

# TOWNSHIP OF WOODBRIDGE

## MIDDLESEX COUNTY, NEW JERSEY

# DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS

CONTRACT NO. 2014-015

NOVEMBER 2017

**JOHN E. McCORMAC - MAYOR**

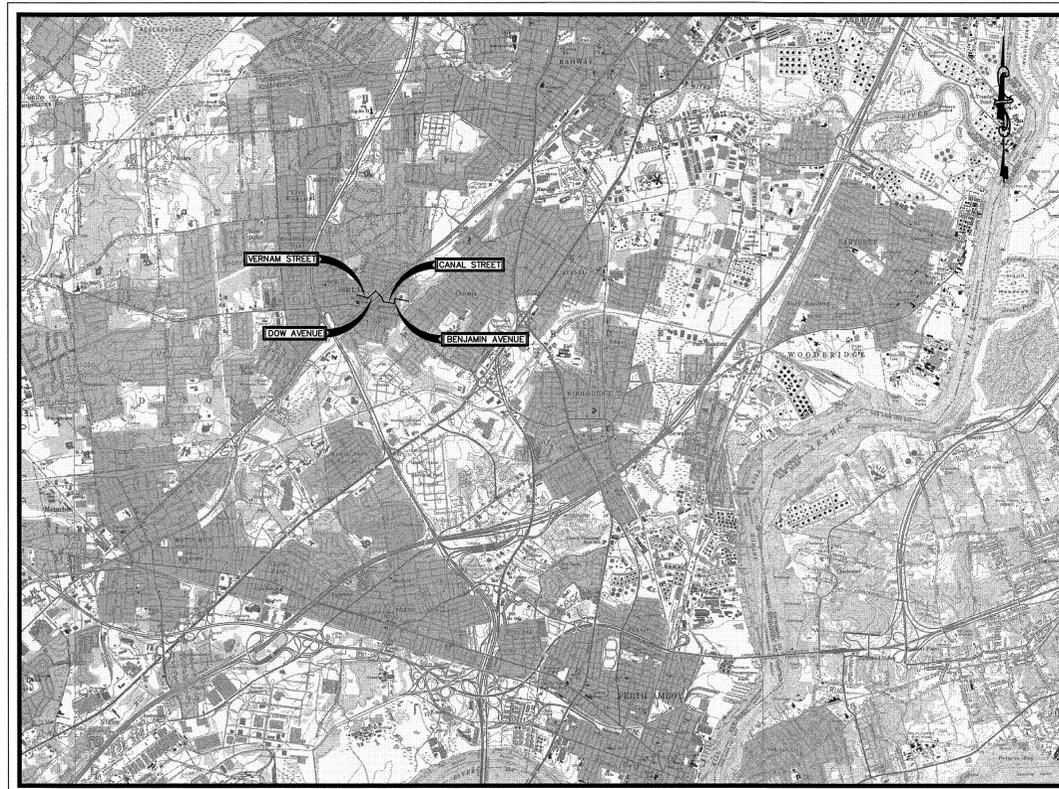
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**DEBBIE MEEHAN**  
**KYLE ANDERSON**  
**LIZBETH DEJESUS**  
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**DIRECTOR OF PUBLIC WORKS**  
**MUNICIPAL ENGINEER**



**LOCATION MAP**  
 N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF 2007 AND ALL AMENDMENTS IN THE SUPPLEMENTARY SPECIFICATION SHALL GOVERN.

THE HEADING OF THE ARTICLES CONTAINED HEREIN CONFORM TO THE NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, DATED 2007 AND ALL ADDENDA THERETO, WHICH IS TO BE USED IN THE EXECUTION OF THIS CONTACT.

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.

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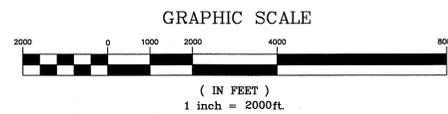
PREPARED BY:

*Michael J. McClelland*  
**MICHAEL J. McCLELLAND, P.E.**  
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE No. 32468





## LOCATION PLAN

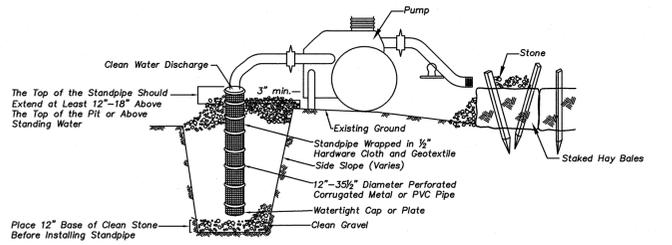


### GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR CONSTRUCTION IN ACCORDANCE WITH EXISTING LOCAL, COUNTY, OR STATE REGULATIONS, OR ANY OTHER AGENCY HAVING JURISDICTION IN THESE MATTERS.
2. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL VERIFY ALL DIMENSIONS AND DETAILS BEFORE PROCEEDING WITH WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
3. ALL REGRADED AREAS AT THE SITE WHICH ARE NOT DESIGNATED AS PAVED OR GRAVEL AREAS SHALL BE TOPSOILED AND SEEDING SHALL BE STABILIZED IN ACCORDANCE WITH STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY AND THE CONTRACT SPECIFICATIONS.
4. ALL GRADING OPERATIONS SHALL PROVIDE FOR POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS AND STRUCTURES AND SHALL ELIMINATE PONDING AREAS.
5. THE CONTRACTOR SHALL MAKE ALL NECESSARY INVESTIGATIONS TO SATISFY HIMSELF AS TO THE EXISTING CONDITIONS PRIOR TO BIDDING WORK, INCLUDING THE LOCATION OF EXISTING RESIDENTIAL SPRINKLER SYSTEMS.
6. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE THE LOCATION OF THE UTILITIES WITH THE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
7. THE COORDINATION OF THE LOCATION OR RELOCATION WHERE REQUIRED OF TELEPHONE, CABLE, ELECTRIC, GAS, AND WATER FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR AND SAME SHALL BE COORDINATED TO INSURE COMPLETION WITHIN THE TIME PERMITTED.
8. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN MEANS OF SAFE INGRESS AND EGRESS TO RESIDENTS THROUGHOUT THE COURSE OF THE WORK AND TO PROVIDE FOR THE SAFE MAINTENANCE AND PROTECTION OF TRAFFIC.
9. THE CONTRACTOR'S LICENSED SURVEYOR SHALL PROVIDE THE CONSTRUCTION STAKEOUT FOR THE PROJECT.
10. THE CONTRACTOR WILL NOT BE PERMITTED TO STOCKPILE EXCAVATED MATERIALS OVER EXISTING UTILITY LINES. THE STOCKPILED MATERIALS SHOULD BE PLACED SUFFICIENTLY AWAY FROM THE EDGE OF ANY EXCAVATION TO PREVENT CAVING OF THE TRENCH WALL AND TO PERMIT SAFE ACCESS ALONG THE TRENCH, WITH SHEETED TRENCHES, A MINIMUM OF FIVE (5) FEET FROM THE EDGE OF SHEETING TO TOE OF SPOIL BANK MUST BE MAINTAINED.
11. THE CONTRACTOR IS HEREBY ADVISED THAT PERMITS FROM VARIOUS AGENCIES ARE PENDING AND ACCORDINGLY, THE SAME SHALL BE VERIFIED PRIOR TO ANY GROUND DISTURBANCE FOR THE STORM SEWER IMPROVEMENTS. THE CONTRACTOR IS SPECIFICALLY DIRECTED TO THE REQUIREMENTS CONTAINED IN THE SPECIAL PROVISIONS SECTION OF THE CONTRACT SPECIFICATIONS. THE CONTRACTOR WILL BE REQUIRED TO COMPLY WITH THE CONSTRUCTION, TRAFFIC PROTECTION, SAFETY AND NOTIFICATION PROVISIONS OF THESE PERMITS.
12. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION NECESSARY TO PRECLUDE DAMAGE TO EXISTING STRUCTURES, FACILITIES, AND UTILITIES DUE TO LOSS OF LATERAL SUPPORT AND/OR CONSTRUCTION LOADINGS. SPECIFIC DETAILS NECESSARY TO ACCOMPLISH SAME SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND APPROVAL PRIOR TO COMMENCING CONSTRUCTION OF THE PROPOSED SEWER.
13. ALL WORK BY THE CONTRACTOR SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE NEW JERSEY STATUTE KNOWN AS CHAPTER 249 OF THE LAWS OF 1948, BEING SECTIONS 34-6.47.1 TO 47.9, INCLUSIVE OF THE REVISED STATUTES OF NEW JERSEY, 1937, AND IN ACCORDANCE WITH THE RULES AND REGULATIONS CONCERNING PRECAUTIONS TO BE TAKEN IN THE PROXIMITY OF HIGH-VOLTAGE LINES FOR THE PREVENTION OF ACCIDENTS PROMULGATED BY THE COMMISSIONER OF THE DEPARTMENT OF LABOR AND INDUSTRY OF THE STATE OF NEW JERSEY, EFFECTIVE DECEMBER 28, 1948, ALL AS AMENDED AND SUPPLEMENTED, AND IN ACCORDANCE WITH THE PROVISIONS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND OF SUBPART N, PARAGRAPH 1926.550 OF THE RULES AND REGULATIONS ISSUED UNDER SAID ACT.
14. THE CONTRACTOR IS HEREBY ADVISED THAT ALL WORK TO BE PERFORMED SHALL BE GOVERNED BY THE LOCAL MUNICIPAL ORDINANCES. THIS SHALL INCLUDE THE PROVISIONS IN THEIR CODES WHICH SET FORTH PERMITTED HOURS OF CONSTRUCTION WITHIN THE MUNICIPALITY.
15. THE CONTRACTOR IS ADVISED THAT THEY ARE RESPONSIBLE TO PAY FOR, ACQUIRE AND COMPLY WITH ANY ROAD OPENING PERMITS IF REQUIRED IN CONJUNCTION WITH THE PROPOSED IMPROVEMENTS.
16. THE CONTRACTOR SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES BY THE U.S.D.O.T.
17. THE CONTRACTOR IS ADVISED THAT HE MUST MAINTAIN A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION AT ALL TIMES AND MUST COMPLETELY BACKFILL ALL TRENCHES PRIOR TO NON-DAYLIGHT HOURS.
18. IN ORDER TO MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION, THE CONTRACTOR MAY FIND IT NECESSARY TO USE STEEL PLATES OVER TRENCHES AT NO ADDITIONAL COST TO THE OWNER.
19. WHEN DISTURBING, REMOVING AND/OR DISPOSING OF ASBESTOS CEMENT PIPE, THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO: CURRENT USEPA REGULATIONS (40 CFR 61 SUBPART M), OSHA REGULATIONS (29 CFR 1926.55), THE CURRENT NEW JERSEY ASBESTOS HAZARD ABATEMENT SUBCODE (N.J.A.C. 8:23-8), THE CURRENT NJDEP REGULATIONS (N.J.A.C. 7:26-1 ET. SEQ.), AND NOTIFICATION REGULATIONS (N.J.A.C. 5:23-8.8, 40 CFR 61 SUBPART M, AND N.J.A.C. 7:26-2.12).
20. THE FREEHOLD SOIL CONSERVATION DISTRICT GOVERNS SOIL EROSION AND SEDIMENT CONTROL MEASURES WITHIN THE PROJECT AREA. ACCORDINGLY ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AS PER THE REQUIREMENTS OF THE FREEHOLD SOIL CONSERVATION DISTRICT AND AS DIRECTED BY THE ENGINEER.
21. AT CERTAIN TIMES THE SITE MAY BE OCCUPIED BY SEVERAL CONTRACTORS AND IT IS THEREFORE REQUIRED FOR ANY AND ALL CONTRACTORS OCCUPYING THE SITE TO COOPERATE WITH ONE ANOTHER. NO DELAYS RESULTING FROM MULTIPLE CONTRACTORS WORKING ON THE SITE WILL BE CONSIDERED.
22. THE CONTRACTOR SHALL CONTINUOUSLY DEWATER ALL EXCAVATIONS UNTIL BACKFILLING OPERATIONS HAVE BEEN COMPLETED. PRIOR TO DISCHARGE TO STREAMS, SILT SHALL BE SETTLED OUT IN AN APPROVED SETTLING BASIN.
23. THE CONTRACTOR SHALL MAINTAIN THE FLOW OF ALL STREAMS, DRAINAGE DITCHES, STORM SEWERS, AND SANITARY SEWERS AT ALL TIMES BY A MEANS ACCEPTABLE TO THE ENGINEER AND ALL THE RESPONSIBLE AGENCIES.
24. THE CONTRACTOR SHALL MAINTAIN ALL UTILITY SERVICE FLOWS AND PRESSURES UNLESS WRITTEN APPROVAL BY THE RESPONSIBLE UTILITY COMPANY PERMITS HIM TO DO OTHERWISE.
25. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE STATE OF NEW JERSEY WORKER HEALTH AND SAFETY ACT (N.J.A.C. 12:10 ET SEQ.) AS AMENDED AND THE UNITED STATES OCCUPATIONAL SAFETY & HEALTH ACT (OSHA) (29 CFR 1910), AS AMENDED WITH REGARD TO WORKER AND JOBSITE SAFETY.
26. ALL MAILBOXES REQUIRING RELOCATION SHALL BE DONE SO IN ACCORDANCE WITH LOCAL POSTAL AUTHORITY REGULATIONS.
27. TREES SHALL BE PLANTED IF AND WHERE DIRECTED BY THE ENGINEER.
28. PRIOR TO WORKING IN THE AREA OF THE ROADWAY ON WHICH THE PROPOSED EASEMENT OR RIGHT OF ENTRY IS REQUIRED, THE CONTRACTOR SHALL VERIFY WITH THE ENGINEER THAT THE SAME HAS BEEN OBTAINED.
29. RESETTling OF EXISTING SIGNS SHALL BE WITH BREAKAWAY STEEL U-POST IN ACCORDANCE WITH NJDOT STANDARD DETAILS.
30. THE CONTRACTOR IS ADVISED THAT THE LOCATION AND DEPTH OF THE EXISTING WATER MAIN SHALL BE VERIFIED BY EXCAVATING TEST PITS WHERE INDICATED ON THE PLAN.
31. THE CONTRACTOR IS ADVISED THAT THE LOCATION AND DEPTH OF THE EXISTING GAS MAIN SHALL BE VERIFIED BY EXCAVATING TEST PITS WHERE INDICATED ON THE PLAN.

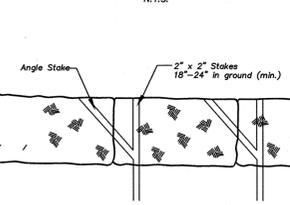
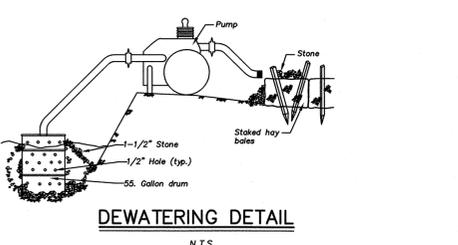
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NO. DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED
<p style="margin: 0;">TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY</p> <h3 style="margin: 0;">DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS</h3> <p style="margin: 0;">LOCATION PLAN AND GENERAL CONSTRUCTION NOTES</p>				
<p style="margin: 0;"><b>CME</b> ASSOCIATES CONSULTING AND MUNICIPAL ENGINEERS</p> <p style="font-size: 8px;">(732) 727 8000      (732) 462 7400</p> <p style="font-size: 8px;">3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162      1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194</p>				
JOHN H. ALLGAIR P.E. & P.P. LIC. 3193 - 2061	DAVID J. SAMUEL P.E. & P.P. LIC. 32468	JOHN J. STEFANI P.E., L.S. & P.P. LIC. 34458		
JAY B. CORNWELL P.E. & P.P. LIC. 32874	MICHAEL J. MCCLELLAND P.E. & P.P. LIC. 32468	GREGORY R. VALESI P.E. & P.P. LIC. 34458		
<p style="margin: 0;"><b>MICHAEL J. MCCLELLAND P.E.</b> NEW JERSEY PROFESSIONAL ENGINEER</p> <p style="margin: 0;">LIC. 32468</p>		SCALE As Shown	DATE November 2017	
<p style="margin: 0;">DRAWN BY: <i>G.O.</i></p> <p style="margin: 0;">DESIGNED BY: <i>G.O.</i></p> <p style="margin: 0;">CHECKED BY: <i>G.O.</i></p> <p style="margin: 0;">DATE: <i>8/25/14</i></p>		SHEET 2 of 28		

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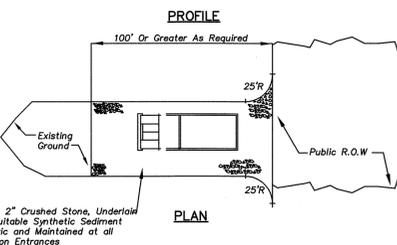
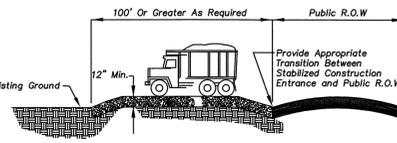


- Construction Specifications**
- Pit dimensions are variable with the minimum diameter being two(2) times the standpipe diameter.
  - The standpipe should be constructed by perforating a 12"-24" diameter corrugated or PVC pipe. Then wrapped with the 1/2" hardware slits or 1" diameter holes.
  - A base filter material consisting of clean gravel or ASTM C 33 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the same filter material.
  - The standpipe should extend 12"-18" above the lip of the pit or the riser crest elevation (bush dewatering only) and the filter material should extend 3" minimum above the anticipated standing water elevation.

**DEWATERING DETAIL**  
N.T.S.



**Straw Bale Siltation Dike Detail**  
N.T.S.



**STABILIZED CONSTRUCTION ENTRANCE**  
N.T.S.



**ACID SOILS MITIGATION**

- LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID-PRODUCING SOILS ARE ENCOUNTERED.
- TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOILS.
- STOCKPILES OF HIGH ACID-PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THIS MATERIAL HAS A HIGH CLAY CONTENT.
- TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOIL MATERIAL TO BE STORED MORE THAN 48 HOURS SHOULD BE COVERED WITH PROPERLY ANCHORED, HEAVY GRADE SHEETS OF POLYETHYLENE WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF 3 TO 6 INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. SILT FENCE SHALL BE INSTALLED AT THE TOE OF THE SLOPE TO CONTAIN MOVEMENT OF THE STOCKPILED MATERIAL. TOPSOIL SHALL NOT BE APPLIED TO THE STOCKPILES TO PREVENT TOPSOIL CONTAMINATION WITH HIGH ACID-PRODUCING SOIL.
- HIGH ACID-PRODUCING SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE (INCLUDING BORROW FROM CUTS OR DREDGED SEDIMENT) SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS PER ACRE (OR 450 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A PH OF 5.0 OR MORE EXCEPT AS FOLLOWS:
  - AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED SHALL BE COVERED WITH A MINIMUM OF 24 INCHES OF SOIL WITH A PH OF 5.0 OR MORE.
  - DISPOSAL AREAS SHALL NOT BE LOCATED WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK SUCH AS BERMS, STREAM BANKS, DITCHES, AND OTHERS, TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
- EQUIPMENT USED FOR MOVEMENT OF HIGH ACID-PRODUCING SOILS SHOULD BE CLEANED AT THE END OF EACH DAY TO PREVENT SPREADING OF HIGH ACID-PRODUCING SOIL MATERIALS TO OTHER PARTS OF THE SITE, INTO STREAMS OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED RUSTING.
- NON-VEGETATIVE EROSION CONTROL PRACTICES (STONE TRACKING PADS, STRATEGICALLY PLACED LIMESTONE CHECK DAM, SEDIMENT BARRIER, WOOD CHIPS) SHOULD BE INSTALLED TO LIMIT THE MOVEMENT OF HIGH ACID-PRODUCING SOILS FROM, AROUND, OR OFF THE SITE.
- FOLLOWING BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOIL, TOPSOILING AND SEEDING OF THE SITE (SEE TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION, PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION, AND TOPSOILING) MONITORING MUST CONTINUE FOR A MINIMUM OF 6 MONTHS TO ENSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH ACID-PRODUCING SOIL PROBLEMS EMERGE. IF PROBLEMS STILL EXIST, THE AFFECTED AREA MUST BE TREATED AS INDICATED ABOVE TO CORRECT THE PROBLEM.

**TEMPORARY SEEDBED PREPARATIONS**

- APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS CO-OPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 300 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA. FERTILIZER SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE UNLESS A SOIL TEST INDICATES OTHERWISE. APPLY LIMESTONE AT THE RATE OF 2 TONS PER ACRE UNLESS A SOIL TEST INDICATES OTHERWISE. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES.
- WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
- INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED IN ACCORDANCE WITH THE ABOVE.
- SOILS HIGH IN SULFIDES OR HAVING A PH OF 4 OR LESS REFER TO STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, PG. 1-1.

**SEQUENCE OF CONSTRUCTION:**

THIS PROJECT SHALL CONSIST ESSENTIALLY OF THE RECONSTRUCTION AND/OR RESURFACING AND PARTIAL RECONSTRUCTION OF THE EXISTING ROADWAYS INCLUDING STORM SEWER IMPROVEMENTS, SANITARY SEWER IMPROVEMENTS, EXCAVATION AND EMBANKMENT, THE INSTALLATION OF DENSE GRADES AGGREGATE BASE COURSE, HOT MIX ASPHALT PAVEMENT, CONCRETE CURBS, CONCRETE SIDEWALK, DRIVEWAY MARKINGS AND LANDSCAPING RESTORATION. THE CONSTRUCTION SHOULD PROCEED IN THE FOLLOWING MANNER:

- INSTALLATION OF ALL SEDIMENT AND EROSION CONTROL DEVICES THAT CAN BE PLACED PRIOR TO ANY MAJOR SOIL DISTURBANCES. THIS WORK WOULD INCLUDE THE FURNISHING AND INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCES, TREE PROTECTION, PERIMETER DRAIN FILTER PROTECTION AND SILT STOP SEDIMENT BARRIER AS DETAILED ON ALL APPLICABLE PLAN SHEETS. (5 DAYS)
- CLEAR AND REMOVE ALL EXISTING VEGETATION IN THOSE AREAS DELINEATED AND WHERE NECESSARY. ALL REMAINING VEGETATION TO BE PROPERLY PROTECTED AND TO REMAIN IN ITS NATURAL STATE. (15 DAYS)
- IMMEDIATE INSTALLATION OF ALL REMAINING SOIL EROSION AND SEDIMENT CONTROL DEVICES. (5 DAYS)
- BEGIN EARTHWORK INCLUDING EXCAVATION. (15 DAYS)
- CONSTRUCT SUBSURFACE IMPROVEMENTS INCLUDING UTILITY RELOCATIONS AS NECESSARY. (65 DAYS)
- RECONSTRUCTION OF EXISTING CURBS, SIDEWALKS AND DRIVEWAY APRONS. (30 DAYS)
- FINE GRADE PAVEMENT RESTORATION AREAS. (10 DAYS)
- BASE COURSE PAVEMENTS TO BE APPLIED IMMEDIATELY FOLLOWING FINE GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE PAVEMENT AREAS. (15 DAYS)
- FINE GRADE REMAINDER OF SITE AND STABILIZE WITH PERMANENT VEGETATIVE COVER AND LANDSCAPING. (10 DAYS)
- CONSTRUCT SURFACE COURSE PAVEMENT, PAVEMENT STRIPING AND SIGNAGE IMPROVEMENTS. (15 DAYS)
- REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES. (5 DAYS)

**NOTES:**

The Contractor is advised that the proposed soil erosion and sediment control measures are subject to Freehold Soil Conservation District review and approval and shall be verified prior to the installation of same.

Soil Erosion and Sediment Control measures as deemed necessary by the engineer and the Freehold Soil Conservation District shall be installed where required.

There are to be no stockpiling areas under this project. All surplus excavated material and or fill shall be removed or brought to the site on a daily basis.

**SOIL EROSION AND SEDIMENT CONTROL NOTES:**

- THE FREEHOLD SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY SOIL DISTURBING ACTIVITY.
- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
- ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENT CONTROL STANDARDS.
- N.J.S.A. 4:24-39 ET SEQ. REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THE DISTRICT DETERMINES THAT A PROJECT OR PORTION THEREOF IS IN FULL COMPLIANCE WITH THE DISTRICT PLAN AND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL. IN NEW JERSEY, A REPORT OF COMPLIANCE HAS BEEN ISSUED. UPON WRITTEN REQUEST FROM THE APPLICANT, THE DISTRICT MAY ISSUE A REPORT OF COMPLIANCE WITH CONDITIONS ON A LOT-BY-LOT OR SECTION-BY-SECTION BASIS, PROVIDED THAT THE PROJECT OR PORTION THEREOF IS IN SATISFACTORY COMPLIANCE WITH THE SEQUENCE OF DEVELOPMENT AND TEMPORARY MEASURES FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN IMPLEMENTED, INCLUDING PROVISIONS FOR STABILIZATION AND SITE WORK.
- ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN SIXTY (60) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW OR EQUIVALENT MATERIAL, AT A RATE OF 2 TO 2 1/2 TONS PER ACRE, ACCORDING TO STATE STANDARDS FOR STABILIZATION WITH MULCH ONLY.
- IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (i.e. STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AND A MULCH ANCHOR, IN ACCORDANCE WITH STATE STANDARDS.
- A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
- THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE. AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOTS REQUIRE A STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF ONE INCH TO TWO INCH (1"-2") STONE FOR A MINIMUM LENGTH OF TEN FEET (10') EQUAL TO THE LOT ENTRANCE WIDTH. ALL OTHER ACCESS POINTS SHALL BE LOCKED OFF.
- ALL SOIL WASHED, DROPPED, SPILLED OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT-OF-WAYS WILL BE REMOVED IMMEDIATELY.
- PERMANENT VEGETATION IS TO BE SEEDING OR SOODED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.
- AT THE TIME THAT THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT IT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
- IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDES SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS PER ACRE, (OR 450 LBS/1,000 SQ FT OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12" OF SETTLED SOIL WITH A PH OF 5.0 OR MORE, OR 24" WHERE TREES OR SHRUBS ARE TO BE PLANTED.
- CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
- UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH STANDARDS FOR DEWATERING.
- SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
- STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. CERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
- ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6.
- THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORM WATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.
- MAXIMUM SIDE SLOPES OF ALL EXPOSED SURFACES TO BE 3:1.
- HAY BALES OR SEDIMENT CONTROL FABRIC TO BE PLACED IF EROSION BECOMES EVIDENT DURING CONSTRUCTION.
- TO PREVENT LARGE BILLOWS DOWNHILL DURING CONSTRUCTION, TEMPORARY MOUNTABLE STONE BERMS MAY BE INSTALLED, SHOULD FIELD CONDITIONS WARRANT WHICH WILL NOT IMPEDE ACCESS FOR THE RESIDENTS AND EMERGENCY VEHICLES.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR IMPLEMENTING ANY AND ALL SOIL EROSION AND SEDIMENT CONTROL PROCEDURES DEEMED NECESSARY BY THE FREEHOLD SOIL CONSERVATION DISTRICT OFFICE AGENTS DURING THE COURSE OF CONSTRUCTION.

**NON GROWING SEASON SOIL STABILIZATION:**

DURING NON GROWING SEASONS EXPOSED SOILS SHOULD BE STABILIZED USING NON-VEGETATIVE MATERIALS SUCH AS UNROTTED SMALL-GRAIN STRAW OR SALT HAY AT A RATE OF 2 TO 2 1/2 TONS PER ACRE SPREAD UNIFORMLY AT 90 TO 115 POUNDS PER 1,000 SQUARE FEET AND ANCHORED WITH A MULCH ANCHORING TOOL. ORGANIC MULCH BINDERS, NETTING OR OTHER SUITABLE MATERIALS AS APPROVED BY THE FREEHOLD SOIL CONSERVATION DISTRICT.

This plan to be used for Soil Erosion and Sediment Control purposes only.

FREEHOLD SOIL CONSERVATION DISTRICT  
4000 KOLZOSKI RD.  
FREEHOLD, NJ 07728  
(732) 683-8500 PHONE  
(732) 683-9140 FAX

**TEMPORARY SEEDING SPECIFICATIONS**

- APPLY 10-20-10 FERTILIZER AT A RATE OF 500 LBS. PER ACRE OR 11 LBS. PER 1,000 SQ. FEET.
- APPLY LIMESTONE AT A RATE OF 2 TONS PER ACRE OR 90 LBS. PER 1,000 SQ. FT. FOR SANDY LOAM COOL SEASON GRASSES.
- APPLY PERENNIAL RYE GRASS AT A RATE OF 100 LBS. PER ACRE OR 1 LB. PER 1,000 SQ. FT.
- APPLY SPRING DATS AT A RATE OF 80 LBS. PER ACRE OR 8 LBS. PER 1,000 SQ. FT.
- APPLY ANNUAL RYEGRASS AT A RATE OF 100 LBS. PER ACRE OR 1 LBS. PER 1,000 SQ. FT.
- APPLY WINTER BARLEY AT A RATE OF 90 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ. FT.
- APPLY WINTER CEREAL RYE AT A RATE OF 112 LBS. PER ACRE OR 2.8 LBS. PER 1,000 SQ. FT.
- WARM SEASON GRASSES
- APPLY PEARL MILLET AT A RATE OF 20 LBS. PER ACRE OR 0.5 LBS. PER 1,000 SQ. FT.
- APPLY MILLET (GERMAN OR HUNGARIAN) AT A RATE OF 90 LBS. PER ACRE OR 0.7 LBS. PER SQ. FT.

**PERMANENT SEEDBED PREPARATIONS**

- UNIFORMLY APPLY GROUND LIMESTONE AND FERTILIZER TO TOPSOIL WHICH HAS BEEN SPREAD AND FIRMED, ACCORDING TO SOIL TEST RECOMMENDATIONS. SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS CO-OPERATIVE EXTENSION OFFICES (HTTP://WWW.RUTGERS.EDU/CANEXT). FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES. IF FERTILIZER IS NOT INCORPORATED, APPLY ONE-HALF THE RATE DESCRIBED ABOVE DURING SEEDBED PREPARATION AND REPEAT ANOTHER ONE-HALF RATE APPLICATION OF THE SAME FERTILIZER WITHIN 3 TO 5 WEEKS AFTER SEEDING.
- WORK LIME AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
- HIGH ACID PRODUCING SOILS HAVING A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A PH OF 5.0 OR MORE BEFORE INITIATING SEEDBED PREPARATION. SEE STANDARD FOR MANAGEMENT OF HIGH ACID-PRODUCING SOILS FOR SPECIFIC REQUIREMENTS.

**PERMANENT SEEDING SPECIFICATIONS:**

- APPLY FERTILIZER AND LIME IN THE SAME RATES AS DENOTED IN THE TEMPORARY SEEDING SPECIFICATIONS ABOVE.
- APPLY THE FOLLOWING SEED MIXTURE ONLY DURING SPECIFIED PLANTING DATES AT THE SPECIFIED RATES:
  - FINE FESCUE (BLEND) - 45 LBS. PER ACRE
  - HARD FESCUE - 20 LBS. PER ACRE
  - CHEWING FESCUE - 5 LBS. PER ACRE
  - OR STRONGS CREEPING RED FESCUE
  - OR KENTUCKY BLUEGRASS
  - OR PERENNIAL RYEGRASS
- APPLY MULCH AND MULCH ANCHORING AS SPECIFIED BELOW.

**MULCHING**

MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND EARLIER ESTABLISHMENT. THE EXISTENCE OF VEGETATION SUFFICIENT TO CONTROL SOIL EROSION SHALL BE DEEMED COMPLIANCE WITH THIS MULCHING REQUIREMENT.

A STRAW OR HAY UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF VEED SEED.

APPLICATION: SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 95% OF THE SOIL SURFACE WILL BE COVERED FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH. DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.

ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COSTS:

- PEG AND TWINE. DRIVE 6 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRIS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO MORE ROUND TURNS.
- MULCH NETTINGS. STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOVED.
- CRIMPER (MULCH ANCHORING TOOL). A TRACTOR-DRAWN IMPLEMENT, SOMEWHAT LIKE A DISC HARROW, ESPECIALLY DESIGNED TO PUSH OR CUT SOME OF THE BROADCAST LONG FIBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT. THIS TECHNIQUE IS LIMITED TO AREAS TRAVERSABLE BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE. NO TACKIFYING OR ADHESIVE AGENT IS REQUIRED.
- LIQUID MULCH-BINDERS. MAY BE USED TO ANCHOR HAY OR STRAW MULCH.

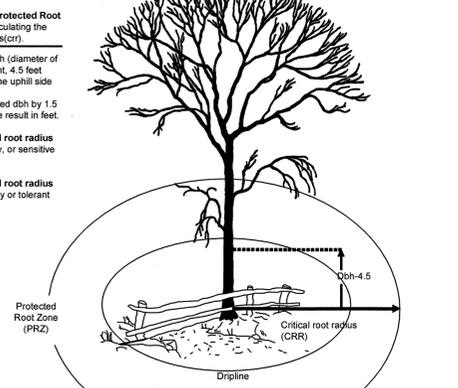
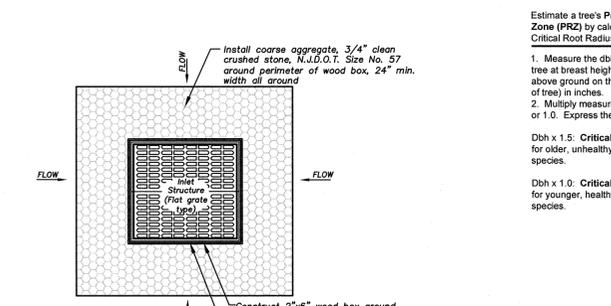
APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND MAY CATCH THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. THE REMAINDER OF THE AREA SHOULD BE UNIFORM IN APPEARANCE.

- USE ONE OF THE FOLLOWING:
  - ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING, POWDER BASED, HYDROPHILIC MATERIALS WHEN MIXED WITH WATER FORMULATES A GEL, AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOLOGIC EFFECT OR IMPEDING GROWTH OF TURFGRASS. USE AT RATES AND WEATHER CONDITIONS AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS. MANY NEW PRODUCTS ARE AVAILABLE. SOME OF WHICH MAY NEED FURTHER EVALUATION FOR USE IN THIS STATE.
  - SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND FOLLOWING APPLICATION TO MULCH, DRYING AND CURING SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. IT SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.

NOTE: ALL NAMES GIVE ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A COMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.

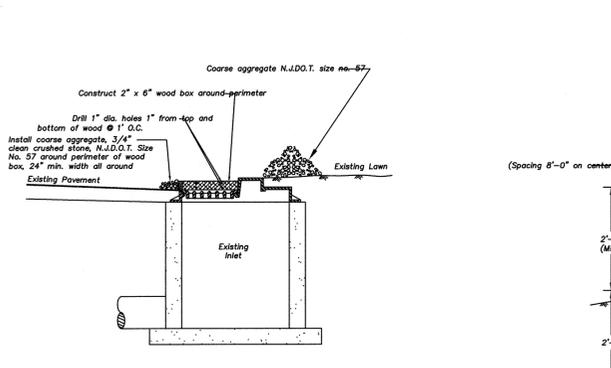
- WOOD-FIBER OR PAPER-FIBER MULCH SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO CHLORINE OR GERMINATION INHIBITING MATERIALS. USED AT THE RATE OF 1-50 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PROJECT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEDER. THIS MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.
- PELLETIZED MULCH, COMPRESSED AND EXTRUDED PAPER AND/OR WOOD FIBER PRODUCT, WHICH MAY CONTAIN CO-POLYMERS, TACKIFIERS, FERTILIZERS AND COLORING AGENTS. THE DRY PELLETS, WHEN APPLIED TO A SEEDING AREA AND WATERED, FORM A MULCH MAT. PELLETIZED MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS./1,000 SQUARE FEET AND ACTIVATED WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEEN FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWN OR RENOVATION AREAS. SEEDING AREAS WHERE WEED-SEED FREE MULCH IS DESIRED OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT PRACTICAL OR DESIRABLE.

APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETIZED MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.



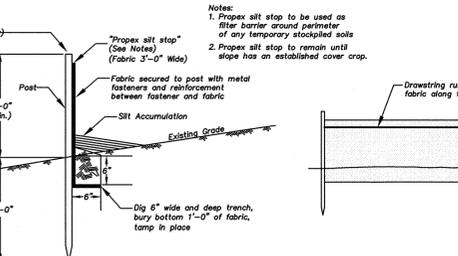
**ROOT PROTECTION**  
N.T.S.

**CONSTRUCTION NOTES:**  
Install siltation protection to remain until completion of final grading and establishment of cover. Also, periodic checks must be made after each rainfall to excavate and remove excess sediment from ground inlets.



**INLET SILTATION PROTECTION DETAIL**

**INLET FILTER**  
N.T.S.



**SILT STOP SEDIMENT BARRIER DETAIL**  
N.T.S.

NO.	REVISION FOR REVISION	DATE	BY	CHECKED	RELEASED
1.	REVISED FOR SEEDING	08.27.17	JB	0	

TOWNSHIP OF WOODBRIDGE  
MIDDLESEX COUNTY, NEW JERSEY

**DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS**

SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

CONSULTING AND MUNICIPAL ENGINEERS

JOHN H. ALLGAIR, P.E. & P.P., MICHAEL J. McCLELLAND, P.E. & P.P., JOHN J. STEFANI, P.E., L.S., & P.P., DAVID J. SAMUEL, P.E. & P.P., GREGORY R. VALLESPI, P.E. & P.P., JAY B. CORNELL, P.E. & P.P., MICHAEL J. McCLELLAND, P.E. & P.P., JOHN J. STEFANI, P.E., L.S., & P.P., DAVID J. SAMUEL, P.E. & P.P., GREGORY R. VALLESPI, P.E. & P.P.

