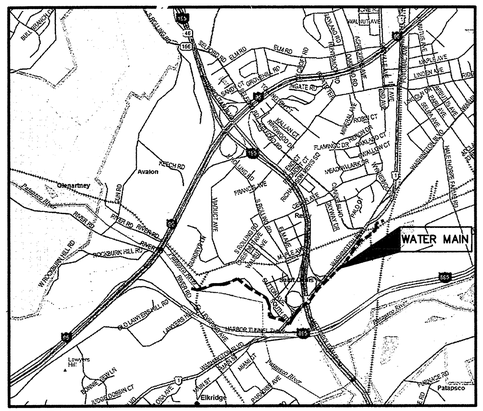
36" SOUTHWEST TRANSMISSION MAIN RELOCATION

CONTRACT NO. 44-4618
CAPITAL PROJECT NO. W-8276

BALTIMORE COUNTY
DEPARTMENT OF PUBLIC WORKS

PROJECT NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH BALTIMORE COUNTY, MARYLAND, DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION), THE CONTRACT DRAWINGS, AND THE CONTRACT SPECFICIATIONS.
2. EXISTING UTILITIES ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, BUT THE COMPLETENESS AND ACCURACY OF SAME IS NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES IN ADVANCE OF CONSTRUCTION WITHOUT ADDITIONAL COMPENSATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REPAIR OF ALL DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION DUE TO HIS NEGLIGENCE.
3. CONTACT "MISS UTILITY" TELEPHONE 1-800-257-7777. 72 HOURS PRIOR TO CONSTRUCTION START UP.
4. EXISTING TOPOGRAPHY IS BASED ON A. MORTON THOMAS, INC. SURVEY DATED DEC, 2006 AND EBA ENGINEERING, INC. SURVEY DATED OCT, 2008.
5. VERTICAL DATUM IS BASED ON THE NAVD 88 DATUM. HORIZONTAL COORDINATE SYSTEM IS BASED ON THE NAD 83/91 DATUM.
6. FIELD CONDITIONS MAY WARRANT THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES IN ADDITION TO THOSE SHOWN ON THESE PLANS.
7. SEE SPECIFICATIONS SPECIAL PROVISIONS FOR REQUIREMENTS OF UTILITY POLE SUPPORT AND/OR RELOCATIONS.
8. OPERATING HYDRAULIC GRADIENT ELEVATION = 213. (92 PSI)
   LEAKAGE TEST GRADIENT ELEVATION = 213. (92 PSI) PRESSURE TEST GRADIENT ELEVATION = 346. (150 PSI)
9. THE CONTRACTOR FOR THE MAIN EXTENTION WILL NOTIFY BALTIMORE CITY, BUREAU OF WATER AND WASTE WATER, AT (410) 396-7807, 72 HOURS BEFORE STARTING WORK.
10. NOTIFY BALTIMORE CITY BUREAU OF WATER AND WASTEWATER AT 410-396-7870 AT LEAST 72 HOURS IN ADVANCE OF STARTING CONSTRUCTION.
11. NOTIFY PARK MANAGER AT 410-461-5005 AT LEAST 2 WEEKS IN ADVANCE OF ANY WORK WITHIN THE STATE PARK.



LOCATION MAP
SCALE: 1" = 2,000'

LIST OF DRAWINGS

SHEET NO.	DWG.	BALTIMORE CO. DRAWING NO.	DESCRIPTION
1	G-1	2009-3350	TITLE SHEET
2	G-2	2009-3351	GENERAL NOTES, SEQUENCE OF CONSTRUCTION, LEGEND
3	C-1	2009-3352	PLAN & PROFILE 0+00 TO 12+11.28
4	C-2	2009-3353	PLAN & PROFILE 12+11.38 TO 24+55.00
5	C-3	2009-3354	PLAN & PROFILE 24+55.00 TO 36+60.30
6	C-4	2009-3355	PLAN & PROFILE 100+00.00 TO 110+52.07
7	C-5	2009-3356	PLAN & PROFILE 110+52.07 TO 120+88.01
8	C-6	2009-3357	PLAN & PROFILE 120+88.01 TO 130+66.08
9	C-7	2009-3358	PLAN & PROFILE 130+66.08 TO 141+57.28
10	C-8	2009-3359	MAG METER VAULT - PLAN & PROFILE
11	C-9	2009-3360	MAG METER VAULT - STRUCTURAL
12	C-10	2009-3361	AIR RELEASE & MANWAY ACCESS VAULT DETAILS
13	C-11	2009-3362	DEWATERING VALVE & VAULT DETAILS
14	C-12	2009-3363	PATAPSCO VALLEY STATE PARK IMPROVEMENTS PLAN
15	C-13	2009-3364	CSX RAILROAD AND WASHINGTON BLVD. JACK & BORE DETAILS
16	C-14	2009-3365	MISCELLANEOUS CIVIL DETAILS
17	C-15	2009-3366	MISCELLANEOUS CIVIL DETAILS
18	C-16	2009-3367	DIAGEO PROPERTY IMPROVEMENTS PLAN
19	C-17	2009-3368	RESTORATION PLAN STA. 0+00 TO STA. 33+89
20	SC-1	2009-3369	EROSION & SEDIMENT CONTROL TITLE SHEET
21	SC-2	2009-3370	EROSION & SEDIMENT CONTROL LEGEND AND NOTES 1
22	SC-3	2009-3371	EROSION & SEDIMENT CONTROL NOTES 2
23	SC-4	2009-3372	EROSION & SEDIMENT CONTROL NOTES 3
24	SC-5	2009-3373	EROSION & SEDIMENT CONTROL DETAILS
25	SC-6	2009-3374	EROSION & SEDIMENT CONTROL PLAN 1 STA. 0+00 TO STA. 33+89.00
26	SC-7	2009-3375	EROSION & SEDIMENT CONTROL PLAN 2 STA. 33+89.00 TO STA. 126+89.00
27	SC-8	2009-3376	EROSION & SEDIMENT CONTROL PLAN 3 STA. 126+89.00 TO STA. 141+57.28
28	TC-1	2009-3377	TRAFFIC CONTROL GENERAL NOTES
29	TC-2	2009-3378	PATAPSCO VALLEY STATE PARK ENTRANCE ROAD TRAFFIC CONTROL
30	TC-3	2009-3379	TRAFFIC CONTROL PLAN 2 STA. 100+00 TO 128+20
31	CP-1	2009-3380	CATHODIC PROTECTION LAYOUT (STA. 0+00 TO STA. 36+60.30)
32	CP-2	2009-3381	CATHODIC PROTECTION LAYOUT (STA. 100+00 TO STA. 141+60±)
33	CP-3	2009-3382	CATHODIC PROTECTION DETAILS - 1
34	CP-4	2009-3383	CATHODIC PROTECTION DETAILS - 2
35	CP-5	2009-3384	CATHODIC PROTECTION DETAILS - 3
36	CP-6	2009-3385	CATHODIC PROTECTION DETAILS - 4
37-47	R-1 TO R-11	-	DECOMMISSIONING OF REPLACED SECTIONS OF THE ORIGINAL SOUTHWEST TRANSMISSION MAIN (CONTRACT 625-W)

WATER MAIN TEST PRESSURE - 225 PSI

HOWARD CO. PROJECT NO. W-8276

CITY OF BALTIMORE

Acting — CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — 3/15/12 DATE
HEAD, BUREAU OF WATER AND WASTEWATER — 3/21/12 DATE
DIRECTOR, DEPT. OF PUBLIC WORKS — 3/22/12 DATE

REVISION - CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE
CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR, DEPT. OF PUBLIC WORKS — 1/24/12 DATE

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

DATE: 1-24-2012

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB
AS-BUILT PER RECORD PRINT — DRAWN BY: JCD
BY: — CHKD BY: SBN
DATE:

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

DRAWING SCALE
PLAN SCALE:
PROFILE SCALE:

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: DIRECTOR
DATE: 1-24-12

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		KJF		GR	GAK	JDP	
DATE REVIEWED:		1/23/12		1/27/12	1/20/12	1/20/12	1/23/12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE: 1/17/12

AS-BUILT JUNE 2016

CWO. 51738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
TITLE SHEET

SUBDIVISION: SAINT DENIS

ELECTION DISTRICT NO. 3

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

SHEET DESIGNATION	CONTRACT NO.
G-1	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 1 OF 36
	DRAWING NO.
	2009-3350
	FILE NO. FILE

DWG FILENAME:

GENERAL NOTES

1. ALL ELEVATIONS BASED ON NAVD 88 VERTICAL DATUM.
2. AVAILABLE INFORMATION AS TO THE LOCATION OF EXISTING SUBSTRUCTURES AND UTILITIES HAS BEEN COLLECTED FROM VARIOUS SOURCES. THE RESULTS OF SUCH INVESTIGATIONS, AS MAY BE SHOWN ON THE CONTRACT DRAWINGS, ARE NOT GUARANTEED AS TO ACCURACY. ALL EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL DIG TEST PITS AS DIRECTED BY THE ENGINEER, WHERE SHOWN ON THE DRAWINGS AND AS REQUIRED.
3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES A MINIMUM OF 72 HOURS PRIOR TO EXCAVATION, AND SHALL COMPLY WITH ALL CURRENT MARKOUT REQUIREMENTS OF THE PRESIDING COUNTIES.
4. THE FOLLOWING IS A LISTING OF REPORTED TELEPHONE NUMBERS OF UTILITY COMPANIES AND AGENCIES HAVING FACILITIES OR JURISDICTION IN THE VICINITY OF THE PROJECT. THIS LIST SHALL NOT BE CONSIDERED AS COMPLETE.

AT&T	1-800-252-1133
BGE (CONSTRUCTION SERVICES)	410-850-4620
BGE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES (HOWARD COUNTY)	410-313-4900
CSX	215-891-5520
DPW - BALTIMORE CITY	410-396-1466
DPW - ENG. & CONST. (BALTIMORE COUNTY)	410-887-3788
MCI	1-800-289-3427 #2
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033 / 410-224-9210
CSX (EMERGENCY)	1-800-232-0144

5. EXCAVATIONS OR TRENCHING WITHIN CLOSE PROXIMITY TO UNDERGROUND FACILITIES OR UTILITY POLES WILL REQUIRE PROTECTION TO PREVENT DAMAGE OR INTERRUPTION OF SERVICE TO UNDERGROUND FACILITIES. THE COST TO PROVIDE THIS PROTECTION WILL BE BORNE BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS OF THE "HIGH VOLTAGE PROXIMITY ACT".
7. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT EXISTING THRUST BLOCKS WHICH ARE RESTRAINING EXISTING UTILITIES. EXISTING THRUST BLOCKS SHALL NOT BE UNDERMINED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL EXCESS EXCAVATED MATERIAL TO AN OFF-SITE LOCATION AT NO ADDITIONAL COST TO THE OWNER.
9. ALL TRENCH LINES IN PAVED AREAS SHALL BE SAW CUT, OR MILLED.
10. THE CONTRACTOR SHALL COMPLY WITH ALL ROAD OPENING REQUIREMENTS AND ORDINANCES OF THE MARYLAND DEPARTMENT OF TRANSPORTATION AND BALTIMORE COUNTY.
11. ALL TRENCHES SHALL BE BACKFILLED WITHOUT DELAY. OPEN TRENCHES SHALL BE KEPT TO A MINIMUM. NO OPEN PIPELINE TRENCHES SHALL BE LEFT OVERNIGHT. UPON BACKFILLING THE CONTRACTOR SHALL BROOM SWEEP STREETS AND USE APPROPRIATE METHODS TO CONTROL DUST. STEEL PLATES WILL BE PERMITTED ONLY AT ACCESS PITS FOR SPECIAL CROSSINGS.
12. GENERALLY, UNLESS OTHERWISE SPECIFICALLY PERMITTED, NO WORK SHALL BE DONE BETWEEN THE HOURS OF 6:00 P.M AND 6:00 A.M., PREVAILING TIME. ANY WORK DURING THESE HOURS MUST BE APPROVED BY THE ENGINEER. GOOD LIGHTING AND ALL OTHER NECESSARY FACILITIES FOR PROPER EXECUTION AND INSPECTION OF THE WORK SHALL BE PROVIDED. THE CONTRACTOR SHALL ALSO COMPLY WITH ALL STATE AND LOCAL LAWS GOVERNING HOURS DURING WHICH CONSTRUCTION EQUIPMENT MAY BE OPERATED.
13. THE CONTRACTOR SHALL INSTALL THRUST RESTRAINT AS RECOMMENDED BY PIPE SUPPLIER. AREAS WHERE RESTRAINED JOINTS WILL BE NECESSARY HAVE BEEN INDICATED ON THE CONTRACT DRAWINGS. ADDITIONAL THRUST RESTRAINT SHALL BE AS RECOMMENDED BY THE PIPE SUPPLIER.
14. THE CONTRACTOR SHALL FURNISH 2" NPT NIPPLES AND GATE VALVES AT TEST PLUGS, AND 2" CORPORATIONS AS SHOWN ON THE DRAWINGS AND ON BOTH SIDES OF ALL MAIN LINE VALVES FOR BLEEDING, FLUSHING, PRESSURE TESTING, AND DISINFECTING THE WATER MAIN. THE CONTRACTOR SHALL INSTALL AS MANY CORPORATIONS AS ARE REQUIRED FOR PROPER TESTING, FLUSHING, AIR BLEEDING AND DISINFECTION AT NO ADDITIONAL COST TO THE COUNTY OTHER THAN THE PRICES BID.
15. TO MAINTAIN THE HORIZONTAL AND VERTICAL ALIGNMENT SHOWN ON THE PLANS, PIPE JOINTS MUST BE DEFLECTED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S REQUIREMENTS. IF NECESSARY, EITHER TO MAINTAIN THE ALIGNMENT SHOWN OR TO ADJUST THE ALIGNMENT SHOWN OR TO ADJUST THE ALIGNMENT TO MEET ACTUAL FIELD CONDITIONS, ADDITIONAL FITTINGS SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER OTHER THAN THE PRICES BID.
16. ALL STATIONING SHOWN ON PLANS IS APPROXIMATE.
17. ALL CONSTRUCTION ACTIVITIES ARE TO BE CONFINED TO THE PUBLIC RIGHT-OF-WAY OR TO BALTIMORE COUNTY / HOWARD COUNTY DPW EASEMENTS.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING SUFFICIENT LAND FOR TEMPORARY TRAILERS AND STORAGE. WRITTEN PERMISSION FROM PRIVATE PROPERTY OWNERS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE COUNTY.
19. THE CONTRACTOR SHALL NOTIFY BALTIMORE COUNTY AND HOWARD COUNTY DPW PRIOR TO CONNECTION TO OR RELOCATION OF ANY EXISTING BALTIMORE COUNTY OR HOWARD COUNTY DPW OWNED AND MAINTAINED FACILITIES. ALL CONNECTIONS AND MODIFICATIONS TO EXISTING FACILITIES SHALL BE DONE AT THE CONVENIENCE OF THE BALTIMORE COUNTY AND HOWARD COUNTY DPW.
20. CONTRACTOR SHALL TAKE STEPS NECESSARY TO PRESERVE EXISTING CURB AND MINIMIZE THE LENGTH OF CURBING THAT MUST BE REPLACED.
21. THE CONTRACTOR IS CAUTIONED THAT ALL SANITARY LATERALS AND UTILITY SERVICES HAVE NOT BEEN LOCATED. WHEN THE CONTRACTOR ENCOUNTERS AN OBSTRUCTION AND CANNOT ADJUST THE ALIGNMENT USING ALLOWABLE JOINT DEFLECTION THE CONTRACTOR SHALL INSTALL FITTINGS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROMPT REPAIR OF DAMAGED UTILITIES, AND SHALL MAINTAIN ON SITE AN ADEQUATE SUPPLY OF REPAIR MATERIALS.
22. THE CONTRACTOR SHALL PROTECT ALL STRUCTURES, ROADS, PIPELINES, TREES, SHRUBBERY, GRASS AREAS, ETC. DURING THE PROGRESS OF THE WORK AND SHALL REMOVE DAILY FROM THE SITE ALL DEBRIS AND UNUSED MATERIALS. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL RESTORE THE SITES AS NEATLY AS POSSIBLE TO THEIR ORIGINAL CONDITION.
23. REPAIR WORK SHALL BE PERFORMED TO THE SATISFACTION OF THE GOVERNING AGENCY.
24. TRAFFIC STRIPING AND MARKINGS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED IN-KIND WITH THERMOPLASTIC IN ACCORDANCE WITH MDOT AND BALTIMORE COUNTY STANDARDS, AND TO THEIR ORIGINAL LAYOUT.
25. CONTRACTOR SHALL NOT OPERATE EXISTING VALVES.
26. ALL REQUIRED DEWATERING SHALL BE INCLUDED IN THE UNIT PRICES BID.
27. ALL TREES, VEGETATION AND LANDSCAPING REPLACED AND/ OR REPLANTED SHALL BE GUARANTEED BY THE CONTRACTOR FOR 1 YEAR AFTER PLANTING.
28. THE LOCATION AND FULL EXTENT OF TRAFFIC SIGNAL LOOPS, CONDUIT AND WIRING MAY NOT BE SHOWN. THE CONTRACTOR SHALL COORDINATE A MARK-OUT OF SIGNAL LOOPS AND WIRING WITH THE GOVERNING AGENCY. LOOPS AND WIRING DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE GOVERNING AGENCY AT NO ADDITIONAL COST TO BALTIMORE COUNTY OR HOWARD COUNTY.
29. GUIDERAILS, FENCES, DRAINAGE PIPES, MAILBOXES, HEADWALLS AND OTHER FEATURES WHICH REQUIRE REINSTALLATION BUT ARE FOUND NOT TO BE REUSABLE, OR WHICH ARE DAMAGED DURING REMOVAL, SHALL BE REPLACED WITH NEW MATERIAL AT NO ADDITIONAL COST TO BALTIMORE COUNTY OR HOWARD COUNTY.
30. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH BALTIMORE COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION DATED 2000 AND AMENDED.
31. NOTIFY BALTIMORE CITY BUREAU OF WATER AND WASTEWATER AT 410-396-7807 3 DAYS BEFORE STARTING CONSTRUCTION.
32. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 PRIOR TO BEGINNING OF WORK.
33. ONLY BALTIMORE CITY SHALL OPERATE EXISTING VALVES. CONTRACTOR SHALL NOTIFY THE BALTIMORE COUNTY INSPECTOR TO ARRANGE A SHUTDOWN WITH THE CITY AT LEAST 4 DAYS PRIOR TO PROPOSED SHUTDOWN. IF THE INSPECTOR IN THE FIELD IS UNAVAILABLE, CALL THE BALTIMORE COUNTY AREA ENGINEER AT 410-887-3531. CONTACT AUGIE SEVERN AT BALTIMORE CITY WAO 410-396-0239 FOR MAIN SHUTDOWN/VALVE OPERATIONS.
34. WHEN EXCAVATING FOR UTILITIES, ALL SPOIL MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
35. FULL COMPACTION IS REQUIRED FOR ALL TRENCHES.
36. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE EROSION & SEDIMENT CONTROL PLANS (SC-1 THRU SC-8) PERMIT NO. 290-COUNTY-05.
37. MAIN SHALL HAVE A MINIMUM OF 4 FEET OF COVER EXCEPT WHERE SPECIFIED.
38. THE COST OF CONSTRUCTING UNDER OR OVER ANY EXISTING UTILITY OR CABLE SHOWN ON THIS PLAN AND ALL EXISTING SERVICE CONNECTIONS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE 36-INCH WATER MAIN. THIS SHALL INCLUDE ANY WATER SERVICE & SEWER HOUSE CONNECTIONS THAT HAVE TO BE RELOCATED DURING CONSTRUCTION OF THIS PROJECT.
39. WHEN CROSSING EXISTING UTILITIES THE CONTRACTOR IS TO SUPPORT BRACE AND PROTECT SUCH UTILITIES DURING CONSTRUCTION. (COST TO BE INCLUDED IN THE PRICE BID FOR THE 36-INCH WATER MAIN).
40. CONTRACTOR IS TO TEST PIT EXISTING UTILITIES PRIOR TO PREPARING SHOP DRAWINGS AND PRIOR TO LAYING PIPE TO WITHIN 3-20 FOOT LENGTHS OF PIPE SO INVERTS CAN BE ADJUSTED.
41. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES TO HIS OWN SATISFACTION PRIOR TO STARTING ANY WORK.
42. HIGHLY CHLORINATED WATER TO BE DISPOSED OF IN A SANITARY SEWER AT A RATE NOT TO EXCEED 100 GAL/MIN.

SURVEY CONTROL NOTES

1. THE ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION = 68.97.
2. THE COORDINATES SHOWN HEREON ARE REFERRED TO THE MARYLAND STATE PLANE DATUM NAD 83/91 USING NGS MONUMENTS GIS 86 (PID AE 2450), N. 566928.28 E. 1397313.26 AND GIS 87 (PID AE2451), N. 566798.08 E. 1393675.58.
3. GIS 86 AND GIS 87 ARE SURVEY DISKS SET IN TOP OF CONCRETE MONUMENTS.

SEQUENCE OF CONSTRUCTION

THIS SEQUENCE OF CONSTRUCTION DOES NOT ADDRESS ALL REQUIRED ACTIVITIES NEEDED TO COMPLETE THE CONTRACT. THE CONTRACTOR IS RESPONSIBLE FOR A COMPLETE SEQUENCE OF CONSTRUCTION, APPROVED IN ADVANCE OF BEGINNING WORK. THE CONTRACTOR MUST, PRIOR TO THE START OF CONSTRUCTION, OBTAIN THE APPROVAL OF BALTIMORE COUNTY AND THE APPROVAL OF THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT.

1. THE CONTRACTOR SHALL NOTIFY THE BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT (DEPRM) INSPECTION AND ENFORCEMENT DIVISION AT 410-887-3226, AT 48 HOURS PRIOR TO BEGINNING WORK.
2. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, INSPECTION AND COMPLIANCE PROGRAM AT 410-537-3510 AT LEAST 5 DAYS PRIOR TO BEGINNING WORK.
3. CLEAR AND GRUB FOR ALL SEDIMENT AND EROSION CONTROL MEASURES OR DEVICES.
4. INSTALL ALL SEDIMENT AND EROSION CONTROL DEVICES.
5. NOTIFY BALTIMORE COUNTY DEPRM, INSPECTION AND ENFORCEMENT DIVISION, UPON COMPLETION OF SAID INSTALLATION.
6. PATAPSCO VALLEY STATE PARK PIPELINE CREW NO. 1:
   1.) INSTALL TRAFFIC CONTROL MEASURES AT THE INTERSECTION OF SOUTH STREET AND WASHINGTON BOULEVARD.
   2.) ESTABLISH JACK AND BORE PITS AT SOUTH STREET AND WASHINGTON BOULEVARD INTERSECTION. INSTALL PIPELINE FROM STATION 31+09± TO STATION 36+60±. INSTALL 36-INCH WATER MAIN, FITTINGS, VALVES, AND APPURTENANCES AS SHOWN ON SHOWN ON SHEETS C-01,C-02 AND C-03. FROM STATION 3+35± TO STATION 31+90±. THE CONTRACTOR SHALL ONLY BE PERMITTED TO OPEN THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF THE TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED ON THE DOWN SLOPE OF THE TRENCH. SILT FENCE WILL BE REQUIRED ON THE DOWN SLOPE SIDE OF THE PIPE TRENCH FROM STATION 21+50 TO STATION 27+00 UNTIL THAT PORTION OF THE WATER MAIN IS COMPLETED.
   3.) PROVIDE TRAFFIC CONTROL DEVICES ALONG THE PARK ENTRANCE ROAD SO THAT ONE LANE OF TRAFFIC WILL REMAIN OPEN AT ALL TIMES. DURING THOSE PERIODS WHEN ONLY ONE LANE OF TRAFFIC IS OPEN, PROVIDE FLAGMEN AS WORK PROCEEDS ALONG THE PARK ENTRANCE ROAD.
   4.) INSTALL 36-INCH WATER MAIN, 54-INCH STEEL CASING BETWEEN CSX RAILROAD ABUTMENTS, VALVE VAULTS, FITTINGS, VALVES, AND APPURTENANCES AS SHOWN ON SHEET C-03 FROM STATION 2+25± TO STATION 3+35±. CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING ADJACENT TO BGE TOWER AND THE CSX RAILROAD BRIDGE ABUTMENTS. SILT FENCE SHALL BE REQUIRED ON THE DOWN SLOPE OF THE TRENCH FROM STATION 2+25 TO STATION 3+35.
   5.) INSTALL 36-INCH WATER MAIN, FITTINGS, VALVES, AND APPURTENANCES INCLUDING THE METERING VAULT AS SHOWN ON SHEET C-03 AND C-08 FROM STATION 0+10± TO STATION 2+25±. SILT FENCE SHALL BE REQUIRED ON THE DOWN SLOPE OF THE TRENCH FROM STATION 0+10 TO STATION 2+45.
7. WASHINGTON BOULEVARD (ROUTE 1) PIPELINE CREW NO. 2:
   1.) INSTALL TRAFFIC CONTROL MEASURES ALONG WASHINGTON BOULEVARD
   2.) INSTALL 36-INCH WATER MAIN, FITTINGS, VALVES AND APPURTENANCES FROM STATION 100+00 TO 128+50 AS SHOWN ON SHEETS C-04, C-05 AND C-06. THE CONTRACTOR SHALL ONLY BE PERMITTED TO OPEN THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF THE TRENCH MUST REMAIN OPEN LONGER THEN ONE DAY, SILT FENCE SHALL BE PLACED ON THE DOWN SLOPE OF THE TRENCH.
   3.) SILT FENCE WILL BE REQUIRED ON JACK AND BORE PITS (STATION 100+00, STATION 115+50, STATION 116+50, STATION 124+50 AND STATION 127+00) UNTIL THE WORK IS COMPLETED.
   4.) DURING INSTALLATION OF 54-INCH STEEL CASING (UNDER RT. 195 BRIDGE ABUTMENT) MAINTAIN SILT FENCE UNTIL WORK IS COMPLETED.
   5.) CONSTRUCT TEMPORARY TRUCK PARKING LOT ON DIAGEO PROPERTY AS SHOWN ON SHEET C-16. AND IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION SHOWN ON SHEET C-16.
   6.) CONSTRUCT 36-INCH WATER MAIN, FITTINGS AND APPURTENANCES FORM STATION 129+50± TO STATION 134+50±. CONTRACTOR MUST COORDINATE WITH DIAGEO PROPERTY MANAGER AT LEAST SEVEN (7) DAYS IN ADVANCE OF STARTING THIS WORK. CONTRACTOR MUST COMPLETE THIS WORK WITHIN FIVE (5) CALENDAR DAYS.
   7.) CONSTRUCT 36-INCH WATER MAIN , FITTING, VALVES AND APPURTENANCES FROM STATION 134+50± TO STATION 141+50± USING CAUTION TO FOLLOW ALL REQUIREMENTS OF CSX RAILROAD.
8. TEST WATER MAIN FROM STATION 0+15± TO STATION 141+50±.
9. AFTER WATER MAIN HAS BEEN SUCCESSFULLY TESTED, REMOVE TEMPORARY PAVEMENT OVER THE TRENCH AND PROVIDE FROM PERMANENT PAVEMENT REPAIR INCLUDING MILL AND OVERLAY OF THE DIAGEO PARKING LOT AND OVERLAY OF RIVER ROAD AS SHOWN ON SHEET C-17.
11. HOWARD COUNTY TO INSTALL AFO CABLE BEFORE 36" WATER MAIN IS TESTED
12. INSTALL WATER MAIN INTERCONNECTION AT STATION 32+00
13. SHUTDOWN EXISTING 36" WATER MAIN AND MAKE CONNECTIONS AT EACH END OF THE NEW WATER MAIN.
14. PLACE NEW 36" WATER MAIN IN SERVICE. (THIS WORK TO BE COMPLETED BETWEEN OCT. 1 AND MAY 1)
15. REMOVE SEDIMENT CONTROL DEVICES.
16. TOPSOIL, SEED AND MULCH.
17. ABANDONED 36" PIPE TO BE FILLED WITH FLOWABLE FILL.

LAND ACQUISITION SYMBOLS

- EXISTING UTILITY EASEMENT
- **PROPOSED DRAINAGE & UTILITY EASEMENT**
- **TEMPORARY CONSTRUCTION EASEMENT**

LEGEND:

EXISTING UTILITIES

- SANITARY SEWER MAIN
- SANITARY SEWER FORCE MAIN (FM)
- SANITARY SEWER MANHOLE (S)
- SANITARY SEWER VALVE
- STORM DRAIN
- STORM DRAIN MANHOLE (D)
- STORM DRAIN JUNCTION CHAMBER
- INLET, CURB TYPE
- INLET, GRATING TYPE
- INLET, CURB AND GRATING TYPE
- WATER MAIN (W)
- WATER MAIN MANHOLE (W)
- WATER METER BOX (M)
- FIRE HYDRANT
- ELECTRIC (UNDERGROUND) (E)
- TELEPHONE (UNDERGROUND) (T)
- CABLE (UNDERGROUND) (C)
- GAS MAINS (G)
- GAS METER (G)
- OVERHEAD ELECTRIC (OH)
- WATER MAIN VAULT
- VALVE
- JUNCTION BOX (J)
- CONDUIT MANHOLE (C)
- ELECTRIC MANHOLE (E)
- TELEPHONE MANHOLE (T)

PROPOSED IMPROVEMENTS

- **WATER MAIN**
- **PROPOSED CURB**

EXISTING FEATURES

- ABANDONED UTILITY
- GUIDE RAIL
- FENCE (X)
- FENCE, HEDGE
- POWER / TELEPHONE POLE
- RAILROAD TRACKS
- DECIDUOUS TREE
- CONIFEROUS TREE
- SPOT ELEVATION +25.00
- MINOR CONTOUR
- MAJOR CONTOUR (400)
- BORING B-20
- TEST PIT
- BENCHMARK
- EXISTING CURB
- WALKS (NOTE WIDTH AND TYPE)
- EDGE OF ROAD
- EXISTING RIGHT-OF-WAY LINE
- EXISTING PROPERTY LINE
- CENTERLINE OF EXISTING R/W OR ROAD
- SIGN

HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

DWG FILENAME:

SHEET DESIGNATION	CONTRACT NO.
G-2	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 2 OF 36
	DRAWING NO.
	2009-3351
	FILE NO.

CITY OF BALTIMORE

Approved 3/8/12 RC 3/15/12

Amy Tomasko 3/15/12
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE

REVISION - CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE

CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 1/24/12

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

DATE: 1-16-2012

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB

AS-BUILT PER RECORD PRINT — DRAWN BY: JCD

BY: — CHKD BY: SBN

DATE:

REVISION	BY	DATE
R.O.W NO.		

DRAWING SCALE	
PLAN SCALE:	AS NOTED
PROFILE SCALE:	AS NOTED / AS NOTED

DEPARTMENT OF PUBLIC WORKS

APPROVED: DIRECTOR — DATE: 1-24-12

KEY SHEET	POSITION SHT
1	

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:	X	RJF	X		GAK	MJM	SDP
DATE REVIEWED:		11/23/12		1/22/12	1/20/12	1/26/12	1/23/12

BUR. OF ENGINEERING & CONSTRUCTION

APPROVED BY: CHIEF — DATE: 1/17/12

AS-BUILT JUNE 2016

C.W.O. 51738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
GENERAL NOTES, SEQUENCE OF CONSTRUCTION, LEGEND

SUBDIVISION: ST. DENIS

ELECTION DISTRICT: 13

PIPING SCHEDULE			
STA.	COORDINATES		DESCRIPTION
	NORTH	EAST	
0+00	566,790.26	1,393,422.38	CONNECT TO EXISTING 36" WATER MAIN
0+9.75	566,781.61	1,393,426.88	5.1° HORIZONTAL BEND
0+20.5	566,773.67	1,393,434.18	CENTERLINE DEWATERING VAULT
0+35.62	566,762.56	1,393,444.39	VENTURI METER VAULT (FACE OF WALL)
0+48.62	566,752.99	1,393,453.18	VENTURI METER VAULT (FACE OF WALL)
1+60.00	566,670.62	1,393,528.85	CENTERLINE AIR RELEASE VAULT
2+31.00	566,619.27	1,393,576.02	CENTERLINE VALVE VAULT
2+42.65	566,610.09	1,393,584.44	24.6° HORIZONTAL BEND

PIPING SCHEDULE			
STA.	COORDINATES		DESCRIPTION
	NORTH	EAST	
3+12.95	566,582.83	1,393,649.24	18.67° HORIZONTAL BEND
3+26.00	566,581.93	1,393,661.59	CENTERLINE VALVE VAULT
3+35.86	566,581.17	1,393,672.09	45° HORIZONTAL BEND
3+74.80	566,606.64	1,393,701.55	28.7° HORIZONTAL BEND
4+39.01	566,620.16	1,393,764.33	22.5° HORIZONTAL BEND
5+01.56	566,608.92	1,394,825.86	19.83° HORIZONTAL BEND
5+35.00	566,614.43	1,393,858.83	4.7° HORIZONTAL BEND
7+79.18	566,674.27	1,394,095.57	3.68° HORIZONTAL BEND
12+11.38	566,806.89	1,394,506.92	MATCHLINE

BILL OF MATERIALS		
QUANTITY	DESCRIPTION	
1198 L.F.	PCCP	36–INCH
1 EA.	VENTURI METER & VAULT	36–INCH
1 EA.	DEWATERING VALVE & VAULT	6–INCH
1 EA.	AIR RELEASE VALVE & VAULT	6–INCH
2 EA.	VALVE & VALVE VAULT	36–INCH
70 L.F.	STEEL CASING (OPEN CUT)	54–INCH

FOR ENLARGEMENT OF THIS AREA SEE SHEET C-8 (SEE CONSTRUCTION NOTE)

SEE SHEET NO. TC-2 FOR TRAFFIC CONTROL REQUIREMENTS ALONG THE PARK ACCESS ROADWAY.

SEE EROSION & SEDIMENT CONTROL DRAWINGS FOR REQUIREMENTS ALONG THE PARK ACCESS ROADWAY.

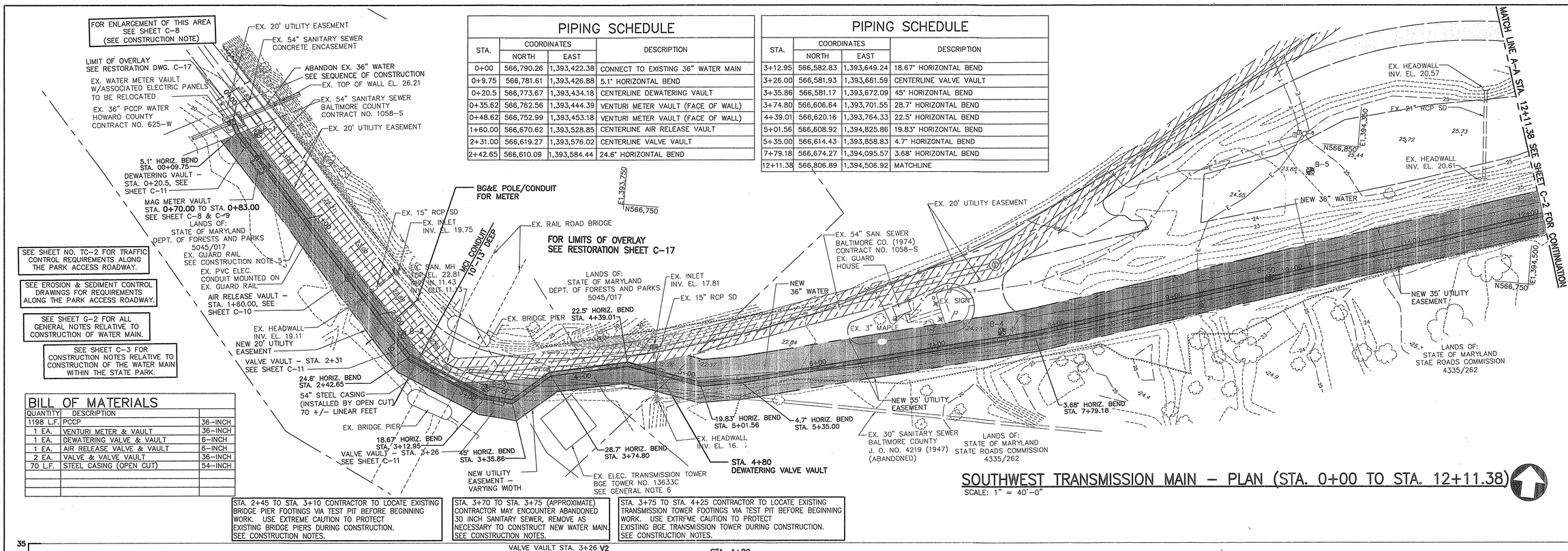
SEE SHEET G-2 FOR ALL GENERAL NOTES RELATIVE TO CONSTRUCTION OF WATER MAIN.

SEE SHEET C-3 FOR CONSTRUCTION NOTES RELATIVE TO CONSTRUCTION OF THE WATER MAIN WITHIN THE STATE PARK.

STA. 2+45 TO STA. 3+10 CONTRACTOR TO LOCATE EXISTING BRIDGE PIER FOOTINGS VIA TEST PIT BEFORE BEGINNING WORK. USE EXTREME CAUTION TO PROTECT EXISTING BRIDGE PIERS DURING CONSTRUCTION. SEE CONSTRUCTION NOTES.

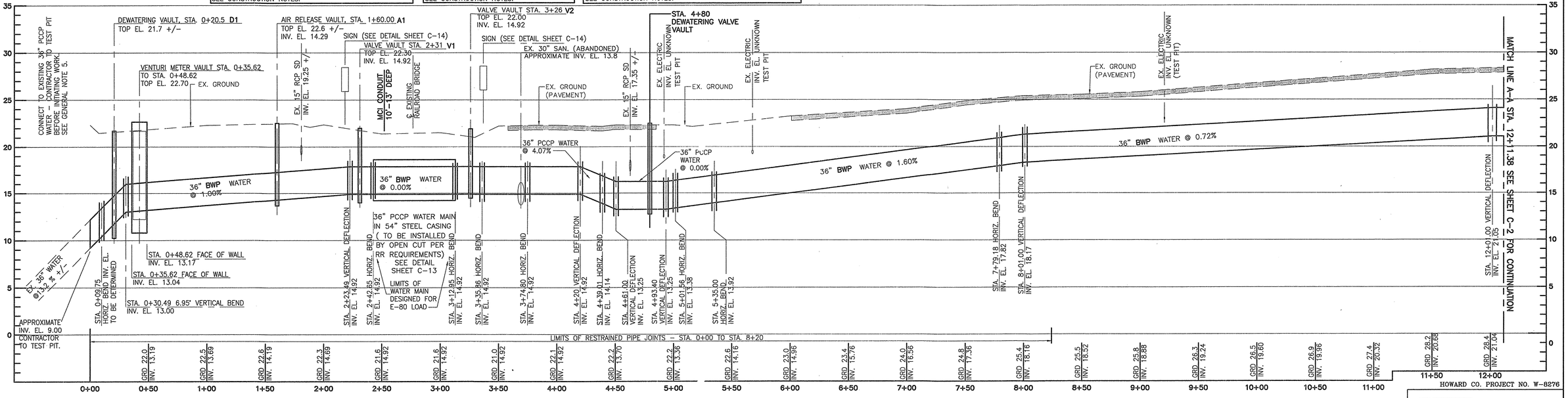
STA. 3+70 TO STA. 3+75 (APPROXIMATE) CONTRACTOR MAY ENCOUNTER ABANDONED 30 INCH SANITARY SEWER, REMOVE AS NECESSARY TO CONSTRUCT NEW WATER MAIN. SEE CONSTRUCTION NOTES.

STA. 3+75 TO STA. 4+25 CONTRACTOR TO LOCATE EXISTING TRANSMISSION TOWER FOOTINGS VIA TEST PIT BEFORE BEGINNING WORK. USE EXTRFME CAUTION TO PROTECT EXISTING BGE TRANSMISSION TOWER DURING CONSTRUCTION. SEE CONSTRUCTION NOTES.



SOUTHWEST TRANSMISSION MAIN – PLAN (STA. 0+00 TO STA. 12+11.38)

SCALE: 1" = 40'–0"



SOUTHWEST TRANSMISSION MAIN – PROFILE (STA. 0+00 TO STA. 12+11.38)

HORIZONTAL SCALE: 1" = 40'–0"
VERTICAL SCALE: 1" = 5'–0"

HOWARD CO. PROJECT NO. W-8276

CITY OF BALTIMORE

CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12

REVISION – CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE

CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR, DEPT OF PUBLIC WORKS — DATE 3/15/12

SEAL

PROFESSIONAL CERTIFICATION

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ENGINEER: SYAM B. NAYER — DESIGN BY: BBB

AS-BUILT PER RECORD PRINT — DRAWN BY: JCD

BY: — CHKD BY: SBN

DATE: 1-10-2012 — DATE:

REVISION

BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
		R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		ROF		HB	GK	MM	JDF
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/20/12	1/23/12

DRAWING SCALE

PLAN SCALE:	AS NOTED
PROFILE SCALE:	AS NOTED

DEPARTMENT OF PUBLIC WORKS

APPROVED BY: DIRECTOR

DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION

APPROVED BY: CHIEF

DATE: 1/27/12

AS-BUILT JUNE 2016 — CWO51738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
PLAN AND PROFILE – STA. 0+00 TO STA. 12+11.38

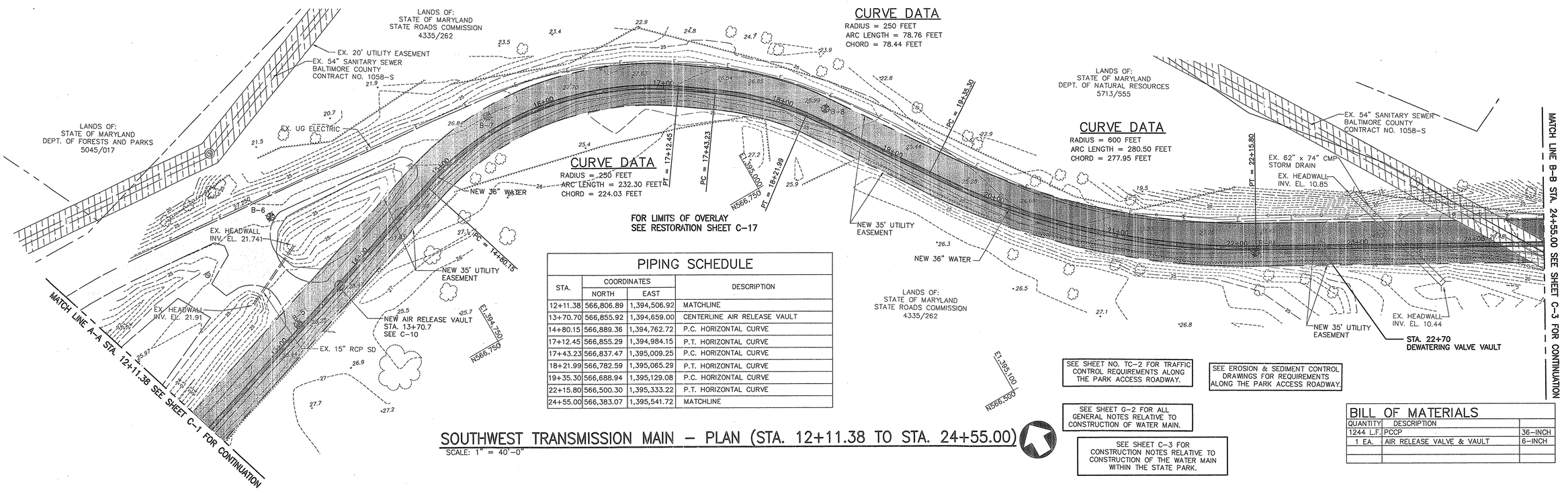
SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

HORIZ. SCALE:1"=40' — VERT. SCALE:1"=5'

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

SHEET DESIGNATION	CONTRACT NO.
C-1	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 3 OF 36
	DRAWING NO.
	2009-3352
	FILE NO.

DWG FILENAME:



PIPING SCHEDULE

STA.	COORDINATES		DESCRIPTION
	NORTH	EAST	
12+11.38	566,806.89	1,394,506.92	MATCHLINE
13+70.70	566,855.92	1,394,659.00	CENTERLINE AIR RELEASE VAULT
14+80.15	566,889.36	1,394,762.72	P.C. HORIZONTAL CURVE
17+12.45	566,855.29	1,394,984.15	P.T. HORIZONTAL CURVE
17+43.23	566,837.47	1,395,009.25	P.C. HORIZONTAL CURVE
18+21.99	566,782.59	1,395,065.29	P.T. HORIZONTAL CURVE
19+35.30	566,688.94	1,395,129.08	P.C. HORIZONTAL CURVE
22+15.80	566,500.30	1,395,333.22	P.T. HORIZONTAL CURVE
24+55.00	566,383.07	1,395,541.72	MATCHLINE

SEE SHEET NO. TC-2 FOR TRAFFIC CONTROL REQUIREMENTS ALONG THE PARK ACCESS ROADWAY.

SEE EROSION & SEDIMENT CONTROL DRAWINGS FOR REQUIREMENTS ALONG THE PARK ACCESS ROADWAY.

SEE SHEET G-2 FOR ALL GENERAL NOTES RELATIVE TO CONSTRUCTION OF WATER MAIN.

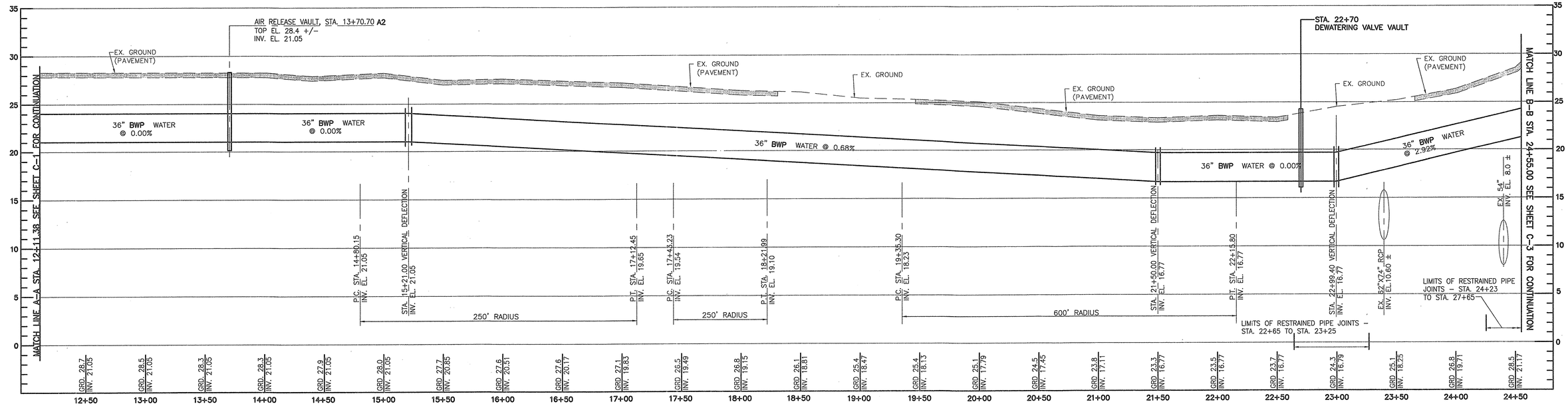
SEE SHEET C-3 FOR CONSTRUCTION NOTES RELATIVE TO CONSTRUCTION OF THE WATER MAIN WITHIN THE STATE PARK.

BILL OF MATERIALS

QUANTITY	DESCRIPTION	
1244 L.F.	PCCP	36-INCH
1 EA.	AIR RELEASE VALVE & VAULT	6-INCH

SOUTHWEST TRANSMISSION MAIN – PLAN (STA. 12+11.38 TO STA. 24+55.00)

SCALE: 1" = 40'-0"



SOUTHWEST TRANSMISSION MAIN – PROFILE (STA. 12+11.38 TO STA. 24+55.00)

HORIZONTAL SCALE: 1" = 40'-0"
VERTICAL SCALE: 1" = 5'-0"

HOWARD CO. PROJECT NO. W-8276

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE	DIRECTOR, DEPT OF PUBLIC WORKS — DATE 6.26.12
	CHIEF, WATER ENGINEERING SECTION — DATE	

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB — DRAWN BY: JCD — CHKD BY: SBN

AS-BUILT PER RECORD PRINT — BY: — DATE:

DATE: 1-25-2012

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

DRAWING SCALE	
PLAN SCALE:	AS NOTED
PROFILE SCALE:	AS NOTED
	AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: DIRECTOR
DATE: 1-24-12

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RDF		LR	GK	mjm	JDP
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/20/12	1/28/12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE: 1/17/12

AS-BUILT JUNE 2016 CWO 5/738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
PLAN AND PROFILE – STA. 12+11.38 TO STA. 24+55.00

SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

40' 20' 0 40' HORIZ. SCALE:1"=40'

5' 2.5' 0 5' VERT. SCALE:1"=5'

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

DWG FILENAME:

SHEET DESIGNATION	CONTRACT NO.
C-2	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 4 OF 36
	DRAWING NO.
	2009-3353
	FILE NO.

