trenches that may pose hazard to vehicular, pedestrian, or bicycle traffic, to include handicapped users, shall be filled to the surface of the roadway or sidewalk. At no time will steel plates or settled trenches be allowed at the daily suspension of Work, unless specifically approved by the County Engineer.

Use of Traffic Control Officers shall be determined by the County in accordance with the provisions of N.J.S.A. 40A:11-23.1(c). If applicable to the Project, the County shall have provided an allowance for same as set forth in the Bid Form.

With respect to pedestrian traffic, the Contractor shall install signs restricting access of the general public and, as necessary, Union County employees to the area of construction. The Contractor shall provide safe access to required areas and place physical barriers to restricted areas. These barriers may range from caution tape to actual barriers, at the direction of the County Engineer.

17. CONTRACTOR'S EMPLOYEES

The Contractor must employ only suitable and competent labor in the Work, and must remove from the Work any incompetent, unsuitable, or disorderly person upon complaint from the County Engineer.

The parties to any contract resulting from this proposal do hereby agree that the provisions of N.J.S.A. 10:2-1 through 10:2-4 (discrimination in employment on public works contracts): 34:11-56.25 et seq. (payment of prevailing rate of wages determined pursuant to N.J.S.A. 34:11-56.30 by the Commissioner), and the Rules and Regulations promulgated pursuant thereto, are hereby made a part of any contract and are binding upon them.

There will be no discrimination against any employee who is employed in the Work to be covered by any contract resulting from this bid because of age, race, creed, color, national origin, ancestry, marital status or sex.

Any person, firm, or corporation violating the provisions of this Section will be deemed and judged a disorderly person.

18. OWNERSHIP DISCLOSURES REQUIRED

Pursuant to P.L. 1977, N.J.S.A. 52:25-24.2, the Bidder shall submit with its Bid, or prior to receipt of bids, a statement setting forth the names and addresses of all stockholders in the corporation or partnership bidding who own ten percent (10%) or greater interest therein. (See forms attached)

19. NON-COLLUSION AFFIDAVIT

The Bidder shall submit with its bid either the attached completed "Non-Collusion Affidavit" or a statement of non-collusion with verbiage similar to same.

20. EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCES

The successful bidder shall be required to complete and submit an Initial Project Workforce Report, New Jersey Department of Treasury Form AA-201, upon notification of award. Failure to submit this completed form may result in the Contract being terminated.

The successful bidder shall also be required to submit a copy of its Monthly Project Workforce Report, New Jersey Department of Treasury Form AA-202, to the New Jersey Department of Treasury's Division of Public Contracts Equal Employment Opportunity Compliance and to the Board.

21. COMPLIANCE WITH NEW JERSEY PREVAILING WAGE ACT

The County of Union, in order to fulfill the requirements of N.J.S.A. 34:11-56a.25 et seq, requires that the following additional conditions be strictly followed. The bidders represent that he is not listed or is not on record in the Office of the Commissioner or the Department of Labor and Industry as one who failed to pay prevailing wages in accordance with the provisions of this Act. The bidder agrees to the inclusion of a contract provision upon award which specifically requires said Contractor to fully comply with each and all of the requirements of the aforesaid Act as it relates to prevailing rates of wages on public contracts as set forth in the New Jersey Prevailing Wage Act, P.L. 1963, Chapter 150 and P.L. 1974, Chapter 64.

A Copy of the Prevailing Wage Rates is attached for your reference. Applicable rates are those wages and fringe benefit rates in effect on the date the contract is awarded. All predetermined rate increases listed at the time the contract award must also be paid, beginning on the dates specified. Rates may change between the time of issuance of this determination and the award of the public works contract. Therefore, prior to the award of the contract, verification must be made with the Public Contracts section, to insure that the rates contained in this determination are still prevailing.

The Contractor agrees to abide and be bound by each and all of the said statutory provisions with respect to the payment of prevailing rates of wages, and acknowledges that the County reserves the right to terminate the Contractor's (or his subcontractors') right to proceed with the scope of Work, or such portion thereof that relates to the failure to pay prevailing rates of wages. In such event or under the terms of N.J.S.A. 34:11-56.27, the Contractor and his surety will be liable to the County of Union for any excess costs occasioned by such a violation.

The Contractor or subcontractors for this Project will post the Prevailing Wage Rates for each craft and classification involved as determined by the Commissioner of Labor and Industry, including the effective date of any changes thereof, in prominent and easily accessible places at the site of the Work or at such place or places as are used by them to pay workmen their wages.

The County of Union requires a copy of payroll records from the Contractor and subcontractors. Payroll records shall be submitted with each voucher request for payment. Prevailing wage rates may be obtained from the New Jersey Labor, Division of Workplace Standards, Public Contracts Section, (609-292-2259).

In addition to compliance with the New Jersey Prevailing Wage Act, the County requires compliance with procedures established by Resolution No. 2014-0408 adopted by the Union County Board of Chosen Freeholders on May 8, 2014. The resolution is furnished in Section 51 of these General Specifications.

UNION LABOR IS PREFERRED ON ALL COUNTY WORK

The foregoing reference to specific laws will not be deemed to be a limitation of obligation of the Contractor to perform his obligations in full compliance with the provisions and requirements of all federal and state statues and local ordinances applicable to the Work to be done under the contract.

It is agreed and understood that any contracts and/or orders placed as a result of this proposal will be governed and construed and the rights and obligations of the parties hereto will be determined in accordance with the laws of the State of New Jersey.

Upon completion of the Work, the Contractor will furnish a Certification of Compliance with the New Jersey Prevailing Wage Act. The certificate in a form acceptable to County Counsel is a condition of the final payment. (See form attached)

22. BRAND NAME OR EQUAL

When the Specifications, Forms, and other Contract Documents use "brand name or equivalent" or similar language, the listed brand name shall serve as a reference or point of comparison for the functional or operational characteristic desired for the goods or services being requested. Where a bidder attempts to submit an equivalent product for a brand name, it shall be the responsibility of the bidder to fully describe and document the product to be provided with the bid in order to establish the equivalence claim.

A. If the Bidder proposes to offer substitute goods as an equal to those specified herein, the bidder shall so indicate with the Bid Proposal. For the purposes of this paragraph, a proposed item shall be considered equal to goods specified herein if:

1. The County, in its sole discretion, determines that: (i) the goods conform substantially, even with deviations, to the brand name goods specified herein; (ii) the goods are equal to or greater than the brand name goods specified herein in terms of quality, durability, functionality, appearance, strength and design; (iii) the goods are capable, at least as well as the brand name goods specified herein, or performing with existing equipment; and (iv) the goods do not cost the County more than the brand name goods specified herein costs the County.

B. To offer substitute goods as an equal to those specified herein, it is necessary that:

1. The Bidder submits sufficient information with its bid to permit the County to determine that the goods are equivalent to the brand name goods specified herein, including, but not necessarily limited to the brand, catalog number and specifications/data sheets;

2. The Bidder fully identifies and describes the variations of the goods from the brand name goods specified herein on a separate sheet that is to be submitted with the bid proposal. Bidder's literature WILL NOT suffice in explaining exceptions to these specifications.

3. The Bidder certifies that the goods (i) are similar in substance to the brand name goods specified, and (ii) are suited to the same use as the item specified;

C. The County shall be allowed a reasonable time within which to evaluate the Bidder's proposal to offer substitute goods as an equal to those specified herein. The County shall be the sole judge of acceptability. No "or-equal" goods shall be ordered, delivered, assembled, set-up or utilized until the County's evaluation is complete. The County's determination as to equivalency shall be deemed final and absolute.

In the event the Bidder does not provide sufficient supporting documentation with the bid, it will be presumed and required that the brand name goods and services as described in the specifications will be provided.

23. LINES AND GRADES

Normally, horizontal and vertical control points will be provided in the technical specifications. All other surveying will be the responsibility of the Contractor unless otherwise noted.

24. NUMBER OF WORKING DAYS

In accordance with NJSA 40A:11-17, the Work for the within Project shall be completed as specified on the Time of Completion Form. See form attached

There shall be taken a deduction from the contract price, or any wages paid by the County, to any inspector(s) necessarily employed by it on the Work, for any number of days in excess of the number allowed in the specifications.

25. PROMPT PAYMENT OF CONSTRUCTION CONTRACTS (NJ Prompt Payment Act)

Pursuant to NJSA 2A:30A-1 et. seq., payment to the Contractor, other than for Work done pursuant to a contact allowance, where applicable, shall be processed and paid as follows:

1. All contractor bills shall be either approved for payment, or notice provided as to why the bill or any portion of it will not be approved by the representative(s) of the governing body no later than the public meeting following 20 calendar days of the billing date as defined in the statute.

2. If the billing is approved, said bill shall be paid in the payment cycle following the meeting.

26. STOPPING WORK ON ACCOUNT OF BAD WEATHER

Work must only be performed in weather suitable for the type of construction planned or underway. Extremes in temperature, humidity, precipitation, evaporation, etc. can detrimentally affect the constructed product. Refer to the Standard and Technical Specifications for specific items.

27. ACCESS FOR OTHER CONTRACTORS

The Contractor for this Work will give proper access to other contractors who may be employed upon the Project and must not hinder or delay unnecessarily any Work that may be progressing under other contracts.

28. CONDEMNED MATERIALS AND WORK

Any materials and or part of the Work that may be condemned by the County Engineer will be removed and replaced by the Contractor or otherwise rectified, as may be directed by the County Engineer. No payment will be made upon the Work until such faulty work has been made good as may be directed. In the event the Contractor refuses or neglects to make good such faulty work, he will be deemed to have abandoned the contract and proceedings may be taken against him as provided herein.

29. STORAGE

In the event that it is necessary for the Contractor to stockpile or store materials or equipment on the job site, the Contractor shall inform the County of such necessity and the County may offer available space, if any, for storage of such materials or equipment. The Contractor shall use said space only for such purpose. Any and all materials which may be stored in such space or which may be brought onto the job site at any time by the Contractor will be at the Contractor's sole risk. The County will not be responsible for loss of or damage to said materials or equipment for any cause whatsoever. The Contractor shall take necessary measures to protect any such storage area and shall be responsible for any and all damages.

30. FINAL CLEAN UP

Upon completion of the Work, the Contractor will remove all equipment, unused materials, rubbish, etc., and will repair, or replace in an a manner acceptable to the County Engineer, all areas that may have been damaged in the prosecution of the Work. Same shall be a condition precedent to final payment. Should said Contractor

fail to comply with this requirement, the County shall undertake the clean-up with its own forces and charge the cost of same against the Contractor's contract balance.

31. SUB-LETTING OF WORK

Except for the List of Subcontractors, pursuant to NJSA 40A:11-16 (See form attached), no portion of the Work will be sublet by the Contractor to any other entities, except with the consent of the County Engineer. A complete list of subcontractors must be submitted to the County Engineer at the preconstruction meeting. If the job does not warrant a preconstruction meeting, the Contractor must submit such list prior to the start of Work.

All Subcontractors will be subject to NJSA 34:11-56 et al.

N.J.S.A. 40A:11-16 requires the bidder to list in the bid sheets the name or names of all subcontractors involved in the following types of Work: plumbing and gas fitting and all kindred work, steam and hot water heating, ventilating apparatus, steam power plants and kindred work, electrical work, ornamental iron work, and structural steel. In addition, the County may require the identification of specific additional subcontractors. If these trades are expected to be part of the contract, such subcontractors should be listed on the "Subcontractor Identification Statement List of Subcontractors" and Bidder shall certify same on the accompanying sheet titled "Subcontractor Identification Certification". (See forms attached) **Bidder's failure to submit these two forms shall be considered a material defect and result in rejection of Bidder's bid.** Substitutions of any listed subcontractors pursuant to NJSA 40A:11-16 will not be permitted except with the consent of the County Engineer.

32. SAFETY

The Contractor shall observe all rules and regulations of the Federal, State, and local health officials. Attention is directed to Federal, State, and local laws, rules, and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to the worker's health or safety.

The Contractor shall admit to the site, without delay and without the presentation of an inspection warrant, any inspector of OSHA or other legally responsible agency involved in safety and health administration upon presentation of proper credentials.

The Contractor shall make available to the Contractor's employees, subcontractors, the County Engineer, and the public, all information pursuant to OSHA 29 CFR Part 1926.59 of The Hazard Communication Standard 29 CFR 1910.1200, and shall also maintain a file on each job site containing all Material Safety Data Sheets (MSDS) for products in use at the Project. These Material Safety Data Sheets shall be made available to the Engineer upon request.

The Contractor shall at all times conduct the Work to provide for the safety and convenience of the general public and protection of persons and property. The safety provisions of applicable laws, OSHA regulations, building and construction codes, and the rules and regulations of the New Jersey Department of Labor and Commerce shall be observed.

33. QUALITY, SAFETY AND PERFORMANCE STANDARDS

All goods and services must be constructed and provided with the highest quality materials and workmanship. It is the intent of these specifications that only equipment equal to, or exceeding, the standard specified will be acceptable in order to protect the safety of the occupants of the Building.

34. MATTERS NOT MENTIONED IN CONTRACT DOCUMENTS

Any Work, material, or method, not specifically described in these specifications, but shown upon the plans of the Work, will be carried out as shown on said plan.

35. PERMITS

The Contractor will obtain all necessary permits required by law and provide the County with necessary approvals prior to commencement of permitted Work.

36. CONTRACTOR TO PROVIDE PROOF OF PAYMENT

Upon the completion of the Work, the Contractor will furnish a General Release as proof that all claims for labor, materials, etc., have been settled by the Contractor. The General Release, in a form acceptable to County Counsel, is a condition of final payment.

37. CHANGE ORDERS

Change Order Procedures shall comply with *N.J.A.C.* 5:30-11.1 *et seq.*, "Change Orders and Open End Contracts" and subsequent provisions of the New Jersey Administrative Code.

38. SUPPLEMENTAL WORK

In case any supplemental work is necessary, it will be performed by the Contractor at a price fixed by agreement between the Contractor and the County Engineer and approved by the County as specified in Section 36. The Contractor will do no supplemental work on any character, for which the Contractor will demand pay, except upon the written order of the County.

39. FORM OF CONTRACT

The Contract will be subject to all statutory provisions on the matter of Public Works, Public Contracts, The Law Against Discrimination, the Laws Governing Affirmative Action and Prevailing Rates of Wages under the laws of New Jersey.

The Agreements shall be executed by both parties not later than twenty-one (21) days from the date of the award by the County (Sundays and holidays excluded); however, such time frame may be extended by agreement of the parties.

40. PROGRESS PAYMENTS

Monthly progress payments will be made based on the value of labor and materials incorporated in the Work and of materials suitably stored at the site. An itemized schedule of values shall be submitted with each Application for Payment.

(Refer to the Owner/Contractor Agreement for Retainage and other conditions pertaining to payment and the application of NJSA 2A:30A-1 et. seq.)

All Applications for Payment shall be accompanied by paid invoices for materials incorporated in the Work and for materials suitably stored at the site, and affidavit(s) by Subcontractors whose Work was included in the next to the last application to the effect such Work and such materials have been paid for.

No payment shall be made without Contractor having provided all submittals set forth in this Section, and the approval of same by the County.

For contracts exceeding $100,000.00, monthly payments will be made on the Work to the extent of 98% of the value of the Work done which is considered to be retainage.

For contracts less than $100,000.00, monthly payments will be on the Work to the extent of 90% of the value of the Work done. In lieu of the retainage, the Contractor will, at his option, deposit with the County Counsel negotiable bearer bonds of the State of New Jersey or any political subdivision thereof, equal to the amount otherwise withheld as retainage.

When the Project is completed, the final cost of the Project will be based on actual quantities of authorized Work done under each item scheduled in the bidding sheet and approved Change Orders, if any. The money due to the Contractor as determined by said final certificate after deduction of previous monthly payments on account, will be paid to the Contractor in accordance with the terms of the contract dealing with Prompt Payment, providing, however that before such final payment is made, all outstanding claims against the Contractor must be satisfied. Before final

payment is released, the Contractor must furnish: a**)** Maintenance Bond (see Section 6 of these general specifications); **b)** Certification of Compliance, New Jersey Prevailing Wage Act (see Sections 21 and 51); and **c)** General Release (see Section 36) in a form satisfactory to County Counsel; **d)** complete set of as-built plans in the latest AutoCad on compact disc; and e) a complete set of in-progress photos in jpg, jpeg, or bmp digital format on a compact disc.

41. INSPECTION

The Work must be done in accordance with the plans and specifications, and will be inspected by the County Engineer. An inspector may be placed upon the Work at any time by the County Engineer to see that the plans, specifications, and instructions of the County Engineer are carried out. In connection herewith, bidders are referred to N.J.S.A. 40A:11-17.

42. DAMAGES

The Contractor will be held responsible for all damages that may occur to Work, or to persons or property by reason of the nature of the Work or from the elements, or by reason of inadequate protection of the Work, or from any carelessness or negligence on his part or on the part of his employees. The County will withhold payments on the Work until all suits or claims for damages sustained on, or by reason of, this Work will have been settled by the Contractor.

The construction and final completion of this Work will be guaranteed by the Contractor. Any damages that may be done to the Work or any part thereof, by the elements or otherwise, during its construction, will be made good by the Contractor.

43. LIQUIDATED DAMAGES

If the Project is not completed within the time specified herein or within such further time as may have been granted by the County Engineer, then the Contractor hereby agrees to pay to the County as liquidated damages, but not as a penalty, $1,000.00 per day for each and every calendar day that he is in default on time to complete the Work. The said sum will be deducted from moneys due the Contractor and if the damages exceed this amount, then the Contractor or his Surety Company will pay the excess. These damages may be waived at the option of the County.

44. AFFIRMATIVE ACTION REQUIREMENTS

EXHIBIT B
(Revised 4/10)

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127)
N.J.A.C. 17:27

CONSTRUCTION CONTRACTS

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

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, up-grading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. l7:27-7.2; provided, however, that the Division may, in its discretion, exempt a contractor or subcontractor from

compliance with the good faith procedures prescribed by the following provisions, A, B and C, as long as the Division is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Division, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. l7:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

(A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:

(l) To notify the public agency compliance officer, the Division, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;

(3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;

(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and non-discrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

(i) The contactor or subcontractor shall interview the referred minority or women worker.

(ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Division. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Division, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Division.

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

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall

not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Division an initial project workforce report (Form AA 201) electronically provided to the public agency by the Division, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Division and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

(D) The contractor and its subcontractors shall furnish such reports or other documents to the Division of Public Contracts Equal Employment Opportunity Compliance as may be requested by the Division from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Public Contracts Equal Employment Opportunity Compliance for conducting a compliance investigation pursuant to **Subchapter l0 of the Administrative Code (NJAC 17:27).**

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45. INVESTMENT ACTIVITIES IN IRAN

Pursuant to P.L. 2012, c.25, codified as NJSA 2:32-55 *et seq*, prohibits State and local public contracts with persons or entities engaging in certain investment activities in energy or finance sectors of Iran.

46. COMPLIANCE WITH THE PUBLIC WORKS CONTRACTOR REGISTRATION ACT - (NJSA 34:11-56.48 et. seq.)

Pursuant to the above-referenced law, Bidders are required to be registered with the New Jersey Department of Labor and to possess a current certificate by said Department indicating compliance with the Act prior to the time and date that bids are received. Bidders are notified of this requirement of their compliance. Such certificates or applications shall also be provided for each Subcontractor furnishing plumbing and gas fitting, steam and hot water heating and ventilating apparatus, and all kindred work, steam power plants and kindred work, electrical work, structural steel and ornamental iron work, and such other subcontractors as the specifications require relative to prior identification.

47. UTILITIES

Attention of the bidder is directed to the fact that the approximate locations of known utility structures and facilities that may be encountered within and adjacent to the limits of the Work are shown on the plans and described herein. The accuracy and completeness of this information is not guaranteed by the County Engineer and the bidder is advised to ascertain for himself all the facts concerning the location of these and other utilities.

The Contractor will not proceed with his Work until he has made diligent inquiries of all public utility and municipal officials to determine the exact location of all-underground structures and pipes within the site of the Project. The Contractor will notify utility owners not less than ten (10) days in advance of the time he proposes to perform any Work that will endanger or affect their facilities in compliance with **New Jersey One-Call.** In excavating in any part of the Work, care must be taken not to remove or damage any gas, water, sewer, or other pipe, conduit, or structure, - public or private - without the concurrence of the owner and the County Engineer. The Contractor will, at his own expense, shore up, secure and maintain a continuous flow in such structures, and will keep them in repair until final acceptance of the Work.

When pipes or other structures are encountered or when the removal, relocation or protection of these utilities are necessary in carrying out the Project as planned, the Contractor will cooperate with the owner of said utilities and will permit the owners or their agents access to the site of the Work in order to relocate or protect their facilities

and not hinder or delay unnecessarily the Work of the owners in moving same. No extra allowance of payment will be made to the Contractor for the use of any materials, equipment, etc., or for the performance of any Work in connection with the moving of said structures unless the Contractor is specifically ordered by the County Engineer to furnish such materials, equipment, or services. If directed by the County Engineer to do any Work or furnish any materials or equipment, payment will be allowed the Contractor in accordance with the unit prices bid for such Work, or, if such items are not scheduled in the proposal, such Work shall be allowed "Supplemental Work" as provided in Section 39 of these general specifications. The corporations, companies, agencies or municipalities owning or controlling the utilities, and the name, and telephone numbers are listed in the beginning of the Technical Specifications.

48. MATERIAL COMPLIANCE AND SHOP DRAWINGS

The Contractor will require the manufacturer or supplier to furnish three (3) copies of Certification of Compliance with each delivery of materials, components and manufactured items for the Project. Two (2) copies will be furnished to the County Engineer; one copy will be retained by the Contractor. Certificates of Compliance will contain the following information:

1. Project to which material is consigned;
2. Name of the Contractor to which the material is supplied;
3. Kind of material supplied;
4. Quantity of material represented by the Certificate;
5. Means of identifying the consignment, such as label marking, seal number, etc.;
6. Date and method of shipment;
7. That the material is in conformity with the pertinent specifications stated in the certificate; and
8. Signature of a person having legal authority to bind the supplier.

The Contractor will submit to the County Engineer for his approval five (5) copies of complete and fully detailed shop or working drawings for those items listed in the beginning of the technical specifications.

Each drawing will identify the name of the job, location and Contractor.

All drawings will be approved in accordance with the standard specifications. Refer to the Technical Specifications for specific items.

All materials or articles used in the Work will be of American manufacture, insofar as same are available, in conformance with N.J.S.A. 40A:11-18.

49. PRECONSTRUCTION

In order to provide full coordination of this Project among the parties concerned, the County Engineer will arrange for a preconstruction meeting between the Contractor, County Engineer and other interested parties as soon as possible after the contract is executed. At this meeting the Contractor will present his proposed schedule of Work which shall be subject to review and approval of the County through its designated representatives.

50. DISPUTES UNDER THE CONTRACT

A dispute arising under the Contract shall be submitted in writing to the County Engineer with all facts and supporting data. The County Engineer will review the dispute and issue his decision or request additional facts or documentation after which he will render his decision.

In the event the dispute is not then resolved, the matter shall, pursuant to law, be submitted to mediation before being submitted to a court of competent jurisdiction venued in Union County.

The County Engineer will notify the County Counsel when a matter is to be submitted to mediation. The County Counsel will communicate with the parties and inform them of the procedures to be followed in making such a submission.

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51. CONTRACTOR BUSINESS REGISTRATION CERTIFICATE
New Mandatory Requirement -Effective 1/18/2010

The recently enacted **P.L. 2009, c.315**, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each subcontractor must be provided prior to the award of bid. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be

☐ A copy of a Business Registration Certificate issued by the Department of the Treasury, Division of Revenue; or

☐ A copy of the web version provided by the NJ Division of Revenue, or

Register online at http://www.state.nj.us/treasury/revenue/busregcert.htm. Click the "online" link and then select "Register for Tax and Employer Purposes or call the Division at 609-292-1730.

Note: A NJ Certificate of Authority is <u>not</u> acceptable.

FAILURE to submit proof of registration of the bidder or any subcontractor named on the bid prior to the award of contract shall be cause to reject the bid.

FAILURE of the bidder or any subcontractor named on the bid to be <u>registered</u> prior to the receipt of bids is cause for a **MANDATORY REJECTION** of bids. (A NON-WAIVABLE DEFECT). This covers construction Work as well as non-construction bids.

IN ADDITION:

N.J.S.A. 52:32-44 imposes the following requirements on Contractors and all subcontractors that knowingly provide goods or perform services for a Contractor fulfilling this contract:

1) the Contractor shall provide written notice to its subcontractors and suppliers to submit proof of business registration to the Contractor;
2) subcontractors through all tiers of a project must provide written notice to their subcontractors and suppliers to submit proof of business registration and subcontractors shall collect such proofs of business registration and maintain them on file;

3) prior to receipt of final payment from a contracting agency, the Contractor must submit to the contacting agency an accurate list of all subcontractors and suppliers or attest that none was used; and,

4) during the term of this contract, the Contractor and its affiliates shall collect and remit, and shall notify all subcontractors and their affiliates that they must collect and remit, to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act, (*N.J.S.A*. 54:32B-1 *et seq*.) on all sales of tangible personal property delivered into this State.

A Contractor, subcontractor or supplier who fails to provide proof of business registration or provides false business registration information shall be liable to a penalty of $25 for each day of violation, not to exceed $50,000 for each business registration copy not properly provided or maintained under a contract with a contracting agency. Information on the law and its requirements are available by calling (609) 292-9292.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

52. BID PROTEST – LEGAL FEES AND COSTS

In the event a Bidder unsuccessfully challenges a Bid Submission by filing an action in a court of law concerning same, said Bidder shall be responsible for payment of reasonable legal costs and fees incurred by the County relating to said protest.

53. AMERICAN GOODS AND PRODUCTS WHERE POSSIBLE

Bidder shall comply with the requirements of NJSA 40A:11-18 and use only manufactured and farm products of the United States, wherever available, for the Project.

54. NEW JERSEY PAY-TO-PLAY REQUIREMENTS

This Contract is required by law to be publicly advertised for bids. As such, lists of political contributions pursuant to NJSA 19A:44A-1 et. seq. are NOT REQUIRED to be provided with the bids.

55. STATEMENT OF EQUIPMENT TO BE USED IN CONSTRUCTION

Pursuant to NJSA 40A:11-20 entitled Certificate of Bidder Showing Ability to Perform Contract, the County requires a Certification from all bidders submitting a bid showing that the Bidder owns, leases, or controls all necessary equipment required by the Project Plans and Specifications. All bidders shall provide this information at the time of the bid opening using the attached form entitled, “CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT’.

If the Bidder is not the actual owner of the equipment, it shall state the source from which the equipment will be obtained and shall attach a certificate from the owner or person in control of the equipment demonstrating that the equipment owner has granted the Bidder control of the requisite equipment during such time as may be necessary for completion of the portion of the contract for which the equipment is necessary.

56. NEW JERSEY SALES AND USE TAX REQUIREMENTS,

Contractors are required to comply with the following:

New Jersey Sales and Use Tax Requirements: All contractors with subcontractors, or any of their affiliates, who enter into contracts for the provision of goods or services with or for New Jersey local government entities, are required to collect and remit to the New Jersey Director of Taxation in the Department of the Treasury the use tax due on all of their sales of tangible personal property delivered into the State of New Jersey pursuant to the “Sales and Use Tax Act,” (NJSA 54:32B-1 et, seq.),

regardless of whether the tangible personal property is intended for a contract with the contracting agency. This tax shall be remitted for the term of the Contract.

For purposes herein “affiliate” shall mean any entity that: (a) directly, indirectly, or constructively controls another entity, (b) is directly, indirectly, or constructively controlled by another entity, or (c) is subject to the control of a common entity. For purposes of the immediately preceding sentence, an entity controls another entity if it owns, directly or indirectly, more than fifty percent (50%) of the ownership interest in that entity. NJSA 52:32-44(g)(3).

ALFRED J. FAELLA
COUNTY MANAGER

LAURA M. SCUTARI, QPA, MPA
DIRECTOR / DIVISION OF PURCHASING

BID DOCUMENT SUBMISSION CHECKLIST

ALL SIGNATURES AND SEALS SHALL BE ORIGINALS UNLESS OTHERWISE SPECIFIED
BID SHEETS SHOULD NOT BE SUBMITTED DOUBLE SIDED PAGES, (SINGLE SIDE ONLY)

EACH BIDDER SHOULD COMPLETE THIS FORM AND INITIAL EACH ENTRY.
DATE COMPLETED: _____

PLEASE SUBMIT BID DOCUMENTS ON SINGLE SIDED PAPER ONLY, WITH THE EXCEPTION OF THE SURETY AND BID BOND DOCUMENTS.

IN ACCORDANCE WITH THE BID SPECIFICATIONS I HAVE REVIEWED, COMPLETED / EXECUTED AND INCLUDED THE FOLLOWING FORMS:

_____ Bid Form Page **(Signed, Dated and Bid on all alternatives applicable to the Work)**.

_____ Security in the form of:
____ Bid bond in an amount equal to 10% of the total amount of this bid not to exceed $20,000.00; or
____ Certified check or cashier's check in the amount of 10% of this bid not to exceed $20,000.00

_____ Consent of Surety form signed by a Surety Company if the total amount of your Bid is over $36,000.00. If your bid is accepted, the Surety Company that provided the Consent shall be required to furnish a Performance, Labor and Materials Bond in the amount of 100% of the award of the contract. The County of Union has provided its Consent of Surety form for your use. The use of this form by your Surety Company will expedite the bid review process and eliminate the possibility of having your bid rejected. If, however, you should need to use another form, please use language similar to that used on the Union County form and avoid making any additions or deletions to the Union County form language. In lieu of the Consent of Surety you may submit a Certified Check in the full amount of the bid.

_____ STATEMENT OF BIDDER OWNERSHIP. Pursuant to N.J.S.A. 52:25-24.2, which includes **BOTH** of the following documents:

- Bidder Signature Page
- Bidder Disclosure Statement **(Fill out 2 pages completely)**

_____ SUBCONTRACTOR IDENTIFICATION. Pursuant to N.J.S.A. 40A:11-16, which includes **BOTH** of the following documents:

- Subcontractor Identification Statement: List of Subcontractors **(only for certain types of work)**
- Subcontractor Identification Certification

_____ Acknowledgement of Addendum form**: (This form is to be used only when an addendum has been added to the specifications)**.

_____ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate ("BRC")** should be included with the bids as it must be received by the County prior to the award of the contract. The BRC provided must show that the Bidder was registered at the time of receipt of bids or the bid will be rejected.

_____ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate ("BRC")** of all named or listed subcontractors (List of Subcontractors) in a Construction bid should be included with the bid as the BRC(s) must be received by the County prior to the award of the contract. Each subcontractor's certificate provided must show that the subcontractor was registered at the time of the receipt of bids or the bid will be rejected.

_____ Affirmative Action Requirement

_____ Experience Statement

_____ Certificate of Bidder showing ability to perform Contract

_____ Non-Collusion Affidavit – Fill out completely and notarize

_____ Certificates from New Jersey Department of Labor – Public Works Contractor Registration Act. **(Only for certain types of work)**

_____ Federal Attachments **(If applicable)**

_____ NJDPMC Certificate / Notice of Classification **(If applicable)**

_____ Americans with Disabilities Act

_____ Statement of Bidder's Qualifications

_____ Contractor Performance Record

_____ Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders

_____ Prior Negative Experience Questionnaire

_____ Contractor's Certification of Compliance – New Jersey Prevailing Wage Act

_____ Uncompleted Contracts Affidavit **(For Bidder, if applicable) MUST ALSO PROVIDE DPMC FORM 701**

_____ Certificate of Insurance Statement

_____ Collection of Use Tax on Sales to Local Government Statement

_____ Time of Completion

_____ Disclosure of Investment Activities in Iran form

I HAVE TAKEN THE FOLLOWING ACTIONS:

_____ Visited the site and attended the Pre-Bid Meeting **(Where applicable)**

_____ Reviewed the Contract Documents (including any permits the County or its professionals may have obtained), Work, Site, Locality, and Local Conditions and Laws and Regulations that in any manner may affect Cost, Progress, Performance or Furnishing of Work.

_____ Reviewed Bond Requirements

_____ Provided Proof of Compliance with New Jersey Prevailing Wage Act

_____ Reviewed Form of Owner/Contractor Agreement and General Conditions to the Contract

NOTE: QUESTIONS PERTAINING TO THIS BID ARE TO BE DIRECTED TO DIVISION OF ENGINEERING AT 908-789-3675

BIDDING DOCUMENTS

The Bidding Documents consist of the following items:

- **ADDENDA, if issued**
- **CLARIFICATIONS, if issued**
- **INSTRUCTION TO BIDDERS**
- **BID FORM**
- **SPECIFICATIONS: As outlined in the Table of Contents and included in the Project Manual.**
- **DRAWINGS: As per List of Drawings, indicated on the Project Title Sheet.**

Bidder's Name_____

BID FORM

I/We have carefully examined the plans, specifications, and advertisement for bid for the

Replacement of Locust Drive Culvert near Tulip Street (Su105)
City of Summit, County of Union, New Jersey
BA#39-2017; Union County Engineering Project #2010-005C

that is on file in the Union County Division of Engineering. I/We have inspected the site of the work and will contract to do all the work and furnish all materials mentioned in said plans and specifications. Work will be accomplished in the manner prescribed therein.

BASE BID ITEMS:

UNION COUNTY ENGINEERING PROJECT #2010-005C

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED PRICE
ROAD AND BRIDGE PAY ITEMS					
1	FIELD OFFICE, TYPE A	1	UNIT		
2	CLEARING SITE	1	LS		
3	CLEARING SITE, BRIDGE	1	LS		
4	MOBILIZATION	1	LS		
5	MONUMENT	8	UNIT		
6	FUEL PRICE ADJUSTMENT	1	ALLOW	$10,000.00	$10,000.00
7	ASPHALT PRICE ADJUSTMENT	1	ALLOW	$10,000.00	$10,000.00
8	--- NO BID ITEM ---				
9	--- NO BID ITEM ---				
10	SOIL EROSION AND SEDIMENT CONTROL	1	LS		
11	--- NO BID ITEM ---				
12	--- NO BID ITEM ---				
13	MAINTENANCE AND PROTECTION OF TRAFFIC	1	LS		
14	TRAFFIC DIRECTOR, FLAGGER	1	ALLOW	$25,000.00	$25,000.00

Bidder's Name_____

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED PRICE
15	BREAKAWAY BARRICADE	8	UNIT		
16	DRUM	16	UNIT		
17	TRAFFIC CONE	50	UNIT		
18	CONSTRUCTION SIGNS	770	SF		
19	PRECAST CONCRETE BARRIER CURB, TYPE 4	100	LF		
20	--- NO BID ITEM ---				
21	--- NO BID ITEM ---				
22	EXCAVATION, UNCLASSIFIED	700	CY		
23	EXCAVATION, TEST PIT	100	CY		
24	DENSE GRADED AGGREGATE, BACKFILL	100	CY		
25	SOIL AGGREGATE	700	CY		
26	DENSE GRADED AGGREGATE BASE COURSE, 4" THICK	150	SY		
27	FLOWABLE FILL	60	CY		
28	HMA MILLING, 3" OR LESS	140	SY		
29	TACK COAT	35	GAL		
30	HOT MIX ASPHALT, 9.5H64, SURFACE COURSE, 2" THICK	30	TON		
31	--- NO BID ITEM ---				
32	HOT MIX ASPHALT, 19H64, BASE COURSE, 6" THICK	55	TON		
33	TEMPORARY SHEETING	1	LS		
34	MAINTENANCE OF STREAM FLOW	1	LS		
35	--- NO BID ITEM ---				

Bidder's Name_____

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED PRICE
36	REINFORCEMENT STEEL	12,000	LB		
37	REINFORCEMENT STEEL, GALVANIZED	4,000	LB		
38	CONCRETE FOOTING	45	CY		
39	CONCRETE WING WALL	20	CY		
40	CONCRETE CLOSURE POUR	10	CY		
41	COARSE AGGREGATE LAYER	100	CY		
42	WATERPROOF MEMBRANE	150	LF		
43	PRECAST CONCRETE CULVERT	42	LF		
44	--- NO BID ITEM ---				
45	CONCRETE SIDEWALK, REINFORCED, 4" THICK	70	SY		
46	--- NO BID ITEM ---				
47	CONCRETE BRIDGE PARAPET	58	LF		
48	NAME PLAQUE	1	UNIT		
49	GRANITE BLOCK CURB	180	LF		
50	RIPRAP STONE CHANNEL PROTECTION, 12" THK. (D50=6")	80	SY		
51	--- NO BID ITEM ---				
52	--- NO BID ITEM ---				
53	--- NO BID ITEM ---				
54	WOOD STOCKADE FENCE	24	LF		
55	WOOD SPLIT RAIL FENCE	24	LF		
56	--- NO BID ITEM ---				
57	--- NO BID ITEM ---				

Bidder's Name_____

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED PRICE
58	HOT MIX ASPHALT DRIVEWAY, 6" THICK	10	SY		
59	--- NO BID ITEM ---				
60	15" REINFORCED CONCRETE PIPE, CLASS V	40	LF		
61	18" REINFORCED CONCRETE PIPE, CLASS V	30	LF		
62	21" REINFORCED CONCRETE PIPE, CLASS V	24	LF		
63	--- NO BID ITEM ---				
64	INLET, TYPE B	4	UNIT		
65	--- NO BID ITEM ---				
66	RESET CASTING	2	UNIT		
67	--- NO BID ITEM ---				
68	TRAFFIC STRIPES, LONG LIFE, THERMOPLASTIC, 4" WIDE	160	LF		
69	LARGE DECIDUOUS TREE, 2"-2 1/2" CALIPER, 8' TO 10' HIGH	2	UNIT		
70	SMALL DECIDUOUS TREE, 1"-1 1/2" CALIPER, 6' TO 8' HIGH	2	UNIT		
71	DECIDUOUS SHRUB 18" - 24" HIGH	4	UNIT		
72	DECIDUOUS SHRUB 30" - 36" HIGH	2	UNIT		
73	EVERGREEN SHRUB 18" - 24" HIGH	4	UNIT		
74	EVERGREEN SHRUB 30" - 36" HIGH	2	UNIT		
75	REGULATORY AND WARNING SIGN	128	SF		
76	TOPSOILING, 4" THICK	70	SY		
77	FERTILIZING AND SEEDING, TYPE G	70	SY		
78	TOPSOIL STABILIZATION, TYPE 1 MAT	70	SY		
79	STRAW MULCHING	70	SY		

Bidder's Name_____

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED PRICE
SANITARY MAIN RELOCATION PAY ITEMS					
80	HMA MILLING, 3" OR LESS	850	SY		
81	HOT MIX ASPHALT, 9.5H64, SURFACE COURSE, 2" THICK	100	TON		
82	DUCTILE IRON PIPE, 8" DIAMETER	368	LF		
83	TRENCH STABILIZATION	368	LF		
84	MANHOLES WITH 4' DIAMETER, 10'-12' DEEP	2	UN		
85	REESTABLISH SANITARY LATERALS	3	UN		
86	ADDITIONAL LENGTH OF LATERAL, 4"	45	LF		
87	ABANDON EXISTING 8" SANITARY SEWER PIPING IN PLACE	366	LF		
88	ABANDON EXISTING 4' DIA. MH, 10'-12' DEEP	1	UN		
89	TEST PITS	3	UN		
90	MANHOLE MODIFICATIONS	2	UN		
91	CONCRETE ENCASEMENT	60	LF		
92	CORE SLEEVES	1	LS		
93	TEMPORARY SOIL EROSION & SEDIMENT CONTROLS	1	LS		
94	MAINTENANCE AND PROTECTION OF TRAFFIC	160	MH		
95	TEMPORARY BYPASS PUMPING	1	LS		
96	DEWATERING	1	LS		
97	UNDERGROUND UTILITY LOCATION	1	LS		
98	SELECTIVE DEMOLITION – 140 LF OF 8" DIP	1	LS		
99	METAL FABRICATION – STAINLESS STEEL PLATE	100	SF		
100	CONCRETE PIPE PLUG	2	UN		

Bidder's Name_____

_____ _____
Written Figures

BID CONTINGENCY: (To be used if and when directed by the County)

SEVENTY-FIVE THOUSAND DOLLARS AND NO CENTS **$75,000.00**
Written Figures

TOTAL BASE BID ITEMS NOS. 1 THROUGH 96 PLUS BID CONTINGENCY AMOUNT:

_____ _____
Written Figures

NOTE: Bid Contingency may include one-half of one percent of contract amount set aside for local training if and when directed by the County.

Bidder's Name_____

CONSENT OF SURETY
TO ACCOMPANY PROPOSAL (BID)

_____ (hereinafter called Surety), organized and existing under the laws of the State of _____ duly authorized and qualified to transact business in the State of New Jersey, in consideration of the sum of One Dollar ($1.00), lawful money of the United States of America, to it in hand paid, receipt whereof is hereby acknowledged, and in consideration, hereby certifies and agrees that if the contract for which the attached proposal is made be awarded to _____ (hereinafter called Contractor) for the performance of certain work and labor or the supplying of certain materials, or both, as more particularly set forth in said proposal and described for purposes of this instrument as a proposal for _____ to the COUNTY OF UNION and if Contractor shall enter into the contract, Surety will become bound as surety for its faithful performance, labor and material payment and will provide the Contractor with a performance, labor and material payment bond in the full amount of the contract price.

NOTE:
Expiration date
Needed if Annual
Surety

_____

_____
NAME OF INSURANCE COMPANY

ADDRESS: _____
_____
_____

_____
ORIGINAL SIGNATURE
ATTORNEY-IN-FACT FOR INSURANCE CO.

NOTE: PROOF OF AUTHORITY OF OFFICERS OF SURETY COMPANY TO EXECUTE THIS DOCUMENT MUST BE SUBMITTED.

BIDDER SIGNATURE PAGE

THE BIDDER MUST READ THE FOLLOWING INSTRUCTIONS TO COMPLETE THIS PAGE:

1. If doing business under a **trade name, partnership or a sole proprietorship**, you must submit the bid under exact title of the trade name, partnership, or proprietorship, and the bid must be signed by either the **owner**, or a **partner** and **witnessed** by a **notary public**.

2. If a **Corporation**, the bid must be signed by the **President** or **Vice President** and **witnessed** by a **Corporate Secretary** (corporate title must be exact) and **affix corporate seal**. If a Corporate Secretary does not exist, President or Vice President's signature shall be witnessed by a Notary Public.

3. Other persons **authorized** by **corporate resolution** to execute agreements in its behalf may also sign the bid documents (pages). **Copy of a resolution must accompany the bid**.

4. The person who signs this bid form **must also** sign the **Non-Collusion Affidavit**.

5. You **cannot** witness your own signature.

_____

NAME OF BIDDER

_____

_____

_____

ADDRESS OF BIDDER

_____

ORIGINAL SIGNATURE
CORPORATE SECRETARY

_____

PRINT NAME AND TITLE
CORPORATE SECRETARY

TEL: _____
FAX: _____
E-Mail: _____

BY: _____

ORIGINAL SIGNATURE

Corporate Seal

_____

_____

PRINT OR TYPE NAME AND TITLE

WARNING: IF YOU FAIL TO FULLY, ACCURATELY, AND COMPLETELY SUPPLY THE INFORMATION REQUESTED ON THIS PAGE, YOUR BID MAY BE REJECTED.

Bidder's Name_____

STATEMENT OF OWNERSHIP DISCLOSURE

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name of Organization: _____

Organization Address: _____

Part I Check the box that represents the type of business organization:

☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)

☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)

☐ For-Profit Corporation (any type) ☐ Limited Liability Company (LLC)

☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership (LLP)

☐ Other (be specific): _____

Part II

☐ The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. (**COMPLETE THE LIST BELOW IN THIS SECTION**)

OR

☐ No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. (**SKIP TO PART IV**)

STATEMENT OF OWNERSHIP DISCLOSURE - CONTINUED

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Home Address (for Individuals) or Business Address

Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed**.

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

STATEMENT OF OWNERSHIP DISCLOSURE - CONTINUED

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above**. The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Home Address (for Individuals) or Business Address

Part IV Certification

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the ***County of Union*** is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with ***County of Union*** to notify the ***County of Union*** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the ***County of Union*** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

Bidder's Name_____

SUBCONTRACTOR IDENTIFICATION STATEMENT

LIST OF SUBCONTRACTORS

This form is ONLY required for plumbing and gas fitting, steam and hot water heating and ventilating apparatus, steam power plants, electrical work, structural steel, ornamental iron work, and any other trades required to be identified by the specifications (including, but not limited, to satisfying any DPMC Classification requirements).

☐ **CHECK THIS BOX IF NONE OF THE ABOVE LISTED TRADES OR THOSE REQUIRED TO BE IDENTIFIED IN THE SPECIFICATIONS ARE TO BE USED TO PERFORM THE WORK**

In compliance with N.J.S.A. 40A:11-16 and the bid specifications, the undersigned hereby lists the name or names of the following subcontractors:

Company Name:_____

Address:_____

Telephone: _____ Subcontract Amount: $_____

Specific Scope of Work Subcontracted: _____

_____

License No. _____

Company Name:_____

Address: _____

Telephone: _____ Subcontract Amount: $_____

Specific Scope of Work Subcontracted: _____

_____

License No. _____

Company Name:_____

Address: _____

Telephone: _____ Subcontract Amount: $_____

Specific Scope of Work Subcontracted: _____

_____

License No. _____

IF MORE THAN THREE SUBCONTRACTORS, PLEASE COPY THIS SHEET AS NECESSARY AND ATTACH TO THE BID PACKAGE.

(Continued on following page)

Bidder's Name_____

SUBCONTRACTOR IDENTIFICATION CERTIFICATION

Note the law does not permit the listing of alternate subcontractors. However, multiple subcontractors for the same trade are permitted to be named provided the bidder meets the following requirements:

- Bidder identifies each subcontractor named for that category;
- Bidder states the scope of work, goods and services (the portion of the work) to be performed by each subcontractor; and
- Bidder provides the price quote provided by each subcontractor.

The bidder is advised that any change of subcontractor(s) from ones listed herein is subject to the County's approval. Change of subcontractor(s) will be approved only if made for good cause and not as a result of an arbitrary purpose.

The undersigned Bidder certifies and declares that the subcontractors listed above shall be used as subcontractors to complete certain portions of the work in this project as set forth in N.J.S.A. 40A: 11-16.

_____
Witness

Date _____

_____
NAME OF BIDDER

_____

_____
ADDRESS

By: _____
ORIGINAL SIGNATURE ONLY

_____

_____
PRINT NAME AND TITLE

Bidder's Name: _____

ACKNOWLEDGMENT OF ADDENDUM

COUNTY OF UNION

_____ _____

(Name of Construction /Public Works Project) **(Project or Bid Number)**

Pursuant to N.J.S.A. 40A:11-23.1a., the undersigned bidder, hereby acknowledges receipt of the following notices, revisions, or addenda to the bid advertisement, specifications or bid documents. By indicating date of receipt, bidder acknowledges the submitted bid takes into account the provisions of the notice, revision or addendum. Note that the County of Union's record of notice to bidders shall take precedence and that failure to include provisions of changes in a bid proposal may be subject for rejection of the bid.

Local Unit Reference Number or Title of Addendum/Revision	How Received (mail, fax, pick-up, etc.)	Date Received

ACKNOWLEDGMENT BY BIDDER:

NAME OF BIDDER: _____

ORIGINAL SIGNATURE: _____

PRINTED NAME AND TITLE:_____

DATE: _____

CONTRACTOR BUSINESS REGISTRATION CERTIFICATE

New Mandatory Requirement - Effective 1/18/2010

The recently enacted **P.L. 2009, c.315**, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each subcontractor must be provided prior to the award of bid. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be

☐ A copy of a Business Registration Certificate issued by the Department of the Treasury, Division of Revenue; or

☐ A copy of the web version provided by the NJ Division of Revenue, or

Register online at www.nj.gov/treasury/revenue/taxreg.htm. Click the "online" link and then select "Register for Tax and Employer Purposes or call the Division at 609-292-1730.
Note: A NJ Certificate of Authority is <u>not</u> acceptable.

FAILURE to submit proof of registration of the bidder or any subcontractor named on the bid prior to the award of a contract shall be cause to reject the bids.

FAILURE of the bidder or any subcontractor named on the bid to be <u>registered</u> prior to the receipt of bids is cause for a **MANDATORY REJECTION** of bids. (A NON-WAIVABLE DEFECT). This covers construction work as well as non-construction bids.

IN ADDITION:

The contractor shall provide written notice to all **subcontractors and suppliers** not specifically named on the bid of the responsibility to register and submit proof of business registration to the contractor. The requirement of proof of business registration extends down through all levels (tiers) of the project.

Before final payment on the contract is made by the contracting agency, the contractor shall submit an accurate list and the proof of business registration of each subcontractor or supplier used in the fulfillment of the contract, or shall attest that no subcontractors were used.

For the term of the contract, the contractor and each of its affiliates and a subcontractor and each of its affiliates [N.J.S.A. 52:32-44(g)(3)] shall collect and remit to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act on all sales of tangible personal property delivered into this State, regardless of whether the tangible personal property is intended for a contract with a contracting agency.

A business organization that fails to provide a copy of a business registration as required pursuant to section 1 of P.L.2001,c.134 (C.52:32-44 et al.) or subsection e. or f. of section 92 of P.L.1977,c.110 (C.5:12-92), or that provides false business registration information under the requirements of either of those sections, shall be liable for a penalty of $25 for each day of violation, not to exceed $50,000 for each business registration copy not properly provided under a contract with a contracting agency.

Bidder's Name_____

BUSINESS REGISTRATION

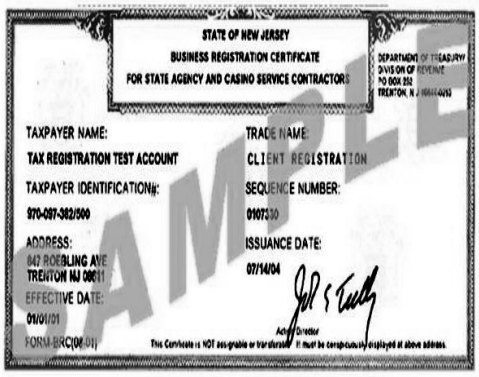
Mandatory Requirement

P.L. 2009, c.315, requires that effective January 18, 2010; a contracting agency must receive proof of the bidder's business registration prior to the award of a contract. However, the proof must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

If subcontractors are named on the bid, proof of the business registration for each must be provided prior to the award of a contract. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

Proof of business registration shall be:

- A copy of a Business Registration Certificate issued by the Department of Treasury, Division of Revenue; or
- A copy of the web printed version provided by the NJ Division of Revenue


STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE
FOR STATE AGENCY AND CASINO SERVICE CONTRACTORS

DEPARTMENT OF TREASURY
DIVISION OF REVENUE
PO BOX 252
TRENTON, N.J.

TAXPAYER NAME:
TAX REGISTRATION TEST ACCOUNT

TRADE NAME:
CLIENT REGISTRATION

TAXPAYER IDENTIFICATION#:
[illegible]

SEQUENCE NUMBER:
[illegible]

ADDRESS:
847 ROEBLING AVE
TRENTON NJ 08611

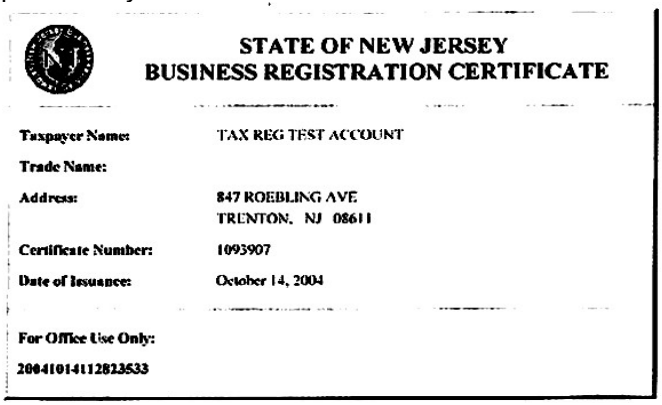
ISSUANCE DATE:
07/14/04

EFFECTIVE DATE:
01/01/01

FORM BRC(08.01)

This Certificate is NOT assignable or transferable. It must be conspicuously displayed at above address.

SAMPLE


STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE

Taxpayer Name: TAX REG TEST ACCOUNT

Trade Name:

Address: 847 ROEBLING AVE
TRENTON, NJ 08611

Certificate Number: 1093907

Date of Issuance: October 14, 2004

For Office Use Only:

20041014112823533

ATTACH BRC HERE

Bidder's Name_____

AFFIRMATIVE ACTION REQUIREMENT

REQUIRED AFFIRMATIVE ACTION EVIDENCE

General Requirements of P.L. 1975, c. 127: You are hereby put on notice that:

CONSTRUCTION CONTRACTS: The successful contractor must submit within three (3) days of the notice of intent to award or the signing of the contract the initial project manning report (A.A.201). This report should be submitted at the time the signed contract is returned to the County of Union. Attention: *Affirmative Action Officer.*

If the successful contract does not submit the initial project manning report (A.A.201) within the three (3) days from the time the signed contract is returned to the County of Union, the County of Union WILL declare the contractor non-responsive and award the contract to the next lowest responsible bidder.

_____
NAME OF BIDDER

_____
ORIGINAL SIGNATURE

_____
PRINT OR TYPE NAME AND TITLE

_____
DATE THIS FORM IS COMPLETED

EXPERIENCE STATEMENT

I hereby certify that my company has performed the following private or public work, which is relevant to this bid. I further certify that my company has never defaulted under any contract. Should you not sign this form due to prior defaults, please provide details on an attached sheet.

_____
Witness

_____
Date

_____
NAME OF BIDDER

_____
_____
_____
ADDRESS

By: _____
ORIGINAL SIGNATURE ONLY

_____

_____
PRINT NAME AND TITLE

YOU MAY ATTACH ADDITIONAL SHEETS, BUT YOU MUST SIGN AND WITNESS THIS SHEET.

Bidder's Name_____

CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT

STATE OF NEW JERSEY / _____)
Specify, if Other) SS:
COUNTY OF _____)

I, _____, of the (City, Town, Borough, etc.) of ___ _____ State of _____, of full age, being duly sworn according to law on my oath depose and say that:

I am _____ of the firm of _____, the Bidder making the proposal for the above named Project ("Contractor'), and that I executed said proposal with full authority to do so; and that said Contractor, pursuant to N.J.S.A. 40A:11-20, certifies that it owns, leases or controls all the necessary equipment required by the Plans, Specifications and Advertisements under this Bids are asked for.

If the Bidder is not the actual owner or lessee of any such equipment, then the Bidder shall attach to this Certificate information identifying the source from which the equipment will be obtained, and such information shall be accompanied by a certificate from the owner or person in control of the equipment definitively granting to the Bidder the control of the equipment required during such time as may be necessary for the completion of that portion of the contract.

_____
(Also type or print name of affiant under signature)

By:_____

Bidder's Name_____

NON-COLLUSION AFFIDAVIT

(N.J.S.A. 52:34-15)

STATE OF _____)
) **SS:**_____
COUNTY OF _____)

I _____, of the City of _____, in the County of _____, and the State of _____, of full age, being duly sworn according to law, on my oath depose and say that: I am _____ of the firm of _____, the bidder making the proposal for the above named project, and that I executed the said proposal for the above named project, and that I executed the said proposal with full authority to do so; that said bidder has not, directly or indirectly, entered into any agreement, participation in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in said proposal and in this Affidavit are true and correct, and made with full knowledge that the COUNTY OF UNION, NEW JERSEY relies upon the truth of the statements contained in said proposal and in the statements contained in the affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bonafide established commercial or selling agencies maintained by _____ (N.J.S.A. 52:34-15).

_____

NAME OF BIDDER

_____

ORIGINAL SIGNATURE ONLY

NOTE: The person who signed the bidder signature page for the bidder should sign this form also.

Subscribed and sworn before me
this _____day of _____, 200____.

_____
Notary Public of the State of _____
My commission expires: _____

WARNING: IF YOU FAIL TO FULLY, ACCURATELY, AND COMPLETELY FILL OUT THIS AFFIDAVIT OF NON-COLLUSION, YOUR BID MAY BE REJECTED.

Contractor Registration Advisement

For Public Works Projects

A new law, known as "The Public Works Contractor Registration Act" (P.L. 1999, c.238), became effective April 11, 2000. Under the Act, no contractor/subcontractor will be permitted to bid on or engage in any contract for public work, as defined in Section 2 of P.L. 1963, c.150 (C:34:11-56.26), unless that contractor/subcontractor is registered with the New Jersey Department of Labor. The Act provides that upon registration with the Department, a public works contractor/subcontractor will be issued a certificate by the Department indicating compliance with the Act's requirements. The registration fee has been set at $300.00 per year. Upon the effective date of the Act, public bodies will be expected to request production of such a certificate from those bidding on or engaging in public works projects.

It is important to note that the term "contractor," is defined in the, Act as, "a person, partnership, association, joint stock company, trust, corporation or other legal business entity or successor thereof who enters into a contract which is subject to the provision of the "New Jersey Prevailing Wage Act," P.L. 1963, c.150 (C.34:11-56.25, et seq.) for the construction, reconstruction, demolition, alteration, repair or maintenance of a public building regularly open to and used by the general public or a public institution, and includes any subcontractor or lower tier subcontractor as defined herein: except that, for the purposes of the act, no pumping station, treatment plant or other facility associated with utility and environmental construction, reconstruction, demolition, alteration, repair or maintenance shall be regarded as a public building regularly open to and used by the general public or a public institution."

Registration forms, copies of the Act, and other relevant information can be obtained by contacting:

Contractor Registration Unit
New Jersey Department of Labor
Division of Wage & Hour Compliance
PO Box 389
Trenton, New Jersey 08625-0389
Telephone: 609-292-9464
Fax: 609-633-8591
E-mail: contreg@dol.state.nj.us

Bidder's Name_____

AMERICANS WITH DISABILITIES ACT

EQUAL OPPORTUNITY FOR INDIVIDUALS WITH DISABILITIES

The contractor and the County of Union (hereafter "Owner") do hereby agree that the provisions of Title II of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C.S12.101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereunto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the Owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the Owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the Owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the Owner's grievance procedure, the contractor agrees to abide by any decision of the Owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the Owner, or if the Owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

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

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

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

Name _____ **(Please print or type)**

Signature _____**Date** _____

Bidder's Name_____

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Questions may be answered on separate attached sheets. The Bidder may submit any additional information it desires.

1. _____
   (Name of Bidder)

2. _____
   (Permanent Main Office Address)

3. _____
   (When Organized)

4. _____
   (If a Corporation, where incorporated)

5. Number of years your organization has been engaged in construction or contracting business under present firm or trade name? _____

6. How many years of experience in construction work has your organization had (a) as a general contractor? And/or (b) As a subcontractor?_____

7. Contracts on hand: (Attach a list or table showing gross amounts of each Contract and the appropriate dates of completion)_____

   _____

   _____

   _____

8. General character of work performed by you._____

   _____

9. Have you ever failed to complete any work awarded to you? _____

   _____

10. Have you ever defaulted on a Contract?_____ If so, complete details, including where and why?

    _____

    _____

Bidder's Name_____

STATEMENT OF BIDDER'S QUALIFICATIONS - (continued)

11. Has any officer or partner of your organization ever failed to complete a construction contract handled in its own name? If so, state name of individual, name of owner, location and type of project, and reason for the failure to complete._____

_____

_____

12. List your major equipment available for this Contract.

_____

_____

13. Experience in the construction work similar in importance to this Project.

_____

_____

14. Have you had any material adverse changes from the trades as listed in NJ Notice of Classification within last five (5) years? _____. If so, list prior classification.

15. Background and experience of the principal members of your organization, including the officers.

Individual's Name	Present Position or Office	Yrs. of Construction Experience	Magnitude & Type of Work	In What Capacity

16. Bank Reference. (Name, Address, Phone, Representative) _____

17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the proper agency? _____

18. The undersigned, hereby authorizes and requests any person, firm or corporation to furnish any information requested by the proper agency in verification of the responses comprising this Statement of Bidder's Qualifications.

17. Bidder's telephone number, fax number and e-mail address (if applicable).

Phone _____

Fax _____

E-mail_____

Mobile _____

Dated at _____ this _____ day of _, 20__.

_____
BIDDER (Signature)

_____
BIDDER (Print Name)

Subscribed and sworn to before me
this _____ day of _____, 20__.

_____
(Seal) Notary Public of New Jersey/
Specify Other State
My Commission Expires_____, 20__.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name_____

CONTRACTOR PERFORMANCE RECORD

List all contracts completed by you below or provide separate form.

Name of Owner	Name & Location of Project: Type Of Work	Prime or Sub-Cont.	Engineer or Architect in Charge for Owner	Contract Price (Omit Cost)	Date Completed	Was Time* Extension Necessary	Were Any Penalties Imposed	Were Liens* Claims or Stop Notice Filed

* If answer is YES, provide explanation of details in connection with non-completion of contracts, time extensions, penalties imposed, labor troubles, liens, claims and notices filed against contracts listed in preceding item "Performance Record" on an attached sheet.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name_____

CONTRACTOR PERFORMANCE RECORD
CERTIFICATION

The information above is true and complete to the best of my knowledge and belief.

_____
(Name of Organization)

_____
(Signature)

_____
(Title)

Subscribed and sworn to before me

this _____ day of _____, 20__.

_____
(Seal) Notary Public of New Jersey/
Specify Other State

My Commission Expires_____, 20__.

Bidder's Name_____

AFFIDAVIT REGARDING LIST OF DEBARRED, SUSPENDED OR DISQUALIFIED BIDDERS

STATE OF NEW JERSEY / _____)
Specify, if Other) SS:
COUNTY OF _____)

I, _____, of the (City, Town, Borough, etc.) of _____ State of _____, of full age, being duly sworn according to law on my oath depose and say that:

I am _____ of the firm of _____, the Bidder making the Proposal for the above named Project. I have executed the said Proposal with full authority to do so. Said Bidder is not at the time of the making this bid included on the New Jersey State Treasurer's or the Federal Government's List of Debarred, Suspended or Disqualified Bidders as a result of action taken by any State or Federal Agency.

_____
Name of Contractor

By:_____
(Signature of Authorized Representative)

Subscribed and sworn to before me
this _____ day of _____, 20__.

_____
(Seal) Notary Public of New Jersey/
Specify Other State

My Commission Expires_____, 20__.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name_____

PRIOR NEGATIVE EXPERIENCE QUESTIONNAIRE

(N.J.S.A. 40A:11-4)

1. Within the past ten (10) years, have you been found, through either court adjudication, arbitration, mediation, or other contractually stipulated alternate dispute resolution mechanism, to have: failed to provide or perform goods or services; or failed to complete a contract in a timely manner; or otherwise performed unsatisfactorily under a prior contract with a public entity?

   _____ yes _____ no If yes, please provide full, detailed explanation.

   _____
   _____
   _____
   _____

2. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to utilize the services of another contractor to provide the goods or perform the services or to correct or complete the contract?

   _____ yes _____ no If yes, please provide full, detailed explanation.

   _____
   _____
   _____
   _____

3. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to look to your surety for completion of the contract or tender of the costs of completion?

   _____ yes _____ no If yes, please provide full, detailed explanation.

   _____
   _____
   _____
   _____

4. Within the past ten (10) years, have you been debarred or suspended from contracting with any of the agencies or department of the executive branch of the State of New Jersey at the time of the contract award, where the action was based on failure to perform a contact for goods or services with a public entity?

   _____ yes _____ no If yes, please provide full, detailed explanation.

   _____
   _____
   _____
   _____

Bidder's Name_____

PRIOR NEGATIVE EXPERIENCE CERTIFICATION

I hereby certify that the above statements are true and accurate as of this _____ day of _____, 20__.

_____
Name of Contractor

By_____
(Signature of Authorized Representative)

Subscribed and sworn to before me

this _____ day of _____, 20__.

_____
(Seal) Notary Public of New Jersey/
Specify Other State

My Commission Expires_____, 20__.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name_____

TO BE COMPLETED ONLY WHEN FINAL PAYMENT IS REQUESTED

CONTRACTOR'S CERTIFICATION OF COMPLIANCE - NEW JERSEY PREVAILING WAGE ACT

TO: County of Union
Division of Engineering
2325 South Avenue
Scotch Plains, New Jersey 07076

CONTRACT:

PROJECT:

In accordance with the requirements of the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56 et al *****, the undersigned contractor on the public work being performed for:

COUNTY OF UNION

hereby certifies that he/she has complied with the contract requirements regarding the payment of the minimum prevailing wages established under "The New Jersey Prevailing Wage Act" N.J.S.A. 34:11-56 et al.

CONTRACTOR: _____
ADDRESS: _____
_____

BY: _____
ORIGINAL SIGNATURE ONLY

STATE OF NEW JERSEY
COUNTY OF _____

Being by me duly sworn according to law, on his oath deposes and says that _____is _____ of _____the above named contractor, and that the facts set forth in the above statement are true.

Subscribed and sworn before me
this ____day of _____, 200___.

_____

Notary Public: _____
My Commission Expires: _____

***** N.J.S.A. 34:11-56.33 requires the contractor and subcontractor to file written statements with the public body in form satisfactory to the Commissioner certifying to the amounts then due and owing from such contractor and subcontractor filing such statement to any and all workmen for wages due on account of the public work, setting forth therein the names of the persons whose wages are unpaid and the amount due to each respectively. Union County will withhold the amount so deducted for the benefit of the workmen whose wages are unpaid as shown by the verified statement filed, and will pay directly to any workman the amount shown by such statement to be due to him for such wages. Such payment shall thereby discharge the obligation of the contractor to the person receiving such payment to the extent of the amount thereof.

Bidder's Name_____

UNCOMPLETED CONTRACTS AFFIDAVIT

(To be Submitted with DPMC Form 701)

PURSUANT TO N.J.A.C. 17:19-2.13, BIDDER DECLARES THE FOLLOWING WITH RESPECT TO ITS UNCOMPLETED CONTRACTS, ON ALL WORK, FROM WHATEVER SOUCE (PUBLIC AND PRIVATE), BOTH IN NEW JERSEY AND FROM OTHER GOVERNMENTAL JURISDICTIONS				
ENTITY	**PROJECT TITLE**	**ORIGINAL CONTRACT AMOUNT**	**UNCOMPLETED AMOUNT AS OF BID OPENING DATE**	**NAME AND TELEPHONE NUMBER OF PARTY TO BE CONTACTED FRM ENTITY FOR VERIFICATION**

TOTAL AMOUNT OF UNCOMPLETED CONTRACTS $_____

Sworn and Subscribed to Before me

This _____day of _____, 20___

_____
Notary Public

BIDDER:

_____
(Signature)

_____
(Print Name)

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name_____

CERTIFICATE OF INSURANCE STATEMENT

The Bidder fully understands the County of Union insurance requirements as stated in the Instructions to Bidders as well as the Owner/Contractor Agreement and agrees to provide all insurance required by these documents prior to the issuance of the Notice to Proceed.

_____
BIDDER (Signature)

_____
BIDDER (Print Name)

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name_____

COLLECTION OF USE TAX ON SALES TO LOCAL GOVERNMENTS STATEMENT

The Bidder fully understands the requirements of the use tax on sales to local governments as stated in the General Conditions to the Contract for Construction and the Instructions to Bidders, and agrees at all times to comply with the "Contractor Use Tax Collection Legislation", as defined therein, and the terms relating thereto contained in the Contract Documents.

_____
BIDDER (Signature)

_____
BIDDER (Print Name)

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidder's Name_____

TIME OF COMPLETION

The undersigned proposed that if awarded the Contract, the scope of work will be started within ten (10) calendar days and will be substantially completed within **180 calendar days** from the date of the notice to proceed.

I, _____ of _____
NAME (Print or type) COMPANY

Agree to complete work in the time frame specified _____
SIGNATURE

SITE VISIT – GENERAL CONTRACTOR

I, _____ of _____
NAME (Print or type) COMPANY

Visited the site of the work on _____ _____
SIGNATURE

COUNTY OF UNION NEW JERSEY
Division of Purchasing
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Solicitation Number: _____ Bidder/Offeror: _____

_____

Pursuant to Public law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that the person or entity, or one of the person or entity's parents, subsidiaries, or affiliates, is not identified on a list created and maintained by the Department of the Treasury as a person or entity engaging in investment activities in Iran. If the Director finds a person or entity to be in violation of the principles which are the subject of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the person or entity.

I certify, pursuant to Public Law 2012, c. 25, that the person or entity listed above for which I am authorized to bid/renew:

☐ is not providing goods or services of $20,000,000 or more in the energy sector of Iran, including a person or entity that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipe lines used to transport oil or liquefied natural gas, for the energy sector of Iran,
AND

☐ is not a financial institution that extends $20,000,000 or more in credit to another person or entity, for 45 days or more, if that person or entity will use the credit to provide goods or services in the energy sector in Iran.

In the event that a person or entity is unable to make the above certification because it or one of its parents, subsidiaries, or affiliates has engaged in the above-referenced activities, a detailed, accurate and precise description of the activities must be provided in part 2 below to the Division of Purchase under penalty of perjury. Failure to provide such will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN. You must provide, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes below.

Name_____ Relationship to Bidder/Offeror_____

Description of Activities_____

Duration of Engagement_____Anticipated Cessation Date_____

Bidder/Offeror
Contact Name_____ Contact Phone Number_____

Certification: I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I attest that I am authorized to execute this certification on behalf of the above referenced person or entity. I acknowledge that Union County is relying on the information contained herein and hereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the County to notify the County in writing of any changes to the answers of information contained herein. I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement(s) with Union County, New Jersey and that the County at its option may declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print) _____Signature_____

Title_____Date_____

STANDARD SPECIFICATIONS

The Standard Specifications for Road and Bridge Construction of New Jersey Department of Transportation, 2007 Edition; is added to and/or amended elsewhere herein by the Notice to Contractors (Advertisement), Proposal, Information for Bidders, General Conditions, Special Provisions, Project Plans, and Supplementary Specifications; shall, insofar as technical requirements are involved, govern in the execution of this project.

Such Standard Specifications are made a part of these Specifications by this reference and will not be repeated herein. It is the responsibility of prospective bidders to familiarize themselves with these Standard Specifications, copies of which may be examined at the office of the Engineer and may be obtained, upon payment of the cost thereof, from:

Department of Transportation
State of New Jersey
1035 Parkway Avenue
Trenton, New Jersey 08625

The Notice to Bidders (Advertisement), Proposal, General Conditions, Instructions to Bidders, Special Provisions, Project Plans and/or Technical Specifications shall govern and prevail in the case of conflict between them and the Standard Specifications.

In these Standard Specifications the words "COMMISSIONER" or "DEPARTMENT" shall refer to and mean the person, persons, body, board or agent legally empowered to enter into contracts and otherwise legally act for the Owner. The words "RESIDENT ENGINEER (RE)", "ENGINEER" or "STATE" shall refer to and mean the professional engineering representative of the Owner as hereinbefore defined and the word "INSPECTOR" shall mean the authorized project representative of the Engineer with the authority as hereinbefore defined. The word "LABORATORY" shall mean and refer to the Engineer who may, at his discretion, and with the consent of the Owner, employ qualified technical personnel or testing laboratories to assist him in fulfilling the duties normally assigned to the "LABORATORY" in these Standard Specifications.

When reference is made herein to the bulletins, standards, specifications, publications or requirements of the Manual on Uniform Traffic Control Devices (MUTCD), Institute of Traffic Engineers (ITE), Federal Highway Administration (FHWA), American Association of State Highway Officials (AASHO), the American Concrete Institute (ACI), the American Society of Civil Engineers (ASCE) or similar national or regional societies, associations, institutes or organizations; the requirements of the bulletins, specifications, publications or requirements referred to shall be considered a part of these Specifications by such reference and shall not be repeated herein but shall have the same import and be as binding as if herein set forth in full.

STATE OF NEW JERSEY
Department of Labor and Workforce Development
Division of Wage and Hour Compliance - Public Contracts Section
PO Box 389
Trenton, NJ 08625-0389

PREVAILING WAGE RATE DETERMINATION

The New Jersey Prevailing Wage Act (N.J.S.A. 34:11-56.25 et seq.) requires that the Department of Labor and Workforce Development establish and enforce a prevailing wage level for workers engaged in public works in order to safeguard their efficiency and general well being and to protect them as well as their employers from the effects of serious and unfair competition.

Prevailing wage rates are wage and fringe benefit rates based on the collective bargaining agreements established for a particular craft or trade in the locality in which the public work is performed. In New Jersey, these rates vary by county and by the type of work performed.

Applicable prevailing wage rates are those wages and fringe benefits in effect on the date the contract is awarded. All pre-determined rate increases listed at the time the contract is awarded must also be paid, beginning on the dates specified. Rates that have expired will remain in effect until new rates are posted.

Prevailing Wage Rate

The prevailing wage rate for each craft will list the effective date of the rate and the following information:

W = Wage Rate per Hour **B** = Fringe Benefit Rate per Hour* **T** = Total Rate per Hour

* Fringe benefits are an integral part of the prevailing wage rate. Employers not providing such benefits must pay the fringe benefit amount directly to the employee each payday. Employers providing benefits worth less than the fringe benefit amount must pay the balance directly to the employee each payday.

Unless otherwise stated in the Prevailing Wage Rate Determination, the fringe benefit rate for overtime hours remains at the straight time rate.

When the Overtime Notes in the Prevailing Wage Rate Determination state that the overtime rates are "inclusive of benefits," the benefit rate is increased by the same factor as the wage rate (i.e. multiplied by 1.5 for time and one-half, multiplied by 2 for double time, etc.).

Apprentice Rate Schedule

An “apprentice” is an individual who is registered with the United States Department of Labor - Office of Apprenticeship and enrolled in a certified apprenticeship program during the period in which they are working on the public works project.

The apprentice wage rate is a percentage of the journeyman wage rate, unless otherwise indicated. The apprentice benefit rate is the full journeyman benefit rate, unless otherwise indicated.

If there is no apprentice rate schedule listed, the individual must be paid at least the journeyman rate even if that individual is in a certified apprentice program for that trade.

If there is no ratio of apprentices to journeymen listed for a particular craft, then the ratio shall be one (1) apprentice to every four (4) journeymen.

Comments/Notes

For each craft listed there will be comments/notes that cover the definition of the regular workday, shift differentials, overtime, recognized holidays, and any other relevant information.

Public Works Contractor Registration

The Public Works Contractor Registration Act (N.J.S.A. 34:11-56.48, et seq.) requires that **all** contractors, subcontractors, or lower tier subcontractors who are working on or who bid on public works projects register with the Department of Labor and Workforce Development. Applications are available at *www.nj.gov/labor* (click on Wage & Hour and then go to Registration & Permits).

Pursuant to N.J.S.A. 34:11-56.51:

No contractor shall bid on any contract for public work as defined in section 2 of P.L.1963, c. 150 (C.34:11-56.26) unless the contractor is registered pursuant to this act. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L.1999, c.238 (C.34:11-56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor or subcontractor is registered pursuant to that act.

Snow Plowing

Snow plowing contracts are <u>not</u> subject to the New Jersey Prevailing Wage Act or the Public Works Contractor Registration Act.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Air Conditioning & Refrigeration - Service and Repair **PREVAILING WAGE RATE**

	03/01/17
Journeyman (Mechanic)	W37.48 B22.91 T60.39

Craft: Air Conditioning & Refrigeration - Service and Repair **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
As Shown	Mo. 1-3	Mo. 4-12	2nd Year	3rd Year	4th Year	5th Year		Wage = %	of Jnymn	Wage
Wage and Bene	50%	55%	60%	65%	75%	85%		Bene = %	of Jnymn	Bene

Ratio of Apprentices to Journeymen - 1:4

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 3-1-13:

INTERVAL	PERIOD AND RATES					
As Shown	1st Year	2nd Year	3rd Year	4th Year	5th Year	Wage =% of Jnymn Wage
Wage and Benefit	40%	50%	60%	70%	80%	Bene. =% of Jnymn Wage

Craft: Air Conditioning & Refrigeration - Service and Repair **COMMENTS/NOTES**

THESE RATES MAY BE USED FOR THE FOLLOWING:
- Service/Repair/Maintenance Work to EXISTING facilities.
- Replacement or Installation of air conditioning and refrigeration equipment when the combined tonnage does not exceed 15 tons for refrigeration, or 25 tons for air conditioning.
- Replacement or Installation of "packaged" or "unitary" rooftop-type units when the combined tonnage of the units does not exceed 75 tons.

NOTE: These rates may NOT be used for any work in new construction (including work on new additions).

The regular workday shall consist of 8 hours, starting between 6:00 AM and 10:00 AM, Monday through Friday.

SHIFT DIFFERENTIALS:
- The second and third shifts shall be paid an additional 15% of the hourly rate.
- All shifts must run for a minimum of 5 consecutive days.

OVERTIME:
Hours worked in excess of 8 per day or before or after the regular workday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Boilermaker **PREVAILING WAGE RATE**

	01/01/17
Foreman	W48.70 B41.32 T90.02
General Foreman	W50.70 B42.30 T93.00
Journeyman	W43.70 B39.72 T83.42

Craft: Boilermaker **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 Hours	65%	70%	75%	80%	85%	90%	95%			
Benefit =	33.58	34.50	35.38	36.24	37.12	37.49	38.85			

Ratio of Apprentices to Journeymen - *

* 1 apprentice will be allowed for the first 5 journeymen, 1 apprentice for the next 10 journeymen and 1 apprentice for each succeeding 20 journeymen up to a maximum of 5 apprentices per contractor on any one job.

Craft: Boilermaker **COMMENTS/NOTES**

HIGH WORK: All apprentices working on the erection, repair, or dismantling of smoke stacks, standpipes, or water towers shall be paid the Journeyman rate.

The regular workday shall consist of 8 hours, between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall work 7½ hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 10%.
- The third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 20%.
- For "Municipal Water Works" projects only, the following shall apply: Two, four day, 10 hour shifts may be worked at straight time Monday through Thursday. The day shift shall work four days, at 10 hours, for 10 hours pay. The second shift shall work four days, at nine and a half hours, for 10 hours pay, plus 10% the hourly rate for new work and .25 cents on repair work. Friday may be used as a make-up day at straight time, due to weather conditions, hoilday or any other circumstances beyond the employer's control.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.
- If any other craft employed by the same contractor, or a subcontractor thereof, receives double time in lieu of time and one-half, then the Boilermaker shall receive double time in lieu of time and one-half.
- For "Municipal Water Works" projects only, the following shall apply: Four 10 hour days may be worked Monday through Thursday at straight time. Friday may be used as a make-up day for a day lost to inclement weather, holiday or other conditions beyond the control of the employer. Overtime shall be paid for any hours that exceed 10 hours per day or 40 hours per week.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

County - UNION

Craft: Boilermaker - Minor Repairs **PREVAILING WAGE RATE**

	01/01/17
Foreman	W32.54 B16.17 T48.71
General Foreman	W33.04 B16.17 T49.21
Mechanic	W31.04 B16.17 T47.21

Craft: Boilermaker - Minor Repairs **COMMENTS/NOTES**

NOTE: These rates apply to MINOR REPAIR WORK ONLY (repair work in the field for which the contract amount does not exceed $125,000.00).

OVERTIME:
Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Thanksgiving Day, day after Thanksgiving, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Bricklayer, Stone Mason **PREVAILING WAGE RATE**

	05/01/17	05/01/18
Deputy Foreman	W44.10 B31.94 T76.04	W0.00 B0.00 T78.23
Foreman	W47.10 B31.94 T79.04	W0.00 B0.00 T81.23
Journeyman	W41.10 B31.94 T73.04	W0.00 B0.00 T75.23

Craft: Bricklayer, Stone Mason **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	40%	50%	55%	60%	65%	70%	75%	80%		
Benefits	3.72	4.65	5.12	5.58	20.48	21.83	23.18	24.52		

Ratio of Apprentices to Journeymen - 1:5

Craft: Bricklayer, Stone Mason **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE AS OF 5-1-17:

INTERVAL	PERIOD AND RATES							
6 Months	40%	50%	55%	60%	65%	70%	75%	80%
Benefits	3.80	4.75	5.23	5.70	21.16	22.55	23.95	25.33

The regular workday shall consist of 8 hours, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule (including a day shift) is established, the first, or day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 10%, inclusive of benefits.

OVERTIME:
- The first 2 hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. The first 10 hours on Saturday shall be paid at time and one-half the

regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday may be used as a make-up day for hours lost to inclement weather.
- When Bricklayers/Stone Masons work on Saturday with Laborers, and no other crafts are working on the project for the day, benefits may be paid at straight time. If other crafts are present, the applicable overtime rate for benefits shall be paid.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Carpenter **PREVAILING WAGE RATE**

	05/01/17	11/01/17	05/01/18	11/01/18
Foreman	W54.37 B31.00 T85.37	W0.00 B0.00 T86.04	W0.00 B0.00 T87.29	W0.00 B0.00 T88.54
Journeyman	W47.28 B26.95 T74.23	W0.00 B0.00 T75.23	W0.00 B0.00 T76.48	W0.00 B0.00 T77.73

Craft: Carpenter **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	40%	55%	65%	80%	90%					
Benefit	57% of	Appren	tice	Wage Rate	for all	intervals				

Ratio of Apprentices to Journeymen - 1:3

Craft: Carpenter **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- When there are 2 or more Carpenters on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Carpenters on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 7:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.

OVERTIME:
- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Carpenter - Resilient Flooring **PREVAILING WAGE RATE**

	05/01/17	11/01/17	05/01/18	11/01/18
Foreman	W54.37 B31.00 T85.37	W0.00 B0.00 T86.04	W0.00 B0.00 T87.29	W0.00 B0.00 T88.54
Journeyman	W47.28 B26.95 T74.23	W0.00 B0.00 T75.23	W0.00 B0.00 T76.48	W0.00 B0.00 T77.73

Craft: Carpenter - Resilient Flooring **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	40%	55%	65%	80%	90%					
Benefit	57%	of	Appren	tice	Wage Rate	for all	intervals			

Ratio of Apprentices to Journeymen - *

* 1 apprentice shall be allowed to every 2 journeymen or major fraction therof. No more than 3 apprentices on any one job or project.

Craft: Carpenter - Resilient Flooring **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- On any job where there are 4 or more Carpenters of Resilient Flooring, 1 must be designated a Foreman.

FOR SYNTHETIC TURF INSTALLATION ONLY:
- The rate shall be 90% of the wage and benefit rate.

The regular workday consists of 8 hours, starting between 6:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule (including a day shift) is established, the day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular wage rate plus 15%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular wage rate, the second shift shall receive the regular wage rate plus 15% and the third shift shall receive the regular wage rate plus 20%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular wage rate plus 15% and the third shift shall receive the regular wage rate plus 20%.

OVERTIME:
- Hours in excess of 8 per day or 40 per week, or before or after the regular workday, Monday through Friday, shall be paid at time and one-half the wage rate. Saturday may be used as a make-up day, at straight time, up to 8 hours, for hours lost to reasons beyond the control of the employer, up to a total of 40 hours per week; hours in excess of 8 on Saturday shall then be paid at time and one-half the wage rate. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the wage rate. All hours on Sundays and holidays shall be paid at double the wage rate.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for hours lost to reasons beyond the control of the employer. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the wage rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Cement Mason **PREVAILING WAGE RATE**

See "Bricklayer, Stone Mason" Rates

Craft: Cement Mason **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									

Ratio of Apprentices to Journeymen - 1:4

Craft: Cement Mason **COMMENTS/NOTES**

See "Bricklayer, Stone Mason" Rates

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Diver **PREVAILING WAGE RATE**

	05/01/17	11/01/17	05/01/18	11/01/18
Diver	W0.00 B0.00 T101.91	W0.00 B0.00 T103.11	W0.00 B0.00 T104.36	W0.00 B0.00 T105.61
Tender	W0.00 B0.00 T90.17	W0.00 B0.00 T91.37	W0.00 B0.00 T92.62	W0.00 B0.00 T93.87

Craft: Diver **COMMENTS/NOTES**

NOTE: All dive crews must consist of a Tender, a Diver, and a standby Diver (standby Diver is the same rate as a Diver).

DEPTH & PENETRATION RATES: Divers shall be paid the following depth and penetration rates, in addition to the regular hourly rate, when applicable:

AIR DIVES:
0-59 feet: No additional wage
60-74 feet: + $0.25 per foot
75-125 feet: + $0.78 per foot

MIXED GAS DIVES:
0-74 feet: No additional wage
75-125 feet: + $1.00 per foot
126-200 feet: + $2.00 per foot

PENETRATION DIVES:
126-200 feet: + $1.50 per foot
201-275 feet: + $1.75 per foot
276-350 feet: + $2.00 per foot
351-425 feet: + $2.50 per foot

OVERTIME:
Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Dockbuilder **PREVAILING WAGE RATE**

	05/01/17	11/01/17	05/01/18	11/01/18
Foreman	W0.00 B0.00 T96.79	W0.00 B0.00 T97.99	W0.00 B0.00 T99.24	W0.00 B0.00 T100.49
Foreman (Concrete Form Work)	W0.00 B0.00 T82.90	W0.00 B0.00 T84.10	W0.00 B0.00 T85.35	W0.00 B0.00 T86.60
Journeyman	W0.00 B0.00 T90.17	W0.00 B0.00 T91.37	W0.00 B0.00 T92.62	W0.00 B0.00 T93.87
Journeyman (Concrete Form Work)	W0.00 B0.00 T76.36	W0.00 B0.00 T77.56	W0.00 B0.00 T78.81	W0.00 B0.00 T80.06

Craft: Dockbuilder **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	17.84	22.30	28.99	35.68						
Benefit	29.95	for all	intervals		Concrete	Form Work	Only Ben.	= 21.81	for all	intervals

Ratio of Apprentices to Journeymen - *

* When there are 4 or fewer Dockbuilders on a job, no more than 1 may be an apprentice. When there are 5 or more Dockbuilders, there may be 1 apprentice for every 5 Dockbuilders.

Craft: Dockbuilder **COMMENTS/NOTES**

CREOSOTE HANDLING:
When handling creosote products on land piledriving, floating marine construction, and construction of wharves, the worker shall receive an additional $0.25 per hour.

HAZARDOUS WASTE WORK:
- Hazardous waste removal work on a state or federally designated hazardous waste site where Level A, B, or C personal protection is required: an additional 20% of the hourly rate, per hour.
- Hazardous waste removal work in Level D, or where personal protection is not required: an additional $1.00 per hour.

CERTIFIED WELDER: When required on the job by the project owner, a Certified Welder shall receive an additional $1.00 per hour.

FOREMAN REQUIREMENTS:
The first Dockbuilder on the job shall be designated a Foreman.

OVERTIME:
Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Drywall Finisher **PREVAILING WAGE RATE**

	05/01/17
Foreman	W43.45 B23.60 T67.05
General Foreman	W45.43 B23.60 T69.03
Journeyman	W39.50 B23.60 T63.10

Craft: Drywall Finisher **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
4 Months	30%	40%	50%	60%	70%	75%	80%	85%	90%	
Benefits	Intervals	1 to 3 =	9.85	Intervals	4 to 6 =	12.28	Intervals	7 to 9 =	14.95	

Ratio of Apprentices to Journeymen - 1:4

Craft: Drywall Finisher **COMMENTS/NOTES**

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.
- Shift work must run for a minimum of 5 consecutive workdays.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Electrician **PREVAILING WAGE RATE**

	05/30/16	05/29/17	05/28/18
Cable Splicer	W58.71 B33.74 T92.45	W60.08 B34.53 T94.61	W61.52 B35.35 T96.87
Foreman	W59.77 B34.34 T94.11	W61.17 B35.15 T96.32	W62.64 B35.98 T98.62
Journeyman	W53.37 B30.67 T84.04	W54.62 B31.39 T86.01	W55.93 B32.13 T88.06

Craft: Electrician **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	40%	49%	58%	68%	80%		of Jour	neyman	Wage	Rate
Benefit	40%	49%	58%	68%	80%		of Jour	neyman	Benefit	Rate

Ratio of Apprentices to Journeymen - 2:3

Craft: Electrician **COMMENTS/NOTES**

THESE RATES ALSO APPLY TO THE FOLLOWING:
-All burglar and fire alarm work.
-All fiber optic work.
-Teledata work in new construction.
-Teledata work involving 16 Voice/Data Lines or more.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:
- On any job where there are 1 to 10 Journeymen electricians, 1 shall be designated a Foreman.