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NEW JERSEY PROFESSIONAL ENGINEER

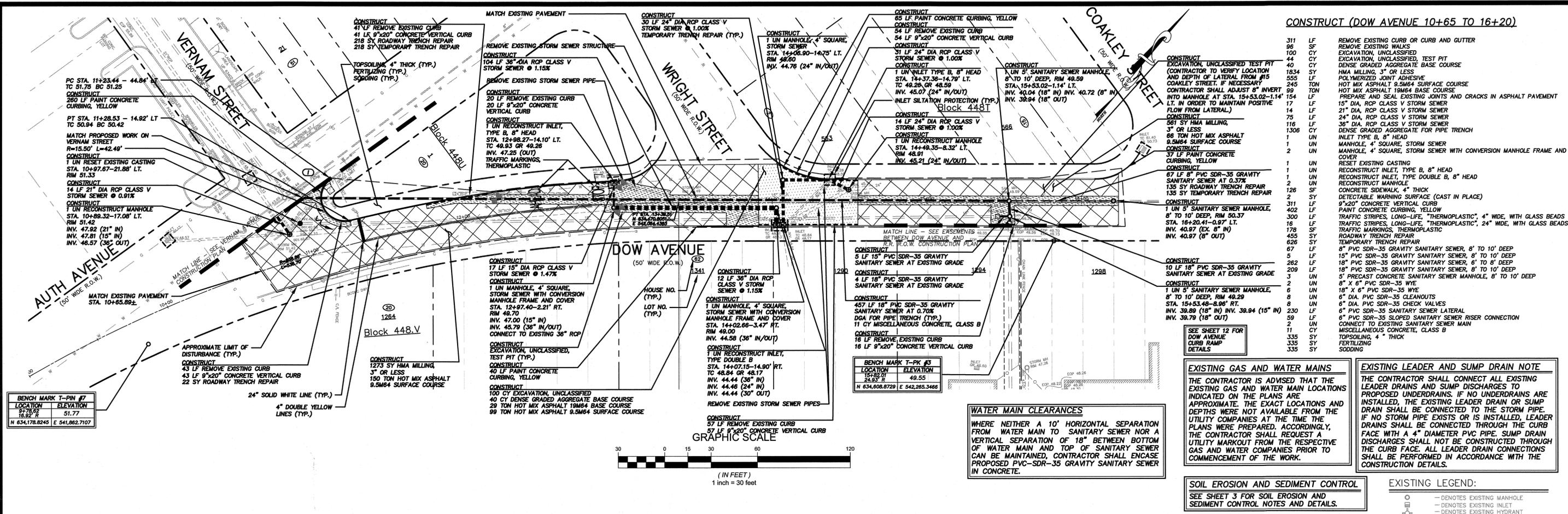
LIC. 32468

8/25/17

SCALE: As Shown  
DATE: November 2017  
DESIGNED BY: G.O.  
CHECKED BY: G.O.  
SHRIFT: 3 of 28

PW068083-03





CONSTRUCT (DOW AVENUE 10+65 TO 16+20)

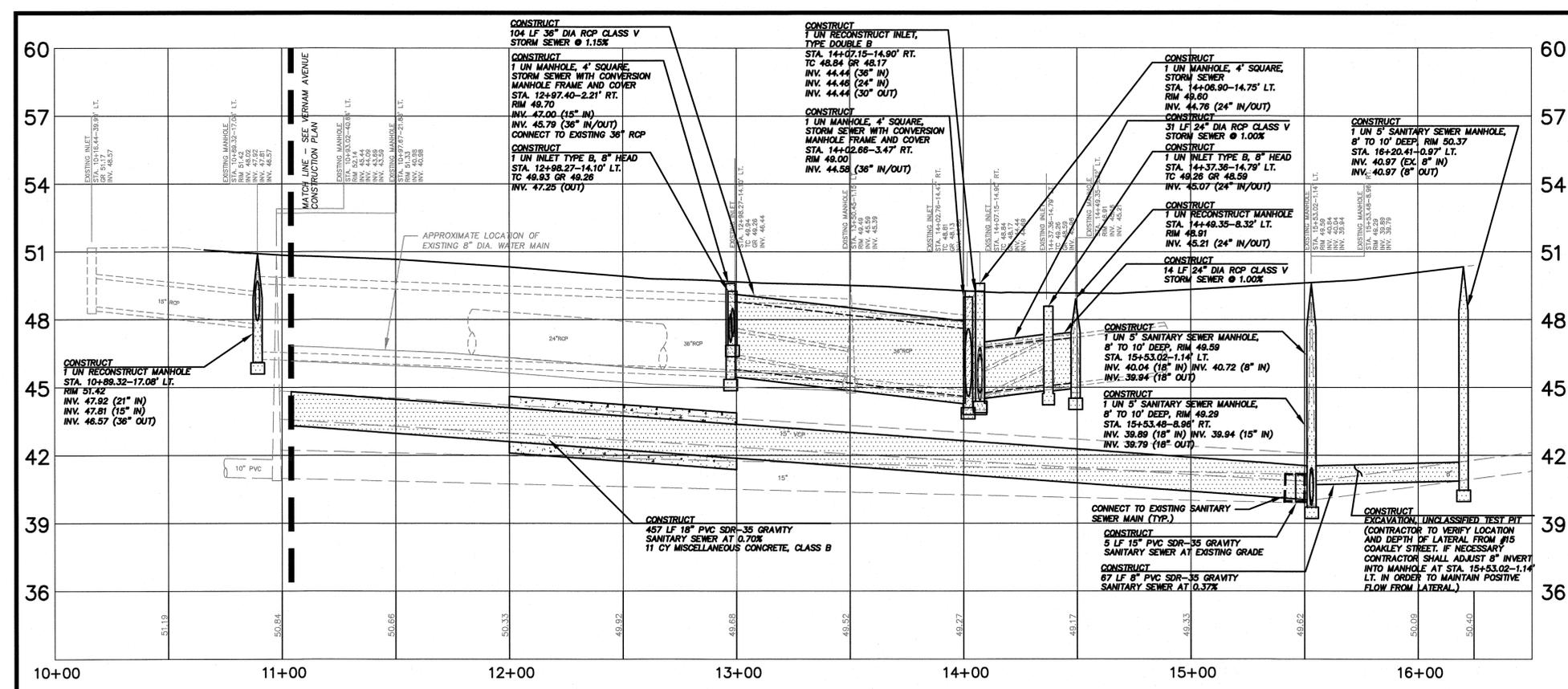
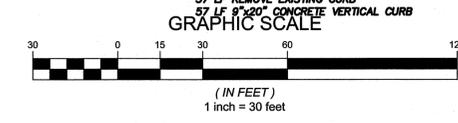
311	LF	REMOVE EXISTING CURB OR CURB AND GUTTER
96	LF	REMOVE EXISTING WALKS
100	CY	EXCAVATION, UNCLASSIFIED
40	CY	EXCAVATION, UNCLASSIFIED, TEST PIT
00	CY	DENSE GRADED AGGREGATE BASE COURSE
1834	SY	HMA MILLING, 3" OR LESS
555	LF	POLYMERIZED JOINT ADHESIVE
245	TON	HOT MIX ASPHALT 9.5M64 SURFACE COURSE
09	TON	HOT MIX ASPHALT 19M64 BASE COURSE
154	LF	CONTRACTOR SHALL ADJUST 8" INVERT INTO MANHOLE AT STA. 15+53.02-1.14'
17	LF	11" IN ORDER TO MAINTAIN POSITIVE FLOW FROM LATERAL
14	LF	21" DIA. RCP CLASS V STORM SEWER
76	LF	24" DIA. RCP CLASS V STORM SEWER
116	LF	36" DIA. RCP CLASS V STORM SEWER
1306	CY	DENSE GRADED AGGREGATE FOR PIPE TRENCH
1	UN	INLET TYPE B, 8" HEAD
1	UN	MANHOLE, 4' SQUARE, STORM SEWER
2	UN	MANHOLE, 4' SQUARE, STORM SEWER WITH CONVERSION MANHOLE FRAME AND COVER
1	UN	RESET EXISTING CASTING
1	UN	RECONSTRUCT INLET, TYPE B, 8" HEAD
1	UN	RECONSTRUCT INLET, TYPE DOUBLE B, 8" HEAD
1	UN	RECONSTRUCT MANHOLE
126	SF	CONCRETE SIDEWALK, 4" THICK
2	SY	DETECTABLE WARNING SURFACE (CAST IN PLACE)
311	LF	9"20" CONCRETE VERTICAL CURB
402	LF	PAINT CONCRETE CURBING, YELLOW
300	LF	TRAFFIC STRIPES, LONG-LIFE, "THERMOPLASTIC", 4" WIDE, WITH GLASS BEADS
16	LF	TRAFFIC STRIPES, LONG-LIFE, "THERMOPLASTIC", 24" WIDE, WITH GLASS BEADS
178	LF	TRAFFIC MARKINGS, THERMOPLASTIC
455	SY	ROADWAY TRENCH REPAIR
626	SY	TEMPORARY TRENCH REPAIR
67	LF	8" PVC SDR-35 GRAVITY SANITARY SEWER, 8' TO 10' DEEP
15	LF	15" PVC SDR-35 GRAVITY SANITARY SEWER, 8' TO 10' DEEP
262	LF	18" PVC SDR-35 GRAVITY SANITARY SEWER, 8' TO 8' DEEP
209	LF	18" PVC SDR-35 GRAVITY SANITARY SEWER, 8' TO 10' DEEP
3	UN	5" PRECAST CONCRETE SANITARY SEWER MANHOLE, 8' TO 10' DEEP
2	UN	8" X 6" PVC SDR-35 WYE
6	UN	18" X 6" PVC SDR-35 WYE
8	UN	6" DIA. PVC SDR-35 CLEANOUTS
8	UN	6" DIA. PVC SDR-35 CHECK VALVES
230	LF	6" PVC SDR-35 SLOPED SANITARY SEWER RISER CONNECTION
59	LF	CONNECT TO EXISTING SANITARY SEWER MAIN
11	CY	MISCELLANEOUS CONCRETE, CLASS B
335	SY	TOPSOILING, 4" THICK
335	SY	FERTILIZING
335	SY	SODDING

**EXISTING GAS AND WATER MAINS**  
THE CONTRACTOR IS ADVISED THAT THE EXISTING GAS AND WATER MAIN LOCATIONS INDICATED ON THE PLANS ARE APPROXIMATE. THE EXACT LOCATIONS AND DEPTHS WERE NOT AVAILABLE FROM THE UTILITY COMPANIES AT THE TIME THE PLANS WERE PREPARED. ACCORDINGLY, THE CONTRACTOR SHALL REQUEST A UTILITY MARKOUT FROM THE RESPECTIVE GAS AND WATER COMPANIES PRIOR TO COMMENCEMENT OF THE WORK.

**EXISTING LEADER AND SUMP DRAIN NOTE**  
THE CONTRACTOR SHALL CONNECT ALL EXISTING LEADER DRAINS AND SUMP DISCHARGES TO PROPOSED UNDERDRAINS. IF NO UNDERDRAINS ARE INSTALLED, THE EXISTING LEADER DRAIN OR SUMP DRAIN SHALL BE CONNECTED TO THE STORM PIPE. IF NO STORM PIPE EXISTS OR IS INSTALLED, LEADER DRAINS SHALL BE CONNECTED THROUGH THE CURB FACE WITH A 4" DIAMETER PVC PIPE. SUMP DRAIN DISCHARGES SHALL NOT BE CONNECTED THROUGH THE CURB FACE. ALL LEADER DRAIN CONNECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DETAILS.

**WATER MAIN CLEARANCES**  
WHERE NEITHER A 10' HORIZONTAL SEPARATION FROM WATER MAIN TO SANITARY SEWER NOR A VERTICAL SEPARATION OF 18" BETWEEN BOTTOM OF WATER MAIN AND TOP OF SANITARY SEWER CAN BE MAINTAINED, CONTRACTOR SHALL ENCASE PROPOSED PVC-SDR-35 GRAVITY SANITARY SEWER IN CONCRETE.

BENCH MARK T-PIK #7	LOCATION	ELEVATION
51.77	18.92' R	51.77
51.77	18.92' R	51.77
51.77	18.92' R	51.77



**SOIL EROSION AND SEDIMENT CONTROL**  
SEE SHEET 3 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

**SPECIAL PROVISIONS**  
THE CONTRACTOR IS SPECIFICALLY DIRECTED TO THE REQUIREMENTS CONTAINED IN THE SPECIAL PROVISIONS SECTION OF THE CONTRACT SPECIFICATIONS.

**NOTE:**  
NOT ALL EXISTING UTILITIES ARE SHOWN ON THIS PLAN. THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING MARKOUTS FOR ALL EXISTING UTILITIES.

- PROPOSED LEGEND:**
- DENOTES RESET MANHOLE
  - DENOTES PROPOSED MANHOLE
  - DENOTES RECONSTRUCT MANHOLE
  - DENOTES RESET INLET
  - DENOTES PROPOSED INLET
  - DENOTES RECONSTRUCT INLET
  - DENOTES PROPOSED HYDRANT
  - DENOTES PROPOSED HANDHOLE
  - DENOTES PROPOSED CURB
  - DENOTES CONCRETE DRIVEWAY RESTORATION
  - DENOTES HOT MIX ASPHALT DRIVEWAY RESTORATION
  - DENOTES AGGREGATE DRIVEWAY RESTORATION
  - DENOTES REMOVE AND RESET EXISTING BRICK WALK/PAVERS
  - DENOTES PROPOSED STORM SEWER
  - DENOTES PROPOSED SANITARY SEWER
  - DENOTES REMOVE AND REPLACE CURB
  - DENOTES PROPOSED VALLEY GUTTER
  - DENOTES FLOW ARROW
  - DENOTES AREA TO BE EXCAVATED AND RECEIVE 2" HOT MIX ASPHALT SURFACE 9.5M64 COURSE, 7" HOT MIX ASPHALT 19M64 BASE COURSE, AND 6" DENSE GRADED AGGREGATE BASE COURSE
  - DENOTES AREA TO BE MILLED AND RECEIVE MIN. 2" HOT MIX ASPHALT 9.5M64 SURFACE AND LEVELER COURSE
  - DENOTES PROPOSED ROADWAY TRENCH REPAIR
  - DENOTES PROPOSED CONCRETE SIDEWALK AND DRIVEWAY APRON
  - DENOTES PROPOSED CONCRETE SIDEWALK, REINFORCED, 4" THICK
  - DENOTES EXISTING TREES TO BE REMOVED
  - DENOTES INLET SILTATION PROTECTION
  - DENOTES PROPOSED GRADE
  - DENOTES CLEAN AND LINE EXISTING SANITARY SEWER MAIN
  - DENOTES DETECTABLE WARNING SURFACE
  - DENOTES LOCATION OF PROPOSED TEST PIT

**PROFILE**  
SCALE: 1"=30' (HORZ.)  
1"=3' (VERT.)

**SANITARY SEWER LATERALS**  
ALL ITEMS ASSOCIATED WITH SANITARY SEWER LATERAL REPLACEMENT HAVE ADDITIONAL QUANTITY INCLUDED IN THE CONSTRUCTION BOX.

**SANITARY SEWER LATERALS**  
THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND REPLACING ALL SANITARY SEWER LATERALS WITH CHECK VALVES AND CONNECTIONS TO THE PROPOSED 18" SEWER MAIN IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

TOWNSHIP OF WOODBRIDGE  
MIDDLESEX COUNTY, NEW JERSEY

**DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS**  
CONSTRUCTION AND SOIL EROSION & SEDIMENT CONTROL PLAN

DOW AVENUE STA. 10+65 TO 16+20

**MCCLLELLAND P.E.**  
CONSULTING AND MUNICIPAL ENGINEERS

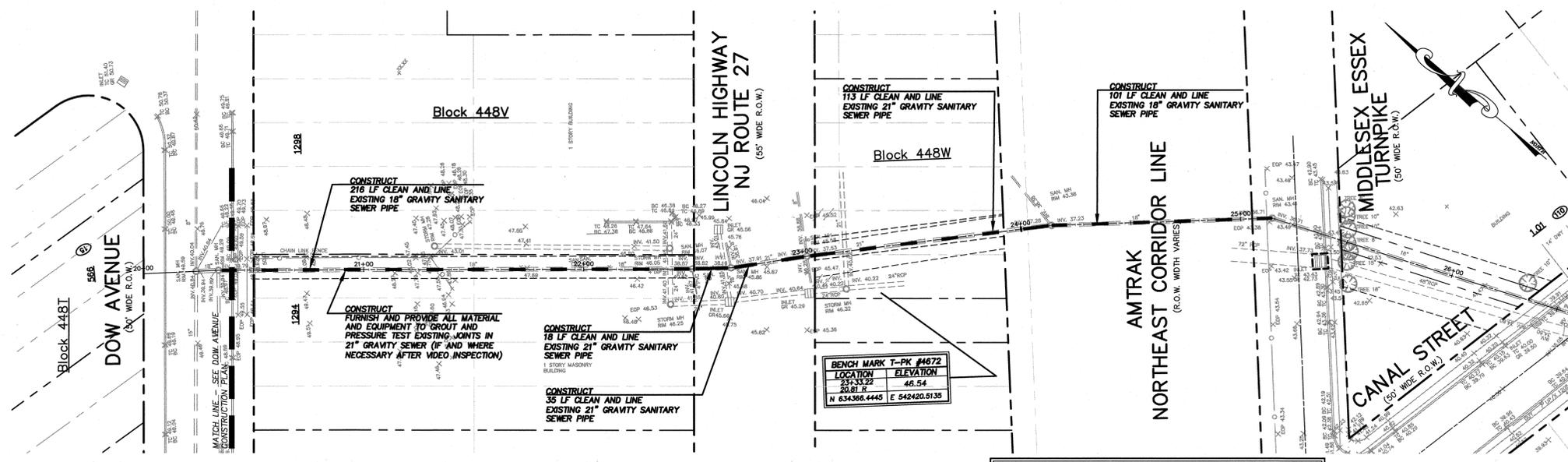
3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194

(732) 727 8000 (732) 462 7400

NO.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	REVISION
1	TEST PIT NOTE & QUANTITY ADDED FOR #15 COAKLEY STREET LATERAL	11.29.17	FB		
2	REVISED FOR BIDDING	06.27.17	FB		

JOHN H. ALLGAIER P.E. & P.P. (1981 - 2011) NO PE LIC. NO. 28671  
JAY B. CORNELL P.E. & P.P. NO PE LIC. NO. 32962  
DAVID J. SAMUEL P.E. & P.P. NO PE LIC. NO. 24055  
MICHAEL J. MCCLLELLAND P.E. & P.P. NO PE LIC. NO. 38774  
GREGORY R. VALESI P.E. & P.P. NO PE LIC. NO. 34458  
JOHN J. STEFANI P.E. L.S. & P.P. NO PE LIC. NO. 28271  
GREGORY R. VALESI P.E. & P.P. NO PE LIC. NO. 4361

SCALE: As Shown  
DATE: November 2017  
DRAWN BY: G.O.  
DESIGNED BY: G.O.  
CHECKED BY: G.O.  
DATE: 8/25/14  
SHEET: 5 of 28



CONSTRUCT (CLEAN AND LINE 20+25 TO 25+15)

317	LF	FURNISH AND PROVIDE ALL MATERIAL AND EQUIPMENT TO CLEAN 18" GRAVITY SEWER
317	LF	FURNISH AND PROVIDE ALL MATERIAL AND EQUIPMENT TO LINE 18" GRAVITY SEWER
166	LF	FURNISH AND PROVIDE ALL MATERIAL AND EQUIPMENT TO CLEAN 21" GRAVITY SEWER
166	LF	FURNISH AND PROVIDE ALL MATERIAL AND EQUIPMENT TO LINE 21" GRAVITY SEWER
80	UN	FURNISH AND PROVIDE ALL MATERIAL AND EQUIPMENT TO GROUT AND PRESSURE TEST EXISTING JOINTS IN 18" GRAVITY SEWER
42	UN	FURNISH AND PROVIDE ALL MATERIAL AND EQUIPMENT TO GROUT AND PRESSURE TEST EXISTING JOINTS IN 21" GRAVITY SEWER

**RAILROAD COORDINATION AND CONTACT INFORMATION**

THE CONTRACTOR IS ADVISED THAT WORKING WITHIN THE EXISTING AMTRAK NORTHEAST CORRIDOR LINE RIGHT OF WAY WILL REQUIRE A TEMPORARY PERMIT TO ENTER UPON AMTRAK PROPERTY (PTE), AS INDICATED IN THE CONTACT DOCUMENTS. ALL PTE REQUESTS MUST BE SUBMITTED TO THE AMTRAK CONSTRUCTION DEPARTMENT BY FAX OR MAIL AS NOTED BELOW:

FAX: (215) 349-3550

DIRECTOR I&C PROJECTS  
NATIONAL RAILROAD PASSENGER CORPORATION  
30TH STREET STATION (MAIL BOX 64)  
PHILADELPHIA, PA 19104

**EXISTING GAS AND WATER MAINS**

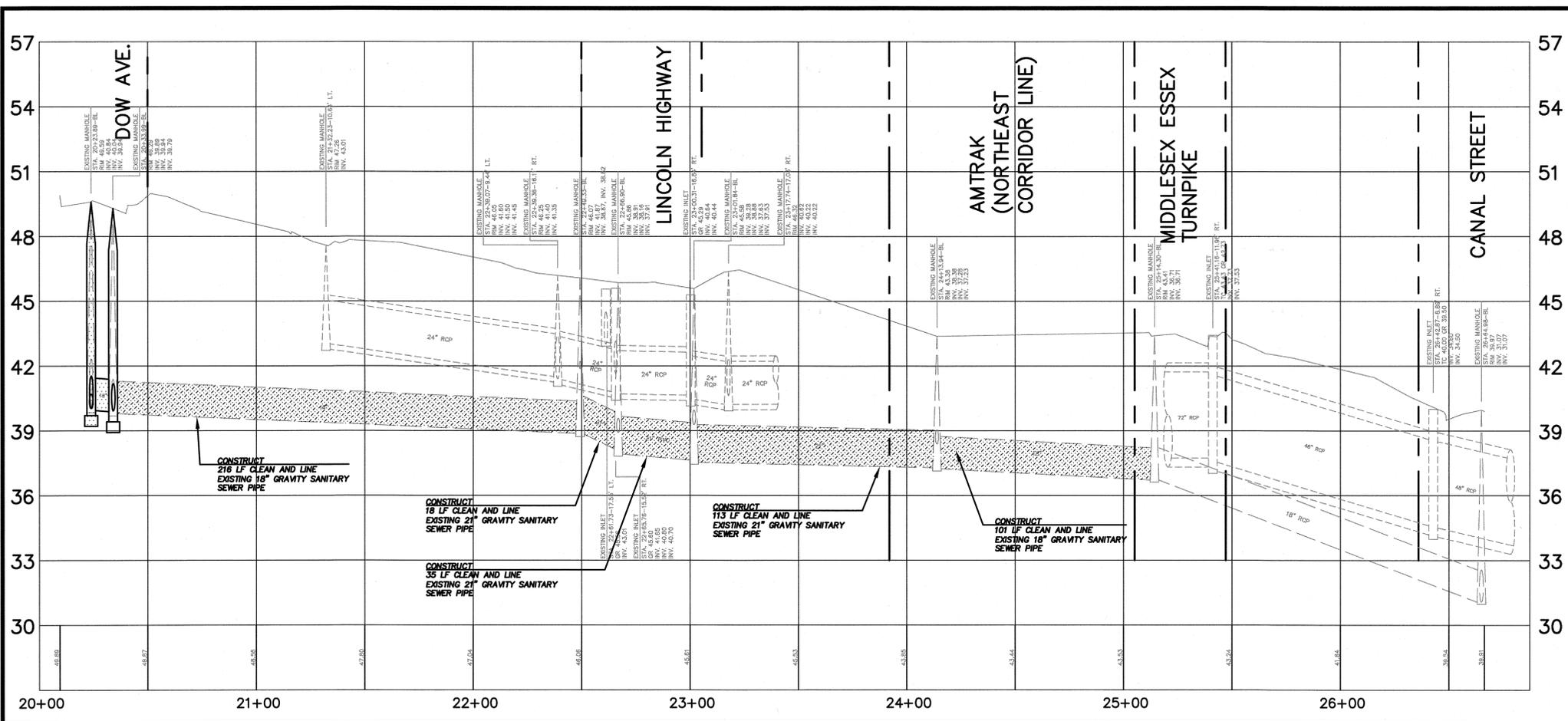
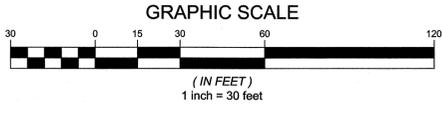
THE CONTRACTOR IS ADVISED THAT THE EXISTING GAS AND WATER MAIN LOCATIONS INDICATED ON THE PLANS ARE APPROXIMATE. THE EXACT LOCATIONS AND DEPTHS WERE NOT AVAILABLE FROM THE UTILITY COMPANIES AT THE TIME THE PLANS WERE PREPARED. ACCORDINGLY, THE CONTRACTOR SHALL REQUEST A UTILITY MARKOUT FROM THE RESPECTIVE GAS AND WATER COMPANIES PRIOR TO COMMENCEMENT OF THE WORK.

**EXISTING LEADER AND SUMP DRAIN NOTE**

THE CONTRACTOR SHALL CONNECT ALL EXISTING LEADER DRAINS AND SUMP DISCHARGES TO PROPOSED UNDERDRAINS. IF NO UNDERDRAINS ARE INSTALLED, THE EXISTING LEADER DRAIN OR SUMP DRAIN SHALL BE CONNECTED TO THE STORM PIPE. IF NO STORM PIPE EXISTS OR IS INSTALLED, LEADER DRAINS SHALL BE CONNECTED THROUGH THE CURB FACE WITH A 4" DIAMETER PVC PIPE. SUMP DRAIN DISCHARGES SHALL NOT BE CONSTRUCTED THROUGH THE CURB FACE. ALL LEADER DRAIN CONNECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DETAILS.

**TEMPORARY BYPASS SYSTEM**

CONTRACTOR SHALL FURNISH AND INSTALL A TEMPORARY BYPASSING SYSTEM IN ORDER TO DIVERT THE FLOW UNDER OR AROUND THE AMTRAK NORTHEAST CORRIDOR LINE. THE TEMPORARY BYPASS SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND SHALL INCLUDE LOCATIONS OF TEMPORARY PIPING, MANHOLE CONNECTIONS, ADDITIONAL STRUCTURES AND BYPASS PUMPS. MEASUREMENT AND PAYMENT FOR TEMPORARY BYPASS SYSTEM SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS REQUIRING SAME.



**PROFILE**  
SCALE: 1"=30' (HORZ.)  
1"=3' (VERT.)

**SOIL EROSION AND SEDIMENT CONTROL**

SEE SHEET 3 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

**SPECIAL PROVISIONS**

THE CONTRACTOR IS SPECIFICALLY DIRECTED TO THE REQUIREMENTS CONTAINED IN THE SPECIAL PROVISIONS SECTION OF THE CONTRACT SPECIFICATIONS.

**NOTE:**

NOT ALL EXISTING UTILITIES ARE SHOWN ON THIS PLAN. THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING MARKOUTS FOR ALL EXISTING UTILITIES.

**PROPOSED LEGEND:**

- DENOTES RESET MANHOLE
- DENOTES PROPOSED MANHOLE
- DENOTES RECONSTRUCT MANHOLE
- DENOTES RESET INLET
- DENOTES PROPOSED INLET
- DENOTES RECONSTRUCT INLET
- DENOTES PROPOSED HYDRANT
- DENOTES PROPOSED HANDHOLE
- DENOTES PROPOSED CURB
- DENOTES CONCRETE DRIVEWAY RESTORATION
- DENOTES HOT MIX ASPHALT DRIVEWAY RESTORATION
- DENOTES AGGREGATE DRIVEWAY RESTORATION
- DENOTES REMOVE AND RESET EXISTING BRICK WALK/PAVERS
- DENOTES PROPOSED STORM SEWER
- DENOTES PROPOSED SANITARY SEWER
- DENOTES REMOVE AND REPLACE CURB
- DENOTES PROPOSED VALLEY GUTTER
- DENOTES FLOW ARROW
- DENOTES AREA TO BE EXCAVATED AND RECEIVE 2" HOT MIX ASPHALT SURFACE 9.5M64 COURSE
- DENOTES 7" HOT MIX ASPHALT 19M64 BASE COURSE, AND 6" DENSE GRADED AGGREGATE BASE COURSE
- DENOTES AREA TO BE MILLED AND RECEIVE MIN. 2" HOT MIX ASPHALT 9.5M64 SURFACE AND LEVELER COURSE
- DENOTES PROPOSED ROADWAY TRENCH REPAIR
- DENOTES PROPOSED CONCRETE SIDEWALK AND DRIVEWAY APRON
- DENOTES PROPOSED CONCRETE SIDEWALK, REINFORCED, 4" THICK
- DENOTES EXISTING TREES TO BE REMOVED
- DENOTES INLET SILTATION PROTECTION
- DENOTES PROPOSED GRADE
- DENOTES CLEAN AND LINE EXISTING SANITARY SEWER MAIN
- DENOTES DETECTABLE WARNING SURFACE
- DENOTES LOCATION OF PROPOSED TEST PIT

2.	TEMPORARY BYPASS SYSTEM NOTE ADDED	11.29.17	FB	60
1.	REVISED FOR BIDDING	08.27.17	FB	60
No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED

TOWNSHIP OF WOODBRIDGE  
MIDDLESEX COUNTY, NEW JERSEY

**DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS**

CONSTRUCTION AND SOIL EROSION & SEDIMENT CONTROL PLAN

EASEMENTS BETWEEN DOW AVENUE AND R.R. R.O.W. STA. 20+25 TO 25+15

(732) 727 8000 CONSULTING AND MUNICIPAL ENGINEERS (732) 462 7400

3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194

JOHN H. ALLGAIER P.E. & P.P. (188) 21011  
DAVID J. SAMUEL P.E. & P.P. NO PE LIC NO. 25938  
JOHN J. STEFANI P.E. L.S. & P.P. NO PE & L.S. LIC NO. 24271 NO PP LIC NO. 2089  
JAY B. CORNELL P.E. & P.P. NO PE LIC NO. 32468  
MICHAEL J. MCCLELLAND P.E. & P.P. NO PE LIC NO. 38714  
MICHAEL J. MCCLELLAND P.E. & P.P. NO PE LIC NO. 32468  
MICHAEL J. MCCLELLAND P.E. & P.P. NO PE LIC NO. 32468  
MICHAEL J. MCCLELLAND P.E. & P.P. NO PE LIC NO. 32468

**MICHAEL J. MCCLELLAND P.E.**  
NEW JERSEY PROFESSIONAL ENGINEER LIC. 32468

SCALE: As Shown  
DATE: November 2017

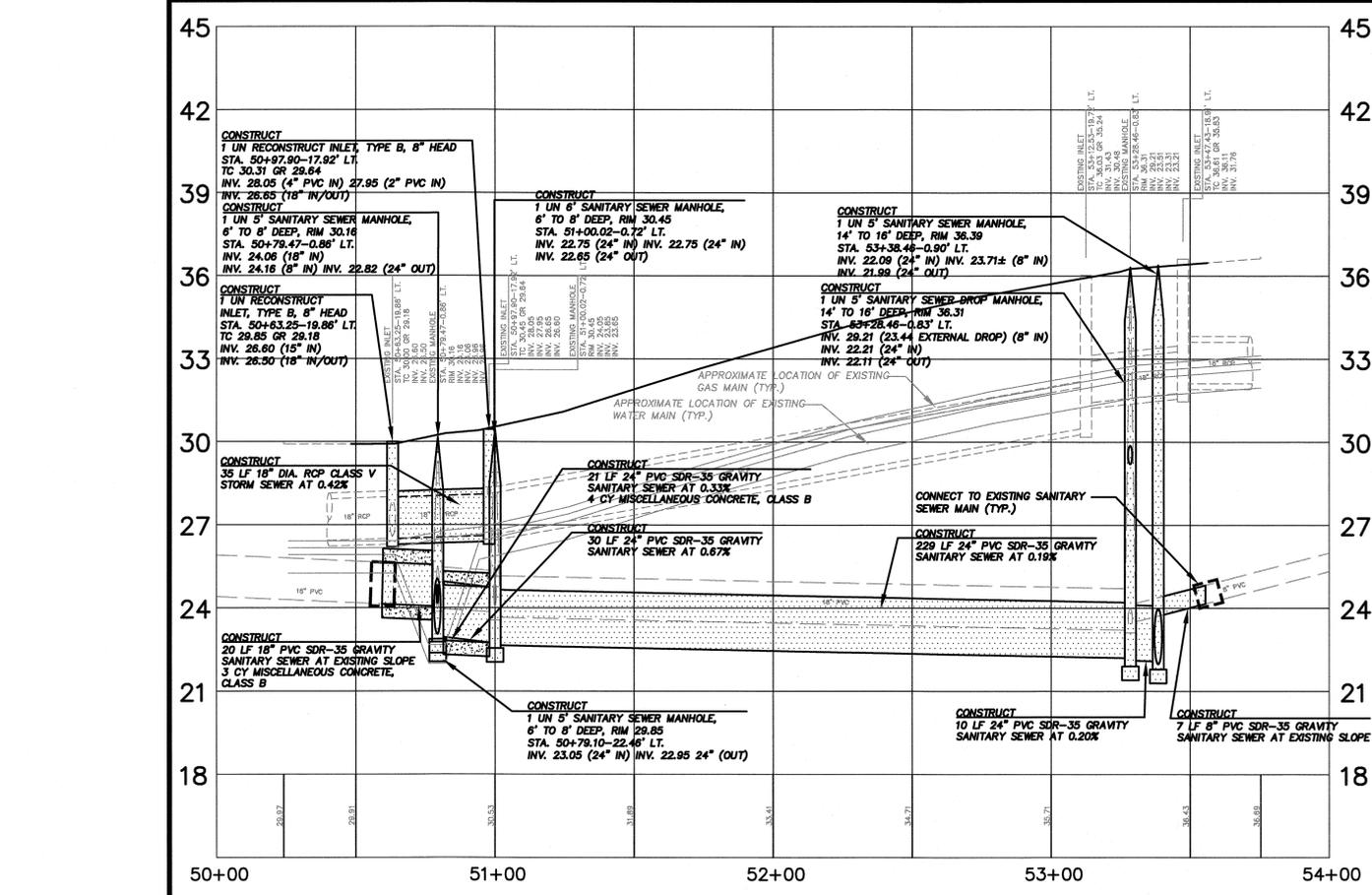
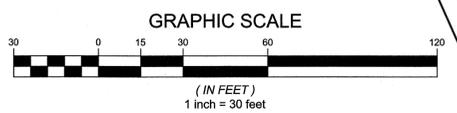
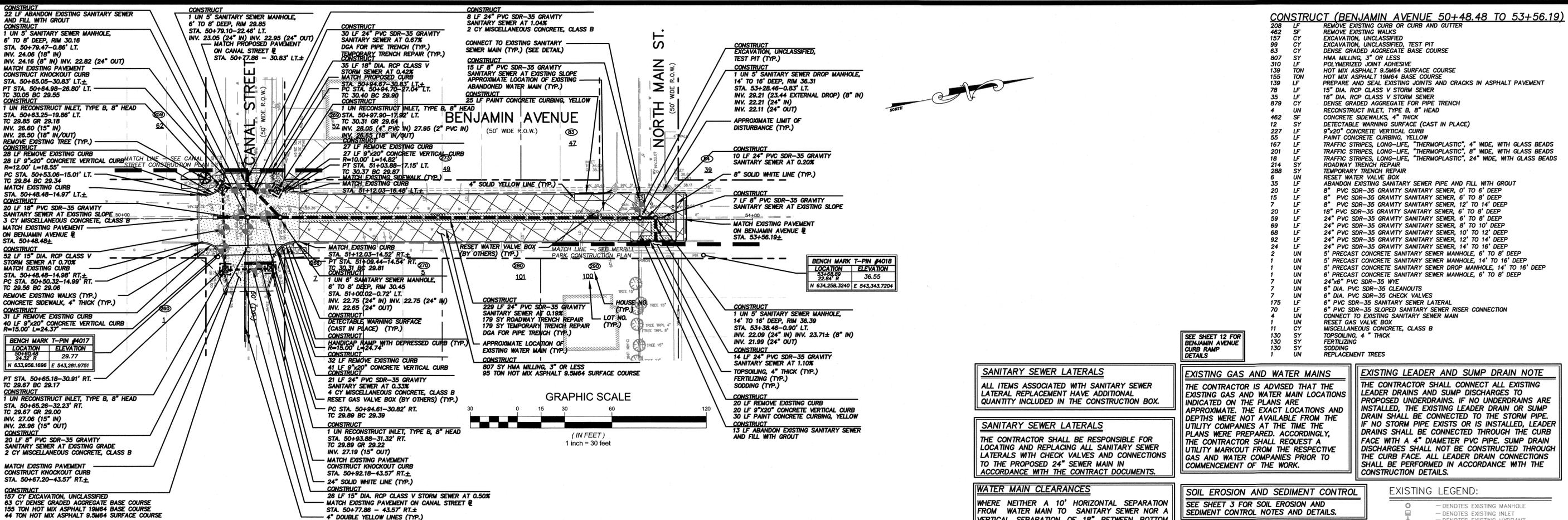
DRAWN BY: G.O.  
DESIGNED BY: G.O.  
CHECKED BY: G.O.  
DATE: 8/25/14

SHEET 6 OF 28

DRAWING NO. PWB00683.03







**PROFILE**  
SCALE: 1"=30' (HORZ.)  
1"=3' (VERT.)

**SANITARY SEWER LATERALS**  
ALL ITEMS ASSOCIATED WITH SANITARY SEWER LATERAL REPLACEMENT HAVE ADDITIONAL QUANTITY INCLUDED IN THE CONSTRUCTION BOX.

**SANITARY SEWER LATERALS**  
THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND REPLACING ALL SANITARY SEWER LATERALS WITH CHECK VALVES AND CONNECTIONS TO THE PROPOSED 24" SEWER MAIN IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

**WATER MAIN CLEARANCES**  
WHERE NEITHER A 10' HORIZONTAL SEPARATION FROM WATER MAIN TO SANITARY SEWER NOR A VERTICAL SEPARATION OF 18" BETWEEN BOTTOM OF WATER MAIN AND TOP OF SANITARY SEWER CAN BE MAINTAINED, CONTRACTOR SHALL ENCASE PROPOSED PVC-SDR-35 GRAVITY SANITARY SEWER IN CONCRETE.

**EXISTING GAS AND WATER MAINS**  
THE CONTRACTOR IS ADVISED THAT THE EXISTING GAS AND WATER MAIN LOCATIONS INDICATED ON THIS PLAN ARE APPROXIMATE. THE EXACT LOCATIONS AND DEPTHS WERE NOT AVAILABLE FROM THE UTILITY COMPANIES AT THE TIME THE PLANS WERE PREPARED. ACCORDINGLY, THE CONTRACTOR SHALL REQUEST A UTILITY MARKOUT FROM THE RESPECTIVE GAS AND WATER COMPANIES PRIOR TO COMMENCEMENT OF THE WORK.

**SOIL EROSION AND SEDIMENT CONTROL**  
SEE SHEET 3 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

**SPECIAL PROVISIONS**  
THE CONTRACTOR IS SPECIFICALLY DIRECTED TO THE REQUIREMENTS CONTAINED IN THE SPECIAL PROVISIONS SECTION OF THE CONTRACT SPECIFICATIONS.

**NOTE:**  
NOT ALL EXISTING UTILITIES ARE SHOWN ON THIS PLAN. THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING MARKOUTS FOR ALL EXISTING UTILITIES.

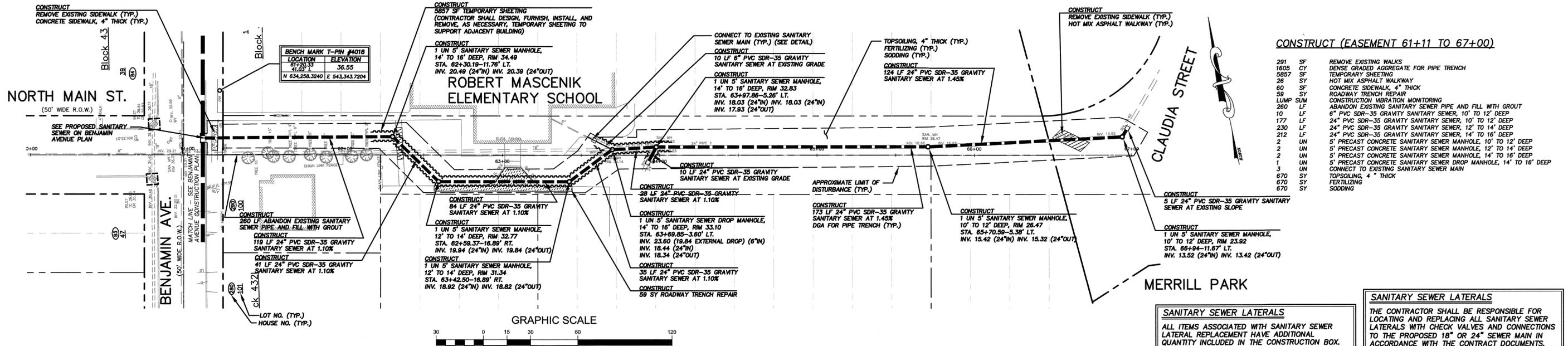
**EXISTING LEADER AND SUMP DRAIN NOTE**  
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- EXISTING LEGEND:**
- — DENOTES EXISTING MANHOLE
  - — DENOTES EXISTING INLET
  - — DENOTES EXISTING HYDRANT
  - — — — — DENOTES EXISTING SANITARY SEWER
  - — — — — DENOTES EXISTING STORM SEWER
  - — DENOTES EXISTING MAILBOX
  - — DENOTES EXISTING WATER VALVE
  - — DENOTES EXISTING GAS VALVE
  - — — — — DENOTES EXISTING WATER MAIN
  - — — — — DENOTES EXISTING GAS MAIN
  - — — — — DENOTES EXISTING TELEPHONE CABLE
  - — DENOTES EXISTING TREE
  - — — — — DENOTES EXISTING FENCE
  - — — — — DENOTES EXISTING UTILITY POLE
  - — — — — DENOTES EXISTING LIGHT POLE
  - — — — — DENOTES EXISTING GRADE
  - — — — — DENOTES EXISTING SIGN
  - — — — — DENOTES EXISTING R.O.W.

