State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

MAIL CODE 401-03D
DEPARTMENT OF ENVIORNMENTAL PROTECTION
DIVISION OF WATER QUALITY
MUNICIPAL FINANCE & CONSTRUCTION ELEMENT
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TRENTON, NJ 08625-0420
TEL: # (609) 633-1180
FAX # (609) 292-1381
www.state.nj.us/dep/dwq

BOB MARTIN
Commissioner

AIS Waiver:

OCT 30 2015

Loan Project Number S340485-09
Raritan Township Municipal Utilities Authority
Main Treatment Plant Motor Control Center Replacement
Contract Number 13-2

The Raritan Township Municipal Utilities Authority (RTMUA) is seeking a waiver on the AIS requirements. The waiver request is for twelve inch square inlet grate and frame castings that are to be utilized in conjunction with the new storm drain basins that are to be installed as part of the aforementioned project. The required square frame and grate castings are made specifically for each basin to provide a round bottom flange that matches closely the diameter of the drain basin.

The consultant (Hatch Mott MacDonald) for RTMUA has stated that it has been unable to find a domestic manufacturer for the twelve inch square inlet grate and frame casting (i.e., Nyloplast Ductile Iron Square Frame and Grate Model #1299GCP with AASHTO H-20 Load Rating). With RTMUA's request, are two correspondences from two major suppliers supporting the fact that the twelve inch square inlet grate and frame casting are not manufactured in the United States.

We respectfully request your review and approval of this waiver request allowing for the four (4) twelve inch square inlet grate and frame castings to be obtained non-domestically and utilized on the subject project.

Thank you for your attention to this matter.

Please contact Mr. Paul Hauch (Paul.Hauch@dep.nj.gov) if you have any questions at 609-292-3114.

Sincerely,

Eugene J. Chebra, P.E.
Assistant Director
Municipal Finance and Construction Element, NJDEP

Enclosures

cc: William Machotka, MFCE
Paul Hauch, MFCE
James Keil, MFCE
Nancy C. Wohlleb, P.E., Hatch Mott MacDonald
Chris Wohlleb, P.E., Hatch Mott MacDonald

Hatch Mott MacDonald
111 Wood Avenue South
Iselin, New Jersey 08830-4112

www.hatchmott.com

October 26, 2015

Email
State of N.J. Department of Environmental Protection
Mail Code 401-3D
Division of Water Quality
Bureau of Construction and Connection Permits
401 E. State Street - 3rd Floor
Trenton, N.J. 08625-0420

Attention: Mr. Paul T. Hauch, Interim Section Chief

RE: AIS Waiver Request
Raritan Township Municipal Utilities Authority
Main Treatment Plant Motor Control Center Replacement
Contract No. 13-2
NJEIT Loan No. S340485-09
HMM Project Number 306132MC01

Dear Mr. Hauch:

On behalf of the RTMUA, we submit this request for a waiver of the American Iron and Steel (AIS) requirements for the ductile iron frame and grate castings that are to be used in conjunction with the new storm drain basins that are to be installed as part of this project. The required square frame and grate castings are made specifically for each basin to provide a round bottom flange that matches closely the diameter of the drain basin.

The following supporting documentation is provided in accordance with Waiver Request Checklists, that were included in the March 20, 2014 AIS Guidance document that was issued by U.S. EPA:

1) Hatch Mott MacDonald contacted two (2) two major domestic suppliers of PVC stormwater drainage basins and castings regarding the availability of the storm basin frame and grates that are required for this project. Copies of the following correspondence with these suppliers is attached:
   - Email from Courtney Ashliman, Engineering Manager at ADS/Nyloplast indicating ADS/Nyloplast does not manufacture any ductile iron frames and grates in the USA.
   - Letter from Rick Shriver, Northeast Regional Manager at Harco indicating that neither Harco nor any of their numerous supply partners are able to provide domestically manufactured grates and frames that are required for use with their drain basin structures.

2) A copy of the schedule for this project is attached.
3) A copy of the following relevant plan sheet and sections of the specifications that detail and specify the requirements for the drainage basin castings, for which this waiver is being submitted, are attached. This waiver is being requested for a

Hatch Mott MacDonald

total of four (4) drain basin frames and grates as highlighted on Sheet No. S-3 of the project plans:

- Sheet No. S-3 of the project plans, which contains a plan and profile showing the locations of the 12-inch drain basins and castings.
- Sheet No. S-4 of the project plans, which provide details for the12-inch drain basins and castings.
- Section 15107 of the Project Specifications, which provides specifications for the ductile iron castings that are to be used in conjunction with the specified PVC Surface Drainage Basins.

It is requested that you review the attached waiver request, to confirm that all necessary information has been provided, and forward the waiver request to EPA.

Should you have any questions or require further information, please do not hesitate to call me.

