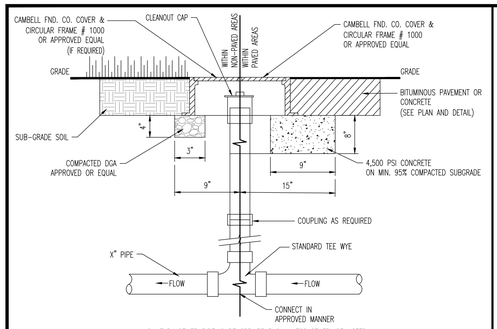
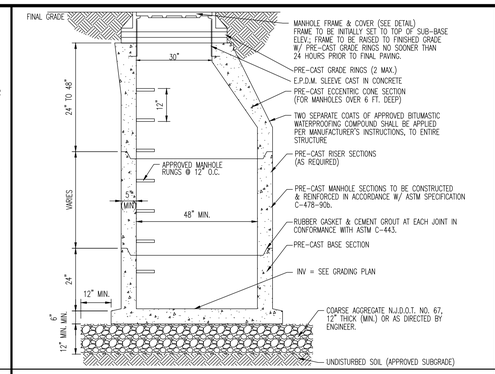
MUNICIPAL, COUNTY, STATE AND MUA DETAILS TO SUPERCEDE DYNAMIC ENGINEERING DETAILS WHERE APPLICABLE

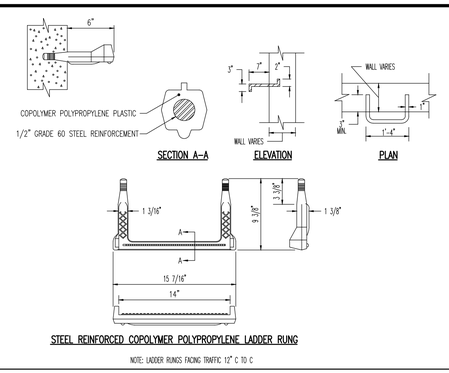


1. ALL SANITARY SEWER PIPE IS BE SDR-35 PVC UNLESS OTHERWISE NOTED.
2. ALL STORM SEWER PIPE IS TO BE SCH-40 PVC UNLESS OTHERWISE NOTED.
3. ALL CLEANOUT CAPS ARE TO BE BRASS FOR SANITARY AND PVC FOR STORM SEWER.
4. "X" – SEE PLAN FOR PIPE DIAMETER

CLEANOUT DETAIL
NOT TO SCALE



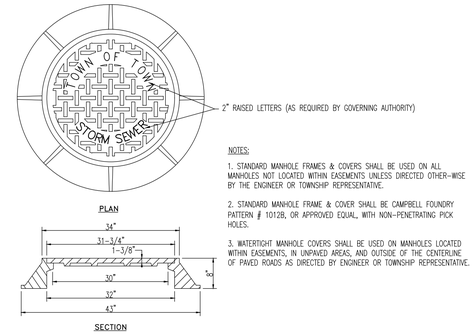
TYPICAL PRECAST STORM MANHOLE
NOT TO SCALE



STEEL REINFORCED COPOLYMER POLYPROPYLENE LADDER RUNG

NOTE: LADDER RUNGS FACING TRAFFIC 12" C TO C

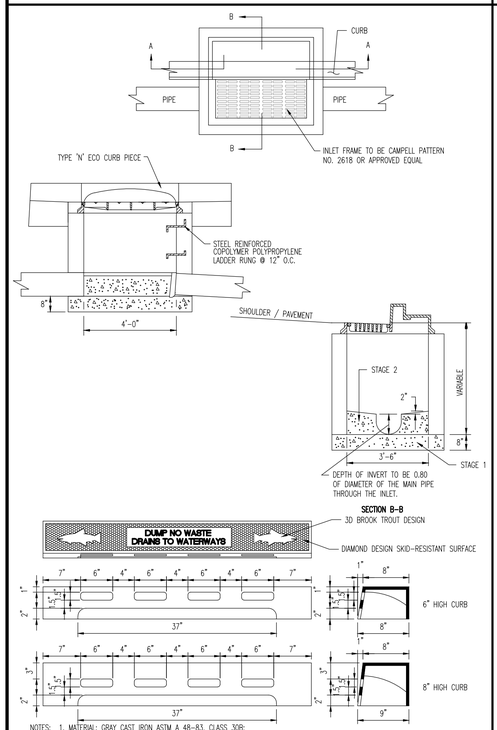
LADDER RUNG DETAIL
NOT TO SCALE



NOTES:

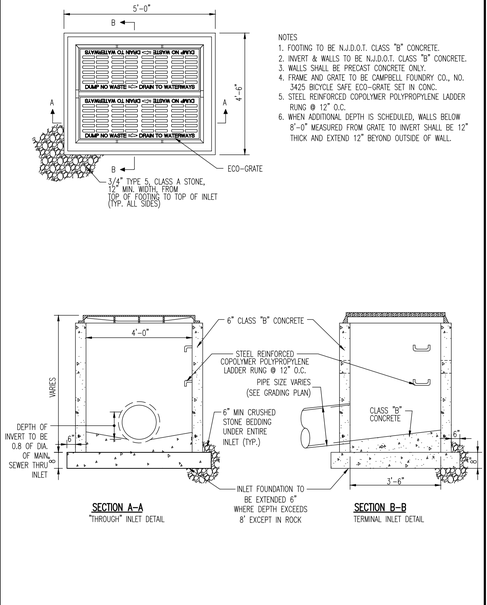
1. STANDARD MANHOLE FRAMES & COVERS SHALL BE USED ON ALL MANHOLES NOT LOCATED WITHIN EASEMENTS UNLESS DIRECTED OTHER-WISE BY THE ENGINEER OR TOWNSHIP REPRESENTATIVE.
2. STANDARD MANHOLE FRAME & COVER SHALL BE CAMPBELL FOUNDRY PATTERN # 1012B, OR APPROVED EQUAL, WITH NON-PENETRATING PICK HOLES.
3. WATERTIGHT MANHOLE COVERS SHALL BE USED ON MANHOLES LOCATED WITHIN EASEMENTS, IN UNPAVED AREAS, AND OUTSIDE OF THE CENTERLINE OF PAVED ROADS AS DIRECTED BY ENGINEER OR TOWNSHIP REPRESENTATIVE.