- PROPOSED LEGEND:**
- — DENOTES RESET MANHOLE
  - — DENOTES PROPOSED MANHOLE
  - — DENOTES RECONSTRUCT MANHOLE
  - — DENOTES RESET INLET
  - — DENOTES RECONSTRUCT INLET
  - — DENOTES PROPOSED HYDRANT
  - — DENOTES PROPOSED HANDHOLE
  - — — — — DENOTES PROPOSED CURB
  - — — — — DENOTES CONCRETE DRIVEWAY RESTORATION
  - — — — — DENOTES HOT MIX ASPHALT DRIVEWAY RESTORATION
  - — — — — DENOTES AGGREGATE DRIVEWAY RESTORATION
  - — — — — DENOTES REMOVE AND RESET EXISTING BRICK WALK/PAVERS
  - — — — — DENOTES PROPOSED SANITARY SEWER
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  - — — — — DENOTES PROPOSED VALLEY GUTTER
  - — — — — DENOTES FLOW ARROW
  - — — — — DENOTES AREA TO BE EXCAVATED AND RECEIVE 2" HOT MIX ASPHALT SURFACE 9.5M64 COURSE, 7" HOT MIX ASPHALT 19M64 BASE COURSE, AND 6" DENSE GRADED AGGREGATE BASE COURSE
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  - — — — — DENOTES PROPOSED CONCRETE SIDEWALK AND DRIVEWAY APRON
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  - — — — — DENOTES DETECTABLE WARNING SURFACE
  - — DENOTES LOCATION OF PROPOSED TEST PIT

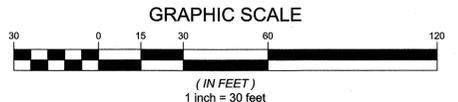
2.	REVISED FOR REDDING	06.27.17	RB	40	
1.	REVISED PER NADP COMMENTS	05.07.15	RB	42	
No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <h3>DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS</h3> CONSTRUCTION AND SOIL EROSION & SEDIMENT CONTROL PLAN BENJAMIN AVENUE STA. 50+49 TO 53+57					
(732) 727-8000 CONSULTING AND MUNICIPAL ENGINEERS (732) 462-7400 3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1160 1460 ROUTE 9 SOUTH, HONELL, NEW JERSEY 07731-1194					
JOHN H. ALLGAIER P.E. & P.P. (188) - 2003 JAY B. CORNELL P.E. & P.P. NJ PE LIC NO. 32562 MICHAEL J. MCLELLAN P.E. & P.P. NJ PE LIC NO. 32468		DAVID J. SAMUEL P.E. & P.P. NJ PE LIC NO. 2455 MICHAEL J. MCLELLAN P.E. & P.P. NJ PE LIC NO. 32468		JOHN J. STEFANI P.E., L.S. & P.P. NJ PE & L.S. LIC NO. 24971 GREGORY R. VALESI P.E. & P.P. NJ PE LIC NO. 34458	
<b>MICHAEL J. MCLELLAN P.E.</b> NEW JERSEY PROFESSIONAL ENGINEER LIC. 32468 DATE: 8/25/17					
SCALE: As Shown DRAWN BY: G.O. CHECKED BY: G.O. SHEET 9 of 28					

PW000683.03



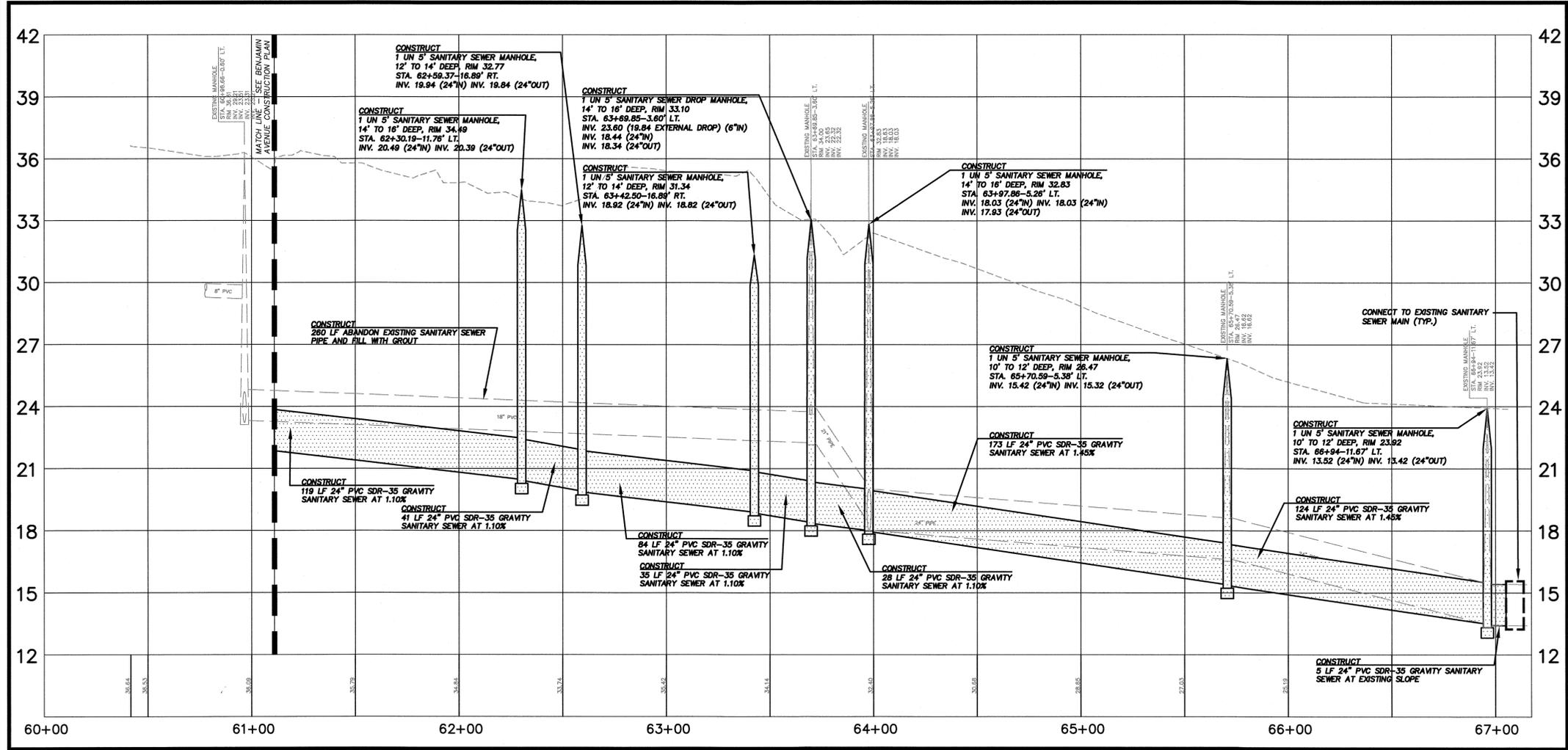
**CONSTRUCT (EASEMENT 61+11 TO 67+00)**

291	SF	REMOVE EXISTING WALKS
1605	CY	DENSE GRADED AGGREGATE FOR PIPE TRENCH
5857	SF	TEMPORARY SHEETING
261	SY	HOT MIX ASPHALT WALKWAY
60	SF	CONCRETE SIDEWALK, 4" THICK
59	SY	ROADWAY TRENCH REPAIR
LUMP	SUM	CONSTRUCTION VIBRATION MONITORING
260	LF	ABANDON EXISTING SANITARY SEWER PIPE AND FILL WITH GROUT
10	LF	6" PVC SDR-35 GRAVITY SANITARY SEWER, 10' TO 12' DEEP
177	LF	24" PVC SDR-35 GRAVITY SANITARY SEWER, 10' TO 12' DEEP
230	LF	24" PVC SDR-35 GRAVITY SANITARY SEWER, 12' TO 14' DEEP
212	LF	24" PVC SDR-35 GRAVITY SANITARY SEWER, 14' TO 16' DEEP
2	UN	5' PRECAST CONCRETE SANITARY SEWER MANHOLE, 10' TO 12' DEEP
2	UN	5' PRECAST CONCRETE SANITARY SEWER MANHOLE, 12' TO 14' DEEP
2	UN	5' PRECAST CONCRETE SANITARY SEWER MANHOLE, 14' TO 16' DEEP
1	UN	5' PRECAST CONCRETE SANITARY SEWER DROP MANHOLE, 14' TO 16' DEEP
3	UN	CONNECT TO EXISTING SANITARY SEWER MAIN
670	SY	TOPSOILING, 4" THICK
670	SY	FERTILIZING
670	SY	SODDING



- SANITARY SEWER LATERALS**  
ALL ITEMS ASSOCIATED WITH SANITARY SEWER LATERAL REPLACEMENT HAVE ADDITIONAL QUANTITY INCLUDED IN THE CONSTRUCTION BOX.
- SANITARY SEWER LATERALS**  
THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND REPLACING ALL SANITARY SEWER LATERALS WITH CHECK VALVES AND CONNECTIONS TO THE PROPOSED 18" OR 24" SEWER MAIN IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- EXISTING GAS AND WATER MAINS**  
THE CONTRACTOR IS ADVISED THAT THE EXISTING GAS AND WATER MAIN LOCATIONS INDICATED ON THE PLANS ARE APPROXIMATE. THE EXACT LOCATIONS AND DEPTHS WERE NOT AVAILABLE FROM THE UTILITY COMPANIES AT THE TIME THE PLANS WERE PREPARED. ACCORDINGLY, THE CONTRACTOR SHALL REQUEST A UTILITY MARKOUT FROM THE RESPECTIVE GAS AND WATER COMPANIES PRIOR TO COMMENCEMENT OF THE WORK.
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- CONSTRUCTION VIBRATION MONITORING**  
DURING ALL PHASES OF CONSTRUCTION, PROXIMATE TO THE ROBERT MASCENIK ELEMENTARY SCHOOL, CONSTRUCTION VIBRATION MONITORING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS CONTAINED WITHIN SECTION 635 - CONSTRUCTION VIBRATION MONITORING CONTAINED OF THE PROJECT SPECIFICATIONS.
- WATER MAIN CLEARANCES**  
WHERE NEITHER A 10' HORIZONTAL SEPARATION FROM WATER MAIN TO SANITARY SEWER NOR A VERTICAL SEPARATION OF 18" BETWEEN BOTTOM OF WATER MAIN AND TOP OF SANITARY SEWER CAN BE MAINTAINED, CONTRACTOR SHALL ENCASE PROPOSED PVC-SDR-35 GRAVITY SANITARY SEWER IN CONCRETE.



- SOIL EROSION AND SEDIMENT CONTROL**  
SEE SHEET 3 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
- SPECIAL PROVISIONS**  
THE CONTRACTOR IS SPECIFICALLY DIRECTED TO THE REQUIREMENTS CONTAINED IN THE SPECIAL PROVISIONS SECTION OF THE CONTRACT SPECIFICATIONS.
- NOTE:**  
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- PROPOSED LEGEND:**
- DENOTES RESET MANHOLE
  - DENOTES PROPOSED MANHOLE
  - ⊙ DENOTES RECONSTRUCT MANHOLE
  - DENOTES PROPOSED INLET
  - ⊠ DENOTES RECONSTRUCT INLET
  - ⊡ DENOTES PROPOSED HYDRANT
  - ⊢ DENOTES PROPOSED HANDHOLE
  - DENOTES PROPOSED CURB
  - DENOTES CONCRETE DRIVEWAY RESTORATION
  - DENOTES HOT MIX ASPHALT DRIVEWAY RESTORATION
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  - DENOTES REMOVE AND RESET EXISTING BRICK WALK/PAVERS
  - DENOTES PROPOSED STORM SEWER
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  - DENOTES PROPOSED VALLEY GUTTER
  - DENOTES FLOW ARROW
  - DENOTES AREA TO BE EXCAVATED AND RECEIVE 2" HOT MIX ASPHALT SURFACE 9.5M64 COURSE, 7" HOT MIX ASPHALT 19M64 BASE COURSE, AND 6" DENSE GRADED AGGREGATE BASE COURSE
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  - DENOTES CLEAN AND LINE EXISTING SANITARY SEWER MAIN
  - DENOTES DETECTABLE WARNING SURFACE
  - DENOTES LOCATION OF PROPOSED TEST PIT

**PROFILE**  
SCALE: 1"=30' (HORIZ.)  
1"=3' (VERT.)

NO.	REVISION FOR BIDDING	DATE	DRAWN	CHECKED	RELEASED
1		06.27.17	FB	60	

TOWNSHIP OF WOODBRIDGE  
MIDDLESEX COUNTY, NEW JERSEY

**DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS**  
CONSTRUCTION AND SOIL EROSION & SEDIMENT CONTROL PLAN

EASEMENT STA. 61+11 TO 67+00

**CVE ASSOCIATES**  
CONSULTING AND MUNICIPAL ENGINEERS  
(732) 727 8000 (732) 462 7400  
3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194

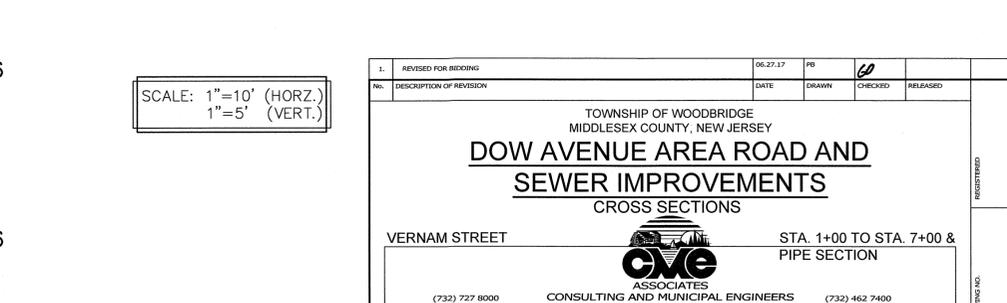
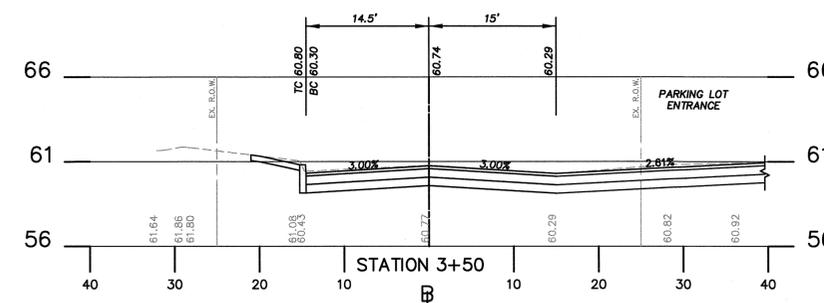
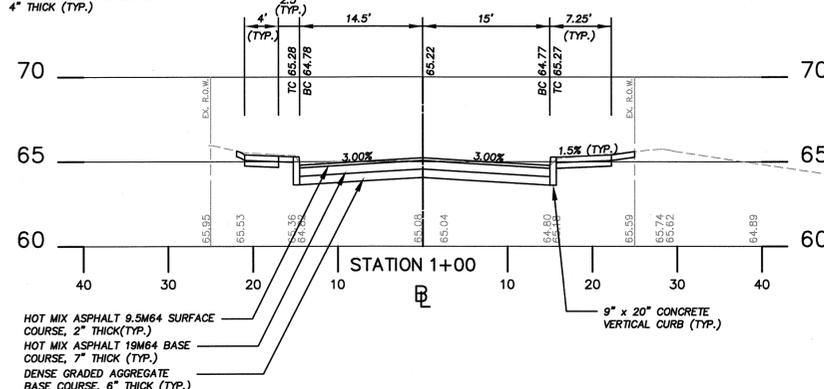
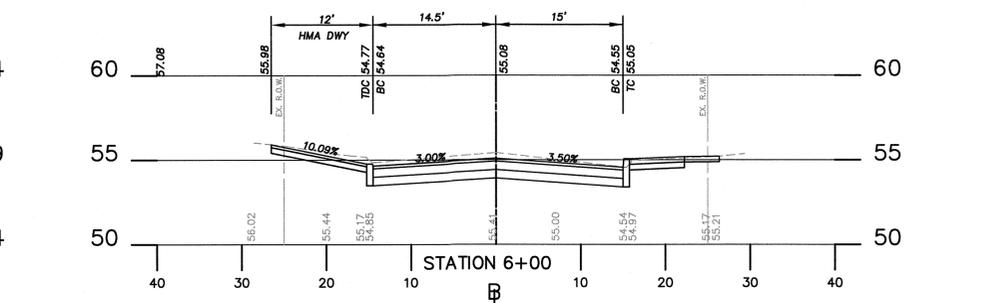
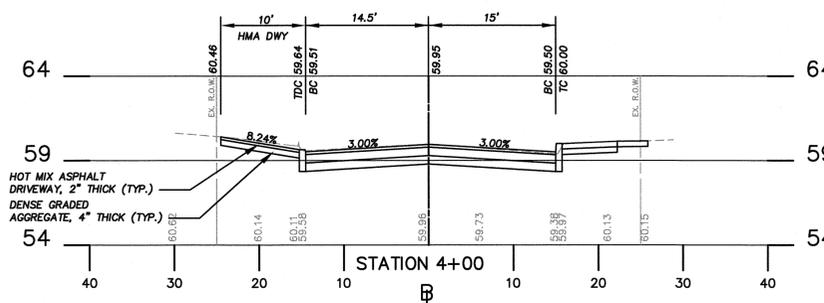
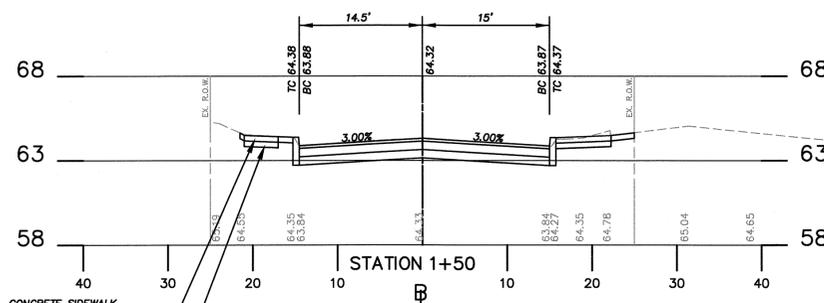
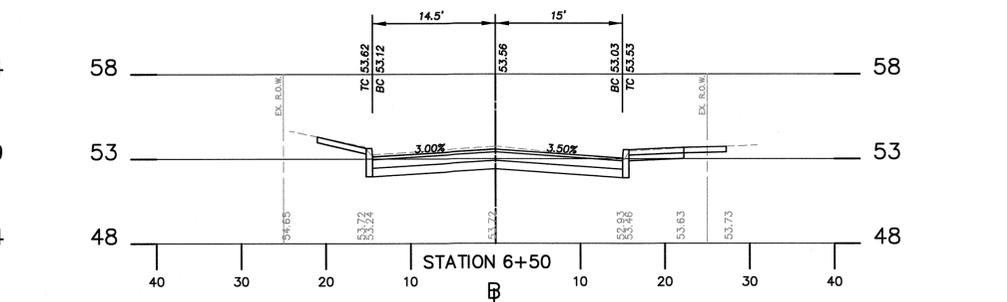
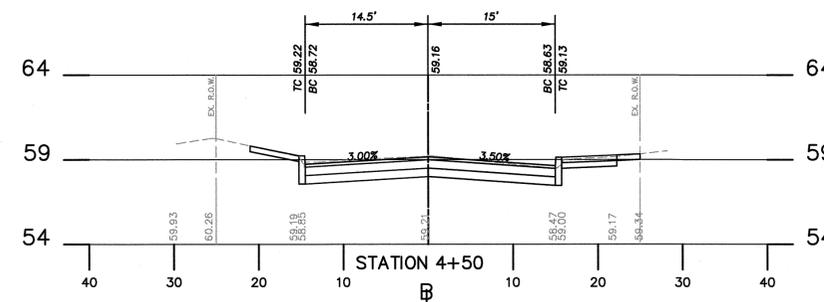
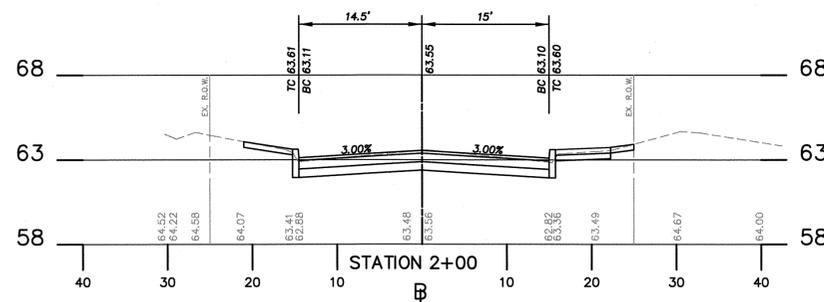
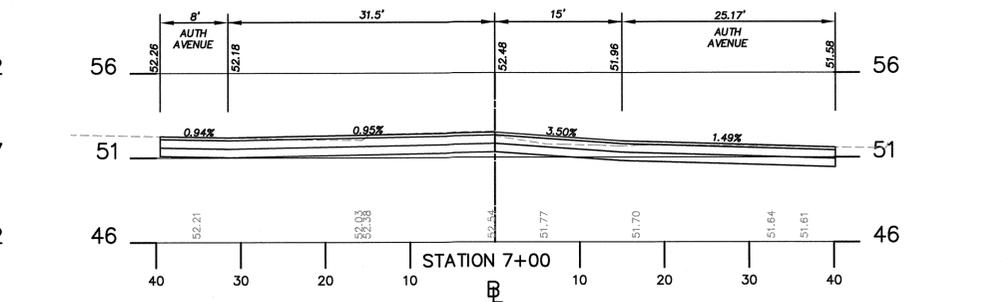
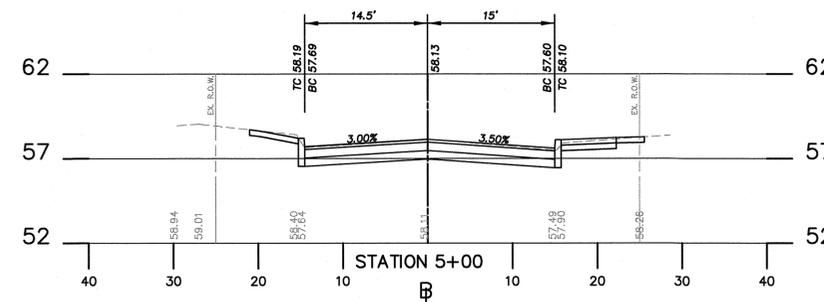
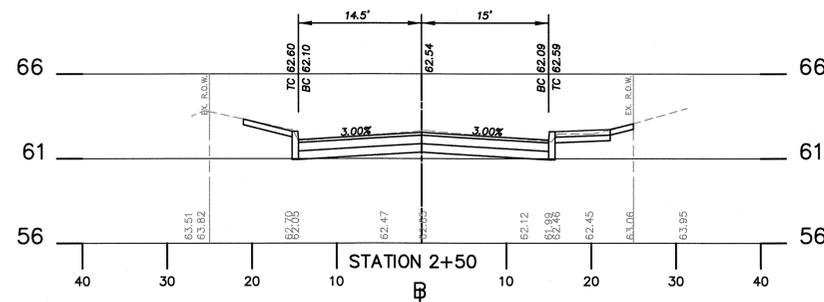
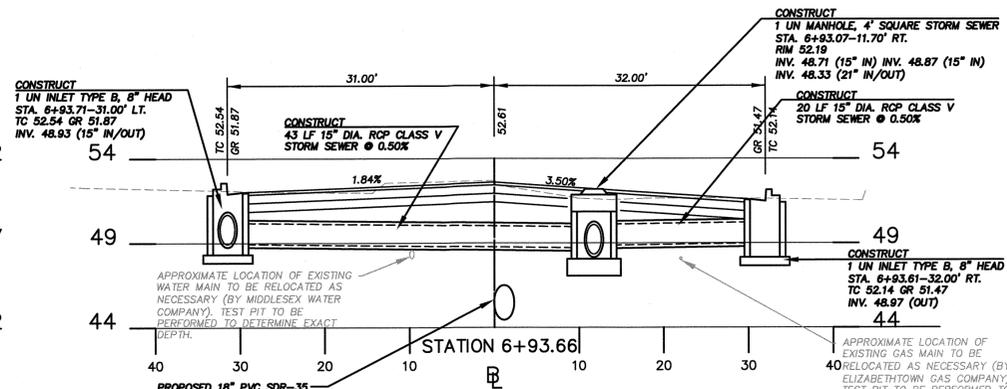
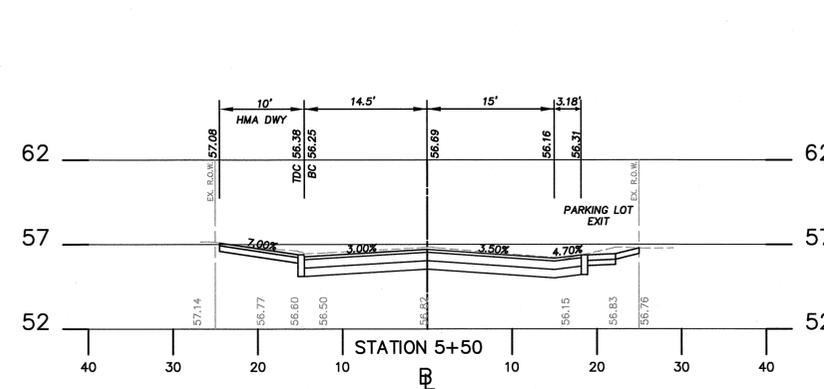
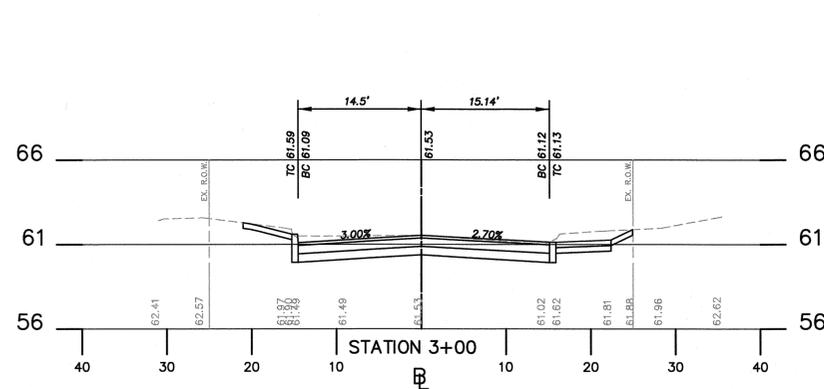
JOHN H. ALLGAIER P.E. & P.P. (LIC. 3261) DAVID J. SAMUEL P.E. & P.P. (LIC. 3261) JOHN J. STEFANI P.E. L.S. & P.P. (LIC. 3261) (LIC. 3261) (LIC. 3261) (LIC. 3261)

JAY B. CORNELL P.E. & P.P. (LIC. 3261) MICHAEL J. MCCLELLAND P.E. & P.P. (LIC. 32468) GREGORY R. VALESII P.E. & P.P. (LIC. 34458)

**MICHAEL J. MCCLELLAND P.E.**  
NEW JERSEY PROFESSIONAL ENGINEER LIC. 32468

SCALE: As Shown DATE: November 2017  
DRAWN BY: G.O. DESIGNED BY: G.O.  
CHECKED BY: G.O. DATE: 9/25/17 SHEET: 10 of 28

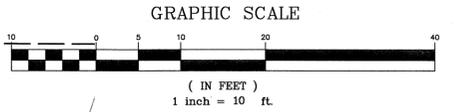
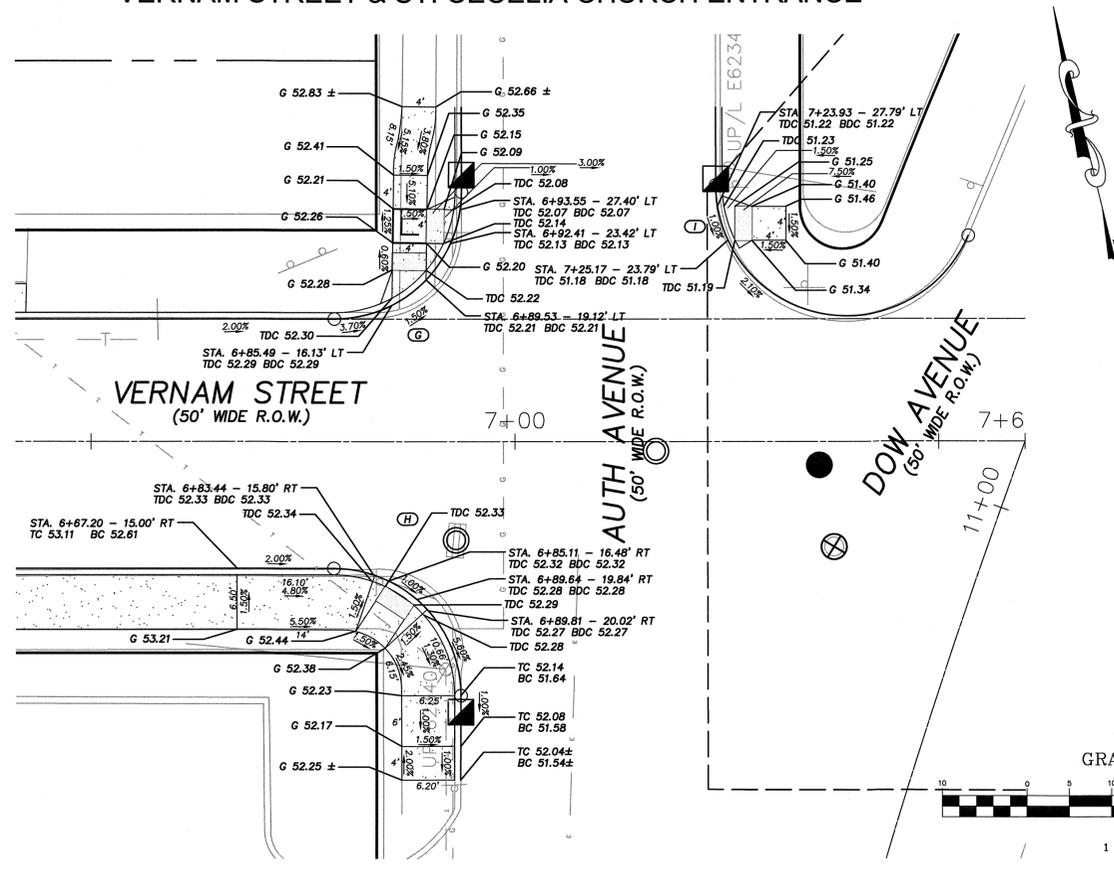
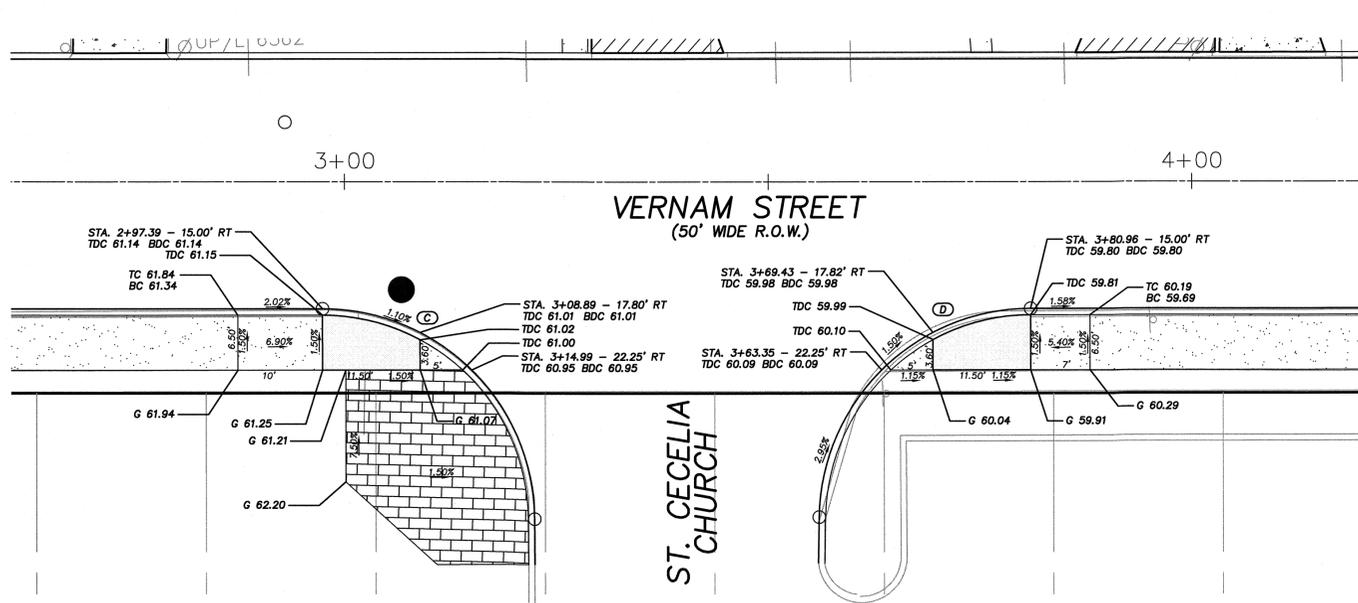
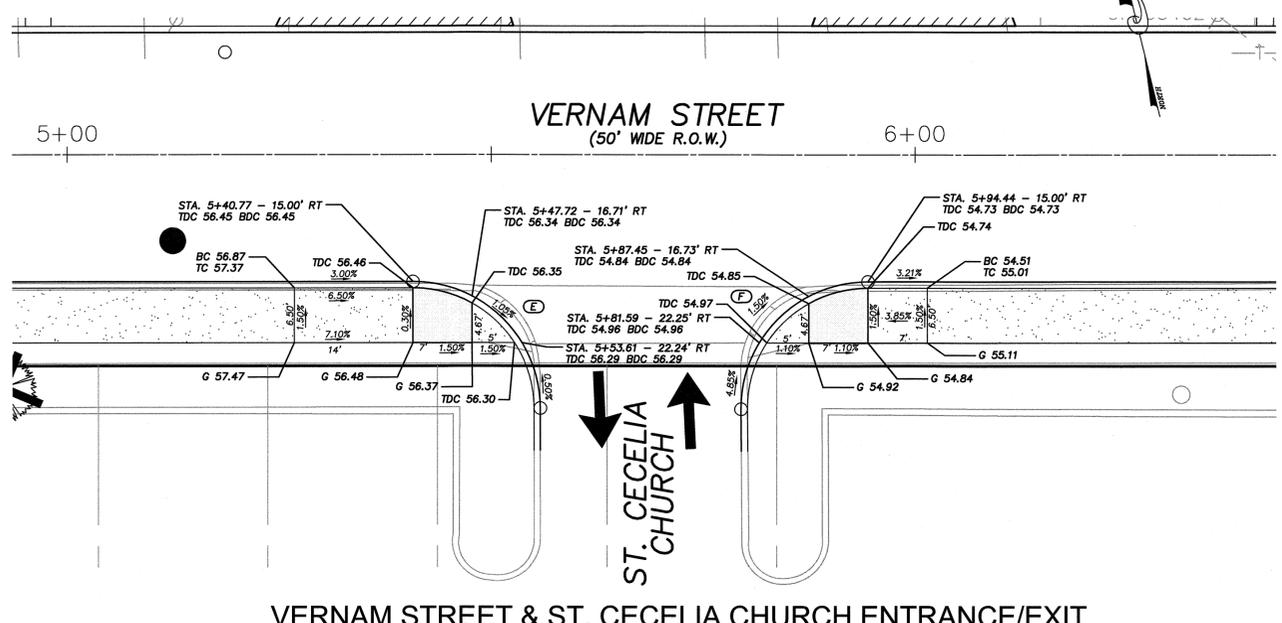
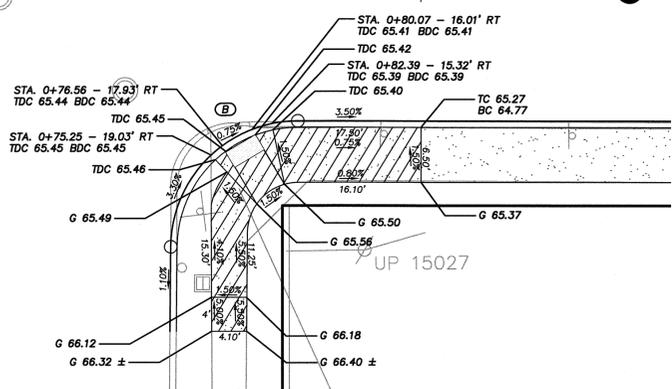
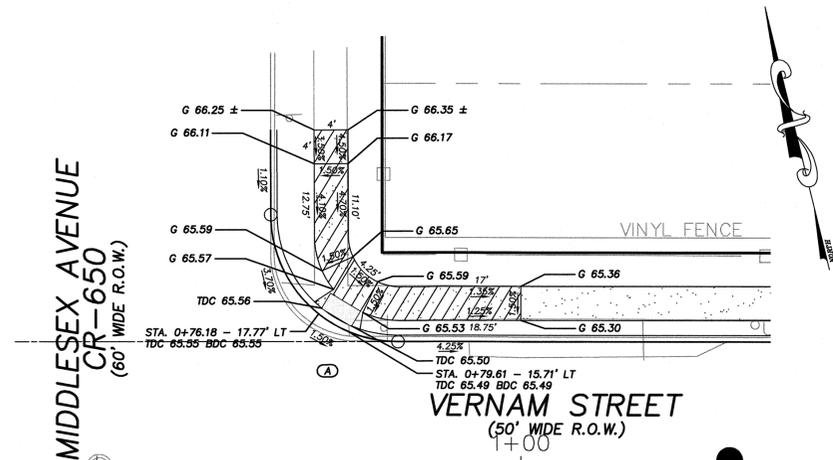
FILE NO. PWB00683.03



HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK (TYP.)  
 HOT MIX ASPHALT 19M64 BASE COURSE, 7" THICK (TYP.)  
 DENSE GRADED AGGREGATE BASE COURSE, 6" THICK (TYP.)  
 CONCRETE SIDEWALK, 4" THICK (TYP.)  
 DENSE GRADED AGGREGATE, 4" THICK (TYP.)  
 9" x 20" CONCRETE VERTICAL CURB (TYP.)

SCALE: 1"=10' (HORZ.)  
 1"=5' (VERT.)