Very truly yours,

Hatch Mott MacDonald

Nancy Wohlleb

Nancy C. Wohlleb, P.E., C.M.E.
Associate/Principal Engineer
T 973.912.2616 F 973.912.2632
nancy.wohlleb@hatchmott.com

NCW:ejh

cc: Greg Laferla, RTMUA, (via email)
C. Gregory Watts, Esq. (via email)
Jim Keil, NJDEP (via email)
Chris Wohlleb, HMM (via email)

http://pims02/pims/llisapi.dll/properties/52046207

This waiver request was submitted to the EPA by the state of New Jersey on behalf of the Raritan Township Municipal Utilities Authority . All supporting correspondence and/or documentation from contractors, suppliers or manufacturers included as a part of this waiver request was done so by the recipient to provide an appropriate level of detail and context for the submission.
Some of the referenced attachments with project schedules and supplier correspondence are in formats that do not meet the Federal accessibility requirements for publication on the Agency's website. Hence, these exhibits have been omitted from this waiver publication. They are available upon request by emailing SRF_AIS@epa.gov

SECTION 15107

HDPE PIPING SYSTEMS

PART 1: GENERAL

1.01 WORK INCLUDED

The work under this Section of the specifications shall include all materials, equipment and labor for furnishing, laying, installing, and testing the piping work and appurtenances herein described and as shown on the Contract Drawings.

The Contractor shall furnish and install drainage structures (manholes & inlets), and HDPE pipe including adaptors, couplings and fittings necessary to install the conveyance conduit as shown on the Contract Drawings.

1.02 RELATED WORK

Section 15000 –General Requirements

1.03 QUALITY ASSURANCE

Dimensions shown on Contract Drawings are approximate only. Contractor shall verify all piping geometry in the field and shall be responsible for insuring proper alignment and fit of all piping consistent with the intent of the Contract Drawings.

1.04 SUBMITTALS

Shop drawings and manufacturer's literature for all Contractor supplied materials shall be promptly submitted to the Engineer for approval in accordance with the General Requirements of the specifications.

1.05 DELIVERY, STORAGE, AND HANDLING

The Contractor shall carefully examine all material for defects prior to installation. Material that is known, or thought, to be defective shall not be installed.

PART 2: PRODUCTS (MATERIAL)

2.01 HDPE PIPE

The HDPE pipe shall be ADS N-12 WT IB pipe or equal (per ASTM F2648). The pipe shall have a smooth interior and annular exterior corrugations. 4-inch through

60-inch (100 to 1500 mm) pipe shall meet ASTM F2648. The Manning's "n" value for the pipe shall be 0.012.

The material for pipe production shall be an engineered compound of virgin and recycled high-density polyethylene conforming with the minimum requirements of cell classification 424420C (ESCR Test Condition B) for 4-through 10-inch (100 to 250 mm) diameters, and 435400C (ESCR Test Condition B) for 12- through 60-inch (300 to 1500 mm) diameters, as defined and described in the latest version of ASTM D3350, except that carbon black content should not exceed 4%. The design engineer shall verify compatibility with overall system including structural, hydraulic, material and installation requirements for a given application.

2.02 JOINTS

4-inch through 60-inch (100 to 1500 mm) shall be watertight according to the requirements of ASTM D3212. Gaskets shall be made of polyisoprene meeting the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly.

12-inch through 60-inch (300 to 1500 mm) diameters shall have a reinforced bell with a bell tolerance device. The bell tolerance device shall be installed by the manufacturer.

2.03 FITTINGS

Fittings shall conform to ASTM F 2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the watertight joint performance requirements of ASTM F 2306.

2.04 PVC SURFACE DRAINAGE BASINS

PVC surface drainage basins shall include the drain basin type as indicated on the contract drawing and referenced within the contract specifications. The ductile iron castings (frame & solid cover / frame & grate) for each of these fittings are to be considered an integral part of the surface drainage basin and shall be furnished by the same manufacturer. The surface drainage basins shall be as manufactured by Nyloplast a division of Advanced Drainage Systems, Inc., or equal.

The drain basins required for this contract shall be manufactured from PVC pipe stock, utilizing a thermo-molding process to reform the pipe stock to the specified configuration. The drainage pipe connection stubs shall be manufactured from PVC

pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the main body of the drain basin or catch basin. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage basins shall conform to ASTM D1784 cell class 12454.

The castings (frame & solid cover / frame & grate) furnished for all surface drainage basins shall be ductile iron for sizes 8", 10", 12", 15", 18", 24" and 30" and shall be made specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the surface drainage basin. Castings (frame & solid cover / frame & grate) for drain basins shall be capable of supporting H-20 wheel loading. 12" and 15" square grates will be hinged to the frame using pins. Metal used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05 for ductile iron. Castings shall be provided painted black.

PART 3: EXECUTION

3.01 INSTALLATION - GENERAL REQUIREMENTS

All pipe shall be laid and maintained to the required lines and depths. Fittings shall be at the required locations with joints centered and otherwise in strict accordance with the Specifications.

All buried steel lugs, rods, brackets and flanged joint bolts and nuts shall be given one (1) coat of Koppers #50 coal tar coating prior to backfilling.

No deviation shall be made from the required alignment, depth or grade except with the written consent of the Engineer.

All pipe shall be laid to the depth specified. The depth shall be measured from the final surface grade to the top of the pipe barrel. The minimum pipe cover shall be as shown on the Drawings or as specified in the Specifications.

Do not lay pipe in a wet trench, on subgrade containing frost, and when trench conditions are unsuitable for such work. If all efforts fail to obtain a stable dry trench bottom and the Engineer determines that the trench bottom is unsuitable for trench foundation, he will order in writing the kind of stabilization to be constructed.