STORM MANHOLE FRAME DETAIL
NOT TO SCALE



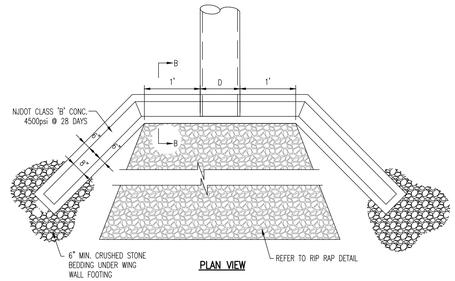
NOTES: 1. MATERIAL: GRAY CAST IRON ASTM A 48-83, CLASS 30B;
2. IN RETROFIT SITUATIONS, THIS CURB PIECE (HEAD) WILL FIT EXISTING CAMPBELL FOUNDRY CO. MANUFACTURED CURB INLETS FOR NJDOT TYPES B, B-1, B-2, D, D-1 AND D-2;
3. NAMEPLATE MESSAGE CAN BE MODIFIED TO YOUR SPECIFIC NEEDS WITHIN AREA SHOWN;
4. CASTING SUPPLIED WITHOUT SURFACE COATING

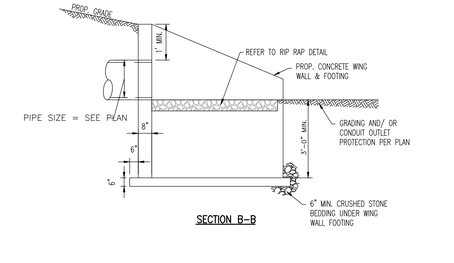
TYPE 'B' INLET w/ TYPE N ECO GRATE DETAIL
NOT TO SCALE



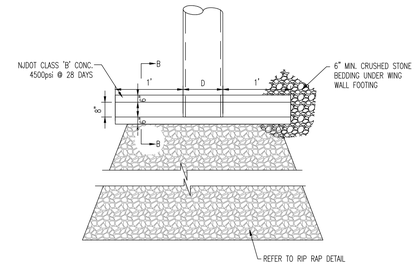
NOTES
1. FOOTING TO BE N.J.D.O.T. CLASS "B" CONCRETE.
2. INVERT & WALLS TO BE N.J.D.O.T. CLASS "B" CONCRETE.
3. WALLS SHALL BE PRECAST CONCRETE ONLY.
4. FRAME AND GRATE TO BE CAMPBELL FOUNDRY CO., NO. 3425 BICYCLE SAFE ECO-GRATE SET IN CONC.
5. STEEL REINFORCED COPOLYMER POLYPROPYLENE LADDER RUNG @ 12" O.C.
6. WHEN ADDITIONAL DEPTH IS SCHEDULED, WALLS BELOW 8'-0" MEASURED FROM GRATE TO INVERT SHALL BE 12" THICK AND EXTEND 12" BEYOND OUTSIDE OF WALL.

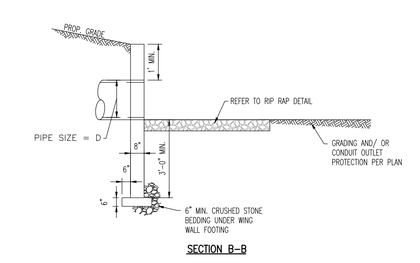
TYPE 'E' INLET
NOT TO SCALE



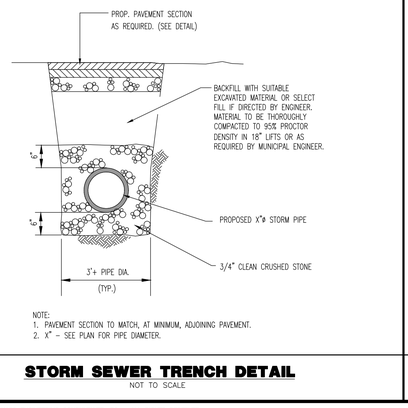


PRECAST CONCRETE HEADWALL DETAIL
NOT TO SCALE



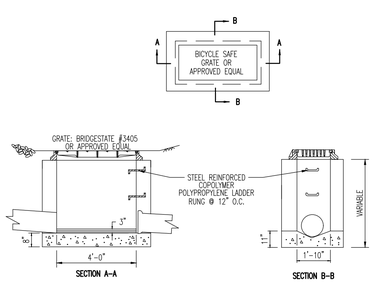


PRE CAST CONCRETE HEADWALL DETAIL
NOT TO SCALE



NOTE:
1. PAVEMENT SECTION TO MATCH, AT MINIMUM, ADJOINING PAVEMENT.
2. "X" – SEE PLAN FOR PIPE DIAMETER.

STORM SEWER TRENCH DETAIL
NOT TO SCALE



MAXIMUM WEIGHTS
WEIGHT OF FRAME = 240 lbs
WEIGHT OF GRATE = 325 lbs

TYPE A INLET DETAIL
NOT TO SCALE

REV.	DATE	COMMENTS	BY

THIS PLAN SET IS FOR PERMITTING PURPOSES ONLY AND MAY NOT BE USED FOR CONSTRUCTION

DRAWN BY: AJW | DESIGNED BY: WB | CHECKED BY: JGJ | CHECKED BY: –

PROJECT: **ELITE PROPERTIES**
PROPOSED RESIDENTIAL DEVELOPMENT
BLOCK 10801, LOT 3
621 VALLEY ROAD (C.R. 512)
TOWNSHIP OF LONG HILL, MORRIS COUNTY, NEW JERSEY

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JOSEPH G. JAWORSKI
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 36618

BRETT W. SKAPINETZ
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 41985

TITLE: **CONSTRUCTION DETAILS**

SCALE: (H) AS (V) SHOWN | DATE: 08/07/2020
PROJECT No: 0555-99-010

SHEET No: 16 OF 21 | Rev. #: 0

Plotted: 08/07/20 – 10:50 AM, By: ajwright
File: \\secpc.local\decfolders\Data\DECFPC PROJECTS\0555 Elite Properties\99-010 Long Hill\Dwg\Site Plans\0555599010SD0.dwg, ----> 16 CONSTRUCTION DETAILS