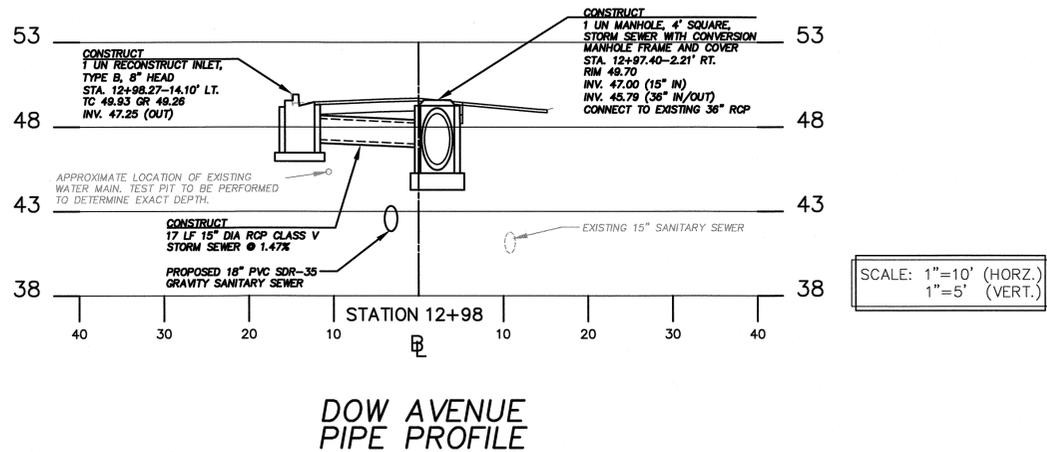
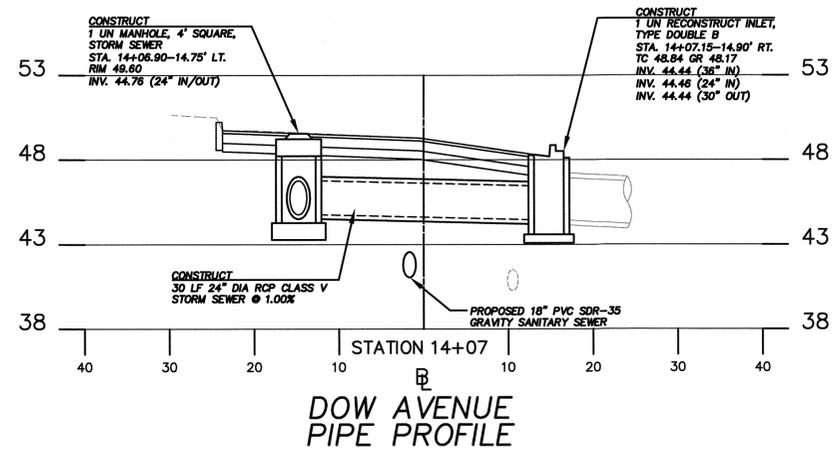
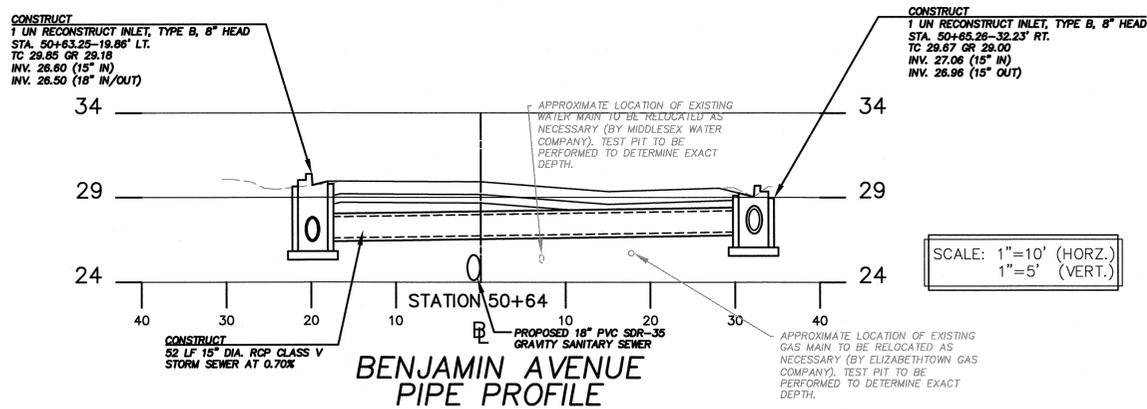
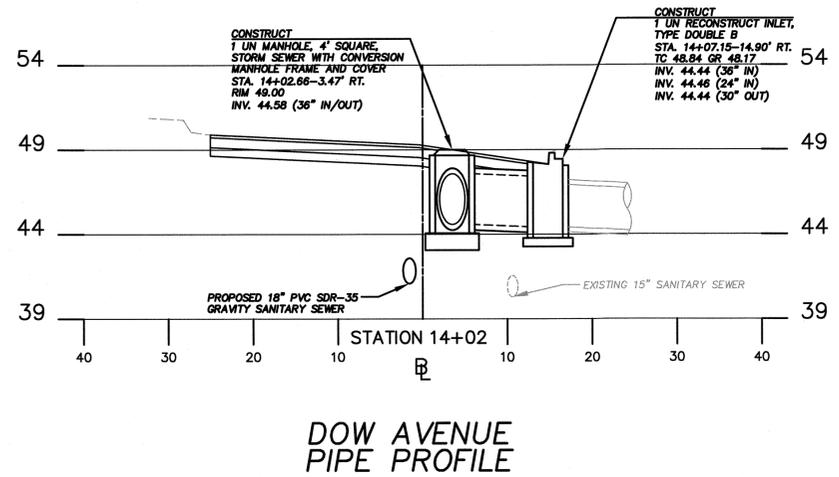
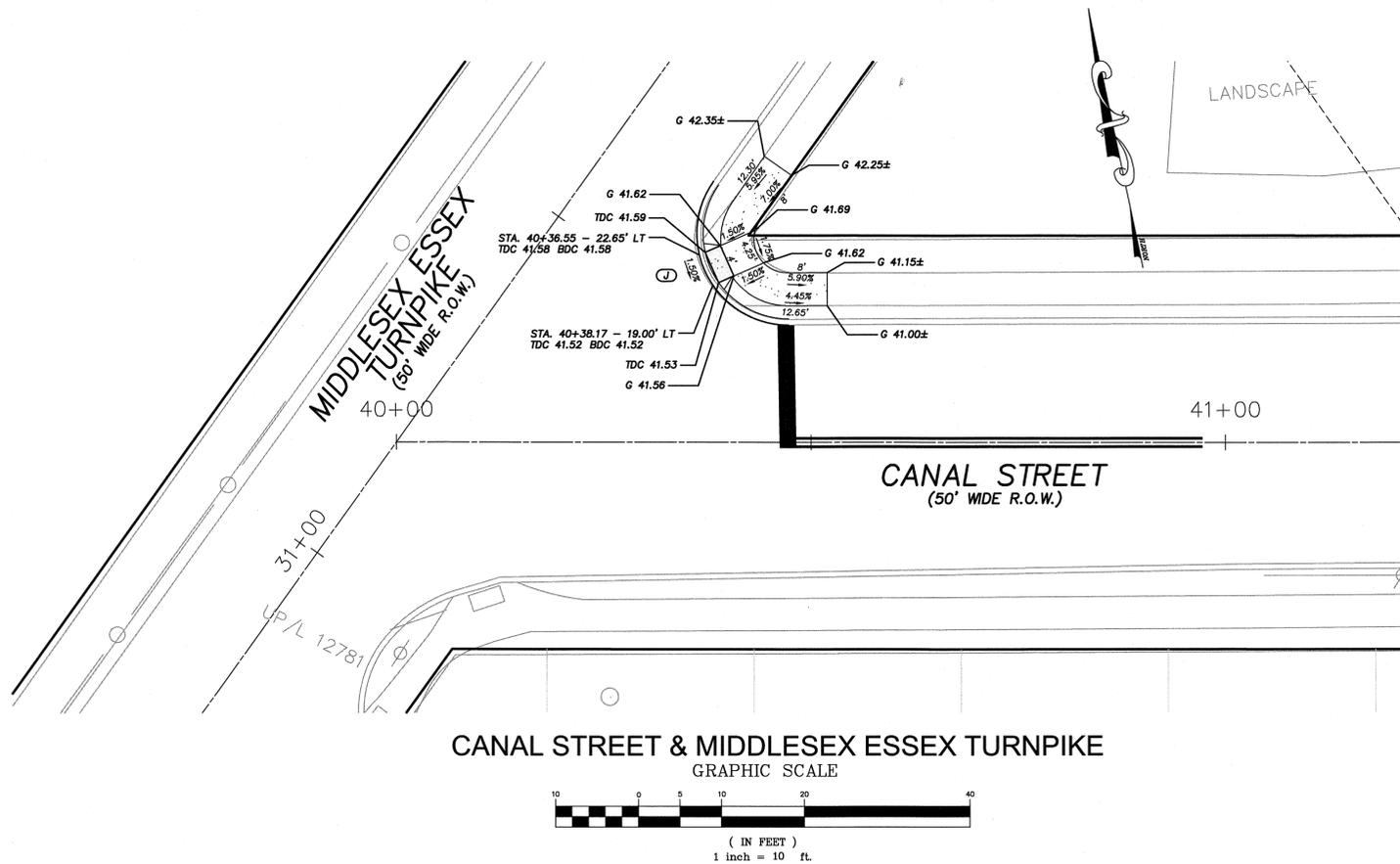
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY		STA. 1+00 TO STA. 7+00 & PIPE SECTION	
<b>DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS CROSS SECTIONS</b>			
VERNAM STREET		STA. 1+00 TO STA. 7+00 & PIPE SECTION	
<b>CVE</b> CONSULTING AND MUNICIPAL ENGINEERS			
(732) 727 8000      (732) 462 7400			
3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194			
JOHN H. ALLGAJR P.E. & P.P. NJ PE LIC. NO. 32989	DAVID J. SAMUEL P.E. & P.P. NJ PE LIC. NO. 32658	JOHN J. STEFANI P.E. L.S. & P.P. NJ PE LIC. NO. 34671	
JAY B. CORNELI P.E. & P.P. NJ PE LIC. NO. 32974	MICHAEL J. MCLELLAND P.E. & P.P. NJ PE LIC. NO. 32468	GREGORY R. VALESI P.E. & P.P. NJ PE LIC. NO. 34458	
<b>MICHAEL J. MCLELLAND P.E.</b> NEW JERSEY PROFESSIONAL ENGINEER		L.C. 32468	
DATE: November 2017		DRAWN BY: G.O.	
DESIGNED BY: G.O.		CHECKED BY: [Signature]	
SHEET: 11 of 28		DRAWING NO.: PWB00683.03	



- PROPOSED LEGEND:
- DENOTES PROPOSED CURB
  - DENOTES 4'x4' LANDING AREA @ 2.0% MAX. SLOPE
  - DENOTES DETECTABLE WARNING SURFACE
  - DENOTES PROPOSED CURB RAMP
  - DENOTES PROPOSED SLOPE ALONG SIDEWALK
  - G 40.02 — DENOTES PROPOSED GRADE ALONG SIDEWALK

NO.	REVISION FOR BIDDING	DATE	DRAWN	CHECKED	RELEASED
1.	DESCRIPTION OF REVISION				
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <b>DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS</b>					
CURB RAMP DETAILS (1 OF 2)		VERNAM STREET			
 <b>ASSOCIATES</b> CONSULTING AND MUNICIPAL ENGINEERS					
(732) 727 8000		3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162		1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194	
JOHN H. ALLGAIER P.E. & P.P. NJ PE LIC NO. 25838 (1983 - 1991)		DAVID J. SAMUEL P.E. & P.P. NJ PE LIC NO. 24555 (1983 - 1991)		JOHN J. STEFANI P.E. L.S. & P.P. NJ PE LIC NO. 20989 (1983 - 1991)	
JAY B. CORNELL P.E. & P.P. NJ PE LIC NO. 3874		MICHAEL J. McCLELLAND P.E. & P.P. NJ PE LIC NO. 32085		GREGORY R. VALESI P.E. & P.P. NJ PE LIC NO. 39458	
<b>MICHAEL J. McCLELLAND P.E.</b> NEW JERSEY PROFESSIONAL ENGINEER LIC. 32468		As Shown		November 2017	
DRAWN BY G.O.		DESIGNED BY G.O.		DATE	
CHECKED BY G.O.		SCALE		SHEET	
12 of 28		12 of 28		12 of 28	

FILE NO.  
PWB00683.03



**PROPOSED LEGEND:**

- DENOTES PROPOSED CURB
- DENOTES 4'x4' LANDING AREA @ 2.0% MAX SLOPE
- DENOTES DETECTABLE WARNING SURFACE
- DENOTES PROPOSED CURB RAMP
- DENOTES PROPOSED SLOPE ALONG SIDEWALK
- DENOTES PROPOSED GRADE ALONG SIDEWALK

NO.	REVISION FOR RECORD	DATE	DRAWN	CHECKED	RELEASED
1.	DESCRIPTION OF REVISION	06.27.17	PH		

TOWNSHIP OF WOODBRIDGE  
MIDDLESEX COUNTY, NEW JERSEY

### DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS

CURB RAMP DETAILS (2 OF 2) & PIPE PROFILES

**CVE ASSOCIATES**  
CONSULTING AND MUNICIPAL ENGINEERS  
(732) 727 8000      (732) 462 7400

3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162      1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194

JOHN H. ALLGAIER P.E. & P.P. (1983 - 2001) NO PE LIC NO. 25838 NO PP LIC NO. 2455	DAVID J. SAMUEL P.E. & P.P. NO PE LIC NO. 24271 NO PP LIC NO. 2599	JOHN J. STEFANI P.E. L.S. & P.P. NO PE LIC NO. 24271 NO PP LIC NO. 2089
JAY B. CORNELL P.E. & P.P. NO PE LIC NO. 32626 NO PP LIC NO. 3074	MICHAEL J. McCLELLAND P.E. & P.P. NO PE LIC NO. 34659 NO PP LIC NO. 3709	GREGORY R. VALESI P.E. & P.P. NO PE LIC NO. 34658 NO PP LIC NO. 4361

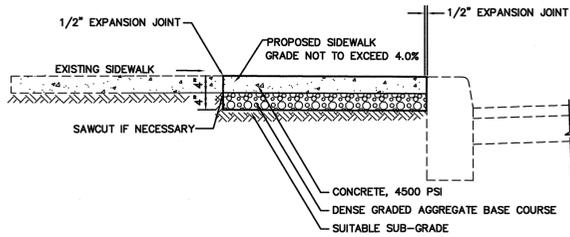
**MICHAEL J. McCLELLAND P.E.**  
NEW JERSEY PROFESSIONAL ENGINEER  
LIC. 32468

SCALE: As Shown  
DATE: November 2017  
DRAWN BY: G.O.  
DESIGNED BY: G.O.  
CHECKED BY: G.O.  
SHEET: 13 of 28

8/25/14

PW000683.03

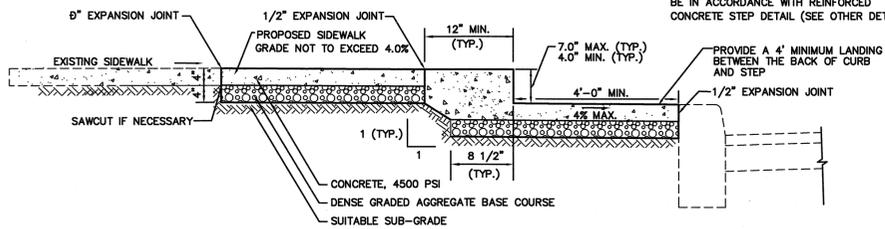




TYPICAL SERVICE WALK REPLACEMENT DETAIL

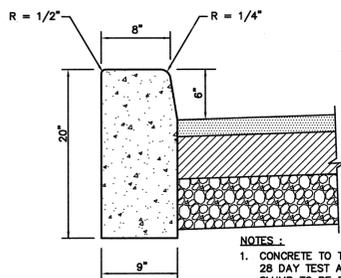
N.T.S.

- NOTE:
- TWO (2) AND THREE (3) STEP INSTALLATION SHALL BE IN ACCORDANCE WITH CONCRETE STEP DETAIL (SEE OTHER DETAIL SHEET)
  - FOUR (4) STEPS OR GREATER SHALL BE IN ACCORDANCE WITH REINFORCED CONCRETE STEP DETAIL (SEE OTHER DETAIL SHEET)



TYPICAL SERVICE WALK REPLACEMENT DETAIL WITH STEP

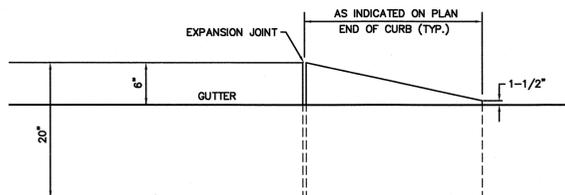
N.T.S.



TYPICAL 9"x 20" CURB DETAIL

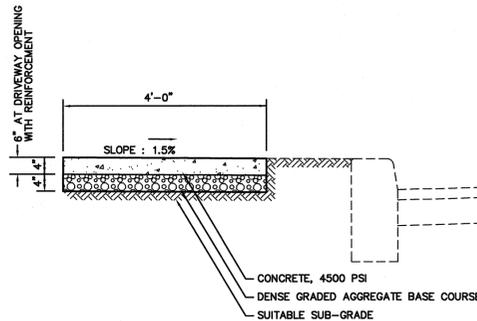
N.T.S.

- NOTES:
- CONCRETE TO TEST 4500 PSI MINIMUM ON 28 DAY TEST AIR ENTRAINMENT 4% TO 7% SLUMP TO BE 5" MAXIMUM
  - SEE DETAILS FOR HANDICAPPED RAMP



ELEVATION  
9"x 20" KNOCKOUT CURB

N.T.S.



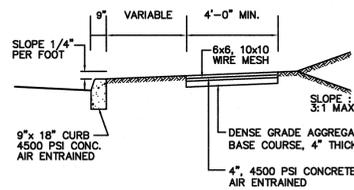
TYPICAL SIDEWALK DETAIL

N.T.S.

- NOTES:
- SEE DETAILS FOR HANDICAPPED RAMP

PAVEMENT REPAIR DETAIL FOR CURB REPLACEMENT (NO ROAD RECONSTRUCTION)

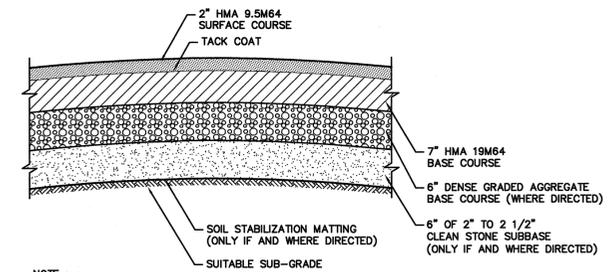
N.T.S.



SIDEWALK DETAIL  
REINFORCED COUNTY CONCRETE

N.T.S.

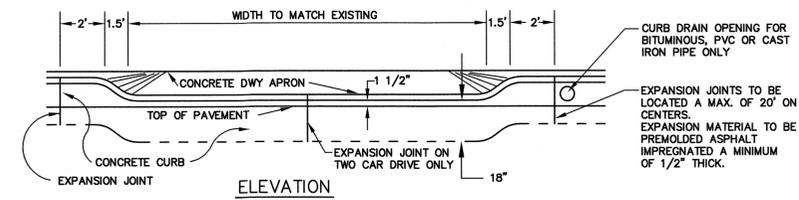
- NOTE:
- HANDICAP RAMPS SHALL BE REINFORCED WITH WIRE MESH. REFER TO DETAILS FOR HANDICAP RAMP CONSTRUCTION.
  - TRANSVERSE EXPANSION JOINTS 1/2" WIDE SHALL BE PROVIDED AT INTERVALS OF NOT MORE THAN 20' AND FILLED WITH PREFORMED BITUMINOUS CELLULAR TYPE JOINT FILLER. LONGITUDINAL JOINTS, 1/2" WIDE, SHALL BE PROVIDED BETWEEN CURBS AND ABUTTING SIDEWALKS, AND SHALL BE FILLED WITH PREFORMED BITUMINOUS TYPE JOINT FILLER. THE TOP OF ALL JOINT FILLER SHALL BE 1/2" BELOW THE TOP OF THE SIDEWALK AND FILLED WITH JOINT SEALER (SIKAFLEX 1A, OR APPROVED EQUAL). NO SEPARATE PAYMENT WILL BE MADE FOR JOINT CAP, REMOVABLE JOINT STRIP, JOINT SEALER AND WELDED STEEL WIRE FABRIC PROVIDED IN CONCRETE SIDEWALKS. NO SEPARATE PAYMENT WILL BE MADE FOR DENSE GRADED AGGREGATE BASE COURSE.



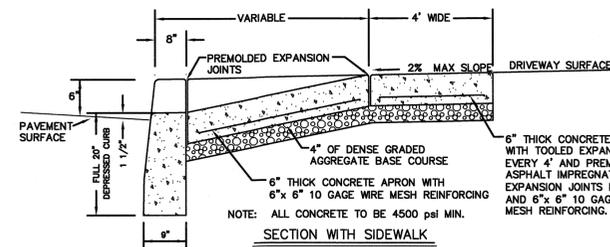
TYPICAL PAVEMENT DETAIL

N.T.S.

- NOTE:
- THE CROWN OF ALL PAVEMENT SHALL BE AS INDICATED ON THE CROSS SECTIONS

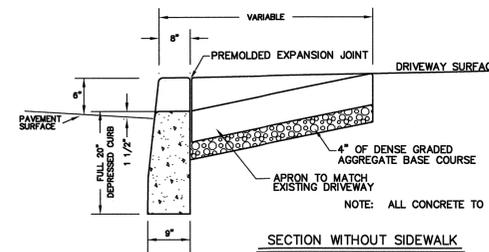


ELEVATION



SECTION WITH SIDEWALK

- NOTE: ALL CONCRETE TO BE 4500 PSI MIN.



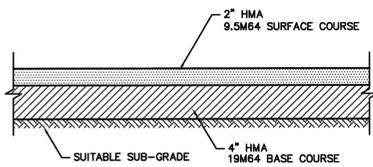
SECTION WITHOUT SIDEWALK

- NOTE: ALL CONCRETE TO BE 4500 PSI MIN.

DRIVEWAY ENTRANCE

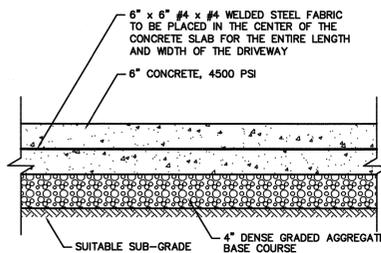
DEPRESSED CURB, DRIVEWAY APRON & SIDEWALK

N.T.S.



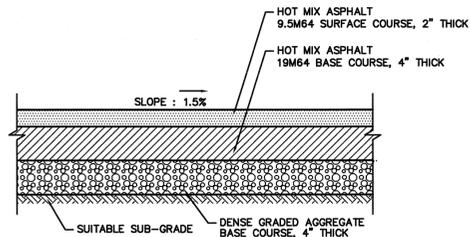
HMA DRIVEWAY =  
(COMMERCIAL DRIVEWAY & PARKING LOT)  
DRIVEWAY REPLACEMENT DETAIL

N.T.S.



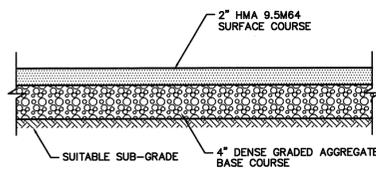
CONCRETE DRIVEWAY =  
DRIVEWAY REPLACEMENT DETAIL

N.T.S.



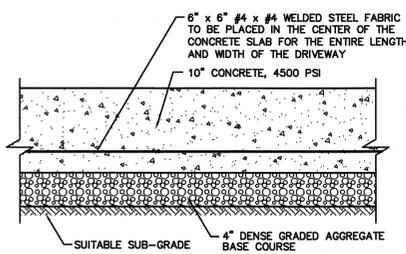
HMA WALKWAY DETAIL

N.T.S.



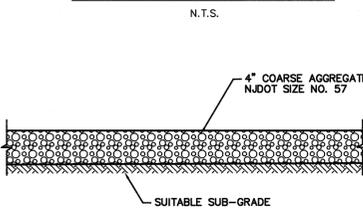
HMA DRIVEWAY =  
(SINGLE & 2-FAMILY DRIVEWAYS)  
DRIVEWAY REPLACEMENT DETAIL

N.T.S.



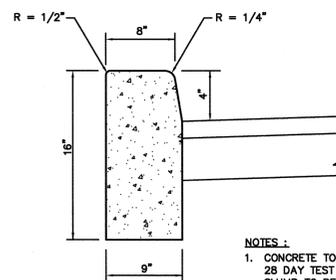
CONCRETE DRIVEWAY =  
(COMMERCIAL DRIVEWAY & PARKING LOT)  
DRIVEWAY REPLACEMENT DETAIL

N.T.S.



AGGREGATE DRIVEWAY =  
DRIVEWAY REPLACEMENT DETAIL

N.T.S.



TYPICAL 9"x 16" CURB DETAIL

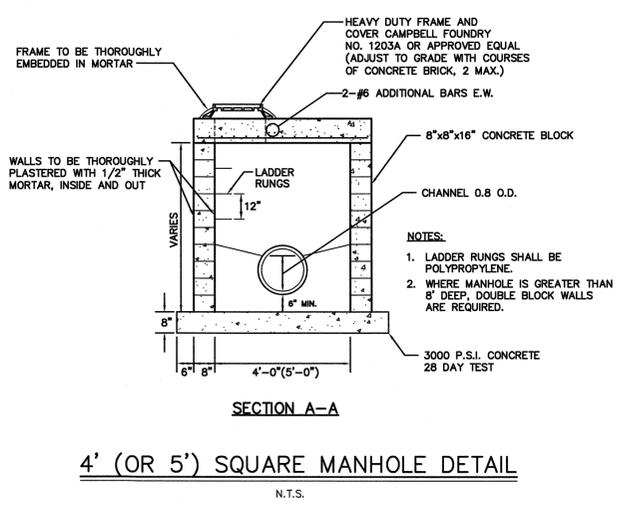
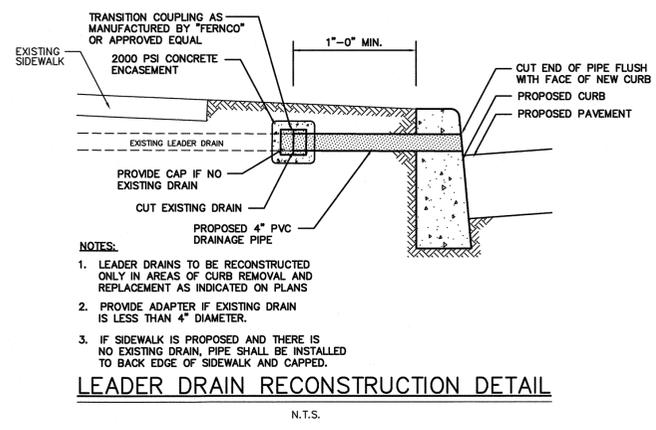
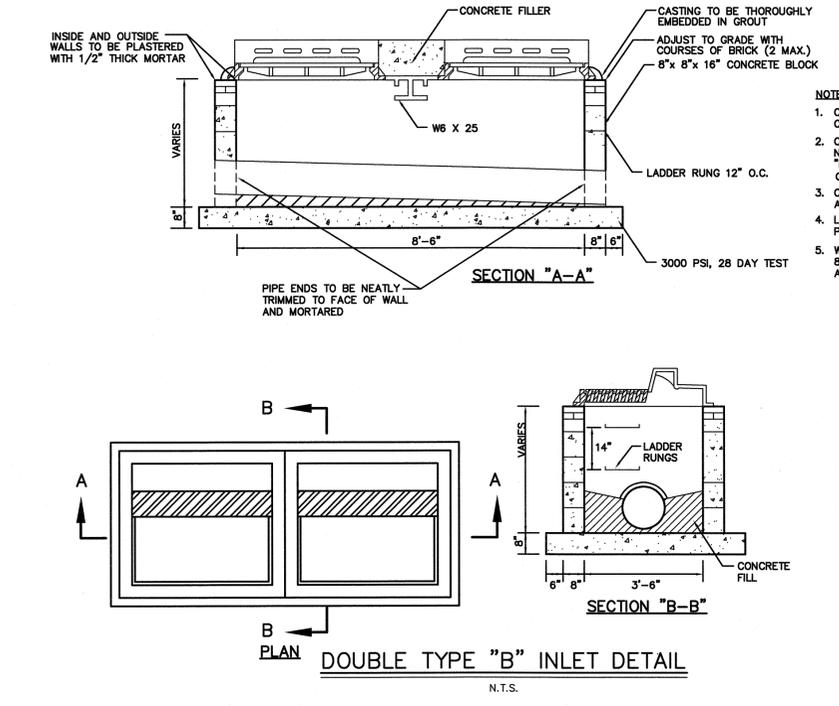
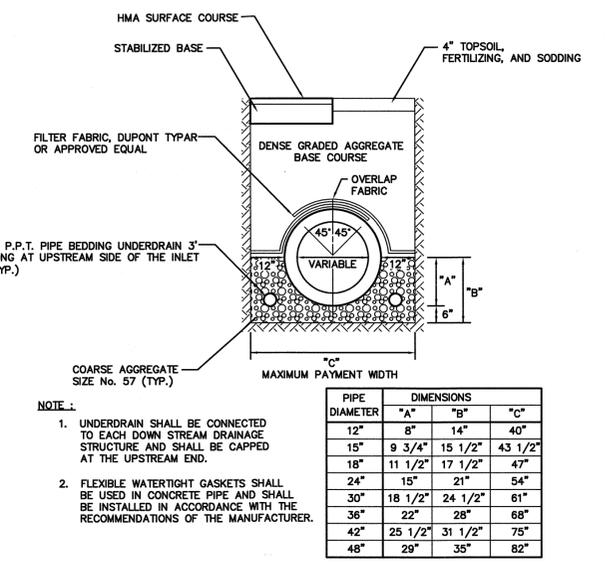
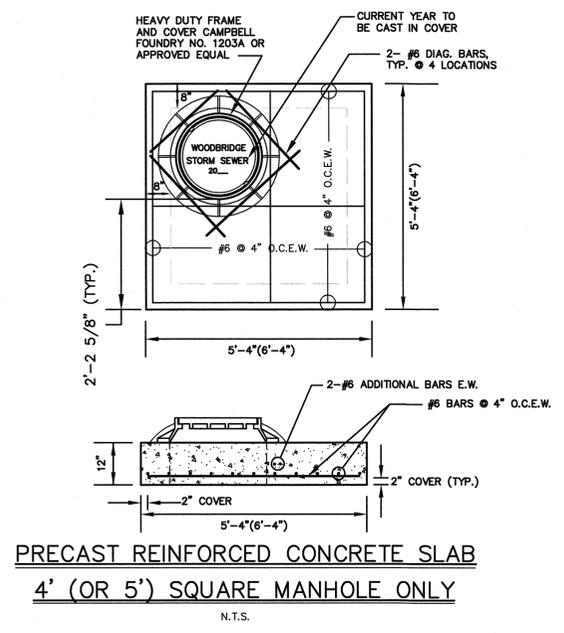
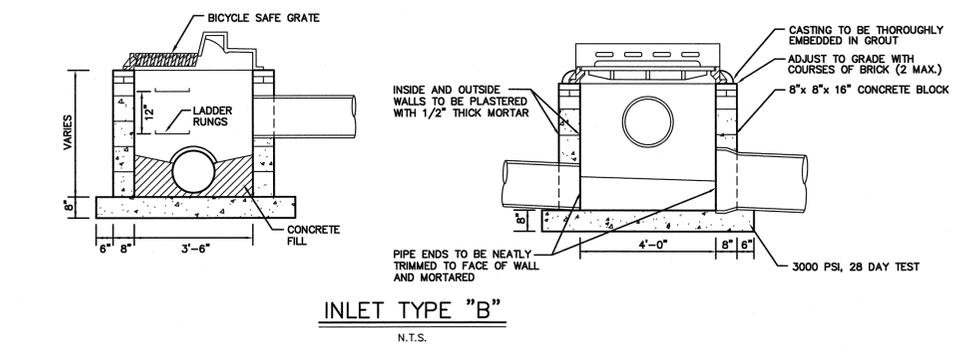
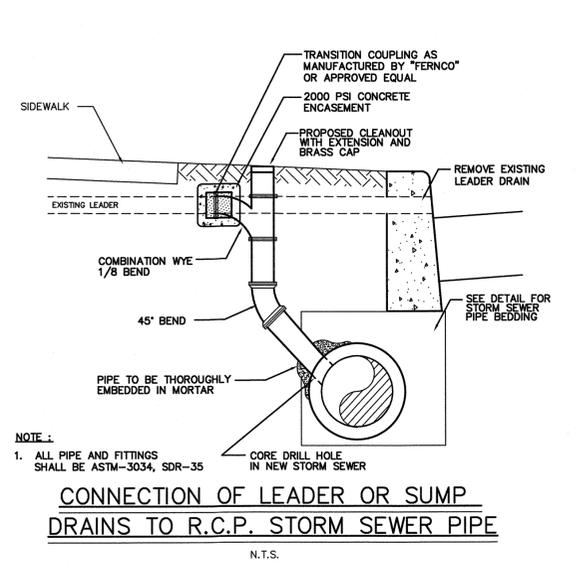
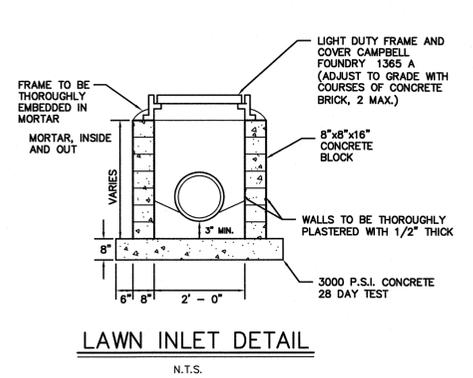
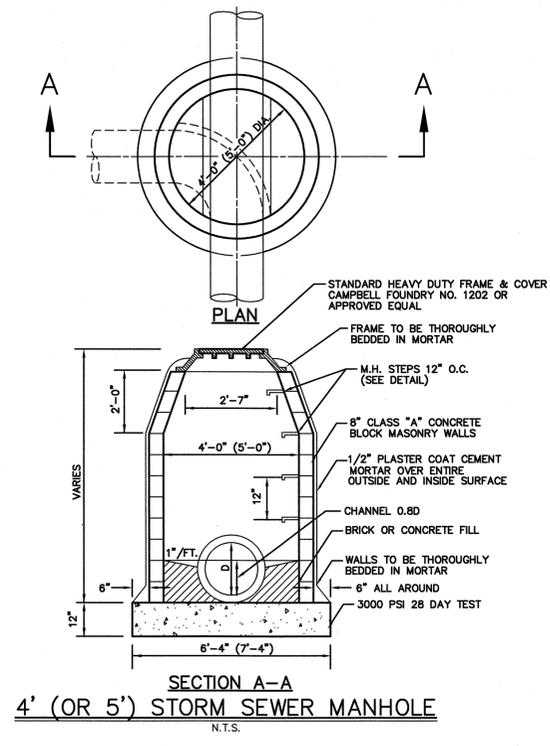
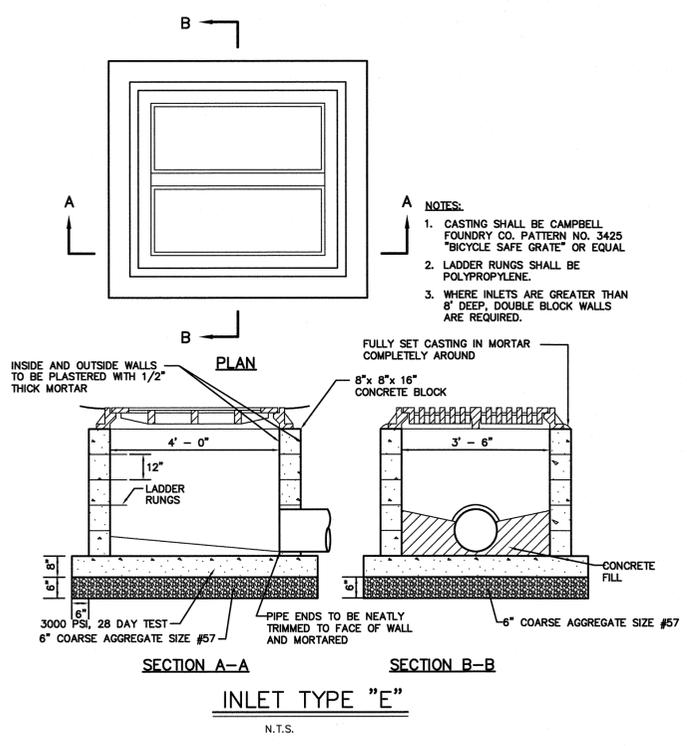
N.T.S.

- NOTES:
- CONCRETE TO TEST 4500 PSI MINIMUM ON 28 DAY TEST AIR ENTRAINMENT 4% TO 7% SLUMP TO BE 5" MAXIMUM
  - SEE DETAILS FOR HANDICAPPED RAMP

1. REVISED FOR BIDDING	05.27.17	RB	CO	
NO. DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <b>DOW AVENUE AREA ROAD AND          SEWER IMPROVEMENTS</b> CONSTRUCTION DETAILS (2 OF 5)				
(732) 727 8000 3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194 (732) 462 7400				
JOHN H. ALLGAIER P.E. & P.P. LIC. NO. 32608	DAVID J. SAMUEL P.E. & P.P. LIC. NO. 32458	JOHN J. STEFANI P.E. L.S. & P.P. LIC. NO. 32475		
JAY B. CORNELL P.E. & P.P. LIC. NO. 32926	MICHAEL J. McCLELLAND P.E. & P.P. LIC. NO. 32468	GREGORY R. VALESÌ P.E. & P.P. LIC. NO. 34458		
<b>MICHAEL J. McCLELLAND P.E.</b> NEW JERSEY PROFESSIONAL ENGINEER LIC. 32468				
SCALE: As Shown	DATE: November 2017	DESIGNED BY: G.O.		
CHECKED BY: G.O.	DATE: 11/25/17	SHEET: 15 of 28		

CD-2  
CD-5

DRAWING NO. PW800683.03



CD-3  
CD-5

1. REVISED FOR BEDDING	06.27.17	PS	60	
NO. DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED

TOWNSHIP OF WOODBRIDGE  
MIDDLESEX COUNTY, NEW JERSEY

**DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS**  
CONSTRUCTION DETAILS (3 OF 5)

**OVE**  
ASSOCIATES  
CONSULTING AND MUNICIPAL ENGINEERS

3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 3460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194

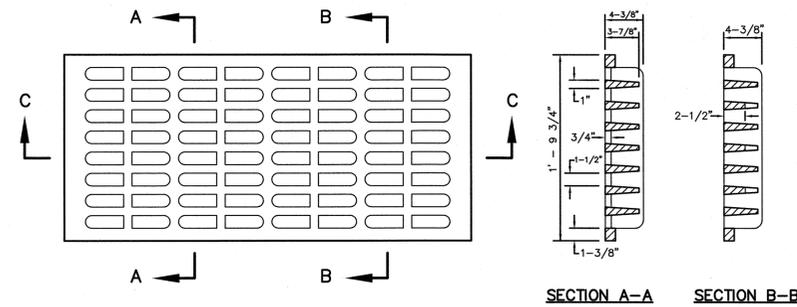
(732) 727-8000 (732) 462-7400

JOHN H. ALLGAIER P.E. & P.P. (1989 - 2001) NJ PE LIC NO. 26838	DAVID J. SAMUEL P.E. & P.P. NJ PE LIC NO. 24838	JOHN J. STEFANI P.E. L.S. & P.P. NJ PE & LS LIC NO. 24271
JAY B. CORNELL P.E. & P.P. NJ PE LIC NO. 32968	MICHAEL J. MCCLELLAND P.E. & P.P. NJ PE LIC NO. 32468	GREGORY R. VALESI P.E. & P.P. NJ PE LIC NO. 34458

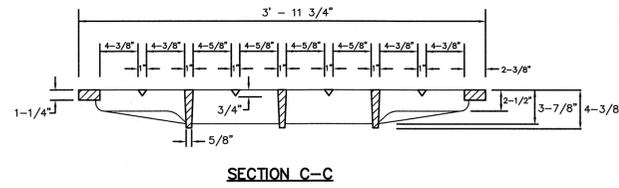
**MICHAEL J. MCCLELLAND P.E.**  
NEW JERSEY PROFESSIONAL ENGINEER  
LIC. 32468

SCALE: As Shown  
DATE: November 2017  
DRAWN BY: G.O.  
DESIGNED BY: G.O.  
CHECKED BY: G.O.  
DATE: 8/15/14  
SHEET: 16 of 28

FILE NO. PWB00683.03

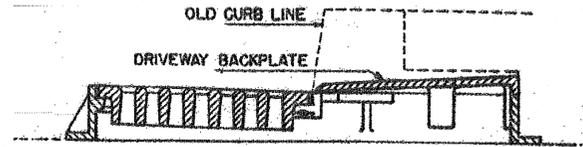


GRATE TO BE CAST IRON WITH A MIN. WEIGHT OF 325 LBS.