PIPING SCHEDULE

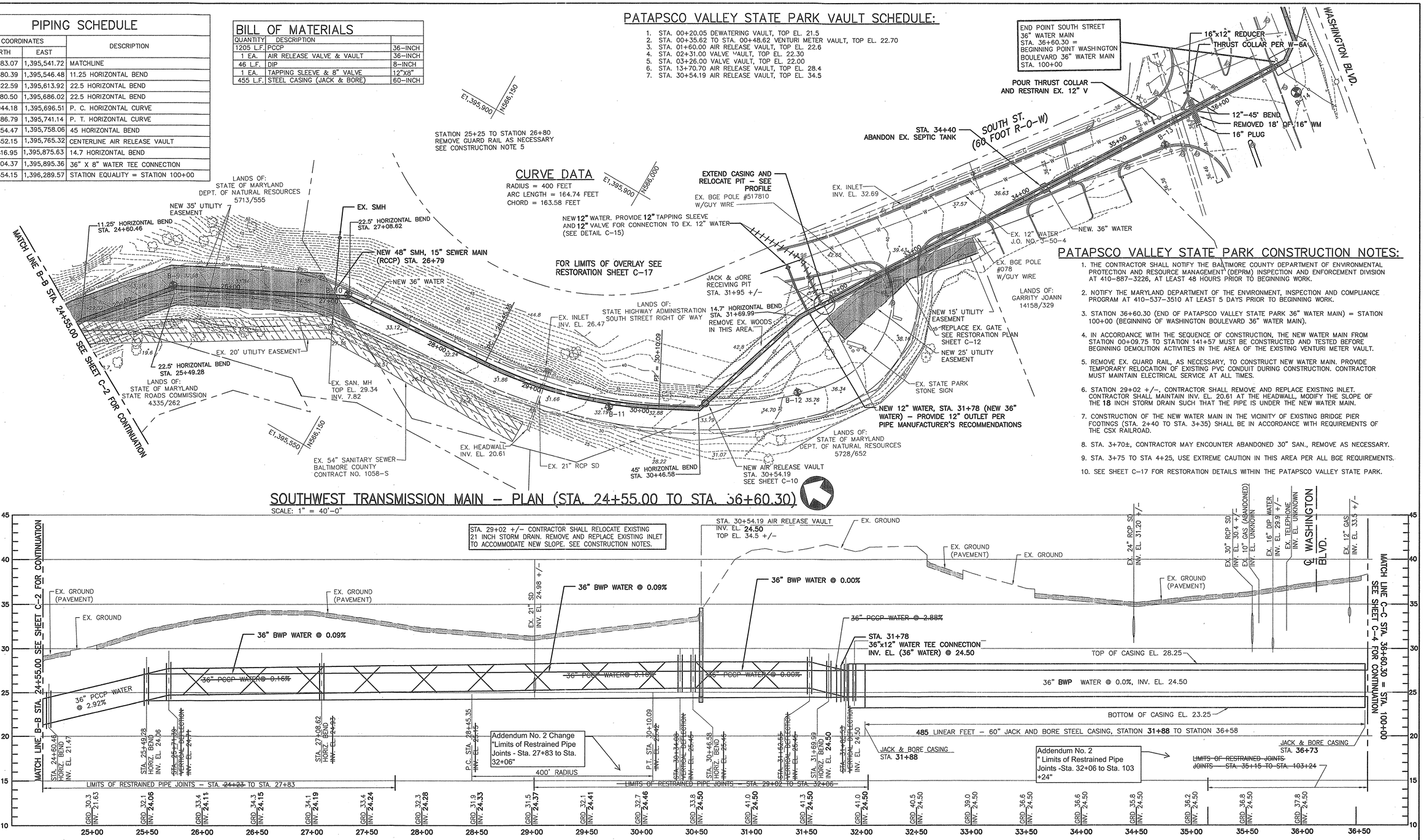
STA.	COORDINATES		DESCRIPTION
	NORTH	EAST	
24+55.00	566,383.07	1,395,541.72	MATCHLINE
24+60.46	566,380.39	1,395,546.48	11.25 HORIZONTAL BEND
25+49.28	566,322.59	1,395,613.92	22.5 HORIZONTAL BEND
27+08.62	566,180.50	1,395,686.02	22.5 HORIZONTAL BEND
28+45.35	566,044.18	1,395,696.51	P. C. HORIZONTAL CURVE
30+10.09	565,886.79	1,395,741.14	P. T. HORIZONTAL CURVE
30+46.58	565,854.47	1,395,758.06	45 HORIZONTAL BEND
30+54.19	565,852.15	1,395,765.32	CENTERLINE AIR RELEASE VAULT
31+69.99	565,816.95	1,395,875.63	14.7 HORIZONTAL BEND
31+93.38	565,804.37	1,395,895.36	36" X 8" WATER TEE CONNECTION
36+60.30	565,554.15	1,396,289.57	STATION EQUALITY = STATION 100+00

BILL OF MATERIALS

QUANTITY	DESCRIPTION	
1205 L.F.	PCCP	36–INCH
1 EA.	AIR RELEASE VALVE & VAULT	36–INCH
46 L.F.	DIP	8–INCH
1 EA.	TAPPING SLEEVE & 8" VALVE	12"X8"
455 L.F.	STEEL CASING (JACK & BORE)	60–INCH

PATAPSCO VALLEY STATE PARK VAULT SCHEDULE:

1. STA. 00+20.05 DEWATERING VAULT, TOP EL. 21.5
2. STA. 00+35.62 TO STA. 00+48.62 VENTURI METER VAULT, TOP EL. 22.70
3. STA. 01+60.00 AIR RELEASE VAULT, TOP EL. 22.6
4. STA. 02+31.00 VALVE VAULT, TOP EL. 22.30
5. STA. 03+26.00 VALVE VAULT, TOP EL. 22.00
6. STA. 13+70.70 AIR RELEASE VAULT, TOP EL. 28.4
7. STA. 30+54.19 AIR RELEASE VAULT, TOP EL. 34.5



PATAPSCO VALLEY STATE PARK CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT (DEPRM) INSPECTION AND ENFORCEMENT DIVISION AT 410–887–3226, AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
2. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, INSPECTION AND COMPLIANCE PROGRAM AT 410–537–3510 AT LEAST 5 DAYS PRIOR TO BEGINNING WORK.
3. STATION 36+60.30 (END OF PATAPSCO VALLEY STATE PARK 36" WATER MAIN) = STATION 100+00 (BEGINNING OF WASHINGTON BOULEVARD 36" WATER MAIN).
4. IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION, THE NEW WATER MAIN FROM STATION 00+09.75 TO STATION 141+57 MUST BE CONSTRUCTED AND TESTED BEFORE BEGINNING DEMOLITION ACTIVITIES IN THE AREA OF THE EXISTING VENTURI METER VAULT.
5. REMOVE EX. GUARD RAIL, AS NECESSARY, TO CONSTRUCT NEW WATER MAIN. PROVIDE TEMPORARY RELOCATION OF EXISTING PVC CONDUIT DURING CONSTRUCTION. CONTRACTOR MUST MAINTAIN ELECTRICAL SERVICE AT ALL TIMES.
6. STATION 29+02 +/–, CONTRACTOR SHALL REMOVE AND REPLACE EXISTING INLET. CONTRACTOR SHALL MAINTAIN INV. EL. 20.61 AT THE HEADWALL, MODIFY THE SLOPE OF THE 18 INCH STORM DRAIN SUCH THAT THE PIPE IS UNDER THE NEW WATER MAIN.
7. CONSTRUCTION OF THE NEW WATER MAIN IN THE VICINITY OF EXISTING BRIDGE PIER FOOTINGS (STA. 2+40 TO STA. 3+35) SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF THE CSX RAILROAD.
8. STA. 3+70±, CONTRACTOR MAY ENCOUNTER ABANDONED 30" SAN., REMOVE AS NECESSARY.
9. STA. 3+75 TO STA 4+25, USE EXTREME CAUTION IN THIS AREA PER ALL BGE REQUIREMENTS.
10. SEE SHEET C–17 FOR RESTORATION DETAILS WITHIN THE PATAPSCO VALLEY STATE PARK.

SOUTHWEST TRANSMISSION MAIN – PLAN (STA. 24+55.00 TO STA. 36+60.30)

SCALE: 1" = 40'–0"

SOUTHWEST TRANSMISSION MAIN – PROFILE (STA. 24+55.00 TO STA. 36+60.30)

HORIZONTAL SCALE: 1" = 40'–0"
VERTICAL SCALE: 1" = 5'–0"

HORIZ. SCALE:1"=40' VERT. SCALE:1"=5'

HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

DWG FILENAME:

CITY OF BALTIMORE
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12

REVISION – CITY OF BALTIMORE
CHIEF, UTILITY ENGINEERING — DATE
CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DIRECTOR, DEPT OF PUBLIC WORKS — DATE 6/6/12

AS–BUILT JUNE 2016

SEAL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013
ENGINEER: SYAM B. NAYER — DESIGN BY: BBB
AS–BUILT PER RECORD PRINT — DRAWN BY: JCD
BY: — CHKD BY: SBN
DATE: — DATE : 1-10-2012

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

DRAWING SCALE
PLAN SCALE: AS NOTED
PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: DIRECTOR
DATE: 1-24-12

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		LEE	GK	MM	JDP
DATE REVIEWED:		11/23/12		1/23/12	1/20/12	1/20/12	1/23/12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE: 1/12/13

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
PLAN AND PROFILE – STA. 24+55.00 TO STA. 36+60.30

SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

C.W.O. 5/738

SHEET DESIGNATION	CONTRACT NO.
C–3	44–4618
	JOB ORDER NO.
	203–0067–0281
	SHEET 5 OF 36
	DRAWING NO.
	2009–3354
	FILE NO. 27/28

STATION 104+10 ± CONTRACTOR SHALL PROVIDE TEMPORARY BRACING OF TRAFFIC SIGNAL POLE. USE EXTREME CAUTION WHILE EXCAVATING IN VICINITY OF POLE.

STATION 105+50 TO STATION 106+75 CONTRACTOR SHALL RELOCATE EXISTING TELECOMMUNICATION LINE, SEE NOTE 6 ON SHEET C-6

STATION 106+70 TO STATION 108+70 USE EXTREME CAUTION – SEE NOTE 7 ON SHEET C-6

STATION 100+08 ± RELOCATE EX. TELEPHONE SEE NOTE 4 ON SHEET C-6

STATION 101+70 STATION 103+40 CONTRACTOR SHALL PROVIDE TEMPORARY BRACING & SHALL USE CAUTION IN VICINITY OF BGE POLE NO. 222608 AND POLE NO. 188518

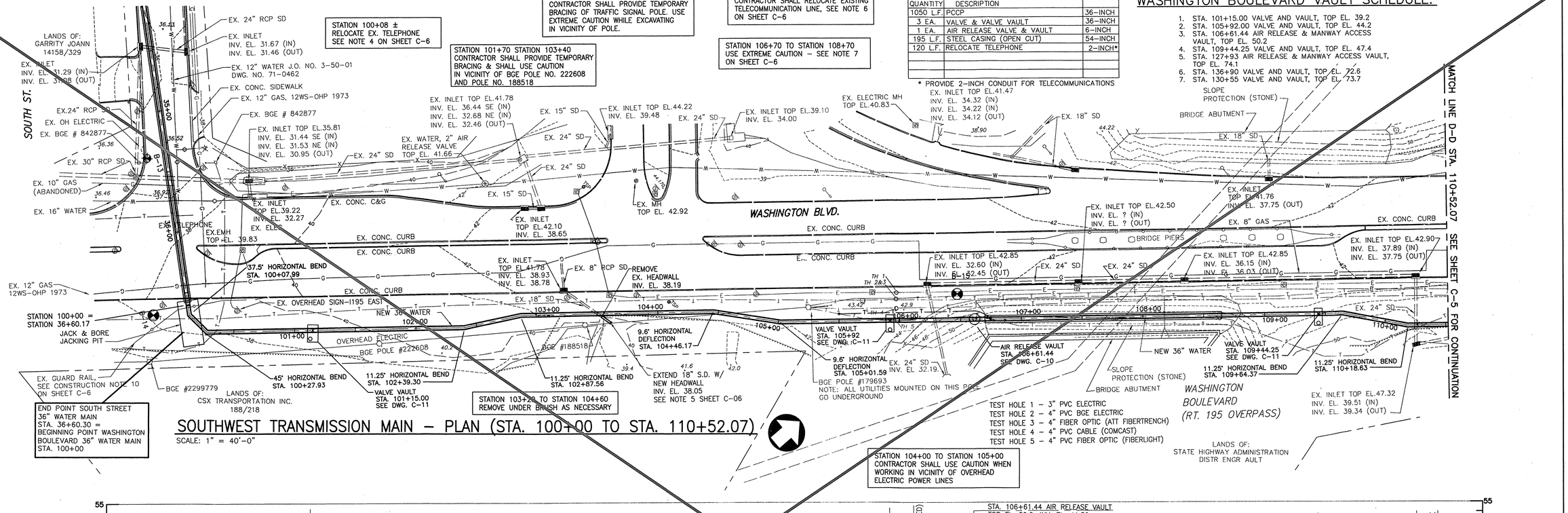
BILL OF MATERIALS

QUANTITY	DESCRIPTION	
1050 L.F.	PCCP	36–INCH
3 EA.	VALVE & VALVE VAULT	36–INCH
1 EA.	AIR RELEASE VALVE & VAULT	6–INCH
195 L.F.	STEEL CASING (OPEN CUT)	54–INCH
120 L.F.	RELOCATE TELEPHONE	2–INCH*

* PROVIDE 2–INCH CONDUIT FOR TELECOMMUNICATIONS

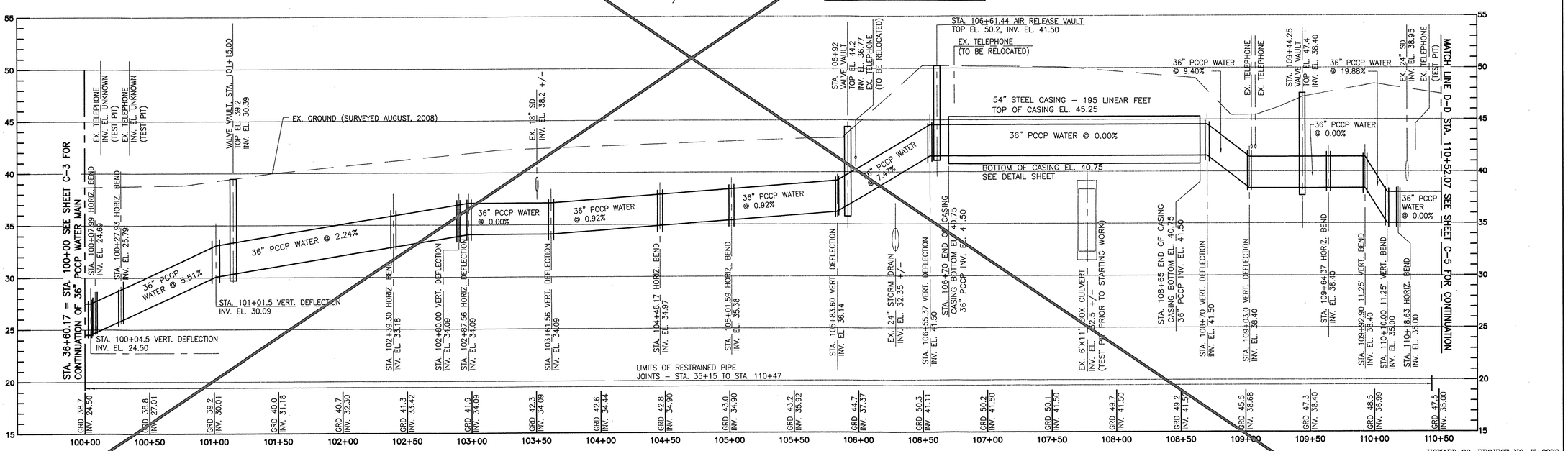
WASHINGTON BOULEVARD VAULT SCHEDULE:

1. STA. 101+15.00 VALVE AND VAULT, TOP EL. 39.2
2. STA. 105+92.00 VALVE AND VAULT, TOP EL. 44.2
3. STA. 106+61.44 AIR RELEASE & MANWAY ACCESS VAULT, TOP EL. 50.2
4. STA. 109+44.25 VALVE AND VAULT, TOP EL. 47.4
5. STA. 127+93 AIR RELEASE & MANWAY ACCESS VAULT, TOP EL. 74.1
6. STA. 136+90 VALVE AND VAULT, TOP EL. 72.6
7. STA. 130+55 VALVE AND VAULT, TOP EL. 73.7



SOUTHWEST TRANSMISSION MAIN – PLAN (STA. 100+00 TO STA. 110+52.07)

SCALE: 1" = 40'–0"



SOUTHWEST TRANSMISSION MAIN – PROFILE (STA. 100+00 TO STA. 110+52.07)

HORIZONTAL SCALE: 1" = 40'–0"
VERTICAL SCALE: 1" = 5'–0"

HOWARD CO. PROJECT NO. W-8276

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/1/12	CHIEF, UTILITY ENGINEERING — DATE	DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/24/12
	CHIEF, WATER ENGINEERING SECTION — DATE	

SEAL

PROFESSIONAL CERTIFICATION

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ENGINEER: SYAM B. NAYER — DESIGN BY: BBB — DRAWN BY: JCD — CHKD BY: SBN

AS-BUILT PER RECORD PRINT BY: DATE:

DATE: 1-10-2012

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		ROF			GAK	JOP	
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/23/12	1/23/12

DRAWING SCALE	
PLAN SCALE:	AS NOTED
PROFILE SCALE:	AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: DIRECTOR
DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE: 6/17/12

AS-BUILT JUNE 2016

CWO51738

HORIZ. SCALE:1"=40' VERT. SCALE:1"=5'

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

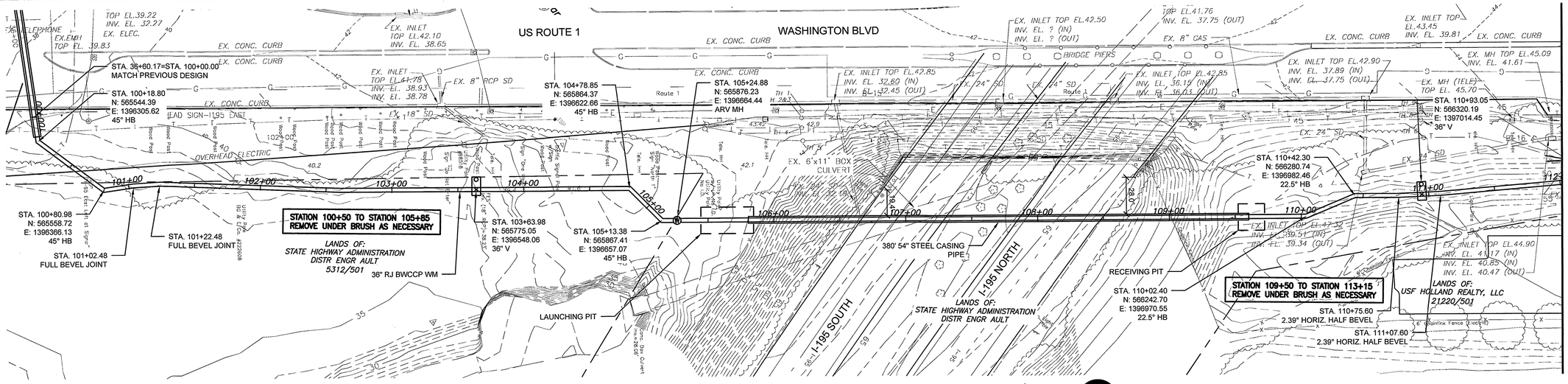
SOUTHWEST TRANSMISSION MAIN
PLAN AND PROFILE – STA. 100+00 TO STA. 110+52.07

SUBDIVISION: ST. LENIS

ELECTION DISTRICT: 13

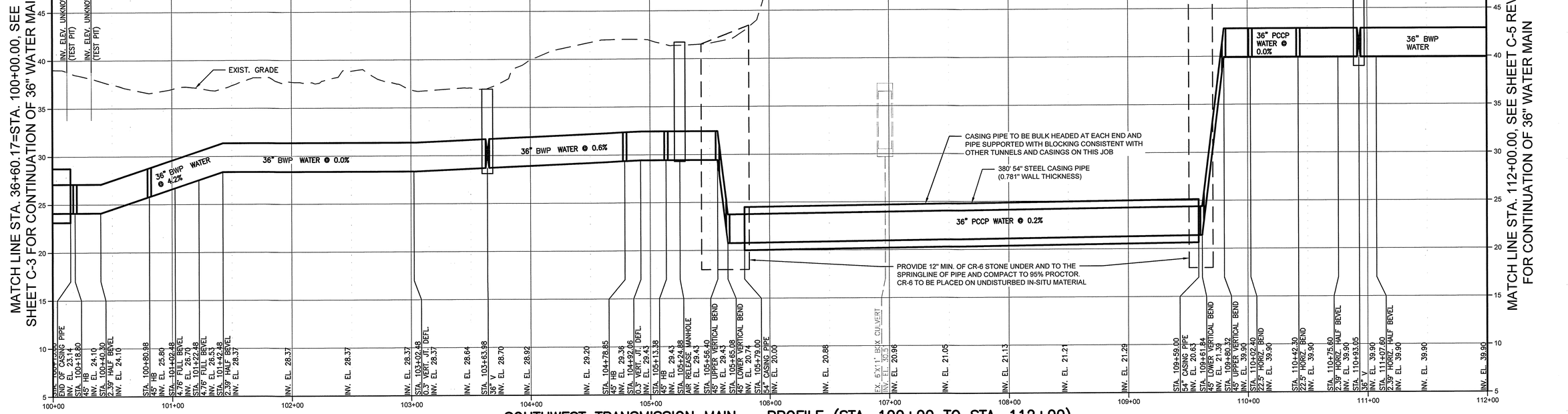
SHEET DESIGNATION	CONTRACT NO.
C-4	44-4618
	JOB ORDER NO.
	203-0067-0281
SHEET 6 OF 36	
	DRAWING NO.
	2009-3355
	FILE NO.

DWG FILENAME:



SOUTHWEST TRANSMISSION MAIN – PLAN (STA. 100+00 TO STA. 112+00)

SCALE: 1" = 40'-0"



SOUTHWEST TRANSMISSION MAIN – PROFILE (STA. 100+00 TO STA. 112+00)

HORIZONTAL SCALE: 1" = 40'-0"
VERTICAL SCALE: 1" = 5'-0"

CITY OF BALTIMORE — DEPARTMENT OF PUBLIC WORKS — BUREAU OF WATER AND WASTEWATER ENGR. DIV. — CHIEF, WATER & WASTEWATER ENGINEERING — 4/15/14

REVISION – CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE
CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DIRECTOR, DEPT OF PUBLIC WORKS — 3/6/14 — DATE

1"=5' 5 0 5 10
1"=40' 40 0 40 80

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19888 EXPIRATION DATE DECEMBER 8, 2015

ENGINEER: ROBERT J. DUDLEY
DESIGN BY: RFW
DRAWN BY: RFW
CHKD BY: RJD
AS-BUILT PER RECORD PRINT
BY:
DATE:

REVISION

	BY	DATE

P.W.A. NO.
R.O.W NO.
KEY SHEET
POSITION SHT

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF			GAK	GSP	JDP
DATE REVIEWED:		3/24/14		3/24/14	3/24/14	3/21/14	3/21/14

DRAWING SCALE
PLAN SCALE: 1"=40'
PROFILE SCALE: 1"=5'
1"=40'

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: DIRECTOR
DATE:
BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE:

AS-BUILT JUNE 2016

HOWARD CO. PROJECT NO. W-6976

O'BRIEN & GERE
11350 McCORMICK ROAD, SUITE 304
HUNT VALLEY, MARYLAND 21031

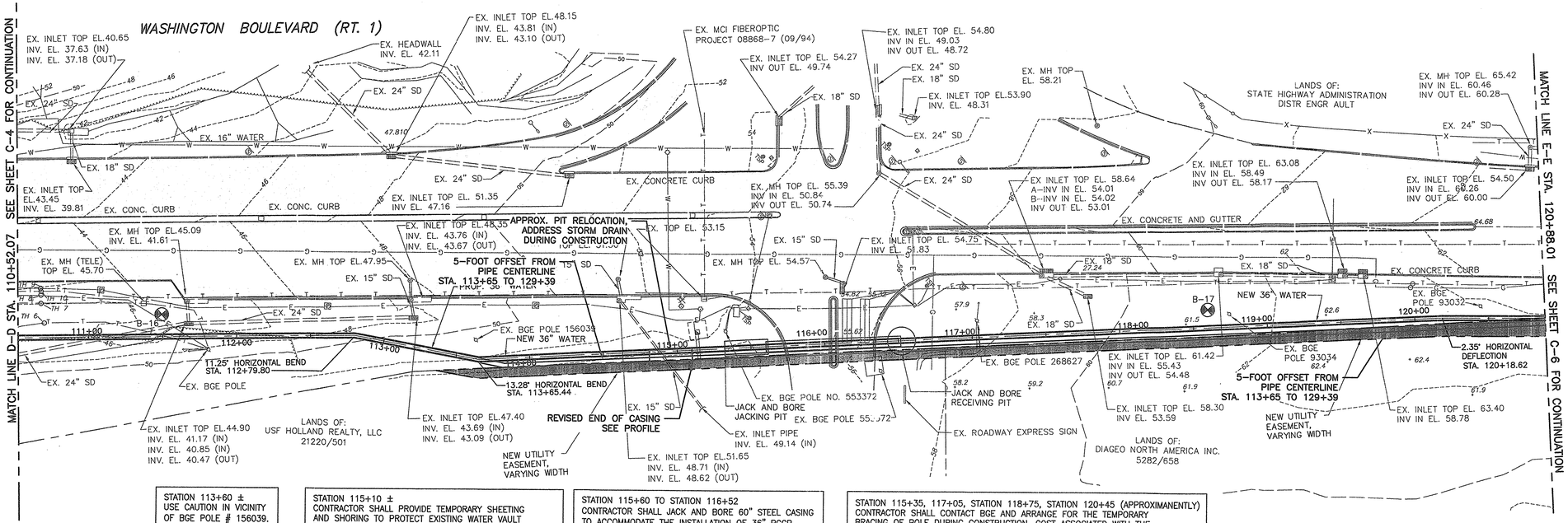
CW.O.51738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
PLAN AND PROFILE STA. 100+00 TO STA. 112+00

SUBDIVISION: SAINT DENIS
ELECTION DISTRICT: 13

SHEET DESIGNATION	CONTRACT NO.
C-4 REV	44-4016
JOB ORDER NO.	208-0067-0001
SHEET 6A OF 36	DRAWING NO.
2009-3386	FILE NO. 25



STATION 111+40 TO STATION 112+50
REMOVE UNDERBRUSH AS NECESSARY

STATION 113+60 ±
USE CAUTION IN VICINITY OF BGE POLE # 156039.

STATION 115+10 ±
CONTRACTOR SHALL PROVIDE TEMPORARY SHEETING AND SHORING TO PROTECT EXISTING WATER VAULT DURING CONSTRUCTION. ANY DAMAGE TO THE EXISTING VAULT MUST BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

STATION 115+60 TO STATION 116+52
CONTRACTOR SHALL JACK AND BORE 60" STEEL CASING TO ACCOMMODATE THE INSTALLATION OF 36" PCCP WATER MAIN. MAINTAIN ENTRANCE ACCESS AT ALL TIMES.

STATION 115+35, 117+05, STATION 118+75, STATION 120+45 (APPROXIMANENTLY)
CONTRACTOR SHALL CONTACT BGE AND ARRANGE FOR THE TEMPORARY BRACING OF POLE DURING CONSTRUCTION. COST ASSOCIATED WITH THE BRACING OF THE POLE WILL BE PAID BY THE OWNER.

SOUTHWEST TRANSMISSION MAIN – PLAN (STA. 110+52.07 TO STA. 120+88.01)

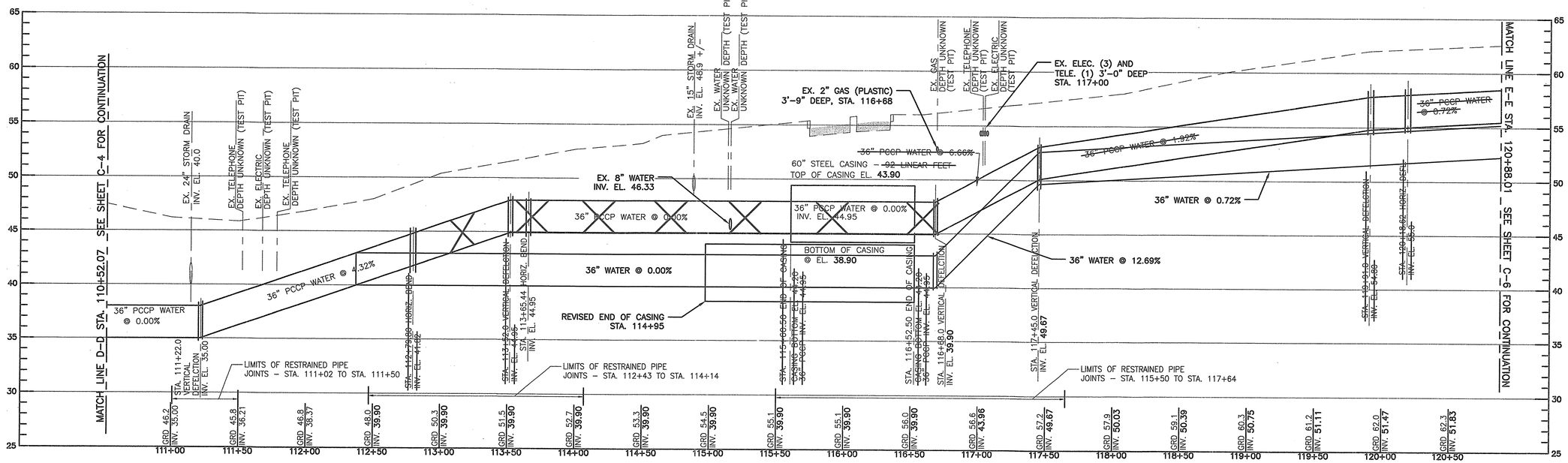
SCALE: 1" = 40'–0"

PIPING SCHEDULE

STA.	COORDINATES NORTH	COORDINATES EAST	DESCRIPTION
100+00.00	565,530.19	1,396,298.26	BEGINNING POINT WASHINGTON BLVD.
100+28.90	565,552.37	1,396,316.79	ISOLATION VALVE VAULT
102+39.30	565,713.84	1,396,451.67	11.25° HORIZONTAL BEND
102+87.56	565,756.20	1,396,474.80	11.25° HORIZONTAL BEND
104+46.17	565,877.93	1,396,576.48	9.6° HORIZONTAL DEFLECTION
105+01.59	565,913.85	1,396,618.55	9.6° HORIZONTAL DEFLECTION
105+92	565,983.18	1,396,676.46	ISOLATION VALVE VAULT
106+61.44	566,036.67	1,396,720.85	AIR RELEASE VAULT
109+44.25	566,253.54	1,396,902.29	ISOLATION VALVE AND VAULT
109+64.37	566,269.02	1,396,915.23	11.25° HORIZONTAL BEND
110+18.63	566,303.06	1,396,957.44	11.25° HORIZONTAL BEND
112+79.80	566,503.52	1,397,124.89	11.25° HORIZONTAL BEND
113+65.44	566,557.26	1,397,191.58	13.28° HORIZONTAL BEND
120+18.62	567,072.99	1,397,592.39	2.35° HORIZONTAL DEFLECTION
123+54.79	567,328.63	1,397,810.71	3.9° HORIZONTAL DEFLECTION
124+16.34	567,372.59	1,397,853.79	4.8° HORIZONTAL DEFLECTION
127+93	567,662.89	1,398,093.82	AIR RELEASE VAULT
128+12.30	567,677.75	1,398,106.09	17.3° HORIZONTAL DEFLECTION
129+39.11	567,747.03	1,398,212.31	11.25° HORIZONTAL BEND
136+47.42	568,242.29	1,398,718.68	10.28° HORIZONTAL BEND
136+95	568,291.35	1,398,753.45	ISOLATION VALVE VAULT
137+21.80	568,302.96	1,398,761.71	11.25° HORIZONTAL BEND
139+18.19	568,482.24	1,398,841.89	45° HORIZONTAL BEND
139+55	568,495.91	1,398,887.68	ISOLATION VALVE VAULT
141+57.28	568,567.55	1,399,065.25	21.9° ± HORIZONTAL BEND

BILL OF MATERIALS

QUANTITY	DESCRIPTION	
1036 L.F.	PCCP	36–INCH
92 L.F.	STEEL CASING (JACK & BORE)	60–INCH



SOUTHWEST TRANSMISSION MAIN – PROFILE (STA. 110+52.07 TO STA. 120+88.01)

HORIZONTAL SCALE: 1" = 40'–0"
VERTICAL SCALE: 1" = 5'–0"

HORIZ. SCALE:1"=40' VERT. SCALE:1"=5'

AS-BUILT JUNE 2016 CW0.51738

HOWARD CO. PROJECT NO. W-8276

CITY. OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE	DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 1/26/12
	CHIEF, WATER ENGINEERING SECTION — DATE	

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB
AS-BUILT PER RECORD PRINT — DRAWN BY: JCD
BY: — CHKD BY: SBN
DATE: — DATE: 1-18-12

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		[illegible]	GAK	mjm	SDP
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/26/12	1/30/12

DRAWING SCALE	
PLAN SCALE:	AS NOTED
PROFILE SCALE:	AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: [signature] DIRECTOR
DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: [signature] CHIEF
DATE: 1/17/12

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
PLAN AND PROFILE – STA. 110+52.07 TO STA. 120+88.01

SUBDIVISION: ST. DENIS

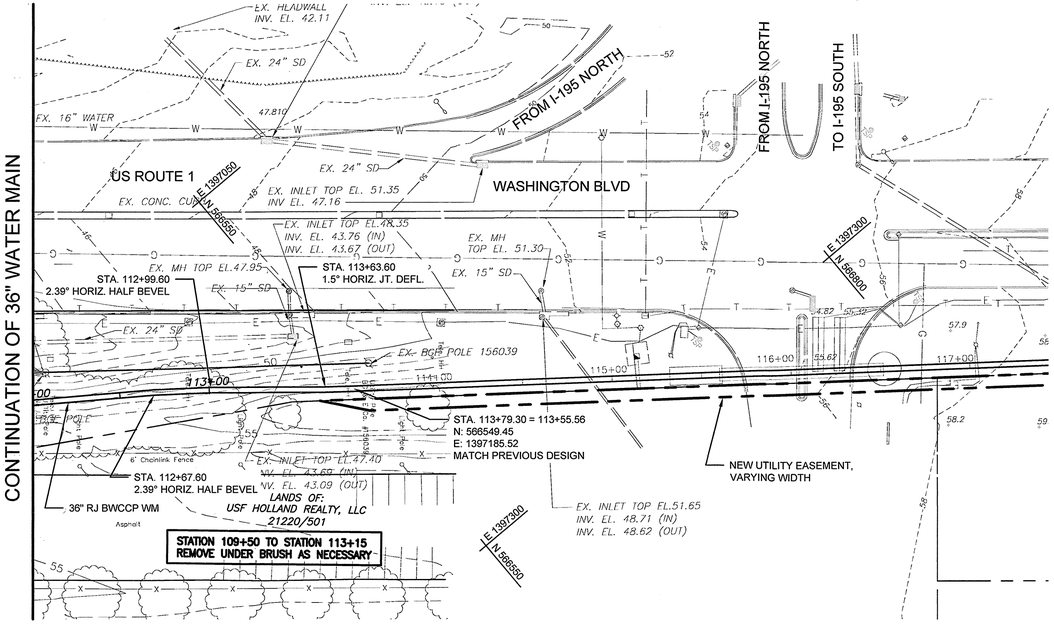
ELECTION DISTRICT: 13

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

SHEET DESIGNATION	CONTRACT NO.
C–5	44–4618
JOB ORDER NO.	203–0067–0281
SHEET 7 OF 36	DRAWING NO. 2009–3356
FILE NO.	

DWG FILENAME:

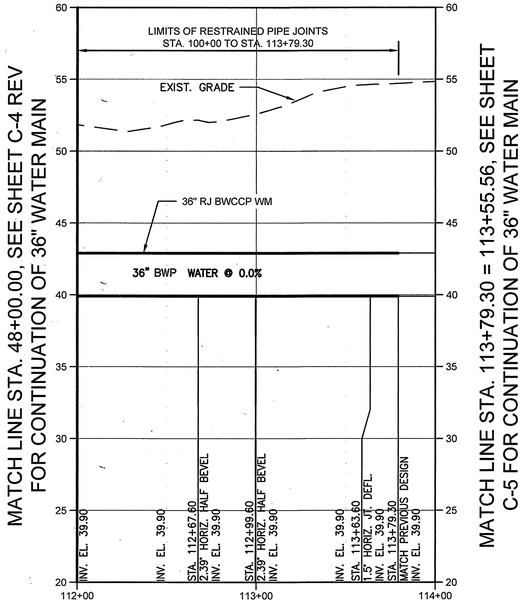
MATCH LINE STA. 112+00, SEE SHEET C-4 REV FOR CONTINUATION OF 36" WATER MAIN



SOUTHWEST TRANSMISSION MAIN – PLAN (STA. 112+00 TO STA. 113+79.30)

SCALE: 1" = 40'-0"

MATCH LINE STA. 48+00.00, SEE SHEET C-4 REV FOR CONTINUATION OF 36" WATER MAIN



MATCH LINE STA. 113+79.30 = 113+55.56, SEE SHEET C-5 FOR CONTINUATION OF 36" WATER MAIN

SOUTHWEST TRANSMISSION MAIN – PROFILE (STA. 112+00 TO STA. 113+79.30)

HORIZONTAL SCALE: 1" = 40'-0"
VERTICAL SCALE: 1" = 5'-0"

CITY OF BALTIMORE
CHIEF, UTILITIES & TRANSPORTATION DIV. BUREAU OF WATER AND WASTEWATER — DATE 1/15/14

REVISION – CITY OF BALTIMORE
CHIEF, UTILITY ENGINEERING — DATE
CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DIRECTOR, DEPT OF PUBLIC WORKS — DATE 3/6/14

QR 4/19/17
JH 4/14/14

1"=5' 5 0 5 10
1"=40' 40 0 40 80

AS-BUILT JUNE 2016

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19688 EXPIRATION DATE DECEMBER 8, 2015

ENGINEER: ROBERT J. DUDLEY — DESIGN BY: RFW
DRAWN BY: RFW
AS-BUILT PER RECORD PRINT
BY:
DATE:
CHKD BY: RJD

DATE: 3/27/14

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF			GR	JP	SDP
DATE REVIEWED:		3/24/14		3/24/14	3/24/14	3/21/14	3/21/14

DRAWING SCALE
PLAN SCALE: 1"=40'
PROFILE SCALE: 1"=5' / 1"=40'

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: DIRECTOR
DATE:

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE:

HOWARD CO. PROJECT NO. W-0676

STEVENS & SMITH
11320 McCORMICK ROAD, SUITE 204, HUNT VALLEY, MARYLAND 21031

C.W.a51738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

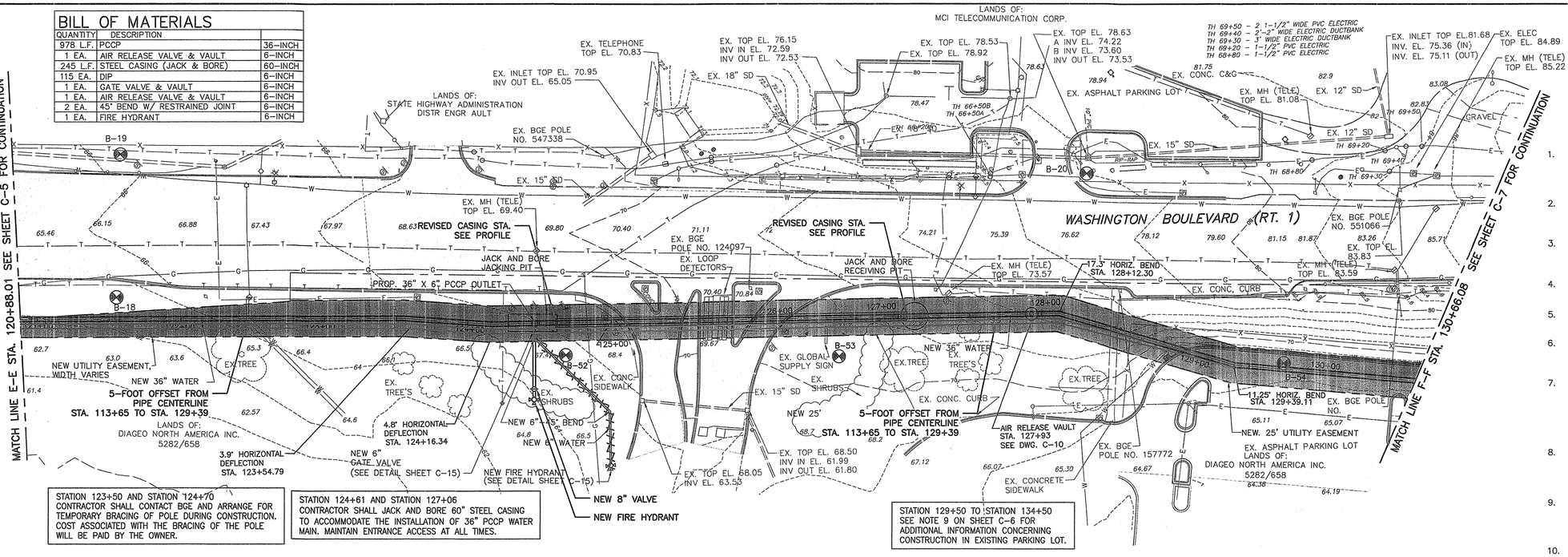
SOUTHWEST TRANSMISSION MAIN
PLAN AND PROFILE STA. 112+00 TO STA. 113+79.30

SUBDIVISION: SAINT DENIS — ELECTION DISTRICT: 13

SHEET DESIGNATION	C-5 REV
CONTRACT NO.	44-4016
JOB ORDER NO.	208-0007-0001
SHEET	7A OF 36
DRAWING NO.	2009-3387
FILE NO.	

BILL OF MATERIALS

QUANTITY	DESCRIPTION	
978 L.F.	PCCP	36-INCH
1 EA.	AIR RELEASE VALVE & VAULT	6-INCH
245 L.F.	STEEL CASING (JACK & BORE)	60-INCH
115 EA.	DIP	6-INCH
1 EA.	GATE VALVE & VAULT	6-INCH
1 EA.	AIR RELEASE VALVE & VAULT	6-INCH
2 EA.	45° BEND W/ RESTRAINED JOINT	6-INCH
1 EA.	FIRE HYDRANT	6-INCH

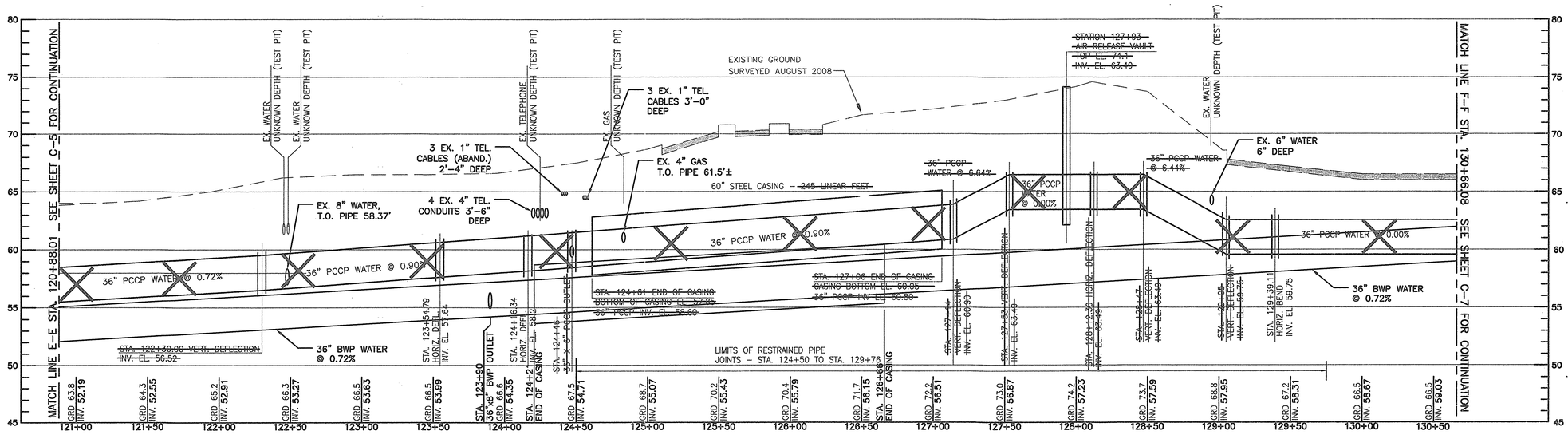


SOUTHWEST TRANSMISSION MAIN – PLAN (STA. 120+88.01 TO STA. 130+66.08)

SCALE: 1" = 40'–0"

WASHINGTON BOULEVARD (ROUTE 1) CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT (DEPRM) INSPECTION AND ENFORCEMENT DIVISION AT 410–887–3226, ATLEAST 48 HOURS PRIOR TO BEGINNING WORK.
2. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, INSPECTION AND COMPLIANCE PROGRAM AT 410–537–3510 AT LEAST 5 DAYS PRIOR TO BEGINNING WORK.
3. STATION 100+00 (BEGINNING OF WASHINGTON BOULEVARD 36" WATER MAIN) = STATION 37+60 (END OF PATAPSCO VALLEY STATE PARK 36" WATER MAIN).
4. STATION 100+08 ± RELOCATE EXISTING TELEPHONE PRIOR TO INITIATING CONSTRUCTION IN THIS AREA.
5. STATION 103+50 ± EXTEND 18" STORM DRAIN 10 LINEAR FEET AND INSTALL NEW HEADWALL, SEE DETAIL SHEET C–15
6. STATION 105+50 TO STATION 106+75 – RELOCATE EXISTING TELECOMMUNICATION LINE TO FACILITATE THE CONSTRUCTION OF THE 36" MAIN.
7. CONTRACTOR SHALL USE CAUTION WHEN CONSTRUCTING WATER MAIN UNDER THE ROUTE 195 OVERPASS. AT LEAST SEVEN (7) DAYS IN ADVANCE OF INITIATING WORK, NOTIFY THE STATE HIGHWAY ADMINISTRATION. THE 54" STEEL CASING AND 36" WATER MAIN SHALL BE INSTALLED BY OPEN CUT WITHOUT DISTURBING BRIDGE ABUTMENTS.
8. CONTRACTOR SHALL CONTACT BALTIMORE GAS AND ELECTRIC AT 410–637–8713 TO ARRANGE FOR BGE TO PROVIDE TEMPORARY SUPPORT/BRACING OF POLES IN CLOSE PROXIMITY TO WATER MAIN CONSTRUCTION.
9. CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT THERE IS AN EXISTING STORMWATER MANAGEMENT SYSTEM IN PLACE FOR THE PARKING LOT. CONTRACTOR MUST USE CAUTION SO AS NOT TO DISRUPT THE STORMWATER MANAGMENT FACILITIES.
10. REMOVE EXISTING GUARD RAIL AS NECESSARY TO CONSTRUCT THE NEW WATER MAIN AFTER ALL WORK IN THE VICINITY IS COMPLETE.
11. CONTRACTOR SHALL LOCATE EXISTING WATER MAIN VIA TEST PIT. REMOVE EX. 8 INCH WATER AS NECESSARY TO INSTALL 8" X 8" TEE. PROVIDE CONCRETE BUTTRESS PER COUNTY STANDARD DETAILS.



SOUTHWEST TRANSMISSION MAIN – PROFILE (STA. 120+88.01 TO STA. 130+66.08)

HORIZONTAL SCALE: 1" = 40'–0"
VERTICAL SCALE: 1" = 5'–0"

HOWARD CO. PROJECT NO. W–8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 250
Hunt Valley, Maryland 21031

DWG FILENAME:

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/5/12	CHIEF, UTILITY ENGINEERING — DATE	DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/25/12
	CHIEF, WATER ENGINEERING SECTION — DATE	

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER

DESIGN BY: BBB
DRAWN BY: JCD
CHKD BY: SBN

· AS-BUILT PER RECORD PRINT
BY:
DATE:

DATE : 1-10-12

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

DRAWING SCALE
PLAN SCALE: AS NOTED
PROFILE SCALE: AS NOTED / AS NOTED

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RDF		MK	GAK	JDP	
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/20/12	1/23/12

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: DIRECTOR
DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE: 1/17/12

AS-BUILT JUNE 2016 CWO 51738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

HORIZ. SCALE:1"=40' VERT. SCALE:1"=5'

SOUTHWEST TRANSMISSION MAIN
PLAN AND PROFILE – STA. 120+88.01 TO 130+66.08

SUBDIVISION: ST. DENIS

ELECTION DISTRICT: 13

SHEET DESIGNATION	CONTRACT NO.
C–6	44–4618
JOB ORDER NO.	203–0067–0281
SHEET 8 OF 36	
DRAWING NO.	2009–3357
FILE NO.	

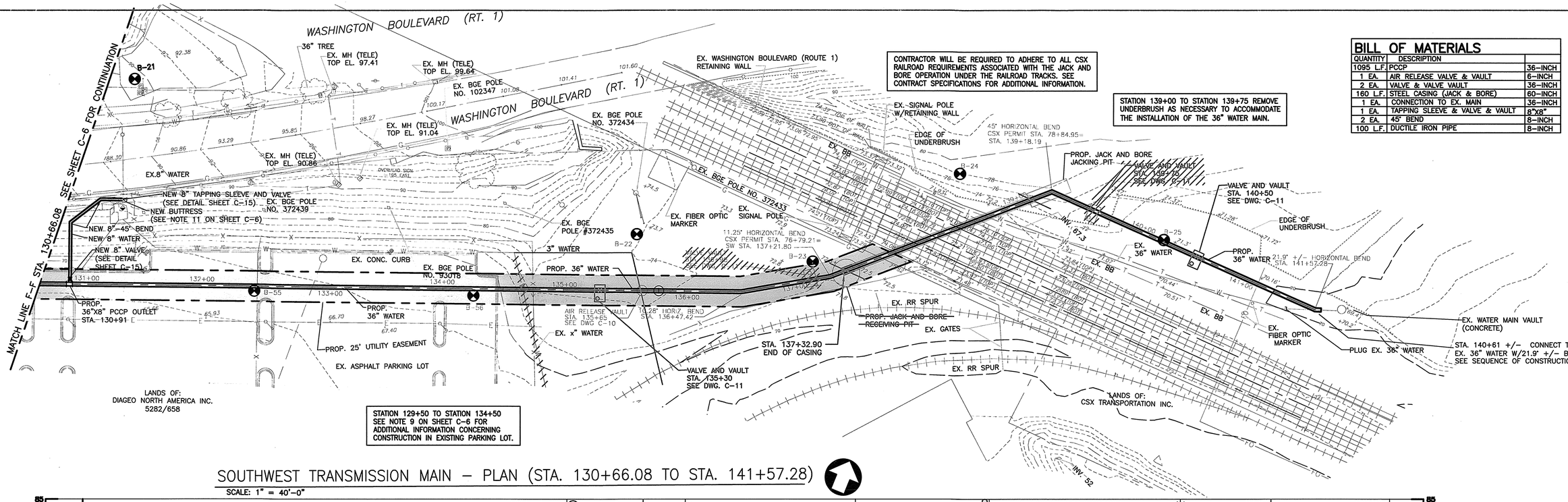
BILL OF MATERIALS

QUANTITY	DESCRIPTION	
1095 L.F.	PCCP	36-INCH
1 EA.	AIR RELEASE VALVE & VAULT	6-INCH
2 EA.	VALVE & VALVE VAULT	36-INCH
160 L.F.	STEEL CASING (JACK & BORE)	60-INCH
1 EA.	CONNECTION TO EX. MAIN	36-INCH
1 EA.	TAPPING SLEEVE & VALVE & VAULT	8"X8"
2 EA.	45° BEND	8-INCH
100 L.F.	DUCTILE IRON PIPE	8-INCH

CONTRACTOR WILL BE REQUIRED TO ADHERE TO ALL CSX RAILROAD REQUIREMENTS ASSOCIATED WITH THE JACK AND BORE OPERATION UNDER THE RAILROAD TRACKS. SEE CONTRACT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

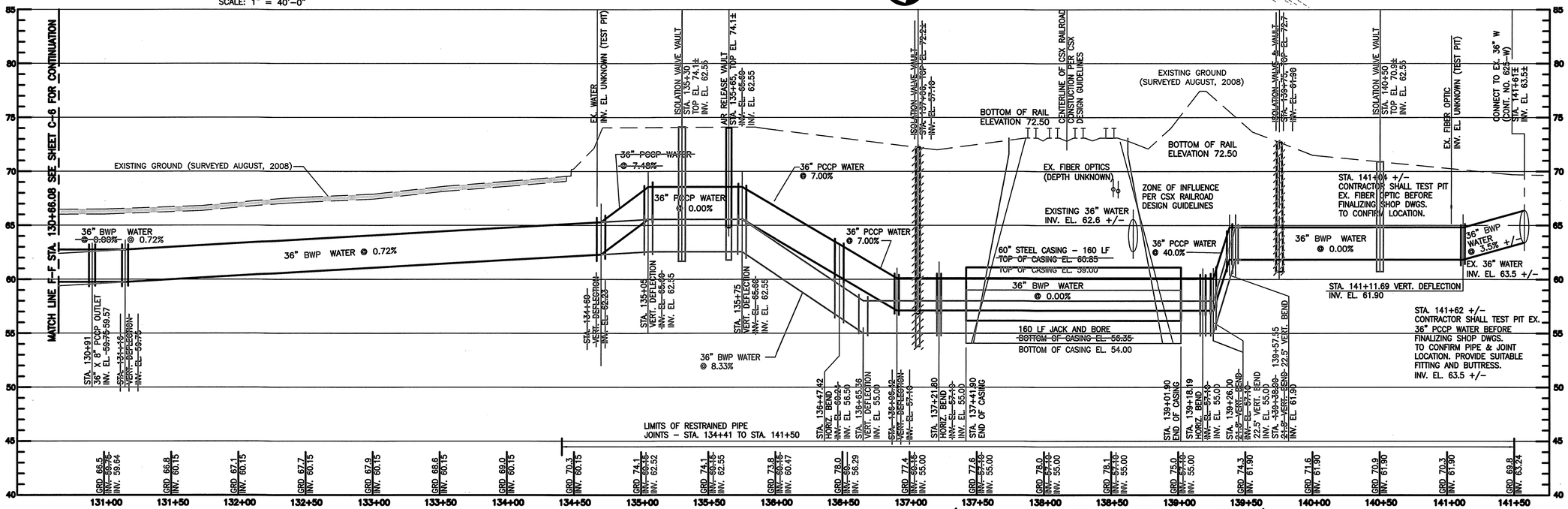
STATION 139+00 TO STATION 139+75 REMOVE UNDERBRUSH AS NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE 36" WATER MAIN.

STATION 129+50 TO STATION 134+50 SEE NOTE 9 ON SHEET C-6 FOR ADDITIONAL INFORMATION CONCERNING CONSTRUCTION IN EXISTING PARKING LOT.