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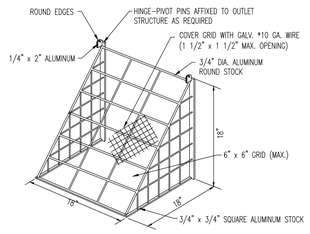
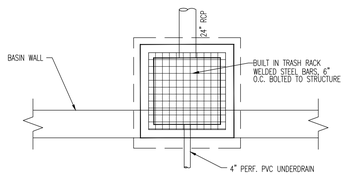


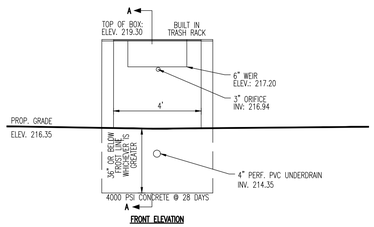
NOTE: FOR 3" TO 15" PRIMARY ORIFICES

TRASH RACK DETAIL

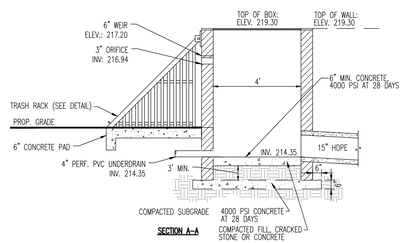
NOT TO SCALE



PLAN VIEW



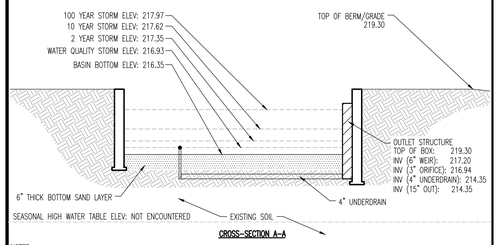
FRONT ELEVATION



SECTION A-A

PRE-CAST CONCRETE OUTLET CONTROL STRUCTURE DETAIL - BASIN A

NOT TO SCALE

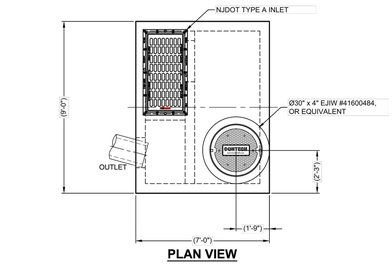


CROSS-SECTION A-A

NOTES:
1. CONTRACTOR OR OWNER TO ENGAGE QUALIFIED GEOTECHNICAL ENGINEER TO TEST SOIL PERMEABILITY AND PROVIDE CONSTRUCTION PHASE INSPECTIONS OF THE BASIN BOTTOM SOILS AND FILL MATERIALS WITHIN ANY PROPOSED INFILTRATION OR RETENTION BASIN TO COMPARE RESULTS TO DESIGN CRITERIA.
2. TOPSOIL AND UNSUITABLE MATERIALS ARE TO BE STRIPPED FROM BASIN BOTTOM AREA AND REPLACED WITH SUITABLE MATERIAL PROVIDING PERMEABILITY RATES CONSISTENT WITH THAT OF THE SUBSURFACE SOILS ZONE OF INFILTRATION. CONTRACTOR SHALL PROVIDE A RECORD OF THE REPLACEMENT MATERIAL USED AND ITS CORRESPONDING PERMEABILITY RATE. REFER TO THE TEST PIT AND/OR SOIL BORING RECORDS AND STORMWATER MANAGEMENT REPORT TO CONFIRM THE DEPTH OF THE ZONE OF INFILTRATION.
3. BOTTOM SAND LAYER MUST CONSIST OF K5 SAND WITH A MAXIMUM OF 15% FINES AND A MINIMUM PERMEABILITY RATE OF 20 INCHES PER HOUR. SOIL TO BE CERTIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER.
4. BASIN CONSTRUCTION MUST NOT COMPACT SOILS BELOW BASIN BOTTOM.

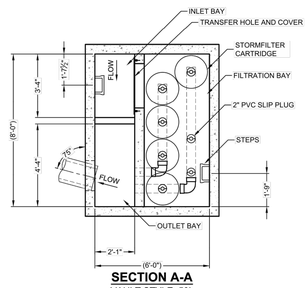
DETENTION WALLED BASIN 'B' (SAND) DETAIL

NOT TO SCALE

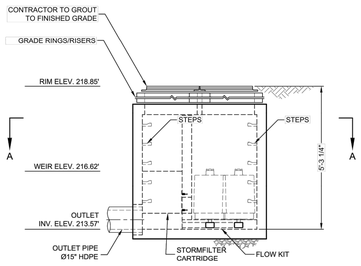


PLAN VIEW

VAULT CONFIGURATION



SECTION A-A
VAULT STYLE: 50L



ELEVATION

MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
5	27", PERLITE CARTRIDGE	CONTECH
8	RESTRICTOR DISK (GLD), 22.5 GPM	CONTECH
3	2" PVC SLIP PLUG	CONTECH
1	FLOW KIT (50L)	CONTECH
1	36" x 14" TRANSFER HOLE COVER	CONTECH
1	JOINT SEALANT	CONTRACTOR
2 PLCS	GRADE RINGS/RISERS	CONTRACTOR
1	NJDOT TYPE A INLET	CONTRACTOR
1	Ø30" x 4" EJIW #41600484, OR EQUIVALENT FRAME AND COVER	CONTRACTOR
10	STEPS, P10CTS LANE LADDER, OR EQUIVALENT	CONTECH

PERFORMANCE SPECIFICATION
FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7-INCHES.** FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **37 SECONDS.**
SPECIFIC FLOW RATE SHALL BE **2 GPM/SF (MAXIMUM).** SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF OF MEDIA (MAXIMUM).**

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING WITH ASTM C-857 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
6. CONTRACTOR TO REMOVE THE TRANSFER HOLE COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = 25,000 LBS.

CONTECH
PROPOSAL
DRAWING

LS/RE

STORM STRUCTURE #112 DETAIL

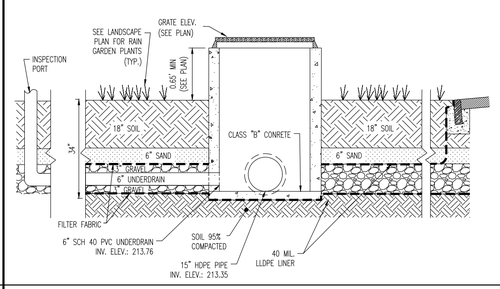
NOT TO SCALE

RAIN GARDEN GENERAL NOTES:

1. SOIL BED MUST BE A MINIMUM OF 18 INCHES IN DEPTH AND CONSISTS OF THE FOLLOWING MIX, BY WEIGHT:
   -85 TO 95% SAND, WITH NO MORE THAN 25% OF SAND AS FINE OR VERY FINE SANDS.
   -NO MORE THAN 15% SILT AND CLAY WITH 2% TO 5% CLAY CONTENT.
   -ENTIRE MIX MUST THEN BE AMENDED WITH 3 TO 7% ORGANICS BY WEIGHT.
   -MINIMUM PERMEABILITY OF SOIL BED 8 INCHES/HR (4 IN/HR DESIGN).
2. PRE-MIXED SOIL MUST BE CERTIFIED BY VENDOR OR PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY TO MEET THE REQUIREMENTS ON NOTE 1 ABOVE.
3. THE PH OF THE SOIL BED MATERIAL MUST RANGE FROM 5.5 TO 6.5.
4. MATERIAL MUST BE PLACED IN LIFTS NOT TO EXCEED 8 INCHES. ADDITIONAL MATERIAL MAY BE REQUIRED TO ACCOUNT FOR SETTLING OVER TIME.
5. FILTER FABRIC IS REQUIRED ALONG THE SIDES AND THE BOTTOM. ADDITIONAL LOCATIONS MAY BE REQUIRED BASED ON DETAIL.
6. SAND LAYER MUST BE 6 INCHES IN DEPTH AND MUST CONSIST OF CLEAN MEDIUM – AGGREGATE CONCRETE SAND (AASHTO M-6/ASTM C-33). MINIMUM PERMEABILITY RATE SHOULD BE TWICE THE DESIGN PERMEABILITY RATE OF SOIL BED.
7. GRAVEL LAYER MUST CONSIST OF 0.5 TO 1.5 INCHES CLEAN, BROKEN STONE OR PEA GRAVEL (AASHTO M-43) PERMEABILITY RATE SHOULD BE TWICE THE DESIGN PERMEABILITY RATE OF SAND LAYER.
   INSPECTION PORTS MUST BE LOCATED AT UPSTREAM ENDS OF THE PERFORATED UNDERDRAIN.

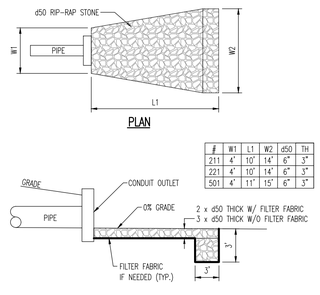
LLDPE RAIN GARDEN LINER GENERAL NOTES:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE RAIN GARDEN LINER, FOR ENGINEER'S APPROVAL, SHOWING THE PROPOSED PANEL LAYOUT IDENTIFYING SEAMS AND DETAILS. SEAMS SHOULD GENERALLY FOLLOW THE DIRECTION OF THE SLOPE. BUTT SEAMS OR ROLL-END SEAMS SHOULD NOT OCCUR ON A SLOPE UNLESS APPROVED BY THE OWNER'S REPRESENTATIVE. BUTT SEAMS ON A SLOPE, IF ALLOWED, SHOULD BE STAGGERED.
2. THE GEOMEMBRANE SHALL BE INSTALLED TO THE LIMITS SHOWN ON THE PROJECT DRAWINGS AND AS SHOWN ON APPROVED PANEL LAYOUT DRAWINGS. TEXTURED LINER SHALL BE INSTALLED ON ALL SLOPES EXCEEDING 6 HORIZONTAL TO 1 VERTICAL. SMOOTH LINER SHALL BE INSTALLED IN ALL OTHER AREAS.
3. GEOMEMBRANE SHALL BE INSTALLED ON AN APPROVED SUBGRADE CONSISTING OF SMOOTH COMPACT SOILS FREE FROM FOREIGN DEBRIS AND SHARP ROCK. A MINIMUM 9-INCH THICK SOIL CUSHION LAYER SHALL BE PROVED BETWEEN ALL DECOMPOSED ROCK AND ROCK.
4. NO VEHICULAR TRAFFIC SHALL TRAVEL ON THE GEOMEMBRANE OTHER THAN AN APPROVED LOW GROUND PRESSURE VEHICLE OR EQUIVALENT.
5. SAND BAGS OR EQUIVALENT BALLAST SHALL BE USED AS NECESSARY TO TEMPORARILY HOLD THE GEOMEMBRANE MATERIAL IN POSITION UNDER THE FORESEEABLE AND REASONABLY – EXPECTED WIND CONDITIONS. SAND BAG MATERIAL SHALL BE SUFFICIENTLY CLOSE-KNIT TO PREVENT SOIL FINES FROM WORKING THROUGH THE BAGS AND DISCHARGING ON THE GEOMEMBRANE.
6. GEOMEMBRANE PLACEMENT SHALL NOT BE DONE IF MOISTURE PREVENTS PROPER SUBGRADE PREPARATION, PANEL PLACEMENT, OR PANEL SEAMING. MOISTURE LIMITATIONS SHOULD BE DEFINED IN THE PRECONSTRUCTION MEETING.
7. DAMAGED PANELS OR PORTIONS OF THE DAMAGED PANELS WHICH HAVE BEEN REJECTED SHALL BE MARKED AND THEIR REMOVAL FROM THE WORK AREA RECORDED.
8. THE GEOMEMBRANE SHALL NOT BE ALLOWED TO "BRIDGE OVER" VOIDS OR LOW AREAS IN THE SUBGRADE. THE GEOMEMBRANE SHALL REST IN INTIMATE CONTACT WITH THE SUBGRADE.
9. NO GEOMEMBRANE MATERIAL SHALL BE SEAMED WHEN LINER TEMPERATURES ARE LESS THAN 32 DEGREES F.
10. NO GEOMEMBRANE MATERIAL SHALL BE SEAMED WHEN THE SHEET TEMPERATURE IS ABOVE 170 DEGREES F, AS MEASURED BY AN INFRARED THERMOMETER OR SURFACE THERMOCOUPLE.
11. SEAMING SHALL PRIMARILY BE PERFORMED USING AUTOMATIC FUSION WELDING EQUIPMENT AND TECHNIQUES, EXTRUSION WELDING SHALL BE USED WHERE FUSION WELDING IS NOT POSSIBLE SUCH AS AT PIPE PENETRATIONS, PATCHES, REPAIRS AND SHORT (LESS THAN A ROLL WIDTH) RUNS OF SEAMS.
12. SEAL ALL PENETRATIONS THROUGH LINER. PENETRATIONS SHALL BE CONSTRUCTED FROM THE BASE GEOMEMBRANE MATERIAL. FLAT STOCK OR PREFABRICATED BOOTS. THE PREFABRICATED OR FIELD ASSEMBLY SHALL BE FIELD WELDED TO THE PRIMARY GEOMEMBRANE AS TO PREVENT LEAKAGE.
13. THE GEOMEMBRANE SHALL CONSIST OF NEW, FIRST QUALITY PRODUCTS DESIGNED AND MANUFACTURED SPECIFICALLY FOR THE PURPOSE OF THIS WORK WHICH SHALL HAVE BEEN SATISFACTORILY DEMONSTRATED BY PRIOR TESTING SUITABLE AND DURABLE FOR SUCH PURPOSES. THE GEOMEMBRANE ROLLS SHALL BE SEAMLESS, 40-MIL, LINEAR LOW-DENSITY POLYETHYLENE (LLDPE – FORMULATED SHEET DENSITY ≤ 0.939 G/CC) CONTAINING NO PLASTICIZERS, FILLERS OR EXTENDERS AND SHALL BE FREE OF HOLES, BLISTERS OR CONTAMINANTS, AND LEAK FREE VERIFIED BY 100% IN LINE SPARK OR EQUIVALENT TESTING. THE GEOMEMBRANE SHALL BE SUPPLIED AS A CONTINUOUS SHEET WITH NO FACTORY SEAMS IN ROLLS. THE GEOMEMBRANE WILL MEET THE PROPERTY REQUIREMENTS AS SHOWN IN GRI GM17, TABLES 1(A) AND 2(A).
14. ALL TEXTURED LINERS SHALL HAVE A MINIMUM INTERFACE FRICTION ANGLE OF 27 DEGREES WITH THE SUBGRADE AND FILL SOILS.



RAIN GARDEN SECTION DETAIL

NOT TO SCALE



#	W1	L1	W2	d50	TH
211	4'	10'	14'	6"	3"
221	4'	10'	14'	6"	3"
501	4'	11'	15'	6"	3"

SECTION

NOTE:
1. FILTER FABRIC SHALL MEET THE MINIMUM REQUIREMENTS SET FORTH IN THE STANDARDS FOR SOIL EROSION AND SEDIMENTATION CONTROL IN NJ.

RIP RAP DETAIL

NOT TO SCALE

MUNICIPAL, COUNTY, STATE AND MUA DETAILS TO SUPERCEDE DYNAMIC ENGINEERING DETAILS WHERE APPLICABLE

PEAK DIVERSION STORMFILTER
SFPD0806 - 653703-10
ELITE PROPERTIES
LONG HILL, NJ
for SYSTEM: WQ INLET #113

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DATE: 7/17/20
DESIGNED: VJS
DRAWN: VJS
CHECKED:
APPROVED:
PROJECT NUMBER: 653703
SHEET: 1 OF 1

MARK	DATE	REVISION DESCRIPTION	BY

REV.	DATE	COMMENTS	BY

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DRAWN BY: AJW
DESIGNED BY: WB
CHECKED BY: JCJ
CHECKED BY: _

PROJECT: ELITE PROPERTIES
PROPOSED RESIDENTIAL DEVELOPMENT
BLOCK 10801, LOT 3
621 VALLEY ROAD (C.R. 512)
TOWNSHIP OF LONG HILL, MORRIS COUNTY, NEW JERSEY

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PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 36618

BRETT W. SKAPINETZ
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 41985

TITLE: CONSTRUCTION DETAILS

SCALE: (H) AS (V) SHOWN
DATE: 08/07/2020
PROJECT No: 0555-99-010

SHEET No: 17 OF 21
Rev. #: 0

Plotted: 08/07/20 – 10:50 AM, By: ajwright
File: \\deep.local\deptdata\Data\DEPC PROJECTS\0555 Elite Properties\99-010 Long Hill\Dwg\Site Plans\0055599010SDD.dwg, ----> 17 CONSTRUCTION DETAILS

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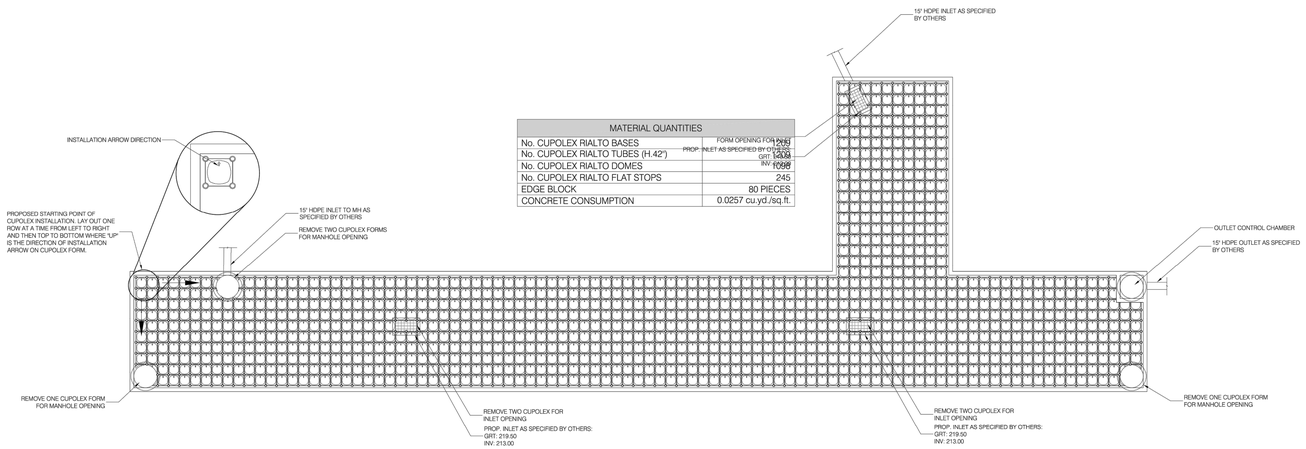
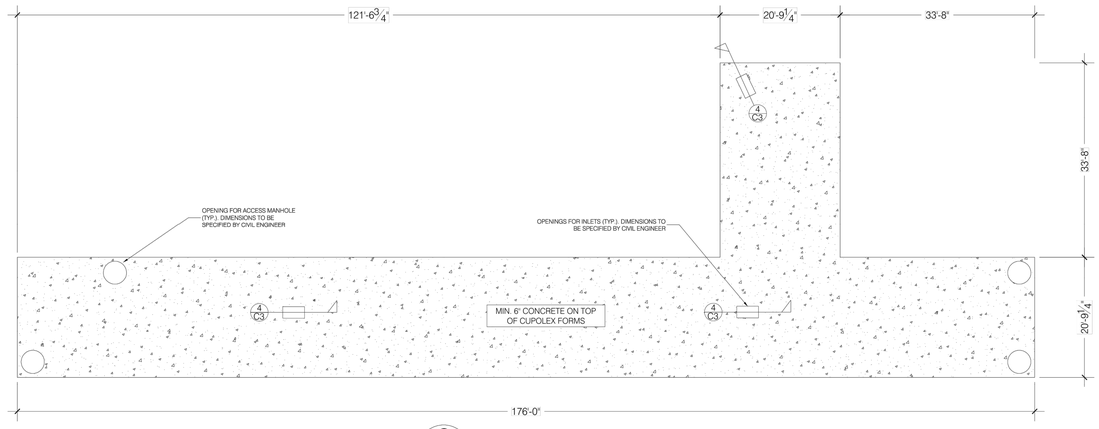
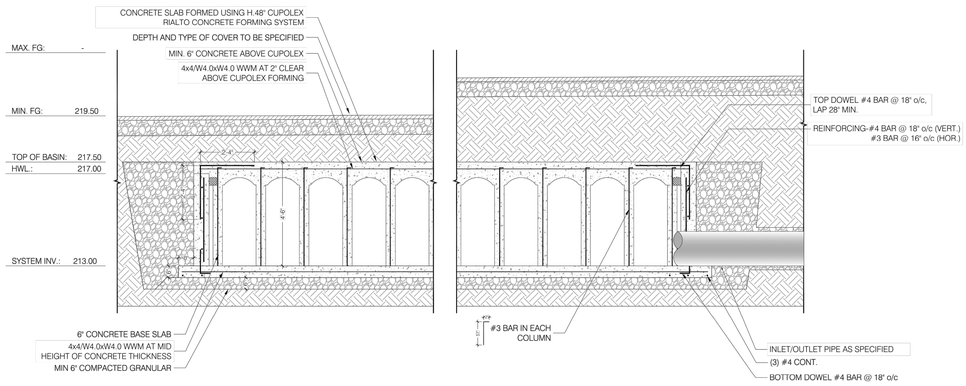


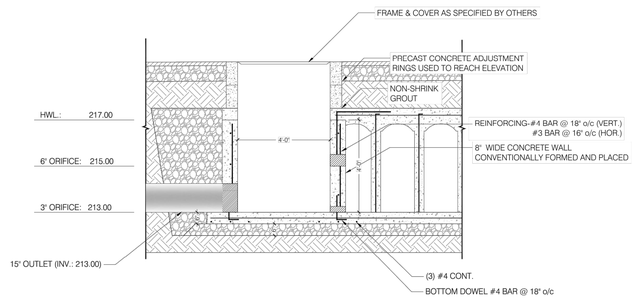
MATERIAL QUANTITIES	
No. CUPOLEX RIALTO BASES	FORM OPENING FOR INLET 1 PROP. INLET AS SPECIFIED BY OTHERS 2 GRT: 1 INV: 1
No. CUPOLEX RIALTO TUBES (H.42")	2229
No. CUPOLEX RIALTO DOMES	1098
No. CUPOLEX RIALTO FLAT STOPS	245
EDGE BLOCK	80 PIECES
CONCRETE CONSUMPTION	0.0257 cu.yd./sq.ft.



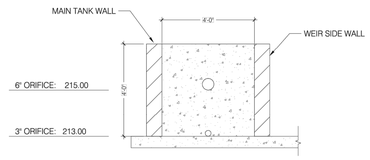
2 C2 CONCRETE TOPPING PLAN



1 C3 CONCRETE BASIN SECTION



2 C3 OUTLET CHAMBER SECTION



3 C3 OUTLET CONTROL DETAIL

CUPOLEX STORMWATER BASIN 'A' DETAILS

NOT TO SCALE

Plotted: 08/07/20 - 10:50 AM, By: dwright
File: \\despc.local\dedfolders\Data\DESPC PROJECTS\0555 Elite Properties\99-010 Long Hill\Dwg\Site Plans\055599010SD0.dwg, ----> 18 CONSTRUCTION DETAILS

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PROJECT: **ELITE PROPERTIES**
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BRETT W. SKAPINETZ
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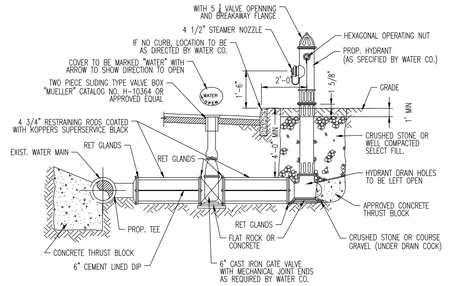
NEW JERSEY LICENSE No. 41985

TITLE: **CONSTRUCTION DETAILS**

SCALE: (H) AS (V) SHOWN | DATE: 08/07/2020
PROJECT No: 0555-99-010

SHEET No: 18 OF 21 | Rev. #: 0

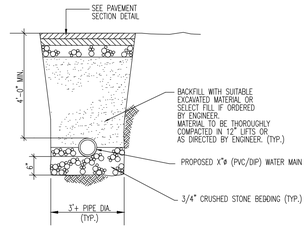
MUNICIPAL, COUNTY, STATE AND MUA DETAILS TO SUPERCEDE DYNAMIC ENGINEERING DETAILS WHERE APPLICABLE



NOTE: REFER TO WATER COMPANY SPECIFICATIONS FOR VALVE/HYDRANT SPECIFICATIONS.

TYPICAL HYDRANT & VALVE INSTALLATION

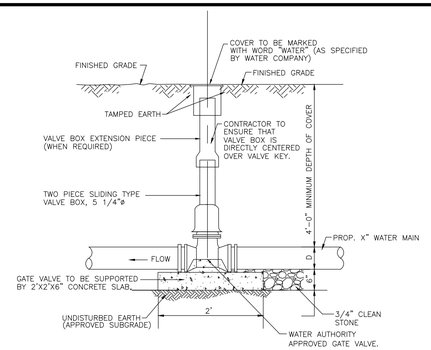
NOT TO SCALE



NOTE:
1. PAVEMENT SECTION TO MATCH, AT MINIMUM, ADJOINING PAVEMENT.
2. X" – SEE PLAN FOR PIPE DIAMETER.

WATER SERVICE TRENCH DETAIL

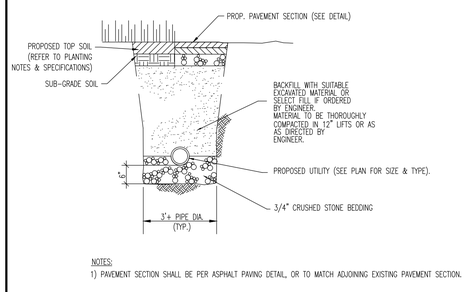
NOT TO SCALE



NOTE: REFER TO WATER COMPANY SPECIFICATION FOR VALVE MATERIAL TYPES.

GATE VALVE AND BOX DETAIL

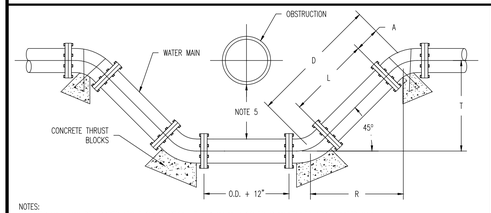
NOT TO SCALE



NOTES:
1) PAVEMENT SECTION SHALL BE PER ASPHALT PAVING DETAIL, OR TO MATCH ADJOINING EXISTING PAVEMENT SECTION.

UTILITY SERVICE TRENCH DETAIL

NOT TO SCALE



NOTES:
1. WATER MAIN MAY BE LOOPED ABOVE OBSTRUCTION, IF 3.5' MINIMUM COVER IS MAINTAINED ABOVE WATER MAIN.
2. WATER MAIN SHALL BE DUCTILE IRON CEMENT LINED PIPE, ALL JOINTS SHALL BE MECHANICALLY JOINED OR PUSH-ON AND ALL FITTINGS BE MECHANICALLY JOINED CAST IRON.
3. OFFSETS MAY BE SUBSTITUTED FOR A TEE OF UP TO 24" IF APPROVED BY THE ENGINEER.
4. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS OR OTHER POINTS OF PIPE DIRECTION CHANGE.
5. MINIMUM VERTICAL CLEARANCE BETWEEN SANITARY SEWER AND WATER MAIN SHALL BE 18". CLEARANCE BETWEEN WATER MAIN AND OTHER OBSTRUCTIONS SHALL BE 6".
6. TIE RODS SHALL BE UTILIZED TO RESTRAIN PIPE JOINTS. DETAILS OF TIE ROD ASSEMBLY SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. TIE RODS SHALL BE SUFFICIENT TO RESTRAIN THE THRUST DEVELOPED AT 100 PSI WORKING PRESSURE. MEGALUG RESTRAINT ALSO ACCEPTABLE IN PLACE OF TIE RODS.

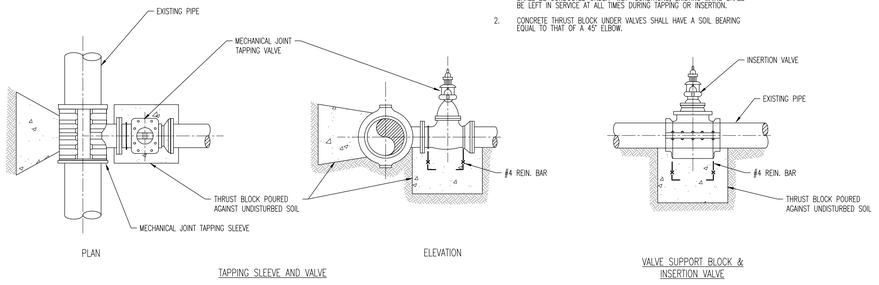
MECHANICAL JOINTS

ANGLE	D =	R =	L =
45*	T x 1.414	T x 1.000	D-2A
22.5*	T x 2.613	T x 2.414	D-2A
11.25*	T x 5.126	T x 5.027	D-2A

WATER MAIN - UTILITY CROSSING DETAIL

NOT TO SCALE

TAPPING NOTES:
1. INSTALLATION OF TAPPING SLEEVE AND VALVE AND INSERTION VALVE SHALL BE CONDUCTED UNDER "WET" CONDITIONS, EXISTING MAINS SHALL BE LEFT IN SERVICE AT ALL TIMES DURING TAPPING OR INSERTION.
2. CONCRETE THRUST BLOCK UNDER VALVES SHALL HAVE A SOIL BEARING EQUAL TO THAT OF A 45° ELBOW.