**BICYCLE SAFE GRATE**  
N.T.S.

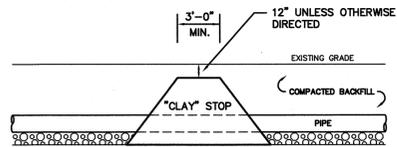
The Driveway Access Backplate is for use only where an existing Curb Type Inlet Frame and Grate must be altered to allow driveway traffic through the curb line. New installations require Inlet Castings detailed in our 3400 Series.



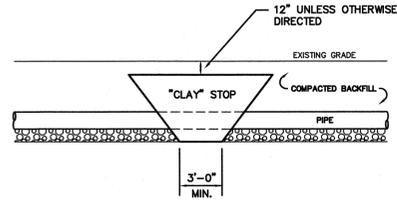
Driveway Access Backplates are available for any of the below listed pattern numbers:

2500	2510	2540	2617	2610
2501	2511	2541	2618	2616
2522	2532	2547	2632	
2523	2533	2548	2633	
		2594	2694	

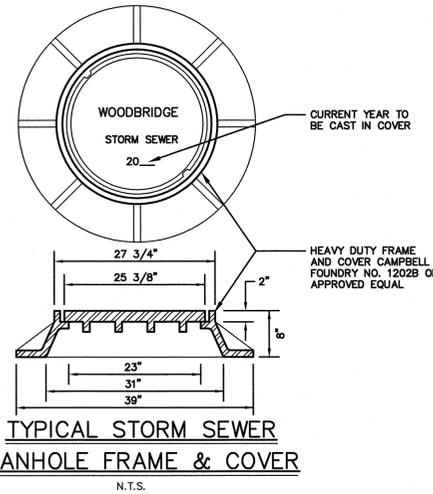
**DRIVEWAY ACCESS BACKPLATE**  
N.T.S.



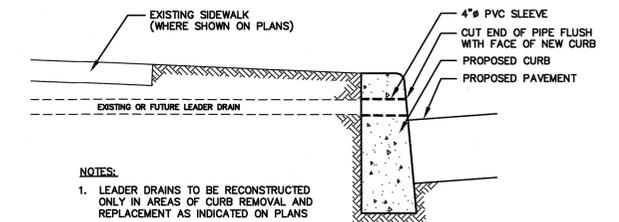
1. FURNISH & INSTALL COMPACTED CLAY MATERIAL FOR FULL WIDTH OF TRENCH AS APPROVED BY THE ENGINEER.
2. CLAY STOP SHAPE MAY BE INVERTED IF BACKFILL IS PLACED FIRST.



**"IMPERVIOUS" TRENCH STOP**  
N.T.S.



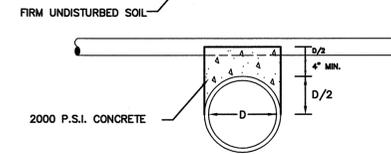
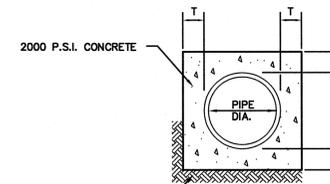
**TYPICAL STORM SEWER MANHOLE FRAME & COVER**  
N.T.S.



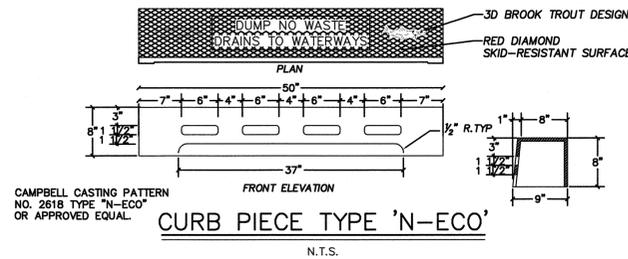
- NOTES:
1. LEADER DRAINS TO BE RECONSTRUCTED ONLY IN AREAS OF CURB REMOVAL AND REPLACEMENT AS INDICATED ON PLANS
  2. PROVIDE ADAPTER IF EXISTING DRAIN IS LESS THAN 4\"/>

**LEADER DRAIN SLEEVE DETAIL FOR AREAS WITH NO EXISTING OR PROPOSED STORM SEWER SYSTEM**  
N.T.S.

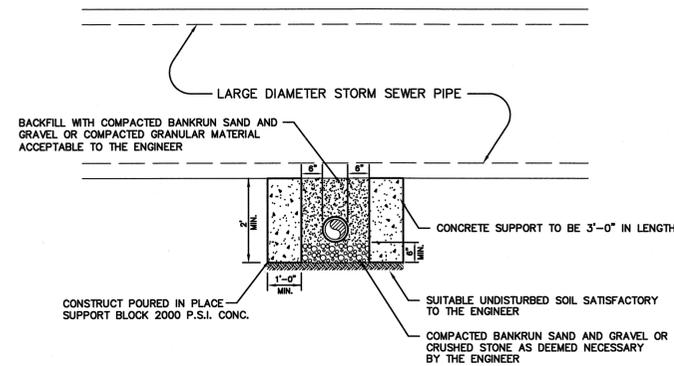
DIMENSIONS														
DIA.	6"	8"	10"	12"	15"	18"	21"	24"	27"	30"	36"	42"	42"	42"
T	5"	5.5"	5.5"	6"	6"	6"	6"	6"	7"	8"	9"	10"	10"	12"



**CONCRETE ENCASEMENT & CRADLE**  
N.T.S.



**CURB PIECE TYPE 'N-ECO'**  
N.T.S.



**CONCRETE SUPPORT BLOCK DETAIL**  
N.T.S.

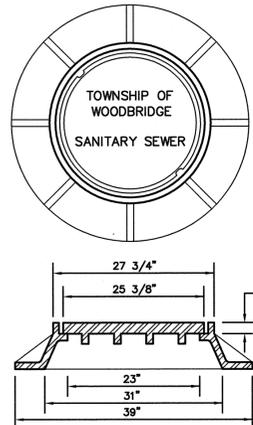
CD-4  
CD-5

1. REVISED FOR BIDDING	06.27.17	FB	60		
No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <b>DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS</b> CONSTRUCTION DETAILS (4 OF 5)					
3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1104 (732) 727-8000      (732) 462-7400					
JOHN H. ALLGAIR P.E. & P.P. LIC. 11817	DAVID J. SAMUEL P.E. & P.P. NO PE LIC. NO. 29828 NO PP LIC. NO. 24271	JOHN J. STEFANI P.E., L.S. & P.P. NO PE LIC. NO. 29828 NO PP LIC. NO. 29899			
JAY B. CORNELL P.E. & P.P. NO PE LIC. NO. 32962	MICHAEL J. McCLELLAND P.E. & P.P. NO PE LIC. NO. 32468 NO PP LIC. NO. 3874	GREGORY R. VALESÌ P.E. & P.P. NO PE LIC. NO. 34458 NO PP LIC. NO. 43611			
<b>MICHAEL J. McCLELLAND P.E.</b> NEW JERSEY PROFESSIONAL ENGINEER LIC. 32468		SCALE: As Shown DRAWN BY: G.O. CHECKED BY: G.O.	DATE: November 2017 DESIGNED BY: G.O. SHEET: 17 of 28		

*Michael J. McClelland*  
8/15/14

FILE NO. PWB00683.03

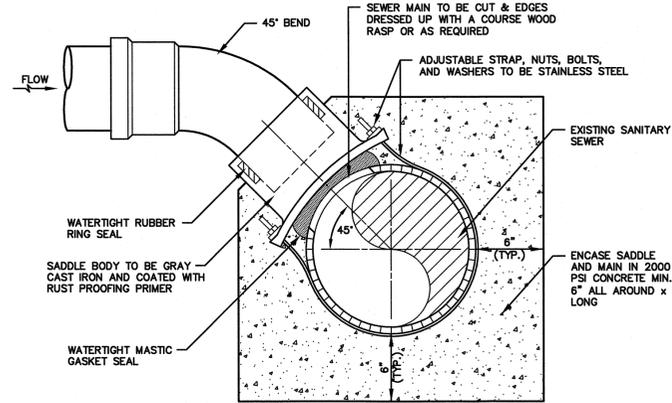
NOTE:  
THE MANHOLE COVER AND FRAME SHALL BE OF THE HEAVY HIGHWAY TYPE, WITH THE CIRCULAR FLARED TYPE FRAME AND ROUND FLANGE.  
CAMPBELL FOUNDRY CO. PATTERN NO. 1202B OR ITS EQUIVALENT.



IF WATERTIGHT MANHOLE FRAMES & COVERS ARE REQUIRED THEY SHALL BE AS MFG. BY CAMPBELL FOUNDRY CO. PATTERN NO. 1503 OR APPROVED EQUAL.

**TYPICAL SANITARY SEWER MANHOLE FRAME & COVER**

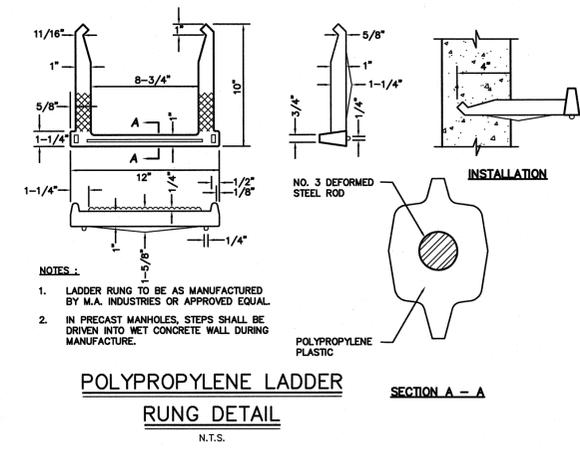
N.T.S.



NOTES:  
1. STRAP-ON SADDLE TO BE AS MANUFACTURED BY "PIONEER" OR APPROVED EQUAL.  
2. STRAP-ON SADDLE TO BE USED ON EXISTING MAINS ONLY WHERE A WYE BRANCH LATERAL CONNECTION IS NOT AVAILABLE.

**STRAP-ON SADDLE DETAIL**

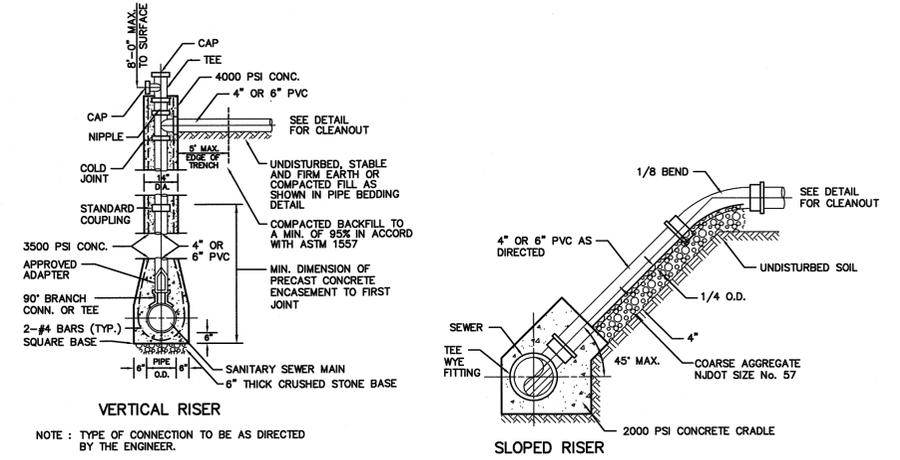
N.T.S.



NOTES:  
1. LADDER RUNG TO BE AS MANUFACTURED BY M.A. INDUSTRIES OR APPROVED EQUAL.  
2. IN PRECAST MANHOLES, STEPS SHALL BE DRIVEN INTO WET CONCRETE WALL DURING MANUFACTURE.

**POLYPROPYLENE LADDER RUNG DETAIL**

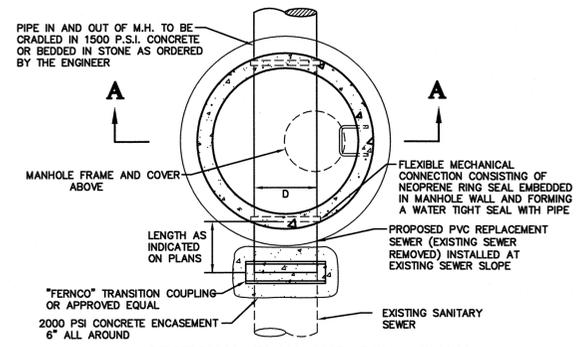
N.T.S.



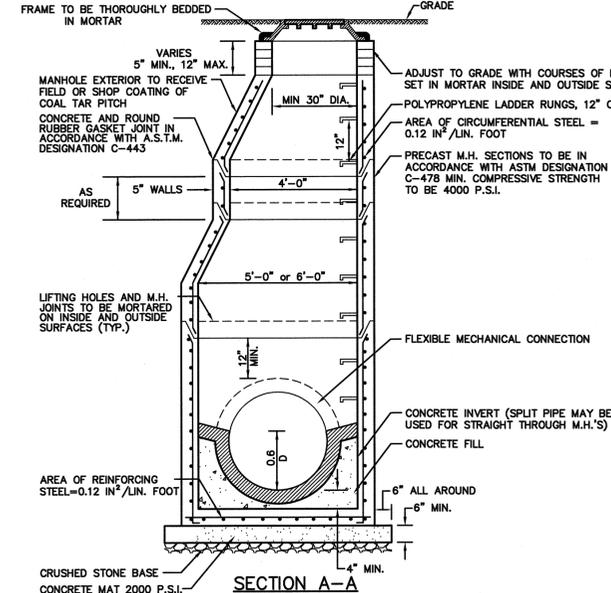
NOTE: TYPE OF CONNECTION TO BE AS DIRECTED BY THE ENGINEER.

**TYPICAL LATERAL CONNECTION WITH RISER**

N.T.S.

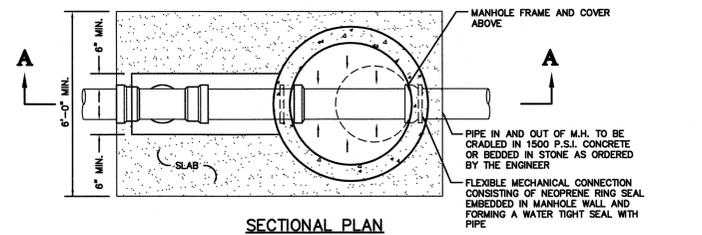


**SECTIONAL PLAN AND CONNECTION TO EXISTING SANITARY SEWER**

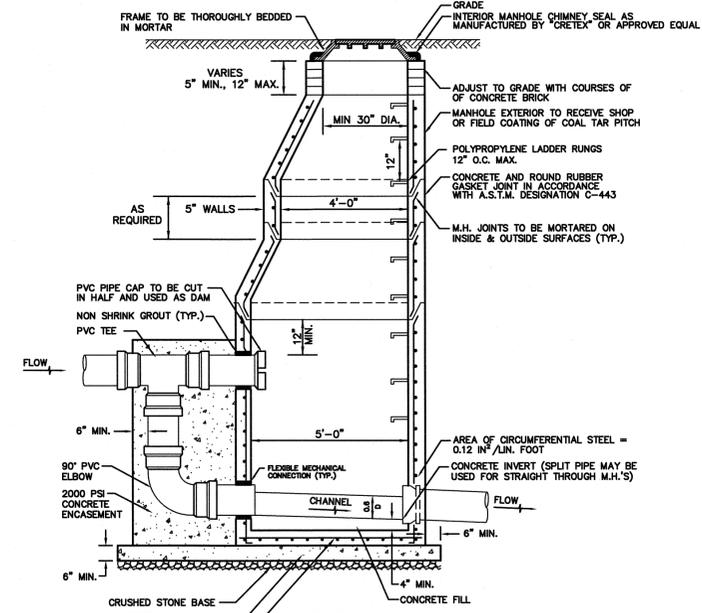


**TYPICAL PRECAST CONCRETE SANITARY SEWER MANHOLE**

N.T.S.

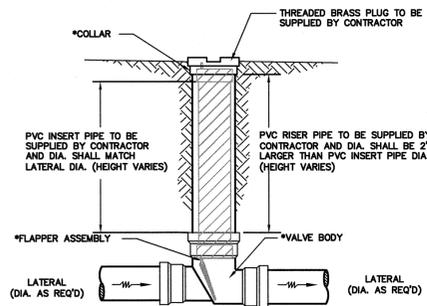


**SECTIONAL PLAN**



**TYPICAL PRECAST DROP MANHOLE**

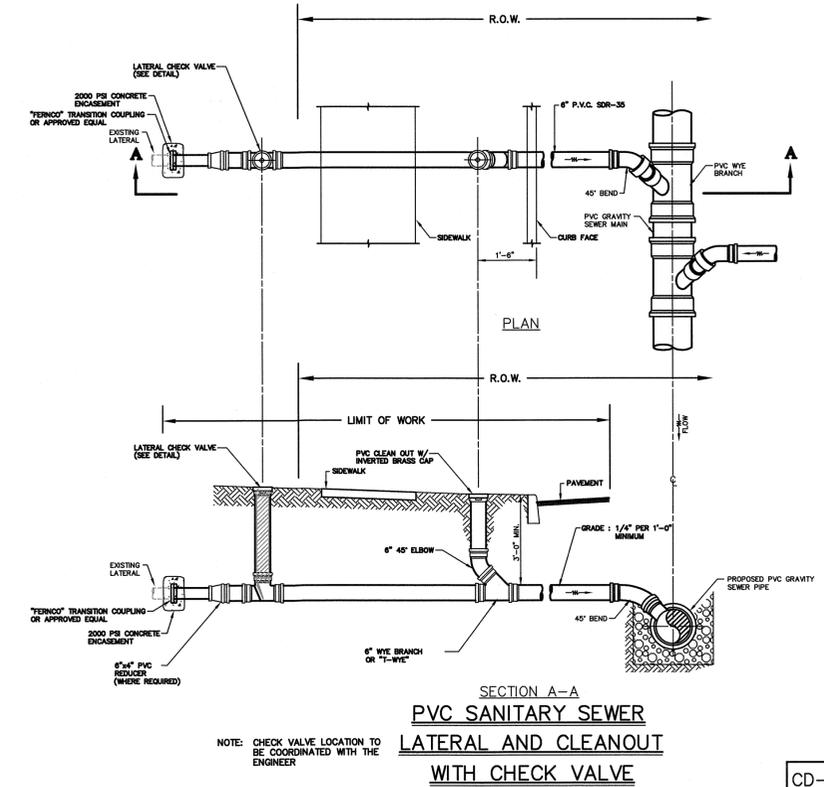
N.T.S.



CONSTRUCTION NOTES:  
1. LATERAL "INTO" AND "OUT OF" THE BACKWATER CHECK VALVE SHALL MEET ALL SPECIFICATIONS AND DIMENSIONS REQUIRED BY THE TOWNSHIP.  
3. CHECK VALVE TO BE INSTALLED AT A LOCATION UPSTREAM OF THE TOWNSHIP'S CURB CLEANOUT.

**LATERAL CHECK VALVE**

N.T.S.



NOTE: CHECK VALVE LOCATION TO BE COORDINATED WITH THE ENGINEER

**PVC SANITARY SEWER LATERAL AND CLEANOUT WITH CHECK VALVE**

CD-5  
CD-5

1. REVISED FOR BIDDING	06.27.17	FB	0	
No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED

TOWNSHIP OF WOODBRIDGE  
MIDDLESEX COUNTY, NEW JERSEY

**DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS**  
CONSTRUCTION DETAILS (5 OF 5)

**CVE**  
ASSOCIATES  
CONSULTING AND MUNICIPAL ENGINEERS

(732) 727 8000      (732) 462 7400

3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162      1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194

JOHN H. ALLGAJR P.E. & P.P.      DAVID J. SAMUEL P.E. & P.P.      JOHN J. STEFANI P.E., L.S. & P.P.  
(1993 - 2001)      (1993 - 2001)      (1993 - 2001)

JAY B. CORNELL P.E. & P.P.      MICHAEL J. MCLELLAND P.E. & P.P.      GREGORY R. VALESI P.E. & P.P.  
(1993 - 2001)      (1993 - 2001)      (1993 - 2001)

**MICHAEL J. MCLELLAND P.E.**  
NEW JERSEY PROFESSIONAL ENGINEER

SCALE: As Shown      DATE: November 2017

DRAWN BY: G.O.      DESIGNED BY: G.O.

CHECKED BY: G.O.      SHEET: 18 OF 28

DATE: 8/25/14

FILE NO. PWB00683.03

**GENERAL CONSTRUCTION NOTES:**

- THE VARIOUS NOTES CONTAINED ON THESE DRAWINGS ARE APPLICABLE TO THE STRUCTURAL DRAWINGS. WHERE THERE IS A CONFLICT BETWEEN THESE NOTES AND THE STRUCTURAL DRAWINGS, THESE NOTES SHALL GOVERN.
- THE STRUCTURAL DESIGN OF THIS PROJECT IS IN ACCORDANCE WITH THE STATE OF NEW JERSEY UNIFORM CONSTRUCTION CODE CHAPTER 23, TITLE 5, AND IS BASED UPON APPROPRIATE PORTIONS OF THE FOLLOWING, AS REQUIRED:
  - THE INTERNATIONAL BUILDING CODE/2015- NEW JERSEY EDITION.
  - ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-CURRENT EDITION).
  - ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ENVIRONMENTAL STRUCTURES" (ACI 350-CURRENT EDITION).
  - "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES AND SPECIFICATIONS FOR MASONRY STRUCTURES" ACI-ASCE 530 - CURRENT EDITION.
  - "NATIONAL DESIGN SPECIFICATION FOR STRESS-GRADE LUMBER AND ITS FASTENINGS" BY THE NATIONAL FOREST PRODUCTS ASSOCIATION.
  - SPECIFICATIONS FOR ALUMINUM STRUCTURES.
  - AMERICAN INSTITUTE OF STEEL CONSTRUCTION, STEEL CONSTRUCTION MANUAL AISC, 14th EDITION.
- THE CONTRACTOR IS RESPONSIBLE FOR CONFORMING TO ALL APPLICABLE SAFETY CODES AND REGULATIONS, CURRENTLY IN FORCE, DURING THE ENTIRE CONSTRUCTION PHASE.
- THE STRUCTURE, AS SHOWN ON THE CONTRACT DRAWINGS, IS STRUCTURALLY STABLE ONLY AFTER ITS COMPLETION. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TEMPORARY BRACING AND SHORING REQUIRED TO MAINTAIN AND PROTECT ALL FOUNDATION EXCAVATIONS, FORMS, WALLS AND THE STRUCTURE'S MATERIALS DURING THE CONSTRUCTION PHASE OF THE PROJECT FROM THE EFFECTS OF GRAVITY, WIND, SEISMIC, SOIL, TEMPERATURE, CONSTRUCTION AND OTHER MISCELLANEOUS FORCES AND LOADINGS THAT MAY BE IMPOSED.
- WHERE SUCH TEMPORARY SHORING AND/OR BRACING IS DEEMED TO BE NECESSARY BY THE CONTRACTOR, OR INDICATED ON THE DRAWINGS, OR DIRECTED BY THE ENGINEER, IT SHALL BE DESIGNED AND INSPECTED BY A LICENSED PROFESSIONAL ENGINEER, CURRENTLY REGISTERED IN THE STATE OF NEW JERSEY, EMPLOYED BY THE CONTRACTOR.
- EACH CONTRACTOR IS RESPONSIBLE FOR, AND SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, CLEARANCES, LOCATION OF EXISTING UTILITIES, AND OTHER DETAILS CONCERNING HIS WORK BEFORE PROCEEDING WITH SAID WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
- THE GENERAL CONSTRUCTION CONTRACTOR SHALL VERIFY THE ELEVATIONS OF ANY EXISTING STRUCTURES, CLEARANCES TO NEW CONSTRUCTION, AND THE LOCATION OF ANY EXISTING UTILITIES, AND SHALL REPORT HIS FINDINGS, IN WRITING, TO THE ENGINEER.
- THE CONTRACTOR SHALL NOT COMMENCE ANY WORK UNTIL HE OBTAINS, AT HIS OWN EXPENSE, ALL REQUIRED INSURANCE COVERAGE AND SUBMITS COPIES OF SAME TO THE ENGINEER FOR REVIEW AND APPROVAL.
- THE CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL PERMITS FROM: FEDERAL, STATE, COUNTY, MUNICIPAL, OR OTHER REGULATORY AGENCY, WHICH MAY BE REQUIRED FOR CONSTRUCTION OF THIS PROJECT.
- THE CONTRACTOR SHALL DO EVERYTHING NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE TERMS OF HIS CONTRACT, INCLUDING ALL GENERAL AND DETAILED ITEMS. THE WORK TO BE COMPLETED UNDER ANY ITEM SHALL NOT BE LIMITED TO EXACT EXTENT MENTIONED OR DESCRIBED, BUT SHALL INCLUDE ALL INCIDENTAL WORK NECESSARY OR CUSTOMARILY DONE IN THE COMPLETION OF ANY PARTICULAR ITEM.
- THE CONTRACTOR SHALL SUPPLY AND INSTALL ONLY SUCH MATERIALS AS SPECIFIED IN THE PROJECT SPECIFICATIONS AND/OR NOTED ON THE CONTRACT DRAWINGS. WHERE ANY CONFLICT MAY OCCUR REGARDING MATERIAL AND/OR METHODS OF INSTALLATIONS THE MORE STRINGENT REQUIREMENTS SHALL GOVERN. THE ENGINEER'S DECISION SHALL GOVERN. REVIEW AND ACCEPTANCE OF ANY SHOP DRAWING, PRODUCT DATA SHEET, CERTIFICATIONS, ETC., BY THE ENGINEER, DOES NOT EXCLUDE THE CONTRACTOR FROM CONFORMING WITH ALL REQUIREMENTS OF THE SPECIFICATIONS AND CONTRACT DOCUMENTS. THE ENGINEER SHALL BE INFORMED, BY THE CONTRACTOR IN WRITING, OF ANY NONCONFORMANCE AND OBTAIN WRITTEN CONCURRENCE OF SAME, BEFORE PROCEEDING WITH CONSTRUCTION.
- DETAILS SHOWN IN ANY SECTION APPLY TO ALL SIMILAR SECTIONS UNLESS OTHERWISE NOTED.
- EACH CONTRACTOR SHALL FULLY BRACE AND OTHERWISE PROTECT HIS WORK IN PROGRESS UNTIL THE STRUCTURE(S) AND/OR STRUCTURAL ELEMENT(S) ARE COMPLETED.
- THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN SAFE AND ADEQUATE TEMPORARY RELIEF AGAINST HYDROSTATIC UPLIFT DUE TO A HIGH GROUNDWATER LEVEL FOR THE DURATION OF THE PROJECT UNTIL THE NECESSARY CONSTRUCTION IS COMPLETED.
- THE CONTRACTOR SHALL REVIEW THE CONTRACT DRAWINGS OF ALL OTHER TRADES; OBTAIN THE LOCATION AND SIZE OF ALL OPENINGS IN WALLS, FLOORS, ROOFS, ETC., THAT ARE REQUIRED BY OTHER TRADES, AND SHALL INCLUDE IN HIS BID THE COST OF FRAMING AROUND THESE OPENINGS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW OF SUCH DETAILS OF OPENING SIZES AND REINFORCEMENT, AS REQUIRED TO FRAME THE OPENINGS.
- THE CONTRACTOR SHALL SUBMIT TO ALL OTHER TRADES FOR THEIR REVIEW AND APPROVAL, COPIES OF THE VARIOUS SHOP DRAWINGS SHOWING THE LOCATION AND SIZE OF ALL OPENINGS EACH TRADE REQUIRES. IF THE OTHER TRADES DO NOT SUBMIT SUCH REQUIRED INFORMATION TO THE CONTRACTOR IN SUFFICIENT TIME FOR HIM TO COMPLETE HIS DETAIL DRAWINGS PRIOR TO INSTALLATION OF THE WORK, OR THE TRADES EITHER SUBMIT OR APPROVE INFORMATION AND/OR DETAILS THAT IS LATER PROVEN TO BE INCORRECT, THEN THE TRADE REQUIRING SUCH AN OPENING IN A WALL, FLOOR, ROOF, ETC. SHALL PROVIDE, REPLACE, REMOVE AND/OR ADJUST SUCH OPENINGS AT THE TRADE'S OWN EXPENSE. IF SUCH ALTERATION WORK AFFECTS THE STRUCTURAL SYSTEM THEN ALL PROPOSED REVISIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO ANY MODIFICATIONS TO THE PROJECT. ALL COSTS OF ANY REVIEW, REDESIGN, INSPECTION, CONSTRUCTION, ETC. SHALL BE PAID FOR BY THE TRADE CAUSING SUCH CHANGES.
- THE CONTRACTOR AND ALL AFFECTED TRADES SHALL REFER TO THE EQUIPMENT SCHEDULES AS SHOWN ON THE ELECTRICAL CONTRACT DRAWINGS WHERE APPLICABLE.
- FOR THE LOCATION AND DETAIL OF ALL DRAINS, SEE THE PLUMBING AND EQUIPMENT CONTRACT DRAWINGS, AS REQUIRED.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN SUFFICIENT TIME TO ALLOW FOR ANY NECESSARY INSPECTION AND/OR TESTING OF HIS WORK PRIOR TO INSTALLATION. THE CONTRACTOR SHALL SUPPLY ANY ASSISTANCE AND WORK SPACE NECESSARY TO PERFORM SUCH OPERATIONS. NO WORK REQUIRING INSPECTION AND/OR TESTING PRIOR TO INSTALLATION SHALL BE INSTALLED UNTIL THE INSPECTOR HAS COMPLETED HIS OPERATIONS AND ACCEPTED THE ITEMS BEING REVIEWED. FAILURE OF THE CONTRACTOR TO NOTIFY THE ENGINEER MAY RESULT IN INSTALLED CONSTRUCTION BEING REJECTED OR SUBJECT TO REMOVAL. ANY ADDITIONAL TESTING AND/OR INSPECTION TO CONFIRM THE ADEQUACY OF THE INSTALLED CONSTRUCTION WILL BE UNDERTAKEN AT THE CONTRACTOR'S EXPENSE.
- WHEN DISCREPANCIES, DEVIATIONS FROM THE CONTRACT DRAWINGS OR DEFICIENT MATERIAL IS DISCOVERED, THE CONTRACTOR SHALL IMMEDIATELY REPAIR AND/OR CORRECT SUCH TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL BEAR THE COST OF ALL NECESSARY REDESIGN, MATERIALS, INSPECTION, ETC. ASSOCIATED WITH THE REPAIR AND/OR CORRECTIVE MEASURES.
- UPON COMPLETION OF THE PROJECT, IF THE WORK COMPLETED IS NOT ACCEPTABLE TO THE ENGINEER, HE WILL ADVISE THE CONTRACTOR IN WRITING AS TO THE PARTICULAR DEFECTS TO BE CORRECTED BEFORE FINAL ACCEPTANCE OF THE PROJECT WILL BE MADE. THE FINAL INSPECTION WILL BE MADE UPON NOTIFICATION BY THE CONTRACTOR THAT THE PROJECT IS COMPLETED.
- THE CONTRACTOR SHALL GUARANTEE HIS WORK AND THAT OF HIS SUBCONTRACTORS, FOR A PERIOD OF ONE YEAR AFTER THE DATE OF COMPLETION OF THE PROJECT.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION TO BE USED AND FOR THE SEQUENCES AND PROCEDURES TO BE USED BY HIM.
- SHOP DRAWINGS
  - IF NO CHANGES OR DEVIATIONS FROM THE CONTRACT DRAWINGS ARE PROPOSED, THEN THE CONTRACTOR IS REQUIRED TO SUBMIT FOR THE ENGINEER'S REVIEW AND APPROVAL CERTIFIED SHOP DRAWINGS FOR ALL CONCRETE REINFORCING STEEL PLACEMENT, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING: FLOOR SLABS, WALLS, FOOTINGS, ABUTMENTS, WINGWALLS, RETAINING WALLS, PARAPETS, BARRIERS, DECKS, APPROACH SLABS, SIDEWALKS, PRESTRESSED CONCRETE BOX BEAMS AND SIPHONAGES. THE CONTRACT DRAWINGS WILL NOT BE PERMITTED AS A SUBSTITUTE FOR THESE REQUIRED SHOP DRAWINGS UNDER ANY CIRCUMSTANCE. IF THE CONTRACTOR PROPOSES ANY CHANGE OR DEVIATION FROM THE CONTRACT DRAWINGS, THEN THESE SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW JERSEY RETAINED BY THE CONTRACTOR. CONSTRUCTION WILL NOT BE ALLOWED TO PROCEED WITHOUT APPROVED SHOP DRAWINGS.
- UTILITIES:
  - UTILITY LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE FROM ABOVE GROUND OBSERVATIONS AND/OR RECORD INFORMATION PROVIDED BY THE VARIOUS UTILITY COMPANIES.
  - THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES IS BASED ON INFORMATION AVAILABLE AT THE TIME OF THE DESIGN AND IS NOT GUARANTEED TO BE ACCURATE NOR ALL INFORMATION RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE POTENTIAL FOR CONFLICTS IN ORDER TO AVOID DISRUPTION OF SERVICE.
  - NEW JERSEY ONE-CALL MUST BE CONTACTED AT 1-800-272-1000 AT LEAST THREE (3) FULL WORKING DAYS, BUT NOT MORE THAN TEN (10) DAYS, PRIOR TO THE PLANNED START DATE OF THE DIGGING OPERATIONS.

- 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 ON BY THE PUBLIC UTILITIES WITH HIS OWN WORK. THE CONTRACTOR SHALL COOPERATE WITH UTILITY COMPANIES IN THE REMOVAL, RELOCATIONS AND REPLACEMENT OF UTILITIES. LOCATION OF RELOCATED UTILITIES SHALL BE VERIFIED WITH RESPECTIVE UTILITY COMPANIES. WHENEVER UNDERGROUND UTILITIES ARE ENCOUNTERED, THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS TO PREVENT BREAKAGE AND INTERRUPTION OF SERVICE.
- THERE MAY BE VARIOUS OVERHEAD FACILITIES WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL COORDINATE THE TEMPORARY AND PERMANENT RELOCATIONS OF THESE FACILITIES, AS REQUIRED, BY THE UTILITY COMPANIES. AS NECESSARY, THE CONTRACTOR SHALL STAGE HIS WORK TO ALLOW THE REMOVAL OF OVERHEAD FACILITIES PRIOR TO THE START OF ANY WORK REQUIRING THE USE OF CRANES AND SHALL MEET ALL OSHA STANDARDS.
- THERE MAY BE VARIOUS UNDERGROUND SEWER, GAS AND OTHER LINES WITHIN THE PROJECT LIMITS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL UTILITY SERVICE FLOWS AND PRESSURES FOR THESE LINES UNLESS WRITTEN APPROVAL BY THE RESPONSIBLE UTILITY PERMITS HIM TO DO OTHERWISE. NO SEPARATE PAYMENT WILL BE MADE FOR COORDINATION WITH THE UTILITY OR FOR THE TEMPORARY SUPPORT OF EXISTING FACILITIES. ALL COSTS SHALL BE INCLUDED IN THE LUMP SUM BID FOR THE ITEM "CLEARING SITE."
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO ADEQUATELY PROTECT THE EXISTING STRUCTURES, FACILITIES, UTILITIES AND/OR EQUIPMENT THAT ARE TO REMAIN. ANY DAMAGE WHATSOEVER TO THE EXISTING STRUCTURES, FACILITIES, UTILITIES AND/OR EQUIPMENT THAT ARE TO REMAIN RESULTING FROM THE CONTRACTOR'S WORK SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE ENGINEER.

**PROJECT STRUCTURAL NOTES**

- THESE DRAWINGS PRESENT STRUCTURAL CONSTRUCTION PLANS AND DETAILS FOR THE TOWNSHIP OF WOODBRIDGE, DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS LOCATED IN MIDDLESEX COUNTY.
- THE GENERAL LAYOUT OF THE SITE IS INDICATED ON THE SITE PLAN DRAWING. THE STRUCTURAL WORK INCLUDES BUT IS NOT LIMITED TO THE STRUCTURAL DETAILING FOR THE INLET REINFORCEMENT.