SOUTHWEST TRANSMISSION MAIN – PLAN (STA. 130+66.08 TO STA. 141+57.28)

SCALE: 1" = 40'-0"



SOUTHWEST TRANSMISSION MAIN – PROFILE (STA. 130+66.08 TO STA. 141+57.28)

HORIZONTAL SCALE: 1" = 40'-0"
VERTICAL SCALE: 1" = 5'-0"

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. – BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE	DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/6/12
	CHIEF, WATER ENGINEERING SECTION — DATE	

SEAL: STATE OF MARYLAND – SYAM B. NAYER – No. 27124 – PROFESSIONAL ENGINEER — DATE: 1-16-2012

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB

AS-BUILT PER RECORD PRINT — DRAWN BY: JCD

BY: — CHKD BY: SBN

DATE:

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:	X	ROF	X	MR	GAK	MJM	JDP
DATE REVIEWED:	X	11/23/12	X	11/22/12	11/20/12	11/28/12	1/23/12

DRAWING SCALE	
PLAN SCALE:	AS NOTED
PROFILE SCALE:	AS NOTED / AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: [signature] DIRECTOR
DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: [signature] CHIEF
DATE: 1/17/12

AS-BUILT JUNE 2016 — CWO. 51738

HORIZ. SCALE: 1"=40' (40' 20' 0 40') — VERT. SCALE: 1"=5' (5' 2.5' 0 5')

HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

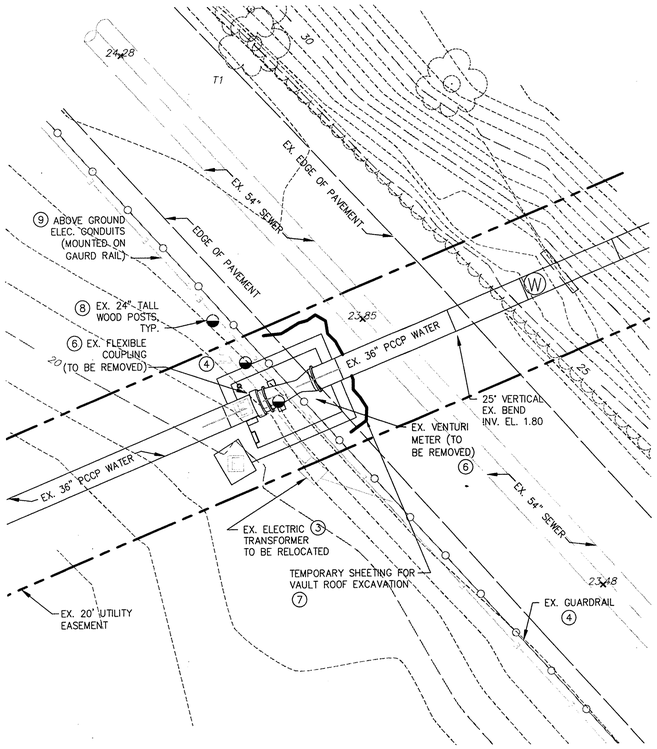
DWG FILENAME:

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
PLAN AND PROFILE – STA. 130+27.03 TO 141+57.28

SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

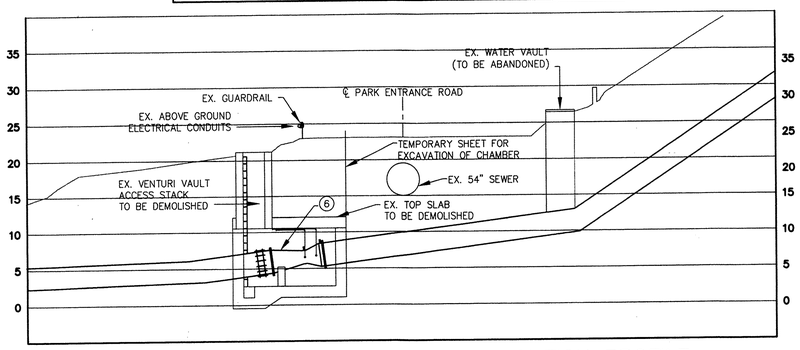
SHEET DESIGNATION	CONTRACT NO.
C-7	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 9 OF 36
	DRAWING NO.
	2009-3358
	FILE NO.



EXISTING METER VAULT AREA – DEMOLITION PLAN

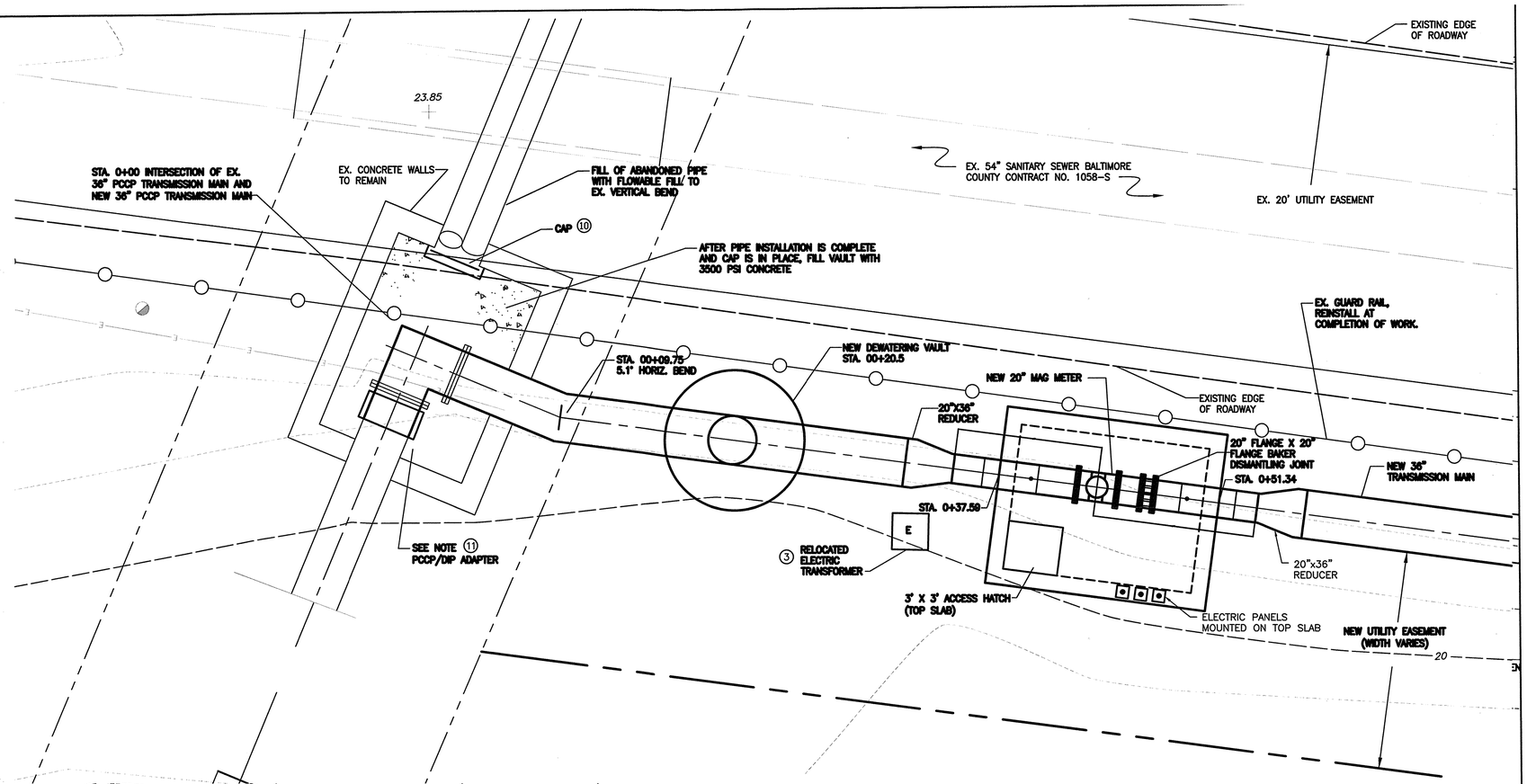
SCALE: 1" = 10'

PRIOR TO SUBMITTING SHOP DRAWINGS FOR THE PRESTRESSED CONCRETE CYLINDER PIPE, CONTRACTOR SHALL INSPECT THE PIPE INSIDE THE EXISTING VENTURI VAULT. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A SUITABLE ADAPTER WHICH SHALL BE USED TO CONNECT THE 36" PRESTRESSED CONCRETE CYLINDER PIPE TO THE EXISTING PCCP WATER MAIN INSIDE THE VAULT.



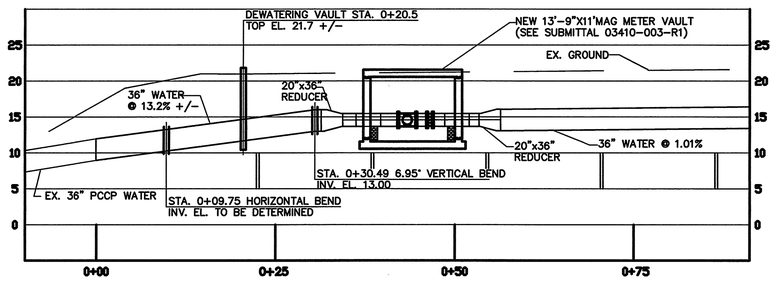
EXISTING METER VAULT AREA – DEMOLITION PROFILE

HORIZONTAL SCALE: 1" = 10'–0"
VERTICAL SCALE: 1" = 10'–0"



MAG METER VAULT AREA – NEW WORK PLAN

SCALE: 1/4" = 1'



MAG METER VAULT AREA – NEW WORK PROFILE

HORIZONTAL SCALE: 1" = 10'–0"
VERTICAL SCALE: 1" = 10'–0"

DEMOLITION/CONSTRUCTION NOTES:

1. IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION, DEMOLITION ACTIVITIES, WHICH CAUSE THE CONTRACTOR TO TAKE THE EXISTING MAIN OUT OF SERVICE, MAY NOT PROCEED UNTIL THE NEW WATER TRANSMISSION MAIN AND NEW MAG METER VAULT ARE CONSTRUCTED AND TESTED.
2. EXISTING ELECTRIC SERVICE, ELECTRIC BOX, JUNCTION BOX, INSTRUMENTATION, AND OTHER POLE MOUNTED PANELS TO HAVE WIRING DISCONNECTED. REMOVE FROM MOUNTING SLAB AND RELOCATE, MOUNTING ON TOP OF NEW METER VAULT.
3. EXISTING ELECTRIC TRANSFORMER TO BE RELOCATED ADJACENT TO NEW METER VAULT. DISCONNECT FEED, EXTEND AND RECONNECT. PROVIDE CONCRETE PAD FOR RELOCATED TRANSFORMER.
4. REMOVE EXISTING GAURDRAIL AS REQUIRED TO PERFORM WORK. REINSTALL AT COMPLETION OF THE WORK.
5. REMOVE EXISTING ACOUSTIC FIBER OPTIC CABLE JUNCTION BOX AND REINSTALL EXISTING CABLE UP TO JUNCTION BOX IN PUMP OUT MANHOLE. (TO BE DONE BY OTHERS)
6. REMOVE EXISTING VENTURI METER AND EXISTING FLEXIBLE COUPLING.
7. CONSTRUCT TEMPORARY SHEETING TO ALLOW FOR THE DEMOLITION OF THE EXISTING VENTURI ACCESS HATCH/VAULT ROOF.
8. DEMOLISH WOOD POSTS (TYP. OF 3).
9. MAINTAIN ABOVE GROUND ELECTRIC SERVICE DURING WORK. IF NEEDED, CONTRACTOR WILL BE REQUIRED TO PROVIDE TEMPORARY ELECTRIC LINES DURING CONSTRUCTION.
10. CAP EXISTING 36" PCCP WATER. PROVIDE CONCRETE 12" DEEP IN EXISTING 36" PCCP WATER. CONSTRUCT NEW METER VAULT. SEE SHEET C–9.
11. PROVIDE PCCP/DIP ADAPTER
12. RELOCATE EXISTING ELECTRIC SERVICE, INSTRUMENTATION AND OTHER PANELS. MOUNT USING EXISTING MOUNTING POSTS AND RACK. ANCHOR POSTS TOP WITH EXPANSION ANCHORS.

HOWARD CO. PROJECT NO. W–8276

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE 3/9/12 & 7/19/12	DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/12/12
	CHIEF, WATER ENGINEERING SECTION — DATE	

SEAL: STATE OF MARYLAND · SYAM B. NAYER · No. 27797 · PROFESSIONAL ENGINEER
DATE : 1-10-2012

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB
AS–BUILT PER RECORD PRINT — DRAWN BY: JCD
BY: — DATE: — CHKD BY: SBN

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF			GAK	JDP	
DATE REVIEWED:		1/23/12		1/27/12	1/20/12	1/20/12	1/23/12

DRAWING SCALE	
PLAN SCALE:	AS NOTED
PROFILE SCALE:	AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED: DIRECTOR
DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED: CHIEF
DATE: 1/17/12

AS–BUILT JUNE 2016

CWO S1738

10' 5' 0 10
SCALE: 1"=10'

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
MAG METER VAULT – PLAN & PROFILE

SUBDIVISION: ST. DENIS

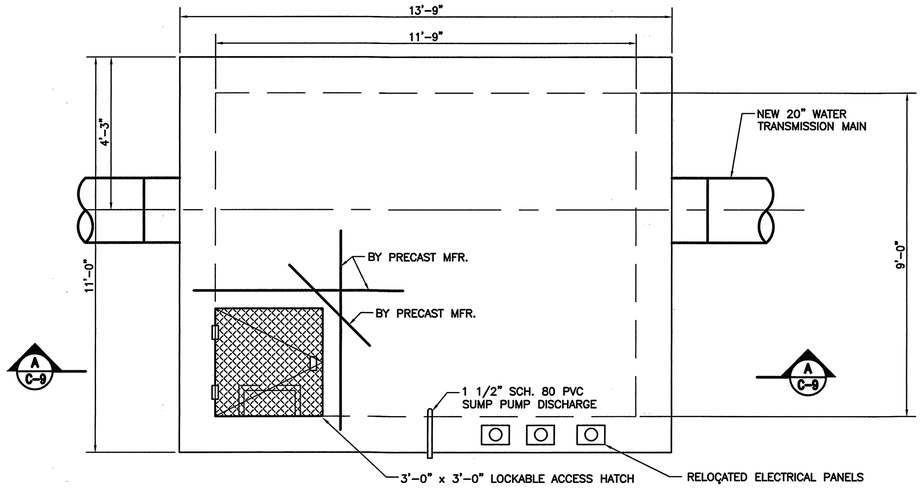
ELECTION DISTRICT: 13

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

SHEET DESIGNATION	CONTRACT NO.
C–8	44–4618
	JOB ORDER NO.
	203–0067–0281
	SHEET 10 OF 36
	DRAWING NO.
	2009–3359
	FILE NO.

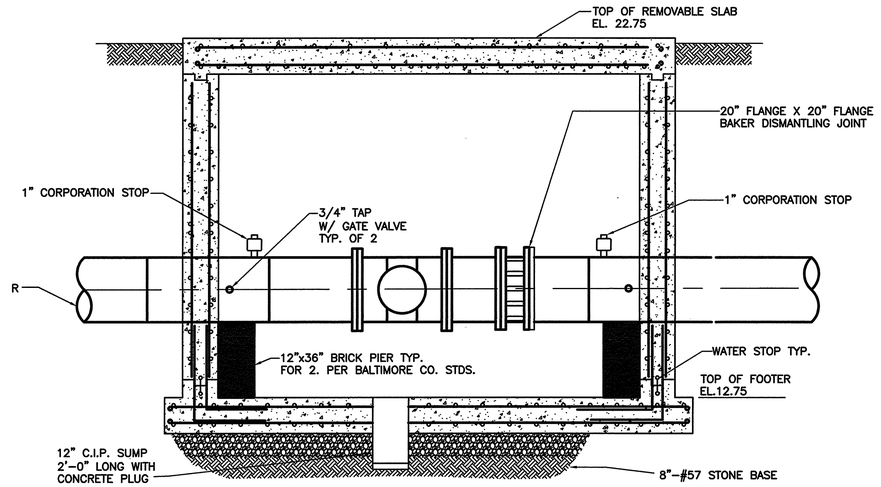
BALTIMORE COUNTY MARYLAND

DWG FILENAME:



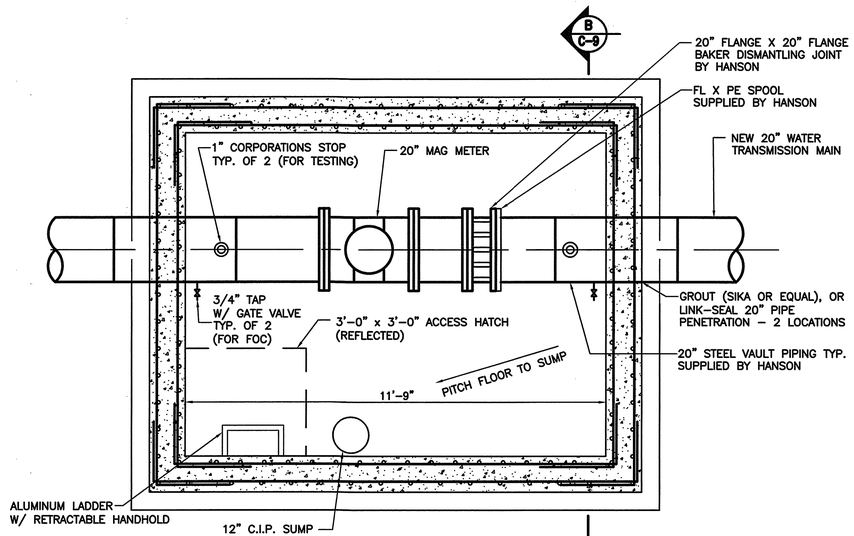
NEW METERING VAULT @ STA. 0+37.59 – TOP SLAB PLAN

SCALE: 1/2" = 1'-0"



SECTION METERING VAULT @ STA. 0+37.59 – SECTION A-A

SCALE: 1/2" = 1'-0"

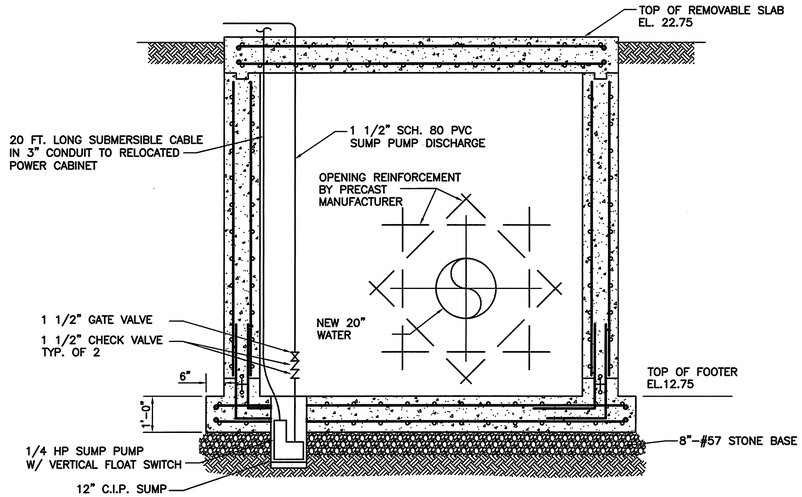


NEW METERING VAULT @ STA. 0+37.59 – LOWER LEVEL PLAN

SCALE: 1/2" = 1'-0"

VENTURI METER VAULT GENERAL NOTES

1. CONTRACTOR SHALL HAVE THE OPTION OF PROVIDING PRE-CAST CONCRETE VAULTS OR UTILIZE CAST-IN-PLACE.
2. ALL PRE-CAST CONCRETE SHALL BE 4,500 PSI.
2. ALL CAST-IN-PLACE CONCRETE SHALL BE 3,500 PSI.
3. ALL STEEL REBAR SHALL CONFORM TO ASTM A-615, GRADE 60
4. CONTRACTOR SHALL NOT BACKFILL OR INSTALL THE PRECAST SECTIONS OF THE VAULT FOR AT LEAST 5 DAYS AFTER POURING THE CAST-IN-PLACE BASE SLAB.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF REBAR IN PRE-CAST SECTIONS OF THE VAULT. THE REBAR FOR PRE-CAST SECTIONS ARE NOT SHOWN IN THIS PLAN.
6. THE CONTRACTOR SHALL PROVIDE LIFTING DEVICES FOR PRE-CAST SECTIONS OF THE VAULT (NOT SHOWN IN THIS PLAN). DESIGN AND CONSTRUCTION OF THE LIFTING DEVICES SHALL BE THE RESPONSIBLITY OF THE CONTRACTOR.



SECTION METERING VAULT @ STA. 0+37.59 – SECTION B-B

SCALE: 1/2" = 1'-0"

HOWARD CO. PROJECT NO. W-8276

CITY OF BALTIMORE

Acting 3/8/12 3/15/12

CHIEF, WATER & WASTEWATER ENG. DIV. DATE
BUREAU OF WATER AND WASTEWATER

REVISION – CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING DATE

CHIEF, WATER ENGINEERING SECTION DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

1/12/12

DIRECTOR, DEPT OF PUBLIC WORKS DATE

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

DWG FILENAME:

SEAL: STATE OF MARYLAND SYAM P. NAYER No. 37797 PROFESSIONAL ENGINEER

DATE : 1-10-2012

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER DESIGN BY: BBB

AS-BUILT PER RECORD PRINT DRAWN BY: JCD

BY: CHKD BY: SBN
DATE:

REVISION	BY	DATE
R.O.W NO.		

DRAWING SCALE
PLAN SCALE: AS NOTED
PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED: DIRECTOR
DATE: 1-24-12

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		ROF			GAK	mlm	JDP
DATE REVIEWED:		11/23/12		1/23/12	1/20/12	1/26/12	1/23/12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE: 1/17/12

AS-BUILT JUNE 2016

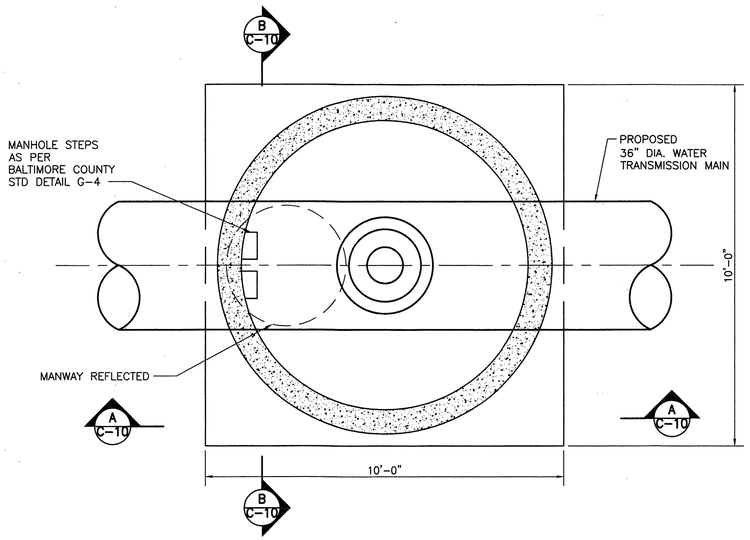
CWO 51738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
MAG METER VAULT – STRUCTURAL

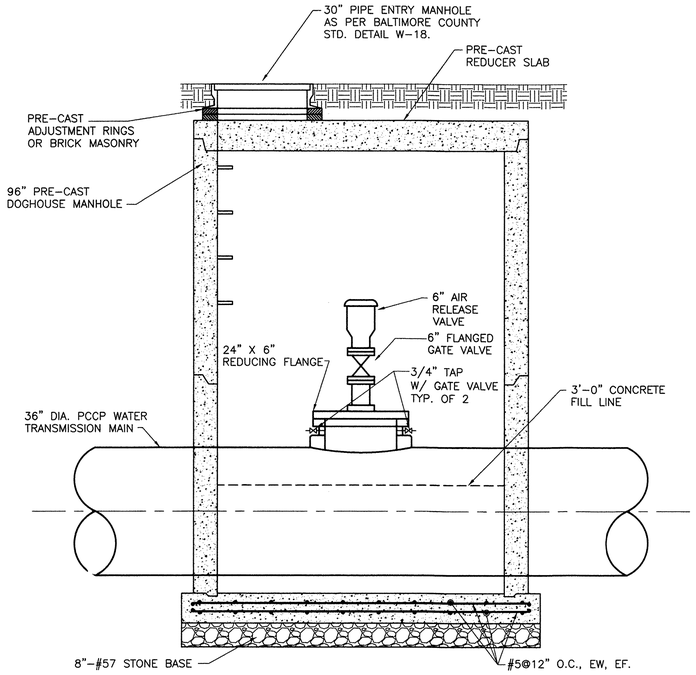
SUBDIVISION: ST. DENIS ELECTION DISTRICT: 13

SHEET DESIGNATION	CONTRACT NO.
C-9	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 11 OF 36
	DRAWING NO.
	2009-3360
	FILE NO.



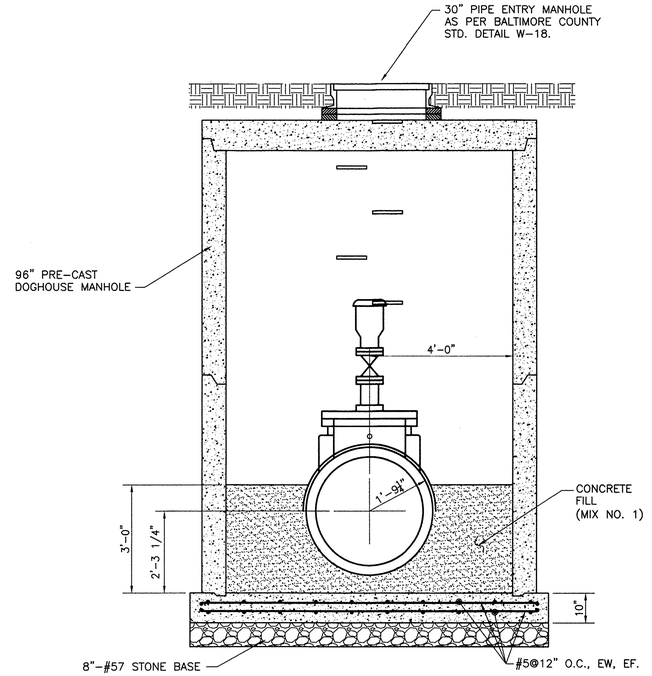
AIR RELEASE & MANWAY ACCESS VAULT – LOWER LEVEL

SCALE: 1/2" = 1'-0"



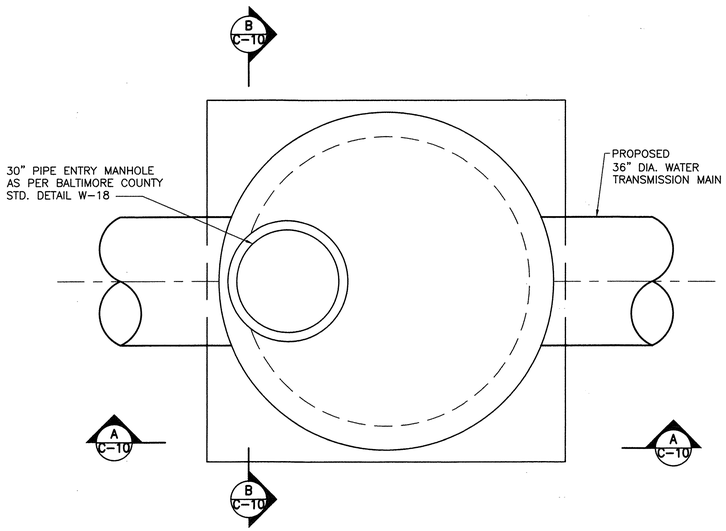
SECTION A-A

SCALE: 1/2" = 1'-0"



SECTION B-B

SCALE: 1/2" = 1'-0"



AIR RELEASE & MANWAY ACCESS VAULT – TOP SLAB PLAN

SCALE: 1/2" = 1'-0"

AIR RELEASE AND MANWAY ACCESS VAULT GENERAL NOTES:

1. CONTRACTOR SHALL HAVE THE OPTION OF USING CAST-IN-PLACE CONCRETE OR PROVIDING PRECAST CONCRETE VAULTS.
2. ALL PRE-CAST CONCRETE SHALL BE 4,500 PSI.
3. ALL CAST-IN-PLACE CONCRETE SHALL BE 3,500 PSI.
4. ALL STEEL REBAR SHALL CONFORM TO ASTM A-615, GRADE 60.
5. CONTRACTOR SHALL NOT BACKFILL OR INSTALL THE PRECAST SECTIONS OF THE VAULT FOR AT LEAST 5 DAYS AFTER POURING THE CAST-IN-PLACE BASE SLAB.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF REBAR IN PRE-CAST SECTIONS OF THE VAULT. THE REBAR FOR PRE-CAST SECTIONS ARE NOT SHOWN IN THIS PLAN.
7. THE CONTRACTOR SHALL PROVIDE LIFTING DEVICES FOR PRE-CAST SECTIONS OF THE VAULT (NOT SHOWN IN THIS PLAN). DESIGN AND CONSTRUCTION OF THE LIFTING DEVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

CITY OF BALTIMORE — REVISION – CITY OF BALTIMORE — HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12

CHIEF, UTILITY ENGINEERING — DATE

CHIEF, WATER ENGINEERING SECTION — DATE

DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/24/12

SEAL: STATE OF MARYLAND · SYAM B. NAYER · No. 37797 · PROFESSIONAL ENGINEER

DATE: 1-10-2012

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB

AS-BUILT PER RECORD PRINT — DRAWN BY: JCD

BY: — DATE: — CHKD BY: SBN

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER
REVIEWED BY:		RJF		SHR	GAK	JDP
DATE REVIEWED:		11/23/12		1/23/12	1/20/12	1/20/12

DRAWING SCALE		FIELD ENGINEER
PLAN SCALE:	AS NOTED	
PROFILE SCALE:	AS NOTED	

DEPARTMENT OF PUBLIC WORKS

APPROVED BY: DIRECTOR

DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION

APPROVED BY: CHIEF

DATE: 1/17/12

AS-BUILT JUNE 2016

CWO 5/738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
AIR RELEASE & MANWAY ACCESS VAULT DETAIL

SUBDIVISION: ST. DENIS

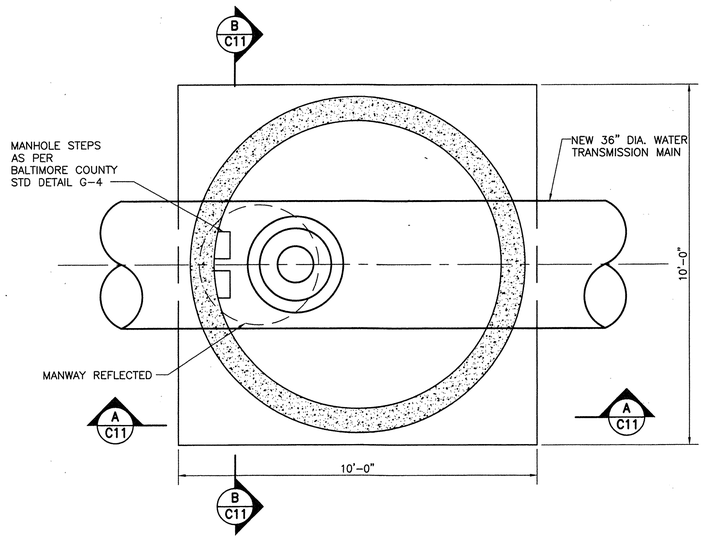
ELECTION DISTRICT: 13

HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

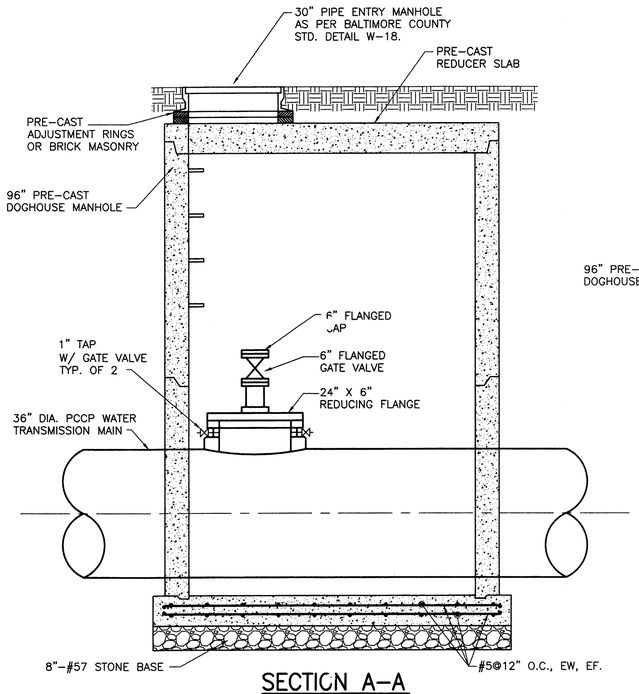
DWG FILENAME:

SHEET DESIGNATION	CONTRACT NO.
C-10	44-4618
	JOB ORDER NO.
	203-0067-0281
SHEET 12 OF 36	DRAWING NO.
	2009-3361
	FILE NO.



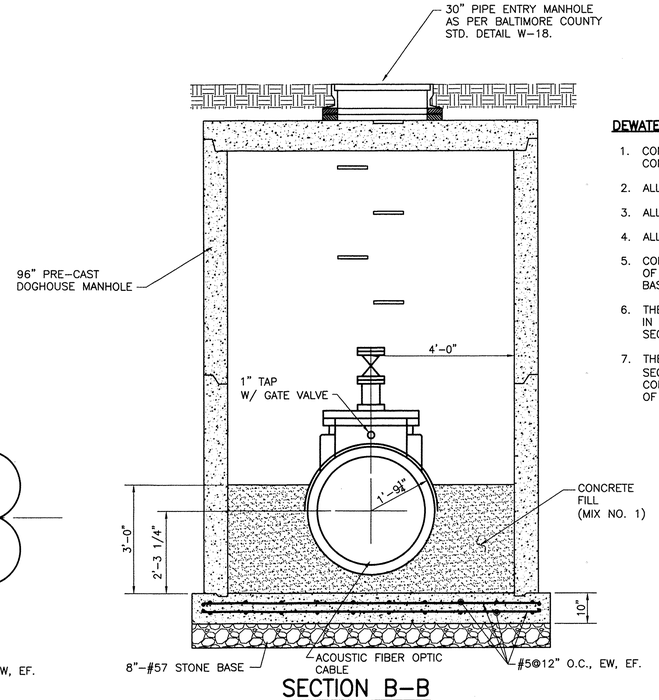
DEWATERING VALVE & VAULT – LOWER LEVEL

SCALE: 1/2" = 1'-0"



SECTION A–A

SCALE: 1/2" = 1'-0"



SECTION B–B

SCALE: 1/2" = 1'-0"

DEWATERING VALVE AND VAULT GENERAL NOTES:

1. CONTRACTOR SHALL HAVE THE OPTION OF FURNISHING PRE-CAST CONCRETE VAULTS OR USING CAST-IN-PLACE CONCRETE.
2. ALL PRE-CAST CONCRETE SHALL BE 4,500 PSI.
3. ALL CAST-IN-PLACE CONCRETE SHALL BE 3,500 PSI.
4. ALL STEEL REBAR SHALL CONFORM TO ASTM A-615, GRADE 60.
5. CONTRACTOR SHALL NOT BACKFILL OR INSTALL THE PRECAST SECTIONS OF THE VAULT FOR AT LEAST 5 DAYS AFTER POURING THE CAST-IN-PLACE BASE SLAB.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF REBAR IN PRE-CAST SECTIONS OF THE VAULT. THE REBAR FOR PRE-CAST SECTIONS ARE NOT SHOWN IN THIS PLAN.
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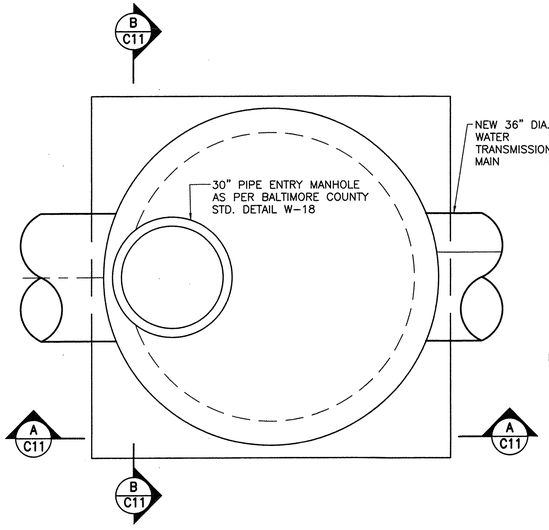
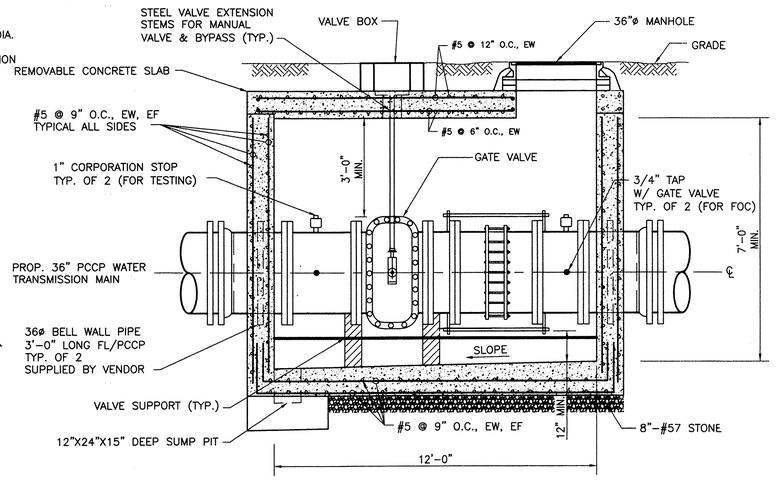


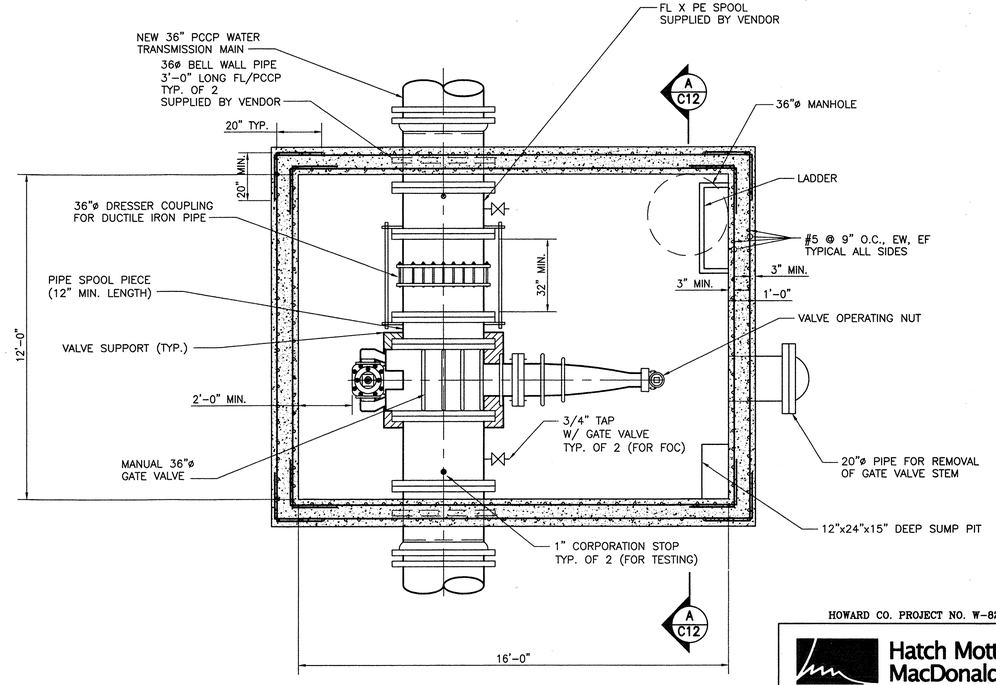
DEWATERING VALVE & VAULT – TOP SLAB PLAN

SCALE: 1/2" = 1'-0"



IN LINE VALVE DETAIL – SECTION A–A

SCALE: 3/8" = 1'-0"



IN LINE VALVE DETAIL – PLAN

SCALE: 3/8" = 1'-0"

CITY OF BALTIMORE — REVISION – CITY OF BALTIMORE — HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12

CHIEF, UTILITY ENGINEERING — DATE

CHIEF, WATER ENGINEERING SECTION — DATE

DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/24/12

SEAL: STATE OF MARYLAND · SYAM B. NAYER · No. 37797 · PROFESSIONAL ENGINEER

DATE : 1-10-2012

PROFESSIONAL CERTIFICATION

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ENGINEER: SYAM B. NAYER — DESIGN BY: BBB

AS-BUILT PER RECORD PRINT — DRAWN BY: JCD

BY: — DATE: — CHKD BY: SBN

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

DRAWING SCALE: PLAN SCALE: AS NOTED; PROFILE SCALE: AS NOTED

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:	X	RJF	X	KAQ	GAK	mjm	JDP
DATE REVIEWED:	X	11/23/12	X	1/23/12	1/30/12	1/20/12	1/23/12

DEPARTMENT OF PUBLIC WORKS — APPROVED: DIRECTOR — DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION — APPROVED: CHIEF — DATE: 1/17/12

AS-BUILT JUNE 2016

CW0.51738

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN DEWATERING VALVE & VAULT DETAIL

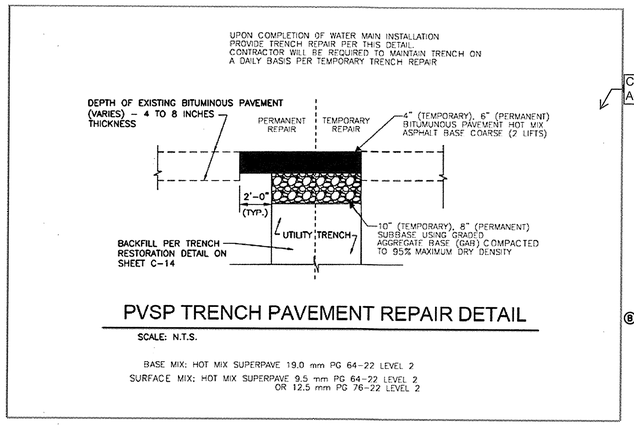
SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

DWG FILENAME:

SHEET DESIGNATION	CONTRACT NO.
C-11	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 13 OF 36
	DRAWING NO.
	2009-3362
	FILE NO.



PVSP TRENCH PAVEMENT REPAIR DETAIL

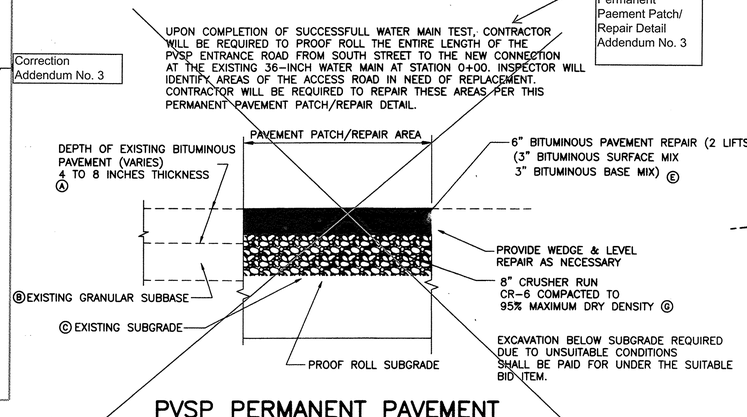
SCALE: N.T.S.

BASE MIX: HOT MIX SUPERPAVE 19.0 mm PG 64-22 LEVEL 2
SURFACE MIX: HOT MIX SUPERPAVE 9.5 mm PG 64-22 LEVEL 2 OR 12.5 mm PG 76-22 LEVEL 2

Correction Addendum No. 3

Delete PVSP Permanent Paement Patch/ Repair Detail Addendum No. 3

UPON COMPLETION OF SUCCESSFULL WATER MAIN TEST, CONTRACTOR WILL BE REQUIRED TO PROOF ROLL THE ENTIRE LENGTH OF THE PVSP ENTRANCE ROAD FROM SOUTH STREET TO THE NEW CONNECTION AT THE EXISTING 36-INCH WATER MAIN AT STATION 0+00. INSPECTOR WILL IDENTIFY AREAS OF THE ACCESS ROAD IN NEED OF REPLACEMENT. CONTRACTOR WILL BE REQUIRED TO REPAIR THESE AREAS PER THIS PERMANENT PAVEMENT PATCH/REPAIR DETAIL.

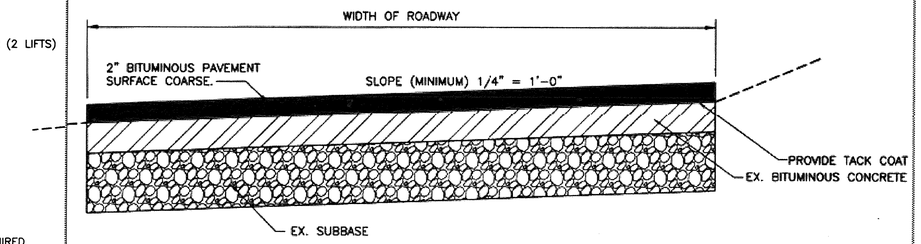


PVSP PERMANENT PAVEMENT PATCH/REPAIR DETAIL

SCALE: N.T.S.

UPON COMPLETION OF ALL PERMENENT PAVEMENT PATCH REPAIRS, CONTRACTOR SHALL PLACE A 2" OVERLAY OVER THE ENTIRE WIDTH OF THE PATAPSCO VALLEY STATE PARK ENTRANCE ROADWAY. BEFORE PLACEMENT OF OVERLAY, CONTRACTOR SHALL BROOM SWEEP ALL PAVEMENT AND PROVIDE TACK COAT.

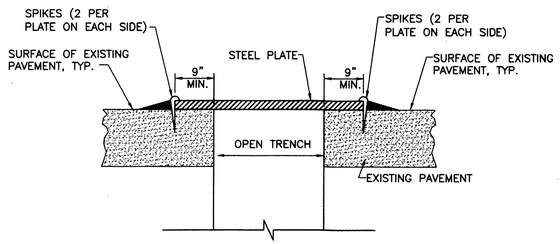
Correction Addendum No. 3



PVSP OVERLAY PAVEMENT SECTION – PATAPSCO VALLEY STATE PARK

SCALE: N.T.S.

SURFACE MIX: HOT MIX SUPERPAVE 9.5 mm PG 64-22 LEVEL 2 OR 12.5 mm PG 76-22 LEVEL 2

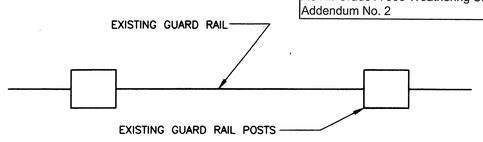


TEMPORARY STEEL PLATE DETAIL

NOT TO SCALE

UPON COMPLETION OF ALL PERMENENT PAVEMENT REPAIRS AND UPON COMPLETION OF PLACEMENT OF OVERLAY, CONTRACTOR SHALL REPLACE ALL EXISTING GUARD RAIL LOCATED ALONG THE PATAPSCO VALLEY STATE PARK ENTRANCE ROAD. CONTRACTOR SHALL BE REMOVE EXISTING RAIL AND POSTS. INSTALL NEW WEATHERING GUARD RAIL AND GUARD RAIL POSTS IN ACCORDANCE WITH STATE HIGHWAY ADMINISTRATION DETAILS.

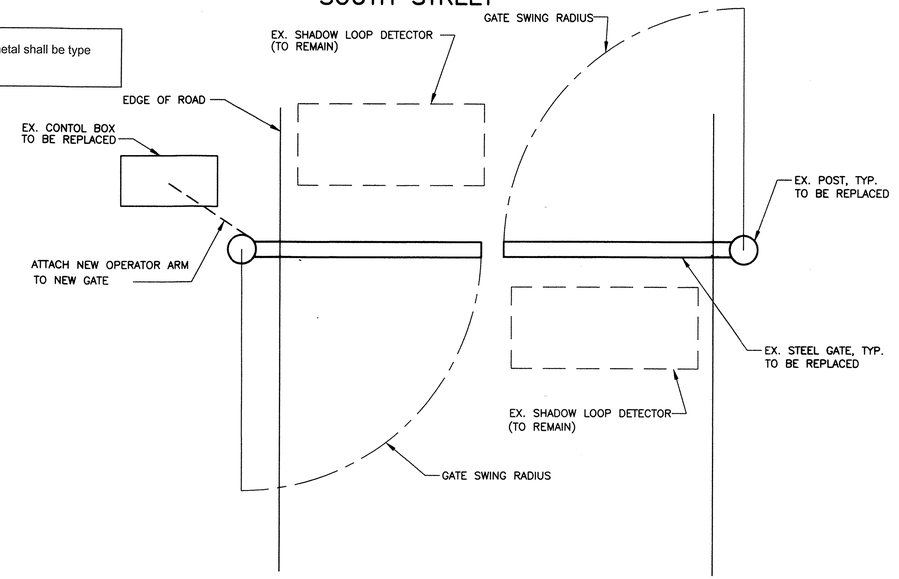
"Provide guardrail per SHA Standard No. MD 605.01 and MD 605.02. The guardrail metal shall be type ASTM Grade A 588 Weathering Steel" Addendum No. 2



PVSP – GUARD RAIL SCHEMATIC

SCALE: N.T.S.

UPON COMPLETION OF ALL PERMENENT PAVEMENT REPAIRS AND UPON COMPLETION OF PLACEMENT OF OVERLAY, CONTRACTOR SHALL PROVIDE A NEW ACCESS GATE WITH ACCESSORIES AT THE PATAPSCO VALLEY STATE PARK ENTRANCE. CONTRACTOR SHALL BE REQUIRED TO REPLACE THE POSTS, STEEL ENTRANCE GATES, OPERATOR ARMS, CONTROL BOX, AND OTHER NECESSARY CONTROL ACCESSORIES. CONTRACTOR SHALL PROVIDE TEN (10) REMOTE OPERATORS AT THE COMPLETION OF THE WORK. REPLACE IN-KIND.



PVSP – ENTRANCE GATE REPLACEMENT SCHEMATIC

SCALE: N.T.S.

PATAPSCO VALLEY STATE PARK PROPERTY PAVEMENT DETAIL NOTES:

(A) EXISTING BITUMINOUS PAVEMENT, APPROXIMATE THICKNESSS OF BITUMINOUS PAVEMENT IS 6 INCHES.

(B) EXISTING GRANULAR BASE COURSE APPROXIMATE THICKNESS OF 5 TO 6 INCHES.

(C) EXISTING SUBGRADE

(D) PROVIDE 4" TO 6" BITUMINOUS PAVEMENT, BASE MIX. (2 LIFTS) MATCH NEW PAVEMENT OVERLAY.

(E) PROVIDE 6" BITUMINOUS PAVEMENT (2 LIFTS), 3" BITUMINOUS SURFACE MIX AND 3" BITUMINOUS BASE MIX.

(F) 6" CRUSHER RUN CR-6 COMPACTED TO 95% MAXIMUM DRY DENSITY.

(G) 8" CRUSHER RUN CR-6 COMPATED TO 95% MAXIMUM DRY DENSITY.

(H) PROVIDE 2" TO 3" BITUMINOUS SURFACE MIX.

Delete Addendum No. 3

HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 280
Hunt Valley, Maryland 21031

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE	DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 1/12/12
	CHIEF, WATER ENGINEERING SECTION — DATE	

SEAL: STATE OF MARYLAND · SYAM B. NAYER · No. 37797 · PROFESSIONAL ENGINEER

DATE : 1-18-2013

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB
AS-BUILT PER RECORD PRINT — DRAWN BY: JCD
BY: — CHKD BY: SBN
DATE:

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

DRAWING SCALE: PLAN SCALE: AS NOTED; PROFILE SCALE: AS NOTED

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:	X	RJF	X				
DATE REVIEWED:	X	1/23/12	X	1/23/12	1/20/12	1/20/12	1/31/12

DEPARTMENT OF PUBLIC WORKS
APPROVED: DIRECTOR
DATE: 1-24-12
BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE: 1/17/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

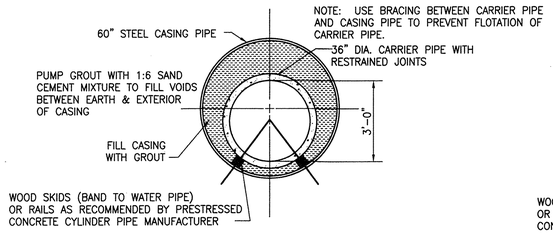
SOUTHWEST TRANSMISSION MAIN
PATAPSCO VALLEY STATE PARK IMPROVEMENTS PLAN

SUBDIVISION: ST. DENIS

ELECTION DISTRICT: 13

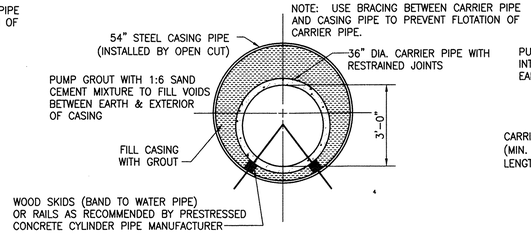
SHEET DESIGNATION	CONTRACT NO.
C-12	W-8276
	JOB ORDER NO. 203-0067-0261
	SHEET 14 OF 36
	DRAWING NO. 2009-3363
	FILE NO.