Thoroughly clean the pipes and fittings before they are installed and this material shall be kept clean until the acceptance of the completed work. Lay pipe with the bell ends facing in the direction of laying, unless otherwise shown on the Drawings,

or directed by the Engineer. Exercise care to insure that each length abuts against the next in such manner that no shoulder or unevenness of any kind occurs in the pipe line.

No wedging or blocking is permitted in laying pipe unless by written order of Engineer.

Bedding under HDPE pipe and up to half of the pipe diameter shall be with compacted Size No. 57 broken stone or screened gravel, as shown on the Typical Bedding Detail. Backfill above half the diameter of HDPE pipe and up to a cover of at least 18-inches over the top of the pipe shall be select fill or bank run sand and gravel as shown on the Typical Bedding Detail, unless otherwise ordered. Backfill under pipe haunches, around pipe and up to a cover of at least 18 inches over the top of the pipe shall be placed by hand in 6-inch layers, each layer to be thoroughly compacted by mechanical tampers of an approved type. Compaction and tamping shall be as directed to the end that the pipe shall be securely bedded and protected at the end of each day's operation. No stones or boulders will be permitted adjacent to the pipe. The remainder of the trench shall be backfilled in accordance with the applicable provisions of these Specifications or as directed by the Engineer.

Ample precautions shall be taken at all times to prevent entrance of dirt and debris onto the pipe before, during and after jointing and laying. Exposed ends of pipe shall be provided with temporary plugs or covers.

Before joints are made, bed each section of pipe the full length of the barrel with recesses excavated so pipe invert forms continuous grade with invert of pipe previously laid. Do not bring succeeding pipe into position until the preceding length is embedded and securely in place.

Dig bell holes sufficiently large to permit proper joint making and to insure pipe is firmly bedded full length of its barrel.

During "pushing home" of any style piping, timber shall be placed between the jacking device (backhoe, bucket, pipe jacket, etc.) and the pipe being driven home.

Walking or working on completed pipeline, except as necessary in tamping and backfilling, is not permitted until trench is backfilled one-foot deep over top of pipes.

Take up and relay pipe that is out of alignment or grade, or pipe having disturbed joints after laying.

Take up and replace with new, such in-place pipe sections found to be defective. Replacement work at Contractor's expense.

Take necessary precautions to prevent the floating of the pipeline by the accumulation of water in the trench, or the collapse of the pipeline from any cause. Should floating or collapse occur, restoration will be at the Contractor's expense.

Bedding and backfilling materials for buried pipe shall be as specified previously in Section 2300 - Earthwork, Section 15000 – General Requirements, as specified in subsequent paragraphs, and in accordance with the Contract Drawings.

Take every precaution to prevent foreign material from entering the pipe while it is being placed. During laying operations, do not place debris, tools, clothing, or other materials in the pipe.

Close all openings in the pipeline with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons, such as rest breaks or meal periods.

Place enough backfill over the center sections of the pipe to prevent floating.

Carry out the cutting, make-up and installation in strict accordance with the pipe manufacturer's written recommendations.

In distributing material at the project site, each piece shall be unloaded opposite or near the place where it is to be laid in the trench. Each length of pipe shall be adequately blocked to prevent movement. Stockpiled pipe shall be adequately blocked to prevent movement. No pipe, material, or any other object shall be placed on private property, obstruct walkways or driveways, or in any manner interfere with the normal flow of traffic.

Special care shall be exercised, during handling temporary storage or construction to avoid damage to the bells, spigots or flanged ends. If damaged pipe cannot be repaired to the Engineer's satisfaction, it shall be replaced at the Contractor's expense.

The Contractor shall be responsible for maintaining the minimum required distance between the water line and other utility lines in strict accordance with all Federal, State and local requirements and all right-of-way limitations.

Maximum allowable deflection at the joints for push-on joint pipe, regardless of pipe material, shall be as follows providing manufacturer's recommendations are not more stringent:

Size of Pipe	Deflection Angle	Maximum Deflection (18-ft. Length)	(20-ft. Length)
thru 12"	2-1/2°	9-1/2"	10-1/2"
14"-36"	1-1/2°	5-1/2"	6"
42"-48"	1°	3-1/4"	4"

In case the curve is too sharp for the allowable deflection, short lengths of pipe may be used upon approval of the ENGINEER and at no additional cost to the OWNER.

Particular care shall be exercised to that no high points are established where air can accumulate in the pipelines.

3.02 HDPE PIPE INSTALLATION

Installation shall be in accordance with ASTM D2321. Minimum cover in trafficked areas for 4- through 48-inch (100 to 1200 mm) diameters shall be one foot (0.3 m) and for 60-inch (1500 mm) diameters, the minimum cover shall be 2 ft. (0.6 m) in single run applications. Backfill for minimum cover situations shall consist of Class 1 (compacted), or Class 2 (minimum90% SPD) material. Maximum fill heights depend on embedment material and compaction level; refer to Manufacturer's recommendations.

3.03 BURIED PIPE

The specifications in this part are applicable to the installation of gravity sewer and drain pipe, the type and class of which are indicated on the drawings and/or specified in subsequent sections.