**SHOP DRAWINGS AND SUBMITTALS:**

- REPRODUCTION OF THE CONTRACT DRAWINGS FOR USE AS A SHOP DRAWING WILL NOT BE PERMITTED.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SO AS TO ALLOW SUFFICIENT TIME FOR THE ENGINEER TO REVIEW AND COMMENT (SEE THE SPECIFICATIONS FOR REQUIREMENTS).
- CONTRACTOR SHALL SUBMIT AN ELECTRONIC COPY OF EACH SHOP DRAWING AND/OR CALCULATIONS TO BE REVIEWED.
- NO SHOP DRAWING WILL BE ACCEPTED FOR REVIEW BY THE ENGINEER THAT HAS NOT BEEN CHECKED BY BOTH THE SUPPLIER OF THE MATERIAL AND THE CONTRACTOR INSTALLING SUCH MATERIAL. THE SUPPLIER'S CHECKER'S INITIALS SHALL APPEAR IN HIS TITLE BOX AND THE CONTRACTOR SHALL STAMP, DATE AND INITIAL VERIFICATION THAT HE HAS REVIEWED THE VARIOUS SHOP DRAWINGS AND FOUND THEM TO BE CORRECT IN ALL DETAIL AS TO CONFORMANCE WITH THE CONTRACT DRAWINGS.
- A 6"x6" SPACE SHALL BE LEFT BLANK ON EACH SHOP DRAWING SUBMITTED BY THE VARIOUS MATERIAL SUPPLIERS FOR THE ENGINEER'S REVIEW STAMP AND COMMENTS.
- ALL NECESSARY DIMENSIONAL COORDINATION SHALL BE DONE BY THE CONTRACTOR AND HIS MATERIAL SUPPLIER'S DETAILER.
- IF AND WHERE REQUIRED, THE CONTRACTOR AND HIS MATERIAL SUPPLIER'S DETAILER SHALL DO ALL NECESSARY COORDINATION WITH THE VARIOUS CONTRACT DRAWINGS (ELECTRICAL, PLUMBING, ARCHITECTURAL, HVAC, ETC.) AND THE VARIOUS OTHER TRADES, AS REQUIRED, FOR ATTACHMENTS, OPENINGS, FRAMES, PLATFORMS, CLIPS, CURBS, EMBEDDED ITEMS, CONNECTIONS, HUNG EQUIPMENT AND DUCTWORK OR PIPING THAT AFFECT OR ARE ATTACHED TO EACH STRUCTURAL FRAMING. ALL SUCH ITEMS SHALL BE SHOWN AND LOCATED ON THE VARIOUS SHOP DRAWINGS.
- IF AND WHERE REQUIRED, THE CONTRACTOR SHALL SEND TO THE VARIOUS OTHER TRADES ONE COPY OF EACH MATERIAL SUPPLIER'S ERECTION DRAWINGS SO THAT THEY MAY TRANSMIT INFORMATION, AS DEFINED IN NOTE #7, FOR USE IN PREPARING THE VARIOUS SHOP DRAWINGS. THE CONTRACTOR SHALL SEND A COPY OF THE LETTERS OF TRANSMITTAL OF THE COPY TO THE ENGINEER.
- ANY SHOP DRAWING SUBMISSION THAT IS NOT IN CONFORMANCE WITH THE ABOVE NOTES AND THE SPECIFICATIONS WILL BE REJECTED.
- THE CONTRACTOR SHALL HAVE ON THE SITE SHOP DRAWINGS THAT HAVE BEEN SATISFACTORILY REVIEWED BY THE ENGINEER AND THAT HE HAS CONFIRMED, BEFORE BEGINNING ANY INSTALLATION OF THE VARIOUS ITEMS DETAILED ON THE SHOP DRAWINGS. A CLEAN SET OF ERECTION AND DETAIL DRAWINGS, WITH NO MARKINGS, SHALL BE AVAILABLE ON THE SITE FOR USE AS NEEDED.
- PRINCIPAL STRUCTURAL SUBMITTALS SHALL INCLUDE, BUT ARE NOT LIMITED TO, THE SUBMITTALS INCLUDED ON THE PARTIAL LIST OF TECHNICAL SUBMITTALS:

PARTIAL STRUCTURAL SUBMITTALS LIST	SPECIFICATION REF.
CONTRACTOR'S QUALIFICATIONS AND CONTRACTOR'S ENGINEER'S SUBMITTALS	02100
TESTING LABORATORY QUALIFICATIONS	02100
TEST PIT LOGS	02100
STEEL SHEETING SUPPORT PLANS & CALCULATIONS	02100
SOIL AGGREGATE AND SITE SUBGRADE MATERIAL COMPACTION TEST RESULTS (ASTM D1557)	02100
SOIL AGGREGATE GRAIN SIZE ANALYSES (ASTM D422)	02100
MATERIAL SUPPLIER CERTIFICATES INDICATING MATERIALS ARE UNCONTAMINATED	02100
SOIL AGGREGATE AND SITE SUBGRADE COMPACTION TEST RESULTS (ASTM D1557)	02100
SOIL AGGREGATE GRAIN SIZE ANALYSES (ASTM D422)	02100
FIELD DENSITY TEST RESULTS	02100
PRODUCT DATA AND MATERIAL TEST REPORTS FOR CONCRETE WORK	03050
REINFORCING STEEL SHOP DRAWING FOR REINFORCED CONCRETE & MASONRY	03050
QUALIFICATIONS DATA FOR CONCRETE CONTRACTOR AND READY MIX SUPPLIER	03050
QUALIFICATIONS DATA FOR CONCRETE TESTING LABORATORY	03050
CONCRETE MIX DESIGN AND TEST REPORTS	03050
MATERIAL CERTIFICATES FOR CEMENT, ADMIXTURES, GROUTS, CURING COMPOUNDS, ETC.	03050
MATERIAL CERTIFICATES FOR REINFORCING, WELDED WIRE FABRICS, ETC.	03050
MANUFACTURER'S PRODUCT DATA AND MATERIAL TEST REPORTS FOR LATEX MOD. REPAIR MORTAR	03050
FIELD TESTING LABORATORY FIELD TEST RESULTS AND CYLINDER BREAK TEST REPORTS	03050

**GENERAL NOTES:**

- DESIGN SPECIFICATIONS:**
  - 2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, AS MODIFIED BY SECTION 3 OF THE 2016 NJDOT DESIGN MANUAL FOR BRIDGES AND STRUCTURES, 6TH EDITION.
- CONSTRUCTION SPECIFICATIONS:**
  - 2007 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AS MODIFIED BY THE SPECIAL PROVISIONS AND THE TOWNSHIP SUPPLEMENTARY SPECIFICATIONS.
- LIVE LOAD:**
  - HS-25 VEHICULAR LIVE LOAD.
- CONCRETE DESIGN STRESSES:**
  - IN ACCORDANCE WITH SECTION 27.1 OF THE NJDOT DESIGN MANUAL FOR BRIDGES AND STRUCTURES, 6TH EDITION, THE FOLLOWING ARE THE RECOMMENDED MINIMUM DESIGN COMPRESSIVE STRENGTHS REQUIRED FOR CAST-IN-PLACE (CIP) AND PRECAST CONCRETE (f'c), UNLESS OTHERWISE NOTED ON THE DRAWINGS:
 

(1) CLASS A (CIP APPROACH SLABS) .....	4,000 PSI
(2) CLASS B (CIP ABUTMENTS, WINGWALLS, FOOTINGS) .....	3,000 PSI
(3) CLASS HPC-1 (CIP DECKS, SIDEWALKS, CONCRETE PATCH, PARAPETS, CURBS AND PYLONS) .....	4,000 PSI
(4) CLASS P (PRECAST BEAMS AND CULVERTS) .....	5,000 PSI
  - IN ACCORDANCE WITH TABLES 903.03.06-3, 903.05.02-1 AND 903.05.04-1 OF THE 2007 NJDOT STANDARD SPECIFICATIONS, THE FOLLOWING ARE THE RECOMMENDED MINIMUM DESIGN COMPRESSIVE STRENGTHS REQUIRED FOR CAST-IN-PLACE (CIP) AND PRECAST CONCRETE (f'c), UNLESS OTHERWISE NOTED ON THE DRAWINGS:
 

(1) CLASS DESIGN STRENGTHS:	
CLASS A .....	4,600 PSI
CLASS B .....	3,700 PSI
CLASS HPC-1 .....	5,400 PSI
CLASS P .....	5,500 PSI
(2) VERIFICATION STRENGTHS:	
CLASS A .....	5,400 PSI
CLASS B .....	4,500 PSI
CLASS HPC-1 .....	5,400 PSI
CLASS P .....	6,000 PSI
(3) ALLOWABLE STRESS, EXTREME FIBER IN COMPRESSION (fc):	
CLASS A .....	1,600 PSI
CLASS B .....	1,200 PSI
CLASS HPC-1 .....	1,800 PSI
CLASS P .....	2,000 PSI
- REINFORCEMENT STEEL:**
  - ASTM A615 (GRADE 60), fy = 60,000 PSI, fs = 24,000 PSI

**EARTHWORK AND FOUNDATION PREPARATION**

- EARTHWORK SHALL CONFORM TO THE PROJECT SPECIFICATIONS. WHERE A DIFFERENCE OCCURS BETWEEN THE DRAWINGS, THE DRAWING NOTES AND SPECIFICATIONS, THE MORE STRINGENT PROVISION OF THE DRAWINGS OR SPECIFICATIONS SHALL APPLY.
- SUBSURFACE CONDITIONS WHERE INDICATED HAVE BEEN INFERRED FROM AVAILABLE DRAWINGS, INCLUDING APPROXIMATE LAYOUTS OF BURIED UTILITIES OR STRUCTURES PRESENT AT THE SITE. NO WARRANTY IS MADE, EITHER EXPRESSED OR IMPLIED, THAT CONDITIONS ENCOUNTERED IN THE EXCAVATIONS WILL CONFORM TO THE INFERRED CONDITIONS. THE CONTRACTOR SHALL PROCEED WITH CAUTION AND REPORT ANY VARIATIONS FROM THE ANTICIPATED CONDITIONS TO THE ENGINEER FOR EVALUATION PRIOR TO PROCEEDING WITH THE CONSTRUCTION.
- EARTHWORK AND FOUNDATION CONSTRUCTION SHALL CONFORM TO ALL SAFETY REGULATIONS HAVING JURISDICTION. THE CONTRACTOR SHALL RETAIN AN EXPERIENCED LICENSED PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF NEW JERSEY, TO DESIGN ALL REQUIRED TEMPORARY EXCAVATION SUPPORT SYSTEMS. THESE SYSTEMS SHALL BE DESIGNED TO MAINTAIN THE STABILITY OF FOUNDATION EXCAVATIONS, EARTH AND ROCK SYSTEM EXCAVATIONS AND/OR SLOPE SUPPORTING SYSTEMS. ALL SUCH SIGNED AND SEALED DESIGNS MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONSTRUCTION. UNLESS OTHERWISE NOTED, THE EXCAVATION SUPPORT SYSTEMS SHALL NOT BE MEASURED. THE COST OF EXCAVATION SUPPORT SHALL BE INCLUDED IN THE PRICE BID FOR ALL ITEMS REQUIRING SAME.
- COORDINATE THE FOUNDATION CONSTRUCTION WITH THE FOLLOWING, AS REQUIRED: SITE WORK, GRADING, PILE AND SHEETING WORK, ROADWAY, DRAINAGE AND/OR UTILITY PLANS FOR THE FACILITY AT THE PROJECT SITE.
- SUBMIT QUALIFICATIONS OF TESTING LABORATORY FOR SOIL MECHANICS LABORATORY AND FIELD TESTING OF SOILS AND COARSE AGGREGATES, IF AND WHEN REQUIRED.
- IF AND WHERE REQUIRED, PERFORM TEST PITS ADJACENT TO EXISTING STRUCTURAL FOUNDATION(S) TO THE DEPTH OF BOTTOM(S) OF EXISTING FOOTING(S) IN ORDER TO DETERMINE THE BASE ELEVATION(S) AND CONDITION OF THE FOOTING(S) ADJACENT TO THE NEW STRUCTURE OR TO THE ELEVATION OF THE NEW FOUNDATION, WHICHEVER IS HIGHER. TEST PITS SHALL BE OBSERVED BY THE ENGINEER. FINAL REQUIREMENTS FOR UNDERPINNING, IF AND WHERE REQUIRED, AND/OR CONSTRUCTION ARE DEPENDENT ON ELEVATION AND CONDITION OF BELOW GRADE STRUCTURES AND SHALL BE ESTABLISHED BASED ON FINAL REVIEW OF CONDITIONS ENCOUNTERED.
- EXCAVATE TO LINE AND GRADE REQUIRED FOR CONSTRUCTION OF FOUNDATIONS AND SLABS ON GRADE.
- IF AND WHERE INDICATED, PROOF ROLLING AND COMPACTION OF EXPOSED SUBGRADES SHALL BE OBSERVED AND EVALUATED BY THE ENGINEER AND TESTED BY THE CONTRACTOR'S APPROVED TESTING AGENCY. MOISTURE CONDITION AND COMPACT EXPOSED SUBGRADES FOR SLABS AND FOUNDATIONS AND/OR EMBANKMENT FILLS, AS REQUIRED, TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY THE ASTM D1557 TEST PROCEDURE AND/OR ASTM D698 TEST PROCEDURE, AS REQUIRED. REMOVE SOILS THAT ARE OBSERVED TO YIELD OR UNCOMPACTIBLE SOILS TO THE DEPTH ESTABLISHED BY THE ENGINEER. EXCAVATIONS BELOW THE LINE AND GRADE FOR THE FOUNDATIONS SHALL BE BACKFILLED WITH CONTROLLED COMPACTED FILL OR COARSE AGGREGATE BASED ON THE EVALUATION OF THE ENGINEER.
- EARTHWORK MATERIALS
  - SOIL AGGREGATES AND COARSE AGGREGATES FOR PROJECT EARTHWORK SHALL CONFORM TO THE GRADATIONS AND MATERIAL REQUIREMENTS GIVEN IN SECTION 901 OF THE NJDOT 2007 STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION UNLESS NOTED OTHERWISE HEREIN OR IN THE SPECIFICATIONS.
  - THE CONTRACTOR IS ADVISED THAT ALL SOIL AND STONE MATERIALS MUST BE CERTIFIED CLEAN BY THE SUBMISSION OF ACCEPTABLE TEST RESULTS AND APPROVED BY THE ENGINEER PRIOR TO DELIVERY OF THE MATERIALS TO THE SITE.
  - ALL SOIL MATERIALS SHALL BE MOISTURE CONDITIONED AS REQUIRED TO ACHIEVE THE SPECIFIED DEGREE OF COMPACTION.
  - EXCAVATED SITE SOILS CONFORMING TO THE GRADATION FOR STANDARD SOIL AGGREGATE 1-14 MODIFIED TO PERMIT A MAXIMUM OF 20 PERCENT OF FINES OF LOW PLASTICITY SHALL BE MOISTURE CONDITIONED AND USED IN THE BACKFILLS.
  - IMPORTED STRUCTURAL FILLS, IF REQUIRED, SHALL CONFORM TO NJDOT STANDARD SIZE 1-13.
  - DENSE GRADED AGGREGATES SHALL BE QUARRY PROCESSED BROKEN STONE MATERIALS CONFORMING TO THE NJDOT SPECIFICATIONS.
  - COARSE SPECIFICATION BASE MATERIALS FOR CONCRETE STRUCTURAL FOUNDATIONS, SLABS, WORKING MATS, DRAINAGE FILLS AND/OR APRONS SHALL BE BROKEN STONE CONFORM TO THE STANDARD SIZE COARSE AGGREGATE NO. 57 (1" TO NO. 4).
  - CONTROLLED LOW STRENGTH MATERIALS CONFORMING TO THE NJDOT STANDARD SPECIFICATION SHALL BE USED ONLY, IF AND WHERE INDICATED. IN ADDITION, THE MATERIAL SHALL BE USED IF AND WHERE DIRECTED OR REQUIRED DUE TO OVER EXCAVATION AND WHERE INDICATED FOR AREAS THAT ARE DIFFICULT TO ACCESS FOR COMPACTION.
- PROTECT SUBGRADES FROM SOFTENING DUE TO SURFACE WATER INFILTRATION, GROUNDWATER OR FROST. NO FILL OR CONCRETE SHALL BE PLACED ON SATURATED OR FROZEN GROUND. RECOMPACT MATERIALS THAT HAVE BEEN DISTURBED BY THE CONSTRUCTION OR DETERIORATED DUE TO EXPOSURE TO FROST OR SATURATION.
- COMPACT STRUCTURAL SOIL AGGREGATE FILLS, BACKFILLS AND/OR EMBANKMENT SOIL AGGREGATE FILLS, AS REQUIRED, IN MAXIMUM 9 INCH THICK LOOSE LIFTS AND COMPACT EACH LIFT TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH THE ASTM D1557 TEST PROCEDURE OR THE ASTM D698 TEST PROCEDURE, AS APPLICABLE.
- COMPACT COARSE AGGREGATE FILLS WITH A MINIMUM OF FOUR (4) PASSES OF A VIBRATORY PLATE COMPACTOR OR ROLLER WITH MINIMUM STATIC WEIGHT OF 500 POUNDS.
- PERFORM ALL EARTHWORK OPERATIONS IN CONFORMANCE WITH THE PERMITS AND SOIL EROSION AND SEDIMENT CONTROL MEASURES.

- SUBMIT EXCAVATION SCHEDULE TO ENGINEER FOR REVIEW. SCHEDULE SHALL BE PLANNED TO MAINTAIN ACCESS TO ROADWAY AND MAINTAIN EXISTING FACILITY IN OPERATION TO THE FULLEST EXTENT POSSIBLE. COORDINATE EXCAVATION SCHEDULES WITH SUBMITTALS FOR PRE-ENGINEERED STRUCTURES, WHERE APPLICABLE, SO THAT MODIFICATIONS TO THE FOUNDATION LAYOUT ARE FINALIZED PRIOR TO CONSTRUCTION OF FOUNDATIONS.
- STRIP EXISTING PAVEMENT, EQUIPMENT PADS, ABANDONED FOUNDATIONS AND DISPOSE OF MATERIALS, AS REQUIRED. SECURE EXISTING DRAINAGE AND UTILITY SYSTEMS.
- NO PAYMENT SHALL BE MADE FOR UNAUTHORIZED EXCAVATION BELOW THE LINES AND GRADES ESTABLISHED FOR THE CONSTRUCTION OF FOUNDATIONS AND SLABS ON GRADE AND SUB-FLOOR UTILITY SYSTEMS. AREAS OF UNAUTHORIZED EXCAVATION SHALL BE BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL, COMPACTED DENSE GRADED AGGREGATE OR LEAN CONCRETE, AS DETERMINED BY THE ENGINEER.
- SLAB SUBGRADE SHALL BE PROOFROLLED WITH A LOADED TO WHEEL TRUCK OR CONCRETE TRUCK PRIOR TO PLACEMENT OF FORMS AND REINFORCING. AREAS NOTED TO RUT OR YIELD SHALL BE EXCAVATED AND RECOMPACTED.
- PLACE GRAVEL AND/OR SEAL CONCRETE WORKING MATS, AS APPLICABLE AND AS REQUIRED BY SITE CONDITIONS.
- UNDERPINNING, ONLY IF AND WHERE DIRECTED:**
  - UNDERPINNING OF EXISTING STRUCTURE FOUNDATIONS AND/OR SLABS SHALL BE PERFORMED BY THE CONTRACTOR IF AND WHERE INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE ENGINEER.
  - THE CONTRACTOR SHALL SUBMIT LATERAL AND VERTICAL SUPPORT DETAILS FOR THE EXISTING WALLS AND/OR FOOTINGS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY, RETAINED BY THE CONTRACTOR, TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONSTRUCTION. MAXIMUM DEPTH OF UNDERCUT SHALL BE 2 FEET AND MAXIMUM LENGTH OF UNDERPINNING SHALL BE 6 FEET.
  - THE CONTRACTOR SHALL SUPPORT THE SIDES OF EXCAVATION, AS REQUIRED, TO PRECLUDE SLOUGHING OF THE SIDES. INSTALL LAGGING AS REQUIRED.
  - THE CONTRACTOR SHALL PLACE REINFORCING IN ACCORDANCE WITH THE FOUNDATION DESIGN DETAILS.
  - THE CONTRACTOR SHALL PLACE CONCRETE TO A HEIGHT OF APPROXIMATELY 2 INCHES FROM THE BASE OF THE FOUNDATION AND RESUPPORT THE EXISTING WALLS USING DRY PACK OR LATEX MODIFIED NON-SHRINK GROUT.

**SELECTIVE DEMOLITION NOTES:**

- CONFORM TO THE REQUIREMENTS OF THE PROJECT SPECIFICATION AND ALL REGULATIONS HAVING JURISDICTION.
- COORDINATE WITH THE OWNER AND ENGINEER TO PERFORM TEST CORES WHERE REQUIRED PRIOR TO SELECTIVE DEMOLITION.
- PROVIDE BARRICADES AS REQUIRED TO MAINTAIN SAFE ACCESS TO THE CONSTRUCTION SITE. SUBMIT SHOP DRAWINGS FOR PROTECTIVE STRUCTURES AND/OR BARRICADES, PROJECT SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. SUBMITTAL TO THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF HIS SOLE OBLIGATION TO MAINTAIN PROJECT SAFETY IN ACCORDANCE WITH ALL REGULATIONS HAVING JURISDICTION.
- CONTAIN STOCKPILE, AND DISPOSE OF ALL DEMOLITION DEBRIS IN ACCORDANCE WITH ALL REGULATIONS HAVING JURISDICTION.

INDEX OF DRAWINGS	
DWG. NO.	TITLE
S-1	GENERAL STRUCTURAL NOTES AND SCHEDULES (1 OF 3)
S-2	GENERAL STRUCTURAL NOTES AND SCHEDULES (2 OF 3)
S-3	GENERAL STRUCTURAL NOTES AND SCHEDULES (3 OF 3)
S-4	STORM SEWER MANHOLE WITH CONVERSION MANHOLE FRAME & COVER, PLAN, SECTIONS AND REINFORCEMENT DETAILS

No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <b>DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS</b> GENERAL STRUCTURAL NOTES AND SCHEDULES (1 OF 3)					
 (732) 727 8000 CONSULTING AND MUNICIPAL ENGINEERS (732) 462 7400 — 3141 BOKERTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194 —					
JOHN H. ALLGAIR P.E. & P.P.		DAVID J. SAMUEL P.E. & P.P.		JOHN J. STEFANI P.E., L.S., & P.P.	
1.811 - 2011		NJ PE LIC. NO. 28208		NJ PE LIC. NO. 24871	
JAY B. CORNELI P.E. & P.P.		MICHAEL J. MCLELLAND P.E. & P.P.		GREGORY R. VALESI P.E. & P.P.	
NJ PE LIC. NO. 32926		NJ PE LIC. NO. 32468		NJ PE LIC. NO. 34458	
SCALE: As Shown		DATE: November 2017		DRAWN BY: PNJR	
DESIGNED BY: PNJR		CHECKED BY: NH		SHEET: 19 OF 28	
MICHAEL J. MCLELLAND P.E. NEW JERSEY PROFESSIONAL ENGINEER L.C. 32468 DATE: 11/9/17					

DRAWING NO. S-1  
 REGISTERED  
 DRAWING NO. PWB00683.03

**STEEL NOTES**

- STEEL CONSTRUCTION SHALL CONFORM TO AISC "STEEL CONSTRUCTION MANUAL" 14TH EDITION, AND SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" AS ADOPTED JUNE 15, 2016.
- MATERIALS FOR STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:
  - COLUMNS OR GIRDERS - A 572, GRADE 50 OR A992
  - PLATES AND MISC. STEEL - A 36
  - STRUCTURAL TUBE - A 500, GRADE B
  - STRUCTURAL PIPE - A 501 OR A 53, TYPE E OR S, GRADE B
  - COLD FORMED STEEL - A 607 C1 GRADE 55
- ALL BOLTED CONNECTIONS SHALL BE MADE USING A325-SC BOLTS, 3/4" DIAMETER INSTALLED IN ACCORDANCE WITH "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" UNLESS OTHERWISE DETAILED.
- ANCHOR BOLTS SHALL BE OF A36 OR A307 STEEL.
- UNLESS NOTED OTHERWISE, ALL STEEL SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 - STANDARD SPECIFICATION FOR ZINC (HOT DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS. DAMAGED COATINGS SHALL BE REPAIRED IN ACCORDANCE WITH ASTM A780 - STANDARD PRACTICE FOR REPAIR OF DAMAGES AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS. ALL FASTENERS FOR GALVANIZED STEEL STRUCTURAL MEMBERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE. IF AND WHERE INDICATED, FASTENERS MAY BE STAINLESS STEEL IN LIEU OF GALVANIZED STEEL.
- IF AND WHERE INDICATED, STEEL SHALL BE SHOP PAINTED WITH TMEC 10-99 PRIMER OR APPROVED EQUAL 2.0 MILS IN THICKNESS, EXCEPT WHERE STEEL IS TO RECEIVE SPRAY APPLIED FIREPROOFING. ALL WELDS AND BARE SPOTS SHALL RECEIVE TOUCHUP PAINT. ALL STEEL WITH EXTERIOR EXPOSURE SHALL RECEIVE A SHOP PAINTED TMEC SERIES 66 OR 161 PRIMER AND A FIELD APPLIED FINISH COAT AFTER PRIMER TOUCH UP. FINISH COAT SHALL BE EPOXY BASED WITH THICKNESS OF 2.0 MILS.
- SHOP AND ERECTION DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. NO FABRICATION OF STEEL SHALL COMMENCE WITHOUT APPROVED SHOP DRAWINGS. SHOP DRAWINGS ARE PREPARED AND USED BY THE CONTRACTOR AS INSTRUMENTS TO SEQUENCE HIS WORK AND TO FACILITATE FABRICATION AND ERECTION. REVIEW OF SHOP DRAWINGS SHALL BE FOR GENERAL DETAIL AND ARRANGEMENT ONLY. CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR DIMENSIONS, PROPER FIT AND DETAILED DESIGN OF CONNECTIONS. THEIR APPROVAL BY THE STRUCTURAL ENGINEER IS NOT TO BE CONSTRUED AS A WAIVER OF CONSTRUCTION CONTRACT REQUIREMENTS OR RESPONSIBILITIES, UNLESS THE CONTRACTOR HAS BEEN GRANTED A DEVIATION IN WRITING.
- CONNECTIONS SHALL BE DESIGNED FOR MAXIMUM SAFE UNIFORM LOAD FOR THE SPAN OF THE MEMBER, OR FOR SHEARS SHOWN ON THE DRAWINGS x 1.10, UNLESS OTHERWISE DETAILED.
- DURING ERECTION, APPROVED TEMPORARY BRACING SHALL BE INSTALLED AS REQUIRED TO PREVENT DISTORTION OR DAMAGE TO THE FRAMEWORK DUE TO ERECTION FORCES.
- STEEL SHOP DRAWINGS SHALL BE COORDINATED WITH STAIR DETAILS. IF HANGER RODS ARE USED, PROVIDE STIFFENER PLATE 1/4" THICK MIN. ALONGSIDE HANGER LOCATION.

**STRUCTURAL WELDING NOTES (NOT INCLUDING PROCESS PIPING OR EQUIPMENT)**

- ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH STANDARDS OF THE AMERICAN WELDING SOCIETY. ELECTRODES MUST MEET E70XX SERIES REQUIREMENTS, LOW HYDROGEN, WITH MINIMUM TENSILE STRESS OF 70,000 PSI. ELECTRODES SHALL BE PRODUCED AND STORED IN ACCORDANCE WITH AWS D1.1 SECTIONS 4.5 OR 4.12.
- STEEL ERECTOR SHALL PROVIDE A FIRE WATCH DURING ALL FIELD WELDING OPERATIONS.
- ALL WELDERS ARE TO BE LICENSED AND CERTIFIED TO AWS STANDARDS OR THOSE REQUIRED BY APPLICABLE BUILDING CODE.
- ALL WELDS SHALL BE VISUALLY INSPECTED. ALL GROOVE WELDS SHALL RECEIVE RADIOGRAPHIC OR ULTRASONIC TESTING. MAGNETIC PARTICLE TEST 20% OF ALL FILLET WELDS. ALL TESTING SHALL BE PERFORMED BY A CERTIFIED TESTING LABORATORY RETAINED BY THE CONTRACTOR.
- REPORTS OF EACH TEST SHALL BE GIVEN TO THE STRUCTURAL ENGINEER. NO FAILED WELD SHALL BE PERMITTED TO REMAIN IN SERVICE. IT IS THE RESPONSIBILITY OF THE TESTING LABORATORY TO PROVIDE TIMELY NOTICE OF FAILED TESTS TO THE CONTRACTOR.
- WELDING SHALL PROGRESS IN A MANNER WHICH BALANCES THE STRESSES IN THE MEMBERS, IN ACCORDANCE WITH AWS.
- PREHEATING REQUIREMENTS FOR BASE METAL SHALL FOLLOW AWS GUIDELINES.

**ALUMINUM NOTES**

- ALL ALUMINUM ALLOY MEMBERS, FABRICATION THEREOF, AND ERECTION OF, SHALL CONFORM TO "SPECIFICATIONS FOR ALUMINUM STRUCTURES" BY THE ALUMINUM ASSOCIATION, LATEST EDITION, UNLESS NOTED OTHERWISE.
- ALUMINUM ALLOY FOR ALL ROLLED SECTIONS, PLATES AND ANGLES SHALL BE ALLOY 6061-T6 UNLESS OTHERWISE SPECIFIED.
- ALUMINUM ALLOY FOR PIPE SHALL BE ALLOY 6063-T832 UNLESS OTHERWISE SPECIFIED.
- ALUMINUM ALLOY FOR GRATING SHALL BE ALLOY 6063-T6 UNLESS OTHERWISE SPECIFIED.
- ALL FASTENINGS BETWEEN ALUMINUM MEMBERS AND DISSIMILAR METALS SHALL BE MADE WITH STAINLESS STEEL BOLTS UNLESS OTHERWISE NOTED. ALL CONTACT SURFACES OF ALL MEMBERS SHALL BE PAINTED WITH ZINC CHROMATE PRIMER.
- ALL ALUMINUM SURFACES TO BE PLACED IN CONTACT WITH WOOD, CONCRETE, OR MASONRY SHALL BE GIVEN A HEAVY COAT OF AN ALKALI RESISTANT BITUMASTIC PAINT.

**PIPING, PIPELINE APPURTENANCES, VALVES, SUPPORTS, HANGERS, STRUTS, BLOCKING AND ANCHORAGE NOTES**

- PIPING TRADE CONTRACTORS SHALL REFER TO THE APPLICABLE DIVISIONS OF THE CONTRACT SPECIFICATIONS FOR SUPPORTS, BLOCKING, ANCHORAGE AND RESTRAINING OF ALL PIPING, VALVES AND PIPING APPURTENANCES.
- PIPING TRADE CONTRACTORS SHALL REVIEW WITH THE ENGINEER AND THE CONTRACTOR ALL LOCATION AND ARRANGEMENT OF PIPING, OPENINGS, PIPE SLEEVES, AND TRENCHES AS REQUIRED TO COMPLETE HIS WORK AND SHALL NOT PROCEED WITH THE INSTALLATION OF SAME UNTIL SUCH HAS BEEN REVIEWED AND WILL NOT IMPAIR THE STRUCTURAL INTEGRITY OF THE CONCRETE MEMBERS.
- PIPING TRADE CONTRACTORS SHALL PROVIDE AND COORDINATE THE INSTALLATION OF ALL ITEMS TO BE EMBEDDED IN THE CONCRETE SYSTEM AND SHALL COOPERATE SO AS NOT TO DELAY THE CONSTRUCTION WORK. SUCH ITEMS SHALL INCLUDE ALL PIPES, SLEEVES, BOLTS, STRUTS, HANGERS AND FITTINGS, ETC., THAT ARE TO BE EMBEDDED IN THE CONCRETE SYSTEM.

**TIMBER NOTES**

- ALL TIMBER SHALL CONFORM TO THE LATEST COPY OF THE NATIONAL DESIGN SPECIFICATIONS FOR STRESS-GRADE LUMBER BY THE NATIONAL FOREST PRODUCTS ASSOCIATION, FOR MATERIAL PROPERTIES, MANUFACTURE AND ATTACHMENTS.
- ALL STRESS GRADE TIMBER USED SHALL BE DOUGLAS FIR (NO. 1) OR ACCEPTED EQUAL, WITH MINIMUM ALLOWABLE UNIT STRESSES AS GIVEN HEREIN:
 

STRESS IN EXTREME FIBER IN BENDING	HORIZONTAL SHEAR
"F" - 1500 PSI	"H" - 95 PSI
COMPRESSION PERPENDICULAR TO GRAIN	COMPRESSION PARALLEL TO GRAIN
"C" - 335 PSI	"C1" - 1250 PSI
MODULUS OF ELASTICITY	
"E" - 1,800,000 PSI	
- MANUFACTURER SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW. SUCH SHOP DRAWINGS SHALL SHOW FULL DIMENSIONS OF EACH MEMBER, SPECIES OF WOOD USED, STRESS GRADE OF LUMBER, TYPE OF GLUE USED AND OTHER VARIABLES.
- ALL MEMBERS MUST BE ADEQUATELY BRACED DURING INSTALLATION, UNTIL COMPLETE STRUCTURAL SYSTEM HAS BEEN INSTALLED.
- ALL METAL CONNECTORS, HANGERS, TIES, HOLDDOWNS, ANCHORS, PLATES, SEISMIC CONNECTORS, ETC., SHALL BE MADE WITH GALVANIZED STEEL CONNECTIONS, BY SIMPSON STRONG-TIE CO., OR ACCEPTABLE EQUAL. SHOP DRAWINGS OR CATALOGUE CUTS SHOWING THE CAPACITY OF EACH UNIT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- ALL NAILS USED SHALL BE GALVANIZED COMMON WIRE NAILS OF THE SIZES SHOWN ON THE CONTRACT DRAWINGS OR REQUIRED BY THE CONNECTORS.
- "X" BRIDGING SHALL BE AS SPACED ON THE CONTRACT DRAWINGS AND MAY BE EITHER WOOD OR METAL.
- PLYWOOD FOR EXTERIOR MEZZANINE DECKING SHALL BE MINIMUM 3/4" C-C EXT-DFPA GRADE STRUCTURAL I, II WITH TREATMENT FOR FIRE RESISTANCE.
- ALL PLYWOOD SHALL BE CONTINUOUS OVER TWO OR MORE SPANS AND SHALL BE INSTALLED WITH THE FACE GRAIN OF PLYWOOD PERPENDICULAR TO JOISTS OR SUPPORTING MEMBERS WITH THE JOISTS STAGGERED.

**MISCELLANEOUS CARPENTRY**

- REFER TO PROJECT SPECIFICATION SECTION 504 FOR DETAILED REQUIREMENTS FOR CARPENTRY.
- CONFORM TO PROJECT SAFETY REQUIREMENTS FOR SCAFFOLDING CONSTRUCTION, AND WORK ALONG THE EDGES OF THE ROOF, WHERE APPLICABLE.
- TIMBER CONSTRUCTION: TIMBER SHALL CONFORM TO THE LATEST COPY OF THE NATIONAL DESIGN SPECIFICATIONS FOR STRESS-GRADE LUMBER BY THE NATIONAL FOREST PRODUCTS ASSOCIATION, FOR MATERIAL PROPERTIES, MANUFACTURE AND ATTACHMENTS.
- LUMBER STANDARDS: COMPLY WITH DOC PS20 "AMERICAN SOFTWOOD LUMBER STANDARD AND WITH GRADING RULES OF INSPECTION AGENCIES.
  - WOOD CANTS, NAILERS, CURBS, BLOCKING AND/OR COPING WHICH SHALL BE COVERED AFTER INSTALLATION SHALL BE PRESSURE TREATED TO MINIMUM RETENTION OF 0.25 PCF AND KILN DRIED TO MOISTURE OF 19%.
  - WOOD NAILERS, CURBS, BLOCKING AND/OR COPING SHALL BE FABRICATED USING TREATED SOUTHERN PINE LUMBER GRADE NO. 2 OR BETTER.
  - NAILS, BOLTS AND LAG SCREWS SHALL BE HOT DIP GALVANIZED, SCREWS SHALL BE STAINLESS STEEL.
  - REMOVE AND REPLACE DETERIORATED NAILERS, IF AND WHERE ENCOUNTERED.

**LIST OF ABBREVIATIONS**

ASHTO	AMERICAN ASSOCIATION OF STATE AND HIGHWAY TRANSPORTATION OFFICIALS	LBS.	POUNDS
ACI	AMERICAN CONCRETE INSTITUTE	L.F.	LINEAR FEET
ADD'L	ADDITIONAL	L.G.	LONG
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LL	LIVE LOAD
ALT.	ALTERNATE	LLH	LONG LEG HORIZONTAL
ALUM. &	ALUMINUM AND	LLV	LONG LEG VERTICAL
APP'D	APPROVED	LV	ANGLE(S)
APPROX.	APPROXIMATE	(L/S)	LOW POINT
ARCH.	ARCHITECTURAL	LRFD	LOAD AND RESISTANCE FACTOR DESIGN
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	LT.	LEFT
AVG.	AVERAGE	LT. WT.	LIGHTWEIGHT
AWI	AMERICAN WELDING SOCIETY	MANUF.	MANUFACTURER
BACK	BACK FACE	MAS.	MASONRY
BET.	BETWEEN	MAX.	MAXIMUM
BLDG	BUILDING	MECH.	MECHANICAL
BM, BMS	BEAM(S)	MET.	METRIC
B.O.F.	BOTTOM OF FOOTING	MIN.	MINIMUM
BOIT. B	BOTTOM	MPH	MILES PER HOUR
BP	BASE OF BEARING PLATE	MATL.	MATERIAL
BRG	BEARING	MTL.	METAL
BW	BOTTOM OF WALL	N	NORTH
CFM	CUBIC FEET PER MINUTE	NAVD	NORTH AMERICAN VERTICAL DATUM
CFS	CUBIC FEET PER SECOND	NGVD	NATIONAL GEODETIC VERTICAL DATUM
C.I.P.	CAST IN PLACE	NUDOT	NEW JERSEY DEPARTMENT OF TRANSPORTATION
C.J.	CONTROL JOINT	NO., #	NUMBER
C. CL. &	CENTER LINE	N.T.S.	NOT TO SCALE
CLR	CLEAR	N.W.	NORMAL WEIGHT
CMU	CONCRETE MASONRY UNIT	o/c	ON CENTER
CO	CLEANOUT	O.D.	OUTSIDE DIAMETER
COL	COLUMN	O.F.	OUTSIDE FACE
CONC.	CONCRETE	OPNG.(S)	OPENING(S)
CONN.	CONNECT/CONNECTION	OPP.	OPPOSITE
CONSTR.	CONSTRUCTION	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
CONT.	CONTINUOUS	OWH'D	OVERHEAD
CONTR.	CONTRACTOR	P	PIER
COORD.	COORDINATE	PART'N	PARTITION
CORP.	CORPORATION	PCF	POUNDS PER CUBIC FOOT
COV.	COVER	PERP.	PERPENDICULAR
CTR.	CENTER	PL, #	PLATE
CY	CUBIC YARD	PPT	PERFORATED POLYETHYLENE TUBING
DEC.	DEGREE	PROJ.	PROJECTION
DELAM.	DELAMINATION	PSF	POUNDS PER SQUARE FOOT
DEMO.	DEMOLITION; DEMOLISH	PSI	POUNDS PER SQUARE INCH
DET.(S)	DETAIL(S)	QTY.	QUANTITY
DIAG.	DIAGONAL	RCP	REINFORCED CONCRETE PIPE
DIAM. #	DIAMETER	RSCC	RESEARCH COUNCIL ON STEEL CONNECTIONS
DIM, DIM'S	DIMENSION(S)	RD	ROOF DRAIN
DL	DEAD LOAD	REF.	REFERENCE
DN	DOWN	REV.	REVISION
DO	DITTO	REINF.	REINFORCEMENT
DS	DOWNSTREAM	REQ'D	REQUIRED
DWG(S)	DRAWING(S)	RF	REAR FACE
DWL(S)	DOWEL(S)	R.O.W.	RIGHT OF WAY
E.T.	EACH FACE	RT.	RIGHT
E.J.	EXPANSION JOINT	RTU	ROOF TOP UNIT
EA.	ELECTRICAL	SAN.	SANITARY
EL., ELEV.	ELEVATION	SCHED.	SCHEDULE
EMBED.	EMBEDMENT	SDI	STEEL DECK INSTITUTE
ENGL.	ENGLISH	SECT.	SECTION
ENGR.	ENGINEER	SHT.	SHEET
E.O.P.	EDGE OF PAVEMENT	SIM.	SIMILAR
EQ	EQUAL	SPA.	SPACING
ETC.	ETCETERA	SPEC.(S)	SPECIFICATION
E.W.	EACH WAY	SPL.	SPLICE
EX., EXIST.	EXISTING	SQ. FT., SF	SQUARE FOOT (FEET)
EXP.	EXPANSION	SQ. IN.	SQUARE INCH(ES)
EXT.	EXTERIOR	SQ. MI.	SQUARE MILE
FD	FLOOR DRAIN	S.S.	STAINLESS STEEL
FF	FRONT FACE	SSPC	STEEL STRUCTURES PAINTING COUNCIL
FIN.	FINISH	STA.	STATION
FL.	FLANGE	STD.	STANDARD
FLR.	FLOOR	STL.	STEEL
FNDR.	FOUNDATION	STM.	SYMMETRICAL
F.P.	FIRE PROOFING	T	TOP
FT.	FEET, FOOT	TEMP.	TEMPORARY
FTG., F	FOOTING	THK.	THICK
GA.	GAUGE	T.O.	TOP OF
GALV.	GALVANIZED	T.O.F.	TOP OF FOOTING
GB	GRADE BEAM	T.O.S.	TOP OF STEEL
GC	GENERAL CONTRACTOR	TW	TOP OF WALL
GEN.	GENERAL	Typ.	TYPICAL
GR.	GRADE	U.O.N.	UNLESS OTHERWISE NOTED
HORIZ.	HORIZONTAL	U.S.	UPSTREAM
H.P.	HIGH POINT	VERT.	VERTICAL
HT.	HEIGHT	V.I.F.	VERIFY IN FIELD
IBC	INTERNATIONAL BUILDING CODE	W/	WITH
I.D.	INSIDE DIAMETER	W/O	WITHOUT
I.F.	INSIDE FACE	WF	WIDE FLANGE
IN., "	INCH	WP	WORKING POINT
INFO	INFORMATION	WWF	WELDED WIRE FABRIC
INSUL.	INSULATION	YRS.	YEARS
INT.	INTERIOR		
INV.	INVERT		
JT.	JOINT		
K	KIP		
K.D.	KNEE BRACE		
KSI	KIPS PER SQUARE INCH		

NO. DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <b>DOW AVENUE AREA ROAD AND</b> <b>SEWER IMPROVEMENTS</b> GENERAL STRUCTURAL NOTES AND SCHEDULES (2 OF 3)				
 ASSOCIATES CONSULTING AND MUNICIPAL ENGINEERS				
(732) 727-8000      1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1104      (732) 462-7400				
- 3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 -				
JOHN H. ALLGAIR P.E. & P.P. NJ PE LIC NO. 28208	DAVID J. SAMUEL P.E. & P.P. NJ PE LIC NO. 2455	JOHN J. STEFANI P.E., L.S. & P.P. NJ PE LIC NO. 24271	SCALE: As Shown DATE: November 2017	
JAY B. CORNELL P.E. & P.P. NJ PE LIC NO. 32674	MICHAEL J. MCCLELLAND P.E. & P.P. NJ PE LIC NO. 32468	GREGORY R. VALESI P.E. & P.P. NJ PE LIC NO. 34458	DRAWN BY: PNAIR DESIGNED BY: PNAIR CHECKED BY: NH SHEET: 20 of 28	
MICHAEL J. MCCLELLAND P.E. NEW JERSEY PROFESSIONAL ENGINEER      LIC. 32468				

DRAWING NO. S-2  
REGISTERED  
DRAWING NO. PWB0683.03  
FILE NO.