BALTIMORE COUNTY MARYLAND



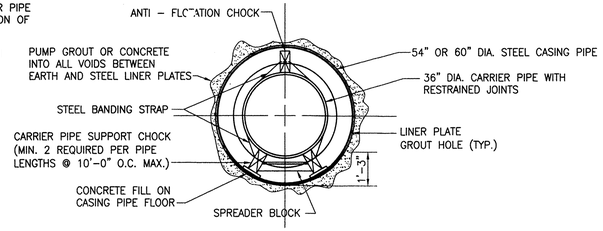
STATION 137+50 to STATION 139+00
CSX RAILROAD CROSSING DETAIL

SCALE: N.T.S.



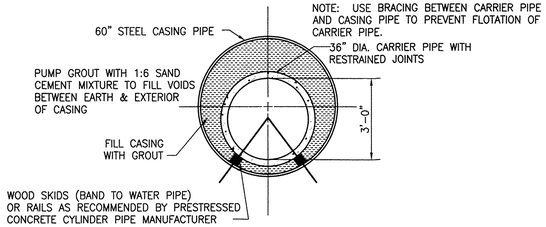
STATION 2+42 TO STATION 3+12
CSX BRIDGE CROSSING DETAIL

SCALE: N.T.S.



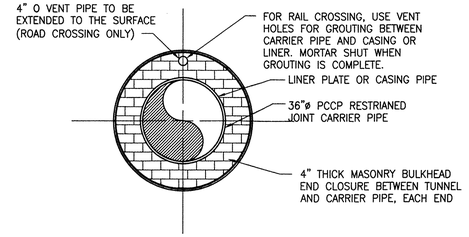
JACK AND BORE CROSSING DETAIL

SCALE: N.T.S.



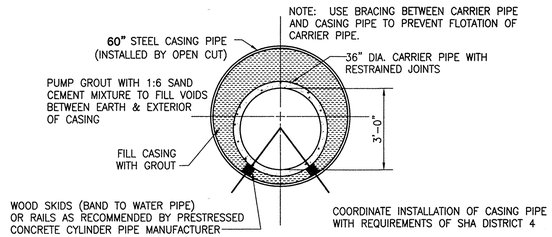
STATION 32+00 TO STATION 36+60
STATION 115+60 TO STATION 116+60 CASING NOT FILLED
STATION 124+60 TO STATION 127+10 CASING NOT FILLED
ROADWAY/DRIVEWAY CROSSING DETAIL

SCALE: N.T.S.



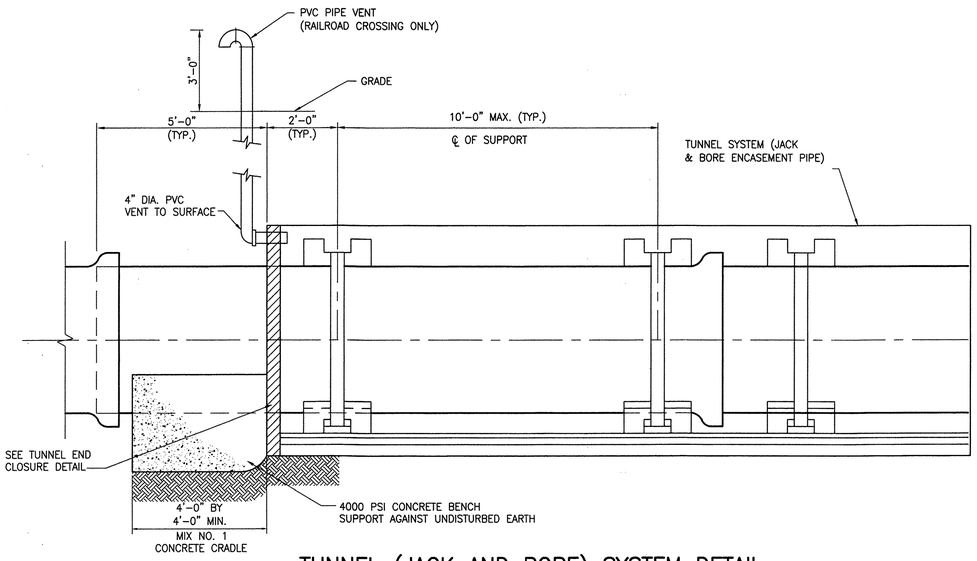
TYPICAL TUNNEL END CLOSURE

SCALE: N.T.S.



STATION 105+79 TO STATION 109+59
SHA ROUTE 195 CROSSING DETAIL

SCALE: N.T.S.



TUNNEL (JACK AND BORE) SYSTEM DETAIL

SCALE: N.T.S.

JACK AND BORE GENERAL NOTES:

JACK AND BORE ENCASEMENT PIPE

1. JACK AND BORE CONSTRUCTION SHALL CONFORM TO SPECIFICATIONS.
2. THE JACK & BORE ENCASEMENT PIPE SHALL BE MADE FROM STEEL (MINIMUM AWWA C206), WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI
3. JOINTS BETWEEN SECTIONS SHALL ALLOW FOR EASY BUTT-WELDED CONNECTIONS AND SHALL BE FULLY WELDED AROUND THE COMPLETE CIRCUMFERENCE OF THE PIPE.
4. STEEL CASING PIPE (60 INCH) SHALL HAVE A MINIMUM WALL THICKNESS OF 0.844"
5. STEEL CASING PIPE (54 INCH) SHALL HAVE A MINIMUM WALL THICKNESS OF 0.781"
6. STEEL CASING PIPE SHALL BE ROUND WITH SMOOTH EVEN INTERIOR AND EXTERIOR SURFACES.
7. CASING PIPE JOINTS – WELDED.
8. CASING PIPE TYPE OF SEAM – HELICAL.
9. ENCASEMENT PIPE INTERIOR SHALL ONLY BE LINED WITH BITUMASTIC MATERIAL.
10. A PIPE JOINT SHALL BE PROVIDED ON CARRIER PIPE 5'–0" BEYOND EACH END OF TUNNEL.
11. CONTRACTOR SHALL PROVIDE MASONRY BULKHEADS AT BOTH ENDS OF THE TUNNEL.
12. PROVIDE SKIDS OR RAILS, AS SHOWN, TO PREVENT CARRIER PIPE DAMAGE DURING INSTALLATION AND TO PREVENT CARRIER PIPE FLOTATION.
11. SEE PLAN AND PROFILES FOR LENGTH AND LOCATIONS.

CITY OF BALTIMORE

CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12

REVISION – CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE

CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 1/24/12

SEAL

STATE OF MARYLAND · SYAM B. NAYER · No. 37797 · PROFESSIONAL ENGINEER

DATE : 1-10-2012

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB

AS-BUILT PER RECORD PRINT — DRAWN BY: JCD

BY: — CHKD BY: SBN

DATE:

REVISION	BY	DATE

P.W.A. NO.

R.O.W NO.

KEY SHEET

POSITION SHT

DRAWING SCALE: PLAN SCALE: AS NOTED; PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS — APPROVED BY: DIRECTOR — DATE: 1-24-12

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:	X	RJF	X	LAG	GAK	MJM	JDP
DATE REVIEWED:	X	1/23/12	X	1/23/12	1/20/12	1/20/12	1/23/12

BUR. OF ENGINEERING & CONSTRUCTION — APPROVED BY: CHIEF — DATE: 1/17/12

AS-BUILT JUNE 2016

HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

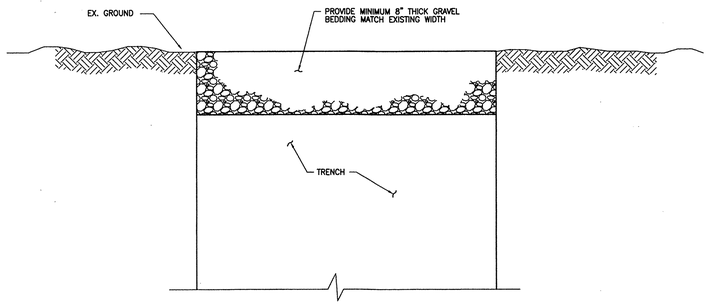
DWG FILENAME:

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

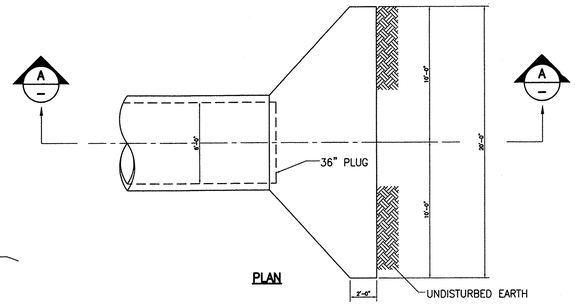
SOUTHWEST TRANSMISSION MAIN
CSX RAILROAD AND WASHINGTON BLVD. JACK & BORE DETAILS

SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

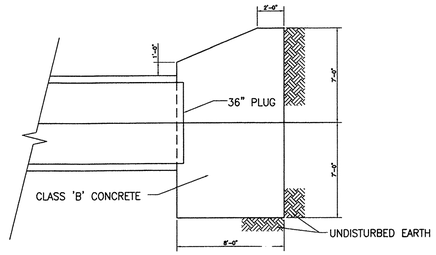
SHEET DESIGNATION	CONTRACT NO.
C–13	44–4618
	JOB ORDER NO.
	203–0067–0281
SHEET 15 OF 36	DRAWING NO.
	2009–3364
	FILE NO.



REPAIR GRAVEL ROAD
SCALE: N.T.S.

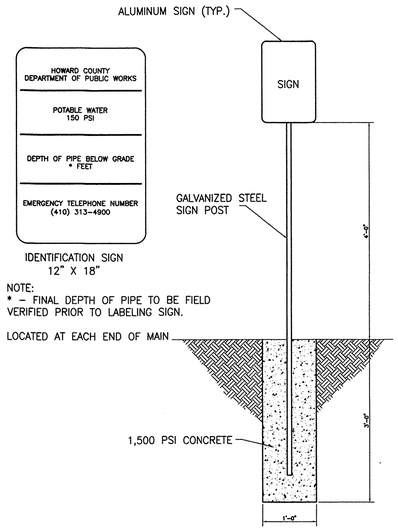


PLAN



SECTION 'A-A'

BUTTRESS DETAIL FOR 36" PLUG
SCALE: N.T.S.

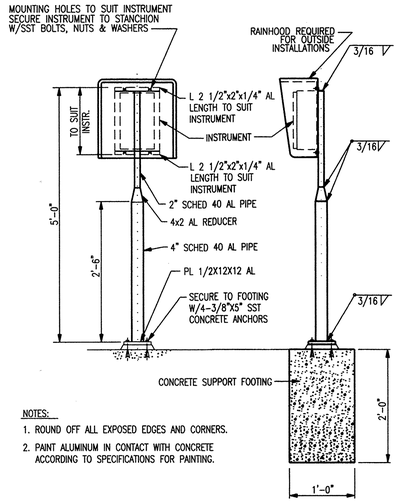


IDENTIFICATION SIGN
12" X 18"

NOTE:
* - FINAL DEPTH OF PIPE TO BE FIELD VERIFIED PRIOR TO LABELING SIGN.

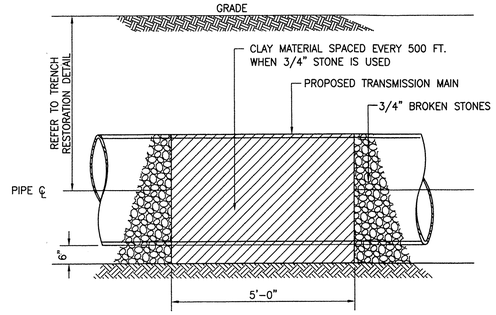
LOCATED AT EACH END OF MAIN

SIGN POST DETAIL
SCALE: N.T.S.



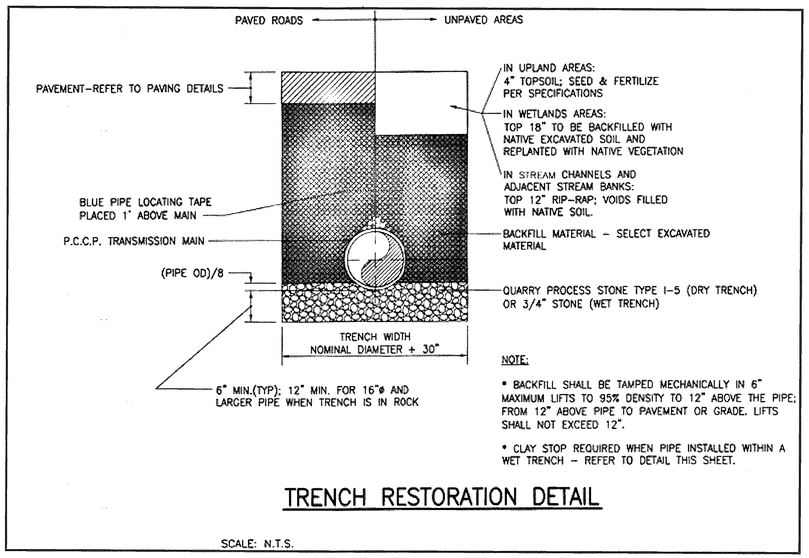
NOTES:
1. ROUND OFF ALL EXPOSED EDGES AND CORNERS.
2. PAINT ALUMINUM IN CONTACT WITH CONCRETE ACCORDING TO SPECIFICATIONS FOR PAINTING.

STANCHION SUPPORT FOR CASE MOUNTED INSTRUMENTS
SCALE: N.T.S.



CLAY STOP DETAIL - WET TRENCH
SCALE: N.T.S.

Correction Addendum No. 3



NOTE:

* BACKFILL SHALL BE TAMPED MECHANICALLY IN 6" MAXIMUM LIFTS TO 95% DENSITY TO 12" ABOVE THE PIPE; FROM 12" ABOVE PIPE TO PAVEMENT OR GRADE. LIFTS SHALL NOT EXCEED 12".

* CLAY STOP REQUIRED WHEN PIPE INSTALLED WITHIN A WET TRENCH - REFER TO DETAIL THIS SHEET.

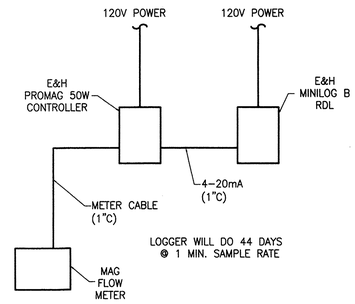
TRENCH RESTORATION DETAIL
SCALE: N.T.S.

MINIMUM LENGTH OF RESTRAINED JOINTS ON EACH SIDE OF FITTINGS (225 PSI TEST PRESSURE)			
FITTING	36"ø P.C.C.P.		
	COVER TO TOP OF PIPE		
	3½'-7'	7'-12'	> 12'
90° BEND, VALVES, CAPS, PLUGS	378'	246'	164'
TEES (BRANCH)	378'	246'	164'
75° BENDS	280'	183'	122'
60° BENDS	189'	123'	82'
45° BENDS	145'	94'	63'
30° BENDS	98'	64'	43'
22 1/2° BENDS	74'	48'	32'
15° BENDS	49'	32'	21'
11 1/4° BENDS	37'	24'	16'
5 5/8° BENDS	19'	12'	8'

NOTE:

CONTRACTOR SHALL USE THE ABOVE SCHEDULE AND THE CONTRACT PLAN AND PROFILE SHEETS TO DETERMINE ACTUAL RESTRAINED LENGTHS REQUIRED. FITTINGS IN CLOSE PROXIMITY TO ONE ANOTHER MAY REQUIRE ADDITIONAL RESTRAINT. FOR EXAMPLE, TWO (2) 22 1/2° LOCATED WITHIN SEVERAL FEET OF EACH OTHER WILL HAVE THE SAME REACTION AS A 45° BEND AND, AS SUCH, WILL REQUIRE THE LENGTHS OF RESTRAINT SHOWN FOR A 45° BEND.

RESTRAINING LENGTH SCHEDULE
SCALE: N.T.S.



MAG METER WIRING SCHEMATIC
SCALE: N.T.S.

CITY OF BALTIMORE — CHIEF, WATER & WASTEWATER ENG. DIV. / BUREAU OF WATER AND WASTEWATER — DATE 3/15/12

REVISION - CITY OF BALTIMORE — CHIEF, UTILITY ENGINEERING — DATE; CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS — DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/24/12

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB — DRAWN BY: JCD — CHKD BY: SBN

AS-BUILT PER RECORD PRINT — BY: — DATE:

DATE: 1-16-2012

REVISION	BY	DATE

P.W.A. NO. — R.O.W NO. — KEY SHEET — POSITION SHT

DRAWING SCALE: PLAN SCALE: AS NOTED; PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS — APPROVED BY: DIRECTOR — DATE: 1-24-12

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:	X	RJF	X		GAK	MJM	JDP
DATE REVIEWED:	X	1/23/12	X	1/20/12	1/20/12	1/24/12	1/23/12

BUR. OF ENGINEERING & CONSTRUCTION — APPROVED BY: CHIEF — DATE: 1/17/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN MISCELLANEOUS CIVIL DETAILS

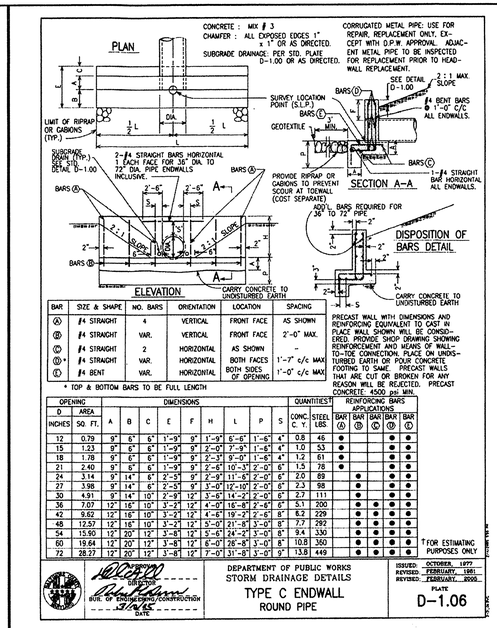
SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

SHEET DESIGNATION	CONTRACT NO.
C-14	44-4618
JOB ORDER NO.	203-0067-0281
SHEET 16 OF 36	
DRAWING NO.	2009-3365
FILE NO.	ZO-0036

DWG FILENAME:



BAR	SIZE & SHAPE	NO. BARS	ORIENTATION	LOCATION	SPACING
A	#4 STRAIGHT	4	VERTICAL	FRONT FACE	AS SHOWN
B	#4 STRAIGHT	VAR.	VERTICAL	FRONT FACE	2'-0" MAX.
C	#4 STRAIGHT	2	HORIZONTAL	AS SHOWN	-
D *	#4 STRAIGHT	VAR.	HORIZONTAL	BOTH FACES	1'-7" c/c MAX.
E	#4 BENT	VAR.	HORIZONTAL	BOTH SIDES OF OPENING	1'-0" c/c MAX.

* TOP & BOTTOM BARS TO BE FULL LENGTH

PRECAST WALL WITH DIMENSIONS AND REINFORCING EQUIVALENT TO CAST IN PLACE WALL SHOWN WILL BE CONSIDERED. PROVIDE SHOP DRAWING SHOWING REINFORCEMENT AND MEANS OF WALL-TO-TOE CONNECTION. PLACE ON UNDISTURBED EARTH OR POUR CONCRETE FOOTING TO SAME. PRECAST WALLS THAT ARE CUT OR BROKEN FOR ANY REASON WILL BE REJECTED. PRECAST CONCRETE 4500 psi MIN.

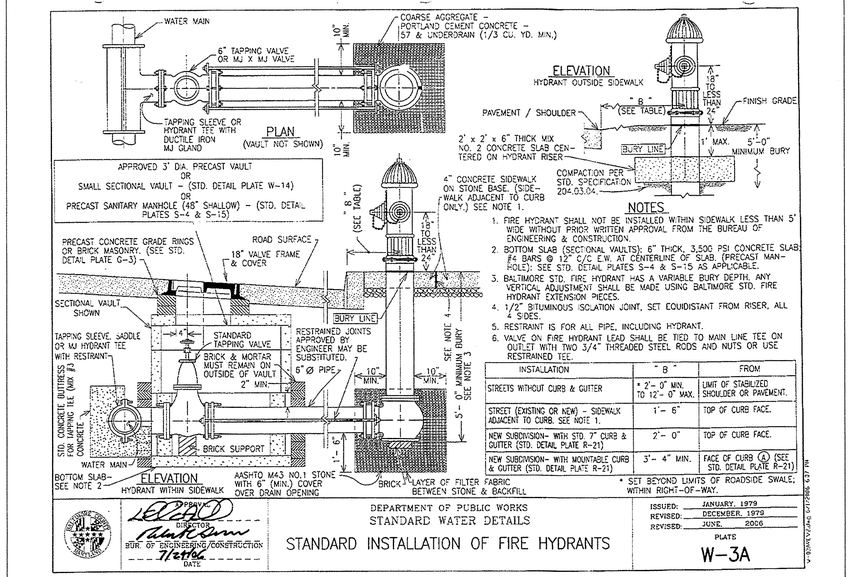
OPENING D	OPENING AREA	DIMENSIONS A	B	C	E	F	H	L	P	S	QUANTITIES CONC. C.Y.	QUANTITIES STEEL LBS.	REINFORCING BARS APPLICATIONS BAR Ⓐ	BAR Ⓑ	BAR Ⓒ	BAR Ⓓ	BAR Ⓔ
INCHES	SQ. FT.																
12	0.79	9"	6"	6"	1'-9"	8"	1'-9"	5'-6"	1'-6"	4"	0.8	46	●			●	●
15	1.23	9"	6"	6"	1'-9"	9"	2'-0"	7'-9"	1'-6"	4"	1.0	53	●			●	●
18	1.78	9"	6"	6"	1'-9"	9"	2'-3"	9'-0"	1'-6"	4"	1.2	61	●			●	●
21	2.40	9"	6"	6"	1'-9"	9"	2'-6"	10'-3"	2'-0"	6"	1.3	78	●			●	●
24	3.14	9"	14"	6"	2'-3"	9"	2'-9"	11'-6"	2'-0"	6"	2.0	89		●		●	●
27	3.98	9"	14"	6"	2'-3"	9"	3'-0"	12'-10"	2'-0"	6"	2.3	98		●		●	●
30	4.91	9"	14"	10"	2'-9"	12"	3'-5"	14'-2"	2'-0"	6"	2.7	111		●		●	●
36	7.07	12"	16"	10"	3'-2"	12"	4'-0"	16'-8"	2'-6"	6"	3.1	200		●	●	●	●
42	9.62	12"	16"	10"	3'-2"	12"	4'-6"	19'-2"	2'-6"	8"	6.2	229		●	●	●	●
48	12.57	12"	16"	10"	3'-2"	12"	5'-0"	21'-8"	3'-0"	8"	7.7	282		●	●	●	●
54	15.90	12"	20"	12"	3'-8"	12"	5'-6"	24'-2"	3'-0"	8"	9.4	330		●	●	●	●
60	19.64	12"	20"	12"	3'-8"	12"	6'-0"	26'-8"	3'-0"	8"	10.8	350		●	●	●	●
72	28.27	12"	20"	12"	3'-8"	12"	7'-0"	31'-8"	3'-0"	9"	13.8	449		●	●	●	●

* FOR ESTIMATING PURPOSES ONLY

DEPARTMENT OF PUBLIC WORKS
STORM DRAINAGE DETAILS
TYPE C ENDWALL
ROUND PIPE

ISSUED: OCTOBER, 1977
REVISED: FEBRUARY, 1981
REVISED: FEBRUARY, 2000

PLATE
D-1.06



NOTES

1. FIRE HYDRANT SHALL NOT BE INSTALLED WITHIN SIDEWALK LESS THAN 5' WIDE WITHOUT PRIOR WRITTEN APPROVAL FROM THE BUREAU OF ENGINEERING & CONSTRUCTION.
2. BOTTOM SLAB (SECTIONAL VAULTS): 6" THICK, 3,500 PSI CONCRETE SLAB, #4 BARS @ 12" C/C E.W. AT CENTERLINE OF SLAB. (PRECAST MANHOLE): SEE STD. DETAIL PLATES S-4 & S-15 AS APPLICABLE.
3. BALTIMORE STD. FIRE HYDRANT HAS A VARIABLE BURY DEPTH. ANY VERTICAL ADJUSTMENT SHALL BE MADE USING BALTIMORE STD. FIRE HYDRANT EXTENSION PIECES.
4. 1/2" BITUMINOUS ISOLATION JOINT, SET EQUIDISTANT FROM RISER, ALL 4 SIDES.
5. RESTRAINT IS FOR ALL PIPE, INCLUDING HYDRANT.
6. VALVE ON FIRE HYDRANT LEAD SHALL BE TIED TO MAIN LINE TEE ON OUTLET WITH TWO 3/4" THREADED STEEL RODS AND NUTS OR USE RESTRAINED TEE.

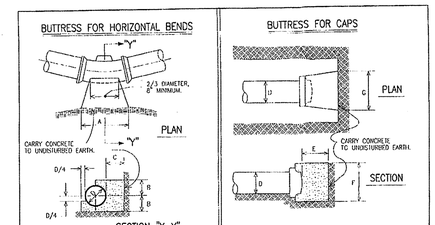
INSTALLATION	"B"	FROM
STREETS WITHOUT CURB & GUTTER	* 2'– 0" MIN. TO 12'– 0" MAX.	LIMIT OF STABILIZED SHOULDER OR PAVEMENT.
STREET (EXISTING OR NEW) – SIDEWALK ADJACENT TO CURB. SEE NOTE 1.	1'– 6"	TOP OF CURB FACE.
NEW SUBDIVISION– WITH STD. 7" CURB & GUTTER (STD. DETAIL PLATE R-21)	2'– 0"	TOP OF CURB FACE.
NEW SUBDIVISION– WITH MOUNTABLE CURB & GUTTER (STD. DETAIL PLATE R-21)	3'– 4" MIN.	FACE OF CURB Ⓐ (SEE STD. DETAIL PLATE R-21)

* SET BEYOND LIMITS OF ROADSIDE SWALE, WITHIN RIGHT-OF-WAY.

DEPARTMENT OF PUBLIC WORKS
STANDARD WATER DETAILS
STANDARD INSTALLATION OF FIRE HYDRANTS

ISSUED: JANUARY, 1979
REVISED: DECEMBER, 1979
REVISED: JUNE, 2006

PLATE
W-3A



BUTTRESS FOR HORIZONTAL BENDS

	D	6"	8"	10"	12"	16"	20"	24"	30"	36"
1/64 BEND	A						1'-8"	2'-0"	2'-6"	3'-0"
	B						1'-0"	1'-0"	1'-3"	1'-6"
	C						10"	1'-0"	1'-1"	1'-3"
1/32 BEND	A	8"	8"	10"	1'-0"	1'-4"	1'-8"	2'-0"	2'-6"	3'-0"
	B	7"	8"	9"	10"	1'-0"	1'-2"	1'-4"	1'-7"	1'-11"
	C	7"	7"	8"	8"	9"	10"	1'-0"	1'-1"	1'-3"
1/16 BEND	A	9"	1'-0"	1'-6"	1'-9"	2' -3"	3'-0"	3'-8"	4'-4"	5'-6"
	B	7"	8"	9"	10"	1'-1"	1'-5"	1'-10"	2'-3"	2'-9"
	C	8"	8"	10"	11"	1'-0"	1'-4"	1'-8"	1'-9"	2'-2"
1/8 BEND	A	1'-3"	1'-8"	2'-3"	2'-10"	3'-11"	4'-4"	5'-6"	6'-11"	8'-1"
	B	7"	9"	10"	1'-1"	1'-4"	1'-10"	2'-3"	2'-9"	3'-3"
	C	9"	9"	10"	1'-1"	1'-4"	1'-8"	2'-1"	2'-8"	3'-1"
1/4 BEND	A	2'-6"	3'-4"	4'-2"	5'-2"	6'-10"	8'-7"	10'-3"	12'-0"	13'-9"
	B	7"	10"	1'-1"	1'-4"	1'-7"	1'-10"	2'-3"	2'-9"	3'-3"
	C	1'-0"	1'-2"	1'-5"	1'-9"	2'-5"	3'-0"	3'-7"	4'-3"	5'-0"

SPECIAL DESIGN

NOTES :

1. ALL CONCRETE TO BE MIX #1.
2. BUTTRESS DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS ARE BASED UPON SOIL BEARING PRESSURE OF 3,000 p.s.f. STATIC WATER PRESSURE OF 150 p.s.i. AND DUCTILE IRON PIPE SIZES. WHERE PRESSURE EXCEEDS 150 p.s.i. OR WHERE SOIL BEARING PRESSURE IS LESS THAN 3,000 p.s.f. SPECIAL BUTTRESS DESIGN IS REQUIRED, OR ALTERNATIVE RESTRAINT METHODS SHALL BE USED.

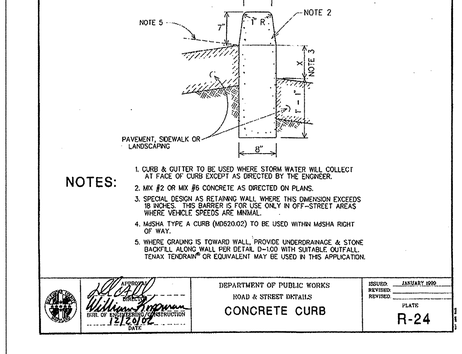
BUTTRESS FOR CAPS

	D'	6"	8"	10"	12"	16"	20"	24"	30"	36"
E		8"	8"	8"	10"	1'-1"	1'-4"	1'-8"	2'-4"	2'-11"
F		1'-3"	1'-8"	2'-0"	2'-4"	3'-0"	3'-10"	4'-8"	5'-11"	6'-0"
G		1'-0"	2'-0"	2'-6"	3'-0"	4'-0"	5'-0"	6'-0"	7'-11"	9'-0"

DEPARTMENT OF PUBLIC WORKS
STANDARD WATER DETAILS
BUTTRESSES FOR CAPS AND HORIZONTAL BENDS

ISSUED: AUGUST 20, 1959
REVISED: DECEMBER 20, 1960
REVISED: MAY 2006

PLATE
W-5



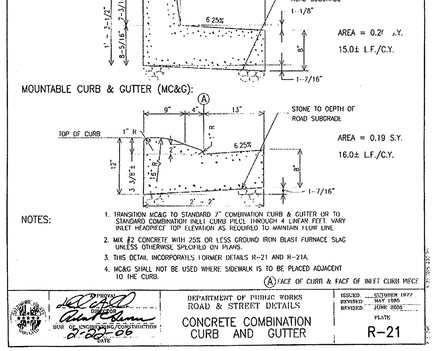
NOTES:

1. CURB & GUTTER TO BE USED WHERE STORM WATER WILL COLLECT AT FACE OF CURB EXCEPT AS DIRECTED BY THE ENGINEER.
2. MIX #2 OR MIX #6 CONCRETE AS DIRECTED ON PLANS.
3. SPECIAL DESIGN AS RETAINING WALL WHERE THIS DIMENSION EXCEEDS 18 INCHES. THIS BARRIER IS FOR USE ONLY IN OFF-STREET AREAS WHERE VEHICLE SPEEDS ARE MINIMAL.
4. MdSHA TYPE A CURB (MD520.02) TO BE USED WITHIN MdSHA RIGHT OF WAY.
5. WHERE GRADING IS TOWARD WALL, PROVIDE UNDERDRAINAGE & STONE BACKFILL ALONG WALL PER DETAIL D-1.00 WITH SUITABLE OUTFALL. TENAX TENDRAIN® OR EQUIVALENT MAY BE USED IN THIS APPLICATION.

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS
CONCRETE CURB

ISSUED: JANUARY 1999
REVISED
REVISED

PLATE
R-24



NOTES:

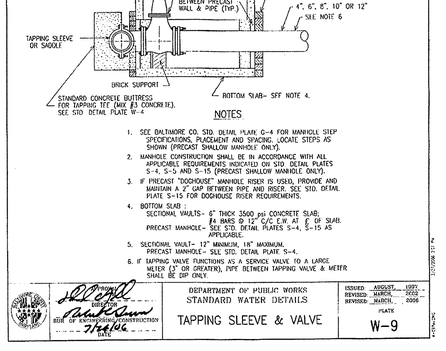
1. TRANSITION MC&G TO STANDARD 7" COMBINATION CURB & GUTTER OR TO STANDARD COMBINATION INLET CURB PIECE THROUGH 4 LINEAR FEET. VARY INLET HEADPIECE TOP ELEVATION AS REQUIRED TO MAINTAIN FLOW LINE.
2. MIX #2 CONCRETE WITH 25% OR LESS GROUND IRON BLAST FURNACE SLAG UNLESS OTHERWISE SPECIFIED ON PLANS.
3. THIS DETAIL INCORPORATES FORMER DETAILS R-21 AND R-21A.
4. MC&G SHALL NOT BE USED WHERE SIDEWALK IS TO BE PLACED ADJACENT TO THE CURB.

Ⓐ FACE OF CURB & FACE OF INLET CURB PIECE

DEPARTMENT OF PUBLIC WORKS
ROAD & STREET DETAILS
CONCRETE COMBINATION CURB AND GUTTER

ISSUED: OCTOBER 1977
REVISED: MAY 1985
REVISED: JUNE 2006

PLATE
R-21



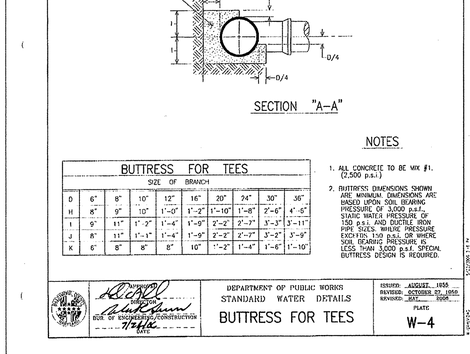
NOTES

1. SEE BALTIMORE CO. STD. DETAIL PLATE G-4 FOR MANHOLE STEP SPECIFICATIONS, PLACEMENT AND SPACING. LOCATE STEPS AS SHOWN (PRECAST SHALLOW MANHOLE ONLY).
2. MANHOLE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS INDICATED ON STD. DETAIL PLATES S-4, S-5 AND S-15 (PRECAST SHALLOW MANHOLE ONLY).
3. IF PRECAST "DOGHOUSE" MANHOLE RISER IS USED, PROVIDE AND MAINTAIN A 2" GAP BETWEEN PIPE AND RISER. SEE STD. DETAIL PLATE S-15 FOR DOGHOUSE RISER REQUIREMENTS.
4. BOTTOM SLAB : SECTIONAL VAULTS– 6" THICK 3500 psi CONCRETE SLAB; #4 BARS @ 12" C/C E.W. AT ℄ OF SLAB. PRECAST MANHOLE– SEE STD. DETAIL PLATES S-4, S-15 AS APPLICABLE.
5. SECTIONAL VAULT– 17" MINIMUM, 18" MAXIMUM. PRECAST MANHOLE– SEE STD. DETAIL PLATE S-4.
6. IF TAPPING VALVE FUNCTIONS AS A SERVICE VALVE TO A LARGE MUELER (3" OR GREATER), PIPE BETWEEN TAPPING VALVE & METER SHALL BE DIP ONLY.

DEPARTMENT OF PUBLIC WORKS
STANDARD WATER DETAILS
TAPPING SLEEVE & VALVE

ISSUED: AUGUST, 1977
REVISED: MARCH, 1988
REVISED: MARCH, 2006

PLATE
W-9



NOTES

1. ALL CONCRETE TO BE MIX #1. (2,500 p.s.i.)
2. BUTTRESS DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS ARE BASED UPON SOIL BEARING PRESSURE OF 3,000 p.s.f. STATIC WATER PRESSURE OF 150 p.s.i. AND DUCTILE IRON PIPE SIZES. WHERE PRESSURE EXCEEDS 150 p.s.i. OR WHERE SOIL BEARING PRESSURE IS LESS THAN 3,000 p.s.f. SPECIAL BUTTRESS DESIGN IS REQUIRED.

BUTTRESS FOR TEES

SIZE OF BRANCH							
D	6"	8"	10"	12"	16"	20"	24"	30"	36"
H	8"	9"	10"	1'-0"	1'-2"	1'-10"	1'-8"	2'-6"	4' -5"
I	9"	11"	1' -2"	1'-4"	1'-9"	2'-2"	2'-7"	3'-3"	3'-11"
J	8"	11"	1'-1"	1'-4"	1'-9"	2'-2"	2'-7"	3'-2"	3'-9"
K	6"	8"	8"	8"	10"	1'-2"	1'-4"	1'-6"	1'-10"

DEPARTMENT OF PUBLIC WORKS
STANDARD WATER DETAILS
BUTTRESS FOR TEES

ISSUED: AUGUST, 1959
REVISED: OCTOBER 17, 1960
REVISED: MAY 2006

PLATE
W-4

CITY OF BALTIMORE

CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12

REVISION – CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE

CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 1/12/12

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

DATE : 1-10-2012

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB

AS-BUILT PER RECORD PRINT — DRAWN BY: JCD

BY: — CHKD BY: SBN

DATE:

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

DRAWING SCALE
PLAN SCALE: AS NOTED
PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: DIRECTOR
DATE: 1-24-12

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:	X	RSF	X	MM	GAK	m/m	JDP
DATE REVIEWED:		11/23/12		1/23/12	1/20/12	1/20/12	1/03/12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF
DATE: 1/12/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
MISCELLANEOUS CIVIL DETAILS

SUBDIVISION: ST. DENIS

ELECTION DISTRICT: 13

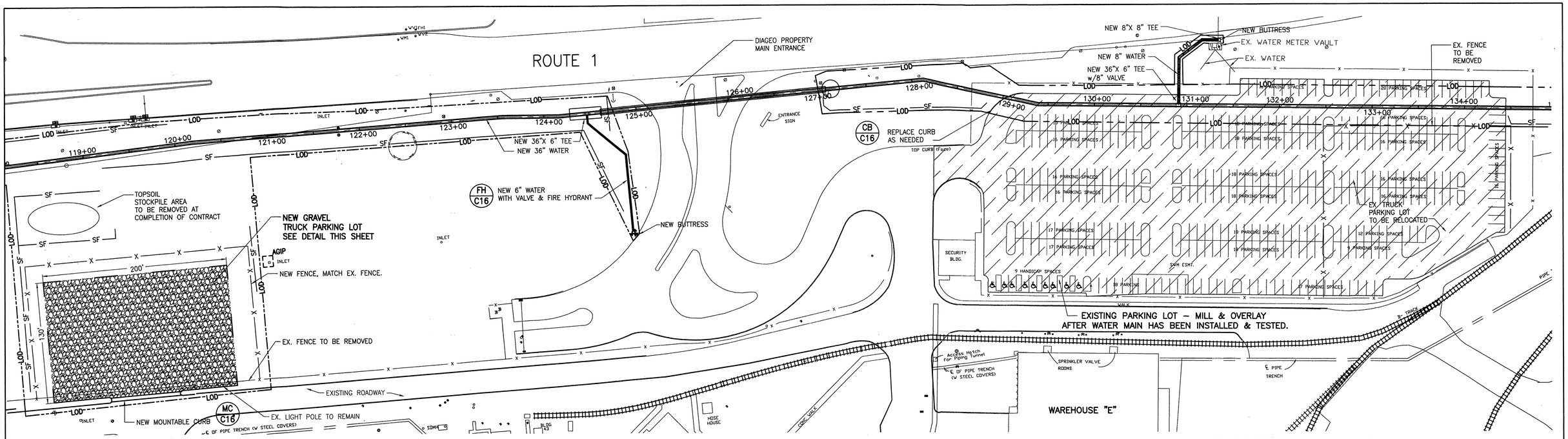
HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

SHEET DESIGNATION	CONTRACT NO.
C-15	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 17 OF 36
	DRAWING NO.
	2009-3366
	FILE NO.

BALTIMORE COUNTY MARYLAND

DWG FILENAME:



DIAGEO PROPERTY SEQUENCE OF CONSTRUCTION

1. CONTRACTOR MUST CONTACT DIAGEO PROPERTY PLANT MANAGER AT 410-247-6009 BEFORE INITIATING ANY WORK ON THE PROPERTY. AT NOT TIME WILL THE CONTRACTOR BE PERMITTED TO DISRUPT THE FLOW OF TRAFFIC AT THE MAIN ENTRANCE.
2. INSTALL PROPOSED WATER MAIN FROM STATION 121+00 +/- TO STATION 129+00 +/-.
3. INSTALL 6" WATER MAIN AND FIRE HYDRANT AS SHOWN AND INSTALL 8" WATER MAIN INTER CONNECTION TO DIAGEO METER VAULT AS SHOWN.
4. CONSTRUCT GRAVEL TRUCK PARKING LOT IN ACCORDANCE WITH THE FOLLOWING:

A. BEFORE BEGINNING CONSTRUCTION ON PROPOSED WATER MAIN FROM STATION 129+00 TO STATION 134+50, CONTRACTOR MUST CONSTRUCT PROPOSED GRAVEL PARKING LOT AS SHOWN.

B. INSTALL SILT FENCE AT TEMPORARY PARKING LOT LOCATION.

C. INSTALL 200 FEET X 130 FEET GRAVEL TRUCK PARKING LOT PER DETAIL THIS SHEET.

D. PROVIDE MOUNTABLE CURB ACROSS ENTRANCE.

E. INSTALL APPROXIMATELY 530 LINEAR FEET OF SECURITY FENCE AROUND NEW GRAVEL PARKING LOT. CONTRACTOR SHALL MATCH EXISTING FENCE AND HAVE THE OPTION TO REUSE EXISTING FENCE IN COMBINATION WITH NEW FENCING OR PROVIDE ALL NEW FENCING.

F. TOPSOIL, SEED, AND MULCH DISTURBED AREAS.

G. REMOVE SILT FENCE.

5. EXISTING TRUCK PARKING LOT – RELOCATE IN ACCORDANCE WITH THE FOLLOWING:

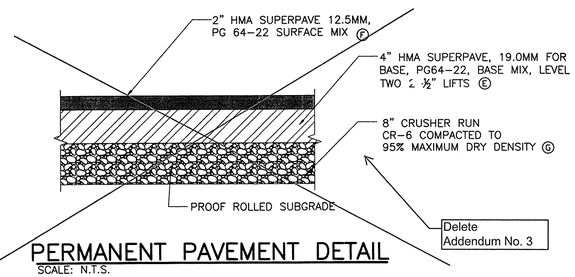
A. REMOVE EXISTING FENCE FROM THE PARKING LOT.

B. ALLOW TWO (2) WEEKS FOR OWNER TO RELOCATE EXISTING TRAILORS.

C. RELOCATION OF EXISTING TRUCK PARKING LOT CANNOT OCCUR UNTIL PROPOSED TEMPORARY GRAVEL TRUCK PARKING LOT IS READY FOR OCCUPANCY.

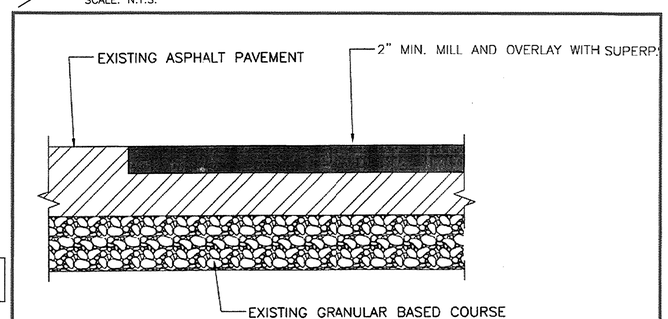
6. CONSTUCT NEW WATER LINE BETWEEN STATION 128+50 AND STATION 134+50. PROVIDE TEMPORARY PAVEMENT REPAIR IN ACCORDANCE WITH THE ~~DETAIL ON SHEET C-14.~~ "detail this sheet." Correction Addendum No. 3 (Delete Addendum No. 2)
7. ~~REPAIR DAMMAGED AREAS WITHIN PARKING LOT. (AN ALLOWANCE OF $10,000 SHOULD BE INCLUDED IN CONTRACTOR'S BID FOR REPAIRS TO THE EXISTING LOT).~~
8. ~~AFTER WATER MAIN HAS BEEN TESTED, REMOVE TEMPORARY PAVEMENT AND PROVIDE PERMANENT PAVEMENT REPAIR.~~
9. MILL AND OVERLAY ENTIRE PARKING LOT TO THE LIMITS SHOWN. PROVIDE STRIPPING.
10. PLACE PARKING LOT BACK IN SERVICE.

"After water main has been tested, remove temporary trench pavement and provide permanent trench pavement repair. See details this sheet." Correction Addendum No. 3



PERMANENT PAVEMENT DETAIL

SCALE: N.T.S.

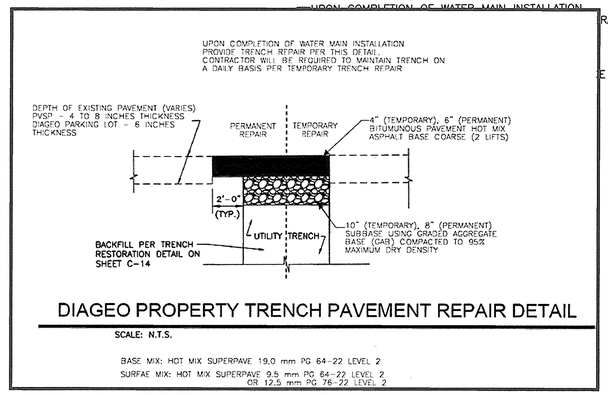


MILL AND OVERLAY DETAIL – DIAGEO PARKING LOT

SCALE: N.T.S.

SURFACE MIX: HOT MIX SUPERPAVE 9.5 mm PG 64-22 LEVEL 2 OR 12.5 mm PG 76-22 LEVEL 2

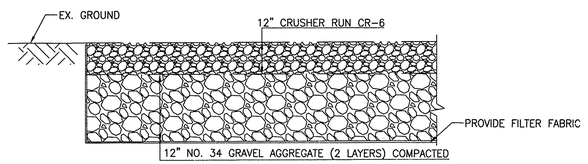
Updated Addendum No. 3



DIAGEO PROPERTY TRENCH PAVEMENT REPAIR DETAIL

SCALE: N.T.S.

BASE MIX: HOT MIX SUPERPAVE 19.0 mm PG 64-22 LEVEL 2
SURFAE MIX: HOT MIX SUPERPAVE 9.5 mm PG 64-22 LEVEL 2 OR 12.5 mm PG 76-22 LEVEL 2



GRAVEL TRUCK PARKING LOT DETAIL

SCALE: N.T.S.

Updated Addendum No. 3

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE	DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/6/12
	CHIEF, WATER ENGINEERING SECTION — DATE	

SEAL: STATE OF MARYLAND — SYAM B. NAYER — PROFESSIONAL ENGINEER

DATE: 1-10-2012

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB — DRAWN BY: JCD — CHKD BY: SBN

AS-BUILT PER RECORD PRINT — BY: — DATE:

REVISION	BY	DATE

P.W.A. NO. — R.O.W NO. — KEY SHEET — POSITION SHT

DRAWING SCALE: PLAN SCALE: AS NOTED; PROFILE SCALE: AS NOTED / AS NOTED

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		ROF		MHR	GAK	JMS	SDP
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/20/12	1/23/12

DEPARTMENT OF PUBLIC WORKS — APPROVED BY: DIRECTOR — DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION — APPROVED BY: CHIEF — DATE: 1/17/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
DIAGEO PROPERTY IMPROVEMENTS PLAN

SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

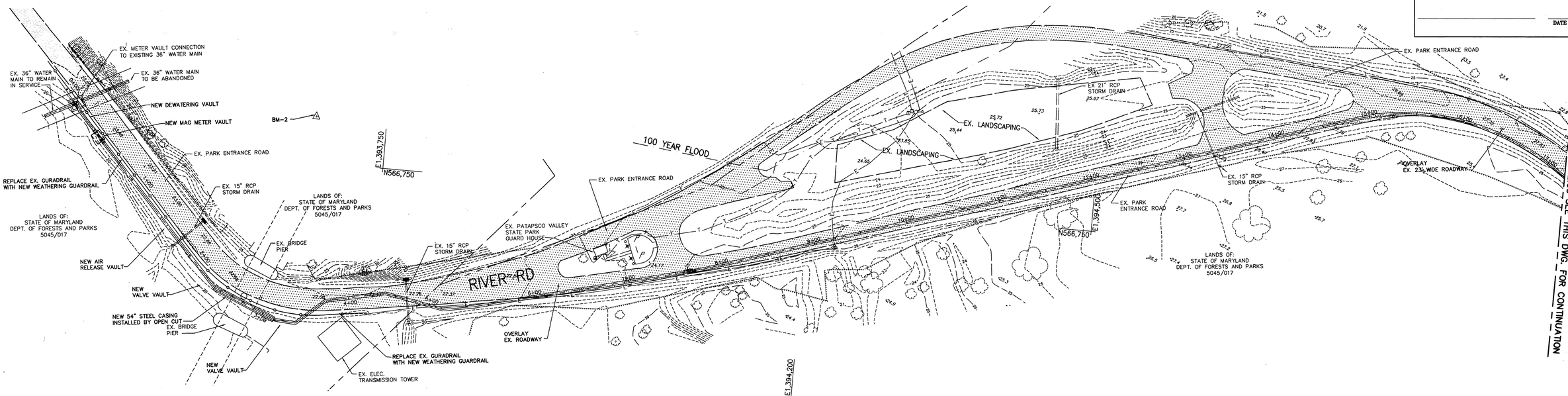
HOWARD CO. PROJECT NO. W-8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

DWG FILENAME:

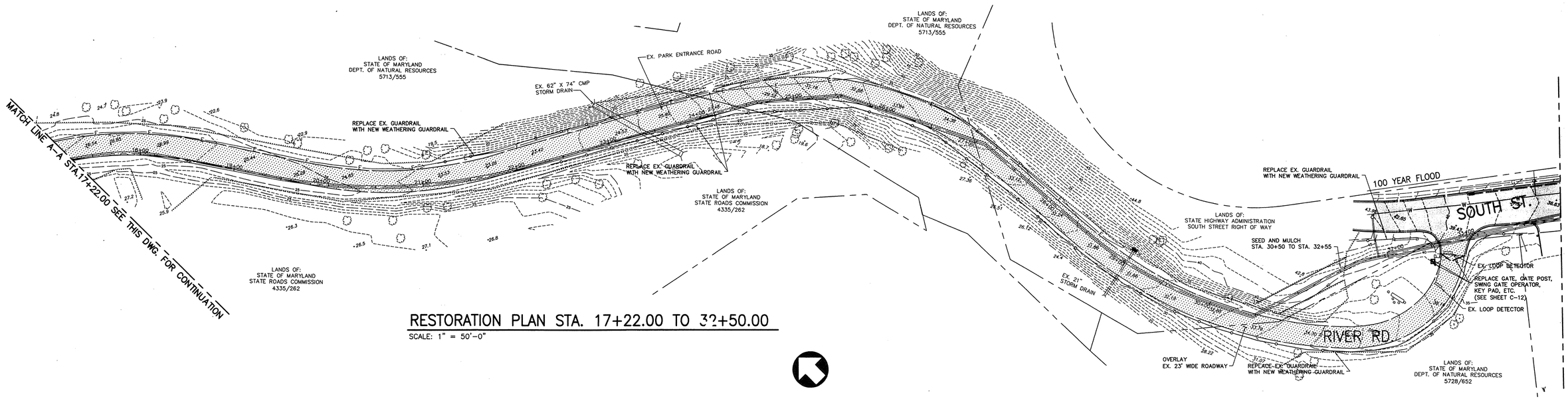
SHEET DESIGNATION	CONTRACT NO.
C-16	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 18 OF 36
	DRAWING NO.
	2009-3367
	FILE NO.