A. Lines and Grades

The grade and alignment of the pipe shall be maintained by the use of laser instruments.

The Contractor shall furnish all labor, material, surveying instruments and tools to establish and maintain all lines and grades. The responsibilities of the Engineer to provide and of the Contractor to maintain basic control points are outlined in the General Requirements.

All pipe, fittings and specials shall be carefully inspected in the field before lowering into the trench. Cracked, broken, warped, out-of-round or otherwise defective pipe, fittings or specials as determined by the Contractor or the Engineer, shall be pulled and not installed. Such rejected pipe shall then be removed from the job site by the Contractor at his own expense.

After the trench has been brought to the proper grade, as hereinbefore specified, the pipe and specials shall be laid. Pipe jointing shall be in accordance with Manufacturer's recommendations.

All pipe fittings and specials shall be carefully lowered into the trench with ropes, slings and proper equipment. Pipe becoming cracked or otherwise damaged during or following installation shall be marked by the Contractor or Engineer and removed from the site as required in the preceding paragraph.

Blocking will not be permitted except where the pipe is to be encased in concrete. Any pipe that has its grades or joints disturbed after laying shall be taken up and relaid. The interior and ends of all pipes shall be thoroughly cleaned during laying operations by means of plugs or other approved methods. Under no circum stances shall pipe be laid in water and no pipe shall be laid when trench conditions or the weather is unsuitable for such work except by permission of the Engineer. Every precaution necessary shall be taken to obtain watertight construction. If deemed necessary, sewer lines will be tested for leakage.

Contractor shall first clean and flush all lines, and all debris flushed out shall be removed. If an inspection of the completed sewer on any part thereof shows any pipes or joints which allow the infiltration of water in a noticeable stream or jet, the defective work or material shall be replaced or repaired as directed.

3.04 PVC SURFACE DRAINAGE BASIN INSTALLATION

The specified PVC surface drainage basins shall be installed using conventional flexible pipe backfill materials and procedures. The backfill material shall be crushed stone or other granular material meeting the requirements of class 2 material as defined in ASTM D2321 or as otherwise specified on the plans or in the specifications. Bedding and backfill for surface drainage basins shall be placed and compacted uniformly in accordance with ASTM D2321. The drain basin body will be cut at the time of the final grade. No brick, stone or concrete block will be required to set the grate to the final grade height. A concrete slab and/or housekeeping pad shall be poured under and around the castings in accordance with the details on the Contract plans. For other installation considerations such as migration of fines, ground water, and soft foundations refer to ASTM D2321 guidelines.

3.05 TESTING

Following installation and before final acceptance of the new HDPE piping system, the Contractor shall furnish all equipment and personnel to conduct the required acceptance testing. Acceptance testing shall include deflection testing and internal closed circuit television inspection for the entire HDPE piping system installed under this Contract. All testing shall be witnessed by the Engineer. The tests to be performed are as follows:

Deflection Testing of HDPE Sewer

A. The Contractor shall pass a device through the pipe that will check for excessive vertical deflection. A pipe that has deflected more than 5% of its diameter has deflected excessively. The test shall be conducted a minimum of 14 days after installation unless otherwise approved by the Engineer.

B. The device for checking the deflection shall be provided by the Contractor. Details of the device shall be submitted to the engineer for approval, prior to its use. Note that the deflection device shall be pulled through the pipeline using only the force of one (1) man without the aid of any devices other than the rope/chain attached to the deflection device.

C. Any piping found to have deflected excessively shall be replaced or repaired as directed by the Engineer.

Television Inspection of HDPE Sewer

A. The Contractor shall perform, in the presence of the Engineer, a television inspection of the entire HDPE piping system installed under this Contract. The Contractor shall submit to the Engineer for review his plan for conducting all sewer flushing and videoing.

B. The video work includes the jet flushing of the sewers for each reach as measured from the centerline distances to each drainage basin. The contractor shall make all arrangements for the adequate provision of jetting equipment and water truck (s). Flushing shall be required as many times as necessary and to the satisfaction of the Engineer or Owner that the sewers are sufficiently clean to perform the TV inspection.

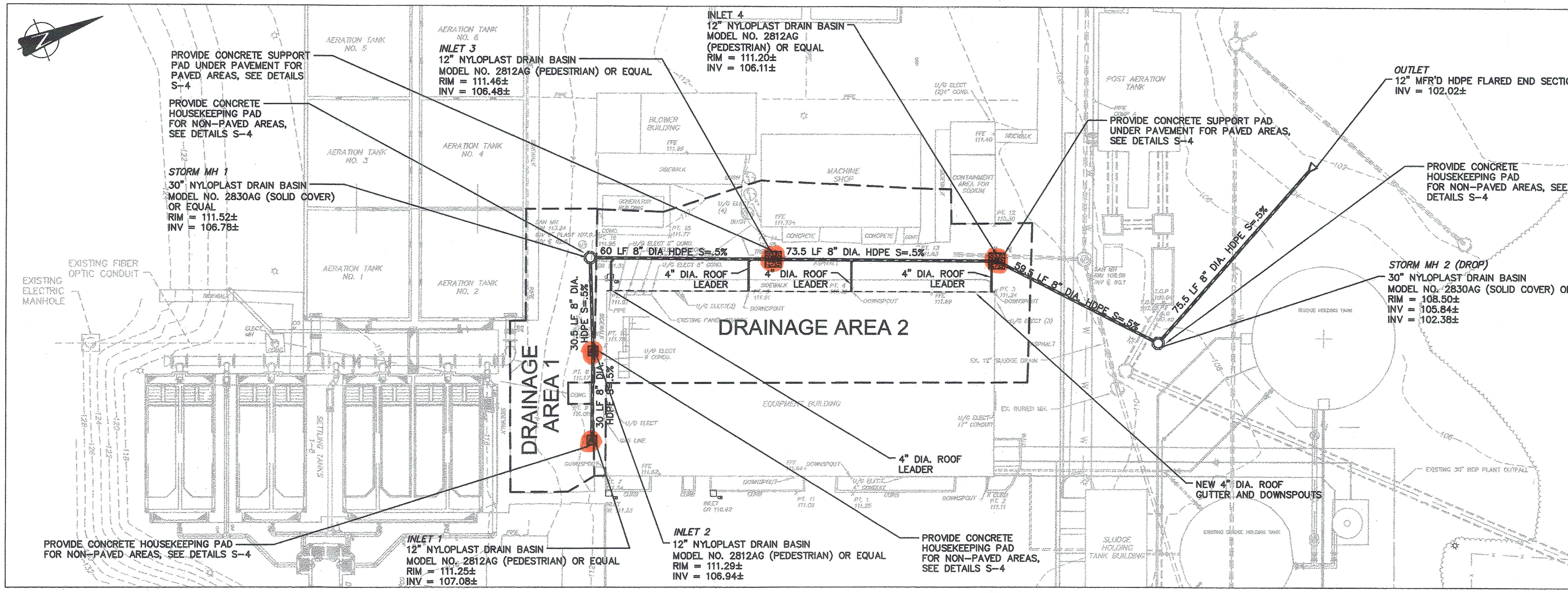
C. Immediately after flushing, the contractor shall perform the TV inspection in the presence of the Engineer. He shall ensure that a competent, clear, English-speaking worker narrates the video at a minimum noting the name of

each run, time and place of inspection and any other information that is pertinent in identifying the particular sewer reach being videoed.

D. A clear videotape of the inspection shall be provided to the Engineer. The Contractor shall repair to the satisfaction of the Engineer, and at no additional cost to the Owner, any and all defects noted by the internal inspection.

E. If the inspection of the completed HDPE piping system or any part thereof shows any manholes, pipes or joints, which allow the infiltration of water in a noticeable stream or jet, the defective work or material shall be replaced or repaired as directed.

* * *



NOTES:

1) TEST PIT ALL EXISTING UTILITIES PRIOR TO ALL EXCAVATION.

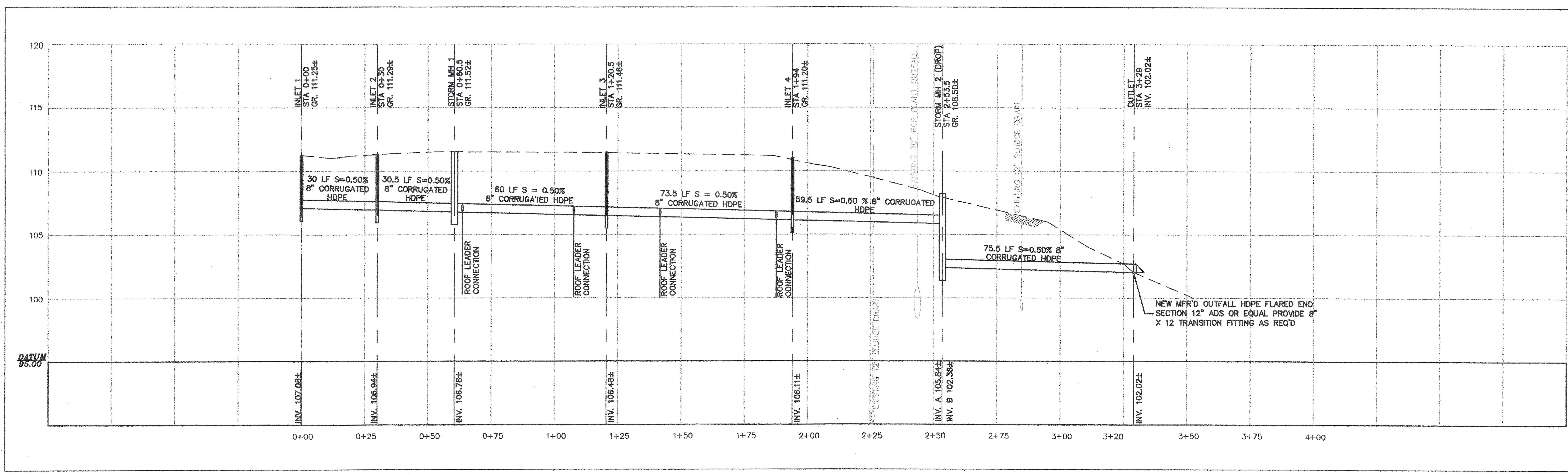
2) COORDINATE ALL WORK WITH RTMUA, ENGINEER AND PRODUCT MANUFACTURER

3) ALL HDPE PIPE SHALL BE CORRUGATED EXTERIOR AND SMOOTH INTERIOR.

4) PROVIDE 12" DEEP SUMPS AS MEASURED FROM THE INVERTS AT ALL MANHOLES AND INLETS.

PLAN

20 0 20 40 SCALE IN FEET



PROFILE

20 0 20 40 SCALE IN FEET HORIZONTAL

4 0 4 8 SCALE IN FEET VERTICAL

P:\328497\DWG\FINAL DESIGN\S\S-3.DWG 7/17/2014 12:21:12 PM

Revision	Date

NANCY C. WOHLLEB
Professional Engineer - N.J. Lic. No. 24GE04552200
Date 7/11/2014

Designed	Drawn	Checked	Approved	Date
NCW	NCW/RJP	NCW	NCW	6/16/2014

Hatch Mott MacDonald
Certificate No. 24GA28016600
111 Wood Avenue South
Iselin, New Jersey 08830-4112

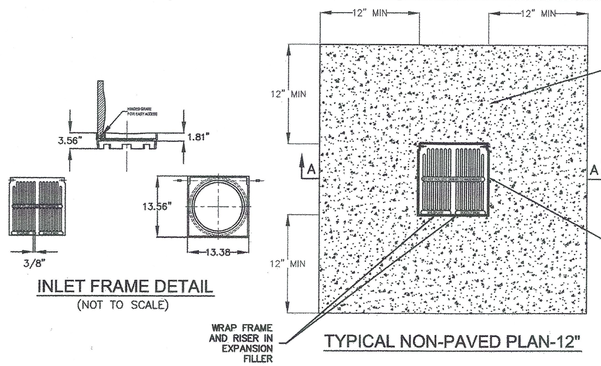
RARITAN TOWNSHIP MUNICIPAL UTILITIES AUTHORITY
HUNTERDON COUNTY, NEW JERSEY

MAIN TREATMENT PLANT
MOTOR CONTROL CENTER REPLACEMENT
SITE

STORMWATER SEWER PLAN AND PROFILE

Job	No.	
328497	S-3	
	B/O 6	Total 24

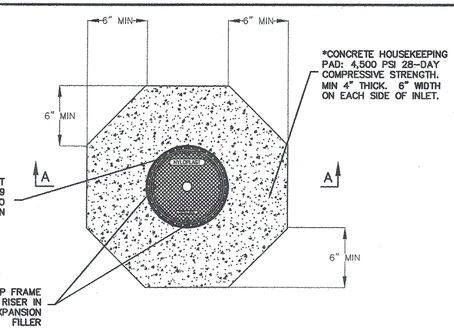
Contract No. 13-2



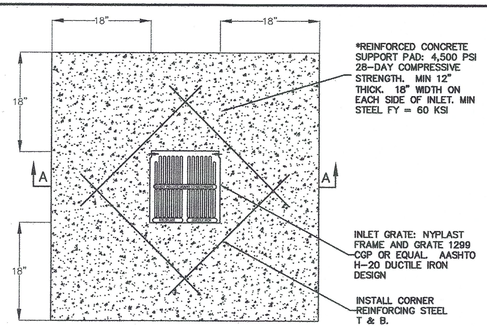
INLET FRAME DETAIL

(NOT TO SCALE)

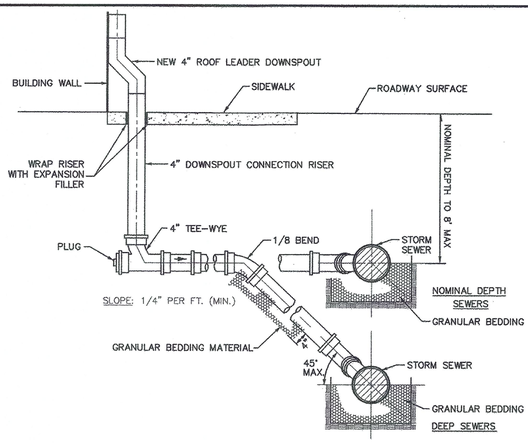
TYPICAL NON-PAVED PLAN-12"



TYPICAL NON-PAVED PLAN-30"

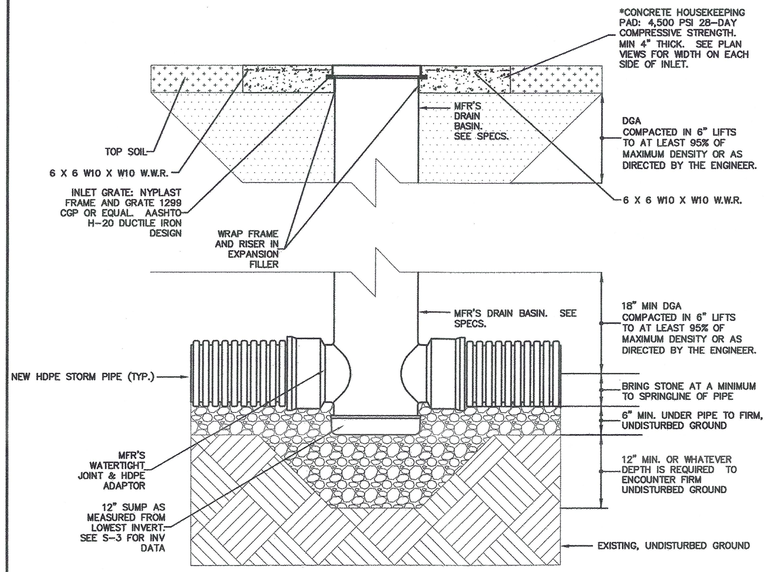


TYPICAL PAVED PLAN-12"



STORM SEWER CONNECTION DETAIL

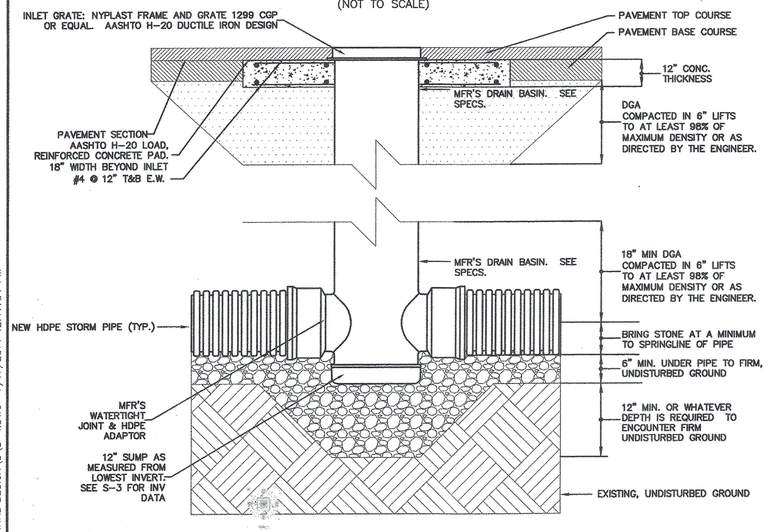
(NOT TO SCALE)



TYPICAL SECTION A-A

12" & 30" MANUFACTURED STORMWATER DRAIN BASIN-NON PAVED AREAS

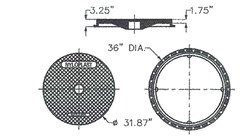
(NOT TO SCALE)



TYPICAL SECTION A-A

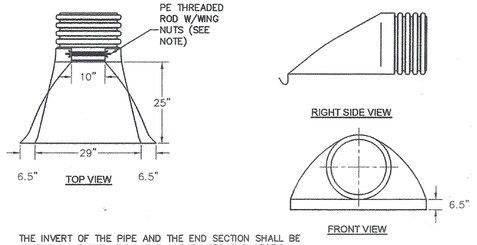
12" ONLY MANUFACTURED STORMWATER DRAIN BASIN-PAVED AREAS

(NOT TO SCALE)



MANHOLE FRAME & COVER

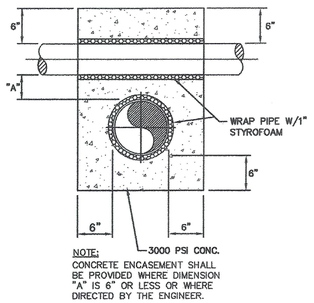
(NOT TO SCALE)



THE INVERT OF THE PIPE AND THE END SECTION SHALL BE AT THE SAME ELEVATION. THE ADS FLARED END SECTION SHALL BE HIGH DENSITY POLYETHYLENE MEETING ASTM D3350 MINIMUM CELL CLASSIFICATION 213320C; CONTACT MANUFACTURER FOR ADDITIONAL CELL CLASSIFICATION INFORMATION. WHEN PROVIDED, THE METAL THREADED FASTENING ROD SHALL BE STAINLESS STEEL 316.

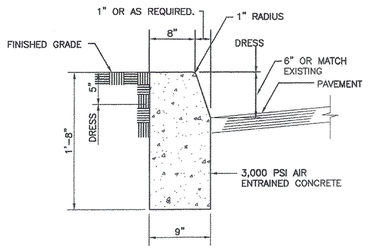
HDPE FLARED END SECTION

(NOT TO SCALE)



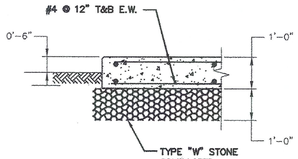
PIPE CROSSING DETAIL

(NOT TO SCALE)



CONCRETE CURB DETAIL

(NOT TO SCALE)



CONCRETE PAD NOTES:

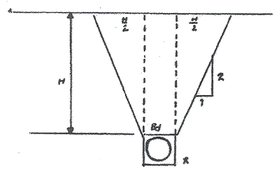
1. ALL REINFORCED CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL CONFORM TO A.C.I. 318-02 "BUILDING CODE" AND "A.C.I. DETAILING MANUAL" ACI SP66(94).
2. ALL CONCRETE SHALL HAVE A SPECIFIED 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. THIS CONCRETE SHALL HAVE A MINIMUM TYPE II CEMENT CONTENT OF 6.5 BAGS PER CUBIC YARD, 5.0 GALLONS OF WATER PER BAG (W/C=0.45) & 6±1% AIR ENTRAINMENT SUCH THAT THE HARDENED WEIGHT IS 145±3% LBS./CUBIC FOOT.
3. ALL REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH Fy=60 KSI AND SHALL BE NEW DEFORMED BILLET-STEEL CONFORMING TO ASTM A615-01b GRADE 60.

TRANSFORMER/MISC. EQUIPMENT CONCRETE PAD DETAIL

(NOT TO SCALE)

PAVEMENT KEYWAY DETAIL

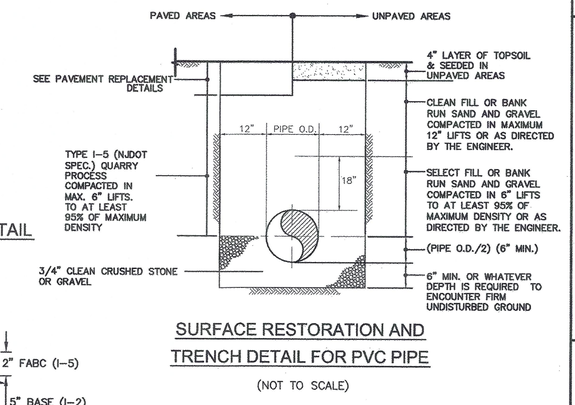
(NOT TO SCALE)



1. SELECT TRENCH BACKFILL WILL BE ELIGIBLE FOR PAYMENT WHEN THE EXCAVATED MATERIAL IS TOTALLY OR PARTIALLY UNACCEPTABLE FOR REUSE AS TRENCH BACKFILL. WHEN THE UNACCEPTABLE MATERIAL MUST BE REPLACED WITH APPROVED SELECT BACKFILL IN A TRENCH WITH A DEPTH OF 10 FEET OR LESS FROM THE TOP OF THE PIPE, THE ELIGIBLE PAYMENT WIDTH SHALL BE Bd AS SHOWN ABOVE. FOR TRENCHES OF A GREATER DEPTH THE MAXIMUM ELIGIBLE PAYMENT WIDTH SHALL BE Bd PLUS H FOR THE DEPTH OF UNSUITABLE MATERIAL AS MEASURED AT THE TIME OF EXCAVATION.
2. WHEN TRENCH WIDTH IS LESS THAN Bd PLUS H, THE ACTUAL WIDTH SHALL CONTROL THE PAYMENT.
3. Bd EQUALS MAXIMUM TRENCH WIDTH (MEASURED AT THE TOP OF THE PIPE). Bd EQUALS THE PIPE O.D. PLUS 24" AS ILLUSTRATED ON THE CONSTRUCTION DETAILS.
4. THE CONTRACTOR MUST MAKE EVERY EFFORT TO MINIMIZE THE USE OF SELECT FILL. THE USE OF SUITABLE EXCAVATED MATERIAL FOR BACKFILL WILL BE LIMITED TO THE MIDZONE OF THE TRENCH. THE MIDZONE IS DEFINED AS THAT PORTION OF THE TRENCH BEGINNING TWO FEET ABOVE THE TOP OF THE PIPE, AFTER COMPACTION OF THE PIPE ENVELOPE, TO A POINT TWO FEET BELOW THE FINAL PAVEMENT OR GRADE ELEVATION. THE OWNER/ENGINEER MUST MAKE ALL FINAL DECISIONS CONCERNING THE ABOVE.

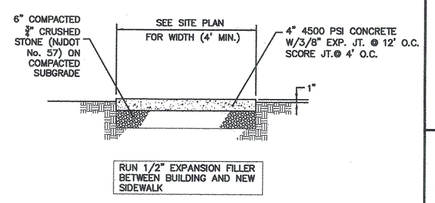
PAYMENT WIDTHS & TRENCH BACKFILL

(NOT TO SCALE)



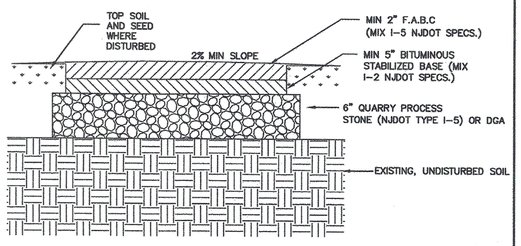
SURFACE RESTORATION AND TRENCH DETAIL FOR PVC PIPE

(NOT TO SCALE)



SIDEWALK DETAIL

(NOT TO SCALE)



DRIVEWAY RECONSTRUCTION PAVEMENT SECTION

(NOT TO SCALE)

Revision	Date

NANCY C. WOHLLEB
Professional Engineer - N.J. Lic. No. 24GE04552200
Date 7/1/2014

Date	6/16/2014
Approved	NCW
Checked	NCW
Drawn	NCW/RJP
Designed	NCW

Hatch Mott MacDonald
Certificate No. 24GA28016600
111 Wood Avenue South
Iselin, New Jersey 08830-4112

RARITAN TOWNSHIP MUNICIPAL UTILITIES AUTHORITY
HUNTERDON COUNTY, NEW JERSEY
MAIN TREATMENT PLANT
MOTOR CONTROL CENTER REPLACEMENT
SITE
CONSTRUCTION DETAILS

Job	No.
328497	S-4
	B/O 7 / Total 24

Contract No. 13-2

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