**CAST-IN-PLACE CONCRETE:**

- ALL REINFORCED CAST-IN-PLACE REINFORCED CONCRETE SHALL CONFORM TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI STANDARD 318-05) AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI STANDARD 315), EXCEPT AS SPECIFICALLY MODIFIED BY THE CONTRACT DRAWINGS AND SPECIFICATIONS.
- ALL REINFORCING STEEL SHALL BE INTERMEDIATE GRADE, NEW DEFORMED BILLET-STEEL REINFORCING, CONFORMING TO ASTM SPECIFICATION ASTM A615, GRADE 60 UNLESS NOTED OTHERWISE.
- ALL WELDED WIRE FABRIC USED ON THE PROJECT SHALL CONFORM TO ASTM SPECIFICATION A-185.
- ALL REINFORCING STEEL BARS, DOWELS AND/OR WELDED WIRE FABRIC SHALL BE CORROSION PROTECTED (I.E., EPOXY-COATED OR HOT-DIPPED GALVANIZED) AS INDICATED ON THE DRAWINGS. UNCOATED OR BLACK BARS WILL NOT BE PERMITTED.
- ALL DETAILING, BENDING, PLACEMENT AND SUPPORT OF REINFORCING STEEL SHALL CONFORM TO THE STANDARDS CITED IN NOTE #1, EXCEPT AS MAY BE MODIFIED BY THESE NOTES, CONTRACT DRAWINGS AND SPECIFICATIONS.
- ALL REINFORCING SHALL BE LAP SPLICED, BENT AND DEVELOPED AS PER THE TYPICAL DETAILS. CONTINUOUS BOTTOM REINFORCING SHALL BE LAP SPLICED AT SUPPORT POINTS AND CONTINUOUS TOP REINFORCING SHALL BE LAP SPLICED MIDWAY BETWEEN SUPPORTS. REINFORCING SHALL NOT BE RE-BENT ONCE PLACED WITHOUT THE PERMISSION OF THE ENGINEER.
- CLEAR CONCRETE COVER OVER MAIN REINFORCING SHALL BE AS CALLED FOR IN THE TYPICAL DETAILS, UNLESS SHOWN OTHERWISE ON THE CONTRACT DRAWINGS.
- ALL OF THE STANDARD AND/OR SPECIAL ACCESSORIES REQUIRED TO SUPPORT, HOLD AND TIE REINFORCEMENT IN ITS PROPER POSITION SHALL BE PROVIDED AND INSTALLED BY THE CONCRETE CONTRACTOR. THIS INCLUDES SUPPORT BARS AND/OR INDIVIDUAL HIGH CHAIRS FOR THE TOP LAYER OF REINFORCING AND BOLSTERS FOR THE BOTTOM LAYER OF REINFORCING. REINFORCING SHALL BE WIRED IN PLACE AS REQUIRED, ANY SPECIAL SUPPORTS AS REQUIRED SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION OF THE SAME BY THE CONTRACTOR.
- WHERE REINFORCED SLABS ARE GREATER THAN 12" IN THICKNESS, INDIVIDUAL HIGH CHAIRS SHALL BE PROVIDED TO SUPPORT THE TOP REINFORCING. SUCH HIGH CHAIRS SHALL ADEQUATELY SUPPORT ALL CONSTRUCTION LOADINGS AND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE BEFORE BEING INSTALLED.
- ALL STRUCTURAL MEMBERS SHALL BE CAST MONOLITHICALLY FULL DEPTH, UNLESS SHOWN OTHERWISE ON THE CONTRACT DRAWINGS.
- VERTICAL CONSTRUCTION JOINTS IN WALLS WHERE NOT SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS SHALL BE LOCATED AT THE MIDPOINT BETWEEN PIERS, BUTTRESSES AND/OR INTERSECTING WALLS AND A MINIMUM OF 4'-0" FROM ANY OPENINGS ON THE WALLS.
- HORIZONTAL CONSTRUCTION JOINTS WILL NOT BE PERMITTED IN CONCRETE WALLS UNLESS SPECIFICALLY DETAILED ON THE CONTRACT DRAWINGS.
- ALL CONSTRUCTION JOINTS IN FRAMED SLABS AND BEAMS SHALL BE LOCATED AT OR ADJACENT TO THE MIDSPAN OF THE MEMBERS. FOR FURTHER REQUIREMENTS, SEE THE TYPICAL DETAILS.
- IMMEDIATELY BEFORE PLACING NEW CONCRETE, ALL CONSTRUCTION JOINTS SHALL RECEIVE A COATING OF A BONDING AGENT.
- ALL EXPOSED CONCRETE EDGES SHALL BE GROUND TO A 3/8" RADIUS OR CHAMFERED AS PER THE CONTRACT DRAWINGS.
- PROVIDE ADDITIONAL REINFORCING, AS PER THE TYPICAL DETAILS, FOR ALL OPENINGS IN CONCRETE WALLS AND/OR SLABS, UNLESS SHOWN OTHERWISE ON THE CONTRACT DRAWINGS.
- THE SPACING OF REINFORCING, AS SHOWN ON THE CONTRACT DRAWINGS, IS THE MAXIMUM PERMITTED. THIS SPACING MAY BE REDUCED FOR CONSTRUCTION CONSIDERATIONS, BUT SHALL NOT BE EXCEEDED.
- AT FRAMED CONSTRUCTION AREAS, IF INDICATED ON THE PROJECT PLANS, THE CONTRACTOR SHALL ADJUST THE SHORING, USING SURVEYING INSTRUMENTS, PRIOR TO PLACING ANY CONCRETE AND IMMEDIATELY AFTER THE PLACING OF SAID CONCRETE. NO ADJUSTMENT OF FORM ELEVATIONS WILL BE PERMITTED AFTER THE CONCRETE HAS ATTAINED ITS INITIAL SET. THE CONTRACTOR SHALL CALL FOR ELEVATIONS, AS REQUIRED, TO COMPENSATE FOR THE FORMWORK DEFLECTION CAUSED BY THE PLACEMENT OF CONCRETE AND ANY DEFLECTION OF THE SLABS AND BEAMS AFTER THE REMOVAL OF THE FORMS.
- SLAB FINISHES SHALL CONFORM TO THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS. EXCEPT WHERE NOTED OTHERWISE, SLAB / WALL FINISH SHALL CONFORM WITH THE REQUIREMENTS FOR NON-SLIP BROOM FINISH AS SPECIFIED WITHIN THE CONTRACT SPECIFICATIONS.

**CONCRETE PROPORTIONING, PLACEMENT AND CURING:**

- ALL CONCRETE USED ON THIS PROJECT SHALL HAVE MINIMUM 28-DAY ULTIMATE COMPRESSIVE STRENGTHS (f'c) AS NOTED FOLLOWING. SUCH STRENGTHS SHALL BE DETERMINED BY A CERTIFIED TESTING LABORATORY. FOR FURTHER REQUIREMENTS, SEE THE SPECIFICATIONS AND SPECIAL INSPECTION NOTES.  
f'c = 4,000 PSI. CONCRETE HAVING THIS ULTIMATE COMPRESSIVE STRENGTH SHALL BE USED THROUGHOUT THE PROJECT UNLESS NOTED OTHERWISE ON THE CONTRACT DRAWINGS.  
MAXIMUM WATER/ CEMENT RATIO = 0.45, MINIMUM 580 POUNDS OF CEMENT PER CUBIC YARD OF CONCRETE.
- ALL NORMAL WEIGHT CONCRETE, REGARDLESS OF SPECIFIED DESIGN STRENGTH, SHALL CONTAIN STONE OR GRAVEL AGGREGATE SUCH THAT THE WEIGHT OF THE HARDENED CONCRETE IS 145 POUNDS PER CUBIC FOOT (± 3%) WITH THE INCLUSION OF ENTRAINED AIR. FOR FURTHER REQUIREMENTS SEE THE SPECIFICATIONS.
- ALL CONCRETE EXPOSED TO THE ATMOSPHERE SHALL CONTAIN 6% (± 1.5%) ENTRAINED AIR.
- ALL CEMENT USED SHALL BE PORTLAND CEMENT, TYPE I CONFORMING TO ASTM C-150.
- ALL AGGREGATES, BOTH FINE AND COARSE, SHALL CONFORM TO ASTM C33. UNLESS NOTED OTHERWISE, COARSE AGGREGATE SHALL BE TYPE 57.
- ADMIXTURES USED SHALL NOT CONTAIN ANY FREE CHLORIDE IONS IN ANY AMOUNT GREATER THAN NORMALLY CONTAINED IN POTABLE WATER.
- ALL WATER USED IN THE CONCRETE MIX SHALL BE POTABLE.
- MAXIMUM SLUMP OF CONCRETE, AT POINT OF DISCHARGE, SHALL NOT EXCEED 3 INCHES (± 1 INCH).
- CONTRACTOR MAY ELECT TO USE A HIGH RANGE WATER REDUCING ADMIXTURE (SUPERPLASTICIZER) TO FACILITATE PLACEMENT OF CONCRETE. MAXIMUM SLUMP, AFTER INTRODUCTION OF SUPERPLASTICIZER, SHALL NOT EXCEED 8 INCHES.
- WHENEVER THE AMBIENT TEMPERATURE IS GREATER THAN 90 DEGREES FAHRENHEIT, THE CONTRACTOR SHALL FOLLOW THE PROCEDURES OF ACI 305, HOT WEATHER CONCRETING, UNLESS OTHERWISE NOTED.
- WHENEVER THE MEAN AVERAGE AMBIENT TEMPERATURE IS BELOW 40 DEGREES FAHRENHEIT, FOR THREE CONSECUTIVE DAYS, THE CONTRACTOR SHALL FOLLOW THE PROCEDURES OF ACI 306, COLD WEATHER CONCRETING, UNLESS OTHERWISE NOTED.
- IMMEDIATELY AFTER FINISHING OPERATIONS ARE COMPLETED, ALL EXTERIOR CONCRETE SLABS SHALL RECEIVE AN APPLICATION OF KUREX VOX WHITE PIGMENTED CURING COMPOUND, MANUFACTURED BY THE EUCLID CHEMICAL COMPANY OR EQUAL. THE CURING COMPOUND SHALL BE APPLIED AS PER THE MANUFACTURER'S INSTRUCTIONS.

**MASONRY:**

- ALL MASONRY CONSTRUCTION AND MATERIALS USED SHALL CONFORM TO THE "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES AND SPECIFICATIONS FOR MASONRY STRUCTURES" ACI-ASCE 530.1.
- HOLLOW LOAD BEARING MASONRY UNITS SHALL CONFORM TO ASTM C90, GRADE N, TYPE 1 AND BE MADE WITH NORMAL WEIGHT AGGREGATES UNLESS LIGHT WEIGHT AGGREGATES ARE INDICATED IN THE SCHEDULE. FOR FINISH REQUIREMENTS, SEE THE CONTRACT DRAWINGS.
- CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 1900 PSI ON THE NET AREA.
- WHERE SHOWN ON THE CONTRACT DRAWINGS, AND/OR SECTIONS, THE MASONRY UNIT CORES SHALL BE FILLED SOLID WITH GROUT. PROVIDE MINIMUM 3"x3" CLEANOUTS, WHERE REQUIRED, AT THE BOTTOM OF EACH LIFT. CLOSE AND BRACE CLEANOUTS AFTER CLEANING CORES.
- ALL MASONRY UNITS, DIRECTLY BELOW LINTEL BEARING LOCATIONS, SHALL BE FILLED SOLID WITH GROUT FOR THE FULL HEIGHT OF THE WALL.
- ALL MASONRY UNITS, EACH SIDE OF OPENINGS, SHALL BE FILLED SOLID WITH GROUT FOR A WIDTH OF 2'-0", FULL HEIGHT OF MASONRY. PROVIDE ONE #6 VERTICAL REINFORCING, MINIMUM, WHERE NO OTHER REINFORCING IS CALLED FOR.
- GROUT SHALL BE PLACED IN LIFTS WITH A MAXIMUM HEIGHT OF FIVE FEET.
- GROUT SHALL BE CONSOLIDATED WITH MECHANICAL VIBRATION AFTER PLACING AND REVIBRATED AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED AND BEFORE INITIAL STIFFENING.
- ALL MASONRY WALLS SHALL BE RUNNING BOND CONSTRUCTION, UNLESS SHOWN OTHERWISE ON THE CONTRACT DRAWINGS. ALL MORTAR JOINTS SHALL BE FULL BED JOINTS. FOR FURTHER FINISH REQUIREMENTS, SEE THE CONTRACT DRAWINGS.
- TRUSS TYPE (HEAVY DUTY) MASONRY WALL REINFORCING, DUR-O-WAL OR EQUAL, CONFORMING TO ASTM A82 SHALL BE PROVIDED IN ALL MASONRY WALLS AS FOLLOWS:  
A. IN THE FIRST TWO BED JOINTS ABOVE A BEARING JOINT  
B. IN EVERY SECOND BED JOINT, EXCEPT AS NOTED  
C. IN THE TOP THREE BED JOINTS BELOW ANY FRAMING LEVEL-BEARING WALL CONSTRUCTION
- MASONRY BOND BEAM SHALL BE PROVIDED IN THE COURSE OF MASONRY DIRECTLY BELOW A FRAMING LEVEL LOCATION, IN ALL MASONRY WALLS, BOTH BEARING AND NON-BEARING. UNLESS NOTED OTHERWISE ON THE CONTRACT DRAWINGS, THE BOND BEAM SHALL BE REINFORCED WITH TWO #5 CONTINUOUS REINFORCING AND FILLED WITH PEA GRAVEL CONCRETE HAVING AN ULTIMATE COMPRESSIVE STRENGTH OF 4,000 PSI.
- THE MAXIMUM SHELL THICKNESS OF THE BOND BEAM MASONRY UNITS SHALL NOT EXCEED 1-1/2".
- WHERE MASONRY UNITS ABUT CONCRETE WALLS, BEAMS OR COLUMNS AND/OR STRUCTURAL STEEL BEAMS OR COLUMNS, PROVIDE ANCHORS AS PER THE TYPICAL DETAILS.
- WHEN EITHER THE AMBIENT TEMPERATURE IS 100 DEGREES OR HIGHER, OR THE AMBIENT TEMPERATURE IS 90 OR HIGHER WITH A WIND VELOCITY OF 8 MPH OR GREATER, THE CONTRACTOR SHALL FOLLOW THE HOT WEATHER PROCEDURES AS REQUIRED BY ACI 530.1.
- WHERE MASONRY WALLS ARE REINFORCED, DOWELS SHALL BE PROVIDED FROM THE FOUNDATION WALL AND THE REINFORCING SHALL EXTEND INTO ANY BOND BEAMS OR CONCRETE CONSTRUCTION, AS PER THE TYPICAL DETAILS.
- THE CONTRACTOR SHALL COVER THE TOP OF ALL UNFINISHED MASONRY WORK EACH NIGHT AS WEATHER PROTECTION.
- WHEN EITHER THE AMBIENT TEMPERATURE OR THE TEMPERATURE OF THE MASONRY UNITS FALLS BELOW 40 DEGREES FAHRENHEIT, THE CONTRACTOR SHALL FOLLOW THE COLD WEATHER PROCEDURES AS REQUIRED BY ACI 530.1.

**MASONRY MORTAR AND GROUT:**

- ALL MORTAR FOR NEW MASONRY SHALL CONFORM TO THE REQUIREMENTS OF ASTM C270.
- CEMENT USED IN MASONRY MORTAR SHALL BE PORTLAND CEMENT, TYPE I OR III, CONFORMING TO ASTM C150.
- CONCRETE REPAIR MORTAR SHALL BE POLYMER MODIFIED PORTLAND CEMENT REPAIR MORTAR CONFORMING TO THE MANUFACTURER'S SPECIFICATIONS FOR SIKATOP 123 OR EQUAL. REPAIR MORTAR SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- UNLESS NOTED OTHERWISE, ALL MORTAR USED ON THE PROJECT SHALL BE TYPE S OR TYPE M MORTAR. CONTRACTOR SHALL SUBMIT PROPOSED MIX PROPORTIONS TO THE ENGINEER FOR REVIEW AND ACCEPTANCE BEFORE COMMENCING CONSTRUCTION.
- ALL MORTAR INGREDIENTS SHALL BE MIXED FOR THREE TO FIVE MINUTES IN A MECHANICAL BATCH MIXER.
- MORTAR SHALL BE RETEMPERED OR REMIXED, AS REQUIRED, TO MAINTAIN WORKABILITY. ANY MORTAR THAT HAS BEGUN TO STIFFEN OR HAS NOT BEEN USED WITHIN 2-1/2 HOURS AFTER MIXING SHALL BE DISCARDED.
- CHLORIDE CONTAINING ADMIXTURES SHALL NOT BE USED IN THE MAKING OF MORTAR.
- ALL MORTAR JOINTS FOR HOLLOW CMU UNITS SHALL BE AS FOLLOWS:  
A. ALL HEAD AND BED JOINTS SHALL BE 3/8" THICK; BED JOINT OVER FOUNDATION MAY VARY FROM 1/4" TO 3/4" IN THICKNESS.  
B. WEBS IN ALL COURSES OF PIERS, PLASTERS AND COLUMNS SHALL BE FULLY MORTARED.  
C. ALL COLLAR JOINTS, LESS THAN 3/4" IN THICKNESS, SHALL BE FILLED.  
D. HEAD JOINTS SHALL BE MORTARED FOR A DISTANCE EQUAL TO THE FACE SHELL THICKNESS OF THE UNIT, FROM EACH FACE OF THE UNIT.
- ALL GROUT USED ON THE PROJECT SHALL CONFORM TO THE REQUIREMENTS OF ASTM C476.
- GROUT SHALL BE PEA GRAVEL GROUT WITH A MINIMUM ULTIMATE COMPRESSIVE STRENGTH, F'c, OF 2,000 PSI AT 28 DAYS. MAXIMUM DENSITY OF GROUT TO BE 105 PCF. SLUMP AT POINT OF PLACEMENT TO BE 9" +/- 1". GROUT SHALL BE PLACED WITHIN 1-1/2 HOURS AFTER MIXING.
- WHERE CMU CELLS ARE TO BE FILLED WITH GROUT, ALL MORTAR PROTRUSIONS GREATER THAN 1/2" SHALL BE REMOVED. DO NOT ALLOW MORTAR TO FALL TO BOTTOM OF WALL WHERE NO CLEANOUTS ARE PRESENT.

**STRUCTURAL ANCHORING SYSTEMS:**

- WHERE NOTED ON THE CONTRACT DRAWINGS, THE CONTRACTOR MAY FURNISH AND INSTALL THE HILTI HIT HY-200 THREADED ROD ANCHORING SYSTEM (OR EQUIVALENT SYSTEM ACCEPTED BY THE ENGINEER). ANCHORS DEVELOPED IN MULTI-WYTHE BRICK AND HOLLOW STRUCTURAL CLAY TILE MASONRY SHALL BE INSTALLED USING HILTI HY20 RESIN SYSTEM WITH SCREEN TUBE DESIGNED FOR ANCHORAGE.
- EXCEPT WHERE NOTED OTHERWISE ON THE CONTRACT DRAWINGS, ALL ANCHORS IN CONCRETE SHALL BE HILTI HOT-DIPPED GALVANIZED OR STAINLESS STEEL KWIK BOLTS 3 (OR EQUIVALENT SYSTEM ACCEPTED BY THE ENGINEER). MINIMUM EMBEDMENT OF ANCHOR SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
- MINIMUM DEPTH OF DRILLED HOLE TO BE EMBEDMENT LENGTH PLUS DIAMETER OF ANCHOR.
- ALL ANCHORS USED IN MASONRY WALLS SHALL BE HILTI HAS-E THREADED RODS WITH COMPATIBLE NUTS AND WASHERS FOR THREADED ROD ANCHORS. ANCHORING POINTS IN MASONRY WALLS SHALL BE GROUTED SOLID WHERE ACCESSIBLE. ANCHORS IN HOLLOW MASONRY SHALL BE SET USING THE HY20 SYSTEM WITH SCREEN TUBES.
- CONCRETE SHALL DEVELOP A MINIMUM ULTIMATE COMPRESSIVE STRENGTH, AS VERIFIED BY COMPRESSION TESTS, OF 3,500 PSI PRIOR TO THE INSTALLATION OF ANY ANCHORING SYSTEM.
- MASONRY GROUT SHALL DEVELOP A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 1500 PSI PRIOR TO THE INSTALLATION OF ANY ANCHORING SYSTEM.
- INSTALLATION OF ANY ANCHORING SYSTEM USED SHALL BE AS PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- UNLESS NOTED OTHERWISE ON THE CONTRACT DRAWINGS, ALL ANCHORING SYSTEMS SHALL BE INSTALLED SUCH THAT THE MANUFACTURER'S WRITTEN MINIMUM SPACING AND EDGE DISTANCE REQUIREMENTS TO DEVELOP THE MAXIMUM LOAD CAPACITY OF THE ANCHOR ARE ADHERED TO.

REINFORCING DEVELOPMENT AND TENSION LAP SPLICE LENGTHS																		
BAR SIZE		LAP CLASS	CONC. COVER = 0.75 IN MIN SP.=1.5+db IN				CONC. COVER = 1 IN MIN SP.=2.0+db IN				CONC. COVER = 1.5 IN MIN SP.=3.0+db IN				CONC. COVER = 2 IN MIN SP.=4.0+db IN			
			UNCOATED		EPOXY COATED		UNCOATED		EPOXY COATED		UNCOATED		EPOXY COATED		UNCOATED		EPOXY COATED	
ENGL.	MET.		TOP	OTHERS	TOP	OTHERS	TOP	OTHERS	TOP	OTHERS	TOP	OTHERS	TOP	OTHERS	TOP	OTHERS	TOP	OTHERS
#3	10	A	12	12	15	13	12	12	15	13	12	12	14	12	12	12	14	12
		B	16	16	19	17	16	16	19	17	16	16	18	16	16	16	18	16
#4	13	A	19	15	24	22	15	12	20	17	15	12	18	14	15	12	18	14
		B	24	19	32	28	20	16	25	22	20	16	23	18	20	16	23	18
#5	16	A	28	21	36	32	22	17	29	26	19	15	24	22	19	15	22	17
		B	36	28	47	41	29	22	38	33	24	19	32	28	24	19	29	22
#6	19	A	37	29	49	43	31	24	40	35	22	17	29	26	22	17	29	26
		B	48	37	63	56	40	31	52	46	29	22	38	34	29	22	38	34
#7	22	A	60	46	78	69	50	38	65	57	37	28	48	42	33	25	43	38
		B	78	60	102	90	64	50	84	74	48	37	62	55	42	33	55	49
#8	25	A	74	57	97	86	62	48	81	71	47	36	61	54	37	29	49	43
		B	96	74	126	111	80	62	105	93	60	47	79	70	48	37	63	56
#9	29	A	90	69	117	104	76	58	99	87	57	44	75	66	46	36	60	53
		B	117	90	153	135	98	76	128	113	74	57	97	86	60	46	78	69
#10	32	A	108	83	141	125	92	70	120	106	70	54	92	81	57	44	74	66
		B	140	108	183	162	119	92	155	137	91	70	119	105	74	57	97	85
#11	36	A	127	98	166	146	108	83	141	125	84	64	109	97	68	53	89	79
		B	165	127	215	190	141	108	184	162	109	84	142	125	89	68	116	102

**BAR LAP SPLICE NOTES:**

- TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING AND NORMAL WEIGHT CONCRETE.
- WHEN BAR SPACING CONTROLS LAP LENGTHS, BAR SPACING USED TO DETERMINE LAP SPLICE LENGTH SHALL BE GREATER THAN TWICE THE EQUIVALENT TABULAR CONCRETE COVER PLUS THE BAR DIAMETER.
- TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS ARE CALCULATED PER THE ACI 318-11 EDITION SECTION 12.2.3 AND SECTION 12.15, RESPECTIVELY.
- LAP SPLICES SHALL BE USED FOR MINIMUM 28 DAY ULTIMATE COMPRESSIVE STRENGTH OF NORMAL WEIGHT CONCRETE 4,000 PSI AND ALL SPECIFIED PROJECT STRENGTHS UP TO 5,000 PSI.
- WHERE LESS THAN HALF OF THE REINFORCING SHOWN IS LAP SPLICED AT ANY ONE LOCATION, A CLASS A SPLICE MAY BE USED. ALL SPLICES SHALL BE CONSIDERED CLASS B, UNLESS OTHERWISE NOTED.
- MINIMUM STRAIGHT TENSION DEVELOPMENT LENGTH FOR REINFORCING CAST-IN-PLACE SHALL BE EQUAL TO OR GREATER THAN THE CLASS A LAP LENGTH, UNLESS OTHERWISE NOTED ON THE DETAILS.
- TOP REINFORCING IS ANY REINFORCING WITH MORE THAN 12 INCHES OF CONCRETE BELOW THE BAR.
- TABULAR LENGTHS ARE BASED ON A MINIMUM CENTER-TO-CENTER BAR SPACING OF TWICE THE CLEAR CONCRETE COVER PLUS ONE BAR DIAMETER.
- FOR LIGHT WEIGHT AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.

TYPICAL COVER FOR REINFORCING BARS	
REINFORCING CLEAR COVER SHALL BE A MINIMUM OF ONE BAR DIAMETER OR THE VALUES SHOWN BELOW, WHICHEVER IS GREATER, UNLESS SHOWN OTHERWISE.	
FOUNDATION ELEMENTS:	
SURFACES PLACED AGAINST SOIL	3"
AGAINST FORMED SURFACES	2"
WALLS:	
SURFACES EXPOSED TO SOIL AND OR LIQUIDS	2"
SURFACES EXPOSED TO WEATHER	1 1/2"
INTERIOR SURFACE	1"
SLABS (UNLESS NOTED OTHERWISE)	1 1/2"
PIERS AND BUTTRESSES (CLEAR DISTANCE TO TIES)	2"
SURFACES EXPOSED TO SOIL AND WEATHER	1 1/2"
OTHER SURFACES:	
BEAMS (CLEAR DISTANCE TO STIRRUPS)	2"
COLUMNS (CLEAR DISTANCE TO TIES)	1 1/2"

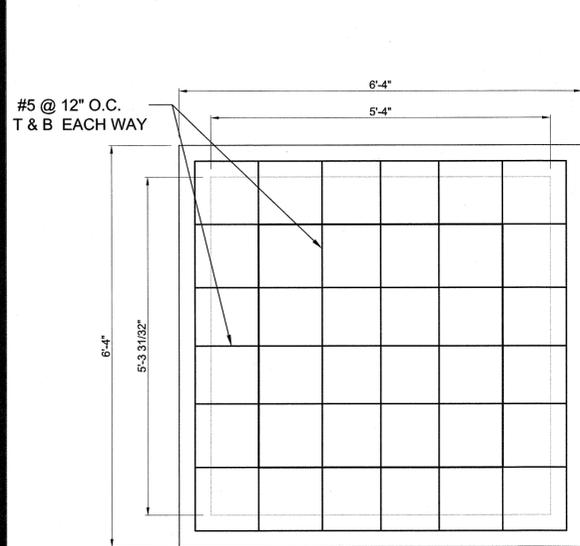
COMPRESSION DOWEL EMBEDMENT AND LAP SPLICE LENGTHS			
BAR SIZE		MINIMUM COMPRESSION LAP (INCHES)	MINIMUM DOWEL EMBEDMENT (INCHES)
NUMBER	METRIC		
#3	10	12"	9"
#4	13	15"	12"
#5	16	19"	14"
#6	19	23"	17"
#7	22	26"	20"
#8	25	30"	22"
#9	29	34"	25"
#10	32	38"	28"
#11	36	42"	31"
#14	43	-	38"
#18	57	-	50"

**COMPRESSION DOWEL NOTES:**

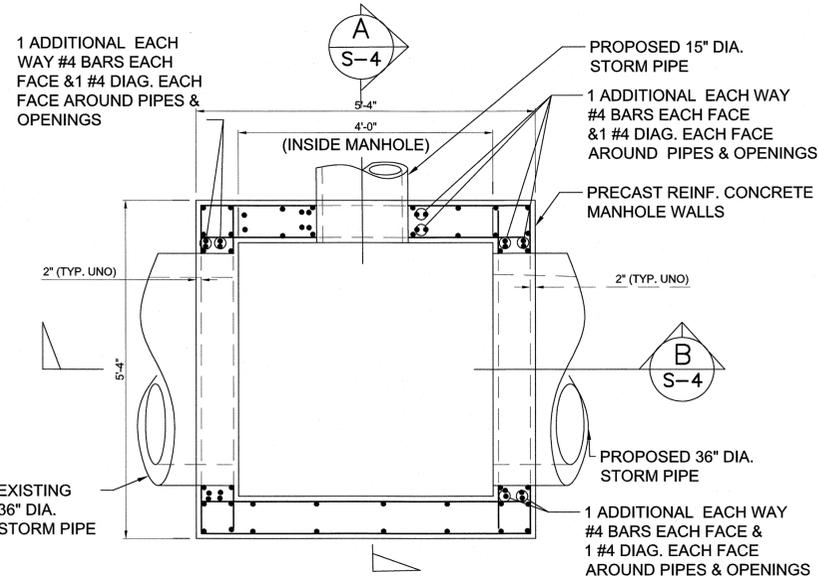
- ALL REINFORCING TO CONFORM TO ASTM A615-GRADE 60.
- TABULATED VALUES ARE BASED ON UNCOATED REINFORCING BARS. APPLICABLE FACTORS ARE REQUIRED FOR COATED AND/OR GALVANIZED REINFORCING BARS.
- MIN. 28 DAY ULTIMATE COMPRESSIVE STRENGTH OF NORMAL WEIGHT PROJECT CAST-IN PLACE CONCRETE - 4,000 PSI OR BETTER.

NO.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <b>DOW AVENUE AREA ROAD AND</b> <b>SEWER IMPROVEMENTS</b> GENERAL STRUCTURAL NOTES AND SCHEDULES (3 OF 3)					
 ASSOCIATES CONSULTING AND MUNICIPAL ENGINEERS (732) 462 7400 3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HONELL, NEW JERSEY 07731-1194					
JOHN H. ALLGAIER P.E. & P.P. NJ PE LIC NO. 25838	DAVID J. SAMUEL P.E. & P.P. NJ PE LIC NO. 2455	JOHN J. STEFANI P.E., L.S. & P.P. NJ PE & LS LIC NO. 24271			
JAY B. CORNELL P.E. & P.P. NJ PE LIC NO. 3226	MICHAEL J. McCLELLAND P.E. & P.P. NJ PE LIC NO. 3874	GREGORY R. VALESIO P.E. & P.P. NJ PE LIC NO. 34458			
MICHAEL J. McCLELLAND P.E. NEW JERSEY PROFESSIONAL ENGINEER LIC. 32468					
SCALE: As Shown		DATE: November 2017			
DRAWN BY: PNJR		DESIGNED BY: PNJR		CHECKED BY: NH	
		SHEET: 21 of 28			

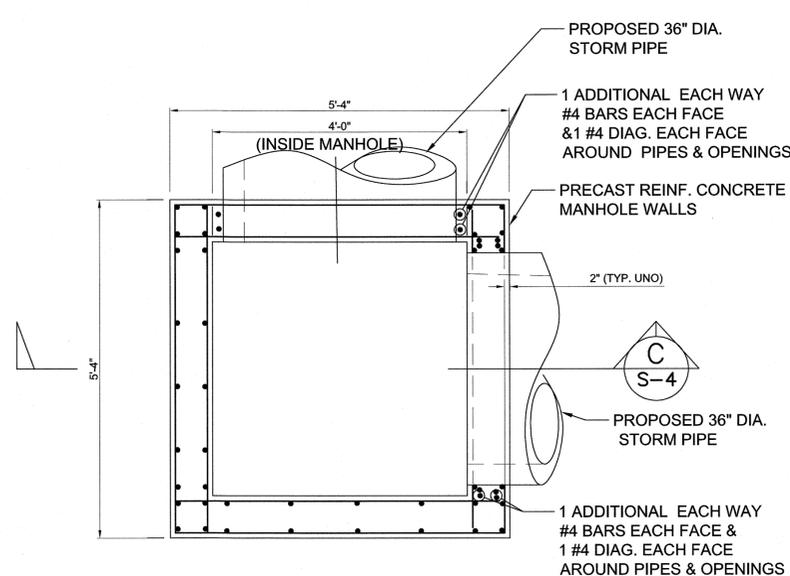
DRAWING NO. S-3 REGISTERED FILE NO. PWB00683.03



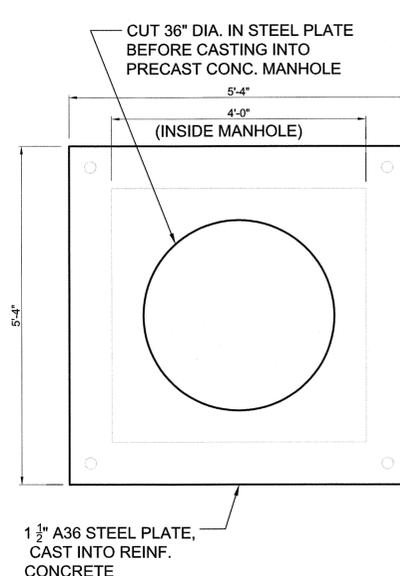
**BASE SLAB PLAN**  
SCALE: 3/4"=1'-0"



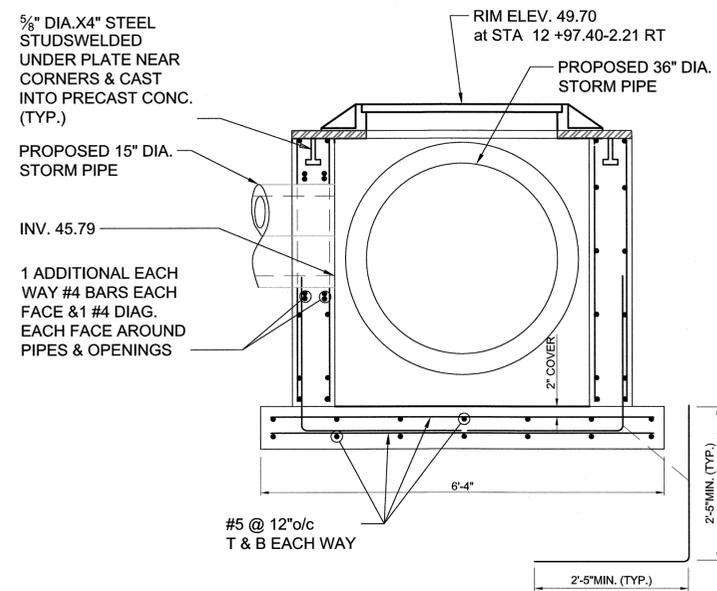
**MANHOLE WALL PLAN**  
at STA. 12+97.40-2.21 RT.  
SCALE: 3/4"=1'-0"



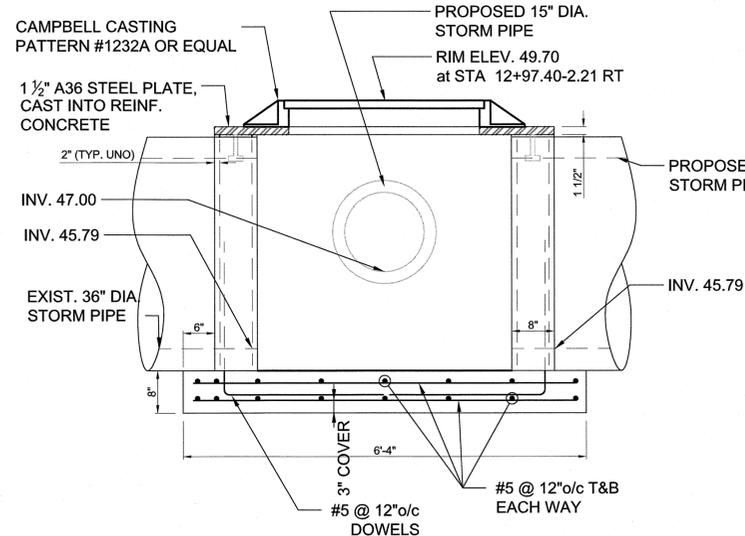
**MANHOLE WALL PLAN**  
at STA. 14+02.66-3.47 RT.  
SCALE: 3/4"=1'-0"



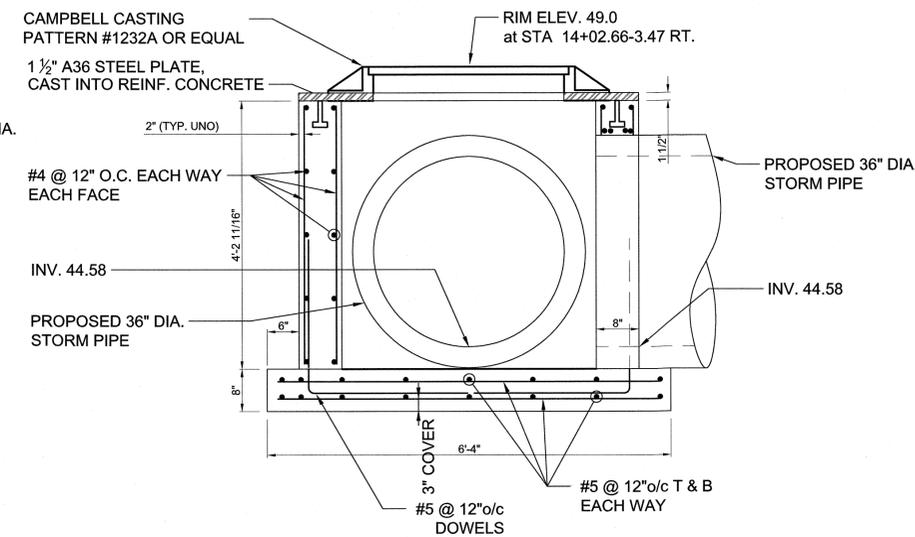
**STEEL PLATE PLAN**  
SCALE: 3/4"=1'-0"



**SECTION A**  
SCALE: 3/4"=1'-0"



**SECTION B at**  
STA. 12+97.40-2.21 RT.  
SCALE: 3/4"=1'-0"



**SECTION C at**  
STA. 14+02.66-3.47 RT.  
SCALE: 3/4"=1'-0"

- NOTE:
1. ALL CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM 28 -DAY COMPRESSIVE STRENGTH,  $f'_c=4,000$  psi.
  2. ALL REINFORCING STEEL BARS, DOWELS & WELDED WIRE FABRIC SHALL BE EPOXY-COATED.
  3. ALL REINFORCING STEEL BARS, DOWELS SHALL BE ASTM A615, GRADE 60.

No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <b>DOW AVENUE AREA ROAD AND            SEWER IMPROVEMENTS</b> STORM SEWER MANHOLE WITH CONVERSION MANHOLE FRAME & COVER, PLAN, SECTION & REINFORCEMENT DETAILS					
 CONSULTING AND MUNICIPAL ENGINEERS (732) 462-7400 3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194					
JOHN H. ALLGAIR P.E. & P.P. LIC. 1581-1051	DAVID J. SAMUEL P.E. & P.P. NO PE LIC. NO. 20589	JOHN J. STEFANI P.E. L.S. & P.P. NO PE & L.S. LIC. NO. 24573			
JAY B. CORNELL P.E. & P.P. NO PE LIC. NO. 38774	MICHAEL J. McCLELLAND P.E. & P.P. NO PE LIC. NO. 32468	GREGORY R. VALES I P.E. & P.P. NO PE LIC. NO. 34458			
<b>MICHAEL J. McCLELLAND P.E.</b> NEW JERSEY PROFESSIONAL ENGINEER LIC. 32468			SCALE: As Shown DATE: November 2017 DRAWN BY: PNMJ DESIGNED BY: PNMJ CHECKED BY: NH SHEET: 22 of 28		

DRAWING NO. S-4  
REGISTERED  
FILE NO. PWB00683.03





**CURB RAMP TYPE 1**

0.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

1.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

2.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

5.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

6.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

7.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

**CURB RAMP TYPE 3**

0.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

**CURB RAMP TYPE 2**

0-8 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

1.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

5.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

2.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

6.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

7.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

3.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

4.0 % GUTTER LINE PROFILE table with columns H, W, X<sub>1U</sub>, X<sub>1L</sub>, L<sub>1</sub>, Y, X<sub>2U</sub>, X<sub>2L</sub>, L<sub>2</sub> and rows for curb heights 3, 4, 5, 6, 7, 8, 9.

**NOTES:**

- 1. FOR CURB RAMP TYPES, SEE CD-606-1.
2. THE ABOVE TABLES ARE BASED ON THE SPECIFIC GUTTER PROFILE REFERENCED. THEY DO NOT TAKE INTO ACCOUNT VARIATIONS IN THE GUTTER PROFILE. THE ABOVE TABLES TO BE USED BY THE DESIGNERS AND CONTRACTORS TO GET APPROXIMATE DIMENSIONS OF THE CURB RAMP AT EACH LOCATION. FINAL DIMENSIONS WILL BE DETERMINED BY ACTUAL MEASUREMENTS IN THE FIELD DURING CONSTRUCTION.
3. THE 12H:1V MAX SLOPE IS THE RUNNING SLOPE FOR CURB RAMPS, BUT ONLY THE 12H:1V SLOPE MEASURED AS X IS THE RUNNING SLOPE FOR TYPE 3 AND TYPE 4 CURB RAMPS. ENSURE THE RUNNING SLOPE OF CURB RAMPS DOES NOT REQUIRE ITS LENGTH TO EXCEED 15 FEET. THE RUNNING SLOPE MAY EXCEED THE 12H:1V MAX SLOPE SO AS NOT TO EXCEED THE 15 FEET MAXIMUM LENGTH. THE TABLES ALREADY APPLY THE 15 FEET RULE FOR THOSE CALCULATED LENGTHS WHICH EXCEED 15 FEET.
4. DIMENSIONS SHOWN IN TABLES ARE FOR 3 INCH TO 9 INCH CURB HEIGHTS. WHERE THE CURB HEIGHTS ARE OTHER THAN WHAT IS PROVIDED IN THE TABLES, THE DIMENSIONS OF THE RAMPS WILL HAVE TO BE CALCULATED BASED ON CROSS SLOPES SHOWN.

**LEGEND**

- U = UPPER SIDE OF GUTTER LINE PROFILE
L = LOWER SIDE OF GUTTER LINE PROFILE
FOR THE OTHER ABBREVIATIONS - REFER TO CD-606-1
\* TYPE 3 RAMP IS NOT APPLICABLE, USE TYPE 1
\*\* TYPE 4 RAMP IS NOT APPLICABLE, USE TYPE 2

**CONCRETE SIDEWALK**  
(PUBLIC SIDEWALK CURB RAMP TABLES)  
N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

EDGE OF ORIGINAL SHEET

**CURB RAMP TYPE 4**

0.0 % GUTTER LINE PROFILE						
H	W	Y	X <sub>2U</sub>	X <sub>2L</sub>	L <sub>2</sub>	
INCHES	FEET	INCHES	FEET	FEET	FEET	FEET
3			0.91	0.91	5.82	
4			1.91	1.91	7.82	
5			2.91	2.91	9.82	
6	2.75	2.75	3.91	3.91	11.82	
7			4.91	4.91	13.83	
8			5.91	5.91	15.83	
9			6.91	6.91	17.83	
3			**	**	**	
4			1.72	1.72	7.44	
5			2.72	2.72	9.44	
6	3.0	3.0	3.72	3.72	11.45	
7			4.72	4.72	13.45	
8			5.72	5.72	15.45	
9			6.72	6.72	17.45	
3			**	**	**	
4			1.34	1.34	6.68	
5			2.34	2.34	8.68	
6	3.5	3.5	3.34	3.34	10.69	
7			4.34	4.34	12.69	
8			5.34	5.34	14.69	
9			6.34	6.34	16.69	
3			**	**	**	
4			**	**	**	
5			1.96	1.96	7.92	
6	4.0	4.0	2.96	2.96	9.93	
7			3.96	3.96	11.93	
8			4.96	4.96	13.93	
9			5.96	5.96	15.93	

1.0 % GUTTER LINE PROFILE						
H	W	Y	X <sub>2U</sub>	X <sub>2L</sub>	L <sub>2</sub>	
INCHES	FEET	INCHES	FEET	FEET	FEET	FEET
3			1.04	0.81	5.85	
4			2.17	1.71	7.88	
5			3.31	2.60	9.91	
6	2.75	2.75	4.45	3.49	11.94	
7			5.58	4.39	13.97	
8			6.72	5.28	16.00	
9			7.86	6.17	18.03	
3			0.82	0.64	5.46	
4			1.96	1.54	7.49	
5			3.09	2.43	9.52	
6	3.0	3.0	4.23	3.32	11.55	
7			5.37	4.22	13.58	
8			6.50	5.11	15.61	
9			7.64	6.00	17.64	
3			0.39	0.30	4.69	
4			1.53	1.20	6.72	
5			2.66	2.09	8.75	
6	3.5	3.5	3.80	2.98	10.78	
7			4.94	3.88	12.81	
8			6.07	4.77	14.84	
9			7.21	5.66	16.87	
3			**	**	**	
4			1.09	0.86	5.95	
5			2.23	1.75	7.98	
6	4.0	4.0	3.37	2.65	10.01	
7			4.50	3.54	12.04	
8			5.64	4.43	14.07	
9			6.78	5.32	16.10	

2.0 % GUTTER LINE PROFILE						
H	W	Y	X <sub>2U</sub>	X <sub>2L</sub>	L <sub>2</sub>	
INCHES	FEET	INCHES	FEET	FEET	FEET	FEET
3			1.20	0.73	5.93	
4			2.52	1.54	8.06	
5			3.83	2.35	10.18	
6	2.75	2.75	5.15	3.16	12.30	
7			6.47	3.96	14.43	
8			7.78	4.77	16.55	
9			9.10	5.58	18.67	
3			0.95	0.58	5.53	
4			2.27	1.39	7.65	
5			3.58	2.20	9.78	
6	3.0	3.0	4.90	3.00	11.90	
7			6.22	3.81	14.02	
8			7.53	4.62	16.15	
9			8.85	5.42	18.27	
3			0.45	0.28	4.72	
4			1.77	1.08	6.85	
5			3.08	1.89	8.97	
6	3.5	3.5	4.40	2.70	11.09	
7			5.72	3.50	13.22	
8			7.03	4.31	15.34	
9			8.35	5.12	17.46	
3			**	**	**	
4			1.27	0.78	6.04	
5			2.58	1.58	8.16	
6	4.0	4.0	3.90	2.39	10.29	
7			5.22	3.20	12.41	
8			6.53	4.00	14.53	
9			7.85	4.81	16.66	

3.0 % GUTTER LINE PROFILE						
H	W	Y	X <sub>2U</sub>	X <sub>2L</sub>	L <sub>2</sub>	
INCHES	FEET	INCHES	FEET	FEET	FEET	FEET
3			1.42	0.67	6.09	
4			2.99	1.41	8.39	
5			4.55	2.14	10.69	
6	2.75	2.75	6.11	2.88	12.99	
7			7.68	3.61	15.29	
8			9.24	4.35	17.59	
9			10.81	5.08	19.89	
3			1.13	0.53	5.66	
4			2.69	1.27	7.96	
5			4.25	2.00	10.26	
6	3.0	3.0	5.82	2.74	12.55	
7			7.38	3.47	14.85	
8			8.94	4.21	17.15	
9			10.51	4.94	19.45	
3			0.53	0.25	4.78	
4			2.10	0.99	7.08	
5			3.66	1.72	9.38	
6	3.5	3.5	5.22	2.46	11.68	
7			6.79	3.19	13.98	
8			8.35	3.93	16.28	
9			9.91	4.66	18.58	
3			**	**	**	
4			1.50	0.71	6.21	
5			3.07	1.44	8.51	
6	4.0	4.0	4.63	2.18	10.81	
7			6.19	2.91	13.11	
8			7.76	3.65	15.41	
9			9.32	4.38	17.71	

**CURB RAMP TYPE 7**

0.0 % GUTTER LINE PROFILE					
H	W	X <sub>1U</sub>	X <sub>1L</sub>	L <sub>1</sub>	
INCHES	FEET	FEET	FEET	FEET	FEET
3		3.00	3.00	10.00	
4		4.00	4.00	12.00	
5		5.00	5.00	14.00	
6	4' MIN.	6.00	6.00	16.00	
7	7' MAX.	7.00	7.00	18.01	
8		8.00	8.00	20.01	
9		9.00	9.00	22.01	

1.0 % GUTTER LINE PROFILE					
H	W	X <sub>1U</sub>	X <sub>1L</sub>	L <sub>1</sub>	
INCHES	FEET	FEET	FEET	FEET	FEET
3		3.41	2.68	10.09	
4		4.55	3.57	12.12	
5		5.68	4.47	14.15	
6	4' MIN.	6.82	5.36	16.18	
7	7' MAX.	7.96	6.25	18.21	
8		9.10	7.15	20.24	
9		10.23	8.04	22.27	

2.0 % GUTTER LINE PROFILE					
H	W	X <sub>1U</sub>	X <sub>1L</sub>	L <sub>1</sub>	
INCHES	FEET	FEET	FEET	FEET	FEET
3		3.95	2.42	10.37	
4		5.27	3.23	12.49	
5		6.58	4.03	14.62	
6	4' MIN.	7.90	4.84	16.74	
7	7' MAX.	9.22	5.65	18.86	
8		10.53	6.45	20.99	
9		11.85	7.26	23.11	

3.0 % GUTTER LINE PROFILE					
H	W	X <sub>1U</sub>	X <sub>1L</sub>	L <sub>1</sub>	
INCHES	FEET	FEET	FEET	FEET	FEET
3		4.69	2.21	10.90	
4		6.25	2.94	13.20	
5		7.82	3.68	15.49	
6	4' MIN.	9.38	4.41	17.79	
7	7' MAX.	10.94	5.15	20.09	
8		12.51	5.88	22.39	
9		14.07	6.62	24.69	

4.0 % GUTTER LINE PROFILE					
H	W	X <sub>1U</sub>	X <sub>1L</sub>	L <sub>1</sub>	
INCHES	FEET	FEET	FEET	FEET	
3		5.77	2.03	11.80	
4		7.70	2.70	14.40	
5		9.62	3.38	17.00	
6	4' MIN.	11.55	4.06	19.60	
7	7' MAX.	13.47	4.73	22.20	
8		15.40	5.41	24.80	
9		17.32	6.08	27.40	

5.0 % GUTTER LINE PROFILE					
H	W	X <sub>1U</sub>	X <sub>1L</sub>	L <sub>1</sub>	
INCHES	FEET	FEET	FEET	FEET	
3		7.51	1.88	13.38	
4		10.01	2.50	16.51	
5		12.51	3.13	19.64	
6	4' MIN.	15.00	3.75	22.75	
7	7' MAX.	17.50	4.38	25.88	
8		20.00	5.00	29.00	
9		22.50	5.63	32.13	

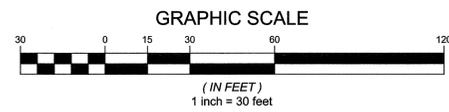
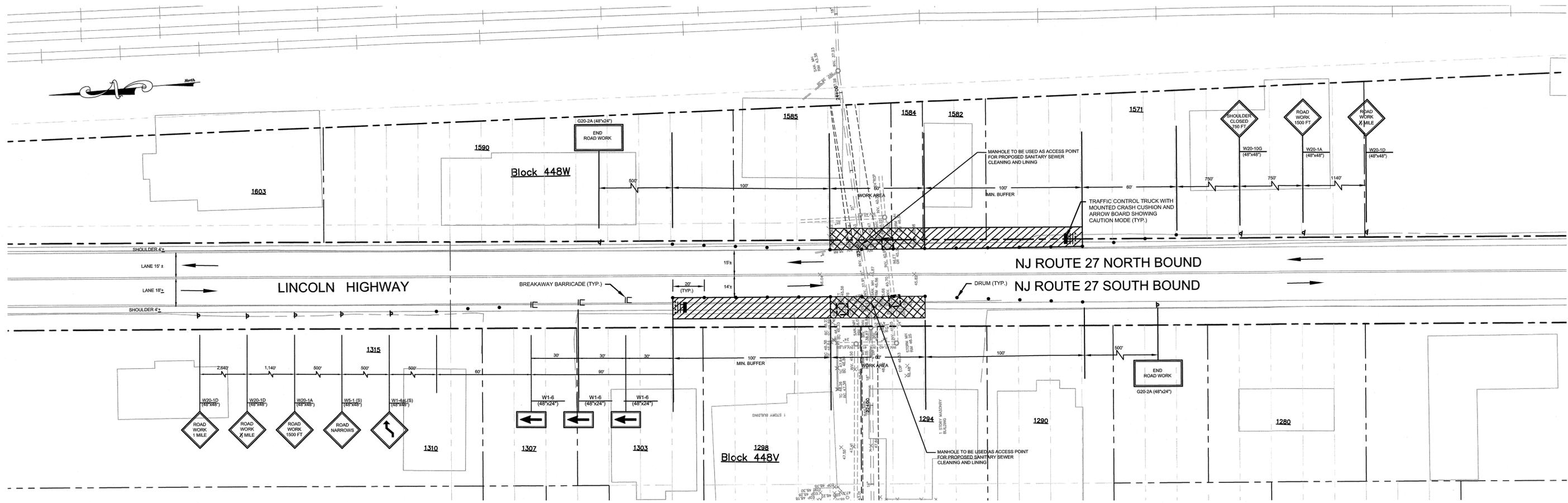
6.0 % GUTTER LINE PROFILE					
H	W	X <sub>1U</sub>	X <sub>1L</sub>	L <sub>1</sub>	
INCHES	FEET	FEET	FEET	FEET	
3		10.73	1.74	16.47	
4		14.31	2.33	20.63	
5		17.89	2.91	24.79	
6	4' MIN.	21.47	3.49	28.95	
7	7' MAX.	25.05	4.07	33.11	
8		28.63	4.65	37.27	
9		32.21	5.23	41.43	

7.0 % GUTTER LINE PROFILE					
H	W	X <sub>1U</sub>	X <sub>1L</sub>	L <sub>1</sub>	
INCHES	FEET	FEET	FEET	FEET	
3		15.00	1.63	20.63	
4		19.38	2.17	25.17	
5		23.76	2.72	29.72	
6	4' MIN.	28.14	3.26	34.26	
7	7' MAX.	32.52	3.81	38.81	
8		36.90	4.35	43.35	
9		41.28	4.89	47.89	

4.0 % GUTTER LINE PROFILE						
H	W	Y	X <sub>2U</sub>	X <sub>2L</sub>	L <sub>2</sub>	
INCHES	FEET	INCHES	FEET	FEET	FEET	FEET
3			1.75	0.62	6.37	
4			3.68	1.29	8.97	
5			5.60	1.97	11.57	
6	2.75	2.75	7.53	2.64	14.17	
7			9.45	3.32	16.77	
8			11.38	4.00	19.37	
9			13.30	4.67	21.97	
3			1.39	0.49	5.88	
4			3.31	1.16	8.48	
5			5.24	1.84	11.08	
6	3.0	3.0	7.16	2.52	13.68	
7			9.09	3.19	16.28	
8			11.01	3.87	18.88	
9			12.94	4.54	21.48	
3			0.66	0.23	4.89	
4			2.58	0.91	7.49	
5			4.51	1.58	10.09	
6	3.5	3.5	6.43	2.26	12.69	
7			8.36	2.93	15.29	
8			10.28	3.61	17.89	
9			12.20	4.29	20.49	
3			**	**	**	
4			1.85	0.65	6.50	
5			3.78	1.33	9.10	

**CONSTRUCT**

3	UN	Breakaway barricade
34	UN	Drum
158	SF	Construction signs
2	UN	Traffic control truck with mounted crash cushion
2	UN	Flashing arrow board, 4' x 8'



NOTE: THE CONTRACTOR IS SPECIFICALLY DIRECTED TO THE REQUIREMENTS CONTAINED IN THE 2016 NJDOT STANDARD DETAIL SHEETS CD-159.01 AND CD-159.02 (SHEETS 13 AND 14 OF 164).

**LEGEND**

- BREAKAWAY BARRICADES
- IC BREAKAWAY BARRICADES WITH SIGN
- ▬ CONSTRUCTION SIGNS
- DRUMS
- ◆ CONE
- PRECAST CONCRETE CURB CONSTRUCTION BARRIER (TYPE SPECIFIED)
- ← DIRECTION OF TRAFFIC FLOW
- FLAGGER
- ⋮ ILLUMINATED FLASHING ARROW MOUNTED ON TOWING VEHICLE SHOWING CAUTION MODE
- ↑↑↑ ILLUMINATED FLASHING ARROW MOUNTED ON TOWING VEHICLE SHOWING ARROW PATTERN (LEFT, RIGHT, BOTH)
- ⋮ TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND ARROW BOARD SHOWING CAUTION MODE
- ↑↑↑ TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND ARROW BOARD SHOWING ARROW PATTERN (LEFT, RIGHT, BOTH)
- ⋮ TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM
- ▶ TEMPORARY CRASH CUSHION, (ALL OTHER APPROVED)
- ▨ BUFFER ZONE
- ▩ WORK AREA
- PAINT STRIPING TRUCK OR OTHER OPERATING VEHICLE

THE CONTRACTOR MUST MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES DURING THE CONSTRUCTION.

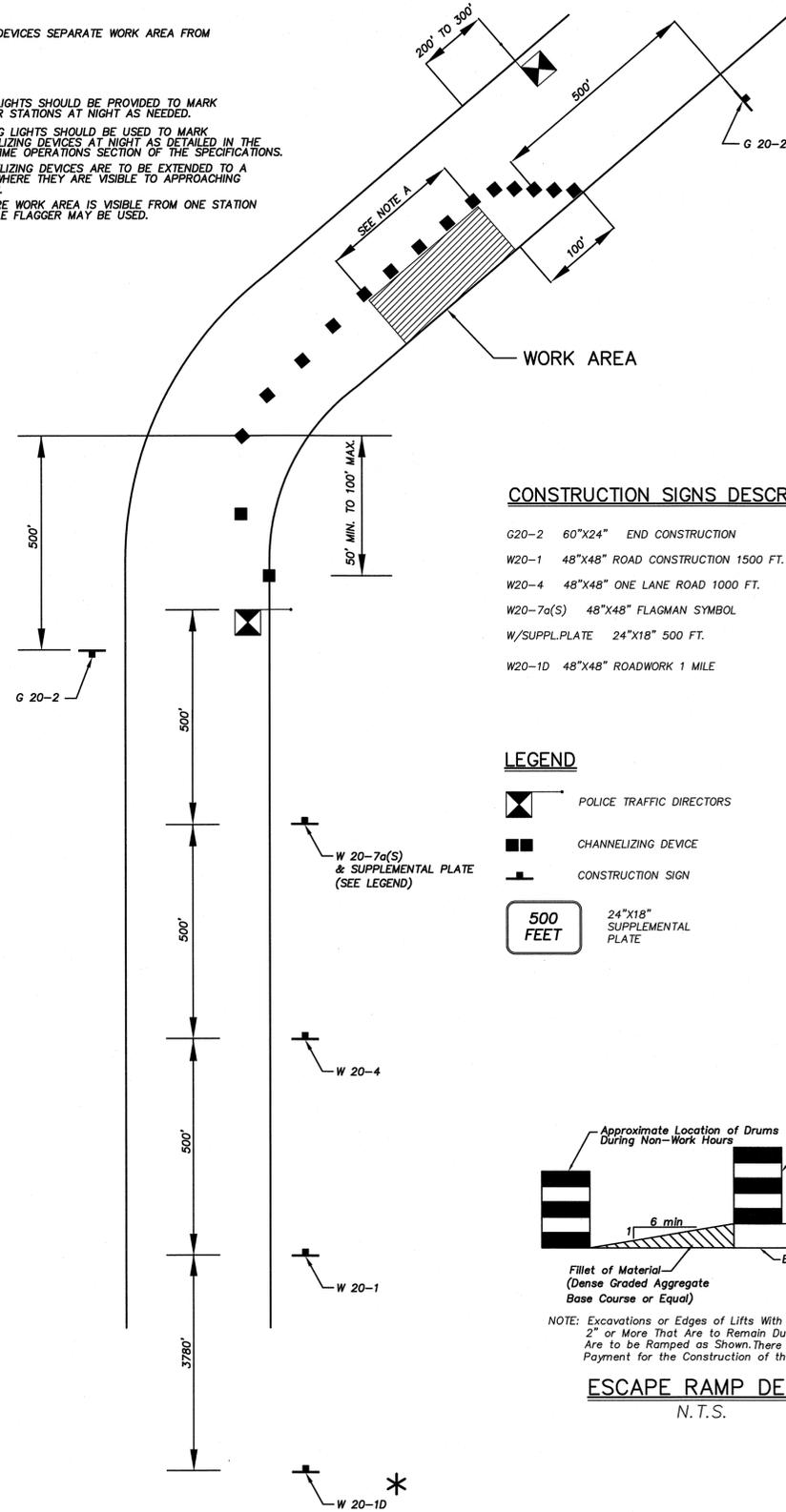
1. REVISED FOR BIDDING		05.27.17	PS	✓	
No.	DESCRIPTION OF REVISION	DATE	DRAWN	CHECKED	RELEASED
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <b>DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS</b> TRAFFIC CONTROL PLAN NJ ROUTE 27 NORTH BOUND SHOULDER CLOSING NJ ROUTE 27 SOUTH BOUND PARTIAL LANE AND SHOULDER CLOSING					
(732) 727-8000 CONSULTING AND MUNICIPAL ENGINEERS (732) 462-7400 — 3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1104 —					
JOHN H. ALLGAIR P.E. & P.P. (1981 - 2001)	DAVID J. SAMUEL P.E. & P.P. NJ PE LIC NO. 29826	JOHN J. STEFANI P.E. L.S. & P.P. NJ PE & LS LIC NO. 24571			
JAY B. CORNELL P.E. & P.P. NJ PE LIC NO. 3874	MICHAEL J. McCLELLAND P.E. & P.P. NJ PE LIC NO. 32468	GREGORY R. VALESI P.E. & P.P. NJ PE LIC NO. 34458			
<b>MICHAEL J. McCLELLAND P.E.</b> NEW JERSEY PROFESSIONAL ENGINEER L.C. 32468		SCALE: As Shown DATE: November 2017 DRAWN BY: G.O. DESIGNED BY: G.O. CHECKED BY: [Signature] DATE: 8/25/17 SHEET: 27 of 28			

DRAWING NO. PWB00683.03

**NOTE A:**  
CHANNELIZING DEVICES SEPARATE WORK AREA FROM TRAVELED WAY

- NOTE:**
- FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
  - WARNING LIGHTS SHOULD BE USED TO MARK CHANNELIZING DEVICES AT NIGHT AS DETAILED IN THE NIGHT TIME OPERATIONS SECTION OF THE SPECIFICATIONS.
  - CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
  - IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION A SINGLE FLAGGER MAY BE USED.

WARNING SIGN SEQUENCE  
IN OPPOSITE DIRECTION  
SAME AS BELOW

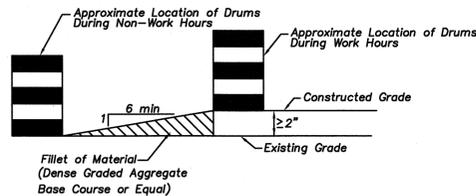


**CONSTRUCTION SIGNS DESCRIPTION:**

- G20-2 60"x24" END CONSTRUCTION
- W20-1 48"x48" ROAD CONSTRUCTION 1500 FT.
- W20-4 48"x48" ONE LANE ROAD 1000 FT.
- W20-7a(S) 48"x48" FLAGMAN SYMBOL
- W/SUPPL.PLATE 24"x18" 500 FT.
- W20-1D 48"x48" ROADWORK 1 MILE

**LEGEND**

- POLICE TRAFFIC DIRECTORS
- CHANNELIZING DEVICE
- CONSTRUCTION SIGN
- 24"x18" SUPPLEMENTAL PLATE



NOTE: Excavations or Edges of Lifts With Vertical Drop-Offs of 2' or More That Are to Remain During Non-Work Hours Are to be Ramped as Shown. There Will be no Separate Payment for the Construction of the Escape Ramp.

**ESCAPE RAMP DETAIL**  
N.T.S.



W20 - 1D

\* THIS SIGN SHOULD BE INSTALLED FOR ROADS WITH A SPEED LIMIT OF 45 M.P.H. OR GREATER.

**TRAFFIC CONTROL COORDINATION:**

- PRIOR TO THE START OF CONSTRUCTION, THE ENGINEER SHALL BE NOTIFIED OF THE SINGLE SUPERVISORY LEVEL INDIVIDUAL, TRAINED IN THE PRINCIPLES OF SAFE TRAFFIC CONTROL, WHO, ALONG WITH THE DIRECTION OF THE POLICE DEPARTMENT'S TRAFFIC SAFETY DIVISION, WILL BE ASSIGNED THE RESPONSIBILITY AND AUTHORITY FOR THE IMPLEMENTATION AND MAINTENANCE OF THE TRAFFIC CONTROL.
- THE PERSON ASSIGNED SHALL MAKE A CHECK OF ALL TRAFFIC CONTROL DEVICES IN USE ON THE ENTIRE PROJECT AT LEAST TWICE A DAY ON WORKING DAYS AND ONCE A DAY ON NON-WORKING DAYS. CONTRACTOR SHALL FILE THE NAME AND TELEPHONE NUMBER OF THE PERSON ASSIGNED TO PROVIDE SERVICES.

**TRAFFIC CONTROL DEVICES:**

- TRAFFIC CONTROL DEVICES SHALL BE KEPT CLEAN AND MAINTAINED IN GOOD CONDITION INCLUDING REPLACEMENT IF LOST, STOLEN, OR DAMAGED UNTIL NO LONGER REQUIRED FOR THE PROJECT. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE DETAILS SHOWN ON THE PLANS, SUPPLEMENTARY SPECIFICATIONS, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND STANDARD DETAILS FOR TRAFFIC CONTROL DEVICES AS DEVELOPED BY THE NEW JERSEY DEPARTMENT OF TRANSPORTATION.
- TRAFFIC CONTROL DEVICES SHALL ALSO BE PLACED AS DIRECTED BY THE ENGINEER TO PROVIDE TRAFFIC CONTROL FOR PERSONNEL DOING INSPECTIONS, SAMPLING, TESTING, OR TAKING MEASUREMENTS REQUIRED FOR THE PROJECT.

**CONSTRUCTION SIGNS:**

- CONSTRUCTION SIGNS SHALL BE INSTALLED BY THE CONTRACTOR AS REQUIRED BY THE M.U.T.C.D. AND THE POLICE DEPARTMENT AS THE FIRST ORDER OF WORK FOR CONSTRUCTION SIGNS FOR PROJECTS AND SHALL BE MAINTAINED SO AS TO PROVIDE MAXIMUM VISIBILITY AND LEGIBILITY AT ALL TIME.
- WHEN CONSTRUCTION SIGNS CONFLICT WITH EXISTING SIGNS, THE EXISTING SIGN SHALL BE COVERED. WHEN CONSTRUCTION SIGNS ARE NO LONGER REQUIRED, THEY SHALL BE REMOVED. IF THEY ARE TEMPORARILY NOT REQUIRED, SUCH AS OVERNIGHT, THEY SHALL EITHER BE TEMPORARILY REMOVED OR COVERED.
- EACH ADVANCE WARNING SIGN (W20-1) SHALL BE LIGHTED 24 HOURS A DAY WITH DUAL ALTERNATE FLASH HIGH INTENSITY WARNING LIGHTS OF EITHER THE STROBE OR INCANDESCENT TYPE AS SELECTED BY THE CONTRACTOR.

**CONSTRUCTION STAGING PLAN:**

- THE CONSTRUCTION STAGING PLAN IS BASED ON THE MINIMUM REQUIREMENTS PROVIDED IN THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE CONTRACTOR SHALL WORK IN ACCORDANCE WITH THE PROVISIONS OF THE PLAN AND THE MUTCD AND SHALL ONLY DEVIATE FROM THE PLAN AFTER APPROVAL.
- APPROVAL OF THE ENGINEER AND CONSENT OF THE LOCAL AUTHORITIES HAVING JURISDICTION SHALL FIRST BE OBTAINED FOR REROUTING TRAFFIC OVER DETOURS THAT ARE NOT SHOWN ON THE PLANS. ALL NECESSARY ARRANGEMENTS SHALL BE MADE WITH SUCH AUTHORITIES REGARDING THE ESTABLISHMENT, MAINTENANCE AND REPAIR OF SUCH DETOURS, THE REGULATION AND DIRECTION OF TRAFFIC THEREON, AND SIGNING. ADEQUATE DIRECTIONAL AND DETOUR SIGNS, ACCEPTABLE TO THE LOCAL AUTHORITIES, SHALL BE FURNISHED AND ERECTED AT THE LOCATIONS WHERE SUCH AUTHORITIES MAY DIRECT.
- CONSTRUCTION STAGING PLANS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS - SECTION 159. IF A CONFLICT ARISES BETWEEN THE PLANS AND SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- ITEMS AND QUANTITIES SHOWN ARE INTENDED ONLY AS A GUIDE TO THE CONTRACTOR AND ARE SUGGESTED MINIMUMS FOR THE CLOSURE OF ONE LANE AND TWO LANES OF TRAFFIC.

**SUGGESTED GENERAL SEQUENCE OF CONSTRUCTION**

- PROVIDE MINIMUM 24 HOUR ADVANCE NOTIFICATION TO THE LOCAL POLICE DEPARTMENT AND THE ENGINEER PRIOR TO MODIFICATION OF EXISTING TRAFFIC PATTERNS.
- INSTALL "ADVANCE WARNING" SIGNS.
- ESTABLISH DETOUR ROUTES, IF AND WHERE APPROVED BY THE ENGINEER AND/OR THE TRAFFIC SAFETY DIRECTOR, WHERE APPLICABLE.
- INSTALL TEMPORARY TRAFFIC CONTROL DEVICES AS APPLICABLE.
- COMPLETE INSTALLATION OF IMPROVEMENTS.
- REMOVE TEMPORARY TRAFFIC CONTROL DEVICES, DETOUR SIGNS AND "ADVANCE WARNING SIGNS".

**GENERAL NOTES:**

- VEHICULAR AND PEDESTRIAN TRAFFIC IS TO BE MAINTAINED OVER THE EXISTING ROADWAYS AND INTO EXISTING DRIVEWAYS WITHIN THE SCOPE OF THE PROJECT AT ALL TIMES. TRAFFIC CONTROL IS TO BE COORDINATED WITH LOCAL AUTHORITIES.
- FINAL RESPONSIBILITY FOR THE INSTALLATION OF ADEQUATE PRECAUTIONS AND FOR THE PROTECTION OF THE TRAVELING PUBLIC AND HIS OWN PERSONNEL, SHALL REST WITH THE CONTRACTOR.
- ALTERNATE ONE-WAY TRAFFIC CONTROL MAY BE REQUIRED DURING CONSTRUCTION OPERATIONS. PERMISSION FOR COMPLETE STOPPAGE OF ONE DIRECTION OF TRAFFIC MUST BE OBTAINED FROM THE LOCAL POLICE AND THE ENGINEER AT LEAST THREE (3) DAYS PRIOR TO STOPPAGE. ALTERNATE ONE WAY TRAFFIC CONTROL WILL BE AFFECTED BY TWO UNIFORM TRAFFIC DIRECTORS, ONE AT EACH END OF THE WORK AREA. ALL TEMPORARY TRAFFIC LANES SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 11 FEET.
- SITE FOR THE STORAGE OF EQUIPMENT AND MATERIALS DURING THE PROGRESS OF THE WORK SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- COMPLIANCE WITH ALL PRESCRIBED SAFETY PRECAUTIONS CONTAINED HEREIN SHALL NOT RELIEVE THE CONTRACTOR OF HIS PRIMARY RESPONSIBILITY TO TAKE ALL NECESSARY MEASURES TO PROTECT AND SAFEGUARD THE PUBLIC NOR RELIEVE HIM OF ANY RESPONSIBILITIES DESCRIBED IN THE CONTRACT AGREEMENTS.
- IF THE LOCAL POLICE DEPARTMENT NOTIFIES THE CONTRACTOR OR HIS SUPERINTENDENT OR THE ENGINEER OF ANY HAZARDOUS CONDITION OR VIOLATION OF TRAFFIC CONTROL IN THE WORK AREA REGULATIONS, ALL OPERATIONS SHALL BE IMMEDIATELY DISCONTINUED AND IMMEDIATE REMEDIAL ACTION SHALL BE TAKEN TO THE SATISFACTION OF THE LOCAL POLICE BEFORE WORK IS RESUMED. ALL COSTS INCURRED AS A RESULT OF SUCH ACTION SHALL BE BORNE BY THE CONTRACTOR WITHOUT RECOURSE AGAINST THE OWNER.
- REDUCTION OF THE NUMBER OF LANES AVAILABLE FOR TRAFFIC OR REDUCTION OF EXISTING WIDTHS OF TRAVELED WAY WILL NOT BE PERMITTED UNTIL AFTER 9:00 A.M. AND SHALL BE REMOVED PRIOR TO 4:00 P.M. UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- WORK WHICH WILL INTERFERE WITH TRAFFIC OR RESTRICT THE WIDTH OF TRAVELED WAY AVAILABLE FOR TRAFFIC SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS, OR LEGAL HOLIDAYS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- PRIOR TO BEGINNING A SEASONAL SHUTDOWN OR ANY OTHER PROLONGED WORK STOPPAGE, OR WHEN WORK IS SUSPENDED BY THE ENGINEER, ALL EXCAVATED AREAS WITHIN THE TRAVELED WAY OR ADJACENT THERETO SHALL BE BROUGHT TO A GRADE COMPATIBLE WITH THE EXISTING TRAVELED WAY OR TO FINISHED GRADE, AS APPROVED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE WITHIN THE PROJECT LIMITS UNTIL ACCEPTANCE. THIS MAINTENANCE SHALL CONSIST OF CONTINUOUS AND EFFECTIVE WORK PROSECUTED DAY BY DAY, WITH ADEQUATE EQUIPMENT AND FORCES TO THE END THAT THE ROADWAY IS KEPT IN SATISFACTORY CONDITION AT ALL TIMES.
- IN THE CASE OF A CONTRACT REQUIRING THE PLACING OF A COURSE UPON A COURSE OF SUBGRADE PREVIOUSLY CONSTRUCTED, THE CONTRACTOR SHALL MAINTAIN THE PREVIOUS COURSE OF SUBGRADE DURING ALL CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BACKFILL ALL EXCAVATED AREAS WITHIN THE ROADWAY TO A GRADE COMPATIBLE WITH THE EXISTING TRAVELED WAY AT SUCH TIMES HE IS NOT ACTIVELY WORKING. THIS SHALL INCLUDE NIGHTS, WEEKENDS AND PERIODS OF SHUTDOWNS.
- COMPETENT, TRAINED AND UNIFORMED TRAFFIC DIRECTORS SHALL BE EMPLOYED AT EVERY POINT WHERE CONTRACTOR'S EQUIPMENT IS WORKING IMMEDIATELY ADJACENT TO, OR IS ENTERING, LEAVING OR CROSSING ACTIVE TRAFFIC LANES. TRAFFIC DIRECTORS SHALL BE EMPLOYED CONTINUOUSLY FOR THE FULL TIME SUCH CONDITIONS EXIST AS DETERMINED BY THE ENGINEER.
- THE USE OF UNIFORMED POLICE OFFICERS AS TRAFFIC DIRECTORS IS A SPECIFIC REQUIREMENT OF THIS PROJECT. THE POLICE TRAFFIC DIRECTORS SHALL BE OFF-DUTY POLICE OFFICERS FROM WITHIN THE MUNICIPALITY WHERE THE WORK IS BEING PERFORMED. POLICE TRAFFIC DIRECTORS SHALL BE LOCATED WHERE SHOWN ON THE PLANS OR AT SPECIFIC LOCATIONS DESIGNATED BY THE POLICE DEPARTMENT OR ENGINEER DURING CONSTRUCTION HOURS. THE MUNICIPALITY SHALL BE CONTACTED IN ORDER TO OBTAIN THE SERVICES OF POLICE TRAFFIC DIRECTORS AND THE NAME, ADDRESS AND TELEPHONE NUMBER OF THEIR LOCAL REPRESENTATIVE.
- THE OWNERS OF ADJOINING PROPERTIES SHALL BE GIVEN A WRITTEN NOTICE AT LEAST 3 DAYS PRIOR TO THE BEGINNING OF ANY WORK WHICH INTERFERES WITH THE OWNERS NORMAL PASSAGE.

**MINIMUM REQUIREMENTS FOR  
TEMPORARY LANE CLOSURE**

REVISED FOR BIDDING	06.27.17	FB	CP	RELEASED
TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY <b>DOW AVENUE AREA ROAD AND SEWER IMPROVEMENTS</b> CONSTRUCTION STAGING PLAN				
 CONSULTING AND MUNICIPAL ENGINEERS (732) 462 7400				
<small>3141 BORDENTOWN AVENUE, PARLIN, NEW JERSEY 08859-1162 — 1460 ROUTE 9 SOUTH, HOWELL, NEW JERSEY 07731-1194</small>				
JOHN H. ALLGAIER P.E. & P.P. <small>(1989 - 2001) NJ PE LIC NO. 28038</small>	DAVID J. SAMUEL P.E. & P.P. <small>NJ PE LIC NO. 3455</small>	JOHN J. STEFANI P.E. L.S. & P.P. <small>NJ PE &amp; L.S. LIC NO. 24271 NJ PP LIC NO. 2089</small>		
JAY B. CORNELL P.E. & P.P. <small>NJ PE LIC NO. 3752</small>	MICHAEL J. MCCLELLAND P.E. & P.P. <small>NJ PE LIC NO. 3874</small>	MICHAEL J. MCCLELLAND P.E. & P.P. <small>NJ PE LIC NO. 32468</small>	GREGORY R. VALESI P.E. & P.P. <small>NJ PE LIC NO. 34458</small>	
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			As Shown	November 2017
			DRAWN BY	DESIGNED BY
			G.O.	G.O.
			CHECKED BY	SHEET
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