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
_____ DATE



RESTORATION PLAN STA. 0+00 TO 17+22.00

SCALE: 1" = 50'-0"



RESTORATION PLAN STA. 17+22.00 TO 33+50.00

SCALE: 1" = 50'-0"

HOWARD CO. PROJECT NO. W-8276

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 2/15/12	CHIEF, UTILITY ENGINEERING — DATE CHIEF, WATER ENGINEERING SECTION — DATE	DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/26/12

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB
AS-BUILT PER RECORD PRINT — DRAWN BY: JCD
BY: — CHKD BY: SBN
DATE: 1-10-2012 — DATE:

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		MC	GAK	JDP	JDP
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/23/12	1/23/12

DRAWING SCALE
PLAN SCALE: AS NOTED
PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: _____ DIRECTOR
DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: _____ CHIEF
DATE: 1/17/12

DESIGN AND DRAWINGS BASED ON MARYLAND COORDINATE SYSTEM HORIZONTAL – NAD 83/91 AND ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION 68.97.

AS-BUILT JUNE 2016

CWO 51738

AREA OF DISTURBANCE PATAPSCO VALLEY STATE PARK – 2.90 ACRES (126,239 SQUARE FEET)
AREA OF DISTURBANCE ALONG ROUTE 1 CORRIDOR – 7.57 ACRES (329,562 SQUARE FEET)
TOTAL AREA OF DISTURBANCE – 10.46 ACRES (455,801 SQUARE FEET)

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
RESTORATION PLAN STA. 0+00 TO STA 33+89.00

SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

SHEET DESIGNATION	CONTRACT NO.
C-17	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 19 OF 36
	DRAWING NO.
	2009-3368
	FILE NO.

DWG FILENAME:

EROSION & SEDIMENT CONTROL
SOUTHWEST TRANSMISSION MAIN
CONTRACT NO. W-8276
JOB ORDER NO. 203-0067-0281

SEDIMENT CONTROL

OWNER'S/DEVELOPER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE ALSO CERTIFY THAT THE SITE WILL BE INSPECTED AT THE END OF EACH WORKING DAY, AND THAT ANY NEEDED MAINTENANCE WILL BE COMPLETED SO AS TO INSURE THAT ALL SEDIMENT CONTROL PRACTICES ARE LEFT IN OPERATIONAL CONDITION. I/WE AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT BOARD OF SUPERVISORS OR THEIR AUTHORIZED AGENTS.

SIGNATURE OWNER/DEVELOPER — Director DPW — 7-27-10
TITLE — DATE

EDWARD C ADAMS JR
PRINT NAME

CONSULTANT'S CERTIFICATION:

I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRATICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT AND THE CURRENT STATE OF MARYLAND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE — 7/21/10 DATE

JAMES E. HAVEY — 26035 MD LICENSE NO.
PRINT NAME

OWNER'S GRADING CERTIFICATION:

I/WE CERTIFY THAT ALL GRADING ON THIS SITE WILL BE DONE IN ACCORDANCE WITH THE CURRENT GRADING REQUIREMENTS AS SET FORTH BY THE BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT AND WITH THE REQUIREMENTS SPECIFIED IN ARTICLE 33, TITLE 5 OF THE BALTIMORE COUNTY CODE.

SIGNATURE OWNER/DEVELOPER — Director DPW — 7-27-10
TITLE — DATE

EDWARD C ADAMS JR.
PRINT NAME

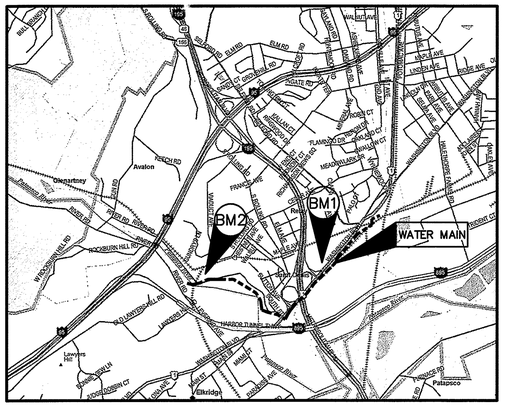
OWNER'S CERTIFICATION-AIR QUALITY:

I ACKNOWLEDGE THAT I AM RESPONSIBLE UNDER THE CODE OF MARYLAND REGULATIONS (26.11.06.03) TO PREVENT PARTICULATE MATTER FROM BECOMING AIRBORNE DUE TO GRADING, LAND CLEARING, EXCAVATING, CONSTRUCTION OR OTHER RELATED ACTIVITES. I HAVE RECEIVED A COPY OF "GUIDELINES TO THE AIR POLLUTION REGULATIONS FOR CONTROLLING EXCESSIVE ABP (DUST) ON ACTIVITY SITES" WHICH INCLUDES A COPY OF COMAR 26.11.06.03. I WILL CONTACT THE ENVIRONMENTAL HEALTH SECTION AT (410- 887-4065) AT LEAST THREE DAYS PRIOR TO BEGINNING WORK.

SIGNATURE OWNER/DEVELOPER — Director DPW — 7-27-10
TITLE — DATE

EDWARD C ADAMS JR.
PRINT NAME

THE PROPOSED GRADING SHOWN ON THIS PLAN MEETS THE REQUIREMENTS SET FORTH BY THE BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT AND COMPLIES WITH ARTICLE 33, TITLE 5 OF THE BALTIMORE COUNTY CODE. HOWEVER, DUE TO BUILDING TYPES AND LAYOUT, SOME FIELD ADJUSTMENTS MAY BE REQUIRED. ALL CHANGES MUST COMPLY WITH THE ABOVE MENTIONED REQUIREMENTS.



LOCATION MAP
SCALE: 1" = 2,000'

SURVEY CONTROL NOTES

1. THE ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION = 68.97.
2. THE COORDINATES SHOWN HEREON ARE REFERRED TO THE MARYLAND STATE PLANE DATUM NAD 83/91 USING NGS MONUMENTS BM-1 GIS 86 (PID AE 2450), N. 566928.28 E. 1397313.26 AND BM-2 GIS 87 (PID AE2451), N. 566798.08 E. 1393675.58.
3. GIS 86 AND GIS 87 ARE SURVEY DISKS SET IN TOP OF CONCRETE MONUMENTS.

LIST OF DRAWINGS

Sheet No.	Dwg.	DESCRIPTION
20	SC-1	EROSION & SEDIMENT CONTROL TITLE SHEET
21	SC-2	EROSION & SEDIMENT CONTROL NOTES 1
22	SC-3	EROSION & SEDIMENT CONTROL NOTES 2
23	SC-4	EROSION & SEDIMENT CONTROL NOTES 3
24	SC-5	EROSION & SEDIMENT CONTROL DETAILS
25	SC-6	EROSION & SEDIMENT CONTROL PLAN STA 0+00 TO STA 34+58.00
26	SC-7	EROSION & SEDIMENT CONTROL PLAN STA 34+58.00 TO STA 126+89.00
27	SC-8	EROSION & SEDIMENT CONTROL PLAN STA 126+89.00 TO STA 141+57.28

NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH BALTIMORE COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION DATED 2000 AND AMENDED.
2. NOTIFY BALTIMORE CITY BUREAU OF WATER AND WASTEWATER AT 410-396-7870 72 HOURS BEFORE STARTING CONSTRUCTION.
3. NOTIFY BALTIMORE CITY WATER & WASTEWATER MAINTENANCE DIVISION AT 410-396-7807 AT LEAST 3 DAYS PRIOR TO STARTING CONSTRUCTION.
4. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 4 DAYS PRIOR TO BEGINNING OF WORK.
5. ONLY BALTIMORE CITY SHALL OPERATE EXISTING VALVES. CONTRACTOR SHALL NOTIFY THE BALTIMORE COUNTY INSPECTOR TO ARRANGE A SHUTDOWN WITH THE CITY AT LEAST 4 DAYS PRIOR TO PROPOSED SHUTDOWN. IF THE INSPECTOR IN THE FIELD IS UNAVAILABLE, CALL THE BALTIMORE COUNTY AREA ENGINEER AT 410-887-3531.
6. ONLY THAT SECTION OF THE TRENCH SHALL BE OPENED WHICH CAN BE BACKFILLED AND STABILIZED IN ONE DAY. THE END OF THE PIPE SHALL BE PLATED OVER AT THE END OF EACH WORK DAY.
7. WHEN EXCAVATING FOR UTILITIES, ALL SPOIL MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
8. FULL COMPACTION IS REQUIRED FOR ALL TRENCHES.
9. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE BALTIMORE COUNTY SOIL CONSERVATION PERMIT NO. 290-COUNTY-05.
10. MAIN SHALL HAVE A MINIMUM OF FOUR FEET OF COVER EXCEPT WHERE SPECIFIED.
11. THE COST OF CONSTRUCTING UNDER OR OVER ANY EXISTING UTILITY OR CABLE SHOWN ON THIS PLAN AND ALL EXISTING SERVICE CONNECTIONS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE 36-INCH WATER MAIN.
12. WHEN CROSSING EXISTING UTILITIES THE CONTRACTOR IS TO SUPPORT BRACE AND PROTECT SUCH UTILITIES DURING CONSTRUCTION. (COST TO BE INCLUDED IN THE PRICE BID FOR THE 36-INCH WATER MAIN).
13. CONTRACTOR IS TO TEST PIT EXISTING UTILITIES PRIOR TO LAYING PIPE TO WITHIN 3-LENGTHS OF PIPE SO INVERTS CAN BE ADJUSTED. WHERE SPECIFIED ON THESE DRAWINGS, CONTRACTOR IS REQUIRED TO TEST PIT PRIOR TO FABRICATING PIPE SEGMENTS.
14. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES TO HIS OWN SATISFACTION PRIOR TO STARTING ANY WORK.
15. HIGHLY CHLORINATED WATER TO BE DISPOSED OF IN A SANITARY SEWER AT A RATE NOT TO EXCEED 100 GAL/MIN.

APPROVAL

STORMWATER MANAGEMENT PERMIT NOT REQUIRED

9-17-10 BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION & RESOURCE MANAGEMENT
APPROVED FOR GRADING — 9-17-10 DATE

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT

APPROVED FOR SEDIMENT CONTROL — 9-1-10 DATE

DISTRICT OFFICIAL — 312-91 KII-10 PLAN NO.

TECHNICAL REVIEW FOR THE DISTRICT BY:
Sara E. Campbell

IF A GRADING PERMIT HAS NOT BEEN OBTAINED WITHIN TWO YEARS OF THIS APPROVAL, THIS PLAN SHALL BE RE-SUBMITTED TO THE DISTRICT

R-1 2-19-13 Recertification
R-2, 1-28-14, Revised LOD and SF near station 30+00
R-3, 7-17-14, Changes made between station 33+89 to 113+45, Sheets 7A+7B added. JPW

DWG FILENAME:

Hatch Mott MacDonald
11019 McCormick Road, Suite 200
Hunt Valley, Maryland 21031

CITY OF BALTIMORE	REVISION - CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350

DESIGN AND DRAWINGS BASED ON MARYLAND COORDINATE SYSTEM HORIZONTAL - NAD 83/91 AND ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION 68.97.

STATE OF MARYLAND — JAMES E. HAVEY — No. 26035 — PROFESSIONAL ENGINEER
SEAL

AS-BUILT PER RECORD PRINT		REVISION	DATE	BY	P. W. A. NO.	KEY SHEETS	POSITION SHEETS	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
DRAFTSMAN	DATE							PLAN :	SIGNATURES SEE DWG. NO 2009-3350
					RIGHT OF WAY			PROFILE :	

		BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
DSGN BY: BBB		REVIEWED	FOR REVIEW AND APPROVAL ORIGINAL SIGNATURES AND DATES, SEE DWG. NO 2009-3350							SIGNATURES SEE DWG. NO 2009-3350
ENGINEER: JAMES E. HAVEY	DWN BY: JCD									
DATE: 7-10 LIC. NO.: 26035	CHKD BY: BBB	DATE								

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
EROSION & SEDIMENT CONTROL TITLE SHEET

SUBDIVISION: LANSDOWNE

SHEET DESIGNATION	CONTRACT NO.
SC-1	W-8276
	JOB ORDER NO.
	203-0067-0281
	SHEET 20 OF 36
	DRAWING NO.
	2009-3369
	FILE NO.

GENERAL NOTES

1. REFER TO "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN.
2. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, MINOR FIELD ADJUSTMENTS CAN AND WILL BE MADE TO INSURE THE CONTROL OF ANY SEDIMENT. CHANGES IN SEDIMENT CONTROL PRACTICES REQUIRE PRIOR APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT.
3. AT THE END OF EACH WORKING DAY, ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT IN OPERATIONAL CONDITION.
4. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:

A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), AND
B. SEVEN (7) DAYS AS TO ALL OTHER DISTRUBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

5. ANY CHANGE TO THE GRADING PROPOSED ON THIS PLAN REQUIRES RE-SUBMISSION TO BALTIMORE COUNTY SOIL CONSERVATION DISTRICT FOR APPROVAL.
6. DUST CONTROL WILL BE PROVICED FOR ALL DISTURBED AREAS. REFER TO "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", PG. H-30-1, FOR ACCEPTABLE METHODS AND SPECIFICATIONS FOR DUST CONTROL.
7. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT PRIOR TO THE INITIATION OF THE CHANGE.
8. EXCESS CUT OR BORROW MATERIAL SHALL GO TO, OR COME FROM, RESPECTIVELY, A SITE WITH AN OPEN GRADING PERMIT.
9. PUMPING SEDIMENT-LADEN WATER INTO WATERS OF THE STATE IS STRICTLY PROHIBITED. ANY PORTABLE DEWATERING DEVICE MUST BE LOCATED WITHIN THE LIMIT OF DISTURBANCE.

SEQUENCE OF OPERATIONS

1. ALL EASEMENTS AND RIGHT-OF-WAYS TO BE OBTAINED PRIOR TO INITIATION OF CONSTRUCTION.
2. NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, (410) 887-3226 AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
3. IF APPLICABLE, ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED ALONG THE LIMIT OF DISTURBANCE, WHERE THE LIMIT IS WITHIN 50 FEET OF FOREST BUFFER/CONSERVATION EASEMENT. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRE-CONSTRUCTION MEETING.
4. CLEAR AND GRUB FOR SEDIMENT & EROSION CONTROL MEASURES OR DEVICES ONLY.
5. INSTALL ALL SEDIMENT & EROSION CONTROL MEASURES AND DEVICES. ADDITIONAL SCE LOCATIONS AND USAGE SHALL BE AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR.
6. NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, UPON COMPLETION OF SAID INSTALLATION.
7. WITH THE APPROVAL OF BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL AND THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE.
8. FURNISH AND INSTALL 36" WATER MAIN AND APPURTENANCES IN ACCORDANCE WITH THE CIVIL DRAWINGS. ALL WORK SHALL BE DONE PER THE UTILITY NOTES ON THIS DRAWING. CONTRACTOR MUST PROTECT AND MAINTAIN OPERATION OF EXISTING FACILITIES AT ALL TIMES. BEFORE INITIATING CONSTUCTION OF 36" WATER MAIN BETWEEN STATION 129+00 AND STATION 134+50, CONTRACTOR SHALL INSTALL PROPOSED TEMPORARY GRAVEL TRUCK PARKING LOT. (SEE SHEET SC7 FOR A DETAILED SEQUENCE). TOPSOIL STOCKPILED FROM THE TEMPORARY GRAVEL TRUCK PARKING LOT ON THE DIAGEO PROPERTY SHALL HAVE SILT FENCE PLACED ON THE DOWNSLOPE SIDE. TOPSOIL SHALL BE EVENLY SPREAD OVER THE AREA OF DISTURBANCE UPON COMPLETION. ALL DISTURBED NON-PAVED AREAS SHALL RECEIVE 4-INCHES OF TOPSOIL PRIOR TO FINAL STABILIZATION.
9. MILL AND OVERLAY OF DIAGEO PROPERTY PARKING LOT ONLY AFTER 36" WATER MAIN HAS BEEN CONSTRUCTED AND SUCCESSFULLY TESTED.
10. OVERLAY OF RIVER ROAD IN PATAPSCO VALLEY STATE PARK SHALL OCCUR AFTER THE 36" WATER MAIN HAS BEEN CONSTRUCTED AND SUCCESSFULLY TESTED.
11. TOPSOIL STOCKPILED FROM THE BORE PIT LOCATIONS SHALL HAVE SILT FENCE PLACED ON THE DOWNSLOPE SIDE AND SHALL BE SPREAD EVENLY OVER THE AREA OF DISTURBANCE UPON COMPLETION. ALL NON-PAVED AREAS SHALL RECEIVE 4-INCHES OF TOPSOIL PRIOR TO FINAL STABILIZATION.
12. PERMANENT SEEDING SHALL BE PLACED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL DRAWINGS, AND ANY ADDITIONAL REQUIREMENTS AS PER MARYLAND AVIATION ADMINISTRATION STANDARD SPECIFICATIONS.
13. UPON STABILIZATION OF SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

1. ANY INLET OUTFALLING DIRECTLY INTO A SEDIMENT TRAP.*
2. INLETS ON PRIVATE OR PUBLIC PAVED ROADWAYS OPEN TO THE PUBLIC.

ALL INLET PROTECTION SHALL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PAGE E-16-1 (OR AS MAY BE AMENDED). THE REMOVAL OF ANY INLET PROTECTION DEVICE WILL REQUIRE APPROVAL FROM THE INSPECTOR.

* STORM DRAINS TO BE FLUSHED PRIOR TO TRAPPING DEVICE REMOVAL.

15.0 STANDARDS AND SPECIFICATIONS FOR SILT FENCE

DEFINITION

TEMPORARY BARRIERS OF WOVEN GEOTEXILE FABRIC USED TO INTERCEPT, REDUCE VELOCITY AND FILTER SURFACE RUNOFF FROM DISTURBED AREAS.

PURPOSE

SILT FENCES FILTER SEDIMENT FROM RUNOFF SO THAT DEPOSITION OF TRANSPORTED SEDIMENT CAN OCCUR. SILT FENCES CAN BE USED TO INTERCEPT SHEET FLOW ONLY. THEY CANNOT BE USED AS VELOCITY CHECKS IN DITCHES OR SWALES, OR PLACED WHERE THEY WILL INTERCEPT CONCENTRATED FLOW.

CONDITIONS WHERE PRACTICE APPLIES

SILT FENCE IS LIMITED TO INTERCEPTING SHEET FLOW RUNOFF FROM LIMITED DISTANCES ACCORDING TO SLOPE. SILT FENCE PROVIDES FILTERING AND VELOCITY DISSIPATION TO PROMOTE GRAVITY SETTLING OF SEDIMENTS.

DESIGN CRITERIA

1. SILT FENCE SHOULD BE USED WITH CAUTION IN AREAS OF ROCKY SOILS THAT MAY PREVENT TRENCHING.
2. SILT FENCE SHOULD BE PLACED ON OR PARALLEL TO CONTOURS.
3. THE LENGTH OF SILT FENCES MUST CONFORM TO THE FOLLOWING:

TABLE 17 SILT FENCE DESIGN CONSTRAINTS (MAXIMUM)

SLOPE STEEPNESS	SILT FENCE LENGTH (MAX.)	SLOPE LENGTH (MAX.)
FLATTER THAN 50:1 (2%)	UNLIMITED	UNLIMITED
50:1 TO 10:1 (2-10%)	1,000 FEET	125 FEET
10:1 TO 5:1 (10-20%)	750 FEET	100 FEET
5:1 TO 3:1 (20-33%)	500 FEET	60 FEET
3:1 TO 2:1 (33-50%)	250 FEET	40 FEET
> 2:1 (> 50%)	125 FEET	20 FEET

4. IN AREAS OF LESS THAN 2% SLOPE AND SANDY SOILS (USDA GENERAL CLASSIFICATION SYSTEM, SOIL CLASS A) MAXIMUM SLOPE LENGTH AND SILT FENCE LENGTH WILL BE UNLIMITED. IN THESE AREAS A SILT FENCE MAY BE THE ONLY PERIMETER CONTROL REQUIRED.
5. DOWNSLOPE FROM THE SILT FENCE SHOULD BE UNDISTURBED GROUND.

16.0 STANDARDS AND SPECIFICATIONS FOR STORM DRAIN INLET PROTECTION

DEFINITION

A FILTER CONSTRUCTED AROUND A STORM DRAIN INLET.

PURPOSE

STORM DRAIN INLET PROTECTION IS USED TO FILTER SEDIMENT LADEN RUNOFF BEFORE IT ENTERS THE STORM DRAIN SYSTEM.

CONDITIONS WHERE PRACTICE APPLIES

STORM DRAIN INLET PROTECTION IS A SECONDARY SEDIMENT CONTROL DEVICE AND IS NOT TO BE USED IN PLACE OF A SEDIMENT TRAPPING DEVICE UNLESS APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY.

DESIGN CRITERIA

STORM DRAIN INLET PROTECTION SHALL BE USED WHEN THE DRAINAGE AREA TO AN INLET IS DISTURBED AND THE FOLLOWING CONDITIONS PREVAIL:

1. IT IS NOT POSSIBLE TO TEMPORARILY DIVERT THE STROM DRAIN OUTFALL INTO A SEDIMENT-TRAPPING DEVICE;
2. WATERTIGHT BLOCKING OF INLETS IS NOT ADVISABLE; AND
3. DRAINAGE AREA IS LESS THAN 1/2 ACRE FOR CURB OR STANDARD INLET PROTECTIONS AND 1 ACRE FOR ELEVATED OR YARD INLETS. FOR YARD INLETS, THE TOTAL FOR INLETS IN SERIES MUST BE 1 ACRE OR LESS AND THE CONTRIBUTING DRAINAGE AREA MUST HAVE SLOPES FLATTER THAN 5%.

MAINTENANCE

MAINTENANCE REQUIREMENTS FOR STORM DRAIN INLET PROTECTION ARE INTENSE, DUE TO THE SUSCEPTIBILITY TO CLOGGING. WHEN THE STRUCTURE DOES NOT DRAIN COMPLETELY WITHIN 48 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, ACCUMULATED SEDIMENT MUST BE REMOVED AND THE GEOTEXTILE FABRIC AND STONE MUST BE CLEANED OR REPLACED.

GRADING NOTES

1. THE PROPOSED GRADING SHOWN ON THIS PLAN MEETS THE REQUIREMENTS SET FORTH BY BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT AND COMPLIES WITH ARTICLE 33, TITLE 5 OF THE BALTIMORE COUNTY CODE. HOWEVER, DUE TO BUILDING TYPES AND LAYOUT, SOME FIELD ADJUSTMENTS MAY BE REQUIRED. ALL CHANGES MUST COMPLY WITH THE ABOVE MENTIONED REQUIREMENTS.
2. ALL SWALES HAVE BEEN DESIGNED BY THE ENGINEER TO CONVEY RUNOFF ACCORDING TO BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS DESIGN STANDARDS.
3. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST BUFFER EASEMENT OR OTHER FOREST RETENTION AREAS, EXCEPT AS PERMITTED BY THE BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT.

SEDIMENT CONTROL TRAFFIC NOTE

ANY TRAVEL LANE CLOSED BEFORE 9:00 A.M. OR AFTER 3:30 P.M. MUST BE APPROVED BY BALTIMORE COUNTY DIVISION OF TRAFFIC ENGINEERING AT (410) 887-3554 AND THE PATAPSCO VALLEY STATE PARK MANAGER AT (410) 461-5005.

17.0 STANDARDS AND SPECIFICATIONS FOR STABILIZED CONSTRUCTION ENTRANCE

DEFINITION

A STABILIZED LAYER OF AGGREGATE THAT IS UNDERLAIN WITH GEOTEXTILE CLASS C. STABILIZED ENTRANCES ARE LOCATED AT ANY POINT WHERE TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE.

PURPOSE

STABILIZED CONSTRUCTION ENTRANCES REDUCE TRACKING OF SEDIMENT ONTO STREETS OR PUBLIC RIGHTS-OF-WAY AND PROVIDE A STABLE AREA FOR ENTRANCE OR EXIT FROM THE CONSTRUCTION SITE.

CONDITIONS WHERE PRACTICE APPLIES

1. STABILIZED CONSTRUCTION ENTRANCES SHALL BE LOCATED AT POINTS OF CONSTRUCTION INGRESS AND EGRESS.
2. FOR SINGLE FAMILY RESIDENCES, THE ENTRANCE SHOULD BE LOCATED AT THE PERMANENT DRIVEWAY.
3. STABILIZED CONSTRUCTION ENTRANCES SHOULD NOT BE USED ON EXISTING PAVEMENT.

MAINTENANCE

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL MINIMIZE TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE ADDING STONE OR OTHER REPAIRS AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY BY VACUUM SWEEPING, SCRAPING, OR SWEEPING. WHEN NECESSARY, WHEELS SHALL BE CLEANED OR WASHED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. DAILY INSPECTION AND MAINTENANCE IS REQUIRED.

REMOVE

AFTER CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, THE STABILIZED CONSTRUCTION ENTRANCE WILL BE REMOVED AND THE AREA STABILIZED UNLESS IT WILL BE USED AS AN UNDERLAYMENT FOR A DRIVEWAY.

26.0 STANDARDS AND SPECIFICATIONS FOR SUPER SILT FENCE

DEFINITION

A TEMPORARY BARRIER OF GEOTEXTILE CLASS F OVER CHAIN LINK FENCE USED TO INTERCEPT SEDIMENT LADEN RUNOFF FROM SMALL DRAINAGE AREAS.

PURPOSE

TO REDUCE RUNOFF VELOCITY AND ALLOW THE DEPOSITION OF TRANSPORTED SEDIMENT TO OCCUR. LIMITS IMPOSED BY ULTRAVIOLET LIGHT STABILITY OF THE FABRIC WILL DICTATE THE MAXIMUM PERIOD THAT THE SILT FENCE MAY BE USED.

1. SUPER SILT FENCE PROVIDES A BARRIER THAT CAN COLLECT AND HOLD DEBRIS AND SOIL, PREVENTING THE MATERIAL FROM ENTERING CRITICAL AREAS, STREAMS, STREETS, ETC.
2. SUPER SILT FENCE CAN BE USED WHERE THE INSTALLATION OF A DIKE WOULD DESTOY SENSITIVE AREAS, WOODS, WETLANDS, ETC.
3. SUPER SILT FENCE SHOULD BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE. NO SECTION OF SILT FENCE SHOULD EXCEED A GRADE OF 5% FOR A DISTANCE OF MORE THAN 50 FEET.

TABLE 30 DESIGN CRITERIA

SLOPE	SLOPE STEEPNES	SLOPE LENGTH (MAXIMUM)	SILT FENCE LENGTH (MAXIMUM)
0-10%	0-10:1	UNLIMITED	UNILIMITED
10-20%	10:1-5:1	200 FEET	1,500 FEET
20-33%	5:1-3:1	100 FEET	1,000 FEET
33-50%	3:1-2:1	100 FEET	500 FEET
50% +	2:1 +	50 FEET	250 FEET

WHERE ENDS OF THE GEOTEXTILE FABRIC COME TOGETHER, THE ENDS SHALL BE OVERLAPPED, FOLDED, AND STAPLED TO PREVENT SEDIMENT BYPASS.

UTILITY NOTES

1. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

STORMWATER NOTES

STORMWATER MANAGEMENT VARIANCE GRANTED BY DEPRM LETTER DATED AUGUST 7, 2009.

AREA OF DISTURBANCE PATAPSCO VALLEY STATE PARK - 2.72 ACRES (118,472 SQUARE FEET)
AREA OF DISTURBANCE ALONG ROUTE 1 CORRIDOR - 4.93 ACRES (214,740 SQUARE FEET)
TOTAL AREA OF DISTURBANCE - 7.65 ACRES (333,212 SQUARE FEET)

EXISTING UTILITIES

SANITARY SEWER MAIN
SANITARY SEWER FORCE MAIN (FM)
SANITARY SEWER MANHOLE (S)
SANITARY SEWER VALVE
STORM DRAIN
STORM DRAIN MANHOLE (D)
STORM DRAIN JUNCTION CHAMBER
INLET, CURB TYPE
INLET, GRATING TYPE
INLET, CURB AND GRATING TYPE
WATER MAIN (W)
WATER MAIN MANHOLE (W)
WATER METER BOX (M)
FIRE HYDRANT
ELECTRIC (UNDERGROUND) (E)
TELEPHONE (UNDERGROUND) (T)
CABLE (UNDERGROUND) (C)
GAS MAINS (G)
GAS METER (G)
OVERHEAD ELECTRIC (OH)
WATER MAIN VAULT
VALVE
JUNCTION BOX (J)
CONDUIT MANHOLE (C)
ELECTRIC MANHOLE
TELEPHONE MANHOLF (T)

EXISTING FEATURES

ABANDONED UTILITY
GUIDE RAIL
FENCE (X X)
EDGE OF WOODS
POWER / TELEPHONE POLE
RAILROAD TRACKS
DECIDUOUS TREE
CONIFEROUS TREE
SPOT ELEVATION +25.00
MINOR CONTOUR
MAJOR CONTOUR -400-
BORING B-20
TEST PIT
BENCHMARK
EXISTING CURB
WALKS (NOTE WIDTH AND TYPE)
EDGE OF ROAD
EXISTING RIGHT-OF-WAY LINE
EXISTING PROPERTY LINE
CENTERLINE OF EXISTING R/W OR ROAD
SIGN

PROPOSED IMPROVEMENTS

WATER MAIN
PROPOSED CURB
SILT FENCE (SF)
INLET PROTECTION AGIP
LIMITS OF DISTURBANCE (LOD)
TREE LINE
TELEPHONE (T)
STABILIZED CONSTRUCTION ENTRANCE

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. West 9-1-10 DATE

R-1 2-19-13
R-2, 1-28-14
R-3 7-17-14

APPROVAL

DESIGN AND DRAWINGS BASED ON MARYLAND COORDINATE SYSTEM HORIZONTAL - NAD 83/91 AND ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION 68.97.

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

CITY OF BALTIMORE	REVISION - CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350

AS-BUILT PER RECORD PRINT		REVISION	DATE	BY	P. W. A. NO.	KEY SHEETS	POSITION SHEETS	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
DRAFTSMAN	DATE	REVISED NOTES	2/19/13	JSP				PLAN :	SIGNATURES SEE DWG. NO 2009-3350
					RIGHT OF WAY			PROFILE :	

SEAL

ENGINEER: JAMES E. HAVEY
DATE: 7-10 LIC. NO.: 26035
DSGN BY: BBB
DWN BY: JCD
CHKD BY: BBB

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
REVIEWED	FOR REVIEW AND APPROVAL ORIGINAL SIGNATURES AND DATES, SEE DWG. NO 2009-3350							SIGNATURES SEE DWG. NO 2009-3350
DATE								

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
EROSION & SEDIMENT CONTROL LEGEND AND NOTES 1

SUBDIVISION: LANSDOWNE

SHEET DESIGNATION	CONTRACT NO.
SC-2	W-8276
	JOB ORDER NO. 230-0067-0281
	SHEET 21 OF 36
	DRAWING NO. 2009-3370
	FILE NO. SEE PLANS

BALTIMORE COUNTY MARYLAND

DWG FILENAME:

BCSCD / MAA
VEGETATIVE ESTABLISHMENT
DETAILS AND SPECIFICATIONS FOR PROJECTS WITHIN
4 MILES OF THE BWI AIRPORT
JULY 1, 2004
REVISED JANUARY, 2008

REFERENCES TO ITEM #S NOTED BELOW ARE FOUND IN MARYLAND AVIATION ADMINISTRATION'S MANUAL ENTITLED SPECIFICATIONS FOR PERFORMING LANDSCAPING ACTIVITIES FOR THE MARYLAND AVIATION ADMINISTRATION DATED MAY 2001

SOIL TESTS

1. FOLLOWING INITIAL SOIL DISTURBANCES OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN CALENDAR DAYS FOR THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND FOURTEEN DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

2. OCCURRENCE OF ACID SULFATE SOILS (GRAYISH BLACK COLOR) WILL REQUIRE COVERING WITH A MINIMUM OF 12 INCHES OF CLEAN SOIL WITH 6 INCHES MINIMUM CAPPING OF TOP SOIL. NO STOCKPILING OF MATERIAL IS ALLOWED. IF NEEDED, SOIL TESTS SHOULD BE DONE BEFORE AND AFTER A 6-WEEK INCUBATION PERIOD TO ALLOW OXIDATION OF SULFATES.

3. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:

   A. SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.

   B. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).

   C. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (> 30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE.

   D. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.

   E. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

   F. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE ITEM 901 OR AMENDMENTS MADE AS RECOMMENDED BY A CERTIFIED AGRONOMIST.

SEEDING

ITEM 903 SEEDING

DESCRIPTION

903-1.1 GENERAL.
THIS ITEM PROVIDES SPECIFICATIONS FOR SEEDING OF AREAS AS DESIGNATED ON PLANS OR AS DIRECTED BY THE MAA ENGINEER. THE SPECIES, MIXTURES, AND METHODS OF APPLICATION PROVIDED IN THIS ITEM HAVE BEEN DESIGNED TO REDUCE THE ATTRACTIVENESS OF AIRPORT GROUNDS TO WILD LIFE. ONLY MAA-APPROVED SPECIES, MIXTURES, AND RATES OF APPLICATION PROVIDED IN THIS ITEM MAY BE USED TO ESTABLISH VEGETATION. ALL ACTIVITIES ASSOCIATED WITH SEEDING INCLUDING SOIL PREPARATION, SEED APPLICATION, FERTILIZATION, AND MAINTENANCE SHALL ALSO CONFORM TO THESE APPROVED STANDARDS.

MATERIALS

903-2.1 SEED.
ALL SEED SHALL COMPLY WITH THE MARYLAND SEED LAW (AGRICULTURAL ARTICLE OF THE ANNOTATED CODE OF MARYLAND). ONLY MAA-APPROVED SPECIES, MIXTURES, AND RATES OF APPLICATION PROVIDED IN THIS ITEM MAY BE USED TO ESTABLISH VEGETATION. SEED WILL BE SAMPLED AND TESTED BY AN INSPECTOR FROM THE TURF AND SEED SECTION, MARYLAND DEPARTMENT OF AGRICULTURE (MDA), ANNAPOLIS, MARYLAND. ALL LAWN AND TURF SEED AND MIXTURES SHALL BE FREE FROM THE FOLLOWING STATE-LISTED RESTRICTED NOXIOUS WEEDS:

CORN COCKLE (AGROSTEMMA GITHAGO),
BENTGRASS (AGROSTIS SPP.)1,
REDTOP (AGROSTIS GIGANTEA)1
WILD ONION (ALLIUM CANADENSE),
WILD GARLIC (ALLIUM VINEALE),
BINDWEED (CALSTEGIA SPP.),
DODDER (CUSCUTA SPP.),
BERMUDA GRASS (CYNODON DACTYLON),
ORCHARDGRASS (DACTYLIS GLOMERATA),
TALL FESCUE (FESTUCA ARUNDINACEA)1
MEADOW FESCUE (FESTUCA PRATENSIS)1,
VELVETGRASS (HOLCUS LANATUS),
ANNUAL BLUEGRASS (POA ANNUA),
ROUGH BLUEGRASS (POA TRIVIALIS)1,
TIMOTHY (PHLEUM PRATENSE), AND
JOHNSON GRASS (SORGUM HALEPENSE).

RESTRICTED NOXIOUS-WEED SEED MAY NOT EXCEED 0.5 PERCENT BY WEIGHT OF ANY SEED MIXTURE. IN ADDITION, ALL SEEDS SOLD IN MARYLAND SHALL BE FREE FROM THE FOLLOWING LISTED PROHIBITED NOXIOUS WEEDS: BALLOONVINE (CARDIOSPERMUM HALICACABUM), QUACKGRASS (ELYTRIGIA REPENS), SICKLEPOD (SENNA OBTUSIFOLIA), SORGHUM (SORGHUM SPP.), CANADA THISTLE (CIRSIUM ARVENSE), PLUMELESS THISTLE (CARDUUS SPP.-INCLUDES MUSK THISTLE AND CURLED THISTLE), AND SERRATED TUSSOCK (NASSELLA TRICHOTOMA).

903-2.1.1 APPROVED SPECIES.
THE FOLLOWING TABLE CONTAINS SPECIES THAT ARE APPROVED BY MAA FOR USE IN SEED MIXTURES. PURITY REQUIREMENTS AND GERMINATION REQUIREMENTS ARE ALSO PROVIDED.

903-2.1.2 PURITY.
ALL SEED SHALL BE FREE OF ALL STATE-DESIGNATED NOXIOUS WEEDS LISTED IN PARAGRAPH 2.1.1 AND CONFORM TO MAA SPECIFICATIONS. TO ENSURE COMPLIANCE, MAA REQUIRES SAMPLING AND TESTING OF SEED BY THE TURF AND SEED SECTION, MARYLAND DEPARTMENT OF AGRICULTURE (MDA). THE CONTRACTOR SHALL FURNISH THE MAA ENGINEER WITH DUPLICATE SIGNED COPIES OF A STATEMENT BY THE TURF AND SEED SECTION CERTIFYING THAT EACH LOT OF SEED HAS BEEN LABORATORY TESTED WITHIN SIX MONTHS OF DATE OF DELIVERY. THIS STATEMENT SHALL INCLUDE THE FOLLOWING INFORMATION:

NAME AND ADDRESS OF LABORATORY,

DATE OF TEST,

LOT NUMBER,

THE RESULTS OF TESTS AS TO NAME, PERCENTAGES OF PURITY AND OF GERMINATION,

PERCENTAGE OF WEED CONTENT FOR THE SEED FURNISHED,

AND, IN THE CASE OF A MIXTURE, THE PROPORTIONS OF EACH KIND OF SEED.

SEED SHALL BE FURNISHED IN STANDARD CONTAINERS WITH THE SEED NAME, LOT NUMBER, NET WEIGHT, PERCENTAGES OF PURITY, GERMINATION RATE AND HARD SEED, AND PERCENTAGE OF MAXIMUM WEED SEED CONTENT CLEARLY MARKED. ALL SEED CONTAINERS SHALL BE TAGGED WITH A MDA SUPERVISED MIX PROGRAM SEED TAG.

903-2.1.3 MIXTURES AND APPLICATION RATES.
ONLY SEED MIXTURES AND APPLICATION RATES DESCRIBED IN THIS ITEM MAY BE USED UNLESS OTHERWISE APPROVED BY THE MAA ENGINEER. SEED MIXTURES SHALL MEET CRITERIA DETAILED IN PARAGRAPH 903-2.1.2. SEED MIXTURES HAVE BEEN FORMULATED TO MINIMIZE THE ATTRACTIVENESS OF AREAS TO WILDLIFE OF COMMON LANDSCAPE SCENARIOS. THE APPROPRIATE SEED MIXTURE FOR APPLICATION WILL BE DESIGNATED BASED ON ENVIRONMENTAL CONDITIONS AND MAY VARY FROM SITE TO SITE. ALL PLANTING RATES LISTED ARE IN POUNDS OF PURE LIVE SEED (PLS) PER ACRE.

SEED MIXTURES, APPLICATION SCENARIOS, AND RATES FOR PERMANENT COOL-SEASON GRASSES ARE AS FOLLOWS:

A. SEED MIXTURE NO. 1 - RELATIVELY FLAT AREAS (GRADE LESS THAN 4:1) SUBJECT TO NORMAL CONDITIONS AND REGULAR MOWING (APPLICATION RATE = 234 LBS PLS/ACRE);

B. SEED MIXTURE NO. 2 - SLOPED AREAS (GRADE GREATER THAN 4:1) NOT SUBJECT TO REGULAR MOWING (APPLICATION RATE = 115 LBS PLS/ACRE); AND

C. SEED MIXTURE NO. 3 - WETLANDS AND THEIR ASSOCIATED BUFFER ZONES (APPLICATION RATE = 131 LBS PLS/ACRE).

SEED MIXTURE NO. 1: RELATIVELY FLAT AREAS REGULARLY MOWED AND EXPOSED TO NORMAL CONDITIONS (APPLICATION RATE = 234 LBS PLS/ACRE)

SEED	RATE OF APPLICATION (LBS OF LS/ACRE)
85% CERTIFIED TURF-TYPE TALL FESCUE	192
10% CERTIFIED KENTUCKY BLUEGRASS	28
5% PERENNIAL RYEGRASS	14
SUPPLEMENTAL SEED	
ANNUAL RYEGRASS	25

SEED MIXTURE NO. 2: SLOPED AREAS NOT SUBJECT TO REGULAR MOWING (APPLICATION RATE = 115 LBS PLS/ACRE)

SEED	RATE OF APPLICATION (LBS OF PLS/ACRE)
75% HARD FESCUE	85
20% CHEWINGS FESCUE	23
5% KENTUCKY BLUEGRASS	7
SUPPLEMENTAL SEED	
REDTOP	3

APPROVED PLANT SPECIES

MAA SEED MIXTURES

	* PURITY NOT LESS THAN %	** MIN. % GERMINATION	PURE LIVE SEED FACTOR
CERTIFIED TURF-TYPE TALL FESCUE (FESTUCA ARUNDINACEA)	98	90	1.13
CERTIFIED KENTUCKY BLUEGRASS (POA PRATENSIS)	90	80	1.39
HARD FESCUE (FESTUCA LONGIFOLIA)	98	90	1.13
CHEWINGS RED FESCUE (FESTUCA RUBRA COMMUTATA)	98	90	1.13
ANNUAL RYEGRASS (LOLIUM MULTIFLORUM)	95	85	1.24
PERENNIAL RYEGRASS (LOLIUM PERENNE)	90	80	1.39
FOWL MEADOW GRASS (POA PALUSTRIS)	90	80	1.39
LITTLE BLUESTEM (ANDROPOGON SCOPARIUS)	62	94	1.71

* THE PERCENTAGE WEIGHT OF PURE SEED PRESENT SHALL BE FREE OF ANY AGRICULTURE SEEDS, INERT MATTER, AND OTHER SEEDS DISTINGUISHED BY THEIR APPEARANCE.

** THE PERCENTAGE OF GERMINATION SHALL BE ACTUAL SPROUTS AND SHALL NOT INCLUDE HARD SEEDS UNLESS SPECIFICALLY PERMITTED BY THE MAA ENGINEER.

SEEDING SEASONS	
PERMANENT COOL-SEASON GRASSES	MARCH 1 TO APRIL 20 AND AUGUST 1 TO OCTOBER 20, INCLUSIVE
TEMPORARY COVER OF ANNUAL RYE/REDTOP	MARCH 1 TO APRIL 30 AND AUGUST 1 TO NOVEMBER 30, INCLUSIVE
TEMPORARY COVER OF WARM-SEASON GRASSES (LITTLE BLUESTEM ONLY)	MAY 1 TO JULY 31, INCLUSIVE. RATE OF APPLICATION SHOULD BE 13.6 LBS. PLS PER ACRE.

SEED MIXTURE NO. 3: WETLAND AREAS AND THEIR ASSOCIATED BUFFER ZONES (APPLICATION RATE = 131 LBS PLS/ACRE)

SEED	RATE OF APPLICATION (LBS OF PLS/ACRE)
60% CREEPING BENT GRASS	83
30% FOWL BLUEGRASS	34
10% SWITCHGRASS	14
SUPPLEMENTAL SEED	
REDTOP	3

903-2.1.4 SEEDING SEASONS.
APPLICATION OF SEED AND SEED MIXTURES SHALL OCCUR WITHIN A SPECIFIED SEEDING SEASON UNLESS OTHERWISE APPROVED BY THE MAA ENGINEER. NO SEED OR SEED MIXTURES ARE TO BE APPLIED ON FROZEN GROUND OR WHEN THE TEMPERATURE IS AT OR BELOW 35 DEGREES FARENHEIT (7.2 DEGREES CENTIGRADE). UNDER THESE CONDITIONS, A LAYER OF MULCH SHOULD BE APPLIED IN ACCORDANCE WITH ITEM 905, MULCHING, TO STABILIZE THE SITE, AND PERMANENT SEEDING SHOULD OCCUR IN THE SUBSEQUENT SEEDING SEASON. SEED APPLICATION MAY OCCUR DURING THE SEEDING SEASON DATES LISTED BELOW. SEEDING PERFORMED AFTER OCTOBER 20 SHOULD BE A TEMPORARY COVER OF ANNUAL RYEGRASS AND FOLLOWED BY OVERSEEDING OF THE APPROPRIATE SEED MIXTURE DURING THE SPRING SEEDING SEASON.

SEEDING SEASONS ARE BASED ON TYPICAL YEARS AND CAN BE SUBJECT TO VARIATION, WHICH MAY BE MODIFIED BY THE MAA ENGINEER BASED ON SEASONAL TRENDS. IF THE TIME REQUIRED TO COMPLETE ANY OF THE OPERATIONS NECESSARY UNDER THIS ITEM, WITHIN THE SPECIFIED PLANTING SEASON OR ANY AUTHORIZED EXTENSIONS THEREOF, EXTENDS BEYOND THE CONTRACT PERIOD, THEN SUCH TIME WILL BE CHARGED AGAINST THE CONTRACT TIME, AND LIQUIDATED DAMAGES WILL BE ENFORCED WITH RESPECT TO THIS PORTION OF WORK.

903-2.2 LIME.
LIME SHALL CONSIST OF GROUND LIMESTONE AND CONTAIN AT LEAST 85 PERCENT TOTAL CARBONATES. LIME SHALL BE GROUND TO A FINENESS SO THAT AT LEAST 90 PERCENT WILL PASS THROUGH A NO. 20 MESH SIEVE AND 50 PERCENT WILL PASS THROUGH A NO. 100 MESH SIEVE. DOLOMITIC LIME OR A HIGH MAGNESIUM LIME SHALL CONTAIN AT LEAST 10 PERCENT MAGNESIUM OXIDE. LIME SHALL BE APPLIED BY APPROVED METHODS DETAILED IN SECTION 903-3.3 OF THIS ITEM. THE RATE OF APPLICATION WILL BE BASED ON RESULTS OF SOIL TESTS.

903-2.3 FERTILIZER.
FERTILIZER SHALL BE STANDARD COMMERCIAL FERTILIZER (SUPPLIED SEPARATELY OR IN MIXTURES) AND MEET THE REQUIREMENTS OF APPLICABLE STATE AND FEDERAL LAWS (O-F-241) AS WELL AS STANDARDS OF THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS.
NITROGEN-PHOSPHORUS-POTASSIUM (N-P-K) CONCENTRATIONS SHALL BE DETERMINED FROM ANALYSIS OF SOIL SAMPLES.(APPROVED
METHODS OF FERTILIZER APPLICATION SHALL CONFORM TO STANDARDS DESCRIBED IN SECTION 903-3.3 OF THIS ITEM. FERTILIZER SHALL BE FURNISHED IN STANDARD CONTAINERS THAT ARE CLEARLY LABELED WITH NAME, WEIGHT, AND GUARANTEED ANALYSIS OF THE CONTENTS (PERCENTAGE OF TOTAL NITROGEN, AVAILABLE PHOSPHORIC ACID, AND WATER-SOLUBLE POTASH). MIXED FERTILIZERS SHALL NOT CONTAIN ANY HYDRATED LIME OR CYANAMIDE COMPOUNDS. FERTILIZERS FAILING TO MEET THE SPECIFIED ANALYSIS MAY BE APPROVED BY THE MAA ENGINEER, PROVIDING SUFFICIENT MATERIALS ARE APPLIED TO CONFORM WITH THE SPECIFIED NUTRIENTS PER UNIT OF MEASURE WITHOUT ADDITIONAL COST TO MAA.

THE FERTILIZERS MAY BE SUPPLIED IN THE FOLLOWING FORMS:

A. A DRY, FREE-FLOWING FERTILIZER SUITABLE FOR APPLICATION BY A COMMON FERTILIZER SPREADER;

B. A FINELY GROUND FERTILIZER SOLUBLE IN WATER, SUITABLE FOR APPLICATION BY POWER SPRAYERS; OR

C. A GRANULAR OR PELLET FORM SUITABLE FOR APPLICATION BY BLOWER EQUIPMENT.

THE RATE OF APPLICATION WILL BE BASED ON RESULTS OF SOIL TESTS PERFORMED BY THE UNIVERSITY OF MARYLAND SOIL TESTING LABORATORY. BY LAW, PERSONS APPLYING FERTILIZER TO STATE-OWNED LAND SHALL FOLLOW THE RECOMMENDATIONS OF THE UNIVERSITY OF MARYLAND AS SET FORTH IN THE "PLANT NUTRIENT RECOMMENDATIONS BASED ON SOIL TESTS FOR TURF MAINTENANCE" AND THE "PLANT NUTRIENT RECOMMENDATIONS BASED ON SOIL TESTS FOR SOD PRODUCTION" (SEE APPENDIX B). APPLICATION OF THE FERTILIZER SHALL BE IN A MANNER THAT IS CONSISTENT WITH THE RECOMMENDATIONS OF THE UNIVERSITY OF MARYLAND COOPERATIVE EXTENSION.

CONSTRUCTION METHODS AND EQUIPMENT

903-3.1 GENERAL.
THIS SECTION PROVIDES APPROVED METHODS FOR THE APPLICATION OF AND INCLUDES STANDARDS FOR SEEDBED PREPARATION, METHODS OF APPLICATION, AND EQUIPMENT TO BE USED DURING THE PROCESS. LIME AND FERTILIZER SHALL BE APPLIED TO SEEDED AREAS BEFORE THE SEED IS SPREAD. THE MIXTURE OF SEED WILL BE DETERMINED FOR SITES BASED ON ENVIRONMENTAL CONDITIONS AS DESCRIBED IN PARAGRAPH 903-2.1.3.

903-3.2 ADVANCE PREPARATION.
AREAS DESIGNATED FOR SEEDING SHALL BE PROPERLY PREPARED IN ADVANCE OF SEED APPLICATION. THE AREA SHALL BE TILLED AND GRADED PRIOR TO APPLICATION OF LIME AND FERTILIZER, AND THE SURFACE AREA SHALL BE CLEARED OF ANY STONES LARGER THAN 1 INCH IN DIAMETER, STICKS, STUMPS, AND OTHER DEBRIS THAT MIGHT INTERFERE WITH SOWING OF SEED, GROWTH OF GRASSES, OR SUBSEQUENT MAINTENANCE OF GRASS-COVERED AREAS. DAMAGE CAUSED BY EROSION OR OTHER FORCES THAT OCCUR AFTER THE COMPLETION OF GRADING SHALL BE REPAIRED PRIOR TO THE APPLICATION OF FERTILIZER AND LIME. THE CONTRACTOR WILL REPAIR SUCH DAMAGE, WHICH MAY INCLUDE FILLING GULLIES, SMOOTHING IRREGULARITIES, AND REPAIRING OTHER INCIDENTAL DAMAGE BEFORE BEGINNING THE APPLICATION OF FERTILIZER AND GROUND LIMESTONE.

IF AN AREA TO BE SEEDED IS SPARSELY SODDED, WEEDY, BARREN AND UNWORKED, OR PACKED AND HARD, ALL GRASS AND WEEDS SHALL FIRST BE CUT OR OTHERWISE SATISFACTORILY DISPOSED OF, AND THE SOIL THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH NOT LESS THAN 5 INCHES (125 MM). CLODS SHALL BE BROKEN AND THE TOP 3 INCHES (75 MM) OF SOIL SHALL BE WORKED INTO A SATISFACTORY CONDITION BY DISCING OR BY USE OF CULTIPACKERS, ROLLERS, DRAGS, HARROWS, OR OTHER APPROPRIATE MEANS.

AN AREA TO BE SEEDED SHALL BE CONSIDERED A SATISFACTORY SEEDBED (WITHOUT REQUIRING ADDITIONAL TREATMENT) IF IT HAS RECENTLY BEEN THOROUGHLY LOOSENED AND WORKED TO A DEPTH OF NOT LESS THAN 5 INCHES; THE TOP 3 INCHES OF SOIL IS LOOSE, FRIABLE, AND IS REASONABLY FREE FROM LARGE CLODS, ROCKS, LARGE ROOTS, OR OTHER UNDESIRABLE MATTER; APPROPRIATE AMOUNTS OF FERTILIZER AND LIME HAVE BEEN ADDED; AND, IF IT HAS BEEN SHAPED TO THE REQUIRED GRADE IMMEDIATELY PRIOR TO SEEDING. FOR SLOPE AREAS STEEPER THAN 3:1 (THREE HORIZONTAL TO ONE VERTICAL), THE SUBSOIL SHALL BE LOOSE TO A DEPTH OF 1 INCH.

AFTER COMPLETION OF TILLING AND GRADING, LIME AND FERTILIZER SHALL BE APPLIED WITHIN 48 HOURS ACCORDING TO THE SPECIFIED RATE (PARAGRAPHS 903-2.2 AND 2.3) AND METHODS (PARAGRAPHS 903-3.3.1 AND 903-3.3.2) APPROVED BY MAA. THE SEEDING MIXTURE SHALL BE APPLIED WITHIN 48 HOURS AFTER APPLICATION OF LIME AND FERTILIZER. TO FIRM THE SEEDED AREAS, CULTIPACKING SHALL OCCUR IMMEDIATELY AFTER SEEDING.