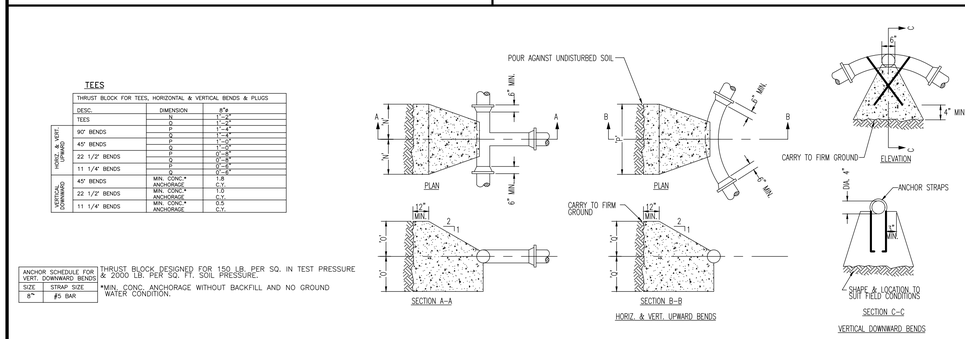


TAPPING SLEEVE AND VALVE

VALVE SUPPORT BLOCK & INSERTION VALVE

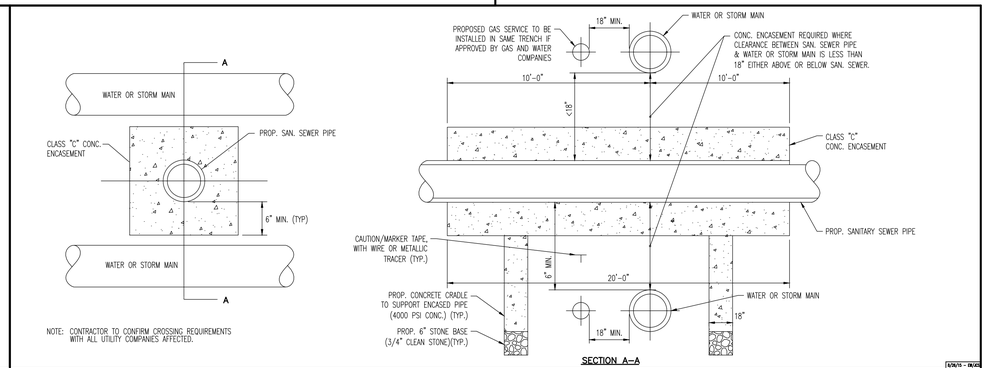
WET TAP DETAIL

NOT TO SCALE



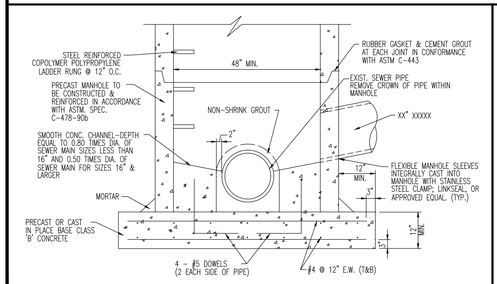
THRUST BLOCK DETAILS

NOT TO SCALE



UTILITY CROSSING DETAIL

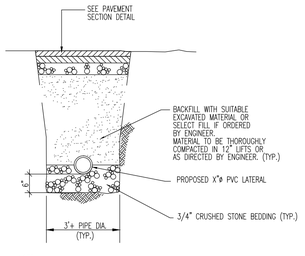
NOT TO SCALE



NOTES:
1. TWO SEPARATE COATS OF APPROVED BITUMASTIC WATERPROOFING COMPOUND SHALL BE APPLIED PER MANUFACTURERS INSTRUCTIONS TO THE ENTIRE EXTERIOR OF STRUCTURE.
2. TWO SEPARATE COATS OF APPROVED TWO-PART EPOXY COATING SHALL BE APPLIED PER MANUFACTURERS INSTRUCTIONS TO THE ENTIRE INTERIOR OF STRUCTURE.

SANITARY SEWER DOGHOUSE MANHOLE DETAIL

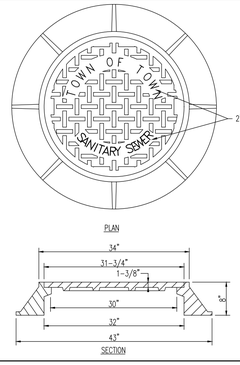
NOT TO SCALE



NOTE:
1. PAVEMENT SECTION TO MATCH, AT MINIMUM, ADJOINING PAVEMENT.
2. X" – SEE PLAN FOR PIPE DIAMETER.

SANITARY SEWER TRENCH DETAIL

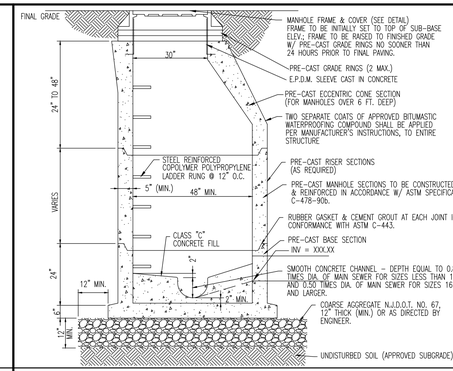
NOT TO SCALE



NOTES:
1. STANDARD MANHOLE FRAMES & COVERS SHALL BE USED ON ALL MANHOLES NOT LOCATED WITHIN EASEMENTS UNLESS DIRECTED OTHERWISE BY THE ENGINEER OR TOWNSHIP REPRESENTATIVE.
2. STANDARD MANHOLE FRAME & COVER SHALL BE CAMPBELL FOUNDRY PATTERN # 10128, OR APPROVED EQUAL, WITH NON-PENETRATING PICK HOLES.
3. WATERTIGHT MANHOLE COVERS SHALL BE USED ON MANHOLES LOCATED WITHIN EASEMENTS, IN UNPAVED AREAS, AND OUTSIDE OF THE CENTERLINE OF PAVED ROADS AS DIRECTED BY ENGINEER OR TOWNSHIP REPRESENTATIVE.

SANITARY MANHOLE FRAME DETAIL

NOT TO SCALE



PRECAST SANITARY MANHOLE

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File: \\decpc.local\dedfolders\Data\DECPC PROJECTS\0555 Elite Properties\99-010 Long Hill\Dwg\Site Plans\0055599010SD0.dwg, ----> 19 CONSTRUCTION DETAILS

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SHEET No: 19 OF 21 | Rev. #: 0