SHIFT DIFFERENTIALS:
- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

OVERTIME:
Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Electrician - Teledata (15 Voice/Data Lines & Less) **PREVAILING WAGE RATE**

	11/01/16
Master Technician/General Foreman	W52.18 B28.69 T80.87
Senior Technician/Lead Foreman (21-30 Workers on Job)	W47.77 B26.26 T74.03
Technician A/Foreman (11-20 Workers on Job)	W45.76 B25.16 T70.92
Technician B/Working Foreman (4-10 Workers on Job)	W43.75 B24.06 T67.81
Technician C/Journeyman (1-3 Workers on Job)	W40.14 B22.07 T62.21

Craft: Electrician - Teledata (15 Voice/Data Lines & Less) **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	20.14	21.48	23.72	26.41	29.54	32.23	35.36	38.49		
Benefits	7.85	8.38	9.25	10.29	11.52	12.56	13.79	15.01		

Ratio of Apprentices to Journeymen - 2:3

Craft: Electrician - Teledata (15 Voice/Data Lines & Less) **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 10-31-14:

INTERVAL	PERIOD AND RATES							
6 Months	17.90	19.25	21.48	24.17	27.30	29.99	33.12	36.26
Benefits	6.98	7.51	8.38	9.42	10.65	11.69	12.92	14.13

NOTES:
- These rates are for service, maintenance, moves, and/or changes affecting 15 Voice/Data (teledata) lines or less. These rates may NOT be used for any teledata work in new construction (including additions) or any fiber optic work.
- The number of Teledata workers on the jobsite is the determining factor for which Foreman category applies .

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for a minimum of 5 consecutive workdays.

- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

OVERTIME:
Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Electrician - Teledata (16 Instruments & More) **PREVAILING WAGE RATE**

See "Electrician" Rates

Craft: Electrician - Teledata (16 Instruments & More) **COMMENTS/NOTES**

See ELECTRICIAN Rates

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Electrician- Outside Commercial **PREVAILING WAGE RATE**

	05/30/16	05/29/17	05/28/18
Cable Splicer	W58.99 B33.46 T92.45	W60.37 B34.24 T94.61	W61.82 B35.06 T96.88
Certified Welder	W56.31 B31.94 T88.25	W57.62 B32.68 T90.30	W59.01 B33.47 T92.48
Equipment Operator	W53.63 B30.42 T84.05	W54.88 B31.13 T86.01	W56.20 B31.88 T88.08
Foreman (1-10 Journeyman workers on job)	W60.07 B34.07 T94.14	W61.47 B34.86 T96.33	W62.94 B35.70 T98.64
Foreman (11-20 Journeyman workers on job)	W61.67 B34.98 T96.65	W63.11 B35.79 T98.90	W64.63 B36.66 T101.29
General Foreman (21-30 Journeyman workers on job)	W63.28 B35.89 T99.17	W64.76 B36.73 T101.49	W66.32 B37.61 T103.93
General Foreman (31-60 Journeyman workers on job)	W68.65 B38.94 T107.59	W70.25 B39.84 T110.09	W71.94 B40.80 T112.74
General Foreman (61+ Journeyman workers on job)	W69.72 B39.54 T109.26	W71.34 B40.46 T111.80	W73.06 B41.44 T114.50
Groundman	W32.18 B18.26 T50.44	W32.93 B18.68 T51.61	W33.72 B19.13 T52.85
Journeyman Lineman/Technician	W53.63 B30.42 T84.05	W54.88 B31.13 T86.01	W56.20 B31.88 T88.08
Sub-Foreman	W60.07 B34.07 T94.14	W61.47 B34.86 T96.33	W62.94 B35.70 T98.64

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Electrician- Outside Commercial **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 Hours	60%	65%	70%	75%	80%	85%	90%			
Benefits	56.4% of	Journey	man	wage	+ $.01					

Craft: Electrician- Outside Commercial **COMMENTS/NOTES**

EFFECTIVE 5-30-16- The apprentice benefit rate shall be 56.7% + $.01.
EFFECTIVE 5-29-17- The apprentice benefit rate shall be 56.7% + $.01.
EFFECTIVE 5-28-18- The apprentice benefit rate shall be 56.7% + $.01.

* FOR UTILITY WORK PLEASE SEE STATEWIDE RATES

The regular worday shall be 8 hours, between 8:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:
On jobs where there are 2 Journeymen, one shall be a Foreman. The following number of Foreman, General Foreman, Assistant General Foreman and Sub-Foreman shall be required with respect to number of Journeymen on site:
2-10 Journeymen (1 Foreman)
11-20 Journeymen (1 Foreman and 1 Sub-Foreman)
21-30 Journeymen (1 Foreman and 2 Sub-Foremen)

SHIFT DIFFERENTIALS:
Shift work must run for a minimum of 5 consecutive workdays.
2nd Shift (4:30 PM to 12:30 AM): 8 hrs. pay for 7.5 hrs. work + an additional 10% of the regular rate, inclusive of benefits.
3rd Shift (12:30 AM to 8:00 AM): 8 hrs. pay for 7 hrs. work + an additional 15% of the regular rate per hour, inclusive benefits.

OVERTIME:
Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS:
New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Electrician-Utility Work (North) **PREVAILING WAGE RATE**

Rates are located in the "Statewide" rate package

Craft: Electrician-Utility Work (North) **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	60%	65%	70%	75%	80%	85%	90%			
Benefits	62.5% of	Appren	tice	Wage	Rate	for all	intervals			

Craft: Electrician-Utility Work (North) **COMMENTS/NOTES**

Electrician-Utility Work (North) rates are located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Electrician-Utility Work (South) **PREVAILING WAGE RATE**

Rates are located in the "Statewide" rate package

Craft: Electrician-Utility Work (South) **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	27.37	29.65	31.93	34.21	36.49	38.77	41.05			
Benefits	24.01	25.34	26.73	28.09	29.43	30.80	32.18			

Craft: Electrician-Utility Work (South) **COMMENTS/NOTES**

Electrician-Utility Work (South) rates are located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Elevator Constructor **PREVAILING WAGE RATE**

	03/17/17	03/17/18
Journeyman	W62.64 B41.56 T104.20	W64.48 B43.36 T107.84

Craft: Elevator Constructor **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	27.95	34.45	40.72	46.98						
Benefits	33.31	34.46	36.04	37.61						

Ratio of Apprentices to Journeymen - 1:1

Craft: Elevator Constructor **COMMENTS/NOTES**

The regular workday shall consist of either 7 or 8 hours to be established at the beginning of the project, between 7:00 AM and 4:30 PM.

OVERTIME:
For all hours worked before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday , shall be paid at double the hourly rate. Holiday pay is one days wages (8 hours) plus double the hourly rate for all hours worked.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Elevator Modernization & Service **PREVAILING WAGE RATE**

	03/17/17	03/17/18
Journeyman	W49.14 B39.91 T89.05	W50.49 B41.66 T92.15

Craft: Elevator Modernization & Service **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	27.95	27.03	31.94	36.86						
Benefits	33.23	33.57	34.97	36.37						

Ratio of Apprentices to Journeymen - 1:1

Craft: Elevator Modernization & Service **COMMENTS/NOTES**

MODERNIZATION (addition, replacement, refurbishing, relocation, or changes in design or appearance, of elevator equipment in existing buildings):

- The regular workday consists of 8 hours, between 7:00 AM and 4:30 PM.

- Overtime:
Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday shall be paid at time and one-half the hourly rate. Holiday pay is one days wages (8 hours) plus time and one-half the hourly rate for all hours worked.

SERVICE (repair or replacement of parts for the purpose of maintaining elevator equipment in good operating condition):

- The regular workday consists of 8 hours, between 6:00 AM and 6:00 PM.

- Overtime:
Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS (Modernization and Service): New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Glazier **PREVAILING WAGE RATE**

	06/20/16
Foreman	W47.39 B23.26 T70.65
General Foreman	W49.39 B23.50 T72.89
Journeyman	W43.39 B22.78 T66.17

Craft: Glazier **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
4 Months	30%	40%	50%	60%	70%	75%	80%	85%	90%	
Benefits	Intervals	1 to 3 =	6.51	Intervals	4 to 6 =	9.33	Intervals	7 to 9 =	11.67	

Ratio of Apprentices to Journeymen - 1:4

Craft: Glazier **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AS OF 5-1-14:

INTERVAL	PERIOD AND RATES							
6 Months	50%	55%	60%	65%	70%	75%	80%	90%
Benefits	8.10	8.10	10.34	10.34	11.51	11.51	14.62	14.62

Hazard/Height Pay: +$1.00 per hour

FOREMAN REQUIREMENTS:
- When there are 4 or more Glaziers on a job, 1 must be designated a Foreman.
- When there are 15 or more Glaziers on a job, 1 must be designated a General Foreman.

The regular workday shall consist of 8 hours, between 7:00 AM and 5:30 PM, Monday to Friday.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.

OVERTIME:
Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Heat & Frost Insulator **PREVAILING WAGE RATE**

	10/17/16
Foreman	W52.52 B30.17 T82.69
General Foreman	W55.07 B31.28 T86.35
Journeyman	W51.24 B29.61 T80.85

Craft: Heat & Frost Insulator **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	23.77	28.19	34.05	39.96						
Benefits	17.83	21.08	23.21	25.16						

Ratio of Apprentices to Journeymen - 1:3

Craft: Heat & Frost Insulator **COMMENTS/NOTES**

NOTE: These rates apply to the installing of insulation on hot and cold mechanical systems.

The regular workday shall be 8 hours between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIAL:
- Shift work must run for a minimum of 5 consecutive workdays.
- Second Shift shall work 7.5 hours and receive 8 hours pay, at the regular rate, plus 25% per hour.
- Third Shift shall work 7 hours and receive 8 hours pay, at the regular rate, plus 30% per hour.

OVERTIME:
The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Heat & Frost Insulator - Asbestos Worker **PREVAILING WAGE RATE**

	10/17/16
Asbestos Helper Abatement	W33.52 B22.69 T56.21
Firestop/Hazmat	W26.93 B9.25 T36.18
Foreman	W52.52 B30.17 T82.69

Craft: Heat & Frost Insulator - Asbestos Worker **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	HEAT &	FROST	INSULATOR						

Ratio of Apprentices to Journeymen - 1:3

Craft: Heat & Frost Insulator - Asbestos Worker **COMMENTS/NOTES**

NOTE: These rates apply only to the removal of insulation materials/asbestos from mechanical systems, including containment erection and demolition, and placing material in appropriate containers.

The regular workday shall be 8 hours between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for a minimum of 5 consecutive workdays.
- The second shift shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 25% per hour.
- The third shift shall work 7 hours and receive 8 hours pay at the regular rate, plus 30% per hour.

OVERTIME: The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Ironworker **PREVAILING WAGE RATE**

	08/02/16	07/01/17
Rod /Fence Foreman	W42.24 B44.27 T86.51	W0.00 B0.00 T88.51
Rod/Fence Journeyman	W39.24 B44.27 T83.51	W0.00 B0.00 T85.51
Structural Foreman	W44.54 B44.27 T88.81	W0.00 B0.00 T90.56
Structural Journeyman	W41.54 B44.27 T85.81	W0.00 B0.00 T87.56

Craft: Ironworker **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	50%	60%		Yearly	70%	80%	90%			

Ratio of Apprentices to Journeymen - 1:4

Craft: Ironworker **COMMENTS/NOTES**

HAZARDOUS WASTE WORK: On hazardous waste removal work on a state or federally designated hazardous waste site where the Ironworker is required to wear Level A,B, or C personal protection: + $3.00 per hour

The regular workday consists of 8 hours between 6:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:
When there are 2 or more Ironworkers on a job, 1 shall be designated a Foreman.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule is established, the first, or day shift , shall be established on an 8 hour basis .The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15%, and the third shift shall receive the regular rate plus 20%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis.
- When an irregular shift is established for the Ironworker (Structural) classification, the rate shall be paid at time and one-half the regular rate, inclusive of benefits. When an irregular shift is established for the Rod /Fence classification, the shift shall be established on an 8 hour basis and receive the regular rate, plus 20%.

OVERTIME:

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits. Saturday may be used as a make-up day for a day lost to inclement weather. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Laborer - Asbestos & Hazardous Waste Removal **PREVAILING WAGE RATE**

	01/26/17
Journeyman (Handler)	W30.88 B21.91 T52.79

Craft: Laborer - Asbestos & Hazardous Waste Removal **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	18.53	21.62	24.70	27.79						
Benefits	20.26	for	all	intervals						

Ratio of Apprentices to Journeymen - *

* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

Craft: Laborer - Asbestos & Hazardous Waste Removal **COMMENTS/NOTES**

NOTE: These rates apply to work in connection with Asbestos, Radiation, Hazardous Waste, Lead, Chemical, Biological, Mold Remediation and Abatement.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

OVERTIME:
- Hours in excess of 8 per day, Monday through Saturday, and all hours on Sunday and holidays shall be paid at time and one-half the regular rate.
- When the owner (Public Body) mandates that work is to be performed on Sunday, those hours may be worked at straight time, up to 8 hours per day, up to 40 hours per week.
- Benefits on ALL overtime hours shall be paid at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Good Friday, Easter, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Laborer - Building **PREVAILING WAGE RATE**

	05/01/17	11/01/17	05/01/18
Class A Journeyman	W32.30 B27.37 T59.67	W0.00 B0.00 T60.72	W0.00 B0.00 T62.57
Class B Journeyman	W31.80 B27.37 T59.17	W0.00 B0.00 T60.22	W0.00 B0.00 T62.07
Class C Journeyman	W27.03 B27.37 T54.40	W0.00 B0.00 T55.60	W0.00 B0.00 T57.45
Foreman	W36.34 B27.37 T63.71	W0.00 B0.00 T64.63	W0.00 B0.00 T66.48
General Foreman	W40.38 B27.37 T67.75	W0.00 B0.00 T68.55	W0.00 B0.00 T70.40

Craft: Laborer - Building **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	60%	70%	80%	90%						
Benefit	24.12	24.12	24.12	24.12						

Ratio of Apprentices to Journeymen - *

* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

Craft: Laborer - Building **COMMENTS/NOTES**

CLASS A: Specialist laborer including mason tender or concrete pour crew; scaffold builder (scaffolds up to 14 feet in height); operator of forklifts, Bobcats (or equivalent machinery), jack hammers, tampers, motorized tampers and compactors, vibrators, street cleaning machines, hydro demolition equipment, riding motor buggies, conveyors, burners; and nozzlemen on gunite work.
CLASS B: Basic laborer - includes all laborer work not listed in Class A or Class C.
CLASS C: Janitorial-type light clean-up work associated with the TURNOVER of a project, or part of a project, to the owner. All other clean-up work is Class B.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for a minimum of 5 consecutive workdays.
- When a 2-shift schedule is worked, including a day shift, both shifts shall be establised on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%.
- When a 3-shift schedule is worked, the day shift shall be established on the basis of 8 hours pay for 8 hours worked, the second shift shall be established on the basis of 8 hours pay for 7.5 hours worked, and the third shift shall be established

on the basis of 8 hours pay for 7 hours worked. The day shift shall receive the regular rate, the second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.
- When a second or third shift is worked with no day shift, the second or third shift shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.

OVERTIME:
- Hours in excess of 8 per day, or outside the regular workday that are not shift work, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. Saturday may be used as a make-up day (paid at straight time) for a day lost to inclement weather, or for a holiday that is observed during the work week, Monday through Friday. All hours on Sundays and holidays shall be paid at double the regular rate.
- Four 10-hour days may be worked Monday to Thursday, at straight time, with Friday used a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the regular rate.
- Benefits on ALL overtime hours shall be paid at time and one-half.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Laborer - Heavy & General **PREVAILING WAGE RATE**

Rates are located in the
"Statewide" rate package

Craft: Laborer - Heavy & General **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 Hours	60%	70%	80%	90%						
Benefit	19.53	for	all	intervals						

Ratio of Apprentices to Journeymen - *

* No more than 1 apprentice for the first journeyman and no more than 1 apprentice for each additional 3 journeymen.

Craft: Laborer - Heavy & General **COMMENTS/NOTES**

Heavy & General Laborer rates are located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Laborer-Residential and Modular Construction **PREVAILING WAGE RATE**

	04/01/17
* Skilled Tradesman (only applies to Modular Construction)	W25.55 B5.45 T31.00
Foreman (person directing crew, regardless of his skill classification)	W25.55 B5.45 T31.00
Laborer	W21.55 B5.45 T27.00
Laborer (for single family and stand-alone duplex owned by single owner)	W17.05 B2.95 T20.00

Craft: Laborer-Residential and Modular Construction **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
As shown	800 hours	600 hours	600 hours							
wage & benefits	70%	80%	90%							

Ratio of Apprentices to Journeymen-

One (1) apprentice shall be allowed for the first journeyman on site and no more than one (1) additional apprentice for each additional three (3) journeymen on site.

Craft: Laborer-Residential and Modular Construction **COMMENTS/NOTES**

* SKILLED TRADESMAN-
any worker doing work not typically done by a Building Laborer. Some examples are installing interior doors, sheet rock, hooking up appliances, installing light fixtures, installing railing systems, etc. Please note where local building codes require that certain work be performed under the supervision of a licensed tradesman (i.e. Plumber, Electrician, etc.) Laborers shall work under such supervision.

RESIDENTIAL CONSTRUCTION- All residential construction (not commercial), single-family, stand-alone duplex houses, townhouses and multi-family buildings of not more than four (4) floors, includimg basement levels. Please note the construction must be residential in nature for ALL FLOORS at an elevation of no more than FOUR (4) FLOORS, INCLUDING BASEMENT. In addition, barracks and dormitories are not considered residential projects.

MODULAR RESIDENTIAL CONSTRUCTION- all aspects of modular residential construction (not commercial) at the site of installation of structures of no more than four (4) stories, including all excavation and site preparation, footings and foundation systems whether poured on-site or prefabricated, all underground waterproofing, underground utilities, concrete slabs, sidewalks, driveways, paving, hardscape and landscaping. Please note the construction must be residential in nature for ALL STORIES at an elevation of no more than FOUR (4) STORIES. All work performed by the Set Crew (the crew of workers who set the modular boxes on the foundation), including the rigging, setting, attaching and assembly of all modules and structural members, preparation of the foundation to accept modules, such as sill plates, connection of all in-module and under-module connections including, but not limited to, plumbing, electrical, HVAC, fire suppression, CATS,

telephone, television/internet, and fiber optic, the building or installation of any porches or decks regardless of material or method of construction, the on-site installation of, or completion of any roof system, doors, windows and fenestrations, including flashing, gutter and soffit systems, waterproofing, insulation and interior and exterior trim work, and painting. Please note that modular construction does not include on-site stick built construction, tip up construction or panel built construction.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

OVERTIME:
Hours worked in excess of 8 per day/40 per week, Monday through Saturday, and all hours worked on Sunday and holidays shall be paid at time and one-half the hourly rate.

RECOGNIZED HOILDAYS:
New Year's Day, Martin Luther King Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Millwright **PREVAILING WAGE RATE**

	05/01/17
Foreman	W54.48 B32.20 T86.68
Journeyman	W47.37 B28.08 T75.45

Craft: Millwright **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	40%	45%	50%	55%	60%	65%	70%	75%	85%	95%
Benefits	58% of	Appren	tice	Wage	Rate	for all	intervals	+ $.60		

Ratio of Apprentices to Journeymen - 1:3

Craft: Millwright **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- When there are 2 or more Millwrights on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Millwrights on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 7:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.

OVERTIME:
- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Operating Engineer **PREVAILING WAGE RATE**

Rates are located in the
"Statewide" rate package

Craft: Operating Engineer **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	60%	70%	80%	90%						

Ratio of Apprentices to Journeymen - *

* 1 apprentice for each piece of heavy equipment. At least 10 pieces of heavy equipment or a minimum of 5 Operating Engineers must be on site.

Craft: Operating Engineer **COMMENTS/NOTES**

Operating Engineer rates are located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Operating Engineer - Field Engineer **PREVAILING WAGE RATE**

Rates are located in the
"Statewide" rate package

Craft: Operating Engineer - Field Engineer **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	70%	75%	of Rod/	Chainman	Wage					
Yearly			80%	90%	Transit/	Instrument	man	Wage		

Ratio of Apprentices to Journeymen - *

* No more than 1 Field Engineer Apprentice per Survey Crew.

Craft: Operating Engineer - Field Engineer **COMMENTS/NOTES**

Operating Engineer - Field Engineer rates are located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Painter - Bridges **PREVAILING WAGE RATE**

	05/04/17
Foreman	W59.13 B27.67 T86.80
General Foreman	W61.13 B27.67 T88.80
Journeyman	W54.13 B27.67 T81.80

Craft: Painter - Bridges **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	40%	50%			60%	70%		80%	90%	
Benefits	Intervals	1 to 2 =	8.88	Intervals	3 to 4 =	10.81	Intervals	5 to 6 =	13.48	

Ratio of Apprentices to Journeymen - 1:4

Craft: Painter - Bridges **COMMENTS/NOTES**

These rates apply to: All bridges that span waterways, roadways, railways and canyons. All tunnels, overpasses, viaducts and all appurtenances.

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Painter - Line Striping **PREVAILING WAGE RATE**

	12/29/16
Apprentice (1st year)	W24.45 B10.75 T35.20
Apprentice (2nd year)	W28.45 B16.80 T45.25
Foreman (Charge Person)	W36.60 B17.08 T53.68
Journeyman 1 (at least 1 year of working exp. as a journeyman)	W32.33 B17.08 T49.41
Journeyman 2 (at least 2 years of working exp. as a journeyman)	W36.10 B17.08 T53.18

Craft: Painter - Line Striping **COMMENTS/NOTES**

OVERTIME:
Hours in excess of 8 per day, Monday through Saturday, and all hours on Sundays and holidays shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day. Veterans Day may be substituted for the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Painter - New Construction **PREVAILING WAGE RATE**

	05/01/17
Foreman	W44.39 B22.35 T66.74
General Foreman	W48.43 B22.81 T71.24
Journeyman	W40.36 B21.90 T62.26

Craft: Painter - New Construction **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
4 Months	30%	40%	50%	60%	70%	75%	80%	85%	90%	
Benefits	Intervals	1 to 3 =	8.00	Intervals	4 to 6 =	10.00	Intervals	7 to 9 =	11.00	

Ratio of Apprentices to Journeymen - 1:4

Craft: Painter - New Construction **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM ON 5-1-14:

INTERVAL	PERIOD AND RATES							
6 Months	40%	45%	55%	65%	70%	75%	80%	90%
Benefits	8.00	8.00	10.00	10.00	11.00	11.00	14.00	14.00

Spraying, sandblasting, lead abatement, work on tanks or stacks, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Painter - Repainting **PREVAILING WAGE RATE**

	05/01/17
Foreman	W34.17 B18.45 T52.62
General Foreman	W37.39 B18.45 T55.84
Journeyman	W31.16 B18.45 T49.61

Craft: Painter - Repainting **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	PAINTER	NEW	CONSTR UC	TION					

Ratio of Apprentices to Journeymen - 1:4

Craft: Painter - Repainting **COMMENTS/NOTES**

NOTE: These rates may only be used on jobs where no major alterations (only doing painting and carpeting with nothing else being changed in the office or on the project) occur, and where not more than 3 other trades are present on the job, but may NOT, under any circumstances, be used for work on bridges, stacks, elevated tank, or generating stations.

Spraying, sandblasting, lead abatement, work on tanks or stacks, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

OVERTIME:
- Hours in excess of 8 per day and 40 per week shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Four 10-hour days may be worked, at straight time, Monday through Sunday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Painter- Containment **PREVAILING WAGE RATE**

	05/04/17
Journeyman	W35.18 B24.75 T59.93

Craft: Painter- Containment **COMMENTS/NOTES**

NOTE: These rates shall require no painting, but used in a supporting capacity only, such as wrapping, boxing, fencing, etc. on tanks.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate..
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Painter-Elevated Water Tanks **PREVAILING WAGE RATE**

	05/04/17
Foreman	W48.92 B24.92 T73.84
General Foreman	W50.92 B24.92 T75.84
Journeyman	W43.92 B24.92 T68.84

Craft: Painter-Elevated Water Tanks **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	PAINTER	BRIDGES							

Craft: Painter-Elevated Water Tanks **COMMENTS/NOTES**

These rates apply to: All new and repaint elevated water tanks (interior and exterior).

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Painter-Structural Steel **PREVAILING WAGE RATE**

	05/04/17
Foreman	W47.87 B25.27 T73.14
General Foreman	W49.87 B25.27 T75.14
Journeyman	W42.87 B25.27 T68.14

Craft: Painter-Structural Steel **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	PAINTER	BRIDGES							

Craft: Painter-Structural Steel **COMMENTS/NOTES**

These rates apply to: All work in power plants (any aspect). On steeples, on dams, on hangers, transformers, substations, etc. and on open steel, whether new or repaint. All new work (excluding traditional commercial painting work) in refineries, tank farms, water/sewerage treatment facilities and on pipelines.

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Paperhanger - New Construction **PREVAILING WAGE RATE**

	05/01/17
Foreman	W45.32 B21.44 T66.76
Journeyman	W41.20 B22.01 T63.21

Craft: Paperhanger - New Construction **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
4 Months	30%	40%	50%	60%	70%	75%	80%	85%	90%	
Benefits	Intervals	1 to 3 =	8.00	Intervals	4 to 6 =	10.00	Intervals	7 to 9 =	11.00	

Ratio of Apprentices to Journeymen - 1:4

Craft: Paperhanger - New Construction **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM ON 5-1-14:

INTERVAL	PERIOD AND RATES							
6 Months	40%	45%	55%	65%	70%	75%	80%	90%
Benefits	8.00	8.00	10.00	10.00	11.00	11.00	14.00	14.00

FOREMEN REQUIREMENTS:
- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Paperhanger - Renovation **PREVAILING WAGE RATE**

	05/01/17
Foreman	W35.06 B18.53 T53.59
Journeyman	W31.88 B18.53 T50.41

Craft: Paperhanger - Renovation **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	PAPER-	HANGER	NEW	CONSTR UC	TION				

Ratio of Apprentices to Journeymen - 1:4

Craft: Paperhanger - Renovation **COMMENTS/NOTES**

NOTE: These rates may only be used on jobs where no major alterations occur, and where not more than 3 other trades are present on the job, but may NOT, under any circumstances, be used for work on bridges, stacks, elevated tanks, or generating stations.

FOREMEN REQUIREMENTS:
- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

OVERTIME:
- Hours in excess of 8 per day and 40 per week shall be paid at time and one-half the regular rate.
- Four 10-hour days may be worked, at straight time, Monday through Sunday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Pipefitter **PREVAILING WAGE RATE**

	05/01/17	05/01/18	05/01/19
Foreman	W52.26 B41.12 T93.38	W0.00 B0.00 T95.60	W0.00 B0.00 T97.82
Journeyman	W48.51 B38.18 T86.69	W0.00 B0.00 T88.91	W0.00 B0.00 T91.13

Craft: Pipefitter **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	35%	45%	55%	65%	75%					
Benefit	16.14	19.95	23.75	26.05	28.45					

Ratio of Apprentices to Journeymen - 1:5

Craft: Pipefitter **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- When there are 2 or more Journeyman Pipefitters on a job, 1 shall be designated a Foreman.
- There shall be a Foreman for every 8 Journeyman Pipefitters on a job.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM.

SHIFT DIFFERENTIAL:
- 2nd Shift (3:30 PM-11:30 PM) shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 25% per hour.
- 3rd Shift (11:30 PM-7:00 AM) shall work 7 hours and receive 8 hours pay at the regular rate, plus 30% per hour.

OVERTIME:
- All hours worked in excess of 8 per day, Monday through Friday, and all hours worked on Saturday, shall be paid at time and one-half, inclusive of benefits. All hours on Sunday and holidays shall be paid at double time, inclusive of benefits.
- By mutual agreement, employees may work four 10-hour days, Monday to Thursday, at straight time rate. Friday may be used as a make-up day for a day lost to inclement weather, and may be paid at straight time. If Friday is not a make-up day, the first 8 hours shall be paid at time and one-half, inclusive of benefits; hours in excess of 8 shall be paid at double time, inclusive of benefits.

SHIFT DIFFERENTIAL (Maintenance Work Only):
- 2nd Shift (3:30 PM-11:30 PM) shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 10% per hour.
- 3rd Shift (11:30 PM-7:00 AM) shall work 7 hours and receive 8 hours pay at the regular rate, plus 15% per hour.

OVERTIME (Maintenance Work Only):
- All hours in excess of 8 per day, Monday through Saturday, shall be paid at time and one-half, inclusive of benefits. All hours on Sundays and holidays shall be paid at double time, inclusive of benefits.

NOTE: Maintenance work is work to repair, restore, or improve the efficiency of existing facilities. This does NOT apply to

ANY new construction.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays are observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Plasterer **PREVAILING WAGE RATE**

See Bricklayer, Stone Mason Rates

Craft: Plasterer **COMMENTS/NOTES**

See BRICKLAYER, STONE MASON Rates

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Plumber **PREVAILING WAGE RATE**

	05/01/17
Foreman	W56.87 B33.84 T90.71
General Foreman	W60.56 B33.84 T94.40
Journeyman	W52.66 B33.84 T86.50

Craft: Plumber **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	30%	45%	55%	65%	75%					
Benefits	10.15	15.23	18.61	22.00	25.38					

Ratio of Apprentices to Journeymen - *

* Employers may employ 1 apprentice on any job where 1 or 2 journeymen are employed. Thereafter, 1 apprentice may be employed for every 4 journeymen.

Craft: Plumber **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- On any job having 2 or more Plumbers, 1 must be designated a Foreman.
- On any job having 9 or more Plumbers, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours between 7:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must continue for a minimum of 5 consecutive workdays.
- When two shifts are worked, the second shift shall work 7.5 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 10%, inclusive of benefits.
- When a third shift is worked, the third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 15%, inclusive of benefits.

OVERTIME:
- All hours in excess of 8 per day, or before of after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays, shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Roofer **PREVAILING WAGE RATE**

	06/06/16
Foreman	W36.52 B25.03 T61.55
Journeyman	W35.52 B25.03 T60.55

Craft: Roofer **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	14.21	17.76	21.31	24.86	28.42	31.97				
Benefits	2.10	2.10	22.28	22.28	22.28	22.28				

Ratio of Apprentices to Journeymen - *

* A) For roofing jobs that are of the 1 or single ply nature: 1:2 or fraction thereof
B) For roofing jobs on new built up roofs: 1:3 or fraction thereof
C) For roofing jobs that are of a tear-off nature: 1:2 or fraction thereof
D) For roofing jobs {not requiring complete removal of existing systems, installation done over existing roof}: 1:3 or fraction thereof

Craft: Roofer **COMMENTS/NOTES**

Pitch: +.50 per hour

Mop Man: +.30 per hour

The regular workday consists of 8 hours between 8:00 AM and 4:30 PM.

OVERTIME:
Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays, Sundays, and holidays shall be paid at time and one-half the regular rate.

RECOGNIZED HOLIDAYS: New Year's Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Sheet Metal Sign Installation **PREVAILING WAGE RATE**

	04/13/17	10/01/17
Foreman	W34.79 B32.13 T66.92	W34.79 B32.89 T67.68
Journeyman	W33.54 B32.13 T65.67	W33.54 B32.89 T66.43

Craft: Sheet Metal Sign Installation **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 hours	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%
Benefits	10.44	11.89	13.34	14.82	16.68	18.17	19.66	21.16	22.65	24.14

Ratio of Apprentices to Journeymen - 1:3

Craft: Sheet Metal Sign Installation **COMMENTS/NOTES**

FOREMAN REQUIREMENT:
When there are 6 or more Sheet Metal Sign Installers on a job, 1 shall be designated a Foreman.

The regular workday consists of 8 hours, between 7:00 AM and 3:30 PM.

OVERTIME:
Hours before or after the regular workday, Monday though Friday, and all hours worked on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

Four(4) 10 hour days may be worked, Monday through Friday, at straight time, for projects lasting at least one week in duration. The fifth day may be used as a make-up day at straight time for a day lost due to inclement weather. However, if the fifth day is not a make-up day, all hours worked will be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Sheet Metal Worker **PREVAILING WAGE RATE**

	08/02/16	06/01/17
Foreman	W49.99 B38.73 T88.72	W0.00 B0.00 T91.22
General Foreman	W50.99 B38.73 T89.72	W0.00 B0.00 T92.22
Journeyman	W46.49 B38.73 T85.22	W0.00 B0.00 T87.72

Craft: Sheet Metal Worker **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	35%	45%	55%	65%	of	Journey	man	Wage	Rate	
Benefit	35%	45%	55%	65%	of	Journey	man	Benefit	Rate	

Ratio of Apprentices to Journeymen - 1:4

Craft: Sheet Metal Worker **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- When there are 2 or more Sheet Metal Workers on a project, 1 must be designated a Foreman.
- When there are 17 or more Sheet Metal Workers on a project, 1 must be designated a General Foreman.
- When there is only 1 Sheet Metal Worker (1 Journeyman) on a project, he/she shall receive $1.00 more than the regular Journeyman's rate.

The regular workday is 8 hours between 7:00 AM and 4:30 PM.

SHIFT DIFFERENTIAL:
- 2nd Shift (3:30 PM - 12:00 AM) : +17% of regular hourly rate
- Shift work must run for a minimum of 5 consecutive workdays.

OVERTIME:
- Hours in excess of 8 per day, or before or after the regular workday, that are not shift work, and the first 10 hours on Saturdays shall be paid at time and one-half of the regular rate, inclusive of benefits. Hours in excess of 10 per day on Saturday, and all hours on Sundays and holidays shall be at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Friday, at straight time, with hours in excess of 10 per day, and hours in excess of 40 per week paid at the overtime rates listed above.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Sprinkler Fitter **PREVAILING WAGE RATE**

	01/01/17	07/01/17	01/01/18	07/01/18	01/01/19
Foreman	W62.93 B26.12 T89.05	W64.93 B26.12 T91.05	W64.38 B26.67 T91.05	W66.63 B26.67 T93.30	W66.08 B27.22 T93.30
General Foreman	W65.93 B26.12 T92.05	W67.93 B26.12 T94.05	W67.38 B26.67 T94.05	W69.63 B26.67 T96.30	W69.08 B27.22 T96.30
Journeyman	W58.83 B26.12 T84.95	W60.83 B26.12 T86.95	W60.28 B26.67 T86.95	W62.53 B26.67 T89.20	W61.98 B27.22 T89.20

Craft: Sprinkler Fitter **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
1000 Hours	9.50	11.25	50%	55%	60%	65%	70%	75%	80%	85%
Benefits	10.67	10.67	21.22	21.22	21.22	21.22	Intervals	7 to 10	Jourymn	Ben.

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES REGISTERED AS OF 7-1-13:

INTERVAL	PERIOD AND RATES									
1000 hours	25%	30%	40%	45%	55%	60%	70%	75%	85%	90%
Benefits	10.67	10.67	21.22	21.22	21.22	21.22	Intervals 7 to 10 receive Journeyman Ben.			

Craft: Sprinkler Fitter **COMMENTS/NOTES**

The regular workday consists of 8 consecutive hours between 6:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:
- The first Sprinkler Fitter on the job must be designated a Foreman.
- On any job having 12 or more Sprinkler Fitters, one must be designated a General Foreman.

SHIFT DIFFERENTIALS:
- Shift work must run for a minimum of 2 consecutive workdays.
- 2nd and 3rd shift shall receive an additional 15% of the regular rate, per hour.
- Any "off hours" shift starting at 8:00 PM or later shall receive an additional 25% of the regular rate, per hour.

OVERTIME:
The first 2 hours in excess of 8 per day, after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate. Hours worked in excess of 10 per day, Monday through Friday, and all hours on Saturday, Sunday and holidays, shall be paid double the regular rate.
Four 10 hour days may be worked, Monday through Thursday, at straight-time.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Tile Finisher-Marble **PREVAILING WAGE RATE**

	01/01/17	07/01/17	01/01/18
Finisher	W46.01 B32.68 T78.69	W46.32 B33.44 T79.76	W46.66 B34.18 T80.84

Craft: Tile Finisher-Marble **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	50%	55%	65%	70%	75%	85%	90%	95%		

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Finisher-Marble **COMMENTS/NOTES**

OVERTIME:
Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Tile Setter - Ceramic **PREVAILING WAGE RATE**

	12/08/16
Finisher	W43.36 B29.09 T72.45
Setter	W56.13 B32.39 T88.52

Craft: Tile Setter - Ceramic **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	50%	55%	60%	65%	70%	75%	85%	95%	100%	

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Setter - Ceramic **COMMENTS/NOTES**

OVERTIME:
Hours in excess of 7 per day, and the first 10 hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Saturdays after 10 hours shall be paid double the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Tile Setter - Marble **PREVAILING WAGE RATE**

	01/01/17	07/01/17	01/01/18
Tile Setter	W57.74 B34.26 T92.00	W58.18 B35.27 T93.45	W58.53 B36.37 T94.90

Craft: Tile Setter - Marble **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	50%	55%	65%	70%	75%	85%	90%	95%		

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Setter - Marble **COMMENTS/NOTES**

OVERTIME:
Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays, and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Tile Setter - Mosaic & Terrazzo **PREVAILING WAGE RATE**

	01/01/17
Grinder or Assistant	W50.86 B34.14 T85.00
Mechanic	W52.46 B34.16 T86.62

Craft: Tile Setter - Mosaic & Terrazzo **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	50%	55%	65%	70%	75%	85%	90%	95%		

Ratio of Apprentices to Journeymen - 1:5

Craft: Tile Setter - Mosaic & Terrazzo **COMMENTS/NOTES**

The regular workday consists of 7 hours, between 8:00 AM and 3:30 PM.

OVERTIME:
- Hours in excess of 7 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Monday after Easter, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Truck Driver **PREVAILING WAGE RATE**

	05/01/17	11/01/17	05/01/18	11/01/18
Bucket, Utility, Pick-up, Fuel Delivery trucks	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Dump truck, Asphalt Distributor, Tack Spreader	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Euclid-type vehicles (large, off-road equipment)	W36.98 B33.78 T70.76	W36.98 B34.58 T71.56	W37.41 B35.40 T72.81	W37.81 B35.80 T73.61
Helper on Asphalt Distributor truck	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Slurry Seal, Seeding/Fertilizing/ Mulching truck	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Straight 3-axle truck	W36.88 B33.78 T70.66	W36.88 B34.58 T71.46	W37.31 B35.40 T72.71	W37.71 B35.80 T73.51
Tractor Trailer (all types)	W36.98 B33.78 T70.76	W36.98 B34.58 T71.56	W37.41 B35.40 T72.81	W37.81 B35.80 T73.61
Vacuum or Vac-All truck (entire unit)	W36.83 B33.78 T70.61	W36.83 B34.58 T71.41	W37.26 B35.40 T72.66	W37.66 B35.80 T73.46
Winch Trailer	W37.08 B33.78 T70.86	W37.08 B34.58 T71.66	W37.51 B35.40 T72.91	W37.91 B35.80 T73.71

Craft: Truck Driver **COMMENTS/NOTES**

BLENDED RATE:
When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate" which shall be 80% of the above-listed wage rates, plus the full benefit rate. This rate shall be used when the driver "round robins" for a minimum of 6 hours during the work day.

HAZARDOUS WASTE REMOVAL:
- On hazardous waste removal work on a State designated hazardous waste site where the driver is in direct contact with hazardous materials and when personal protective equipment is required for respiratory, skin, and eye protection, the driver shall receive an additional $3.00 per hour (with or without protective gear).
- A hazardous waste related certified worker at a designated hazardous waste site who is not working in a zone requiring level A, B or C personal protection shall receive an additional $1.00 per hour.

TRUCK FOREMAN: $.75 cents per hour above regular rate. Overtime shall be increased accordingly.

The regular workday shall be 8 hours, starting between 6:00 AM and 8:00 AM.

SHIFT DIFFERENTIAL:
- Shifts starting at 4:00 PM (2nd Shift): + $2.50 per hour.
- Shifts starting at 12:00 AM (midnight/3rd Shift): time and one-half the hourly rate.
- Shifts starting at a time other than from 6:00 AM to 8:00 AM, when such hours are mandated by the project owner: + $2.50 per hour.

OVERTIME:
- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Employees may work four 10-hour days at straight time, Monday through Thursday, with Friday used as a make-up day for a lost day. If Friday is not a make-up day, then all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day (Decoration Day), July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veterans' Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Truck Driver-Material Delivery Driver **PREVAILING WAGE RATE**

	05/01/12
Driver	W22.90 B10.17 T33.07

Craft: Truck Driver-Material Delivery Driver **COMMENTS/NOTES**

BLENDED RATE:
When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate". See the "Truck Driver" craft for the blended rates.

Truck Foreman/Shop Steward: +$0.25 per hour

SHIFT DIFFERENTIALS:
- 2nd Shift shall receive an additional $0.50 per hour
- 3rd Shift shall receive time and one-half the hourly rate.

OVERTIME:
- Hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day (Decoration Day), July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veterans' Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - UNION

Craft: Welder **PREVAILING WAGE RATE**

Welder

Craft: Welder **COMMENTS/NOTES**

Welders rate is the same as the craft to which the welding is incidental.

STATEWIDE RATES

TERRITORY

ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:
- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veteran's Day.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
47.63	30.63	78.26

CLASSIFICATIONS:

A-Frame

Backhoe (combination)

Boom Attachment on loaders (Except pipehook)

Boring & Drilling Machine

Brush Chopper, Brush Shredder, Tree Shredder

Bulldozer, finish grade

Cableway

Carryall

Concrete Pump

Concrete Pumping System (Pumpcrete & similar types)

Conveyor, 125 feet or longer

Drill Doctor (Duties include dust collector and maintenance)

Front End Loader (2 cu. yds. but less than 5 cu. yds.)

Grader, finish

Groove Cutting Machine (ride-on type)

Heater Planer

Hoist (all types including steam, gas, diesel, electric, air hydraulic, single and double drum, concrete, brick shaft caisson, snorkle roof, and other similar types, Except Chicago-boom type)

Hydraulic Crane (10 tons & under)

Hydro-Axe

Hydro-Blaster

Jack (screw, air hydraulic, power-operated unit, or console type, Except hand jack or pile load test type)

Log Skidder

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
47.63	30.63	78.26

CLASSIFICATIONS:

Pan

Paver, concrete

Plate & Frame Filter Press

Pumpcrete (unit type)

Pumpcrete, Squeezecrete, or Concrete Pumping machine (regardless of size)

Scraper

Side Boom

Straddle Carrier (Ross and similar types)

Vacuum Truck

Whiphammer

Winch Truck (hoisting)

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
45.72	30.63	76.35

CLASSIFICATIONS:

Asphalt Curbing Machine

Asphalt Plant Engineer

Asphalt Spreader

Autograde Curb Trimmer & Sidewalk Shoulder Slipform (CMI & similar types)

Autograde Curecrete Machine (CMI & similar types)

Autograde Tube Finisher & Texturing Machine (CMI & similar types)

Bar Bending Machines (Power)

Batcher, Batching Plant, & Crusher [On Site]

Belt Conveyor System

Boom-Type Skimmer Machine

Bridge Deck Finisher

Bulldozer (all sizes)

Captain (Power Boats)

Car Dumper (railroad)

Compressor & Blower unit for loading/unloading of concrete, cement, fly ash, or similar type materials (used independently or truck-mounted)

Compressor (2 or 3 battery)

Concrete Breaking Machine

Concrete Cleaning/Decontamination Machine

Concrete Finishing Machine

Concrete Saw or Cutter (ride-on type)

Concrete Spreader (Hetzel, Rexomatic & similar types)

Concrete Vibrator

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
45.72	30.63	76.35

CLASSIFICATIONS:

Conveyors - under 125 feet

Crane Signalman

Crushing Machine

Directional Boring Machine

Ditching Machine - Small (Ditchwitch, Vermeer or similar types)

Dope Pot - Mechanical (with or without pump)

Dumpster

Elevator

Fireman

Fork Lift (Economobile, Lull & similar types)

Front End Loader (1 cu. yd. and over but less than 2 cu. yds.)

Generator (2 or 3 battery)

Giraffe Grinder

Grader & Motor Patrols

Grout Pump

Gunnite Machine (Excluding nozzle)

Hammer - Vibratory (in conjunction with generator)

Heavy Equipment Robotics - Operator/Technician

Hoist (roof, tugger, aerial platform hoist, house car)

Hopper

Hopper Doors (power operated)

Ladder (motorized)

Laddervator

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
45.72	30.63	76.35

CLASSIFICATIONS:

Locomotive (Dinky-type)

Maintenance Utility Man

Master Environmental Maintenance Technician

Mechanic

Mixer (Except paving mixers)

Pavement Breaker (truck-mounted or small self-propelled ride-on type)

Pavement Breaker - maintenance of compressor or hydraulic unit

Pipe Bending Machine (power)

Pitch Pump

Plaster Pump (regardless of size)

Post Hole Digger (post pounder, auger)

Roller (black top)

Scale (power)

Seamen Pulverizing Mixer

Shoulder Widener

Silo

Skimmmer Machine (boom type)

Steel Cutting Machine (service & maintenance)

Tamrock Drill

Tractor

Transfer Machines

Tug Captains

Tug Master (Power Boats)

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
45.72	30.63	76.35

CLASSIFICATIONS:

Ultra High Pressure Waterjet Cutting Tool System - Operator/Maintenance Technician

Vacuum Blasting Machine - Operator/Maintenance Technician

Vibrating Plant (used with unloading)

Welder & Repair Mechanic

Effective Dates:

02/15/2017

Rate	Fringe	Total
42.38	30.63	73.01

CLASSIFICATIONS:

Assistant Engineer/Oiler

Driller's Helper

Field Engineer - Transit man or Instrument man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Mechanic's Helper

Off Road Back Dump

Effective Dates:

02/15/2017

Rate	Fringe	Total
39.80	30.63	70.43

CLASSIFICATIONS:

Field Engineer - Rodman or Chainman

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
49.96	30.63	80.59

CLASSIFICATIONS:

Lead Engineer, Foreman Engineer, Safety Engineer (minimum)

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
49.22	30.63	79.85

CLASSIFICATIONS:

Autograde Pavement Profiler (CMI & similar types)

Autograde Pavement Profiler - Recycle Type (CMI & similar types)

Autograde Placer/Trimmer/Spreader Combination (CMI & similar types)

Autograde Slipform Paver (CMI & similar types)

Backhoe (Excavator)

Central Power Plant

Concrete Paving Machine

Draglines

Drill, Bauer, AMI and similar types

Drillmaster, Quarrymaster

Drillmaster/Quarrymaster (down-the-hole drill), rotary drill, self-propelled hydraulic drill, self-powered drill

Elevator Grader

Field Engineer-Chief of Party

Front End Loader (5 cu. yards or larger)

Gradall

Grader, Rago

Helicoptor Co-Pilot

Helicoptor Communications Engineer

Juntann Pile Driver

Locomotive (large)

Mucking Machine

Pavement & Concrete Breaker (Superhammer & Hoe Ram)

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
49.22	30.63	79.85

CLASSIFICATIONS:

Pile Driver

Prentice Truck

Roadway Surface Grinder

Scooper (loader & shovel)

Shovel (Excavator)

Trackhoe (Excavator)

Tree Chopper with boom

Trenching Machine (cable plow)

Tunnel Boring Machine

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
44.09	30.63	74.72

CLASSIFICATIONS:

Chipper

Compressor (single)

Concrete Spreader (small type)

Conveyor Loader (Except elevator graders)

Engines, Large Diesel (1620 HP) & Staging Pump

Farm Tractor

Fertilizing Equipment (operation & maintenance)

Fine Grade Machine (small type)

Form Line Grader (small type)

Front End Loader (under 1 cubic yard)

Generator (single)

Grease, Gas, Fuel, & Oil Supply Trucks

Heaters (Nelson or other type)

Lights - portable generating light plant

Mixer, Concrete (small)

Mulching Equipment (operation & maintenance)

Power Broom or Sweeper

Pump (diesel engine & hydraulic - regardless of power)

Pump (larger than 2 inch suction, including submersible pumps)

Road Finishing Machine (small type)

Roller - grade, fill, or stone base

Seeding Equipment (operation & maintenance)

Sprinkler & Water Pump Trucks

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
44.09	30.63	74.72

CLASSIFICATIONS:

Steam Generator or Boiler

Stone Spreader

Tamping Machine (vibrating ride-on type)

Temporary Heating Plant (Nelson or other type, including proprane, natural gas, and flow-type units)

Water or Sprinkler Truck

Welding Machine (gas, diesel, or electric convertor, of any type)

Welding System - Multiple (rectifier transformer type)

Wellpoint Systems (including installation by bull gang and maintenance)

Effective Dates:

02/15/2017

Rate	Fringe	Total
51.04	30.63	81.67

CLASSIFICATIONS:

Helicoptor Pilot/Engineer

Effective Dates:

02/15/2017

Rate	Fringe	Total
55.72	30.63	86.35

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), over 100 tons and TOWER CRANE with boom (including jib and/or leads) 140 ft. and over

Effective Dates:

02/15/2017

Rate	Fringe	Total
54.72	30.63	85.35

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), over 100 tons and TOWER CRANE with boom (including jib and/or leads) from 100 ft. to 139 ft.

OPERATING ENGINEERS **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
51.22	30.63	81.85

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types) , under 100 tons with a boom (including jib and/or leads) 140 ft. and over

Effective Dates:

02/15/2017

Rate	Fringe	Total
53.72	30.63	84.35

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), over 100 tons and TOWER CRANE with a boom (including jib and/or leads) under 100 ft.

Effective Dates:

02/15/2017

Rate	Fringe	Total
50.22	30.63	80.85

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), under 100 tons with a boom (including jib and/or leads) from 100 ft. to 139 ft.

STRUCTURAL STEEL ERECTION **Rates Expiration Date : 06/30/2017**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:
- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veteran's Day.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

Effective Dates:

02/15/2017

Rate	Fringe	Total
52.85	30.63	83.48

CLASSIFICATIONS:

Helicopter Pilot or Engineer

STRUCTURAL STEEL ERECTION **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
48.79	30.63	79.42

CLASSIFICATIONS:

A-Frame

Cherry Picker -10 tons or less (Over 10 tons use crane rate)

Hoist (all types Except Chicago-boom)

Jack (screw, air hydraulic, power-operated unit or console type, Except hand jack or pile load test type)

Side Boom

Straddle Carrier

Effective Dates:

02/15/2017

Rate	Fringe	Total
46.13	30.63	76.76

CLASSIFICATIONS:

Aerial Platform Used On Hoists

Apprentice Engineer/Oiler with Compressor or Welding Machine

Captain (Power Boats)

Compressor (2 or 3 in battery)

Conveyor or Tugger Hoist

Elevator or House Car

Fireman

Forklift

Generator (2 or 3)

Maintenance Utility Man

Tug Master (Power Boats)

Welding Machines, Gas or Electric Converters on any type-2 or 3 in battery including diesels

STRUCTURAL STEEL ERECTION **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
44.60	30.63	75.23

CLASSIFICATIONS:

Compressor (Single)

Generators

Welding Machines, Gas, Diesel, Or Electric Converters of any type-single

Welding System, Multiple (Rectifier Transformer Type)

Effective Dates:

02/15/2017

Rate	Fringe	Total
42.84	30.63	73.47

CLASSIFICATIONS:

Assistant Engineer/Oiler

Drillers Helper

Field Engineer - Transit/Instrument Man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Effective Dates:

02/15/2017

Rate	Fringe	Total
50.41	30.63	81.04

CLASSIFICATIONS:

Lead Engineer, Foreman Engineer, Safety Engineer (Minimum)

Effective Dates:

02/15/2017

Rate	Fringe	Total
39.80	30.63	70.43

CLASSIFICATIONS:

Field Engineer - Rodman or Chainman

STRUCTURAL STEEL ERECTION **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
49.55	30.63	80.18

CLASSIFICATIONS:

Field Engineer-Chief of Party

Effective Dates:

02/15/2017

Rate	Fringe	Total
57.74	30.63	88.37

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms, including jib, 140 ft. and over, above ground). Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), and Pile Drivers (all types) over 100 tons and Tower Cranes.

Effective Dates:

02/15/2017

Rate	Fringe	Total
56.08	30.63	86.71

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. abovr ground), Derricks (all derricks. land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), over 100 tons and Tower Crane.

Effective Dates:

02/15/2017

Rate	Fringe	Total
53.24	30.63	83.87

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, 140 ft. and over, above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), Pile Drivers (all types), under 100 tons.

Effective Dates:

02/15/2017

Rate	Fringe	Total
51.58	30.63	82.21

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), under 100 tons.

STRUCTURAL STEEL ERECTION **Rates Expiration Date : 06/30/2017**

Effective Dates:

02/15/2017

Rate	Fringe	Total
53.24	30.63	83.87

CLASSIFICATIONS:

Helicopter Co-Pilot

Helicopter Communications Engineer

TEST BORING PRELIMINARY TO CONSTRUCTION-SOUTH/WEST **Rates Expiration Date : 06/30/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Monmouth, Ocean, Salem, Sussex, Warren

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:
- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veteran's Day.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

Effective Dates:

02/15/2017

Rate	Fringe	Total
49.22	30.63	79.85

CLASSIFICATIONS:

Driller

Effective Dates:

02/15/2017

Rate	Fringe	Total
42.38	30.63	73.01

CLASSIFICATIONS:

Driller's Helper

FREE AIR TUNNEL JOBS **Rates Expiration Date : 08/31/2017**

{For apprentice rates refer to "Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $2.50 per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:
-where Level A, B, or C protection is required: + $3.00/hr
-other Hazardous Waste site: + $1.00/hr

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Effective Dates:

	03/01/2017	
Rate	Fringe	Total
41.50	29.03	70.53

CLASSIFICATIONS:

Walking Boss & Superintendent

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
41.20	29.03	70.23

CLASSIFICATIONS:

Heading Foreman, Shaft Foreman, Rod Foreman, Electrician Foreman, Rigging Foreman

FREE AIR TUNNEL JOBS **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2017

Rate	Fringe	Total
40.70	29.03	69.73

CLASSIFICATIONS:

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Cleanup Foreman, Grout Foreman

Effective Dates:

03/01/2017

Rate	Fringe	Total
43.20	29.03	72.23

CLASSIFICATIONS:

Blaster

Effective Dates:

03/01/2017

Rate	Fringe	Total
40.15	29.03	69.18

CLASSIFICATIONS:

Top Labor Foreman

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.80	29.03	68.83

CLASSIFICATIONS:

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Manitenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Tod Man)

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.65	29.03	68.68

CLASSIFICATIONS:

Semi-Skilled Men (including Bell or Signal Man Top or Bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

FREE AIR TUNNEL JOBS **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.15	29.03	68.18

CLASSIFICATIONS:

All Others (including Powder Watchman, Change House Attendant, Top Laborer)

DRILL FOR GROUND WATER SUPPLY **Rates Expiration Date : 06/30/2017**

The well driller and/or helper may perform all work relative to the construction, finishing, and servicing of wells, pumps and borings for ground water supply. The present methods of well drilling entailing as they do, many diverse job operations calling for drilling, pump discharge, piping, and the operation of various types of related power equipment, shall all be within the job duties and functions of the well driller and/or helper. In the event that an extension of work should occur beyond water well drilling functions, into the field of general construction work, such extension of work would come under the appropriate rates listed elsewhere in this wage determination.

- For Work Hours, Shift Differentials, Overtime Rates, and Recognized Holidays see the "Operating Engineers" section of this wage determination.

Effective Dates:

02/15/2017

Rate	Fringe	Total
47.97	30.63	78.60

CLASSIFICATIONS:

Driller

Effective Dates:

02/15/2017

Rate	Fringe	Total
41.13	30.63	71.76

CLASSIFICATIONS:

Driller's Helper

OPERATING ENGINEERS MARINE-DREDGING **Rates Expiration Date : 09/30/2018**

NOTE: Boat crews carrying explosive material (dynamite, pourfex, and other similar materials) shall be paid at 120% of the hourly wage rate for hours engaged in handling of said materials. Employees required to possess a Hazardous Material Certification as a condition of employment shall be compensated at 120% of the hourly wage rate.

OVERTIME:
Hours in excess of 40 per week, and all hours on Saturdays and Sundays, shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Martin Luther King Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

	10/01/2016		10/01/2017
Rate	Fringe	Total	Total
37.25	13.78	51.03	52.51

CLASSIFICATIONS:

Lead Dredgerman, Operator, Leverman

Licensed Tug Operator (over 1000 HP)

Effective Dates:

	10/01/2016		10/01/2017
Rate	Fringe	Total	Total
32.22	13.38	45.60	46.95

CLASSIFICATIONS:

Derrick Operator, Spider/Spill Barge Operator

Engineer, Electrician, Chief Welder, Chief Mate

Fill Placer, Operator II

Licensed Boat Operator

Maintenance Engineer

Effective Dates:

	10/01/2016		10/01/2017
Rate	Fringe	Total	Total
30.33	13.23	43.56	44.86

CLASSIFICATIONS:

Certified Welder

OPERATING ENGINEERS MARINE-DREDGING **Rates Expiration Date : 09/30/2018**

Effective Dates:

10/01/2016			10/01/2017
Rate	Fringe	Total	Total
29.50	12.86	42.36	43.64

CLASSIFICATIONS:

Mate, Drag Barge Operator, Steward, Assistant Fill Placer

Welder

Effective Dates:

10/01/2016			10/01/2017
Rate	Fringe	Total	Total
28.54	12.78	41.32	42.58

CLASSIFICATIONS:

Boat Operator

Effective Dates:

10/01/2016			10/01/2017
Rate	Fringe	Total	Total
23.71	12.10	35.81	36.92

CLASSIFICATIONS:

Shoreman, Deckhand, Rodman, Scowman

MICROSURFACING/SLURRY SEAL **Rates Expiration Date : 02/28/2018**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem
IN ALL OTHER COUNTIES use the Heavy and General Laborers - North "Slurry Seal Laborer" rates.

SHIFT DIFFERENTIALS:
Any shift starting at 3:30 PM or later shall receive an additional $0.35/hr

OVERTIME:
Hours in excess of 8 per day or 40 per week shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

Effective Dates:

03/01/2017

Rate	Fringe	Total
36.50	21.27	57.77

CLASSIFICATIONS:

Foreman

Effective Dates:

03/01/2017

Rate	Fringe	Total
33.80	21.27	55.07

CLASSIFICATIONS:

Box man

Effective Dates:

03/01/2017

Rate	Fringe	Total
31.75	21.27	53.02

CLASSIFICATIONS:

Microsurface/Slurry Preparation

Effective Dates:

03/01/2017

Rate	Fringe	Total
31.75	21.27	53.02

CLASSIFICATIONS:

Squeegee man

MICROSURFACING/SLURRY SEAL **Rates Expiration Date : 02/28/2018**

Effective Dates:

03/01/2017

Rate	Fringe	Total
30.30	21.27	51.57

CLASSIFICATIONS:

Cleaner, Taper

ASPHALT LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

"THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem
{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}
The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.
SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $2.50 per hour.
OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.
RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.
Hazardous Waste Work:
-where Level A, B, or C protection is required: + $3.00/hr
-other Hazardous Waste site: + $1.00/hr

Effective Dates:

03/01/2017

Rate	Fringe	Total
41.00	29.03	70.03

CLASSIFICATIONS:

Paving Foreman

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.55	29.03	68.58

CLASSIFICATIONS:

Head Raker

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.40	29.03	68.43

CLASSIFICATIONS:

Raker, Screedman, Luteman

ASPHALT LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.15	29.03	68.18

CLASSIFICATIONS:

Tampers, Smoothers, Kettlemen, Painters, Shovelers, Roller Boys

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.25	29.03	68.28

CLASSIFICATIONS:

Milling Controller

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.45	29.03	68.48

CLASSIFICATIONS:

Traffic Control Coordinator

TEST BORING PRELIMINARY TO CONSTRUCTION-NORTH **Rates Expiration Date : 10/16/2018**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Union

SHIFT DIFFERENTIAL:
Employees on a shift other than between the hours of 8:00 AM and 5:00 PM shall receive an additional $1.00 per hour.

OVERTIME:
Hours in excess of 8 per day, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Hazardous Waste Pay (for Levels A, B, and C): an additional 10% of the hourly rate, per hour.

A newly hired Helper with no experience in the industry shall be paid as follows:
1st year on the job - 70% of Helper wage rate
2nd year on the job - 80% of Helper wage rate
3rd year on the job - 90% of Helper wage rate
All helpers receive full fringe benefit rate.

Effective Dates:

	11/01/2016		**10/17/2017**
Rate	Fringe	Total	Total
30.96	24.76	55.72	57.17

CLASSIFICATIONS:

Helper (4th year helper)

Effective Dates:

	11/01/2016		**10/17/2017**
Rate	Fringe	Total	Total
38.82	24.76	63.58	65.24

CLASSIFICATIONS:

Driller

Effective Dates:

	11/01/2016		**10/17/2017**
Rate	Fringe	Total	Total
44.64	24.76	69.40	71.28

CLASSIFICATIONS:

Foreman

HEAVY & GENERAL LABORERS - NORTH **Rates Expiration Date : 08/31/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $2.50 per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:
-where Level A, B, or C protection is required: + $3.00/hr
-other Hazardous Waste site: + $1.00/hr

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
38.75	29.03	67.78

CLASSIFICATIONS:

"D" Rate:
basic, landscape, asphalt, slurry seal, or railroad track laborer; utility meter installer; traffic director/flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofer; timberman; wagon drill or drill master helper; powder carrier; magazine tender; signal man; power buggy operator; tree cutter; operator of basic power tools

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
39.45	29.03	68.48

CLASSIFICATIONS:

"C" Rate:
pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning; wagon drill, directional drill, or hydraulic drill operator; drill master; core driller; traffic control coordinator; asphalt raker or lute man

HEAVY & GENERAL LABORERS - NORTH **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.70	29.03	68.73

CLASSIFICATIONS:

"B" Rate:
concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; asphalt screedman; rammer; hardscaping; gunite nozzle man

Effective Dates:

03/01/2017

Rate	Fringe	Total
43.25	29.03	72.28

CLASSIFICATIONS:

"A" Rate:
blaster

Effective Dates:

03/01/2017

Rate	Fringe	Total
41.00	29.03	70.03

CLASSIFICATIONS:

"FOREMAN" Rate:
labor foreman, asphalt foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

Effective Dates:

03/01/2017

Rate	Fringe	Total
42.00	29.03	71.03

CLASSIFICATIONS:

"GENERAL FOREMAN" Rate

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $2.50 per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:
-where Level A, B, or C protection is required: + $3.00/hr
-other Hazardous Waste site: + $1.00/hr

Effective Dates:

03/01/2017

Rate	Fringe	Total
38.75	29.03	67.78

CLASSIFICATIONS:

basic, landscape, or railroad track laborer; utility meter installer; traffic director/flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofers

tree cutter, timberman

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.45	29.03	68.48

CLASSIFICATIONS:

wagon drill or drill master helper; powder carrier; magazine tender; signal man

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.45	29.03	68.48

CLASSIFICATIONS:

pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.45	29.03	68.48

CLASSIFICATIONS:

wagon or directional drill operator; drill master

Effective Dates:

03/01/2017

Rate	Fringe	Total
43.25	29.03	72.28

CLASSIFICATIONS:

blaster

Effective Dates:

03/01/2017

Rate	Fringe	Total
41.00	29.03	70.03

CLASSIFICATIONS:

labor foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

Effective Dates:

03/01/2017

Rate	Fringe	Total
42.00	29.03	71.03

CLASSIFICATIONS:

general foreman

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date : 08/31/2017**

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
39.70	29.03	68.73

CLASSIFICATIONS:

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; rammer; gunite nozzle man

PIPELINE - MAINLINE TRANSMISSION **Rates Expiration Date : 06/04/2017**

These rates apply to the following: welding on Transportation Mainline pipe lines (cross-country pipe lines, or any segments thereof, transporting coal, gas, oil, water or other transportable materials, vapors or liquids, including portions of such pipe lines within private property boundaries up to the final metering station or connection - the point where a valve, consumer connection, or town border station divides mainline transmission lines or higher pressure lateral and branch lines from lower pressure distribution systems).

PER DIEM PAYMENT:
In addition to the total wage rate paid for each craft, the following per diem (per day) amounts must also be paid - Pipeline Journeyman: $42.50; Pipeline Journeyman Welder: $102.50; and Pipeline Helper: $42.50. Note: in order to receive the per diem payment an employee must work a minimum of 8 hours in a 24 hour period.

NOTES:
- Journeymen employed as "stringer bead" welders and journeymen who are regularly employed as "hot-pass" welders shall receive $1.00 per hour more than other journeymen.
- Welders running "stringer bead" or "hot-pass" on "cutouts" or "tie-ins" on a production basis shall be paid $1.00 per hour above the journeymen rate.
- Whenever a welder helper is employed using a power buffer or power grinder immediately behind the stringer bead and/or hot-pass welders, and the pipe gang is set on a production basis, the helper shall be paid $2.00 per hour above the helper rate.
- If back welding is performed inside a pipe under either or both of the following conditions, the welder engaged in the welding will receive $3.00 per hour above the regular rate for the job only for the days on which such back welding is performed:
  - The employer elects, as a regular procedure, to back weld each line-up. This condition is not intended to apply to occasional back welding performed by the pipe gang to repair a bead, to rectify a "high-lo" condition or wall thickness, etc.
  - A welder is required to back weld a completed weld behind the firing line.
- If the welder helper is required to go inside the pipe for the purpose of brushing, buffing and grinding the weld, they shall receive a wage rate $1.00 per hour above the regular
helper rate for the days involved.
- Welders working on "hot work" shall be paid $2.00 per hour above the regular rate for each day engaged in such work. "Hot work' is defined as work on lines in service where there is the danger of fire or explosion.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

OVERTIME:
Hours in excess of 8 per day, and all hours on Sundays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

	06/01/2016	
Rate	Fringe	Total
54.56	26.59	81.15

CLASSIFICATIONS:

Pipeline Journeyman Welder

PIPELINE - MAINLINE TRANSMISSION **Rates Expiration Date : 06/04/2017**

Effective Dates:

06/01/2016

Rate	Fringe	Total
54.56	26.59	81.15

CLASSIFICATIONS:

Pipeline Journeyman

Effective Dates:

06/01/2016

Rate	Fringe	Total
32.99	18.73	51.72

CLASSIFICATIONS:

Pipeline Helper

PIPELINE - GAS DISTRIBUTION **Rates Expiration Date : 10/31/2017**

These rates apply to the following: welding on gas line distribution systems (that portion of the gas distribution system placed in streets, roads, subways, tunnels, viaducts, highways and easements which serves the users of gas).

SHIFT DIFFERENTIALS:
An "irregular" shift may start any time from 5:00 PM to 12:00 AM, Monday through Friday, and shall receive an additional 15% of the regular rate per hour, inclusive of benefits.

OVERTIME:
Hours in excess of forty per week, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

11/01/2016

Rate	Fringe	Total
57.58	21.55	79.13

CLASSIFICATIONS:

Pipeline Journeyman Welder

Effective Dates:

11/01/2016

Rate	Fringe	Total
57.58	21.55	79.13

CLASSIFICATIONS:

Pipeline Journeyman

Effective Dates:

11/01/2016

Rate	Fringe	Total
37.16	15.74	52.90

CLASSIFICATIONS:

Pipeline Helper

ASPHALT LABORERS- NORTH **Rates Expiration Date : 08/31/2017**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren
{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}
The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.
SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $2.50 per hour.
OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.
RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.
Hazardous Waste Work:
-where Level A, B, or C protection is required: + $3.00/hr
-other Hazardous Waste site: + $1.00/hr

Effective Dates:

03/01/2017

Rate	Fringe	Total
41.00	29.03	70.03

CLASSIFICATIONS:

Asphalt Foreman

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.70	29.03	68.73

CLASSIFICATIONS:

Asphalt Screedman

Effective Dates:

03/01/2017

Rate	Fringe	Total
39.45	29.03	68.48

CLASSIFICATIONS:

Asphalt Raker or Lute Man

TERRITORY

ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

ASPHALT LABORERS- NORTH **Rates Expiration Date : 08/31/2017**

Effective Dates:

03/01/2017

Rate	Fringe	Total
38.75	29.03	67.78

CLASSIFICATIONS:

Asphalt Laborer

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date : 12/03/2017**

Electrician-Utility Work (North)
(For apprentice rates refer to Electrician-Utility Work (North) in any county rate package).
These rates apply to work contracted for by the following utility companies:
Public Service Electric & Gas Co. of NJ, GPU Energy, Borough of Madison Electric Department, Sussex Rural Electric Cooperative, Rockland Utilities, and Butler Municipal Electric Co.
These rates do not apply to work on substations or switching stations.
For Utility work contracted for by a utility company other than those listed above or those listed under "Electrician-Utility Work (South), see the "Outside Commercial Rates" for the county in which the jobsite is located.

* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 6:00 AM and 6:00 PM.
FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)-all hours of work shall be paid at double the hourly rate.
SHIFT DIFFERENTIALS:
Shift work must run for a minimum of 5 consecutive workdays.
2nd shift (between the hours of 4:30 PM and 1:00 AM): 8 hours of work + 17.3% of the regular rate, inclusive of benefits.
3rd shift (between the hours of 12:30 AM and 9:00 AM): 8 hours of work + 31.4% of the regular rate per hour, inclusive of benefits.

OVERTIME:
Hours in excess of 8 per day, or before or after the regular wokday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
Four 10-hour days may worked, at straight time, between 7:00 AM and 6:30 PM, Monday through Thursday.

RECOGNIZED HOLIDAYS:
New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day, or day on which they are legally observed.

Effective Dates:

12/04/2016

Rate	Fringe	Total
52.26	35.01	87.27

CLASSIFICATIONS:

Chief Lineman

Effective Dates:

12/04/2016

Rate	Fringe	Total
49.31	33.03	82.34

CLASSIFICATIONS:

Journeyman Lineman

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date : 12/03/2017**

Effective Dates:

12/04/2016

Rate	Fringe	Total
49.31	33.03	82.34

CLASSIFICATIONS:

Special License Operator

Effective Dates:

12/04/2016

Rate	Fringe	Total
48.81	32.70	81.51

CLASSIFICATIONS:

Transit Man

Effective Dates:

12/04/2016

Rate	Fringe	Total
47.33	31.71	79.04

CLASSIFICATIONS:

Line Equipment Operator

Effective Dates:

12/04/2016

Rate	Fringe	Total
41.42	27.75	69.17

CLASSIFICATIONS:

Dynamite Man

Effective Dates:

12/04/2016

Rate	Fringe	Total
58.18	38.98	97.16

CLASSIFICATIONS:

General Foreman

Effective Dates:

12/04/2016

Rate	Fringe	Total
56.70	37.98	94.68

CLASSIFICATIONS:

Assistant General Foreman

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date : 12/03/2017**

Effective Dates:

12/04/2016

Rate	Fringe	Total
55.22	36.99	92.21

CLASSIFICATIONS:

Line Foreman

Effective Dates:

12/04/2016

Rate	Fringe	Total
39.94	26.75	66.69

CLASSIFICATIONS:

Straight Light Mechanical Leader

Effective Dates:

12/04/2016

Rate	Fringe	Total
37.97	25.43	63.40

CLASSIFICATIONS:

Groundman Winch Operator

Effective Dates:

12/04/2016

Rate	Fringe	Total
37.97	25.43	63.40

CLASSIFICATIONS:

Groundman Truck Operator

Effective Dates:

12/04/2016

Rate	Fringe	Total
37.47	25.10	62.57

CLASSIFICATIONS:

Straight Light Mechanic

Effective Dates:

12/04/2016

Rate	Fringe	Total
37.47	25.10	62.57

CLASSIFICATIONS:

Line Equipment Mechanic

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date : 12/03/2017**

Effective Dates:

12/04/2016

Rate	Fringe	Total
32.05	21.47	53.52

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

12/04/2016

Rate	Fringe	Total
29.58	19.81	49.39

CLASSIFICATIONS:

Groundman 1st Year

Effective Dates:

12/04/2016

Rate	Fringe	Total
48.81	32.70	81.51

CLASSIFICATIONS:

Line Equipment Foreman

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date : 12/02/2017**

Electrician-Utility Work (South)
(For apprentice rates refer to Electrician-Utility Work (South) in any county rate package).
These rates apply to work contracted for by the following utility company:
Atlantic City Electric.
These rates do not apply to work on substations or switching stations.
For utility work contracted for by a utility company other than the one listed above or those listed under "Electrician-Utility Work (North), see the "Outside Commercial Rates" for the county in which the jobsite is located.

* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 7:00 AM and 4:30 PM.
FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)- all hours of work shall be paid at double the hourly rate.
SHIFT DIFFERENTIALS:
Shift work must run for a minimum of 5 consecutive workdays.
When two (2) or three (3) shifts are worked the following shall apply:
1st shift (between the hours of 8:00 AM and 4:30 PM)
2nd shift (between the hours of 4:30 PM and 12:30 AM): 8 hours of work + 10% of the regular rate of pay for 7.5 hours worked.

3rd shift (between the hours of 12:30 AM and 8:00 AM): 8 hours of work + 15% of the regular rate of pay for 7 hours worked.

OVERTIME:
Hours in excess of 8 per day, or before or after the regular wokday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and Holidays shall be paid double the hourly rate.

Four 10-hour days may be worked, at straight time, between 6:00 AM and 6:00 PM, Monday through Thursday with Friday used as a make-up day.

RECOGNIZED HOLIDAYS:
New Year's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day or on days celebrated.

WORKING RULES:
There shall be a Foreman in charge of each work crew. No crews are to exceed twelve (12) men, including Foremen.

There shall be a General Foreman designated for transmission work when three (3) or more crews are on the same job and for distribution work where there are are more than twenty (20) employees on site.
A small job crew shall consist of five (5) or less employees, one (1) of the Journeyman Linemen in the crew shall be designated as a Small Job Foreman.
Work performed from ladders and/or mechanical lift equipment shall be the work of Linemen and/or Apprentices.
On new construction, fitting and framing poles, towers or structures may be done by Journeymen and/or Apprentices. Groundmen may assist, but may not perform any work which would be performed by Linemen if assembled in the air.
There shall be a Journeyman Lineman in each pole setting, erection, grounding, wire and cable-pulling crew of more than three (3) men.

Effective Dates:

12/04/2016

Rate	Fringe	Total
58.38	45.19	103.57

CLASSIFICATIONS:

General Foreman

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date : 12/02/2017**

Effective Dates:

12/04/2016

Rate	Fringe	Total
52.00	41.37	93.37

CLASSIFICATIONS:

Foreman

Effective Dates:

12/04/2016

Rate	Fringe	Total
49.26	39.74	89.00

CLASSIFICATIONS:

Small Job Foreman

Effective Dates:

12/04/2016

Rate	Fringe	Total
45.61	37.54	83.15

CLASSIFICATIONS:

Heavy Equipment Operator

Effective Dates:

12/04/2016

Rate	Fringe	Total
45.61	37.54	83.15

CLASSIFICATIONS:

Cable Splicer

Effective Dates:

12/04/2016

Rate	Fringe	Total
45.61	37.54	83.15

CLASSIFICATIONS:

Journeyman Lineman

Effective Dates:

12/04/2016

Rate	Fringe	Total
45.61	37.54	83.15

CLASSIFICATIONS:

Journeyman Welder

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date : 12/02/2017**

Effective Dates:

12/04/2016

Rate	Fringe	Total
45.61	37.54	83.15

CLASSIFICATIONS:

Journeyman Painter

Effective Dates:

12/04/2016

Rate	Fringe	Total
36.49	32.08	68.57

CLASSIFICATIONS:

Light Equipment Operator

Effective Dates:

12/04/2016

Rate	Fringe	Total
31.93	29.37	61.30

CLASSIFICATIONS:

Groundman Truck Driver

Effective Dates:

12/04/2016

Rate	Fringe	Total
29.65	27.99	57.64

CLASSIFICATIONS:

Groundman 3rd Year

Effective Dates:

12/04/2016

Rate	Fringe	Total
27.37	26.66	54.03

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

12/04/2016

Rate	Fringe	Total
25.09	25.29	50.38

CLASSIFICATIONS:

Groundman 1st Year

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date : 12/02/2017**

Effective Dates:

12/04/2016

Rate	Fringe	Total
20.07	22.27	42.34

CLASSIFICATIONS:

Flagman

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS **Rates Expiration Date : 08/31/2017**

THESE RATES APPLY TO CONSTRUCTION ON NEW TRANS HUDSON TUNNELS ONLY

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $2.50 per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:
-where Level A, B, or C protection is required: + $3.00/hr
-other Hazardous Waste site: + $1.00/hr

Effective Dates:

03/01/2017

Rate	Fringe	Total
62.25	29.03	91.28

CLASSIFICATIONS:

Walking Boss & Superintendent

Effective Dates:

03/01/2017

Rate	Fringe	Total
61.80	29.03	90.83

CLASSIFICATIONS:

Heading Foreman, Shaft Foreman, Rod Foreman, Electrical Foreman, Rigging Foreman

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS **Rates Expiration Date : 08/31/2017**

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
61.05	29.03	90.08

CLASSIFICATIONS:

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Clean-up Foreman, Grout Foreman

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
64.80	29.03	93.83

CLASSIFICATIONS:

Blaster

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
60.23	29.03	89.26

CLASSIFICATIONS:

Top Labor Foreman

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
59.70	29.03	88.73

CLASSIFICATIONS:

Skilled Men (including Caulker, Powder Carrier, all other skilled men)
Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Maintenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Rod Man)

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
59.48	29.03	88.51

CLASSIFICATIONS:

Semi-Skilled Men (including Bell or Signal Man top or bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)
Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS **Rates Expiration Date : 08/31/2017**

Effective Dates:

	03/01/2017	
Rate	Fringe	Total
58.73	29.03	87.76

CLASSIFICATIONS:

All others (including Powder Watchman, Change House Attendant, Top Laborer, Job Steward)

TECHNICAL SPECIFICATIONS

REPLACEMENT OF LOCUST DRIVE CULVERT NEAR TULIP STREET (SU105), CITY OF SUMMIT
COUNTY OF UNION, NEW JERSEY
BA#39-2017; UNION COUNTY ENGINEERING PROJECT #2010-005C

AUGUST 2017

{For Sanitary Main Relocation Pay Items listed on the BID FORM, See "Sanitary Relocation Technical Specifications" following the Technical Specifications}

DIVISION 100 – GENERAL PROVISIONS

SECTION 101 – GENERAL INFORMATION

101.03 TERMS
THE FOLLOWING IS ADDED TO THE FIRST SENTENCE OF THIS SECTION:

It is the intent of these amendments to the terms to change all reference to the State of New Jersey (and various Departments and offices thereof) to the County of Union except in those circumstances where the State has jurisdiction.

THE FOLLOWING TERMS ARE CHANGED.

Completion.
(3) IS CHANGED TO:

3. the Contractor has satisfactorily executed and delivered to the RE all documents, including federal Form FHWA47 "Contractor's Statement of Materials and Labor" according to 23CFR 635, certifications, and proofs of compliance required by the Contract Documents, it being understood that the satisfactory execution and delivery of documents, certificates, and proofs of compliance is a requirement of the Contract.

Contract Time. The number of calendar days allowed to complete the work for a milestone or the number of working days allowed to complete the work for a milestone, or the date by which work must be completed, as provided in the Contract and as modified by Change Order. When Interim Completion and Completion requirements are specified as a specific date instead of the number of days or working days, achieve Interim Completion or Completion on or before that date. See Page 15 for allowable Contract Time.

holiday. A legal holiday as recognized by the County of Union.

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.

Plans.
THE SECOND SENTENCE IS CHANGED TO:

This includes the latest version of the Standard Details in effect at the time of advertisement.

Project Limits.
The areas of construction operations and areas used by the Contractor to perform the work. If only a portion of a lane or shoulder of a road is being constructed, the Project Limits include all lanes and shoulders of the roadway. Where only one direction of a road is being constructed, and the road is divided by a median, island, or barrier curb, the Project Limits include all of the lanes in that direction and the median. Otherwise, the Project Limits include all lanes in both directions.

The longitudinal Project Limits include all safety devices and signs excluding signs greater than 1,600 feet outside the Project Limits.

Areas within the R.O.W. provided for Contractor's use.

THE FOLLOWING TERMS ARE ADDED:

notice to proceed. Form submitted by Owner authorizing Contractor to proceed with the Work under the Contract.

101.04 INQUIRIES REGARDING THE PROJECT

THE TEXT OF THIS SUBSECTION IS CHANGED TO:

Submit inquiries regarding discrepancies, errors, or omissions, or concerns regarding the intent or meaning of the Contract to the Owner as follows:

1. Before Award of Contract. Submit inquiries by e-mail or by separate letter directly to the County Engineer, Thomas Mineo, Union County Department of Engineering, Public Works & Facilities, 2325 South Avenue, Scotch Plains, NJ 07076, (908) 789-3675, tmineo@ucnj.org.

Include the following in each inquiry:

1. Name of bidder.
2. Telephone Number, fax number, e-mail address, and contact person.
3. Specifics of the inquiry, including anticipated results.
   The County will investigate the information provided in the inquiry and, if the County determines that a change or response is necessary, the County will issue an addendum. Requests for postponement of bids will not receive a response. The County will issue an addendum postponing bids if warranted.
4. After Award of Contract. Submit inquiries to the County representative identified at the preconstruction meeting with a copy to the County Engineer.

SECTION 102 – BIDDING REQUIREMENTS AND CONDITIONS

102.01 QUALIFICATION TO BID
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

102.02 BIDDER REGISTRATION AND DOWNLOADING OR THE PROPOSAL DOCUMENTS
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

102.03 REVISIONS BEFORE SUBMITTING A BID
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

102.04 EXAMINATION OF CONTRACT AND PROJECT LIMITS

1. Evaluation of Subsurface and Surface Conditions.

THE FIRST PARAGRAPH IS CHANGED TO:

The Bidder may inspect the records of the County's subsurface investigation, if available. This investigation is not a substitute for the Bidder's own evaluation or judgment in preparing a bid. The Bidder should not rely on any estimates or quantities included in these investigations. The conditions indicated by such investigations or records thereof, and as shown by the cross-sections in the Plans may not be representative of those existing throughout such areas. The Bidder may encounter materials other than, or in proportions different from, those indicated.

2. Utility Agreements.

THE ENTIRE TEXT IS CHANGED TO:

In addition to what is specified in 105.07, the Bidder may inspect or request, if available, the Utility agreements, modifications, and orders relating to the Contract. The Bidder shall obtain information regarding existing utilities, proposed construction of utilities, or relocation of utilities through the respective Utility.

3. Existing Plans and As-Builts.

THE ENTIRE TEXT IS CHANGE TO:

The Bidder may inspect as-built plans, if available, of County owned facilities upon written request. The Bidder shall obtain plans of Municipality owned facilities through the Municipality. The Bidder shall verify information obtained from the existing documents with respect to its application to bidding and performing the Contract.

102.07 PREPARATION OF THE BID
THE TEXT OF THE FIRST, THIRD, FOURTH AND FIFTH PARAGRAPHS IS DELETED.

102.09 PROPOSAL BOND
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

102.10 SUBMISSION OF BIDS
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

102.11 WITHDRAWAL OF BIDS
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

102.16 REJECTION OF ALL BIDS
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

SECTION 103 – AWARD AND EXECUTION OF CONTRACT

103.01 AWARD OF CONTRACT
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

103.02 CANCELLATION OF AWARD
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

103.03 RELEASE OF PROPOSAL BOND
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

103.04 EXECUTION OF THE CONTRACT
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

103.05 ESCROW OF BID DOCUMENTS
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

103.06 FAILURE TO EXECUTE CONTRACT
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

103.07 ACQUISITION OF DOCUMENTS
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

SECTION 104 – SCOPE OF WORK

104.02 VALUE ENGINEERING
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

104.03 CHANGES TO THE CONTRACT

104.03.01 Authority to Make Changes

2. Change Orders
THE SECOND AND THIRD PARAGRAPHS ARE DELETED.

104.03.02 Type of Changes

1. Quantity Increases and Decreases
THE FIFTH PARAGRAPH IS DELETED.

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. 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 documents to the email.

SECTION 105 – CONTROL OF WORK

105.01 AUTHORITY OF THE DEPARTMENT
105.01.01 RE
ITEM 1 OF THE SECOND PARAGRAPH IS DELETED.

105.02 RESPONSIBILITIES OF THE CONTRACTOR
105.02.02 Superintendent
THE FOLLOWING IS ADDED:

The Superintendent shall not be removed from the work or replaced without acceptance by the RE of a satisfactory replacement as Superintendent.

105.04 PLANS AND SPECIFICATIONS
THE FOLLOWING IS ADDED:

Field conditions may require modifications in the plans and quantities of work involved. Work under all pay items must be carried out to meet field conditions to the satisfaction of the RE.

105.05 WORKING DRAWINGS

ALL REFERENCES TO 22" X 36" SHEETS ARE REVISED TO 24" X 36" SHEETS.

THE SECOND PARAGRAPH IS CHANGED TO:

Ensure that working drawing submissions also conform to the NJDOT design manuals and other NJDOT standards for the proposed work. Ensure that working drawings are signed and sealed by a Professional Engineer.

THE SECOND SENTENCE OF THE THIRD PARAGRAPH IS CHANGED TO:

Submit 5 copies of working drawings to the Engineer for review. Provide additional copies for Contractor's use depending on the number of sets to be retained by the Engineer.

THE LAST SENTENCE OF THE SEVENTH PARAGRAPH IS CHANGED TO:

The RE's notations of "No Exception Taken" or "Approved as Noted," does not constitute an approval of any materials noted.

THE EIGHT PARAGRAPH IS CHANGED TO:

The RE's notations of "No Exception Taken" or "Approved as Noted," on working drawings signifies only that the drawings are in general conformance with the contract. These notations do not relieve the Contractor from responsibility for errors and omissions in the working drawings and their correction.

THE NINTH PARAGRAPH IS CHANGED TO:

Submit working drawings as specified in Table 105.05-1. This list is not all inclusive.

TABLE 105.05-1 IS CHANGED TO:

Table 105.05 1 – Working Drawing Submission

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

TABLE 105.05-1:
ADD THE FOLLOWING:

Concrete Mix Designs

Reinforcing Steel, Galvanized

THE TENTH, ELEVENTH, TWELFTH AND THIRTEENTH PARAGRAPHS ARE CHANGED TO:
Each working drawing submitted shall have a unique submission number assigned to it and clearly indicated on each sheet of the working drawings. For working drawing submitted on 24" x 36" sheets, each working drawing sheet shall include a blank space a minimum of 5" in height and 3-1/2" in width for the RE's review stamp. For working drawings submitted on 8 ½" x 11" sheets (except design calculations), include a blank space a minimum of 5" in height and 3 ½" in width for the RE's review stamp on the cover sheet.

The RE will require 7 days for review of each submission. The review time shall commence running on the day that the submission is received, except that for any submission received after 12:00 Noon, the review time shall commence running on the following day.

Upon receipt of each submission, the RE will review the submission for conformance with the Contract. The RE may take no exception to the submission, approve the submission as noted with no resubmission required, approve the submission as noted with resubmission required or reject the submission. The RE will sign and stamp the submission as follows:

"No Exception Taken"
"Approved as Noted"
"Note Exception and Confirm in Writing"
"Revise and Resubmit"
"Rejected See Remarks"

For submissions that are stamped "No Exception Taken", the RE will retain three (3) sets for record purposes and return the remaining sets to the Contractor. No resubmission is required and the Contractor may proceed with ordering the materials which are the subject of the submission.

For submissions that are stamped "Approved as Noted," the RE will retain three (3) sets for record purposes and return the remaining sets to the Contractor. No resubmission is required. However, incorporate all comments in the production of the materials which are the subject of the submission. This does not relieve the Contractor of the responsibility for assuring that all comments are incorporated into the final product. If inspection reveals that the comments have not been incorporated into the final product, the work will be considered non conforming.

Do not deviate from the working drawings stamped "No Exception Taken" or "Approved as Noted," without obtaining prior written approval from the RE.

Furnish subcontractors and other contractors with accepted working drawings as required.

105.07 COOPERATION WITH UTILITIES

105.07.01 Working in the Vicinity of Utilities

A. Initial Notice

THE FIRST SENTENCE IS CHANGED TO:

Provide preliminary notice, in writing, to the utilities four (4) weeks before it is anticipated construction operations will commence. This notice may have to be provided in advance of any preconstruction meeting for the project. Follow up with subsequent written notice one (1) week before construction operations will commence. Provide copies of all correspondence to the County.

105.07.02 Work Performed by Utilities
THE FOLLOWING IS ADDED:

The contractor shall contact the New Jersey one call system at least three (3) full days before digging or completing any other work which may impact the utilities.

When the removal, relocation, de-energization of replacement of utility structures of facilities is deemed non-essential by the RE for carrying out the project, but is performed for the Contractor's convenience, the cost of such work shall be entirely the responsibility of the Contractor.
Coordinate construction activities with those of the utility companies involved in the relocation or maintenance of existing or proposed utility facilities. Notify the RE, in writing, whenever it become apparent that completion of the project will be delayed because of delays in relocating, de-energizing, etc. of the existing utilities. In the absence of such notification, delays in the completion of work caused by the utilities will be solely the responsibility of the Contractor and liquidated damages will be assessed as elsewhere specified herein.
Valve box covers, which are either indicated on the construction plans or which are discovered during construction, shall be reset or relocated by the Contractor to the correct proposed elevation. All costs for this work shall be included in the lump sum price bid for the item entitled "Clearing Site, Structure".

It shall be the responsibility of the contractor to arrange for all utility work essential for the completion of the project and to coordinate the work carried out by the public utilities with his own work. The contractor shall cooperate with the utility company in the removal, relocation and replacement of utilities. Locations of relocated utilities shall be verified with the respective utility companies. Wherever underground utilities are encountered, the contractor shall take special precautions to prevent breakage and interruption of service.

No separate payment will be made for coordination with the utility companies and all costs thereof shall be included in the bid prices for the various items in this contract.

The contractor shall notify all the utility agencies at least two (2) week prior to digging the test pits.

Contacts:

Electric: Jersey Central Power & Light
300 Madison Avenue
P.O. Box 1911
Morristown, NJ 07962
Frank Mercandante (973) 401-8521

Telephone: Verizon
6000 Hadley Road
South Plainfield, NJ 07080
Jeff Norberg (908) 412-2023

Cable: Comcast Communications
800 Rahway Avenue
Union, NJ 07083
Ed Lubanski (908) 851-8525

Gas: PSE&G Gas Company
48 Middle Avenue
Summit, NJ 07901
Chris Forte (908) 522-7412

Water New Jersey American Water
167 JFK Parkway
Short Hills, NJ 07078
Kenneth Taylor (973) 564-5713

Sanitary
City of Summit
512 Springfield Avenue, 2nd Floor
Summit, NJ 07901
Aaron Schrager, P.E. (908) 273-6404

ONE CALL: One Call Underground Location Services
399 Hoes Lane, Piscataway, NJ 08854
1-800-272-1000

105.10 USE OF EXPLOSIVES
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED. EXPLOSIVES WILL NOT BE PERMITTED ON THIS PROJECT.

SECTION 106 – CONTROL OF MATERIAL

106.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS
THE FOLLOWING IS ADDED:

Do not purchase or permit any subcontractor to purchase materials or supplies for the work which are subject to any chattel mortgage or under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work.

Nothing in these Special Provisions or in the Contract shall be considered as vesting in the Contractor any right or property in the materials used after they shall have been attached or affixed to the work or the soil, but all such materials shall upon being so attached or affixed become the property of the Owner.

Use only products and supplies listed on the QPL.

106.02 DEPARTMENT-FURNISHED MATERIAL
THE ENTIRE SUBSECTION TEXT IS DELETED.

106.05 MATERIALS, INSPECTIONS, TESTS, AND SAMPLES
THE THIRD PARAGRAPH IS DELETED.

106.07 CERTIFICATION OF COMPLIANCE
THE FOLLOWING IS ADDED:

If the RE orders sampling and analysis or tests of materials which are usually accepted on certification of the manufacturer but which appear defective or not conforming to the requirements of the Specifications, the County shall bear the reasonable costs of sampling, transportation, testing, and analysis of the material if it is found to be sound and in conformance with the Specifications. Otherwise, the Contractor shall bear all such costs if the material is found to be defective or not in conformance with the Specifications.

SECTION 107 – LEGAL RELATIONS

107.01 LEGAL JURISDICTION

107.01.02 Permits, Licenses, and Approvals
THE FOLLOWING IS ADDED:

Obtain the approval and acceptance of work that is to meet the requirements of persons, municipalities or bodies other than the County.

Apply for a permit to use water from hydrants or other outlets, and the use of water shall be subject to the charges, rules, and regulations of the Utility Owner.

107.01.03 Sovereign Immunity

THIS ENTIRE SUBSECTION TEXT IS DELETED. HOWEVER, THE DELETION OF THIS SUBSECTION IS NOT TO BE CONSTRUED AS ANY WAIVER OF THE COUNTY'S RIGHTS TO SOVEREIGN IMMUNITY.

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

THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

107.04 NEW JERSEY CONTRACTUAL LIABILITY ACT

THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

107.05 LIMITATION OF LIABILITY

THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

107.06 PERSONAL LIABILITY OF PUBLIC OFFICIALS

THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

107.09 INDEPENDENT CONTRACTOR

THE SECOND SENTENCE IS CHANGED TO:

It shall neither hold itself out as, nor claim to be, an officer or employee of the Department by reason hereof.

107.10 NON-THIRD PARTY BENEFICIARY CLAUSE

THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

107.11 RISKS ASSUMED BY THE CONTRACTOR

Risks of Loss or Damage to the Construction.
THE FOLLOWING IS ADDED:

Except as provided otherwise herein, the liability of the Contractor hereunder for all injuries or damages to persons or to property is absolute and is not dependent upon any question or negligence on his part or on the part of his agents, servants or employees, and neither the approval of the RE of the methods of dong the work nor the failure of the RE to call attention to improper or in adequate methods or to require a change in methods, nor the neglect of the RE to direct the Contractor to take any particular precautions or to refrain from doing any particular task, shall excuse the Contractor in case of any such injury to persons or damages to persons or property.

The whole, or so much of the monies due under and by virtue of the Contract, as shall be considered necessary by the Owner may, at its option, be retained by the Owner until all suits or claims or demands for damages shall have been settled and evidence to that effect furnished to the satisfaction of the Owner.

107.12 THE CLAIMS RESOLUTION PROCESS
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

107.13 LITIGATION OF CLAIMS BY THE CONTRACTOR
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

SECTION 108 – PROSECUTION AND COMPLETION

108.01 SUBCONTRACTING
THE FIRST AND SECOND PARAGRAPHS ARE DELETED.

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

ALL REFERENCES TO EXECUTION OF CONTRACT ARE CHANGED TO NOTICE TO PROCEED.

108.04 WORK SITE AND STORAGE
THE FOLLOWING IS ADDED:

Provide the RE a copy of any lease for the use of private property.

Upon completion of all work and prior to the release of final retainage, provide the RE a copy of a letter of release from the property owner stating that the site has been restored in a satisfactory manner.

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.

108.09 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
THE FOLLOWING IS ADDED:

The Contractor must achieve Completion within 150 calendar days for **Project #2010-005C**.

108.11 MODIFICATIONS TO CONTRACT
108.11.01 Extensions to Contract Time

B. Types of Delays.
2. Excusable, Non-Compensable Delays.
THE LAST PARAGRAPH IS CHANGED TO:

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

C. Submitting Time Impact Evaluation.
THE FIRST PARAGRAPH IS CHANGED TO:

If an excusable delay occurs, notify the RE, as specified in 104.03.04, detailing how the event or cause is affecting the approved progress schedule that is current at the time the delay occurred. When the full extent of the impact on the approved progress schedule can be determined, submit a request for an extension of Contract Time to the RE. Clearly identify how each change or delay is represented by an activity or group of activities.

108.12 Right-Of-Way RESTRICTIONS
THE FOLLOWING IS ADDED:

Make no claim for delays by reason that entry upon an Easement or right which is lesser than a fee interest is conditioned upon notice or is limited in duration. Schedule work accordingly and take such limitations into account when planning performance of the work.

Temporary Easements and/or temporary construction rights will in most cases contain a limitation as to the length of time that they are extant. Schedule the Work pursuant to Section 153 so as to accommodate the particular time limitations of an Easement or right which is lesser than a fee interest as reflected on the R.O.W. plans. Provide a written request to the RE that the County procure an extension from the owner of a particular temporary easement or right, which is lesser than a fee simply interest, so as to enable the Contractor to continue occupancy of or re-enter same in the future, beyond the initial time period set forth in the respective property description prior to the expiration thereof.

Where the Contractor fails to complete the work within an area of a temporary easement or right lesser than a fee interest during the time allowed under the property description, by reason of the Contractor's own fault; reimburse the County for the sum payable to the owner of the underlying fee interest for the extended period of occupancy use. The RE may deduct an amount equal to such payments from the monthly estimate of the Work performed after providing 30 day written notice to the Contractor of such action, including a breakdown of the costs sought or to be sought by reason of the delay in timely vacating a temporary easement or right lesser than a fee interest.

The following is a list of all rights-of-way that have not been secured and their approximate anticipated dates of availability:

Properties and Vacation/Availability Dates

All properties are acquired.

108.14 DEFAULT AND TERMINATION OF CONTRACTOR'S RIGHT TO PROCEED
LIST (1) OF THE FIRST PARAGRAPH IS CHANGED TO:

1. Fails to begin construction operations within 30 days of receiving notice to proceed.

108.19 COMPLETION AND ACCEPTANCE
THE FIRST, SECOND AND THIRD PARAGRAPHS ARE DELETED.

THE FOLLOWING IS ADDED:

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

SECTION 109 – MEASUREMENT AND PAYMENT

109.01 MEASUREMENT OF QUANTITIES
THE SECOND AND EIGHTH (LAST) PARAGRAPHS ARE DELETED. ALL QUANTITIES WILL BE MEASURED.

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 EIGHTH AND NINTH PARAGRAPHS ARE DELETED:

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

151.01 DESCRIPTION
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

151.02 MATERIALS
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

151.03 PROCEDURE
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

151.04 MEASUREMENT AND PAYMENT
THE TEXT OF THIS SUBSECTION IS CHANGED TO:

There will be no separate payment for performance bond and payment bond, distribute all costs among the other items in the proposal.

SECTION 152 – INSURANCE

152.01 DESCRIPTION
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

152.02 MATERIALS
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

152.03 PROCEDURE
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

152.04 MEASUREMENT AND PAYMENT
THE ENTIRE TEXT OF THIS SUBSECTION IS DELETED.

SECTION 153 – PROGRESS SCHEDULE

153.01 DESCRIPTION
THE FOLLOWING IS ADDED:

Submit a CPM Progress Schedule for this project.

153.03 PROCEDURE
153.03.01 CPM Progress Schedule
THE FIRST PARAGRAPH IS CHANGED TO:

If required in the Instructions to Bidder, provide a detailed CPM schedule using Primavera or equivalent program.

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.

ITEM 15 OF THE FIFTH PARAGRAPH IS CHANGED TO:

15. Calculate the CPM schedule in days.

1. Preliminary Schedule Submission
THE SECOND PARAGRAPH IS CHANGED TO:

Submit four (4) paper copies of the preliminary schedule, Gantt Chart, as specified in 153.03.02.2e, and a network diagram (PERT) printed on 36” x 24” sheets detailing the activity relationships.

2. Baseline Schedule Submission

THE LAST SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

Submit four (4) paper copies of the baseline schedule on 36” x 24” sheets.

ITEM 3 OF THE SECOND PARAGRAPH IS CHANGED TO:

3. Submit four (4) paper copies of the tabular reports, as specified in 153.03.02.2, and a printed network diagram (PERT) on 36” x 24” sheets detailing the activity relationships.

153.03.02 CPM Progress Schedule Updates

THE FIRST, SECOND AND THIRD PARAGRAPHS ARE CHANGED TO:

The RE will designate the due date for the first schedule update when the baseline schedule is approved. The RE will designate the data date to be used for each schedule update.

Schedule progress review meetings to be held approximately 7 days before the schedule update due date. Prepare activity progress in advance of each meeting. Revise the logic to reflect the actual sequence of work. Do not submit schedules showing work performed out of sequence. Provide the RE with a report detailing actual start and actual finish dates of activities in progress since the previous review meeting. At the progress review meeting, present and review the progress since the previous review meeting for incorporation into the schedule.

Within 3 days from the date of the progress review meeting, submit the schedule update to the RE for approval with the agreed upon changes. Within 3 days, the RE will review the update schedule and approve or reject the submission. If rejected, revise and resubmit the schedule update, within 3 days, to the RE for review and approval. The RE will review the revised schedule update submissions and approve or reject the resubmission within 3 days.

2. Tabular Reports

THE FIRST PARAGRAPH IS CHANGED TO:

Submit three (3) paper copies of the longest path sort, total float sort, responsibility sort, area sort, and Gantt chart. Include the following information for each.

ITEM 7 IS CHANGED TO:

Original activity duration and remaining activity duration in days.

THE LAST PARAGRAPH IS CHANGED TO:

If the project falls behind schedule for non-excusable delays so that the schedule indicates 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 shits, 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 direct acceleration.

153.03.03 Bar Chart Progress Schedule and Updates

A. Schedule.

THE FOLLOWING IS ADDED:

If the project falls behind schedule for non-excusable 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.

B. Updates.
THE THIRD SENTENCE OF THE FIRST PARAGRAPH IS DELETED.

153.04 MEASUREMENT AND PAYMENT
THIS ENTIRE SUBSECTION IS CHANGED TO:

No separate payment will be made for Progress Schedules, distribute all costs among the various items in the proposal.

The RE may withhold progress payments from the Contractor if scheduled updates and/or revisions are not submitted within the time frames specified.

SECTION 155 – CONSTRUCTION FIELD OFFICE

SECTION 156 – MATERIALS FIELD LABORATORY AND CURING FACILITY

NOT REQUIRED FOR THIS PROJECT.

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.

THE FOLLOWING IS ADDED:
It shall be the Contractor's sole responsibility for construction of all items of work to the line and grades shown on the plans. Provide the necessary qualified personnel to correctly interpret the survey layout as provided by the licensed New Jersey Professional Land Surveyor.

Give the RE copies of all grade sheets, cut sheets and other data prepared by the licensed New Jersey Professional Land Surveyor prior to the start of any work. This data shall be given to the RE for informational purposes only. No responsibility will be assumed by the RE for its correctness.

Provide written as-built certification from the Licensed New Jersey Land Surveyor that certain phases and/or all of the work has been constructed in accordance with the line and grades shown on the plans prior to final payment as required by the RE.

If in the opinion of the RE, the project cannot be successfully completed with the quality of work performed, he shall order the work redone at the Contractor's expense.

In instances where the RE feels the impact of the defective work is less severe, the RE shall have the option to negotiate a credit to the Owner. If a credit cannot be successfully negotiated, redo the work at no additional cost.

The RE will make every effort to periodically check the work in progress for conformity to plan line and grade, however, no guarantee is implied that said checks will be performed at the Contractor's convenience. If any work is found to be defective, the RE shall within three (3) working days render a decision as to whether the work should be redone or if the RE wishes to negotiate a credit to the County.

When requested by the RE, make available a competent person from his construction force to assist the RE in any manner which may be necessary to check the grades and alignment as well as other features f the work. No extra payment will be made for the services of such an assistant, and payment for the assistance shall be deemed to be included in the various unit prices bid. Failure to comply with this provision shall be sufficient cause for the RE to stop work on unchecked sections.

157.03 MEASUREMENT AND PAYMENT
THIS ENTIRE SUBSECTION TEXT IS CHANGED TO:

No separate payment will be made for construction layout, monuments, and as-built certification, distribute all costs among the other items in the proposal.

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

158.03.02 SESC Measures

8. Inlet Filters. Provide Type 1 and Type 2 inlet filters as follows:

a. Type 1.

THE ENTIRE TEXT IS CHANGED TO:

For a new inlet structure without a casting, mold welded steel wire fabric around the inlet walls. Extend the welded steel wire a minimum of 6 inches down each side of the structure. Secure geotextile to the welded wire fabric. Place No. 2 coarse aggregate against the inlet structure to hold the inlet filter in place.

For an inlet structure with a casting and exposed exterior walls, place geotextile under the casting and extend it a minimum of 6 inches below the top of the exposed walls. Place No. 2 coarse aggregate around the drain hole opening.

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

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

19. Oil-Only Emergency Spill Kit.

THE SECOND SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

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

SECTION 159 – TRAFFIC CONTROL

159.03 PROCEDURE

159.03.02 Traffic Control Devices

2. Construction Barrier Curb.

THE LAST PARAGRAPH IS CHANGED TO:

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

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

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

5. Temporary Crash Cushion

THE SECOND SENTENCE IS CHANGED TO:

Install temporary compressive crash cushions as specified for compressive crash cushions in 611.03.02.

6. Traffic Control Truck with Mounted Crash Cushions.

THE LAST SENTENCE IS CHANGED TO:

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

159.03.06 Temporary Traffic Stripes and Temporary Traffic Markings

THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

Apply temporary traffic stripes and markings when the ambient and surface temperatures are at least 45º F and rising and the surface temperature is no more than 140º F. Apply the traffic paint in a wet film thickness of 6± 1 mil. Apply glass beads of the correct gradation to the wet paint in a uniform pattern and at the rate of 12 pounds per gallon of paint. Maintain quality of temporary traffic stripes during staged construction to provide for adequate public safety.

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 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.

SECTION 160 – PRICE ADJUSTMENTS

160.03.01 Fuel Price Adjustment

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

THE THIRD PARAGRAPH IS CHANGED TO:

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

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

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

THE 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:

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

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

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	ALLOWANCE
ASPHALT PRICE ADJUSTMENT	ALLOWANCE

SECTION 161 – FINAL CLEANUP

161.03 PROCEDURE
161.03.01 Final Cleanup
THE FOLLOWING IS ADDED:

Repair or replace in a manner acceptable to the RE and any public or private property which may have been damaged or destroyed during the prosecution of the work; clean all drains, sewers, and ditches within and adjacent to the work which have been obstructed by construction operations. Leave the site and adjacent public and private property in a neat and presentable condition wherever his operations have disturbed conditions existing at the start of the work. Submit to the RE releases from affected property owners that his obligations with respect to their individual properties have been fulfilled.

161.04 MEASUREMENT AND PAYMENT
THIS SUBSECTION TEXT IS CHANGED TO:

No separate payment will be made for Final Cleanup. Payment for this work shall be included in the unit prices bid for all other items of work in the proposal.

DIVISION 200 - EARTHWORK

SECTION 201 – CLEARING SITE

201.03 CONSTRUCTION

201.03.01 Clearing Site

B. Clearing and Grubbing.
THE FOLLOWING IS ADDED:

Dispose of material and debris as specified in 201.03.09.

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

201.03.02 Clearing Site, Bridge and Clearing Site, Structure

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH.

Submit a demolition plan detailing the methods and equipment to be used to the RE for approval 30 days before demolition operations. 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.

Before placing the new work, complete necessary operation for the removal of portions of the existing structure which are to be removed according to the plan.

Prevent damage to existing structure designed to remain. If portions of the existing structure scheduled to remain are damaged by removal activities, submit a repair plan to the RE for approval. Repair damaged portions of existing structures according to the approved repair plan.

201.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

The Department will not make payment for the Item CLEARING SITE in excess of 80% of the lump sum bid until Completion.

The Department will not make payment for the Item CLEARING SITE, BRIDGE in excess of 80% of the lump sum bid until Substantial Completion.

SECTION 202 – EXCAVATION

REMOVE ALL REFERENCES TO BLASTING IN THIS SUBSECTION. NO EXPLOSIVES MAY BE USED FOR THIS PROJECT.

202.02 MATERIALS

THE FIRST IN THE LIST IS CHANGED TO:

Coarse Aggregate (No. 57, or 67) 901.03

202.03.03 Excavating Unclassified Material

A. Excavating.

THE FIRST PARAGRAPH IS CHANGED TO:

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

B. Temporarily Storing.

THE FOLLOWING SENTENCE IS ADDED AFTER THE SECOND SENTENCE OF THE FIRST PARAGRAPH:

Do not commingle different types or classifications of material.

202.03.04 Excavating Regulated Material

3. Temporarily Storing.

THE FIRST PARAGRAPH IS CHANGED TO:

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

202.03.07 Reuse or Disposal of Excess Material

A. Reuse.

THE THIRD PARAGRAPH IS CHANGED TO:

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

B. Disposal.

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

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

SECTION 203 – EMBANKMENT

203.02.01 Materials
THIS SUBPART IS CHANGED TO:

Provide materials as specified:

Soil Aggregate (I-7, I-9, I-10, I-11, I-13, and I-14).....901.11

203.03.01 Constructing Embankment

THE FOLLOWING IS ADDED TO THE FIRST PARAGRAPH:

The ME will determine the classification of the subgrade material specified in Table 203.03.02-1. Compact the subgrade using the directed method as specified in 203.03.02.C for the classification of the subgrade material.

THE FOURTH PARAGRAPH IS CHANGED TO:

Before placing embankment or any other unbound aggregate material, such as subbase or dense graded aggregate, on existing pavement, break the pavement into pieces that are a maximum of 12 inches in all dimensions.

DIVISION 400 - PAVEMENTS

SECTION 401 – HOT MIX ASPHALT (HMA) COURSES

401.02.01 Materials
EMULSIFIED ASPHALT UNDER TACK COAT IS REVISED TO:

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

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

401.02.02 Equipment
THE LAST PARAGRAPH IS CHANGED TO:

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

401.03.01 Preparing Existing Pavement

A. Milling of HMA.

THE FOLLOWING IS ADDED AFTER THE FOURTH PARAGRAPH:

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

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

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

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

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

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

Reuse removed material as specified in 202.03.07.A.

401.03.02 Tack Coat and Prime Coat

THE ENTIRE TEXT IS CHANGED TO:

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

Do not apply tack coat or prime coat to asphalt-stabilized drainage course.

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

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

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

Table 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

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

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

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

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

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

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

Table 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

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

401.03.03 HMA Courses

A. Paving Plan.

THE FOLLOWING IS ADDED AT THE END OF THE FIRST PARAGRAPH:

15. If applicable, the warm mix asphalt additive or process being used.

C. Test Strip.

THE FOLLOWING IS ADDED AT THE END OF THE FIRST PARAGRAPH:

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

D. Transportation and Delivery of HMA.

THE FIRST PARAGRAPH IS CHANGED TO:

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

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

E. Spreading and Grading.

THE THIRD PARAGRAPH IS CHANGED TO:

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

THE THIRD PARAGRAPH IS CHANGED TO:

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

G. Opening to Traffic.

THE ENTIRE TEXT IS CHANGED TO:

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

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

H. Air Void Requirements.

THE FIRST PARAGRAPH IS CHANGED TO:

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

THE FOLLOWING IS ADDED TO THE THIRD PARAGRAPH:

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

THE FOLLOWING IS ADDED AFTER THE THIRD 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.

SUBPART 5 & 7 ARE CHANGED TO:

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

1. The ME will arrange the core results in ascending order, in which X_1 represents the smallest value and X_N represents the largest value.
2. If X_N is suspected of being an outlier, the ME will calculate:

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

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

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

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

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

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

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

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

J. Ride Quality Requirements.

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 FIRST PARAGRAPH IS CHANGED TO:

Upon completion of an HMA lot, drill cores at random locations determined by the RE at least 12 hours after paving. Take cores in the presence of the RE. Do not drill additional core samples unless directed by the RE.

THE LAST SENTENCE OF THE 2ND PARAGRAPH IS CHANGED TO THE FOLLOWING:

Apply an even coating of tack coat to sides of the hole. Place HMA in maximum lifts of 4 inches in the hole and compact each lift. Ensure that the final surface is 1/4 inch above the surrounding pavement surface.

THE FIFTH AND SIXTH PARAGRAPHS ARE CHANGED TO:

At least 24 hours prior to coring, provide a tamper proof core sample box for the RE's inspection and approval. Ensure that the core sample box can be locked and sealed and is tamper proof in such a manner that it cannot be opened without removing the seals. Ensure that the core sample box provides protection for the cores from being disturbed or damaged during transit. Mark the Department assigned core number on the side of the sample. Place core samples and corresponding forms in the core sample box. Before sealing the core sample box, ensure that the RE has recorded the seal number on the laboratory form. Transport the sealed core sample boxes to the Department Laboratory. The RE at his discretion may decide to deliver the core samples as indicated above.

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

401.04 MEASUREMENT AND PAYMENT

THE FOURTH PARAGRAPH IS CHANGED TO:

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

THE FOLLOWING IS ADDED:

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

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

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

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

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

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

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

DIVISION 500 – BRIDGES AND STRUCTURES

SECTION 504 – STRUCTURAL CONCRETE

504.02.01 Materials

THE FOLLOWING MATERIAL REFERENCE IS CHANGED TO:

Grit for Epoxy Waterproofing.....901.07.01

504.03.02 Constructing Concrete

D. Placing and Consolidating Concrete.

THE FIRST SENTENCE OF THE FIFTH PARAGRAPH IS DELETED

G. Removal of Forms and Falsework.

Do not remove forms and false work until the concrete obtains a compressive strength of 3,000 psi.

SECTION 505 – PRECAST AND PRESTRESSED STRUCTURAL CONCRETE

505.03.01 Prestressed Concrete Structures

C. Erection Plan.

THE FIRST SENTENCE IS CHANGED TO:

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

SECTION 507 – CONCRETE BRIDGE DECK AND APPROACHES

THIS SECTION IS RENAMED TO:

SECTION 507 – CONCRETE BRIDGE DECK, BRIDGE PARAPET AND APPROACHES

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.

507.03.05 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.

507.04 MEASUREMENT AND PAYMENT

THE SECOND PARAGRAPH IS CHANGED TO:

The Department will include payment for epoxy coated reinforcement steel for the bridge approach under the item CONCRETE BRIDGE APPROACH; for other concrete items, the Department will make payment for reinforcement steel under REINFORCEMENT STEEL, REINFORCEMENT STEEL, EPOXY-COATED, and REINFORCEMENT STEEL, GALVANIZED as specified in 504.04.

SECTION 513 – RETAINING WALLS

513.02.01 Materials
THE FOLLOWING IS ADDED:

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

513.03.01 Proprietary Retaining Walls

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

1. Soil Aggregate.

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

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

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

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

DIVISION 600 – MISCELLANEOUS CONSTRUCTION

SECTION 605 – FENCE

605.04 MEASUREMENT AND PAYMENT
THE FOLLOWING IS ADDED:

Item	*Pay Unit*
WOOD STOCKADE FENCE	LINEAR FOOT
WOOD SPLIT RAIL FENCE	LINEAR FOOT

SECTION 606 – SIDEWALKS, DRIVEWAYS, AND ISLANDS

606.03.02 Concrete Sidewalks, Driveways, and Islands

F. Placing Concrete.
THE ENTIRE PART F. IS CHANGED TO:

Obtain RE approval of forms and joint placement before placing concrete. Place concrete according to the limitations specified in 504.03.02.C. To place concrete between November 1 and March 15, submit to RE for approval a plan detailing the method of protecting the concrete from salt for at least 30 days after placing. Do not begin placing concrete until this plan is approved. Place concrete across the formed area to minimize rehandling. Ensure that concrete is not discharged into windrows or piles. Continuously place concrete between transverse joints without the use of intermediate bulkheads. To prevent bowing or misalignment of the transverse joints, place concrete simultaneously on both sides of transverse joints without disturbing the joints. Consolidate the concrete by hand spading or using internal mechanical vibrators. If a slab is not completed from transverse joint to transverse joint, remove the incomplete slab and replace. Terminate each day's placement at a transverse joint. If concrete becomes segregated during placement, cease operations and correct handling operations. Protect concrete as specified in 504.03.02.I.

H. Protection and Curing.
THE LAST SENTENCE IS CHANGED TO:

Ensure vehicles and other loads are not placed on sidewalks, islands, and driveways until the concrete has attained compressive strength of 3000 pounds per square inch, as determined from 2 concrete cylinders field cured according to AASHTO T 23.

SECTION 607 – CURB

607.03.01 Concrete Barrier Curb

D. Placing Concrete.
THE THIRD SENTENCE OF THE FIRST PARAGRAPH IS CHANGED TO:

To place concrete between November 1 to March 15, submit to RE for approval a plan detailing the method of protecting the concrete from salt for at least 30 days after placing.

607.03.02 Concrete Vertical Curb and Concrete Sloping Curb
D. Placing Concrete.
THE ENTIRE TEXT IS CHANGED TO:

Place concrete for vertical curb and sloping curb as specified in 607.03.01.D, except that consolidation may be achieved by hand spading or internal mechanical vibrators.

607.03.04 Concrete Vertical Curb and Concrete Sloping Curb, Dowelled

D. Placing Concrete.
THE ENTIRE TEXT IS CHANGED TO:

Place concrete for vertical and sloping curb as specified in 607.03.02.D.

607.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED:

Item	*Pay Unit*
GRANITE BLOCK CURB	LINEAR FOOT

The Granite Block Curb item will be according to section 607.03.05 Granite 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
Asphalt-Stabilized Drainage Course……..…….902.06
Non-Vegetative Surface Coating……...912.02.04
Herbicide……917.11.03
Polyester Matting…….…….…..919.15

Provide Non-Vegetative Surface, Porous HMA conforming to the requirements of Asphalt-Stabilized Drainage Course.

608.02.02 Equipment

Provide equipment as specified:

HMA Compactor……..1003.05
Vibratory Drum Compactor……..1003.06
HMA Plant……1009.01
HMA Trucks…….....1009.02

608.03 CONSTRUCTION

608.03.01 Non-Vegetative Surface, HMA

Excavate as specified in 202.03.03. Shape and compact the underlying material to produce a firm, even surface. Obtain RE approval before finishing excavation. If the RE determines that the bottom of the excavation is unstable, undercut, backfill, and compact as directed by the RE.

Construct the non-vegetative surface, HMA before installing guide rail. Obtain RE approval for alternate methods of construction.

Deliver HMA as specified in 401.03.03.D. Construct non-vegetative surfaces 4 inches thick. Place and compact the material to produce a surface free of roller marks and ridges. Spread and grade the HMA as specified in 401.03.03.E. Ensure that the finished surface is smooth, even, and graded to drain away from the guide rail. Compact HMA as specified in 401.03.03.F. Spread, rake, and lute areas not accessible to pavers and rollers with hand tools and compact with dynamic compactors.

Repair non-vegetative surface damaged by guide rail installation with HMA. Use hand tampers around posts and other obstacles where mechanical compactors are not accessible.

608.03.02 Color-Coated Non-Vegetative Surface, HMA

Construct color-coated non-vegetative surfaces as specified in 608.03.01.

Uniformly apply the final color at the rate of 0.3 to 0.5 gallons per square yard by spraying, brushing, or squeegeeing over the HMA surface course. Ensure that the surface is clean and dry at the time of application. Reapply the coating to any missed spots or areas to obtain a uniform coating.

Avoid spilling the color coating on adjacent surfaces. If the color coating spills, immediately clean it with water before the coating dries. If the coating dries, repair as directed by the RE.

The RE will not allow traffic on the color-coated surface until it is dry.

608.03.03 Non-Vegetative Surface, Broken Stone

Ensure that areas to receive non-vegetative surface, Broken Stone, are free from vegetation. Vegetation removal may require manual removal, herbicide treatment as specified in 608.03.06 or both.

Apply a pre-emergent herbicide to the area before placement of broken stone. Spread broken stone, aggregate size No. 3, in a uniform layer, to prescribed thickness.

608.03.04 Non-Vegetative Surface, Porous HMA

Ensure that areas to receive non-vegetative surface, Porous HMA, are free from vegetation. Vegetation removal may require manual removal, herbicide treatment as specified in 608.03.06 or both. Excavate as specified in 202.03.03. Shape and compact the underlying material to produce a firm, even surface. Obtain RE approval before finishing excavation. If the RE determines that the bottom of the excavation is unstable, undercut, backfill, and compact as directed by the RE.

Construct the non-vegetative surface, porous HMA before installing guide rail. Obtain RE approval for alternate methods of construction.

Construct porous HMA surface course to prescribed thickness according to the requirements of Section 303 except for the application of prime coat. Repair non-vegetative surface damaged by guide rail installation with porous HMA. Use hand tampers around posts and other obstacles where mechanical compactors are not accessible.

608.03.05 Non-Vegetative Surface, Polyester Matting

Install polyester matting according to the manufacturer's requirements by manufacturer certified workers.

Ten days before installation, submit to the RE a list of manufacturer certified workers and one copy of the "engineering package" including demonstration compact discs and samples of product components; such as foot prints, finished seams, etc. The manufacturer may elect to train the workers and Department inspectors on a test section on the worksite.

Ensure that the surface areas to receive the matting are smooth, firm, stable and free of rocks, clods, foliage, roots or other material which might prevent the matting from lying in direct contact with the ground surface, free of wrinkles or bulges. Existing non-vegetative surface or HMA that is in the same location as proposed polyester matting may be left in place as long as its surface area is properly prepared as previously stated. Mow grass as low as possible prior to installation of matting. Install the matting immediately following installation of guide rail posts and prior to installation of the guide rail hardware by lifting the matting above the posts and allowing it to drop to the ground with the posts passing through prefabricated openings.

Stake the matting along its edges in accordance with the manufacturer's recommendations.

Seal matting openings with a separate prefabricated piece of matting that will provide a snug fit around the post and completely cover the opening. Ensure that seams are sealed.

Ensure that the matting surface is vegetation-free from installation until final acceptance. Vegetation removal may require herbicide treatment, mechanical removal, or both, as specified in 608.03.06.

608.03.06 Post-Emergent Weed Control of Non-Vegetative Surfaces

Manually remove or spray vegetation growing on the non-vegetative surface with a post-emergent non-selective herbicide treatment for total control of vegetation on the non-vegetative surface area, as directed by the RE. Select post-emergent herbicides for control of targeted vegetation based on the manufacturer's recommendations and product label. Begin the work associated with vegetation removal as early as the conditions permit. Herbicides must be applied by, or under the direct supervision of, a Certified Commercial Pesticide Applicator, according to the manufacturer's recommendations. Restore areas where herbicide has been applied and not intended to its prior existing condition at no cost to the State. Do not apply herbicide in the rain or when wet weather is expected within 24 hours. Do not apply herbicide after rain until approved by the RE.

The RE will notify the ME after Acceptance for inclusion of the non-vegetative surface in its herbicide spraying program including the date that the herbicide was last applied on the project section.

608.04 MEASUREMENT AND PAYMENT

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

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

When the RE directs undercutting of unstable material in the excavation area, the Department will make payment, as specified in 104.03.03, for the additional excavation. The Department will also make payment, as specified in 104.03.03, for the additional bedding if there is not an excess of excavated material available for use as bedding.

SECTION 609 – BEAM GUIDE RAIL

609.03.01 Beam Guide Rail
THE SEVENTH PARAGRAPH IS CHANGED TO:

Install flexible delineators with white retroreflective sheeting on the right side of the direction of traffic. Install flexible delineators with yellow retroreflective sheeting on the left side of the direction of traffic. Mount flexible delineators on the blockout of beam guide rail using either a "U" channel base on the I-beam blockout or a flat base attached to a wood, polymer, or other solid top blockout. Attach the base to the blockout using an adhesive recommended by the manufacturer of the base and panel.

609.03.03 Terminals and Anchorages
THE FOLLOWING IS ADDED:

Excavate cut slope as specified in 202.03.03 within the limits of the buried guide rail terminal. Drive beam guide rail posts for buried guide rail terminal to the required position. Ensure that posts are driven plumb, properly spaced, and to the line and grade shown. Attach the beam guide rail element to the spacer at every post. Attach the beam guide rail element and plate to the terminal posts. Align the top edge of the beam guide rail element in a straight line. Where a vertical transition is required, ensure that the top edge of the beam guide rail element forms the chords of a smooth vertical curve. Backfill with excavated material as specified in 203.03.02C.

609.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS ADDED

Item	*Pay Unit*
BURIED GUIDE RAIL TERMINAL	UNIT

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

610.02.01 Materials

THE FOLLOWING MATERIALS ARE RENAMED TO:

Traffic Stripes.....912.03.01
Traffic Markings 912.03.02

610.03.01 Long-Life Traffic Stripes

THE SUBPART HEADING AND THE ENTIRE TEXT IS CHANGED TO:

610.03.01 Traffic Stripes

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

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

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

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

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

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

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

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

375 millicandelas per square meter per lux for white traffic stripe

250 millicandelas per square meter per lux for yellow traffic stripe

F. Defective work.

THE FIRST SENTENCE IN THE FOURTH PARAGRAPH IS CHANGED TO:

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

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

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

Provide the RE with a Reflectometer that meets a 30 meter geometry as specified in ASTM E 1710, capable of measuring wet and dry conditions as specified in ASTM E 2176 and ASTM E 2177, and that has been certified by the manufacturer as being calibrated within the last two years. The RE will test the retroreflectance of traffic stripes. Replace traffic stripes that do not meet the retroreflectance values indicated in 610.03.01.E. Replace the entire length of striping where improper curing or discoloration has occurred. Discoloration is localized areas or patches of brown or grayish colored compound. Where improper curing or discoloration occurs intermittently in intervals of 100 feet or less throughout the striping length, replace the entire length of striping from the beginning of the first occurrence until the end of the last occurrence, plus 5 feet on each end.

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

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

610.03.02 Thermoplastic Traffic Markings

THE SUBPART HEADING AND THE ENTIRE TEXT IS CHANGED TO:

610.03.02 Traffic Markings Lines, Traffic Markings Symbols and Traffic Markings Route Symbols

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

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

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

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

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

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

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

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

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

375 millicandelas per square meter per lux for white traffic markings

250 millicandelas per square meter per lux for yellow traffic markings

E. Defective work.

THE FIRST SENTENCE IN THE FOURTH PARAGRAPH IS CHANGED TO:

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

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

The RE will determine initial retroreflectance as follows:

Provide the RE with a Reflectometer that meets a 30 meter geometry as specified in ASTM E 1710, capable of measuring wet and dry conditions as specified in ASTM E 2176 and ASTM E 2177, and that has been certified by the manufacturer as being calibrated within the last two years. The RE will test the retroreflectance of traffic markings. Replace traffic markings that do not meet the retroreflectance values indicated in 610.03.02.D.

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

610.03.04 Removal of RPMs

THE ENTIRE TEXT IS CHANGED TO:

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

610.03.06 Ground Mounted Flexible Delineators
THE FIRST PARAGRAPH IS CHANGED TO:

Use white retroreflective sheeting for delineators located on the right side when facing in the direction of traffic. Use yellow retroreflective sheeting for delineators located on the left side when facing in the direction of traffic.

610.03.07 Rumble Strip
THE ENTIRE SUBPART IS CHANGED TO:

At least 20 days before constructing rumble strips, submit a plan for cutting rumble strips and debris collection/removal to the RE for approval.

Construct rumble strips on newly constructed pavement after it has cooled sufficiently to allow the cutting to be done cleanly without causing damage to the adjacent pavement.

Clean the area where rumble strips are to be constructed. Construct rumble strips by cutting indentations into the pavement perpendicular to the traveled way without disturbing the surrounding pavement. Collect cuttings and reuse or dispose of as specified in 202.03.07.

Ensure that the centerline rumble strips are constructed before placing TRAFFIC STRIPES. After cutting centerline rumble strips and collecting the debris, apply Fog Seal over the centerline rumble strip as specified in 422.03.02.

Do not construct rumble strips 200 feet linear feet before and after the approximate midpoint of Weigh-in-Motion (WIM) systems in the roadway as listed in the Special Provisions.

610.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEMS ARE DELETED:

Item	*Pay Unit*
RPM, BI-DIRECTIONAL, WHITE LENS	UNIT
TRAFFIC STRIPES, LONG-LIFE, EPOXY RESIN ___"	LINEAR FOOT
TRAFFIC MARKINGS, THERMOPLASTIC	SQUARE FOOT

THE FOLLOWING ITEMS ARE ADDED:

Item	*Pay Unit*
TRAFFIC STRIPES, ___"	LINEAR FOOT
TRAFFIC MARKINGS LINES, ___"	LINEAR FOOT
TRAFFIC MARKINGS SYMBOLS	SQUARE FOOT
TRAFFIC MARKINGS ROUTE SYMBOLS	SQUARE FOOT

THE SECOND PARAGRAPH IS CHANGED TO:

The Department will measure TRAFFIC STRIPES and TRAFFIC MARKINGS LINES by the linear foot for each specified width of stripe. The Department will not measure gaps in striping.

THE FOLLOWING IS ADDED AT THE END OF THE SUBSECTION:

The Department will measure rumble strip by the linear foot measured in the longitudinal direction of the rumble strip without deducting the interval spacing between rumble strips and the gaps for RPM placement and make payment under the Item RUMBLE STRIP.

The Department will not include payment for traffic stripes in RUMBLE STRIP. The Department will make payment for traffic stripes placed in conjunction with constructing a centerline rumble strip under TRAFFIC STRIPES as specified in 610.04.

The Department will not include payment for fog seal in RUMBLE STRIP. The Department will measure and make payment for FOG SEAL STRIP as specified in 422.04.

The Department will not measure the gaps such as WIM locations in the Rumble Strip.

SECTION 611 – CRASH CUSHIONS

611.01 DESCRIPTION
THE FIRST SENTENCE IS CHANGE TO:

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

611.02 MATERIALS
THE SECOND PARAGRAPH IS CHANGED TO:

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
CRASH CUSHION, LOW MAINTENANCE 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.

612.03.02 Type GA Breakaway and Non-Breakaway Support Guide Signs
THE SUBPART HEADING IS CHANGED TO:

612.03.02 Type GA Breakaway Support Guide Signs

C. Constructing Pedestals
THE SUBPART IS CHANGED TO:

Place reinforcement steel as specified in 504.03.01 before placing the concrete. Ensure that concrete placement complies with the limitations as specified in 504.03.02.C. Place concrete as specified in 504.03.02.D. Cure concrete as specified in 504.03.02.F.

D. Erecting Posts
THE SUBPART IS CHANGED TO:

Erect posts as specified in 512.03.01.G.

THE FOLLOWING IS ADDED:

F. Constructing Anchor, Hinge, Bracket and Coupling Assemblies.. At least 10 days before beginning the work, submit the manufacturer's installation guide and installer's certification to the RE.

Ensure that the installer is certified by the manufacturer.

Ensure that the manufacturer's representative is present during the foundation pour and the installation of the first sign. Install anchor, hinge, bracket and coupling assemblies according to the manufacturer's recommendations. The RE may require the system manufacturer's representative to be present at all times during the installation to provide on-site technical support.

612.04 MEASUREMENT AND PAYMENT
THE FOLLOWING ITEM IS DELETED:

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

DIVISION 650 – UTILITIES

SECTION 651 – WATER

651.02 MATERIALS

651.03.02 Water Pipe, Bridge

651.04 MEASUREMENT AND PAYMENT
THE LAST PARAGRAPH IS DELETED.

SECTION 652 – SANITARY SEWERS

{For Sanitary Main Relocation Pay Items listed on the BID FORM, See "Sanitary Relocation Technical Specifications" following the Technical Specifications}

G. Sewer Pipe Testing.

1. Gravity Main Sewer Testing.

652.03.02 Sanitary Sewer Pipe, Bridge

652.04 MEASUREMENT AND PAYMENT
THE LAST PARAGRAPH IS DELETED.

SECTION 653 – GAS

653.03.01 Gas Main

A. Prequalification.

C. Handling and Storing.

J. Air-Pressure Test.

653.04 MEASUREMENT AND PAYMENT
THE LAST PARAGRAPH IS DELETED.

DIVISION 800 – LANDSCAPING

SECTION 811 – PLANTING

811.03.01 Planting

E. Excavation for Plant Pits and Beds.
THE LAST SENTENCE OF THE SECOND PARAGRAPH IS CHANGED TO:

Obtain RE approval before reusing topsoil from the excavated pits.

I. Watering.
THE FIRST PARAGRAPH IS CHANGED TO:

Water plants with sufficient frequency and quantity to ensure that the soil surrounding the root system remains moist but not saturated.

811.03.02 Plant Establishment Period
THE THIRD AND FOURTH PARAGRAPHS ARE CHANGED TO:

The Department will reinspect the plants 1 year after the start of the plant establishment period. If the Department determines that plants need to be replaced after this inspection, replant plants as specified in 811.03.01 within 3 weeks of notification. If replacing outside of the optimal planting season as specified in Table 811.03.01-1, only use containerized or balled and burlapped plants that are certified as being dug dormant..

2. Maintenance Bond.

Provide a bond to the Department in the amount of $ 2,500.

DIVISION 900 – MATERIALS

SECTION 901 – AGGREGATES

THE ENTIRE SUBSECTION IS CHANGED TO:

901.07 GRIT

901.07.01 Grit for Epoxy Waterproofing. Use grit for spreading over the epoxy waterproofing that is a subangular, natural, 98 percent silica sand. Ensure that 90 percent of the total sample by weight falls between the No. 4 and No. 30 sieves, with 0 percent passing the No. 30 sieve.

901.07.02 Fine Aggregate for Fog Seal. Use fine aggregate for spreading over fog seal that conforms to 901.05.02 and the gradation requirements in Table 901.07.02-1:

Table 901.07.02-1 Gradation Requirements for Fine Aggregate used on Fog Seal

Sieve Size	Percent Passing
No. 8	100
No. 16	90 - 100
No. 50	70- 100
No. 200	0 - 2

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

902.02.01 Mix Designations
THE ENTIRE SUBPART IS CHANGED TO:

The requirements for specific HMA mixtures are identified by the abbreviated fields in the Item description as defined as follows:

HOT MIX ASPHALT 12.5ME SURFACE COURSE

1. **"HOT MIX ASPHALT"** "Hot Mix Asphalt" is located in the first field in the Item description for the purpose of identifying the mixture requirements.
2. **"12.5"** The second field in the Item description designates the nominal maximum size aggregate (in millimeters) for the job mix formula (sizes are 4.75, 9.5, 12.5, 19, 25, and 37.5 mm).
3. **"M"** The third field in the Item description designates the design compaction level for the job mix formula based on traffic forecasts as listed in Table 902.02.03-2 (levels are L=low and M=medium).
4. **"E"** The fourth field in the Item description designates the high temperature designation of the performance-graded binder. Options are "64" for PG 64-22 and "E" for PG 64E-22.
5. **"SURFACE COURSE"** The last field in the Item description designates the intended use and location within the pavement structure (options are surface, intermediate, or base course).

902.02.02 Composition of Mixtures
THE ENTIRE SUBPART IS CHANGED TO:

Provide materials as specified:

Aggregates for Hot Mix Asphalt.....901.05
Asphalt Binder.....902.01.01
Warm Mix Additives and Processes (optional).....902.01.05

If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer's recommendations for percentage of WMA additive needed.

Mix HMA in a plant that is listed on the QPL and conforms to the requirements for HMA Plants as specified in 1009.01.

Composition of the mixture for HMA surface course is coarse aggregate, fine aggregate, and asphalt binder, and may also include mineral filler, WMA additive, and up to 15 percent Reclaimed Asphalt Pavement (RAP). For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive. Ensure that the finished mix does not contain more than a total of 1 percent by weight contamination from Crushed Recycled Container Glass (CRCG).

The composition of the mixture for HMA base or intermediate course is coarse aggregate, fine aggregate, and asphalt binder, and may also include mineral filler, WMA additive and up to 35

percent of recycled materials. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive. The 35 percent of recycled materials may consist of a combination of RAP, CRCG, Ground Bituminous Shingle Material (GBSM), and RPCSA, with the following individual limits:

Table 902.02.02-1 Use of Recycled Materials in HMA Base or Intermediate Course

Recycled Material	Maximum Percentage
RAP	25
CRCG	10
GBSM	5
RPCSA	20

Combine the aggregates to ensure that the resulting mixture meets the grading requirements specified in Table 902.02.03-1. In determining the percentage of aggregates of the various sizes necessary to meet gradation requirements, exclude the asphalt binder.

Ensure that the combined coarse aggregate, when tested according to ASTM D 4791, has less than 10 percent flat and elongated pieces retained on the No. 4 sieve and larger. Measure aggregate using the ratio of 5:1, comparing the length (longest dimension) to the thickness (smallest dimension) of the aggregate particles.

Ensure that the combined fine aggregate in the mixture conforms to the requirements specified in Table 902.02.02-2. Ensure that the material passing the No. 40 sieve is non-plastic when tested according to AASHTO T 90.

Table 902.02.02-2 Additional Fine Aggregate Requirements for HMA

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

902.02.03 Mix Design

TABLES 902.02.03-2, AND 902.02.03-3 ARE CHANGED TO:

Table 902.02.03-2 Gyratory Compaction Effort for HMA Mixtures

Compaction Level	ESALs[1] (millions)	N_{des}	N_{max}
L	< 0.3	50	75
M	≥ 0.3	75	115

1. Design ESALs (Equivalent (80kN) Single-Axle Loads) refer to the anticipated traffic level expected on the design lane over a 20-year period.

Table 902.02.03-3 HMA Requirements for Design

Compaction Levels	Required Density (% of Theoretical Max. Specific Gravity)		Voids in Mineral Aggregate (VMA), % (minimum)						Voids Filled With Asphalt (VFA)1 %	Dust-to-Binder Ratio
			Nominal Max. Aggregate Size, mm							
	@N_{des}[2]	@N_{max}	37.5	25.0	19.0	12.5	9.5	4.75		
L	96.0	≤ 98.0	11.0	12.0	13.0	14.0	15.0	16.0	70 - 80	0.6 - 1.2
M	96.0	≤ 98.0	11.0	12.0	13.0	14.0	15.0	16.0	65 - 78	0.6 - 1.2

1. For 37.5-mm nominal maximum size mixtures, the specified lower limit of the VFA is 64 percent for all design traffic levels.
2. As determined from the values for the maximum specific gravity of the mix and the bulk specific gravity of the compacted mixture. Maximum specific gravity of the mix is determined according to AASHTO T 209. Bulk specific gravity of the compacted mixture is determined according to AASHTO T 166. For verification, specimens must be between 95.0 and 97.0 percent of maximum specific gravity at N_{des}.

THE FOURTH PARAGRAPH IS CHANGED TO:

At the ME's request, test the mix design to ensure that it meets a minimum tensile strength ratio of 80 percent, when tested according to AASHTO T 283. The ME will require tensile strength ratio testing for new aggregate sources and for aggregates or mixes suspected of stripping susceptibility.

902.02.04 Sampling and Testing

THE ENTIRE TEXT IS CHANGED TO:

A. General Acceptance Requirements. The RE or ME may reject and require disposal of any batch or shipment that is rendered unfit for its intended use due to contamination, segregation, improper temperature, lumps of cold material, or incomplete coating of the aggregate. For other than improper temperature, visual inspection of the material by the RE or ME is considered sufficient grounds for such rejection.

For PG 64-22, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 290 °F when the ambient temperature is less than 50 °F or is at least 275 °F when the ambient temperature is greater than or equal to 50 °F. For PG 64E-22, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 10 °F above the manufacturer's recommended laydown temperature. For mixes produced using a WMA additive or process, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 10 °F above the WMA manufacturer's recommended laydown temperature.

Do not allow the mixture temperature to exceed 330 °F at discharge from the plant.

Combine and mix the aggregates and asphalt binder to ensure that at least 95 percent of the coarse aggregate particles are entirely coated with asphalt binder as determined according to AASHTO T 195. If the ME determines that there is an on-going problem with coating, the ME may obtain random samples from 5 trucks and will determine the adequacy of the mixing on the average of particle counts made on these 5 test portions. If the requirement for 95 percent coating is not met on each sample, modify plant operations, as necessary, to obtain the required degree of coating.

If used, ensure that the equipment for controlled asphalt foaming system is running according to the manufacturer's recommendations. Ensure that the metering of water to foam the asphalt is controlled to produce a uniform mixture.

B. Sampling. The ME will take a random sample from each 700 tons of production for volumetric acceptance testing and to verify composition. The ME will perform sampling according to AASHTO T 168, NJDOT B-2, or ASTM D 3665.

C. Quality Control Testing. The HMA producer shall provide a quality control (QC) technician who is certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Technologist, Level 2. The QC technician may substitute equivalent technician certification by the Mid-Atlantic Region Technician Certification Program (MARTCP). Ensure that the QC technician is present during periods of mix production for the sole purpose of quality control testing and to assist the ME. The ME will not perform the quality control testing or other routine test functions in the absence of, or instead of, the QC technician.

The QC technician shall perform sampling and testing according to the approved quality control plan, to keep the mix within the limits specified for the mix being produced. The QC technician may use acceptance test results or perform additional testing as necessary to control the mix.

To determine the composition, perform ignition oven testing according to AASHTO T 308 and aggregate gradation according to AASHTO T 30.

For each acceptance test, perform maximum specific gravity testing according to AASHTO T 209 on a test portion of the sample taken by the ME. Sample and test coarse aggregate, fine aggregate, mineral filler, and RAP according to the approved quality control plan for the plant.

When using RAP, ensure that the supplier has in operation an ongoing daily quality control program to evaluate the RAP. As a minimum, this program shall consist of the following:

1. An evaluation performed to ensure that the material conforms to 901.05.04 and compares favorably with the design submittal.
2. An evaluation of the RAP material performed using a solvent or an ignition oven to qualitatively evaluate the aggregate components to determine conformance to 901.05.
3. Quality control reports as directed by the ME.

D. Acceptance Testing and Requirements. The ME will determine volumetric properties at Ndes for acceptance from samples taken, compacted, and tested at the HMA plant. The ME will compact HMA to the number of design gyrations (Ndes) specified in Table 902.02.03-2, using equipment according to AASHTO T 312. The ME will determine bulk specific gravity of the compacted sample according to AASHTO T 166. The ME will use the most current QC maximum specific gravity test result in calculating the volumetric properties of the HMA.

The ME will determine the dust-to-binder ratio from the composition results as tested by the QC technician.

Ensure that the HMA mixture conforms to the requirements specified in Table 902.02.04-1, and to the gradation requirements in Table 902.02.03-1. If 2 samples in 5 consecutive samples fail to conform to the gradation or volumetric requirements, immediately initiate corrective action.

The ME will test a minimum of 1 sample per 3500 tons for moisture, basing moisture determinations on the weight loss of an approximately 1600-gram sample of mixture heated for 1 hour in an oven at 280 ± 5°F. Ensure that the moisture content of the mixture at discharge from the plant does not exceed 1.0 percent.

Table 902.02.04-1 Hot Mix Asphalt Requirements for Control

Compaction Levels	Required Density (% of Theoretical Max. Specific Gravity)	Voids in Mineral Aggregate (VMA), % (minimum)						Dust-to-Binder Ratio
		Nominal Max. Aggregate Size, mm						
	@Ndes[1]	37.5	25.0	19.0	12.5	9.5	4.75	
L, M	95.0 – 97.0	11.0	12.0	13.0	14.0	15.0	16.0	0.6 - 1.3

1. As determined from the values for the maximum specific gravity of the mix and the bulk specific gravity of the compacted mixture. Maximum specific gravity of the mix is determined according to AASHTO T 209. Bulk specific gravity of the compacted mixture is determined according to AASHTO T 166.

902.03.01 Composition of Mixtures

THE ENTIRE TEXT IS CHANGED TO:

Mix OGFC and MOGFC in a plant that is listed on the QPL and conforms to the requirements for HMA plants as specified in 1009.01.

Composition of mixture for OGFC and MOGFC is coarse aggregate, fine aggregate and asphalt binder and may include a WMA additive. Ensure that the mixture conforms to the following requirements:

1. Use aggregate for OGFC and MOGFC that conforms to 901.05, except, for coarse aggregate, use broken stone of gneiss, granite, quartzite, or trap rock. Do not use RAP, CRCG, GBSM, or RPCSA.
2. Use asphalt binder for OGFC and MOGFC that is PG 64E-22 as specified in 902.01.01.
3. If used, ensure that WMA additives or processes conform to 902.01.05. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer's recommendations for percentage of WMA additive needed. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive.
4. For MOGFC, add a stabilizing additive consisting of mineral fiber or cellulose fiber to the mix. Use a stabilizing additive that conforms to the requirements for stabilizing additives in AASHTO M 325. Use only 1 type per mix design. If using mineral fibers, use a dosage rate of 0.4 percent by weight of total mix. If using cellulose fibers, use a dosage rate of 0.3 percent by weight of total mix. The dosage rate may be increased, as necessary, to prevent draindown as measured by the visual draindown determination of asphalt content in NJDOT B-8. Accurately control proportioning the fibers into the mixture within ±10 percent of the required weight, and use equipment that ensures uniform dispersion of the fibers. Store fibers in a dry location with a storage temperature not to exceed 120 °F. The

supplier of the cellulose or mineral fibers shall provide a certification of compliance, as specified in 106.07, that the material supplied conforms to AASHTO M 325. Ensure that a technical representative from the additive supplier is at the work site for the first full day of construction for technical assistance.

902.03.02 Mix Design
THE FOURTH 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.

902.04.01 Composition of Mixture
THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

Mix ultra-thin HMA in a plant listed on the QPL conforming to the requirements for HMA plants specified in 1009.01.

Use ultra-thin HMA that consists of coarse aggregate, fine aggregate, and polymer modified asphalt binder and that may contain mineral filler and a WMA additive. Do not add RAP, CRCG, GBSM, or RPCSA. Combine the material in such proportions that the total aggregate and asphalt binder conform to the composition percentages specified in Table 902.04.02-1.

To produce the ultra-thin HMA, use aggregates and asphalt binder that conforms to the following:

1. For asphalt binder, use PG 64E-22 conforming to the requirements of 902.01.01.
2. If used, ensure that WMA additives or processes conform to 902.01.05. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer's recommendations for percentage of WMA additive needed. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive.

3. For fine aggregate, use 100 percent stone sand conforming to 901.05.02. Ensure that the combined gradation with coarse aggregate conforms to Table 902.04.02-1.
4. Use coarse aggregate that conforms to 901.05.01 and Table 902.04.01-1. Permissible geologic classifications for coarse aggregate are argillite, gneiss, granite, quartzite, or trap rock. Ensure that the combined gradation with fine aggregate conforms to Table 902.04.02-1.

Table 902.04.01-1 Coarse Aggregate Properties

Tests	Test Method	Minimum Percent	Maximum Percent
Percentage of wear, Los Angeles Abrasion Test	AASHTO T 96	-	25
Flakiness Index	BS[1] 812, part 105.1	-	20
Clay Lumps and Friable Particles	ASTM C 142	-	2
Asphalt Affinity*	ASTM D 3625	95	-

[1.] British Standard Test Method

5. Use mineral filler, if necessary, that conforms to 901.05.03.

902.04.02 Mix Design

THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

For the mix design of the ultra-thin HMA, submit lab qualifications and references to the ME for approval prior to beginning work. Ensure that a technical representative from the lab which will perform the mix design is present during production to make adjustments as needed for mix compliance.

At least 30 days before the initial production date, submit the mix design to the ME for approval on forms supplied by the Department, including JMF for the ultra-thin HMA performed by an AASHTO accredited lab with at least five successfully completed ultra-thin HMA friction course projects greater than 5,000 tons each. Include a statement naming the source of each component and a report with the results for the criteria specified in Table 902.04.01-1 and 902.04.02-1.

If the source of any component material changes, submit a new JMF and obtain ME approval before using the new material. When unsatisfactory results or other conditions make it necessary, the ME may require a new JMF.

Design the ultra-thin HMA so that it has a draindown of less than 0.1 percent when tested according to AASHTO T 305.

When tested for moisture sensitivity according to AASHTO T 283, ensure that the ultra-thin HMA has a tensile strength ratio of at least 80 percent. Prepare specimens according to AASHTO T 312, and test according to T 283 except for the following:

1. Before compaction, condition the mixture for 2 hours according to AASHTO R 30, Section 7.1.

2. Compact specimens with 75 gyrations.
3. Extrude specimens as soon as possible without damaging.
4. Use AASHTO T 269 to determine void content.
5. Record the void content of the specimens.
6. If less than 55 percent saturation is achieved, repeat the procedure, unless the difference in tensile strength between duplicate specimens is greater than 25 pounds per square inch.
7. If visual stripping is detected, modify or readjust the mix.

Size, uniformly grade, and combine aggregate fractions in proportions so that the grading of total aggregate and asphalt binder in the JMF conform to the composition by mass percentages specified in Table 902.04.02-1.

Table 902.04.02-1 JMF Requirements for Ultra-Thin Friction Course

Sieve Size	Total % Passing By Mass	Production Control Tolerances from JMF
1/2"	100	±6.0
3/8"	75-100	±5.5
¼”	30-45	±5.5
No. 4	24-37	±5.5
No. 8	21-26	±4.5
No. 16	15-23	±4.0
No. 30	11-16	±4.0
No. 50	8-14	±4.0
No. 100	5-10	±3.0
No. 200	5.0-7.0	±2.0
Asphalt %	4.9-6.0	Ignition Oven ±0.40

During the construction of the test strip, take samples to confirm that the plant mixed material meets the requirements of the mix design. The ME will not grant final approval of the mix design until a successful verification of the plant produced mix and construction test strip.

902.04.03 Sampling and Testing

THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

Ensure that the mix meets the requirements as specified in 902.02.04.A, otherwise the RE or ME will reject the material. Maintain the temperature of the mix between 300 °F and 330 °F. Perform and meet requirements for quality control testing as specified in 902.02.04.C.

Ensure that a technical representative from the lab which designed the mix is present during production to make adjustments as needed for mix compliance. During production, the ME will take one random acceptance sample from each 700 tons of production to verify composition. Conduct draindown tests as directed by the ME.

If the composition testing results are outside of the production control tolerances specified in Table 902.04.02-1 for an acceptance sample, determine if a plant adjustment is needed and immediately

run a quality control sample. If the quality control sample is also outside of the control tolerances in Table 902.04.02-1, immediately take corrective action to bring the mix into compliance. Take additional quality control samples after the corrective action to ensure that the mix is within the production control tolerances. If 2 consecutive acceptance samples are outside the tolerances specified in Table 902.04.02-1, immediately stop production. Obtain ME approval of a plant correction plan before resuming production. Upon restarting production, do not transport mixture to the Project Limits before the results of a QC sample from the mixture indicate that the mixture meets JMF tolerances. The ME will reject mixture produced at initial restarting that does not meet tolerances.

The ME will perform sampling according to NJDOT B-2 or ASTM D 3665, and will perform testing for composition according to AASHTO T 308. Perform testing for draindown according to NJDOT B-7 or NJDOT B-8.

902.05.01 Composition of Mixture

THE ENTIRE TEXT IS CHANGED TO:

Mix SMA in a plant that is listed on the QPL and conforms to the requirements for HMA plants as specified in 1009.01.

The composition of the SMA mixture is coarse aggregate, fine aggregate, mineral filler, mineral fibers or cellulose fibers, and polymer modified asphalt binder and may include a WMA additive.

Use asphalt binder for SMA that is PG 64E-22 as specified in 902.01.01.

For coarse aggregate in SMA, use crushed stone conforming to 901.05.01 and Table 902.05.01-1. Use at least 2 stockpiles of crushed stone with differing gradations to allow adjustments to meet the JMF.

Table 902.05.01-1 Coarse Aggregate Properties for SMA

Tests	Test Method	Maximum Percent
Percentage of wear, Los Angeles Abrasion Test	AASHTO T 96	30
Flat and Elongated, 5 to 1 (Material Retained on the No. 4 Sieve)	ASTM D 4791	5
Flat and Elongated, 3 to 1 (Material Retained on the No. 4 Sieve)	ASTM D 4791	20

For fine aggregate, use 100 percent stone sand conforming to 901.05.02. Ensure that the combined fine aggregate in the mixture conforms to the requirements in Table 902.02.02-2.

For mineral filler, use rock dust or crushed limestone conforming to AASHTO M 17. Ensure that the mineral filler has a plasticity index of less than 4 percent when tested according to AASHTO T 90.

Do not add RAP, CRCG, GBSM, or RPCSA to the mixture.

Add stabilizing fibers consisting of mineral fiber or cellulose fiber conforming to AASHTO M 325. Use only one type per mix design. If using mineral fibers, use between 0.4 and 0.6 percent by weight of total mix. If using cellulose fibers, use between 0.3 and 0.4 percent by weight of total mix. Provide control to accurately proportion the fibers into the mixture within ±10 percent of the

required weight, and use equipment that ensures uniform dispersion of the fibers. If using pre-packaged bags of fibers added to the pugmill during the dry mix cycle, follow the manufacturer's recommendations for the dry and wet mixing time. Store fibers in a dry location with a storage temperature not to exceed 120 °F. The supplier of the cellulose or mineral fibers shall provide a certification of compliance, as specified in 106.07, for the fibers. Ensure that a technical representative from the fiber supplier is at the HMA plant for the first full day of production for technical assistance.

If used, ensure that WMA additives or processes conform to 902.01.05. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer's recommendations for percentage of WMA additive needed. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive.

902.05.02 Mix Design

THE ENTIRE TEXT 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 902.05.02-1 SMA Specification Band (% passing) nominal-maximum aggregate size

Production Control Tolerances[1]	Sieve Size	19 mm % Passing	12.5 mm % Passing	9.5 mm % Passing
0%	1"	100	100	100
±5%	3/4"	90-100	100	100
±5%	1/2"	50-88	90-100	100
±5%	3/8"	25-60	50-80	70-95
±4%	No. 4	20-28	20-35	30-50
±4%	No. 8	16-24	16-24	20-30
±4%	No. 16	–	–	0-21
±3%	No. 30	–	–	0-18
±3%	No. 50	–	–	0-15
±2%	No. 200	8.0-11.0	8.0-11.0	8.0-12.0
	Coarse Aggregate Fraction	Portion Retained on No. 4 Sieve	Portion retained on No. 4 Sieve	Portion retained on No. 8 Sieve
	Minimum Lift Thickness	2 inches	1-1/2 inch	1 inch

1. Production tolerances may fall outside of the wide band gradation limits.

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 (AASHTO T 308)	±0.40%	6% minimum
Tensile Strength Ratio (AASHTO T 283)	–	80% minimum

902.05.03 Sampling and Testing
THE ENTIRE TEXT IS CHANGED TO:

Perform quality control testing as specified in 902.02.04.C. Ensure that the mix meets the requirements as specified in 902.02.04.A, otherwise the RE or ME will reject the material.

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

If the testing results are outside of the production control tolerances specified in Table 902.05.02-1 and Table 902.05.02-2 for an acceptance sample, determine if a plant adjustment is needed and immediately run a quality control sample. If the quality control sample is also outside of the control tolerances in Table 902.05.02-1, immediately take corrective action to bring the mix into compliance. Take additional quality control samples after completing the corrective action to ensure that the mix is within tolerances. If 2 consecutive acceptance samples are outside the tolerances specified in Table 902.05.02-1 and Table 902.05.02-2, immediately stop production. Obtain ME approval of a plant correction plan before resuming production. Upon restarting production, do not transport mixture to the Project Limits before the results of a QC sample from the mixture indicate that the mixture meets JMF tolerances. The ME will reject mixture produced at initial restarting that does not meet tolerances.

The ME will perform sampling according to NJDOT B-2 or ASTM D 3665, and will perform testing for composition according to AASHTO T 308. The ME will determine bulk specific gravity of the compacted sample according to AASHTO T 166 or AASHTO T 331. The ME will use the most current QC maximum specific gravity test result, obtained according to AASHTO T 209, in calculating the volumetric properties of the SMA. Perform testing for draindown according to AASHTO T 305.

THE FOLLOWING SUBSECTIONS ARE ADDED

902.07 ASPHALT-RUBBER OPEN-GRADED FRICTION COURSE (AR-OGFC)

902.07.01 Composition of Mixture

Mix AR-OGFC in a plant listed on the QPL and conforming to the requirements for HMA plants specified in 1009.01. Ensure the HMA plant is equipped with asphalt-rubber binder blending equipment as specified in 1009.03.

Composition of mixture for AR-OGFC is coarse aggregate, fine aggregate and asphalt-rubber binder. Ensure that the mixture conforms to the following requirements:

1. Use aggregates that conform to 901.05. Use fine aggregate that is 100 percent stone sand and conforms to Table 902.02.02-2.
2. Do not use RAP, CRCG, GBSM, or RPCSA.
3. Use asphalt-rubber binder that conforms to 902.07.02.

902.07.02 Asphalt-Rubber Binder

A. Materials. Use the following materials:

1. Ground Crumb Rubber. Ensure that the ground crumb rubber has a specific gravity of 1.15 ± 0.05, is free of wire or other contaminating materials, and contains not more than 0.5 percent fabric. Use crumb rubber that is ambient ground and conforms to the gradation requirements specified in Table 902.07.02-1. Ensure that the moisture content is less than 0.75 percent. The Contractor may add up to four percent calcium carbonate by weight of the granulated rubber, to prevent the particles from sticking together.

Table 902.07.02-1 Ground Crumb Rubber Gradation

Sieve Size	Percent Passing[1, 2]
No. 8	100
No. 16	65 – 100
No. 30	20 – 100
No. 50	0 – 45
No. 200	0 – 5

1. Perform gradation according to AASHTO T 27 using a minimum 50 gram sample.
2. Ensure that the gradation is performed as specified in NJDOT B-11.

Submit to the ME a certification of compliance, as specified in 106.07, for the ground crumb rubber. In addition, ensure that the certificates confirm that the rubber is a crumb rubber, derived from processing whole scrap tires or shredded tire materials; and the tires from which the crumb rubber is produced are taken from automobiles, trucks, or other equipment owned and operated in the United States. Include with the certifications verifications that the processing did not produce, as a waste product, casings, or other round tire material that can hold water when stored or disposed of above ground.

2. Asphalt Binder.

a. Use asphalt binder that conforms to AASHTO M 320, Table 1; PG 64-22, PG 58-28 or an approved blend of both grades. The asphalt binder producer is required to provide the asphalt binder quality control plan annually to the ME for approval. Ensure that the quality control plan conforms to AASHTO R 26. Submit to the ME a certification of compliance, as specified in 106.07, for the asphalt binder. The ME will perform quality assurance sampling and testing of each asphalt binder lot as defined in the approved quality control plan.

b. Use one or more of the following types of warm mix asphalt (WMA) additives or processes:

1. Organic additives such as a paraffin wax or a low molecular weight esterified wax.

2. Chemical additive that acts as a surfactant or dispersing agent.

Do not use controlled asphalt foaming systems or any other steam injection processes or steam introducing additives. WMA is a method of producing asphalt pavement at a mixing and compaction temperatures at least 30 ºF lower than Hot Mix Asphalt (HMA) by using one or more of the types of WMA additives listed above. Submit information on the WMA additive or process with the Paving Plan required in 402.03.02.A. Include in the submission, the name and description of the additive or process, the manufacturer's recommendations for usage of the additive or process, recommendations for mixing and compaction temperatures, and details on at least one project on which the additive was successfully used in the United States on a crumb rubber modified asphalt mixture. In the details of a project, include tonnage, type of mix, dosage, mixing and compaction temperatures, available test results, and contact information for project. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. The ME will evaluate the impacts to performance grade of the asphalt binder based upon certification from manufacturer in conjunction with laboratory data indicating the effects of the additive on the asphalt binder properties. Follow the manufacturer's recommendations for the dosage of WMA additive needed and approved blending method(s).

Ensure that a technical representative of the WMA additive manufacturer is on-site or available for consultation during the production and placement of the AR-OGFC with the warm mix additive.

B. Mixing. Using the asphalt-rubber binder blending equipment in 1009.03, produce the asphalt-rubber binder to contain at least 17 percent ground rubber by the weight of total asphalt binder (asphalt + crumb rubber). Ensure that the temperature of the asphalt cement is between 350 and 400 °F at the time of addition of the ground rubber. Ensure that there are no agglomerations of rubber particles in excess of two inches in the least dimension in the mixing chamber.

Document that the proportions are accurate and that the rubber has been uniformly incorporated into the mixture. Report as directed by the ME. Ensure that the crumb rubber and asphalt-cement are thoroughly mixed before beginning the one-hour reaction period. Rubber floating on the surface or agglomerations of rubber particles is evidence of insufficient mixing. Maintain the temperature of the asphalt-rubber binder immediately after mixing between 325 and 375 °F. Maintain the temperature of the asphalt-rubber binder for at least one hour before using.

C. Properties. Prepare asphalt-rubber binder using the "wet process." Physical properties are required to comply with the requirements of ASTM D 6114, Type II, except for the properties specified in Table 902.07.02-2.

D. Handling and Testing. Once the asphalt-rubber binder has been mixed, thoroughly agitate during periods

Table 902.07.02-2 Asphalt-Rubber Binder Properties

Property	Test Procedure	Requirement
Resilience: 77 °F; %, minimum	ASTM D 5329	25
Rotational Viscosity[1] 350 °F; cP	NJDOT B-12	2000 – 4000

1. The viscotester used must be correlated to a Rion (formerly Haake) Model VT-04 viscotester using the No. 1 Rotor. The Rion viscotester rotor, while in the off position, is required to be completely immersed in the binder at a temperature from 350 ± 3 °F for a minimum heat equilibrium period of 60 seconds, and the average viscosity determined from three separate constant readings (± 500 cP) taken within a 30 second time frame with the viscotester level during testing and turned off between readings. Continuous rotation of the rotor may cause thinning of the material immediately in contact with the rotor, resulting in erroneous results.

Allow asphalt-rubber binder held for more than 16 hours to cool. To reuse, gradually reheat to between 325 and 375 °F. Do not cool and reheat more than one time. Do not store asphalt-rubber binder above 250 °F for more than four days.

For each load or batch of asphalt-rubber binder, provide the RE with the following:

1. The source, grade, amount, and temperature of the asphalt cement before the addition of rubber.
2. The source and amount of rubber and the rubber content expressed as percent by the weight of the asphalt cement.
3. Times and dates of the rubber additions and resultant viscosity test.
4. A record of the temperature, with time and date reference for each load or batch. The record begins at the time of the addition of rubber and continue until the load or batch is completely used. Take readings and record every temperature change in excess of 20 °F, and as needed to document other events that are significant to batch use and quality.

902.07.03 Mix Design

Submit binder and mix designs including JMF for each mixture performed by an AASHTO accredited lab with at least five successfully completed asphalt-rubber open-graded friction course projects greater

than 5,000 tons each. Include a statement naming the source of each component and a report with the results for the criteria specified in Table 902.07.03-1. Include a report detailing the rotational viscosity of the asphalt-rubber binder at 60, 90, 135, 240, and 1440 minutes. Submit lab qualifications and references to the ME for approval prior to beginning work.

Design the mix to meet the criteria in Table 902.07.03-1.

Table 902.07.03-1 JMF Master Ranges and Mixture Requirements AR-OGFC

	Mixture Designations (% Passing[1])
Sieve Sizes	**AR-OGFC**
1/2"	100
3/8"	90 – 100
No. 4	20 – 40
No. 8	5 – 10
No. 200	0 – 3.0
Minimum asphalt-rubber binder, %[2]	8.4
Minimum % Air Voids, design	15

1. Aggregate percent passing to be determined based on dry aggregate weight.
2. Asphalt-rubber binder content to be determined based on total weight of mix.

Determine and verify the JMF according to NJDOT B-8. Ensure that the JMF is within the master range specified in Table 902.07.03-1.

Prepare compacted test specimens for submittal to the ME at least 30 days before the initial production date. Prepare these specimens from material mixed according to the final JMF, using 50 gyrations of the Superpave gyratory compactor according to AASHTO T 312.

The ME will test 2 specimens to verify stone-on-stone contact according to NJDOT B-8 and that the final JMF produces a mixture that has a minimum void content as specified in Table 902.07.03-1. The ME will determine percent air voids according to AASHTO T 209 and AASHTO T 331.

The ME will test 2 test specimens for abrasion and impact resistance using a modified L.A. Abrasion Test according to NJDOT B-8. The maximum allowable loss as calculated by this method is 30 percent.

Do not modify, which includes changing the asphalt cement supplier, the JMF unless the ME approves the modification.

902.07.04 Sampling and Testing

A. General Acceptance Requirements. General Acceptance Requirements. The RE or ME may reject and require disposal of any batch or shipment that is rendered unfit for its intended use due to contamination, segregation, improper temperature, lumps of cold material, or incomplete coating of the aggregate. For other than improper temperature, visual inspection of the material by the RE or ME is considered sufficient grounds for such rejection.

For AR-OGFC with WMA additive, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins meets the WMA additive manufacturer's

recommendations. Do not allow the mixture temperature to exceed 300 °F at discharge from the plant. For mixes produced using a WMA additive or process, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 10 °F above the WMA manufacturer's recommended laydown temperature.

Combine and mix the aggregates and asphalt-rubber binder to ensure that at least 95 percent of the coarse aggregate particles are entirely coated with asphalt-rubber binder as determined according to AASHTO T 195. If the ME determines that there is an on-going problem with coating, the ME may obtain random samples from 5 trucks and will determine the adequacy of the mixing on the average of particle counts made on these 5 test portions. If the requirement for 95 percent coating is not met on each sample, modify plant operations, as necessary, to obtain the required degree of coating.

B. Quality Control Testing. The HMA producer is required to provide a quality control (QC) technician who is certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Technologist, Level 2. The QC technician may substitute equivalent technician certification by the Mid-Atlantic Region Technician Certification Program (MARTCP). Ensure that the QC technician is present during periods of mix production for the sole purpose of quality control testing and to assist the ME. The ME will not perform the quality control testing or other routine test functions in the absence of, or instead of, the QC technician.

The QC technician is required to perform sampling and testing according to the approved quality control plan, to keep the mix within the limits specified for the mix being produced. The QC technician may use acceptance test results or perform additional testing as necessary to control the mix.

For each acceptance test, perform maximum specific gravity testing according to AASHTO T 209 on a test portion of the sample taken by the ME. Sample and test coarse aggregate, fine aggregate and mineral filler according to the approved quality control plan for the plant.

C. Acceptance Testing. During production, the ME will take one random acceptance sample from each 700 tons of production to verify composition. The ME will perform sampling according to NJDOT B-2 or ASTM D 3665, and will perform testing for composition according to AASHTO T 308. Perform testing for air voids according to T 209 and either B-6 or T 331. Perform testing for draindown according to NJDOT B-8.

Conduct air voids and draindown tests as directed by the ME.

If the composition testing results are outside of the production control tolerances specified in Table 902.07.04-1 for an acceptance sample, determine if a plant adjustment is needed and immediately run a quality control sample. If the quality control sample is also outside of the control tolerances in Table 902.07.04-1, immediately take corrective action to bring the mix into compliance. Take additional quality control samples after the corrective action to ensure that the mix is within the production control tolerances. If two consecutive acceptance samples are outside the tolerances specified in Table 902.07.04-1, immediately stop production. Obtain ME approval of a plant correction plan before resuming production. Upon restarting production, do not transport mixture to the Project Limits before the results of a QC sample from the mixture indicate that the mixture meets JMF tolerances. The ME will reject mixture produced at initial restarting that does not meet tolerances.

Table 902.07.04-1 Production Control Tolerances for AR-OGFC Mixtures

Sieve Sizes	Production Control Tolerances from JMF[1]
1/2"	±6.0
3/8"	±5.5
No. 4	±5.5
No. 8	±4.5
No. 200	±2.0
Asphalt-rubber binder, % (AASHTO T 308)	±0.40
Minimum % Air Voids	1.0% less than design requirement

1. Production tolerances may fall outside of the wide band gradation limits in Table 902.07.03-1.

902.08 HIGH PERFORMANCE THIN OVERLAY (HPTO)

902.08.01 Composition of Mixture

Mix HPTO in a plant that is listed on the QPL and conforms to the requirements for HMA Plants as specified in 1009.01. The composition of the mixture for HPTO is coarse aggregate, fine aggregate, and asphalt binder, and may also include mineral filler and a WMA additive. Do not use Reclaimed Asphalt Pavement (RAP), Ground Bituminous Shingle Material, Remediated Petroleum Contaminated Soil Aggregate, or Crushed Recycled Container Glass (CRCG). Use asphalt binder and aggregates that meet the following requirements:

1. For the asphalt binder, use PG 64E-22 as specified in 902.01.01.
2. If used, ensure that WMA additives or processes conform to 902.01.05. If a WMA additive is pre-blended in the asphalt binder, ensure that the asphalt binder meets the requirements of the specified grade after the addition of the WMA additive. If a WMA additive is added at the HMA plant, ensure that the addition of the additive will not negatively impact the grade of asphalt binder. Follow the manufacturer's recommendations for percentage of WMA additive needed. For controlled asphalt foaming system WMA, the Department may require an anti-stripping additive.
3. Use coarse aggregate that is argillite, gneiss, granite, quartzite, or trap rock and conforms to 901.05.01.
4. For fine aggregate, use 100 percent stone sand conforming to 901.05.02 and having an uncompacted void content of at least 45 percent when tested according to AASHTO T 304, Method A. In addition, the minimum sand equivalent is 45 percent when tested according to AASHTO T 176.
5. If necessary, use mineral filler as specified in 901.05.03.

902.08.02 Mix Design

At least 45 days before initial production, submit a job mix formula for the HPTO on forms supplied by the Department. Include a statement naming the source of each component and a report showing the results meet the criteria specified in Tables 902.08.03-1 and 902.08.03-2.

For the job mix formula for the HPTO mixture, establish the percentage of dry weight of aggregate passing each required sieve size and an optimum percentage of asphalt binder based upon the weight of the total mix. Determine the optimum percentage of asphalt binder according to AASHTO R 35 and M 323 with an Ndes of 50 gyrations. Before maximum specific gravity testing or compaction of specimens, condition the mix for 2 hours according to the requirements for conditioning for volumetric mix design in AASHTO R 30, Section 7.1. If the absorption of the combined aggregate is more than 1.5 percent according to AASHTO T 84 and T 85, condition the mix for 4 hours according to AASHTO R 30, Section 7.2 prior to compaction of specimens (AASHTO T 312) and determination of maximum specific gravity (AASHTO T 209). Ensure that the job mix formula is within the master range specified in, Table 902.08.03-1.

Ensure that the job mix formula provides a mixture that meets a minimum tensile strength ratio (TSR) of 85 percent when prepared according to AASTHO T 312 and tested according to AASHTO T 283 with the following exceptions:

1. Before compaction, condition the mixture for 2 hours according to AASHTO R 30 Section 7.1.
2. Compact specimens with 40 gyrations.
3. Extrude specimens as soon as possible without damaging.
4. Use AASHTO T 269 to determine void content.
5. Record the void content of the specimens.
6. If less than 55 percent saturation is achieved, the procedure does not need to be repeated, unless the difference in tensile strength between duplicate specimens is greater than 25 pounds per square inch.
7. If visual stripping is detected, modify or readjust the mix.

For each mix design, submit three gyratory specimens and one loose sample corresponding to the composition of the job mix formula, including the design asphalt content. The ME will use these samples for verification of the properties of the job mix formula. Compact the specimens to the design number of gyrations (Ndes). To be acceptable all three gyratory specimens must comply with the gradation and asphalt content requirements in Table 902.08.03-1 and with the control requirements in Table 902.08.03-2. The ME reserves the right to be present at the time of molding the gyratory specimens.

In addition, submit 6 gyratory specimens and a 5 gallon bucket of loose mix to the ME. Compact the additional gyratory specimens according to AASHTO T 312. Ensure that the 6 gyratory specimens are 77 millimeters high and have an air void content of 5.0 ± 0.5 percent. The ME will use the additional samples for performance testing of the HPTO mix. The ME will test the specimens using an Asphalt Pavement Analyzer according to AASHTO T 340 at 64 °C, 100 pounds per square inch hose pressure, and 100 pound wheel load. The ME will approve the job mix formula if the average rut depth for the 6 specimens in the asphalt pavement analyzer testing is not

more than 4 millimeters in 8,000 loading cycles. If the job mix formula does not meet the APA criteria, redesign the HPTO mix.

If unsatisfactory results for any specified characteristic of the work make it necessary, establish a new job mix formula for approval. In such instances, if corrective action is not taken, the ME may require an appropriate adjustment.

If a change in sources is made or a change in the properties of materials occurs, the ME will require that a new job mix formula be established and approved before production can continue.

902.08.03 Sampling and Testing

A. General Acceptance Requirements. The RE or ME may reject and require disposal of any batch or shipment that is rendered unfit for its intended use due to contamination, segregation, improper temperature, lumps of cold material, or incomplete coating of the aggregate. For other than improper temperature, visual inspection of the material by the RE or ME is considered sufficient grounds for such rejection.

Ensure that the temperature of the HPTO at discharge from the plant or surge and storage bins is maintained between 300 and 330 °F. For mixes produced using a WMA additive or process, ensure that the temperature of the mixture at discharge from the plant or surge and storage bins is at least 10 °F above the WMA manufacturer's recommended laydown temperature.

Combine and mix the aggregates and asphalt binder to ensure that at least 95 percent of the coarse aggregate particles are entirely coated with asphalt binder as determined according to AASHTO T 195. If the ME determines that there is an on-going problem with coating, the ME may obtain random samples from 5 trucks and will determine the adequacy of the mixing on the average of particle counts made on these 5 test portions. If the requirement for 95 percent coating is not met on each sample, modify plant operations, as necessary, to obtain the required degree of coating.

B. Sampling. The ME will take a sample of HPTO for volumetric acceptance testing from each 700 tons of a mix. The ME will perform sampling according to AASHTO T 168, NJDOT B-2, or ASTM D 3665.

C. Quality Control Testing. The HMA producer is required to provide a quality control (QC) technician who is certified by the Society of Asphalt Technologists of New Jersey as an Asphalt Technologist, Level 2. The QC technician may substitute equivalent technician certification by the Mid-Atlantic Region Technician Certification Program (MARTCP). Ensure that the QC technician is present during periods of mix production for the sole purpose of quality control testing and to assist the ME. The ME will not perform the quality control testing or other routine test functions in the absence of, or instead of, the QC technician.

The QC technician is required to perform sampling and testing according to the approved quality control plan, to keep the mix within the limits specified for the HPTO mix being produced. The QC technician may use acceptance test results or perform additional testing as necessary to control the mix.

To determine the composition, perform ignition oven testing according to AASHTO T 308. For each acceptance test, perform maximum specific gravity testing according to AASHTO T 209 on a test portion of the sample taken by the ME. Sample and test coarse aggregate, fine aggregate, mineral filler, and RAP according to the approved quality control plan for the plant.

D. Acceptance Testing and Requirements. The ME will determine volumetric properties at Ndes for acceptance from samples taken, compacted, and tested at the HMA plant. The ME will compact HPTO to 50 gyrations, using equipment according to AASHTO T 312. The ME will determine bulk specific gravity of the compacted sample according to AASHTO T 166. The ME will use the most current QC maximum specific gravity test result in calculating the volumetric properties of the HPTO.

The ME will determine the dust-to-binder ratio from the composition results as tested by the QC technician.

Ensure that the HMA mixture conforms to the requirements specified in Table 902.08.03-2, and to the gradation requirements in Table 902.08.03-1. If 2 samples in 5 consecutive samples fail to conform to the gradation or volumetric requirements, immediately initiate corrective action.

The ME will test a minimum of 1 sample per 3500 tons for moisture, basing moisture determinations on the weight loss of an approximately 1600-gram sample of mixture heated for 1 hour in an oven at 280 ± 5 °F. Ensure that the moisture content of the mixture at discharge from the plant does not exceed 1.0 percent.

E. Performance Testing. Provide 6 gyratory specimens and a 5 gallon bucket of loose mix to the ME. Compact the additional gyratory specimens according to AASHTO T 312. Ensure that the 6 gyratory specimens are 77 millimeters high and have an air void content of 5.0 ± 0.5 percent. The first sample is required to be taken in the first 1500 tons of production. Thereafter, random samples every 10,000 tons is required to be sampled. The ME will use the samples for performance testing of the HPTO mix. The ME will test the specimens using an Asphalt Pavement Analyzer according to AASHTO T 340 at 64 °C, 100 pounds per square inch hose pressure, and 100 pounds wheel load. If the HPTO mix exceeds the APA criteria of 5 mm in 8000 loading cycles, the ME may stop production until corrective action is taken. If the HPTO mix exceeds the APA criteria of 12 mm in 8000 loading cycles, the RE may require removal and replacement of the HPTO.

Table 902.08.03-1 HPTO Grading of Total Aggregate	
Sieve Size	**Percent Passing by Mass**
3/8”	100
#4	65-85
#8	33-55
#16	20-35
#30	15-30
#50	10-20
#100	5-15
#200	5.0-8.0
Minimum Percent Asphalt by Mass of Total Mix	7

Table 902.08.03-2 Volumetric Requirements for Design and Control of HPTO

	Required Density (% of Max. Sp. Gr.)		**Voids in Mineral Aggregate**	**Dust to Binder Ratio**	**Draindown AASHTO T 305**
	Ndes (50 gyrations)	**Nmax (100 gyrations)**	**(VMA)**		
Design Requirements	96.5	≤ 99.0	≥ 18.0 %	0.6 - 1.2	≤ 0.1 %
Control Requirements	95.5 - 97.5	≤ 99.0	≥ 18.0 %	0.6 – 1.3	≤ 0.1 %

SECTION 903 – CONCRETE

903.02.04 Viscosity Modifying Admixture
THE FIRST SENTENCE IS CHANGED TO:

Use a viscosity modifying admixture that is listed on the QPL and that, when evaluated according to the test methods and mix design proportions in AASHTO M 194, conforms to the following physical requirements:

903.03.06 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.

903.06.02 SCC For Precast Concrete
THE ENTIRE PART B. IS CHANGED TO:

B. Mix Design and Verification. Design the mix, as specified in 903.03.02 or 903.05.02, to conform to the strength, water-cement ratio, and air content requirements for the specified class of concrete for the item that is being cast. In addition, ensure that the SCC conforms to the requirements specified in Table 903.06.02-1.

Table 903.06.02-1 Requirements for SCC for Precast Concrete

Property	Test Method	Requirement
Slump Flow	NJDOT C-4	16 to 24 inches
Visual Stability Index		
Plastic Concrete	NJDOT C-4	1 maximum
Hardened Concrete	NJDOT C-5	1 maximum

Perform mix design verification as specified in 903.03.02 or 903.05.02. For the verification batch, ensure that the air content is in the top half of the allowable range and the slump flow is between 22 and 24 inches. Perform air content, slump flow, and visual stability index (plastic concrete) testing on the verification batch. Make concrete cylinders for compression testing as specified in 903.03.02 or 903.05.02 and make 2 additional 4 × 8 inch cylinders for visual stability index on the hardened concrete. Saw the additional cylinders length-wise according to NJDOT C-5. The ME will perform the compressive strength testing and the visual evaluation to assign a visual stability index in order to approve the mix.

SECTION 904 – PRECAST AND PRESTRESSED CONCRETE

904.01.01 Component Materials
THE FOLLOWING SENTENCE IS ADDED AT THE END:

For Precast Concrete, the minimum cement content specified in Table 903.03.06-3 is not required for Class A or Class B concrete.

904.01.02 Fabrication
THE ENTIRE SUBPART IS CHANGED TO:

Fabricate precast concrete at a plant as specified in 1011.01 and listed on the QPL.

1. **Placing Reinforcement Steel.** Before placing the concrete, place reinforcement steel in position as shown on the approved working drawings and as specified in 504.03.01. Firmly tie the reinforcement to prevent displacement during placing of the concrete.
2. **Placing Concrete.** Place concrete as specified in 504.03.02.B, 504.03.02.C, 504.03.02.D, and 504.03.02.E. Before placing concrete, ensure that reinforcement steel and any other embedded materials are free of loose rust, frost, dirt, oil, or contaminants that may prevent a bond with the concrete. Consolidate concrete with internal vibrators. The fabricator may use external vibration to supplement internal vibration. If using SCC, minimize or eliminate the use of vibrators to prevent segregation.

904.01.06 Quality Control and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

904.02.01 Component Materials
THE FOLLOWING SENTENCE IS ADDED AT THE END:

For Precast Concrete, the minimum cement content specified in Table 903.03.06-3 is not required for Class A or Class B concrete.

904.02.02 Fabrication
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Place concrete as specified in 504.03.02.C, 504.03.02.D, and 504.03.02.E.

THE SECOND SENTENCES IN THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate precast concrete at a plant as specified in 1011.01 and listed on the QPL.

904.02.06 Quality Control and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

STEP 2 IN THE THIRD PARAGRAPH IS CHANGED TO:

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

904.03.01 Component Materials
THE FOLLOWING IS ADDED AT THE END:

For Precast Concrete, the minimum cement content specified in Table 903.03.06-3 is not required for Class A or Class B concrete.

904.03.02 Fabrication
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate precast concrete at a plant as specified in 1011.01 and listed on the QPL.

2. Placing Concrete.
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Place concrete as specified in 504.03.02.B, 504.03.02.C, 504.03.02.D, and 504.03.02.E.

904.03.06 Quality Control and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

THE FOLLOWING IS ADDED AFTER THE LAST PARAGRAPH:

If the ME does not inspect the precast concrete item, submit certifications of compliance as specified in 106.07.

904.04.02 Fabrication
THE FIRST SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Fabricate prestressed concrete at a plant as specified in 1011.02 and listed on the QPL.

3. Placing Concrete.
THE SECOND SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Place concrete as specified in 504.03.02.B, 504.03.02.C, 504.03.02.D, and 504.03.02.E.

904.04.06 Quality Control, Quality Assurance, and Acceptance Requirements
THE FOLLOWING IS ADDED AFTER THE SECOND PARAGRAPH:

Follow the Department approved Buy America Compliance Plan. Provide documentation of compliance when requested by the ME.

THE FOLLOWING IS ADDED AFTER THE LAST PARAGRAPH:

If the ME does not inspect the precast concrete item, submit certifications of compliance as specified in 106.07.

SECTION 905 – REINFORCEMENT METALS

905.01 REINFORCEMENT STEEL

THE ENTIRE SUBPART IS CHANGED TO:

Provide reinforcement steel manufactured at an AASHTO NTPEP (National Transportation Product Evaluation Program) certified mill. For a list of NTPEP certified mills, see the following webpage: https://data.ntpep.org/REBAR/Audits.

For reinforcement steel, submit a certification of compliance as specified in 106.07. Attach copies of the mill certifications for each heat of reinforcement steel. The ME will randomly sample and test heats of reinforcement steel for quality assurance. The ME will randomly inspect and sample galvanized and epoxy coated reinforcement steel for quality assurance.

905.01.03 Welded Wire Reinforcement

THE FIRST PARAGRAPH IS CHANGED TO:

Use plain or deformed steel welded wire reinforcement according to ASTM A1064. When used for concrete pavement, use welded wire reinforcement mats at least 5 feet in width.

THE SECOND PARAGRAPH IS CHANGED TO:

When approved as an alternate to galvanized reinforcement bars, use galvanized welded wire reinforcement that meets the requirements of ASTM A 641, Table 1, Class 1.

905.01.05 Dowels

THE ENTIRE SUBPART IS CHANGED TO:

Use plain reinforcement bars according to ASTM A 615, Grade 60. Galvanize according to ASTM A 123.

905.03.03 Dowel Bars

THE FIRST PARAGRAPH IS CHANGED TO:

For dowel bars in transverse joints, use epoxy-coated, Grade 60, plain reinforcement steel according to ASTM A 615. If shown on the Plans, use dowel bars fitted with end caps. Ensure that the end caps are non-metallic and designed to prevent the entrance of grout or mortar into the expansion void.

SECTION 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: https://data.ntpep.org/.

THE FOLLOWING SUBPART IS ADDED:

909.02.09 Fiberglass Pipe for Bridge Storm Drainage

Fabricate fiberglass pipe conforming to ASTM D2996, RTRP-12EA1-2122 and fiberglass pipe fittings conforming to ASTM D3840.

Ensure that all fiberglass pipe, fittings and adhesives use pigmented resin throughout the wall and the color is concrete gray or designated color with UV stabilized resin. Painted gel-coat or exterior coating is not acceptable.

Ensure that adhesives are in accordance with the pipe manufacturer and adhesive manufacturer's recommendations.

SECTION 911 – SIGNS, SIGN SUPPORTS, AND DELINEATORS

911.02.02 Breakaway Sign Supports for Ground Mounted Signs
THE ENTIRE SUBPART IS CHANGED TO:

Fabricate and construct breakaway sign supports for ground mounted signs using materials conforming to the requirements in Table 911.02.02-1.

Table 911.02.02-1 Materials for Breakaway Sign Supports

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

Submit mill certificates for the component materials.

911.02.03 Non-Breakaway Sign Supports for Ground Mounted Signs
THE TEXT OF THIS SUBPART IS DELETED.

THIS SUBPART IS INTENTIONALLY LEFT BLANK

911.03 FLEXIBLE DELINEATORS

1. Delineator Dimensions.

b. Guide Rail Mounted.

THE ENTIRE TEXT IS CHANGED TO:

Ensure that the unit for beam guide rail mounted flexible delineators has a minimum width of 3 inches and a minimum thickness of 0.100 inch. Use units of a height that will ensure that the top of the reflective area is 5 ± 2 inches above the top of post.

Design the base of the unit to mount over the I-beam blockout or to the top of a wood or synthetic blockout, of the beam guide rail.

c. Barrier Curb Mounted.

THE ENTIRE TEXT IS CHANGED TO:

For barrier curb mounted flexible delineators, use a delineator that is 3-1/2 × 3-1/2 inches, with a minimum thickness of 0.100 inch, and that has a base that forms a "T" shape with the panel for mounting on the side of the barrier curb, and is flexible or hinged so as to return to its original position after being struck.

THE FOLLOWING IS ADDED:

d. Construction Barrier Curb Mounted. For construction barrier curb top mounted flexible delineators, use a delineator that is 6 x 12 inches with a minimum thickness of 0.100 inch. For construction barrier curb side mounted flexible delineators, use a delineator that is 3-1/2 x 3-1/2 inches with a minimum thickness of 0.100 inch, and that has a base that forms a "T" shape with the panel for mounting on the barrier curb and is flexible or hinged so as to return to its original position after being struck.

4. Retroreflective Sheeting.

b. Guide Rail Mounted.

THE ENTIRE TEXT IS CHANGED TO:

Ensure that the sheeting is a minimum of 3 inches square and is mounted on the upper portion of the delineator.

THE FOLLOWING IS ADDED:

d. Construction Barrier Curb Mounted. Ensure that the sheeting for top mounted flexible delineators is 6 x 12 inches and the sheeting for side mounted flexible delineators is 3-1/2 x 3-1/2 inches.

Submit a certification of compliance, as specified in 106.07, for delineators.

SECTION 912 – PAINTS, COATINGS, TRAFFIC STRIPES, AND TRAFFIC MARKINGS

912.03.01 Epoxy Traffic Stripes
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. In addition, ensure that the finished product meets the following:

1. Volume of solids is a minimum 61 percent.

2. Total solids are a minimum of 77.5 percent total non-volatiles by weight, when tested according to ASTM D 2369.
3. Weight per gallon is a minimum 14 ± 0.2 pounds per gallon for each color.
4. Hegman Grind is a minimum of 2 Hegman when tested according to ASTM D 1210.
5. Viscosity is between 70 and 95 Krebs Units at 77 °F, when tested according to ASTM D 562.

Use glass beads conforming to AASHTO M247, Type 1, with a moisture resistance coating. Ensure that glass beads do not contain more than 200 ppm of lead, 200 ppm of antimony, or 100 ppm of arsenic.

Submit a certification of compliance, as specified in 106.07, for latex and glass beads. For each lot of glass beads, submit test results indicating the parts per million of lead, antimony and arsenic as determined by testing according to Environmental Protection Agency testing method 3052 and testing method 6010B or 6010C.

SECTION 913 – GUIDE RAIL, FENCE AND RAILING

THIS SECTION IS RENAMED TO:

SECTION 913 – GUIDE RAIL, FENCE, RAILING AND BOX BEAM

913.01.01 Rail Element
THE SECOND PARAGRAPH IS CHANGED TO:

Submit a certification of compliance as specified in 106.07.

913.01.02 End Treatments
THE SECOND PARAGRAPH IS CHANGED TO:

Submit a certification of compliance as specified in 106.07.

913.01.03 Posts and Blockouts
THE FOURTH PARAGRAPH IS CHANGED TO:

Provide certifications of compliance, as specified in 106.07.

913.01.04 Rub Rail
THE SECOND PARAGRAPH IS CHANGED TO:

Submit a certification of compliance as specified in 106.07.

913.01.05 Miscellaneous Hardware
SUBPART 3 OF THE FIRST PARAGRAPH IS CHANGED TO:

3. Use plates for guide rail on bridges and buried guide rail terminals conforming to ASTM A 36 and galvanized according to ASTM A 123.

THE SECOND PARAGRAPH IS CHANGED TO:

Submit a certification of compliance as specified in 106.07. The ME may randomly inspect hardware for quality assurance.

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.

NJDOT TEST METHODS

NJDOT B-3 – SELECTING CORES FOR MAXIMUM SPECIFIC GRAVITY TESTING IN AIR VOIDS DETERMINATION

A. **Procedure.**

THE FOLLOWING NOTE IS ADDED AFTER STEP 3:

NOTE: For Recore Lots and Statistical Outlier Lots, do not randomly select a core for maximum specific gravity testing. The entire core lot must be tested for maximum specific gravity.

THE FOLLOWING STEP IS ADDED AFTER STEP 9:

10. If the lot has an outlier or is a recore lot, the entire lot must be tested for maximum specific gravity. Calculate air voids using each individual core maximum specific and bulk specific gravity.

NJDOT B-8 – DETERMINING JOB MIX FORMULA FOR MODIFIED OPEN-GRADED FRICTION COURSE MIXES

C. Procedure.

3. Relative VMA Asphalt Content.

THE FOURTH SENTENCE IN THE FIRST PARAGRAPH IS CHANGED TO:

Determine the bulk specific gravity, Gmb from each specimen according to NJDOT B-6 or AASHTO T 331.

THE FOOTNOTE FOR GMB IN THE SECOND EQUATION IS CHANGED TO:

Gmb = the bulk specific gravity of the specimen as determined by NJDOT B-6 or AASHTO T 331.

THE FOLLOWING TEST METHODS ARE ADDED:

NJDOT B-10 – OVERLAY TEST FOR DETERMINING CRACK RESISTANCE OF HMA

A. Scope. This test method is used to determine the susceptibility of HMA specimens to fatigue or reflective cracking. This test method measures the number of cycles to failure.

B. Apparatus. Use the following apparatus:

1. Overlay Tester. An electro-hydraulic system that applies repeated direct tension loads to specimens. The machine features two blocks, one is fixed and the other slides horizontally. The device automatically measures and records a time history of load versus displacement every 0.1 sec at a selected test temperature.

   The sliding block applies tension in a cyclic triangular waveform to a constant maximum displacement of 0.06 cm (0.025 in.). This sliding block reaches the maximum displacement and then returns to its initial position in 10 sec. (one cycle).

2. Temperature Control System. The temperature chamber must be capable of controlling the test temperature with a range of 32 to 95 ^{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 ± 0.5 mm, and a Shore Durometer “A” hardness of 50 ± 5 per ASTM Designation D 224
3. No. 8, 16, 30, 50, 100, and 200 sieves conforming to AASHTO M 92.
4. Mechanical sieve shaker conforming to AASHTO T 27.
5. Balance conforming to AASHTO M 231 and having a minimum capacity of 100 grams with a precision of 0.1 gram.

C. Procedure. The crumb rubber for asphalt rubber binder is required to conform to the gradations specified below when tested in accordance with ASTM Designation C 136 except as follows:

1. Obtain 100 ± 5 grams from the crumb rubber sample and dry to a constant weight at a temperature of not less than 135 °F nor more than 145 °F and record the dry sample weight.
2. Place the crumb rubber sample and 5.0 grams of talc in a one pint jar, then shake it by hand for a minimum of one minute to mix the crumb rubber and the talc. Continue shaking or open the jar and stir until the particle agglomerates and clumps are broken and the talc is uniformly mixed.
3. Place one rubber ball on each sieve. After sieving the combined material for 10 ± 1 minutes, disassemble the sieves. Brush remaining material adhering to the bottom of a sieve into the next finer sieve. Weigh and record the weight of the material retained on the No. 8 sieve and leave this material (do not discard) on the scale or balance. Ensure that observed fabric balls remain on the scale or balance and are placed together on the side of the scale or balance to prevent the fabric balls from being covered or disturbed when placing the material from finer sieves on to the scale or balance. Add the material retained on the next finer sieve (No. 16 sieve) to the scale or balance. Weigh and record that weight as the accumulative weight retained on that sieve (No. 16 sieve). Continue weighing and recording the accumulated weights retained on the remaining sieves until the accumulated weight retained in the pan has been determined. Before discarding the crumb rubber sample, separately weigh and record the total weight of the fabric balls in the sample.
4. Determine the weight of material passing the No. 200 sieve (or weight retained in the pan) by subtracting the accumulated weight retained on the No. 200 sieve from the accumulated retained weight in the pan. If the material passing the No. 200 sieve (or weight retained in the pan) has a weight of 5 grams or less, cross out the recorded number for the accumulated weight retained in the pan and copy the number recorded for the accumulated weight retained on the No. 200 sieve and record that number (next to the crossed out number) as the accumulated weight retained in the pan. If the material passing the No. 200 sieve (or weight retained in the pan) has a weight greater than 5 grams, cross out the recorded number for the accumulated weight retained in the pan, subtract 5 grams from that number and record the difference next to the crossed out number. The adjustment to the accumulated with retained in the pan is made to account for the 5 grams of the talc added to the sample. For calculation purposes, the adjusted accumulated weight is the same as the adjusted accumulated weight retained in the pan. Determine the percent passing based on the adjusted total sample weight and recorded to the nearest 0.1 percent.

D. Report. Report all test results on ME provided forms.

NJDOT B-12 – DETERMINING ROTATIONAL VISCOSITY OF ASPHALT RUBBER BINDER

A. Scope. This method presents procedures for sampling and testing of asphalt-rubber binder in the field using a hand held portable rotational analog or digital viscometer.

B. Apparatus. Use the following apparatus:

1. **Viscometer.** A hand held high range rotational viscometer. Analog models with indicator needles and scaled dial displays or digital read out viscometers may be used. Analog models that have been found acceptable include Rion Model VT-04E and Haake Model, VT-02. Digital models that have been found acceptable include Haake VT 2 Plus.
2. **Rotor.** A cylinder with a diameter of 24 ± 1.1 millimeters, height of 53 ± 0.1 millimeters, and a vent hole attached to a spindle or shaft with length of 87 ± 2 millimeters that is compatible with the selected viscometer. Acceptable rotors include Rion No. 1, Haake No 1, or an equivalent.
3. **Thermometer.** Digital with metal jacket probe accurate to 1 °F.
4. **Sample Containers.** Clean 1 gallon metal cans with lids and wire bale.
5. **Viscosity Standard Oils.** Fluids calibrated in absolute viscosity centipoise (cP).
6. **Viscometer Holder.** Clean metal container or stand for safely storing the viscometer between tests.
7. **Level Surface.** Level surface not directly on the ground.
8. **Heat Source.** A controllable heat source (i.e. a hot plate, gas stove, or burner) to maintain the temperature of the asphalt-rubber sample at 350 ± 3 °F while measuring viscosity.
9. **Personal Equipment.** Eye protection and heat resistant gloves.

C. Procedure. Perform the following steps:

1. **Calibration of Equipment.** Calibrate the equipment as follows:

   a. Verify the accuracy of the viscometer by comparing the viscosity results obtained with the hand held viscometer to 3 separate calibration fluids of known viscosities ranging from 1000 cP to 5000 cP. The known viscosity value are based on the fluid manufacturer's standard test temperature or based on the test temperature versus viscosity correlation table provided by the fluid manufacturer.

   b. The viscometer is considered accurate if the values obtained are within 300 cP of the known viscosity.

   c. Verify the calibration of the rotational viscometer using viscosity standards before use at each site.

2. **Sampling Asphalt-Rubber Binder.** Provide new sample containers and ensure that they are clean before using. Before sampling, draw at least 1 gallon from an appropriate sample valve on the interaction tank and discard. Then reopen the sample valve and draw at least 3/4 of a gallon for testing.

3. **Preparing Asphalt-Rubber Binder Samples for Testing.** Prepare the asphalt-rubber binder as follows:

   a. Immediately transport the sample to the testing area. Ensure that the testing area is close to the sampling location to reduce the potential for temperature loss.

   b. Set the open asphalt-rubber binder sample container on the level surface on or over the heat source.

c. To prevent scorching or burning, manually stir the asphalt-rubber binder sample using a metal stir rod or the temperature probe.

d. Continue stirring until a consistent asphalt-rubber binder temperature of 350 ± 3 °F is achieved. Record the actual test temperature with the corresponding viscosity measurement.

e. Insert the viscometer spindle and rotor into the hot asphalt-rubber binder sample near the edge of the can. Ensure that the spindle and rotor are not inserted deeper than the immersion depth mark on the shaft and are not plugging the vent hole. During insertion, the spindle and rotor may be tilted slightly to keep the vent hole clear.

f. Allow the rotor to acclimate to the temperature of the asphalt-rubber binder for approximately 1 minute. During acclimation, stir the sample thoroughly and measure the temperature.

g. Orient the sample and the rotor so that the rotor is near the center of the sample, align the depth mark on the shaft with the asphalt-rubber binder surface, and level the viscometer in order to measure viscosity.

4. Testing. Analog viscometers include a level bubble to help orient the device to ensure that the rotor and shaft remain vertical. Digital viscometers may not include a level bubble. If a level bubble is not included, attach a small adhesive bubble to the viscometer or use a framework with a level bubble.

Test the asphalt-rubber binder as follows:

a. As soon as the viscometer is leveled and the depth mark is even with the asphalt-rubber binder surface, begin rotor rotation. When using a digital viscometer, activate the continuous digital display according to the manufacturer's recommendations. Read and record the peak viscosity value (The peak measurement typically represents the viscosity of the asphalt-rubber binder; report and log that value. As the rotor continues to turn, it "drills" into the sample and spins rubber particles out of its measurement area. This may cause thinning of the material in contact with the rotor erroneously indicating a drop in the apparent viscosity of the asphalt-rubber binder) from the graduated scale labeled with the corresponding rotor number or from the digital display.

b. After completing the first measurement, move the viscometer rotor away from the center of the sample can without removing it from the asphalt-rubber binder sample. Turn off the rotor rotation.

c. Stir the asphalt-rubber binder sample thoroughly.

d. Repeat Steps 1, 2, and 3. Take 3 measurements and average the results to determine the viscosity.

e. Return the viscometer to its holder with the rotor suspended in a suitable solvent. Before using the rotor again, wipe off the solvent and dry the rotor to avoid solvent contamination of the next sample.

D. Calculations. Some meters read in units of mPa·s (0.001 Pascal·seconds) or dPa·s (0.1 Pa·s), while others may read in centipoise (cPs) units. The conversion is 1 Pa·s = 1000 cPs.

E. Report. Include the following items in the report:

1. Date and time sampled.
2. Location of asphalt-rubber binding blending plant.
3. Test temperature and viscosity.
4. Rotor designation.
5. Viscometer model and serial n

NJDOT C-2 – QUICK-SETTING PATCH MATERIALS

C. Procedure.

2. Tests. Test materials according to the following:

THE B. IS CHANGED TO:

b. Strength Development. For Type 1 and 2, test 2 cubes per test according to AASHTO T 106. For Type 1A and 1B, make two 4 × 8-inch cylinders per test according to AASHTO R 39. Cure specimens covered with a plastic cover over the cylinder for 3 hours and then cure without the plastic cover at 70.4 to 76.4 °F and 50 percent relative humidity until testing. Test according to AASHTO T 22.

NJDOT R-1 – OPERATING INERTIAL PROFILER SYSTEMS FOR EVALUATING PAVEMENT PROFILES

THIS ENTIRE TEST METHOD IS CHANGED TO:

A. Scope. This test method describes the procedure for operating, verifying the calibration of an ASTM E 950 Class 1 Inertial Profiler System (IPS) and testing riding surface for pavement profiles evaluation.

B. Apparatus. Use an IPS that meets the requirements of AASHTO M 328 and ASTM E 950, Class 1 and the following:

1. Certify the IPS according to AASHTO R 56 at least every 2 years. If a system component is replaced, re-certify the system. Perform the certification at a site approved by the Department.
2. The data system provides the raw profile data in an ASCII format acceptable to the Department.
3. The computer program uses a high-pass filter set at 300 feet and reads an ASCII or text file for computing the International Roughness Index (IRI) in inches per mile.
4. The current version of *ROADRUF*, *ProVal*, or other Department approved pavement profile analysis software is used to compute the IRI.

C. Procedure. Perform the following steps:

1. Operate the IPS according to AASHTO R 57 and ASTM E 950.
2. On a daily basis before data collection, check the equipment and operating system for operational stability and calibration. Perform necessary calibration procedures according to equipment manufacturer's procedures and applicable standards. Operators shall maintain a log documenting the calibration history.

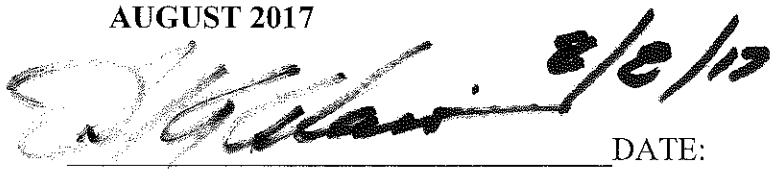
3. Ensure that the operators of the IPS have completed a profile training course, such as NHI Course 131100, have been trained specifically on the IPS they will be operating, and are proficient in the operation of the IPS.
4. Make provisions to automatically start and stop the IPS recording at the beginning and end of testing.
5 Ensure retroreflective traffic striping tape or other approved mechanism is placed at the beginning and end of each direction of travel for automatically triggering the start and stop of profile measurements.
6. Collect at least 0.05-mile of data before the area to be tested to allow the system to stabilize before profile measurements are obtained. Collect data in a continuous run through the length to be tested. If the run is interrupted, discard the results and re-run the length.
7 Test the full extent of each wheel path of each lane in the longitudinal direction of travel. The wheel path is defined as being located approximately 3 feet on each side of the centerline of the lane and extending for the full length of the lane. Lanes are defined by striping.
8 Run three tests each wheel path and report average of three runs each wheel path.
9. Exclude locations where the traffic striping includes turn lanes that cause the through traffic lane to cross over a longitudinally paved joint, ramps, and lanes such as acceleration and deceleration lanes of less than 1,000 feet of continuous through treatment.
10 Report single IRI value average of 3 runs unless otherwise directed. The single IRI value shall be each 0.01 mile length for each lane, ramp, and shoulder and 0.005 mile for each overlaid bridge structure.

SANITARY MAIN RELOCATION
TECHNICAL SPECIFICATIONS
(To be included with Main Supplemental Specifications)

UNION COUNTY BOARD OF CHOSEN FREEHOLDERS
REPLACEMENT OF LOCUST DRIVE CULVERT
NEAR TULIP STREET (Su105) OVER STREAM 3-51
CITY OF SUMMIT

UNION COUNTY, NEW JERSEY

AUGUST 2017



_____DATE:

Richard A. Alaimo, P.E.
N.J. Professional Engineer
License No. 13195

ALAIMO GROUP
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(609) 267-8310
OUR FILE NO. A-0530-0016-000 (S2477)

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SPECIFICATIONS **PAGE NO.**

SECTION 01 11 00
(01010)
STATEMENT OF WORK

UNION COUNTY BOARD OF CHOSEN FREEHOLDERS
REPLACEMENT OF LOCUST DRIVE CULVERT
NEAR TULIP STREET (Su105) OVER STREAM 3-51
CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY
BA#39-2017; UNION COUNTY ENGINEERING PROJECT #2010-005C

1.01 IN GENERAL, the work of this project consists of gravity sanitary sewer replacement on Locust Drive in the City of Summit, Union County, New Jersey complete as specified within these Contract Documents and shown on the Drawings entitled, "Replacement of Locust Drive Culvert Near Tulip Street (Su105) Over Stream 3-51, Project No. 2010-005C, BA#39-2017" prepared by the Alaimo Group, and consisting of four (4) drawings (Sheets 22 – 25) as listed at the end of this Statement of Work. The Drawings are appended to these Specifications.

1.02 DESCRIPTION OF WORK

A. The work for this project includes, but is not limited to, the following items: (Bid items included in Sanitary Main Relocation Pay Items Bid Form on Page B-8.)

1. Clearing site for sanitary (included with Item #2).

2. Construction layout.

3. Installation of new sanitary sewer manholes and gravity sewer piping system; install and reconnect existing laterals to new gravity sewer piping.

4. Bypass pumping.

5. Demolition and abandonment of existing sanitary sewer pipe and manholes.

6. Dewatering.

7. Concrete encasement of new gravity sanitary sewer pipe where shown on the Plans.

8. Excavating, filling and grading, for sanitary replacement.

9. Milling of Hot Mix Asphalt, construction of Hot Mix Asphalt, trench and roadway restoration, traffic stripes and markings per NJDOT Standard Specifications.

B. Maintenance of Sewer Flows:

1. During installation of gravity main, bypass pumping will be required. To permit this, a bypass line is required for the entire length of the gravity sewer main to be replaced. The material to be used for the bypass line is at the Contractor's option, but shall be tight and leak free and shall include all necessary fittings. The bypass piping shall generally follow the same route as the gravity main.

2. Where bypass piping crosses streets and driveways, temporary ramps over the piping shall be provided. Ramps shall be twenty-five feet (25') wide at streets and twelve feet (12') wide at driveways and have a slope not greater than 1/12. Ramps shall be constructed of asphalt and be capable of supporting vehicular traffic and signed appropriately. Ramps shall be removed after construction and roadway surface restored.

3. Connection: The gravity sewer and laterals shall be connected at the end of each day to provide service to customers. The installed sewer main shall be tested between manholes.

1.03 COORDINATION

A. Contractor shall coordinate his operations with those of the *OWNER* and Residents. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work.

B. Contractor shall provide written notice to all residents affected by the proposed construction not more than 96 hours nor less than 48 hours prior to commencing work on any street, roadway or adjacent property. Such notice shall contain the Contractor's name, address and telephone number, the name of the person in charge of the work and a brief description of the work to be done. The Contractor shall submit a draft of the residential notification to the *ENGINEER* for approval 72 hours prior to issuing the notice.

C. Work on municipal streets is limited to the hours of 8:30 A.M. to 4:30 P.M., Monday through Friday unless otherwise approved. All municipal roads shall be surfaced, open and ready for traffic by 4:30 P.M. each day.

D. All streets under construction shall be swept clean and all debris removed at the end of each week. To minimize the potential for delay, no work or street closure will be permitted on holidays as follows:

If Holiday Falls On	No Work or Street Closures Permitted
Sunday or Monday	6:00 A.M. Friday until Noon Tuesday
Tuesday	6:00 A.M. Friday until Noon Wednesday
Wednesday	6:00 A.M. Tuesday until Noon Thursday
Thursday	6:00 A.M. Wednesday until Noon Monday
Friday	6:00 A.M. Thursday until Noon Monday

E. Contractor shall lay out and install his work at such time or times and in such manner as to facilitate general progress of the project.

F. Coordinate all work as further described in the General Conditions of the *Contract Documents*.

1.04 DRAWINGS

A. The following Drawings prepared by the Alaimo Group are appended hereto and are a part of these Contract Documents:

1. SC-1 Sheet 22 Sanitary Construction Plan
2. SC-2 Sheet 23 Locust Drive Sanitary Sewer Profile
3. SC-3 Sheet 24 Sanitary Construction Details I
4. SC-4 Sheet 25 Sanitary Construction Details II

1.05 The above Statement of Work outlines the general items and distribution of work, and should not be construed as being all-inclusive.

****END OF STATEMENT OF WORK****

SECTION 01 12 16
(01014)
CONSTRUCTION SEQUENCE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Several elements of this project must be constructed or under construction before work on other elements can be commenced or completed due to practical and environmental considerations or requirements of the *OWNER*. Without regard to the *CONTRACTOR'S* means, methods or techniques, the sequence specified herein shall be adhered to.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Statement of Work

B. General Conditions

C. Specifications

1.03 SUBMITTALS

A. The Contractor's Construction Schedule shall reflect the timely completion of the work in accordance with the sequence specified herein. Submit as specified in *Section 01 32 16, Construction Schedules*.

PART 2 - PRODUCTS

No materials are required.

PART 3 - EXECUTION

3.01 GENERAL

A. The work of this project is required to be completed in stages as listed herein, the Statement of Work and the *PROPOSAL*.

B. Each stage must be completed at or before the time specified in the *PROPOSAL* in order that the *OWNER* may avoid undue hardship.

C. The following sequence is intended to indicate the general order of construction. The work should proceed as stated, although some items may be simultaneous.

3.02 LIQUIDATED DAMAGES

A. Liquidated damages will be assessed as shown in the *PROPOSAL* and indicated in the General Provisions for late completion.

3.03 CONSTRUCTION SEQUENCE

A. The *CONTRACTOR* shall schedule the work as required to meet the staged construction schedule established in these *Contract Documents*. See the Contract Proposal, Form of Contract and Statement of Work for a description of the work included in each stage, the contract period for each stage and liquidated damages related to failure to complete the work of a given stage within the time allotted.

B. In general, the *CONTRACTOR* shall proceed with the work of this contract according to the following schedule:

1. Submit preconstruction photographs of Locust Drive and Tulip Street and all paved and stone roads/drives that are proposed for use by the *CONTRACTOR*. During the course of construction if the condition of the roads/drives change before the *CONTRACTOR* actually occupies the existing roads/drives the *CONTRACTOR* shall submit new photographs depicting the conditions prior to use by the *CONTRACTOR*.

2. Submit preconstruction photographs of the treeline and ditches/stream at the limit of construction.

3. Field survey and stake the limit of the wetland transition area shown on the *Contract Drawings*. (Owner will supply the coordinates for each point along the wetland transition limit.) Flag the wetland transition limit line to preclude encroachment upon the transition zone during construction.

4. Provide stone tread cleaners with related soil erosion and sediment control improvements.

5. Install bypass pumping equipment.

6. Construct sanitary manholes and sanitary gravity sewers. Connect existing laterals to new sanitary gravity sewer.

7. Throughout the contract period maintain Locust Drive, Tulip Street and other haul routes and adjacent roads free of silt, dirt, debris and wheel trackings related to the work of this Contract. During periods of inclement weather and whenever site conditions warrant, the *CONTRACTOR* shall employ a mobile street sweeper, grader(s) and laborers with hand tools to clean stone and bituminous surfaces and adjacent road shoulders. Damage to existing and new bituminous surfaces related to the work of this Contract shall immediately be repaired by the *CONTRACTOR*. The *CONTRACTOR* shall periodically (as required) supplement existing stone haul routes with dense graded aggregate or 1½ inch broken stone at no cost to the *OWNER* after scraping and removing soil/silt deposits from those stone haul routes.

8. Upon completion of 1 through 6 above and while continuing item 7 (road maintenance) proceed with the remaining work of this Contract implementing site specific erosion and sediment control measures for each element of the work.

C. The above outlines the work required in the various stages and is not all inclusive. The required work is more fully described within these *Specifications*, the *PROPOSAL* and shown on the Plans.

****END OF SECTION****

SECTION 01 22 00
(01025)
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Requirements for determining measurement and payment of work specified on Unit basis or Lump Sum basis, specific only to the installation of the sanitary gravity sewer on Locust Drive.

2. Requirements for a Schedule of Values.

3. Mobilization.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 00 41 00: Proposal*

1.02 DESCRIPTION

A. Unit price items:

1. Measurement of units of work for which payment will be made by unit prices are defined herein.

2. Payment for the units of work will be determined by multiplying the unit prices stated within the bid, times the quantity of the unit of work as determined by the measurement provisions stated herein. Payment for the units of work shall fully compensate the *CONTRACTOR* for furnishing all materials, labor, equipment, services, tools and all else incidental and necessary to complete the work.

B. Lump sum items:

1. Measurement of quantities of work will be estimated based on the accepted schedule of values as specified herein.

2. Payment for the quantities of work indicated in the accepted schedule of values will be at the prices stated in the accepted schedule of values, not to exceed the lump sum stated within the bid. Payment for the work to be performed under the lump sum shall fully compensate the *CONTRACTOR* for furnishing all material, labor, equipment, services, tools and all else incidental and necessary to complete the work.

C. No specific measurement and payment will be made herein for work having no separate payment, but the costs thereof shall be included in the prices bid for the various other items of related work listed herein and in the *PROPOSAL*.

1.03 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Schedule of values:

1. Submit a Schedule of Values for the work at the Pre-Construction Conference. Schedule shall reflect the specified construction stages if any, and the component parts of each stage.

2. Upon request, support the values with data, which will substantiate their correctness.

3. The Schedule of Values, unless objected to by the *ENGINEER*, shall be used only as the basis for the Contractor's Applications for Payments.

C. Form and content of Schedule of Values:

1. Type Schedule on 8½ x 11 in. white paper *CONTRACTOR'S* standard forms and automated printout will be considered for approval by *ENGINEER* upon *CONTRACTORS* request. Identify schedule with:

a. Title of project and location.

b. *ENGINEER* and project number.

c. Name and address of *CONTRACTOR*.

d. Contract designation.

e. Item designation as listed in the *PROPOSAL*.

f. Date of submission.

D. Schedule shall list the installed value of each of the items listed in the Proposal for all of the work in sufficient detail to serve as a basis for computing values for progress payments during construction.

E. In the case of Lump Sum items, each item shall be divided into its component parts and be shown on a subschedule.

F. Follow the 48 Division Construction Specification Institute (CSI) format for listing component items of each payment item listed in the *PROPOSAL*.

G. The sum of all values listed in the schedule shall equal the total Contract Price.

PART 2 - PAYMENT

2.01 GENERAL

A. The *CONTRACTOR* shall receive and accept the compensation provided for in the Contract as full payment for furnishing all labor, materials, tools, equipment and incidentals necessary to the completed work, and for performing all work contemplated and embraced under the Contract in a complete and acceptable manner; also, except where specifically provided elsewhere in the *Contract Documents*, for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, or for the action of the elements, or for any unforeseen difficulties which may be encountered during the prosecution of the work until acceptance by the *OWNER*: also, except where specifically provided elsewhere in the *Contract Documents*, for all expenses incurred in consequence of the suspension or discontinuance of the work as provided in the Contract.

B. If the payment clause relates to any unit price in the *PROPOSAL* and requires that the said unit price cover and be considered compensation for certain work or material essential to the item, this same work or material will not also be measured or paid for under any other Pay Item which may appear elsewhere in the *Contract Documents*.

C. The *CONTRACTOR* shall receive payments in accordance with the completion of work as identified by the *Construction Schedules, Section 01 32 16*.

2.02 MOBILIZATION

A. Mobilization shall consist of the cost of initiating the Contract and include such portions of the following as are required at the beginning of the Project: setting up the *CONTRACTOR'S* general plant, offices, shops, storage areas, sanitary and other temporary utilities, including but not limited to water, sewer, gas and electric including connections and appropriate metering from local utility and other facilities as required by the *Specifications*, by local or State law or by regulation; providing access to the Project site; obtaining necessary permits, grants and licenses, and payment of fees; protecting existing utilities; lighting work areas; providing shop drawings; sampling and testing of materials; but not including providing the required insurance and bonds. Payment for mobilization will be made at the lump sum price bid for this item in the *PROPOSAL*, which price shall include the cost of initiating the Contract.

B. The provisions for payment for the item mobilization supersede any provisions elsewhere in the *Specifications* for including the cost of these initial services and facilities in the prices bid for the various items scheduled in the *PROPOSAL*. The lump sum price bid for mobilization shall be payable to the *CONTRACTOR* whenever he shall have completed 10 percent of the work of the Contract. For the purposes of this item, 10 percent of the work shall be considered completed when the total of payments earned, exclusive of the amount bid for this item, shown on the monthly certificates of the approximate quantities of work done, shall exceed 10 percent of the total price bid for the Contract.

C. The lump sum price bid for mobilization is limited to the following maximum amounts:

Contract Amount From More Than	To and Including	Maximum Amount for Item of Mobilization
0	$ 100,000	$ 3,000
100,000	500,000	15,000
500,000	1,000,000	30,000
1,000,000	2,000,000	60,000
2,000,000	3,000,000	90,000
3,000,000	4,000,000	120,000
4,000,000	5,000,000	125,000
5,000,000	6,000,000	150,000
6,000,000	7,000,000	175,000
7,000,000	10,000,000	200,000
10,000,000	2.5% of amount bid	

D. Payment for mobilization as hereinbefore specified will be made for the lump sum price bid therefore, regardless of the fact that the *CONTRACTOR* may have, for any reason, shut down his work on the project or moved equipment away from the project and back again.

E. In the event the amount bid for the item "Mobilization" exceeds the limits specified above, the portion exceeding the limits specified above will be paid after all the work has been completed and accepted.

2.03 LIQUIDATED DAMAGES

A. The *OWNER* will suffer significant financial loss if the project, or each stage thereof, is not substantially complete on the date(s) set forth in the *Contract Documents*. The *CONTRACTOR* and his surety shall be liable for and shall pay to the *OWNER* the sum stipulated, as fixed and agreed, as liquidated damages for each calendar day of delay until the project, or each stage thereof, is substantially complete.

B. Liquidated damages in the amounts specified in the *PROPOSAL* will be assessed as required by the General Provisions and the Contract and collected through Current Estimate/Voucher deduct items implemented at completion of the various stages of construction specified.

****END OF SECTION****

SECTION 01 25 13
(01640)
SUBSTITUTIONS

1.01 GENERAL

A. Work included:

1. Procedures for requesting use of products, materials or methods in place of those specified.

B. Related requirements:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 33 23: Shop Drawings, Product Data and Samples*

1.02 SUBSTITUTIONS

A. After Notice to Proceed, *ENGINEER* will consider formal request from *CONTRACTOR* for products, materials or methods in place of those specified.

B. Submit six (6) copies of Request for Substitution together with Submittal Transmittal Form contained in *Section 01 33 23*. Include in request as applicable:

1. Complete data substantiating compliance of proposed substitution with *Contract Documents*.

2. For products:
   a. Product identification, including manufacturer's name and address.

   b. Manufacturer literature:

      (1) Product description.

      (2) Performance and test data.

      (3) Reference standards.

c. Samples.

d. Name and address of similar projects on which product was used, and date of installation.

3. For construction methods:

a. Detailed description of proposed method.

b. Drawings illustrating methods.

4. Itemized comparison of proposed substitution with product or method specified.

5. Names of facilities at which the substitute material or product has been successfully used in a similar situation.

6. Relation to separate contracts.

C. In making requests for substitution, *CONTRACTOR* represents:

1. He has personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.

2. He will provide the same guarantee for substitution as for product or method specified.

3. He will coordinate installation of accepted substitution into work making such changes as may be required for work to be completed in all respects.

4. In the event the *CONTRACTOR* chooses to furnish and install a system or item of equipment of different arrangement from that shown or specified, and receives approval to do so, he shall furnish and install any additional wiring, conduit or other materials required by the system at no additional cost to the *OWNER.*

5. He waives all claims for additional costs related to substitutions which consequently become apparent.

6. Cost data is complete and includes all related costs under this contract.

7. Redesign due to *CONTRACTOR'S* substitution shall be accomplished by a registered professional engineer in the State of New Jersey and will be subject to review and approval by the *ENGINEER* before implementation. Whether or not the *ENGINEER* accepts a proposed substitute, *CONTRACTOR* shall be responsible for all costs incurred for any redesign

required as a result of any requested substitution. *ENGINEER* shall record time required for review of *CONTRACTOR'S* submitted redesign and *OWNER* will deduct from *CONTRACTOR'S* payments all costs of the *OWNER's ENGINEER* in performing said review. *ENGINEER* shall bill the *OWNER* at the billing rates current at the time of review.

D. Substitutions will not be considered if:

1. They are indicated or implied on shop drawings of product data submittals without formal request submitted in accordance with Paragraph 1.02.

2. Acceptance will require substantial revision of *Contract Documents*.

3. *OWNER* or *ENGINEER* determines that the substitutions will cause operational issues.

E. If accepted, the *ENGINEER* will approve the substitution in writing.

****END OF SECTION****

REQUEST FOR SUBSTITUTION

_____ _____ _____
Date of Request Contract # Project Title

SPECIFIED ITEM:
Specification Section #:_____ Paragraph #_____Drawing #_____Detail/Section #_____

Description:_____

_____

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION:_____

_____

REASON for REQUEST FOR SUBSTITUTION:

Cost savings to accrue to OWNER in amount of: $_____.

Specified product no longer manufactured

Specified product not available for _____weeks

Specified item does not comply with Building Code

Manufacturer declares product not suitable for intended use and will not warrant its installation

Other (EXPLAIN)_____

In making requests for substitution, *CONTRACTOR* certifies that:

1. He has personally investigated proposed product or method and determined that it is equal or superior in all respects to that specified.
2. He will provide the same guarantee for substitution as for product or method specified.
3. Redesign due to substitution shall be subject to the provisions of the contract documents.
4. He will coordinate installation of accepted substitution into work making such changes as may be required for work to be completed in all respects.
5. He shall furnish and install any additional wiring, conduit or other materials required by the system at no additional cost to the *OWNER*.
6. He waives all claims for additional costs related to substitutions that consequently become apparent.
7. Cost data is complete and includes all related costs under this contract.

Submitted by:

_____
Signature

_____
CONTRACTOR

For Use By A/E:

No Exceptions Taken

Note Markings, No Further Submissions Required

Note Markings, Further Submission Required

Rejected

By:_____ Date:_____

SECTION 01 32 16
(01310)
CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Promptly after award of the contract, the *CONTRACTOR* shall prepare and submit to the *ENGINEER* estimated construction progress schedules for the work, with subschedules of related activities, which are essential to its progress.

2. Submit revised progress schedules monthly.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 11 00: Statement of Work*

3. *Section 01 33 23: Shop Drawings, Product Data and Samples*

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

1.03 FORM OF SCHEDULES

A. Prepare schedules in the form of a horizontal bar chart.

1. Provide separate horizontal bar for each trade or operation.

2. Horizontal time scale: Identify the first workday of each week.

3. Scale and spacing: To allow space for notation and future revisions.

4. Minimum sheet size: 18-inch by 24-inch.

B. Format of listings: The chronological order of the start of each item of work.

C. Identification of listings: By major specification section numbers.

1.04 CONTENT OF SCHEDULES

A. Construction progress schedule:

1. Show the complete sequence of construction by activity.

2. Show the dates for the beginning, and completion of each element of construction.

3. Show projected percentage of completion for each item, as of the first day of each month.

B. Provide subschedules to define critical portions of prime schedules.

1.05 PROGRESS REVISIONS

A. Indicate progress of each activity to date of submission.

B. Show changes occurring since previous submission of schedule:

1. Major changes in scope.

2. Activities modified since previous submission.

3. Revised projections of progress and completion.

4. Other identifiable changes.

C. Provide a narrative report as needed to define:

1. Problem areas, anticipated delays, and the impact on the schedule.
2. Corrective action recommended, and its effect.

3. The effect of changes on schedules of other prime contractors.

1.06 SUBMISSIONS

A. Submit initial schedules within five (5) days after Notice to Proceed.

1. *ENGINEER* will review schedules and return review copy within ten (10) days after receipt.

2. If required, resubmit within seven (7) days after return of review copy.

B. Submit revised progress schedules with each application for payment.

C. Submit one (1) reproducible transparency and one (1) opaque reproduction.

1.07 DISTRIBUTION

A. Distribute copies of the reviewed schedules to:

1. Job site file.

2. Subcontractors.

3. Other concerned parties.

B. Instruct recipients to report promptly to the *CONTRACTOR*, in writing, any problems anticipated by the projection shown in the schedules.

PART 4 - PAYMENT

4.01 CONSTRUCTION SCHEDULES

A. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.

B. Include all costs for the *CONSTRUCTION SCHEDULES* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

****END OF SECTION****

SECTION 01 32 34
(01385)
CONSTRUCTION VIDEO RECORDING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Provide the services of an audio-video firm to furnish color audio video recording of each roadway and all right of way prior to starting any construction activity and at completion.

2. Audio-video recording shall be completed and accepted by the *ENGINEER* prior to any construction activity.

3. All Video recording shall be in digital video format and provided on Digital Video Discs (DVDs).

4. Construction and video recording applies to the work being performed on Locust Drive and the intersection of Locust Drive and Tulip Street.

B. Related work specified elsewhere:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 71 23: Field Engineering*

3. *Section 01 32 16: Construction Schedules*

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.

2. *Specifications* and other data required, to demonstrate compliance with the specified requirements.

C. Name and address of the audio video recording firm to be used.

D. Copy of sample video recording.

E. Manufacturer of recording media.

1.03 QUALITY ASSURANCE

A. All audio video recording shall be conducted by a professional video company knowledgeable in construction practices and experienced in the implementation of established inspection procedures.

B. Videographer to supply:

1. All labor, materials and equipment to perform this service.

2. Plans to be provided by *CONTRACTOR.*

3. Construction layout shall be complete before video recording.

4. Professional quality video recording media.

C. Equipment:

1. Only broadcast quality camera capable of producing NTSC-500 lines or better shall be used.

2. Recorders must be of professional or industrial grade only, as specified by the National Standard Code.

3. Video DVDs must be of professional grade.

4. Digital video:

a. All digital video shall be provided on data DVDs utilizing capture freeze technology. The capture freeze software shall be included with the video file on the DVD. A maximum of 1-hour of video shall be included on each CD.

b. DVDs shall be labeled as specified and shall include file content.

c. A series of short video clips taken with a digital recorder are not acceptable.

D. Acceptable videographers:

1. JMS Company
Vincentown, NJ 08088
(609) 859-8400
Fax: (609) 859-8006

2. Protec Documentation Services
Rancocas, NJ 08073
(609) 267-2666

3. Rainbow Photographic Documentation Co.
Coopersburg, PA 18036
215-538-0707
800-538-0909
www.progressphotos.com

4. Or equivalent.

1.04 JOB CONDITIONS

A. The right of way is to be surveyed and marked with proper survey markings according to the engineering plans prior to video recording unless otherwise directed by the *ENGINEER.*

B. No recording shall be conducted unless weather is acceptable.

C. All areas are to be video recorded including roads, easements and fields. When video recording of private property sufficient notice must be given so that permission of the property owner may be obtained.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 GENERAL

A. All recording will be performed during regular business hours, unless otherwise approved by the *ENGINEER*.

B. Three (3) copies (original + 2 copies) - 1 *CONTRACTOR*, 1 *ENGINEER* (original), 1 *OWNER*.

C. All video recordings must be turned in within five (5) days of recording, complete with written documentation accompanying the recordings with appropriate retrieval information.

D. Any damage and/or claims not indicated on preconstruction video recordings shall be considered the result of construction and become the responsibility of the *CONTRACTOR*.

E. *ENGINEER* reserves the right to reject audio-video recording because of poor quality, unintelligible audio, uncontrolled pan and zoom.

F. Re-recording and extra recordings shall be done with the direction of the *ENGINEER*.

3.02 OBJECTIVES OF VIDEO RECORDING

A. Reduce "Nuisance Claims".

B. Expedite resolution of valid claims, reduce exaggerated as well as invalid claims.

C. Allow convenient inspection of remote sites.

D. Allow structural analysis and expert opinion determinations to be made on an "as needed" basis for those areas specifically in contention.

E. Provide the viewer an opportunity to view the area in question as if he were there himself.

3.03 AUDIO AND VIDEO

A. Each recording must begin with the *OWNERS* name, *CONTRACTORS* name, Contract name and number, date and location information. i.e. name of street, direction of travel, viewing side, etc.

B. Video:

1. All information appearing on the recording must be continuous and run simultaneously by computer generated transparent digital information. No editing or overlaying of this information at a later date will be accepted.

2. Digital information will be as follows:

   a. Upper left corner:

      (1) Name of Contractor
      (2) Day, Date and Time

   b. Lower left corner the minimum information of:

      (1) Route or Travel
      (2) Viewing side
      (3) Name of Project
      (4) Stationing

3. Time must be accurate to within 1/10 of a second and continuously generated.

4. Engineering station numbers must be continuous, be accurate and correspond to project stationing. The symbols should be the standard engineering symbols (i.e. 16+64).

5. Written documentation must coincide with the information on the recording so as to make easy retrieval of locations sought at a later date.

6. The video system shall have the capability to transfer individual frames of video electronically into hard copy prints or photographic negatives.

C. Audio:

1. Audio shall be recorded at the same time as the video recording and shall have the same information as on the viewing screen. Special commentary will be given for unusual conditions of buildings, sidewalks and curbing, foundations, trees and shrubbery, etc.

D. Identification:

1. All recordings and cases shall bear labels with the following information:

a. Recording Number.

b. Owners Name.

c. Date of Recording.

d. Project Name and Number.

e. Location and Stationing Limit of Recording.

3.04 COVERAGE

A. The *CONTRACTOR* shall supply a continuous preconstruction color audio video recording along entire routes of proposed pipelines and/or work areas.

B. Audio description shall be simultaneously recorded.

C. Post construction recording shall be done in same sequence as preconstruction recording to clearly indicate final restoration of work areas.

D. Roadways:

1. Recording shall be started at the beginning of the project and be continuous along each side of the roadway and along the centerline to the project end.

2. Coverage shall pay particular attention to and include, but not be limited to:

a. The existing roadway and its surface including manholes and drainage inlets.

b. Sidewalks and curbing on both sides of the roadway.

c. Driveways and driveway aprons on both sides of the roadway.

d. Structures and buildings within 100'.

e. Headwalls, retaining walls, culverts, ditches, landscaping, trees, shrubs, signing, fences and property monumentation located within 50' of the right-of-way.

E. Access and haul routes shall be video recorded prior to their use. This may be an ongoing requirement due to changes in access and haul routes.

C. When conventional wheeled vehicles are used, distance from the camera lens to the ground shall be not less than twelve (12') feet to insure proper perspective.

D. Areas not accessible by wheeled vehicle shall be recorded on foot.

3.05 INDEXING

A. In order to facilitate rapid retrieval of the survey data, an organized and detailed index of the contents of each recording shall be prepared. This master index shall be updated as new recordings are made.

B. The indexing system shall be custom tailored to the specific project and shall be computer generated and sorted for ease and speed of cross-referencing and retrieval. Structural reports shall be input into the master index system so as to create a comprehensive, convenient and easily accessible database.

PART 4 - PAYMENT

4.01 CONSTRUCTION VIDEO RECORDING

A. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.

B. Include all costs for the *CONSTRUCTION VIDEO RECORDING* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

****END OF SECTION****

SECTION 01 33 23
(01340)
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Prepare and submit to the *ENGINEER* a Schedule of Submittals showing all submittals required by the Specification sections or the Drawings.

2. Prepare and submit to *ENGINEER* shop drawings, product data and samples required by the Specification sections.

3. Prepare and submit to the *ENGINEER* engineering drawings and calculations for items indicated on the Plans or as otherwise required by the contract specifications.

B. Related Requirements:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 25 13: Substitutions*

C. Payment:

1. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.

2. Include all costs for the *SHOP DRAWINGS, PRODUCT DATA AND SAMPLES* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

3. Shop drawings, product data and samples are an integral part of the construction process and are required as part of the construction contract. *CONTRACTOR'S* failure to provide shop drawings, product data and samples in a complete and timely manner may affect his payment and/or completion schedule. No extension of time will be granted due to untimely or incomplete submittals.

1.02 DEFINITIONS

A. Shop drawings are original drawings, diagrams, schedules and other data specifically prepared for the work by the *CONTRACTOR* or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the work.

B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information prepared by the manufacturer and furnished by the *CONTRACTOR* to illustrate materials or equipment for some portion of the work. All such data shall be the manufacturers current materials.

C. Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the work will be judged.

1.03 SCHEDULING

A. Schedule submission for shop drawings, product data and samples, **[**engineering drawings and calculations**]** at least twenty-one (21) days before dates reviewed submittals will be needed.

B. Shop drawings, **[**engineering drawings and calculations**]** for equipment foundations will not be reviewed by the *ENGINEER* until shop drawings for equipment have been submitted and approved.

1.04 PRESENTATION

A. Present drawings, **[**calculations**]** and product data in a clear and thorough manner.

B. Drawings, **[**calculations**]** and product data shall be clear, concise, readable and legible.

C. Second, third, fourth, etc., generation photocopies are frequently illegible and may not be accepted as a required submission.

D. Drawings, **[**calculations**]** and product data sent via facsimile (fax) machine are frequently illegible and may not be accepted as a required submission.

E. *ENGINEER* will notify *CONTRACTOR* in the event submittals are illegible. No time extensions shall be allowed as a result of resubmittals due to illegibility.

1.05 SUBMITTALS

A. Schedule of Submittals:

1. Prepare and submit for approval a schedule showing each and every submittal required by the Contract Documents and their initial submittal dates required for coordination of the work.

2. Organize the schedule by the applicable specification Section number.

3. Submit the schedule within fourteen (14 days) after Notice to Proceed.

4. The schedule shall reflect the overall job schedule sequence so as to cause no delay in the Work of other Contractors, if any.

4. Revise and resubmit the schedule for approval when requested.

5. Prepare and transmit each submittal sufficiently in advance of scheduled performance to allow for adequate review and processing time, including time for re-submittal if necessary.

6. If processing time for a particular submittal will be critical to progress of the work, so advise on the submittal.

7. No extension of time will be authorized because of the contractor's failure to transmit submittals sufficiently in advance of the work.

B. Shop drawings:

1. Original drawings, prepared by *CONTRACTOR*, subcontractor, supplier or distributor, that illustrate some portion of the work; showing fabrication, layout, setting or erection details.

2. Present drawings in a clear and thorough manner: Details shall be identified by reference to sheet and detail, schedule or room numbers shown on *Contract Drawings*.

3. Minimum sheet size: 11 inches by 17 inches.

C. Product data:

1. Preparation:

a. Clearly mark each copy to identify pertinent products or models.

b. Show performance characteristics and capacities.

c. Show dimensions and clearances required.

d. Show wiring or piping diagrams and controls.

2. Manufacturer's standard schematic drawings and diagrams:

a. Modify drawings and diagrams to delete information not applicable to the work.

b. Supplement standard information to provide information specifically applicable to the work.

3. Manufacturer's catalog sheets, brochures, diagrams, illustrations and other standard descriptive data:

a. Clearly mark each copy to identify pertinent materials, products or models.

b. Show dimensions and clearances required.

c. Show compliance with referenced standards.

D. Color selections:

1. All colors for all finished surfaces and materials will be selected or approved by the *OWNER*. The exterior color selections will be made at one time and the interior color selections will be made at one time to provide a complete and coordinated color schedule that, upon acceptance of the *OWNER*, will be provided to the *CONTRACTOR*.

2. The Contractor shall submit all exterior color selections/samples within thirty (30) days and all interior color selections/samples within forty-five (45) days after "Notice to Proceed."

3. It is imperative that all color information be submitted to, the *ENGINEER* by the *CONTRACTOR* before color selections can be made. If any color selection information is not available when colors are needed to meet the project schedule, the *ENGINEER* will select colors from one of the named manufacturers in the specifications, and the *CONTRACTOR* will be required to exactly match that color. A claim for delay will not be accepted if the color schedule is late due to the failure of the *CONTRACTOR* to provide the *ENGINEER* with all required color information, nor will an adjustment in price be entertained if the selected color is not available from the manufacturer the *CONTRACTOR* intended to use, but neglected to submit.

E. Samples:

1. Office samples will be of sufficient size and quantity to clearly illustrate:

a. Functional characteristics of product or material with integrally related parts and attachment devices.

b. Full range of color, texture, and pattern.

c. After review samples will be retained by *ENGINEER*. Upon completion of the work, *CONTRACTOR* may submit written request for return of samples.

1.06 CONTRACTOR'S RESPONSIBILITIES

A. Review shop drawings, product data, and samples prior to submission.

B. Determine and verify:

1. Field measurements.

2. Field construction criteria.

3. Catalog numbers and similar data.

4. Conformance with specifications.

C. Coordinate each submittal with requirements of the work and of the *Contract Documents*.

D. **All copies of all** shop drawings, product data and samples shall be accompanied by a transmittal containing Contractor Certification that he has determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and that he has checked and coordinated each item with other related submittals and all other contract requirements. **A copy of the required Submittal Form is included at the end of this specification section**.

E. *CONTRACTOR'S* responsibility for errors and omissions in submittals is not relieved by *ENGINEER'S* review of submittals.

F. *CONTRACTOR'S* responsibility for deviations in submittals from requirements of *Contract Documents* is not relieved by *ENGINEER'S* review of submittals, unless *ENGINEER* gives written acceptance of specific deviations.

G. Notify *ENGINEER*, in writing at time of submission, of deviations in submittals from requirements of *Contract Documents*.

H. Begin no fabrication or work that requires submittals until return of submittals with *ENGINEER'S* stamp and initials or signature indicating review and that no further submissions are required. Any manufacturing done, shipment made, workmanship performed, or work installed before the required shop drawings, product data, samples, **[**engineering drawings, or engineering calculations**]** are returned indicating that no further submissions are required will be at the sole expense and responsibility of the *CONTRACTOR* and subject to rejection.

1.07 ENGINEERS RESPONSIBILITIES

A. Engineering duties:

1. Review submittals with reasonable promptness.

2. Review for:

a. Design concept of project.

b. Information given in *Contract Documents*.

3. Review of separate item does not constitute review of an assembly in which item functions.

4. Affix stamp and initials or signature certifying to review of submittal.

5. Return submittals to *CONTRACTOR* for distribution or resubmission.

B. The *ENGINEER* shall review all shop drawings, product data, samples, **[**engineering drawings and calculations]. The submittal shall be marked as follows:

1. No exceptions taken; no further submission required.

2. Note markings; no further submission required.

3. Note markings; further submission required.

4. Rejected.

C. The *ENGINEER* will review the original submittal and one resubmittal at no additional cost to the *CONTRACTOR*.

D. In the event there are more than two (2) submittals for the given product, the *ENGINEER* shall record the time required for the subsequent reviews. The *ENGINEER* shall deduct the cost of said review(s) from the current estimate, defining amounts due the *CONTRACTOR*. The costs shall be based upon the same rates paid to the *ENGINEER* by the *OWNER* for similar work.

E. In the event that any submittal is rejected and a new submittal is prepared that must be resubmitted for review by the *CONTRACTOR*, the resubmittal shall be counted as the third submittal for the purposes of determining review costs(s).

1.08 SUBMISSION REQUIREMENTS

A. Make submittals so as to cause no delay in the work or in the work of any other *CONTRACTOR*.

B. Number of submittals required:

1. Shop drawings: Submit six (6) opaque reproductions, two (2) copies of which will be retained by *ENGINEER*.

2. Product data: Submit six (6) copies, two (2) copies of which will be retained by *ENGINEER*.

3. Samples: Submit number stated in each specification section.

C. Accompany submittals with Submittal Transmittal Form contained herein, in duplicate containing:

1. Date of submission and dates of any previous submissions.

2. Project title and contract number.

3. *CONTRACTOR'S* name.

4. The number of each shop drawing, product data and sample submitted.

5. Notification of deviations from *Contract Documents*.

6. Other pertinent data.

D. Submittals shall include:

1. Date and revision date.

2. Project title and number.

3. The names of:

a. *ENGINEER*

b. *CONTRACTOR*

c. Subcontractor

d. Supplier

e. Manufacturer

f. Separate details when pertinent.

4. Identification of product or materials.

5. Field dimensions, clearly identified as such.

6. Specification Section number.

7. Relation to adjacent or critical features of the work or materials.

8. Applicable standards, such as ASTM or Federal Specification numbers.

9. Identification of deviations from *Contract Documents*.

10. Identification of revisions on resubmittals.

11. An 8-inch by 3-inch blank space for *CONTRACTOR* and *ENGINEER* stamps.

12. *CONTRACTOR'S* stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the work and of *Contract Documents*.

1.09 RESUBMISSION REQUIREMENTS

A. Make any corrections or changes in the submittals required by the *ENGINEER* and resubmit until no further submissions are required.

B. Shop drawings and product data:

1. Revise initial drawings, or data, and resubmit as specified for the initial submittal.

2. Clearly indicate any and all changes made to the submittal.

C. Samples: Submit new samples as required for initial submittals.

1.10 DISTRIBUTION

A. Distribute reproductions of shop drawings, and copies of Product data that carry the *ENGINEER* stamp to:

1. Subcontractors.

2. Supplier.

3. Contractor’s file.

B. Distribute samples that carry the *ENGINEER* stamp as directed by *ENGINEER*.

****END OF SECTION****

SUBMITTAL TRANSMITTAL FORM

_____ _____ _____

CONTRACTOR NAME Contract # Project Title

_____ _____ _____

Date of this Submission Date of Prior Submission Submittal Number

Specification Section #: _____ Paragraph #:_____ Drawing #:_____ Detail/Section #:_____

TYPE OF SUBMITTAL:

___ Shop Drawings ___ Product Data ___ Sample ___ Test Report ___ Color Charts ___ O&M Manuals

___ Engineering Drawings___ Engineering Calculations ___ Other

IS THIS A:

___ Complete Submission ___ Partial Submission ___ Resubmission ___ Substitution

(Substitutions must be identified and accompanied by a Request for Substitution in accordance with Section 01 25 13)

LIST EACH ITEM SUBMITTED

_____

_____

_____

List and describe any deviations from the Contract Documents (attach additional sheets as required)

_____

_____

_____

CONTRACTOR CERTIFICATION

By this submittal, the Contractor named above hereby represents that he has determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and has checked and coordinated each item with other applicable shop drawings and all contract requirements, except for the specific deviations noted.

_____

Signature of Contractor's Authorized Representative Date

SECTION 01 45 29
(01410)
TESTING LABORATORY SERVICES

1.01 GENERAL

A. *CONTRACTOR* shall employ and pay for the services of an Independent Testing Laboratory to perform specified testing. Include such costs in overall contract price.

1. Employment of the laboratory shall in no way relieve *CONTRACTOR'S* obligations to perform the work of the contract.

B. Related requirements specified elsewhere:

1. Inspections and testing required by law, ordinances, rules, regulations, orders or approval of public authorities: General Conditions.

2. Certification of products. The respective sections of these *Specifications*.

3. Test, adjust and balance equipment. The respective sections of these *Specifications*.

4. Laboratory testing, sampling required, and standards for testing: See each Specification Section listed below:

a. *Section 03 30 00: Concrete*

b. *Section 31 23 00: Excavating, Filling and Grading*

c. *Section 32 12 16.13: Hot Mix Asphalt Paving*

1.02 QUALIFICATION OF LABORATORY

A. Meet "Recommended Requirements for Independent Laboratory Qualification", published by American Council of Independent Laboratories.

B. Meet basic requirements of ASTM E-329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction."

C. Authorized to operate in the state in which the project is located, and acceptable to *OWNER*.

D. Testing equipment: Calibrated at reasonable intervals by devices of accuracy traceable to either:

1. National Bureau of Standards.

2. Accepted values of natural physical constants.

E. If requested by *ENGINEER*, submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection.

1.03 LABORATORY DUTIES

A. Cooperate with *ENGINEER* and *CONTRACTOR*. Provide qualified personnel after due notice.

B. Perform specified inspections, sampling and testing of materials.

1. Comply with specified standards for testing.

2. Ascertain compliance of materials with requirements of *Contract Documents*.

C. Promptly notify *ENGINEER* and *CONTRACTOR* of observed irregularities or deficiencies of work or products.

D. Promptly submit six (6) copies of written report of each test and/or inspection to *ENGINEER*. Each report shall include:

1. Date issued.

2. Project title and number.

3. Testing laboratory name, address and telephone number.

4. Name and signature of laboratory inspector.

5. Date and time of sampling or inspection.

6. Record of temperature and weather condition.

7. Date of test.

8. Identification of product and specification section.

9. Location of sample or test in the project.

10. Type of inspection or test.

11. Results of tests and compliance with *Contract Documents*.

12. Interpretation of test results, when requested by *ENGINEER*.

E. Perform additional tests as required by *ENGINEER* or the *OWNER*.

1.04 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

A. Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on requirements of *Contract Documents*.

2. Approve or accept any portion of the work.

3. Perform any duties of the *CONTRACTOR*.

1.05 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel, provide access to work.

B. Secure and deliver to the laboratory adequate quantities of representative samples of materials proposed to be used and which require testing.

C. Provide to the laboratory the design mix proposed to be used for concrete, and other material mixes, which require control by the testing laboratory.

D. Furnish incidental labor and facilities:

1. To provide access to work to be tested.

2. To obtain and handle samples at the project site or at the source of the product to be tested.

3. To facilitate inspections and tests.

4. For storage and curing of test samples.

E. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.

F. Make arrangements with laboratory and pay for additional samples and tests required for *CONTRACTOR'S* convenience.

G. Employ and pay for the services of a separate, equally qualified independent testing laboratory to perform additional sampling and testing required when initial tests indicate work does not comply with *Contract Documents*.

****END OF SECTION****

SECTION 01 53 28
(01521)
TEMPORARY BY-PASS PUMPING

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. By-pass pumping of gravity sanitary sewer to effect piping/manhole replacement.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 32 16: Construction Schedules*

3. *Section 0 33 23: Shop Drawings, Product Data and Samples*

4. *Section 01 56 19: Noise Control*

5. *Section 31 23 00: Excavating, Filling and Grading*

1.02 DESCRIPTION

A. Design and performance requirements:

1. Provide and maintain ample means and devices (including spare units for use in case of breakdown) to divert sanitary sewage flow around existing gravity sewer to be replaced.

2. Sewage shall be pumped from the existing influent manhole to the existing sanitary manhole downstream of the gravity sewer to be replaced.

3. A minimum pumping capacity of 860 gallons per minute (GPM) shall be provided. Two (2) pumps rated at 860 GPM shall be provided. The pumps shall have a minimum head rating of eighty-nine feet (89') and suction lift of fifteen feet (15').

4. Operate and maintain the temporary pumping facility for twenty-four (24) hours a day for the duration of the temporary pumping.

5. Provide at least two (2) telephone numbers, pager numbers or an answering service where maintenance personnel can be reached 24 hours a day in case of equipment failure or other emergency. Answering machine shall not be used for this purpose.

6. Provide automatic telephone dialing system and automatic alarm activation.

7. Provide temporary lighting for maintenance and repair at night.

1.03 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Product Data:

1. Submit data completely describing pumps and including performance curves, emergency generator, automatic transfer switch and alarm system.

C. Shop Drawings:

1. Submit shop drawings showing dimensions, piping layout, and electrical service.

2. Submit an Emergency Action Plan outlining the steps to be taken in the event of a failure of the By-Pass Pumping Station.

3. Submit a roster with phone numbers of *CONTRACTOR'S* personnel/agents who will be on-call and available for specific periods of time during all non-work hours.

1.04 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.

2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.

3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

PART 2 - PRODUCTS

2.01 GENERAL

A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.

B. Other materials may be considered by, the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

C. Equipment selection shall be at the *CONTRACTOR'S* option subject to the requirements specified herein.

2.02 PUMPS

A. Electric motor driven self-priming pumps shall be provided as the primary means of by-pass pumping.

B. Diesel driven self-priming or suction pumps may be used as standby pumps for emergency use in case of primary pump failure or temporary loss of electric power.

C. Electric driven self-priming or suction pumps may be used as standby pumps for emergency use in case of primary pump failure or temporary loss of electric power if powered by a secondary, entirely separate, source of electric power.

1. Provide automatic switch over control to standby pumps and automatic alternation if standby pump(s) is electric.

D. Suction pumps shall be equipped with double suction lines and selector valve.

E. Suction pump hoses and couplings shall be of the quick disconnect type.

F. Diesel driven pumps shall be equipped with suitable mufflers and have cold weather starting capability.

G. Freeze protection for standing lines containing prime water shall be provided for pumps which are not self-priming.

H. Diesel driven pumps shall have controls and control panel mounted independently of pumps and engine.

I. Air release lines shall be submerged or equipped with suitable spring or swing check valves. Ball check or other types of check valves shall not be used.

J. Priming system must be fully automatic and shall not rely on vacuum pumps or foot valves.

K. Pumps shall be capable of operating dry for long periods of time.

L. Provide low level off, lead pump-lag pump on and alarm level float switches for automatic pump operation.

2.03 ALARMS

A. Pumps shall be equipped with warning devices to alert personnel in case of failure.

B. Audible alarms shall only be used during normal working hours when the *CONTRACTOR* is present.

C. All temporary pumping systems shall be equipped with an auto dialer and required appurtenances serving to warn of pump failure, shutdown or high water.

1. System shall be programmed to contact:

a. The *OWNER'S* 24-hour emergency number.

b. The *CONTRACTOR'S* designated on-call emergency personnel.

2.04 STANDBY POWER

A. A suitable emergency generator shall be provided with automatic transfer switch, fuel storage, gauge and low level alarm.

B. Generator shall be equipped with mufflers and cold weather starting capability.

2.05 ACCESSORIES

A. Suction lines shall be equipped with suitable screens, prescreens, baskets or other suitable devices to prevent clogging by rags, debris and other foreign objects.

B. Suitable hoisting equipment shall be provided for removal of suction lines, baskets, etc. Heavy equipment shall not be used for this purpose.

C. Quick disconnects shall be provided for all temporary connections to discharge piping system. Welded, glued or bolted connections shall not be used.

D. All temporary connections of by-pass pumping system to discharge piping shall be easily accessible. Buried connections are not permitted.

E. Adequate on-site lighting shall be provided to properly illuminate the work area at night should the need arise.

F. Area around by-pass pumping equipment shall be provided with stone paving, duct boards or other suitable surfacing to prevent muddy conditions.

G. Wind dodgers, screens or other suitable means shall be provided to protect personnel from wind blown dust, rain, snow or ice.

H. Suitable means shall be provided to isolate permanent piping from vibration caused by pumps or other machinery.

I. In noise sensitive areas provide critical muffler or sound attenuating devices such that sound levels 5 ft. from pump(s) are not greater than 70 dBA.

2.06 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER.*

C. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Prior to beginning this installation, Contractor’s field office shall be on-site and all temporary telephone and communications equipment shall be installed and operational.

B. Provide all temporary paving or surfacing as required together with screens, wind dodgers or blinds as required.

3.03 INSTALLATION

A. General: Install the work of this section in strict accordance with the manufacturer’s recommendations as approved by the *ENGINEER.*

B. The work of this section shall be installed plumb and perpendicular to piping where required on Plans.

C. Temporary pump(s) to remain in place and available for use for one (1) week after permanent pumps are placed into continuous operation.

3.04 TESTS

A. Prior to taking pumping station out of service, the temporary bypass pumping system shall have been placed in operation and run continuously without any shut-downs, malfunctions, or failures for a period of one seven-day week.

B. Test ancillary alarm and communication system.

C. This is to be a reliability test with the option of placing the pump station itself back into service should the need arise.

PART 4 - PAYMENT

4.01 TEMPORARY BY-PASS PUMPING

A. No separate payment shall be made for this item. Include all costs for *TEMPORARY BY-PASS PUMPING* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

B. The *CONTRACTOR* shall be responsible for all costs associated with installation, maintenance, operation, removal and energy costs associated with the temporary sewage pumping equipment.

****END OF SECTION ****

SECTION 01 56 19
(01564)
NOISE CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Requirements for controlling noise levels resulting from construction activities.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 57 13: Temporary Soil Erosion and Sediment Control Measures*

3. *Section 01 53 28: Temporary By-Pass Pumping*

4. *Section 01 55 26: Maintenance and Protection of Traffic*

5. *Section 01 74 00: Cleaning and Restorations*

1.02 SYSTEM DESCRIPTION

A. The *CONTRACTOR* shall control the noise generated by his construction operations.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.01 PROJECT CONDITIONS

A. Noise caused by construction activities shall not exceed the levels permitted by applicable federal, state or local regulations.

B. All construction equipment powered by an internal combustion engine shall be equipped with a properly maintained muffler.

C. Air compressors shall be operated in accordance with the manufacturer's instructions for proper noise abatement.

D. Air-powered equipment shall be fitted with pneumatic exhaust silencers.

E. Stationary equipment powered by an internal combustion engine shall not be operated within 150 feet of noise sensitive sites without temporary noise barriers placed between the equipment and the noise sensitive sites. Noise sensitive sites shall include residential buildings, motels, hotels, schools, churches, hospitals, nursing homes, libraries and public recreation areas. Temporary noise barrier shall be constructed of plywood or tongue and groove boards with a noise absorbent treatment on the interior surface (facing the equipment).

F. Unless otherwise permitted, powered construction equipment shall not be operated before 7:00 A.M. or after 6:00 P.M. within 150 feet of a noise sensitive site. [NJAC 7:22-10.11(n)]

G. No driving, pulling, or other operations entailing the use of vibratory hammers or compactors shall be permitted other than between the hours of 8:00 A.M. and 5:00 P.M. [NJAC 7:22-10.11(n)]

H. The number of machines in operation at a given time shall be limited to the minimum practicable. [NJAC 7:22-10.11(n)]

PART 4 - PAYMENT

4.01 NOISE CONTROL

A. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.

B. Include all costs for the *NOISE CONTROL* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

****END OF SECTION****

SECTION 01 57 15.02
(02141)
DEWATERING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The CONTRACTOR shall be responsible for properly dewatering the construction site as specified, and in compliance with the applicable NJDEP rules and the referenced regulatory documents. Among the *CONTRACTOR'S* responsibilities are included the following:

1. Obtain (with the *OWNER'S* authorization) a Dewatering Well Permit for those dewatering wells requiring a permit.

2. Removal and disposal of surface water and groundwater entering into trenches and other excavations, prevent saturated soil from flowing into excavations, and prevent flooding of the project site and the surrounding area.

3. Design, provide, operate and maintain a complete dewatering system including pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

4. Keep daily logs and reports, and record all necessary data regarding flow, discharge and water quality.

5. Remove water to prevent softening of foundation bottoms, undercutting of footings, and soil changes detrimental to stability of subgrades and maintain the stability and prevent the settlement of the original ground, existing utilities, structures and pavements in the project area. Unless otherwise shown on the drawings, the groundwater level shall be maintained at least two feet below the bottom of the excavation or controlled fill.

6. When jacking, boring, or tunneling operations are required, have available at all times adequate pumping equipment for dewatering shafts, jackings, boring, and tunnels. Use whatever means are required to control groundwater to prevent loss of ground. In addition, when placing concrete, water shall be controlled so that at no time during placement or hardening of the concrete will water wash, mix with, or seep into the unhardened concrete.

7. Convey water removed from excavations and rain water to collecting or run-off areas and establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches. Sewer inlets within construction areas shall be provided with perimeter hay bales or other appropriate siltation control measures.

8. Construct settlement basins to allow sediment to settle out of water prior to discharge to surface waters. Provide pumping out of settlement basins if positive flow by gravity is not feasible.

9. Following completion of dewatering properly seal and abandon all established wells and well points.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 57 13: Temporary Soil Erosion and Sediment Control Measures*

3. *Section 31 23 00: Excavating, Filling and Grading*

C. References:

1. N.J.A.C. 7:9D Well Construction, Maintenance and Sealing of Abandoned Wells.

2. N.J.A.C. 7:19 Water Supply Allocation Rules.

3. New Jersey Standards for Soil Erosion and Sediment Control.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Submit a Comprehensive Dewatering Plan to the *ENGINEER* for review including design and location of settlement basins, and plans for monitoring adjacent groundwater, surface water, existing utilities and structures and water supplies to prevent loss or settlement.

C. Submit to the *ENGINEER*, for the *OWNER'S* authorization, a Dewatering Well Permit for those dewatering wells requiring a permit.

D. Submit certification that any dewatering wells that require a permit will be installed and operated by a dewatering well driller licensed in the State of New Jersey.

E. Provide at least two (2) emergency telephone, pager or answering service numbers (answering machines excluded) where maintenance personnel can be reached 24 hours a day in case of an emergency.

F. Soundings or natural bottom elevations of all water courses in the vicinity of and downstream of dewatering discharge points, and drainage outfalls if discharge is into a storm drainage system, shall be submitted before dewatering commences. A like survey shall be conducted and submitted after all discharge has been terminated. Both pre-dewatering and post-dewatering survey submittals shall be signed by, a Licensed Professional Land Surveyor of the State of New Jersey.

G. During dewatering operations the *CONTRACTOR* shall record daily, in a book to be kept on the premises, the total hours of operation and the pumping and discharge rates. The computed amount of water diverted each month shall be reported to the *ENGINEER* and the *OWNER*.

H. When required by the field conditions herein after described or the regulatory agencies, the following parameters of the dewatering discharge shall be submitted: salinity, pH, hydrogen sulfide content and the presence of any unusual color or odor which would indicate a possible pollutant.

I. All daily logs and reports regarding flow, discharge and water quality shall be submitted to the *OWNER* and *ENGINEER*.

J. For dewatering wells requiring a permit, well records and well/well point abandonment forms must be maintained by a New Jersey licensed dewatering well driller or licensed well driller and submitted to the NJDEP, the *ENGINEER* and the *OWNER* within ninety (90) days of the completion of dewatering operation. Records and forms must conform to the following requirements:

1. Well records and well/well point abandonment forms shall be accurate, complete and legible.

2. Information on all permitted dewatering well/well point systems associated with one project may be submitted on one well record form and one well/well point abandonment form where similar geologic formations are encountered;

3. Information on all permitted dewatering wells/well points shall be submitted on individual well record forms and individual well/well point abandonment forms when dissimilar geologic strata, bedrock, methane gas, and/or contaminated water is encountered.

K. Where dewatering is discharged into a storm drainage system, siltation levels shall be measured at each manhole or basin downstream of the discharge point both prior to dewatering and after termination. Levels shall be certified to by a Licensed Land Surveyor and submitted to the *OWNER* and *ENGINEER*.

1.03 QUALITY ASSURANCE

A. All dewatering shall be done in accordance with the applicable NJDEP rules and the referenced regulatory documents.

1.04 PROJECT CONDITIONS

A. Site information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that *OWNER* will not be responsible for interpretations or conclusions drawn therefrom by *CONTRACTOR*. Data are made available for the convenience of *CONTRACTOR*.

B. Existing pipelines: Where existing pipelines enter the construction area, they may be supported on permeable crushed stone material. This stone may act as a point source for large quantities of water at each such pipe location.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.01 PREPARATION

A. The *CONTRACTOR* shall obtain (with the *OWNER'S* authorization) a Dewatering Well Permit for those dewatering wells requiring a permit.

B. If required by Contractor's Dewatering Plan, water observation pipes shall be installed to monitor the groundwater level during the dewatering operation. Daily observation of the groundwater level in relation to bottom of the excavation shall be taken and recorded by the *CONTRACTOR* under the observation of the *ENGINEER*.

C. Power for dewatering equipment shall be electric utility power. Use of equipment, which operates on gasoline or other such fuel will only be permitted if the availability of electric power is not feasible, or the equipment is used for standby power.

3.02 INSTALLATION

A. All dewatering wells/well points shall be constructed, installed, operated, maintained, sealed, abandoned and documented in accordance with the applicable NJDEP rules and the referenced regulatory documents.

B. All dewatering shall be done in accordance with the applicable NJDEP rules and the referenced regulatory documents, and these specifications.

C. A flow meter shall be installed on the discharge collection header of the dewatering system to accurately monitor discharge flow.

D. The water level obtained by dewatering shall be maintained at least two feet (2') below the excavation or controlled fill across the entire width of the excavation or controlled fill. Excavations shall be kept dry until the structures, pipes and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged and the placement and compaction of backfill material has taken place.

E. All water pumped or drained from the work shall be disposed of in a suitable manner without undue interference with other work or damage to surfaces and property. Suitable temporary channels shall be provided for water that may flow along or across the site of the work. No water shall be pumped or drained into work built or under construction without prior consent of the *ENGINEER*. Water shall be disposed in such a manner as not to be a menace to public health.

F. Suitable provisions for adequate drainage of the discharge shall be made considering normal and flood conditions of both surface and groundwater. Adequate stream flow in adjacent streams shall be maintained at all times.

G. Silt laden water or water contaminated by acid soils shall not be discharged directly into storm sewers, surface waters, stream crossings or wetlands. Care shall be taken not to damage or kill vegetation by excessive watering or by silt accumulations in the discharge area. Settlement basins shall be employed where necessary to remove silt and to treat acid water to the ambient pH of the receiving waters.

H. To allow sediment to settle out of water that interferes with construction before such water enters any surface waters, dewatering operations shall direct pumpage as far from the critical impact area as possible and into suitable settlement basins. Settlement basins shall be constructed and used as specified to protect vegetation and to achieve environmental objectives. Pumping water out of settlement basins shall be provided if positive flow by gravity is not feasible.

I. All dewatering of excavations shall be done on the upland side of the excavation, away from the stream crossings, wetland habitats or critical impact areas, and the effluent shall be discharged through a manifold apparatus of no less than fifty feet (50') in length with multiple discharge holes upland of an overlapped, anchored double hay bale barrier to prevent sediment discharge into the waterway, stream, wetland habitat or critical impact area or into suitable settlement basins.

J. Siltation deposits in settlement basins, storm sewers, waters, streams or wetlands resulting from the dewatering operation shall be, removed by the *CONTRACTOR* periodically during construction and prior to the removal of the siltation control devices. All areas shall be restored by the *CONTRACTOR* to the condition existing prior to commencement of the dewatering operation.

K. Unless specified otherwise, if any water supplies such as wells are affected or disrupted by the dewatering operation, the *CONTRACTOR* shall take whatever steps are required to provide uninterrupted water service at an average rate of 250 gallons per unit per day, including the installation of temporary water lines if necessary. Prior to construction, the *CONTRACTOR* shall ascertain the depth of existing water supply wells in the area, which may be affected. Shallow wells whose depth is within the cone of influence of the dewatering operations shall be deepened prior to construction or other temporary measures taken.

L. In the event that excavations are to be carried below the elevations shown on the drawings, no work will proceed until the water level is lowered to a depth of at least two feet (2') below the anticipated depth of the excavation.

M. In the event that the settlement basin, storm sewer, surface waters, streams or wetlands become surcharged or flooded, whether due to dewatering discharge or rainfall or a combination of both, the *CONTRACTOR* shall throttle back or terminate his dewatering, until the adverse conditions subside.

N. Upon removal of well points, deep wells or other dewatering equipment, the *CONTRACTOR* shall backfill, compact and pave (in roads) all holes. Holes shall be compacted for the full depth of the hole to a density equal to adjacent in place soils.

3.03 FIELD QUALITY CONTROL

A. For dewatering wells requiring a permit, well records and well/well point abandonment forms must be maintained by a New Jersey licensed dewatering well driller or licensed will driller and submitted to the NJDEP, the *ENGINEER* and the OWNER within ninety (90) days of the completion of dewatering operations. Records and forms must conform to the following requirements:

1. Well records and well/well point abandonment forms shall be accurate, complete and legible.

2. Information on all dewatering well/well point systems associated with one project may be submitted on one well record form and one well/well point abandonment form where similar geologic formations are encountered.

3. Information on all dewatering wells/well points shall be submitted on individual well record forms and individual well/well point abandonment forms when dissimilar geologic strata, bedrock, methane gas, and/or contaminated water is encountered.

B. The *CONTRACTOR* shall daily record, in a book kept on the premises during dewatering operations, the total hours of operation and the pumping and discharge rates.

C. If the potential for saline intrusion exists, water observation pipes shall be utilized and salinity tests shall be performed by, the *CONTRACTOR* on a weekly basis at observation pipes selected by the *ENGINEER.* The *CONTRACTOR* shall prevent saline intrusion by reinjection of dewatering discharge, minimizing pumping meters or other methods.

D. When encountering acid soil conditions, the effluent pH from the settling basin shall be tested a minimum of two times daily and adjusted to ambient receiving water pH by the *CONTRACTOR.*

E. Monitoring and testing of hydrogen sulfide content of dewatering discharge shall be the responsibility of the *CONTRACTOR.* When hydrogen sulfide is present, means of oxidizing the hydrogen sulfide content of the discharge and, if required, neutralization of the acid shall be employed. The method of treatment shall be submitted to the *ENGINEER* for review.

F. The pumped groundwater must be monitored for any unusual color or odor, which would indicate a possible pollutant.

G. Well point abandonment forms must be completed by a New Jersey licensed well driller and submitted to the NJDEP, the *ENGINEER* and the *OWNER* within ninety (90) days of the completion of abandonment operations. Records and forms must conform to the following requirements:

1. Well point abandonment forms shall be accurate, complete and legible.

3.04 PROTECTION

A. The *CONTRACTOR* shall be entirely responsible for the maintenance of dewatering operations.

B. The *CONTRACTOR* shall provide all emergency generating equipment necessary to maintain dewatering operations during power outages.

C. The *CONTRACTOR* shall provide at least two (2) telephone numbers, pager numbers or an answering service where maintenance personnel can be reached 24 hours a day in case of equipment failure or other emergency. Answering machine shall not be used for this purpose.

D. The *CONTRACTOR* shall provide temporary lighting for maintenance and repair at night.

E. In the event that the bottom of the excavation is disturbed due to failure of the dewatering operation resulting in a loss of bearing capacity as determined by the *ENGINEER*, the *CONTRACTOR* shall assume full responsibility and bear the expense of all additional dewatering, excavating and backfilling required to correct the condition to the satisfaction of the *ENGINEER*.

F. Any damage on or off-site, caused by dewatering operations or a failure of dewatering operations shall be the full responsibility of the *CONTRACTOR* and shall be completely restored at the *CONTRACTOR'S* expense.

PART 4 - PAYMENT

4.01 DEWATERING

A. No separate measurement shall be made for this item. Payment will be made on a lump sum basis under the item *DEWATERING* in the Proposal which price shall include a Dewatering Well Permit (if required), permit fees, a dewatering plan, all pumping costs, record keeping and all equipment, manpower and materials necessary to design, construct, install, operate, maintain, seal, abandon and document all dewatering operations, complete as herein specified.

****END OF SECTION****

SECTION 01 66 00
(01620)
STORAGE AND PROTECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.

B. Related work:

1. Additional procedures also may be prescribed in other Sections of these *Specifications*.

1.02 QUALITY ASSURANCE

A. Include within the *CONTRACTOR'S* quality assurance program such procedures as are required to assure full protection of work and materials.

1.03 MANUFACTURERS' RECOMMENDATIONS

A. Except as otherwise approved by the *ENGINEER*, determine and comply with manufacturer's recommendations on product handling, storage, and protection.

1.04 PACKAGING

A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.

1. Maintain packaged materials with seals unbroken and labels intact until time of use.

2. Promptly remove damaged materials and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the *OWNER*.

3. Leave all plugs and caps in place on equipment and machinery.

B. The *ENGINEER* may reject as non-complying such material and products that do not bear identification satisfactory to the *ENGINEER* as to manufacturer, grade, quality, and other pertinent information.

1.05 PROTECTION

A. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.

B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be removed over such surfaces.

C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the *OWNER*.

D. During construction, properly cap all pipes and equipment nozzles so as to prevent the entrance of sand, dirt, etc.

1.06 REPAIRS AND REPLACEMENTS

A. In event of damage, promptly make replacements and repairs to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

B. Additional time required to secure replacement and to make repairs will not be considered by the *ENGINEER* to justify an extension in the Contract Time of Completion.

****END OF SECTION****

SECTION 01 74 00
(01710)
CLEANING AND RESTORATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:

1. Maintain premises and public properties free from accumulations of waste, debris and rubbish caused by work operations.

2. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials; clean all sight exposed surfaces; leave project clean and ready for occupancy.

3. At completion of work, restore or replace, any public or private property disturbed or damaged by *CONTRACTOR'S* work operations to a condition at least equal to that existing prior to beginning work, or as otherwise specified. Materials, equipment and methods, shall be approved by the *ENGINEER*.

4. In landscaped areas, environmental features shall be replaced or restored to pre-disturbance conditions or better. This includes sodding, replacement of trees, shrubs, fences, drives and other landscape features in-kind. [NJAC 7:22-10.11(e) 5]

5. Final restoration shall be undertaken as soon as an area is no longer needed for construction, stockpiling or access. Excavated material unsuitable for backfill as set forth in NJAC 7:14-2.13 and considered to be solid waste pursuant to NJAC 7:26-1.6 shall be removed from the construction site and disposed of at a sanitary landfill approved and licensed by NJDEP. Excess excavated material which is not considered to solid waste pursuant to NJAC 7:26-1.6 shall be graded or removed in accordance with NJAC 7:22-10.11(l)3 and *Section 31 23 00, Excavating, Filling and Grading*. When access roads are no longer needed, road fill shall be removed and the access area shall be restored to pre-disturbance conditions. Care shall be taken to avoid damage to adjacent vegetation and to prevent the formation of depressions that would serve as mosquito pools. [NJAC 7:22-10.11(e) 1]

B. Related work:

1. Other sections of the *Specifications,* not referenced below, shall also apply to the extent required for proper performance of this work.

2. General requirements for cleaning and restorations: See the General Conditions.

3. In addition to standards described in the Section, comply with requirements for cleaning and restorations as described in pertinent other Sections of these *Specifications*.

C. References:

1. New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, 2007, and all amendments thereto (Standard Specifications).

PART 2 - PRODUCTS

2.01 GENERAL

A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.

B. Other materials may be considered by, the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 MATERIALS

A. All materials shall comply with the Standard Specifications.

B. Grass restorations:

1. Topsoil: Conforming to Subsection 917.01.

2. Grass seed: Conforming to Subsection 917.05, Type A-3.

3. Sod: Conforming to Subsection 917.09

C. Pavement restorations:

1. Hot-Mix Asphalt Surface Course: Conforming to Subsection 902.02, Mix 9.5M64.

2. Hot-Mix Asphalt Base Course: Conforming to Subsection 902.02, Mix 19M64.

D. Restoration of Concrete structures:

1. Concrete for curbs and islands shall conform to Section 607 of the Standard Specifications and shall be "Class B" as shown in Table 903.03.06-1 (NJDOT 2007).

2. Concrete for sidewalks, curb ramps, driveways and aprons shall conform to Section 606 of the Standard Specifications and shall be Class "B" as shown in Table 903.03.06-1 (NJDOT 2007).

3. Concrete for swales and gutters shall conform to the requirements of Section 405, Concrete Surface Course, of the Standard Specifications and shall be Class "B" as shown in Table 903.03.06-1 (NJDOT 2007)

E. Restoration of other concrete structures: All materials shall comply with the applicable sections of the Standard Specifications.

F. All other materials: As approved by the *ENGINEER* or authorities having jurisdiction.

2.02 MATERIALS

A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.

B. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

D. For restorations, use only materials approved by *ENGINEER*.

PART 3 - EXECUTION

3.01 REQUIREMENTS OF REGULATORY AGENCIES

A. Dispose of all non-recyclable solid waste materials in permanently established licensed OSWA (Office of Solid Waste Administration, New Jersey Department of Environmental Protection) landfills, or in temporary landfill sites approved by OSWA.

B. Dispose of all recyclable materials such as concrete, asphalt, wood waste, yard waste and similar materials at a recycling facility properly licensed to accept such waste materials.

C. Waste materials include, but are not limited to, concrete, blacktop, trees, stumps, lumber and timbers, unacceptable backfill material including heavy clay soils, organic materials, silts and rock.

3.02 SAFETY REQUIREMENTS

A. Hazards control:

1. Store volatile wastes in covered metal containers, and remove from premises daily.

2. Prevent accumulation of wastes, which create a hazardous condition.

3. Provide adequate ventilation during use of volatile or noxious substances.

B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws:

1. Do not burn or bury rubbish and waste materials on project site.

2. Do not dispose of volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary drains.

3. Do not dispose of wastes into streams or waterways.

3.03 CLEANING DURING CONSTRUCTION

A. Execute periodic cleaning to keep the work, the site, and adjacent properties free from accumulations of waste materials, rubbish and windblown debris resulting from construction operations.

B. Provide on-site containers for the collection of waste materials, debris and rubbish.

C. Remove waste materials, debris and rubbish from site periodically and legally dispose at location provided by *CONTRACTOR*.

3.04 DUST CONTROL

A. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.

B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

C. Handle waste or surplus materials in a controlled manner with as few handlings as possible; do not drop or throw material from heights.

D. The *CONTRACTOR* shall employ construction methods and means that will keep flying dust to the minimum. He shall provide for the laying of water on the Project, and on roads, streets and other areas immediately adjacent to the Project limits, wherever traffic, or buildings that are occupied or in use, are affected by such dust caused by his hauling or other operations. The *CONTRACTOR* shall control dust using water. The cost of carrying out the foregoing provisions shall be included in the prices bid for the various items in the Contract.

E. The *CONTRACTOR* shall provide for prompt removal from existing roadways of all dirt and other materials that have been spilled, washed, tracked or otherwise deposited thereon by his hauling and other operations whenever the accumulation is sufficient to cause the formation of mud, interfere with drainage, damage pavements or create a traffic hazard.

F. In order to control dust, as often as required during each working day, and particularly prior to the conclusion of each working day, areas under immediate construction (including access roads and other areas affected thereby) shall be swept and wet down with water sufficiently to lay dust. In addition, these areas shall be wet down during non-working hours (including weekends) as often as required to keep the dust under control. The use of calcium chloride or petroleum products or other chemicals for dust control is prohibited. [NJAC 7:22-10.11 (m)]

3.05 FINAL CLEANING

A. Employ skilled workmen for final cleaning.

B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.

C. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.

D. Remove all temporary buildings and structures built by *CONTRACTOR*, all temporary works; tools, machinery or other construction equipment furnished by him.

E. Clean insides of manholes, valve boxes, inlets or other structures constructed, reconstructed or reset during *CONTRACTOR'S* operations to remove debris, excess mortar or foreign materials.

F. Prior to final acceptance, *CONTRACTOR* shall conduct an inspection of all work areas to verify that the entire work is clean.

3.06 RESTORATIONS

A. General:

1. All existing structures, unpaved areas and paved areas disturbed or damaged during the work under this Contract shall be restored or replaced to a condition at least equal to that existing prior to beginning work, or as otherwise specified.

2. The methods of conducting this work shall, as a minimum, conform to the Standard Specifications.

B. Grass restorations: Seeding shall conform to Section 806.

C. Pavement restorations: Conform to Section 401.

D. Restorations of Concrete Curbs & Islands: Conform to Section 607.

E. Restoration of Sidewalks, Driveways, Curb Ramps and Aprons: Conform to Section 606.

F. All other restorations: Restore in accordance with applicable Articles of the Standard Specifications, or as approved by the *ENGINEER* or authorities having jurisdiction.

PART 4 - PAYMENT

4.01 CLEANING AND RESTORATIONS

A. All costs for *CLEANING AND RESTORATIONS* shall be included in prices bid for various items scheduled in the *PROPOSAL*.

****END OF SECTION****

SECTION 01 78 36
(01740)
GUARANTEES

1.01 GENERAL

A. Compile specified warranties and bonds.

B. Co-execute submittals.

C. Review submittals to verify compliance with *Contract Documents*.

D. Submit to *ENGINEER* for review and transmittal to *OWNER*.

E. Related requirements in other parts of the *Contract Documents*:

1. Bid or proposal bonds: See the *Instructions to Bidders*.

2. Performance bond and maintenance bond: See the *General Conditions*.

1.02 SUBMITTAL REQUIREMENTS

A. Assemble warranties and bonds executed by each of the respective manufacturers, suppliers and subcontractors.

B. Number of original signed copies required: Two (2) each.

C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.

1. Product or work item.

2. Firm, with name of principal, address and telephone number.

3. Scope.

4. Date of beginning of warranty or bond.

5. Duration of warranty or bond.

6. Provide information for *OWNER'S* personnel:

a. Proper procedure in case of failure.

b. Instances which might affect the validity of warranty or bond.

7. *CONTRACTOR*, name of responsible principal, address and telephone number.

1.03 FORM OF SUBMITTALS

A. Prepare in duplicate packets.

B. Format:

1. Size: 8½" by 11", punch sheets for 3-ring binder.

Fold larger sheets to fit into binders.

2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS." List:

a. Title of project.

b. Name of contractor.

C. Binders: Commercial quality, 3-ring, D-type, with durable and cleanable plastic covers.

1.04 SUBMITTAL REQUIREMENTS

A. Submit documents within ten (10) days after inspection and written acceptance by the *ENGINEER*

B. Submit warranties by the manufacturers of all equipment furnished; or furnished and installed by the *CONTRACTOR*.

1. Manufacturer shall issue warranties in the name of the *CONTRACTOR* and *OWNER*.

2. Warranties shall be valid for a period of two (2) years from the date of acceptance by the *OWNER* of the structures and equipment, unless a longer period is specified.

3. Warranties shall cover all costs for repairing or replacing defective materials and equipment.

C. Submit warranties, service and maintenance contracts as specified in the respective sections of *Specifications*.

D. In the event the equipment manufacturer's warranty does not comply with the conditions outlined above or are otherwise unavailable as required above, the *CONTRACTOR* may:

1. Provide a dedicated security deposit in lieu of the specified warranties.

2. Provide either a separate Maintenance Bond or certification of extended warranty coverage under the *CONTRACTOR'S* overall bonding to guarantee *OWNER* for warranty and deficiencies.

1.05 WARRANTY REPAIRS

A. *CONTRACTOR* shall repair and/or replace as required all equipment which may be defective due to manufacturing errors or faulty installation, at his expense, during the maintenance period.

B. The *CONTRACTOR* shall be responsible for all costs of the repair work including removal, shipping, reinstallation and start-up during the two (2) year maintenance period. The *OWNER* shall not incur any additional costs as a result of warranted equipment failure.

****END OF SECTION****

SECTION 01 78 39
(01720)
PROJECT RECORD DOCUMENTS

1.01 GENERAL

A. Maintain for the *OWNER* one (1) record copy of:

1. Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other modifications to the contract.

5. Change Orders or written instructions.

6. Approved shop drawings, product data and samples.

7. Field test records.

8. As-built record drawings.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

B. Make documents and samples available at all times for inspection by the *ENGINEER*.

1.03 MARKING DEVICES

A. Provide felt-tip marking pens for recording information in the color code accepted by the *ENGINEER*.

1.04 RECORDING

A. Label each document, "PROJECT RECORD" in neat large printed letters.

B. Mark *CONTRACTOR* prints of working drawings to show the final horizontal and vertical locations of any revisions to the work. Record information concurrently with construction progress on a daily basis.

C. Do not conceal any work until required information is recorded.

D. Drawings: Legibly mark to record actual construction:

1. Elevations of various structure elements in relation to finish floor or grade.

2. All underground piping with elevations and dimensions. Changes in piping location. Horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements. Actual installed pipe material, class, etc.

3. Location of internal utilities and appurtenances concealed in the construction referenced to visible and accessible features of the structure.

4. Field changes of dimension and detail.

5. Changes made by Field Order or by Change Order.

6. Details not on original Contract Drawings.

7. Equipment and piping relocations.

8. Intersection details: Provide at least three ties to every valve and fitting, blow-off, fire hydrant and air release.

9. Services based on distance from main line pipe and property lines.

10. Backflow preventer assemblies locations with ties to physical features.

E. All horizontal locations, if not in the right-of-way, must relate to easement.

F. All elevations shall be in feet and tenths, referenced to NGVD 29.

G. Specifications and Addenda; legibly mark each Section to record:

1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.

2. Changes made by Field Order or by Change Order.

1.05 SUBMITTAL

A. Before Contract closeout, transfer all record documents to electronic media. Drawings shall be provided in Tagged Image File (tif) format. All other documents shall be in Portable Document File (pdf) format. Scan all record documents in their original size. Electronic media shall be archival quality compact disc (CD), Memorex "Pro Gold™ Archival CD-Rs" or equivalent.

B. At Contract closeout, deliver original marked-up record documents and four (4) copies of the record documents on electronic media to the *ENGINEER*.

1. Each CD shall have a high gloss, laser printed label showing the following information:

Title:	Project Title
Owner:	
Contract #:	20_ _- _
Date:	
Contents:	Contract Drawings #____ thru #_____
	Project Manual and Specifications
	Change Order #___ thru #_____
	Submittals #_____ thru #_____
	Field Test Reports
	Inspection Certificates

2. Each CD shall contain a "Readme" file describing the contents.

3. All shop drawings, product data, test reports, inspection certificates and similar documents relating to a specific specification section or piece of equipment shall be contained as separate files in the same folder.

4. Each CD shall be contained in a Jewel Case with an insert showing the CD contents or a sleeve showing the CD contents.

****END OF SECTION****

SECTION 02 31 00
(02009)
UNDERGROUND UTILITY LOCATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Retain an independent utility locator service company with a minimum of five (5) years experience to field locate, mark, and stakeout existing underground utilities and service connections prior to excavation using radio frequency detection (Radiodetection RD4000), Fisher M-Scope, terrain resistivity/conductivity (Geonics EM31), ground penetrating radar or other appropriate means.

2. Determine the exact location of utilities by hand excavated test pits or through vacuum excavation methods as necessary. Support and protect all utilities to remain in place.

3. Contractor will be responsible for the location of all utilities within areas of excavation and all costs associated with the repair of utilities hit/damaged during construction.

4. Prepare record drawings of all existing and constructed underground utilities within the limits of construction.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 78 39: Project Record Documents*

3. *Section 02 32 19: Subsurface Investigation*

4. *Section 31 23 00: Excavating, Filling and Grading*

C. Payment:

1. Separate payment will be made for this item. Include all costs for *UNDERGROUND UTILITY LOCATION* as indicated under the specific proposal item.

2. The cost for this item shall include all materials, equipment, labor, and tools necessary and shall include those items that are considered to be an integral part of this work, which may be specified elsewhere in these specifications.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

B. Submit detailed experience and qualifications description of underground utility locator service. Experience and qualifications package should include a description of the types of utility locator equipment and experience that can be provided.

C. At the conclusion of this project, provide three (3) sets of paper and one (1) copy of electronic plans documenting all utilities located and identified. All documentation shall be referenced to the existing datum (horizontal and vertical) previously established for the site.

1.03 QUALITY ASSURANCE

A. The work of this Section shall be performed by firms regularly engaged in the location of underground utilities using the specified methods and with a history of successful locations acceptable to the *ENGINEER*.

B. Acceptable Providers:

1. MT Group
Mid Atlantic Regional Office
403 County Road, Unit 1
Cliffwood, NJ 07721
Tel: 732-725-6177
Fax: 732-725-6180

2. GPR OneCall
92 East Main Street, Suite 407
Somerville, NJ 08827
Tel: (908) 725-1444
Fax: (908) 725-1455

3. Atlantic Subsurface Imaging, LLC
396 North Pemberton Road
P.O. Box 98
Mt. Holly, NJ 08060
Tel: 609-297-5445
Fax: 609-261-7246

4. Or equivalent.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 PREPARATION

A. Before laying pipes or constructing any structures, the *CONTRACTOR* shall ascertain the location and grade of all subsurface structures, which may interfere with such construction.

B. Prior to performing any excavation work, contact New Jersey One Call at 1-800-272-1000 for a utility mark-out.

C. Provide Survey Grade GPS data for all existing and constructed utilities on the New Jersey State Plane NAD83 coordinate system and provide all elevations in NGVD 1929. The GPS data shall include all points and lines for the following items:

1. Sanitary Sewer Points: Manholes, valves, clean-outs, pump stations, ejector stations, and piping including size.

2. Water Distribution Points: Hydrants, valves, blow-offs, curb stops and piping including size.

3. Storm Sewer: Inlets, manholes, headwalls and piping including size.

4. Electrical: Junction boxes, pull boxes, conduit and connected electrical equipment.

5. Gas: Valves, shut-offs and piping.

6. Irrigation: Sprinkler heads, valves, valve boxes, piping and controllers.

7. Telephone: Manholes, pull boxes, etc.

D. All the above information shall be submitted to the *ENGINEER* for review and approval prior to final acceptance of the work.

E. The Contractor shall provide a digital copy of the as-built information on a DVD or CD in AutoCAD format. The *ENGINEER* will provide a copy of the Site Plan in digital format for the Contractor's use.

****END OF SECTION****

SECTION 02 32 19
(02010)
SUBSURFACE INVESTIGATION

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:

1. Excavation of test pits to ascertain the location of buried utilities or subsurface conditions.

B. Related Work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 31 23 00: Excavating, Filling and Grading*

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 PREPARATION

A. Before laying pipes or constructing any structures, the *CONTRACTOR* shall ascertain the location and grade of utility pipes and other subsurface structures, which may interfere with such construction. Test pits shall be excavated wherever necessary to obtain the required information, subject to the approval of the *ENGINEER*.

B. Prior to performing any excavation work, contact New Jersey One Call at 1-800-272-1000 for a utility mark-out.

3.02 EXECUTION

A. The approximate locations of known utility structures and facilities that may be encountered within and adjacent to the limits of the work are shown on the plans. The accuracy and completeness of, this information is not guaranteed by the *ENGINEER* and the bidder is advised to ascertain for himself all the facts concerning the location of these utilities.

B. The *CONTRACTOR* shall adhere to Section 105.07, Cooperation with Utilities, of the Standard Specifications regarding location of and construction around public utilities.

C. All test pits shall be backfilled with the material excavated. All backfill shall be thoroughly compacted in accordance with *Section 31 23 00, Excavating, Filling and Grading*. In paved areas, the disturbed area shall be restored in accordance with *Section 32 12 16, Hot-Mix Asphalt*.

D. The *CONTRACTOR* shall permit the *OWNERS* of the utilities or their agents, access to the site of the work at all times, in order to relocate or protect their facilities, and he shall cooperate with them in performing this work.

E. The *CONTRACTOR* shall cooperate with the utility owners concerned and shall notify them not less than ten (10) days in advance of the time he proposes to perform any work that will endanger or affect their facilities.

PART 4 - PAYMENT

4.01 TEST PITS

A. No separate payment shall be made for the item *TEST PITS*. Include all costs for this item in the prices bid for the various related items of work listed in the *PROPOSAL*.

****END OF SECTION****

SECTION 02 41 19
(02070)
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Demolishing designated construction.

2. Cutting and alterations for completion of the Work.

3. Removing designated items for [reuse] [and] [Owner's retention].

4. Protecting items designated to remain.

5. Removing demolished materials.

6. Testing for the presence of any Asbestos Containing Material (ACM) and its removal and disposal, if and when directed.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 73 29: Cutting and Patching*

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Submit results of asbestos testing for structure.

C. Submit documentation that the requirements of N.J.A.C. 5:23-2.17(e) have been or shall be met for each structure prior to demolition.

1.03 SCHEDULING

A. Schedule Work to coincide with new construction.

B. Cooperate with *OWNER* in scheduling noisy operations and waste removal that may impact Owners operation and in adjoining spaces.

C. Perform noisy, malodorous, dusty, work:

1. Between hours of 8:30 a.m. and 4:30 p.m.

D. Coordinate utility and building service interruptions with *OWNER*.

1. Do not disable or disrupt building fire or life safety systems without three days prior written notice to *OWNER*.

2. Schedule tie-ins to existing systems to minimize disruption.

3. Coordinate Work to ensure fire sprinklers, fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation in occupied areas.

1.04 QUALITY ASSURANCE

A. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.

2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.

B. Comply with the requirements of the Uniform Construction Code of the State of New Jersey.

1.05 PROJECT CONDITIONS

A. Conduct demolition to minimize interference with adjacent [and occupied] building areas.

B. Cease operations immediately if structure appears to be in danger and notify *ARCHITECT/ENGINEER*. Do not resume operations until directed.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Notify affected utility companies before starting work and comply with their requirements.

B. Mark location and termination of utilities.

C. Erect, and maintain temporary barriers and security devices [at locations indicated], including warning signs and lights, and similar measures, for protection of the public, *OWNER*, and existing improvements indicated to remain.

D. Layout cuts in post tensioned concrete elements to avoid cutting concrete within twelve inches (12") of any stressing tendon. Notify *ARCHITECT/ENGINEER* three (3) days in advance of cutting post-tensioned concrete.

E. Prevent movement of structure; provide temporary bracing and shoring required to ensure safety of existing structure.

J. Do not disable or disrupt building fire or life safety systems without three (3) days prior written notice to *OWNER*.

3.04 SALVAGE REQUIREMENTS

A. Demolished material shall be considered to be property of the *CONTRACTOR* and shall be completely removed from the job site.

3.05 DEMOLITION - GENERAL

A. By careful study of the *Contract Documents*, determine the location and extent of selective demolition to be performed.

B. In company with the *ENGINEER*, visit the site and verify the extent and location of selective demolition required.

1. Carefully identify limits of selective demolition.

2. Mark interface surfaces as required to, enable workmen also to identify items to be removed and items to be left in place intact.

C. Prepare and follow an organized plan for demolition and removal of items.

D. Conduct demolition to minimize interference with adjacent [and occupied] building areas. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

E. Maintain protected egress from and access to adjacent existing buildings at all times.

F. Do not close or obstruct roadways and sidewalks without permits.

G. Cease operations immediately when structure appears to be in danger and notify *ARCHITECT/ENGINEER*.

H. Disconnect and remove designated utilities within demolition areas.

I. Cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition.

J. Demolish in orderly and careful manner. Protect existing improvements and supporting structural members.

K. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.

L. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.

M. Remove temporary Work.

3.06 DEMOLITION - ELECTRICAL WORK

A. Remove, relocate, and extend existing installations to accommodate new construction.

B. Maintain access to existing electrical installations that remain active. Modify installation or provide access to panel as appropriate.

3.07 REPLACEMENTS

A. In the event of demolition of items not so indicated to be demolished, promptly replace such items to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

3.08 SCHEDULES

Include schedule when known items are to be turned over to *OWNER*, reused in construction later, or are destined for other use. These may include light fixtures, special equipment, and other items.

PART 4 - PAYMENT

4.01 SELECTIVE DEMOLITION

A. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.

B. Include all costs for *SELECTIVE DEMOLITION* in the prices bid for the various related items of work as designated in the Proposal.

****END OF SECTION****

SECTION 03 30 00
(03300)
CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. Provide all plain and reinforced cast-in-place concrete, complete in place, as indicated on the Plans, specified herein, and needed for complete and proper installation. This work includes, but is not limited to the following:

1. Concrete encasement of ductile iron pipe.

2. Sidewalks and curbs.

3. Fiber-reinforced concrete where shown on the Drawings.

B. All plain and reinforced cast-in-place concrete shall be per NJDOT Specifications.

****END OF SECTION****

SECTION 05 50 00
(05500)

METAL FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Anchors and inserts.

2. All other miscellaneous metal work shown on the *Contract Drawings*.

3. Field painting of all metal fabrications and miscellaneous metals.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 03 30 00: Concrete*

C. Payment:

1. Unless otherwise noted in the *Proposal* Section, no separate payment shall be made for this item.

2. Include all costs for *METAL FABRICATIONS* in the prices bid for the various related items of work as designated in the *Proposal*.

D. Standards: Comply with the provisions of the following (as applicable):

1. AISC – "Specification for Design, Fabrication, and Erection of Structural Steel for Building".

2. The Aluminum Association – "Aluminum Design Manual".

3. AWS – "Structural Welding Code D1".

4. ASME – "Structural Welding code Section IX".

5. FEMA Bulletin 3-93, #102 and #114.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.

2. Specifications and other data required that demonstrate compliance with the specified requirements.

C. Shop drawings.

1. Show each type of structure, details of anchor bolt settings; longitudinal and transverse cross sections; framing and details; and all accessory items; materials; finishes; construction and installation details; and other pertinent information required for proper and complete fabrication, assembly and erection.

2. Submit an anchor bolt setting plan with the following information included:

a. Where using cast-in place anchor bolts, show anchor bolt locations, diameters, material, plate washer sizes (if used), and projection and embedment lengths above and below the bearing face of concrete.

b. Where anchor bolts are drilled in concrete, show anchor bolt locations, diameters, material, projection and embedment lengths above and below the bearing face of concrete, the anchor bolt manufacturer’s model number and description along with the manufacturer’s current allowable load tables with recommended installation, use and safety factor data. The manufacturer’s dimensional limits regarding bolt spacing, edge distance, embedment length and their effect upon allowable stresses shall be included.

c. For all types of anchor bolts, provide base plate thickness and size and depth of grout to be provided.

D. Manufacturer's current recommended installation procedures.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.

2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.

3. Perform shop and/or field welding required in connection with the work of this Section in strict accordance with pertinent recommendations of the American Welding Society. Welders shall be certified as meeting the requirements of the American Welding Society AWS D1.1.

4. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PROJECT CONDITIONS

A. Field Measurements:

1. Check actual locations and other construction to which metal fabrications must fit, by accurate field measurements before fabrication.

2. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of work.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Comply with provisions of *Section 01 66 00, Storage and Protection.*

B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER.*

D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER.*

PART 2 - PRODUCTS

2.01 GENERAL

A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.

B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 MATERIALS

A. In fabricating items that will be exposed to view, limit materials to those that are free from surface blemishes, pitting, rolled trade names, and roughness.

2.03 STAINLESS STEEL

A. Shapes and Bars: A276, (**Type 304, 304L, 316 or 316L**) unless otherwise shown and with a mill finish.

B. Sheet: ASTM 666, type and gage as shown with a mill finish for areas not visible to the public and a #4 finish otherwise.

C. Forgings: ASTM A473.

D. Wire: ASTM A580.

E. Checkered Plate: ASTM A793.

2.4 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

2.5 FABRICATION

A. General:

1. Except as otherwise shown on the *Contract Drawings* or the approved Shop *Contract Drawings*, use materials of size, thickness, and type required to produce reasonable strength and durability in the work of this Section.

2. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.

3. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

4. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design

calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss. Temperature change (Range): 100 deg F (38 deg C).

5. Shear and punch metals cleanly and accurately. Remove burrs.

6. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

7. Remove sharp or rough areas on exposed traffic surfaces.

8. Weld corners and seams continuously to comply with AWS recommendations and the following:

    a. When welding painted or galvanized steel, the zinc or paint coating shall be removed to bare metal at least 1" to 4" (2.5-10 cm) from either side of the intended weld zone and on both sides of the pieces.

    b. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

    c. Obtain fusion without undercut or overlap.

    d. Remove welding flux immediately.

    e. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matched those adjacent.

9. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

10. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

11. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

12. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws, and similar items.

13. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

14. Prior to shop painting or priming, properly clean metal surfaces as specified in *Section 09 90 00, Painting*, for the applied finish and for the proposed use of the item.

15. On surfaces inaccessible after assembly or erection, apply two (2) coats of the specified primer. Change color of second coat to distinguish it from the first.

16. Insulate aluminum surfaces that will come in contact with concrete, masonry, plaster, or metals other than stainless steel, zinc or white bronze by giving a coat of heavy-bodied alkali resisting bituminous paint or other approved paint in shop.

17. Stainless steel materials and fabrications shall be cleaned and passivated in accordance with ASTM A380 after fabrication.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.

C. Do not proceed until unsatisfactory conditions are corrected.

3.02 COORDINATION

A. Coordination as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

3.03 INSTALLATION

A. General:

1. Set work accurately into position, plumb, level, true, and free from rack.

2. Anchor firmly into position.

2. Where field welding is required, comply with AWS recommended procedures of manual-shielded metal-arc welding for appearance and quality of weld and for methods to be used in correcting welding work.

B. Stud Welding:

1. Stud welding shall be by the electric-arc method.

2. Properly mark and layout positions of studs for tank mounted pipe supports prior to performing welding.

3. Comply with AWS C5.4 for procedures, appearance and quality of welds and methods used in correcting welding work. Avoid overheating. Cool reverse side of tank walls to avoid damaging paint on interior of tank walls.

4. Clean the surfaces to be welded and the adjacent surfaces in accordance with AWS C5.4. These surfaces must be completely cleansed of all hydrocarbon and other contaminants, such as cutting fluids, grease, oil, waxes, primers and paint.

5. Thoroughly remove all welding slag by chipping and wire brushing or mechanical polishing with non-ferrous tools.

6. Test all stud welds using the dye penetrate (ASTM E 165) or other non-destructive method(s) approved by the *ENGINEER*. Certify that the welds are correctly made.

3.04 FIELD PAINTING

A. Immediately after erection, clean the field welds, bolted connections, and abraded areas of shop priming. Paint the exposed areas with same material used for shop priming.

B. Field paint all surfaces in accordance with *Section 09 90 00*.

C. Do not paint aluminum or stainless steel unless otherwise indicated.

****END OF SECTION****

SECTION 31 10 10
(02111)
IN-PLACE ABANDONMENT OF SUBSURFACE STRUCTURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. In-place abandonment of existing piping, manholes and other subsurface structures as shown.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 55 26: Maintenance and Protection of Traffic*

3. *Section 31 10 00: Clearing Site*

4. *Section 31 23 00: Excavating, Filling and Grading*

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.

2. Specifications and other data required to demonstrate compliance with the specified requirements.

C. Submit mix designs and list of proposed materials.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.

2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.

3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Comply with provisions of *Section 01 66 00, Storage and Protection*.

B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

PART 2 - PRODUCTS

2.01 GENERAL

A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.

B. Other materials may be considered by, the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 MATERIALS

A. Grout:

1. Grout shall consist of a sand-cement mixture containing sufficient cement to produce a pumpable product.

B. Sand:

1. Sand shall be Fine Aggregate conforming to Subsection 901.06.02 or Soil Aggregate Designation I-8 conforming to Subsection 901.11 and Table 901.11-1 of the New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, 2007, and all amendments thereto (Standard Specifications).

C. Controlled Low Strength Material (flowable fill): *Section 31 23 00*.

D. Concrete: Class “B” complying with Section 903 of the Standard Specifications.

2.03 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

B. Verify that sanitary laterals are reconnected to new main prior to grouting of pipe line.

3.02 INSTALLATION

A. Grouting of Piping:

1. Plug or cap ends of piping to be abandoned in place with approved materials.

2. Plug or cap ends of disconnected laterals to prevent escapes of grout from sewer main.

3. Fill entire length of piping to be abandoned with sand-cement grout mixture.

B. Abandonment of manholes, junction boxes and other structures:

1. Remove equipment castings, lids and covers and stockpile in *OWNER'S* storage yard as directed.

2. Clean out structure and dispose of debris as specified in *Section 31 10 00*.

3. Provide 1 foot diameter hole in bottom of structure to provide drainage.

4. Fill structure with sand in 12" to 24" layers to a level 3' below existing grade and compact each layer to avoid settlement.

5. Remove top of structure to a depth of 3' below existing grade and dispose of in accordance with *Section 31 10 00*.

6. Backfill excavation in accordance with *Section 31 23 00*.

7. Restore area in accordance with *Sections 01 74 00*.

C. Concrete Pipe Plugs

1. Excavate and expose end of pipe to be abandoned.

2. Clean out pipe end and pour concrete plug-to-plug end of pipe.

3. Backfill excavation in accordance with *Section 31 23 00*.

4. Restore area in accordance with *Sections 01 74 00.*

PART 4 - QUANTITY AND PAYMENT

4.01 IN-PLACE ABANDONMENT OF UNDERGROUND PIPING

A. Quantity: The quantity for which payment will be made will be for the length of the various pipe sizes actually abandoned in-place as specified herein.

B. Payment: Payment will be made for the length of pipe of the various sizes, measured in linear feet, at the unit price per linear foot bid in the *PROPOSAL* for the item *ABANDON EXISTING 8" SANITARY SEWER PIPING IN PLACE* which price shall include providing and placing grout mixture, plugging or capping lines and all else necessary or required, complete as specified and shown on the plans.

4.02 IN-PLACE ABANDONMENT OF MANHOLES

A. Quantity: The quantity for which payment will be made will be for the number of manholes or other structures actually abandoned as herein specified regardless of depth or physical volume.

B. Payment: Payment shall be made for the quantity as above determined, measured in units, for the item *ABANDON EXISTING MANHOLES* which price shall include excavation, filling structure with sand, removal and disposal of top portion, backfilling, compacting and all else necessary or required complete as specified and shown on the plans.

4.03 CONCRETE PIPE PLUGS

A. Measurement: The quantity for which payment will be made will be for the number of plugs actually provided, measured in place, as specified and shown on the Plans, or as directed by the *ENGINEER.* Each plug shall be approximately 3 cubic feet.

B. Payment: Will be made for the quantity as above determined, measured in units, at the unit price bid per plug for the item *CONCRETE PIPE PLUGS*, in the *PROPOSAL*, which price shall include excavation, exposing and cleaning the pipe end; pouring the plug, backfilling, grading, compacting and all other incidental or necessary work.

****END OF SECTION****

SECTION 31 23 00
(02220)
EXCAVATING, FILLING AND GRADING

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:

1. Stripping, storage and redistribution of topsoil.

2. Filling and backfilling to attain indicated grades.

3. Trenching and trench backfilling.

4. Rough and finish grading of the site.

5. Furnishing and installing broken stone subbase material for slabs, foundations and structures.

6. Furnishing and installing Dense Graded Aggregate subbase material for pavements and other structures.

7. Providing borrow material.

8. Providing Certified Clean Fill material

9. Disposal of excess material.

10. Testing Services.

11. Any additional work as may be specified in the Statement of Work.

B. Related Work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 35 43: Environmental Protection Procedures*

3. *Section 01 57 13: Temporary Soil Erosion and Sediment Control Measures*

4. *Section 01 57 15: Dewatering*

5. *Section 31 10 00: Clearing Site*

C. References:

1. New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, 2007, and all amendments thereto (Standard Specifications):

   a. Section 204: Borrow Excavation

   b. Sections 301: Subbase

   c. Subsection 301.05: Compaction

   d. Subsection 901.03: Aggregate, Coarse

   e. Subsection 901.03.01: Broken Stone

   f. Subsection 901.03.02: Washed Gravel

   g. Subsection 901.08: Riprap Stones

   h. Subsection 901.10: Dense Graded Aggregate

   i. Subsection 901.11: Soil Aggregates

   j. Subsection 903.09: Controlled Low Strength Material (CLSM)

2. American Concrete Institute:

   A. ACI-229R; Controlled Low Strength Material.

3. American Society for Testing and Materials (ASTM):

   a. D-698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.

   b. D-1556: Density and Unit Weight of Soil in Place by the Sand-Cone Method.

   c. D-1557: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.

d. D-4254: Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

e. D-2166: Unconfined Compressive Strength of Cohesive Soil.

f. D-2922: Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth).

1.02 DEFINITIONS

A. Excavation: Removal and disposal of all material encountered when establishing required grade elevations, including pavements and other obstructions visible on the ground surface, and underground structures and utilities indicated to be demolished and removed.

B. Unauthorized excavation: Removal of materials beyond specified subgrade elevations without approval of *ENGINEER.*

1.03 SUBMITTALS

A. Comply with the provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

B. All materials shall be accompanied by a delivery ticket indicating the name and address of the supplier and the origin of the material.

C. All materials shall be free of contaminates or hazardous materials and substances that may be harmful to human, animal, plant or aquatic life and meets any applicable NJDEP regulations regarding the material composition. Recycled materials shall be accompanied by a certification from the supplier that the material meets the above requirements.

D. Every load of incoming fill material shall meet current NJDEP Residential Direct Contact Soil Remediation Standards and be certified by the Generator/Agent as clean fill consistent with NJDEP regulations at NJAC 7:27D-4.2 and NJAC 7:26E-2. Delivery slips showing and certifying that the material meets this criteria shall be provided for each load of material entering the site.

E. Test reports:

1. One optimum moisture, maximum density curve for each type of soil encountered, including a complete test report as specified in ASTM D-1557.

2. Field Density test reports.

3. Report of actual Unconfined Compressive Strength and/or results of bearing tests for each stratum encountered at footing subgrades. The report shall be prepared in accordance with ASTM D-2166.

4. Test reports on all borrow material and select backfill material in accordance with the following standards:

   a. Particle Size Analysis of Soils: ASTM D-422.

   b. Liquid Limit, Plastic Limit and Plasticity Index of Soils: ASTM D-4318.

5. Submit test reports as specified in the Specification Section entitled, "Testing Laboratory Services".

E. Submit mix designs for Controlled Low Strength Material. Each mix design shall be submitted on Portland cement concrete mix design forms utilized by the NJDOT giving the source of materials and test data.

1.04 QUALITY ASSURANCE

A. Requirements of regulatory agencies:

1. All excavations shall be in compliance with Federal Occupational Safety and Health Act and rules and regulations of State of New Jersey Department of Labor and Workforce Development, "Construction Safety Act," N.J.S.A. 34:5-166, et seq.

2. Comply with the requirements of the High Voltage Proximity Act; N.J.S.A. 34:6-47.1.

3. Excavation work shall be in compliance with applicable requirements of other governing authorities having jurisdiction.

1.05 DELIVERY, STORAGE AND HANDLING

A. Transport materials from outside project limits in accordance with General Conditions, paragraph entitled, "Operations and Storage Areas."

1.06 PROJECT CONDITIONS

A. Site information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that *OWNER* will not be responsible for interpretations or conclusions drawn there from by *CONTRACTOR*. Data are made available for the convenience of *CONTRACTOR*.

B. Prior to performing any excavation work, contact New Jersey One Call at 1-800-272-1000 for a utility mark-out.

C. Existing utilities:

1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the Utility Owner immediately for directions. Cooperate with *OWNER* and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of Utility Owner.

2. Do not interrupt existing utilities serving facilities occupied and used by *OWNER* or others, except when permitted in writing by *ENGINEER* and then only after acceptable temporary utility services have been provided.

C. Weather conditions: Do not place, spread, roll or fill material during freezing, raining, or otherwise unfavorable weather conditions. Do not resume work until conditions are favorable as determined by the *ENGINEER*.

PART 2 - PRODUCTS

2.01 GENERAL

A. General: All fill and backfill materials shall be subject to the approval of the *ENGINEER*.

B. Notifications:

1. For approval of borrow materials, notify the *ENGINEER* at least five (5) working days in advance of intention to import material, designate the proposed borrow area, and perform sampling and testing at *CONTRACTOR'S* expense, if directed by the *ENGINEER*, to prove the quality and suitability of the material.

2. For approval of on-site materials, notify the *ENGINEER* at least five (5) working days in advance of placing material and perform sampling and testing at the Contractor's expense to prove the quality and suitability of the material.

C. All materials provided shall be free of contaminates or hazardous materials and substances that may be harmful to human, animal, plant or aquatic life and shall meet any applicable NJDEP regulations regarding the material composition.

2.02 MATERIALS

A. On-Site Fill and Backfill:

1. On-site material may be used for fill and backfill subject to the approval of the *ENGINEER*, and only in accordance with the following:

a. On-site materials used for structural filling and backfilling shall be free from deleterious substances, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay, and shall conform to the requirements for Soil Aggregate I-13 of Subsection 901.11 of the Standard Specifications.

b. Other material excavated from the site may be used for general filling and backfilling that is not beneath or within ten feet (10') horizontally of any tank, structure, footing or foundation, under paved areas, behind retaining walls or in trenches, subject to the approval of the *ENGINEER*, and to the following requirements:

(1) Free from deleterious substances, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay.

(2) Free of large rocks or lumps that, in the opinion of the *ENGINEER*, may create voids or prevent proper compaction.

B. Borrow material:

1. All borrow material shall meet current NJDEP Residential Direct Contact Soil Remediation Standards and be certified by the Generator/Agent as clean fill consistent with NJDEP regulations at NJAC 7:27D-4.2 and NJAC 7:26E-2.

a. General fill material may be used for:

(1) Backfill of demolition work that is not beneath or within ten feet (10') horizontally of any tank, structure, footing or foundation or behind retaining walls.

(2) General filling and backfilling that is not beneath or within ten feet (10') horizontally of any tank, structure, footing or foundation or behind retaining walls. General fill may be used under exterior paved areas and in trenches, however, that are not within ten feet (10') horizontally of foundations.

2. Trench Backfill, Structural Fill and Backfill Material:

a. Shall conform to the requirements specified for on-site fill material except as modified by the supplemental requirements below:

b. Backfill material shall be Soil Aggregate designation I-13 unless otherwise designated on the Plans. Soil Aggregate backfill materials, when designated, shall conform to Subsection 901.11 of the Standard Specifications.

c. Backfill material shall be 15:1 or 20:1 sand/cement dry mix when designated on the Plans.

3. Controlled Low Strength Material (CLSM) (Flowable Fill):

a. CLSM material shall conform to Subsection 903.09 of the Standard Specifications as amended herein.

b. Use CLSM that consists of a mixture of cement, water, fine aggregate, and admixtures. Proportion the CLSM mixture to provide a backfill material that is self-compacting and capable of being excavated with hand tools at a later date.

c. Proportion the CLSM to produce a 28-day compressive strength of 50 to 150 pounds per square inch.

d. When rapid setting CLSM is required, use an accelerating admixture to produce a fast setting flowable mixture.

e. Ensure that the CLSM for backfilling of conduit and piping has a permeability of $1.7 \times 10^{-3} \pm 0.2 \times 10^{-3}$ centimeters per second when tested according to ASTM D 5084.

f. At least 45 days before the start of any CLSM placement, prepare trial batches of CLSM of the same materials and proportions proposed for use in the Contract. Submit each mix design on NJDOT approved concrete mix design forms, naming the sources of materials and test data.

g. The *ENGINEER* or his representative may be present at the time of verification batching to confirm that the proportions and materials batched conform to the proposed mix designs. Prepare at least six 6 x 12-inch compression test cylinders for each batch to be tested according to ASTM D 5971 for 28-day strengths except for fast setting mixes. Test fast-setting CLSM at the specified cure time. If fly ash is used in the CLSM, the *ENGINEER* will require an additional set of cylinders to ensure that the strength of the CLSM does not exceed 150 pounds per square inch in 90 days.

h. For acceptance testing, the *CONTRACTOR* shall take one (1) sample per day unless testing is waived when less than 20 cubic yards is placed in a day. If strength does not comply, the *ENGINEER* may require a new mix design for the CSLM.

4. Broken stone material:

a. Broken stone subbase material under slabs, foundations and structures shall conform to Subsection 901.03.01 of the Standard Specifications and meeting the gradations specified in Table 901.03-1. Size shall be #57 unless otherwise shown on the Plans.

b. Trench stabilization material for bedding shall conform to the above requirements. Size shall be #57 unless otherwise shown on the Plans.

5. Quarry Blend (Quarry Processed) (QP) stone Material:

a. Quarry Blend stone subbase for bituminous and concrete pavements and other structures shall be Type I-5 conforming to the requirements for Soil Aggregate in Subsection 901.11 of the Standard Specifications.

b. Quarry Blend stone for Stone Paving shall conform to the above requirements except that recycled concrete aggregate, blast furnace slag or Recycled Asphalt (RAP) shall not be used.

c. Quarry Blend stone for in-kind restoration of stone driveways shall match existing in gradation and color.

6. Dense Graded Aggregate:

   a. Dense Graded Aggregate for bituminous and concrete pavements and other structures shall conform to the requirements in Subsection 901.10 of the Standard Specifications. Recycled concrete aggregate, blast furnace slag or Reclaimed Asphalt Pavement (RAP) shall not be used.

   b. Dense Graded Aggregate for Stone Paving shall conform to the above requirements except that recycled concrete aggregate, blast furnace slag or Recycled Asphalt (RAP) shall not be used.

   c. Dense Graded Aggregate may also be produced by mixing reclaimed asphalt pavement (RAP) with approved virgin aggregate in accordance with Subsection 901.10.03 of the NJDOT Standard Specifications as amended and specified herein at the Contractor's option.

      (1) Sampling and testing to verify compliance with the requirements of Subsection 901.10.03 shall be performed at the rate of five (5) samples per each day's production.

      (2) Virgin Dense Graded Aggregate from an approved source shall be added when necessary to achieve gradation requirements.

      (3) Density control shall conform to Section 302 of the Standard Specifications.

      (4) Moisture density relationship (proctor) shall be determined fore each new mix prior to conducting in-place density testing.

      (5) Dense Graded Aggregate produced from Reclaimed Asphalt Pavement (RAP) shall be constructed to twice the depth shown on the Drawings when Dense Graded Aggregate is shown at no additional cost to the OWNER.

7. K5 Sand:

   a. K5 Sand: K5 sand shall be a well graded sand with less than 15% fines and a permeability greater than 20" per hour as determined in accordance with NJAC 7:9A-6.2. Certified test results showing gradation and permeability shall be submitted with a two (2) pound sample of the material proposed for use.

8. Geotextiles:

a. Provide geotextile rolls with protective wrapping and, before placement, store rolls in a manner that protects against moisture and minimizes exposure to ultraviolet radiation. For applications that are above ground or exposed to ultraviolet radiation, provide geotextiles that are inert to commonly encountered chemicals and are stabilized against ultraviolet light degradation. Label each roll to provide product identification.

b. Use geotextiles conforming to the requirements in Table 919.01-1 for the intended use.

Table 919.01-1 Requirements for Geotextiles

Category	Test Method	Class
Subsurface Drainage Geotextile	AASHTO M 288	Class 2
Stabilization Geotextile	AASHTO M 288	Class 1
Temporary Silt Fence(1)	AASHTO M 288	-
Erosion Control Geotextile(2) (3)	AASHTO M 288	Class 1 or 2(2)
Paving Fabric	AASHTO M 288	-

(1) Use the same geotextile requirements for both silt fence and heavy-duty silt fence. Reinforce heavy-duty silt fence with wire mesh as shown on the Plans.
(2) For inlet filter, use Class 2 for woven filament geotextiles or Class 1 for all other types of geotextiles.
(3) For inlet filter, Type 2, in addition to the AASHTO M 288 requirements, ensure that the geotextile's burst strength is at least 650 pounds per square inch when tested according to ASTM D3786.

c. For geotextiles that are being permanently incorporated into the Contract, submit a certification of compliance.

d. Orange Delineation Geotextile shall conform to AASHTO M288, Class 2 and be Mirafi Orange Delineation Nonwoven Geotextile, 160N/O, or equivalent.

2.03 OTHER MATERIALS

A. All other materials, not specifically described for a complete and proper installation, shall be as selected by the *CONTRACTOR* and approved by the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which excavating, filling and grading are to be performed and notify the *ENGINEER*, in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

3.02 PREPARATION

A. Prior to commencement of work, establish location and extent of all utilities in the work areas. Maintain, protect as required existing utilities that pass through the work area.

B. Prior to excavation in pavement areas, cut existing pavement vertically with sharp tool on a straight line to the limits of excavation shown on Plans or as directed by the *ENGINEER*. Maintain cut straight and neat, or recut and dress as directed by the *ENGINEER*.

C. Protection of persons and property:

1. Barricade open excavations occurring as part of this work and post with warning lights as required to protect persons on the site. Operate warning lights as recommended by authorities having jurisdiction.

2. Protect trees, shrubs, lawns and other features remaining as part of final landscaping.

3. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

4. Refer to paragraphs of General Conditions regarding protection of vegetation and structures.

5. In the event of damage, immediately make all repairs and replacements to the approval of the *ENGINEER* at no cost to the *OWNER*.

3.03 CONSTRUCTION

A. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

B. Use of explosives: The use of explosives is not permitted unless approved by the *ENGINEER*.

C. Dust control:

1. Use all means necessary to control dust on and near the work if such dust is caused by the *CONTRACTOR'S* operations during performance of the work or if resulting from the conditions in which the *CONTRACTOR* leaves the site.

2. Thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of other work on the site.

D. Excavation:

1. Unauthorized excavation: Unauthorized excavation, including remedial work directed by the *ENGINEER*, shall be at the *CONTRACTOR'S* expense. Under footings, foundation bases, retaining walls, and other structures, fill unauthorized excavation by removing all loosened material and extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering the required top elevation. Lean concrete fill may be used to bring subgrade elevations to proper positions when acceptable to the *ENGINEER*. Under pipes, fill unauthorized excavation by removing all loosened material and providing broken stone material as required to attain a firm and unyielding subgrade and/or foundation and to attain required grade elevations to the approval of the *ENGINEER*.

2. Additional excavation:

a. When excavation has reached required subgrade elevations, notify the *ENGINEER* who will make an inspection of conditions.

b. If unsuitable bearing materials are encountered at the required subgrade elevations, carry excavations deeper and replace the excavated material as directed by the *ENGINEER*.

c. Removal of unsuitable material and its replacement as directed will be paid on the basis of contract conditions relative to changes in work if payment has not been provided for in the *PROPOSAL*.

3. Stability of excavations:

   a. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space.

   b. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

4. Shoring and bracing:

   a. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.

   b. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.

   c. Maintain shoring and bracing in excavations regardless of time period excavations will be open.

   d. Brace, sheet, and support trench walls in such a manner that they will be safe and that the ground alongside the excavation will not slide or settle, and that all existing improvements of every kind, whether on public or private property, will be fully protected from damage.

   e. In the event of damage to such improvements, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

   f. Arrange bracing, sheeting and shoring so as to not place stress on any portion of the completed work until the general construction thereof has proceeded far enough to provide sufficient strength.

   g. Exercise care in the drawing and removal of sheeting, shoring, bracing and timbering to prevent collapse and caving of the excavation faces being supported.

5. Dewatering:

   a. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.

b. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

c. Convey water removed from excavations and rainwater to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

6. Material storage:

a. Stockpile satisfactory excavated materials where directed until required for use as backfill or fill. Place, grade and shape stockpiles for proper drainage.

b. Only environmentally suitable stockpile sites may be used for the purposes of staging or storing materials, equipment and suitable trench backfill material. Environmentally suitable sites must be level, and devoid of mature stands of natural vegetation. Drainage facilities and features, wetlands, vernal habitats and stream corridors are not environmentally suitable sites. [NJAC 7:22-10.11(l)1]

c. The boundary of the stockpile area shall be clearly marked by hay bales, silt fencing or another appropriate method. Where fill is to be stored in excess of 10 days, a suitable means of protecting excavated material from wind and water erosion shall be employed. Erosion control methods may include one or more of the following: mulching, sprinkling, silt fencing, hay baling and stone covering. [NJAC 7:22-10.11(l)2]

d. Locate and retain soil materials away from edge of excavations.

e. Dispose of excess soil material and waste materials as herein specified. Excavated material unsuitable for backfilling shall be kept separate from other materials excavated, and disposed of. Materials suitable for backfilling shall not be disposed of until completion of filling or backfilling operations.

7. Excavation for structures:

   a. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction and for inspection.

   b. In excavating for footings and foundations, take care not to disturb bottom excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive concrete.

8. Excavation for pavements: Cut surface under pavements to comply with cross-sections, elevations and grades as shown.

9. Excavation for trenches:

   a. Dig trenches to the uniform width required for the particular item to be installed, sufficiently wide to provide ample working room.

      (1) Maximum trench width to a point one foot (1') above the outside top of pipe shall be the pipe inner diameter plus eighteen inches (18") for pipe less than or equal to eighteen inches (18") in inner diameter. For pipe greater than eighteen inches (18") in inner diameter, the maximum initial trench width shall be two (2) times the pipe inner diameter.

      (2) Maximum trench width at ground surface where limited, shall be as shown on Plans.

   b. Excavate trenches to the depth indicated or required. Carry the depth of trenches for piping to establish the indicated flow lines and invert elevations. Beyond the building perimeter, keep bottoms of trenches for which elevations are not given sufficiently below finish grade to avoid freeze-ups.

   c. Trenches for pipes shall not be opened more than the number of linear feet of pipe that can be placed and backfilled in one (1) day.

   d. Grub roots and stumps within six inches (6") of outside surface of pipe bottom and sides to minimum depth of six inches (6") below grade. Backfill trenches with concrete where trench excavations pass within eighteen inches (18") of column or wall footings and

which are carried below the bottom of such footings, or which pass under wall footings. Place concrete to the level of the bottom of adjacent footing.

e. Pipe bedding shall be as shown on Plans.

10. Excavation for detention/retention basins:

a. Excavate basin using a backhoe operating from existing grade. No rubber-tired equipment shall be allowed in the basin. Only low ground pressure tracked vehicles shall be allowed in the basin.

b. All necessary precautions shall be taken to prevent densification of the subgrade material.

11. Cold weather protection: Protect excavation bottoms against freezing when atmospheric temperature is less than thirty-five degrees (35°).

E. Backfill, fill and compaction:

1. General:

a. Place acceptable material in layers to required subgrade elevations.

b. Fills: Use material obtained from on-site excavation, except use borrow material when specified and/or shown on the Plans or as directed by the *ENGINEER*.

c. Backfilling: Use material obtained from on-site excavation, except use select backfill when specified and/or shown where indicated on Plans or as directed by the *ENGINEER*. Backfill above top of pipe, with material free from stones, rock fragments, dirt clogs or frozen material greater than two inches (2") in largest dimension.

d. Do not provide borrow material until all acceptable excavated materials on the site have been utilized in the work.

e. Place the various types of materials in the areas as designated on the Plans, or as directed by the *ENGINEER*.

2. Backfill excavation as promptly as work permits, but not until completion of the following:

a. Acceptance by *ENGINEER* of construction below finish grade including, where applicable, damp proofing, waterproofing and perimeter insulation.

b. Inspection, testing, approval and recording locations of underground utilities.

c. Removal of concrete formwork.

d. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.

e. Removal of trash and debris.

f. Permanent or temporary horizontal bracing is in place on horizontally supported walls.

3. Backfilling prior to approvals:

a. Should any of the work be so enclosed or covered up before it has been approved, uncover all such work at no additional cost to the *OWNER*.

b. After the work has been completely tested, inspected and approved, make all repairs and replacements necessary to restore the work to the condition in which it was found at the time of uncovering, all at no additional cost to the *OWNER*.

4. Ground surface preparation prior to filling:

a. Remove vegetation, debris, unsatisfactory soil materials, obstructions and deleterious materials from existing ground surface to a depth of not less than four inches (4") and not more than six inches (6") prior to placement of fills. Plow, strip or break-up sloped surfaces steeper than one (1) vertical to four (4) horizontal to a depth of not less than six inches (6") so that fill material will bond with existing surface.

b. When existing ground surface has a density less than that specified under “Compaction,” for the particular area classification, break up the ground surface, pulverize, moisture-condition to the optimum moisture content, and compact to required depth and percentage of maximum density.

5. Placement and compaction:

   a. Place backfill materials in layers not more than six inches (6") in loose depth.

   b. Control soil compaction during construction providing minimum percentage of density specified for each area classification listed below.

   c. Building and pavement areas are defined, for the purpose of this Paragraph, as extending a minimum of five feet (5') beyond the building and/or pavement.

   d. Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well-defined moisture density relationship determined in accordance with ASTM D-1557; and not less than the following percentages of relative density determined in accordance with ASTM D-4254, for soils which will not exhibit a well-defined moisture-density relationship.

      (1) Structures: Compact top twelve inches (12") of subgrade and each layer of backfill or fill material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.
      (2) Building Areas: Compact top twelve inches (12") of subgrade and each layer of backfill or fill material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.
      (3) Lawn or Unpaved Areas: Compact top six inches (6") of subgrade and each layer of backfill or fill material at 90 percent (90%) maximum dry density.
      (4) Walkways: Compact top six inches (6") of subgrade and each layer of backfill or fill material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.
      (5) Pavement Areas: Compact top twelve inches (12") of subgrade and each layer of backfill or fill material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.
      (6) Subbase Materials: Compact each layer of subbase material to 95 percent (95%) of maximum dry density.
      (7) Trench Stabilization Materials: Compact each layer of material to 95 percent (95%) of maximum dry density.

e. Moisture control:

(1) Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

(2) Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

(3) Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by disking, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

f. Puddling or jetting will not be permitted.

g. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice, or other unsuitable materials.

h. Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.

i. Compact backfill to height of two feet (2') above top of pipe using approved flat-faced mechanical tampers. Compact backfill more than two feet (2') above top of pipe using approved vibratory mechanical tampers.

F. Grading:

1. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

2. Grading outside building lines:

Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes, and as follows:

a. Lawn or unpaved areas: Finish area to receive topsoil to within not more than 0.10 feet above or below the required subgrade elevations.

b. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 feet above or below the required subgrade elevation.

c. Pavement: Shape surface of areas under pavement line, grade and cross-section, with finish surface not more than ½ inch above or below the required subgrade elevation.

3. Grading surface of materials under building slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of ½ inch when tested with a ten-foot (10') straightedge.

4. Compaction: After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

5. Treatment after grading:

a. After grading is completed and the *ENGINEER* has finished his inspection, permit no further excavating, filling or grading except with the approval of and inspection of the *ENGINEER*.

b. Use all means necessary to prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

6. Subgrade preparation: All subgrade preparation shall be performed in accordance with the applicable Sections of the Standard Specifications except as may be modified by this Specification Section.

G. Controlled Low Strength Material:

1. Combining other backfill materials in the same trench as CLSM shall not be permitted.

2. Mixing and placement of CLSM shall begin only when the ambient temperature is at least 30°F. During placement, the CLSM mixture shall have a temperature of at least 41°F and shall not be placed on frozen ground.

3. The CLSM mixture shall be discharged directly from the truck into the trench to be filled with care taken to prevent the pipe from becoming displaced.

4. Place CLSM according to the limitations specified in *Section 03 30 00, Concrete*. Place CLSM across the area to minimize rehandling. Protect CLSM as specified in *Section 03 30 00, Concrete*.

5. CLSM shall not be used to replace pavement, base courses or drainage layers that form the structure of the roadway.

H. Quarry blend stone subbase course:

1. General:

a. Subbase Course consists of placing quarry blend stone subbase material in layers of specified thickness over subgrade surface to support pavements and structures, as shown on Plans.

b. Provide subbase course in accordance with Section 301 of the Standard Specifications, except as otherwise modified by this Specification Section.

2. Grade control: During construction, maintain lines and grades including crown and cross-slope of subbase course.

3. Placing:

a. Prior to placing subbase course under bituminous concrete or other non-Portland cement concrete surfaces, apply an herbicide to the subgrade material. The type of herbicide and the method of application shall be approved by the *ENGINEER* prior to beginning this work.

b. Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicate cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.

c. When a compacted subbase course is shown to be eight inches (8") or less, place material in a single layer. When shown to be more than eight inches (8") thick, place material in equal layers, except no single layer shall be more than eight inches (8") in thickness when compacted.

d. Spread, shape and compact all subbase course material deposited on the subgrade during the same day.

I. Broken (crushed) stone subbase course:

1. General: Broken Stone Subbase Course consists of placing material in layers of specified thickness, over subgrade surface to support structures as shown on the Plans.

2. Placing: Place Broken Stone Subbase Course as specified for Quarry Blend Stone Subbase Course.

3.04 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Transport acceptable excess excavated material to designated soil storage areas on the Owner's property. Stockpile soil or spread as directed by *ENGINEER*.

B. Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off the Owner's property.

C. Excavated material unsuitable for backfill as set forth in N.J.A.C. 7:14-2.13, considered to be solid waste pursuant to N.J.A.C. 7:26-1.6 and meeting the requirements for I.D.27 shall be removed from the construction site and disposed of at a sanitary landfill approved and licensed by NJDEP. [NJAC 7:22-10.11(e)1]

3.05 FIELD QUALITY CONTROL

A. Quality control testing during construction: Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.

1. Perform field density tests in accordance with ASTM D-1556 (Sand Cone Method), or ASTM D-2922 (Nuclear Method).

2. Footing subgrades: For each strata of soil on which footings will be placed, conduct at least one (1) test to verify required design bearing capacities. Test shall be performed by a qualified soils Engineer licensed in the State of New Jersey. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to *ENGINEER*.

3. Number of field density tests shall be provided in accordance with the following minimum test schedule:

a. Minimum Compaction Testing Frequency

Location	Frequency
Buildings and structures	1 test group[a] for every 5,000 square feet
Road	1 test group[a] for every 300 linear feet of road
Parking Lots	1 test group[a] for every 10,000 square feet
Unpaved areas	1 test group[a] for every 20,000 square feet
Pipe Trench	1 test group for every 300 linear feet

[a] one test group consists of compaction tests on each layer of fill and backfill material.

b. One test whenever there is a definite suspicion of a change in the quality of moisture control or effectiveness of compaction.

4. Take all tests at locations as directed by the *ENGINEER*.

B. If in the opinion of *ENGINEER* based on testing service reports, subgrade or fills that have been placed are below specified density, provide additional compaction and testing as directed by the *ENGINEER* at no expense to the *OWNER*. This shall include compaction and testing at areas initially tested and at other locations as directed.

C. Additional requirements for testing are described in the Specification Section entitled, "Testing Laboratory Services."

3.06 PROTECTION

A. Protection of graded areas:

1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

2. Repair and re-establish grades in settled, eroded and rutted areas to specified tolerances.

B. Reconditioning compacted areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

PART 4 - PAYMENT

4.01 EXCAVATION, FILLING AND GRADING

A. No separate measurement or payment shall be made for this item. All work including earthwork for piping and structures shall be paid for under the prices submitted for the various related items of work listed in the *PROPOSAL*. The costs for the work of this section shall include line-cutting existing pavements whenever encountered; stripping and storage of topsoil; excavation of all materials encountered of whatever nature; dewatering; shoring and bracing; stripping of surfaces; placing and compacting excess materials in fill areas; disposal of unsuitable or surplus materials; trench excavation; backfilling; site grading including shaping and dressing of slopes and other surfaces; compaction; subgrade and subbase preparation; testing; and all other incidental or necessary work.

4.02 BROKEN STONE TRENCH STABILIZATION

A. Measurement: The quantity for which payment will be made will be for the length of material actually provided, measured in place, as specified and shown on the Plans, or as directed by the *ENGINEER*.

B. Payment: Will be made for the quantity as above determined, measured in linear feet, at the price per linear foot bid for the various items of *TRENCH STABILIZATION* in the *PROPOSAL*, which prices shall include excavation and disposal of unsuitable or excess material, subgrade preparation, providing trench stabilization material, grading, compacting and all other incidental or necessary work.

****END OF SECTION****

SECTION 33 01 32
(02733)

TESTING SANITARY SEWER SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Testing gravity sanitary sewer for exfiltration and infiltration.

2. Pressure testing force mains.

3. Lamping of all gravity sanitary sewer lines.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 45 29: Testing Laboratory Services*

PART 2 - PRODUCTS

2.01 MATERIALS

A. Furnish pumps, valves, plugs, taps, pressure gauges, air compressor, and all other equipment required for testing of piping system.

2.02 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER.*

C. Do not proceed until unsatisfactory conditions are corrected.

3.02 METHOD OF TESTING - EXFILTRATION TEST FOR GRAVITY SANITARY SEWER LINES

A. General Requirements:

1. Perform all tests in presence of the *ENGINEER.*

2. Conduct exfiltration test when all utilities (including gas, water, telephone, sewers), manholes, laterals have been installed.

3. Establish test sections between consecutive manholes as directed by the *ENGINEER.*

4. All requirements of this specification shall be met prior to acceptance of sewer facilities by the *ENGINEER.*

B. Procedure for exfiltration test (low pressure air test, 3.5 lbs.):

1. Plug test section of sewer line at each end. Tap one (1) plug and provide air inlet connection for filling pipe from air compressor.

2. Cap or plug all service laterals, stubs and fittings connecting to sewer test section, brace same against internal pressure to prevent air leakage by slippage and blowouts.

3. Connect air hose to tapped plug selected for air inlet. Connect other end of air hose to portable air control equipment used for controlling air entry rate to sewer test section and monitoring air pressure in pipeline.

4. Air control equipment shall include shut-off valve, pressure regulating valve, pressure reduction valve and monitoring pressure gauge having pressure range from 0 to 5 psi and an accuracy of +0.04 psi.

5. Connect another air hose between air compressor (or other source of compressed air) and air control equipment. This completes test equipment set up.

6. Supply air to test section slowly, filling pipeline until constant pressure of 3.5 psig is maintained. Air pressure must be regulated to prevent pressure inside the pipe from exceeding 5.0 psig.

7. When constant pressure of 3.5 psig is reached, throttle air supply to maintain internal pressure above 3.0 psig for at least five (5) minutes, permitting temperature of entering air to equalize with temperature of pipe wall. During this stabilization period, check all capped and plugged fittings with a soap solution to detect leakage at connections.

8. If leakage is detected, release pressure in line and tighten all leaky caps and plugs. Start test operation again by supplying air. When necessary to bleed off air to tighten or repair faulty connection, a new five-minute interval shall be allowed after pipeline has been refilled.

9. After stabilization period, adjust air pressure to 3.5 psig and shut off or disconnect air supply. Observe gauge until air pressure reaches 3.0 psig. At 3.0 psig commence timing with a stop watch which is allowed to run until the line pressure drops to 2.5 psig. The time required, as shown on the stop watch, for a pressure loss of 0.5 psig is used to compute air loss.

10. If the time, in minutes and seconds, for the air pressure to drop from 3.0 to 2.5 psig is GREATER than that shown in Table 1 for designated pipe size, the section undergoing test shall have passed.

11. If the time, in minutes and seconds, for 0.5 psig drop is LESS than shown in Table 1 for designated pipe size, the section of pipe shall have failed the test. Necessary repairs shall be made by the contractor and the line retested.

*TABLE 1

TIME REQUIREMENTS FOR AIR TESTING
FOR SEWER LINE OF UNIFORM PIPE SIZE

Pipe Size (In Inches)	Time Minutes	Seconds
**4	2	32
**6	3	50
**8	5	6
10	6	22
12	7	39
14	8	56
15	9	35
16	10	12
18	11	34
20	12	45
21	13	0

* Multi Pipe Sizes: When sewer line undergoing test is 8 inch or larger diameter pipe and includes different sized laterals, the figure in Table 1 for uniform sewer main sizes WILL NOT give reliable or accurate criteria for the test. Where multiple pipe sizes are to undergo air testing, the *ENGINEER* will compute "average" size in inches which is multiplied by 38.2 seconds. The results give minimum time in seconds acceptable for pressure drop of 0.5 psig for "averaged" diameter pipe.

** For 8 inch and smaller pipe only, if during the five (5) minute stabilization period, pressure drops less than 0.5 psig after initial pressurization and air is NOT added, pipe section undergoing test shall have passed.

C. Procedure for air pressure correction due to groundwater:

1. Air pressure correction is required when prevailing groundwater is above sewer line being tested. Under this condition, air test pressure shall be increased 0.433 psi for each foot groundwater level is above invert of pipe.

2. Establish height of groundwater (in feet) above pipe invert:

a. DURING SEWER AND MANHOLE CONSTRUCTION, install one-half inch diameter pipe nipple (threaded one or both ends, approximately ten (10") inches long) through manhole wall directly on top of one of sewer pipes entering manhole, with threaded end of nipple extending inside the manhole.

b. Seal pipe nipple with a threaded one-half inch cap.

c. Immediately before air testing, determine groundwater level by removing the threaded cap from nipple, blowing air through the pipe nipple to remove any obstructions, and connecting clear plastic tube to pipe nipple.

d. Hold plastic tube vertically permitting water to rise to groundwater level.

e. After water level has stabilized in plastic tube, measure vertical height of water, in feet, above invert of sewer pipe.

3. Determine air pressure correction, which is added to 3.0 psig normal starting pressure of test, by dividing the vertical height in feet by 2.31. The result gives air pressure correction in pounds per square inch to be added:

Example: If the vertical height of water from the sewer invert to the top of the water column measures 11.55 feet, the additional air pressure required would be

$$\frac{(11.55)}{2.31} = 5 \text{ psig}$$

Starting pressure of the test would be 3.0 plus 5 or 8.0 psig, and the one-half pound drop becomes 7.5 psig. There is no change in the allowable drop (0.5 psig) or in the time requirements established for the basic air test.

3.03 METHODS OF TESTING - INFILTRATION TEST FOR GRAVITY SANITARY SEWER LINES

A. General:

1. All work relating to infiltration testing shall be performed in the presence of the *ENGINEER*. The weir will be provided by the *ENGINEER*.

2. All requirements of this specification shall be met prior to acceptance of sewer facilities by the *ENGINEER*.

B. Procedure for infiltration test:

1. Examine the sanitary sewer system for infiltration at the downstream end of the system after construction has been completed.

2. In the event that there is infiltration and water is flowing at the downstream end of the system, then the source and volume of flow shall be determined by an infiltration test.

3. The test shall consist of isolating the source of infiltration by plugging the first upstream manhole and observing to see if the flow stops. This procedure is repeated one manhole at a time until each source has been isolated.

4. When the infiltration has been isolated to a section or area, the volume of flow shall be determined using a 90 degree V-notch weir inserted into the pipe.

5. The actual infiltration rate will be determined by the *ENGINEER* based on the weir measurements. This rate will be compared with the allowable infiltration rate of 50 gallons/inch diameter/mile of pipe/per day (24 hours).

6. If the allowable infiltration rate is greater than the actual infiltration rate, the infiltration test passes. If the actual infiltration is greater than the allowable infiltration, the infiltration test fails.

7. In the event the infiltration test fails, the section of the pipe involved shall be repaired as necessary and the test repeated.

3.04 METHOD OF TESTING - LAMPING OF GRAVITY SANITARY SEWER LINES

A. General:

1. Lamping shall be performed on all gravity sanitary sewer lines.

2. Lamping will be performed by the *ENGINEER*. The contractor shall provide all necessary labor to assist the *ENGINEER* during the lamping inspection.

B. Procedure for lamping:

1. Lamping consists of visually examining the inside of the pipe between two consecutive manholes using a light and mirror.

2. The light is shown from one manhole towards the other manhole.

3. A mirror is held at the invert of pipe and adjusted so that light and barrel of pipe can be seen.

4. The barrel of the pipe shall have no vertical deflection and at least seventy-five (75%) percent of the barrel shall be visible in the horizontal direction.

5. In the event that lamping shows the pipe not laid to line and grade within the acceptance limits specified above, then it shall be repaired and relamped as necessary until the lamping complies with the acceptance limits.

3.05 METHODS OF TESTING – PRESSURE TESTING OF FORCE MAINS

A. General requirements:

1. Perform all tests in presence of the *ENGINEER*.

2. Establish test sections between valves, or as directed by the *ENGINEER*.

3. All requirements of this specification shall be met prior to acceptance of force main by the *ENGINEER*.

B. Procedure for exfiltration test:

1. Expel air from pipe through blow-offs, or taps required for release of air from high points. Taps for release of air and blow-offs for filling pipe and releasing air shall be provided by the Contractor.

2. Fill each pipe section slowly with water, and subject pipe to hydrostatic pressure of 150 psi for one (1) hour.

3. When test pressure is reached, measure amount of make-up water required to maintain this pressure during the one (1) hour test period.

4. Allowable leakage:

a. No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{(S)(D)(P^{1/2})}{133{,}200}$$

where L = Allowable leakage, in gallons per hour.

S = Length of pipe tested, in feet

D = Nominal diameter of pipe, in inches

P = Average test pressure in P.S.I.G.

b. This formula is based upon an allowable leakage of 11.65 gallons per day, per inch of diameter, per mile of pipe at a test pressure of 150 psi.

c. Allowable leakage at various diameters is shown below:

Allowable Leakage Per 1000 ft. of Pipeline - gph

Avg. Test Pressure (psi)	Nominal Pipe Diameter - inches					
	2	3	4	6	8	10
150	0.19	0.28	0.37	0.55	0.74	0.92

Allowable Leakage Per 1000 ft. of Pipeline - gph

Avg. Test Pressure (psi)	Nominal Pipe Diameter - inches					
	12	14	16	18	20	24
150	1.10	1.29	1.47	1.66	1.84	2.21

Allowable Leakage Per 1000 ft. of Pipeline - gph

Avg. Test Pressure (psi)	Nominal Pipe Diameter - inches					
	30	36	42	48	54	
150	2.76	3.31	3.86	4.41	4.97	

d. If the pipeline under test contains sections of various diameters, the allowable leakage will be the sum of the computed leakage for each size.

C. Acceptance of installation:

1. Acceptance shall be determined on the basis of allowable leakage. If any test of pipe laid, discloses leakage greater than that specified above, the Contractor shall, at his own expense, locate and make repairs as necessary until the leakage is within the specified allowance.

2. All visible leaks are to be repaired regardless of the amount of leakage.

PART 4 - PAYMENT

4.01 TESTING SANITARY SEWER SYSTEMS

A. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.

B. Include all costs for the *TESTING SANITARY SEWER SYSTEMS* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

****END OF SECTION****

SECTION 33 01 36
(02766.7)

SEALING OF SANITARY SEWER LATERAL CONNECTIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Design, furnish and install a cured-in-place (CIP), resin impregnated sleeve within the lateral pipe and the main at the junction between the lateral and sewer main (saddle liner). The saddle liner shall seamlessly extend into the main pipe and extend around the circumference of the sewer main creating a watertight tee or wye shaped sleeve.

2. Installation of a lateral sleeve (junction liner) from the termination of the saddle liner, if and where directed.

3. CCTV inspection of sanitary main and laterals immediately before and after installation of insert.

4. Cleaning of the sewer lateral and removal of obstructions that would prevent insertion of the service lateral seal. Sewer mains shall also be cleaned as necessary to permit proper installation of the insert.

5. Flow diversion as required.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 01 74 00: Cleaning and Restorations*

1.02 SYSTEM DESCRIPTION

A. Design requirements:

1. Service lateral liner (saddle and junction liners) shall be designed in accordance with ASTM F1216, ASTM D5813 Sections 6, 8 and the following requirements:

a. Existing pipe condition: Fully deteriorated terra cotta or asbestos cement pipe.

b. Ground water: 5' below grade.

c. Loading: H-20

d. Nominal lateral diameter: 4" or 6"

e. Depth: 8' - 12'

f. Factor of Safety: 2.5

g. Allowable Deflection: Manufacturers Standard or 5%, whichever is less.

h. Main line diameter: 8"

2. Service lateral liners shall be designed to withstand all internal and external loads taking into account internal pressure and external soil pressures, loads, paving, full traffic (H-20) loads and have sufficient strength to bridge missing pipe segments and flexibility to fit irregular or damaged pipe sections and fittings.

3. All calculations shall be submitted to the *ENGINEER*, in duplicate, for his information and be signed and sealed by a Professional Engineer licensed in the State of New Jersey.

B. Contractor shall be fully responsible for the design of the service lateral liner's and shall save and hold harmless the *OWNER* and *ENGINEER* from any and all costs or damages directly or indirectly related to the structural design of the service lateral seal insert.

C. Prior to design and ordering of the liner, verify the internal dimensions of the existing sewer mains and laterals to insure that the lining utilized will be of appropriate dimension.

D. A video of the existing sewer main is provided as part of the specifications. The Contractor shall review the video noting the condition of the existing main and make allowances necessary for any dips, offsets or other defects that would affect his work.

1.03 SUBMITTALS

A. Comply with pertinent provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Product data:

1. Materials list of items proposed to be provided under this Section.

2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

3. Manufacturer's recommended installation procedures will become the basis for accepting or rejecting actual installation procedures used on the Work.

C. Design calculations:

1. Submit design calculations signed and sealed by a New Jersey Licensed Professional Engineer.

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Qualifications of manufacturer: Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

2. Contractor qualifications: Installing Contractor shall be licensed by the lining system manufacturer and shall be thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

B. Regulatory requirements:

1. Perform operations in strict accordance with all OSHA, NJDEP, and *OWNER* safety requirements as well as those of the lining system manufacturer.

2. Debris removed from the existing pipeline, as well as construction debris, shall be disposed of in accordance with NJDEP requirements. Proof of proper disposal shall be furnished to *OWNER* prior to final payment.

1.05 SCHEDULING

A. Submit in accordance with *Section 01 32 16, Construction Schedules*.

B. Schedule work subject to the approval of the *OWNER* and the local police department.

1.06 WARRANTY

A. During the two (2) year Maintenance Bond period the *CONTRACTOR* shall, repair or replace any defects affecting the integrity, strength or functionality of the service lateral seal at no additional cost to the *OWNER*. The *ENGINEER* shall make the final determination as to the acceptability of the repair work.

B. The *CONTRACTOR* shall be responsible for all costs of any repair/replacement work required during the entire warranty period. The *OWNER* shall not incur any additional costs as a result of warranted material/inspection failure.

PART 2 - PRODUCTS

2.01 GENERAL

A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.

B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

C. Manufacturers/Products (Saddle Liner and Junction Liner):

1. Easy Liner LLC
   1069 Kingsvill Road
   York, PA 17403
   Tel: (888) 639-7717

2. Or equivalent.

3. Saddle liner and junction liner refer to products and installation procedures provided by Easy Liner LLC. This terminology is used throughout the specification to clarify the intent of this contract; the sealing of the lateral/main junction and the circumference of the main pipe at the lateral connection and the lining of the lateral itself, all of which are to be performed from inside of the sewer main and accessed from a manhole.

2.02 MATERIALS

A. General:

1. All materials shall be compatible with the materials specified in *Section 33 01 35, Cured-In-Place Pipe Lining*.

2. The method involves the impregnation of an absorbent carrier material; the attachment of the material to an inflatable former; the insertion of the former into the pipe; the remote identification and location of the lateral; the inflation of the former; and the curing of the resonated carrier leaving behind a T shaped internal sleeve, consisting of a flange section in the main and a section up the lateral or sleeve bonded to the lateral pipe.

2. Reference specifications:

   a. Tensile Strength: ASTM-D638
   b. Flexural Strength: ASTM D-790
   c. Flexural Modulus: ASTM D-790
   d. Chemical Resistance: ASTM D 543

3. Industry specifications:

   a. ASTM F-1216 – Standard Practice for rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin Impregnated Tube.

4. The finished seal shall meet or exceed the physical strengths specified below.

Cured Liner	Standard	Minimum Results
Flexural Strength	ASTM-D-790	4,500 psi
Flexural Modulus of Elasticity	ASTM-D-790	250,000 psi

B. Liner:

1. The carrier material shall be of fibrous absorbent composition having the following properties:

   a. Allow the migration of resin from its internal structure by compressing to a thickness of at least 50% (saddle liner) and 90% (junction liner) of its uncompressed thickness under a pressure of 1 psi.

   b. The material shall consist of non-degradable fibers such as polyester or polypropylene or corrosion resistant fiberglass.

   c. The material shall have a coated surface in the lateral portion to ensure that on curing a smooth surface, free from blemishes, pinholes or loose non-wetted fibers.

   d. Where fiberglass is used a surface veil, a layer of felt must be used to act as barrier to prevent osmosis or wicking of the strands.

C. Resin:

1. The resin shall be a thermosetting resin cured by either heat or chemically via the use of accelerators, or any other safe energy source, which does not involve the use of electric current within the main sewer.

2. The resin shall provide sufficient working time above ground to enable impregnation of the fabric, but shall cure to sufficient hardness to carry overburden loads within a maximum of two (2) hours from time of insertion into the pipe.

3. The resin used shall be resistant to most chemicals found within a sanitary sewer system.

4. The resin shall be resistant to the chemicals likely to be within the pipe and at a minimum must be resistant to the chemicals below.

5. Chemical resistant testing shall be conducted in accordance with ASTM D 543. Exposure should be for a minimum of one (1) month at 73.4F. During this period the CIPP test specimen should lose no more than 20% of its initial flexural strength and flexural modulus when tested in accordance with Section 8 of this practice.

Chemical Solution	Concentration
Tap Water (ph 6-9)	100%
Nitric Acid	5%
Phosphoric Acid	10%
Sulfuric Acid	10%
Gasoline	100%

D. Characteristics of the Saddle Liner:

1.	Length in Main Sewer:	12"
2.	Length in Lateral Pipe	12"
3.	Acceptable Angle of Lateral:	45 or 90 degree
4.	Time for Cure at 60 degrees F:	2 hours
5.	Access Requirements:	From manhole on the main line
6.	Wrinkling Allowance:	15% of diameter or 1 inch, whichever is greater.
7.	Thickness:	Designed to suit. From 2mm-6mm

E. Characteristics of the Junction Liner:

1.	Starting Point:	End of saddle liner
2.	Length in Lateral Pipe:	Maximum 15 feet
3.	Acceptable Angle of Lateral:	45 or 90 degrees
4.	Time for Cure at 60°F:	2 hours
5.	Access Requirement:	From manhole on the main line only
6.	Thickness:	Designed to suit. From 2mm – 6mm
7.	Wrinkle Allowance:	>10% of diameter or ½"

2.03 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be as recommended by the manufacturer and approved by the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to beginning work the lateral connection to the main shall be inspected by CCTV (color) to determine the location of conditions, which may prevent proper installation of the liner and to locate service laterals.

B. A digital recording (DVD) of the inspection together with a log shall be provided to the *ENGINEER*.

C. All conditions, which may prevent installation of the liner, shall be noted so that they may be corrected before installation begins.

D. Obtain all permits as necessary for the completion of the work.

3.02 PREPARATION

A. Cleaning:

1. Remove from the sewer laterals and the main; all internal debris, foreign objects, roots and materials of any nature, which would render the interior pipe surface unsuitable to receive the resin impregnated seal prior to insertion.

2. Cleaning shall be accomplished by flushing and jetting of the lines to remove any accumulation of solids, grease, debris or roots from within the lateral. Cutting of roots shall be performed if required.

B. Line Preparation:

1. Prior to lining, all protruding parts of the lateral shall be removed flush to the inside wall of the pipe. Deposits on the pipe wall in the main and lateral pipe shall be removed. The removal shall extend a minimum of ten (10') feet into the lateral from the main.

2. Additional precautions shall be taken when applying the sleeve to a main pipe lined with a CIPP liner with a plastic coating or a PVC liner. The coating or interior of the main liner shall be lightly scarified, scraping off the coating in the main pipe in the vicinity of the lateral saddle repair.

3. Where the main pipe has been previously lined, the liner shall be trimmed around the lateral opening such that the main liner is flush with the lateral opening.

4. Active filtration shall be stopped in advance of lining by grouting.

3.03 INSTALLATION

A. The Contractor shall provide 48-hour notice to the property owner of the lateral being reconstructed, that the lateral will be plugged and the flow stopped, for the period of reconstruction work.

B. Installation of the service lateral liners shall be from the main into the lateral. Excavation for liner insertion shall not be permitted.

C. The main line flow shall be by-passed. The pumping system shall be sufficiently sized to handle all flow conditions. The up stream manhole shall be monitored at all times and an emergency deflate system will be incorporated so that the plugs may be removed at any time without requiring confined space entry.

D. Clean and CCTV inspect the lateral line prior to lining and determine the overall structural condition of the line. All roots and debris shall be removed prior to lining. All laterals shall be televised a minimum of ten (10') feet.

E. Saddle Liner:

1. The polyester fabric is impregnated with an ambient cure resin. The fabric is made into a T shape, the top of the T representing the portion of the main line and the leg of the T representing the lateral portion. The main portion is a flat sheet. The lateral portion may either be a tube, conical tube or a flat sheet depending on application. The flat portion is wrapped around the main portion of a T shaped rubber packer. The lateral portion is wrapped and secured around the lateral portion of the packer. A robot is attached to the packer and the resulting assembly is dragged into position. The lateral cutter / robot is used to rotate the assembly to ensure alignment with the lateral. The main and lateral portion of the packers, are inflated separately to position the lateral and main portion appropriately. Both sections of the packer are inflated, placing the impregnated sleeve in

contact with the pipe walls. The assembly is left to cure for a minimum of 2 hours depending on temperature and resin mix selection. On curing, the packer is deflated leaving behind a watertight sleeve at the junction box.

F. Junction Liner:

1. An assembly is made of two (2) tubes. The clear outer tube and the inner tube made out of a 3mm thick woven absorbent fabric. Resin is poured into the center of the liner tube and a roller is applied to ensure that the resin penetrates into the substrate of the tube uniformly.

2. The combination of tubes, are guided into the lateral run and travel until they reach the end of the length of the outer tube.

3. On completion, the outer tube is retracted leaving behind a hard structural pipe within a pipe.

3.04 FIELD QUALITY CONTROL

A. Inspection:

1. After the work is completed, reinspect the lateral connection by closed circuit color television inspection and provide the *ENGINEER* with a digital recording (DVD) of this inspection for the *OWNER'S* records.

2. Any repaired areas will be re-televised and recorded.

3.05 RESTORATIONS

A. Upon completion of the installation, clean and restore the site in conformance with *Section 01 74 00, Cleaning and Restorations*.

PART 4 - PAYMENT

4.01 SEALING OF SANITARY SEWER LATERAL CONNECTIONS

A. Quantity: The quantity for which payment will be made will be for the actual number or lengths of service lateral liners installed and CCTV inspections performed, as specified.

B. Payment: Payment will be made for the quantity as above determined, at the unit price bid in the Proposal for the various items of *SEALING AND REPAIR OF SANAITARY SEWER LATERAL CONNECTIONS*, which prices shall include all materials, equipment and supplies necessary for the complete installation of the service lateral liners, CCTV inspections and re-inspections, DVD's, cleaning, removal and disposal of debris, flow diversion, bonds and insurance, sealing, and final cleaning and restorations and all other items as required, shown or specified.

****END OF SECTION****

SECTION 33 05 10
(02650)
CONCRETE ENCASEMENT AND CRADLES

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:

1. Provide concrete encasement where shown or as directed by the *ENGINEER*.

2. Cradles for pipe support where shown or as directed by *ENGINEER*.

B. Related Work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 31 23 00: Excavating, Filling and Grading*

3. *Section 33 31 12: Gravity Sanitary Sewer Piping*

C. References:

1. New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, 2007, and all amendments thereto (Standard Specifications):

a. Subsection 903.03: Concrete

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

B. Certificates: All deliveries of concrete shall be accompanied by delivery slips, copies of which shall be provided to the *ENGINEER* by Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Concrete:

1. Use Class B concrete conforming to Subsection 903.03 and Table 903.03.06-1.

2. Use air-entrained concrete.

2.02 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.

C. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Concrete encasement:

1. Provide concrete encasement where shown or directed.

2. Notify the *ENGINEER* when the following conditions are encountered. Subject to the *ENGINEER'S* approval, concrete encasement shall be provided at these locations. All materials, methods and equipment shall be subject to the approval of the *ENGINEER*.

a. At all locations where a proposed sanitary sewer main is located closer than ten feet to a water main (measured horizontally).

b. At all crossings of sanitary sewer lines and water lines where the vertical separation is less than eighteen inches.

c. All other locations where the vertical or horizontal separation between proposed and existing utility pipes is less than twelve inches.

3. Concrete encasement shall conform to the Plan details. When a situation is encountered for which there is no Plan detail, concrete encasement shall conform to the following requirements or as otherwise approved by the *ENGINEER*.

a. Minimum thickness: Six inches.

b. Length: At utility crossings, extend concrete encasement a minimum of ten feet on both sides of the centerline of the crossing. At all other locations extend concrete encasement until the allowable vertical or horizontal separation between utility pipes is achieved.

B. Concrete cradles:

1. Provide concrete cradles for pipe support where shown or as directed by the *ENGINEER*, where less than 18" vertical separation is provided between the outer walls of a sanitary sewer main and any storm sewer pipe crossing above it as approved by the *ENGINEER*.

C. Performance:

1. The method of construction for concrete encasement shall conform to Section 501 of the Standard Specifications except as modified by the Supplemental Requirements below:

2. Earth cuts may be used as forms provided the horizontal and vertical earth surfaces can be shaped to the proper dimensions.

PART 4 - PAYMENT

4.01 CONCRETE ENCASEMENT

A. Quantity: The quantity for which payment will be made will be for the length of concrete encasement placed as specified and shown on Plans, or as directed by the *ENGINEER*.

B. Payment: Payment will be made for the quantity as above determined, measured in linear feet along the encasement centerline at the unit price per linear foot bid in the Proposal for the various items of *CONCRETE ENCASEMENT*, which price shall include excavation, backfill compaction; concrete encasement, and all else necessary or required complete as specified and shown on the drawings.

4.02 CONCRETE CRADLES

A. Quantity: The quantity for which payment will be made will be for the number of concrete cradles placed as specified and shown on Plans, or as directed by the *ENGINEER*.

B. Payment: Will be made for the quantity as above determined, measured in units at the unit price per cradle bid in the Proposal for the item *CONCRETE CRADLES*, which price shall be full payment for providing concrete cradles complete in place.

****END OF SECTION****

SECTION 33 31 12
(02730)
GRAVITY SANITARY SEWER PIPING SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Gravity sanitary sewer pipe and fittings.

2. Underground pipe markers.

3. Connection to existing manholes.

4. Manholes.

5. Wye branches and tees.

6. Sanitary Laterals.

7. Bedding and cover materials.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.

2. *Section 31 23 00: Excavating, Filling and Grading*

3. *Section 33 01 32: Testing Sanitary Sewer Systems*

C. References:

1. American Society for Testing and Materials (ASTM):

a. ASTM C-478: Precast Reinforced Concrete Manhole Sections

b. ASTM C-913: Precast Concrete Water and Wastewater Structures.

c. ASTM C-923: Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals

d. ASTM D-3034: Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.

e. ASTM D-3212: Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals

f. ASTM F-679: PVC Large Diameter Plastic Gravity Sewer Pipe and Fittings.

2. American Association of State Highway and Transportation Officials:

a. M-45: Aggregate for Masonry Mortar.

3. New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, 2007 and all amendments thereto (Standard Specifications).

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.

2. Specifications and other data required that demonstrate compliance with the specified requirements.

C. Shop drawings for manholes showing precise dimensions of the work of this section, and all other data needed to ensure proper and adequate provisions in construction to accommodate the work of this section.

D. Submit NJDOT *Certificate of Compliance* conforming to Subsection 106.07 of the Standard Specifications for all materials and assemblies specified herein.

E. Manufacturer's recommended installation procedures.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.

2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.

3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Comply with provisions of *Section 01 66 00, Storage and Protection*.

B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

D. Storage of materials:

1. Store materials to prevent physical damage.

2. Store pipe and fittings off ground to prevent dirt and debris from entering.

3. Store flexible gasket materials and joint primer or adhesive compounds, in cool dry place. Keep rubber gaskets clean, away from oil, grease, excessive heat, and out of direct rays of sun.

E. Handling of materials:

1. Protect materials during transportation and installation to avoid physical damage.

2. Use extra care in cold weather when flexibility and impact resistance of PVC pipe is reduced.

3. Do not install out-of-round pipe.

4. Unload pipe to prevent abrasion.

5. Do not drag or push pipe when handling or distributing on project site.

1.05 WARRANTY AND WARRANTY REPAIRS

A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.

B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the maintenance period.

PART 2 - PRODUCTS

2.01 GENERAL

A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.

B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 DUCTILE IRON PIPE

A. Ductile iron pipe shall comply with ANSI/AWWA C151/A21.51.

B. Pressure class:

1. Restrained Push-on or Mechanical Joint:

a. 4" through 12"- Pressure Class 350.
b. 14" through 24"- Pressure class 250.
c. 30" through 64"- Pressure Class 150

C. Pipe Fittings:

1. Ductile Iron fittings shall conform to ANSI/AWWA-C110/A21.10 or ANSI/AWWA-C153/A21.53.

D. Coatings and Linings:

1. Exterior coatings:

a. All pipe and fittings to be buried or installed in valve pits shall be coated on the outside with asphaltic material at least 1 mil thick and conforming to the requirements of ANSI/AWWA C110/A21.10, or ANSI/AWWA C153/A21.53.

b. Fittings coated with fusion-bonded epoxy shall be permitted for buried or exposed service.

2. Interior Linings:

a. All ductile iron pipe and fittings for sanitary sewer service shall not be cement mortar lined but shall be lined with “Protecto 401 Ceramic Epoxy™”, 40 mils DFT, or equivalent.

E. Joints for ductile iron pipe and fittings:

1. Joints shall be restrained push-on or mechanical joints using a single elongated gasket to effect the joint seal for non-pressure or gravity applications unless otherwise indicated on Plans.

F. Gaskets:

1. Gaskets shall conform to ANSI/AWWA-C111/A21.11 for mechanical or push-on joints.

2. Gasket lubricants shall be water-soluble and not have deteriorating effects on the pipe or rubber gaskets.

5. Gasket lubricants shall be supplied by the pipe manufacturer.

F. Plugs:

1. Flat plugs for mechanical joints.

2. Restrained plugs for push-on joints.

2.03 MANHOLES

A. Precast concrete manholes shall conform to ASTM C478 and shall have elastomeric seals or flexible boots precast into manhole walls.

B. Ladder rungs:

1. Conforming to ASTM C478, non-metallic.

2. Manhole steps shall be made of polypropylene plastic over 1/2" steel reinforcing. Manhole steps shall be MA Industries Model No. PS2-BG for use in brick or block manholes or PS2-PF-SL for precast concrete manholes.

C. Joint construction shall be in accordance with ASTM C443. Water tightness shall be provided by either an all weather butyl material conforming to ASTM C990 and as approved by the engineer or a rubber gasket conforming to ASTM C443. Gasket for pre-cast manhole sections shall conform to ASTM C443 or AASHTO M198.

D. Coatings and Linings:

1. Manhole exteriors shall be painted with two (2) coats of Sherwin-Williams “Enviro-Green” #1136-89, or equivalent, 2.0 to 2.5 mils DFT/coat, color green.

2. Manhole interior surfaces shall be painted with two (2) coats “Ceramic White” high build epoxy, or equivalent, 2.0 to 2.5 mils DFT/coat, color white.

E. Pipe to Structure Connections:

1. Resilient connectors for pipe to structure seal for pre-cast inlets or manholes shall conform to ASTM C923.

2. Acceptable Manufacturers:

a. A•LOK PRODUCTS INCORPORATED
Tullytown, Pa.19007
Phone: 800-822-2565
215-547-3366
Fax: 215-547-5260

b. NPC, Inc.
Milford, NH 03055
Phone: 800-626-2180
Fax: 603-673-7271

c. Press-Seal Gasket Corp
Fort Wayne, IN
Tel: (260) 436-0521
(800) 348-7325
Fax: (260) 436-1908

d. Or equivalent.

2.04 CASTINGS

A. Castings shall conform to Section 603 of the Standard Specifications and be as shown on the drawings.

B. Acceptable manufacturers:

1. Campbell Foundry Company

2. Bridgestate Foundry Corporation

3. Or equivalent.

2.05 PIPE COUPLINGS

A. Acceptable manufacturers:

1. The Ford Meter Box Company, Inc.

2. Smith-Blair, Inc.

3. JCM Industries, Inc

4. Or equivalent.

B. Sleeve couplings:

1. Couplings for connecting pipe shall be full circle Type 304 stainless steel sleeve couplings with Nitrile gaskets and Type 304 stainless steel bolting. The nuts shall be fluoropolymer coated to prevent galling.

2.06 DEEP-CUT LATERAL RISERS

A. Deep - cut lateral risers shall be manufactured products produced from SDR 35 PVC pipe and SDR 26 fittings and contain slip joints, settlement joints and/or casings of various designs produced by manufacturers regularly engaged in the manufacture of these items.

B. Acceptable products

1. *B & H Riser*
Bates & Harrington, Inc.
Madison Heights, VA.
Tel: 434-929-0783

2. *Deep Burial System*
Plastic Trends, Inc.
Shelby Township, MI.
Tel: 586-781-2700

3. Or equivalent

2.07 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their

respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.

C. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Inspection by Contractor:

1. Check pipe for following information which shall be clearly marked on each pipe section:

   a. Pipe type and SDR number.

   b. Nominal pipe size.

   c. The PVC cell classification, for example 12454-B.

   d. Name or trademark of manufacturer.

   e. The ASTM Specification designation.

2. Check fittings for the following markings:

   a. The ASTM Specification designation.

   b. Manufacturer's name or trademark.

   c. Nominal size.

   d. The material designation PVC, PSM.

3. Inspect pipe for defects prior to placement in trench. The pipe and fittings shall be free from visible cracks, holes, foreign inclusions or other injurious defects.

4. Assure that all materials are to the type specified and are not defective. Unmarked pipe or pipe and materials not meeting Specification requirements shall be removed from the site as directed by the *ENGINEER*.

3.03 EXCAVATION FOR TRENCHES

A. Comply with the requirements of *Section 31 23 00, Excavation, Grading and Filling.*

B. Dig trenches to the uniform width required for the particular item to be installed, sufficiently wide to provide ample working room.

1. Maximum trench width to a point one foot above the outside top of pipe shall be the pipe outer diameter plus sixteen inches.

2. Maximum trench width at ground surface shall be as required for depth of pipe.

C. Excavate trenches to the depth indicated or required. Carry the depth of trenches for piping to establish the indicated flow lines and invert elevations.

D. Trenches for pipes shall not be opened more than the number of linear feet of pipe that can be placed and backfilled in one day.

E. Grub roots and stumps within six inches of outside surface of pipe bottom and sides to minimum depth of six inches below bottom of trench.

F. Install pipe bedding of material approved for initial backfill in accordance with the details shown on the Plans and as specified herein.

3.04 INSTALLATION - PIPE

A. Lay pipe only in presence of *ENGINEER*. *ENGINEER* may order removal and relaying of pipe not so laid.

B. Fine grade trench bottom so that pipe is supported for its full length.

C. Lay pipe to lines and grades shown on Plans. Face socket end of pipe in direction of pipe laying.

D. Do not lay pipe on unsuitable material, in wet trench, or in same trench with another pipe or utility.

E. Lower pipe into trench with ropes, machinery, or other means approved by *ENGINEER*.

F. General Procedure for Joining Pipe:

1. DO NOT USE EXCAVATING EQUIPMENT TO SHOVE PIPE SECTIONS TOGETHER.

2. Hold pipe securely and in proper alignment when joining.

3. Do not disturb previously made joints. Check completed piping to assure joints are intact. Insure placement of backfill over pipe is accomplished without disturbing pipe position.

4. Do not allow earth, stones, or other debris to enter pipe or fittings.

5. Method of installing joint materials and joining piping shall be in strict accordance with manufacturer's printed instructions as approved by the *ENGINEER*.

G. Backfill and compaction:

1. Initial backfill:

a. Initial backfill material shall be as shown on the drawings and as specified in *Section 31 23 00, Excavation, Grading and Filling*.

b. Install initial backfill material shall be as shown on the plan details for the type of pipe being used.

c. Material shall be placed under the pipe haunch to provide adequate side support. Material shall be installed entire trench width and shall be tamped and rodded to insure full contact with pipe at haunch up to the spring line.

d. Little or no tamping of the initial backfill directly over the pipe shall be done.

2. Final backfill: See *Section 31 23 00, Excavation, Grading and Filling.*

3.05 INSTALLATION - MANHOLES

A. General:

1. Construct manholes as shown on the Drawings.

B. Manholes:

1. Manhole walls shall be constructed of pre-cast concrete rings, and all joints shall be completely filled with 1:2 cement-sand mortar. Joints shall be made to produce a smooth and uniform surface. Manhole walls may be constructed of poured concrete, subject to approval of the *ENGINEER*. Installation of rubber gaskets for pre-cast manholes shall be in accordance with the manufacturer's recommendations.

2. The invert channels shall be smooth and semicircular in shape conforming to the inside of the adjacent sewer section. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit. Changes in size and grade of the channels shall be made gradually and evenly. The invert channels shall be formed in the concrete fill above the manhole base, half pipe laid in concrete or by laying full section sewer pipe through the manhole and cutting out the top half after the surrounding concrete has hardened. The floor of the manhole outside the channels shall be smooth and shall slope toward the channels not less than one inch (1") per foot nor more than two inches (2") per foot.

3. Construct manholes to the lines and grades shown on the Drawings.

C. Setting castings:

1. Frames shall be well set in mortar, making a watertight joint, and shall be adjusted so that the rim is approximately 1/4 inch above finished grade. Cover and frame shall have a shop coat of asphaltic pitch and shall have a field coat of similar paint after the frame is set in final position. Steps shall be provided in the manhole as shown on the Drawings.

2. If castings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The casting shall not be disturbed until the mortar or concrete has set.

3. When castings are to be placed upon previously constructed masonry, the bearing surface of masonry shall be brought to line and grade and present an even bearing surface in order that the entire face or back of the casting

will come in contact wit the masonry. Castings shall be set in mortar beds or anchored to the masonry as indicated.

3.06 INSTALLATION - SANITARY LATERALS

A. Sewer laterals in streets and rights-of-way shall be six inches (6").

B. All laterals shall be installed with the same construction procedure as the sewer main.

C. Construct laterals from wye branch to terminal point shown.

D. Where depth of main pipeline warrants, construct riser type laterals from wye branch.

E. Maintain 4feet minimum depth of cover over pipe.

F. Maintain minimum5 feet separation distance between laterals.

G. Install watertight plug, braced to withstand pipeline test pressure thrust, at termination of lateral. Install temporary marker stake extending from end of lateral to 12 inches above finished grade. Paint top 6 inches of stake with fluorescent orange paint.

3.07 CLEANING

A. Comply with requirements of *Section 01 77 00, Cleaning and Restorations*.

B. Remove and dispose of all debris.

3.08 TESTING

A. Deflection testing:

1. For pipe conforming to the requirements of ASTM D3034 Maximum allowable pipe deflection (reduction in vertical inside diameter) shall be 7½%.

2. Deflection tests shall be successfully performed on the complete installation by means of one of the following methods prior to the acceptance of construction.

a. "Go-No-Go" mandrel properly sized.

b. Calibrated television.

B. Lamping:

1. *ENGINEER* will lamp all installed pipe between manholes. Sewer lines shall meet the following standards to pass the lamping inspection.

a. Barrel of pipe shall have no vertical deflection (not to be confused with the deflection test), and at least seventy-five percent of barrel shall be visible in the horizontal direction.

b. Pipe not meeting this Specification shall be relaid and relamped until compliance is achieved at no additional cost to *OWNER*.

C. Air testing:

1. Air testing shall conform to the requirements of *Section 33 01 32, Testing Sanitary Sewer Systems* except as herein modified.

2. The minimum time duration for a low pressure exfiltration pressure drop between two consecutive manholes shall not be less than shown in Table 1.

3. The prescribed drop shall not exceed .5 psi from 3.5 to 3.0 psi in excess of the groundwater pressure above the top of the sewer.

TABLE 1
MINIMUM DURATION FOR AIR TEST PRESSURE DROP

Pipe Size		Time
Inches	mm.	Minutes
4	100	2½
6	150	4
8	200	5
10	225	6½
12	305	7½
15	380	9½

PART 4 - PAYMENT

4.01 DUCTILE IRON PIPE

A. Quantity: The quantity for which payment will be made will be for the length of each size of pipe actually constructed as specified and shown on the Plans or as directed by the *ENGINEER*. Measurement of pipe shall be made from inside face of structure to inside face of structure.

B. Payment: Payment will be made for the quantity as above determined, measured in linear feet at the unit price per linear foot bid in the Proposal for the various items of *DUCTILE IRON PIPE*, which price shall include trenching, backfilling with select backfill, trench stabilization material, dense graded aggregate, base course, and compacting as elsewhere specified; sheathing; shoring; bracing, pumping; pipe; interconnection to existing structures; restoration of disturbed areas, curbs, sidewalks, driveways, mailboxes, and any other appurtenances public or private and all else necessary or required, complete as specified and shown on the Plans.

4.02 SANITARY SEWER LATERALS

A. Quantity: The quantity for which payment will be made will be for the number of laterals actually constructed as specified and shown on the Plans or as directed by the *ENGINEER*.

B. Payment: Payment will be made for the quantity as above determined, measured in units, as the unit price per lateral bid in the Proposal for the various items of *SANITARY SEWER LATERALS (4'-8' Deep) and DEEP CUT SANITARY SEWER LATERALS (Greater than 8' Deep)*, which prices shall include trenching, backfilling [with select backfill] [trench stabilization material] and compacting as elsewhere specified; sheathing; shoring; bracing; dewatering; pumping; pipe; fittings, riser pipe; concrete encasement; cleanouts and all other piping to the right of way; marking stake; interconnection to existing piping; restoration of disturbed areas; curb; sidewalk; driveways, mailboxes, and any other appurtenances public or private and all else necessary or required, complete as specified and shown on the Plans.

4.03 MANHOLE CONSTRUCTION

A. Quantity: The quantity for which payment will be made will be the number of each type manhole constructed as specified and shown on the Drawings. Measurement for depth shall be from lowest invert to finished rim elevation.

B. Payment: Will be made for the quantity as above determined at the unit prices bid for the various items of *MANHOLES* in the Proposal which prices shall include excavation, backfill, sheathing, shoring, bracing, pumping, manhole construction complete, all materials including castings and ladder rungs, plastering, waterproofing, and all else necessary or required, complete as specified and shown on the Plans.

****END OF SECTION****

APPENDIX A

GEOTECHNICAL ENGINEERING REPORT – FOR CULVERT Su-105

GEOTECHNICAL ENGINEERING REPORT

PROPOSED CULVERT REPLACEMENT

LOCUST DRIVE NEAR TULIP STREET
OVER STREAM 3-51 (SU105)
CITY OF SUMMIT, UNION COUNTY, NEW JERSEY

Prepared for:
ALAIMO GROUP
200 High Street
Mt. Holly, New Jersey 08060

Prepared by:
CRAIG TESTING LABORATORIES, INC.
5439 Harding Highway, Post Office Box 427
Mays Landing, New Jersey 08330-2203
CTB No. 120021
CTL No. 228003

March 13, 2012

CRAIG
TESTING LABORATORIES, INC.
5439 Harding Highway • P.O. Box 427 • Mays Landing, NJ 08330-0427 • (609) 625-1700 • FAX (609) 625-1798

March 13, 2012

Alaimo Group
200 High Street
Mt. Holly, New Jersey 08060

Attn: Mr. Erik C. Svensen, P.E.

Re: Geotechnical Engineering Report
Proposed Culvert Replacement
Locust Drive near Tulip Street
Over Stream 3-51 (SU105)
City of Summit, County of Union, New Jersey

CTL No. 228003
CTB No. 120021

This report is submitted as per our agreement. It includes our findings, conclusions and recommendations related to the design and construction of foundations for the proposed culvert.

We understand that the project includes the construction of a new culvert, consisting of a precast concrete three (3) – sided box culvert with wingwalls, to replace an existing culvert located beneath Locust Drive near the intersection with Tulip Street in the City of Summit in Union County, New Jersey.

INVESTIGATIONS

Published Information

A desk study was completed to ascertain mapped soils and geologic formations within the site boundaries. The United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) soil mapping and the Rutgers Engineering Soil Survey of New Jersey (No. 5) for Union County were reviewed for soil properties. The Geologic Bedrock Map of Northern New Jersey (Owens, James P., et. al., 1998, I-2540-B) was reviewed for geologic properties.

Test Borings

Two (2) test borings were completed on February 2, 2012 using split spoon sampling (ASTM D-1586) with mud rotary drilling using an all-terrain rubber track drill rig owned and operated by Craig Test Boring Company, Inc. The test borings were located in the field by Craig Testing Laboratories, Inc. personnel measuring from existing site features based on the locations assigned by the client as shown on the General Plan & Elevation (Drawing B-2, Sheet 14) dated June, 2011. Test borings B-1 and B-2 were performed approximately nine (9) feet to the southwest and six (6) feet to the east of the plan locations,

respectively, due to access limitations at the plan location resulting from existing site features. The test boring elevations were approximated from the provided Grading Plan (Drawing G-1, Sheet 9) dated June, 2011 and prepared by the client. A location plan depicting the test boring locations relative to the proposed culvert and test boring logs depicting the subsurface conditions found at each discrete test boring location are attached to this report.

Geotechnical Laboratory Testing

Laboratory soil tests were performed on select soil samples collected from the completed test borings and test pit to assist with the identification of physical soil parameters and evaluation of engineering properties. The results are presented in the *"Findings"* section of this report.

FINDINGS

Location and Site Features

The proposed culvert will replace an existing culvert on Locust Drive that carries Salt Brook beneath the roadway. The existing culvert is situated beneath Locust Drive approximately two-hundred-fifty (250) feet to the southwest of the intersection with Tulip Street. The roadway over the existing culvert (Locust Drive is a two (2) lane road surfaced with bituminous concrete at an approximate surface elevation of +372.5 (at crown). The Salt Brook passing through the existing culvert flows from southeast to northwest with a streambed elevation ranging from approximately +365 to +366. The areas in the vicinity of the existing culvert include developed residential and commercial properties as well as landscaped areas with trees.

Soils Mapping

Review of the published information revealed the site to be underlain by Boonton-Urban land-Haledon complex and AR and GMM-24 (ig) soils. These soils formed mainly in glacial terminal moraine deposits that are intermingled with manmade fills and recent alluvial deposits. The manmade fills are the result of filling and leveling operations associated with local development. The recent alluvium, where present, is found at or near the surface and composed of stratified non-residual materials deposited by alluvial action. This material is variable in extent and composition but generally consists of silt with appreciable amounts of clay and organic accumulations. The underlying glacial deposits are composed of non-residual, usually unstratified, materials deposited during the Wisconsin glaciation. These materials typically consist of silts, sands, sandy silts, silty sands and silty gravels with silty clays and clays occurring in depressions. Soil colors range from red-brown to brown. These soils tend to have variable surface drainage depending on topography and moderately good internal drainage where semi-granular textures prevail. The depth of the glacial deposits above the underlying bedrock formation is frequently greater than fifty (50) feet.

Geologic Mapping

Available geologic literature indicates the site is located entirely within the Piedmont Physiographic Province of New Jersey completely underlain by Preakness Basalt (Jp) (Lower Jurassic) consisting of dark-greenish-gray to black, very fine-grained, dense, hard basalt composed mostly of intergrown calcic plagioclase and clinopyroxene.

Subsurface

As a result of the information gathered during the desk study and the completed test borings on the site, the following generalized subsurface profile can be derived:

Stratum	Depth Range Below Existing Grade (ft)	Estimated Elevation (ft)	Average Stratum Thickness (ft)	Subgrade Description	Condition
1	0.0 – 4.0	+370.0/+368.0 to +366.0/+364.0	4.0	Silty/Clayey **GRAVEL** with sand (GM/GC) / Sandy **CLAY** with gravel (CL)	Loose to Medium Dense / Medium Stiff
2	4.0 – 23.5	+366.0/+364.0 to +346.5/+344.5	19.5	Silty/Clayey **GRAVEL** with sand (GM/GC)	Medium Dense to Very Dense
3	23.5 – >52.0	+346.5/+344.5 to +318.0/+316.0	> 28.5	Sandy **CLAY** (CL) / Silty **SAND** with gravel (SM)	Very Stiff to Hard / Dense

Maximum Depth of Exploration for B-1 = 52.0 feet (+318.0)
Maximum Depth of Exploration for B-2 = 32.0 feet (+316.0)
Notes:

1) *In light of the high gravel content of the in-place soil, bulk soil samples were obtained between the depths of two (2) feet and four (4) feet adjacent to each test boring location in order to perform laboratory permeability testing.*

Groundwater

Groundwater was encountered in test borings B-1 and B-2 at a depth of ten (10) feet below the existing grades (+360.0/+358.0). The groundwater levels were measured at the time of the explorations and do not consider seasonal fluctuations in the groundwater table. Groundwater levels can be expected to fluctuate throughout the year. If precise groundwater levels are required it is recommended that a monitoring well be installed and monitored for several months.

Geotechnical Laboratory Testing Results

The following tables summarize the geotechnical laboratory test results:

Test Boring Number	Sample No.	Depth (ft)	Particle Size Analysis (ASTM D-422)		Atterberg Limits (ASTM D-4318)			Moisture Content (%) (ASTM D-2216)
			Plate No.*	USCS	Liquid Limit	Plastic Limit	Plasticity Index	
B-1	S-2	2 – 4	1	GM\GC	-	-	-	-
	S-9	25 – 27		CL	27	15	12	22
B-2	S-3	4 – 6		GC	29	18	11	20

**See attached Plate; Unified Soil Classification System (USCS) – Group Symbol*

Test Boring Number	Sample No.	Depth (ft)	Tube Permeameter Test* (N.J.A.C. 7:9A-6.2)	
			Average K_{20} (in/hr)	Soil Permeability Class Rating
B-1	Bulk	2 – 4	0.12	K0
B-2	Bulk	2 – 4	0.0016	K0

**See attached Worksheets*
Note: Samples were obtained in bulk in the field and recompacted in thin-walled metal tubes in laboratory prior to testing

ANALYSIS AND DESIGN CONSIDERATIONS

The following were considered in developing the geotechnical conclusions and design recommendations:

1. Existing and proposed site features are as shown on the Grading Plan (G-1, Sheet 9) and the Culvert Plan (B-2, Sheet 14) dated June, 2011 and prepared by Alaimo Group.
2. Proposed culvert features are as shown on the Culvert Plan (B-2, Sheet 14) dated June, 2011 and prepared by Alaimo Group.

3. The proposed culvert consists of a precast concrete three (3) – sided box culvert with wingwalls which will be located beneath Locust Drive to carry Salt Brook beneath the roadway.
4. A shallow foundation system consisting of continuous spread footings is desired for the support of the proposed box culvert and wingwalls. The bottom of footing elevation is planned to be at established at 362.35.
5. Structural loads for the proposed culvert were not provided for review.
6. Finished grades for the reconstructed roadway section above the culvert and the finished grades adjacent to the culvert and wingwalls will be approximately consistent with the existing grades.
7. The existing culvert and any existing utilities will be demolished and removed in their entirety from within the proposed culvert and wingwall footprint areas.
8. This report does not address environmental issues, scour analysis, slope stability, walk or pavement recommendations.
9. The design and construction shall be completed in accordance with the appropriate codes and New Jersey Department of Transportation (NJDOT) specifications.

COMMENTS AND CONCLUSIONS

Desk Study

The desk study indicates the site is underlain by glacial terminal moraine deposits, that are intermingled with manmade fills and recent alluvial deposits, overlying bedrock of the Preakness Basalt formation, generally consistent with the test boring investigation results. The depth of any in-place fill is difficult to discern without historical grading plans due to similarities in appearance between the near surface soils and the natural soils of the area. The underlying bedrock of the Preakness Basalt formation was not encountered in the completed test borings as the depth to rock likely exceeds the maximum test boring exploration depth.

Proposed Culvert

The provided culvert details indicate that the desired shallow foundation system for the proposed culvert and wingwalls, consisting of continuous spread footings, will be established at a footing bottom elevation of +362.35. Based on the results of the completed test borings, the proposed culvert shallow foundation will bear entirely on the medium dense to very dense in-place soil of Stratum 2. The result of our evaluation and analysis indicates that the in-place soil of Stratum 2 is suitable for the support of a shallow foundation system consisting of continuous spread footings for the proposed culvert and wingwalls.

The construction of the proposed culvert is anticipated to require minor amounts of excavation within the medium dense to very dense in-place gravelly soil of Stratums 2 order to achieve the required elevations. The excavation means and methods selected to excavate to the required depths for the proposed culvert should consider the presence of medium dense to very dense gravelly soil in Stratum 2.

Site Preparation and Earthwork

The in-place subgrade (Stratums 1 and 2) includes gravelly soil with a significant content of fine-grained soil (silt/clay) that is currently in a stable condition. Granular soils with fine-grained soils (silt/clay) are sensitive to mechanical disturbance, if they become saturated, which makes them difficult to compact and stabilize. It is recommended that earthwork operations to excavate and prepare the culvert spread footing subgrade levels be performed during dry and favorable weather conditions and that adequate surface water run-off controls be established.

Stream Water and Groundwater

Stream water diversion and groundwater controls will be required to construct the proposed culvert shallow foundations. Dewatering of the proposed culvert and wingwall shallow foundation excavations to a depth of at least one (1) foot below the bottom of the deepest excavations (to at least elevation +361.35) will be required. A specialist dewatering contractor should be retained to develop and implement the dewatering means and methods to ensure dry conditions during the proposed culvert construction.

Static groundwater levels were encountered in the completed test borings performed along the stream banks at a depth of ten (10) feet below the existing grades (+360.0/+358.0). However, the adjacent stream bed elevation (+365 to +366) is higher than the static groundwater elevation encountered in the completed test borings. This difference in water levels may be the result of static groundwater levels at the test boring locations being slow to stabilize at levels comparable to the adjacent stream elevation due to a higher clay content in the near-surface portion of the subgrade profile. Alternatively, it may also be indicative of a silt/clay layer beneath the stream course that has created a perched water condition above the elevation of the regional groundwater table. It is recommended that a depth to groundwater corresponding to the elevation of the 10-year anticipated flood level for the structure be used for dewatering considerations. The maximum anticipated flood level elevation over the life of the structure should be used for design considerations.

The laboratory permeability test results for the two (2) recompacted bulk samples are presented in the "*Findings*" section above for information only to provide a preliminary evaluation of the subgrade permeability characteristics for dewatering purposes. Additional testing may be required once the specialist dewatering plan has been developed to evaluate the infiltration characteristics at specific elevations.

RECOMMENDATIONS

The following recommendations are offered:

Site Preparation and Earthwork

The following recommendations should be performed in the order presented:

1. Site preparation and earthwork should be done during dry and favorable weather conditions.
2. Provide the necessary stream diversion and groundwater controls to enable the construction of the proposed culvert shallow foundations under dry conditions. Use a depth to groundwater corresponding to the elevation of the 10-year anticipated flood level for the structure for dewatering considerations. The maximum anticipated flood level elevation over the life of the structure should be used for design considerations. The proposed structure excavations should be dewatered to a depth of one (1) foot below the bottom of the lowest excavation (to at least elevation +361.35) during construction. Groundwater discharge permits may be required.
3. Completely demolish and remove the existing culvert in its entirety as well as any existing pavement and utilities from within the proposed culvert footprint area and at least one (1) foot outboard of the structure perimeter.
4. Remove any vegetation, root balls, stumps, topsoil, unsuitable fill and buried debris from within the proposed culvert footprint area and at least one (1) foot outboard of the structure perimeter.
5. Subsequent to the installation and operation of the dewatering system and performing items 3 and 4, excavate to the shallow foundation (spread footing) bearing elevation (+362.35) within the medium dense to very dense in-place soil of Stratum 2. Any loose soil at the excavation level should be removed. The means and methods selected to excavate to the required depths for the spread footings should consider the presence of the medium dense to very dense in-place gravelly soil of Stratum 2.
6. Excavations should comply with all applicable OSHA regulations. Use a type 'C' classification for on-site soils. Temporary sheeting and shoring of the excavations in accordance with all applicable OSHA regulations may be required depending on the depth of the shallow foundation excavations below the existing grades. The sheeting and shoring design and installation should consider hydrostatic pressures and the nearby roadway to prevent undermining. A licensed professional engineer should design the sheeting and shoring.
7. Due to the wet conditions anticipated at the spread footing bearing levels, it is recommended to place a maximum of six (6) inches of compacted NJDOT No. 57 Coarse Aggregate (901.03) or equivalent at the bottom of the spread footing excavations to provide a dry and stable working surface.

8. Shallow foundations should not be constructed on frozen ground. Any frozen ground beneath the shallow foundations should be allowed to completely thaw prior to the placement of reinforcement and concrete.
9. Subsequent to the culvert and wingwall construction, remove any vegetation, root balls, stumps, topsoil, in-place soil, utilities and pavement from behind the walls as required to accommodate the placement of the compacted structural fill wedges behind the walls as recommended below in item 1 of the "*Lateral Earth Pressure Considerations*" section.

Proposed Culvert and Wingwall Shallow Foundations

1. The proposed culvert and wingwalls can be supported on a maximum of six (6) inches of compacted NJDOT No. 57 Coarse Aggregate (901.03) or equivalent placed upon the in-place soil of Stratum 2 using a shallow foundation system such as continuous spread footings.
2. Use a maximum allowable soil bearing capacity of four-thousand (4,000) pounds per square foot (psf), provided the site and spread footing subgrades are prepared in accordance with the recommendations described herein.
3. Use spread footing foundations bearing on a maximum of six (6) inches of compacted NJDOT No. 57 Coarse Aggregate (901.03) or equivalent placed upon the in-place soil of Stratum 2 at least three-and-a-half (3.5) feet below the finished grades for frost heave protection.
4. Continuous spread footings should have a minimum width of twenty-four (24) inches even if the geometry produces a bearing pressure less than that recommended.
5. It is estimated that total and differential settlement will be less than one (1) inch and less than half (0.5) an inch over twenty-five (25) feet, respectively, provided the site and spread footing subgrades are prepared in accordance with the recommendations described herein.
6. Consideration of scour protection of the shallow foundation should be provided in the final culvert design. Scour analysis was not part of this scope of work.

Lateral Earth Pressure Considerations

1. Use compacted structural fill as backfill behind the proposed culvert and wingwalls to establish the finished grades. The compacted structural fill wedge behind the culvert and wingwalls should be at least three (3) feet from the base of the wall and then slope up and away from the wall at a one (1) horizontal to one (1) vertical slope, where possible. Any vegetation, root balls, stumps, topsoil, in-place soil, utilities and pavement within the culvert and wingwall wedges will need to be removed to allow for the placement of compacted structural fill wedges.

2. Heavy compaction equipment should not be operated within a five (5) feet zone of the culvert and wingwalls. Compaction in this zone should be accomplished using a rammer (jumping jack) or similar equipment.
3. Use the following soil engineering parameters to determine the lateral earth pressures for the design of the proposed culvert and wingwalls and temporary sheeting and shoring:

Soil Engineering Parameters	Soil Material		
	Compacted Structural Fill Backfill	In-Place Soil of Stratum 1	In-Place Soil of Stratum 2
Total Unit Wt., γ (pcf)	119	112	131
Effective Unit Wt., γ' (pcf)	62	60	73
Angle of Internal Friction, ϕ (degree)	32	30	35
Friction Factor (tan δ) - Soil/Steel Sheeting Interface	0.25	0.23	0.28
Friction Factor (tan δ) - Soil/Concrete Wall Interface	0.30	0.28	0.33
Modulus of Subgrade Reaction (pci)	210	200	220
Active Lateral Pressure Coefficient*, k_a	0.31	0.33	0.27
Passive Lateral Pressure Coefficient*, k_p	3.25	3	3.69
At-Rest Earth Pressure Coefficient*, k_o	0.5	0.52	0.45

**The earth pressure coefficient presented above assumes vertical walls, horizontal backfill, no surcharge loads, no wall friction, and a safety factor of one (1).*

4. Use a friction coefficient of 0.45 for the culvert and wingwall shallow foundations sliding on a maximum of six (6) inches of compacted NJDOT No. 57 Coarse Aggregate (901.03) or equivalent placed upon the in-place soil of Stratum 2.
5. The culvert and wingwalls should have weep holes to eliminate the build-up of hydrostatic pressures. Otherwise hydrostatic pressures should be included in the culvert and wingwall design.
6. Surcharge loads from the roadway, construction vehicles and compaction equipment should be considered in the culvert, wingwall and temporary sheeting and shoring design.
7. Based on visual identification and laboratory testing, the in-place predominantly granular soil of Stratum 2 that is free of topsoil, organics, debris and silt/clay layers, if adequately moisture conditioned to plus or minus (+/-) two (2%) percent of its optimum moisture content as determined by the ASTM D-1557 standard, is suitable for use as compacted structural fill. The in-place soil of Stratum 1, with a higher clay content and occasional organics, is not suitable for use as compacted structural fill.

8. Imported structural fill, if required, should be a clean well-graded sand and gravel, free of all organic material and contaminates, with a maximum particle size of three (3) inches, between ten (10) and seventy (70) percent by weight passing the standard No. 40 sieve size and no more than twelve (12) percent passing the No. 200 standard sieve size. Suitability should be determined in accordance with ASTM D-422 Standard (Particle Size Analysis).
9. Compact the structural fill behind the culvert and wingwalls in maximum loose lifts of eight (8) inches to at least ninety-five (95) percent of its maximum dry density as determined in the laboratory when tested in the laboratory in accordance with the ASTM D-1557 Standard.

Seismic Considerations

1. A site class "C" and site coefficients $F_a = 1.20$ and $F_v = 1.70$ should be used for seismic design purposes.
2. A maximum considered earthquake spectral response acceleration at short periods (S_s) of 35.0% g should be used for seismic design purposes.
3. A maximum considered earthquake spectral response acceleration at 1-second period (S_1) of 6.9% g should be used for seismic design purposes.
4. It is our opinion that the subgrade has a negligible to low probability of liquefying due to the generally medium dense to very dense condition of the in-place granular soil beneath the groundwater table
5. Reference is made to the 2009 International Building Code (IBC)-New Jersey Edition for additional seismic-related criteria for foundation design.

FIELD GEOTECHNICAL QUALITY CONTROL INSPECTIONS

Due to the limitations of this geotechnical investigation, it is possible that the site subgrade conditions between test boring locations or across the site apart from the test boring locations may differ from those encountered at the test boring locations. Therefore, a qualified and experienced geotechnical inspector under the supervision of a licensed professional engineer should inspect the following construction tasks in order to ensure that the recommendations presented herein are implemented or modified as necessary to account for possible differing site subgrade conditions:

- Demolition and removal of existing culvert, pavement and utilities from within the proposed culvert footprint area
- Removal of any vegetation, root balls, stumps, topsoil, unsuitable fill and buried debris from within the proposed culvert footprint area
- Removal of any vegetation, root balls, stumps, topsoil, in-place soil, utilities and pavement from within the compacted structural fill wedge areas behind the proposed culvert and wingwalls
- Supply and placement of compacted NJDOT No. 57 coarse aggregate
- Excavation and preparation of shallow foundation bearing levels

Upon request, Craig Testing Laboratories, Inc. can provide a proposal to perform the above field geotechnical quality control inspection services using our qualified, experienced and trained geotechnical inspectors and engineers.

LIMITATIONS

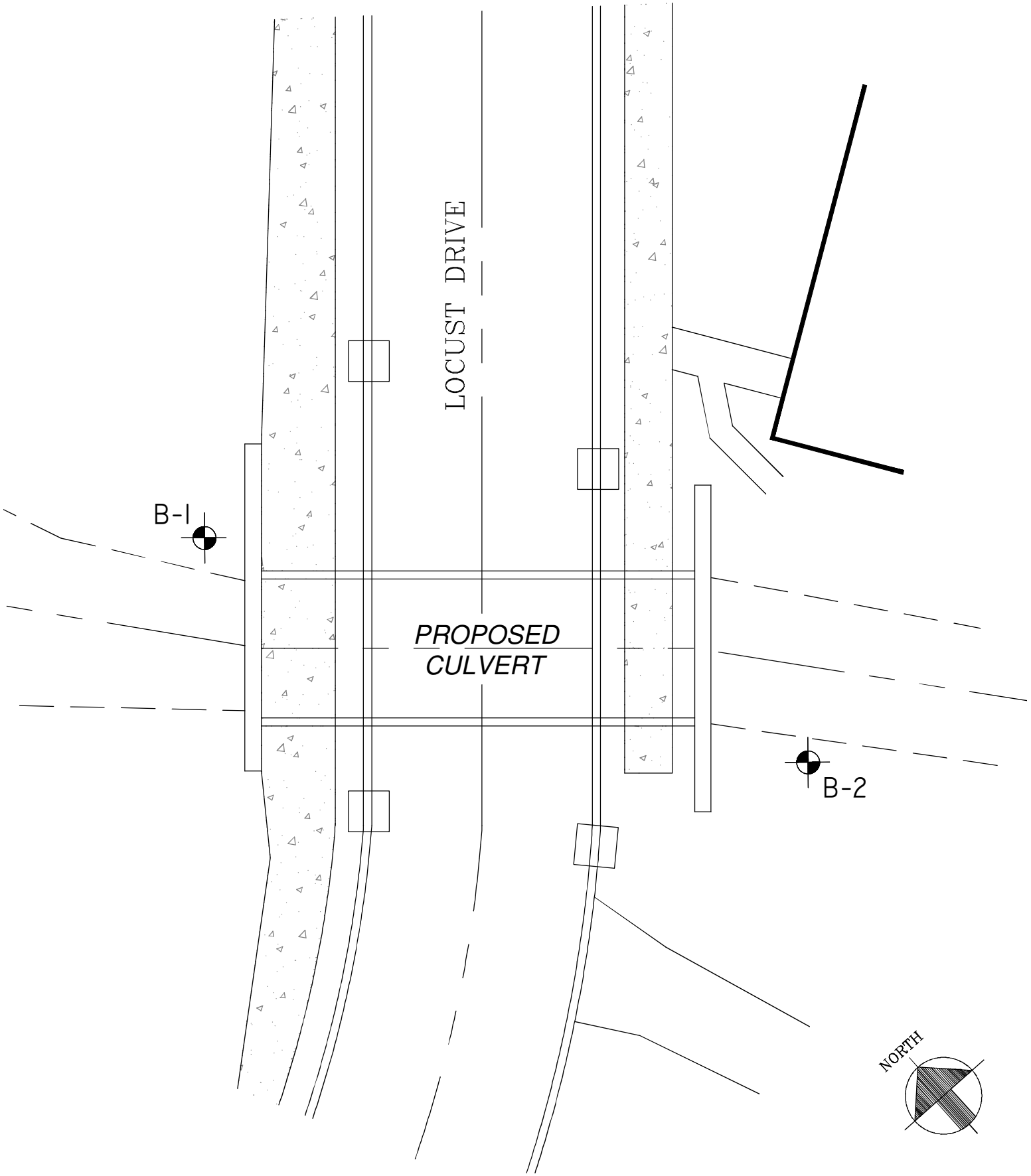
The comments, conclusions and recommendations above are based on the data obtained from test borings performed at the indicated specific locations and from other identified information. This report does not reflect any variations, which may occur between test borings or across the site apart from the test borings. The nature and extent of such variations may not become evident until construction. If variations appear evident or if the proposed culvert is modified, it will be necessary to re-evaluate the comments, conclusions and recommendations presented within this report.

We trust the above information will allow you to proceed with the design and construction of the proposed culvert.

We thank you for the opportunity of providing this service. Should you have any questions regarding this report, or if we can be of further assistance, please do not hesitate to contact us.

Very truly yours,
CRAIG TESTING LABORATORIES, INC.

Christopher K. Budesa, P.E.
Senior Geotechnical Engineer
NJ#GE46997



CRAIG TESTING LABORATORIES, INC.

5439 Harding Highway ~ Post Office Box 427
Mays Landing, New Jersey 08330-0427
(609) 625-2730 ~ Fax (609) 625-9133

TITLE: *TEST BORING LOCATION PLAN*

PROPOSED CULVERT REPLACEMENT
LOCUST DRIVE NEAR TULIP STREET
SUMMIT, NEW JERSEY

DATE:	SCALE:	DRAWN BY:	LOCATION:
02/09/12	NTS	SLS	SUMMIT, NJ

CRAIG TESTING LABORATORIES, INC.

FIELD SOIL & ROCK CLASSIFICATION SYSTEM

Craig Testing Laboratories, Inc. uses the following definitions, abbreviations, and terminologies to classify and correlate soil and rock samples in the field.

Soils are described as follows:
USCS Group name, USCS group symbol, color, moisture, state, fabric and odor (for organic or contaminated soils).

Rock cores are described as follows:
Type, color, hardness, degree of weathering, bedding thickness and relative dip, spacing of joints, fractures and relative dip.

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) (ASTM D-2488) symbols and group names are:

COARSE GRAINED SOILS

GP -	Poorly graded gravel
GW -	Well graded gravel
GM -	Silty gravel
GC -	Clayey gravel
SW -	Well graded sand
SP -	Poorly graded sand
SM -	Silty sand
SC -	Clayey sand

FINE GRAINED SOILS

ML -	Silt of low plasticity
CL -	Clay of low plasticity
OL -	Organic silt/clay of low plasticity
MH -	Silt of high plasticity
CH -	Clay of high plasticity
OH -	Organic silt/clay of high plasticity
PT -	Peat and high organic soils

SOIL PARTICLE SIZE IDENTIFICATION

Boulders ……	12 inch diameter or greater	
Cobbles …….	3 to 12 inch diameter	
Gravel ……	Coarse --	0.75 to 3 inch
	Fine --	4.75mm to 0.75 inch
Sand ……..	Coarse --	2.0 to 4.75 mm
	Medium --	0.425 to 2.0 mm
	Fine --	0.075 to 0.425 mm
Silt & Clay …..	smaller than	0.075 mm

DENSITY – Cohesionless soil (Gravel & sand)

Density	Approximate range of (N)
Very loose ……..	4 blows/ft or less
Loose ……	5 – 10 blows/ft
Medium dense…..	11 – 30 blows/ft
Dense ……	31 – 50 blows/ft
Very dense ……..	51 blows/ft or higher

CONSISTENCY - Cohesive soil (clay & silt)

Consistency	Approximate range of (N)
Very soft ……	1 blow/ft or less
Soft ……	2 – 4 blows/ft
Medium stiff …..	5 – 8 blows/ft
Stiff ……...	9 – 15 blows/ft
Very stiff …….	16 – 30 blows/ft
Hard ……	31 blows/ft or greater

MODIFIERS (percentage)

Trace (tr) -----	1 - 10
Some (sm) -----	11- 20
Adjective (ly) --	21-35
And (&) --	36-50

ABBREVIATIONS

Bn -	brown		
Gy -	gray		
Blk -	black	C -	coarse grained
Wh -	white	M -	medium grained
Rd -	red	F -	fine grained
Gr-	green	Misc. -	miscellaneous
Yl-	Yellow	W.O.R. -	weight of rod
Lt -	light	W.O.H. -	weight of hammer
Dr -	dark	N.R. -	no recovery
Multi -	multi-colored	T.B.C.-	test boring completed

ROCK QUALITY

R.Q.D.(%)	Rock Description
0-25	Very poor
25-50	Poor
50-75	Fair
75-90	Good
90-100	Excellent

Standard Penetration Test (SPT – ASTM D-1586) - A 2.0" O.D. (1-3/8" I.D.) split barrel sampler is driven into undisturbed soil by means of a 140 pound weight hammer falling freely a vertical distance of 30 inches. The sampler is normally driven in four successive 6-inch increments. The total number of blows required for the middle 12 inches of penetration is the Standard Penetration Resistance (N).

CRAIG
TEST BORING CO., INC.
P.O. Box 427 • Mays Landing, NJ 08330-2203 • (609) 625-4862 • FAX (609) 625-4306 • Email: Craigtest.att.net

FIELD TEST BORING LOG

CLIENT Alaimo Group
DATE 02/02/12
PROJECT Proposed Culvert Replacement - Summit, New Jersey
LAB NO. 228003/120021
Boring No. B-1 **Sheet 1 of 2**
Ground Surface Elev. 370.0

Ground Water Data				* - Method of Advancing Boring		Depth
Depth	Hour	Date	Hrs. After Completion	A	Mud Rotary	0 to 52'
				B		to
10'		02/2/12	0	C		to
				D		to

DEPTH	*	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
0		S-1	0'-2'	2-2-3-2	Sandy CLAY w/gravel (CL) / bn, moist, medium stiff	sm organics (roots)
		S-2	2'-4'	3-2-4-2	Clayey GRAVEL w/sand (GC) / rd-bn, moist, loose	2' bulk sample taken next to bore hole
5		S-3	4'-6'	11-17-14-8	Silty GRAVEL (GM) / rd-bn, moist, dense	
		S-4	6'-8'	12-13-16-18	Silty GRAVEL (GM) / bn, moist, medium dense	low recovery
		S-5	8'-10'	45-48-33-32	Clayey GRAVEL w/sand (GC) / bn, moist, very dense	
10		S-6	10'-12'	46-94-25-48	SAME / wet	
15		S-7	15'-17'	18-20-27-30	Silty GRAVEL w/sand (GM) / bn, wet, dense	
20		S-8	20'-22'	20-10-29-23	SAME	
						23'5"
25	A	S-9	25'-27'	15-18-21-27	Sandy CLAY (CL) / bn, wet, hard	tr gravel
30		S-10	30'-32'	13-26-15-18	SAME	

☐ S - 2" O.D. Split Spoon Sample ■ U - Undisturbed Sample, 3" Diameter ☒ - Core Drilling ☐ - No Recovery
N - Standard Penetration Resistance per 6" (140# Hammer, 30" drop)

Driller R. Dollar

CRAIG TEST BORING CO., INC.
FIELD TEST BORING LOG

Boring No. B-1 **Sheet 2 of 2**

DEPTH	*	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
35		S-11	35'-37'	11-10-13-17	SAME / very stiff	
40		S-12	40'-42'	6-8-20-22	SAME	
45		S-13	45'-47'	13-19-14-16	SAME / hard	
50		S-14	50'-52'	17-19-19-26	SAME	
					Test Boring Compete @ 52'	
55						
60						
65						
70						
75						

⊟ **S - 2" O.D. Split Spoon Sample** ■ **U - Undisturbed Sample, 3" Diameter** ☒ **- Core Drilling** ☐ **- No Recovery**

N - Standard Penetration Resistance per 6" (140# Hammer, 30" drop)

Driller R. Dollar

CRAIG
TEST BORING CO., INC.
P.O. Box 427 • Mays Landing, NJ 08330-2203 • (609) 625-4862 • FAX (609) 625-4306 • Email: Craigtest.att.net

FIELD TEST BORING LOG

CLIENT Alaimo Group **DATE** 02/02/12

PROJECT Proposed Culvert Replacement - Summit, New Jersey **LAB NO.** 228003/120021

Boring No. B-2 **Sheet 1 of 1** **Ground Surface Elev.** 368.0

Ground Water Data				* - Method of Advancing Boring		Depth
Depth	Hour	Date	Hrs. After Completion	A	Mud Rotary	0 to 32'
				B		to
10'		02/02/12	0	C		to
				D		to

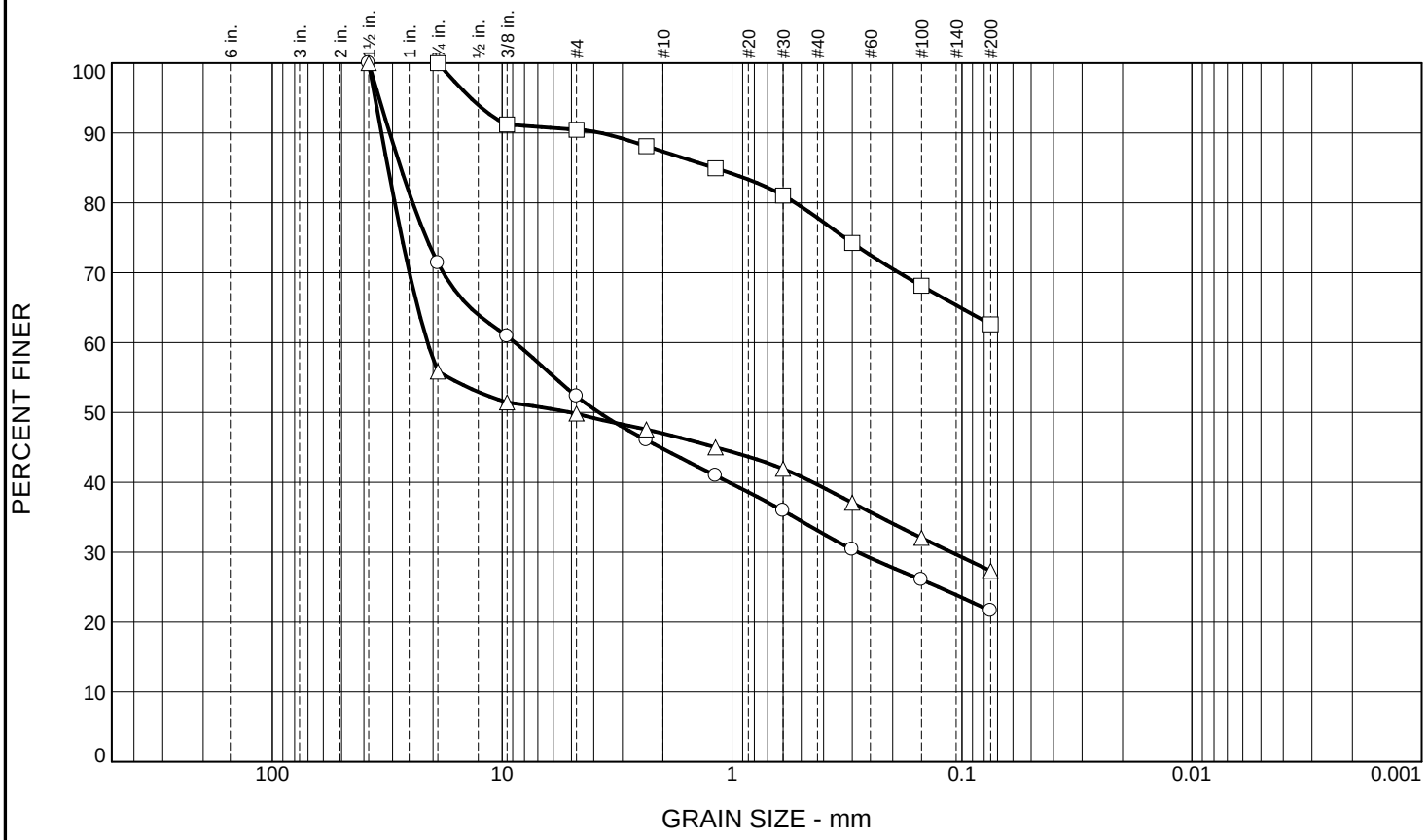
DEPTH	*	Sample No.	Sample Depth	Sample N	Soil Classification	Remarks
0		S-1	0'-2'	1-2-3-2	Clayey GRAVEL w/sand (GC) / bn, moist, loose	low recovery
		S-2	2'-4'	6-6-8-10	Silty GRAVEL w/sand (GM) / rd-bn, moist, medium dense	low recovery bulk sample taken next to bore hole
5		S-3	4'-6'	11-22-26-22	Clayey GRAVEL w/sand (GC) / bn, moist, dense	
		S-4	6'-8'	21-14-18-19	Silty GRAVEL w/sand (GM) / rd-bn, moist, dense	
		S-5	8'-10'	20-32-34-11	Silty GRAVEL w/sand (GM) / bn, moist, very dense	
10		S-6	10'-12'	11-26-19-13	Silty GRAVEL w/sand (GM) / bn, wet, dense	
15	A	S-7	15'-17'	11-11-12-14	Clayey GRAVEL w/sand (GC) / bn, wet, medium dense	low recovery
20		S-8	20'-22'	14-41-47-32	Clayey GRAVEL w/sand (GC) / bn, wet, very dense	
						23'5"
25		S-9	25'-27'	14-17-17-18	Silty SAND w/gravel (SM) / bn, wet, dense	
30		S-10	30'-32'	23-18-20-23	No Recovery	
					Test Boring Complete @ 32'	

☐ S - 2" O.D. Split Spoon Sample ■ U - Undisturbed Sample, 3" Diameter ☒ - Core Drilling ☐ - No Recovery

N - Standard Penetration Resistance per 6" (140# Hammer, 30" drop)

Driller R. Dollar

Particle Size Distribution Report



	Cobbles	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PL	PI
○	0.0	47.7	30.7	21.6		GM\GC			
□	0.0	9.5	27.9	62.6		CL	27	15	12
△	0.0	50.2	22.5	27.3		GC	29	18	11

SIEVE inches size	PERCENT FINER ○	□	△
1.5	100.0		100.0
.75	71.4	100.0	55.9
.375	60.9	91.2	51.5
	GRAIN SIZE		
D_{60}	8.7853		21.1237
D_{30}	0.2834		0.1113
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	52.3	90.5	49.8
#8	46.1	88.1	47.6
#16	41.0	84.9	45.0
#30	35.9	81.1	41.9
#50	30.4	74.3	37.1
#100	26.1	68.1	32.1
#200	21.6	62.6	27.3

Material Description

○ Dark red-brown silty\clayey GRAVEL with sand

□ Red-brown sandy lean CLAY

△ Multicolored clayey GRAVEL with sand

REMARKS:

○

□ Moisture Content (MC): 22%

△ MC: 20%

○ Source of Sample: B-1 Depth: 2'-4' Sample Number: S-2

□ Source of Sample: B-1 Depth: 25'-27' Sample Number: S-9

△ Source of Sample: B-2 Depth: 4'-6' Sample Number: S-3

Craig Testing Laboratories, Inc.

Mays Landing, New Jersey

Client: Alaimo Group

Project: Proposed Culvert Replacement
Summit, NJ

Project No.: 228003

Plate 1

TUBE PERMEAMETER TEST

(N.J.A.C. 7:9A - Standards for Individual Subsurface Sewage Disposal Systems; Subchapter 6, Section 6.2, page 39, Modified)

Client: Alaimo Group **CTL #:** 228003

Project: Proposed Culvert Replacement - Summit, NJ **Date:** March 9, 2012

Boring/Sample # or Descrip./Location: B-1 **Depth:** 2'-4'

Description of Soil: Brown sandy CLAY with gravel and organics

Technician: JL

Proctor Data:

Max Dry Density (pcf)	% of Max Dry Density	Opt. Moisture (%)
	n/a	

Initial Specimen Data:

Sample Type:
Undisturbed ☐
Re-Compacted ☑

Water Content	Length, L (in)	Diameter (in)	Wet Density (pcf)	Dry Density (pcf)
18.1	5.00	2.875	118.5	100.3

Radius of Burette, r: 0.3141 in **Radius of Soil Specimen, R:** 1.4375 in

TEST DATA

1	2	3	4	5		6	7	8	9
Trial No.	Burette Readings		Head, h (cm)	Time, t		Temp, T (^oC)	Permeability at T^oC, k_T	Temp Correc.	Permeability at 20^oC, k_{20}
	h_1 (cm)	h_2 (cm)		Sec	Min				
1	90.0	89.0	1.0	70.2	1.170	20.2	0.14	0.995	0.14
2	90.0	89.0	1.0	65.9	1.098	20.2	0.15	0.995	0.15
3	90.0	89.0	1.0	69.5	1.159	20.2	0.14	0.995	0.14
4	80.0	79.0	1.0	89.1	1.485	20.2	0.12	0.995	0.12
5	80.0	79.0	1.0	88.5	1.475	20.2	0.12	0.995	0.12
6	80.0	79.0	1.0	89.2	1.486	20.2	0.12	0.995	0.12
7	70.0	69.0	1.0	120.0	2.000	20.2	0.10	0.995	0.10
8	70.0	69.0	1.0	121.1	2.018	20.2	0.10	0.995	0.10
9	70.0	69.0	1.0	122.0	2.034	20.2	0.10	0.995	0.10
10	60.0	59.0	1.0	125.1	2.085	20.2	0.12	0.995	0.11
11	60.0	59.0	1.0	124.1	2.068	20.2	0.12	0.995	0.12
12	60.0	59.0	1.0	129.1	2.152	20.2	0.11	0.995	0.11
13	50.0	49.0	1.0	136.0	2.266	20.2	0.13	0.995	0.13
14	50.0	49.0	1.0	139.2	2.320	20.2	0.12	0.995	0.12
15	50.0	49.0	1.0	141.7	2.362	20.2	0.12	0.995	0.12

Perm, k_T (7) = 60 * L/t * r^2/R^2* ln(h1/h2) = 60* L/(5) * r^2/R^2 * ln((2)/(3))

Head, h (4) = (2) - (3); **Perm, k_{20}** (9) = (7)*(8)

AVERAGE k_{20} (in/hr): **0.12**

SOIL PERMEABILITY CLASS: **K0**

Soil Permeability Classes

> 20 inches per hour (in/hr)	K5
6 - 20 in/hr	K4
2 - 6 in/hr	K3
0.6 - 2 in/hr	K2
0.2 - 0.6 in/hr	K1
< 0.2 in/hr	K0

Remarks

Visual Description Only
Moderate effort used for recompaction

Plate No.: 2

TUBE PERMEAMETER TEST

(N.J.A.C. 7:9A - Standards for Individual Subsurface Sewage Disposal Systems; Subchapter 6, Section 6.2, page 39, Modified)

Client: Alaimo Group **CTL #:** 228003

Project: Proposed Culvert Replacement - Summit, NJ **Date:** March 9, 2012

Boring/Sample # or Descrip./Location: B-2 **Depth:** 2'-4'

Description of Soil: Brown CLAY with sand, gravel and organics

Technician: JL

Proctor Data:

Max Dry Density (pcf)	% of Max Dry Density	Opt. Moisture (%)
	n/a	

Initial Specimen Data:

Sample Type:
Undisturbed ☐
Re-Compacted ☑

Water Content	Length, L (in)	Diameter (in)	Wet Density (pcf)	Dry Density (pcf)
23.4	5.00	2.875	114.3	92.6

Radius of Burette, r: 0.3141 in **Radius of Soil Specimen, R:** 1.4375 in

TEST DATA

1	2	3	4	5		6	7	8	9
Trial No.	Burette Readings		Head, h (cm)	Time, t		Temp, T (^oC)	Permeability at T^oC, k_T	Temp Correc.	Permeability at 20^oC, k_{20}
	h_1 (cm)	h_2 (cm)		Sec	Min				
1	90.0	89.0	1.0	4846.7	80.778	20.2	0.0020	0.995	0.0020
2	80.0	79.0	1.0	9360.6	156.010	20.2	0.0012	0.995	0.0011

Perm, k_T (7) = 60 * L/t * r^2/R^2* ln(h1/h2) = 60* L/(5) * r^2/R^2 * ln((2)/(3))

Head, h (4) = (2) - (3); **Perm, k_{20}** (9) = (7)*(8)

AVERAGE k_{20} (in/hr): **0.0016**

SOIL PERMEABILITY CLASS: **K0**

Soil Permeability Classes

> 20 inches per hour (in/hr)	K5
6 - 20 in/hr	K4
2 - 6 in/hr	K3
0.6 - 2 in/hr	K2
0.2 - 0.6 in/hr	K1
< 0.2 in/hr	K0

Remarks

Visual Description Only
Number of test runs reduced due to rate of movement and soil type
Moderate effort used for recompaction

Plate No.: 3

APPENDIX B

NJDOT STATEWIDE GENERAL PERMIT No. 10B FOR CULVERT Su-105

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAND USE REGULATION
Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
Telephone: (609) 777-0454 or Fax: (609) 777-3656
www.state.nj.us/dep/landuse

PERMIT

In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the limitations, terms and conditions listed below and on the attached pages. For the purpose of this document, "permit" means "approval, certification, registration, authorization, waiver, etc." Violation of any term, condition or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.

Approval Date
FEB 20 2014

Expiration Date
FEB 19 2019

Permit Number(s):	Type of Approval(s):	Enabling Statute(s):
2018-13-0004.1 FWW130001	FWGP10B minor road crossing	NJSA 13:9B FWPA NJSA 58:10A WPCA

Permittee:

Union County Board of Chosen Freeholders
10 Elizabethtown Plaza
Elizabeth, NJ 07207

Site Location:

Block(s): & Lot(s): Locust Street R.O.W.
Municipality: Summit City
County: Union

Description of Authorized Activities:

The authorized activities involve the disturbance of 0.014 acres of State open waters disturbance for the reconstruction of Culvert No. SU105 over Salt Brook under Statewide General permit No. 10B.

Prepared by:

Tina Wolff

THIS PERMIT IS NOT EFFECTIVE AND NO CONSTRUCTION APPROVED BY THIS PERMIT, OR OTHER REGULATED ACTIVITY, MAY BE UNDERTAKEN UNTILTHE APPLICANT HAS SATISFIED ALL PRE-CONSTRUCTION CONDITIONS AS SET FORTH HEREIN.

Received and/or Recorded by County Clerk:

This permit is not valid unless authorizing signature appears on the last page.

PRE-CONSTRUCTION CONDITIONS:

1. **Timing:** If this permit contains a condition that must be satisfied prior to the commencement of construction, the permittee must comply with such condition(s) within the time required by the permit or, if no time specific requirement is imposed, then within six months of the effective date of the permit, or provide evidence satisfactory to the Division that such condition(s) cannot be satisfied.

2. **Material Disposal:** All excavated material and dredge material shall be disposed of in a lawful manner. The material shall be placed outside of any flood hazard area, riparian zone, regulated water, freshwater/coastal wetlands and adjacent transition area, and in such a way as to not interfere with the positive drainage of the receiving area.

STANDARD CONDITIONS:

1. **Responsibilities:**
   a. The permittee, its contractors and subcontractors shall comply with all conditions of this permit, authorizing and/or supporting documents and approved plans and drawings.

   b. A copy of this permit, other authorizing documents, records and information including all approved plans and drawings shall be maintained at the authorized site at all times and made available to Department representatives or their designated agents upon request.

2. **Permit modification:** Plans and specifications in the application and conditions imposed by this permit shall remain in full force and effect so long as the proposed development or any portion thereof is in existence, unless modified by the Department. No change in plans or specifications upon which this permit is issued shall be made except with the prior written permission of the Department. The filing of a request to modify an issued permit by the permittee, or a notification of planned changes or anticipated noncompliance does not stay any condition of this permit.

3. **Duty to minimize environmental impacts:** The permittee shall take all reasonable steps to prevent, minimize or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of this permit. The Department may, upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit

4. **Proper site maintenance:** While the regulated activities are being undertaken, neither the permittee, its contractors nor subcontractors shall cause or permit any unreasonable interference with the free flow of a regulated feature by placing or dumping any materials, equipment, debris or structures within or adjacent to the regulated area. Upon completion or abandonment of the work, the permittee, its contractors or subcontractors shall remove and dispose of in a lawful manner all excess materials, debris, equipment, silt fences and other temporary soil erosion and sediment control devices from all regulated areas. Only clean non-toxic fill shall be used where necessary.

5. **Sediment control:** Development which requires soil disturbance, creation of drainage structures, or changes in natural contours shall conduct operations in accordance with the latest revised version of "Standards for Soil Erosion Sediment Control in New Jersey," promulgated by the New Jersey State Soil Conservation Committee, pursuant to the Soil Erosion and Sediment Control Act of 1975, N.J.S.A. 4:24-42 et seq. and N.J.A.C. 2:90-1.3-1.14.

6. **Rights of the State:**
   a. This permit does not convey any property rights of any sort, or any exclusive privilege.

   b. Upon notification and presentation of credentials, the permittee shall allow Department representatives or their designated agents, to enter upon the project site and/or where records must be kept under the conditions of this permit, inspect at reasonable times any facilities, equipment, practices or operations regulated or required under the permit, and sample or monitor for the purposes of determining compliance. Failure to allow reasonable access shall be considered a violation of this permit and subject the permittee to enforcement action.

   c. The issuance of this permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction, structure or structures. Neither the State nor the Department shall, in any way, be liable for the loss of life or property which may occur by virtue of the activity of development resulting from any permit.

7. **Duty to Reapply:** If the permittee wishes to continue an activity covered by the permit after the expiration date of the permit authorization, the permittee must apply for and obtain a new permit authorization.

8. **Transfer of Permit:** This permit may not be not transferable to any person unless the transfer is approved by the Department. Please refer to the applicable rules for more information.

9. **Other Approvals:** The permittee must obtain any and all other Federal, State and/or Local approvals. Authorization to undertake a regulated activity under this permit does not indicate that the activity also meets the requirements of any other rule, plan or ordinance.

10. **Noncompliance:**
   a. Any noncompliance with this permit constitutes a violation, and is grounds for enforcement action, as well as modification, suspension and/or termination of the permit.

   b. The permittee shall immediately report to the Department by telephone at (877) 927-6337 any noncompliance that may endanger health or the environment. In addition, the permittee shall report all noncompliance to Bureau of Coastal and Land Use Compliance and Enforcement, 401 E. State Street, 4th Floor, P.O. Box 422, Mail Code: 401-04C, Trenton, NJ 08625, in writing within five business days of the time the permittee becomes aware of the noncompliance. The written notice shall include: a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter.

11. **Appeal of Permit**: In accordance with the applicable regulations, any person who is aggrieved by this decision or any of the conditions of this permit may request a hearing within 30 days after notice of the decision is published in the DEP Bulletin. This request must include a completed copy of the Administrative Hearing Request Checklist. The DEP Bulletin is available through the Department's website at http://www.nj.gov/dep/bulletin and the Checklist is available through the Division's website at http://www.nj.gov/dep/landuse/download/lur_024.pdf. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in

alternative dispute resolution. Please see the website www.nj.gov/dep/odr for more information about this process.

CONDITIONS APPLICABLE TO FRESHWATER WETLANDS:

1. Any additional disturbance of freshwater wetlands, State open waters and/or transition areas besides that shown on the approved plans shall be considered a violation of the Freshwater Wetlands Protection Act rules unless the activity is exempt or a permit is obtained from the Department prior to the start of the proposed disturbance. N.J.A.C. 7:7A-5.1

2. The permittee shall submit written notification to the Bureau of Coastal and Land Use Compliance and Enforcement, NJDEP, P.O. BOX 422, East State Street, Trenton, NJ 08625-0422, at least seven days prior to the commencement of site preparation, or of regulated activities, whichever comes first. The notification shall contain proof of recording of a conservation restriction or easement, if one was required as part of the permit. [N.J.A.C. 7:7A-13.1(a)14]
3. The permittee will be responsible for the installation of a sediment barrier around all disturbed soils, which is sufficient to prevent the sedimentation of the remaining wetlands and transition area. [N.J.A.C. 7:7A-4.3(b)13 and 13.2(b)5]
4. The permittee shall be responsible for preserving and minimizing vegetation disturbances within the wetland transition areas. All temporary disturbances around the proposed construction shall be replanted with native herbaceous and woody vegetation where applicable and not maintained as lawn or landscaped area. [N.J.A.C. 7:7A-4.2(c)2iii]
5. This authorization for a General Permit is valid for a term not to exceed five years from the date of this letter. If the permittee wishes to continue an activity covered by the permit after the expiration date of the permit, the permittee must apply for and obtain a permit extension or a new permit, prior to the permit's expiration. If the term of the authorization exceeds the expiration date of the general permit issued by rule, and the permit upon which the authorization is based is modified by rule to include more stringent standards or conditions, or is not reissued, the applicant must comply with the requirements of the new regulations by applying for a new GP authorization or an Individual permit. [N.J.A.C. 7:7A-13.3 and 14.6 and N.J.A.C. 7:7A-14.6(b)2ii]
6. This project has not been reviewed for consistency with the applicable Areawide Water Quality Management Plan or the Statewide Water Quality Management Planning Rules at N.J.A.C. 7:15. As such, this authorization shall not be construed as any type of consistency determination for any sewage generating structures on the project site. For information regarding the water quality planning process, please contact the Department's Office of Land Use Planning at (609) 984-6888. [N.J.A.C. 7:15]

CONDITIONS APPLICABLE TO SPECIFIC PROJECT:

7. This permit authorizes the disturbance of approximately 0.014 of an acre of State open waters for the reconstruction of Culvert No. SU105 over Salt Brook under Statewide General permit No. 10B.

8. **Prior to project implementation,** the applicant shall submit an architectural survey for the proposed project which involves the replacement of a culvert. "Architectural survey" means an intensive-level historic architectural survey completed by an architectural historian whose qualifications meet the Secretary of the Interior's Professional Qualifications Standards and related guidance as part of the larger Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation as referenced in 36 CRF 61, as amended and supplemented.
9. If an evaluation results in a determination by the HPO and DLUR that the culvert is eligible for inclusion on the New Jersey and National Registers of Historic Places, recommendations for avoidance of impacts shall be provided to the HPO and DLUR for review and comment.
10. If impacts cannot be avoided, analyses must be provided which explores alternatives to minimize and/or mitigate impacts. Any minimization and/or mitigation plan(s) shall be to the HPO and DLUR for review and approval prior to implementation.
11. The permittee shall ensure that any approved minimization and/or mitigation plan(s) are implemented within 6 months of permit issuance.
12. The drawing(s) hereby approved is one (1) sheet(s) prepared by Alaimo Group Consulting Engineers, dated November 2013, last revised , unless otherwise noted, entitled:

"LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105) COUNTY OF UNION – BOARD OF CHOSEN FREEHOLDERS CITY OF SUMMIT COUNTY OF UNION NEW JERSEY"

"GRADING PLAN", SHEET 4a.

If you need clarification on any section of this permit or conditions, please contact our Technical Support Call Center at (609) 777-0454.

Andrew Clark, Supervisor
Division of Land Use Regulation

Date 2/20/14

Original sent to Agent to record
C: Applicant
Municipal Construction Official
Municipal Clerk

COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS
REPLACEMENT OF LOCUST DRIVE CULVERT NEAR TULIP STREET (Su105)
OVER STREAM 3-51

CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

PROJECT NO. 2010-005C

MAY 2017

ELECTRIC	JERSEY CENTRAL POWER & LIGHT 300 MADISON AVENUE P.O. BOX 1911 MORRISTOWN, NJ 07962 FRANK MERCANDANTE (973) 401-8521	
SANITARY	CITY OF SUMMIT 512 SPRINGFIELD AVENUE, 2ND FLOOR SUMMIT, NJ 07901	
TELEPHONE	VERIZON COMMUNICATIONS 6000 HADLEY ROAD SOUTH PLAINFIELD, NJ 07080 JEFF NORBERG (908) 412-2023	
CABLE	COMCAST COMMUNICATIONS 800 RAHWAY AVENUE UNION, NJ 07083 ED LUBANSKI (908) 851-8525	
GAS	PSE&G GAS COMPANY 48 MIDDLE AVENUE SUMMIT, NJ 07901 CHRIS FORTE (908) 522-7412	
WATER	NEW JERSEY AMERICAN WATER COMPANY 167 JFK PARKWAY SHORT HILLS, NJ 07078 KEN TAYLOR (973) 564-5713	
ONE CALL	One Call Underground Location Service 399 Hoes Lane, Piscataway, NJ 08854 1-800-272-1000	

NOTE:
LOCATION OF UTILITIES AS SHOWN ON THESE PLANS ARE PLOTTED FROM AVAILABLE DATA ON FILE WITH THE UTILITY COMPANIES AND IS NOT GUARANTEED AS TO EXACTNESS. THE CONTRACTOR IS TO CONTACT UTILITY COMPANIES 72 HOURS PRIOR TO CONSTRUCTION TO DETERMINE EXACT LOCATION AND DEPTH OF UTILITIES. THE CONTRACTOR SHALL USE THE UTILITY LOCATIONS SHOWN AS AN AID IN DETERMINING EXACT LOCATIONS.

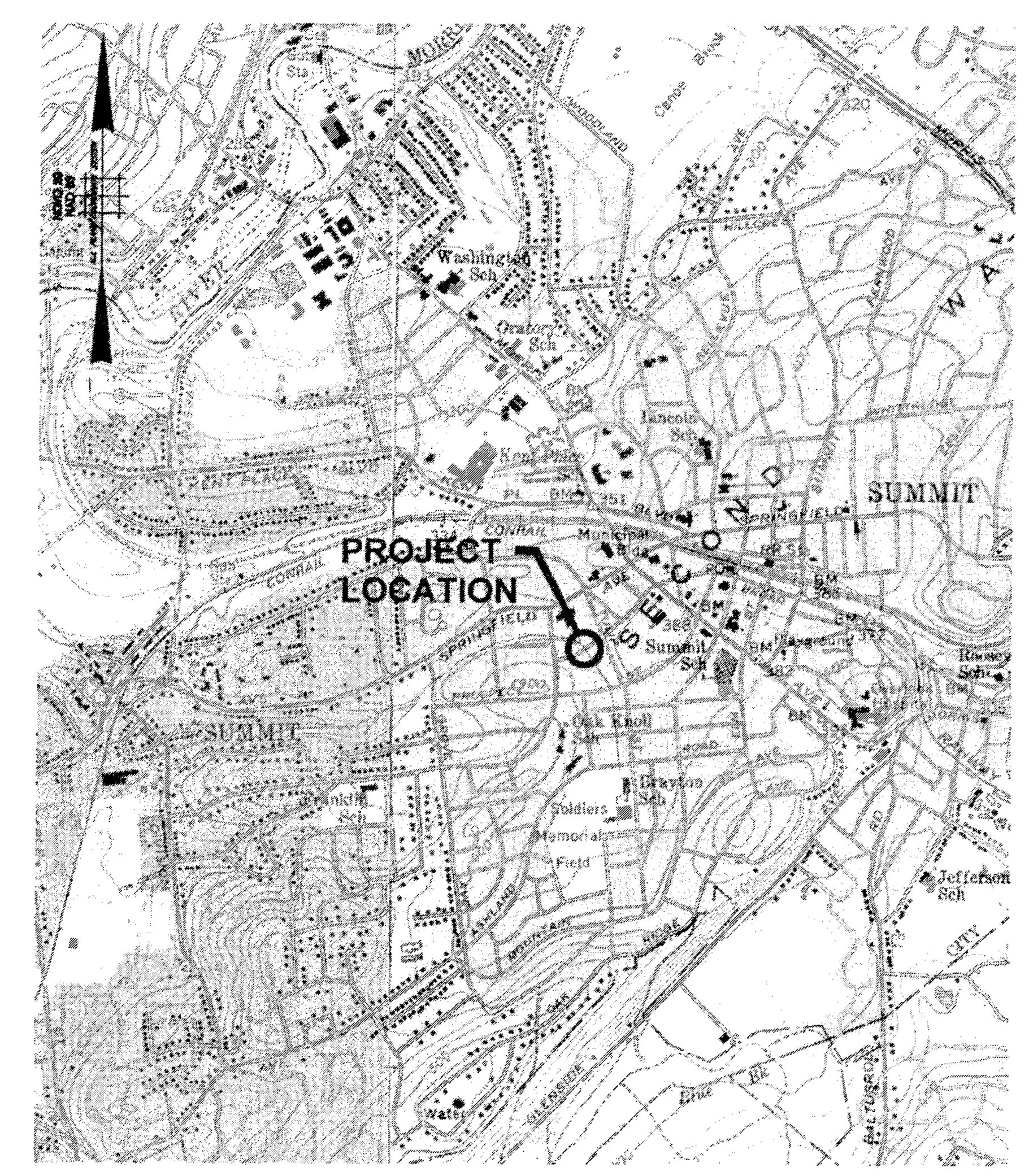
HIGH VOLTAGE PROXIMITY ACT

THE CONTRACTOR IS NOTIFIED THAT ALL PROVISIONS OF THE HIGH-VOLTAGE PROXIMITY ACT, P.L. 1948, c. 249 AS AMENDED THROUGH MAY 20, 1987 SHALL BE STRICTLY ADHERED TO IN THIS CONSTRUCTION CONTRACT. THE CONTRACTOR SHALL ALSO ADHERE TO ALL PROVISIONS OF 29 CFR PART 1926.550 OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT OF DECEMBER, 1970. PARTICULAR ATTENTION IS DIRECTED TO THE PROVISIONS OF THE ABOVE ACT REQUIRING WARNING SIGNS, NOTIFICATION TO POWER COMPANIES AND RESPONSIBILITY FOR SAFEGUARDS AND PROHIBITED ACTIVITIES.

A COPY OF THE HIGH VOLTAGE PROXIMITY ACT IS AVAILABLE IN THE OFFICE OF THE COUNTY ENGINEER OR MAY BE OBTAINED FROM THE NEW JERSEY DEPARTMENT OF LABOR, DIVISION OF WORKPLACE STANDARDS, OFFICE OF SAFETY COMPLIANCE, CN 386, TRENTON, NEW JERSEY, 08625-0386.

NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF 2007 (U.S. CUSTOMARY ENGLISH UNITS) AS AMENDED BY THE SUPPLEMENTAL SPECIFICATION AND ALL ADDENDA THERETO WHICH IS TO BE BE USED IN THE EXECUTION OF THIS CONTRACT SHALL GOVERN THIS CONSTRUCTION.

THE NEW JERSEY DEPARTMENT OF TRANSPORTATION "STANDARD ROADWAY CONSTRUCTION/TRAFFIC CONTROL/BRIDGE CONSTRUCTION DETAILS" BOOKLET DATED 2007 AND "ELECTRICAL BUREAU STANDARD DETAILS (2007) TO GOVERN, EXCEPT FOR THOSE DETAILS CONTAINED HEREIN.



SUMMIT (Su105) LOCATION MAP
SCALE: 1" = 2000'

RECOMMENDED BY: **AARON SCHRAGER, PE** CITY ENGINEER, CITY OF SUMMIT ______ DATE 4-20-17

APPROVED BY: **NORA G. RADEST** MAYOR, CITY OF SUMMIT ______ DATE 4/20/17

RECOMMENDED BY: **THOMAS O. MINEO, PE** COUNTY ENGINEER, UNION COUNTY ______ DATE 7/6/17

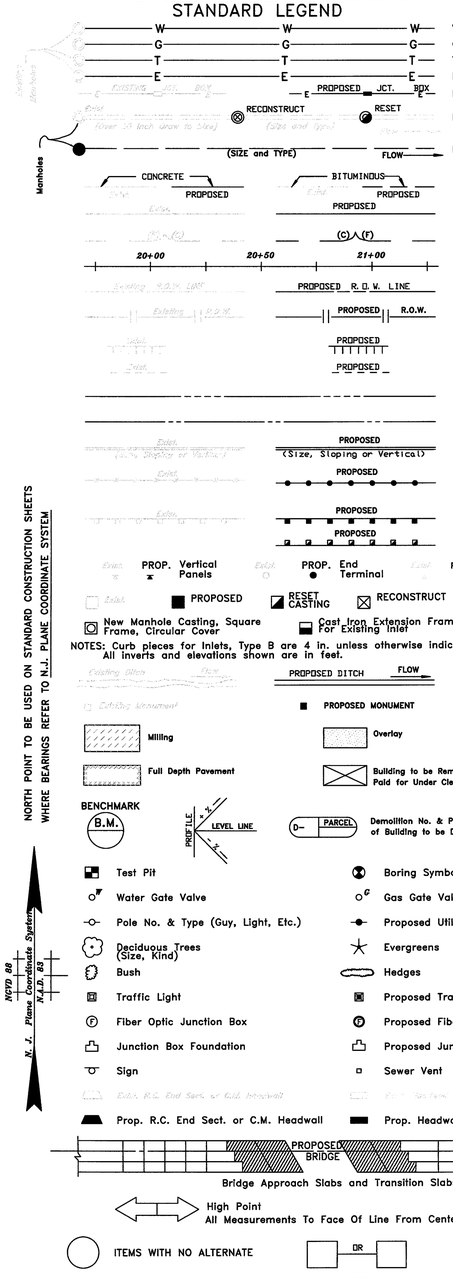
APPROVED BY: **ALFRED J. FAELLA** COUNTY MANAGER, UNION COUNTY ______ DATE 7/7/17

INDEX OF DRAWINGS

APPROVED	DATE	REVISIONS	DATE	BY		PROJECT NO.:	SHEET
(signature)	8/5/17				ALAIMO GROUP Consulting Engineers NJDCA 24GA27988400 200 HIGH STREET MOUNT HOLLY, N.J. 2 MARKET STREET PATERSON, N.J.	A-0530-0016-000	1
Richard A. Alaimo PROFESSIONAL ENGINEER NEW JERSEY LICENSE NO. 13195						FILE NO.:	

Plotted: 4/14/2017 9:10 AM Last saved: 4/14/2017 8:37 AM File Name: Q:\Projects\A0530001600\Drawings\Summit 2007\DHP-01-SUM_TitleSheet.dwg

NEW JERSEY DEPARTMENT OF TRANSPORTATION
STANDARD LEGEND



NOTES: Curb pieces for Inlets, Type B are 4 in. unless otherwise indicated
All inverts and elevations shown are in feet.

NORTH POINT TO BE USED ON STANDARD CONSTRUCTION SHEETS
WHERE BEARINGS REFER TO N.J. PLANE COORDINATE SYSTEM

N.J. Plane Coordinate System
NGVD 88
N.A.D. 83

PLAN REFERENCE CODES

E–DOQ – EST. & DIST. OF QTY
TS – TYPICAL SECTIONS
C – CONSTRUCTION PLANS
U – UTILITY RELOCATION PLANS
D – DRAINAGE PLANS
P – PROFILES
T – TIES
G – GRADING PLANS
TC – MAINTENANCE AND PROTECTION OF TRAFFIC PLANS
SESC – SOIL EROSION AND SEDIMENT CONTROL PLANS
E – ELECTRICAL PLANS
TSP – TRAFFIC SIGNAL PLAN
TSS – TRAFFIC STRIPING AND SIGNING PLANS
X – CROSS SECTIONS
DTL – CONSTRUCTION DETAILS
SC – SANITARY CONSTRUCTION PLANS

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. ANY ERRORS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
2. LOCATION OF EXISTING UTILITIES IS APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.
3. CONTRACTOR SHALL LOCATE AND PRESERVE ALL UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION, AND SHALL REPAIR OR REPLACE ANYTHING THAT HE DAMAGES AT HIS EXPENSE.
4. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES IN WRITING AND SCHEDULE AND COORDINATE ALL WORK INVOLVED WITH UTILITIES.
5. ALL PAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO A CONDITION AT LEAST EQUAL TO THAT WHICH EXISTED PRIOR TO START OF CONSTRUCTION UNLESS OTHERWISE SHOWN OR SPECIFIED.
6. THE CONTRACTOR SHALL ADHERE TO THE "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY."
7. ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED IN ACCORDANCE WITH THE SPECIFICATIONS UNLESS OTHERWISE SHOWN OR SPECIFIED.
8. CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING TREES AND SHRUBS IN THE WORK AREA AND SHALL BE RESPONSIBLE FOR ALL UNAUTHORIZED CUTTING OR DAMAGING OF TREES AND SHRUBS.
9. CONTRACTOR SHALL PERFORM PAVING TO PROVIDE POSITIVE DRAINAGE AND TO ASSURE THAT NO PONDING OCCURS.
10. CONTRACTOR SHALL PROVIDE FOR MAINTENANCE AND PROTECTION OF TRAFFIC IN ACCORDANCE WITH THE SPECIFICATIONS.
11. THE CONTRACTOR SHALL NOTIFY ALL RESIDENTS AND/OR PROPERTY OWNERS AT LEAST FORTY–EIGHT (48) HOURS IN ADVANCE OF PERFORMING WORK IN THE VICINITY OF THEIR PROPERTY.
12. ALL ROADWAYS SHALL REMAIN OPEN TO THROUGH TRAFFIC DURING CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE AUTHORITY HAVING JURISDICTION.
13. THE CONTRACTOR SHALL RESEARCH, OBTAIN, PAY FOR, ABIDE BY AND SCHEDULE BUILDING PERMITS, ROAD OPENING PERMITS AND ANY OTHER PERMITS REQUIRED TO BE OBTAINED BY HIM ON THE FEDERAL, STATE, COUNTY AND MUNICIPAL LEVELS THAT MAY BE REQUIRED AS A RESULT OF WORK ON THIS PROJECT.

ABBREVIATIONS

℄, B.L.	BASELINE
B.M.	BENCH MARK
BIT., BITUM.	BITUMINOUS
BC	BOTTOM OF CURB
BLDG.	BUILDING
℄, C.L.	CENTERLINE
C.I.P.	CAST IRON PIPE
C.O.	CLEANOUT
CR	HANDICAP CURB RAMP
CONC.	CONCRETE
CULV.	CULVERT
D, DIA.	DIAMETER
DEP., DP	DEPRESSED CURB
DRWY.	DRIVEWAY
D.I.P	DUCTILE IRON PIPE
EL., ELEV.	ELEVATION
EXIST.	EXISTING
GR.	GRATE
HDPE	HIGH DENSITY POLYETHYLENE
HT.	HEIGHT
H.W.	HEADWALL
HYD.	HYDRANT
INV.	INVERT
IP	IRON PIN
J.B.	JUNCTION BOX
LT., RT.	LEFT, RIGHT
L.O.C.	LIMIT OF CONSTRUCTION
L.O.P.	LIMIT OF PAVEMENT (PAVING)
L.O.M.	LIMIT OF MILLING
M.B.	MAILBOX
MAX.	MAXIMUM
M.E.	MEET EXISTING
MIN.	MINIMUM
NO.	NUMBER
N.T.S.	NOT TO SCALE
PVMT.	PAVEMENT
P.G.L.	PROFILE GRADE LINE
℄, P.L.	PROPERTY LINE, PROFILE LINE
PK	PARKER KAYLON MASONRY NAIL
POC, P.O.C.	POINT ON CURVE
POL, P.O.L.	POINT ON LINE
POT, P.O.T.	POINT ON TANGENT
PRC, P.R.C.	POINT OF REVERSE CURVE
PRE	PROPOSED RIGHT–OF–WAY EASEMENT
PROP.	PROPOSED
PT, P.T.	POINT OF TANGENCY
PVC, P.V.C.	POLYVINYL CHLORIDE PIPE, POINT OF VERTICAL CURVATURE
PVI, P.V.I.	POINT OF VERTICAL INTERSECTION
PVT, P.V.T.	POINT OF VERTICAL TANGENCY, PAVEMENT
R	RADIUS
RCCP, R.C.C.P.	REINFORCED CONCRETE CULVERT PIPE
T.C.P.	TERRACOTTA PIPE (CLAY PIPE)
RCP, R.C.P	REINFORCED CONCRETE PIPE
ROW, R.O.W.	RIGHT OF WAY
RTE., RT.	ROUTE
SAN.	SANITARY
SDWK.	SIDEWALK
S.H.D.	STATE HIGHWAY DEPARTMENT
SHLD.	SHOULDER
℄, S.L.	SURVEY LINE
STY.	STORY
T	TANGENT
TBA	TO BE ABANDONED
TBR	TO BE REMOVED
TBRS	TO BE RESET
TC	TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEL.	TELEPHONE
TEMP.	TEMPORARY
THK., TH.	THICK
TYP.	TYPICAL
U.D.	UNDERDRAIN
UP, U.P.	UTILITY POLE
VCT	VERTICAL CURB TRANSITION
VAR.	VARIABLE, VARIES
WM	WATER METER

APPROVED: 5/9/17

Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

LEGEND, ABBREVIATIONS & GENERAL NOTES

SCALE: NONE

CLIENT: COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

SHEET 2

FILE NO.: **

Plotted: 8/4/2017 9:15 AM Last saved: 5/11/2017 3:09 PM File Name: Q:\Projects\A0530001600\Drawings\Summit 2007\DHP-02-SUM_Legend.dwg

PAY ITEM NO.		DESCRIPTION-PAY ITEM	UNIT	CONTRACT QUANTITY	PLAN SHEET TOTALS	IF AND WHERE DIRECTED	AS-BUILT QUANTITY	CONSTRUCTION PLAN, C-1 SHEET 5		GRADING PLAN, G-1 SHEET 8		STRUCTURE PLAN, B-2 SHEET 13		DETOUR PLAN, TC-1 SHEET 21								PAY ITEM NO.
1		FIELD OFFICE, TYPE A	UNIT	1																		1
2		CLEARING SITE	LS	1																		2
3		CLEARING SITE, BRIDGE	LS	1																		3
4		MOBILIZATION	LS	1																		4
5		MONUMENT	UNIT	8		8																5
6		FUEL PRICE ADJUSTMENT	ALLOWANCE	AL																		6
7		ASPHALT PRICE ADJUSTMENT	ALLOWANCE	AL																		7
8		--- NO BID ITEM ---	---	---																		8
9		--- NO BID ITEM ---	---	---																		9
10		SOIL EROSION AND SEDIMENT CONTROL	LS	1																		10
11		--- NO BID ITEM ---	---	---																		11
12		--- NO BID ITEM ---	---	---																		12
13		MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1																		13
14		TRAFFIC DIRECTOR, FLAGGER	ALLOWANCE	AL																		14
15		BREAKAWAY BARRICADE	UNIT	8	8	---								8								15
16		DRUM	UNIT	16	16	---								16								16
17		TRAFFIC CONE	UNIT	50	50	---								50								17
18		CONSTRUCTION SIGNS	SF	770	364	406								364								18
19		PRECAST CONCRETE BARRIER CURB, TYPE 4	LF	100	100	---								100								19
20		--- NO BID ITEM ---	---	---																		20
21		--- NO BID ITEM ---	---	---																		21
22		EXCAVATION, UNCLASSIFIED	CY	700	425	275		67				358										22
23		EXCAVATION, TEST PIT	CY	100		100																23
24		DENSE GRADED AGGREGATE, BACKFILL	CY	100		100																24
25		SOIL AGGREGATE	CY	700	358	342						358										25
26		DENSE-GRADED AGGREGATE BASE COURSE, 4" THICK	SY	150	133	17		133														26
27		FLOWABLE FILL	CY	60	42	18		42														27
28		HMA MILLING, 3" OR LESS	SY	140	82	58		82														28
29		TACK COAT	GAL	35	23	12		23														29
30		HOT MIX ASPHALT, 9.5H64, SURFACE COURSE, 2" THICK	TON	30	25	5		25														30
31		--- NO BID ITEM ---	---	---																		31
32		HOT MIX ASPHALT, 19H64, BASE COURSE, 6" THICK	TON	55	46	9		46														32
33		TEMPORARY SHEETING	LS	1																		33
34		MAINTENANCE OF STREAM FLOW	LS	1																		34
35		--- NO BID ITEM ---	---	---																		35
36		REINFORCEMENT STEEL	LB	12000	11000	1000						11000										36
37		REINFORCEMENT STEEL, GALVANIZED	LB	4000	2500	1500						2500										37
38		CONCRETE FOOTING	CY	45	38	7						38										38
39		CONCRETE WINGWALL	CY	20	16	4						16										39
40		CONCRETE CLOSURE POUR	CY	10	4	6						4										40
41		COARSE AGGREGATE LAYER	CY	100	70	30						70										41
42		WATERPROOF MEMBRANE	LF	150	127	23						127										42
43		PRECAST CONCRETE CULVERT	LF	42	42	---						42										43
44		--- NO BID ITEM ---	---	---																		44
45		CONCRETE SIDEWALK, REINFORCED, 4" THICK	SY	70	60	10		60														45
46		--- NO BID ITEM ---	---	---																		46
47		CONCRETE BRIDGE PARAPET	LF	58	58	---						58										47
48		NAME PLAQUE	UNIT	1	1	---						1										48
49		GRANITE BLOCK CURB	LF	180	161	19		161														49
50		RIPRAP STONE CHANNEL PROTECTION, 12" THK. (D50=6")	SY	80	---	80																50
51		--- NO BID ITEM ---	---	---																		51
52		--- NO BID ITEM ---	---	---																		52
53		--- NO BID ITEM ---	---	---																		53
54		WOOD STOCKADE FENCE	LF	24		24																54
55		WOOD SPLIT RAIL FENCE	LF	24		24																55
56		--- NO BID ITEM ---	---	---																		56
57		--- NO BID ITEM ---	---	---																		57
58		HOT MIX ASPHALT DRIVEWAY, 6" THICK	SY	10	10	---		10														58
59		--- NO BID ITEM ---	---	---																		59
60		15" REINFORCED CONCRETE PIPE, CLASS V	LF	40	33	7				33												60
61		18" REINFORCED CONCRETE PIPE, CLASS V	LF	30	25	5				25												61
62		21" REINFORCED CONCRETE PIPE, CLASS V	LF	24		24																62
63		--- NO BID ITEM ---	---	---																		63
64		INLET, TYPE B	UNIT	4	4	---				4												64
65		--- NO BID ITEM ---	---	---																		65
66		RESET CASTINGS	UNIT	2	---	2																66
67		--- NO BID ITEM ---	---	---																		67
68		TRAFFIC STRIPES, LONG LIFE, THERMOPLASTIC, 4" WIDE	LF	160		160																68
69		LARGE DECIDUOUS TREE, 2" 2 1/2" CALIPER, 8' TO 10' HIGH	UNIT	2		2																69
70		SMALL DECIDUOUS TREE, 1"-1 1/2" CALIPER, 6' TO 8' HIGH	UNIT	2		2																70
71		DECIDUOUS SHRUB 18" - 24" HIGH	UNIT	4		4																71
72		DECIDUOUS SHRUB 30" - 36" HIGH	UNIT	2		2																72
73		EVERGREEN SHRUB 18" - 24" HIGH	UNIT	4		4																73
74		EVERGREEN SHRUB 30" - 36" HIGH	UNIT	2		2																74
75		REGULATORY AND WARNING SIGN	SF	128		128																75
76		TOPSOILING, 4" THICK	SY	70	57	13		57														76
77		FERTILIZING AND SEEDING, TYPE G	SY	70	57	13		57														77
78		TOPSOIL STABILIZATION, TYPE 1 MAT	SY	70	---	70																78
79		STRAW MULCHING	SY	70	57	13		57														79

E-DOG-1
E-DOG-1

ESTIMATE ~ DISTRIBUTION OF QUANTITIES

PROJECT: 3 CULVERTS IN BERKELEY HEIGHTS, ROSELLE AND SUMMIT

Alaimo Group No.: A-0530-0016 Contract No.: 2010-005C

APPROVED: Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

Sheet No. 3
Date: MAY 2017

PAY ITEM NO.		DESCRIPTION-PAY ITEM	UNIT	CONTRACT QUANTITY	PLAN SHEET TOTALS	IF AND WHERE DIRECTED	AS-BUILT QUANTITY	CONSTRUCTION PLAN, C-1 SHEET 5		GRADING PLAN, G-1 SHEET 8		STRUCTURE PLAN, B-2 SHEET 13		DETOUR PLAN, TC-1 SHEET 21								PAY ITEM NO.
80		HMA MILLING, 3" OR LESS	SY	850																		80
81		HOT MIX ASPHALT, 9.5H64, SURFACE COURSE, 2" THICK	TON	100																		81
82		DUCTILE IRON PIPE, 8" DIAMETER	LF	368																		82
83		TRENCH STABILIZATION	LF	368																		83
84		MANHOLES WITH 4' DIAMETER, 10'-12' DEEP	UNIT	2																		84
85		REESTABLISH SANITARY LATERALS	UNIT	3																		85
86		ADDITIONAL LENGTH OF LATERAL, 4"	LF	45																		86
87		ABANDON EXISTING 8" SANITARY SEWER PIPING IN PLACE	LF	366																		87
88		ABANDON EXISTING 4' DIA. MH, 10'-12' DEEP	UNIT	1																		88
89		TEST PITS	UNIT	3																		89
90		MANHOLE MODIFICATIONS	UNIT	2																		90
91		CONCRETE ENCASEMENT	LF	60																		91
92		CORE SLEEVE	LS	1																		92
93		TEMPORARY SOIL EROSION & SEDIMENT CONTROLS	LS	1																		93
94		MAINTENANCE AND PROTECTION OF TRAFFIC	MH	160																		94
95		TEMPORARY BYPASS PUMPING	LS	1																		95
96		DEWATERING	LS	1																		96
97		UNDERGROUND UTILITY LOCATION	LS	1																		97
98		SELECTIVE DEMOLITION - 140 LF OF 8" DIP	LS	1																		98
99		METAL FABRICATION - STAINLESS STEEL PLATE	SF	100																		99
100		CONCRETE PIPE PLUGS	UNIT	2																		100
																						101

ESTIMATE ~ DISTRIBUTION OF QUANTITIES

PROJECT: 3 CULVERTS IN BERKELEY HEIGHTS, ROSELLE AND SUMMIT

Alaimo Group No.: A-0530-0016 Contract No.: 2010-005C

5/8/17

APPROVED:
Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

Sheet No. 3A
Date: MAY 2017

E-DOC-2
E-DOC-2

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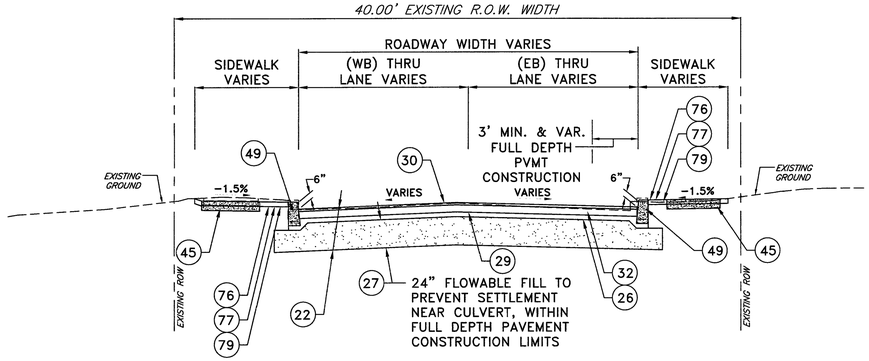
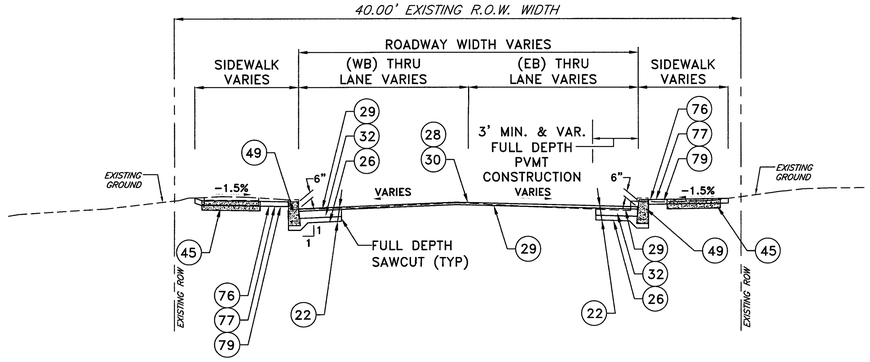


LOCUST DRIVE
TYPICAL CROSS SECTION

STA. 79+80 TO 80+19

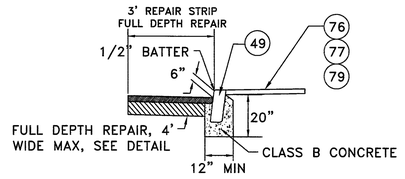


LOCUST DRIVE
TYPICAL CROSS SECTION

STA. 79+60 TO 79+80
STA. 80+19 TO 80+40

TYPICAL SECTION LEGEND

- (22) EXCAVATION, UNCLASSIFIED
- (26) DENSE GRADED AGGREGATE, BASE COURSE, 4" THICK
- (27) FLOWABLE FILL
- (28) HMA MILLING, 3" OR LESS
- (29) TACK COAT
- (30) HOT MIX ASPHALT, 9.5H64, SURFACE COURSE, 2" THICK
- (32) HOT MIX ASPHALT, 19H64, BASE COURSE, 6" THICK
- (45) CONCRETE SIDEWALK, REINFORCED, 4" THICK (DENSE GRADED AGGREGATE, 4" THICK UNDER SIDEWALK—NO SEPARATE PAY ITEM)
- (49) GRANITE BLOCK CURB
- (76) TOPSOILING, 4" THICK
- (77) FERTILIZING AND SEEDING, TYPE G
- (79) STRAW MULCHING



GRANITE BLOCK CURB DETAIL
N.T.S

5 4 3 2 1 0 5 10
SCALE: 1" = 5'
HORIZONTAL

5 4 3 2 1 0 5 10
SCALE: 1" = 5'
VERTICAL

APPROVED: 8/4/17
Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

TYPICAL SECTIONS

SCALE: AS SHOWN

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

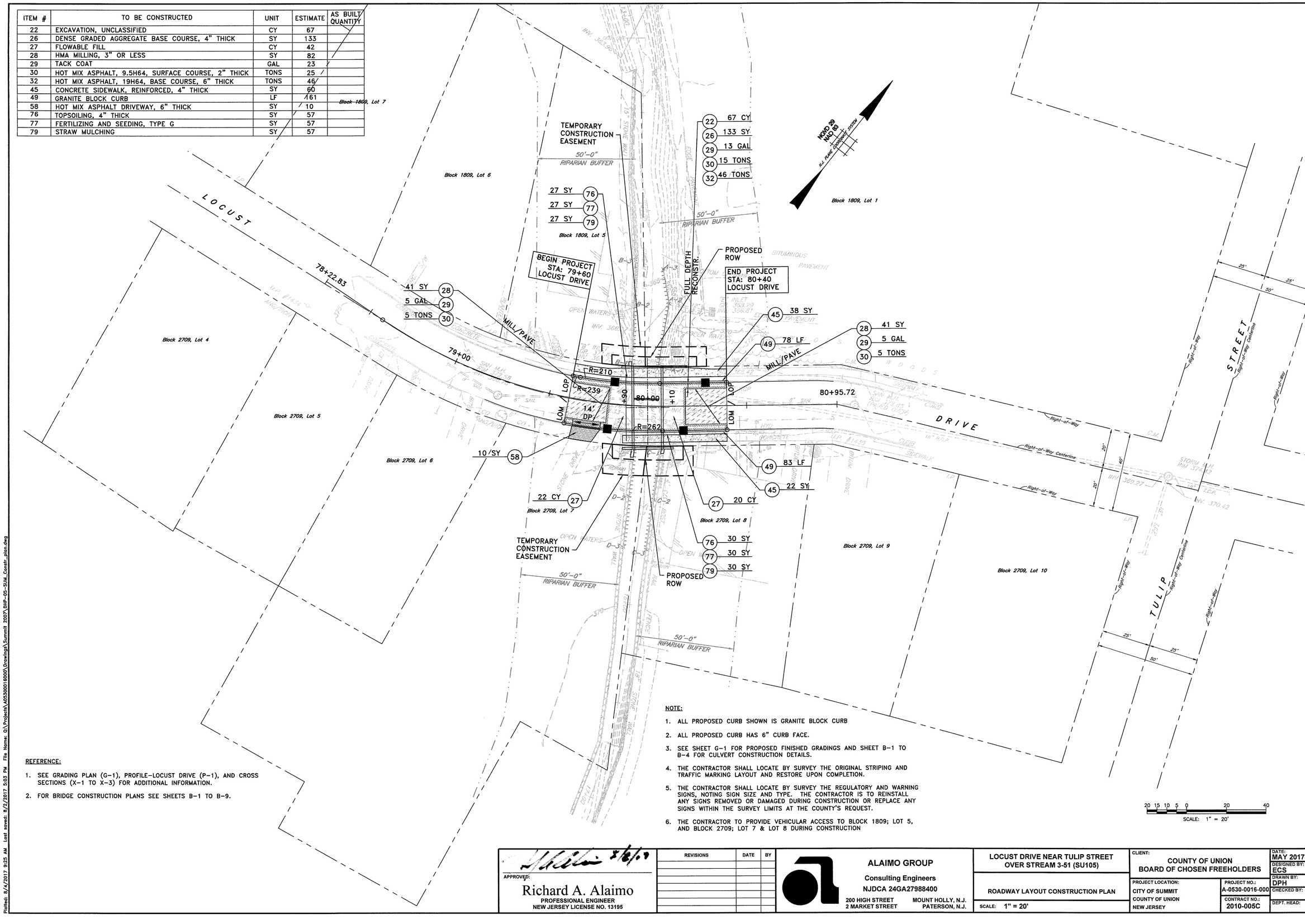
PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

TS-1
SHEET 4
FILE NO.: **

ITEM #	TO BE CONSTRUCTED	UNIT	ESTIMATE	AS BUILT QUANTITY
22	EXCAVATION, UNCLASSIFIED	CY	67	
26	DENSE GRADED AGGREGATE BASE COURSE, 4" THICK	SY	133	
27	FLOWABLE FILL	CY	42	
28	HMA MILLING, 3" OR LESS	SY	82	
29	TACK COAT	GAL	23	
30	HOT MIX ASPHALT, 9.5H64, SURFACE COURSE, 2" THICK	TONS	25	
32	HOT MIX ASPHALT, 19H64, BASE COURSE, 6" THICK	TONS	46	
45	CONCRETE SIDEWALK, REINFORCED, 4" THICK	SY	60	
49	GRANITE BLOCK CURB	LF	161	
58	HOT MIX ASPHALT DRIVEWAY, 6" THICK	SY	10	
76	TOPSOILING, 4" THICK	SY	57	
77	FERTILIZING AND SEEDING, TYPE G	SY	57	
79	STRAW MULCHING	SY	57	



APPROVED:
Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

ROADWAY LAYOUT CONSTRUCTION PLAN

SCALE: 1" = 20'

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

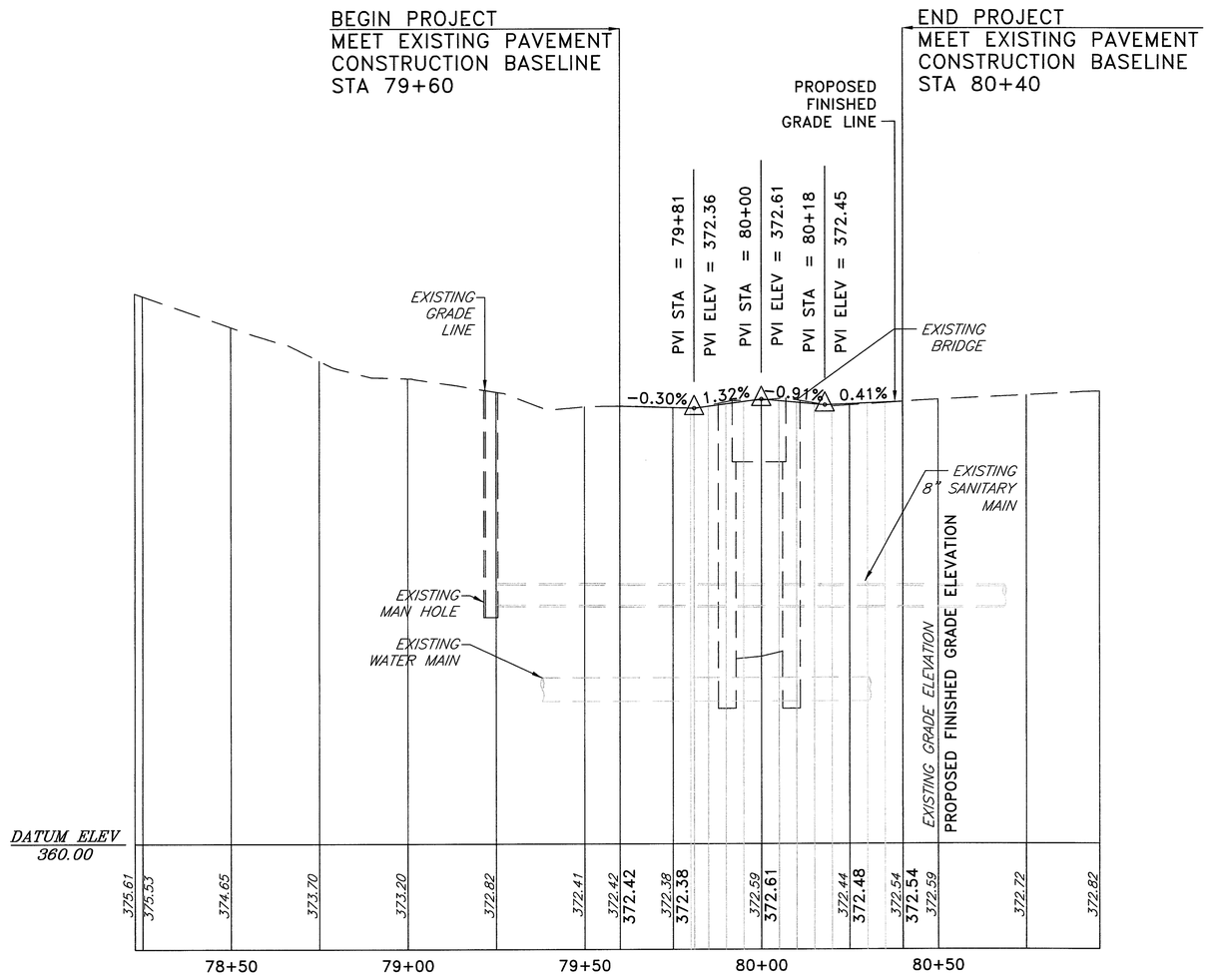
PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

C-1
SHEET 5
FILE NO.: **



LOCUST DRIVE

POSTED SPEED – 25 MPH
DESIGN SPEED – 30 MPH

HORIZONTAL SCALE: 1" = 20'

VERTICAL SCALE: 1" = 2'

NOTE:
1. PROPOSED FINISHED GRADE AND EXISTING GRADE ELEVATIONS ARE SHOWN AT THE CONSTRUCTION BASELINE/PGL.
2. EXISTING WATER LINE TO BE LOCATED BY UTILITIES PRIOR TO CONSTRUCTION.
3. PROPOSED CULVERT TO MATCH EXISTING CULVERT ELEVATIONS. PROPOSED CULVERT NOT SHOWN FOR CLARITY.

APPROVED: 8/8/17
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NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

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NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

PROFILE - LOCUST DRIVE

SCALE: 1"=20'

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: ECS
CHECKED BY:
DEPT. HEAD:

P-1
SHEET 6
FILE NO.: **

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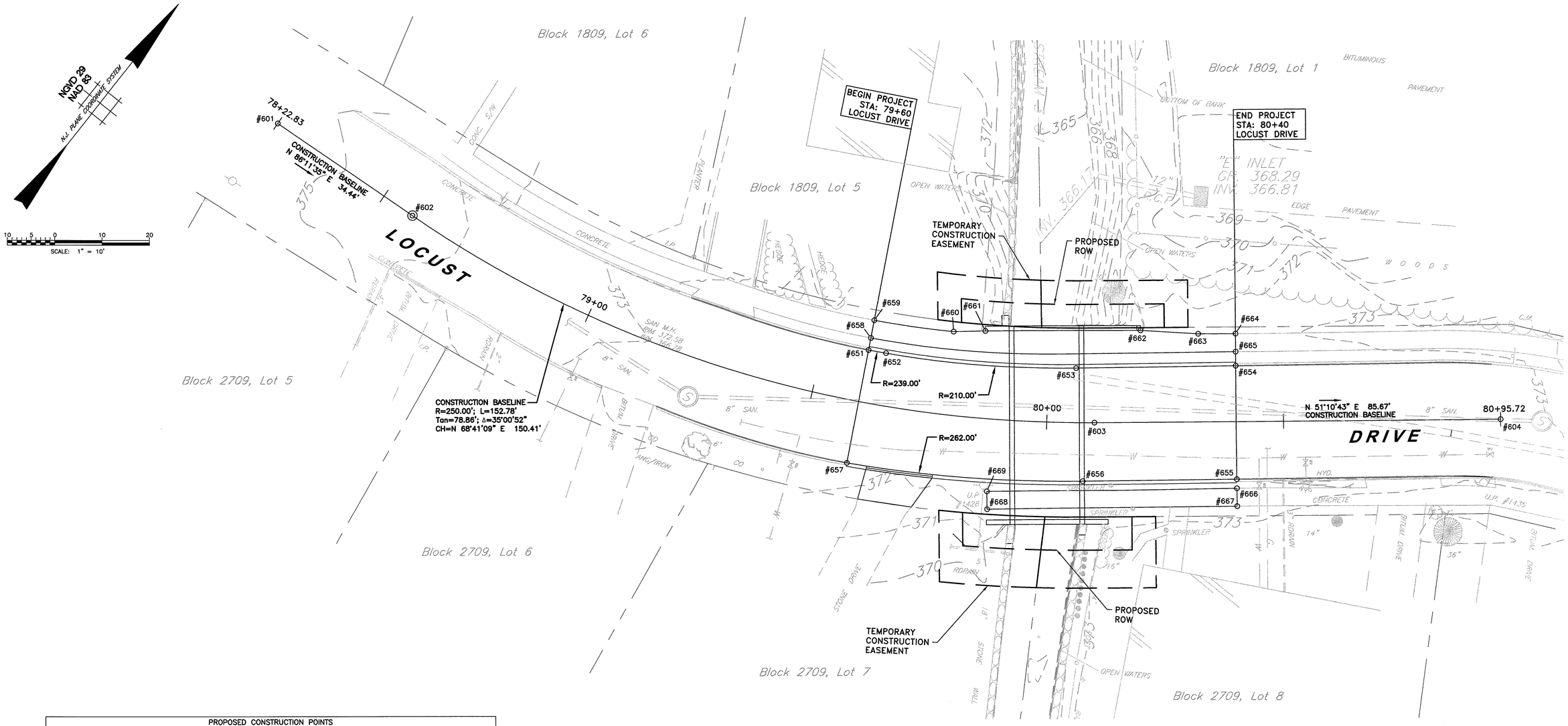

PROPOSED CONSTRUCTION POINTS						
POINT NO.	DESCRIPTION	COORDINATES		BASELINE ①	STATION ②	OFFSET ③
		NORTHING	EASTING			
651	FC – MATCH EXISTING	685030.2484	529230.4489	LOCUST DRIVE	79+60.00	11.06' L
652	FC – PCC	685031.9894	529233.7511	LOCUST DRIVE	79+63.91	11.06' L
653	FC – PT	685054.3357	529267.2039	LOCUST DRIVE	80+06.09	11.53' L
654	FC – MATCH EXISTING	685075.6726	529293.3290	LOCUST DRIVE	80+40.00	11.81' L
655	FC – MATCH EXISTING	685056.9589	529308.3868	LOCUST DRIVE	80+40.00	12.21' R
656	FC – PC	685036.4106	529283.1528	LOCUST DRIVE	80+07.58	12.42' R
657	FC – MATCH EXISTING	685008.7080	529241.5911	LOCUST DRIVE	79+60.00	13.19' R
658	SW – MATCH EXISTING	685032.5501	529229.2583	LOCUST DRIVE	79+60.00	13.65' L
659	SW – MATCH EXISTING	685035.9253	529227.5124	LOCUST DRIVE	79+60.00	17.45' L
660	SW – PI	685044.3765	529242.1567	LOCUST DRIVE	79+78.19	17.62' L
661	SW – PI	685048.6254	529247.3366	LOCUST DRIVE	79+85.35	18.44' L
662	SW – PI	685069.0457	529272.9407	LOCUST DRIVE	80+19.96	19.42' L
663	SW – PI	685076.0310	529282.9326	LOCUST DRIVE	80+32.12	18.60' L
664	SW – MATCH EXISTING	685080.9452	529289.0865	LOCUST DRIVE	80+40.00	18.57' L
665	SW – MATCH EXISTING	685077.9846	529291.4687	LOCUST DRIVE	80+40.00	14.77' L
666	SW – MATCH EXISTING	685055.4696	529309.5852	LOCUST DRIVE	80+40.00	14.13' R
667	SW – MATCH EXISTING	685052.5091	529311.9673	LOCUST DRIVE	80+40.00	17.93' R
668	SW – END	685019.2253	529270.9816	LOCUST DRIVE	79+88.80	19.13' R
669	SW – END	685022.1756	529268.5865	LOCUST DRIVE	79+88.48	15.35' R

① REFERS TO THE CONSTRUCTION BASELINE.
② STATION IS ALONG THE CONSTRUCTION BASELINE.
③ OFFSET IS FROM THE CONSTRUCTION BASELINE.

PROPOSED CONSTRUCTION BASELINE POINTS						
POINT NO.	DESCRIPTION	COORDINATES		BASELINE ①	STATION ②	OFFSET ③
		NORTHING	EASTING			
601	BASELINE – BEGIN	684990.7390	529102.9090	LOCUST DRIVE	78+22.83	0.00' R
602	BASELINE – PC	684993.0254	529137.2695	LOCUST DRIVE	78+57.27	0.00' R
603	BASELINE – PT	685047.6980	529277.3947	LOCUST DRIVE	80+10.05	0.00' R
604	BASELINE – END	685101.4068	529344.1437	LOCUST DRIVE	80+95.72	0.00' R

① REFERS TO THE CONSTRUCTION BASELINE.
② STATION IS ALONG THE CONSTRUCTION BASELINE.
③ OFFSET IS FROM THE CONSTRUCTION BASELINE.

APPROVED:
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PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

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200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET
OVER STREAM 3-51 (SU105)

TIE SHEET LAYOUT
& TABULATIONS

SCALE: 1" = 10'

CLIENT:
COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION:
CITY OF SUMMIT
COUNTY OF UNION
NEW JERSEY

PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: ECS/CFC
CHECKED BY:
DEPT. HEAD:

SHEET 7
FILE NO.: **

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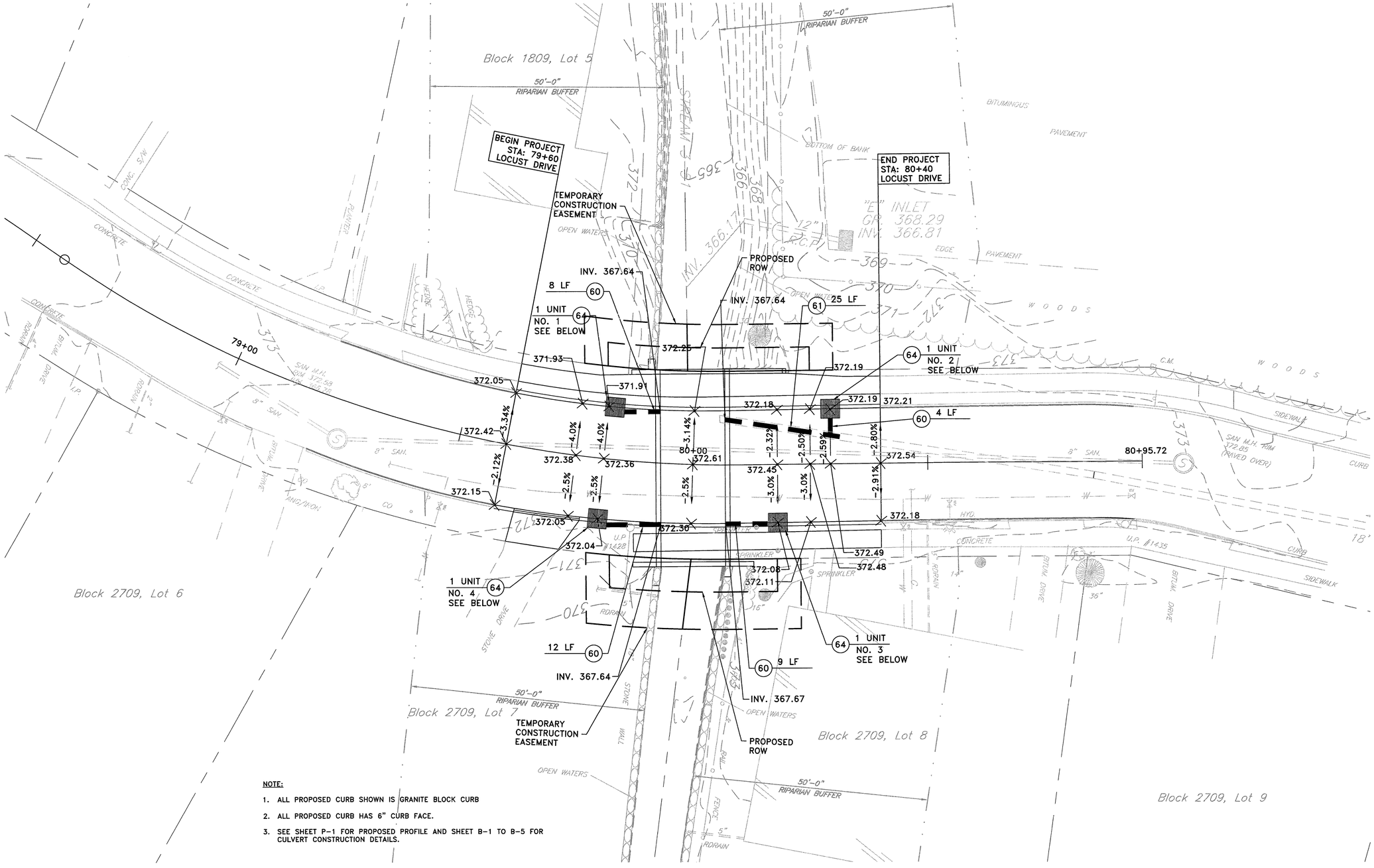

NOTE:

1. ALL PROPOSED CURB SHOWN IS GRANITE BLOCK CURB
2. ALL PROPOSED CURB HAS 6" CURB FACE.
3. SEE SHEET P-1 FOR PROPOSED PROFILE AND SHEET B-1 TO B-5 FOR CULVERT CONSTRUCTION DETAILS.

DRAINAGE STRUCTURE DATA

NO. 1 "B"
STA 79+82.32, 11.15', LT.
GR 371.91
INV (OUT) 368.72

NO. 2 "B"
STA 7+75.94, 36.13', LT.
GR 71.38
INV (IN) 64.34
INV (OUT) 64.19

NO. 3 "B"
STA 9+88.08, 35.47', RT.
INV (OUT) 63.49

NO. 4 "B"
STA 9+93.28, 38.38', LT.
GR. 70.26
INV (IN) 62.02 (SOUTH)
INV (IN) 62.55 (EAST)
INV (OUT) 61.94

ITEM #	TO BE CONSTRUCTED	UNIT	ESTIMATE	AS BUILT QUANTITY
60	15" REINFORCED CONCRETE PIPE, CLASS V	LF	33	
61	18" REINFORCED CONCRETE PIPE, CLASS V	LF	25	
64	INLET, TYPE B	UNIT	4	

SCALE: 1" = 10'

APPROVED:
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PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

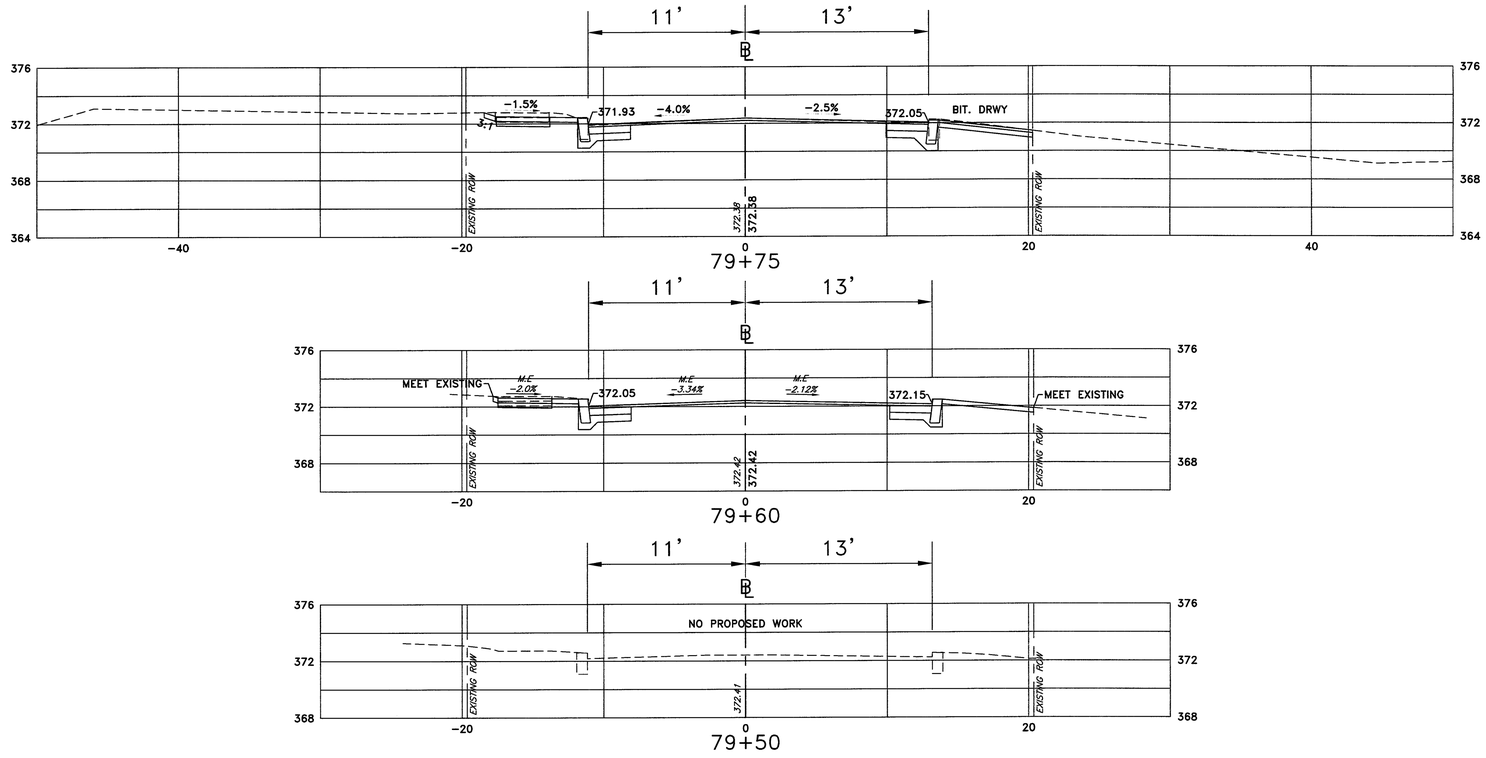
GRADING PLAN

SCALE: 1" = 10'

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS
PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY
PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C
DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: ECS
CHECKED BY:
DEPT. HEAD:

G-1
SHEET 8
FILE NO.: **

Plotted: 8/4/2017 9:30 AM Last saved: 8/3/2017 9:14 AM File Name: Q:\Projects\A0530001600\Drawings\Summit 200\DHP-08-SUM_Grading.dwg



HORIZONTAL 5 4 3 2 1 0 5 10
SCALE: 1" = 5'

VERTICAL 5 4 3 2 1 0 5 10
SCALE: 1" = 5'

APPROVED: 5/2/17

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REVISIONS	DATE	BY

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NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET
OVER STREAM 3-51 (SU105)

CROSS SECTIONS

SCALE: 1"=5'

CLIENT:
COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION:
CITY OF SUMMIT
COUNTY OF UNION
NEW JERSEY

PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

X-1
SHEET 9
FILE NO.: **

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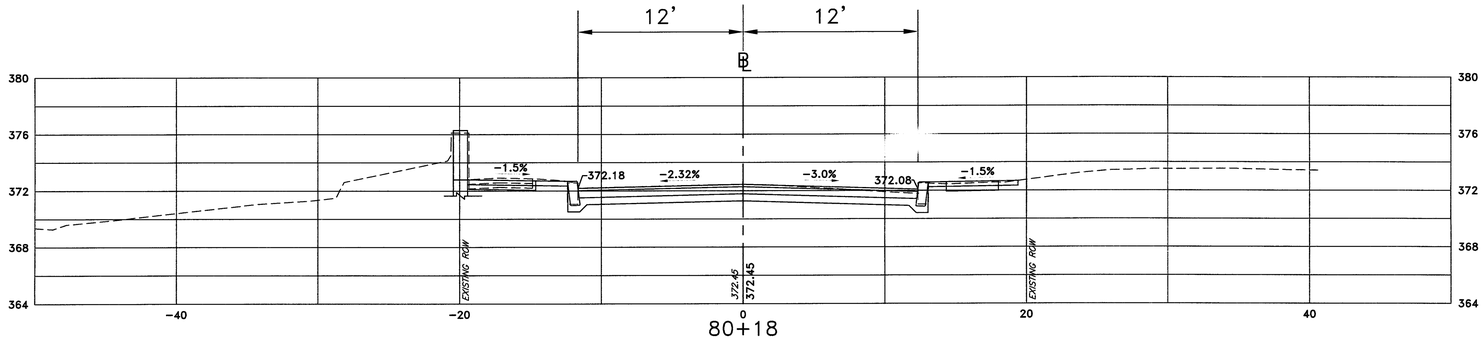
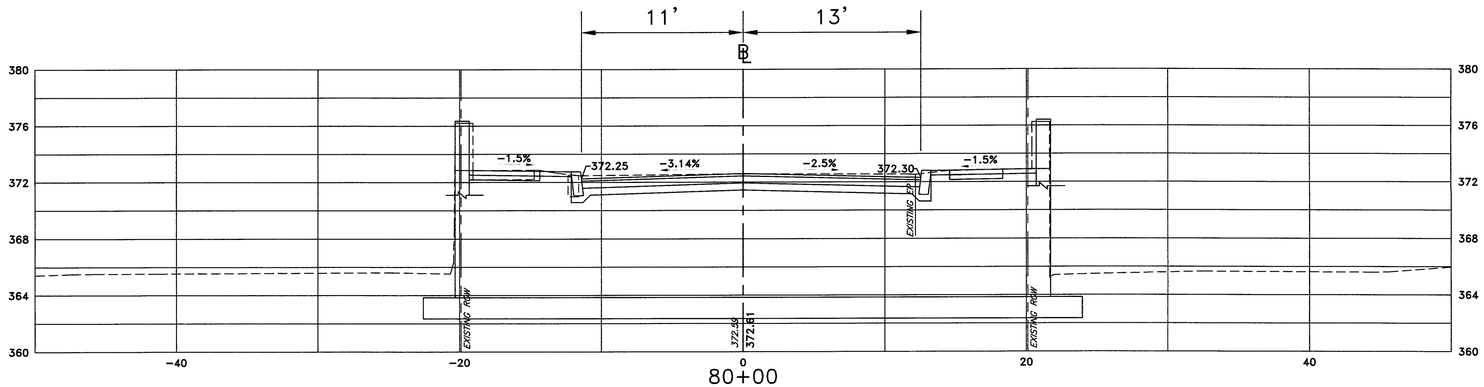
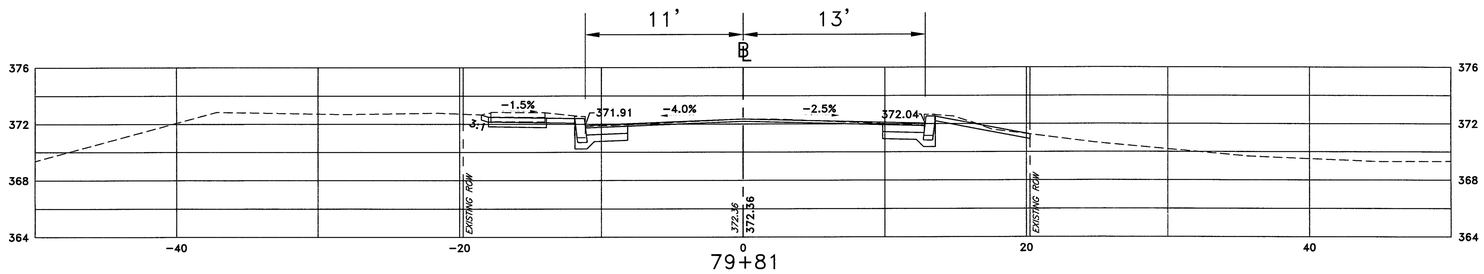


80+18



80+00



79+81

HORIZONTAL 5 4 3 2 1 0 5 10
SCALE: 1" = 5'

VERTICAL 5 4 3 2 1 0 5 10
SCALE: 1" = 5'

APPROVED:

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REVISIONS	DATE	BY

ALAIMO GROUP
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NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET
OVER STREAM 3-51 (SU105)

CROSS SECTIONS

SCALE: 1"=5'

CLIENT:
COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION:
CITY OF SUMMIT
COUNTY OF UNION
NEW JERSEY

PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

X-2

SHEET 10

FILE NO.: **

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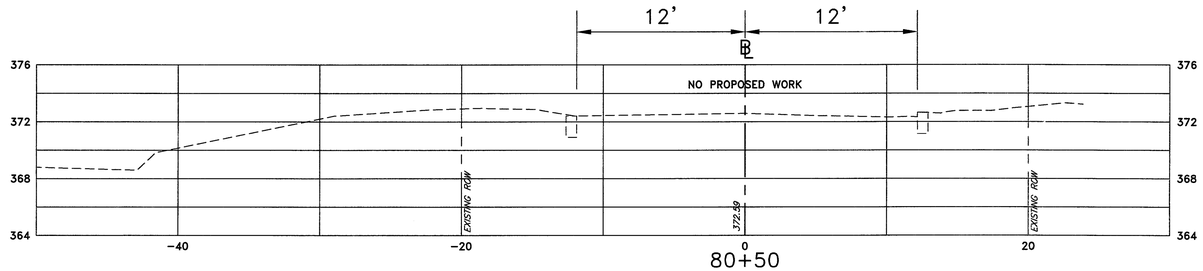

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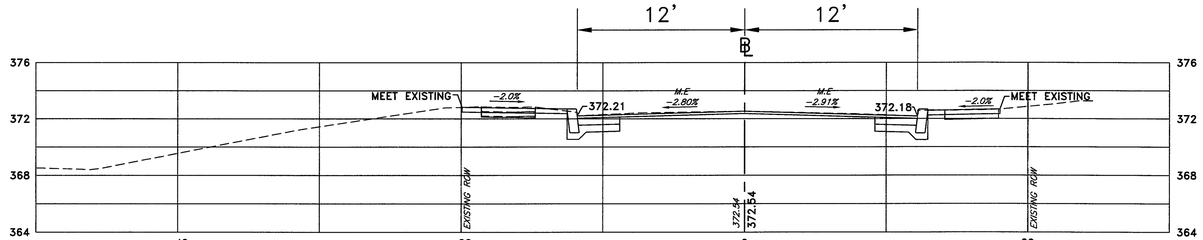

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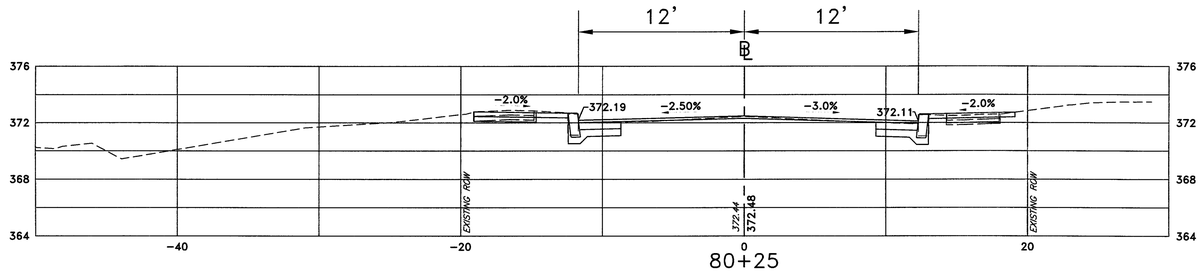

80+25

HORIZONTAL 5 4 3 2 1 0 5 10
SCALE: 1" = 5'

VERTICAL 5 4 3 2 1 0 5 10
SCALE: 1" = 5'

5/8/17

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NEW JERSEY LICENSE NO. 13195

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200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET
OVER STREAM 3-51 (SU105)

CROSS SECTIONS

SCALE: 1"=5'

CLIENT:
COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION:
CITY OF SUMMIT
COUNTY OF UNION
NEW JERSEY

PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

X-3
SHEET 11
FILE NO.: **

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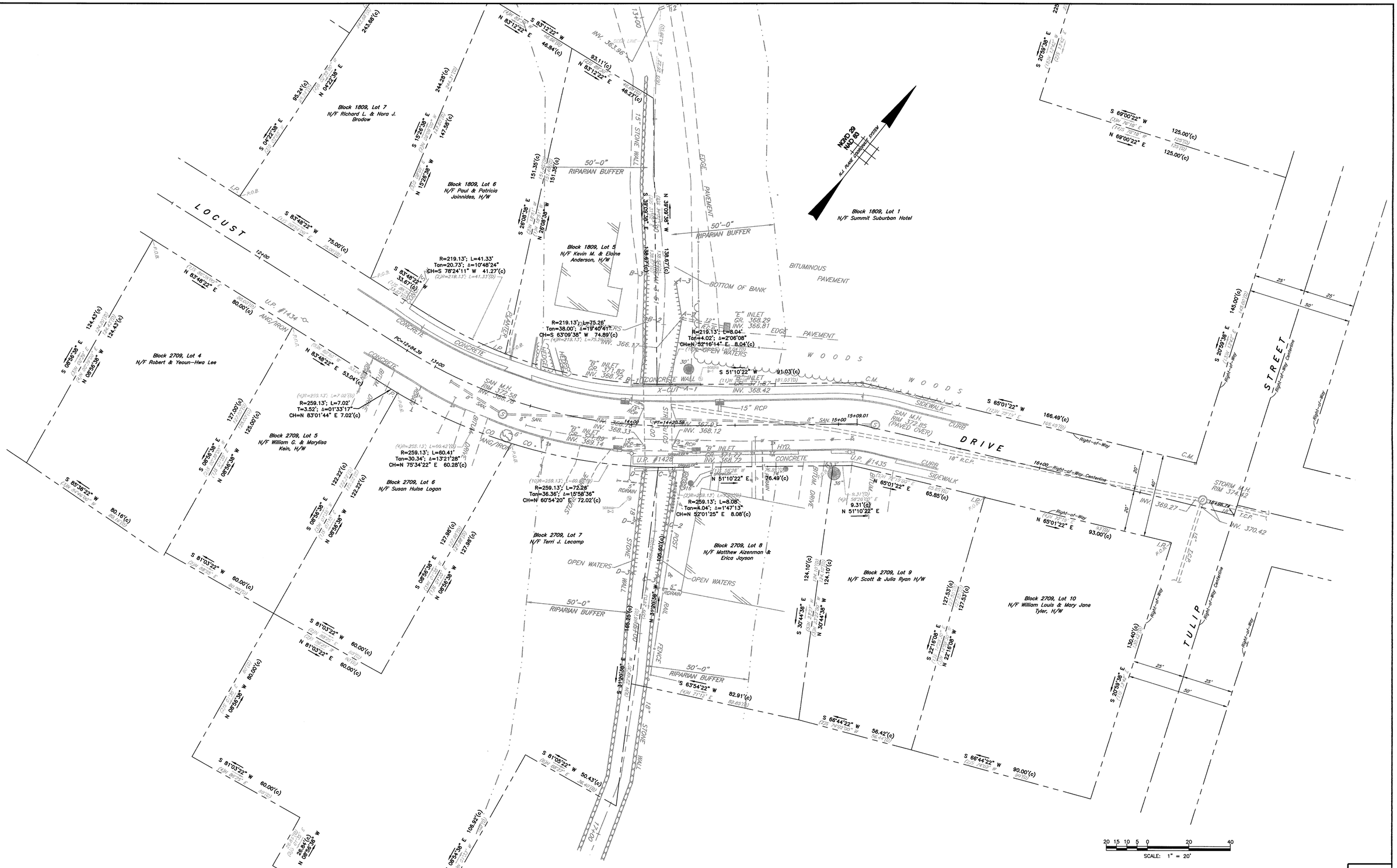

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Richard A. Alaimo
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200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

EXISTING CONDITIONS PLAN

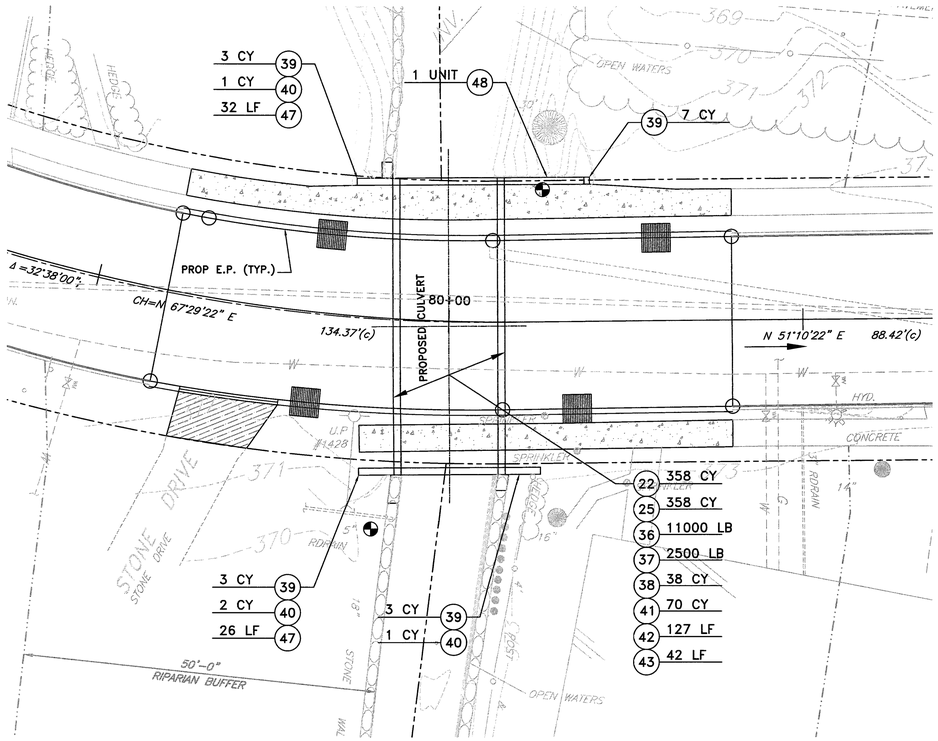
SCALE: AS NOTED

CLIENT: COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY
PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

B-1
SHEET 12
FILE NO.: **

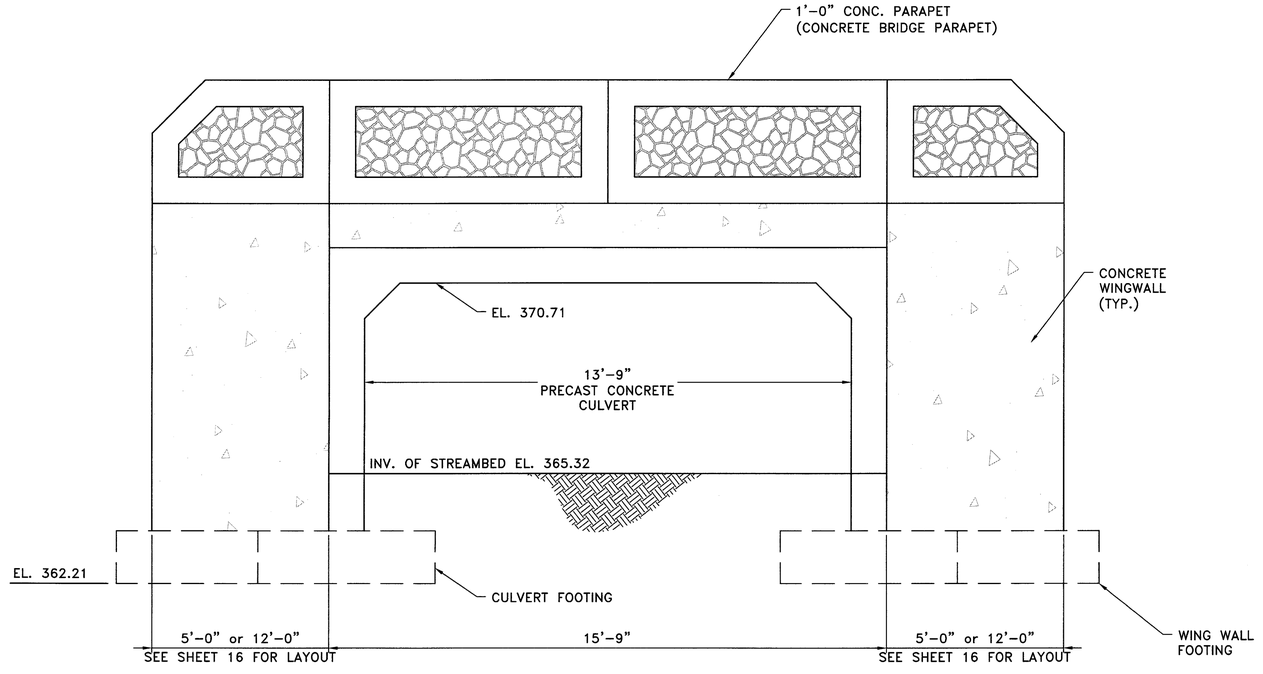


GENERAL CULVERT PLAN
SCALE: 1"=10'

SUMMARY OF BRIDGE QUANTITIES				
PAY ITEM NO.	DESCRIPTIONS	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
22	EXCAVATION, UNCLASSIFIED	CY	358	
25	SOIL AGGREGATE	CY	358	
36	REINFORCEMENT STEEL	LB	11000	
37	REINFORCEMENT STEEL, GALVANIZED	LB	2500	
38	CONCRETE FOOTING	CY	38	
39	CONCRETE WINGWALL	CY	16	
40	CONCRETE CLOSURE POUR	CY	4	
41	COARSE AGGREGATE LAYER	CY	70	
42	WATERPROOF MEMBRANE	LF	127	
43	PRECAST CONCRETE CULVERT	LF	42	
47	CONCRETE BRIDGE PARAPET	LF	58	
48	NAME PLAQUE	UNIT	1	

REFERENCE:

1. SEE GRADING PLAN (G-1) AND CROSS SECTIONS (X-1 TO X-3) FOR ADDITIONAL INFORMATION.
2. FOR ROADWAY LAYOUT CONSTRUCTION PLAN SEE C-1.
3. FOR CULVERT DETAILS WORK SEE THIS SHEET AND SHEETS B-3 TO B-9.



CULVERT ELEVATION
SCALE: 1/2"=1'-0"

STRUCTURAL NOTES:

1. DESIGN SPECIFICATION

   THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, WITH CURRENT INTERIMS, AS MODIFIED BY SECTION 3 OF THE CURRENT NJDOT DESIGN MANUAL FOR BRIDGES & STRUCTURES.

2. CONSTRUCTION SPECIFICATIONS:

   THE 2007 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH CURRENT SUPPLEMENTARY SPECIFICATIONS, AS MODIFIED BY THE SPECIAL PROVISIONS.

3. LIVE LOADING:

   AASHTO LRFD HL-93 VEHICULAR LIVE LOADING OR NJDOT PERMIT VEHICLE, WHICHEVER GOVERNS.

4. CONCRETE DESIGN STRESSES:

   4.1 NON-PRECAST CONCRETE

   A. SPECIFIED COMPRESSIVE STRENGTH (f'c) @ 28 DAYS. (IN ACCORDANCE WITH RETEST LIMITS FOR PAY-ADJUSTMENT ITEMS AS SPECIFIED IN TABLE 903.03.06-4 OF THE NJDOT STANDARD SPECIFICATIONS AND AS MODIFIED BY THE SPECIAL PROVISIONS).
   CLASS A = 4,000 P.S.I.
   CLASS B = 3,000 P.S.I.

   B. CLASS DESIGN STRENGTHS (IN ACCORDANCE WITH TABLE 903.03.06-3 OF THE NJDOT STANDARD SPECIFICATIONS.)
   CLASS A = 4,600 P.S.I.
   CLASS B = 3,700 P.S.I.

   C. ALLOWABLE STRESSES, EXTREME FIBER IN COMPRESSION Fc
   CLASS A, Fc = 1,600 P.S.I.
   CLASS A, DECK SLABS OF VEHICULAR BRIDGES, Fc = 1,400 P.S.I.
   CLASS B, Fc = 1,200 P.S.I.

   4.2 PRECAST CONCRETE CULVERT (903.03.06-3): CLASS P

   A. ULTIMATE COMPRESSIVE STRENGTH (f'c) 5,500 P.S.I. @ 28 DAYS.
   B. INITIAL COMPRESSIVE STRENGTH (f'c) 4,400 P.S.I. @ STRAND RELEASE.

5. REINFORCEMENT STEEL:

   5.1 REINFORCING BARS

   A. ASTM A615 (GRADE 60), FS = 24,000 PSI
   B. GALVANIZE ACCORDING TO ASTM A767, CLASS I, FABRICATE BENDS AND DETAILS BEFORE GALVANIZING.

   5.2 POST-TENSIONING

   A. PRESTRESSING STRANDS - 1/2" DIA. UNCOATED 7 WIRE GRADE 270 KSI STRANDS CONFORMING TO AASHTO M203 (ASTM A416) STRESS RELIEVED LOW RELAXATION STRANDS.
   B. LONGITUDINAL TIE RODS - 3/4" DIA. TYPE I, HIGH TENSILE STRENGTH STEEL BARS CONFORMING TO AASHTO M275 (ASTM A722)

6. SUPERSTRUCTURE:

   PRECAST CONCRETE CULVERT AND CONCRETE PARAPETS
   DEAD LOAD INCLUDES 25 Lbs./S.F. PROVISION FOR FUTURE 2" THICK OVERLAY ON BRIDGE DECK.

7. SUBSTRUCTURE:

   PRECAST CONCRETE CULVERT AND RETAINING WALLS ARE SUPPORTED BY REINFORCED CONCRETE FOOTINGS.

8. CONCRETE:

   CHAMFER ALL EXPOSED CONCRETE CORNERS 3/4"x3/4" UNLESS OTHERWISE NOTED.

9. TRAFFIC:

   VEHICULAR AND PEDESTRIAN TRAFFIC TO BE DETOURED DURING CONSTRUCTION. (SEE MAINTENANCE AND PROTECTION OF TRAFFIC PLANS).

10. BORINGS:

    INDICATES APPROXIMATE LOCATION OF BORINGS. REFER TO SHEET B-1 FOR SOIL BORING LOCATIONS. REFER TO SUPPLEMENTARY SPECIFICATIONS FOR GEOTECHNICAL REPORT.

11. SEISMIC DESIGN NOTES:

    SEE GEOTECH REPORT COMPLETED BY CRAIG TESTING LABORATORIES, INC. IN 2012.

12. EXISTING CONDITIONS:

    THE CONTRACTOR SHALL EXAMINE AND VERIFY IN THE FIELD ALL EXISTING CONDITIONS AND DIMENSIONS WITH THOSE SHOWN ON THE PLANS. IF FIELD CONDITIONS AND DIMENSIONS DIFFER FROM THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL USE THE FIELD DIMENSIONS AND MAKE THE APPROPRIATE CHANGES TO THOSE SHOWN ON THE PLANS AS APPROVED BY CHECK-OFF CONDITIONS AND DIMENSIONS SHALL BE SO NOTED ON THE DRAWINGS SUBMITTED FOR APPROVAL

13. THE EXISTING BRIDGE SHALL BE REMOVED IN ITS ENTIRETY.

14. THE CONTRACTOR SHALL BE PROHIBITED FROM STAGING HEAVY EQUIPMENT OR MATERIALS ABOVE THE EXISTING PORTIONS OF THE CULVERT.

15. THERE SHALL BE NO CLAIM AGAINST THE COUNTY BY THE CONTRACTOR FOR WORK PERTAINING TO MODIFICATIONS AS MAY BE REQUIRED DUE TO ANY DIFFERENCES BETWEEN ACTUAL FIELD CONDITIONS AND THE DETAILS AND DIMENSIONS SHOWN ON THE CONTRACT PLANS.

16. PRECAST MANUFACTURER TO SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS (PRECAST MANUFACTURER MAY PROVIDE STEEL LAYOUT DESIGN BASED ON DESIGN SPECIFICATIONS AND LIVE LOADING THAT MEETS OR EXCEEDS DESIGN REQUIREMENTS.) TO BE SIGNED AND SEALED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER, INCLUDING A DIGITAL FILE OF SAME. THE PRECAST CULVERT SLAB AND WALL THICKNESS MAY NOT CHANGE FROM THAT SHOWN ON THE PLANS.

17. UTILITIES:

    A. CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES PRIOR TO START OF WORK AS DESIGNATED AT THE PRE-CONSTRUCTION MEETING (TYPICALLY 2 WEEKS NOTICE) TO COORDINATE AND SCHEDULE RELOCATION OF UTILITIES.

APPROVED: 8/2/17
Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

GENERAL PLAN & ELEVATION

SCALE: AS NOTED

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

B-2
SHEET 13
FILE NO.: **

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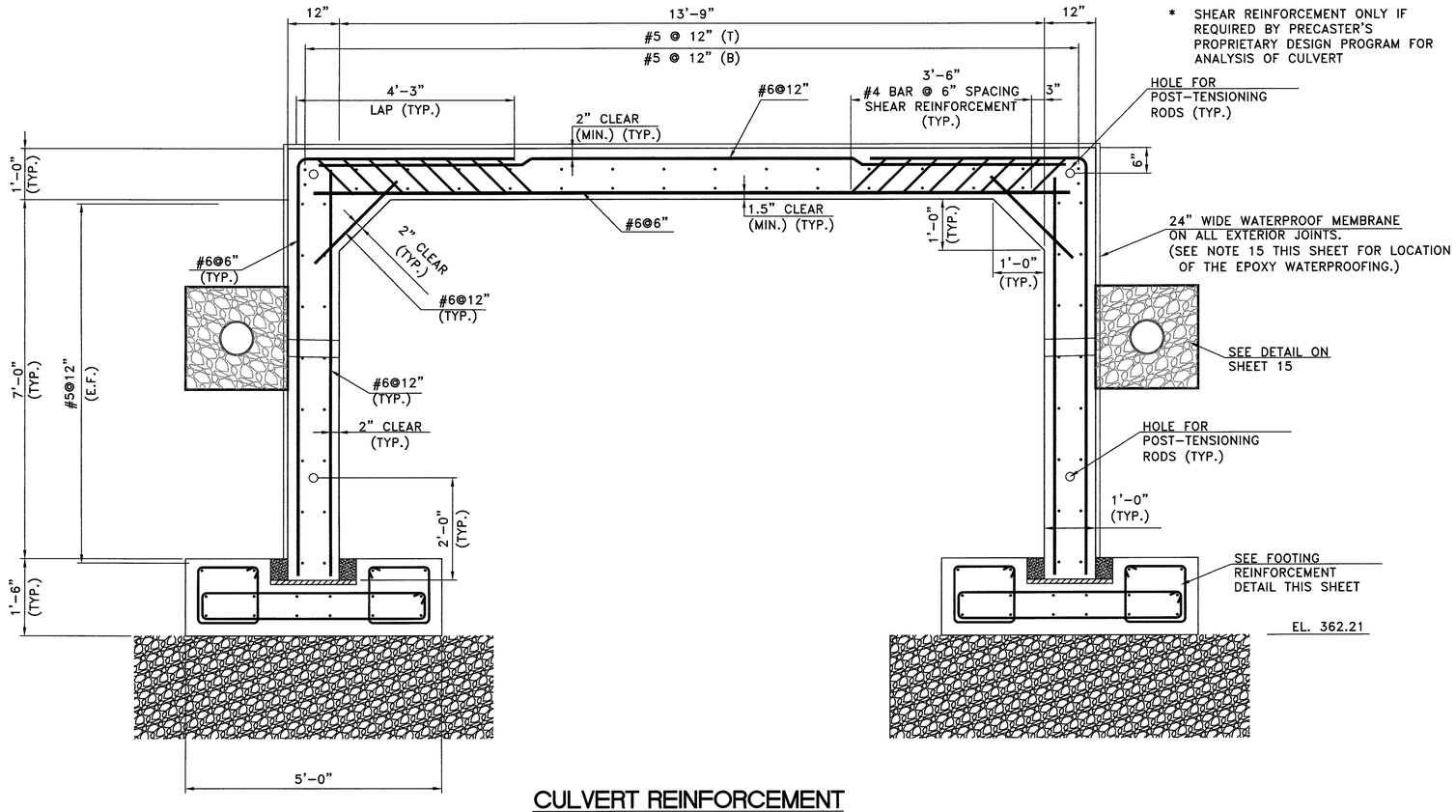


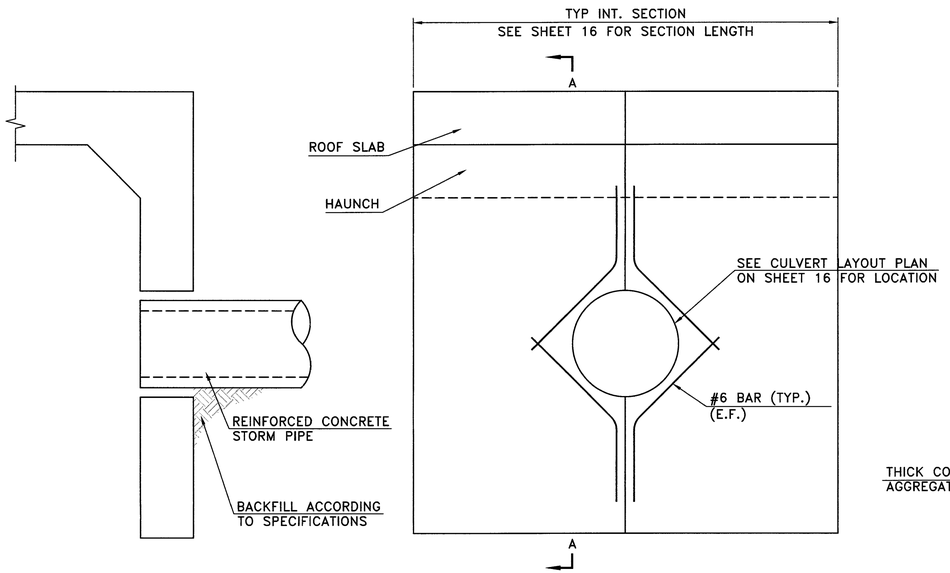
* SHEAR REINFORCEMENT ONLY IF REQUIRED BY PRECASTER'S PROPRIETARY DESIGN PROGRAM FOR ANALYSIS OF CULVERT

CULVERT REINFORCEMENT

SCALE: ¾"=1'-0"

NOTES:

1. PRECAST REINFORCED CONCRETE CULVERT SHALL BE DESIGNED BY THE LOAD AND RESISTANCE FACTOR DESIGN (LIMIT STATES DESIGN METHOD) IN ACCORDANCE WITH SECTION 12 AND SUBSECTION 5.14.5 OF THE AASHTO LFRD BRIDGE DESIGN SPECIFICATIONS (INCLUDING CURRENT INTERIMS) AS MODIFIED BY THE CURRENT EDITION OF THE NJDOT DESIGN MANUAL FOR BRIDGES AND STRUCTURES.
2. CONCRETE FOR THE PRECAST CONCRETE ELEMENTS SHALL BE CLASS "P" IN ACCORDANCE WITH TABLE 903.03.06-3 OF THE NJDOT STANDARD SPECIFICATIONS, AND HAVE A MINIMUM DESIGN COMPRESSIVE STRENGTH OF F'C=5500 PSI.
3. 24" WIDE POLYOLEFIN PLASTIC BARRIER TO BE INSTALLED AT ALL JOINTS BETWEEN PRECAST SECTIONS.
4. ALL REINFORCEMENT IN CULVERT TO BE HOT-DIP GALVANIZED.
5. WELDED WIRE FABRIC IS NOT ACCEPTABLE AND WILL BE REJECTED.
6. CONCRETE IN FOOTING SHALL BE CLASS "B" IN ACCORDANCE WITH TABLE 903.03.06-3 OF THE NJDOT STANDARD SPECIFICATIONS.
7. THE PRECAST CONCRETE CULVERT SECTIONS SHALL BE PLACED IN THE ORDER AS SHOWN IN THE PLAN, PRECAST CULVERT SECTIONS (BEGINNING WITH 1 AND PROCEEDING SEQUENTIALLY).
8. THE PRECAST MANUFACTURER IS PERMITTED TO VARY THE LENGTHS OF THE CULVERT SECTION SUBJECT TO THE APPROVAL OF THE ENGINEER AND WILL NOT INTERFERE WITH 2'-0" STORM PIPE OPENING.
9. ALL EXPOSED CONCRETE CORNERS HAVE ¾" CHAMFER, UNLESS NOTED OTHERWISE.
10. ALL SECTIONS TO BE INSTALLED BELOW AERIAL UTILITIES SHALL BE PLACED USING METHODS IN ACCORDANCE TO THE RESTRICTIONS SET FORTH BY THE HIGH VOLTAGE PROXIMITY ACT.
11. POST-TENSIONING RODS TO BE ¾"ø, AASHTO M275 STEEL BARS, GALVANIZED IN ACCORDANCE WITH AASHTO M111.
12. RODS TO BE TENSIONED TO 20,000 LBS. EACH.
13. ALL POST-TENSIONING HOLES, HAND HOLES, AND LIFTING HOLES SHALL BE GROUTED AFTER POST-TENSIONING RODS HAVE BEEN INSTALLED AND TENSIONED.
14. GROUT SHALL BE NON-SHRINK, NON-METALLIC, AND SHALL CONFORM TO SPECIFICATIONS SECTION 903.08.
15. PRECAST REINFORCED CONCRETE CULVERT UNITS SHALL BE GIVEN ONE COAT OF AN EPOXY WATERPROOFING SEAL COAT ON THE ROOF SLAB AND 2' DOWN SIDES. THIS COATING SHALL BE PROVIDED AT THE PRECASTING PLANT. IN ADDITION, ANY TOP SLAB HANDHOLE POCKETS OR LIFTING HOLES, WHICH ARE GROUTED IN THE FIELD, SHALL RECEIVE ONE COAT OF EPOXY WATERPROOFING SEAL COAT AFTER THE GROUT HAS PROPERLY CURED. TO BE INCLUDED IN THE PAY ITEM FOR PRECAST CONCRETE CULVERT.
16. WEEPHOLES SHALL BE PLACED AT THE CENTERLINE OF PRECAST SECTIONS 1, 3, AND 5 (AS NUMBERED ON SHEET 16) AND SHALL BE PLACED AT AN INVERT EL. 367.64. WALL DRAINAGE SHALL BE OMITTED WHERE CONFLICT WITH STORM PIPE PENETRATIONS OCCUR. WEEPHOLES AND WALL DRAINAGE SHALL BE PAID FOR UNDER PRECAST CONCRETE CULVERT.

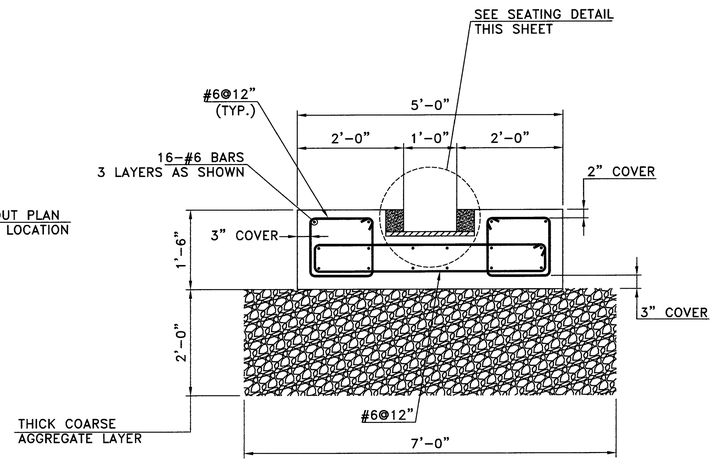


SECTION A-A

ELEVATION

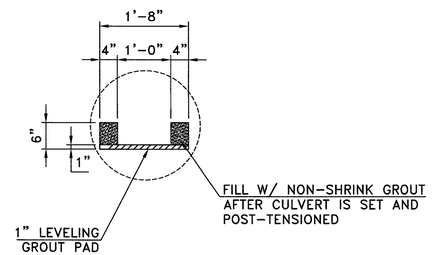
STORM PIPE PENETRATION INTERIOR CULVERT SECTION

SCALE: ¾"=1'-0"



FOOTING REINFORCEMENT DETAIL

SCALE: ¾"=1'-0"



SEATING DETAIL

SCALE: ¾"=1'-0"

APPROVED: 5/8/17

Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET
OVER STREAM 3-51 (SU105)

CULVERT DETAILS

SCALE: AS NOTED

CLIENT: COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

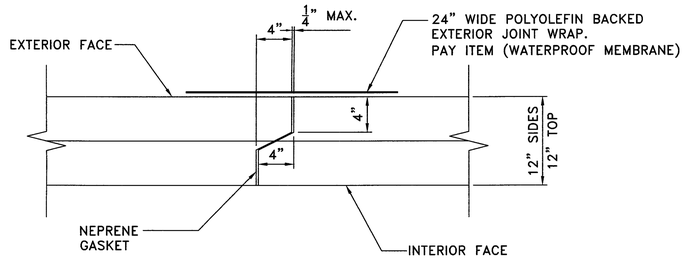
PROJECT LOCATION: CITY OF SUMMIT / COUNTY OF UNION / NEW JERSEY

PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

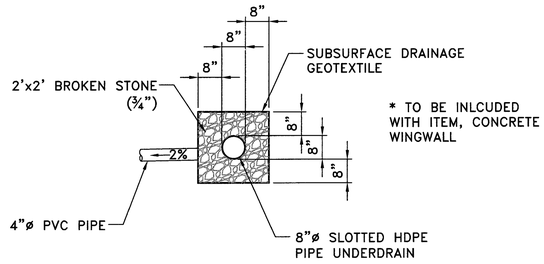
DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

B-3
SHEET 14
FILE NO.: **



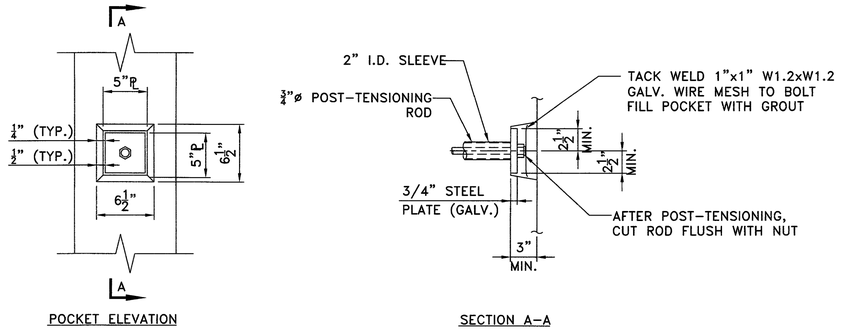
CULVERT JOINT SECTION

SCALE: 1 ½"=1'-0"



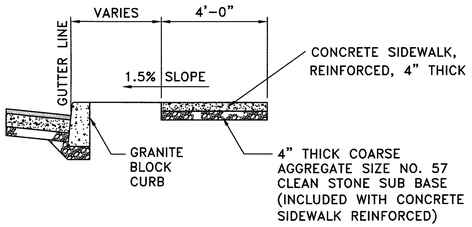
WALL DRAINAGE DETAIL

SCALE: ½"=1'-0"



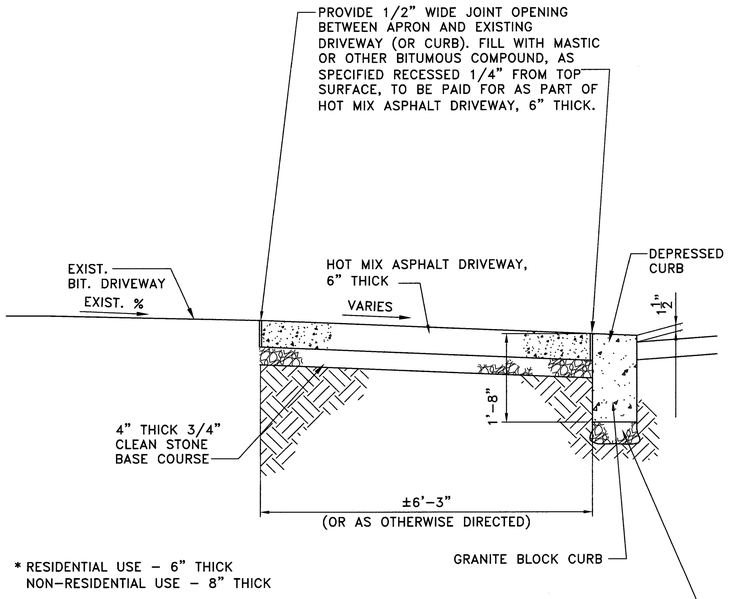
POST-TENSIONING DETAILS

SCALE: 1 ½"=1'-0"



CONCRETE SIDEWALK

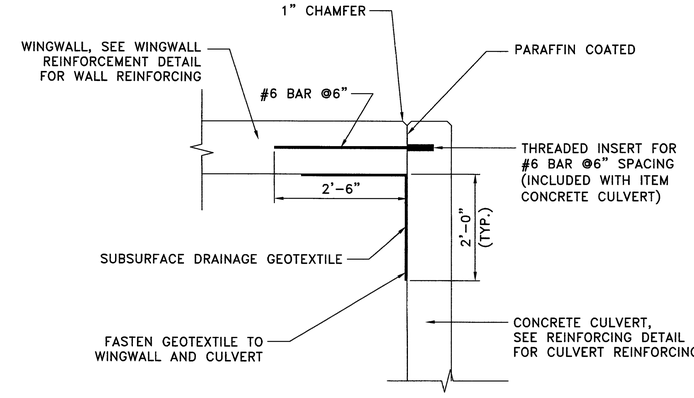
SCALE: 3/8"=1'-0"



* RESIDENTIAL USE – 6" THICK
NON-RESIDENTIAL USE – 8" THICK

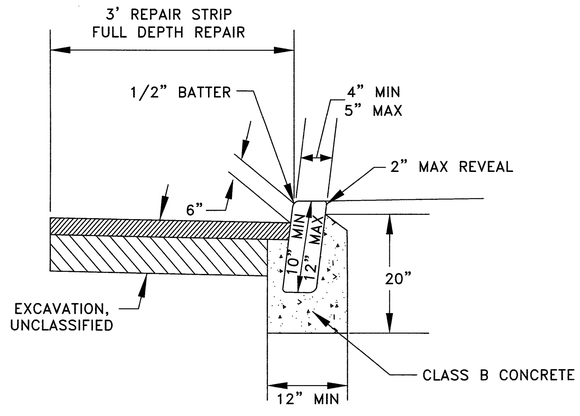
CONCRETE DRIVEWAY APRON TYPICAL SECTION

SCALE: 3/4"=1'-0"



WINGWALL AND CULVERT JOINT DETAIL

SCALE: 3/4"=1'-0"



CURB NOTES (INCLUDED WITH GRANITE BLOCK CURB):

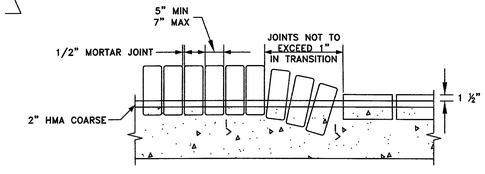
1.) 4" THICK, COARSE AGGREGATE SIZE NO. 57 SHALL BE CONSTRUCTED UNDERNEATH PROPOSED CURB IN WET FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

2.) TOP OF CURB SHALL NOT BE SET HIGHER THAN ADJACENT EXISTING OR PROPOSED SIDEWALK UNDER ANY CONDITION.

3.) FULL DEPTH REPAIR TO BE CONSTRUCTED ALONG THE ROAD EDGE OF NEW CURB UP TO 4' WIDE. THE COST TO BE INCLUDE IN VARIOUS ROADWAY ITEMS AS SHOWN ON THE TYPICAL SECTION, SHEET 4 (TS-1)

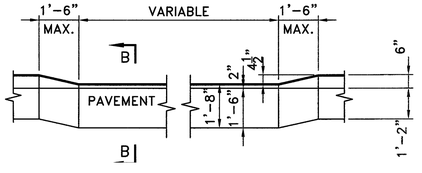
GRANITE BLOCK CURB DETAIL

N.T.S



DEPRESSED GRANITE BLOCK CURB DETAIL

N.T.S



DEPRESSED CURB AT DRIVEWAY

SCALE: 3/8"=1'-0"

APPROVED:
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200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

CULVERT DETAILS & CONSTRUCTION DETAILS

SCALE: AS NOTED

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

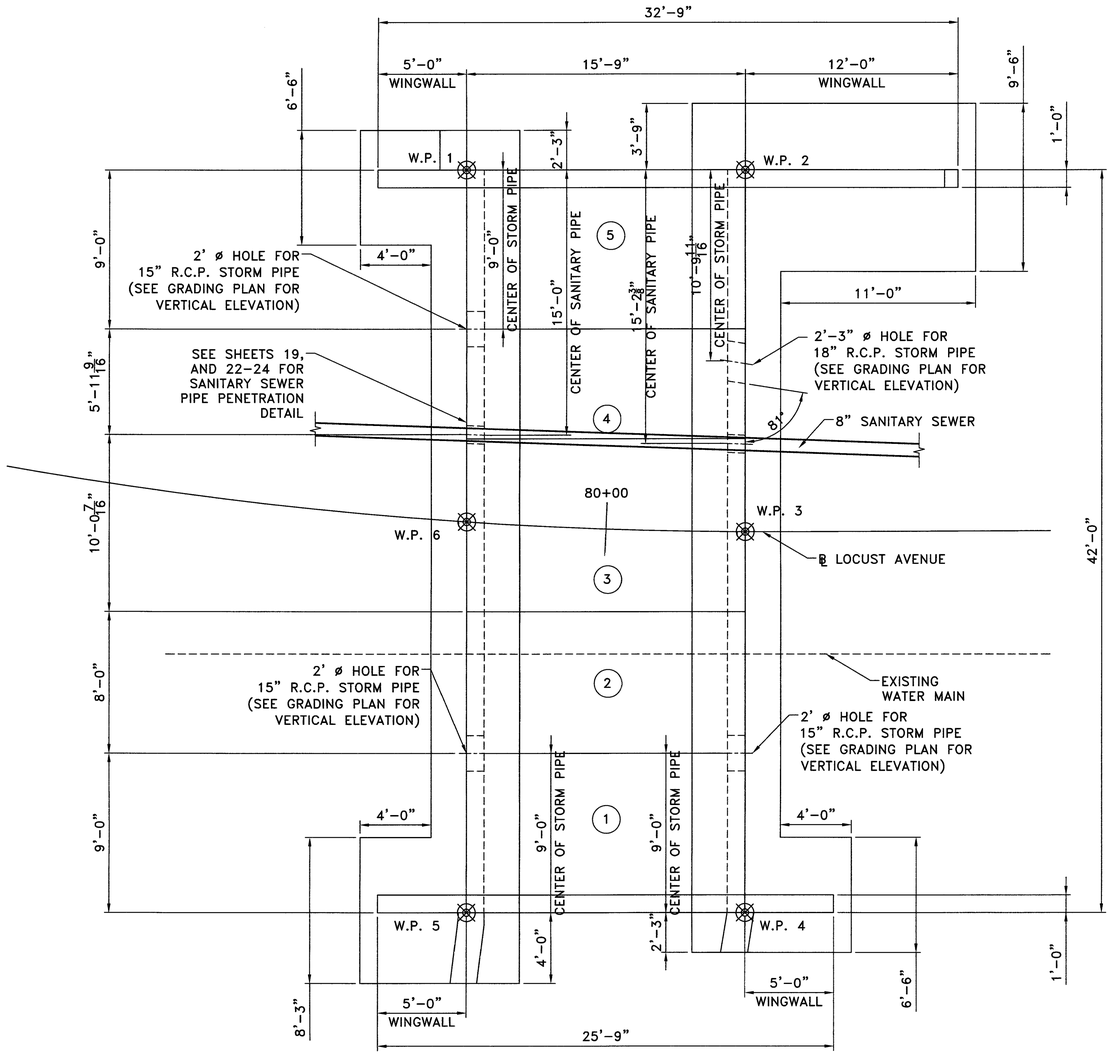
PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

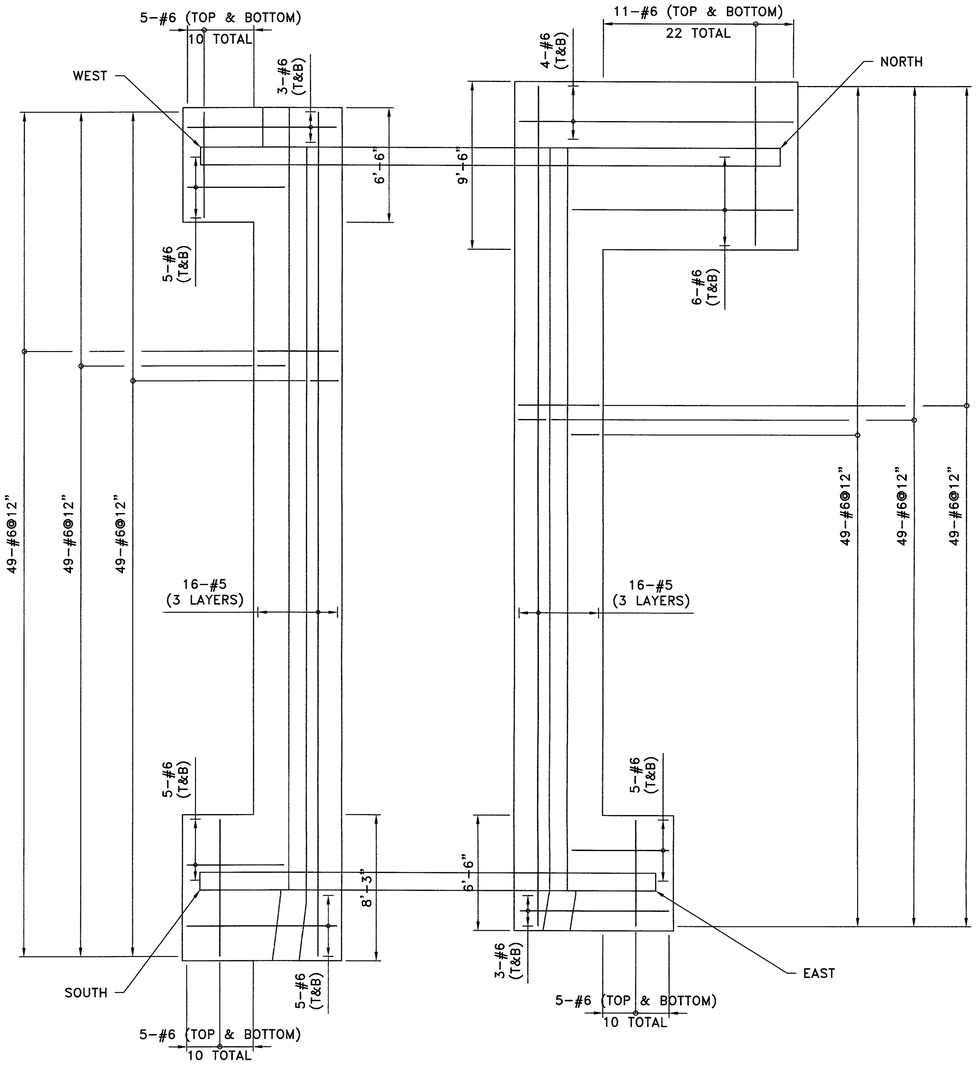
PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

B-4
SHEET 15
FILE NO.: **





NOTE:

PRECAST CONCRETE CULVERT TO BE INSTALLED IN 5 SEGMENTS AS SHOWN IN THE CULVERT LAYOUT PLAN.

CULVERT LAYOUT PLAN

SCALE: ¼"=1'-0"

CULVERT FOOTING PLAN - REINFORCEMENT LAYOUT

SCALE: ¼"=1'-0"

NOTE:
ALL BARS TO BE SPACED EVENLY

WORKING POINTS

W.P. NO.	COORDINATES NORTHING	COORDINATES EASTING	STATION	OFFSET
1	685052.52	529250.62	79+90.66	19.85 L
2	685062.35	529262.94	80+07.78	20.47 L
3	685046.34	529275.70	80+07.88	0.00
4	685029.51	529289.12	80+07.96	21.53 R
5	685019.69	529276.81	79+93.48	22.05 R
6	685036.97	529263.03	79+92.11	0.00

STATIONS REFER TO THE CONSTRUCTION BASELINE.
OFFSETS ARE FROM THE CONSTRUCTION BASELINE.

APPROVED:
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LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

CULVERT LAYOUT & FOOTING DETAIL

SCALE: AS NOTED

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

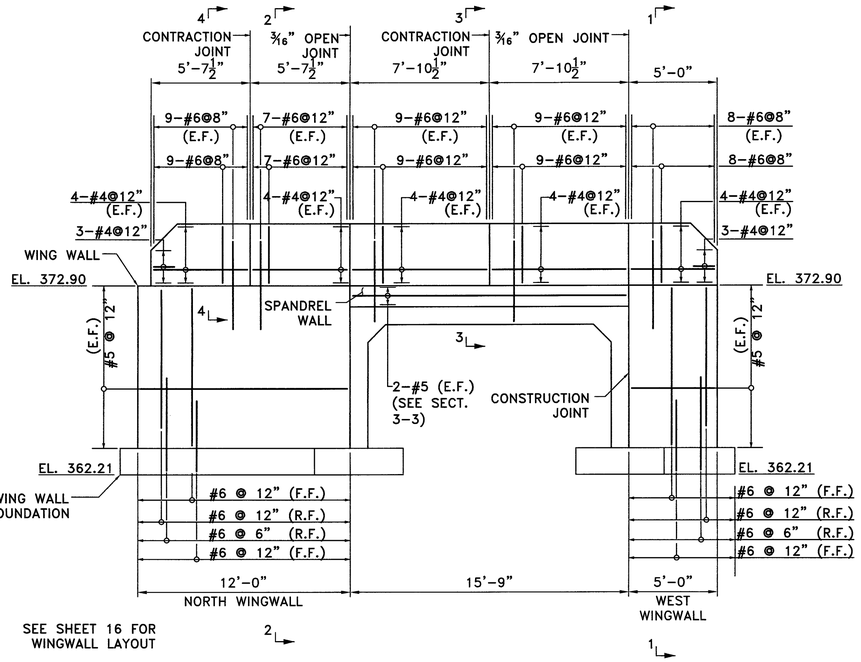
PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

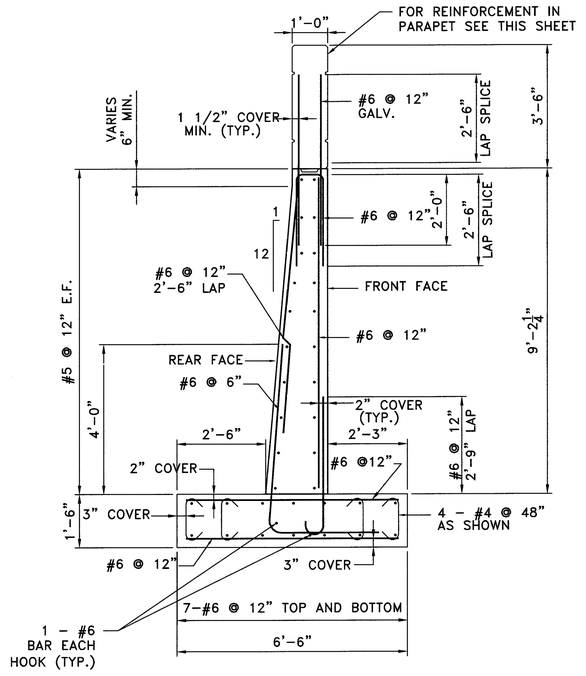
DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

B-5
SHEET 16
FILE NO.: **

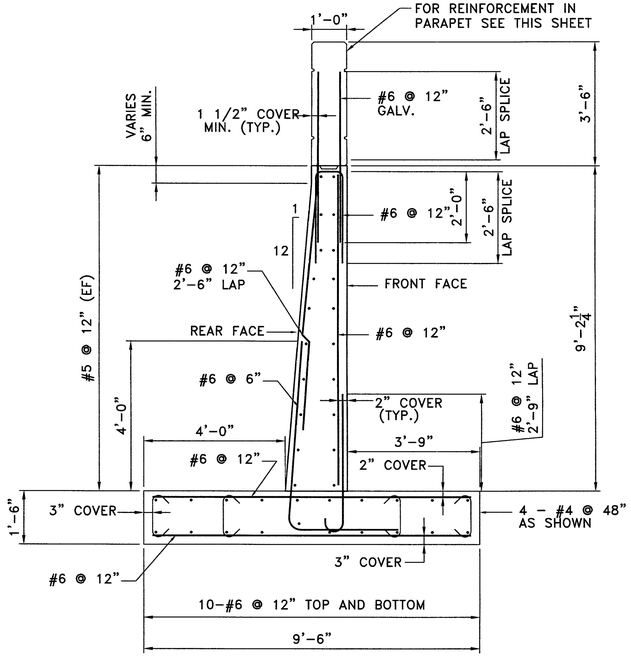


CULVERT ELEVATION

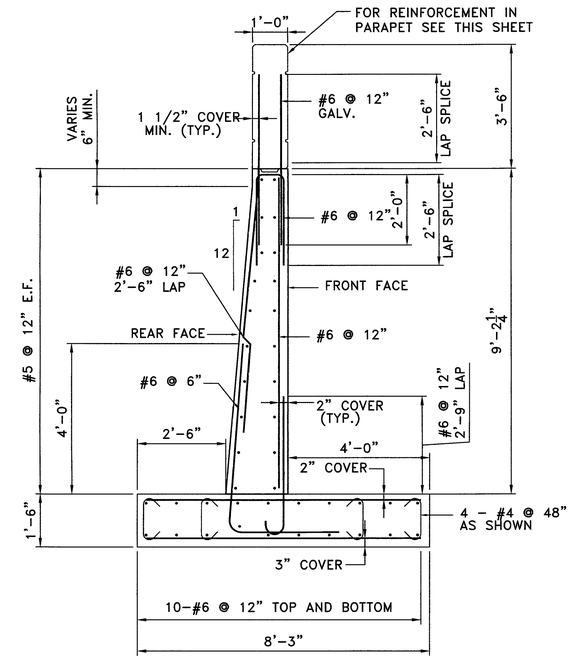
LOOKING SOUTH
SCALE: ¼"=1'-0"



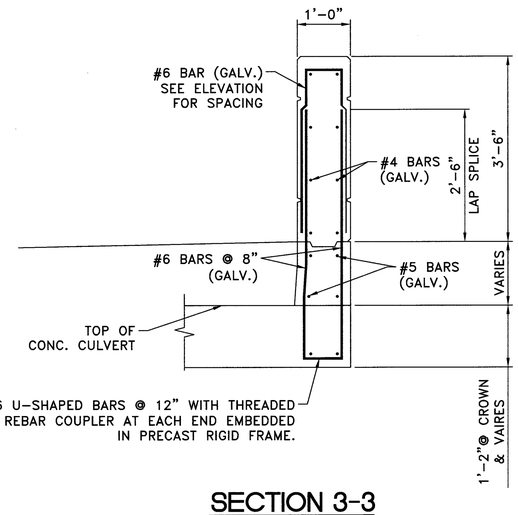
SECTION 1-1
CONCRETE RETAINING WALLS
SCALE: 1/2"=1'-0"



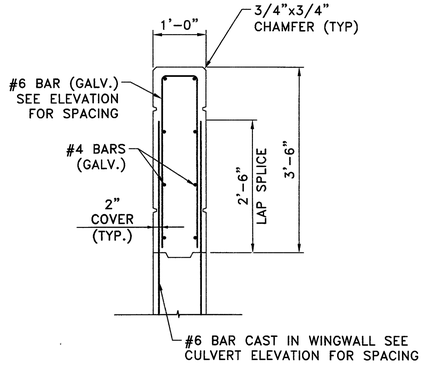
SECTION 2-2
CONCRETE RETAINING WALL
SCALE: 1/2"=1'-0"



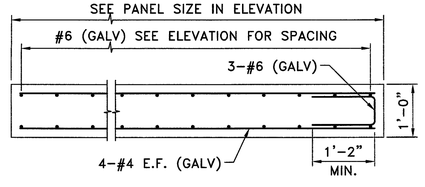
SOUTH CONCRETE RETAINING WALL
SCALE: 1/2"=1'-0"



SECTION 3-3
SPANDREL WALL AND PARAPET
SCALE: 3/4"=1'-0"



SECTION 4-4
PARAPET OVER WINGWALL
SCALE: 3/4"=1'-0"



PLAN
PARAPET
SCALE: 3/4"=1'-0"

APPROVED:
Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

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200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

PARAPET AND WINGWALL DETAILS

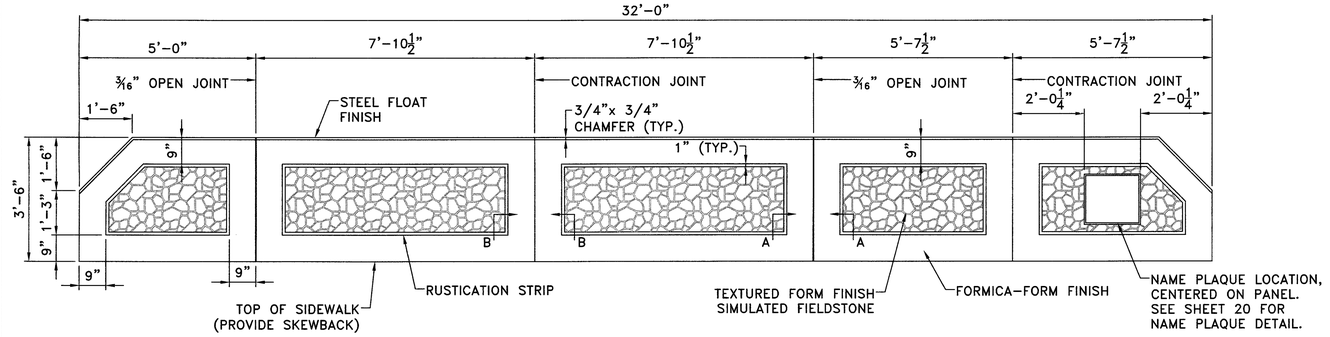
SCALE: AS NOTED

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY
PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C

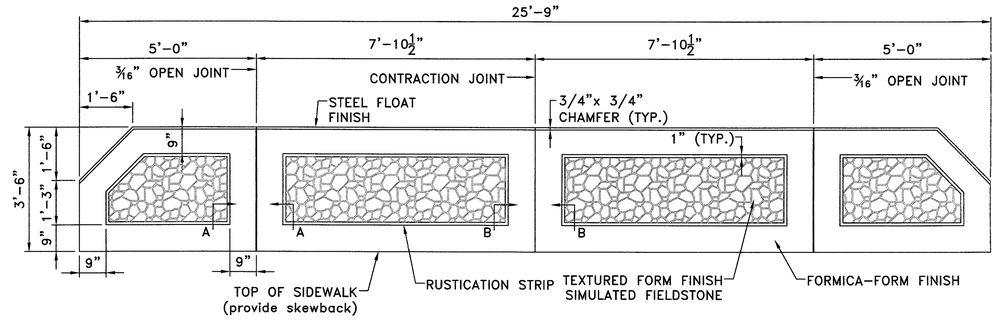
DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

B-6
SHEET 17
FILE NO.: **



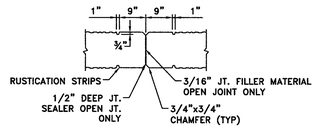
NORTH PARAPET ELEVATION

SCALE: ½"=1'-0"

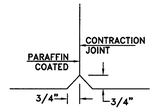


SOUTH PARAPET ELEVATION

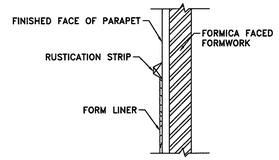
SCALE: ½"=1'-0"



SECTION A-A
OPEN JOINT IN PARAPET
SCALE: 3/4"=1'-0"



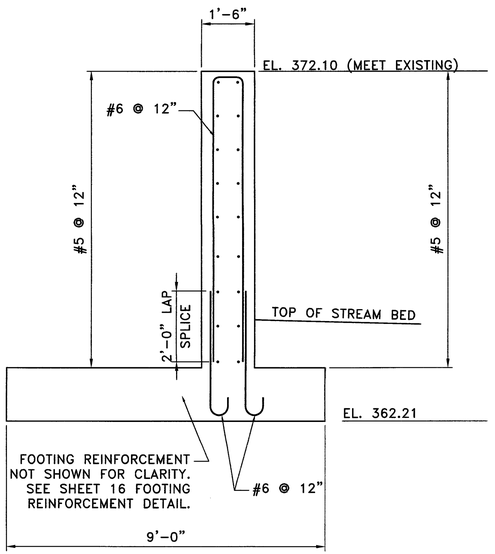
SECTION B-B
CONTRACTION JOINT IN PARAPET
SCALE: N.T.S.



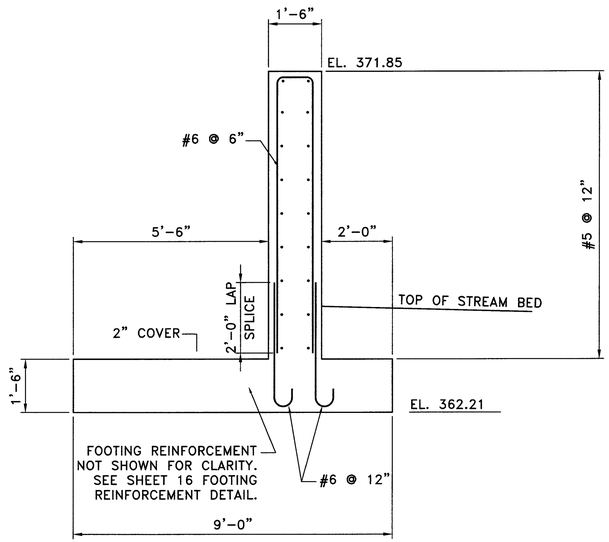
RUSTICATION STRIP
SCALE: N.T.S.

NOTE FOR RUSTICATION

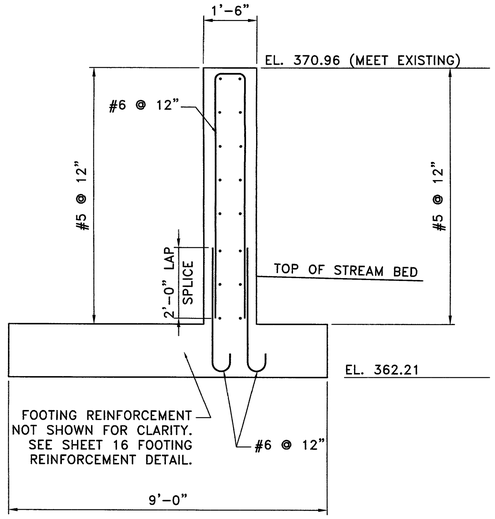
A DURABLE, WATERPROOF, COLORED ARCHITECTURAL COATING SHALL BE USED ON THE EXPOSED SURFACE OF PARAPETS AND RETAINING WALLS (TO 2' BELOW FINISHED GRADE). COATING SHALL BE APPLIED IN TWO COATS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. COATING SHALL BE A COLORED, ACRYLIC-BASED STAIN SPECIFICALLY INTENDED FOR SEALING OF CONCRETE. THE CONTRACTOR SHALL SUBMIT A COLOR CHART TO THE ENGINEER FOR SELECTION OF THE STAIN'S COLOR. PRIOR TO COATING ALL SPECIFIED SURFACE, THE AREA TO BE CLEANED OF ALL LATENCE BY A POWER WASH ROTATING-NOZZLE WATER JET. A 3' X 6' TEST PANEL OF CONCRETE SHALL BE CAST AND STAINED FOR APPROVAL OF THE COLOR AND FINSH BY THE ENGINEER. NO SEPARATE PAYMENT WILL BE MADE FOR RUSTICATION, TEXTURED FININSH & STAINING. THE COST THEREOF SHALL BE INCLUDED IN THE ITEM OF PARAPETS.



CLOSURE POUR DETAIL
EAST CORNER
SCALE: 1/2"=1'-0"



CLOSURE POUR DETAIL
SOUTH CORNER
SCALE: 1/2"=1'-0"



CLOSURE POUR DETAIL
WEST CORNER
SCALE: 1/2"=1'-0"

APPROVED:

Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

PARAPET AND CLOSURE POUR DETAILS

SCALE: AS NOTED

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

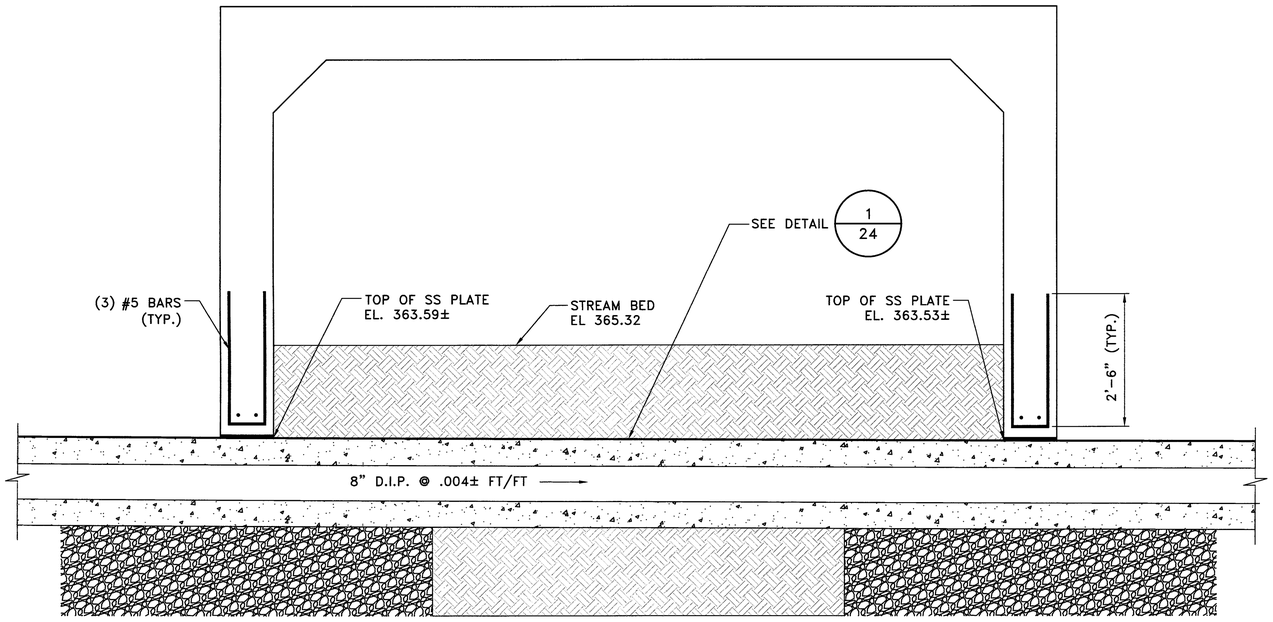
PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

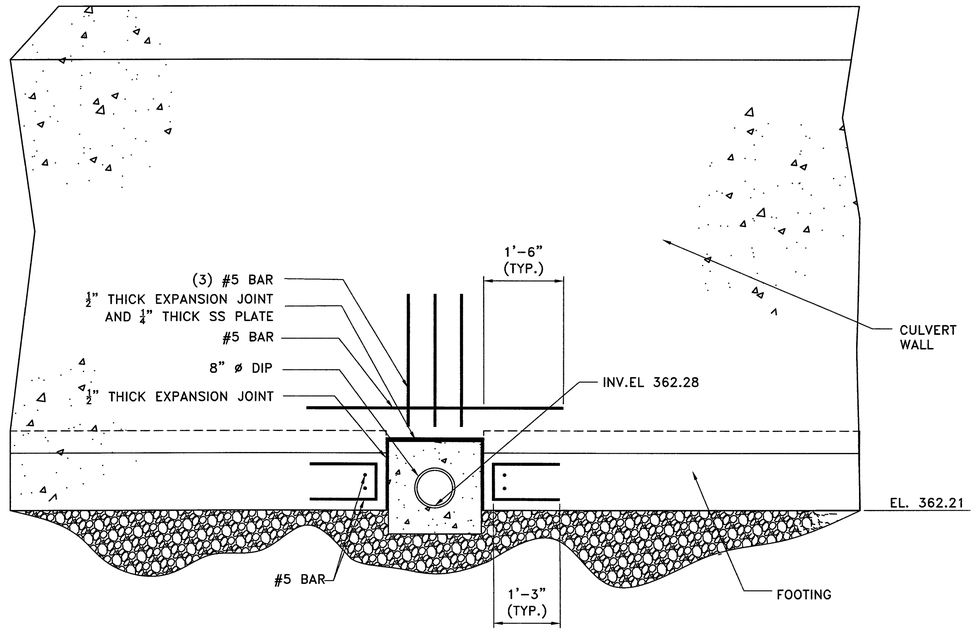
B-7
SHEET 18
FILE NO.: **

Plotted: 8/4/2017 9:48 AM Last saved: 8/3/2017 1:21 PM File Name: Q:\Projects\A0530001600\Drawings\Summit 2007\DHP-14-20-SUM_CulvertDetails.dwg



CULVERT ELEVATION
SANITARY PIPE PENETRATION DETAIL

SCALE: ¾"=1'-0"



CULVERT WALL
SANITARY PIPE PENETRATION DETAIL

SCALE: ¾"=1'-0"

REFERENCE:

1) SEE SANITARY CONSTRUCTION PLAN, LOCUST DRIVE PROFILE, AND DETAILS (SHEETS SC-1 TO SC-4) FOR ADDITIONAL INFORMATION.

APPROVED: 8/2/17
Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET
OVER STREAM 3-51 (SU105)

SANITARY SEWER
PIPE PENETRATION DETAIL

SCALE: AS NOTED

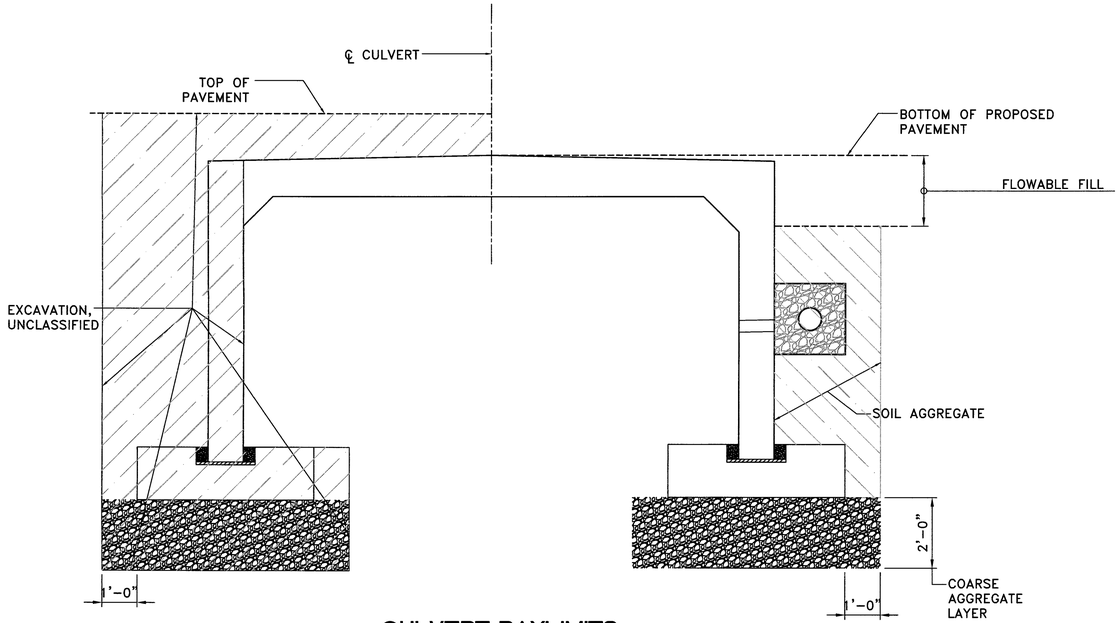
CLIENT:
COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION:
CITY OF SUMMIT
COUNTY OF UNION
NEW JERSEY

PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C

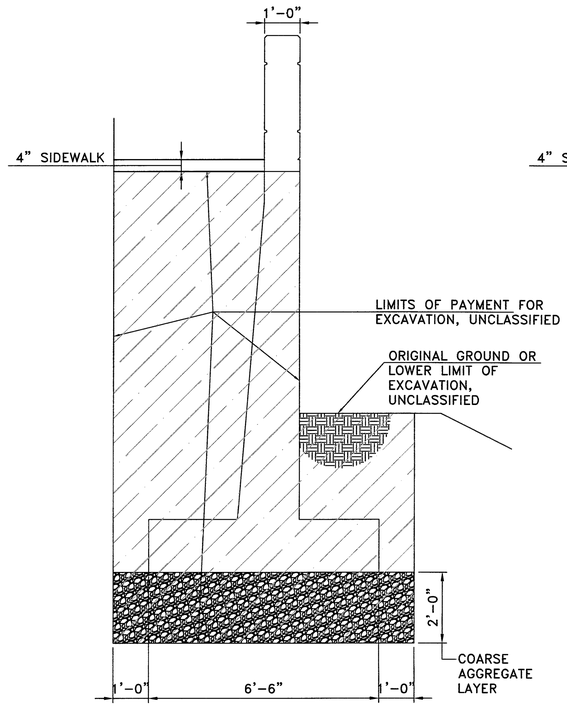
DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

B-8
SHEET 19
FILE NO.: **



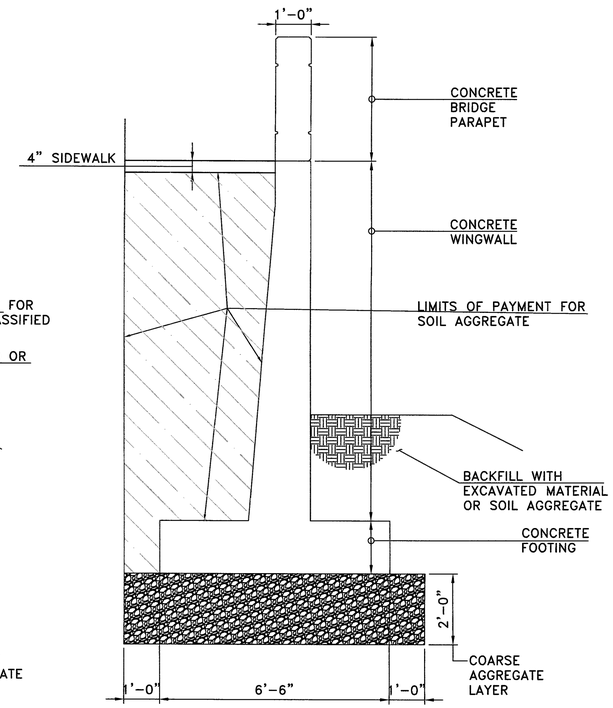
CULVERT PAYLIMITS

SCALE: ½"=1'-0"



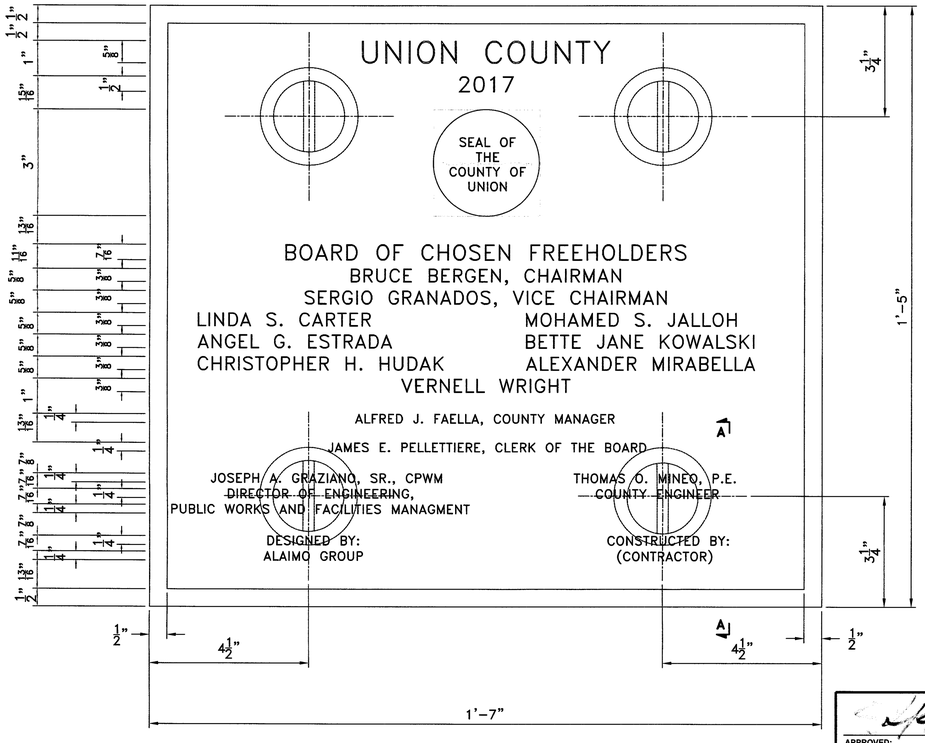
WINGWALL EXCAVATION PAYLIMITS

SCALE: ½"=1'-0"



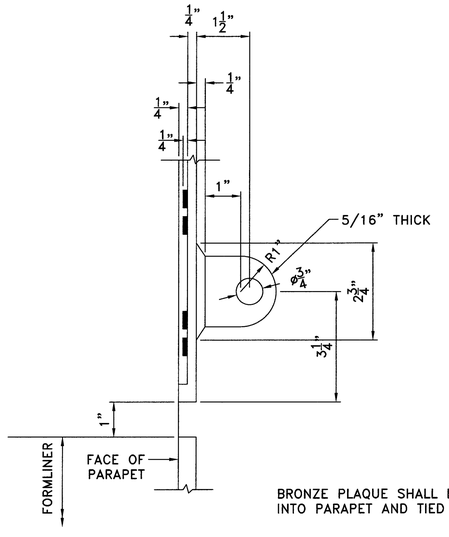
WINGWALL PAYLIMITS

SCALE: ½"=1'-0"



NAME PLAQUE DETAIL

SCALE: 6"=1'-0"



NOTES:

1. FOR LOCATION OF NAME PLAQUES, SEE THIS SHEET.
2. PLAQUE SHALL BE CAST BRONZE WITH RAISED LETTERS AND BORDERS ON MATTED BACKGROUND.
3. NO SEPARATE PAYMENT SHALL BE MADE FOR THE NAME PLAQUE, ALL COSTS SHALL BE INCLUDED IN THE PRICE BID FOR THE ITEM
4. NAMES SHOWN ABOVE ARE SUBJECT TO CHANGE IN THE YEAR OF CONSTRUCTION.
5. TEXT AND TEXT LAYOUT SHALL BE SUBMITTED FOR REVIEW AND APPROVAL OF THE ENGINEER PRIOR TO CASTING.

BRONZE PLAQUE SHALL BE SET RECESSED INTO PARAPET AND TIED TO REINFORCEMENT

NAME PLAQUE SECTION A-A

SCALE: 6"=1'-0"

APPROVED: 8/2/17

Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

PAY LIMIT DETAILS & NAME PLAQUE DETAIL

SCALE: AS NOTED

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

DATE: MAY 2017

DESIGNED BY: ECS

DRAWN BY: DPH

CHECKED BY:

DEPT. HEAD:

B-9

SHEET 20

FILE NO.: **

STANDARD CONSTRUCTION SIGNS

LEGEND	SIGN	TYPE / COLOR	SIZE
A	ROAD CLOSED	R11-2 / BLACK ON WHITE	48"X30"
B	BRIDGE OUT	/ BLACK ON WHITE	48"X30"
C	ROAD CLOSED __FEET AHEAD LOCAL TRAFFIC ONLY	R11-3 / BLACK ON WHITE	60"X30"
D	BRIDGE OUT __MILES AHEAD LOCAL TRAFFIC ONLY	/ BLACK ON WHITE	60"X30"
E	ROAD CLOSED LOCAL TRAFFIC ONLY	/ BLACK ON WHITE	60"X24"
F	BRIDGE OUT LOCAL TRAFFIC ONLY	/ BLACK ON WHITE	60"X24"
G	UNION COUNTY	M1-6 / YELLOW ON BLUE	24"X24"
H	DETOUR	M4-9XR / BLACK ON ORANGE	30"X24"
I	DETOUR	M4-9XL / BLACK ON ORANGE	30"X24"
J	DETOUR	M4-10R / BLACK ON ORANGE	48"X18"
K	DETOUR	M4-10L / BLACK ON ORANGE	48"X18"
L	DETOUR	M4-9L / BLACK ON ORANGE	30"X24"
M	END DETOUR	M4-8a / BLACK ON ORANGE	24"X18"
N	ROAD WORK NEXT __ MILES	G20-1 / BLACK ON ORANGE	60"X24"
O	PILOT CAR FOLLOW ME	G20-4 / BLACK ON ORANGE	36"X18"
P	END ROAD WORK	G20-2A / BLACK ON ORANGE	48"X24"
Q		W6-3 / BLACK ON ORANGE	48"X48"
R	DETOUR	M4-9R / BLACK ON ORANGE	30"X24"
S	DETOUR	M4-9X / BLACK ON ORANGE	30"X24"
T	ROAD WORK __FT	W20-1 / BLACK ON ORANGE	48"X48"
U	ROAD WORK AHEAD	/ BLACK ON ORANGE	48"X48"
V	DETOUR __FT	W20-2 / BLACK ON ORANGE	48"X48"
W	DETOUR AHEAD	/ BLACK ON ORANGE	48"X48"
X	ROAD CLOSED __FT	W20-3 / BLACK ON ORANGE	48"X48"
Y	ROAD CLOSED AHEAD	/ BLACK ON ORANGE	48"X48"
Z	BRIDGE OUT __FT	/ BLACK ON ORANGE	48"X48"

LEGEND	SIGN	TYPE / COLOR	SIZE
A-A	BRIDGE OUT AHEAD	/ BLACK ON ORANGE	48"X48"
B-B	ONE LANE ROAD __FT	W20-4 / BLACK ON ORANGE	48"X48"
C-C	ONE LANE ROAD AHEAD	/ BLACK ON ORANGE	48"X48"
D-D	RIGHT LANE CLOSED __FT	W20-5R / BLACK ON ORANGE	48"X48"
E-E	LEFT LANE CLOSED __FT	W20-5L / BLACK ON ORANGE	48"X48"
F-F	500 FEET	W20-7a / SUPPLEMENTAL PLATE	48"X48" 24"X18"
		/ BLACK ON ORANGE	
G-G	BE PREPARED TO STOP	W20-7b / BLACK ON ORANGE	36"X36"
H-H		W21-1A / BLACK ON ORANGE	36"X36"
I-I	ROAD MACHINERY AHEAD	W21-3 / BLACK ON ORANGE	36"X36"
J-J	SHOULDER WORK	W21-5 / BLACK ON ORANGE	30"X30"
K-K	SURVEY CREW	W21-6 / BLACK ON ORANGE	30"X30"
L-L		W4-2R / BLACK ON ORANGE	48"X48"
M-M		W4-2L / BLACK ON ORANGE	48"X48"
N-N	ROAD NARROWS	W5-1 / BLACK ON ORANGE	48"X48"
O-O	NARROW BRIDGE	W5-2 / BLACK ON ORANGE	48"X48"
P-P	UNEVEN LANES	W8-11 / BLACK ON ORANGE	36"X36"
Q-Q	LANE ENDS MERGE LEFT	W9-2L / BLACK ON ORANGE	48"X48"
R-R	LANE ENDS MERGE RIGHT	W9-2R / BLACK ON ORANGE	48"X48"
S-S	35 M.P.H.	W13-1 / BLACK ON ORANGE	24"X24"
T-T	TRAFFIC FINES DOUBLED IN WORK AREA	5℃ 7℃ 5℃ R(N/J)5-17(S) / BLACK ON WHITE	48"X30"
U-U		W1-6R / BLACK ON ORANGE	48"X24"
V-V		W1-6L / BLACK ON ORANGE	48"X24"
R3-2	NO LEFT TURN	R3-2 / BLACK ON WHITE	24"X30"
Y-Y		/ BLACK ON ORANGE	
Z-Z		/ BLACK ON ORANGE	

SPECIAL SIGNS

LEGEND	SIGN	TYPE / COLOR	SIZE
MC-1	THIS BRIDGE WILL BE CLOSED ON OR ABOUT 4℃ DATE PLATE 4℃ SEEK ALTERNATE ROUTES 4℃	/ BLACK ON ORANGE	60"X30"
MC-2	THIS ROAD WILL BE CLOSED ON OR ABOUT 4℃ DATE PLATE 4℃ SEEK ALTERNATE ROUTES 4℃	/ BLACK ON ORANGE	60"X30"
MC-3	STREET NAME 4℃	/ BLACK ON ORANGE	48"X12"
MC-4a	LOCUST DRIVE 6℃ CLOSED 7℃ TO BLACKBURN ROAD 6℃ LOCAL TRAFFIC ONLY 6℃	/ BLACK ON ORANGE	72"X48"
MC-4b	LOCUST DRIVE 6℃ CLOSED 7℃ TO TULIP STREET 6℃ LOCAL TRAFFIC ONLY 6℃	/ BLACK ON ORANGE	72"X48"
MC-5	NAME PLATE 6℃ CLOSED 8℃ FOLLOW 7℃ DETOUR 7℃	/ BLACK ON ORANGE	72"X48"

ALL TRAFFIC CONTROL DEVICES AND MARKINGS TO BE IN ACCORDANCE WITH THE CURRENT M.U.T.C.D.

ALL SIGNS AND WARNING DEVICES TO BE APPROVED BY THE COUNTY ENGINEER OR HIS REPRESENTATIVE.

DATE PLATE TO BE 30" X 12" WITH 4"C LETTERS.

SPECIAL SIGNS

LEGEND	SIGN	TYPE / COLOR	SIZE
MC-6	LOCUST DRIVE BRIDGE CLOSED LOCAL TRAFFIC ONLY	/ BLACK ON ORANGE	48"X30"

TRAFFIC CONTROL NOTES

1. TRAFFIC IS TO BE MAINTAINED IN ACCORDANCE WITH PART VI, MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION AS AMENDED, AND IS DIRECTED BY THE RESIDENT ENGINEER.
2. THE CONTRACTOR IS TO HAVE ON HAND AT ALL TIMES AN ADEQUATE NUMBER OF DRUMS, BARRICADES, SIGNS, AND OTHER DEVICES AS MAY BE NECESSARY TO PROTECT THE TRAVELING PUBLIC (INCLUDING PEDESTRIANS) FROM HIS OPERATIONS.
3. AT LEAST TWO TRAFFIC DIRECTORS SHALL BE ON DUTY AT EACH WORK SITE WHENEVER THE CONTRACTOR HAS WORKMAN OR EQUIPMENT WITHIN THE CARTWAY AND AT OTHER TIMES WHEN DIRECTED BY THE ENGINEER, OR OTHER INDIVIDUAL HAVING JURISDICTION. SEE DETAIL "A".

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH
UPSTREAM TAPERS	
MERGING TAPER	L MINIMUM
SHIFTING TAPER	1/2 L MINIMUM
SHOULDER TAPER	1/3 L MINIMUM
TWO-WAY TRAFFIC TAPER	100 FEET MAXIMUM
DOWNSTREAM TAPERS (USE IS OPTIONAL)	100 FEET MINIMUM

FORMULAS FOR L*

SPEED	FORMULA
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR GREATER	L= W x S

* L = TAPER LENGTH IN FEET.
W = WIDTH OF OFFSET IN FEET.
S = POSTED SPEED, OFF-PEAK 85th PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH.

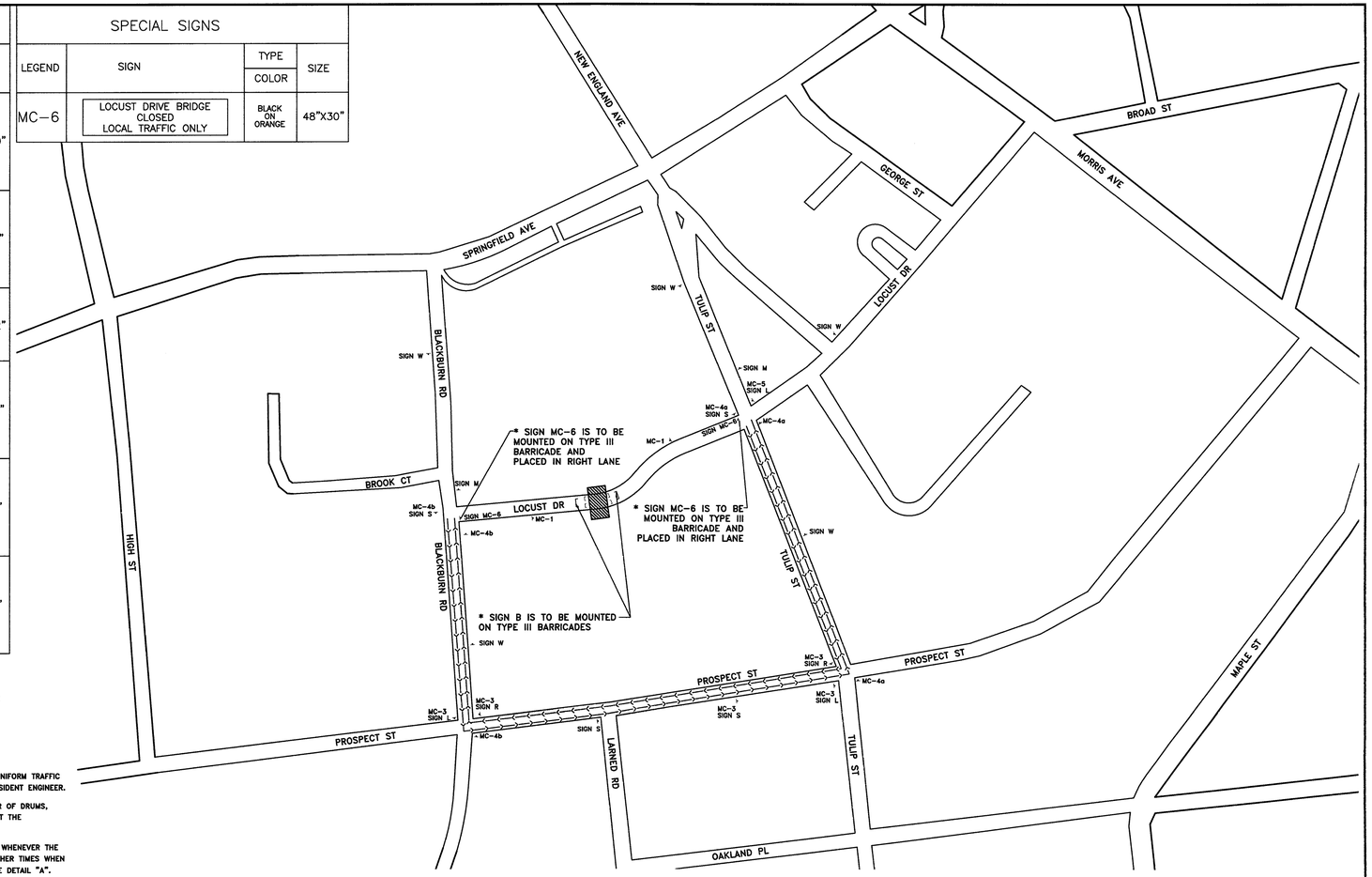
1. CONSTRUCTION, INSTALLATION, DIMENSIONS, COLORS AND DETAILS OF VARIOUS SIZE SIGNS AND ACCESSORY PANELS TO FOLLOW STANDARDS IN THE CURRENT "STANDARD HIGHWAY SIGNS" PUBLICATION AND THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
2. LETTERS AND NUMERALS SHALL CONFORM TO THE CURRENT MANUAL "STANDARD ALPHABETS FOR HIGHWAY SIGNS", U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.
3. ALL SIGNS SHALL HAVE NEW REFLECTORIZED FACES ON ALUMINUM BACKPLATES WITH THE FOLLOWING DIMENSIONS: 30"x30" OR LESS – 0.080 THICKNESS
MORE THAN 30"x30" – 0.125 THICKNESS
SIGNS MOUNTED ON BREAKAWAY BARRICADES, ALL SIZES – 0.024 THICKNESS
4. ALL MATERIALS METHODS AND INSTALLATION AND/OR MAINTENANCE PROCEDURES FOR TRAFFIC CONTROL AND TRAFFIC CONTROL DEVICES SHALL FOLLOW AND BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, DECEMBER 2009, OR LATEST REVISION.
5. GENERAL REFERENCE IS ALSO MADE TO THE "NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2007", OR LATEST REVISION.
SECTION 110 TRAFFIC CONTROL
SECTION 618 SIGNS
SECTION 916 SIGN MATERIAL

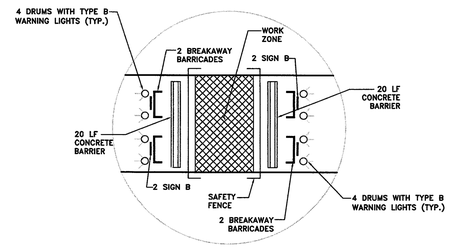
BACKING MATERIAL
1. ALUMINUM SHALL BE FLAT SHEET OR ALLOY 5052-H38 OR 6061-T6 ALLOY.
2. WOOD BACKING SHALL NOT BE PERMITTED.

TEMPORARY SIGN SUPPORTS
1. SIGN SUPPORTS SHALL BE OF STEEL OR ALUMINUM COMPONENTS.
2. WOOD POST SHALL NOT BE PERMITTED ON THIS JOB.
3. NO BRACING IS PERMITTED.
4. STEEL OR ALUMINUM POST SHALL BE IN ACCORDANCE WITH THE STANDARD DETAIL FOR "SELECTIVE DIRECTIONAL SIGNS, CONSTRUCTION AND 'M', 'W' AND 'R' BENDAWAY SIGN SUPPORTS".
5. TEMPORARY SIGN SUPPORTS NOT MEETING THIS CRITERIA SHALL BE SHIELDED BY A LONGITUDINAL BARRIER OR CRASH CUSHION.

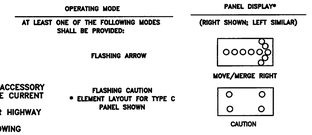
SIGN FACES
1. W20 SERIES SIGN FACES SHALL BE RETROREFLECTIVE SHEETING TYPE IV B. ALL OTHER SIGN FACES SHALL BE RETROREFLECTIVE SHEETING TYPE II.

FASTENINGS
1. ALL SIGNS SHALL BE SECURELY FASTENED TO THEIR SUPPORTS WITH BOLTS, NUTS AND WASHERS OF ALUMUNUM(2024-T4 ALLOY) OR HOT DIP GALVANIZED STEEL (ASTM A 307 & ASTM A 153).

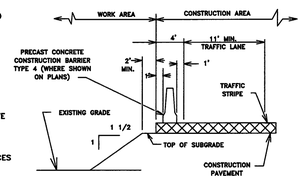




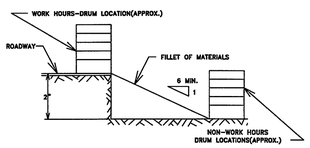
*LATEST MUTCD SHALL GOVERN ALL DETAILS



ILLUMINATED FLASHING ARROWS

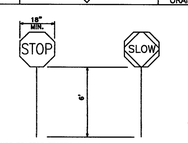


TYPICAL SECTION
PLACEMENT OF PRECAST CONCRETE CONSTRUCTION BARRIER, TYPE 4

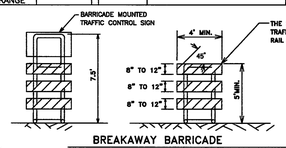


ESCAPE RAMP DETAIL

ITEM NO.	TO BE CONSTRUCTED	UNIT	ESTIMATE	AS-BUILT QUANTITY
15	BREAKAWAY BARRICADE	UNIT	8	
16	DRUM	UNIT	16	
17	TRAFFIC CONE	UNIT	50	
18	CONSTRUCTION SIGNS	SF	364	
19	PRECAST CONCRETE BARRIER CURB, TYPE 4	LF	100	

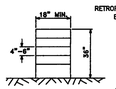


STOP/SLOW PADDLE

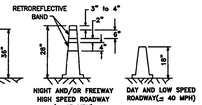


BREAKAWAY BARRICADE

REFER TO M.J.D.O.T. CONSTRUCTION DETAIL SHEET #CD-33, FOR DESIGN, EITHER TYPE-III, PE OR TYPE-III, PVC CAN BE USED AT THE OPTION OF THE CONTRACTOR.



DRUM



CONES

APPROVED:

Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET, MOUNT HOLLY, N.J.
2 MARKET STREET, PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

DETOUR PLAN

SCALE: AS SHOWN

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

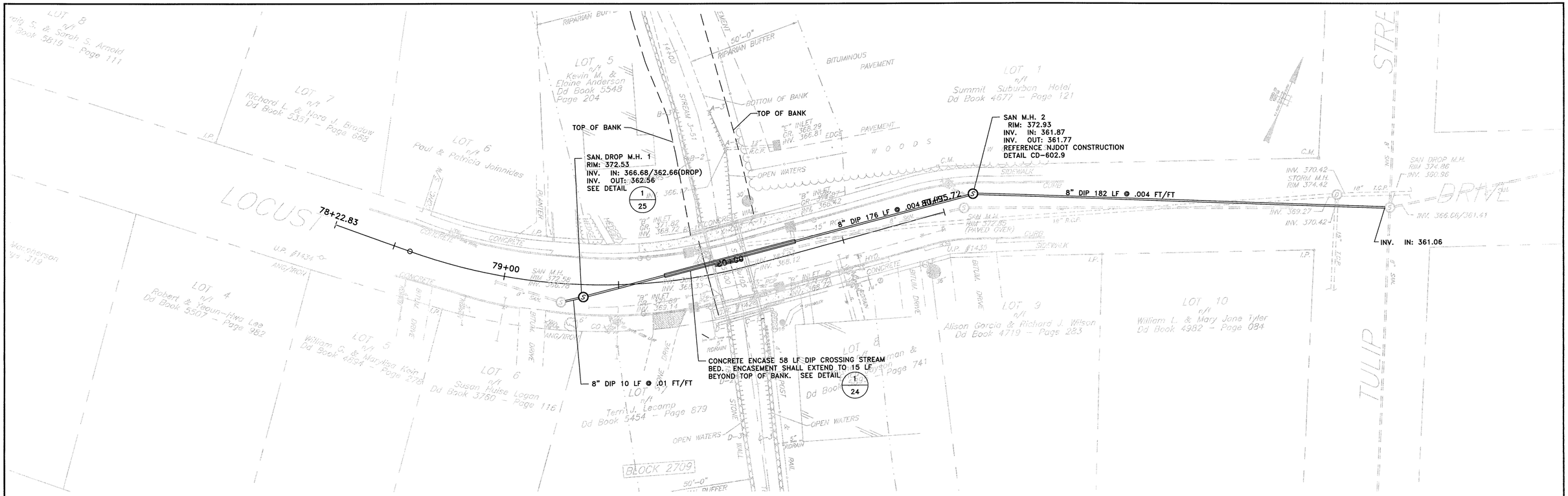
DATE: MAY 2017
DESIGNED BY: DPH
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

SHEET 21

FILE NO.: **

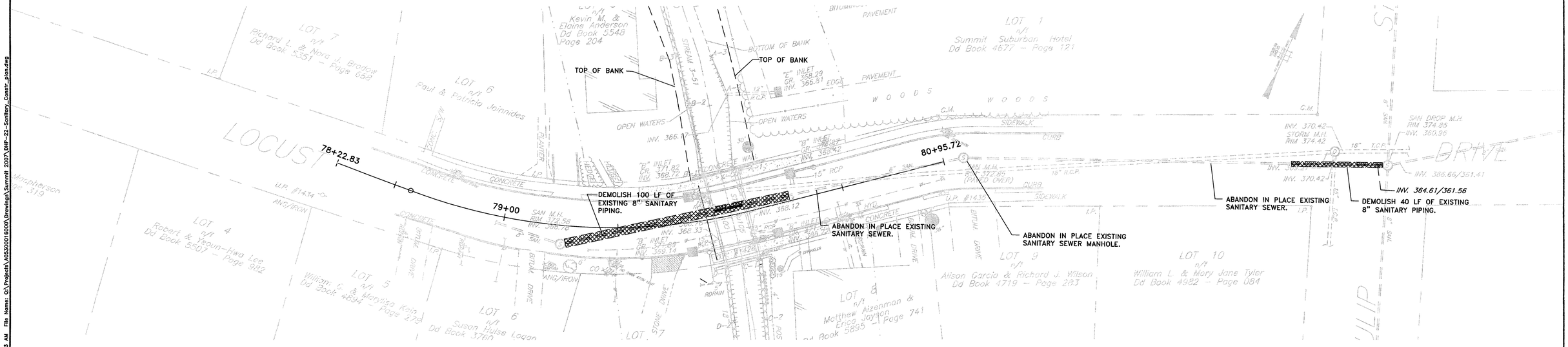
TC-1

Plotted: 8/4/2017 9:51 AM Last saved: 4/13/2017 1:56 PM File Names: Q:\Projects\A0530001600\Drawings\Summit 2007\DHP-21-SUM_Detour.dwg



SANITARY SEWER PLAN

SCALE: 1"=20'-0"



EXISTING SANITARY SEWER DEMOLITION PLAN

SCALE: 1"=20'-0"

NOTES:

1. EXISTING FEATURES AND TOPOGRAPHY BASED ON SITE SURVEY PERFORMED BY RICHARD A. ALAIMO ENGINEERING COMPANY IN JULY 2015.
2. EXISTING CONDITIONS ARE DEPICTED SCREENED (FADED) FOR CLARITY.
3. LOCATION OF ALL UNDERGROUND UTILITIES IS APPROXIMATE AND ADDITIONAL UTILITIES MAY BE PRESENT. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND LOCATING ALL UNDERGROUND UTILITIES AND ALL COSTS ASSOCIATED THEREWITH.
4. THE CONTRACTOR SHALL RECONNECT EXISTING SEWER LATERALS TO THE NEW GRAVITY SEWER PIPING.

20 15 10 5 0 20 40
SCALE: 1" = 20'

APPROVED: 8/8/17
Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET
OVER STREAM 3-51 (SU105)

SANITARY CONSTRUCTION PLAN

SCALE: 1" = 20'

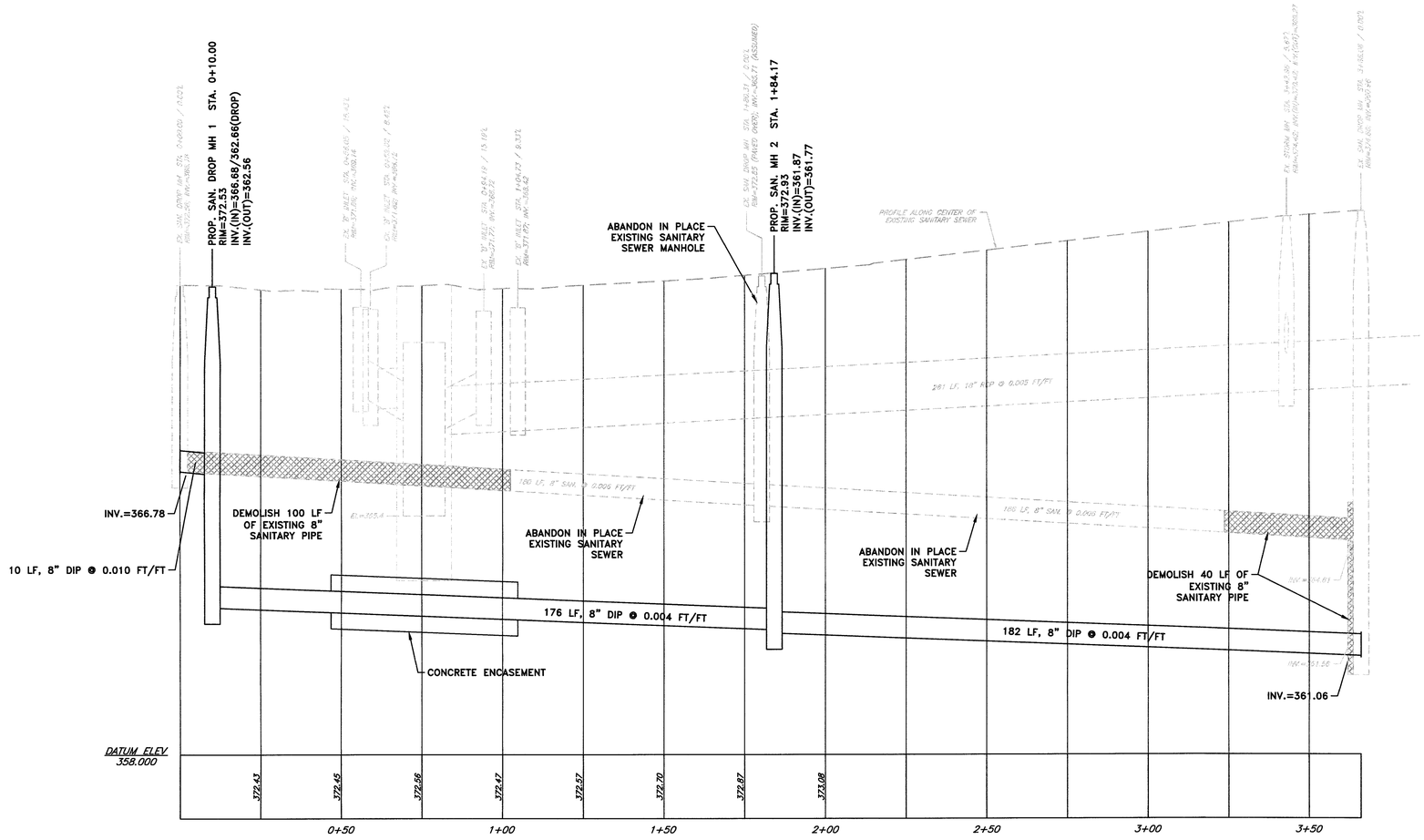
CLIENT: COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY
PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: LMG
DRAWN BY: LMG
CHECKED BY:
DEPT. HEAD:

SHEET 22
FILE NO.:

SC-1



VERTICAL SCALE: 1" = 2'

HORIZONTAL SCALE: 1" = 20'

APPROVED:

Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
Consulting Engineers
NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

LOCUST DRIVE
SANITARY SEWER PROFILE

SCALE: HOR.: 1" = 20'; VERT.: 1" = 2'

CLIENT:
COUNTY OF UNION
BOARD OF CHOSEN FREEHOLDERS

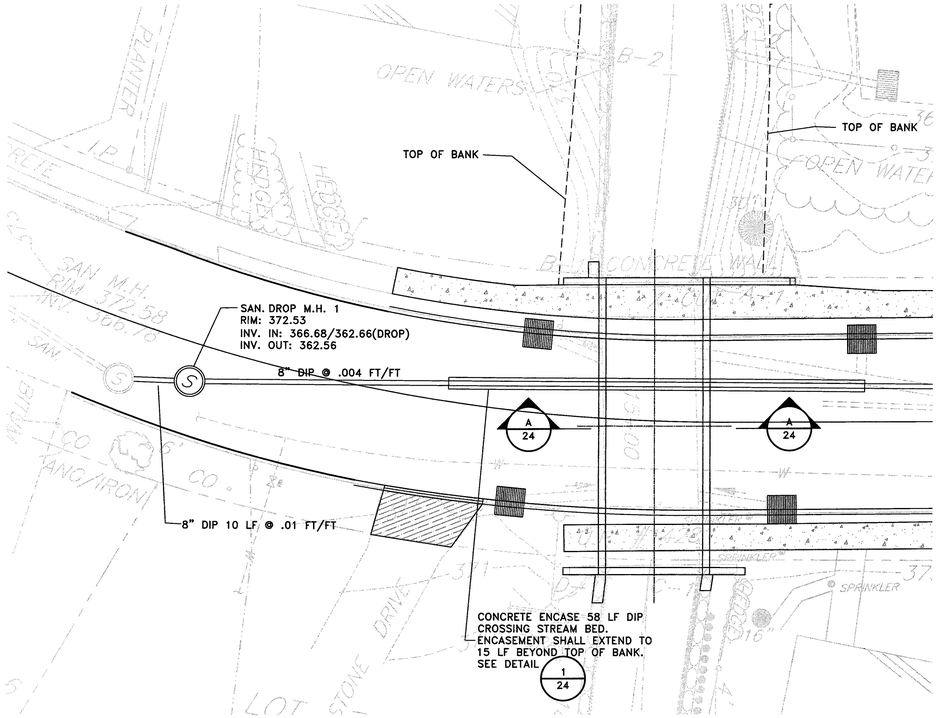
PROJECT LOCATION:
CITY OF SUMMIT
COUNTY OF UNION
NEW JERSEY

PROJECT NO.: A-0530-0016-000
CONTRACT NO.: 2010-005C

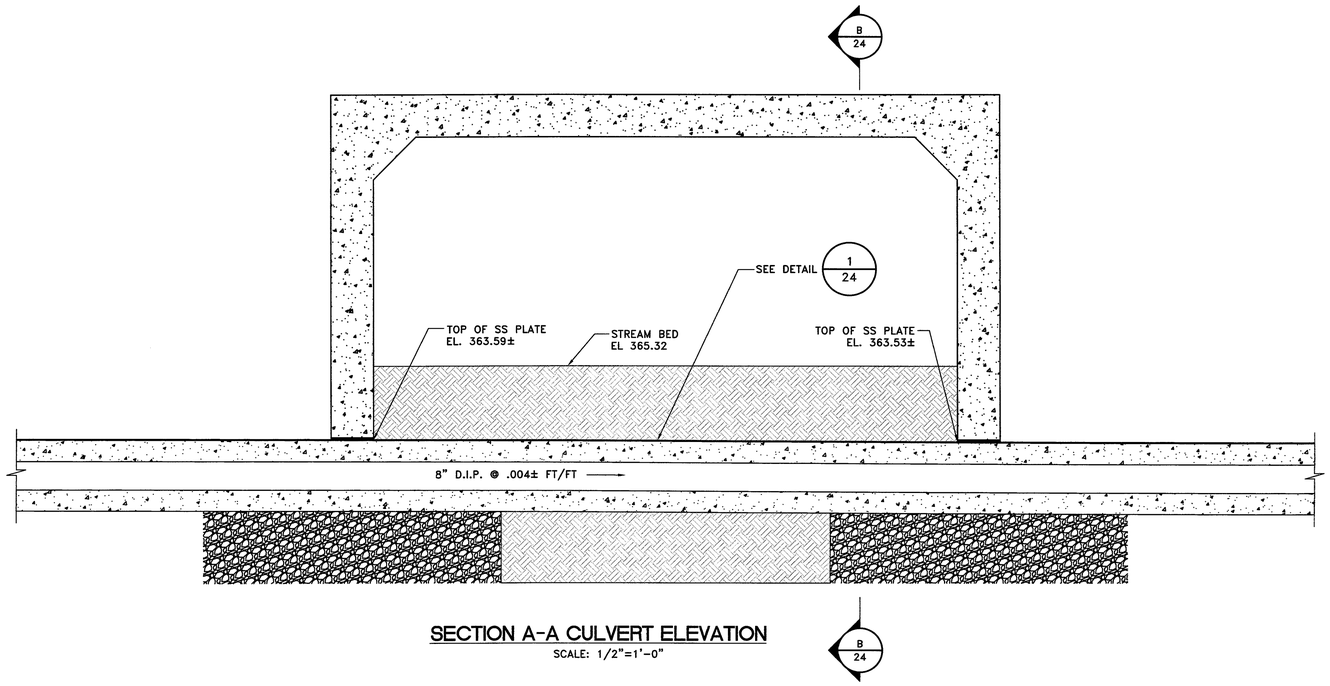
DATE: MAY 2017
DESIGNED BY: LG
DRAWN BY: CFC
CHECKED BY:
DEPT. HEAD:

SC-2
SHEET 23
FILE NO.: **

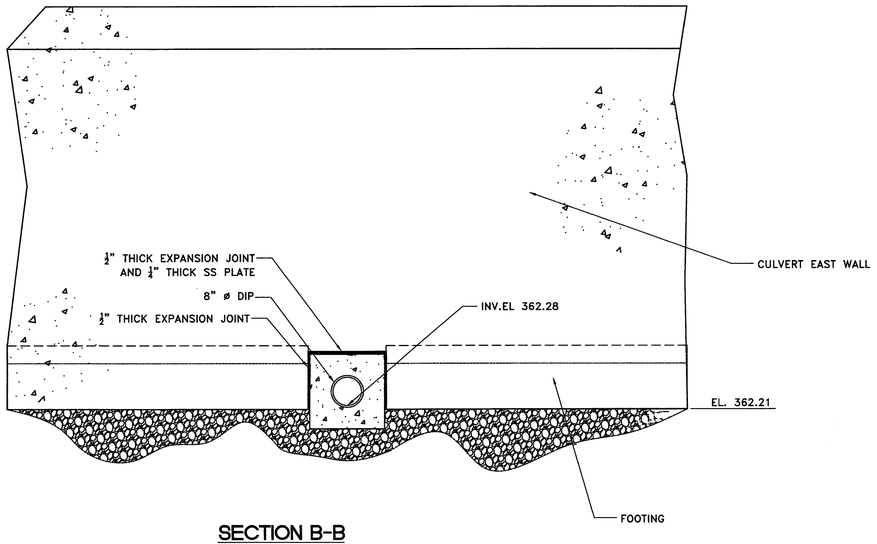
Plotted: 8/4/2017 9:54 AM Last saved: 4/14/2017 8:57 AM File Name: Q:\Projects\A0530001600\Drawings\Summit 2007\DHP-23-Profile.dwg



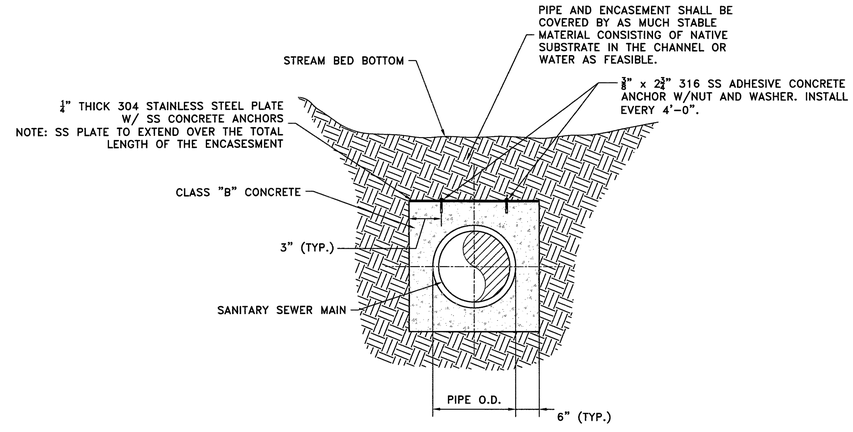
GENERAL CULVERT PLAN
SCALE: 1"=10'



SECTION A-A CULVERT ELEVATION
SCALE: 1/2"=1'-0"



SECTION B-B
SCALE: 1/2"=1'-0"



DETAIL 1 SANITARY SEWER CONCRETE ENCASEMENT DETAIL
SCALE: N.T.S.

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APPROVED:
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NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

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2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

SANITARY CONSTRUCTION DETAILS I

SCALE: AS NOTED

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

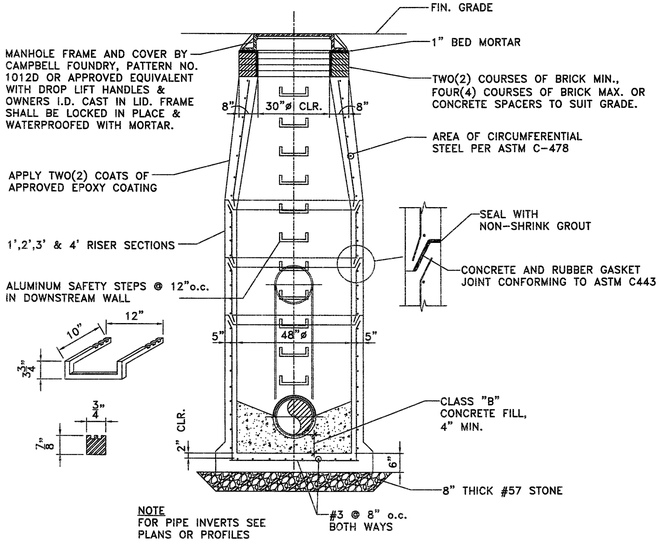
PROJECT LOCATION: CITY OF SUMMIT, COUNTY OF UNION, NEW JERSEY

PROJECT NO.: A-0530-0016-000

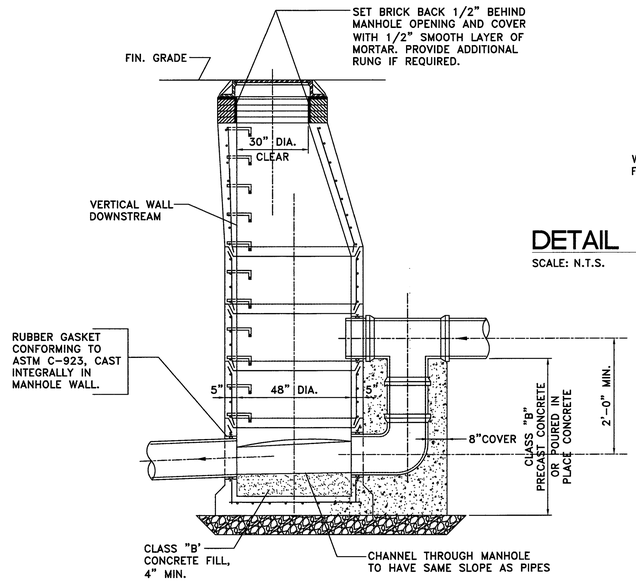
CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: ECS
DRAWN BY: DPH
CHECKED BY:
DEPT. HEAD:

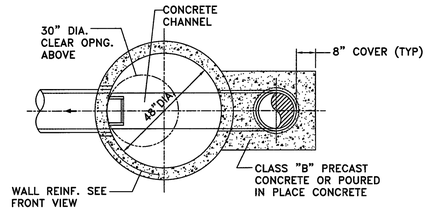
SHEET: SC-3
24
FILE NO.: **



FRONT VIEW



SIDE VIEW



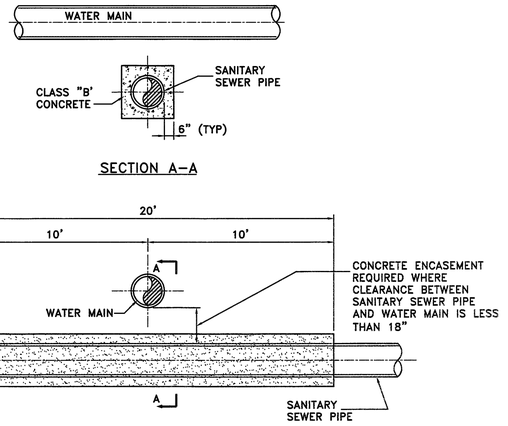
PLAN

DETAIL 2 **48" DIA. SANITARY SEWER DROP MANHOLE**

SCALE: N.T.S.

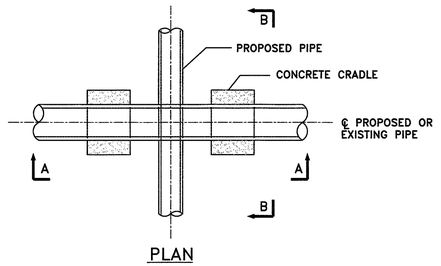
DETAIL 1 **48" DIA. SANITARY SEWER DROP MANHOLE**

SCALE: N.T.S.

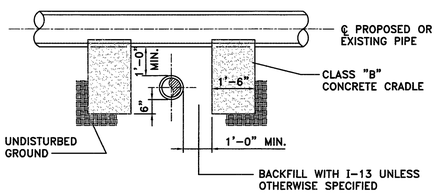


DETAIL 3 **CONCRETE ENCASEMENT**

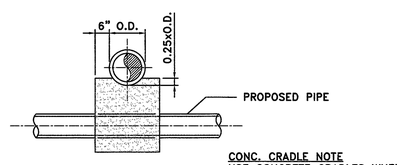
SCALE: SCALE REFSHEET



PLAN



SECTION A-A

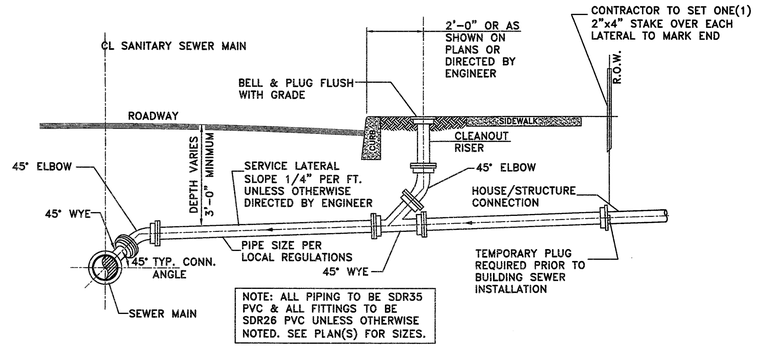


SECTION B-B

CONC. CRADLE NOTE
USE CONCRETE CRADLES WHERE LESS THAN 18" VERTICAL SEPARATION IS PROVIDED BETWEEN THE OUTSIDE WALLS OF THE PROPOSED PIPE AND ANY PIPE CROSSING ABOVE.

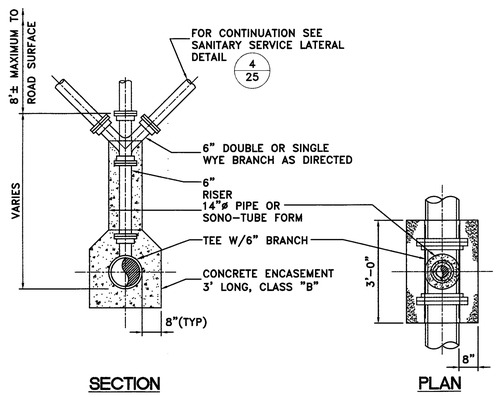
DETAIL 6 **PIPE CROSSING SUPPORT CRADLE**

SCALE: N.T.S.



DETAIL 4 **SANITARY SERVICE LATERAL**

SCALE: N.T.S.



DETAIL 5 **DEEP CUT SANITARY LATERAL CONNECTION**

SCALE: SCALE REFSHEET

APPROVED:
Richard A. Alaimo
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 13195

REVISIONS	DATE	BY

ALAIMO GROUP
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NJDCA 24GA27988400
200 HIGH STREET MOUNT HOLLY, N.J.
2 MARKET STREET PATERSON, N.J.

LOCUST DRIVE NEAR TULIP STREET OVER STREAM 3-51 (SU105)

SANITARY CONSTRUCTION DETAILS II

SCALE: AS NOTED

CLIENT: COUNTY OF UNION BOARD OF CHOSEN FREEHOLDERS

PROJECT LOCATION: CITY OF SUMMIT COUNTY OF UNION NEW JERSEY

PROJECT NO.: A-0530-0016-000

CONTRACT NO.: 2010-005C

DATE: MAY 2017
DESIGNED BY: LMG
DRAWN BY: LMG
CHECKED BY:
DEPT. HEAD:

SC-4
SHEET 25
FILE NO.:

Plotted: 8/8/2017 2:09 PM Last saved: 8/8/2017 2:07 PM File Name: Q:\Projects\A0530001\6000\Drawings\Summit 2007\DWP-25-Sanitary Construction Details.dwg