903-3.3 METHODS OF APPLICATION.
LIME, FERTILIZER, AND SEED MIXES SHALL BE APPLIED BY EITHER THE DRY OR WET APPLICATION METHODS THAT HAVE BEEN APPROVED BY MAA AND ARE DETAILED BELOW.

903-3.3.1 DRY APPLICATION METHOD

A. LIMING. IF SOIL TEST RESULTS INDICATE THAT LIME IS NEEDED, THE FOLLOWING PROCEDURES WILL BE USED: FOLLOWING ADVANCE PREPARATION OF THE SEEDBED, LIME SHALL BE APPLIED PRIOR TO THE APPLICATION OF ANY FERTILIZER OR SEED AND ONLY ON SEEDBEDS THAT HAVE BEEN PREPARED AS DESCRIBED IN PARAGRAPH 903-3.2. THE LIME SHALL BE UNIFORMLY SPREAD AND WORKED INTO THE TOP 2 INCHES OF SOIL, AFTER WHICH THE SEEDBED SHALL BE PROPERLY GRADED AGAIN.

B. FERTILIZING. FOLLOWING ADVANCE PREPARATIONS (AND LIMING IF NECESSARY), FERTILIZER SHALL BE SPREAD UNIFORMLY AT THE SPECIFIED RATE TO PROVIDE NO LESS THAN THE MINIMUM QUANTITY STATED IN PARAGRAPH 903-2.3.

C. SEEDING. SEED MIXTURES SHALL BE SOWN IMMEDIATELY AFTER FERTILIZATION OF T HE SEEDBED. THE FERTILIZER AND SEED SHALL BE LIGHTLY RAKED TO A DEPTH OF 1 INCH FOR NEWLY GRADED AND DISTURBED AREAS.

D. ROLLING. AFTER THE SEED HAS BEEN PROPERLY COVERED, THE SEEDBED SHALL BE IMMEDIATELY COMPACTED USING A CULTIPACKER OR AN APPROVED LAWNROLLER.

903-3.3.2 WET APPLICATION METHOD/HYDROSEEDING

A. GENERAL. THE CONTRACTOR MAY ELECT TO APPLY SEED AND FERTILIZER AS PER PARAGRAPHS C AND D OF THIS SECTION IN THE FORM OF AN AQUEOUS MIXTURE BY SPRAYING OVER THE PREVIOUSLY PREPARED SEEDBED USING METHODS AND EQUIPMENT APPROVED BY MAA. THE RATES OF APPLICATION SHALL BE AS SPECIFIED IN PARAGRAPHS 903-2.1 THROUGH 903-2.3.

B. SPRAYING EQUIPMENT. THE SPRAYING EQUIPMENT SHALL HAVE A CONTAINER OR WATER TANK EQUIPPED WITH A LIQUID LEVEL GAUGE CAPABLE OF READING INCREMENTS OF 50 GALLONS OR LESS OVER THE ENTIRE RANGE OF THE TANK CAPACITY. THE LIQUID LEVEL GAUGE SHALL BE MOUNTED SO AS TO BE VISIBLE TO THE NOZZLE OPERATOR AT ALL TIMES. THE CONTAINER OR TANK SHALL ALSO BE EQUIPPED WITH A MECHANICAL POWER-DRIVEN AGITATOR CAPABLE OF KEEPING ALL THE SOLIDS IN THE MIXTURE IN COMPLETE SUSPENSION AT ALL TIMES UNTIL USED.

THE SPRAYING EQUIPMENT SHALL ALSO INCLUDE A PRESSURE PUMP CAPABLE OF DELIVERING 100 GALLONS PER MINUTE AT A PRESSURE OF 100 POUNDS PER SQUARE INCH. THE PRESSURE PUMP ASSEMBLAGE SHALL BE CONFIGURED TO ALLOW THE MIXTURE TO FLOW THROUGH THE TANK WHEN NOT BEING SPRAYED FROM THE NOZZLE. ALL PUMP PASSAGES AND PIPELINES SHALL BE CAPABLE OF PROVIDING CLEARANCE FOR 5/8-INCH SOLIDS. THE POWER UNIT FOR THE PUMP AND AGITATOR SHALL HAVE CONTROLS MOUNTED SO AS TO BE ACCESSIBLE TO THE NOZZLE OPERATOR. A PRESSURE GAUGE SHALL BE CONNECTED TO AND MOUNTED IMMEDIATELY BEHIND THE NOZZLE.

THE NOZZLE PIPE SHALL BE MOUNTED ON AN ELEVATED SUPPORTING STAND IN SUCH A MANNER THAT IT CAN BE ROTATED THROUGH 360 DEGREES HORIZONTALLY AND INCLINED VERTICALLY FROM AT LEAST 20 DEGREES BELOW TO AT LEAST 60 DEGREES ABOVE THE HORIZONTAL. THERE SHALL BE A QUICKACTING, THREE-WAY CONTROL VALVE CONNECTING THE RECIRCULATING LINE TO THE NOZZLE PIPE AND MOUNTED SO THAT THE NOZZLE OPERATOR CAN CONTROL AND REGULATE THE AMOUNT OF FLOW OF MIXTURE TO BE SUPPLIED SO THAT MIXTURES MAY BE PROPERLY SPRAYED OVER A DISTANCE VARYING FROM 20 FEET TO 100 FEET. ONE SHALL BE A CLOSE-RANGE RIBBON NOZZLE, ONE A MEDIUM-RANGE RIBBON NOZZLE, AND ONE A LONG-RANGE JET NOZZLE. FOR EASE OF REMOVAL AND CLEANING, ALL NOZZLES SHALL BE CONNECTED TO THE NOZZLE PIPE BY MEANS OF QUICK-RELEASE COUPLINGS. IN ORDER TO REACH AREAS INACCESSIBLE TO THE REGULAR EQUIPMENT, AN EXTENSION HOSE AT LEAST 50 FEET IN LENGTH SHALL BE PROVIDED TO WHICH THE NOZZLES MAY BE CONNECTED.

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. Wood 9-1-10
DATE

R-1 2-19-13
R-2 1-28-14
R-3 7-17-14

APPROVAL

DESIGN AND DRAWINGS BASED ON MARYLAND
COORDINATE SYSTEM HORIZONTAL - NAD 83/91 AND
ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM
USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION 68.97.

AS-BUILT JUNE 2016

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

CITY OF BALTIMORE	REVISION - CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350

AS-BUILT PER RECORD PRINT		REVISION	DATE	BY	P. W. A. NO.	KEY SHEETS	POSITION SHEETS	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
DRAFTSMAN	DATE	REVISED NOTES	2/15/13	JSP				PLAN :	SIGNATURES SEE DWG. NO 2009-3350
					RIGHT OF WAY			PROFILE :	

STATE OF MARYLAND - JAMES E. HAVEY - No. 26035 - PROFESSIONAL ENGINEER
SEAL

ENGINEER: JAMES E. HAVEY
DATE: 7-10 LIC. NO.: 26035

DSGN BY: BBB
DWN BY: JCD
CHKD BY: BBB

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
REVIEWED	FOR REVIEW AND APPROVAL ORIGINAL SIGNATURES AND DATES, SEE DWG. NO 2009-3350							SIGNATURES SEE DWG. NO 2009-3350
DATE								

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
EROSION & SEDIMENT CONTROL NOTES 2

SUBDIVISION: LANSDOWNE

SHEET DESIGNATION	CONTRACT NO.
SC-3	W-8276
	JOB ORDER NO.
	203-0067-0281
	SHEET 22 OF 36
	DRAWING NO.
	2009-3371
	FILE NO.

BALTIMORE COUNTY MARYLAND

DWG FILENAME:

CONSTRUCTION METHODS AND EQUIPMENT–CONTINUED

903–3.3.2 WET APPLICATION METHOD/HYDROSEEDING CONTINUED...

C. MIXTURES. LIME SHALL BE APPLIED SEPARATELY IN THE QUANTITY SPECIFIED, PRIOR TO THE FERTILIZING AND SEEDING OPERATIONS. LIME SHOULD BE ADDED TO AND MIXED WITH WATER AT A CONCENTRATION NOT TO EXCEED 220 POUNDS OF LIME FOR EVERY 100 GALLONS OF WATER. AFTER LIME HAS BEEN APPLIED, THE TANK SHOULD BE EMPTIED AND RINSED WITH FRESH WATER. SEED AND FERTILIZER SHALL BE MIXED TOGETHER IN THE RELATIVE PROPORTIONS SPECIFIED, BUT THE RESULTING CONCENTRATION SHOULD NOT EXCEED 220 POUNDS OF MIXTURE PER 100 GALLONS OF WATER AND SHOULD BE APPLIED WITHIN 30 MINUTES TO PREVENT FERTILIZER BURN OF THE SEEDS.

ALL WATER USED SHALL BE OBTAINED FROM FRESH WATER SOURCES AND SHALL BE FREE FROM INJURIOUS CHEMICALS AND OTHER TOXIC SUBSTANCES HARMFUL TO PLANT LIFE. BRACKISH WATER SHALL NOT BE USED AT ANY TIME. THE CONTRACTOR SHALL IDENTIFY ALL SOURCES OF WATER TO THE MAA ENGINEER AT LEAST TWO WEEKS PRIOR TO USE. THE ENGINEER MAY TAKE SAMPLES OF THE WATER AT THE SOURCE OR FROM THE TANK AT ANY TIME AND HAVE A LABORATORY TEST THE SAMPLES FOR CHEMICAL AND SALINE CONTENT. THE CONTRACTOR SHALL NOT USE ANY WATER FROM ANY SOURCE THAT IS DISAPPROVED BY THE ENGINEER FOLLOWING SUCH TESTS.

ALL MIXTURES SHALL BE CONSTANTLY AGITATED FROM THE TIME THEY ARE MIXED UNTIL THEY ARE FINALLY APPLIED TO THE SEEDBED. ALL SUCH MIXTURES SHALL BE USED WITHIN 30 MINUTES FROM THE TIME THEY WERE MIXED OR THEY SHALL BE WASTED AND DISPOSED OF AT A LOCATION ACCEPTABLE TO THE ENGINEER.

D. SPRAYING. LIME SHALL BE SPRAYED UPON PREVIOUSLY PREPARED SEEDBEDS ON WHICH THE LIME, IF REQUIRED, SHALL HAVE BEEN WORKED IN ALREADY. THE MIXTURES SHALL BE APPLIED USING A HIGHPRESSURE SPRAY WHICH SHALL ALWAYS BE DIRECTED UPWARD INTO THE AIR SO THAT THE MIXTURES WILL FALL TO THE GROUND IN A UNIFORM SPRAY. NOZZLES OR SPRAYS SHALL NEVER BE DIRECTED TOWARD THE GROUND IN SUCH A MANNER THAT MIGHT PRODUCE EROSION OR RUNOFF. PARTICULAR CARE SHALL BE EXERCISED TO ENSURE THAT THE APPLICATION IS MADE UNIFORMLY, AT THE PRESCRIBED RATE, AND TO GUARD AGAINST MISSES AND OVERLAPPED AREAS. PREDETERMINED QUANTITIES OF THE MIXTURE SHALL BE USED IN ACCORDANCE WITH SPECIFICATIONS TO COVER SPECIFIED SECTIONS OF KNOWN AREAS. TO CHECKS THE RATE AND UNIFORMITY OF APPLICATION, THE APPLICATOR WILL OBSERVE THE DEGREE OF WETTING OF THE GROUND OR DISTRIBUTE TEST SHEETS OF PAPER OR PANS OVER THE AREA AT INTERVALS AND OBSERVE THE QUANTITY OF MATERIAL DEPOSITED THEREON.

ON SURFACES THAT ARE TO BE MULCHED AS INDICATED BY THE PLANS OR DESIGNATED BY THE MAA ENGINEER, SEED AND FERTILIZER APPLIED BY THE SPRAY METHOD NEED NOT BE RAKED INTO THE SOIL OR ROLLED. HOWEVER, ON SURFACES ON WHICH MULCH IS NOT TO BE USED, THE RAKING AND ROLLING OPERATIONS WILL BE REQUIRED AFTER THE SOIL HAS DRIED.

903–3.4 MAINTENANCE OF SEEDED AREAS.
THE CONTRACTOR SHALL PROTECT SEEDED AREAS AGAINST TRAFFIC OR OTHER USE BY WARNING SIGNS OR BARRICADES, AS APPROVED BY THE ENGINEER. SURFACES GULLIED OR OTHERWISE DAMAGED FOLLOWING SEEDING SHALL BE REPAIRED BY REGRADING AND RESEEDING AS DIRECTED. THE CONTRACTOR SHALL MOW, WATER AS DIRECTED, AND OTHERWISE MAINTAIN SEEDED AREAS IN A SATISFACTORY CONDITION UNTIL FINAL INSPECTION AND ACCEPTANCE OF THE WORK.

WHEN EITHER THE DRY OR WET APPLICATION METHOD OUTLINED ABOVE IS USED FOR WORK PERFORMED OUT OF SEASON, THE CONTRACTOR WILL BE REQUIRED TO ESTABLISH A GOOD STAND OF GRASS OF UNIFORM COLOR AND DENSITY TO THE SATISFACTION OF THE ENGINEER. IF AT THE TIME WHEN THE CONTRACT HAS BEEN OTHERWISE COMPLETED IT IS NOT POSSIBLE TO MAKE AN ADEQUATE DETERMINATION OF THE COLOR, DENSITY, AND UNIFORMITY OF SUCH STAND OF GRASS, PAYMENT FOR THE UNACCEPTED PORTIONS OF THE AREAS SEEDED OUT OF SEASON WILL BE WITHHELD UNTIL SUCH TIME AS THESE REQUIREMENTS HAVE BEEN MET.

TEMPORARY SEEDING

LIME:	100 POUNDS OF DOLOMITIC LIMESTONE PER 1,000 SQUARE FEET.
FERTILIZER:	15 POUNDS OF 10–10–10 PER 1,000 SQUARE FEET.
SEED:	PER ITEM 903
MULCH:	MULCH SHALL BE APPLIED AS PER ITEM 905.

ITEM 904 SODDING

DESCRIPTION

904-1 This item provides standards for furnishing, hauling, and placing approved live sod on prepared areas as indicated on site plans. Sod will only be applied to landscape areas and shall be mowed frequently. All sodding activities shall conform to these specifications at the locations shown on site plans or as directed by the MAA Engineer.

MATERIALS{tc "MATERIALS"}

904-2.1 SOD. Sod furnished by the Contractor shall have a good cover of living or growing grass. This includes grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas in which the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance. Grass sod shall be Maryland-certified or approved and shall comply with the Maryland Sod Law of the Annotated Code of Maryland (Agricultural Article Sections 9-101 through 9-110). Each load of sod shall bear a Maryland State Approved or Certified label at the time of delivery on the job. Sod shall be either: (1) Bluegrass sod containing not less than 80 percent Kentucky bluegrass (*Poa pratensis*) and not more than 20 percent Red Fescue (*Festuca rubra*); or (2) certified turf type-tall fescue (*Festuca arundinacea*) sod containing not less than 80 percent certified turf type-tall fescue (*Festuca arundinacea*) grass and not more than 20 percent Kentucky Bluegrass (*Poa pratensis*) and Red Fescue (*Festuca rubra*). Any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod, including the soil containing the roots and the emergent plant growth, shall be cut uniformly to a thickness not less than that specified in Section 904-3.4.

904-2.2 LIME. Lime shall conform to standards described in Section 903, "Seeding."

904-2.3 FERTILIZER. Fertilizers and application methods shall conform to the standards previously described in Section 903, "Seeding."

904-2.4 WATER. All water shall conform to the standards previously described in Paragraph 902-2.4, "Water."

904-2.5 SOILS FOR REPAIR. All soils for repairs shall conform to the standards previously described in Paragraph 901-2.3, "Soils for Repair."

CONSTRUCTION REQUIREMENTS{tc "CONSTRUCTION REQUIREMENTS"}

904-3.1 GENERAL. Areas to be sodded shall be clearly indicated by site plans. Areas requiring special ground surface preparation, such as tilling, and those areas in a satisfactory condition that are to remain undisturbed shall also be shown on the plans.

Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the MAA Engineer before sodding operations begin. The Contractor shall demonstrate to the MAA Engineer, before starting the various operations, that the application of required materials, such as fertilizer and limestone, will be made at the specified rates.

904-3.2 ADVANCE PREPARATION. If the area to be sodded is sparsely vegetated, weedy, barren and unworked, or packed and hard, all existing herbaceous vegetation shall be removed. The soil shall then be scarified or otherwise loosened to a depth of at least 5 inches (125 mm). Clods shall be pulverized, and the top 3 inches (75 mm) of soil shall be worked into a satisfactory bed by discing or use of cultipackers, rollers, drags, harrows, or other equipment approved by the MAA Engineer. The area shall then be properly graded as indicated by site plans.

After grading of areas is complete and prior to the application of fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 1 inch in diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be sodded will be considered a satisfactory seedbed without requiring additional treatment if it recently has been thoroughly loosened and worked to a depth of at least 5 inches as a result of grading operations and, if immediately prior to sodding, the top 3 inches of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and is shaped to the required grade. For slope areas steeper than 3:1 (three horizontal to one vertical) the subsoil shall be loosened to a depth of 1 inch. Lime and fertilizer shall be applied within 48 hours after tilling as described in 903-3.3 and 3.4. The sod shall be applied immediately after the lime and fertilizer have been worked into the soil.

904-3.3 APPLICATION OF FERTILIZER AND LIME. Following ground surface preparation, fertilizer shall be uniformly spread as described in Section 903-3.3 at a rate that will provide at least the minimum quantity of fertilizer required. If the use of ground limestone is specified, it shall be spread as described in Section 903-3.3, "Methods of Application"; at a rate that will provide at least the minimum quantity of lime required. These materials shall be incorporated into the soil to a depth of at least 2 inches by discing, raking, or other methods approved by the MAA Engineer. Any stones larger than 1 inch in diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed.

904-3.4 OBTAINING AND DELIVERING SOD. The sod shall be well rooted, grown in the State of Maryland, and field grown for a minimum of 12 months. After inspection and approval of the sod by the MAA Engineer, the sod shall be cut with approved sod cutters to such a thickness that after placement on the prepared bed, but before compaction, it shall have a uniform attached soil thickness of at least 0.75 inch. Sod sections or strips shall be cut in uniform widths of at least 14 inches and in lengths of at least 18 inches, but not to lengths that might inhibit placement without breaking, tearing, or loss of soil. Where strips are required, the sod shall be rolled or folded undamaged, with the grass facing inward. The Contractor may be required to mow high grass before cutting sod.

Sod shall be transplanted within 24 hours from the time of harvest unless circumstances beyond the Contractor's control make storage necessary. In such cases, sod shall be stacked, kept moist, protected from exposure to the air and sun, and shall be kept from freezing. Sod shall only be harvested and moved when soil moisture conditions are such that favorable results can be expected. Where soil is too dry, permission to cut sod may be granted only after it has been sufficiently watered to moisten the soil to the depth at which the sod will be cut.

904-3.5 PLACING SOD. Sodding shall only be performed during seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the MAA Engineer, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches immediately prior to laying the sod.

The sod shall be moist and shall be placed on a bed, prepared according to Paragraphs 904-3.2 "Advance Preparation", and 904-3.3, "Application of Fertilizer and Lime" by hand. Pitchforks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be placed carefully by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, starting at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and ensure knitting without displacement of the sod or deformation of the surfaces of sodded areas. Where the sod has been displaced during sodding operations, the workmen replacing it shall work from ladders or treaded planks to prevent further displacement. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately 1.5 inches below the pavement edge. Where the flow will be over the sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges.

On slopes steeper than 1:2.5 and in V-shaped or flat-bottom ditches or gutters, the sod shall be secured with wooden pegs at least 18 inches long and a cross-sectional area of at least 0.75-square inch, or by other methods of securing sod approved by the MAA Engineer. The pegs shall be driven flush with the surface of the sod. The pegs shall be of sufficient number and at adequate spacing to secure sod from displacement. The use of sod staples or other means of securing the sod from displacement may be approved by the MAA Engineer provided satisfactory results are expected.

904-3.6 WATERING. Adequate water and watering equipment shall be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

904-3.7 ESTABLISHING TURF.

904-3.7.1 GENERAL. The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue to provide such care until final inspection and acceptance of the work.

904-3.7.2 PROTECTION. All sodded areas shall be protected against traffic or other use by warning signs and barricades approved by the MAA Engineer.

904-3.7.3 MOWING. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing of specific areas. In the event that weeds or other undesirable vegetation establishes to such an extent that, either cut or uncut, they threaten to smother the sodded species, the weeds shall be mowed and the clippings raked and removed from the area. Spot applications of an appropriate herbicide by a licensed applicator shall be approved by the MAA Engineer to remove invasive species. The appropriate herbicide shall be determined on a case-by-case basis, depending on the location and type of weed.

904-3.7.4 REPAIR. When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil and shall then be re-sodded as specified in Paragraph 904-3.5, "Placing Sod", at the Contractor's expense.

METHOD OF MEASUREMENT{tc "METHOD OF MEASUREMENT"}

904-4 This item will be measured on the basis of the area in square yards of the surface covered with sod and accepted.

ITEM 905 MULCHING

DESCRIPTION

905-1.1 GENERAL. This item provides the Contractor with MAA-approved specifications for mulch and the application of mulch including distribution of mulch and securing of mulched areas. Areas to be mulched will be clearly shown on site plans or otherwise designated by the MAA Engineer.

MATERIALS

905-2.1 TYPES OF MULCH. Acceptable mulch shall be composed of the materials listed below or composed of any locally available materials that are similar to those specified and approved by the MAA Engineer. Low-grade, shalely, soiled, partially rotted hay, straw, or other materials unfit for animal consumption will not be acceptable for use as mulch. Straw or other material that is fresh, excessively brittle, or is in such an advanced stage of decomposition as to smother or retard the planted grass, is not acceptable. Clean, weed-free straw may be used. Mulch materials containing matured seed with the potential to establish and be detrimental to the project or the surrounding area is not acceptable.

a. Shredded Hardwood Bark. Shredded hardwood bark shall consist of hardwood tree bark that has been milled and screened to ensure a maximum 4-inch (100-mm) particle size, provide a uniform texture, and be free from sawdust, toxic substances, and other foreign materials.

b. Wood Chips. Wood chips shall be produced by a chipping machine to a size specified by the MAA Engineer. Chips may not have been subjected to any conditions that would shorten their useful life or cause them to lose any of their value as mulch. Wood chips shall be free from bark, leaves, twigs, wood shavings, sawdust, toxic substances, and other foreign material.

c. Wood Cellulose Fiber. Wood cellulose fiber shall consist of a processed wood product with uniform fiber characteristics. The fiber shall be capable of remaining in a uniform suspension under agitation in water and blending with seed, fertilizer, and other additives to form a homogeneous slurry. The fiber shall perform satisfactorily in hydraulic seeding equipment without clogging or damaging the system. The slurry shall contain a green dye to provide easy visual inspection for uniformity of application.

Certification showing that the fiber material conforms to the following specifications shall be provided by the manufacturer:

Wood Cellulose Fiber Requirements	
Particle Length, in. (mm)	Approximately 1/2 (13)
Particle Thickness, in. (mm)	Approximately 1/16 (1.5)
Net dry Weight Content	Minimum as stated on bag
TAPPI* T 509, pH	4.0 to 8.5
Ash Content, TAPPI* Standard T 413, % max	7.0
Water Holding Capacity, % min	90

*Technical Association of Pulp and Paper Industry

The material shall be delivered in packages of uniform net weight of 75 lbs (34 kg) or less and shall be clearly labeled with the name of the manufacturer, net weight, and a supplemental statement of the net weight content.

905-2.2 INSPECTION. Within five days after acceptance of the bid, the Contractor shall provide representative samples of mulch material to be used to the MAA Engineer and identify the source of the material and quantities of mulch materials available. The samples provided may be used as standards with the approval of the MAA Engineer and any materials brought on the site that do not meet these standards may be rejected.

CONSTRUCTION REQUIREMENTS

905-3.1 ADVANCE PREPARATION. Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding unless otherwise specified. The application and spreading of mulch may be by hand methods, blower, or other mechanical methods, provided a uniform covering is obtained.

905-3.2 APPLICATION OF MULCH. The Contractor shall evenly apply mulch materials to areas indicated by site plans or otherwise designated by the MAA Engineer. Cellulose-fiber or wood-pulp mulch shall be applied at the rate of 1,500 pounds (dry weight) per acre. Mulch may be blown on the slopes and use of cutters in the equipment for this purpose will be permitted to the extent that at least 95 percent of the mulch in place on the slope is 6 inches or more in length. When mulch applied by the blowing methods is cut, the loose depth in place shall be 1 to 2 inches. Cellulose fiber or wood-pulp mulch shall be applied as an aqueous mixture by spraying at the rate of 1,500 pounds (dry weight) per acre using spraying equipment approved by the MAA Engineer.

905-3.3 SECURING MULCH. Mulch shall be held in place by light discing, a thin coating of topsoil, pins, stakes, wire mesh, or other methods approved by the MAA Engineer. If the "peg and string" method is used, the mulch shall be secured with stakes or wire pins driven into the ground on 5-foot centers or less. Binder twine shall be strung between adjacent stakes in straight lines and crossed diagonally over the mulch. The stakes shall be firmly driven nearly flush to the ground to draw the twine down tightly onto the mulch.

905-3.4 MAINTENANCE OF MULCHED AREAS. The Contractor shall care for mulched areas until final acceptance of the project. Care required may consist of providing protection against traffic or other disturbances by placement of warning signs and/or barricades before or immediately after mulching has been completed.

The Contractor may be required to repair or replace any mulching that is defective or becomes damaged before the project is finished and deemed satisfactory by the MAA Engineer. When, in the judgment of the MAA Engineer, defects or damage result from poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement will be borne by the Contractor. However, once the Contractor has completed the mulching of an area in accordance with the provisions of the specifications and to the satisfaction of the Engineer, no additional work at his expense will be required. Any subsequent repairs and/or replacements deemed necessary by the Engineer may be made by the Contractor and will be paid for as additional or extra work.

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. West 9-1-10
DATE

R-1 2-19-13
R-2 1-28-14
R-3, 7-17-14

APPROVAL

DESIGN AND DRAWINGS BASED ON MARYLAND COORDINATE SYSTEM HORIZONTAL – NAD 83/91 AND ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION 68.97.

AS-BUILT JUNE 2016

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
SIGNATURES SEE DWG. NO 2009–3350	SIGNATURES SEE DWG. NO 2009–3350	SIGNATURES SEE DWG. NO 2009–3350

AS–BUILT PER RECORD PRINT		REVISION	DATE	BY	P. W. A. NO.	KEY SHEETS	POSITION SHEETS	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
DRAFTSMAN	DATE	Revised Notes	2/15/13	JSD				PLAN :	SIGNATURES SEE DWG. NO 2009–3350
					RIGHT OF WAY			PROFILE :	

STATE OF MARYLAND JAMES E. HAVEY NO. 26035 PROFESSIONAL ENGINEER
SEAL

ENGINEER: JAMES E. HAVEY
DATE: 7–10 LIC. NO.: 26035

DSGN BY: BBB
DWN BY: JCD
CHKD BY: BBB

BUREAU OF ENGINEERING AND CONSTRUCTION
REVIEWED
DATE

BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
FOR REVIEW AND APPROVAL ORIGINAL SIGNATURES AND DATES, SEE DWG. NO 2009–3350							SIGNATURES SEE DWG. NO 2009–3350

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
EROSION & SEDIMENT CONTROL NOTES 3

SUBDIVISION: LANSDOWNE

SHEET DESIGNATION	CONTRACT NO.
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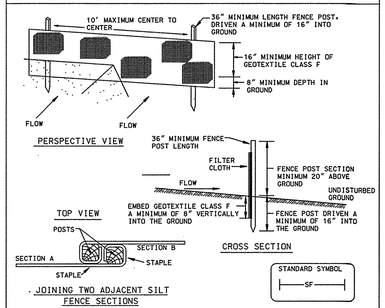
	FILE NO.

BALTIMORE COUNTY MARYLAND

DWG FILENAME:

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey K. West 9-1-10
DATE
R-1 2-19-13 JK
R-2 1-28-14 JSW
R-3 7-17-14 JSW

DETAIL 22 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

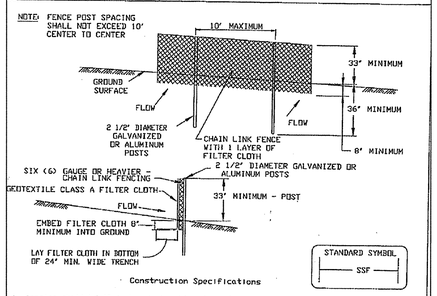
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The SHA specification for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.

2. The posts do not need to be set in concrete.

3. Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) gauge or heavier.

4. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24 inches at the top and mid section.

5. Filter cloth shall be embedded a minimum of 8 inches into the ground.

6. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6 inches and folded.

7. Maintenance shall be performed as needed and silt buildups removed when 'bulges' develop in the silt fence, or when silt reaches 50% of Fence height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	MODIFIED	

24.0 MATERIALS SPECIFICATIONS

Table 27 Geotextile Fabrics

CLASS	APPARENT OPENING SIZE MM. MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSI. MIN.
A	0.30**	250	500
B	0.60	200	320
C	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F(SILT FENCE)	0.40 - 0.80*	90	190

*US Std Sieve CW - 02215 ** 0.50 mm. max. for Super Silt Fence

The properties shall be determined in accordance with the following procedures:

-Apparent opening size — MSMT 323

-Grab tensile strength — ASTM D 1682: 4x8" specimen, 1x2" clamps, 12"/min. strain rate in both principal directions of geotextile fabric.

-Burst strength — ASTM D 3786

The fabric shall be inert to commonly encountered chemicals and hydrocarbons, and will be rot and mildew resistant. It shall be manufactured from fibers consisting of long chain synthetic polymers, and composed of a minimum of 85% by weight of polyolephins, polyesters, or polyamides. The geotextile fabric shall resist deterioration from ultraviolet exposure.

In addition, Classes A through E shall have a 0.01 cm./sec. minimum permeability when tested in accordance with MSMT 507, and an apparent minimum elongation of 20 percent (20%) when tested in accordance with the grab tensile strength requirements listed above.

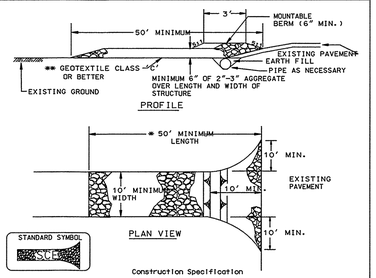
Silt Fence
Class F geotextile fabrics for silt fence shall have a 50 lb./in. minimum tensile strength and a 20 lb./in. minimum tensile modules when tested in accordance with MSMT 509. The material shall also have a 0.3 gal./ft.²/min. flow rate and seventy-five percent (75%) minimum filtering efficiency when tested in accordance with MSMT 322.

Geotextile fabrics used in the construction of silt fence shall resist deterioration from ultraviolet exposure. The fabric shall contain sufficient amounts of ultraviolet ray inhibitors and stabilizers to provide a minimum of 12 months of expected usable construction life at a temperature range of 0 to 120 degrees F.

H-24-1 Modified

APPENDIX 10

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length - minimum of 50' (*30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

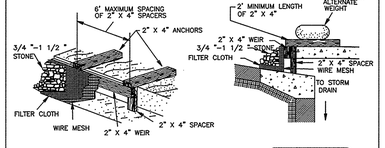
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLETS)



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).

4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

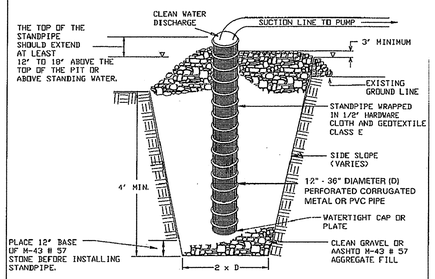
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20B - SUMP PIT



Construction Specifications

1. Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.

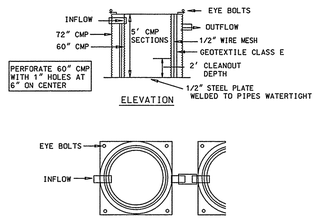
2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe, then wrapping with 1/2" hardware cloth and Geotextile Class E. The perforations shall be 1/2" x 6" slits or 1" diameter holes.

3. A base of filter material consisting of clean gravel or #57 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.

4. The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material should extend 3" minimum above the anticipated standing water elevation.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	MODIFIED	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 21 - PORTABLE SEDIMENT TANK



Construction Specifications

1. The following formula should be used in determining the storage volume of the sediment tank: 1 cubic foot of storage for each gallon per minute of pump discharge capacity.

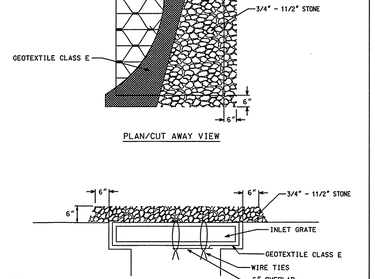
2. An example of a typical sediment tank is shown above. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency.

3. Tanks may be connected in series.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D - 14 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

* SEDIMENT TANK DETAIL IS INCLUDED AS A PRECAUTIONARY MEASURE. LOCATION TO BE DETERMINED IF NEEDED.

DETAIL 23B - AT GRADE INLET PROTECTION



Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.

2. Place 3/4" to 1 1/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVAL

CITY OF BALTIMORE	REVISION - CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

STATE OF MARYLAND JAMES E. HAVEY No. 26035 PROFESSIONAL ENGINEER
SEAL

AS-BUILT PER RECORD PRINT		REVISION	DATE	BY	P. W. A. NO.	KEY SHEETS	POSITION SHEETS	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
DRAFTSMAN	DATE							PLAN :	SIGNATURES SEE DWG. NO 2009-3350
					RIGHT OF WAY			PROFILE :	

ENGINEER: JAMES E. HAVEY
DATE: 7-10 LIC. NO.: 26035

DSGN BY: BBB	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
DWN BY: JCD	REVIEWED	FOR REVIEW AND APPROVAL ORIGINAL SIGNATURES AND DATES, SEE DWG. NO 2009-3350							SIGNATURES SEE DWG. NO 2009-3350
CHKD BY: BBB	DATE								

AS-BUILT JUNE 2016

DESIGN AND DRAWINGS BASED ON MARYLAND COORDINATE SYSTEM HORIZONTAL - NAD 83/91 AND ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION 68.97.

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

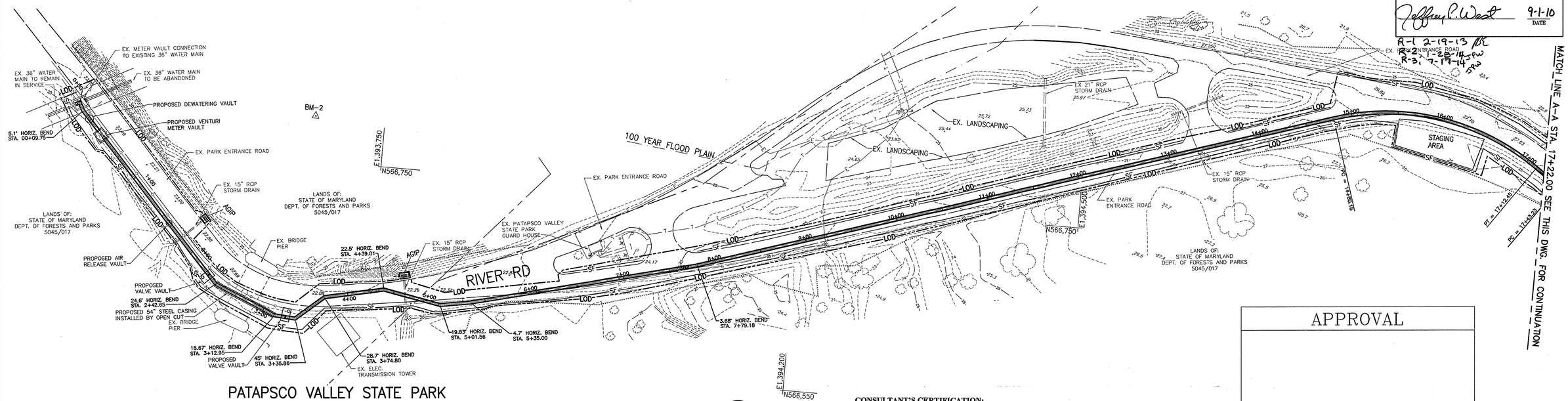
SOUTHWEST TRANSMISSION MAIN EROSION & SEDIMENT CONTROL DETAILS

SUBDIVISION: LANSDOWNE

SHEET DESIGNATION	CONTRACT NO.
SC-5	W-8276
	JOB ORDER NO.
	203-0067-0281
	SHEET 24 OF 36
	DRAWING NO.
	2009-3373
	FILE NO. SDP 05/06

DWG FILENAME:

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. West — 9-1-10 DATE
R-1 2-19-13 PW
R-2 2-1-14 PW
R-3 7-19-14 PW



PATAPSCO VALLEY STATE PARK
EROSION & SEDIMENT CONTROL PLAN STA. 0+00 TO 17+22.00
SCALE: 1" = 50'-0"

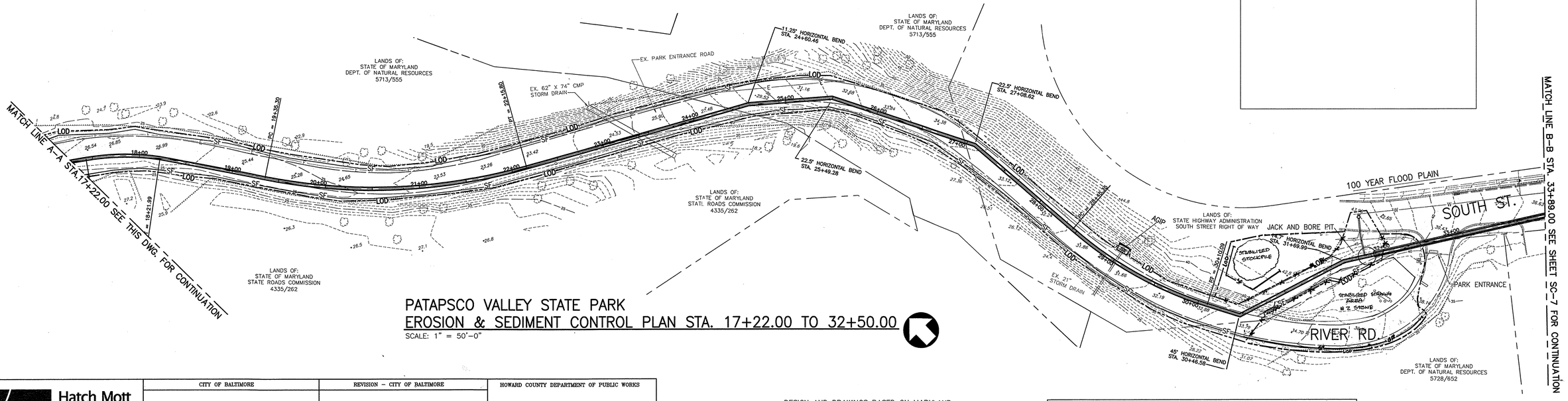
CONSULTANT'S CERTIFICATION:

I certify that this plan of erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site, and this plan was prepared in accordance with the requirements of the Baltimore County Soil Conservation District and the current State of Maryland Specifications for Soil Erosion and Sediment Control. I have reviewed this erosion and sediment control plan with the owner/developer.

Signature — Date: 4/24/14
Print Name: Jeffrey Scott Pelusso — MD License Number: 34684

STATE OF MARYLAND — JEFFREY SCOTT PELUSSO — NO. 34684 — PROFESSIONAL ENGINEER

APPROVAL



PATAPSCO VALLEY STATE PARK
EROSION & SEDIMENT CONTROL PLAN STA. 17+22.00 TO 32+50.00
SCALE: 1" = 50'-0"

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350

DESIGN AND DRAWINGS BASED ON MARYLAND COORDINATE SYSTEM HORIZONTAL – NAD 83/91 AND ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION 68.97.

AREA OF DISTURBANCE PATAPSCO VALLEY STATE PARK – 2.72 ACRES (118,471.81 SQUARE FEET)
AREA OF DISTURBANCE ALONG ROUTE 1 CORRIDOR – 4.93 ACRES (214,739.70 SQUARE FEET)
TOTAL AREA OF DISTURBANCE – 7.65 ACRES (333,211.51 SQUARE FEET)

AS-BUILT JUNE 2016

AS-BUILT PER RECORD PRINT		REVISION	DATE	BY	P. W. A. NO.	KEY SHEETS	POSITION SHEETS	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
DRAFTSMAN	DATE	Revised Jacking Pit Area	1/24/14	JSP				PLAN :	SIGNATURES SEE DWG. NO 2009-3350
					RIGHT OF WAY			PROFILE :	

ENGINEER: JAMES E HAVEY	DSGN BY: BBB	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
DATE: 7-10 LIC. NO.: 26035	DWN BY: JCD	REVIEWED	FOR REVIEW AND APPROVAL ORIGINAL SIGNATURES AND DATES, SEE DWG. NO 2009-3350							SIGNATURES SEE DWG. NO 2009-3350
SEAL	CHKD BY: BBB	DATE								

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
EROSION & SEDIMENT CONTROL PLAN STA. 0+00 TO STA 33+89.00

SUBDIVISION: LANSDOWNE

SHEET DESIGNATION	CONTRACT NO.
SC-6	W-8276
	JOB ORDER NO.
	203-0067-0281
	SHEET 25 OF 36
	DRAWING NO.
	2009-3374
	FILE NO.

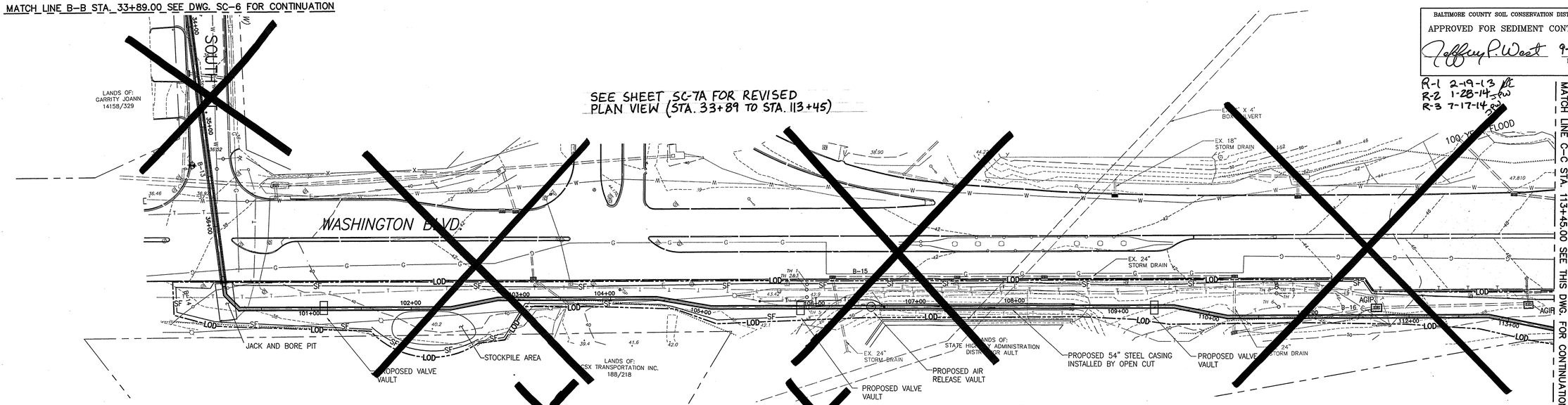
DWG FILENAME:

MATCH LINE B–B STA. 33+89.00 SEE DWG. SC–6 FOR CONTINUATION

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. West 9-1-10
DATE

R-1 2-19-13
R-2 1-28-14
R-3 7-17-14

SEE SHEET SC-7A FOR REVISED PLAN VIEW (STA. 33+89 TO STA. 113+45)



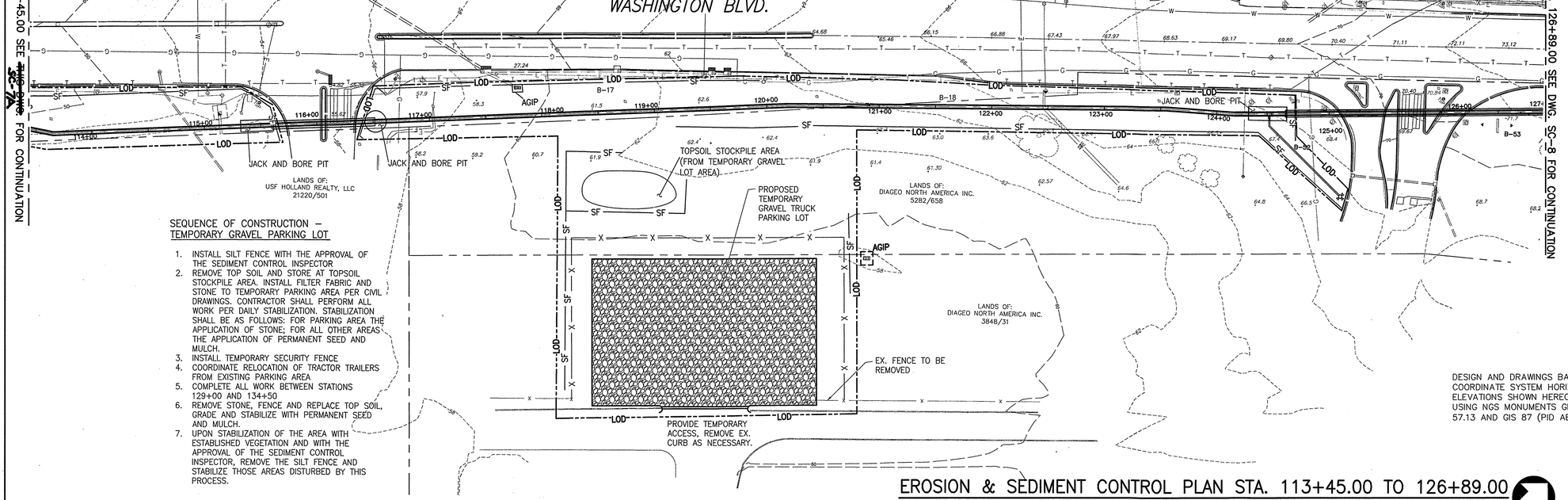
MATCH LINE C–C STA. 113+45.00 SEE THIS DWG. FOR CONTINUATION

EROSION & SEDIMENT CONTROL PLAN STA. 100+00.00 TO 113+45.00

SCALE: 1" = 50'

MATCH LINE C–C STA. 113+45.00 SEE THIS DWG. FOR CONTINUATION

MATCH LINE D–D STA. 126+89.00 SEE DWG. SC–8 FOR CONTINUATION



SEQUENCE OF CONSTRUCTION – TEMPORARY GRAVEL PARKING LOT

1. INSTALL SILT FENCE WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR
2. REMOVE TOP SOIL AND STORE AT TOPSOIL STOCKPILE AREA. INSTALL FILTER FABRIC AND STONE TO TEMPORARY PARKING AREA PER CIVIL DRAWINGS. CONTRACTOR SHALL PERFORM ALL WORK PER DAILY STABILIZATION. STABILIZATION SHALL BE AS FOLLOWS: FOR PARKING AREA THE APPLICATION OF STONE; FOR ALL OTHER AREAS THE APPLICATION OF PERMANENT SEED AND MULCH.
3. INSTALL TEMPORARY SECURITY FENCE
4. COORDINATE RELOCATION OF TRACTOR TRAILERS FROM EXISTING PARKING AREA
5. COMPLETE ALL WORK BETWEEN STATIONS 129+00 AND 134+50
6. REMOVE STONE, FENCE AND REPLACE TOP SOIL, GRADE AND STABILIZE WITH PERMANENT SEED AND MULCH.
7. UPON STABILIZATION OF THE AREA WITH ESTABLISHED VEGETATION AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE THE SILT FENCE AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

EROSION & SEDIMENT CONTROL PLAN STA. 113+45.00 TO 126+89.00

SCALE: 1" = 50'–0"

DESIGN AND DRAWINGS BASED ON MARYLAND COORDINATE SYSTEM HORIZONTAL – NAD 83/91 AND ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NGS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION 68.97.

APPROVAL

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

AS–BUILT PER RECORD PRINT		REVISION	DATE	BY	P. W. A. NO.	KEY SHEETS	POSITION SHEETS	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
DRAFTSMAN	DATE							PLAN :	SIGNATURES SEE DWG. NO 2009-3350
					RIGHT OF WAY			PROFILE :	

STATE OF MARYLAND — JAMES E. HAVEY — NO. 26035 — PROFESSIONAL ENGINEER
SEAL

ENGINEER: JAMES E. HAVEY
DATE: 7-10 LIC. NO.: 26035

DSGN BY: BBB
DWN BY: JCD
CHKD BY: BBB

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
REVIEWED	FOR REVIEW AND APPROVAL ORIGINAL SIGNATURES AND DATES, SEE DWG. NO 2009-3350							SIGNATURES SEE DWG. NO 2009-3350
DATE								

AREA OF DISTURBANCE PATAPSCO VALLEY STATE PARK – 2.72 ACRES (118,471.81 SQUARE FEET)
AREA OF DISTURBANCE ALONG ROUTE 1 CORRIDOR – 4.93 ACRES (214,739.70 SQUARE FEET)
TOTAL AREA OF DISTURBANCE – 7.65 ACRES (333,211.51 SQUARE FEET)

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
EROSION & SEDIMENT CONTROL PLAN STA 33+89.00 TO STA 126+89.00

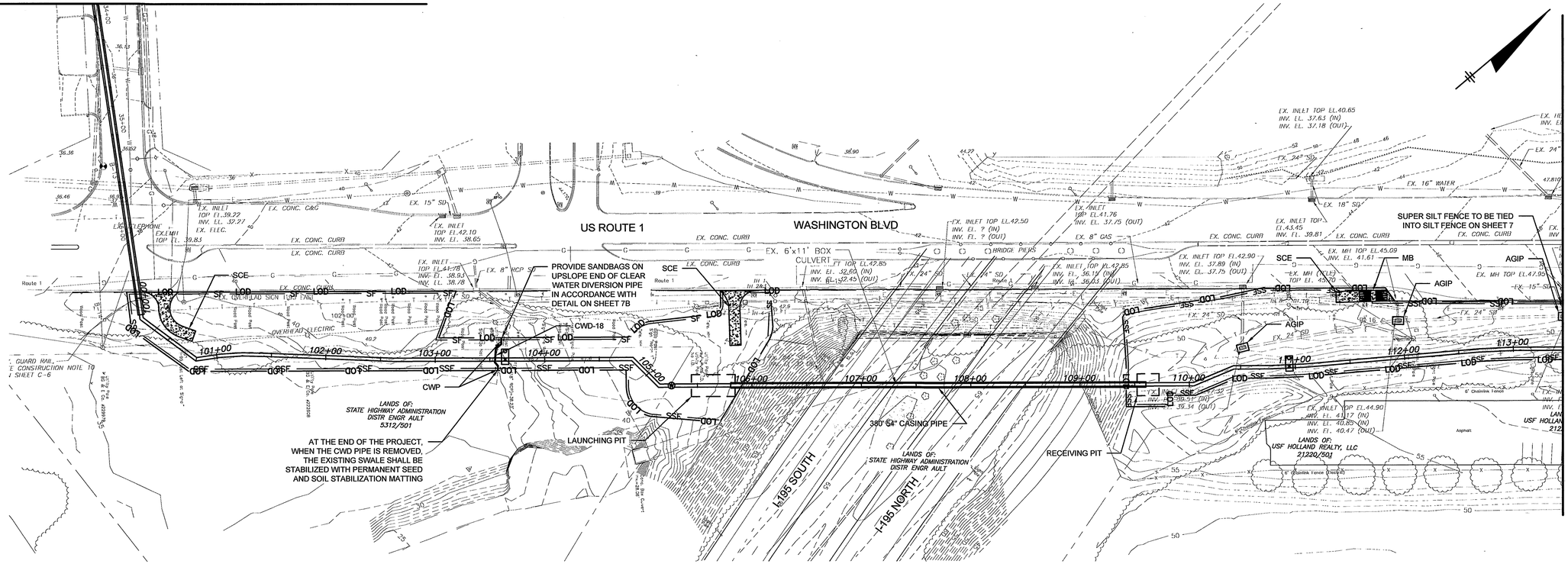
SUBDIVISION: LANSDOWNE

SHEET DESIGNATION	CONTRACT NO.
SC–7	W–8276
	JOB ORDER NO.
	203–0067–0281
	SHEET 26 OF 36
	DRAWING NO.
	2009–3375
	FILE NO.

BALTIMORE COUNTY MARYLAND

DWG FILENAME:

MATCH LINE 'B-B' STA. 33+89.00 SEE DWG. SC-6 FOR CONTINUATION



MATCH LINE C-C STA. 113+45.00 SEE SHEET SC-7 FOR CONTINUATION

LEGEND

LOD	LIMIT OF DISTURBANCE
SF SF	SILT FENCE
SSF	SUPER SILT FENCE
SCE	STABILIZED CONSTRUCTION ENTRANCE
AGIP	AT GRADE INLET PROTECTION
MB	MOUNTABLE BERM
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
CWD-18	CLEAR WATER DIVERSION PIPE

CONSULTANT'S CERTIFICATION:

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT AND THE CURRENT STATE OF MARYLAND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE — 6/18/14 DATE

Robert J Dudley — PRINT NAME — 18523 MD LICENSE NUMBER

B-3, 7-17-14 JPW

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT

APPROVED FOR SEDIMENT CONTROL

Jeffrey P. Wood — 7-17-14 DATE

AS-BUILT JUNE 2016

CITY OF BALTIMORE

CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE

REVISION – CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE

CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR, DEPT. OF PUBLIC WORKS — 6/23/14 DATE

1"=50' 50 0 50 100

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18523 EXPIRATION DATE DECEMBER 8, 2015

DATE: 6/18/14

ENGINEER: ROBERT J. DUDLEY — DESIGN BY: RPW — DRAWN BY: RPW — CHKD BY: RJD

AS-BUILT PER RECORD PRINT — BY: — DATE:

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.	CNN	28SW17

DRAWING SCALE: PLAN SCALE: 1"=40' — PROFILE SCALE: NA — NA

DEPARTMENT OF PUBLIC WORKS — APPROVED BY: DIRECTOR — DATE: 6/30/14

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		RJE	GAR	MJM	JSP
DATE REVIEWED:		6/27/14		6/27/14	6/27/14	6/26/14	6/26/14

BUR. OF ENGINEERING & CONSTRUCTION — APPROVED BY: CHIEF — DATE: 6/30/14

HOWARD CO. PROJECT NO. W-8276

O'BRIEN & GERE
11350 McCORMICK ROAD, SUITE 304
HUNT VALLEY, MARYLAND 21031

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
SEDIMENT AND EROSION CONTROL PLAN

SUBDIVISION: SAINT DENIS

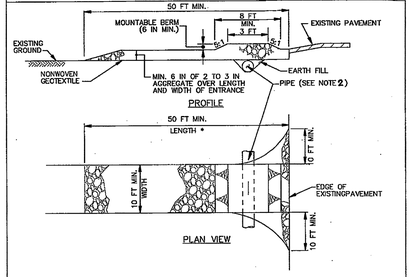
ELECTION DISTRICT: 13C1

SHEET DESIGNATION	CONTRACT NO.
SC-7A	44-4618
	JOB ORDER NO.
	203-0067-0281
	SHEET 26A OF 36
	DRAWING NO.
	2009-3388
	FILE NO.

DWG FILENAME:

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

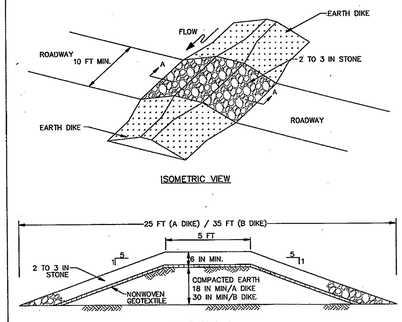
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B.2

DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL: MB



CONSTRUCTION SPECIFICATIONS

1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

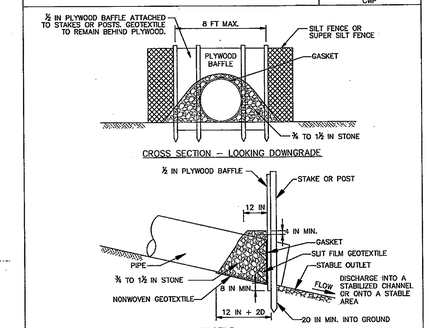
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

C.24

DETAIL E-4 CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE

STANDARD SYMBOL: CWP



CONSTRUCTION SPECIFICATIONS

1. INSTALL SILT FENCE OR SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E–1 OR DETAIL E–2.
2. AT THE PIPE LOCATION, CUT AND PULL BACK THE WOVEN SLIT FILM GEOTEXTILE AND CHAIN LINK FENCING. SECURE GEOTEXTILE TO PIPE WITH GASKET. INSTALL ADDITIONAL STAKES OR POSTS IF NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE BAFFLE BOARD.
3. ENTRENCH ½ INCH PLYWOOD BAFFLE A MINIMUM OF 8 INCHES AND SECURE TO THE UPGRADE SIDE OF THE FENCE STAKES OR POSTS. BAFFLE SHOULD BE AT LEAST THE HEIGHT OF THE FENCE.
4. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE BEHIND THE PLYWOOD BAFFLE ON NONWOVEN GEOTEXTILE AND EXTEND 12 INCH MIN. ALONG TOP OF PIPE AND TO A HEIGHT OF 4 INCHES ABOVE THE TOP OF PIPE.
5. USE NONWOVEN AND WOVEN SLIT FILM GEOTEXTILES AS SPECIFIED IN SECTION H–1 MATERIALS.
6. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN SEDIMENT REACHES 6 INCHES IN HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL BAFFLE, CHAIN LINK, AND GEOTEXTILE. REPLACE STONE IF DISPLACED. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

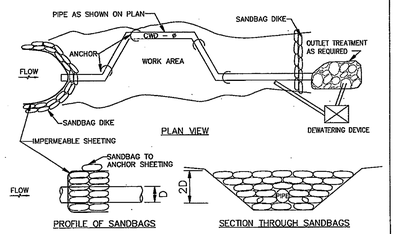
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.9

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL: CWD – 12

DESIGNATION CWD–12 REFERS TO 12 INCH CLEAR WATER DIVERSION.



CONSTRUCTION SPECIFICATIONS

1. FLEXIBLE PIPE IS PREFERRED, HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA–VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

C.20

H-1 STANDARDS AND SPECIFICATIONS FOR MATERIALS

Table B.1: Geotextile Fabrics

		WOVEN SLIT-FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MINIMUM AVERAGE ROLL VALUE[1]					
PROPERTY	TEST METHOD	MD	CD	MD	CD	MD	CD
Grab Tensile Strength	ASTM D-4632	200 lb	200 lb	370 lb	250 lb	200 lb	200 lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	15%	50%	50%
Trapezoidal Tear Strength	ASTM D-4533	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb
Puncture Strength	ASTM D-6241	450 lb		900 lb		450 lb	
Apparent Opening Size[2]	ASTM D-4751	U.S. Sieve 30 (0.59 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)	
Permittivity	ASTM D-4491	0.05 sec^{-1}		0.28 sec^{-1}		1.1 sec^{-1}	
Ultraviolet Resistance Retained at 500 hours	ASTM D-4355	70% strength		70% strength		70% strength	

[1] All numeric values except apparent opening size (AOS) represent minimum average roll values (MARV). MARV is calculated as the typical minus two standard deviations. MD is machine direction; CD is cross direction.

[2] Values for AOS represent the average maximum opening.

Geotextiles must be evaluated by the National Transportation Product Evaluation Program (NTPEP) and conform to the values in Table H.1.

The geotextile must be inert to commonly encountered chemicals and hydrocarbons and must be rot and mildew resistant. The geotextile must be manufactured from fibers consisting of long chain synthetic polymers and composed of a minimum of 95 percent by weight of polyolefins or polyesters, and formed into a stable network so the filaments or yarns retain their dimensional stability relative to each other, including selvages.

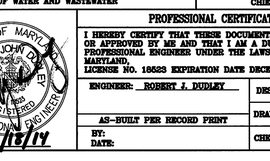
When more than one section of geotextile is necessary, overlap the sections by at least one foot. The geotextile must be pulled taut over the applied surface. Equipment must not run over exposed fabric. When placing riprap on geotextile, do not exceed a one foot drop height.

H.1

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

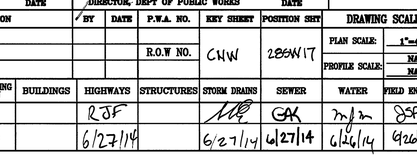
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.26

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.2

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1⅜ X 1⅜ ± 1/8 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID–SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H–1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

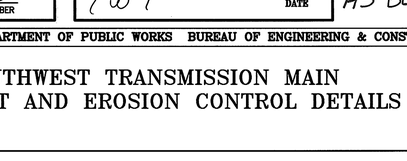
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.3

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2½ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.065 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 6 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2¾ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HOG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND. LAY THE GEOTEXTILE IN THE BOTTOM OF THE 24 INCH WIDE TRENCH.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BYPASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE UPHILL A MINIMUM OF 3 VERTICAL FEET TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURERS CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H – 1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF THE FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

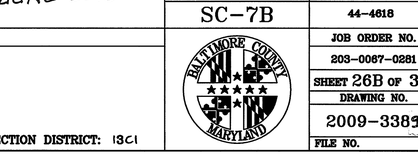
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPENDIX 17

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: TSSMC – 2.25 lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN–MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON–LEACHING AND NON–TOXIC TO VEGETATION AND SEED GERMINATION AND NON–INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH–SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. KEY–IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
7. OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B–4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B.38

CONSULTANT'S CERTIFICATION:

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT AND THE CURRENT STATE OF MARYLAND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE — DATE 6/18/14

Robert J Dudley — PRINT NAME — 18523 MD LICENSE NUMBER

R-3, 7-17-14 JPW

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. West — 7-17-14 DATE

AS BUILT JUNE 2016

HOWARD CO. PROJECT NO. W–8276

O'BRIEN & GERE
11350 McCORMICK ROAD, SUITE 304
HUNT VALLEY, MARYLAND 21031

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. DATE BUREAU OF WATER AND WASTEWATER	CHIEF, UTILITY ENGINEERING DATE CHIEF, WATER ENGINEERING SECTION DATE	DIRECTOR, DEPT OF PUBLIC WORKS — 6/12/14 DATE

1"=40' 40 0 40 80

SEAL: STATE OF MARYLAND · ROBERT JOHN DUDLEY · No. 18523 · REGISTERED PROFESSIONAL ENGINEER
DATE: 6/18/14

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18523 EXPIRATION DATE DECEMBER 8, 2015

ENGINEER: ROBERT J. DUDLEY — DESIGN BY: RFW
AS–BUILT PER RECORD PRINT — DRAWN BY: RFW
BY: — DATE: — CHKD BY: RJD

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.	CHW	28&N17

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		MP	CAK	mjm	DSP
DATE REVIEWED:		6/27/14		6/27/14	6/27/14	6/26/14	9/26/14

DRAWING SCALE: PLAN SCALE: 1"=40' — PROFILE SCALE: NA / NA

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: DIRECTOR — DATE: 6-30-14
BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: CHIEF — DATE: 6/30/14

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
SEDIMENT AND EROSION CONTROL DETAILS

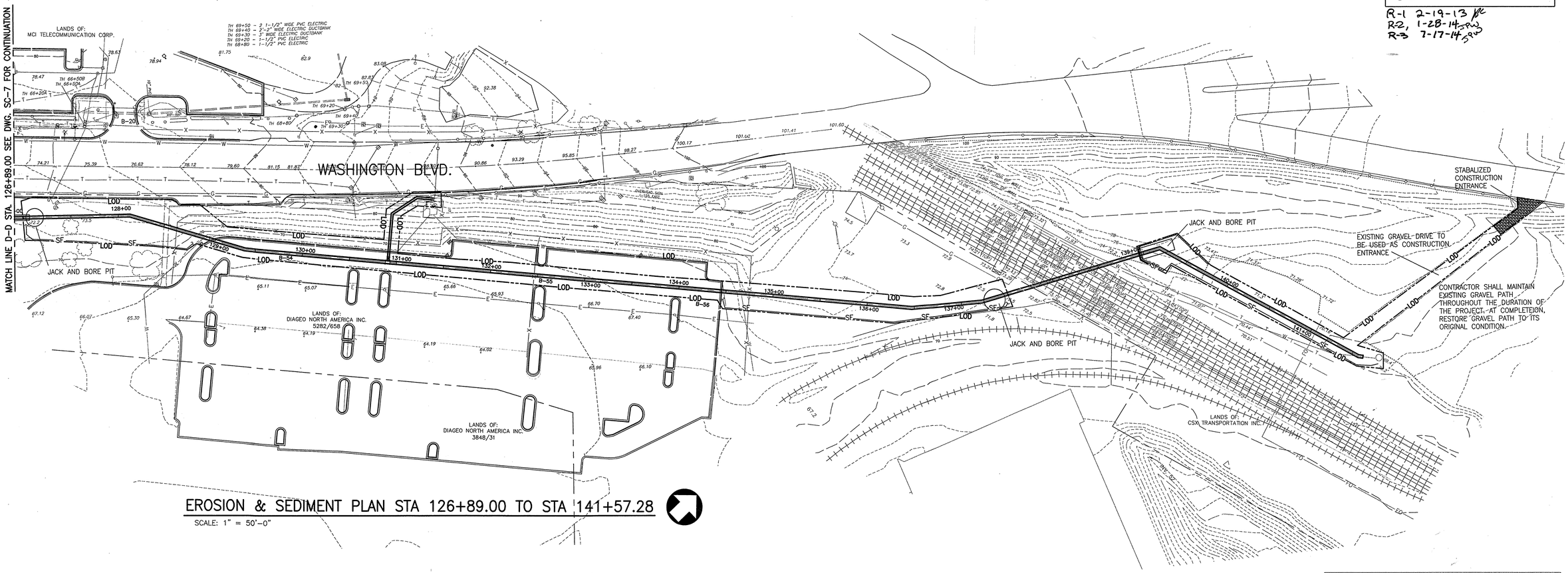
SUBDIVISION: SAINT DENIS — ELECTION DISTRICT: 13C

SHEET DESIGNATION	CONTRACT NO.
SC–7B	44–4618
	JOB ORDER NO.
	203–0067–0281
	SHEET 26B OF 36
	DRAWING NO.
	2009–3389
	FILE NO.

DWG FILENAME:

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. Wast 9-1-10
DATE

R-1 2-19-13 JPW
R-2, 1-28-14 JPW
R-3 7-17-14 JPW



EROSION & SEDIMENT PLAN STA 126+89.00 TO STA 141+57.28

SCALE: 1" = 50'-0"

APPROVAL

DESIGN AND DRAWINGS BASED ON MARYLAND COORDINATE SYSTEM HORIZONTAL – NAD 83/91 AND ELEVATIONS SHOWN HEREON ARE REFERRED TO NAVD 88 DATUM USING NOS MONUMENTS GIS 86 (PID AE2450), ELEVATION = 57.13 AND GIS 87 (PID AE2451), ELEVATION 68.97.

AREA OF DISTURBANCE PATAPSCO VALLEY STATE PARK – 2.72 ACRES (118,471.81 SQUARE FEET)
AREA OF DISTURBANCE ALONG ROUTE 1 CORRIDOR – 4.93 ACRES (214,739.70 SQUARE FEET)
TOTAL AREA OF DISTURBANCE – 7.65 ACRES (333,211.51 SQUARE FEET)

AS-BUILT JUNE 2016

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350	SIGNATURES SEE DWG. NO 2009-3350

AS-BUILT PER RECORD PRINT		REVISION	DATE	BY	P. W. A. NO.	KEY SHEETS	POSITION SHEETS	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
DRAFTSMAN	DATE							PLAN :	SIGNATURES SEE DWG. NO 2009-3350
					RIGHT OF WAY			PROFILE :	

STATE OF MARYLAND JAMES E. HAVEY No. 26035 PROFESSIONAL ENGINEER
SEAL

ENGINEER: JAMES E. HAVEY
DATE: 7-10 LIC. NO.: 26035

DSGN BY: BBB
DWN BY: JCD
CHKD BY: BBB

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
REVIEWED	FOR REVIEW AND APPROVAL ORIGINAL SIGNATURES AND DATES, SEE DWG. NO 2009-3350							SIGNATURES SEE DWG. NO 2009-3350
DATE								

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
EROSION & SEDIMENT CONTROL PLAN STA 126+89.00 TO STA 141+57.28

SUBDIVISION: LANSDOWNE

SHEET DESIGNATION	CONTRACT NO.
SC-8	W-8276
	JOB ORDER NO.
	203-0067-0281
	SHEET 27 OF 36
	DRAWING NO.
	2009-3376
	FILE NO.

BALTIMORE COUNTY MARYLAND

DWG FILENAME:

G20-1

G95-24

G20-5a

G20-5b

R4-8a

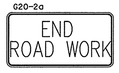
R4-7a

G95-7(2)

G95-6(1)

W95-13

G20-2a



NOTE: ALL REGULATORY, WARNING AND SPECIAL SIGNS ARE TO BE USED IN ACCORDANCE WITH MARYLAND STATE LAWS.

MAINTENANCE OF TRAFFIC WASHINGTON BLVD. (ROUTE 1)

PHASE 1 – STATION 100+35 TO STATION 106+50 (APPROXIMATELY)

1. PHASE 1 TRAFFIC CONTROL WILL PROVIDE FOR THE INSTALLATION OF WATER MAIN FROM STATION 100+35 TO STATION 106+50 (APPROXIMATELY) INCLUDING VALVE VAULTS AND AIR RELEASE VAULTS.
2. PLACE TRAFFIC CONTROL SIGNS (ROAD WORK AHEAD, TEMPORARY LANE CLOSURE, AND END ROAD WORK) ALONG THE RIGHT LANE OF WASHINGTON BOULEVARD TO FACILITATE ACCESS TO THE WORK AREA.
3. INSTALL SEDIMENT CONTROL DEVICES AS REQUIRED.
4. CONSTRUCT 36–INCH WATER MAIN AND APPURTENANCES ALONG THIS PORTION OF WASHINGTON BOULEVARD.
5. LIMIT LANE CLOSURES TO TIMES SPECIFIED UNDER THE GENERAL NOTES. AT THE END OF EACH WORKDAY, RESTORE TWO LANES OF TRAFFIC.

PHASE 2 – STATION 106+50 TO STATION 108+50 (APPROXIMATELY)

1. PHASE 2 TRAFFIC CONTROL WILL PROVIDE FOR THE INSTALLATION OF WATER MAIN FROM STATION 106+50 TO STATION 108+50 WHICH INCLUDES THE INSTALLATION OF THE 54" STEEL CASING UNDER THE ROUTE 195 OVERPASS.
2. PROVIDE TRAFFIC CONTROL SIGNS (ROAD WORK AHEAD, TEMPORARY LANE CLOSURE, AND END ROAD WORK) ALONG THE RIGHT LANE OF WASHINGTON BOULEVARD TO FACILITATE ACCESS TO THE WORK AREA.
3. INSTALL SEDIEMNT CONTROL DEVICES AS REQUIRED.
4. CONSTRUCT 36–INCH WATER MAIN AND APPURTENANCES.
5. LIMIT LANE CLOSURES TO TIMES SPECIFIED UNDER THE GENERAL NOTES. AT THE END OF EACH WORKDAY, RESTORE TWO LANES OF TRAFFIC.

PHASE 3 – STATION 108+50 TO STATION 128+20 (APPROXIMATELY)

1. PHASE 3 TRAFFIC CONTROL WILL PROVIDE FOR THE INSTALLATION OF WATER MAIN FROM STATION 108+50 TO STATION 128+20 INCLUDING JACK AND BORE OPERATIONS UNDER ROADWAY EXPRESS ENTRANCE AND DIAGEO PROPERTY ENTRANCE.
2. PROVIDE TRAFFIC CONTROL SIGNS (ROAD WORK AHEAD, TEMPORARY LANE CLOSURE, AND END ROAD WORK) ALONG THE RIGHT LANE OF WASHINGTON BOULEVARD TO FACILITATE ACCESS TO THE WORK AREA.
3. INSTALL SEDIMENT CONTROL DEVICES AS REQUIRED.
4. CONSTRUCT 36–INCH WATER MAIN AND APPURTENANCES.
5. LIMIT LANE CLOSURES TO TIMES SPECIFIED UNDER THE GENERAL NOTES. AT THE END OF EACH WORKDAY, RESTORE TWO LANES OF TRAFFIC.

PHASE 4 – STATION 128+20 TO STATION 134+50 (APPROXIMATELY)

1. PHASE 4 TRAFFIC CONTROL WILL PROVIDE FOR THE INSTALLATION OF 36" WATER MAIN FROM STATION 128+20 TO STATION 134+50 AND THE INSTALLATION OF THE AIR RELEASE VAULT.
2. CONTRACTOR MUST MAINTAIN ACCESS AT ALL TIMES TO THE DIAGEO PARKING LOT. CONTRACTOR WILL ONLY BE PERMITTED TO CLOSE THE TWO ROWS OF PARKING SPACES DURING CONSTRUCTION.

WASHINGTON BOULEVARD (ROUTE 1) TRAFFIC CONTROL GENERAL NOTES

1. THE CONTRACTOR MUST CONTACT THE SHA DISTRICT 4 ENGINEER AT (410) 229–2300 TWO (2) WEEKS BEFORE CONSTRUCTION BEGINS AND ONE (1) WEEK PRIOR TO ANY CHANGES TO THE MAINTENANCE OF TRAFFIC (MOT) PLAN.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY, INSTALL AND MAINTAIN ALL TRAFFIC CONTROL EQUIPMENT FOR THE DURATION OF THE PROJECT.
3. THE CONTRACTOR SHALL HAVE ALL CONSTRUCTION SIGNS IN PLACE PRIOR TO ANY WORK BEGINNING.
4. ALL TRAFFIC CONTROL MUST BE IN ACCORDANCE WITH THE CURRENT EDITION AND REVISIONS OF THE FEDERAL HIGHWAY M.U.T.C.D., AND THE REQUIREMENTS OF BALTIMORE COUNTY.
5. AT LEAST ONE LANE MUST BE MAINTAINED AT ALL TIMES. LANE CLOSURES WILL NOT BE PERMITTED BETWEEN THE HOURS OF 7:00 AM AND 9:00 AM AND 3:30 PM AND 6:00 PM MONDAY THRU FRIDAY.
6. THE LOCATION OF THE CONSTRUCTION SIGNS AS SHOWN HEREON ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE CONTRACTOR SHALL COORDINATE SIGN INSTALLATION WITH THE INSPECTOR AND THE STATE HIGHWAY ADMINISTRATION.
7. IMMEDIATELY UPON COMPLETION OF RELATED WORK, REMOVE THE TRAFFIC CONTROL DEVICES.
8. COVER OR REMOVE ALL PERMANENT AND TEMPORARY SIGNS NOT IN USE.
9. AT THE END OF EACH WORK DAY, REMOVE TRAFFIC CHANNELING DEVICES. COVER OR REMOVE TEMPORARY SIGNS AND INSTALL STEEL PLATE COVERS OVER ALL OPEN EXCAVATIONS AND OPEN ROAD TO TRAFFIC.
10. STEEL PLATES FOR COVERING TRENCH EXCAVATIONS SHALL HAVE 1–INCH MINIMUM THICKNESS AND EXTEND 1–FOOT TO THE OUTSIDE OF THE EXCAVATION. THE PLACEMENT OF THE PLATES SHALL CONFORM TO TEMPORARY STEEL PLATE DETAIL SHOWN ON CIVIL DETAIL SHEETS. "STEEL PLATE AHEAD" WARNING SIGNAGE MUST BE DISPLAYED IN ADVANCE OF THE PLATE(S).
11. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL TEMPORARY REGULATORY SIGNS NECESSARY TO COMPLETE THIS PROJECT.
12. NO WORK ALONG PVSP ENTRANCE ROAD WILL BE PERMITTED BETWEEN THE HOURS OF 10AM AND 5PM (JUNE 01 THROUGH SEPT 15). ANY WORK DURING THESE SUMMER HOURS MUST BE ACCOMPLISHED DURING TRAFFIC HOURS.

MAINTENANCE OF TRAFFIC PATAPSCO VALLEY STATE PARK

PHASE 1 – STATION 0+25 TO STATION 6+00 (APPROXIMATELY)

1. PHASE 1 TRAFFIC CONTROL WILL PROVIDE FOR THE INSTALLATION OF WATER MAIN FROM STATION 0+25 (DO NOT MAKE THE CONNECTION) TO STATION 6+00, INCLUDING DEWATERING VAULT, VENTURI METER VAULT, AIR RELEASE VAULT, VALVE VAULTS, AND THE STEEL CASING UNDER THE CSX VIADUCT.
2. PLACE TRAFFIC CONTROL SIGNS (ROAD WORK AHEAD, ONE LANE ROAD AHEAD, FLAGMAN, AND END ROAD WORK) ALONG THE PARK ACCESS ROAD APPROACHING THE WORK AREA FROM EACH DIRECTION.
3. REMOVE GUARD RAIL ALONG THIS AREA AND SET UP TRAFFIC BARRELS TO ESTABLISH ONE LANE OF TRAFFIC.
4. PROVIDE FLAGMEN DURING ONE LANE OPERATION.
5. AT THE END OF EACH WORK DAY, PROVIDE STEEL PLATES AND REMOVE TRAFFIC BARRELS. RE–ESTABLISH TWO LANES OF TRAFFIC.
6. FROM APPROXIMATELY STATION 3+75 TO STATION 4+60, PROVIDE TEMPORARY PAVEMENT ALONG NORTH EDGE OF ROADWAY TO MAINTAIN A MINIMUM ONE LANE OF TRAFFIC. COST OF ADDITIONAL PAVEMENT SHALL BE INCLUDED IN THE TRAFFIC CONTROL BID ITEM.

PHASE 2 – STATION 6+00 TO STATION 7+60 (APPROXIMATELY)

1. PHASE 2 TRAFFIC CONTROL WILL PROVIDE FOR THE INSTALLATION OF WATER MAIN FROM STATION 6+00 TO STATION 7+60.
2. PROVIDE TRAFFIC CONTROL SIGNS (ROAD WORK AHEAD, ONE LANE ROAD AHEAD, FLAGMAN, AND END ROAD WORK) ALONG THE PARK ACCESS ROAD APPROACHING THE WORK AREA FROM EACH DIRECTION.
3. SET UP TRAFFIC BARRELS TO DIRECT TRAFFIC AROUND THE WORK AREA.
4. PROVIDE FLAGMEN DURING ONE LANE OPERATION.
5. AT THE END OF EACH WORK DAY, PROVIDE STEEL PLATES AND REMOVE TRAFFIC BARRELS. RE–ESTABLISH TWO LANES OF TRAFFIC.

PHASE 3 – STATION 7+60 TO STATION 15+50 (APPROXIMATELY)

1. PHASE 3 TRAFFIC CONTROL WILL PROVIDE FOR THE INSTALLATION OF WATER MAIN FROM STATION 7+60 TO STATION 15+50 AND THE RE–CONSTRUCTION OF THE ACCESS ROAD IN THIS AREA.
2. PROVIDE TRAFFIC CONTROL SIGNS (ROAD WORK AHEAD, ONE LANE ROAD AHEAD, FLAGMAN, AND END ROAD WORK) ALONG THE PARK ACCESS ROAD APPROACHING THE WORK AREA FROM EACH DIRECTION.
3. SET UP TRAFFIC BARRELS (AT STATION 7+50± AND STATION 14+00±).
4. PLACE SIGNS STATING TWO WAY TRAFFIC.
5. PROVIDE TEMPORARY PAVEMENT ALONG NORTH SIDE OF ROADWAY, IF NECESSARY, TO MAINTAIN SUFFICIENT WIDTH FOR TWO WAY TRAFFIC. THE COST OF THE ADDITIONAL PAVEMENT SHALL BE INCLUDED IN THE TRAFFIC CONTROL BID ITEM.

PHASE 4 – STATION 15+50 TO STATION 27+25 (APPROXIMATELY)

1. PHASE 4 TRAFFIC CONTROL WILL PROVIDE FOR INSTALLATION OF WATER MAINS FROM STATION 15+50 TO STATION 27+25 AND THE INSTALLATION OF AIR RELEASE VAULT.
2. PROVIDE TRAFFIC CONTROL SIGNS (ROAD WORK AHEAD, ONE LANE ROAD AHEAD, FLAGMAN, AND END ROAD WORK) ALONG THE PARK ACCESS ROAD APPROACHING THE WORK AREA FROM EACH DIRECTION.
3. SET UP TRAFFIC BARRELS TO MAINTAIN ONE LANE OF TRAFFIC THROUGH THE WORK AREA.
4. AT THE END OF EACH WORK DAY, PROVIDE STEEL PLATES AND REMOVE TRAFFIC BARRELS. RE–ESTABLISH TWO LANES OF TRAFFIC.
5. REMOVE GUARD RAIL AS NECESSARY FROM STATION 23+00 TO STATION 24+00. DURING INSTALLATION OF WATER MAIN.
6. PROVIDE FLAGMEN DURING ONE LANE OF OPERATION.
7. INSTALL NEW WEATHERPROOF GUARD RAIL IMMEDIATELY AFTER WATER MAIN CONSTRUCTION IS COMPLETE IN THIS AREA.

PHASE 5 – STATION 27+25 TO STATION 30+75 (APPROXIMATELY)

1. PHASE 5 TRAFFIC CONTROL WILL PROVIDE FOR INSTALLATION OF WATER MAINS FROM STATION 27+25 TO STATION 30+75.
2. PROVIDE TRAFFIC CONTROL SIGNS (ROAD WORK AHEAD, ONE LANE ROAD AHEAD, FLAGMAN, AND END ROAD WORK) ALONG THE PARK ACCESS ROAD APPROACHING THE WORK AREA FROM EACH DIRECTION.
3. SET UP TRAFFIC BARRELS TO MAINTAIN ONE LANE OF TRAFFIC THROUGH THE WORK AREA.
4. AT THE END OF EACH WORK DAY, PROVIDE STEEL PLATES AND REMOVE TRAFFIC BARRELS. RE–ESTABLISH TWO LANES OF TRAFFIC.
5. PROVIDE FLAGMEN DURING ONE LANE OF OPERATION.

PHASE 6 – STATION 31+90 (APPROXIMATELY)

1. PHASE 6 TRAFFIC CONTROL WILL PROVIDE FOR THE CONNECTION OF THE NEW WATER MAIN TO THE EXISTING 12–INCH MAIN.

BETWEEN MARCH 15 AND OCTOBER 15, THE CONTRACTOR SHALL HAVE THE OPTION TO ACCOMPLISH ALL CONSTRUCTION DURING OVERNIGHT HOURS BETWEEN 9 PM AND 8 AM WITHOUT THE USE OF FLAGMEN. IF THIS OPTION IS CHOOSEN BY TEH CONTRACTOR, HE MUST COORDINATE WITH THE LOCAL RESIDENTS THAT ARE REQUIRED TO USE THE ACCESS ROAD TO REACH THEIR HOMES.

PATAPSCO VALLEY STATE PARK TRAFFIC CONTROL GENERAL NOTES

1. THE CONTRACTOR MUST CONTACT THE PARK MANAGER (ROBIN MELTON) AT (410) 461–5005 TWO (2) WEEKS BEFORE CONSTRUCTION BEGINS AND ONE (1) WEEK PRIOR TO ANY CHANGES TO THE MAINTENANCE OF TRAFFIC (MOT) PLAN.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY, INSTALL AND MAINTAIN ALL TRAFFIC CONTROL EQUIPMENT FOR THE DURATION OF THE PROJECT.
3. THE CONTRACTOR SHALL HAVE ALL CONSTRUCTION SIGNS IN PLACE PRIOR TO ANY WORK BEGINNING.
4. ALL TRAFFIC CONTROL MUST BE IN ACCORDANCE WITH THE CURRENT EDITION AND REVISIONS OF THE FEDERAL HIGHWAY M.U.T.C.D., ADDITIONAL REQUIREMENTS OF BALTIMORE COUNTY, AND ADDITIONAL REQUIREMENTS OF THE PARK MANAGER.
5. AT NO TIME WILL THE CONTRACTOR BE PERMITTED TO DISRUPT TWO WAY TRAFFIC UNLESS FLAGMEN ARE PRESENT. WHEN FLAGMEN ARE PRESENT, ONE (1) 10' LANE MUST BE MAINTAINED.
6. THE LOCATION OF THE CONSTRUCTION SIGNS AS SHOWN HEREON ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE CONTRACTOR SHALL COORDINATE SIGN INSTALLATION WITH THE PARK MANAGER.
7. IMMEDIATELY UPON COMPLETION OF THE RELATED WORK, REMOVE THE TRAFFIC CONTROL DEVICES.
8. COVER OR REMOVE ALL PERMANENT AND TEMPORARY SIGNS NOT IN USE.
9. AT THE END OF EACH WORK DAY, REMOVE TRAFFIC CHANNELING DEVICES. COVER OR REMOVE TEMPORARY SIGNS AND INSTALL STEEL PLATE COVERS OVER ALL OPEN EXCAVATIONS AND OPEN ROAD TO TRAFFIC.
10. STEEL PLATES FOR COVERING TRENCH EXCAVATIONS SHALL HAVE 1–INCH MINIMUM THICKNESS AND EXTEND 1–FOOT TO THE OUTSIDE OF THE EXCAVATION. THE PLACEMENT OF THE PLATES SHALL CONFORM TO TEMPORARY STEEL PLATE DETAIL SHOWN ON CIVIL DETAIL SHEETS. "STEEL PLATE AHEAD" WARNING SIGNAGE MUST BE DISPLAYED IN ADVANCE OF THE PLATE(S).
11. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL TEMPORARY REGULATORY SIGNS NECESSARY TO COMPLETE THIS PROJECT.
12. NO WORK ALONG PARK ENTRANCE ROAD WILL BE PERMITTED BETWEEN THE HOURS OF 9AM AND 5PM (MARCH 15 THROUGH JUNE 01 AND SEPT. 01 THRU OCT. 30). ANY WORK DURING THESE TIME PERIODS MUST BE ACCOMPLISHED DURING LOW TRAFFIC HOURS AFTER THE PARK IS CLOSED.
13. AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL PROVIDE FOR THE RE–PAVEMENT OF ACCESS ROAD AS SHOWN ELSEWHERE ON THESE DRAWINGS. MAINTAIN ONE (1) LANE OF TRAFFIC AT ALL TIMES (WITH FLAGMEN) DURING PAVING OPERATIONS.
14. SEE DETAILS SHOWING TEMPORARY/PERMANENT PAVEMENT REPAIR REQUIRED ALONG THE PARK ACCESS ROADWAY.

CITY OF BALTIMORE

CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12

REVISION – CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE 3/8/12

CHIEF, WATER ENGINEERING SECTION — DATE 2/13/12

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 1/12/12

SEAL

STATE OF MARYLAND — SYAM B. NAYER — No. 37797 — PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB — DRAWN BY: JCD — CHKD BY: SBN

AS–BUILT PER RECORD PRINT — BY: — DATE:

DATE: 1–10–2012

REVISION	BY	DATE

P.W.A. NO. | KEY SHEET | POSITION SHT

R.O.W NO.

DRAWING SCALE: PLAN SCALE: AS NOTED; PROFILE SCALE: AS NOTED / AS NOTED

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RBF		[illegible]	GAK	mfm	JDP
DATE REVIEWED:		1/23/12		1/27/12	1/20/12	1/20/12	1/23/12

DEPARTMENT OF PUBLIC WORKS

APPROVED: [signature] DIRECTOR — DATE: 1-24-12

APPROVED: [signature] CHIEF — DATE: 1/26/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
TRAFFIC CONTROL GENERAL NOTES

SUBDIVISION: ST. DENIS

ELECTION DISTRICT: 13

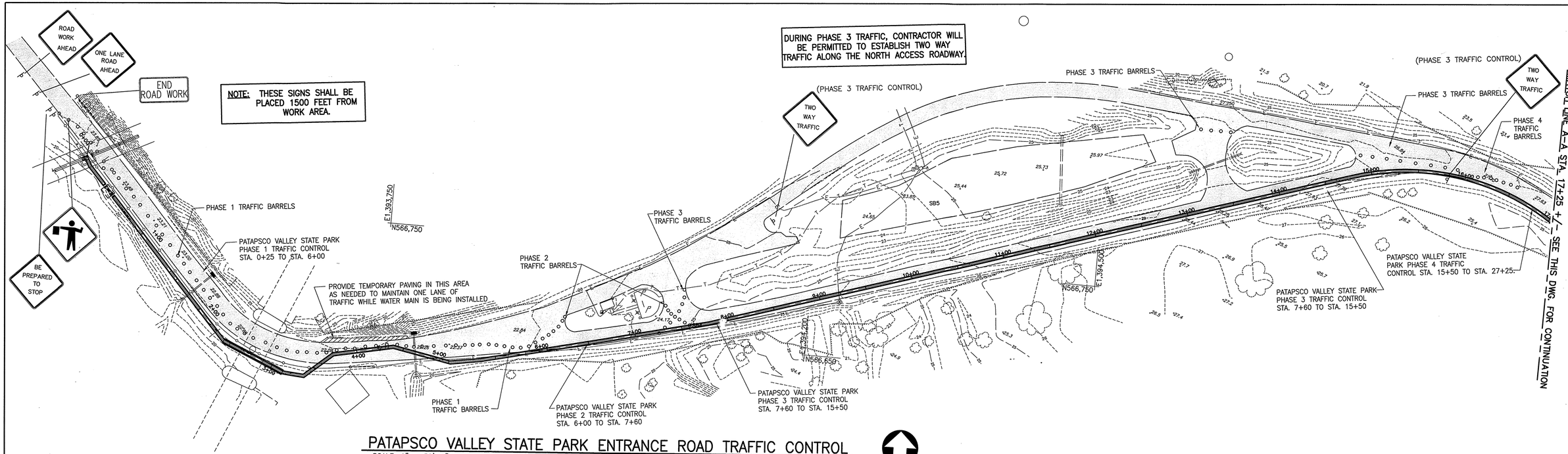
HOWARD CO. PROJECT NO. W–8276

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

DWG FILENAME:

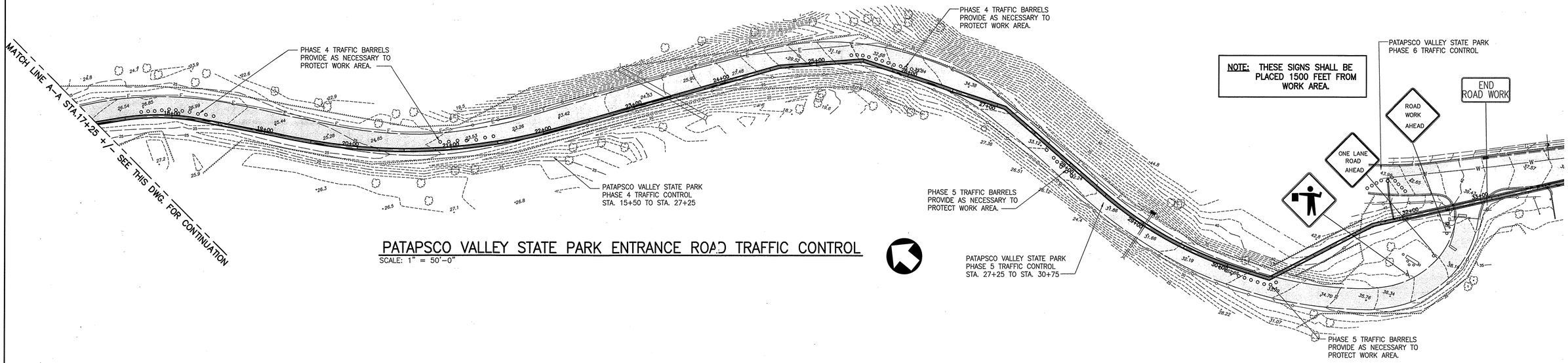
SHEET DESIGNATION	CONTRACT NO.
TC–1	44–4618
	JOB ORDER NO. 203–0067–0281
	SHEET 28 OF 36
	DRAWING NO. 2009–3377
	FILE NO.

BALTIMORE COUNTY MARYLAND



PATAPSCO VALLEY STATE PARK ENTRANCE ROAD TRAFFIC CONTROL

SCALE: 1" = 50'-0"



PATAPSCO VALLEY STATE PARK ENTRANCE ROAD TRAFFIC CONTROL

SCALE: 1" = 50'-0"

HOWARD CO. PROJECT NO. W-8276

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE CHIEF, WATER ENGINEERING SECTION — DATE	DIRECTOR, DEPT OF PUBLIC WORKS — DATE 1/12/12

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB
AS-BUILT PER RECORD PRINT — DRAWN BY: JCD
BY: — CHKD BY: SBN
DATE: 1-10-2012 — DATE REVIEWED:

REVISION	BY	DATE

P.W.A. NO. —
R.O.W NO. —
KEY SHEET —
POSITION SHT —

DRAWING SCALE
PLAN SCALE: AS NOTED
PROFILE SCALE: AS NOTED

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		GAK		JDP	
DATE REVIEWED:		1/23/12		1/20/12	1/20/12	1/23/12	

DEPARTMENT OF PUBLIC WORKS
APPROVED BY: [signature] DIRECTOR
DATE: 1-24-12
BUR. OF ENGINEERING & CONSTRUCTION
APPROVED BY: [signature] CHIEF
DATE: 1/24/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

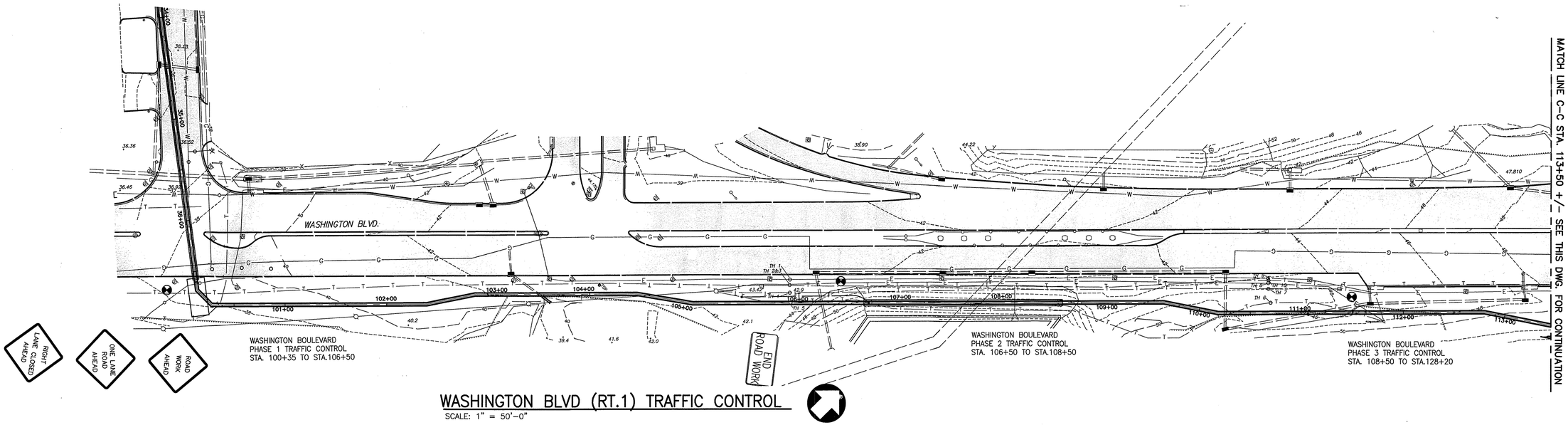
SOUTHWEST TRANSMISSION MAIN
PATAPSCO VALLEY STATE PARK ENTRANCE ROAD TRAFFIC CONTROL

SUBDIVISION: ST. DENIS — ELECTION DISTRICT: 13

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

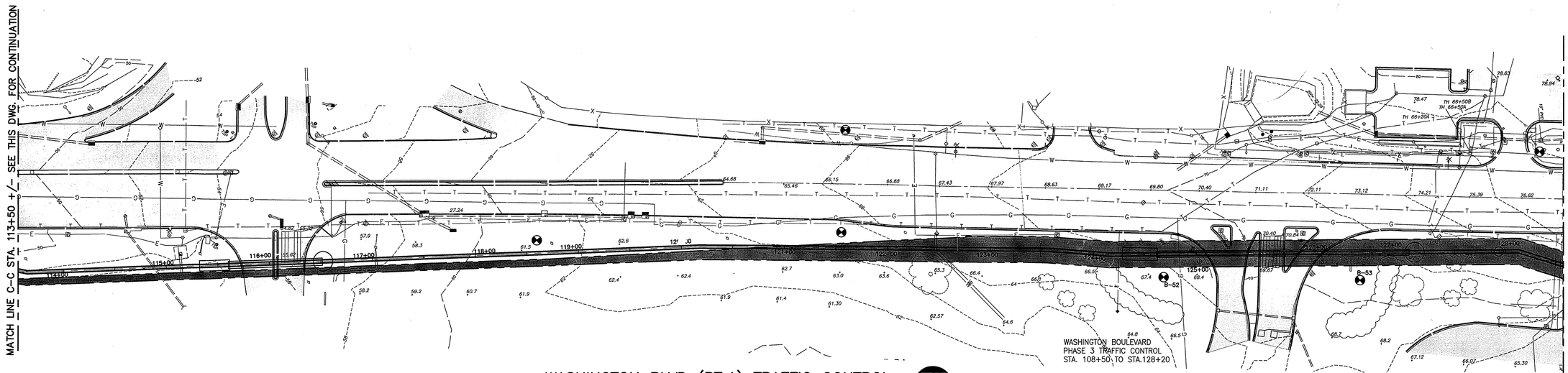
SHEET DESIGNATION	CONTRACT NO.
TC-2	44-4618
	JOB ORDER NO. 203-0067-0281
	SHEET 29 OF 36
	DRAWING NO. 2009-3378
	FILE NO.

DWG FILENAME:



WASHINGTON BLVD (RT.1) TRAFFIC CONTROL

SCALE: 1" = 50'-0"



WASHINGTON BLVD (RT.1) TRAFFIC CONTROL

SCALE: 1" = 50'-0"

HOWARD CO. PROJECT NO. W-8276

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE CHIEF, WATER ENGINEERING SECTION — DATE	DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 1/24/12

SEAL: STATE OF MARYLAND — SYAM B. NAYER — No. 37797 — PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37797 EXPIRATION DATE AUGUST 9, 2013

ENGINEER: SYAM B. NAYER — DESIGN BY: BBB — DRAWN BY: JCD — CHKD BY: SBN

AS-BUILT PER RECORD PRINT — BY: — DATE:

DATE: 1-26-2012

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		MJE	GAK	mjm	JDP
DATE REVIEWED:		11/23/12		11/27/12	1/20/12	1/20/12	1/23/12

DRAWING SCALE

PLAN SCALE:	AS NOTED
PROFILE SCALE:	AS NOTED AS NOTED

DEPARTMENT OF PUBLIC WORKS

APPROVED BY: _____ DIRECTOR

DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION

APPROVED BY: _____ CHIEF

DATE: 1/24/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
TRAFFIC CONTROL PLAN 2 – STA. 100+00.00 TO 128+20

SUBDIVISION: ST. DENIS

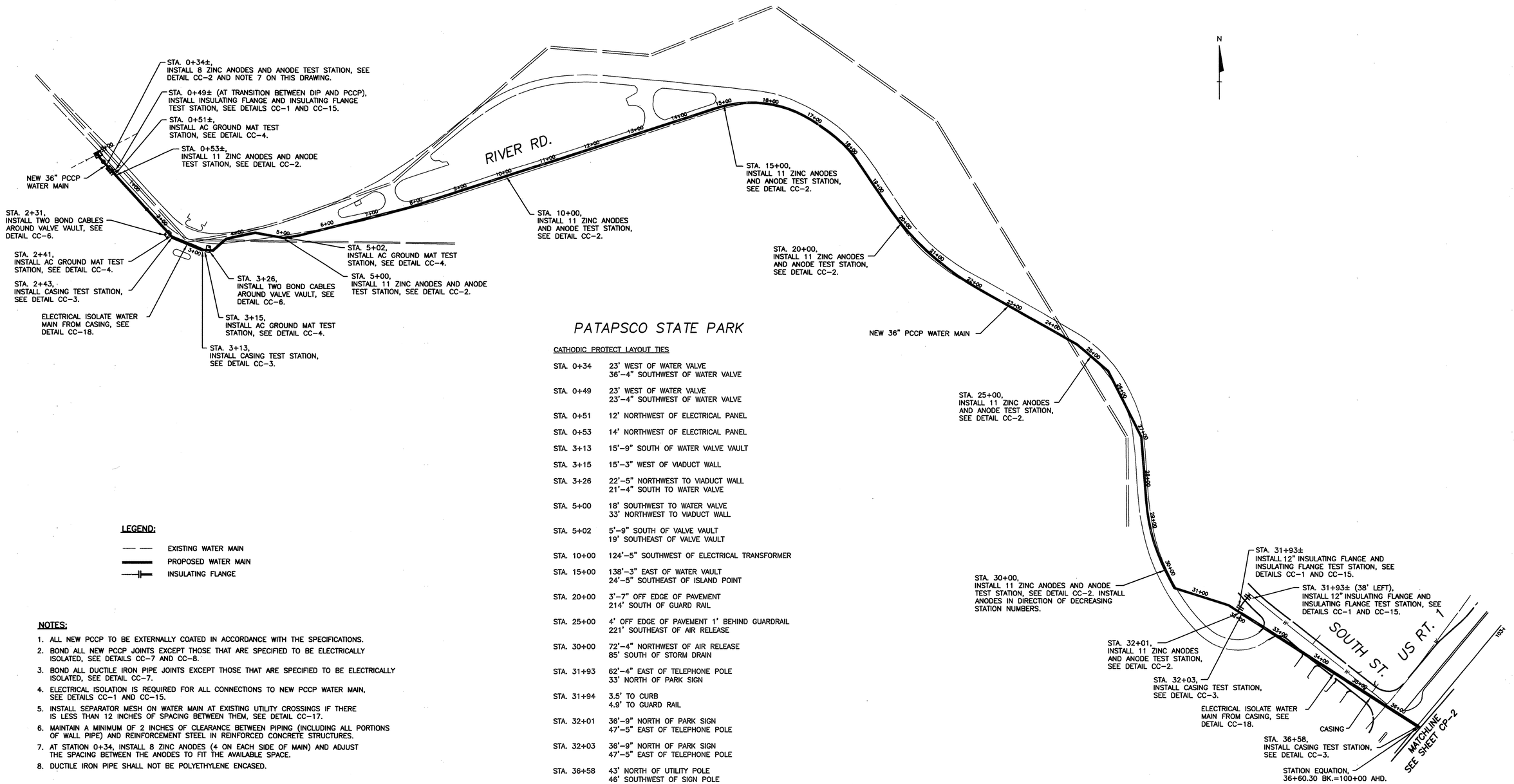
ELECTION DISTRICT: 13

Hatch Mott MacDonald
11019 McCormick Road, Suite 260
Hunt Valley, Maryland 21031

SHEET DESIGNATION	CONTRACT NO.
TC-3	44-4618
	JOB ORDER NO. 203-0067-0281
	SHEET 30 OF 36
	DRAWING NO. 2009-3379
	FILE NO.

BALTIMORE COUNTY MARYLAND

DWG FILENAME:



PATAPSCO STATE PARK

CATHODIC PROTECT LAYOUT TIES

STA. 0+34	23' WEST OF WATER VALVE 36'-4" SOUTHWEST OF WATER VALVE
STA. 0+49	23' WEST OF WATER VALVE 23'-4" SOUTHWEST OF WATER VALVE
STA. 0+51	12' NORTHWEST OF ELECTRICAL PANEL
STA. 0+53	14' NORTHWEST OF ELECTRICAL PANEL
STA. 3+13	15'-9" SOUTH OF WATER VALVE VAULT
STA. 3+15	15'-3" WEST OF VIADUCT WALL
STA. 3+26	22'-5" NORTHWEST TO VIADUCT WALL 21'-4" SOUTH TO WATER VALVE
STA. 5+00	18' SOUTHWEST TO WATER VALVE 33' NORTHWEST TO VIADUCT WALL
STA. 5+02	5'-9" SOUTH OF VALVE VAULT 19' SOUTHEAST OF VALVE VAULT
STA. 10+00	124'-5" SOUTHWEST OF ELECTRICAL TRANSFORMER
STA. 15+00	138'-3" EAST OF WATER VAULT 24'-5" SOUTHEAST OF ISLAND POINT
STA. 20+00	3'-7" OFF EDGE OF PAVEMENT 214' SOUTH OF GUARD RAIL
STA. 25+00	4' OFF EDGE OF PAVEMENT 1' BEHIND GUARDRAIL 221' SOUTHEAST OF AIR RELEASE
STA. 30+00	72'-4" NORTHWEST OF AIR RELEASE 85' SOUTH OF STORM DRAIN
STA. 31+93	62'-4" EAST OF TELEPHONE POLE 33' NORTH OF PARK SIGN
STA. 31+94	3.5' TO CURB 4.9' TO GUARD RAIL
STA. 32+01	36'-9" NORTH OF PARK SIGN 47'-5" EAST OF TELEPHONE POLE
STA. 32+03	36'-9" NORTH OF PARK SIGN 47'-5" EAST OF TELEPHONE POLE
STA. 36+58	43' NORTH OF UTILITY POLE 46' SOUTHWEST OF SIGN POLE

LEGEND:

- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- INSULATING FLANGE

NOTES:

1. ALL NEW PCCP TO BE EXTERNALLY COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
2. BOND ALL NEW PCCP JOINTS EXCEPT THOSE THAT ARE SPECIFIED TO BE ELECTRICALLY ISOLATED, SEE DETAILS CC-7 AND CC-8.
3. BOND ALL DUCTILE IRON PIPE JOINTS EXCEPT THOSE THAT ARE SPECIFIED TO BE ELECTRICALLY ISOLATED, SEE DETAIL CC-7.
4. ELECTRICAL ISOLATION IS REQUIRED FOR ALL CONNECTIONS TO NEW PCCP WATER MAIN, SEE DETAILS CC-1 AND CC-15.
5. INSTALL SEPARATOR MESH ON WATER MAIN AT EXISTING UTILITY CROSSINGS IF THERE IS LESS THAN 12 INCHES OF SPACING BETWEEN THEM, SEE DETAIL CC-17.
6. MAINTAIN A MINIMUM OF 2 INCHES OF CLEARANCE BETWEEN PIPING (INCLUDING ALL PORTIONS OF WALL PIPE) AND REINFORCEMENT STEEL IN REINFORCED CONCRETE STRUCTURES.
7. AT STATION 0+34, INSTALL 8 ZINC ANODES (4 ON EACH SIDE OF MAIN) AND ADJUST THE SPACING BETWEEN THE ANODES TO FIT THE AVAILABLE SPACE.
8. DUCTILE IRON PIPE SHALL NOT BE POLYETHYLENE ENCASED.

CORROSION CONTROL LAYOUT

Scale: 1" = 100'

CITY OF BALTIMORE	REVISION - CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE CHIEF, WATER ENGINEERING SECTION — DATE	DIRECTOR, DEPT. OF PUBLIC WORKS — DATE

SEAL — STATE OF MARYLAND — MICHAEL J. SZELIGA — No. 17083 — PROFESSIONAL ENGINEER — DATE : 1/19/2012

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 17083, EXPIRATION DATE 9/27/2012

ENGINEER: MICHAEL J. SZELIGA — RUSSELL CORROSION CONSULTANTS, INC.
AS-BUILT PER RECORD PRINT
BY: DATE:

DESIGN BY: MJS — DRAWN BY: DJD — CHKD BY: MJS

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF			GAK	MJM	JDP
DATE REVIEWED:		11/23/12		11/23/12	1/20/12	1/20/12	1/28/12

DRAWING SCALE: PLAN SCALE: AS NOTED; PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED: Steven C. Walsh DIRECTOR
DATE: 1-24-12
BUR. OF ENGINEERING & CONSTRUCTION
APPROVED: Steven A. Walsh
DATE: 1/24/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
CATHODIC PROTECTION LAYOUT (STA. 0+00 TO STA. 36+60.30)

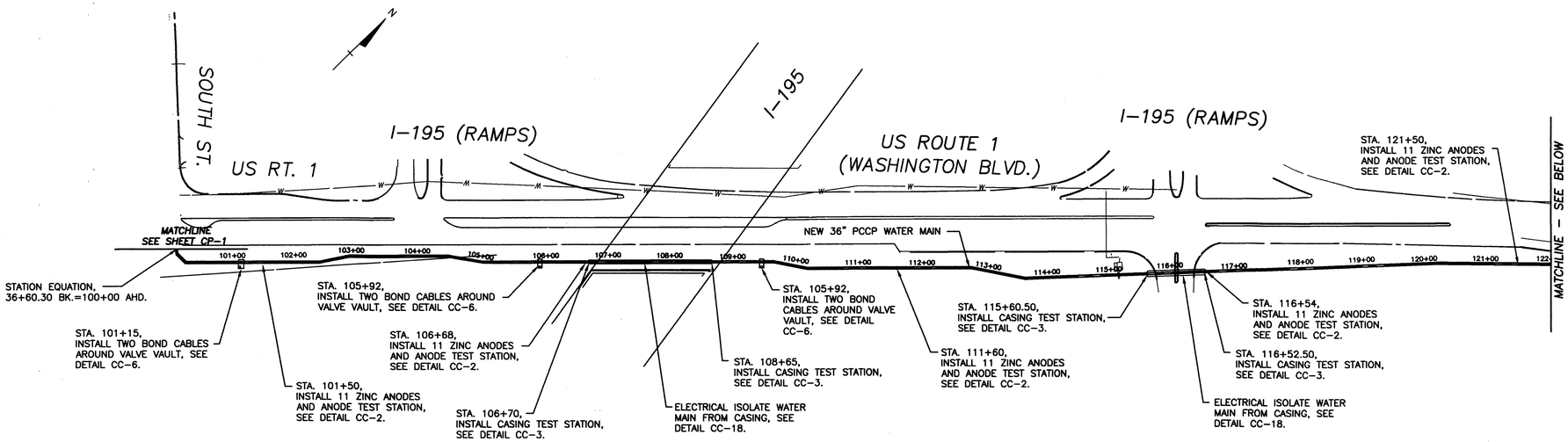
SUBDIVISION: ST. DENIS — ELECTION DIST. NO.: 13

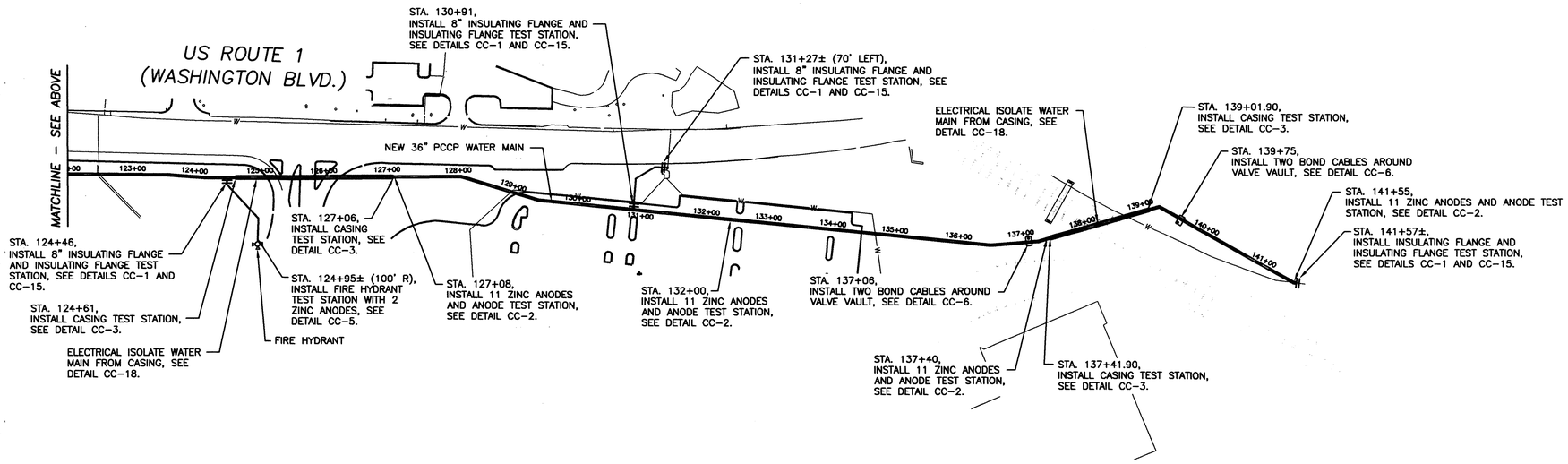
RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

SHEET DESIGNATION	CONTRACT NUMBER
CP-1	44-4618
JOB ORDER NUMBER	203-0067-0281
SHEET 31 OF 36	
DRAWING NUMBER	2009-3380
FILE NO.:	

BALTIMORE COUNTY MARYLAND

DWG. FILENAME:





CORROSION CONTROL LAYOUT

Scale: 1" = 100'

LEGEND:

- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- INSULATING FLANGE

NOTES:

1. ALL NEW PCCP TO BE EXTERNALLY COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
2. BOND ALL NEW PCCP JOINTS EXCEPT THOSE THAT ARE SPECIFIED TO BE ELECTRICALLY ISOLATED, SEE DETAILS CC-7 AND CC-8.
3. BOND ALL DUCTILE IRON PIPE JOINTS EXCEPT THOSE THAT ARE SPECIFIED TO BE ELECTRICALLY ISOLATED, SEE DETAIL CC-7.
4. ELECTRICAL ISOLATION IS REQUIRED FOR ALL CONNECTIONS TO NEW PCCP WATER MAIN, SEE DETAILS CC-1 AND CC-15.
5. INSTALL SEPARATOR MESH ON WATER MAIN AT EXISTING UTILITY CROSSINGS IF THERE IS LESS THAN 12 INCHES OF SPACING BETWEEN THEM, SEE DETAIL CC-17.
6. MAINTAIN A MINIMUM OF 2 INCHES OF CLEARANCE BETWEEN PIPING (INCLUDING ALL PORTIONS OF WALL PIPE) AND REINFORCEMENT STEEL IN REINFORCED CONCRETE STRUCTURES.
7. DUCTILE IRON PIPE SHALL NOT BE POLYETHYLENE ENCASED.

CATHODIC PROTECT LAYOUT TIES

STA. 101+15	38' SOUTHWEST OF UTILITY POLE 86' EAST OF SIGN POLE
STA. 105+70	52'-4" NORTHEAST OF VALVE 78' SOUTHEAST OF UTILITY POLE
STA. 105+92	37'-5" NORTHEAST OF VALVE 82'-5" WEST OF UTILITY POLE
STA. 106+70	75' SOUTHEAST OF SHA CONDUIT
STA. 111+60	138'-4" NORTHEAST OF VALVE 24'-5" EAST OF UTILITY POLE
STA. 115+60	41' SOUTH OF HYDRANT
STA. 116+52	59'-5" SOUTHWEST OF UTILITY POLE
STA. 116+54	53' SOUTHEAST OF SIGNAL POLE
STA. 121+50	89'-6" TO POLE #93032 89' TO POLE #157769
STA. 124+46 (HYDRANT)	3' TO HYDRANT 93' TO POLE
STA. 124+46 (6" VALVE)	4'-5" TO VALVE 46' TO POLE
STA. 124+51	75' TO POLE 48'-5" TO POLE
STA. 127+06	68'-5" TO POLE 10' TO SIGN
STA. 127+08	68' TO POLE 11' TO SIGN
STA. 130+91	6'-9" TO VALVE 19' TO ISLAND
STA. 132+00	47' TO ISLAND LEFT 44'-4" TO ISLAND RIGHT
STA. 137+40	43' TO RAIL LIGHT POLE 5'-4" TO FENCE
STA. 137+41	33'-7" TO RAIL LIGHT POLE 37' TO FENCE
STA. 139+01	28'-6" TO TRACK 150' TO VALVE VAULT
STA. 141+55	97' TO VALVE VAULT 32' TO VAULT
STA. 141+57	114' TO VAULT 17' TO VAULT

CITY OF BALTIMORE	REVISION - CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12	CHIEF, UTILITY ENGINEERING — DATE CHIEF, WATER ENGINEERING SECTION — DATE	DIRECTOR, DEPT. OF PUBLIC WORKS — DATE

SEAL — STATE OF MARYLAND — MICHAEL J. SZELIGA — No. 17083 — PROFESSIONAL ENGINEER

DATE : 1/19/2012

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 17083 EXPIRATION DATE 9/27/2012

ENGINEER: MICHAEL J. SZELIGA
RUSSELL CORROSION CONSULTANTS, INC.
AS-BUILT PER RECORD PRINT
BY:
DATE:

DESIGN BY: MJS
DRAWN BY: DJD
CHKD BY: MJS

REVISION	BY	DATE

P.W.A. NO.
R.O.W NO.

KEY SHEET
POSITION SHT

DRAWING SCALE
PLAN SCALE: AS NOTED
PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED: DIRECTOR
DATE: 1-24-12

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		GAK	GAK	MJM	JDP
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/20/12	1/23/12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED:
DATE: 1/24/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
CATHODIC PROTECTION LAYOUT (STA. 100+00 TO STA. 141+60±)

SUBDIVISION: ST. DENIS

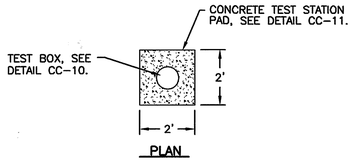
ELECTION DIST. NO.: 13

RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

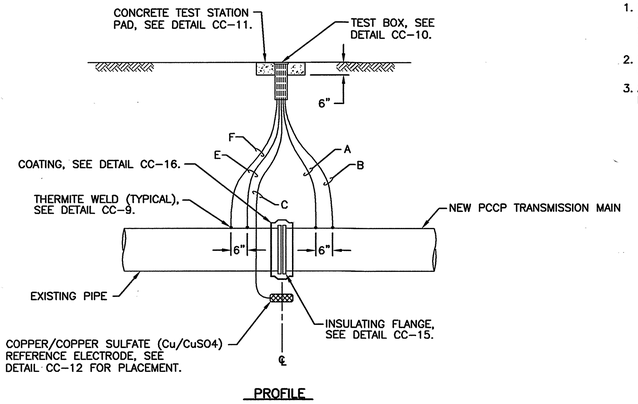
SHEET DESIGNATION	CONTRACT NUMBER
CP-2	44-4618
JOB ORDER NUMBER	203-0067-0281
SHEET 32 OF 36	
DRAWING NUMBER	2009-3381
FILE NO.:	

BALTIMORE COUNTY MARYLAND

DWG. FILENAME:



PLAN



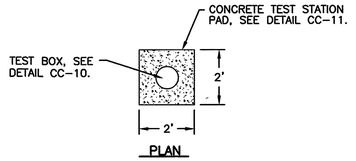
PROFILE

WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW TRANSMISSION MAIN	A B	1 3	#8 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
EXISTING PIPE	E F	2 5	#8 #10	THWN THWN	WHITE WHITE

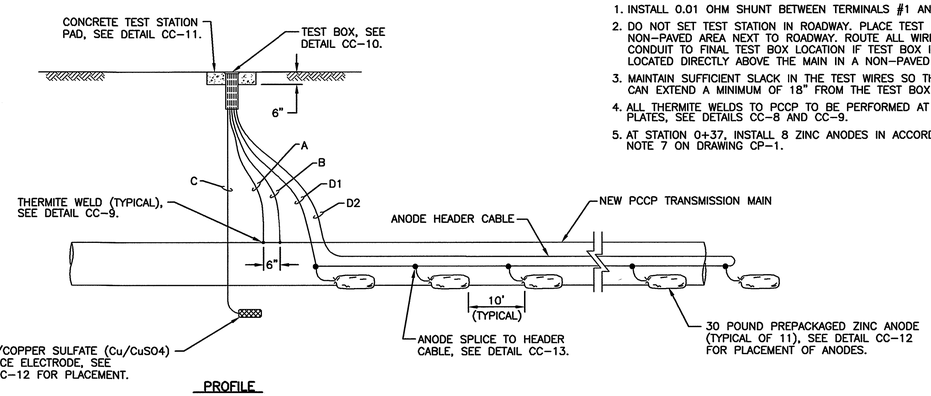
NOTES:

1. DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX IN NON-PAVED AREA NEXT TO ROADWAY. ROUTE ALL WIRES IN PVC CONDUIT TO FINAL TEST BOX LOCATION IF TEST BOX IS NOT LOCATED DIRECTLY ABOVE THE MAIN IN A NON-PAVED AREA.
2. MAINTAIN SUFFICIENT SLACK IN THE TEST WIRES SO THAT THE WIRES CAN EXTEND A MINIMUM OF 18" FROM THE TEST BOX.
3. ALL THERMITE WELDS TO PCCP TO BE PERFORMED AT STEEL BONDING PLATES, SEE DETAILS CC-8 AND CC-9.

CC-1: INSULATING FLANGE TEST STATION



PLAN



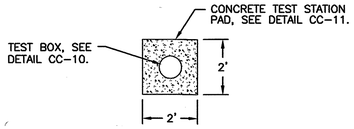
PROFILE

WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE INSULATION	COLOR INSULATION
NEW TRANSMISSION MAIN	A B	1 3	#8 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
ANODE HEADER CABLE	D1 D2	4 7	#8 #8	HMWPE HMWPE	BLACK BLACK

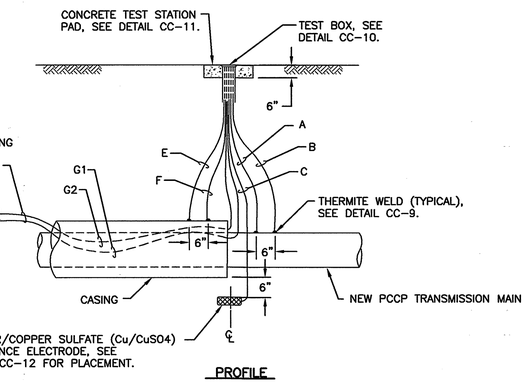
NOTES:

1. INSTALL 0.01 OHM SHUNT BETWEEN TERMINALS #1 AND #4.
2. DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX IN NON-PAVED AREA NEXT TO ROADWAY. ROUTE ALL WIRES IN PVC CONDUIT TO FINAL TEST BOX LOCATION IF TEST BOX IS NOT LOCATED DIRECTLY ABOVE THE MAIN IN A NON-PAVED AREA.
3. MAINTAIN SUFFICIENT SLACK IN THE TEST WIRES SO THAT THE WIRES CAN EXTEND A MINIMUM OF 18" FROM THE TEST BOX.
4. ALL THERMITE WELDS TO PCCP TO BE PERFORMED AT STEEL BONDING PLATES, SEE DETAILS CC-8 AND CC-9.
5. AT STATION 0+37, INSTALL 8 ZINC ANODES IN ACCORDANCE WITH NOTE 7 ON DRAWING CP-1.

CC-2: ANODE TEST STATION



PLAN



PROFILE

WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW TRANSMISSION MAIN	A B	1 3	#8 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
CASING PIPE	E F	2 5	#8 #10	THWN THWN	WHITE WHITE
ADJACENT CASING TEST STATION	G1 G2	7 7	#8 #10	THWN THWN	RED RED

NOTES:

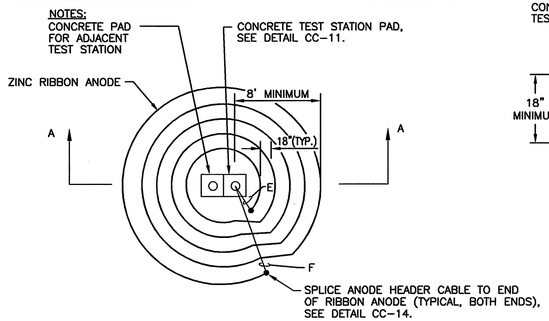
1. DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX IN NON-PAVED AREA NEXT TO ROADWAY. ROUTE ALL WIRES IN PVC CONDUIT TO FINAL TEST BOX LOCATION IF TEST BOX IS NOT LOCATED DIRECTLY ABOVE THE MAIN IN A NON-PAVED AREA.
2. MAINTAIN SUFFICIENT SLACK IN THE TEST WIRES SO THAT THE WIRES CAN EXTEND A MINIMUM OF 18" FROM THE TEST BOX.
3. ALL THERMITE WELDS TO PCCP TO BE PERFORMED AT STEEL BONDING PLATES, SEE DETAILS CC-8 AND CC-9.

CC-3: CASING TEST STATION

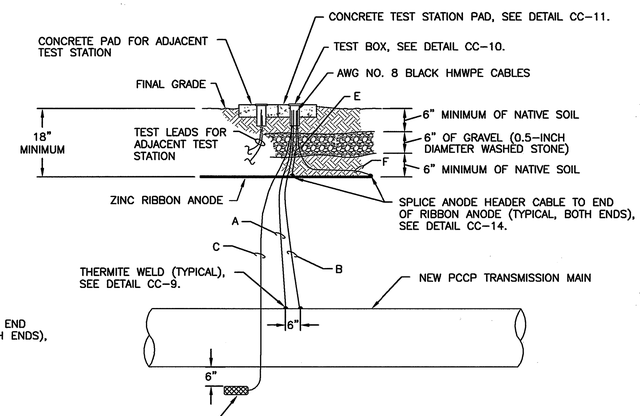
WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE OF INSULATION	COLOR OF INSULATION
NEW TRANSMISSION MAIN	A B	1 3	#8 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
ZINC RIBBON ANODE	E F	4 5	#8 #8	HMWPE HMWPE	BLACK BLACK

NOTES:

1. INSTALL 0.01 OHM SHUNT BETWEEN TERMINALS #1 AND #4.
2. DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX IN NON-PAVED AREA NEXT TO ROADWAY. ROUTE ALL WIRES IN PVC CONDUIT TO FINAL TEST BOX LOCATION IF TEST BOX IS NOT LOCATED DIRECTLY ABOVE THE MAIN IN A NON-PAVED AREA.
3. MAINTAIN SUFFICIENT SLACK IN THE TEST WIRES SO THAT THE WIRES CAN EXTEND A MINIMUM OF 18" FROM THE TEST BOX.
4. ALL THERMITE WELDS TO PCCP TO BE PERFORMED AT STEEL BONDING PLATES, SEE DETAILS CC-8 AND CC-9.



PLAN



SECTION "A-A"

CC-4: AC GROUND MAT TEST STATION

NOT TO SCALE

THIS DRAWING IS NOT APPLICABLE FOR USE AS STANDARD CORROSION CONTROL PROCEDURES FOR OTHER PROJECTS DUE TO VARIABLE CONDITIONS AT OTHER SITES. NEITHER THIS DESIGN NOR ANY PART THEREOF MAY BE DUPLICATED IN ANY WAY FOR OTHER PROJECTS OR MODIFIED IN ANY WAY FOR THIS OR OTHER PROJECTS, EXCEPT BY WRITTEN AGREEMENT WITH RUSSELL CORROSION CONSULTANTS, INC.

CITY OF BALTIMORE

CHIEF, WATER & WASTEWATER ENG. DIV. — DATE 3/15/12
BUREAU OF WATER AND WASTEWATER

REVISION - CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE
CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR, DEPT. OF PUBLIC WORKS — DATE

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 17083 EXPIRATION DATE 9/27/2012

DATE : 1/19/2012

ENGINEER: MICHAEL J. SZELIGA
RUSSELL CORROSION CONSULTANTS, INC.
AS-BUILT PER RECORD PRINT
BY:
DATE:

DESIGN BY: MJS
DRAWN BY: DJD
CHKD BY: MJS

REVISION

BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
		R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		MJS	GAK	MJS	JDP
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/20/12	1/23/12

DRAWING SCALE

PLAN SCALE: AS NOTED
PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS

APPROVED BY: DIRECTOR
DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION

APPROVED: CHIEF
DATE: 1/24/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN CATHODIC PROTECTION DETAILS - 1

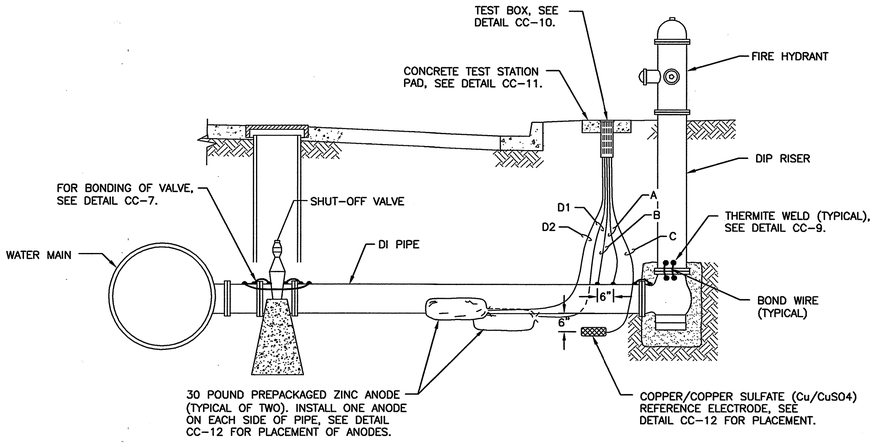
SUBDIVISION: ST. DENIS

ELECTION DIST. NO.: 13

RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

SHEET DESIGNATION	CONTRACT NUMBER
CP-3	44-4618
JOB ORDER NUMBER	203-0067-0281
SHEET 33 OF 36	DRAWING NUMBER 2009-3382
FILE NO.:	

DWG. FILENAME:

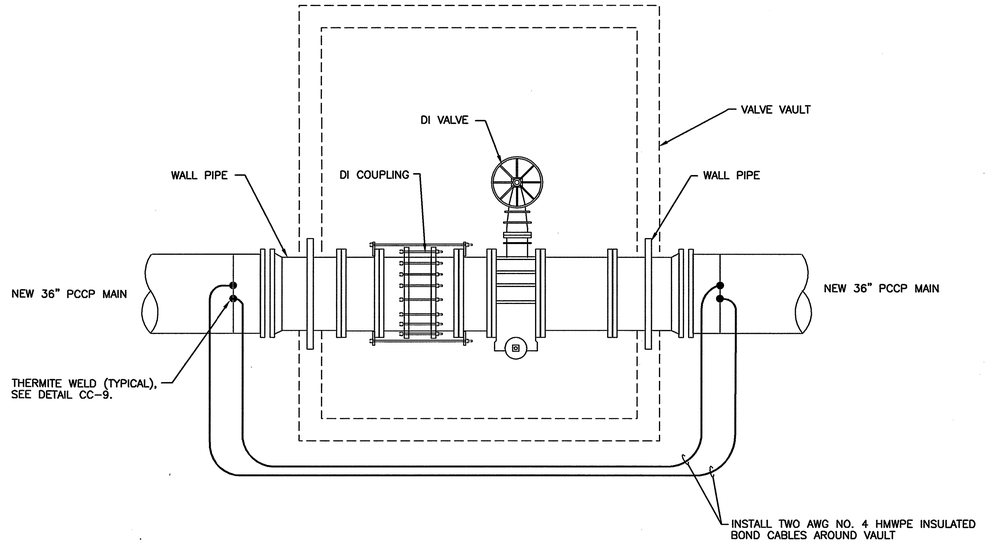


WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE INSULATION	COLOR INSULATION
NEW TRANSMISSION MAIN	A B	1 3	#8 #10	THWN THWN	BLUE BLUE
PERMANENT REFERENCE ELECTRODE	C	6	#14	HMWPE	BLACK
PREPACKAGED ZINC ANODE	D1 D2	4 4	#12 #12	TW TW	BLACK BLACK

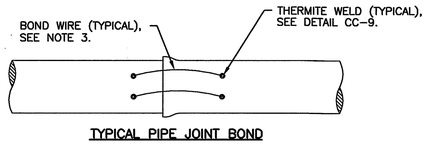
NOTES:

1. INSTALL 0.01 OHM SHUNT BETWEEN TERMINALS #1 AND #4.
2. MAINTAIN SUFFICIENT SLACK IN THE TEST WIRES SO THAT THE WIRES CAN EXTEND A MINIMUM OF 18 INCHES FROM THE TEST BOX.
3. BOND ALL DUCTILE IRON COMPONENTS TOGETHER WITH AWG NO. 6 HMWPE WIRES.
4. INSTALL BOND WIRES ON TOP OF PIPE OR FITTING WHERE POSSIBLE.
5. INSTALL A MINIMUM OF TWO BOND CABLES ACROSS EACH PIPE JOINT.
6. SEE DETAIL CC-7 FOR BONDING OF VALVE.
7. BOND ALL HYDRANT PIPING ASSOCIATED WITH THE WATER MAIN.
8. INSTALL BOND CABLES ON HYDRANT RISER PIPE AND RISER ELBOW BEFORE INSTALLING RISER PIPE IN EXCAVATION.

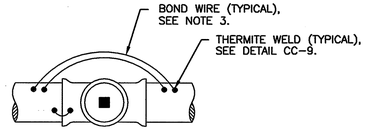
CC-5: FIRE HYDRANT TEST STATION WITH ANODES



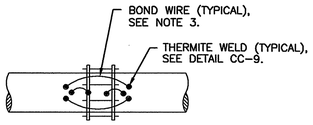
CC-6: BONDING AROUND VALVE VAULT



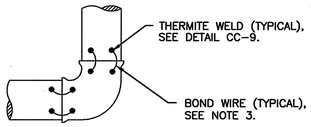
TYPICAL PIPE JOINT BOND



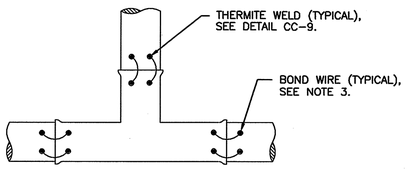
TYPICAL VALVE JOINT BOND



TYPICAL MECHANICAL COUPLING JOINT BOND



TYPICAL BEND, REDUCER, SOLID SLEEVE JOINT BOND



TYPICAL TEE JOINT BOND

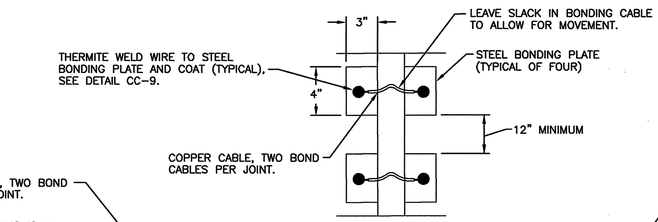
NOTES:

1. ALL DUCTILE IRON AND PRESTRESSED CONCRETE PIPE JOINTS THAT ARE NOT SPECIFIED WITH INSULATING FLANGES SHALL BE BONDED.
2. THERMITE WELD BONDING WIRES TO TOP OF PIPE OR FITTINGS.
3. WIRE SIZE FOR BONDING JOINTS SHALL BE AS FOLLOWS:

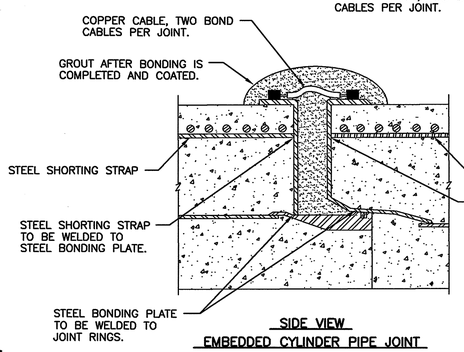
PIPE SIZE	WIRE SIZE
LARGER THAN 36"	AWG NO. 2 HMWPE
16" TO 36"	AWG NO. 4 HMWPE
SMALLER THAN 16"	AWG NO. 6 HMWPE

4. ALL THERMITE WELDS TO PCCP TO BE PERFORMED AT STEEL BONDING PLATES, SEE DETAILS CC-8 AND CC-9.

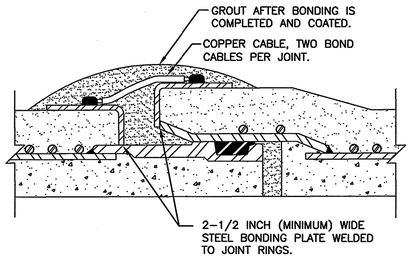
CC-7: JOINT BONDING



TOP VIEW



SIDE VIEW
EMBEDDED CYLINDER PIPE JOINT



SIDE VIEW
LINED CYLINDER PIPE JOINT

NOTES:

1. TWO STEEL SHORTING STRAPS REQUIRED PER PIPE SECTION FOR EMBEDDED CYLINDER PIPE. NO SHORTING STRAPS REQUIRED FOR LINED CYLINDER PIPE.
2. STEEL BONDING PLATES AND STEEL SHORTING STRAPS (IF REQUIRED) TO BE INSTALLED BY PIPE MANUFACTURER DURING PIPE FABRICATION.
3. BOND ALL PIPE JOINTS, INCLUDING THOSE ON PIPE, FITTINGS, VALVES, ETC., EXCEPT THOSE SPECIFIED TO BE INSULATED.
4. WIRE SIZE FOR BONDING JOINTS SHALL BE AS FOLLOWS:

PIPE SIZE	WIRE SIZE
LARGER THAN 36"	AWG NO. 2 HMWPE
16" TO 36"	AWG NO. 4 HMWPE
SMALLER THAN 16"	AWG NO. 6 HMWPE

CC-8: PCCP JOINT BONDING

CITY OF BALTIMORE

CHIEF, WATER & WASTEWATER ENG. DIV. — DATE 3/15/12
BUREAU OF WATER AND WASTEWATER

REVISION - CITY OF BALTIMORE

CHIEF, UTILITY ENGINEERING — DATE
CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR, DEPT. OF PUBLIC WORKS — DATE

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 17083 EXPIRATION DATE 9/27/2012

ENGINEER: MICHAEL J. SZELIGA
RUSSELL CORROSION CONSULTANTS, INC.
AS-BUILT PER RECORD PRINT
BY:
DATE:

DESIGN BY: MJS
DRAWN BY: DJD
CHKD BY: MJS

DATE : 1/19/2012

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

DRAWING SCALE
PLAN SCALE: AS NOTED
PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS
APPROVED: [signature] DIRECTOR
DATE: 1-24-12

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF			GAK	MJM	JDP
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/20/12	1/23/12

BUR. OF ENGINEERING & CONSTRUCTION
APPROVED: [signature] CHIEF
DATE: 1/24/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
CATHODIC PROTECTION DETAILS - 2

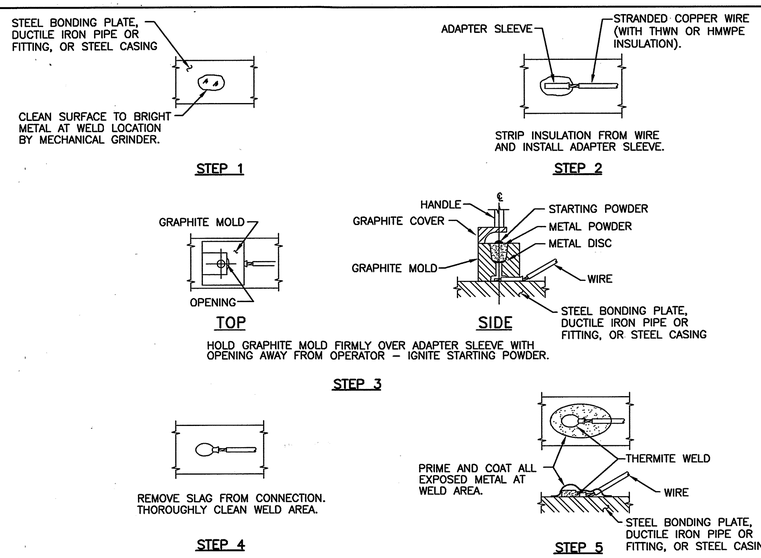
SUBDIVISION: ST. DENIS

ELECTION DIST. NO.: 13

RUSSELL CORROSION CONSULTANTS, INC.
Columbia, Maryland

SHEET DESIGNATION	CONTRACT NUMBER
CP-4	44-4618
JOB ORDER NUMBER	203-0067-0281
SHEET 34 OF 36	
DRAWING NUMBER	2009-3383
FILE NO.:	

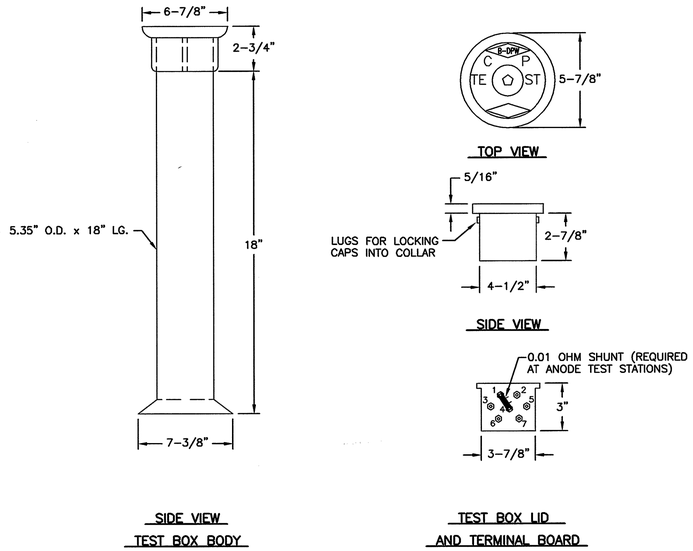
DWG. FILENAME:



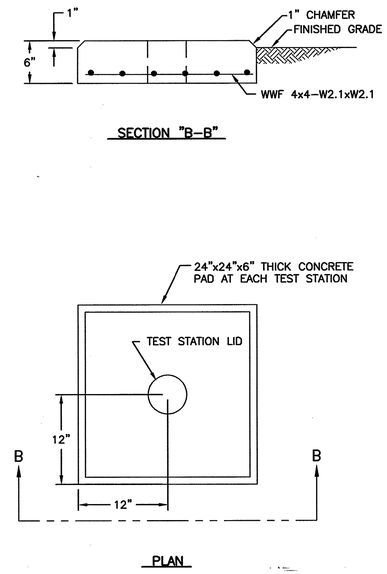
NOTES:

1. THERMITE WELDS MADE TO THE STEEL BONDING PLATES OF PCCP PIPING SHALL BE COATED WITH BRUSH APPLIED R28 MASTIC (10 MILS MINIMUM THICKNESS) OR APPROVED EQUAL. MASTIC SHALL BE DRY BEFORE THERMITE WELDS ARE COVERED OVER WITH GROUT.
2. ALL THERMITE WELDS TO PCCP TO BE PERFORMED AT STEEL BONDING PLATES, SEE DETAIL CC–8.
3. THERMITE WELDS TO DUCTILE IRON PIPE AND STEEL CASINGS SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY–CAP OR APPROVED EQUAL.

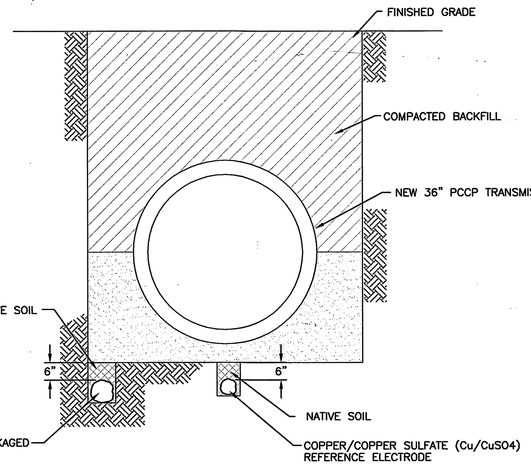
CC–9: THERMITE WELD



CC–10: TEST BOX



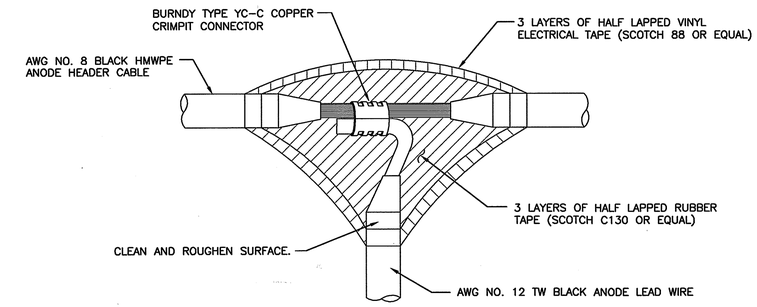
CC–11: TEST STATION PAD



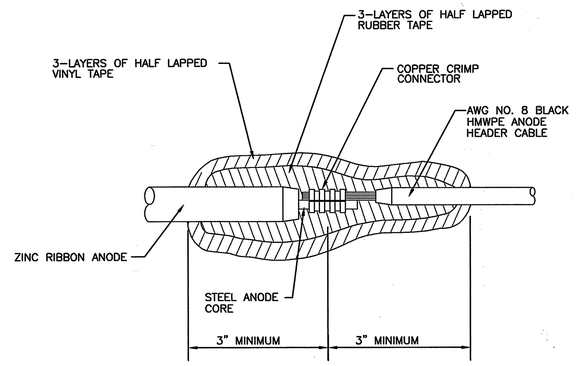
NOTES:

1. BACKFILL ANODES WITH NATIVE SOIL FOR A MINIMUM OF 6" ON ALL SIDES. DO NOT BACKFILL ANODES WITH STONE OR SAND BACKFILL.
2. MAINTAIN A MINIMUM 12" CLEARANCE WHEN ROUTING ANODES AROUND VAULTS AND APPURTANCES.
3. AT STATION 0+37, AND AT FIRE HYDRANT, INSTALL ZINC ANODES ON BOTH SIDES OF THE MAIN IN A MANNER SIMILAR TO WHAT IS SHOWN.

CC–12: ANODE AND REFERENCE ELECTRODE PLACEMENT



CC–13: ANODE HEADER CABLE SPLICE



CC–14: RIBBON ANODE END TO LEAD WIRE SPLICE

CITY OF BALTIMORE	REVISION – CITY OF BALTIMORE	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/1/12	CHIEF, UTILITY ENGINEERING — DATE 5/31/12	DIRECTOR, DEPT. OF PUBLIC WORKS — DATE 5/2/12
	CHIEF, WATER ENGINEERING SECTION — DATE	

SEAL: STATE OF MARYLAND · MICHAEL J. SZELIGA · No. 17083 · PROFESSIONAL ENGINEER

DATE : 1/19/2012

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 17083 EXPIRATION DATE 9/27/2012

ENGINEER: MICHAEL J. SZELIGA
RUSSELL CORROSION CONSULTANTS, INC.
AS–BUILT PER RECORD PRINT
BY: DATE:

DESIGN BY: MJS
DRAWN BY: DJD
CHKD BY: MJS

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF			GA	JDP	
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/20/12	1/23/12

DRAWING SCALE: PLAN SCALE: AS NOTED; PROFILE SCALE: AS NOTED; AS NOTED

DEPARTMENT OF PUBLIC WORKS — APPROVED BY: Frank C. Robey, 4 DIRECTOR — DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION — APPROVED: Steven A. Walsh CHIEF — DATE: 1/24/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
CATHODIC PROTECTIONDETAILS – 3

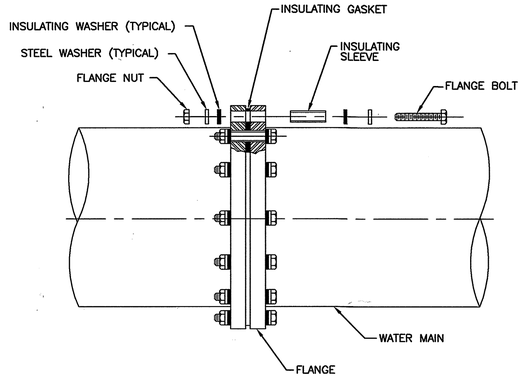
SUBDIVISION: ST. DENIS

ELECTION DIST. NO.: 13

RUSSELL CORROSION CONSULTANTS, INC. — Columbia, Maryland

SHEET DESIGNATION	CONTRACT NUMBER
CP–5	44–4618
JOB ORDER NUMBER	203–0067–0281
SHEET 35 OF 36	
DRAWING NUMBER	2009–3384
FILE NO.:	

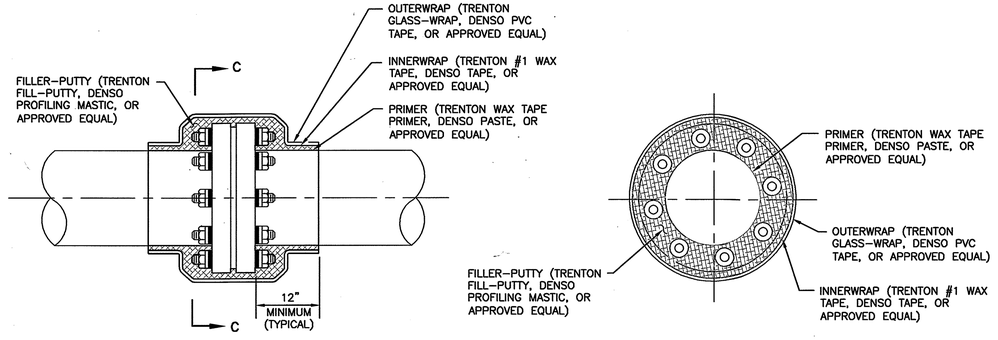
DWG. FILENAME:



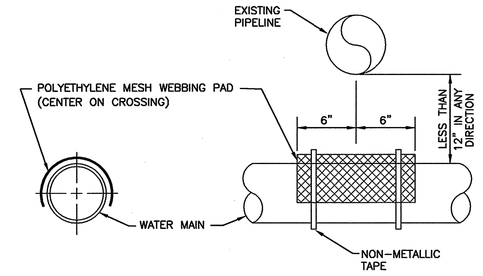
NOTES:

1. AFTER ASSEMBLY, TEST TO VERIFY THAT ISOLATION IS EFFECTIVE. IF ISOLATION IS NOT EFFECTIVE, REPAIR AS NECESSARY AND RETEST. THIS PROCESS SHALL CONTINUE UNTIL ISOLATION IS VERIFIED AS EFFECTIVE.
2. AFTER VERIFYING EFFECTIVE ISOLATION, COAT THE ENTIRE FLANGE AND ALL EXPOSED METAL INCLUDING BOLTS, NUTS, AND WASHERS WITH FOUR COMPONENTS OF DENSO OR TRENTON WAX TAPE COATING SYSTEM. COATING SYSTEM SHALL EXTEND A MINIMUM OF 12 INCHES ON EITHER SIDE OF FLANGE.
3. ALL INSULATING FLANGES TO BE PROVIDED WITH TEST STATION, SEE DETAIL CC-1.

CC-15: INSULATING FLANGE



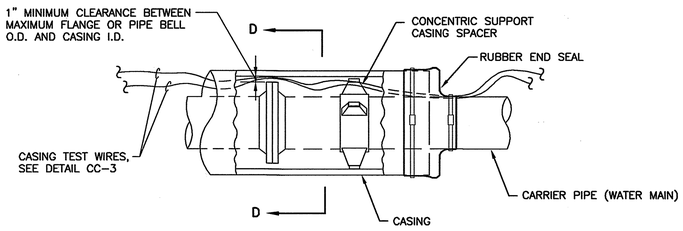
CC-16: COATING OF INSULATING FLANGE



NOTE:

USE ONLY WHEN PIPES ARE LESS THAN 12" APART IN ANY DIRECTION.

CC-17: SEPARATOR TO AVOID ELECTRICAL CONTACT



NOTES:

1. EACH LENGTH OF PIPE WITHIN THE CASING SHALL BE SUPPORTED AND ELECTRICALLY ISOLATED FROM THE CASING BY THE USE OF INSULATING CASING SPACERS. THE NUMBER OF CASING SPACERS AND THE SPACING BETWEEN THEM SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE CASING SPACERS, HOWEVER A MINIMUM OF THREE CASING SPACERS SHALL BE REQUIRED FOR EACH PIPE LENGTH. THE INSULATING SPACERS SHALL BE SIZED TO BE CAPABLE OF SUPPORTING THE WEIGHT OF THE CARRIER PIPE FILLED WITH WATER.
2. PRIOR TO BACKFILL, TEST TO VERIFY THAT ISOLATION BETWEEN PIPING AND CASING IS EFFECTIVE. IF ISOLATION IS NOT EFFECTIVE, REPAIR AS NECESSARY AND RETEST. THIS PROCESS SHALL CONTINUE UNTIL ISOLATION IS VERIFIED AS EFFECTIVE.
3. INSTALL RUBBER END SEALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

DETAIL CC-18: CASING ISOLATION

36-INCH SOUTHWEST WATER TRANSMISSION MAIN

STATION NUMBER	TEST STATION TYPE	DETAIL NUMBER	NUMBER OF ZINC ANODES	Cu/CuSO4 REFERENCE ELECTRODE
0+34±	ANODE	CC-2	8	YES
0+49±	INSULATING FLANGE	CC-1	0	YES
0+51±	AC GROUND MAT	CC-4	0	YES
0+53±	ANODE	CC-2	11	YES
2+41	AC GROUND MAT	CC-4	0	YES
2+43	CASING	CC-3	0	YES
3+13	CASING	CC-3	0	YES
3+15	AC GROUND MAT	CC-4	0	YES
5+00	ANODE	CC-2	11	YES
5+02	AC GROUND MAT	CC-4	0	YES
10+00	ANODE	CC-2	11	YES
15+00	ANODE	CC-2	11	YES
20+00	ANODE	CC-2	11	YES
25+00	ANODE	CC-2	11	YES
30+00	ANODE	CC-2	11	YES
31+93.38	8" INSULATING FLANGE AT 36" MAIN	CC-1	0	YES
31+94 (38' L)	8" INSULATING FLANGE AT 12" EX. MAIN	CC-1	0	YES
32+01	ANODE	CC-2	11	YES
32+03	CASING	CC-3	0	YES
36+58	CASING	CC-3	0	YES

STATION NUMBER	TEST STATION TYPE	DETAIL NUMBER	NUMBER OF ZINC ANODES	Cu/CuSO4 REFERENCE ELECTRODE
101+50	ANODE	CC-2	11	YES
106+68	ANODE	CC-2	11	YES
106+70	CASING	CC-3	0	YES
108+65	CASING	CC-3	0	YES
111+60	ANODE	CC-2	11	YES
115+60.50	CASING	CC-3	0	YES
116+52.50	CASING	CC-3	0	YES
116+54	ANODE	CC-2	11	YES
121+50	ANODE	CC-2	11	YES
124+46	INSULATING FLANGE	CC-1	0	YES
124+61	CASING	CC-3	0	YES
124+95± (100' R)	FIRE HYDRANT	CC-5	2	YES
127+06	CASING	CC-3	0	YES
127+08	ANODE	CC-2	11	YES
130+91	8" INSULATING FLANGE AT 36" MAIN	CC-1	0	YES
131+27± (70' L)	8" INSULATING FLANGE AT 8" MAIN	CC-1	0	YES
132+00	ANODE	CC-2	11	YES
137+40	ANODE	CC-2	11	YES
137+41.90	CASING	CC-3	0	YES
139+10.90	CASING	CC-3	0	YES
141+55	ANODE	CC-2	11	YES
141+57±	INSULATING FLANGE	CC-1	0	YES

CC-19: TEST STATION SCHEDULE

CITY OF BALTIMORE — CHIEF, WATER & WASTEWATER ENG. DIV. BUREAU OF WATER AND WASTEWATER — DATE 3/15/12

REVISION – CITY OF BALTIMORE — CHIEF, UTILITY ENGINEERING — DATE — CHIEF, WATER ENGINEERING SECTION — DATE

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS — DIRECTOR, DEPT. OF PUBLIC WORKS — DATE

SEAL — STATE OF MARYLAND — MICHAEL J. SZELIGA — No. 17083 — PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 17083 EXPIRATION DATE 9/27/2012

DATE: 1/19/2012

ENGINEER: MICHAEL J. SZELIGA — RUSSELL CORROSION CONSULTANTS, INC.

AS-BUILT PER RECORD PRINT — BY: — DATE:

DESIGN BY: MJS — DRAWN BY: DJD — CHKD BY: MJS

REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT
			R.O.W NO.		

BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
REVIEWED BY:		RJF		SLG	GAK	MJM	SDP
DATE REVIEWED:		1/23/12		1/23/12	1/20/12	1/20/12	1/23/12

DRAWING SCALE — PLAN SCALE: AS NOTED — PROFILE SCALE: AS NOTED

DEPARTMENT OF PUBLIC WORKS — APPROVED BY: DIRECTOR — DATE: 1-24-12

BUR. OF ENGINEERING & CONSTRUCTION — APPROVED BY: CHIEF — DATE: 1/20/12

AS-BUILT JUNE 2016

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

SOUTHWEST TRANSMISSION MAIN
CATHODIC PROTECTION DETAILS – 4

SUBDIVISION: ST. DENIS — ELECTION DIST. NO.: 13

RUSSELL CORROSION CONSULTANTS, INC. — Columbia, Maryland

SHEET DESIGNATION	CONTRACT NUMBER
CP-6	44-4618

JOB ORDER NUMBER 203-0067-0281

SHEET 36 OF 36

DRAWING NUMBER 2009-3385

FILE NO.:

BALTIMORE COUNTY MARYLAND

DWG. FILENAME: