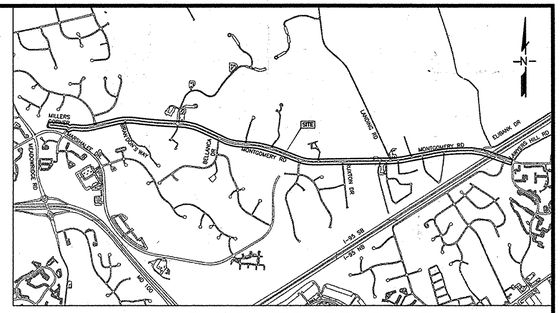
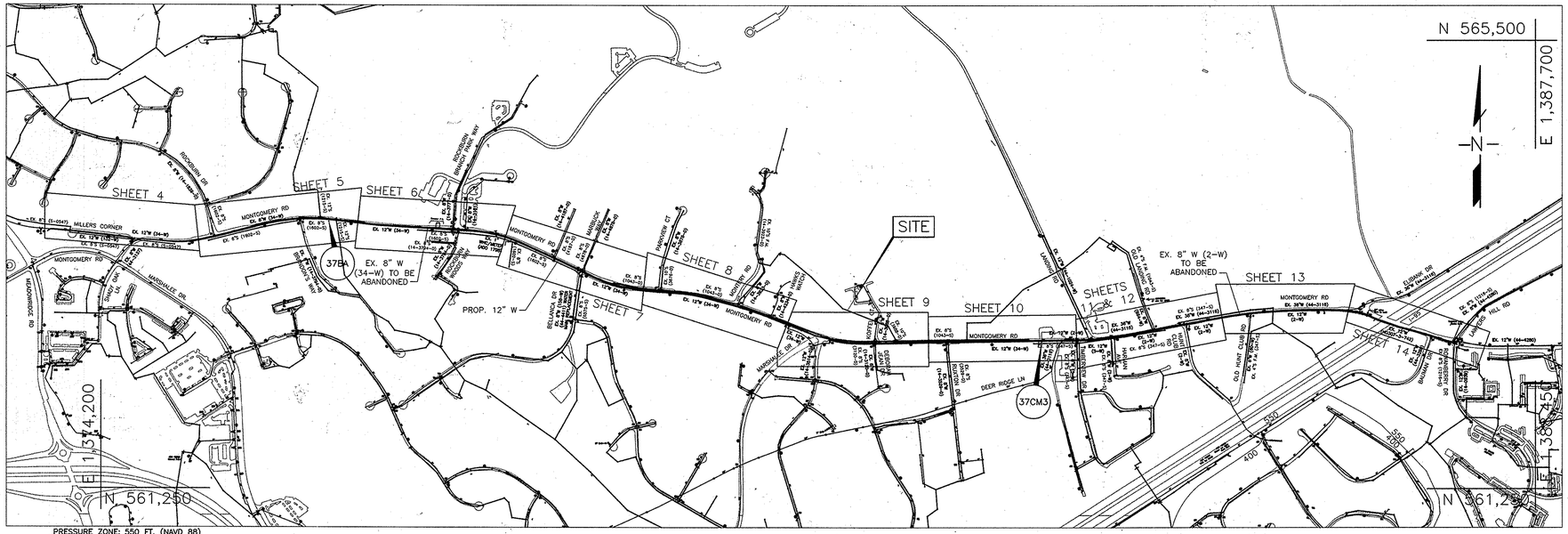
MONTGOMERY ROAD 12-INCH WATER MAIN REPLACEMENT

HOWARD COUNTY, MD
CAPITAL PROJECT NO. W-8318
CONTRACT NO. 44-4843



LOCATION MAP

SCALE: 1"=2000'



PRESSURE ZONE: 550 FT. (NAVD 88)
TEST GRADIENT: 700 FT.
WATER CODE: D01
WATER HOUSE CONNECTIONS: 117

VICINITY MAP

SCALE: 1"=600'

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Approved: Howard SCD 4/7/16

QUANTITIES				
NAME OF UTILITY CONTRACTOR:				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:				
ITEM	UNITS	QUANTITY ESTIMATED	AS-BUILT QUANTITY	AS-BUILT MANUFACTURER / SUPPLIER
12" C900 DR-14 PVC WATER MAIN	L.F.	13,380		
12" CURED-IN-PLACE LINER	L.F.	460		
12" VALVE	EA.	36		
8" C900 DR-14 PVC WATER MAIN	L.F.	550		
8" VALVE	EA.	19		
6" C900 DR-14 PVC WATER MAIN & F.H. LEADS	L.F.	490		
6" VALVE	EA.	35		
FIRE HYDRANT	EA.	34		
1" WATER SERVICE	L.F.	2,817		
1.5" WATER SERVICE	L.F.	28		

NOTE:
1. QUANTITIES IN THIS TABLE ARE SOLELY FOR RECORD PURPOSES. CONTRACTOR SHALL NOT RELY ON THE QUANTITIES IN THE TABLE AND SHALL USE HIS/HER OWN TAKEOFF TO ESTABLISH MATERIALS AND QUANTITIES NEED FOR THIS PROJECT.
2. FOR WATER STAKEOUT TABLE, SEE SHEET 22.

LEGEND:

W — W — W	EXIST. WATER MAIN / VALVE VAULT		STREAM / WATERWAY EDGE
	EXIST. WATER HOUSE CONNECTION	630E / 550	WATER PRESSURE ZONE BOUNDARY
	PROP. WATER MAIN		SHRUB
	EXIST. ABANDONED 30" WATER MAIN		PROP. VALVE
TW — TW	TEMP. WATER MAIN		PROP. FIRE HYDRANT
	EXIST. WATER MAIN TO BE ABANDONED		BGE POLE
S — S — S	EXIST. SEWER MAIN / MANHOLE		STREET SIGN
	EXIST. SEWER HOUSE CONNECTION	SB-##	BORING LOCATION
D — D — D	EXIST. STORM DRAIN	TP-##	TEST PIT LOCATION
G — G — G	EXIST. GAS	TS	CONTINUITY TEST STATION
G — G — G	EXIST. GAS SERVICE CONNECTION		SANITARY MANHOLE ID
E — E — E	EXIST. ELECTRIC – UNDERGROUND	CIP	CURB INLET PROTECT
O/H — O/H	EXIST. ELECTRIC – OVERHEAD		
FO — FO — FO	EXIST. FIBER OPTIC		
T — T — T	EXIST. TELEPHONE – UNDERGROUND		
OHT — OHT	EXIST. TELEPHONE – OVERHEAD		
	RIGHT OF WAY		
	GUARDRAIL		
X — X — X	FENCE		
	PROPERTY LINE		
SF — SF	SILT FENCE		
LOD — LOD	LIMITS OF DISTURBANCE		
	EXIST. E.O.P.		
△	TRAVERSE		

INDEX OF SHEETS

SHEET SET NO.	DESCRIPTION
1	TITLE SHEET
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3	GENERAL NOTES
4	12" WATER MAIN PLAN & PROFILE
5	12" WATER MAIN PLAN & PROFILE
6	12" WATER MAIN PLAN & PROFILE
7	12" WATER MAIN PLAN & PROFILE
8	12" WATER MAIN PLAN & PROFILE
9	12" WATER MAIN PLAN & PROFILE
10	12" WATER MAIN PLAN & PROFILE
11	12" WATER MAIN PLAN & PROFILE
12	12" WATER MAIN SAME TRENCH REPLACEMENT PLAN
13	12" WATER MAIN PLAN & PROFILE
14	12" WATER MAIN PLAN & PROFILE
15	12" WATER MAIN PARTIAL PLAN ENLARGEMENTS
16	12" WATER MAIN BRANCH CONNECTION PROFILES
17	12" WATER MAIN BRANCH CONNECTION PROFILES
18	12" WATER MAIN BRANCH CONNECTION PROFILES & FIRE HYDRANT PROFILES
19	FIRE HYDRANT PROFILES
20	FIRE HYDRANT PROFILES
21	DETAILS
22	WATER HOUSE CONNECTIONS & TEST PIT DATA
23	FITTING SCHEDULE
24	SURVEY CONTROL DATA
25	TRAFFIC CONTROL DETAILS
26	EROSION & SEDIMENT CONTROL NOTES & DETAILS
27	EROSION & SEDIMENT CONTROL NOTES & DETAILS
28	EROSION & SEDIMENT CONTROL PLAN
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30	EROSION & SEDIMENT CONTROL PLAN
31	EROSION & SEDIMENT CONTROL PLAN
32	EROSION & SEDIMENT CONTROL PLAN

OWNER'S / DEVELOPER'S CERTIFICATION:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS — DATE: April 5, 2016

ENGINEER'S DESIGN 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 CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER
ERIN A. MCKENNA-STREYLE, P.E. — DATE: 4/5/2016

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION PSD	DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 35530 — REGISTERED 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.: 35530
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

TITLE SHEET

600 SCALE MAP NO. 37 & 38 — BLOCK NO. 4,5,6&1

MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 1 OF 32

SUGGESTED SEQUENCE OF CONSTRUCTION

THIS SUGGESTED SEQUENCE OF CONSTRUCTION IS WRITTEN IN THE ORDER OF WHICH THE ACTIVITIES MAY BE PERFORMED BY THE CONTRACTOR AND DOES NOT INCLUDE CONCURRENT EROSION AND SEDIMENT CONTROL AND MAINTENANCE OF TRAFFIC ACTIVITIES WHICH SHOULD ALSO BE FOLLOWED AS DESCRIBED IN THE CONTRACT DOCUMENTS. THIS SEQUENCE ASSUMES THAT MONTGOMERY ROAD CAN BE BACKFED FROM BOTH THE EAST AND WEST SIDES DURING TEMPORARY SHUT DOWNS.

PHASE I:

PROP. 12" WATER MAIN – MONTGOMERY RD & MILLERS CORNER

1. INSTALL PROP. 12" PVC WATER MAIN FROM STA. 0+00 TO STA. 89+74 AND FROM STA. 94+26.5 TO STA. 111+87 ALONG MONTGOMERY ROAD AND FROM STA. 16+73 TO STA. 0+00 ALONG MILLER'S CORNER INCLUDING ALL PROP. FIRE HYDRANT TEES, VALVES AND HYDRANTS. IN CONJUNCTION WITH THE INSTALLATION OF THE PROP. 12" PVC WATER MAIN, INSTALL ALL PROP. WATER MAIN BRANCH CONNECTIONS OF VARIOUS SIZE PVC WATER MAIN PIPE ALONG THE SIDE STREETS BELOW. THE CONTRACTOR SHALL INSTALL THE SIDE STREET (BRANCH) CONNECTIONS AS FAR ACROSS THE ROAD AS POSSIBLE TO MINIMIZE THE AMOUNT OF TIME TO TIE-IN TO THE PROP. 12" WATER MAIN AND REDUCE TRAFFIC IMPACTS.
   - ROCKBURN DR UP TO AND INCLUDING PROP. VALVE "2"
   - BRANDON'S WAY UP TO AND INCLUDING PROP. VALVE "4"
   - CULLINS WAY UP TO AND INCLUDING PROP. VALVE "56" (SEE NOTE)
   - ROCKBURN BRANCH PARK RD UP TO AND INCLUDING PROP. VALVE "8"
   - ROCKBURN WOODS WAY UP TO AND INCLUDING PROP. VALVE "9"
   - ROCKBURN ELEMENTARY SCHOOL UP TO AND INCLUDING PROP. VALVE "10"
   - CARTER'S CROSSING (MONTGOMERY ROAD) UP TO AND INCLUDING PROP. VALVE "13"
   - BELLANCA DR UP TO AND INCLUDING PROP. VALVE "15"
   - MARBUCK WAY UP TO AND INCLUDING PROP. VALVE "16"
   - PARKVIEW CT UP TO AND INCLUDING PROP. VALVE "18"
   - MONTERY RD UP TO AND INCLUDING PROP. VALVE "21"
   - DEBORAH JEAN DR UP TO AND INCLUDING PROP. VALVE "24"
   - JOHN CALVERT CT UP TO AND INCLUDING PROP. VALVE "27"
   - KOFFEL CT UP TO AND INCLUDING PROP. VALVE "28"
   - RUXTON DR UP TO AND INCLUDING PROP. VALVE "31"
   - TIMBERVIEW DR UP TO AND INCLUDING PROP. VALVE "35"
   - LANDING RD UP TO AND INCLUDING PROP. VALVE "36"
   - HARMAN AVE UP TO AND INCLUDING PROP. VALVE "38"
   - HUNT CLUB RD UP TO AND INCLUDING PROP. VALVE "42"
   - OLD HUNT CLUB RD UP TO AND INCLUDING PROP. VALVE "45"
   - EX. 12"W INTERCONNECT (ELIBANK DR.) UP TO AND INCLUDING PROP. VALVE "48" AND TEMPORARY CAP & BUTTRESS.
2. INSTALL PROP. 12" VALVE "53" AT MILLER'S CORNER AND TEMPORARY TEST CAP & BUTTRESS AT STA. 7+50.2, 5.0' LT.
3. INSTALL PROP. TEMPORARY TEST CAPS & BUTTRESSES AT STA. 16+73 ALONG MILLER'S CORNER AND AT STA. 89+74 ALONG MONTGOMERY ROAD.
4. DISINFECT & PERFORM PRESSURE TEST FOR THE PROPOSED 12" MAIN TO THE SATISFACTION OF THE ENGINEER FOR PUBLIC USE.
5. COMPLETE ITEMS 5a TO 5d DURING A TEMPORARY SHUTDOWN:

5a. CLOSE EX. 12" VALVE "2644-12-042", ALONG SHADY OAK LN., EX. 12" VALVE "2644-12-116', ALONG MARSHALEE DR. & EX. 12" VALVE "2644-12-034', ALONG MONTGOMERY RD.
5b. REMOVE TEMP. CAP AT STA. 7+50.2, 5.0'
5c. INSTALL PROP. 12" MAIN FROM STA. 7+50.2, 5.0' LT. TO STA. 7+50.2, 29.7' LT. & CONNECT TO EX. 8"W (3137-D).
5d. OPEN EX. VALVES "2644-12-042", "2644-12-116" & "2644-12-034" & RESTORE THE AREA.

6. SWITCH OVER WHCs ALONG THE EX. 12"W TO THE PROP. 12"W BETWEEN STA. 0+00 TO STA. 89+72 ALONG MONTGOMERY ROAD AND FROM STA. 16+73 TO STA. 0+00 ALONG MILLER'S CORNER.

PROP. 8" WATER MAIN – ROCKBURN DR
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "2" AND EX. VALVES "2644-08-008", "2644-08-013" & "2644-12-012".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "2" TO STA. 0+28.5 AND CONNECT TO EX. 8" WATER (14-1839-D).
3. OPEN PROP. VALVE "2", EX. VALVES "2644-08-013" & "2644-12-012", AND RESTORE THE AREA.

PROP. 8" WATER MAIN – BRANDON'S WAY
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "4" AND EX. VALVE "2644-08-016".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "4" TO STA. 0+24 AND CONNECT TO EX. 8" WATER MAIN (14-3794-D).
3. OPEN PROP. VALVE "4" & RESTORE THE AREA.

PROP. 8" WATER MAIN – CULLINS WAY* (SEE NOTE)
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "56" AND EX. VALVE "2645-08-???".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "56" TO STA. 0+25.3 AND CONNECT TO EX. 8" WATER MAIN (14-4744-D).
3. OPEN PROP. VALVE "56" & RESTORE THE AREA.

PROP. 8" WATER MAIN – ROCKBURN BRANCH PARK RD
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "8" AND EX. VALVE "2645-08-006".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "8" TO STA. 0+33.4 AND CONNECT TO EX. 8" WATER MAIN (14-3777-D).
3. OPEN PROP. VALVE "8" & RESTORE THE AREA.

PROP. 8" WATER MAIN – ROCKBURN WOODS WAY
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "9" AND EX. VALVE "2645-08-007".
2. INSTALL PROP. 8A" PVC WATER MAIN FROM PROP. VALVE "9" TO STA. 0+28.7 AND CONNECT TO EX. 8" WATER MAIN (14-3794-D).
3. OPEN PROP. VALVE "9" & RESTORE THE AREA.

PHASE I (CONTINUED):

PROP. 8" WATER MAIN – ROCKBURN ELEMENTARY SCHOOL
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN & DURING NON-OPERATIONAL HOURS OF THE SCHOOL:
1. CLOSE PROP. VALVE "10" AND EX. VALVE "2645-08-008".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "10" TO STA. 0+23 LT. AND CONNECT TO EX. 8" WATER MAIN (14-3161-D).
3. OPEN PROP. VALVE "10". & RESTORE THE AREA.

PROP. 8" WATER MAIN – CARTER'S CROSSING
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "13" AND EX. VALVE "2645-08-009".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "13" TO STA. 0+19.9 AND CONNECT TO EX. 8" WATER MAIN (14-4187-D).
3. OPEN PROP. VALVE "13" & RESTORE THE AREA.

PROP. 8" WATER MAIN – @ BELLANCA DR.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "15" AND EX. VALVES "2645-08-068" & "2645-08-069".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "15" TO STA. 0+22 AND CONNECT TO EX. 8" WATER MAIN (44-4411-W).
3. OPEN PROP. VALVE "15" AND EXISTING VALVE "H1" & RESTORE THE AREA.

PROP. 8" WATER MAIN – @ MARBUCK WAY
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "16" AND EX. VALVE "2645-08-086".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "16" TO STA. 0+17.8 AND CONNECT TO EX. 8" WATER MAIN (14-4678-D).
3. OPEN PROP. VALVE "16" & RESTORE THE AREA.

PROP. 8" WATER MAIN – @ PARKVIEW CT.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "18" AND EX. VALVE "2645-08-013". CONTRACTOR TO ENSURE THAT EX. 8" VALVE (14-4818-D) 820' NORTH OF EX. VALVE "2645-08-013" ALONG PARKVIEW CT IS CLOSED.
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "18" TO STA. 0+53.7 AND CONNECT TO EX. 8" WATER MAIN (14-3676-D).
3. OPEN PROP. VALVE "18" & RESTORE THE AREA.

PROP. 8" WATER MAIN – @ MONTERY RD.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "21" AND EX. VALVES "2645-08-014", "2645-08-001" & "2645-08-002".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "21" TO STA. 0+23.2 AND CONNECT TO EX. 8" WATER MAIN (14-3923-D).
3. OPEN PROP. VALVE "21", EXISTING VALVES "2645-08-001" & "2645-08-002" & RESTORE THE AREA.

PROP. 12" WATER MAIN – DEBORAH JEAN DR
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "24" AND EX. VALVES "2645-12-079" & "2645-12-080".
2. INSTALL PROP. 12" PVC WATER MAIN FROM PROP. VALVE "24" TO STA. 0+68.8 AND CONNECT TO EX. 8" WATER MAIN (14-3514-D).
3. OPEN PROP. VALVE "24" & RESTORE THE AREA.

PROP. 8" WATER MAIN – JOHN CALVERT CT.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "27" AND EX. VALVES "2645-08-037" & "2645-08-034".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "27" TO STA. 0+73 AND CONNECT TO EX. 8" WATER MAIN (14-3120-D).
3. OPEN PROP. VALVE "27", EX. VALVE "2645-08-034", AND RESTORE THE AREA.

PROP. 8" WATER MAIN – KOFFEL CT.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "28" AND EX. VALVE "2645-08-038".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "28" TO STA. 0+14.8 AND CONNECT TO EX. 8" WATER MAIN (14-3988-D).
3. OPEN PROP. VALVE "28" & RESTORE THE AREA.

PROP. 8" WATER MAIN – RUXTON DR.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "31" AND EX. VALVES "2645-08-043" & "2645-08-046".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "31" TO STA. 0+32.5 AND CONNECT TO EX. 8" WATER MAIN (14-3529-D).
3. OPEN PROP. VALVE "31", EX. VALVE "2645-08-046" & RESTORE THE AREA.

PROP. 8" WATER MAIN – TIMBERVIEW DR.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "35" AND EX. VALVE "2646-08-012".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "35" TO STA. 0+50.7 AND CONNECT TO EX. 8" WATER MAIN (5-W).
3. OPEN PROP. VALVE "35" & RESTORE THE AREA.

PROP. 8" WATER MAIN – LANDING RD.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "36" AND EX. VALVE "2646-08-015".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "36" TO STA. 0+40.4 AND CONNECT TO EX. 8" WATER MAIN (44-1024-W).
3. OPEN PROP. VALVE "36" & RESTORE THE AREA.

PROP. 8" WATER MAIN – HARMAN AVE.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "38" AND EX. VALVE "2646-08-075".
2. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "38" TO STA. 0+48 AND CONNECT TO EX. 8" WATER MAIN (2-W).
3. OPEN PROP. VALVE "38" & RESTORE THE AREA.

PHASE II: CURED-IN-PLACE PIPE (CIPP)
THE CONTRACTOR IS TO COMPLETE PHASE II ACTIVITIES AFTER PHASE I HAS BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER.

1. INSTALL PROP. 12" PVC WATER MAIN FROM STA. 117+33.4 TO STA. 119+77 ALONG MONTGOMERY ROAD INCLUDING ALL VALVES.
2. INSTALL PROP. 12" PVC WATER MAIN ALONG BAUMAN DR. FROM STA. 0+00 TO STA. 0+19. INSTALL 12" TEMP. TEST CAP AND BUTTRESS AT STA. 0+20 ALONG BAUMAN DR. NOTE: BAUMAN DR. IS BACKFED FROM MONTGOMERY ROAD ALONG HUNT CLUB ROAD.

COMPLETE ITEMS 3-5 DURING A TEMPORARY SHUT DOWN:

3. CLOSE EX. VALVES "2646-08-004", "2646-12-003", "2646-08-005", "2646-12-007", "2646-12-78", "2646-12-019" & "2646-12-080".
4. INSTALL CAPS & PRE-POURED THRUST BLOCKS ON EX. 12"W AT STA. 111+92.6, 19.1' RT. AND STA. 117+81, 4.9' RT.
5. OPEN EX. VALVES "2646-08-004", "2646-12-003", "2646-08-005", "2646-12-007", "2646-12-78", & "2646-12-080" AND RESTORE THE AREA.
6. INSTALL AND TEST CIPP INSIDE THE EX. 12"W FROM STA. 112+15.9 TO STA. 116+40.4 ACCORDING TO THE MANUFACTURER'S INSTALLATION GUIDELINES.
7. INSTALL 12" PVC WATER MAIN FROM STA. 111+87 TO STA. 112+15.9 AND FROM STA. 116+40.4 TO STA. 117+33.4.
8. INSTALL PROP. TEMPORARY TEST CAPS & BUTTRESSES AT STA. 94+26.5 AND AT STA. 119+77 ALONG MONTGOMERY ROAD.
9. DISINFECT & PERFORM PRESSURE TEST FOR THE PROPOSED 12" MAIN TO THE SATISFACTION OF THE ENGINEER FOR PUBLIC USE.

PROP. 12" WATER MAIN – MONTGOMERY RD. EASTERN TIE-IN
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE EX. VALVES "2646-12-019" & "2646-12-080".
2. REMOVE THE TEMPORARY CAP AT STA. 119+77.
3. INSTALL THE PROP. 12" WATER MAIN FROM STA. 119+77 TO 119+99 AND CONNECT TO EX. 12" WATER MAIN (44-4280-W).
4. OPEN EX. VALVES "2646-12-019" & "2646-12-080" AND RESTORE THE AREA.
5. SWITCH OVER WHCs ALONG THE EX. 12"W TO THE PROP. 12"W BETWEEN STA. 94+26.5 TO STA. 119+99 ALONG MONTGOMERY ROAD.
6. THE CONTRACTOR IS TO COORDINATE WITH THE BUREAU OF UTILITIES TO ENSURE THAT THE FEED FROM OLD LAWYER'S HILL ROAD IS OPEN AT RIVER ROAD. THIS IS NORMALLY CLOSED.

PROP. 12" WATER MAIN – BAUMAN DR.
COMEPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "46", "49", "50" AND EX. VALVES "2646-12-019", "2646-08-085" & "2646-08-083".
2. REMOVE THE TEMP. 12" CAP. INSTALL PROP. 12" PVC WATER MAIN FROM STA. 0+20 TO STA. 0+24.3 AND CONNECT TO EX. 12" WATER MAIN (44-3298-W).
3. OPEN PROP. VALVES "46", "49", "50" AND EX. VALVES "2646-08-085" & "2646-08-083".
4. RESTORE THE AREA.

PROP. 8" WATER MAIN – HUNT CLUB RD.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
10. CLOSE PROP. VALVE "43" AND EX. VALVE "2646-08-004".
11. INSTALL PROP. 8" PVC WATER MAIN FROM PROP. VALVE "42" TO STA. 0+31 AND CONNECT TO EX. 8" WATER MAIN (2-W).
12. OPEN PROP. VALVE "43" & RESTORE THE AREA.

PROP. 6" WATER MAIN – OLD HUNT CLUB RD.
COMPLETE THE FOLLOWING DURING A TEMPORARY SHUTDOWN:
1. CLOSE PROP. VALVE "45" AND EX. VALVE "2646-08-005".
2. INSTALL PROP. 6" PVC WATER MAIN FROM PROP. VALVE "45" TO STA. 0+30.6 AND CONNECT TO EX. 6" WATER MAIN (60-W).
3. OPEN PROP. VALVE "45".
4. RESTORE THE AREA.

PHASE III: SAME TRENCH REPLACEMENT
THE CONTRACTOR IS TO COMPLETE PHASE III ACTIVITIES AFTER PHASES I & II HAVE BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER.

1. INSTALL & CONNECT TEMPORARY WATER SERVICE FOR 5790 HUNT CLUB RD. AND 6738, 6742, 6746 AND 6750 MONTGOMERY RD. USING EX. FIRE HYDRANT AT STA. 89+41.5, 20' RT.
2. INSTALL & CONNECT TEMPORARY WATER SERVICE FOR 6751 & 6755 MONTGOMERY RD. AND 5740, 5741, 5751, 5761 & 5771 OLD LANDING RD. USING PROP. FIRE HYDRANT #24.

COMPLETE ITEMS 4 TO 7 DURING A TEMPORARY SHUT DOWN:

3. CLOSE EX. VALVES "2646-12-074", "2646-12-002", "2646-12-XXX", "2646-08-004" & "2646-12-003".
4. INSTALL 12" CAP & BUTTRESS ON EX. 12"W AT STA. 89+53.5, 17.8' RT.
5. INSTALL 12" CAP & BUTTRESS NO EX. 12"W AT STA. 94+12.4, 13.4' RT.
6. OPEN EX. VALVES "2646-12-074" & "2646-12-002" & RESTORE THE AREA.
7. INSTALL PROP. 12"W FROM STA. 89+92.4 TO STA. 94+04.4 INCLUDING ALL PROP. FIRE HYDRANT TEES, VALVES AND HYDRANTS.
8. DISINFECT & PERFORM PRESSURE TEST FOR THE PROPOSED 12" MAIN TO THE SATISFACTION OF THE ENGINEER FOR PUBLIC USE.
9. PROVIDE TEMPORARY SHUTDOWN OF PROP. MAINS WEST OF STA. 89+74 AND EAST OF STA. 94+26.5 AS NECESSARY TO REMOVE CAP AND BUTTRESS AND CONNECT TO PROP. 12"W.
10. REMOVE TEMPORARY WATER SERVICE CONNECTIONS AND RESTORE SERVICES TO AFFECTED HOMES IN ITEMS 1 & 2 ABOVE.

PHASE III: SAME TRENCH REPLACEMENT (CONTINUED)

PROP. 12" WATER MAIN – MILLER'S CORNER/MONTGOMERY RD. WESTERN TIE-IN
COMPLETE ITEMS 1 TO 4 DURING A TEMPORARY SHUTDOWN:
1. CLOSE EX. VALVES "2644-12-049" & "2644-12-007" & PROP. 12" VALVE "53".
2. CUT & CAP EX. 12"W AND POUR BUTTRESS PER HOWARD COUNTY STANDARD DETAIL W-2.21 'WATER MAIN BUTTRESS CAP & HORIZONTAL BEND' ALONG MILLER'S CORNER.
3. REMOVE TEMP. CAP. INSTALL PROP. 12"W FROM STA. 16+62 TO STA. 16+78 & CONNECT TO EX. 12"W (W-132).
4. OPEN EX. VALVES "2644-12-049" & "2644-12-007" & PROP. 12" VALVE "53" & RESTORE THE AREA.

PROP. 12" WATER MAIN – EX. 12"W INTERCONNECT @ STA. 111+15.5 (ELIBANK DR.)
COMPLETE ITEMS 1 TO 4 DURING A TEMPORARY SHUTDOWN:
1. CLOSE EX. VALVES "2646-12-007" & "2646-12-008" & PROP 12" VALVE "48".
2. REMOVE THE TEMPORARY CAP AND BUTTRESS AT STA. 0+10 (i.e. STA. 111+15.5, 10' LT.)
3. INSTALL THE PROP. 12" WATER MAIN FROM STA. 0+10 TO STA. 0+32 AND CONNECT TO EX. 12" WATER MAIN INTERCONNECT.
4. OPEN EX. VALVE "2646-12-008" & PROP. VALVE "48" AND RESTORE THE AREA.
5. THE CONTRACTOR IS TO COORDINATE WITH THE BUREAU OF UTILITIES TO ENSURE THAT THE FEED FROM OLD LAWYER'S HILL ROAD IS CLOSED AT RIVER ROAD.
6. REMOVE AND SALVAGE ALL EXISTING FIRE HYDRANTS LABELED "TO BE REMOVED" ON THE CONTRACT DOCUMENTS ALONG THE EXISTING 12" WATER MAIN FOR RETURN TO HOWARD COUNTY. REMOVE ALL EXISTING EXTENSION VALVE STEMS AND VALVE BOXES FOR FUTURE PAVING OPERATIONS.
7. ABANDON THE REMAINING EXISTING WATER MAIN IN PLACE.
8. RESTORE THE AREA.

PHASE IV: BOOSTER PUMPING STATION & VAULT ABANDONMENT:
ALL PHASE I, II AND III ACTIVITIES SHALL BE COMPLETED TO THE SATISFACTION OF THE ENGINEER PRIOR TO BEGINNING PHASE IV ACTIVITIES. SEE TECHNICAL SPECIFICATION 1022 ABANDONMENT OF BOOSTER PUMPING STATION.

1. THE CONTRACTOR IS TO REMOVE THE EXISTING ABOVE GRADE ELECTRICAL CONTROL PANEL, REMOVE THE TOP SLAB, AND FILL THE EXISTING VAULT WITH CR-6 STONE. CONTRACTOR IS TO COORDINATE WITH BGE FOR THE REMOVAL AND DISCONNECT OF THE ELECTRICAL CONTROL PANEL. THE ELECTRICAL CONTROL PANEL AND TOP SLAB SHALL BE REMOVED AND DISPOSED OF IN A SUITABLE LOCATION PER HOWARD COUNTY STANDARD SPECIFICATIONS. THE EXISTING PUMPS MAY BE ABANDONED IN PLACE.
2. INSTALL A MINIMUM OF 6-INCHES OF TOP SOIL ABOVE THE CR-6 STONE TO MEET THE EXISTING GRADE. SEED AND MULCH THE DISTURBED AREA.
3. RESTORE THE AREA.

NOTES:
1. WATER HOUSE CONNECTIONS:
   ALL PROP. WATER HOUSE CONNECTIONS SHALL BE COORDINATED WITH THE HOWARD COUNTY BUREAU OF UTILITIES AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING WORK. A DETAILED PLAN FOR THE SHUTDOWN OF EXISTING WATER MAINS SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE COUNTY. NO HOUSE SHALL BE WITHOUT SERVICE OF ANY KIND, FOR MORE THAN 8-HOURS AT ANY ONE TIME. CONNECT ALL EXISTING WATER HOUSE CONNECTIONS TO THE PROPOSED 12" WATER MAIN AS INDICATED ON THE WATER HOUSE CONNECTION CHART IN THE CONTRACT DOCUMENTS. THE EXISTING 12-INCH WATER MAIN SHALL BE ABANDONED ONLY AFTER ALL SERVICE CONNECTIONS HAVE BEEN TRANSFERRED FROM THE EXISTING MAIN 12-INCH WATER MAIN TO THE NEW 12-INCH WATER MAIN.
2. ROCKBURN BRANCH ELEMENTARY SCHOOL:
   WATER SERVICE TO ROCKBURN BRANCH ELEMENTARY SCHOOL MAY NOT BE SUSPENDED AT ANY POINT DURING OPERATIONAL HOURS AT THE SCHOOL. THE CONTRACTOR IS TO COORDINATE CONSTRUCTION WORK HOURS WITH THE COUNTY FOR ANY WORK AFFECTING THE SCHOOL'S WATER SERVICE.
3. CULLINS WAY:
   THE CONTRACTOR IS TO ASSUME THAT CONTRACT 14-4744-D WILL BE INSTALLED AND CONNECTED TO THE EX. 12"W (34-W) PRIOR TO THE INSTALLATION OF THE NEW 12"W HOWEVER, IF IT HAS NOT BEEN CONSTRUCTED, A 12"X8" TEE, 8" VALVE AND TEMP. 8" CAP AND THRUST BLOCK SHALL BE INSTALLED FOR THE FUTURE CONNECTION.

EXISTING VALVE LEGEND ON SHEET INDEX MAP (ABOVE):

####-##-### : GRID NO.-SIZE (INCHES)-ASSIGNED NUMBER
EXAMPLE:
GRID NO. 2644, 12 INCH VALVE, NUMBER 116
2644-12-116

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — NO. 36630 REGISTERED — 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.: 36630
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM				
DRAWN: EAM				
CHECKED: ERA				
DATE: 4/5/2016	NO.	REVISION	DATE	BY

SHEET INDEX & SUGGESTED SEQUENCE OF CONSTRUCTION

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE: AS SHOWN

SHEET 2 OF 32

GENERAL NOTES:

PART I

1. APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN MAY 2013 (MONTGOMERY ROAD) & APRIL 2014 (MILLER'S CORNER) BY MERCADO CONSULTANTS, INC. AERIAL PHOTOGRAPHY AND TOPOGRAPHIC MAPPING WAS PROVIDED BY VIRGINIA RESOURCE MAPPING (VRM).
3. HORIZONTAL AND VERTICAL SURVEY CONTROLS:
   THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS:
   NO. 31EA, N 569641.1675, E 1374816.0130, ELEV. 468.842'
   NO. 31EB, N 568731.0273, E 1376273.5589, ELEV. 452.628'
   37CM3 & 37BA WERE USED AS BENCHMARKS.
   ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE ALUMINUM STAMPED DISCS.
4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
5. CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED TO THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
6. FOR DETAILS NOT SHOWN ON THE DRAWING, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
7. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL [illegible] AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
8. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T	1.800.252.1133
BGE (CONSTRUCTION SERVICES)	410.637.8713
BGE (EMERGENCY)	410.685.0123
BUREAU OF UTILITIES	410.313.4900
COLONIAL PIPELINE COMPANY	410.795.1390 OR 410.970.2138
MISS UTILITY	1.800.257.7777
STATE HIGHWAY ADMINISTRATION	410.531.5533
VERIZON	1.800.743.0033
MCI WORLDCOM	1.800.624.9675

9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
10. THE CONTRACTOR SHALL REMOVE TREES, STUMPS, AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
11. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT 410.313.7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(a) OF THE HOWARD COUNTY CODE.
12. THE CONTRACTOR SHALL COORDINATE ANY DISRUPTION OF TRAFFIC SIGNALS, SENSORS OR WIRING WITH MARYLAND STATE HIGHWAY ADMINISTRATION, OFFICE OF TRAFFIC AND SAFETY FOR WORK AT THE INTERSECTION OF MD. 103 (MONTGOMERY RD.) AND ILCHESTER ROAD.
13. WORK HOURS SHALL BE LIMITED TO 9AM TO 3PM. SEE SPECIFICATIONS FOR ACCEPTABLE WORKING DAYS.
14. THE CONTRACTOR MUST FOLLOW ALL CONDITIONS AND REQUIREMENTS AS SET FORTH IN THE REQUIRED PERMITS FOR THIS PROJECT.
15. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AS WELL AS ANY EXISTING THRUST RESTRAIN.
16. THE CONTRACTOR SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN THE MARYLAND HIGH VOLTAGE LINE ACT (HVLA). THE CONTRACTOR MUST NOTIFY BGE AT 800.685.0123 BEFORE ANY WORK BEGINS THAT MAY BRING PEOPLE OR EQUIPMENT WITHIN 10 FEET OF OVERHEAD UTILITY LINES. BGE WILL MAKE THE AREA SAFE FOR THE WORK TO BE DONE. HVLA GUIDELINES APPLY TO BOTH PROFESSIONAL AND NON-PREOFESSOINAL WORKERS. NO ONE IS EXEMPT FROM COMPLIANCE.
17. THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIRES THAT WHEN USING A CRANE OR DERRICK IN PERFORMANCE OF THE WORK SET FORTH IN THIS CONTRACT, A 20 FOOT CLEARANCE IS REQUIRED TO BE MAINTAINED FROM ALL OVERHEAD POWER LINES UNTIL THE VOLTAGE OF THE OVERHEAD LINE IS IDENTIFIED BY THE UTILITY OWNER. CONTACT BGE FOR ASSISTANCE WHEN USING CRANES OR DERRICKS AT 877.427.2008.
18. NO EXCAVATION OR CONSTRUCTION IS PERMITTED OVER COLONIAL'S PIPELINE(S) OR WITHIN ITS ROW WITHOUT A COLONIAL REPRESENTATIVE BEING PRESENT. THE LOCATION OF THE PIPELINE(S) SHALL BE IDENTIFIED PRIOR TO THE BEGINNING OF ANY MECHANICAL EXCAVATION WORK. IF THE LOCATION OF THE PIPELINE(S) IS NOT KNOWN, ONLY HAND EXCAVATION WILL BE ALLOWED. BASED ON CIRCUMSTANCES AT THE ENCROACHMENT SITE, COLONIAL'S REPRESENTATIVE HAS THE AUTHORITY TO DETERMINE THE EXTENT OF HAND EXCAVATION REQUIRED. HOWEVER, ABSENT SPECIAL PERMISSION FROM COLONIAL'S REPRESENTATIVE, NO MECHANIZED DITCHING OR EXCAVATION SHALL BE ALLOWED WITHIN FIVE (5) FEET OF THE EXTREMITIES OF THE PIPELINES. IN ANY EVENT, ALL EXCAVATION WITHIN TWO (2) FEET OF THE PIPELINE(S) MUST BE ACCOMPLISHED BY HAND. WHERE HAND EXCAVATION IS REQUIRED, THE ENCROACHING PARTY MUST PROVIDE ADEQUATE MANPOWER TO PERFORM THAT WORK. SUB-GRADING, GRADING, AND PLACEMENT OF FILL OVER COLONIAL'S PIPELINE(S) WILL REQUIRE THE APPROVAL OF COLONIAL'S FIELD REPRESENTATIVE AS TO METHOD AND EXTENT.
19. HEAVY EQUIPMENT SHALL NOT BE PERMITTED TO OPERATE OVER COLONIAL'S PIPELINE(S) UNLESS EARTH PADDING HAS BEEN PROVIDED TO PROTECT THE PIPELINE FROM VIBRATING. TEMPORARY EQUIPMENT CROSSINGS OVER THE PIPELINE(S) ARE PERMITTED WITH SIX (6) VERTICAL FEET OF COVER OVER THE PIPELINE(S) AT SELECTED LOCATIONS AS APPROVED BY COLONIAL'S FIELD REPRESENTATIVE. DEPTH OF PIPE AS DETERMINED BY TEST HOLES WILL DETERMINE AMOUNT OF TEMPORARY FILL REQUIRED. DEPTH OF PIPE AS DETERMINED BY TEST HOLES WILL DETERMINE AMOUNT OF FILL REQUIRED. COLORED SHEETS OF PLASTIC SHALL BE PLACED UNDER THE TEMPORARY FILL AT ORIGINAL GRADE SO THAT ORIGINAL GRADE WILL NOT BE DISTURBED WHEN TEMPORARY FILL AT ORIGINAL GRADE SO THAT ORIGINAL GRADE WILL NOT BE DISTURBED WHEN TEMPORARY FILL IS REMOVED. NO EQUIPMENT OR VEHICLES MAY BE PARKED ON THE ROW. NO MATERIAL MAY BE STORED ON THE ROW.
20. IF TEST PITTING IS REQUIRED TO DETERMINE THE EXACT LOCATION, AND ELEVATION, OF THE PIPELINE(S), THE CONTRACTOR AGREES TO NOTIFY COLONIAL PIPELINE AT LEAST TWO WORKING DAYS IN ADVANCE, SO THAT COLONIAL PIPELINE MAY PROVIDE A FIELD REPRESENTATIVE TO BE AT THE SITE. THIS REPRESENTATIVE MUST BE PRESENT DURING THE TEST PITTING FOR THE PROTECTION OF THE PIPELINE(S), AND FOR THE COMMON VERIFICATION OF ITS LOCATION. ALL COSTS FOR THIS TEST PITTING, AND FOR THE COLONIAL REPRESENTATIVE, WILL BE BORNE BY THE ENCROACHING PARTY. ANY ENGINEERING BASED ON COLONIAL OR OTHER DESIGN CRITERIA STEMMING FROM THE AMOUNT OR LOCATION OF THIS TEST PIT DATA IS THE RESPONSIBILITY OF THE CONTRACTOR.

PART II – WATER

1. ALL PROPOSED WATER MAINS SHALL BE C900 PVC DR14 UNLESS OTHERWISE NOTED.
2. TOP OF ALL WATER MAINS TO HAVE A MINIMUM OF 4'-0" OF COVER UNLESS OTHERWISE NOTED.
3. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
4. ALL FITTINGS SHALL BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
5. FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECFICIATIONS.
6. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
7. TRACER WIRES AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
8. FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 FOR PVC PRESSURE PIPE SHALL BE SUBMITTED WITH THE PIPE MATERIAL CERTIFICATIONS OR SHOP DRAWINGS PRIOR TO APPROVAL OF THE MATERIAL FOR USE. THE TEST RECORDS SHALL BE FOR THE PIPE TO BE INSTALLED UNDER THIS CONTRACT. ALL PVC PIPE SHALL CONTAIN MARKINGS TO ALLOW CROSS REFERENCING OF THE PIPE SUPPLIED TO THE TEST RECORDS RECEIVED.
9. UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALLIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. SEVENTEEN (17) POUND MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSES. TWELVE (12) POUND ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TEES" USED WITH PVC MAINS SHALL BE DUCTILE IRON.
10. PROPER ASSEMBLY OF GASKETED PVC PIPE JOINTS: THE MANUFACTURER'S INSERTION LINE OF GASKETED PVC JOINTS INDICATES THE MAXIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. AFTER ASSEMBLY OF THE JOINT, THE INSERTION LINE SHALL REMAIN VISIBLE. DUAL INSERTION LINES ON GASKETED PVC PIPE INDICATE THE MAXIMUM AND MINIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. THE CONTRACTOR SHALL NOT OVER INSERT OR OVER HOME THE SPIGOT INTO THE BELL OF THE PVC PIPE.
11. ALL CHANGES IN HORIZONTAL OR VERTICAL DIRECTION OF PVC WATER PIPE SHALL BE MADE WITH STANDARD BENDS, 5-DEGREE SWEEPS OR HIGH DEFLECTION (HD) COUPLINGS. NO BENDING OF THE PIPE OR DEFLECTING OF PVC PIPE JOINTS IS PERMITTED. WHERE HIGH DEFLECTING COUPLINGS OR 5-DEGREE SWEEPS ARE PERMITTED, THE CONTRACTOR SHALL PROVIDE ONE FULL PIPE LENGTH (20-FOOT LONG) ON EITHER SIDE OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP. THE CONTRACTOR SHALL USE A VIBRATORY PLATE COMPACTOR OR OTHER APPROVED MEANS TO THOROUGHLY COMPACT THE #57 STONE ON BOTH SIDES OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP, TAKING CARE NOT TO USE COMPACTION EQUIPMENT DIRECTLY OVER THE FITTING. PVC HIGH DEFLECTION COUPLINGS SHALL BE LIMITED TO A TOTAL DEFLECTION OF 3-DEGREES (15-DEGREE ON EITHER END OF THE COUPLING), SHALL BE RATED FOR A MINIMUM 200 PSI MEETING THE REQUIREMENTS OF AWWA C900, SHALL HAVE A MINIMUM LAY LENGTH OF 9-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTEED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL. FIVE DEGREES SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 225 PSI, DR 14 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR18 OR EQUAL.

GENERAL NOTES (CONTINUED):

PART II – WATER (CONTINUED)

12. WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF AWWA C-900 PVC PIPELINES, THE CONTRACTOR SHALL INSTALL DEVICES FOR THE PREVENTION OF OVER-INSERTION OF THE PVC PIPE SPIGOTS OR PLAIN ENDS INTO THE PUSH ON BELL JOINT ON BOTH SIDES OF THE HIGH DEFLECTION COUPLINGS AND 5-DEGREE SWEEPS. BELL STOPS SHALL BE PLACED AT THE PROPER INSERTION LINE FOR THE FITTING. THE BELL STOP SHALL BE MANUFACTURED OF DUCTILE IRON AND INCORPORATE AN EXPANSION RETENTION SPRING TO ALLOW FOR PIPE EXPANSION AND CONTRACTION. THE BELL STOPS SHALL BE SERIES 5000 MEGA-STOP, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL.
13. EXCEPT AS INDICATED ON THE PLANS, ALL PUBLIC WATER MAINS (INCLUDING HYDRANT AND BLOW-OFF LEADS) SHALL BE POLYVINYL CHLORIDE (PVC) C900 PIPE MEETING THE REQUIREMENTS OF OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV – STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ALL SUBSEQUENT AMENDMENTS THERETO.
14. CONTRACTOR SHALL REPLACE ALL WATER HOUSE CONNECTIONS AS INDICATED IN THE CONTRACT DOCUMENTS. ALL WATER HOUSE CONNECTIONS SHALL BE MADE AT THE EXISTING VALVE BOX (INSIDE METERED LOCATIONS) OR METER VAULTS (OUTSIDE METERED LOCATIONS).
15. THE CONTRACTOR SHALL LOCATE ALL WATER AND OR SEWER HOUSE CONNECTIONS, AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THESE EXISTING CONNECTIONS. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE. ALL EXISTING CONNECTIONS SHALL BE RECONNECTED UPON COMPLETION OF CONSTRUCTION IN ACCORDANCE WITH COUNTY STANDARDS. TEMPORARY SERVICE SHALL BE PROVIDED FOR ANY SERVICE THAT IS DAMAGED BY THE WORK OF THE CONTRACTOR. HOMEOWNER SHALL BE IMMEDIATELY NOTIFIED OF THE LOSS OF SERVICE.
16. PIPE RESTRAINT SYSTEMS SHALL BE PROVIDED IN THE FOLLOWING MANNER USING SYSTEMS MANUFACTURED BY EBAA IRON INC. OR APPROVED EQUAL: 1) ALL DUCTILE IRON MECHANICAL JOINT FITTINGS (INCLUDING MECHANICAL JOINT HYDRANT CONNECTIONS) SHALL BE RESTRAINED USING THE SERIES 2000PV MECHANICAL JOINT FITTING RESTRAINT SYSTEM. 2) HIGH DEFLECTION COUPLINGS AND PUSH-ON BELL OR SPIGOT PIPE JOINTS SHALL BE RESTRAINED (BUT ONLY WHEN LOCATED WITHIN THE RESTRAINED JOINT LIMITS ON THE PROFILES) USING THE SERIES 1500 HARNESSING SYSTEM. BEND HARNESSING RODS TO MATCH THE ANGLE AT HIGH DEFLECTION COUPLINGS. HIGH DEFLECTION COUPLINGS ARE LIMITED TO A MAXIMUM DEFLECTION OF 3 DEGREES AND DO NOT REQUIRE RESTRAINT (UNLESS LOCATED WITHIN RESTRAINED JOINT LIMITS NOTED ON THE PROFILES).
17. INSTALL CONCRETE ANCHOR COLLARS WHERE SHOWN, SPECIFIED OR DIRECTED, AND WHEN SUFFICIENT ROOM EXISTS (AS DETERMINED BY THE ENGINEER). INSTALL CONCRETE BUTTRESSING AT ALL TEES, CAPS, AND HORIZONTAL AND VERTICAL BENDS SHOWN WITH OR WITHOUT HARNESSING RESTRAINT UNLESS RESTRAINED JOINTS ARE SPECIFIED ON THE PROFILES. REMOVE PIPING THAT IS TO BE ABANDONED AS NEEDED TO PREVENT CONFLICT WITH THE INSTALLATION OF CONCRETE BUTTRESSING.
18. ALL TIE-INS TO EXISTING WATER MAINS SHALL BE COORDINATED WITH THE HOWARD COUNTY BUREAU OF UTILITIES AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING WORK. A DETAILED PLAN FOR THE SHUTDOWN OF EXISTING WATER MAINS SHALL SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE COUNTY.
19. MAINLINE VALVES SHALL BE STRAPPED TO ADJOINING TEES OR CROSSES PER HOWARD COUNTY STD. DTL. W-2.13. MAINLINE VALVES THAT ARE NOT SHOWN ADJACENT TO TEES OR CROSSES SHALL BE ANCHORED TO A CONCRETE BLOCK IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
20. ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
21. FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND 1005 OF THE STANDARD SPECIFICATIONS.
22. IF ANY FIRE HYDRANT WILL BE PLACED OUT OF SERVICE IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE HOWARD COUNTY FIRE DEPARTMENT (HCFD) DURING CONSTRUCTION CONCERNING FIRE HYDRANTS THAT ARE OUT OF SERVICE. FIRE HYDRANTS THAT ARE OUT OF SERVICE SHALL BE CLEARLY SIGNED "OUT OF SERVICE".
23. ALL HYDRANTS, MAINLINE GATE VALVES, WATER SERVICE VALVE AND PIPING, MECHANICAL JOINT RESTRAINT SYSTEMS AND SIMILAR (FOR BOTH PERMANENT AND TEMPORARY INSTALLATIONS) SHALL BE RATED FOR A MINIMUM OPERATING PRESSURE OF 250PSI.
24. THE CONTRACTOR SHALL NOTIFY HOWARD COUNTY DPW AS ANY UNKNOWN UTILITY SERVICES ARE ENCOUNTERED. CONTRACTOR SHALL RECONNECT ALL ACTIVE WATER SERVICES ENCOUNTERED.
25. THE CONTRACTOR SHALL VERIFY THAT EXISTING WATER LINES AND VALVES ARE RESTRAINED PRIOR TO REMOVAL OF EXISTING WATERLINE, AT CONNECTION LOCATIONS. CONTRACTOR SHALL PROVIDE THRUST BLOCKING AND/OR DEADMEN ANCHORS ON THE EXISTING WATER SYSTEM WHERE THERE IS NO EXISTING THRUST PROTECTION.
26. THE CONTRACTOR SHALL ABANDON EXISTING WATER LINE IN PLACE UNLESS OTHERWISE INDICATED ON THE PLANS. THE CONTRACTOR SHALL CAP ALL CUT OR OPEN ENDS, REMOVE EXISTING VALVE ROADWAY BOXES AND ABANDON EXISTING VALVES IN PLACE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF EXISTING WATERLINE WHERE INDICATED TO BE REPLACED IN-KIND. EXISTING FIRE HYDRANTS REMOVED, AS PART OF CONSTRUCTION, SHALL BE DELIVERED TO THE BUREAU OF UTILITIES. THE CONTRACTOR SHALL SALVAGE MAJOR WATER ITEMS WHICH CAN BE USED TO SCAVENGE PARTS.
27. EXISTING WATER MAINS, INCLUDING PIPE MATERIAL, FITTINGS, VALVES AND APPURTENANCES EXCAVATED OR REMOVED FOR THE CONSTRUCTION OF THE NEW WATER MAIN SHALL BE REMOVED FROM THE WORK SITE AND DISPOSED OF BY THE CONTRACTOR AT AN APPROPRIATE RECEIVING FACILITY (LICENSED FOR SUCH DISPOSAL) AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE DIRECTED BY THE HOWARD COUNTY PROJECT MANAGER.
28. THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES, GRADES AND ELEVATIONS OF THE PROPOSED FACILITIES.
29. EXISTING WATER MAINS SHALL BE LOCATED BY THE ALIGNMENT MARKED IN THE FIELD BY HOWARD COUNTY PERSONNEL. INSTALL NEW WATER MAINS BASED ON THE ALIGNMENT AND OFFSET DIMENSION SHOWN RELATIVE TO THE EXISTING WATER MAINS. MAINTAIN REQUIRED SEPARATION FROM SANITARY AND STORM SEWER PIPING.
30. PIPE TRENCHING AND PAVEMENT REPLACEMENT SHALL BE PERFORMED IN ACCORDANCE WITH THE PVC PIPE TRENCH AND PERMANENT PAVING RESTORATION DETAIL AS SHOWN ON SHEET 20.
31. WATER MAIN TESTING GRADIENT: 700FT
    THE EXISTING STATIC PRESSURE ELEVATION FOR PROPOSED WATER MAIN IS 550FT NAVD 1988.
    WATER MAIN SHALL BE FILLED WITH WATER AND BROUGHT TO 150 PSI HYDROSTATIC TEST PRESSURE AT THE LOW POINT FOR TWO HOURS.
32. IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, ALL CROSSINGS OF THE NEW WATER MAIN WITH EXISTING SANITARY OR STORM SEWER PIPING (RESULTING IN LESS THAN 18" OF SEPARATION) SHALL BE ACCOMPLISHED BY CENTERING A FULL LENGTH OF THE NEW WATER MAIN PIPING AT THE CROSSING TO MAXIMIZE THE DISTANCE OF ANY WATER MAIN JOINT FROM THE CROSSING.
33. THE CONTRACTOR SHALL NOT ENTER UPON PUBLIC OR PRIVATE PROPERTY (OUTSIDE OF THE RIGHT-OF-WAY OR CONSTRUCTION STRIP) FOR ANY PURPOSE WITHOUT OBTAINING PERMISSION AND IT SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL PUBLIC AND PRIVATE PROPERTY, TREES, MONUMENTS, SIGNS AND MARKERS AND FENCES THEREON, AND SHALL USE EVERY PRECAUTION NECESSARY TO PREVENT DAMAGE OR INJURY THERETO.
34. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE OR INJURY TO PROPERTY OF ANY CHARACTER DURING THE EXECUTION OF THE WORK, RESULTING FROM ANY ACT, OMISSION, NEGLECT OR MISCONDUCT IN IT'S MANNER OR METHOD OF EXECUTING SAID WORK, OR AT ANY TIME DUE TO DEFECTIVE WORK OR MATERIALS, AND SAID RESPONSIBILITY SHALL NOT BE RELEASED UNTIL THE WORK SHALL HAVE BEEN COMPLETED AND ACCEPTED).
35. THE CONTRACTOR SHALL TEST PIT ALL EX. UTILITIES WELL IN ADVANCE OF CONSTRUCTION AT HIS OWN EXPENSE.
36. CONTRACTOR SHALL COORDINATE WITH HOWARD COUNTY BUREAU OF UTILITIES TO INTERCONNECT WATER MAINS AND OPERATE VALVES. CARE SHOULD BE TAKEN TO PURGE AIR FROM MAINS USING EXISTING AIR RELEASE VALVES, HYDRANTS TO BLOW-OFF AIR, AND/OR AIR PURGE DEVISE AT NEW CONNECTION AS NEEDED.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE	CHIEF, BUREAU OF ENGINEERING	DATE
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, UTILITY DESIGN DIVISION PSD	DATE

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND – ERIN A. MCKENNA-STREYLE – No. 36589 – REGISTERED 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.: 36589
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

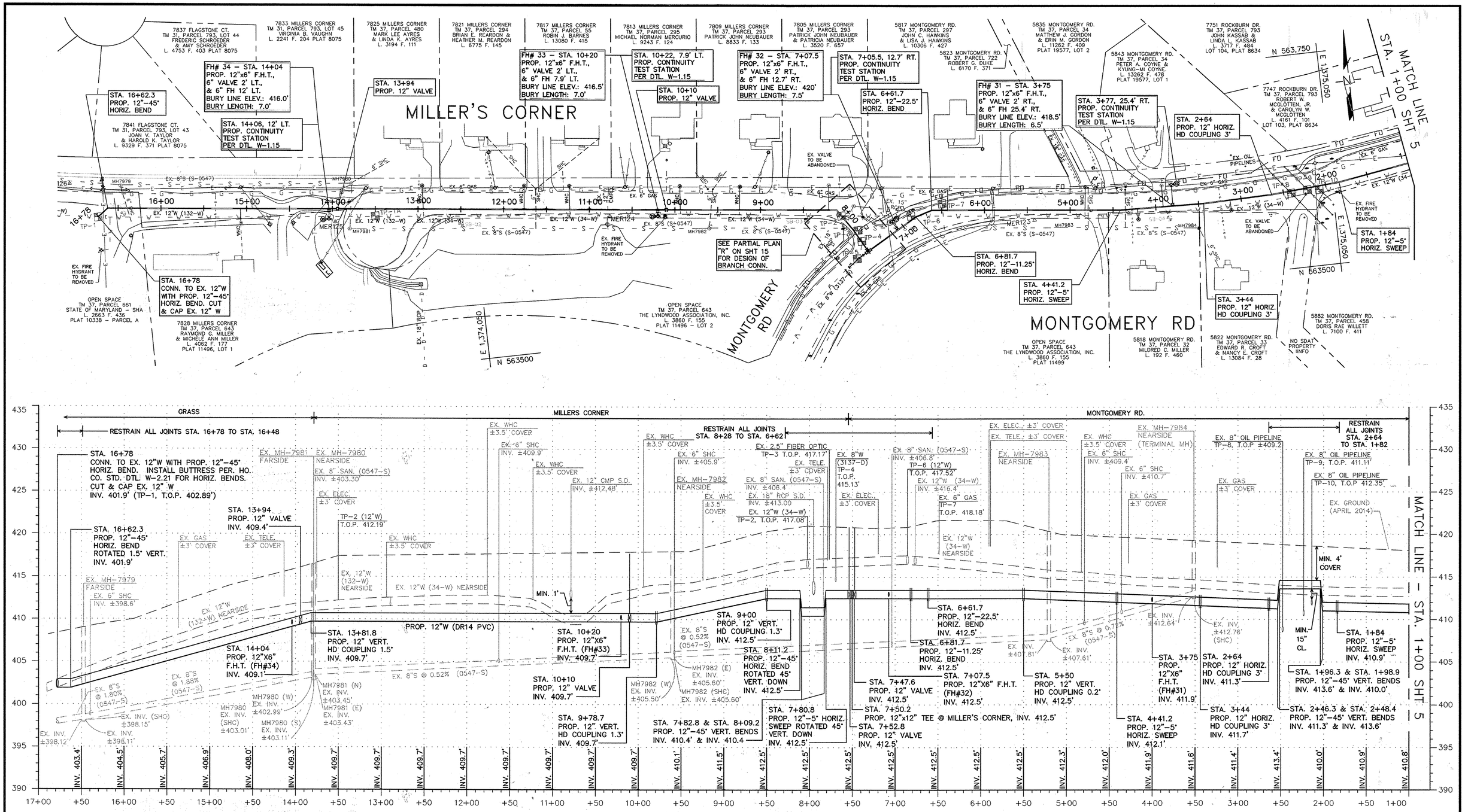
GENERAL NOTES

600 SCALE MAP NO. 37 & 38 | BLOCK NO. 4,5,6&1

MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 3 OF 32



12" WATER MAIN – MILLERS CORNER
STA. 16+78 TO STA. 1+00

GRAPHIC SCALE
HORIZONTAL 50 0 25 50 100
SCALE: 1" = 50'

GRAPHIC SCALE
VERTICAL 5' 0 2.5 5 10
SCALE: 1" = 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-9400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36530 — REGISTERED 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.: 36530 EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

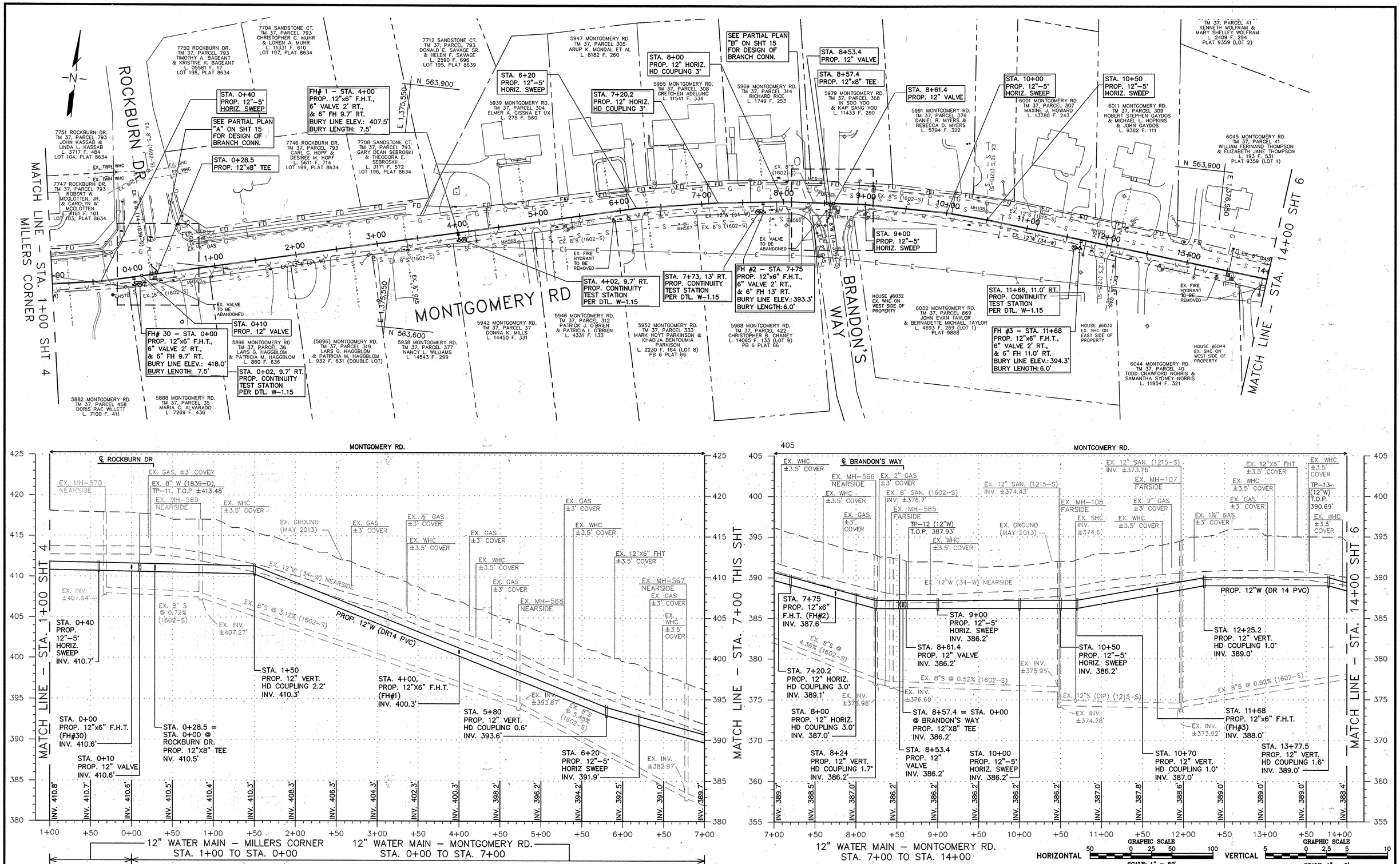
12" WATER MAIN
PLAN & PROFILE

600 SCALE MAP NO. 37 — BLOCK NO. 4

MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W–8318
CONTRACT NO.: 44–4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 4 OF 32



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION PSD — DATE 4/5/16

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MICHAEL BAKER INTERNATIONAL, INC. 1304 Concourse Drive, Suite 200 Linthicum, MD 21090-1014 Phone: (410) 689-9400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36638 — REGISTERED 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.: 36638 EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

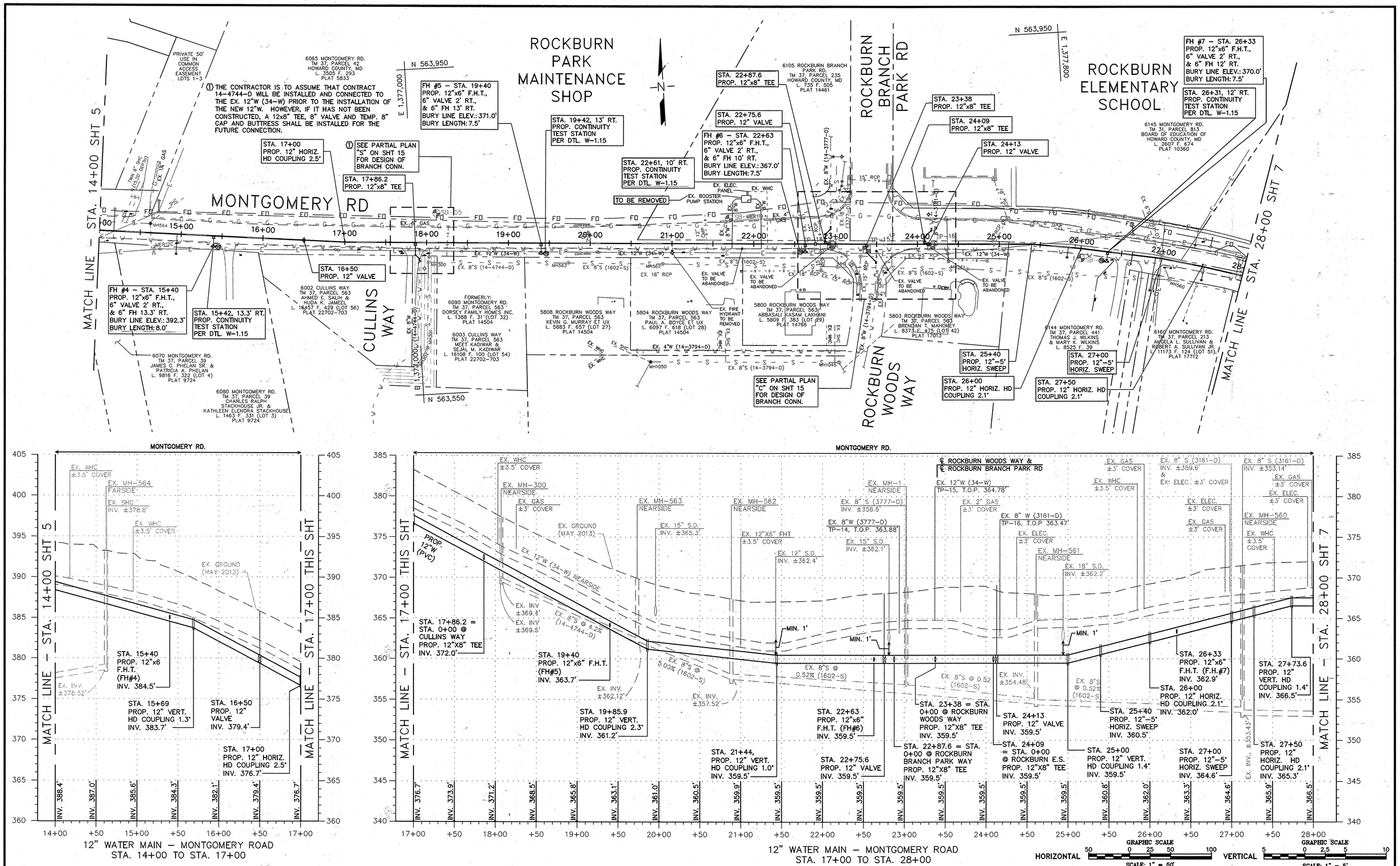
NO.	REVISION	DATE	BY

12" WATER MAIN PLAN & PROFILE
600 SCALE MAP NO. 37 — BLOCK NO. 4

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W–8318
CONTRACT NO.: 44–4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 5 OF 32



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION PSD — DATE 4/5/16

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STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36530 — REGISTERED PROFESSIONAL ENGINEER

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ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

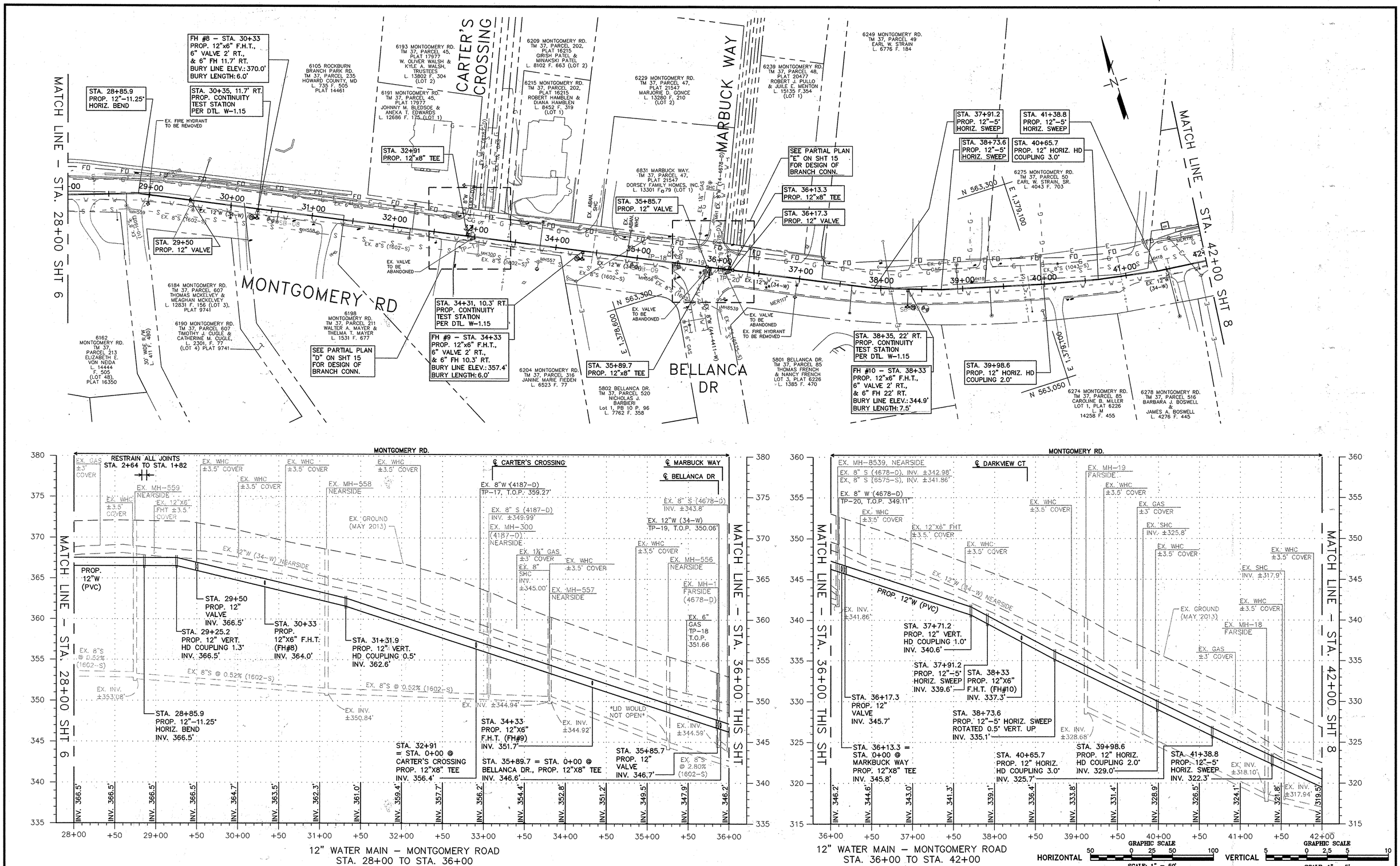
12" WATER MAIN PLAN & PROFILE

600 SCALE MAP NO. 37 — BLOCK NO. 4

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 6 OF 32



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION PSD — DATE 4/5/16

Michael Baker INTERNATIONAL
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STATE OF MARYLAND ERIN A. MCKENNA-STREYLE REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION
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ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

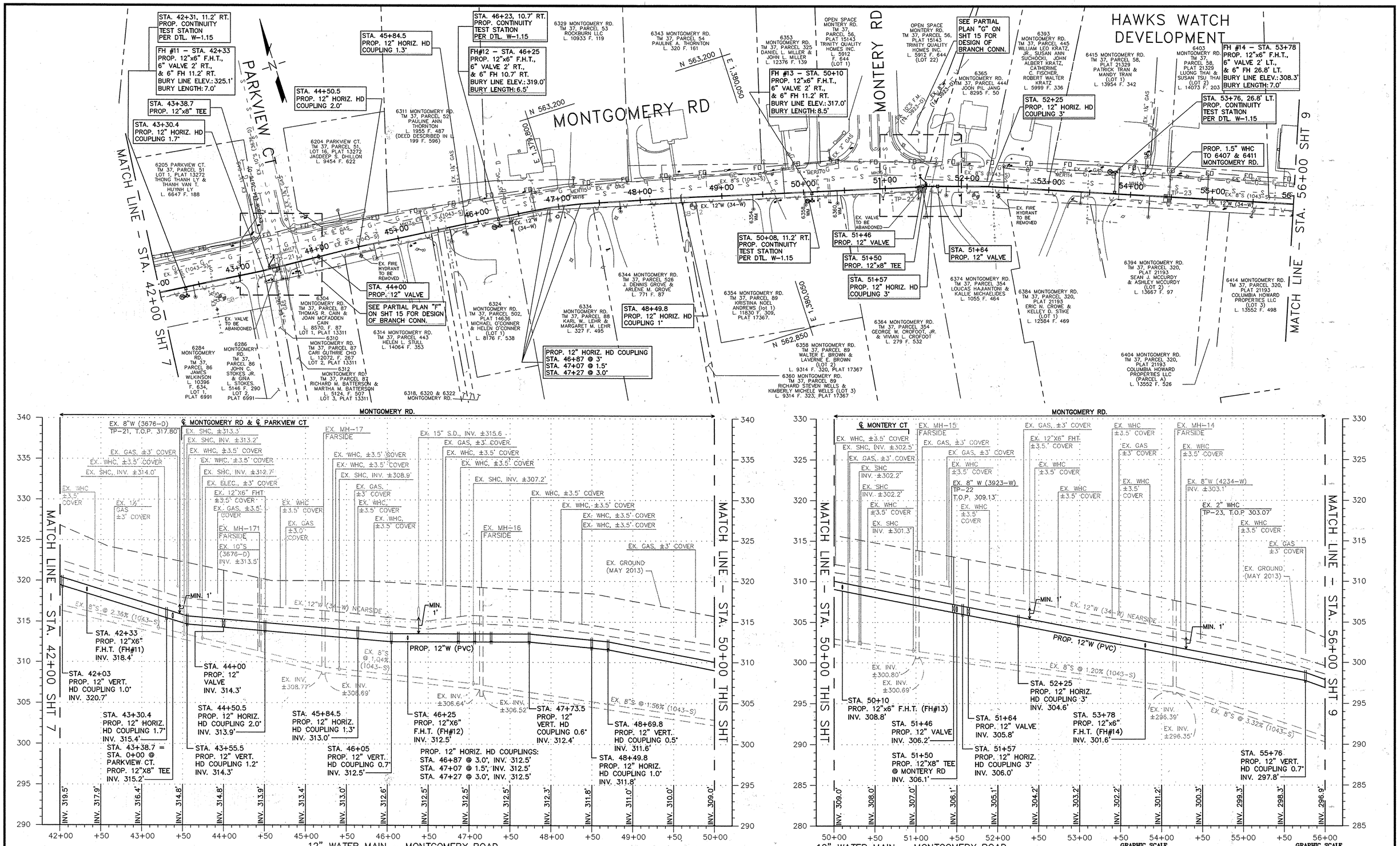
12" WATER MAIN PLAN & PROFILE

600 SCALE MAP NO. 37 — BLOCK NO. 4 & 5

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W–8318
CONTRACT NO.: 44–4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 7 OF 32



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

Michael Baker INTERNATIONAL

MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36580 — REGISTERED 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.: 36580 EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

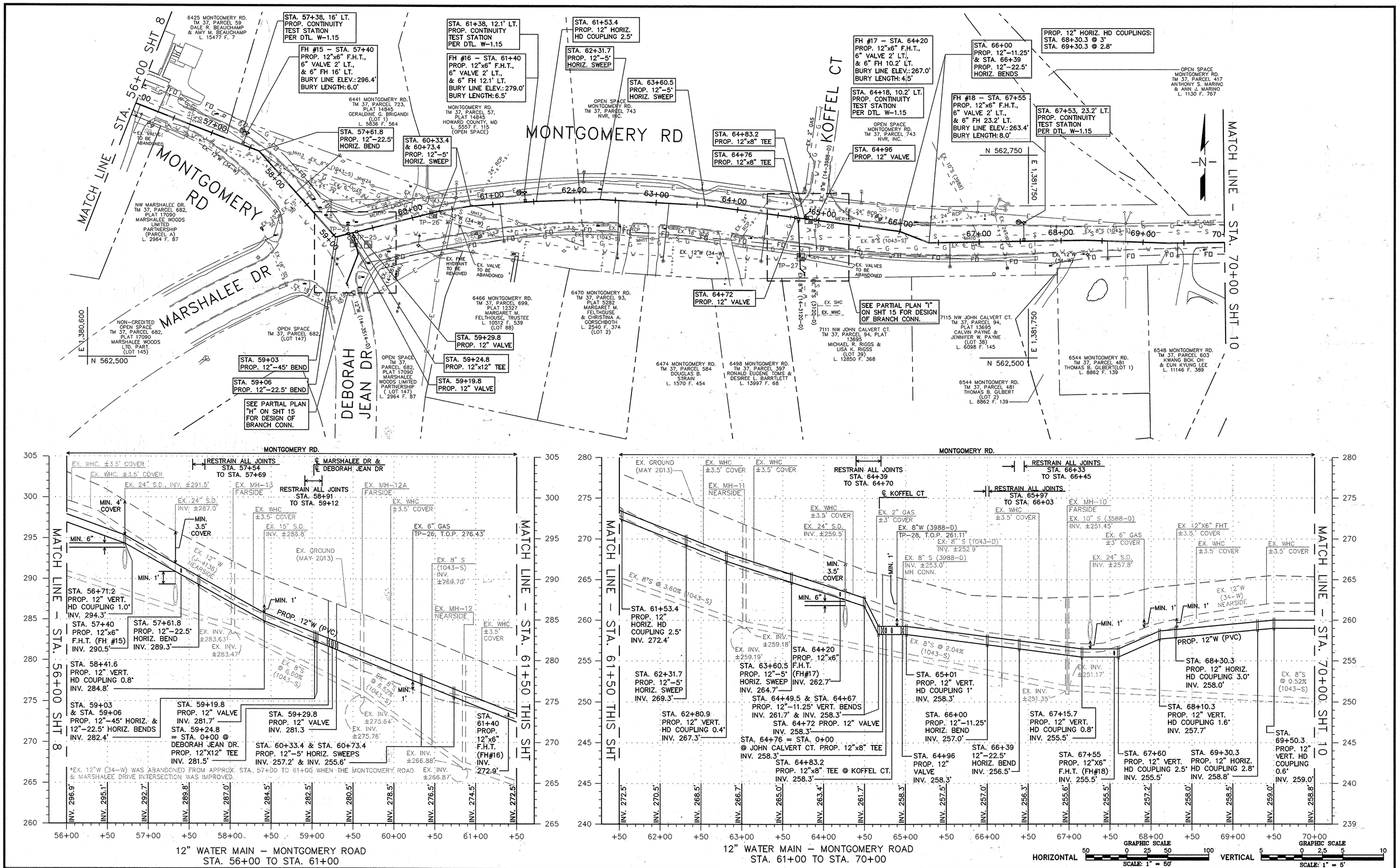
12" WATER MAIN
PLAN & PROFILE

600 SCALE MAP NO. 37 | BLOCK NO. 5

MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 8 OF 32



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC. 1304 Concourse Drive, Suite 200 Linthicum, MD 21090-1014 Phone: (410) 689-3400

STATE OF MARYLAND ERIN A. MCKENNA-STREYLE REGISTERED 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.: 36530 EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

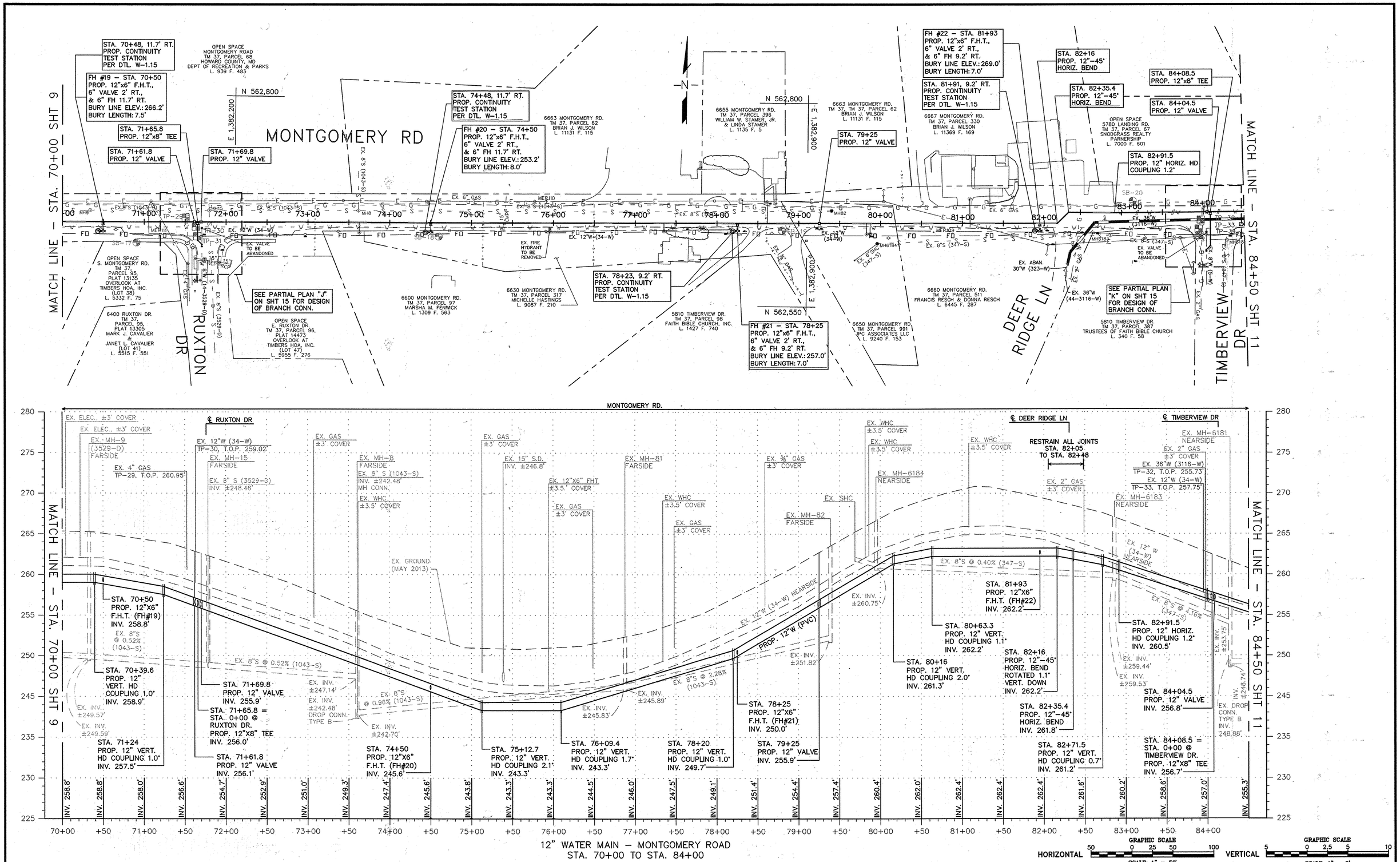
600 SCALE MAP NO. 37 — BLOCK NO. 5 & 6

12" WATER MAIN PLAN & PROFILE

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 9 OF 32



12" WATER MAIN – MONTGOMERY ROAD
STA. 70+00 TO STA. 84+00

GRAPHIC SCALE — HORIZONTAL 50 0 25 50 100 — SCALE: 1" = 50'
GRAPHIC SCALE — VERTICAL 5 0 2.5 5 10 — SCALE: 1" = 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC. 1304 Concourse Drive, Suite 200 Linthicum, MD 21090-1014 Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36630 — 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.: 36630 EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

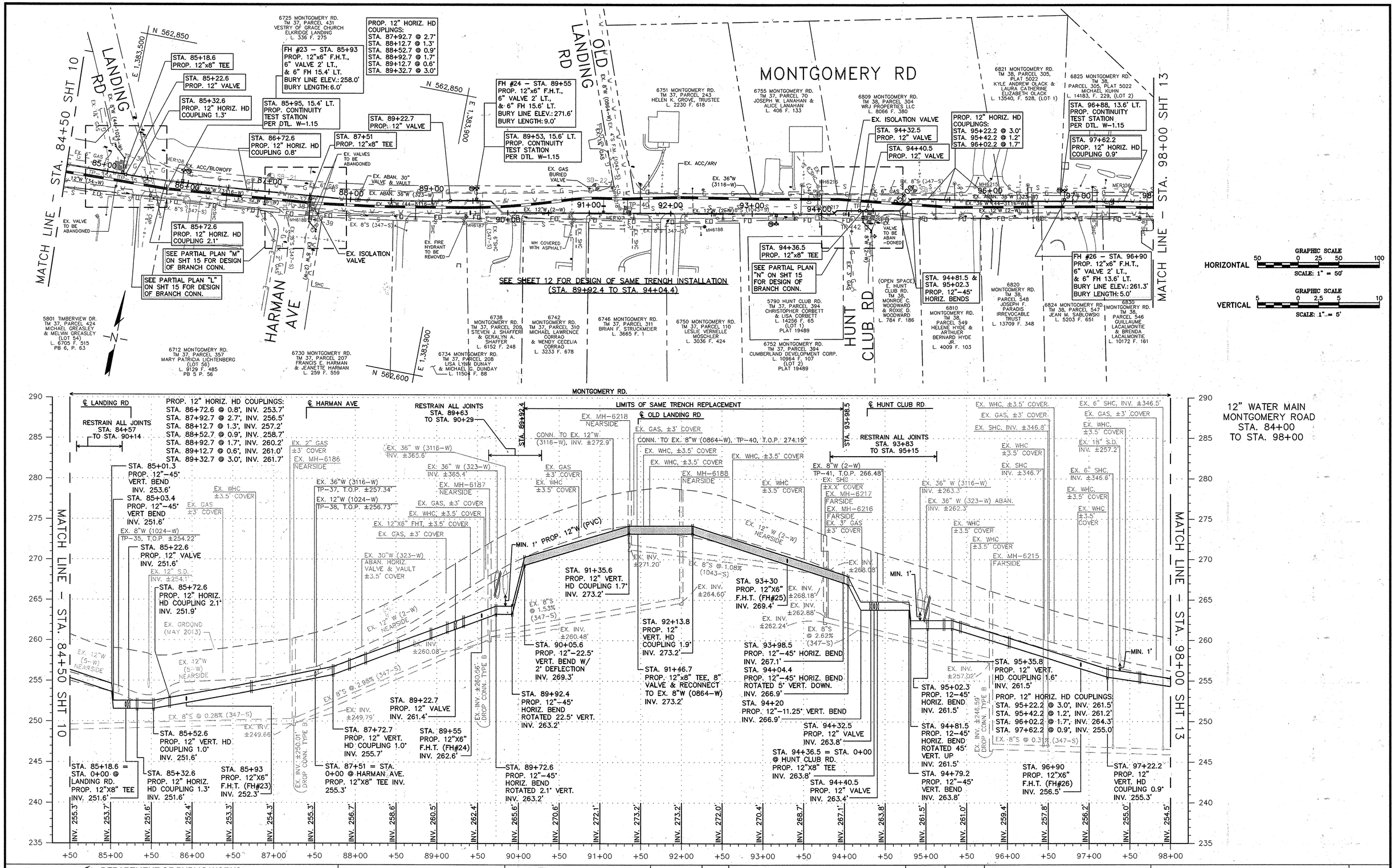
12" WATER MAIN
PLAN & PROFILE

600' SCALE MAP NO. 37 — BLOCK NO. 6

MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 10 OF 32



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/8/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/8/16

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MICHAEL BAKER INTERNATIONAL, INC. 1304 Concourse Drive, Suite 200 Linthicum, MD 21090-1014 Phone: (410) 689-9400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 34630 — REGISTERED 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.: 34630 EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

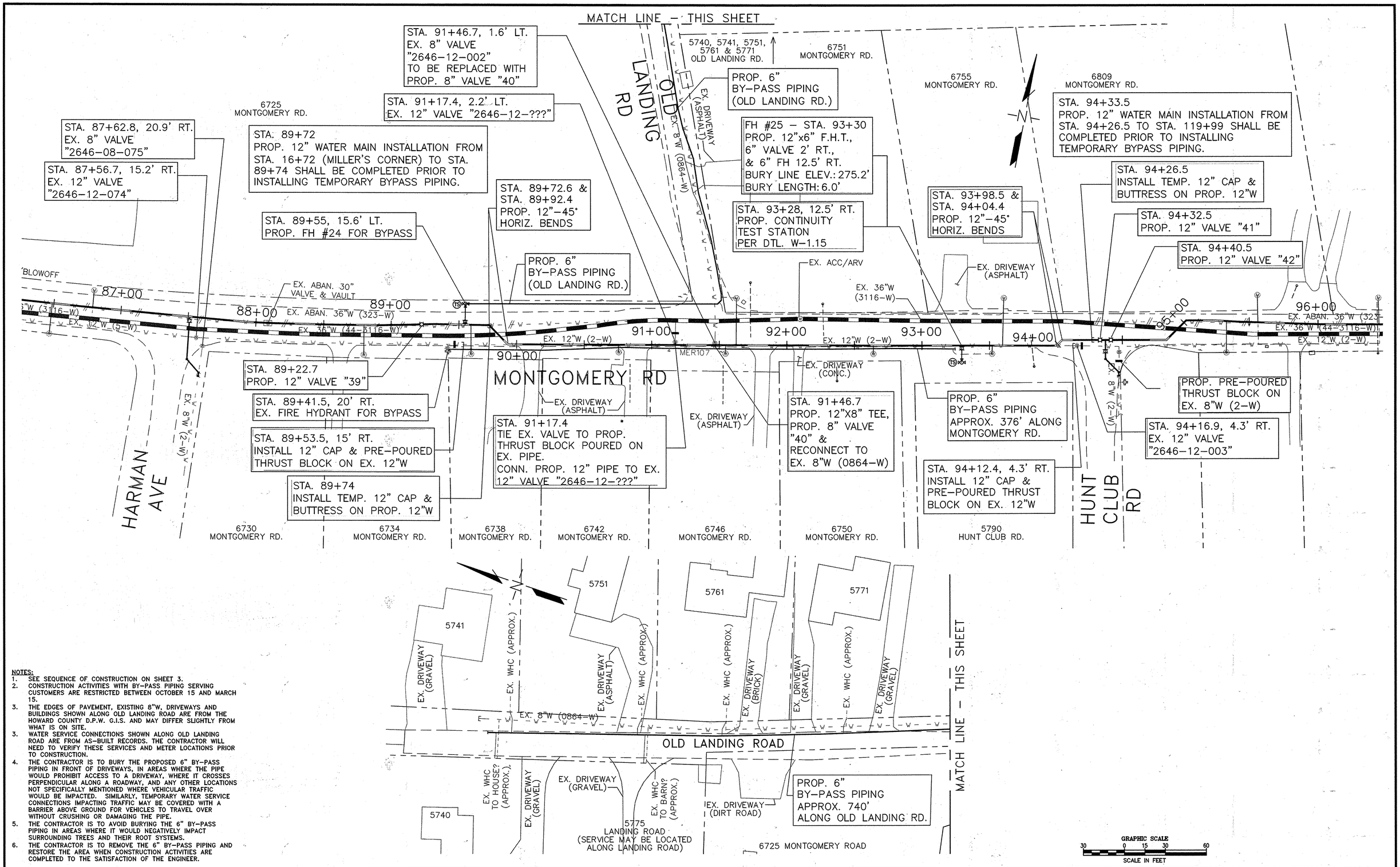
12" WATER MAIN PLAN & PROFILE

600 SCALE MAP NO. 37 & 38 — BLOCK NO. 6 & 1

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 11 OF 32



NOTES:

1. SEE SEQUENCE OF CONSTRUCTION ON SHEET 3.
2. CONSTRUCTION ACTIVITIES WITH BY-PASS PIPING SERVING CUSTOMERS ARE RESTRICTED BETWEEN OCTOBER 15 AND MARCH 15.
3. THE EDGES OF PAVEMENT, EXISTING 8"W, DRIVEWAYS AND BUILDINGS SHOWN ALONG OLD LANDING ROAD ARE FROM THE HOWARD COUNTY D.P.W. G.I.S. AND MAY DIFFER SLIGHTLY FROM WHAT IS ON SITE.
3. WATER SERVICE CONNECTIONS SHOWN ALONG OLD LANDING ROAD ARE FROM AS-BUILT RECORDS. THE CONTRACTOR WILL NEED TO VERIFY THESE SERVICES AND METER LOCATIONS PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR IS TO BURY THE PROPOSED 6" BY-PASS PIPING IN FRONT OF DRIVEWAYS, IN AREAS WHERE THE PIPE WOULD PROHIBIT ACCESS TO A DRIVEWAY, WHERE IT CROSSES PERPENDICULAR ALONG A ROADWAY, AND ANY OTHER LOCATIONS NOT SPECIFICALLY MENTIONED WHERE VEHICULAR TRAFFIC WOULD BE IMPACTED. SIMILARLY, TEMPORARY WATER SERVICE CONNECTIONS IMPACTING TRAFFIC MAY BE COVERED WITH A BARRIER ABOVE GROUND FOR VEHICLES TO TRAVEL OVER WITHOUT CRUSHING OR DAMAGING THE PIPE.
5. THE CONTRACTOR IS TO AVOID BURYING THE 6" BY-PASS PIPING IN AREAS WHERE IT WOULD NEGATIVELY IMPACT SURROUNDING TREES AND THEIR ROOT SYSTEMS.
6. THE CONTRACTOR IS TO REMOVE THE 6" BY-PASS PIPING AND RESTORE THE AREA WHEN CONSTRUCTION ACTIVITIES ARE COMPLETED TO THE SATISFACTION OF THE ENGINEER.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION	DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND – ERIN K. MCKENNA-STREYLE – REG. NO. 36635 – REGISTERED 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.: 36635
EXPIRATION DATE: 06/07/16
ERIN K. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

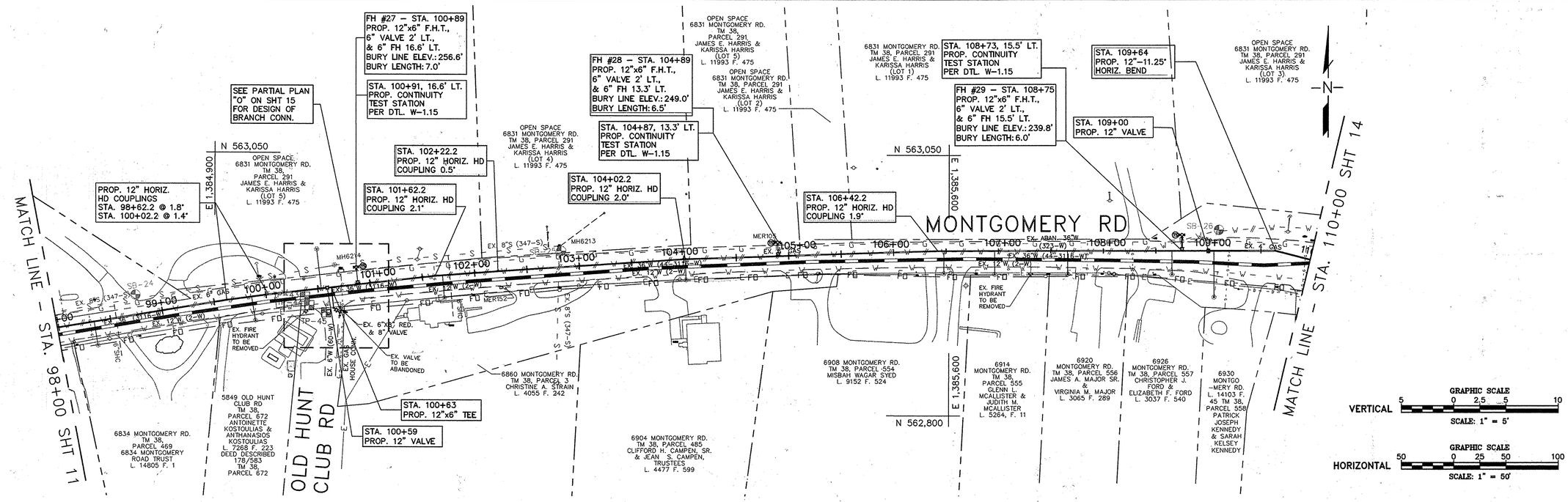
12" WATER MAIN
SAME TRENCH
REPLACEMENT
PLAN

600 SCALE MAP NO. 37 & 38 | BLOCK NO. 6 & 1

MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE
AS SHOWN

SHEET
12 OF 32



12" WATER MAIN – MONTGOMERY ROAD
STA. 98+00 TO STA. 110+00

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION PSD — DATE 4/5/16

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STATE OF MARYLAND ERIN A. MCKENNA-STREYLE No. 36630 REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION
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ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

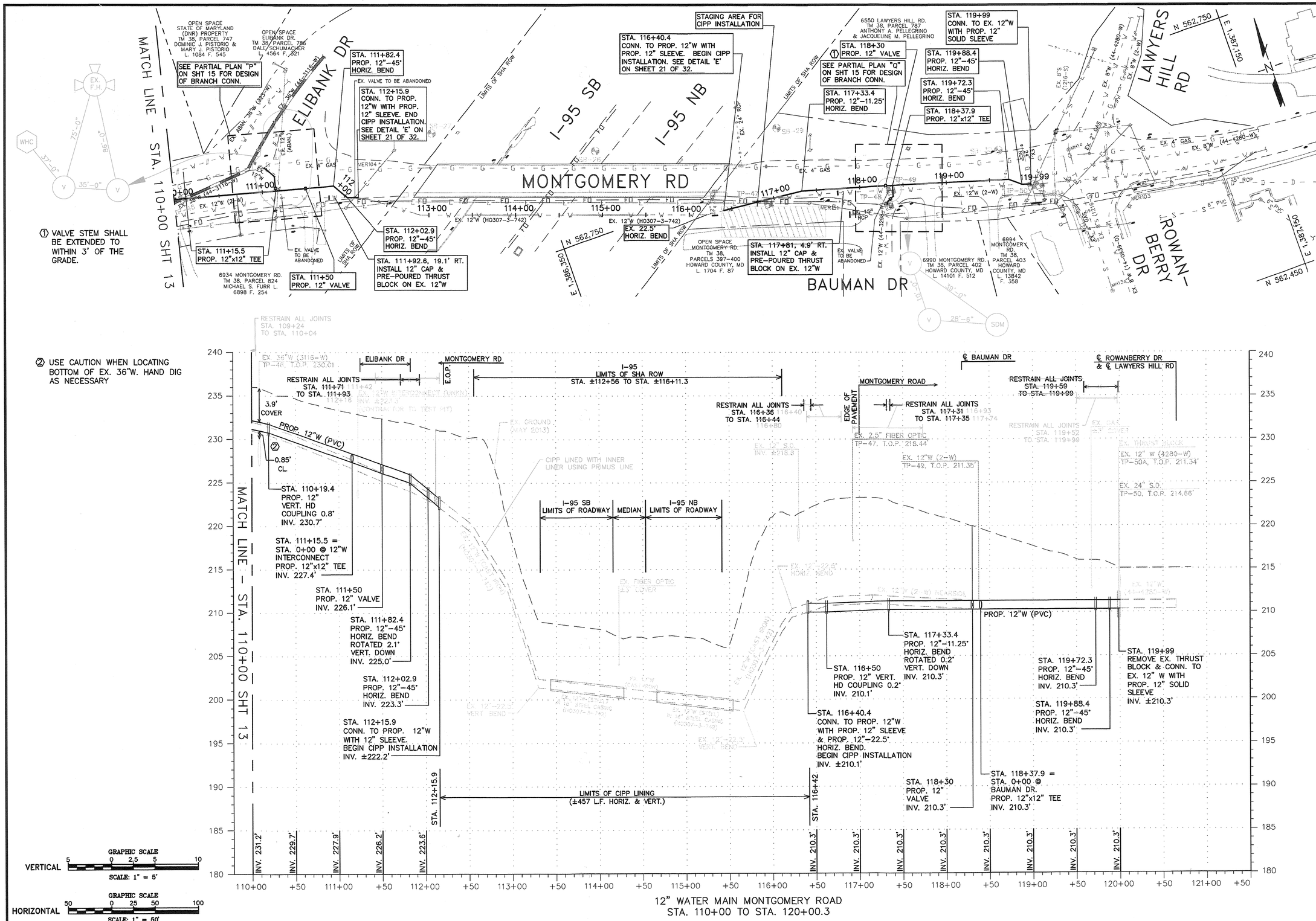
12" WATER MAIN PLAN & PROFILE

600 SCALE MAP NO. 38 — BLOCK NO. 1

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 13 OF 32



12" WATER MAIN MONTGOMERY ROAD
STA. 110+00 TO STA. 120+00.3

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE
CHIEF, BUREAU OF UTILITIES — DATE
CHIEF, UTILITY DESIGN DIVISION — DATE

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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.: 36630
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA–STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY
1	AS–BUILTS	07/17/19	DK
2	ADD PRIMUS LINER	12/11/19	FE

12" WATER MAIN PLAN & PROFILE

600 SCALE MAP NO. 38 — BLOCK NO. 1

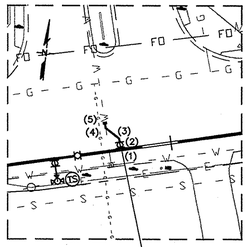
MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W–8318
CONTRACT NO.: 44–4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 14 OF 32

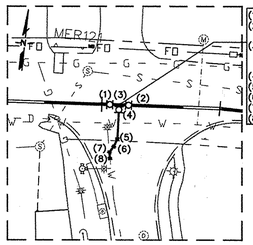
AS-BUILT 12/11/2019

PARTIAL PLAN "A"
ROCKBURN DR.



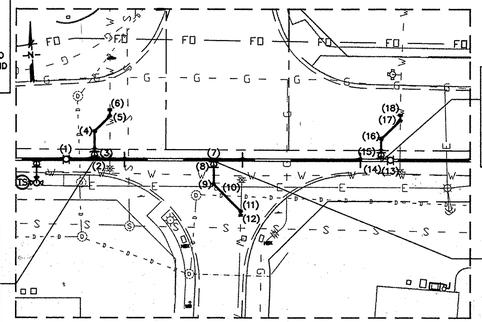
(1) STA. 0+00 @ ROCKBURN DR.
= STA. 0+28.5 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(2) STA. 0+02 PROP 8" VALVE
(3) STA. 0+04.9 PROP. 8"-45° HORIZ. BEND
(4) STA. 0+12 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+14.5 PROP. 8" SOLID SLEEVE

PARTIAL PLAN "B"
BRANDON'S WAY



(1) STA. 8+53.4 PROP. 12" VALVE
(2) STA. 8+61.4 PROP. 12" VALVE
(3) STA. 0+00 @ BRANDON'S WAY
= STA. 8+57.4 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(4) STA. 0+02 PROP 8" VALVE
(5) STA. 0+14.3 PROP. 8"-22.5° HORIZ. BEND
(6) STA. 0+19.8 PROP. 8"-11.25° HORIZ. BEND
(7) STA. 0+21 PROP. 8"-45° HORIZ. BEND
(8) STA. 0+24 PROP. 8" SOLID SLEEVE

PARTIAL PLAN "C"
ROCKBURN BRANCH PARK RD. (LEFT)
ROCKBURN WOODS WAY (CENTER)
ROCKBURN E.S. (RIGHT)

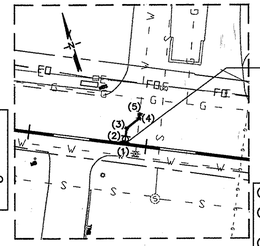


(1) STA. 22+75.6 PROP. 12" VALVE
(2) STA. 0+00 @ ROCKBURN BRANCH PARK RD.
= STA. 22+87.6 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(3) STA. 0+02 PROP 8" VALVE
(4) STA. 0+12 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+21.2 PROP. 8"-45° HORIZ. BEND
(6) STA. 0+24.2 PROP. 8" SOLID SLEEVE

(13) STA. 24+13 PROP. 12" VALVE
(14) STA. 0+00 @ ROCKBURN E.S.
= STA. 24+09 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(15) STA. 0+02.5 PROP 8" VALVE
(16) STA. 0+09.6 PROP. 8"-45° HORIZ. BEND
(17) STA. 0+21 PROP. 8"-45° HORIZ. BEND
(18) STA. 0+23 PROP. 8" SOLID SLEEVE

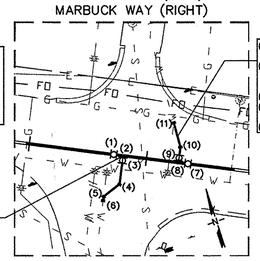
(7) STA. 0+00 ROCKBURN WOODS WAY
= STA. 23+38 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(8) STA. 0+02 PROP 8" VALVE
(9) STA. 0+09.9 PROP. 8"-45° HORIZ. BEND
(10) STA. 0+12.7 PROP. 8"-45° VERT. BEND
(11) STA. 0+26.7 PROP. 8"-45° HORIZ. BEND
(12) STA. 0+28.7 PROP. 8" SOLID SLEEVE

PARTIAL PLAN "D"
CARTER'S CROSSING



(1) STA. 0+00 @ CARTER'S CROSSING
= STA. 32+91 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(2) STA. 0+02 PROP 8" VALVE
(3) STA. 0+06.6 PROP. 8"-45° HORIZ. BEND
(4) STA. 0+13.5 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+15.5 PROP. 8" SOLID SLEEVE

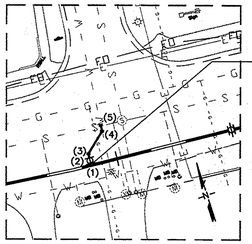
PARTIAL PLAN "E"
BELLANCA DR. (LEFT)
MARBUCK WAY (RIGHT)



(1) STA. 35+85.7 PROP. 12" VALVE
(2) STA. 0+00 @ BELLANCA DR.
= STA. 35+89.7 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(3) STA. 0+02 PROP 8" VALVE
(4) STA. 0+12.2 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+20.9 PROP. 8"-45° HORIZ. BEND
(6) STA. 0+22.9 PROP. 8" SOLID SLEEVE

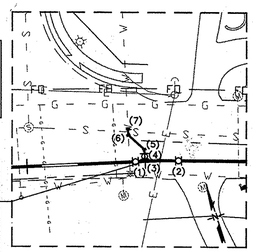
(7) STA. 36+17.3 PROP. 12" VALVE
(8) STA. 0+00 @ MARBUCK WAY
= STA. 36+13.3 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(9) STA. 0+02 PROP 8" VALVE
(10) STA. 0+06.8 PROP. 8"-22.5° HORIZ. BEND
(11) STA. 0+17.8 PROP. 8" SOLID SLEEVE

PARTIAL PLAN "F"
PARKVIEW CT.



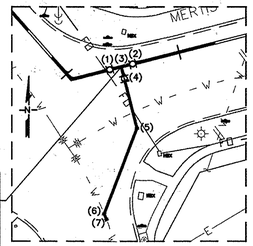
(1) STA. 0+00 @ PARKVIEW CT.
= STA. 43+38.7 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(2) STA. 0+02 PROP 8" VALVE
(3) STA. 0+05 PROP. 8"-45° HORIZ. BEND
(4) STA. 0+16.2 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+19.2 PROP. 8" SOLID SLEEVE

PARTIAL PLAN "G"
MONTERY RD.



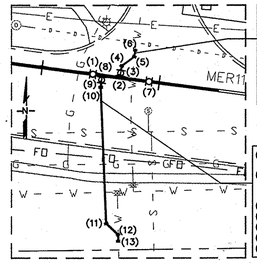
(1) STA. 51+46 PROP. 12" VALVE
(2) STA. 51+64 PROP. 12" VALVE
(3) STA. 0+00 @ MONTERY RD.
= STA. 51+50 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(4) STA. 0+02 PROP 8" VALVE
(5) STA. 0+05 PROP. 8"-45° HORIZ. BEND
(6) STA. 0+14.2 PROP. 8"-45° HORIZ. BEND
(7) STA. 0+17.2' PROP. 8" SOLID SLEEVE

PARTIAL PLAN "H"
DEBORAH JEAN DR.



(1) STA. 59+19.8 PROP. 12" VALVE
(2) STA. 59+29.8 PROP. 12" VALVE
(3) STA. 0+00 @ DEBORAH JEAN DR.
= STA. 59+24.8 @ MONTGOMERY RD.
PROP. 12"x12" TEE
(4) STA. 0+05.3 PROP 12" VALVE
(5) STA. 0+26.9 PROP. 12"-45° HORIZ. BEND
(6) STA. 0+65.9 PROP. 12"-45° HORIZ. BEND
(7) STA. 0+68.8 PROP. 12" SOLID SLEEVE

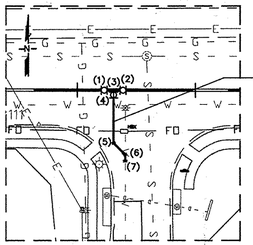
PARTIAL PLAN "I"
JOHN CALVERT CT. (LEFT)
KOFFEL CT. (RIGHT)



(1) STA. 64+96 PROP. 12" VALVE
(2) STA. 0+00 @ KOFFEL CT.
= STA. 64+83.2 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(3) STA. 0+02 PROP 8" VALVE
(4) STA. 0+05 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+11.8 PROP. 8"-45° HORIZ. BEND
(6) STA. 0+14.8 PROP. 8" SOLID SLEEVE

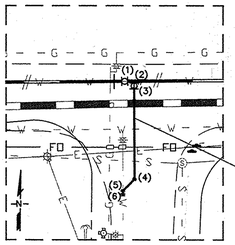
(7) STA. 64+72 PROP. 12" VALVE
(8) STA. 0+00 @ JOHN CALVERT CT.
= STA. 64+76 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(10) STA. 0+03 PROP 8" VALVE
(11) STA. 0+05 PROP. 8"-11.25° HORIZ. BEND
(12) STA. 0+62.9 PROP. 8"-45° HORIZ. BEND
(13) STA. 0+70 PROP. 8"-45° HORIZ. BEND
(14) STA. 0+73 PROP. 8" SOLID SLEEVE

PARTIAL PLAN "J"
RUXTON DR.



(1) STA. 71+61.8 PROP. 12" VALVE
(2) STA. 71+69.8 PROP. 12" VALVE
(3) STA. 0+00 @ RUXTON DR.
= STA. 71+65.8 @ MONTGOMERY RD.
PROP. 12"x8"
(4) STA. 0+02 PROP 8" VALVE
(5) STA. 0+22.5 PROP. 8"-45° HORIZ. BEND
(6) STA. 0+29.5 PROP. 8"-45° HORIZ. BEND
(7) STA. 0+32.5 PROP. 8" SOLID SLEEVE

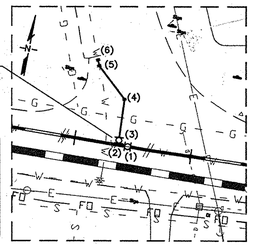
PARTIAL PLAN "K"
TIMBERVIEW DR.



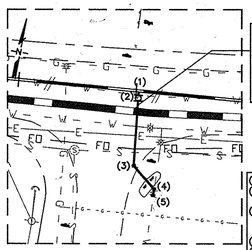
(1) STA. 85+20.5 PROP. 12" VALVE
(2) STA. 0+00 @ LANDING RD.
= STA. 85+18.6 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(3) STA. 0+02 PROP 8" VALVE
(4) STA. 0+19.7 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+37.4 PROP. 8"-45° HORIZ. BEND
(6) STA. 0+40.4 PROP. 8" SOLID SLEEVE

(1) STA. 84+04.5 PROP. 12" VALVE
(2) STA. 0+00 @ TIMBERVIEW DR.
= STA. 84+08.5 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(3) STA. 0+02 PROP 8" VALVE
(4) STA. 0+41.6 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+48.7 PROP. 8"-45° HORIZ. BEND
(6) STA. 0+50.7 PROP. 8" SOLID SLEEVE

PARTIAL PLAN "L"
LANDING RD.



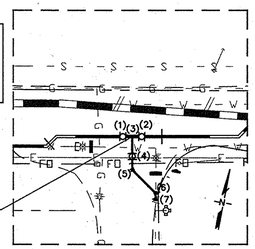
PARTIAL PLAN "M"
HARMAN AVE.



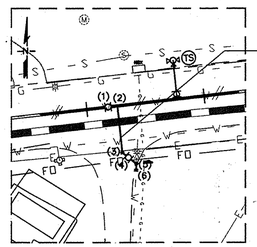
(1) STA. 0+00 @ HARMAN AVE.
= STA. 87+51 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(2) STA. 0+02 PROP 8" VALVE
(3) STA. 0+31.9 PROP. 8"-45° HORIZ. BEND
(4) STA. 0+45 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+48 PROP. 8" SOLID SLEEVE

(1) STA. 94+32.5 PROP. 12" VALVE
(2) STA. 94+40.5 PROP. 12" VALVE
(3) STA. 0+00 = HUNT CLUB RD.
= STA. 94+36.5 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(4) STA. 0+08.4 PROP 8" VALVE
(5) STA. 0+14 PROP. 8"-45° HORIZ. BEND
(6) STA. 0+26 PROP. 8"-45° HORIZ. BEND
(7) STA. 0+31 PROP. 8" SOLID SLEEVE

PARTIAL PLAN "N"
HUNT CLUB RD.

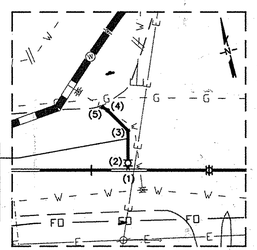


PARTIAL PLAN "O"
OLD HUNT CLUB RD.



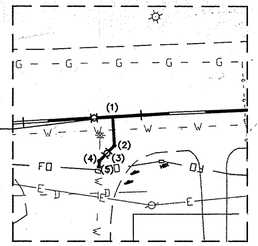
(1) STA. 100+59 PROP. 12" VALVE
(2) STA. 0+00 @ OLD HUNT CLUB RD.
= STA. 100+63 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(3) STA. 0+20 PROP. 6"-45° HORIZ. BEND
(4) STA. 0+23.3 PROP 6" VALVE
(5) STA. 0+27.6 PROP. 6"-45° HORIZ. BEND
(6) STA. 0+30.6 PROP. 6" SOLID SLEEVE

PARTIAL PLAN "P"
EX. 12"W INTERCONECT



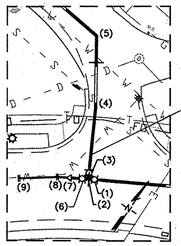
(1) STA. 0+00 @ EX. 12"W INTERCONNECT
= STA. 111+15.5 @ MONTGOMERY RD.
PROP. 12"x12" TEE
(2) STA. 0+02 PROP. 12" VALVE
(3) STA. 0+16.8 PROP. 12"-45° HORIZ. BEND
(4) STA. 0+29 PROP. 12"-11.25° HORIZ. BEND
(5) STA. 0+32 PROP. 12" SOLID SLEEVE

PARTIAL PLAN "Q"
BAUMAN DR.



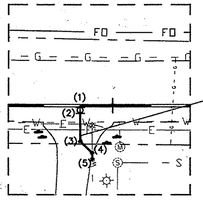
(1) STA. 0+00 @ BAUMAN DR.
= STA. 118+37.9 @ MONTGOMERY RD.
PROP. 12"x12" TEE
(2) STA. 0+12.2 PROP. 12"-45° HORIZ. BEND
(3) STA. 0+16.8 PROP. 12" VALVE
(4) STA. 0+21.5 PROP. 12"-45° HORIZ. BEND
(5) STA. 0+24.3 PROP. 12" SOLID SLEEVE

PARTIAL PLAN "R"
MILLER'S CORNER



@ MILLERS CORNER
(1) STA. 7+47.6 PROP. 12" VALVE
(2) STA. 7+50.2 PROP. 12"X12" TEE
(3) STA. 7+52.8 PROP. 12" VALVE
(4) STA. 7+80.8 PROP. 12"-5° SWEEP
(5) STA. 8+11.2 PROP. 12"-45° HORIZ. BEND
(6) STA. 7+50.2, 4' LT., PROP. 12" VALVE
(7) STA. 7+50.2, 8' LT., PROP. 12"X8" RED.
(8) STA. 7+50.2, 13.1' LT., PROP. 12"-5° HORIZ. SWEEP
(9) STA. 7+50.2, 29.7' LT. CONN. TO EX. 8"W WITH
PROP. 8" SOLID SLEEVE

PARTIAL PLAN "S"
CULLINS WAY



@ CULLINS WAY
(1) STA. 0+00 = CULLINS WAY
= STA. 17+86.2 @ MONTGOMERY RD.
PROP. 12"x8" TEE
(2) STA. 0+02 PROP. 8" VALVE
(3) STA. 0+15.3 PROP. 8"-45° HORIZ. BEND
(4) STA. 0+22.3 PROP. 8"-45° HORIZ. BEND
(5) STA. 0+25.3 PROP. 8" SOLID SLEEVE.

GRAPHIC SCALE
30 0 15 30 60
SCALE: 1" = 30'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN K. MCKENNA-STREYLE — No. 36630 — REGISTERED 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.: 36630
EXPIRATION DATE: 06/07/16
ERIN K. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

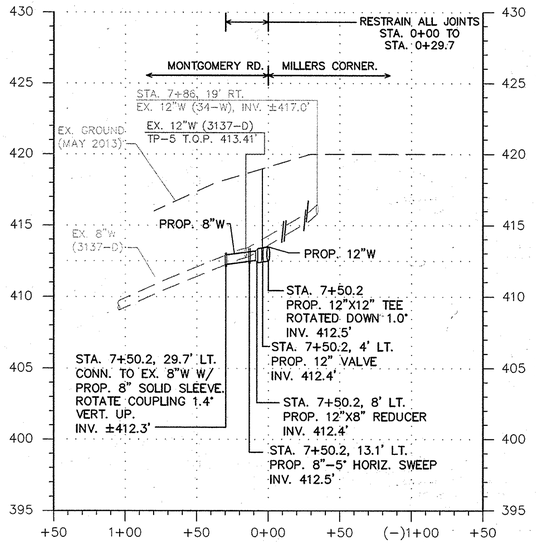
12" WATER MAIN
PARTIAL PLAN
ENLARGEMENTS

600 SCALE MAP NO. | BLOCK NO.

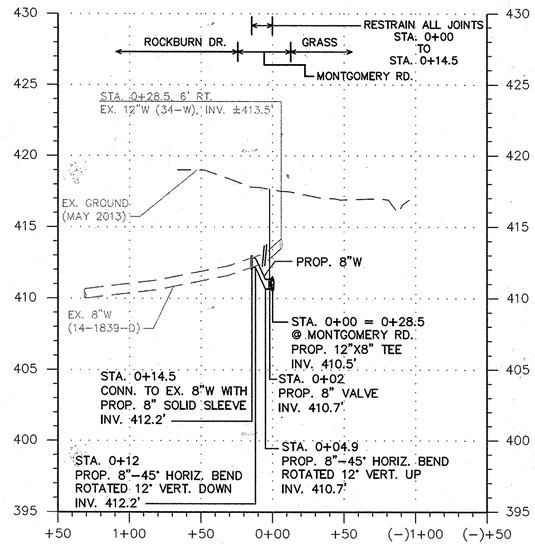
MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE
AS SHOWN

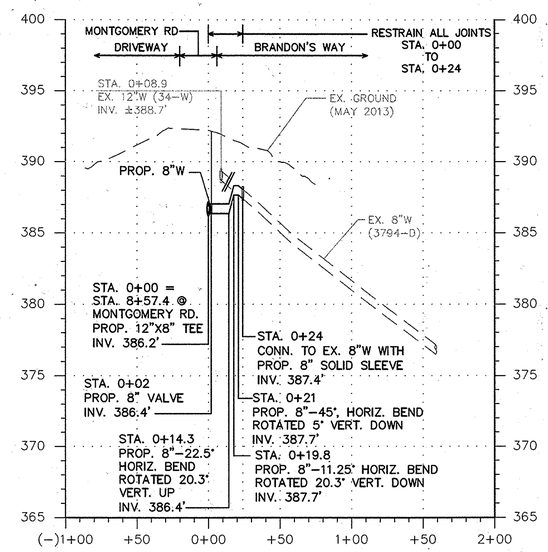
SHEET
15 OF 32



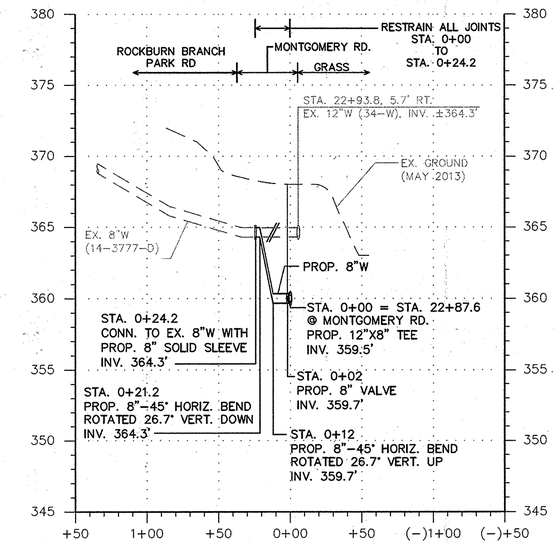
8" WATER MAIN – MILLER'S CORNER



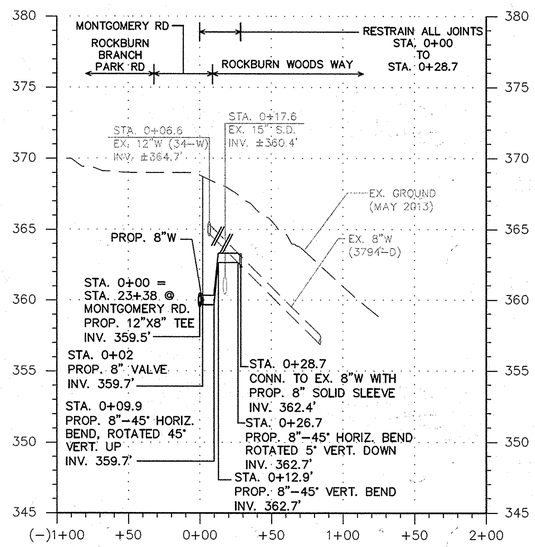
8" WATER MAIN – ROCKBURN DR



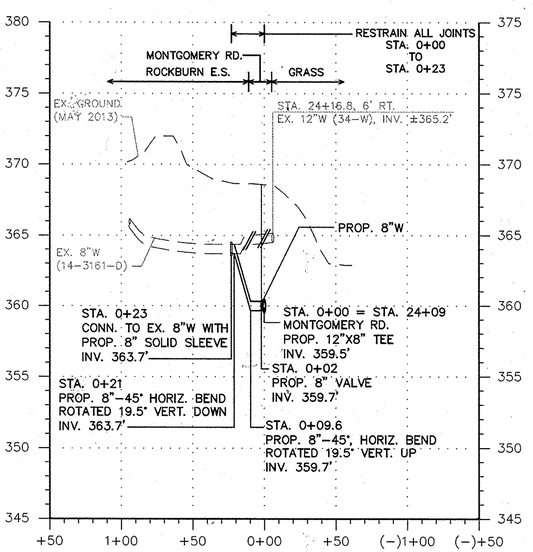
8" WATER MAIN – BRANDON'S WAY



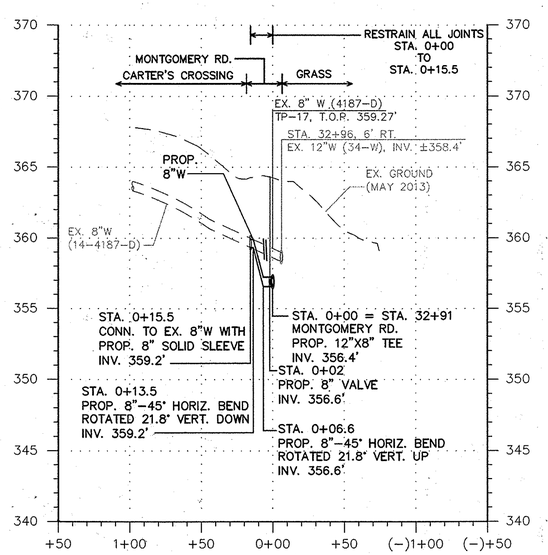
8" WATER MAIN – ROCKBURN BRANCH PARK RD.



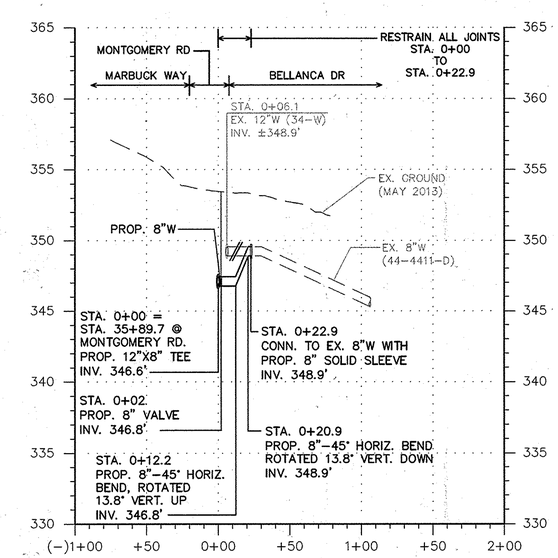
8" WATER MAIN – ROCKBURN WOODS WAY



8" WATER MAIN – ROCKBURN ELEMENTARY SCHOOL



8" WATER MAIN – CARTER'S CROSSING



8" WATER MAIN – BELLANCA DR.

HORIZONTAL GRAPHIC SCALE 50 0 25 50 100 — SCALE: 1" = 50'

VERTICAL GRAPHIC SCALE 5 0 2.5 5 10 — SCALE: 1" = 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION PSD	DATE 4/5/16

Michael Baker INTERNATIONAL

MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN K. MCKENNA-STREYLE — No. 36630 — REGISTERED 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.: 36630
EXPIRATION DATE: 06/07/16

ERIN K. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

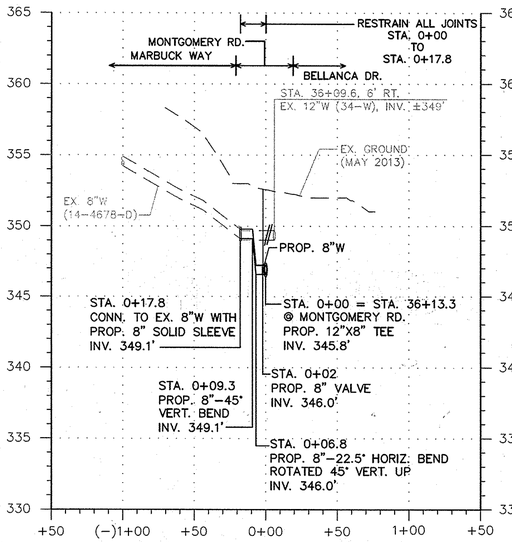
12" WATER MAIN BRANCH CONNECTION PROFILES

600 SCALE MAP NO. | BLOCK NO.

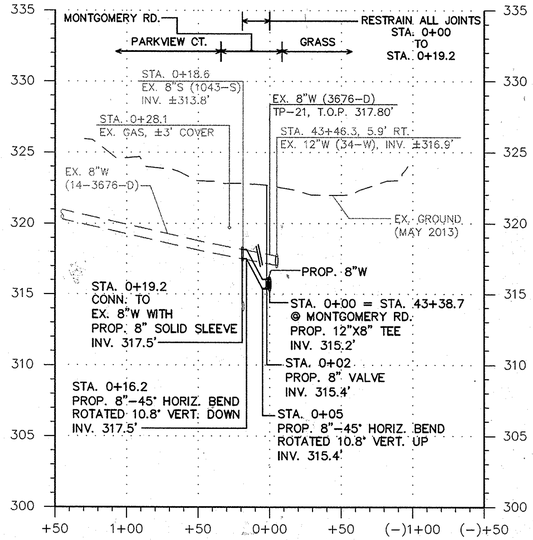
MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

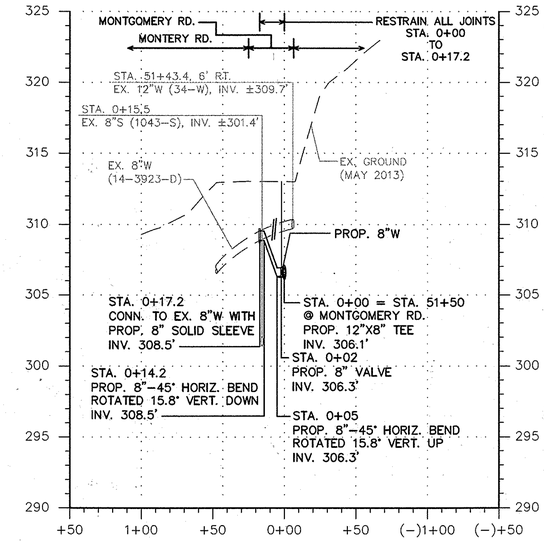
SHEET 16 OF 32



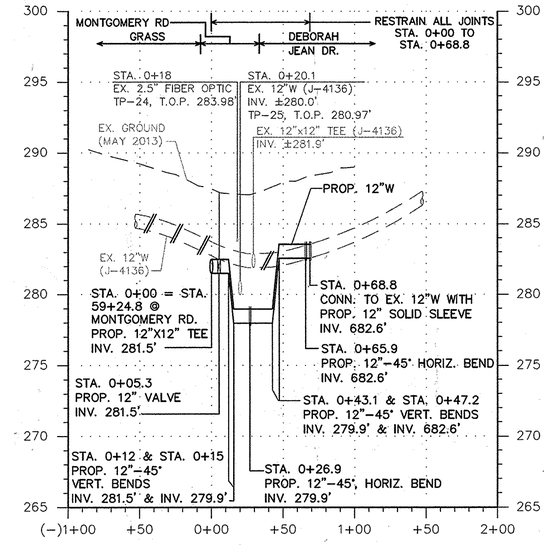
8" WATER MAIN – MARBUCK WAY



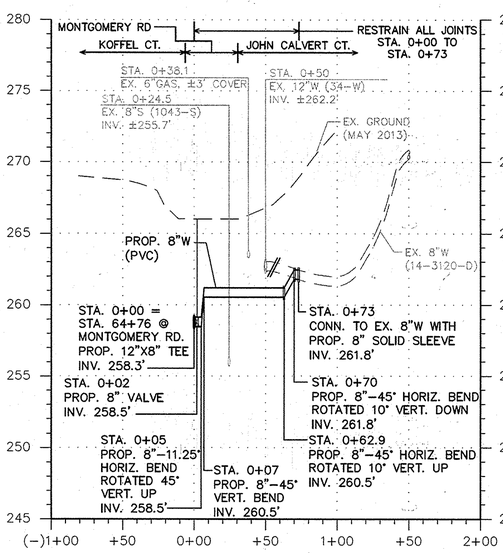
8" WATER MAIN – PARKVIEW CT.



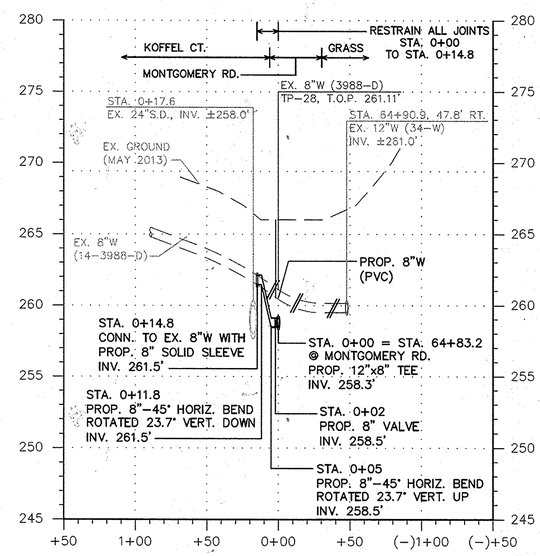
8" WATER MAIN – MONTERY RD.



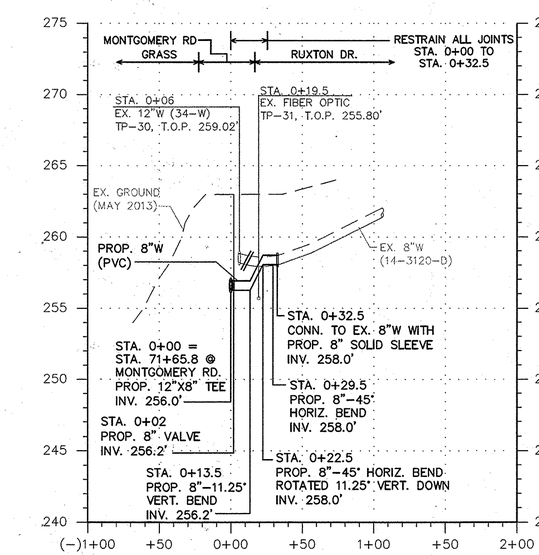
12" WATER MAIN – DEBORAH JEAN DR.



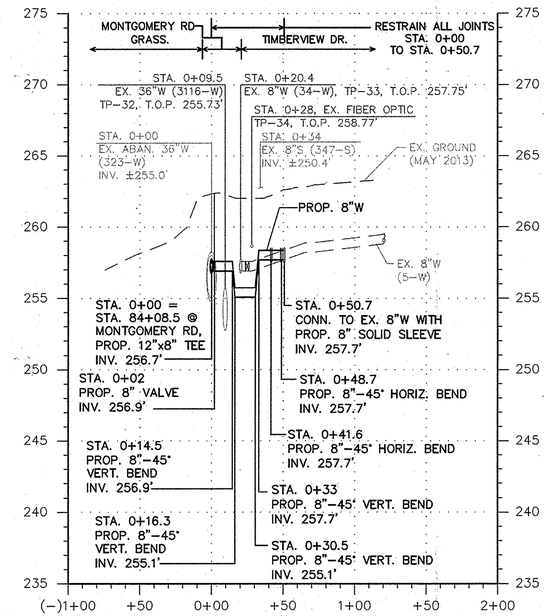
8" WATER MAIN – JOHN CALVERT CT.



8" WATER MAIN – KOFFEL CT.



8" WATER MAIN – RUXTON DR.



8" WATER MAIN – TIMBERVIEW DR.

HORIZONTAL GRAPHIC SCALE 50 0 25 50 100 — SCALE: 1" = 50'

VERTICAL GRAPHIC SCALE 5 0 2.5 5 10 — SCALE: 1" = 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION PSD — DATE 4/5/16

Michael Baker INTERNATIONAL
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Linthicum, MD 21090-1014
Phone: (410) 689-9400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36530 — REGISTERED 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.: 36530 EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

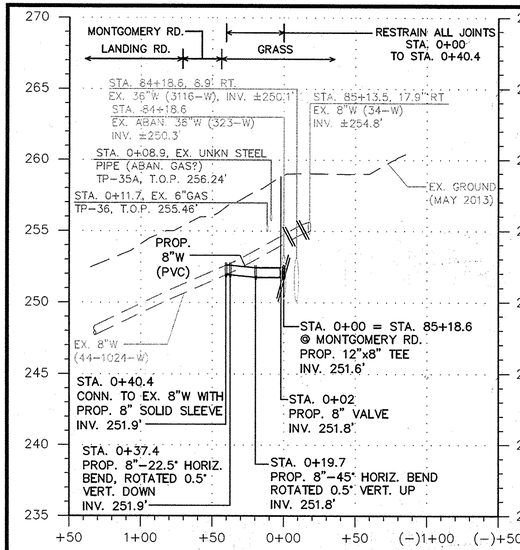
12" WATER MAIN BRANCH CONNECTION PROFILES

600 SCALE MAP NO. | BLOCK NO.

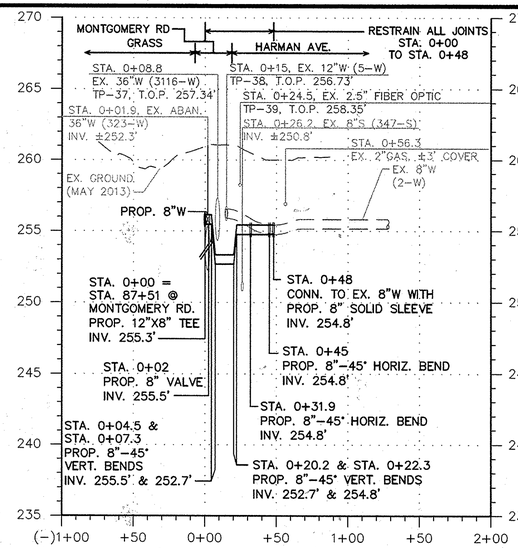
MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

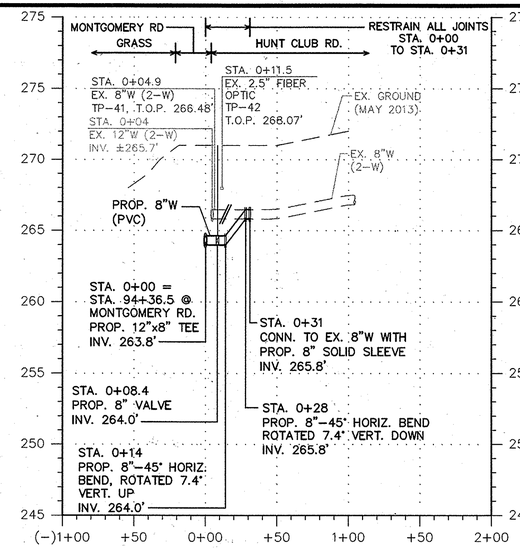
SHEET 17 OF 32



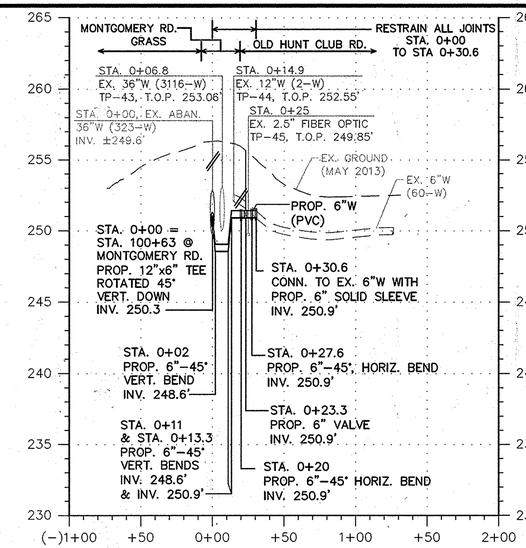
8" WATER MAIN – LANDING RD.



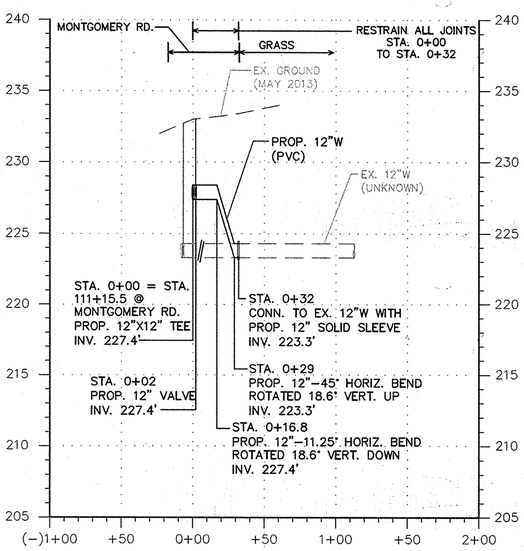
8" WATER MAIN – HARMAN AVE.



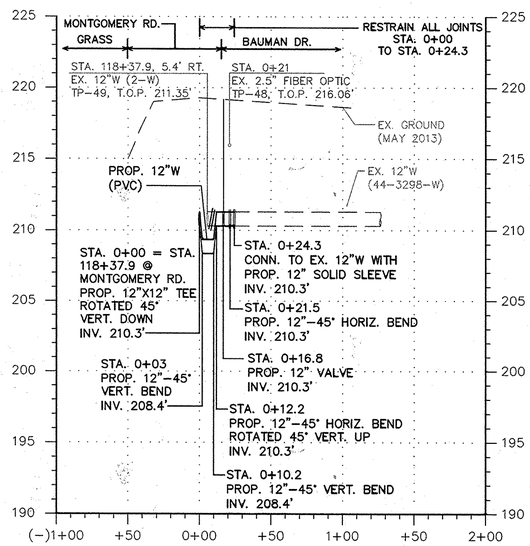
8" WATER MAIN – HUNT CLUB RD.



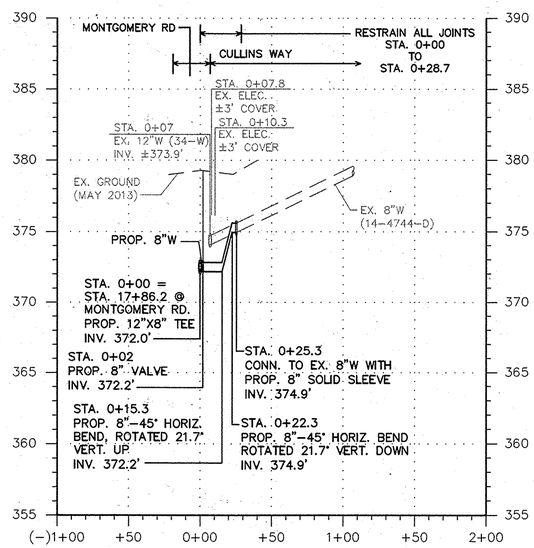
6" WATER MAIN – OLD HUNT CLUB RD.



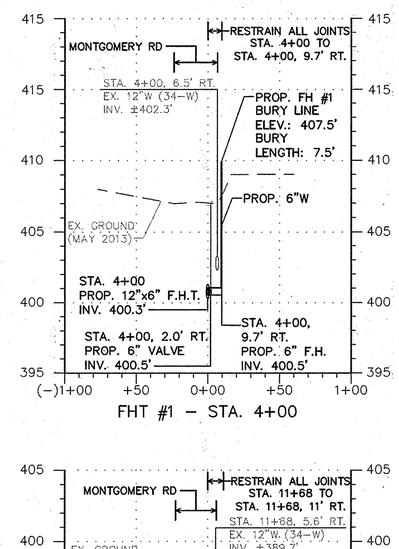
12" WATER MAIN – EX. 12"W INTERCONNECT



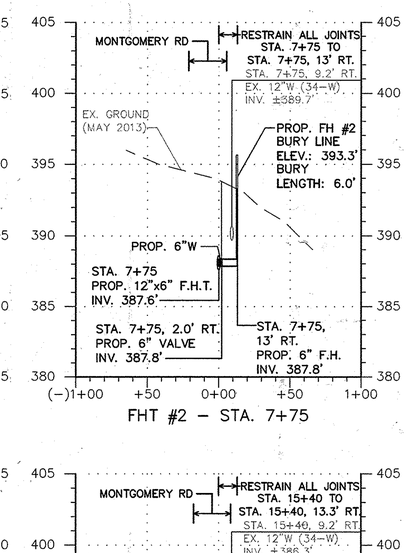
12" WATER MAIN – BAUMAN DR.



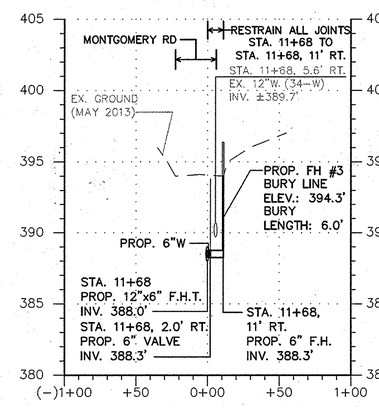
8" WATER MAIN – CULLINS WAY



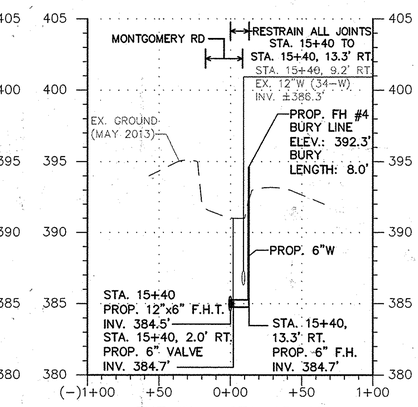
FHT #1 – STA. 4+00



FHT #2 – STA. 7+75



FHT #3 – STA. 11+68



FHT #4 – STA. 15+40

GRAPHIC SCALE
HORIZONTAL 50 0 25 50 100
SCALE: 1" = 50'

GRAPHIC SCALE
VERTICAL 5 0 2.5 5 10
SCALE: 1" = 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/5/16	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION PSD	DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREVLE — No. 36696 — REGISTERED 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.: 36696
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREVLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

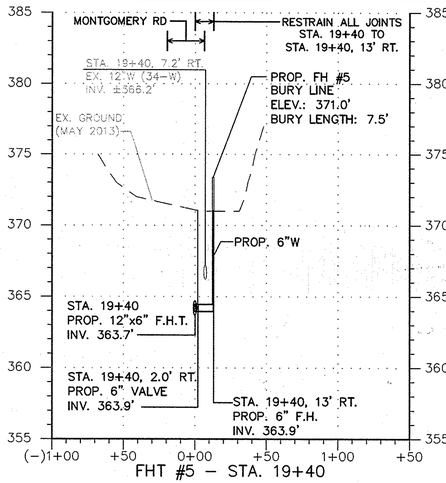
12" WATER MAIN
BRANCH CONNECTION
PROFILES & FIRE
HYDRANT PROFILES

600 SCALE MAP NO. | BLOCK NO.

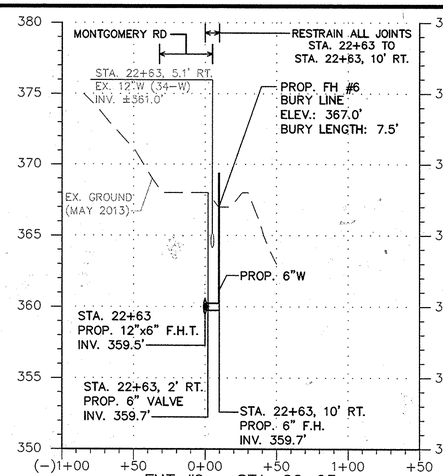
MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

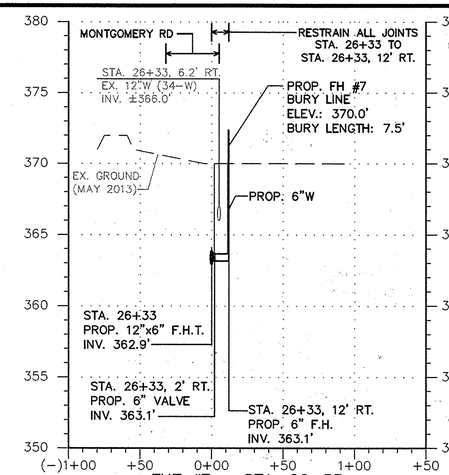
SHEET 18 OF 32



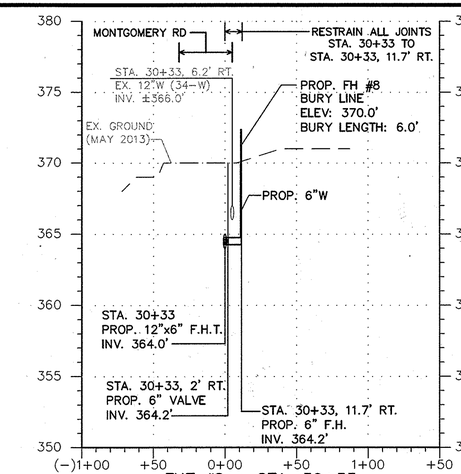
FHT #5 – STA. 19+40



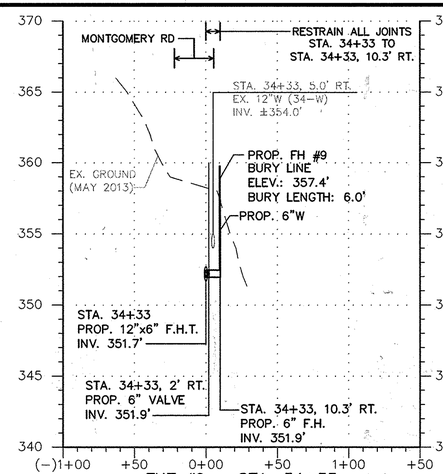
FHT #6 – STA. 22+63



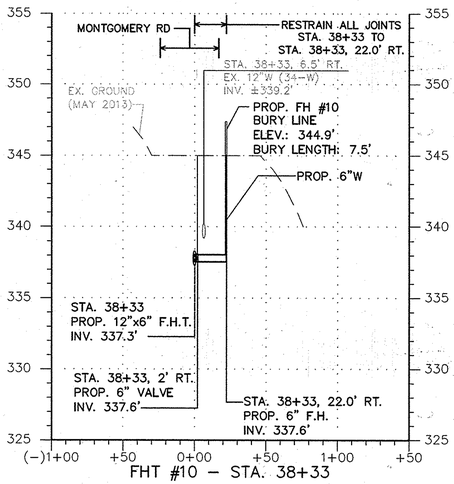
FHT #7 – STA. 26+33



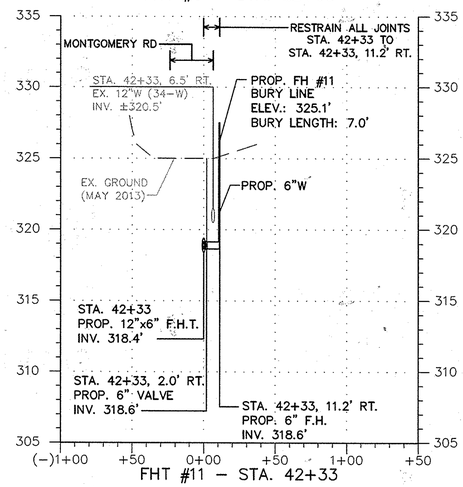
FHT #8 – STA. 30+33



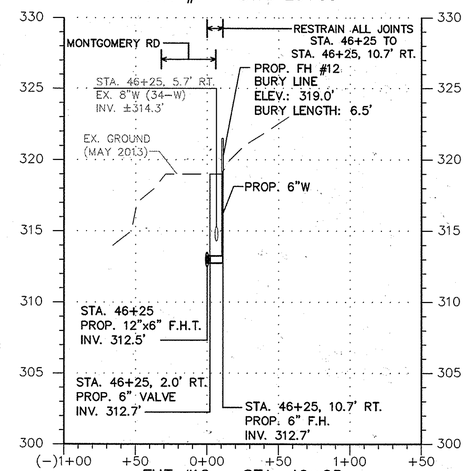
FHT #9 – STA. 34+33



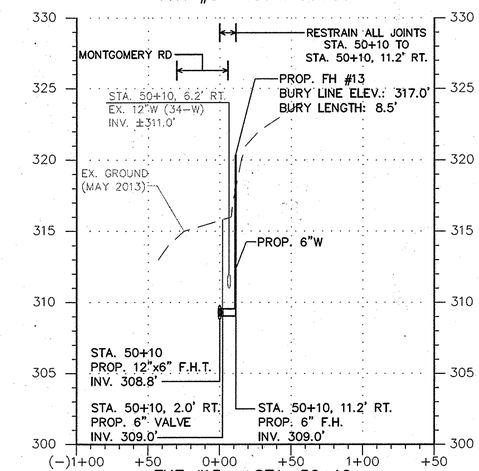
FHT #10 – STA. 38+33



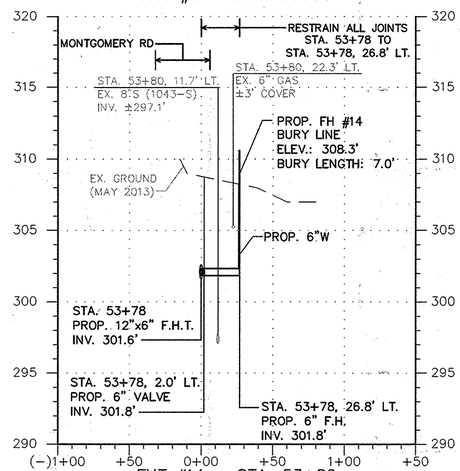
FHT #11 – STA. 42+33



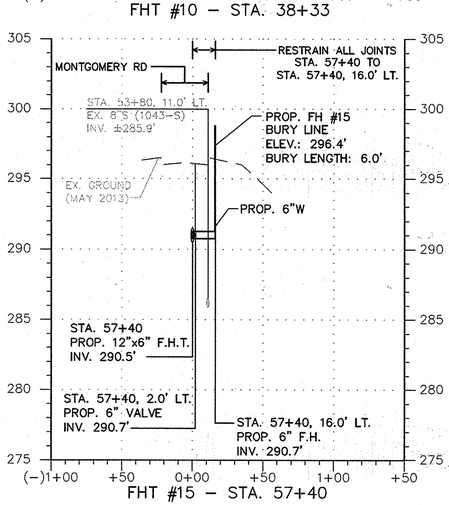
FHT #12 – STA. 46+25



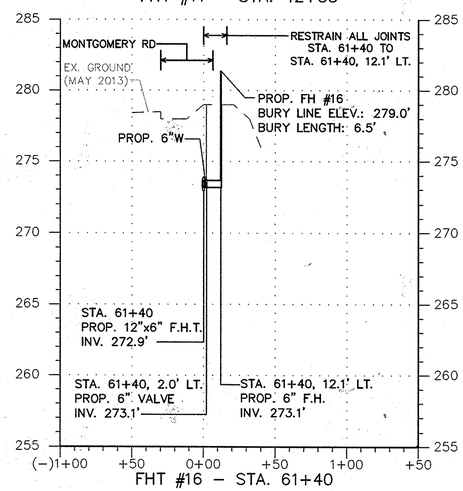
FHT #13 – STA. 50+10



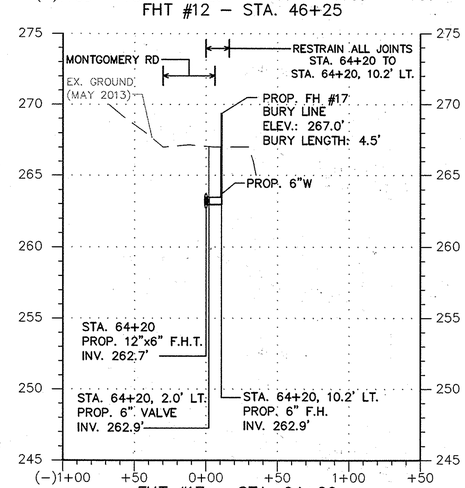
FHT #14 – STA. 53+80



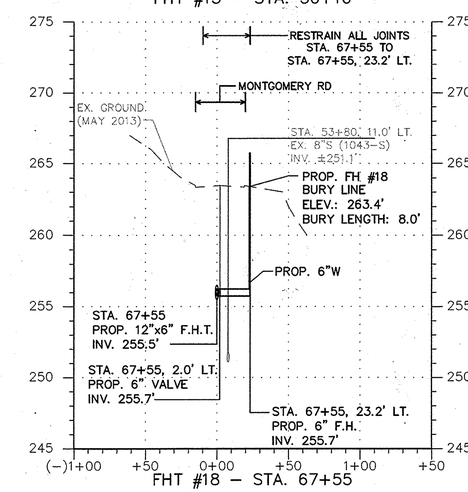
FHT #15 – STA. 57+40



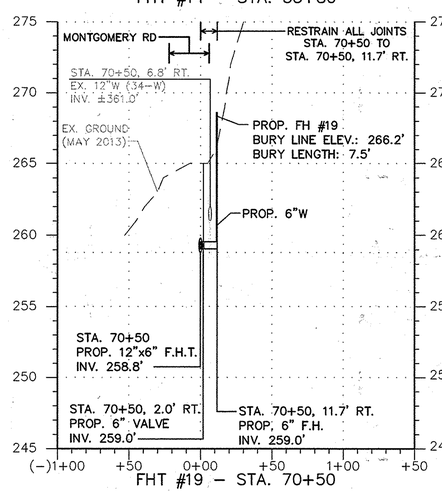
FHT #16 – STA. 61+40



FHT #17 – STA. 64+20



FHT #18 – STA. 67+55



FHT #19 – STA. 70+50

HORIZONTAL GRAPHIC SCALE 50 0 25 50 100 — SCALE: 1" = 50'

VERTICAL GRAPHIC SCALE 5 0 2.5 5 10 — SCALE: 1" = 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

Michael Baker INTERNATIONAL
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Phone: (410) 689-3400

STATE OF MARYLAND — ERIN K. MCKENNA-STREYLE — No. 36630 — REGISTERED 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.: 36630 EXPIRATION DATE: 06/07/16
ERIN K. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

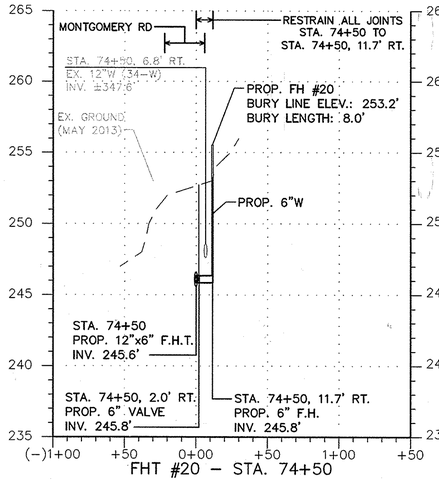
FIRE HYDRANT PROFILES

600 SCALE MAP NO. | BLOCK NO.

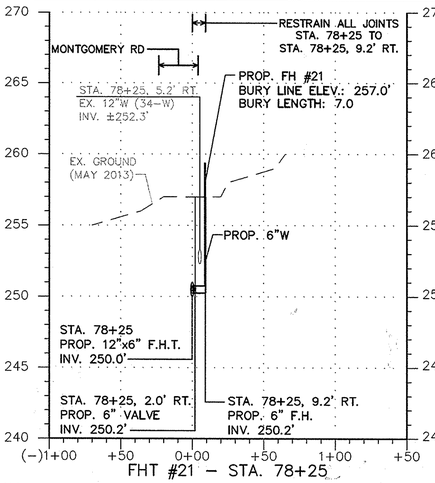
MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

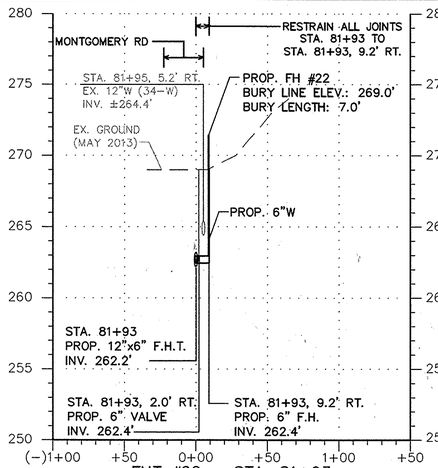
SHEET 19 OF 32



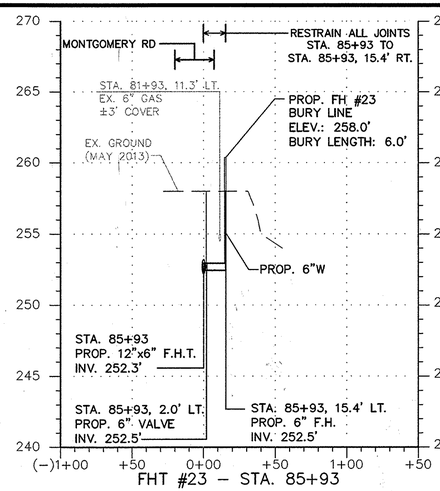
FHT #20 – STA. 74+50



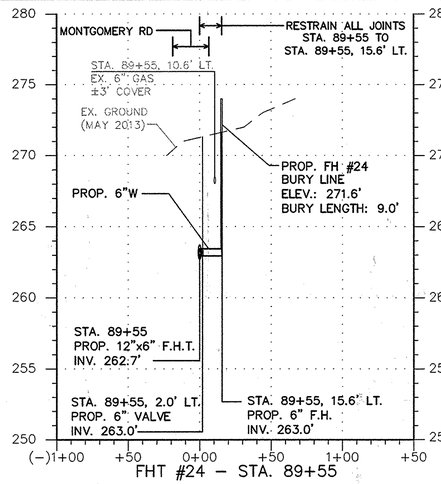
FHT #21 – STA. 78+25



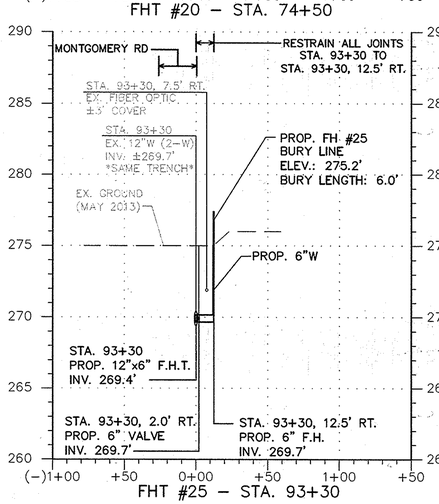
FHT #22 – STA. 81+93



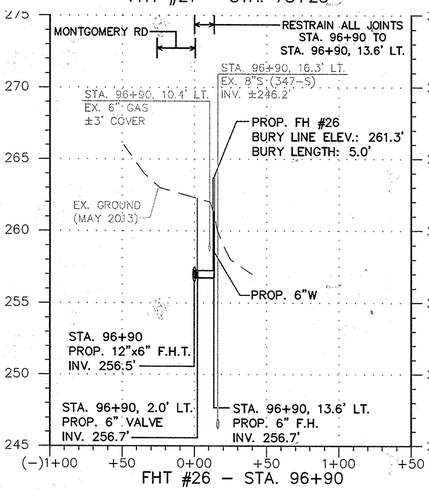
FHT #23 – STA. 85+93



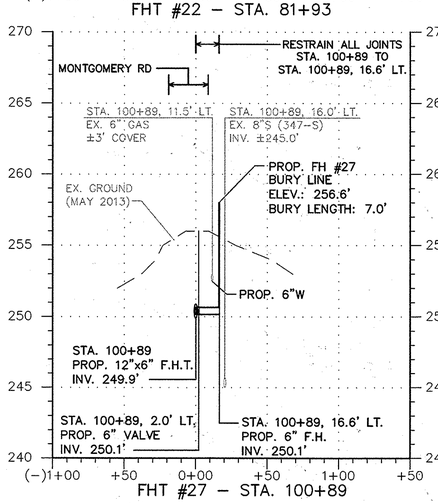
FHT #24 – STA. 89+55



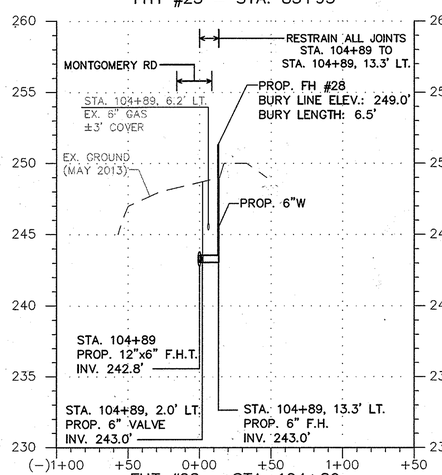
FHT #25 – STA. 93+30



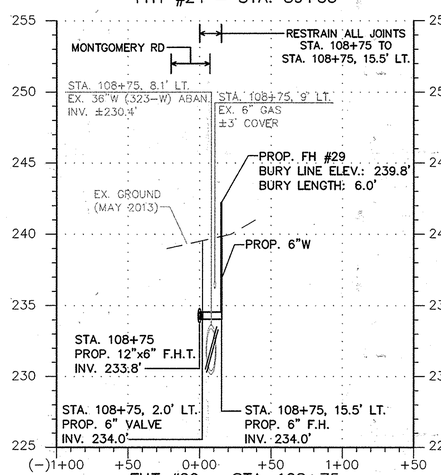
FHT #26 – STA. 96+90



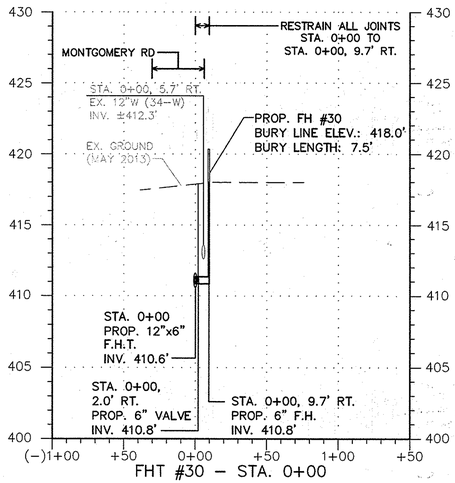
FHT #27 – STA. 100+89



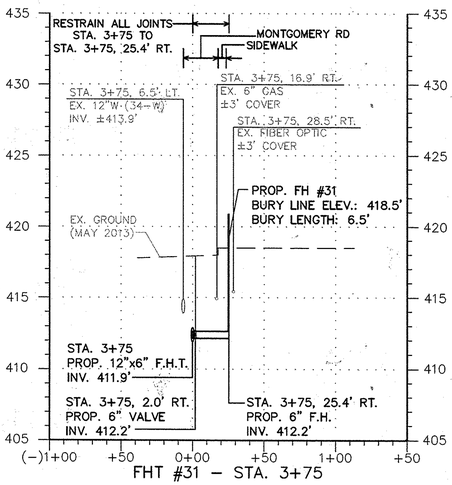
FHT #28 – STA. 104+89



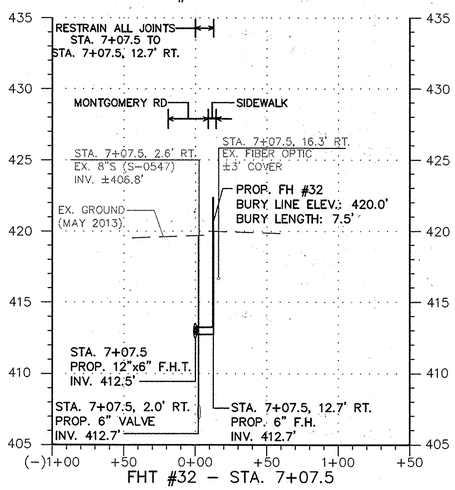
FHT #29 – STA. 108+75



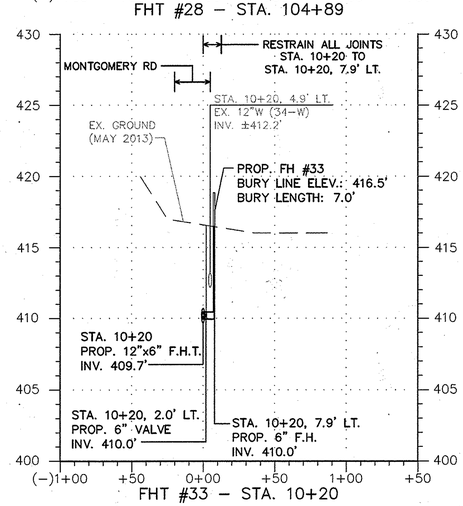
FHT #30 – STA. 0+00



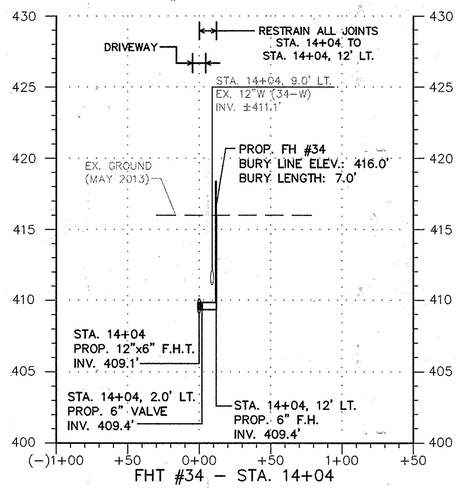
FHT #31 – STA. 3+75



FHT #32 – STA. 7+07.5



FHT #33 – STA. 10+20



FHT #34 – STA. 14+04

HORIZONTAL GRAPHIC SCALE 50 0 25 50 100 — SCALE: 1" = 50'

VERTICAL GRAPHIC SCALE 5 0 2.5 5 10 — SCALE: 1" = 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	4/6/16 DATE	CHIEF, BUREAU OF ENGINEERING	4/5/16 DATE
CHIEF, BUREAU OF UTILITIES	4/6/16 DATE	CHIEF, UTILITY DESIGN DIVISION PSD	4/5/16 DATE

Michael Baker INTERNATIONAL

MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN McKENNA-STREYLE — No. 36530 — REGISTERED 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.: 36530
EXPIRATION DATE: 06/07/16

ERIN L. McKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

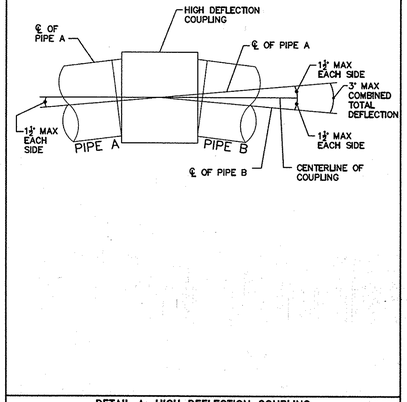
FIRE HYDRANT PROFILES

600 SCALE MAP NO. | BLOCK NO.

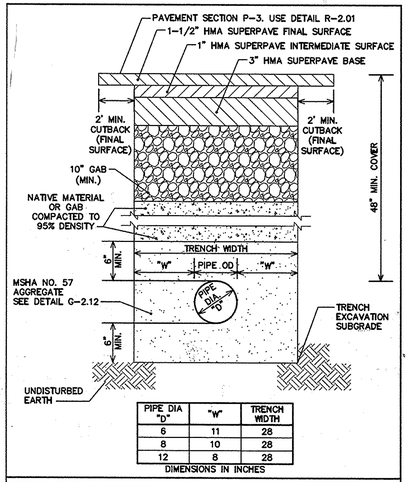
MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 20 OF 32



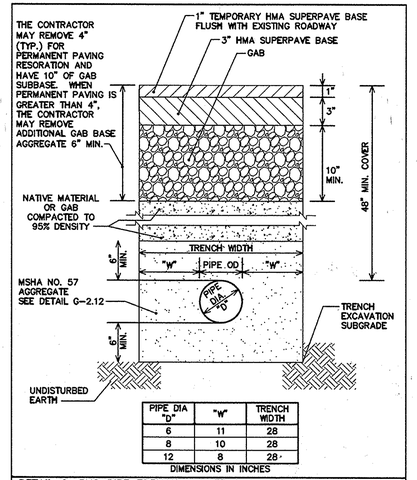
DETAIL A: HIGH DEFLECTION COUPLING
SCALE: NTS



PIPE DIA "D"	"W"	TRENCH WIDTH
6	11	28
8	10	28
12	8	28

DIMENSIONS IN INCHES

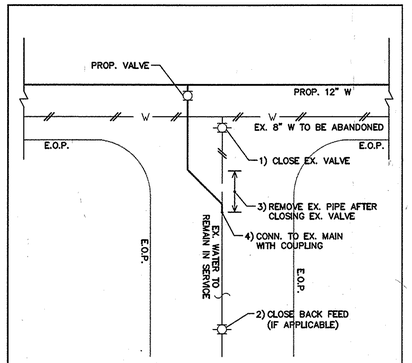
DETAIL B: PVC PIPE TRENCH AND PERMANENT PAVING RESTORATION
SCALE: NTS



PIPE DIA "D"	"W"	TRENCH WIDTH
6	11	28
8	10	28
12	8	28

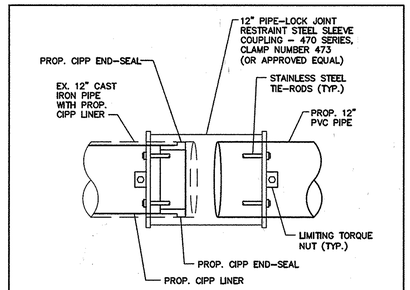
DIMENSIONS IN INCHES

DETAIL C: PVC PIPE TRENCH AND TEMPORARY PAVING RESTORATION
SCALE: NTS

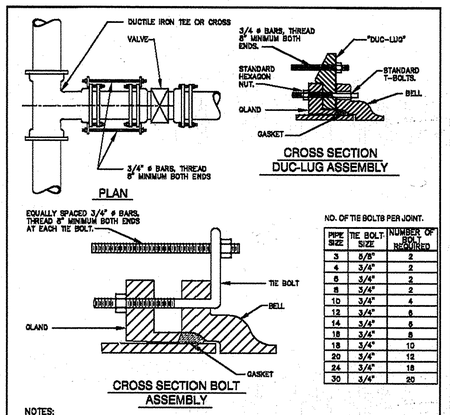


NOTES:
(SEE "SUGGESTED SEQUENCE OF CONSTRUCTION" FOR INTERSECTION SPECIFIC INSTALLATION PROCEDURES).
1. CLOSE EX. VALVE ON BRANCH CONNECTION & DRAIN THE BRANCH CONNECTION WATER LINE.
2. CLOSE EX. VALVE IF THE LINE IS BACK-FED.
3. REMOVE EX. PIPE BETWEEN EX. VALVE AND POINT OF CONNECTION TO THE NEW MAIN.
4. INSTALL PROP. PIPE FROM PROP. VALVE TO THE POINT OF CONNECTION TO THE EX. MAIN. USE DETAIL G-2.12 PIPE TRENCH PLASTIC & COPPER FOR TRENCH WIDTH.
5. RESTORE THE AREA.

DETAIL D: BRANCH CONNECTION (TYPICAL)
SCALE: NTS



DETAIL E: TRANSITION FROM CIPP TO PROP. WATER MAIN(TYPICAL)
SCALE: NTS

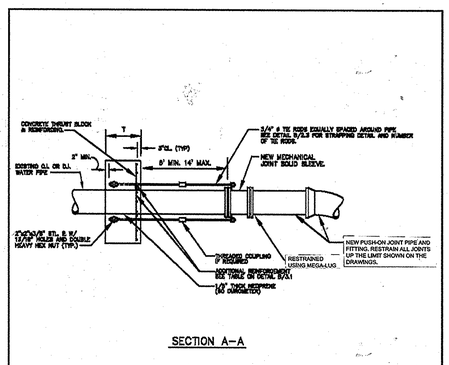


NO. OF TIE BOLTS PER JOINT.

PIPE SIZE	TIE BOLT SIZE	NUMBER OF BOLT REQUIRED
3	5/8"	2
4	3/4"	2
6	3/4"	2
8	3/4"	2
10	3/4"	4
12	3/4"	6
14	3/4"	6
16	3/4"	8
18	3/4"	10
20	3/4"	12
24	3/4"	18
30	3/4"	20

NOTES:
1. USE DUCTILE IRON MECHANICAL JOINT FITTINGS ONLY.
2. COAT BARS AND APPURTENANCES WITH FIELD APPLIED COATING. SEE SPECIFICATIONS.
3. IF WORKING PLUS SURGE PRESSURES ARE HIGHER THAN 250 PSI, SPECIAL DESIGN IS REQUIRED.
4. USE DUC-LUG ONLY WHEN VALVE BODY BELL HAS SLOTTED HOLES. TIGHTEN ALL JOINT T AND TIE BOLTS. THEN CHECK DUC-LUGS. LUGS MUST BE LOOSE, IF TIGHT REPLACE DUC-LUG.

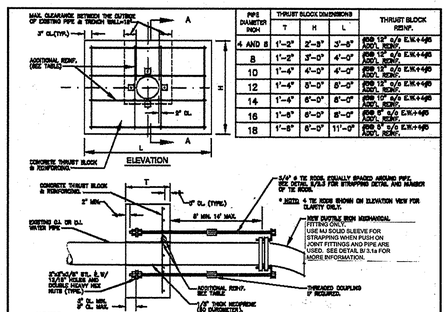
DETAIL B/2.3: ALTERNATVE METHOD OF STRAPPING VALVE TO MAIN WITH TIE BOLTS
SCALE: NTS



SECTION A-A

NOTE:
1. FOR CONC. THRUST BLOCK INFORMATION AND NOTES SEE DETAIL B/3.1.

DETAIL B/3.1A: QUICK HARNESSED CONNECTION TO THRUST BLOCKING FOR DUCTILE IRON PIPE
SCALE: NTS



PIPE DIAMETER INCH	THRUST BLOCK DIMENSIONS T	H	L	THRUST BLOCK REINF.
4 AND 6	1'-2"	2'-9"	3'-6"	(CB) 12" o/c E.W.+4ø5 ADD'L REINF.
8	1'-2"	3'-0"	4'-0"	(CB) 12" o/c E.W.+4ø5 ADD'L REINF.
10	1'-4"	4'-0"	4'-0"	(CB) 12" o/c E.W.+4ø5 ADD'L REINF.
12	1'-4"	5'-0"	5'-0"	(CB) 12" o/c E.W.+4ø5 ADD'L REINF.
14	1'-6"	6'-0"	6'-0"	(CB) 10" o/c E.W.+4ø5 ADD'L REINF.
16	1'-6"	6'-0"	8'-0"	(CB) 9" o/c E.W.+4ø5 ADD'L REINF.
18	1'-8"	6'-0"	11'-0"	(CB) 9" o/c E.W.+4ø5 ADD'L REINF.

NOTES:
1. ALL CONCRETE SHALL BE f'c=4000 PSI @ 28 DAYS. PIPELINE SHALL NOT BE PRESSURIZED UNTIL CONCRETE STRENGTH REACHES 4000 PSI. AND TRENCH HAS BEEN BACKFILLED.
2. ALL REBARS SHALL BE ASTM A615 GRADE 60.
3. STEEL PLATES SHALL BE ASTM A36.
4. MAINTAIN 2" CLEAR BETWEEN ALL REBARS AND PIPE.
5. COAT ALL EXPOSED STEEL WITH FIELD APPLIED COATING.
6. BOLT CIRCLE FOR 3/4" TIE RODS @ THRUST COLLAR EQUAL BOLT CIRCLE @ TIE BOLTS.
7. TIE RODS SHALL BE PARALLEL TO AXIS OF PIPE.
8. TIE COUPLING, IF NECESSARY, SHALL BE STAR NATIONAL PRODUCTS SUPER STAR TIE COUPLING NO. SS10.
9. IF WORKING PLUS SURGE PRESSURES ARE HIGHER THAN 250 PSI, SPECIAL DESIGN IS REQUIRED.
10. SPECIAL DESIGN IS REQUIRED FOR MAINS LARGER THAN 12 INCH.
11. DEPTH OF FINISHED GRADE TO TOP OF PIPE ASSUMED TO EQUAL 4'-0". IF SHALLOWER, SPECIAL BLOCK DESIGN IS REQUIRED.
12. ELEVATION OF GROUNDWATER TABLE ASSUMED TO BE BELOW BOTTOM OF BLOCK. IF GROUNDWATER IS ABOVE BOTTOM OF BLOCK, SPECIAL BLOCK DESIGN IS REQUIRED.
13. SOFT OR ORGANIC SOIL CONDITIONS REQUIRE SPECIAL BLOCK DESIGN.
14. REPLACE ALL DISTURBED SOIL BETWEEN NEW FITTING AND CONCRETE COLLAR WITH CRUSHED STONE COMPACTED AS STRUCTURAL FILL.

DETAIL B/3.1: QUICK HARNESSED CONNECTION TO THRUST BLOCKING FOR DUCTILE IRON PIPE
SCALE: NTS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36830 — REGISTERED 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.: 36830
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

DETAILS

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 21 OF 32

WATER HOUSE CONNECTIONS

ADDRESS	APPROX. LENGTH OF EX. WHC (LF)	APPROX. LENGTH OF PROP. WHC (LF)	REMARKS/NOTES:	BALL VALVE THROWS	
7746 ROCKBURN DRIVE			EX. WHC OFF ROCKBURN DR. DO NOT REPLACE.		
7747 ROCKBURN DRIVE			EX. WHC OFF ROCKBURN DR. DO NOT REPLACE.		
5896 MONTGOMERY RD.	3.5	10			
5888 MONTGOMERY RD.			PER BUREAU OF UTILITIES, THIS ADDRESS DOES NOT HAVE A WHC.		
5938 MONTGOMERY RD.	6	13.5			
5939 MONTGOMERY RD.	–	25.5	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
5942 MONTGOMERY RD.	7.5	13.5			
5946 MONTGOMERY RD.	7	13			
5947 MONTGOMERY RD.	–	24.5	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
5952 MONTGOMERY RD.	2	10.5			
5955 MONTGOMERY RD.	34.5	25			
5968 MONTGOMERY RD.	–	11.5	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
5969 MONTGOMERY RD.	36.5	27.5			
5979 MONTGOMERY RD.	36.5	29			
5991 MONTGOMERY RD.	–	27	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
6001 MONTGOMERY RD.	–	27.5	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
6011 MONTGOMERY RD.	37	31.5			
6032 MONTGOMERY RD.	12	18.5	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
6044 MONTGOMERY RD.	11	16.5			
6045 MONTGOMERY RD.	34.5	29			
6049 MONTGOMERY RD.	35	27.5			
6065 MONTGOMERY RD.			OPEN SPACE; NO WHC		
6070 MONTGOMERY RD.	13.5	20			
6080 MONTGOMERY RD.	15.5	24.5			
6105 ROCKBURN B. P. RD.			EX. WHC OFF ROCKBURN BRANCH PARK RD.; DO NOT REPLACE		
6090 MONTGOMERY RD.	10	17	PENDING THE EXISTING/FUTURE 8" WATER MAIN (14-4744-D) ALONG CULLINS WAY, THIS CONNECTION MAY NOT NEED TO BE REPLACED.		
5808 ROCKBURN WOODS WAY			EX. WHC OFF ROCKBURN WOODS WAY; DO NOT REPLACE		
5804 ROCKBURN WOODS WAY			EX. WHC OFF ROCKBURN WOODS WAY; DO NOT REPLACE		
5800 ROCKBURN WOODS WAY			EX. WHC OFF ROCKBURN WOODS WAY; DO NOT REPLACE		
5803 ROCKBURN WOODS WAY			EX. WHC OFF ROCKBURN WOODS WAY; DO NOT REPLACE		
6144 MONTGOMERY RD.	6.5	12.5			
6145 MONTGOMERY RD.			EX. WHC IS 8" W (3161-D); SEE BRANCH CONNECTION PROFILES		
6152 MONTGOMERY RD.	34	40	EX. METER IS SHARED FOR 6152 & 6156 MONTGOMERY RD.		
6156 MONTGOMERY RD.			EX. METER IS SHARED FOR 6152 & 6156 MONTGOMERY RD.		
6160 MONTGOMERY RD.	10.5	16.5			
6162 MONTGOMERY RD.	7	14			
6184 MONTGOMERY RD.	5.5	11.5			
6190 MONTGOMERY RD.	9.0	15			
6191 MONTGOMERY RD.	34.5	30			
6198 MONTGOMERY RD.	6.5	13			
6204 MONTGOMERY RD.	–	12	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
6215 MONTGOMERY RD.	34.5	29			
6831 MARBUCK WAY			EX. WHC OFF MARBUCK WAY; DO NOT REPLACE		
6239 MONTGOMERY RD.	36	30			
5801 BELLANCA DR.	26	33			
5802 BELLANCA DR.			EX. WHC OFF BELLANCA DR.; DO NOT REPLACE		
6249 MONTGOMERY RD.	36	30			
6274 MONTGOMERY RD.	29	35			
6275 MONTGOMERY RD.	41	35			
6278 MONTGOMERY RD.	53.5	60			
6284 MONTGOMERY RD.	8.5	14			
6286 MONTGOMERY RD.	7.5	13.5			
6304 MONTGOMERY RD.	11.5	18			
6310 MONTGOMERY RD.	9.5	15.5			
6311 MONTGOMERY RD.	9.5	27			
6312 MONTGOMERY RD.	9.5	17			
6314 MONTGOMERY RD.	12.5	19			
6318 MONTGOMERY RD.			EX. METER IS SHARED FOR 6318, 6320 & 6322 MONTGOMERY RD.		
6320 MONTGOMERY RD.	12.5	18.5	EX. METER IS SHARED FOR 6318, 6320 & 6322 MONTGOMERY RD.		
6322 MONTGOMERY RD.			EX. METER IS SHARED FOR 6318, 6320 & 6322 MONTGOMERY RD.		
6324 MONTGOMERY RD.	7.5	13			
6204 PARKVIEW CT.			EX. WHC (& SHC) OFF PARKVIEW CT.; DO NOT REPLACE		
6205 PARKVIEW CT.			EX. WHC (& SHC) OFF PARKVIEW CT.; DO NOT REPLACE		
6329 MONTGOMERY RD.	32	26			
6334 MONTGOMERY RD.	9.5	15.5			
6343 MONTGOMERY RD.	32.5	26.5			
6344 MONTGOMERY RD.	6.5	12.5			
6353 MONTGOMERY RD.	37	30.5			
6354 MONTGOMERY RD.	9.5	18			
6358 MONTGOMERY RD.	8.5	14.5	EX. METER IS LOCATED ON 6354 MONTGOMERY ROAD		
6360 MONTGOMERY RD.	11.5	15.5	EX. METER IS LOCATED ON 6354 MONTGOMERY ROAD		
6364 MONTGOMERY RD.	7.5	14.5			
6365 MONTGOMERY RD.	34.5	28			
6374 MONTGOMERY RD.	–	11	PER BUREAU OF UTILITIES, THIS LOCATION HAS A CURB STOP BOX.		
6384 MONTGOMERY RD.	8.5	14.5			
6393 MONTGOMERY RD.	32	26.5			
6394 MONTGOMERY RD.	17.5	26			
6403 MONTGOMERY RD.	39	29.5			
6404 MONTGOMERY RD.			OPEN SPACE; NO WHC		
6407 MONTGOMERY RD.	40	28	1.5" WHC SERVING BOTH PROPERTIES.		
6411 MONTGOMERY RD.					
6414 MONTGOMERY RD.	6	13.5			
6415 MONTGOMERY RD.	37.5	30.5			
6425 MONTGOMERY RD.	45	33.5			
6441 MONTGOMERY RD.	88	68.5			
6466 MONTGOMERY RD.	4	47.5			
6470 MONTGOMERY RD.	6.5	74			
6474 MONTGOMERY RD.	6.5	74.5			
6498 MONTGOMERY RD.	3	59.5			

WATER HOUSE CONNECTIONS

ADDRESS	APPROX. LENGTH OF EX. WHC (LF)	APPROX. LENGTH OF PROP. WHC (LF)	REMARKS/NOTES:	BALL VALVE THROWS	
7111 NW JOHN CALVERT CT.			EX. WHC (& SHC) ON CONTRACT (3120-D); DO NOT REPLACE		
7115 NW JOHN CALVERT CT.	14	30			
6544 MONTGOMERY RD.	11.5	23			
6548 MONTGOMERY RD.	10	17			
6600 MONTGOMERY RD.	7	12.5			
6630 MONTGOMERY RD.	4.5	10			
6655 MONTGOMERY RD.	–	26.5	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
6663 MONTGOMERY RD.			METER NOT SURVEYED; NO STRUCTURES ON PROPERTY. SEE 6667 MONTGOMERY ROAD.		
5810 TIMBERVIEW DR.			METER NOT SURVEYED; WHC OFF TIMBERVIEW DR. DO NOT REPLACE.		
6667 MONTGOMERY RD.	36	30.5	NO ACCOUNT INFORMATION FROM BUREAU OF UTILITIES FOR THIS ADDRESS. THIS PROPERTY IS FOUND ON MD. REAL PROPERTY AS 6663 MONTGOMERY ROAD.		
6712 MONTGOMERY RD.	–	23	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION.		
5801 TIMBERVIEW DR.			METER NOT SURVEYED; WHC OFF TIMBERVIEW DR. DO NOT REPLACE.		
5780 LANDING RD.			OPEN SPACE		
6725 MONTGOMERY RD.	27.5	10.5			
6730 MONTGOMERY RD.			METER NOT SURVEYED; WHC OFF HARMAN AVE. DO NOT REPLACE.		
6734 MONTGOMERY RD.	–	22.5	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION.		
6738 MONTGOMERY RD.	7	24.5			
6742 MONTGOMERY RD.	5.5	5.5			
6746 MONTGOMERY RD.	5	6.5			
6750 MONTGOMERY RD.	5.5	6.5			
5790 HUNT CLUB RD.	6.5	6.5			
6752 MONTGOMERY RD.			METER NOT SURVEYED; NO ACCOUNT INFORMATION FROM BUREAU OF UTILITIES FOR THIS ADDRESS.		
E. HUNT CLUB RD.			OPEN SPACE		
6751 MONTGOMERY RD.	17	36			
6755 MONTGOMERY RD.	35.5	36			
6809 MONTGOMERY RD.	37	19			
6810 MONTGOMERY RD.	6	24			
6820 MONTGOMERY RD.	9	26			
6821 MONTGOMERY RD.	34.5	17.5			
6824 MONTGOMERY RD.	6.5	25			
6825 MONTGOMERY RD.	33	15.5			
6830 MONTGOMERY RD.	6.5	24			
6831 MONTGOMERY RD.	–	38.5	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION.		
6834 MONTGOMERY RD.	9	26.5			
6849 MONTGOMERY RD.	9	27.5			
6860 MONTGOMERY RD.	7.5	25			
6904 MONTGOMERY RD.	5.5	21.5			
6908 MONTGOMERY RD.	6	22			
6914 MONTGOMERY RD.	7.5	23			
6920 MONTGOMERY RD.	6.5	23.5			
6926 MONTGOMERY RD.	5	24.5			
6930 MONTGOMERY RD.	25	46.5			
6934 MONTGOMERY RD.	33.5	49			
6990 MONTGOMERY RD.			METER NOT SURVEYED; NO WHC TO THIS PROPERTY.		
6994 MONTGOMERY RD.			METER NOT SURVEYED; NO WHC TO THIS PROPERTY.		
6550 LAWYERS HILL RD.			METER NOT SURVEYED; WHC OFF LAWYERS HILL RD. DO NOT REPLACE.		
5822 MONTGOMERY RD.	5	12			
5818 MONTGOMERY RD.	6	12			
5843 MONTGOMERY RD.	–	25	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
5823 MONTGOMERY RD.	33	27			
5817 MONTGOMERY RD.	–	24.5	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
7805 MILLERS CORNER	–	30	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
7809 MILLERS CORNER	33	27.5			
7813 MILLERS CORNER	32.5	27.5			
7817 MILLERS CORNER	33	27.5			
7821 MILLERS CORNER	33	28			
7825 MILLERS CORNER	36	28			
7828 MILLERS CORNER	–	17	METER NOT SURVEYED; SHOWN ON PLANS FROM BUREAU OF UTILITIES INFORMATION		
	TOTAL LENGTH	2,845			

NOTES:

1. CONTRACTOR IS TO REPLACE WATER SERVICE CONNECTIONS IN KIND WITH THE SAME SIZE SERVICE CONNECTION AS EXISTING. THE METER VAULT AND SETTING SHALL BE REPLACED BY THE CONTRACTOR TO ACCEPT THE EXISTING SIZE METER.
2. THE PROPOSED WATER HOUSE CONNECTION (WHC) REPLACEMENT LENGTH FOR WATER METERS THAT WERE NOT SURVEYED HAS BEEN ESTIMATED FROM INFORMATION PROVIDED BY THE BUREAU OF UTILITIES.

TEST PIT DATA

NUMBER	UTILITY	MATERIAL	DEPTH
TP-1	12"W (132-W)	CAST IRON	6.17'
TP-1A	12"W (132-W)	CAST IRON	5.22'
TP-2	12"W (34-W)	CAST IRON	3.95'
TP-3	2.5" FIBER OPTIC	PLASTIC CONDUIT	2.66'
TP-4	8"W (3137-W)	CAST IRON	4.25'
TP-5	8"W (3137-W)	CAST IRON	5.47'
TP-6	12"W (34-W)	CAST IRON	3.34'
TP-7	6" GAS	PLASTIC	3.52'
TP-8	OIL LINE	N/A	±9.0'
TP-9	8" OIL LINE	STEEL	7.09'
TP-10	8" OIL LINE	STEEL	5.93'
TP-11	8"W (14-1839-D)	CAST IRON	3.99'
TP-12	8"W (14-3794-D)	CAST IRON	4.03'
TP-13	12"W (34-W)	CAST IRON	4.07'
TP-14	8"W (14-3777-D)	DUCTILE IRON	4.42'
TP-15	12"W (34-W)	DUCTILE IRON	3.86'
TP-16	8"W (14-3161-D)	DUCTILE IRON	5.03'
TP-17	8"W (14-4187-D)	DUCTILE IRON	4.69'
TP-18	6" GAS	PLASTIC	2.09'
TP-19	12"W (34-W)	CAST IRON	3.21'
TP-20	8"W (14-4678-D)	PLASTIC	3.54'
TP-21	8"W (14-3676-D)	DUCTILE IRON	4.51'
TP-22	8"W (14-3923-D)	N/A	±3.74'
TP-23	2"W (WHC?)	COPPER	3.98'
TP-24	2.5" FIBER OPTIC	PLASTIC CONDUIT	3.20'
TP-25	12"W (14-3514-D)	DUCTILE IRON	5.31'
TP-26	6" GAS	PLASTIC	6.52'
TP-27	8"W (14-3120-D)	N/A	±2.0'
TP-28	8"W (14-3988-D)	CAST IRON	4.29'
TP-29	4" GAS	PLASTIC	2.44'
TP-30	12"W (34-W)	CAST IRON	4.03'
TP-31	FIBER OPTIC	PLASTIC CONDUIT	6.95'
TP-32	36"W (3116-W)	N/A	6.91'
TP-33	12"W (34-W)	CAST IRON	4.61'
TP-34	2.5" FIBER OPTIC	PLASTIC CONDUIT	3.52'
TP-35	12"W (34-W)	CAST IRON	5.77'
TP-35A	4" GAS (ABANDONED?)	STEEL	2.55'
TP-36	6" GAS	PLASTIC	3.07'
TP-37	36"W (3116-W)	CAST IRON	4.05'
TP-38	12"W (5-W)	CAST IRON	4.73'
TP-39	2.5" FIBER OPTIC	PLASTIC CONDUIT	2.81'
TP-40	8"W (0864-W)	CAST IRON	4.44'
TP-41	12"W (2-W)	CAST IRON	3.98'
TP-42	2.5" FIBER OPTIC	PLASTIC CONDUIT	2.58'
TP-43	36"W (3116-W)	CAST IRON	4.18'
TP-44	12"W (2-W)	CAST IRON	4.16'
TP-45	2.5" FIBER OPTIC	PLASTIC CONDUIT	5.46'
TP-46	36"W (3116-W)	DUCTILE IRON	6.04'
TP-47	2.5" FIBER OPTIC	PLASTIC CONDUIT	4.19'
TP-48	2.5" FIBER OPTIC	PLASTIC CONDUIT	3.46'
TP-49	12"W (2-W)	CAST IRON	8.36'
TP-50	24" S.D.	CONCRETE	1.21'
TP-50A	12"W (2-W)	CAST IRON	4.42'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION PSD — DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36530 — REGISTERED 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.: 36530 EXPIRATION DATE: 08/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

600 SCALE MAP NO. | BLOCK NO.

WATER HOUSE CONNECTIONS & TEST PIT DATA

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 22 OF 32

FITTING SCHEDULE – 12"W MONTGOMERY ROAD

STATION	FITTING	NORTHING	EASTING
0+10	12" VALVE	1,375,249.098	563,629.813
0+28.5=0+00	12"x8" TEE @ ROCKBURN DR.	1,375,267.080	563,634.323
1+50	12" VERT. HD COUPLING 2.2'	1,375,384.892	563,663.872
4+00	12"x6" F.H.T.	1,375,627.380	563,724.695
	6" VALVE, 2.0' RT.	1,375,627.900	563,722.761
	6" FH, 9.7' RT.	1,375,629.820	563,715.335
5+80	12" VERT. HD COUPLING 0.6'	1,375,801.842	563,768.991
6+20	12"–5° HORIZ. SWEEP	1,375,840.798	563,778.462
7+20.2	12" HORIZ. HD COUPLING 3.0'	1,375,939.349	563,795.754
7+75	12"x6" F.H.T.	1,375,993.761	563,802.602
	6" VALVE, 2.0' RT.	1,375,993.998	563,800.975
	6" FH, 13.0' RT.	1,375,995.469	563,790.008
8+00	12" HORIZ. HD COUPLING 3.0'	1,376,018.560	563,805.731
8+24	12" VERT. HD COUPLING 1.7'	1,376,042.406	563,808.270
8+53.4	12" VALVE	1,376,071.839	563,809.645
8+57.4=0+00	12"x8" TEE @ BRANDON'S WAY	1,376,075.816	563,809.908
8+61.4	12" VALVE	1,376,079.817	563,810.227
9+00	12"–5° HORIZ. SWEEP	1,376,118.240	563,813.212
10+00	12"–5° HORIZ. SWEEP	1,376,218.269	563,813.306
10+50	12"–5° HORIZ. SWEEP	1,376,391.581	563,990.595
10+70	12" VERT. HD COUPLING 1.0'	1,376,297.963	563,806.857
11+68	12"x6" F.H.T.	1,376,385.541	563,797.712
	6" VALVE, 2.0' RT.	1,376,385.328	563,795.724
	6" FH, 11' RT.	1,376,384.377	563,786.816
12+25.2	12" VERT. HD COUPLING 1.0'	1,376,442.320	563,791.229
13+77.5	12" VERT. HD COUPLING 1.6'	1,376,593.856	563,775.961
15+40	12"x6" F.H.T.	1,376,755.474	563,758.086
	6" VALVE, 2.0' RT.	1,376,755.242	563,757.097
	6" FH, 13.3' RT.	1,376,754.064	563,745.884
15+69	12" VERT. HD COUPLING 1.3'	1,376,784.315	563,756.074
16+50	12" VALVE	1,376,865.014	563,747.682
17+00	12" HORIZ. HD COUPLING 2.5'	1,376,988.916	563,738.362
17+86.2	12"x8" TEE @ CULLINS WAY	1,377,000.771	563,737.231
19+40	12"x6" F.H.T.	1,377,154.197	563,728.017
	6" VALVE, 2.0' RT.	1,377,154.084	563,726.018
	6" FH, 13.0' RT.	1,377,153.392	563,715.130
19+85.9	12" VERT. HD COUPLING 2.3'	1,377,200.009	563,725.252
21+44	12" VERT. HD COUPLING 1.0'	1,377,357.822	563,715.732
22+63	12"x6" F.H.T.	1,377,476.593	563,708.567
	6" VALVE, 2.0' RT.	1,377,476.485	563,706.570
	6" FH, 10.0' RT.	1,377,475.966	563,697.977
22+75.6	12" VALVE	1,377,489.082	563,707.845
22+87.6=0+00	12"x8" TEE @ ROCKBURN BRANCH PARK RD.	1,377,501.059	563,707.091
23+38=0+00	12"x8" TEE @ ROCKBURN WOODS WAY	1,377,551.504	563,703.997
24+09=0+00	12"x8" TEE @ ROCKBURN E.S.	1,377,622.248	563,699.780
24+13	12" VALVE	1,377,626.239	563,699.572
25+00	12" VERT. HD COUPLING 1.4'	1,377,713.177	563,694.295
25+40	12"–5° HORIZ. SWEEP	1,377,753.195	563,691.874
26+00	12" HORIZ. HD COUPLING 2.1'	1,377,812.564	563,683.049
26+33	12"x6" F.H.T.	1,377,845.005	563,676.995
	6" VALVE, 2.0' RT.	1,377,844.641	563,675.028
	6" FH, 12' RT.	1,377,842.810	563,665.113
27+00	12"–5° HORIZ. SWEEP	1,377,910.632	563,663.507
27+50	12" HORIZ. HD COUPLING 2.1'	1,377,959.151	563,652.103
27+73.6	12" VERT. HD COUPLING 1.4'	1,377,981.832	563,644.916
28+85.9	12"–11.25° HORIZ. BEND	1,378,089.528	563,612.996
29+25.2	12" VERT. HD COUPLING 1.3'	1,378,125.296	563,596.175
29+50	12" VALVE	1,378,147.414	563,584.930
30+33	12"x6" F.H.T.	1,378,222.840	563,550.300
	6" VALVE, 2.0' RT.	1,378,221.992	563,548.488
	6" FH, 11.7' RT.	1,378,217.841	563,539.703
31+31.9	12" VERT. HD COUPLING 0.5'	1,378,312.344	563,508.206
32+91=0+00	12"x8" TEE @ CARTER'S CROSSING	1,378,455.969	563,440.649
34+33	12"x6" F.H.T.	1,378,584.814	563,380.063
	6" VALVE, 2.0' RT.	1,378,583.959	563,378.255
	6" FH, 10.3' RT.	1,378,580.422	563,370.697
35+85.7	12" VALVE	1,378,722.995	563,315.124
35+89.7=0+00	12"x8" TEE @ BELLANCA DR.	1,378,726.597	563,313.382

FITTING SCHEDULE – 12"W MONTGOMERY ROAD (CONTINUED)

STATION	FITTING	NORTHING	EASTING
36+13.3=0+00	12"x8" TEE @ MARBUCK WAY	1,378,748.007	563,303.300
36+17.3	12" VALVE	1,378,751.650	563,301.648
37+71.2	12" VERT. HD COUPLING 1.0'	1,378,890.858	563,236.130
37+91.2	12"–5° HORIZ. SWEEP	1,378,908.973	563,227.611
38+33	12"x6" F.H.T.	1,378,948.360	563,213.852
	6" VALVE, 2.0' RT.	1,378,947.689	563,211.968
	6" FH, 22' RT.	1,378,940.953	563,193.052
38+73.6	12"–5° HORIZ. SWEEP	1,378,986.548	563,200.512
39+98.6	12" HORIZ. HD COUPLING 2.0'	1,379,107.293	563,168.293
40+65.7	12" HORIZ. HD COUPLING 3.0'	1,379,172.722	563,153.273
41+38.8	12"–5° HORIZ. SWEEP	1,379,244.681	563,140.689
42+03	12" VERT. HD COUPLING 1.0'	1,379,308.582	563,134.111
42+33	12"x6" F.H.T.	1,379,338.424	563,131.040
	6" VALVE, 2.0' RT.	1,379,338.212	563,129.051
	6" FH, 11.2' RT.	1,379,337.280	563,119.924
43+30.4	12" HORIZ. HD COUPLING 1.7'	1,379,435.329	563,121.064
43+38.7=0+00	12"x8" TEE @ PARKVIEW CT.	1,379,443.431	563,120.544
43+55.5	12" VERT. HD COUPLING 1.2'	1,379,460.287	563,119.486
44+00	12" VALVE	1,379,504.654	563,116.713
44+50.5	12" HORIZ. HD COUPLING 2.0'	1,379,555.166	563,113.487
45+84.5	12" HORIZ. HD COUPLING 1.3'	1,379,668.014	563,102.945
46+05	12" VERT. HD COUPLING 0.7'	1,379,723.704	563,096.255
46+25	12"x6" F.H.T.	1,379,728.664	563,095.659
	6" VALVE, 2.0' RT.	1,379,728.418	563,093.675
	6" FH, 10.7' RT.	1,379,727.393	563,085.058
46+87	12" HORIZ. HD COUPLING 3.0'	1,379,790.269	563,088.259
47+07	12" HORIZ. HD COUPLING 1.5'	1,379,809.972	563,084.839
47+27	12" HORIZ. HD COUPLING 3.0'	1,379,829.581	563,080.903
47+73.5	12" VERT. HD COUPLING 0.6'	1,379,874.670	563,069.631
48+49.8	12" HORIZ. HD COUPLING 1.0'	1,379,948.543	563,050.602
48+69.8	12" VERT. HD COUPLING 0.5'	1,380,064.334	563,018.933
50+10	12"x6" F.H.T.	1,380,103.111	563,008.328
	6" VALVE, 2.0' RT.	1,380,102.575	563,006.401
	6" FH, 11.2' RT.	1,380,100.161	562,997.543
51+46	12" VALVE	1,380,234.099	562,972.503
51+50=0+00	12"x8" TEE @ MONTERY RD.	1,380,237.965	562,971.448
51+57	12" HORIZ. HD COUPLING 3.0'	1,380,244.886	562,969.553
51+64	12" VALVE	1,380,251.569	562,967.378
52+25	12" HORIZ. HD COUPLING 3.0'	1,380,310.510	562,947.784
53+78	12"x6" F.H.T.	1,380,454.285	562,891.812
	6" VALVE, 2.0' RT.	1,380,454.963	562,893.694
	6" FH, 26.8' RT.	1,380,463.396	562,916.968
55+76	12" VERT. HD COUPLING 0.7'	1,380,636.550	562,820.852
56+71.2	12" VERT. HD COUPLING 1.0'	1,380,725.264	562,786.313
57+40	12"x6" F.H.T.	1,380,789.377	562,761.353
	6" VALVE, 2.0' LT.	1,380,790.104	562,763.216
	6" FH, 16.0' LT.	1,380,795.213	562,776.344
57+61.8	12"–22.5° HORIZ. BEND	1,380,809.664	562,753.455
58+41.6	12" VERT. HD COUPLING 0.8'	1,380,862.383	562,693.628
59+03	12"–45° HORIZ. BEND	1,380,903.006	562,647.526
59+06	12"–22.5° HORIZ. BEND	1,380,905.871	562,648.232
59+19.8	12" VALVE	1,380,919.208	562,651.696
59+24.8=0+00	12"x12" TEE @ DEBORAH JEAN DR.	1,380,924.068	562,652.911
59+29.8	12" VALVE	1,380,928.896	562,654.181
60+33.4	12"–5° HORIZ. SWEEP	1,381,029.255	562,679.820
60+73.4	12"–5° HORIZ. SWEEP	1,381,068.655	562,686.642
61+40	12"x6" F.H.T.	1,381,135.107	562,691.280
	6" VALVE, 2.0' LT.	1,381,134.920	562,693.272
	6" FH, 12.1' LT.	1,381,133.940	562,703.310
61+53.4	12" HORIZ. HD COUPLING 2.5'	1,381,148.345	562,692.284
62+31.7	12"–5° HORIZ. SWEEP	1,381,226.588	562,694.811
62+80.9	12" VERT. HD COUPLING 0.4'	1,381,275.746	562,695.048
63+60.5	12"–5° HORIZ. SWEEP	1,381,354.915	562,687.733
64+20	12"x6" F.H.T.	1,381,413.953	562,679.880
	6" VALVE, 2.0' LT.	1,381,414.256	562,682.118
	6" FH, 10.2' LT.	1,381,415.324	562,690.068
64+49.5	12"–11.25° VERT. BEND	1,381,443.594	562,675.930
64+67	12"–11.25° VERT. BEND	1,381,460.937	562,673.589

FITTING SCHEDULE – 12"W MONTGOMERY ROAD (CONTINUED)

STATION	FITTING	NORTHING	EASTING
64+72	12" VALVE	1,381,465.637	562,673.041
64+76=0+00	12"x8" TEE @ JOHN CALVERT CT.	1,381,469.598	562,672.480
64+83.2=0+00	12"x8" TEE @ KOFFEL CT.	1,381,477.044	562,671.481
64+96	12" VALVE	1,381,489.419	562,669.878
65+01	12" VERT. HD COUPLING 1.0'	1,381,494.645	562,669.140
66+00	12"–11.25° HORIZ. BEND	1,381,592.382	562,656.152
66+39	12"–22.5° HORIZ. BEND	1,381,628.618	562,641.805
67+15.7	12" VERT. HD COUPLING 0.8'	1,381,705.364	562,643.017
67+55	12"x6" F.H.T.	1,381,744.667	562,643.637
	6" VALVE, 2.0' LT.	1,381,744.624	562,645.636
	6" FH, 23.2' LT.	1,381,744.296	562,666.789
67+60	12" VERT. HD COUPLING 2.5'	1,381,749.659	562,643.715
68+10.3	12" VERT. HD COUPLING 1.6'	1,381,799.953	562,644.509
68+30.3	12" HORIZ. HD COUPLING 3.0'	1,381,819.950	562,644.825
69+30.3	12" HORIZ. HD COUPLING 2.8'	1,381,919.852	562,641.169
69+35.3	12" VERT. HD COUPLING 0.6'	1,381,924.865	562,641.227
70+39.6	12" VERT. HD COUPLING 1.0'	1,382,029.149	562,642.438
70+50	12"x6" F.H.T.	1,382,039.542	562,642.559
	6" VALVE, 2.0' RT.	1,382,039.591	562,640.560
	6" FH, 11.7' RT.	1,382,039.749	562,630.874
71+24	12" VERT. HD COUPLING 1.0'	1,382,113.543	562,643.419
71+61.8	12" VALVE	1,382,151.342	562,643.888
71+65.8=0+00	12"X8" TEE @ RUXTON DR.	1,382,155.348	562,643.921
71+69.8	12" VALVE	1,382,159.342	562,643.981
74+50	12"x6" F.H.T.	1,382,439.521	562,647.208
	6" VALVE, 2.0' RT.	1,382,439.511	562,645.207
	6" FH, 11.7' RT.	1,382,439.646	562,637.446
75+12.7	12" VERT. HD COUPLING 2.1'	1,382,502.217	562,647.937
76+09.4	12" VERT. HD COUPLING 1.7'	1,382,598.910	562,649.060
78+20	12" VERT. HD COUPLING 1.0'	1,382,809.496	562,651.507
78+25	12"x6" F.H.T.	1,382,814.496	562,651.565
	6" VALVE, 2.0' RT.	1,382,814.484	562,649.565
	6" FH, 9.2' RT.	1,382,814.603	562,642.357
79+25	12" VALVE	1,382,914.489	562,652.727
80+16	12" VERT. HD COUPLING 2.0'	1,383,005.483	562,653.785
80+63.3	12" VERT. HD COUPLING 1.1'	1,383,052.779	562,654.334
81+93	12"x6" F.H.T.	1,383,184.490	562,655.865
	6" VALVE, 2.0' RT.	1,383,184.478	562,653.865
	6" FH, 9.2' RT.	1,383,184.597	562,646.657
82+16	12"–45° HORIZ. BEND	1,383,205.827	562,656.076
82+35.4	12"–45° HORIZ. BEND	1,383,219.410	562669.979
82+71.5	12" VERT. HD COUPLING 0.7'	1,383,255.485	562,669.979
82+91.5	12" HORIZ. HD COUPLING 1.2'	1,383,275.508	562,669.979
84+04.5	12" VALVE	1,383,388.432	562,672.432
84+08.5=0+00	12"x8" TEE @ TIMBERVIEW DR.	1,383,392.418	562,672.498
85+01.3	12"–45° VERT. BEND	1,383,419.752	562,674.324
85+03.4	12"–45° VERT. BEND	1,383,484.425	562,676.770
85+18.6=0+00	12"x8" TEE @ LANDING RD.	1,383,502.580	562,674.944
85+22.6	12" VALVE	1,383,506.579	562,675.036
85+32.6	12" HORIZ. HD COUPLING 1.3'	1,383,516.540	562,675.253
85+52.6	12" VERT. HD COUPLING 1.0'	1,383,536.185	562,676.142
85+72.6	12" HORIZ. HD COUPLING 2.1'	1,383,556.516	562,677.063
85+93	12"x6" F.H.T.	1,383,576.817	562,678.737
	6" VALVE, 2.0' LT.	1,383,576.653	562,680.730
	6" FH, 15.4' LT.	1,383,575.552	562,694.040
86+72.6	12" HORIZ. HD COUPLING 0.8'	1,383,656.173	562,685.282
87+51=0+00	12"X8" TEE @ HARMAN AVE.	1,383,734.006	562,692.780
87+72.7	12" VERT. HD COUPLING 1.0'	1,383,755.808	562,694.880
87+92.7	12" HORIZ. HD COUPLING 2.7'	1,383,775.612	562,696.787
88+12.7	12" HORIZ. HD COUPLING 1.3'	1,383,795.484	562,699.636
88+52.7	12" HORIZ. HD COUPLING 0.9'	1,383,834.873	562,706.162
88+92.7	12" HORIZ. HD COUPLING 1.7'	1,383,874.324	562,712.805
89+12.7	12" HORIZ. HD COUPLING 0.6'	1,383,893.786	562,717.457
89+22.7	12" VALVE	1,383,903.555	562,719.652
89+32.7	12" HORIZ. HD COUPLING 3.0'	1,383,913.296	562,721.841
89+55	12"x6" F.H.T.	1,383,935.123	562,725.555
	6" VALVE, 2.0' LT.	1,383,934.814	562,727.532
	6" FH, 15.6' LT.	1,383,932.501	562,740.959

FITTING SCHEDULE – 12"W MONTGOMERY ROAD (CONTINUED)

STATION	FITTING	NORTHING	EASTING
89+72.6	12"–45° HORIZ. BEND	1,383,952.732	562,728.553
89+92.4	12"–45° HORIZ. BEND	1,383,968.895	562,717.093
90+05.6	12"–22.5° VERT. BEND	1,383,980.472	562,719.282
91+35.6	12" VERT. HD COUPLING 1.7'	1,384,108.609	562,743.478
91+46.7	12"X8" TEE, 8" VALVE AND RECONNECT TO EX. 8"W.	1,384,090.7561	562,740.088
92+13.8	12" VERT. HD COUPLING 1.9'	1,384,185.452	562,757.979
93+30	12"x6" F.H.T.	1,384,299.242	562,779.459
	6" VALVE, 2.0' RT.	1,384,299.613	562,777,494
	6" FH, 12.5' RT.	1,384,301.559	562,767.182
93+98.5	12"–45° HORIZ. BEND	1,384,367.969	562,792.400
94+04.4	12"–45° HORIZ. BEND	1,384,371.298	562,797.3023
94+20	12"–11.25° VERT. BEND	1,384,385.577	562,800.049
94+32.5	12" VALVE	1,384,398.850	562,800.223
94+36.5=0+00	12"X8" TEE @ HUNT CLUB RD.	1,384,402.769	562,802.584
94+40.5	12" VALVE	1,384,406.708	562,804.085
94+79.2	12"–45° VERT. BEND	1,384,444.744	562,811.337
94+81.5	12"–45° HORIZ. BEND	1,384,447.040	562,811.767
95+02.3	12"–45° HORIZ. BEND	1,384,458.678	562,828.907
95+35.8	12" VERT. HD COUPLING 1.6'	1,384,490.231	562,834.879
95+22.2	12" HORIZ. HD COUPLING 3.0'	1,384,478.324	562,832.659
95+42.2	12" HORIZ. HD COUPLING 1.2'	1,384,498.142	562,835.378
96+02.2	12" HORIZ. HD COUPLING 1.7'	1,384,557.327	562,844.764
96+90	12"x6" F.H.T.	1,384,641.770	562,863.426
	6" VALVE, 2.0' LT.	1,384,641.395	562,865.390
	6" FH, 13.6' LT.	1,384,639.718	562,874.279
97+22.2	12" VERT. HD COUPLING 0.9'	1,384,675.210	562,867.080
97+62.2	12" HORIZ. HD COUPLING 0.9'	1,384,714.594	562,874.535
98+62.2	12" HORIZ. HD COUPLING 1.8'	1,384,911.673	562,908.594
100+02.2	12" HORIZ. HD COUPLING 1.4'	1,384,951.247	562,914.251
100+46.4	12" VERT. HD COUPLING 0.1'	1,384,992.842	562,924.324
100+59	12" VALVE	1,385,007.447	562,920.774
100+63=0+00	12"X8" TEE @ OLD HUNT CLUB RD.	1,385,011.416	562,921.239
100+89	12"x6" F.H.T.	1,385,036.736	562,924.200
	6" VALVE, 2.0' LT.	1,385,036.482	562,926.183
	6" FH, 16.6' LT.	1,385,034.912	562,940.701
101+62.2	12" HORIZ. HD COUPLING 2.1'	1,385,110.204	562,932.762
102+22.2	12" HORIZ. HD COUPLING 0.5'	1,385,170.012	562,937.456
104+02.2	12" HORIZ. HD COUPLING 2.0'	1,385,348.573	562,949.884
104+80	12" VERT. HD COUPLING 0.4'	1,385,427.222	562,952.792
104+89	12"x6" F.H.T.	1,385,437.215	562,953.178
	6" VALVE, 2.0' LT.	1,385,437.093	562,955.175
	6" FH, 13.3' LT.	1,385,436.642	562,966.444
106+42.2	12" HORIZ. HD COUPLING 1.9'	1,385,589.420	562,958.549
107+22.2	12" VERT. HD COUPLING 0.2'	1,385,669.327	562,958.699
108+75	12"x6" F.H.T.	1,385,820.200	562,959.172
	6" VALVE, 2.0' LT.	1,385,820.179	562,959.172
	6" FH, 15.5' LT.	1,385,820.087	562,974.661
109+00	12" VALVE	1,385,845.200	562,960.797
109+64	12"–11.25° HORIZ. BEND	1,385,911.205	562,959.447
110+19.5	12" VERT. HD COUPLING 1.5'	1,385,964.906	562,945.711
111+15.5=0+00	12"X12" TEE @ 12"W INTERCONNECT	1,386,057.931	562,922.008
111+50	12" VALVE	1,386,091.381	562,913.495
111+82.5	12"–45° HORIZ. BEND	1,386,122.805	562,905.529
112+02.9	12"–45° HORIZ. BEND	1,386,133.239	562,887.878
112+15.9	12" SLEEVE	1,386,145.537	562,883.557
116+40.4	12" SLEEVE	1,386,538.047	562,730.354
116+50	12" VERT. HD COUPLING 2.0'	1,386,546.131	562,729.686
117+33.4	12"–11.25° HORIZ. BEND	1,386,630.628	562,721.769
118+30	12" VALVE	1,386,723.654	562,695.575
118+37.9	12"x12" TEE @ BAUMAN DR.	1,386,731.206	562,693.279
119+72.3	12"–45° HORIZ. BEND	1,386,860.109	562,655.151
119+88.4	12"–45° HORIZ. BEND	1,386,872.456	562,644.811
119+99	CONN. TO EX. 12"W W/ PROP. 12" SOLID SLEEVE	1,386,882.370	562,641.804

FITTING SCHEDULE – 12"W MILLERS CORNER EXTENSION

STATION	FITTING	NORTHING	EASTING
0+00	12"x6" F.H.T.	1,375,239.398	563,627.380
	6" VALVE, 2.0' RT.	1,375,239.918	563,625.446
	6" FH, 9.7' RT.	1,375,241.839	563,618.020
0+40	12"–5° HORIZ. SWEEP	1,375,200.600	563,617.648
1+84	12"–5° HORIZ. SWEEP	1,375,058.499	563,594.937
1+96.3	12"–45° VERT. BEND	1,375,050.782	563,594.352
1+98.9	12"–45° VERT. BEND	1,375,048.388	563,594.181
2+46.3	12"–45° VERT. BEND	1,374,990.635	563,590.061
2+48.4	12"–45° VERT. BEND	1,374,988.540	563,589.911
2+64	12" HORIZ. HD COUPLING 3.0'	1,374,978.702	563,589.244
3+44	12" HORIZ. HD COUPLING 3.0'	1,374,898.716	563,587.735
3+75	12"x6" F.H.T.	1,374,862.641	563,588.944
	6" VALVE, 2.0' RT.	1,374,862.708	563,590.943
	6" FH, 25.4' RT.	1,374,863.493	563,614.371
4+41.2	12"–5° HORIZ. SWEEP	1,374,801.494	563,590.993
5+50	12" VERT. HD COUPLING 0.2'	1,374,693.358	563,603.159
6+61.7	12"–22.5° HORIZ. BEND	1,374,582.357	563,615.648
6+81.7	12"–11.25° HORIZ. BEND	1,374,563.139	563,610.108
7+07.5	12"x6" F.H.T.	1,374,540.724	563,597.336
	6" VALVE, 2.0' RT.	1,374,539.720	563,599.068
	6" FH, 12.7' RT.	1,374,534.455	563,608.338
7+47.6	12" VALVE	1,374,505.851	563,577.451
7+50.2	12"x12" TEE @ MILLERS CORNER	1,374,503.634	563,576.201
7+52.8	12" VALVE	1,374,502.349	563,578.447
7+80.8	12"–5° HORIZ. SWEEP	1,374,489.073	563,602.950
7+82.8	12"–45° VERT. BEND	1,374,487.840	563,604.708
8+09.2	12"–45° VERT. BEND	1,374,473.246	563,626.707
8+11.2	12"–45° HORIZ. BEND	1,374,472.157	563,628.449
9+00	12" VERT. HD COUPLING 1.3'	1,374,383.962	563,638.402
9+78.7	12" VERT. HD COUPLING 1.3'	1,374,305.758	563,647.228
10+10	12" VALVE	1,374,274.656	563,650.738
10+20	12"x6" F.H.T.	1,374,264.719	563,651.860
	6" VALVE, 2.0' LT.	1,374,264.495	563,649.873
	6" FH, 7.9' LT.	1,374,263.830	563,643.980
13+81.8	12" VERT. HD COUPLING 1.5'	1,373,905.201	563,692.434
13+94	12" VALVE	1,373,893.037	563,693.765
14+04	12"x6" F.H.T.	1,373,883.141	563,694.924
	6" VALVE, 2.0' LT.	1,373,882.917	563,692.936
	6" FH, 12' LT.	1,373,881.795	563,682.995
16+62.3	12"–45° HORIZ. BEND	1,373,626.523	563,723.843
16+78	CONN. TO EX. 12"W W/ PROP. 12"–45° HORIZ. BEND. CUT & CAP EX. 12" W	1,373,614.654	563,715.117

FITTING SCHEDULE – 8"W CULLINS WAY (STA. 0+00 = 17+86.2 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,377,000.667	563,735.265
0+15.3	8"–45° HORIZ. BEND	1,376,999.965	563,722.011
0+22.3	8"–45° HORIZ. BEND	1,377,004.692	563,716.762
0+25.3	8" SOLID SLEEVE	1,377,004.536	563,713.766

FITTING SCHEDULE – 8"W HARMAN AVE (STA. 0+00 = 87+51 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,383,734.393	562,689.704
0+04.5	8"–45° VERT. BEND	1,383,734.554	562,688.313
0+07.3	8"–45° VERT. BEND	1,383,734.898	562,685.515
0+20.2	8"–45° VERT. BEND	1,383,736.469	562,672.730
0+22.3	8"–45° VERT. BEND	1,383,748.254	562,653.000
0+31.9	8"–45° HORIZ. BEND	1,383,737.898	562,661.090
0+45	8"–45° HORIZ. BEND	1,383,748.296	562,653.038
0+48	8" SOLID SLEEVE	1,383,748.481	562,650.043

FITTING SCHEDULE – 12"W INTERCONNECT (STA. 0+00 = 111+15.5 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	12" VALVE	1,386,058.419	562,923.948
0+16.8	12"–45° HORIZ. BEND	1,386,062.072	562,938.282
0+29	12"–11.25° HORIZ. BEND	1,386,055.830	562,948.792
0+32	12" SOLID SLEEVE	1,386,053.779	562,950.981

FITTING SCHEDULE – 8"W RUXTON DRIVE (STA. 0+00 = 71+65.8 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,382,155.348	562,641.889
0+13.5	8"–11.25° VERT. BEND	1,382,155.465	562,630.351
0+22.5	8"–45° HORIZ. BEND	1,382,155.612	562,621.471
0+29.5	8"–45° HORIZ. BEND	1,382,160.676	562,616.548
0+32.5	8" SOLID SLEEVE	1,382,160.706	562,613.859

FITTING SCHEDULE – 8"W HUNT CLUB ROAD (STA. 0+00 = 94+36.5 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+08.4	8" VALVE	1,384,404.413	562,795.072
0+14	8"–45° HORIZ. BEND	1,384,405.474	562,789.537
0+28	8"–45° HORIZ. BEND	1,384,417.071	562,781.672
0+31	8" SOLID SLEEVE	1,384,417.615	562,778.722

FITTING SCHEDULE – 8"W ROCKBURN DRIVE (STA. 0+00 = STA. 0+28.5 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,375,266.569	563,636.256
0+04.9	8"–45° HORIZ. BEND	1,375,265.851	563,639.039
0+12	8"–45° HORIZ. BEND	1,375,259.702	563,642.809
0+14.5	8" SOLID SLEEVE	1,375,259.094	563,645.145

FITTING SCHEDULE – 8"W ROCKBURN WOODS WAY (STA. 0+00 = STA. 23+38 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,377,551.383	563,702.052
0+09.9	8"–45° HORIZ. BEND	1,377,550.866	563,693.596
0+12.7	8"–45° VERT. BEND	1,377,552.409	563,691.852
0+26.7	8"–45° HORIZ. BEND	1,377,561.620	563,681.438
0+28.7	8" SOLID SLEEVE	1,377,561.447	563,679.446

FITTING SCHEDULE – 8"W BELLANCA DRIVE (STA. 0+00 = 35+89.7 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,378,725.752	563,311.570
0+12.2	8"–45° HORIZ. BEND	1,378,721.384	563,302.198
0+20.9	8"–45° HORIZ. BEND	1,378,713.280	563,299.245
0+22.9	8" SOLID SLEEVE	1,378,712.462	563,297.492

FITTING SCHEDULE – 8"W MONTERY ROAD (STA. 0+00 = 51+50 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,380,238.486	562,973.406
0+05	8"–45° HORIZ. BEND	1,380,239.274	562,976.301
0+14.2	8"–45° HORIZ. BEND	1,380,234.683	562,984.310
0+17.2	8" SOLID SLEEVE	1,380,235.457	562,987.208

FITTING SCHEDULE – 12"W DEBORAH JEAN DRIVE (STA. 0+00 = 54+24.8 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+05.3	12" VALVE	1,380,925.402	562,647.836
0+12	12"–45° VERT. BEND	1,380,927.032	562,641.314
0+15	12"–45° VERT. BEND	1,380,927.778	562,638.408
0+26.9	12"–45° HORIZ. BEND	1,380,930.736	562,626.883
0+43.1	12"–45° VERT. BEND	1,380,924.965	562,611.743
0+47.2	12"–45° VERT. BEND	1,380,923.505	562,607.911
0+65.9	12"–45° HORIZ. BEND	1,380,916.844	562,590.427
0+68.8	12" SOLID SLEEVE	1,380,917.845	562,588.012

FITTING SCHEDULE – 8"W TIMBERVIEW DRIVE (STA. 0+00 = 84+08.5 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,383,392.481	562,671.294
0+14.5	8"–45° VERT. BEND	1,383,392.670	562,658.039
0+16.3	8"–45° VERT. BEND	1,383,392.701	562,656.240
0+30.5	8"–45° VERT. BEND	1,383,392.949	562,642.042
0+33	8"–45° VERT. BEND	1,383,392.993	562,639.542
0+41.6	8"–45° HORIZ. BEND	1,383,393.186	562,630.961
0+48.7	8"–45° HORIZ. BEND	1,383,388.271	562,625.871
0+50.7	8" SOLID SLEEVE	1,383,388.296	562,624.184

FITTING SCHEDULE – 6"W OLD HUNT CLUB ROAD (STA. 0+00 = 100+63 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	6"–45° VERT. BEND	1,385,011.630	562,919.234
0+11	6"–45° VERT. BEND	1,385,012.596	562,910.286
0+13.3	6"–45° VERT. BEND	1,385,012.843	562,907.999
0+20	6"–45° HORIZ. BEND	1,385,013.557	562,901.384
0+23.3	6" VALVE	1,385,016.166	562,899.314
0+27.6	6"–45° HORIZ. BEND	1,385,019.558	562,896.623
0+30.6	6" SOLID SLEEVE	1,385,019.412	562,893.626

FITTING SCHEDULE – 8"W BRANDON'S WAY (STA. 0+00 = 8+57.4 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,376,075.879	563,808.803
0+14.3	8"–22.5° HORIZ. BEND	1,376,073.831	563,789.442
0+19.8	8"–11.25° HORIZ. BEND	1,376,073.831	563,789.442
0+21	8"–45° HORIZ. BEND	1,376,073.831	563,789.442
0+24	8" SOLID SLEEVE	1,376,074.417	563,786.487

FITTING SCHEDULE – 8"W ROCKBURN E.S. (STA. 0+00 = 24+09 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,377,622.354	563,701.041
0+09.6	8"–45° HORIZ. BEND	1,377,622.812	563,708.650
0+21	8"–45° HORIZ. BEND	1,377,631.427	563,716.120
0+23	8" SOLID SLEEVE	1,377,631.545	563,717.800

FITTING SCHEDULE – 8"W MARBUCK WAY (STA. 0+00 = 36+13.3 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,378,748.864	563,305.120
0+06.8	8"–22.5° HORIZ. BEND	1,378,750.852	563,309.343
0+09.3	8"–45° VERT. BEND	1,378,750.970	563,311.973
0+17.8	8" SOLID SLEEVE	1,378,751.347	563,320.390

FITTING SCHEDULE – 8"W LANDING ROAD (STA. 0+00 = 85+18.6 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,383,502.477	562,676.945
0+19.7	8"–45° HORIZ. BEND	1,383,501.569	562,694.603
0+37.4	8"–45° HORIZ. BEND	1,383,488.406	562,706.477
0+40.4	8" SOLID SLEEVE	1,383,487.260	562,709.249

FITTING SCHEDULE – 8"W JOHN CALVERT COURT (STA. 0+00 = 64+76 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,381,469.300	562,670.534
0+05	8"–11.25° HORIZ. BEND	1,381,468.883	562,667.486
0+07	8"–45° VERT. BEND	1,381,468.963	562,665.489
0+62.9	8"–45° HORIZ. BEND	1,381,471.214	562,609.661
0+70	8"–45° HORIZ. BEND	1,381,476.330	562,604.766
0+73	8" SOLID SLEEVE	1,381,476.330	562,601.766

FITTING SCHEDULE – 12"W BAUMAN DRIVE (STA. 0+00 = 118+37.9 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+03	12"–45° VERT. BEND	1,386,850.029	562,685.656
0+10.2	12"–45° VERT. BEND	1,386,816.881	562,667.945
0+12.2	12"–45° HORIZ. BEND	1,386,743.322	562,690.244
0+16.8	12" VALVE	1,386,723.449	562,680.629
0+21.5	12"–45° HORIZ. BEND	1,386,722.999	562,680.411
0+24.3	12" SOLID SLEEVE	1,386,720.299	562,679.105

FITTING SCHEDULE – 8"W ROCKBURN BRANCH PARK ROAD (STA. 0+00 = 22+87.6 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,377,501.179	563,708.087
0+12	8"–45° HORIZ. BEND	1,377,501.783	563,719.043
0+21.2	8"–45° HORIZ. BEND	1,377,508.646	563,725.122
0+24.2	8" SOLID SLEEVE	1,377,508.828	563,728.175

FITTING SCHEDULE – 8"W @ CARTER'S CROSSING (STA. 0+00 = 32+91 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,378,453.948	563,443.820
0+06.6	8"–45° HORIZ. BEND	1,378455.832	563,447.999
0+13.5	8"–45° HORIZ. BEND	1,378,465.154	563,449.127
0+15.5	8" SOLID SLEEVE	1,378,465.987	563,450.945

FITTING SCHEDULE – 8"W PARKVIEW COURT (STA. 0+00 = 43+38 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,379,443.012	563,122.583
0+05	8"–45° HORIZ. BEND	1,379,443.830	563,125.569
0+16.2	8"–45° HORIZ. BEND	1,379,452.317	563,132.920
0+19.2	8" SOLID SLEEVE	1,379,452.651	563,135.902

FITTING SCHEDULE – 8"W KOFFEL COURT (STA. 0+00 = 64+83.2 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
0+02	8" VALVE	1,381,479.785	562,673.142
0+05	8"–45° HORIZ. BEND	1,381,480.203	562,676.148
0+11.8	8"–45° HORIZ. BEND	1,381,485.598	562,680.191
0+14.8	8" SOLID SLEEVE	1,381,485.986	562,683.165

FITTING SCHEDULE – 12" & 8"W MILLERS CORNER (STA. 7+50.2 MONTGOMERY RD.)

STATION	FITTING	NORTHING	EASTING
7+50.2	12" VALVE, 4' LT.	1,374,500.194	563,574.160
7+50.2	12"x8" REDUCER, 8' LT.	1,374,496.722	563,572.100
7+50.2	8"–5° HORIZ. SWEEP, 13.1' LT.	1,374,492.376	563,569.524
7+50.2	8" SOLID SLEEVE, 29.7' LT.	1,374,479.025	563,559.640

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION PSD — DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — NO. 36630 REGISTERED — 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.: 36630
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM				
DRAWN: EAM				
CHECKED: ERA				
DATE: 4/5/2016	NO.	REVISION	DATE	BY

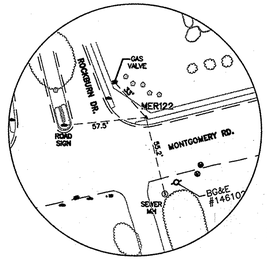
FITTING SCHEDULE

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE
AS SHOWN

SHEET
23 OF 32



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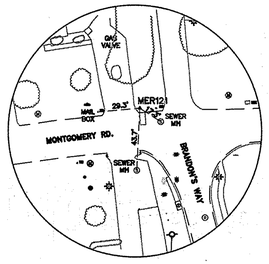
ELEV. 414.19'



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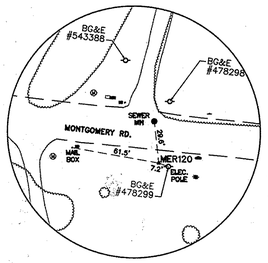
E 1376046.447
ELEV. 393.16'



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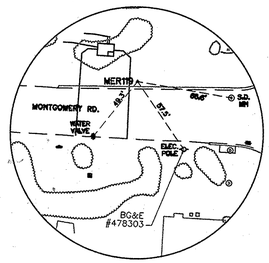
E 1376682.254
ELEV. 396.52'



TP# MR119
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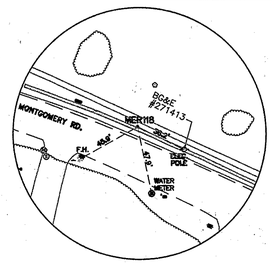
E 1377429.990
ELEV. 368.28'



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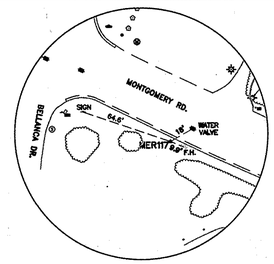
E 1378136.678
ELEV. 372.26'



TP# MR117
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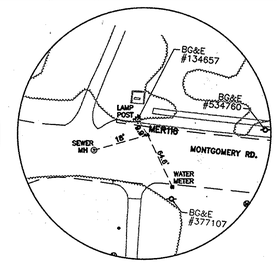
E 1378804.633
ELEV. 350.23'



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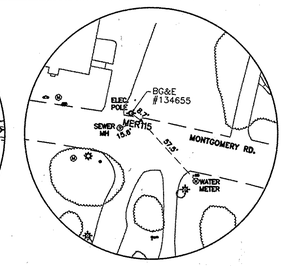

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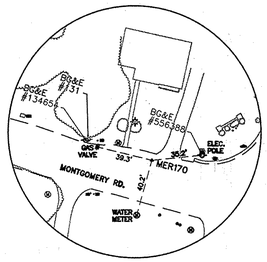
ELEV. 319.03'



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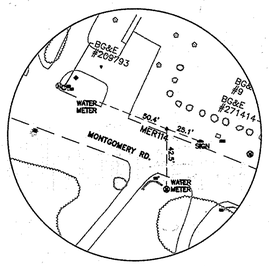
ELEV. 315.34'



TP# MR114
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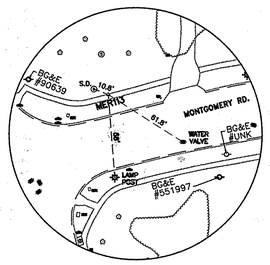
E 11380411.158
ELEV. 309.36'



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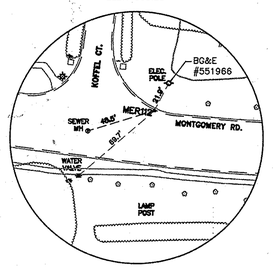
ELEV. 286.81'



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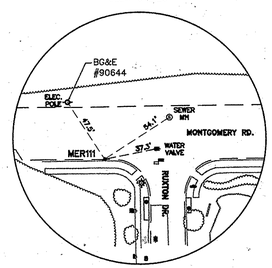
ELEV. 264.00'



TP# MR111
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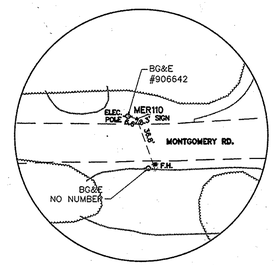
E 1382123.871
ELEV. 263.57'



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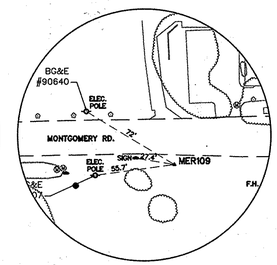
E 1378804.633
ELEV. 250.79'



TP# MR109
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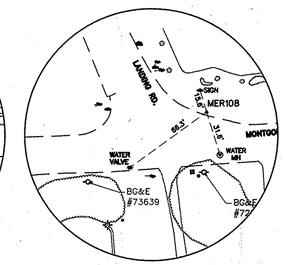
E 1383054.806
ELEV. 269.36'



TP# MR108
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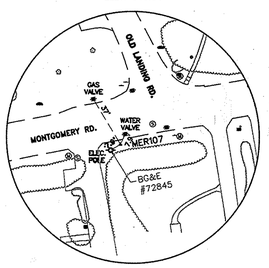
ELEV. 258.26'



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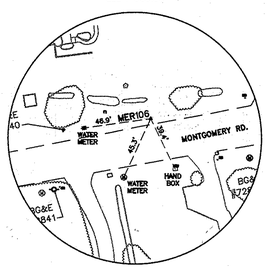
E 1384087.011
ELEV. 277.73'



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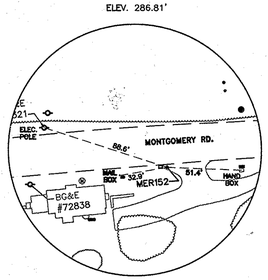
ELEV. 260.19'



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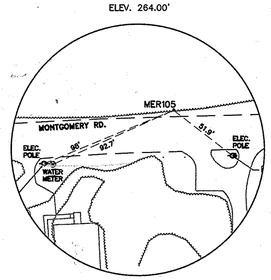
ELEV. 252.49'



TP# MR105
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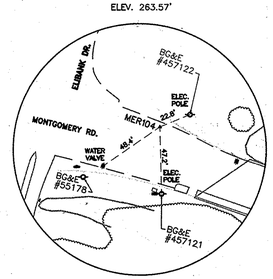
ELEV. 248.55'



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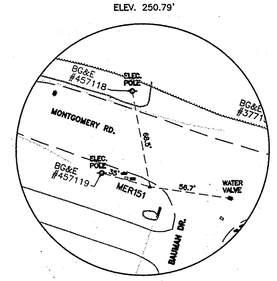
E 1386181.518
ELEV. 231.22'



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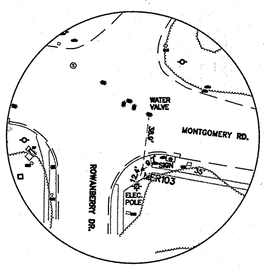

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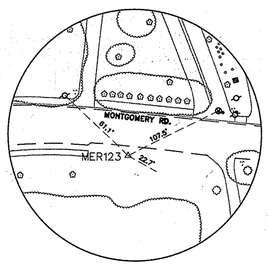
ELEV. 216.89'



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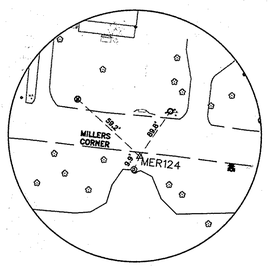

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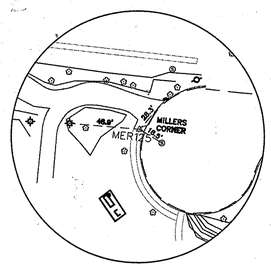
E 1374208.233
ELEV. 416.29'



TP# MR125
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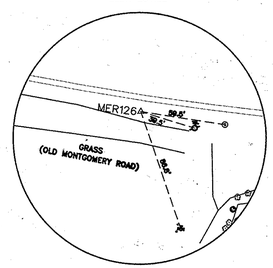


TP# MR126
N 563757.417
E 1373585.577
ELEV. 406.66'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION PSD	DATE 4/5/16

Michael Baker INTERNATIONAL

MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-9400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36596 — REGISTERED 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.: 36596 EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

SURVEY CONTROL DATA

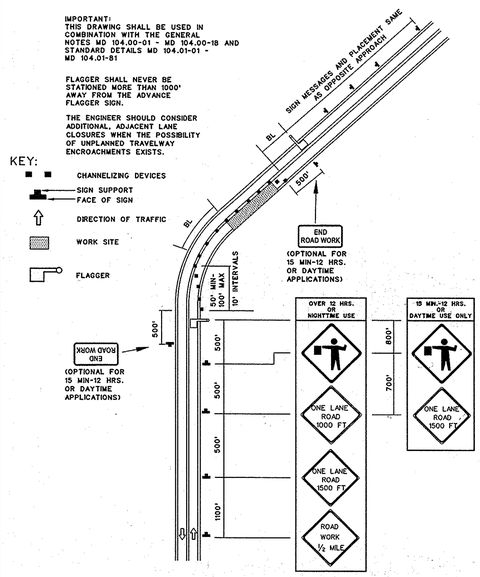
600 SCALE MAP NO.	BLOCK NO.

MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 24 OF 32

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



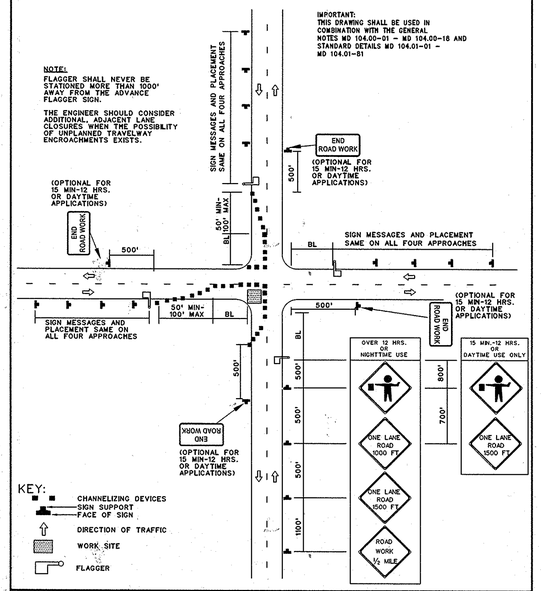
SPECIFICATION 104	CATEGORY CODE ITEMS
APPROVED DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	

APPROVAL + SHA REVISIONS	APPROVAL + FEDERAL HIGHWAY ADMINISTRATION
APPROVAL 8-20-03	APPROVAL 9-23-03
REVISED 8-11-10	REVISED 7-29-10
REVISED	REVISED
REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION/2-LANE, 2-WAY EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.02-10

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



SPECIFICATION 104	CATEGORY CODE ITEMS
APPROVED DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	

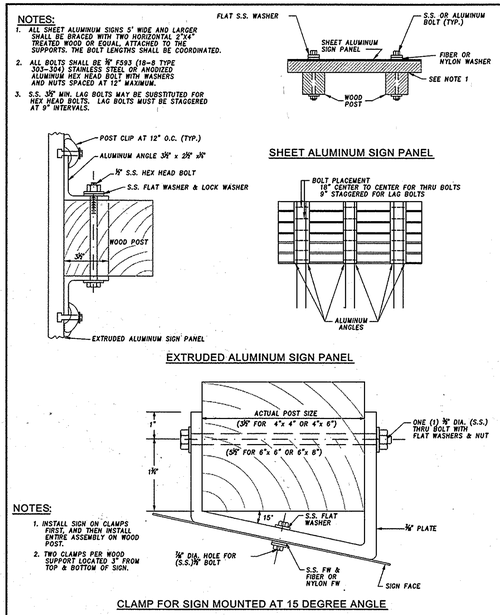
APPROVAL + SHA REVISIONS	APPROVAL + FEDERAL HIGHWAY ADMINISTRATION
APPROVAL 8-20-03	APPROVAL 9-23-03
REVISED 8-11-10	REVISED 7-29-10
REVISED	REVISED
REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INTERSECTION FLAGGING OPERATION
2-LANE, 2-WAY EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.02-14

NOTES:

1. ALL SHEET ALUMINUM SIGNS 5' WIDE AND LARGER SHALL BE BRACED WITH TWO HORIZONTAL 2"X4" TREATED WOOD OR EQUAL, ATTACHED TO THE SUPPORTS. THE BOLT LENGTHS SHALL BE COORDINATED.
2. ALL BOLTS SHALL BE ⅜" F593 (18-8 TYPE 303-304) STAINLESS STEEL OR ANODIZED ALUMINUM HEX HEAD BOLT WITH WASHERS AND NUTS SPACED AT 12" MAXIMUM.
3. S.S. .35" MIN. LAG BOLTS MAY BE SUBSTITUTED FOR HEX HEAD BOLTS. LAG BOLTS MUST BE STAGGERED AT 9" INTERVALS.



NOTES:

1. INSTALL SIGN ON CLAMPS FIRST, AND THEN INSTALL ENTIRE ASSEMBLY ON WOOD POST.
2. TWO CLAMPS PER WOOD SUPPORT LOCATED 3" FROM TOP & BOTTOM OF SIGN.

SPECIFICATION 812, 813	CATEGORY CODE ITEMS
APPROVED DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	

APPROVAL + SHA REVISIONS	APPROVAL + FEDERAL HIGHWAY ADMINISTRATION
APPROVAL 2-21-95	APPROVAL 2-21-95
REVISED 5-17-07	REVISED 5-2-07
REVISED	REVISED
REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
WOOD SIGN SUPPORTS
SIGN MOUNTING

STANDARD NO. MD 812.02

REFERENCED ON: MD 812.03, MD 813.01

WOOD SUPPORTS

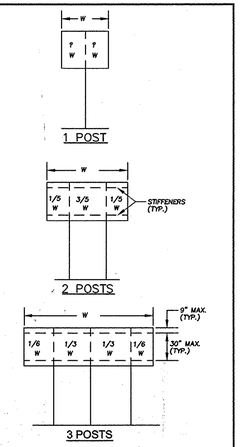
NUMBER & SIZE FOR STANDARD BLANK

SHAPE	SIZE (W x H)	POSTS
	24"	ONE (1)- 4" x 4"
	30"	ONE (1)- 4" x 4"
	36"	ONE (1)- 4" x 4"
	48"	TWO (2)- 4" x 6"
	30"	ONE (1)- 4" x 4"
	36"	ONE (1)- 4" x 4"
	48"	TWO (2)- 4" x 4"
	60"	TWO (2)- 4" x 6"
	12" x 18"	ONE (1)- 4" x 4"
	18" x 24"	ONE (1)- 4" x 4"
	24" x 30"	ONE (1)- 4" x 4"
	30" x 36"	ONE (1)- 4" x 6"
	36" x 48"	TWO (2)- 4" x 4"
	48" x 60"	TWO (2)- 4" x 6"
	21" x 15"	ONE (1)- 4" x 4"
	24" x 12"	ONE (1)- 4" x 4"
	24" x 18"	ONE (1)- 4" x 4"
	30" x 15"	ONE (1)- 4" x 4"
	30" x 24"	ONE (1)- 4" x 4"
	36" x 12"	ONE (1)- 4" x 4"
	36" x 24"	TWO (2)- 4" x 4"
	36" x 24"	TWO (2)- 4" x 4"
	48" x 36"	TWO (2)- 4" x 4"
	60" x 24"	TWO (2)- 4" x 4"
	60" x 36"	TWO (2)- 4" x 4"
	18"	ONE (1)- 4" x 4"
	24"	ONE (1)- 4" x 4"
	30"	ONE (1)- 4" x 4"
	36"	TWO (2)- 4" x 4"
	48"	TWO (2)- 4" x 6"
	24"	ONE (1)- 4" x 4"
	30"	ONE (1)- 4" x 4"
	36"	ONE (1)- 4" x 6"
	48"	TWO (2)- 4" x 6"
	* 60"	TWO (2)- 4" x 6"
ROUTE MARKER DIMENSIONS (SEE NOTE 3)	24" x 24"	ONE (1)- 4" x 4"
	30" x 24"	ONE (1)- 4" x 4"
	36" x 36"	ONE (1)- 4" x 4"
	45" x 36"	TWO (2)- 4" x 4"
	72" x 48"	TWO (2)- 4" x 6"
	☆ 84" x 72"	TWO (3)- 6" x 6"

* HOLE SPACINGS VARY FROM FEDERAL BLANK STANDARDS

* * SEE WOOD SIGN SUPPORTS ROUTE MARKER ASSEMBLIES STANDARD PLATE FOR DETAILS.

☆ SIGN BEHIND TRAFFIC BARRIER



GUIDE SIGN SUPPORT SPACING

NOTES:

1. SPACING MAY BE VARIED TO MEET FHWA BREAKAWAY REQUIREMENTS. (NO MORE THAN TWO 4" x 4" OR TWO DRILLED 4" x 6" POSTS WITHIN A 7'-0" DISTANCE. A MINIMUM 7'-0" SPACING BETWEEN ALL 6" x 6" OR 6" x 8" POSTS.)
2. REFER TO WOOD SIGN SUPPORT FOUNDATIONS AND BREAKAWAY FEATURES FOR BREAKAWAY WOOD POST MODIFICATIONS.
3. ROUTE MARKER DIMENSIONS REPRESENT THE DIMENSIONS OF THE ROUTE SHIELD ONLY. ROUTE SHIELD MAY BE SUPPLEMENTED WITH CARDINAL DIRECTION AND DIRECTIONAL ARROW SIGN PANELS. POST SIZES REPRESENT REQUIRED SUPPORT FOR COMPLETE ASSEMBLY, INCLUSIVE OF ROUTE SHIELD, CARDINAL DIRECTION AND DIRECTIONAL ARROW SIGN PANELS.
4. PROVIDE 2"x4" WOOD HORIZONTAL STIFFENERS WHEN SHEET ALUMINUM SIGN WIDTH EXCEEDS 48".

SPECIFICATION 812, 813	CATEGORY CODE ITEMS
APPROVED DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	

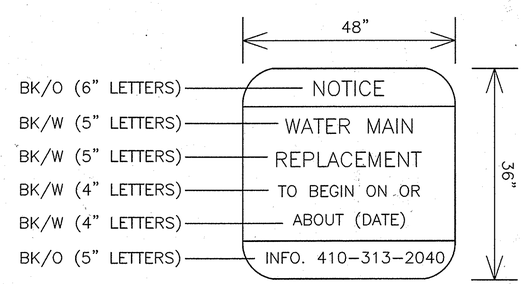
APPROVAL + SHA REVISIONS	APPROVAL + FEDERAL HIGHWAY ADMINISTRATION
APPROVAL 2-21-95	APPROVAL 2-21-95
REVISED 5-17-07	REVISED 5-2-07
REVISED	REVISED
REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
WOOD SIGN SUPPORTS
POST SIZES & SPACING

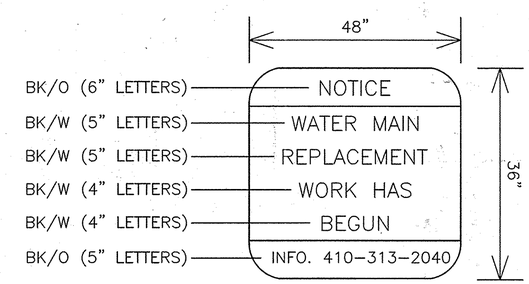
STANDARD NO. MD 812.04

TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR IS TO USE DETAIL MD 104.02-14 AT THE FOLLOWING INTERSECTIONS:
   A. ROCKBURN DRIVE AND MONTGOMERY ROAD
   B. BRANDON'S WAY AND MONTGOMERY ROAD
   C. ROCKBURN BRANCH PARK ROAD AND MONTGOMERY ROAD
   D. ROCKBURN WOODS WAY AND MONTGOMERY ROAD
   E. 6191 MONTGOMERY ROAD AND MONTGOMERY ROAD
   F. MARBLUCK WAY AND MONTGOMERY ROAD
   G. BELLANCA DRIVE AND MONTGOMERY ROAD
   H. DARKVIEW COURT AND MONTGOMERY ROAD
   I. PARKVIEW COURT AND MONTGOMERY ROAD
   J. MONTERY ROAD AND MONTGOMERY ROAD
   K. HAWKS WATCH DEVELOPMENT AND MONTGOMERY ROAD
   L. DEBORAH JEAN DRIVE AND MONTGOMERY ROAD
   M. KOFFEL COURT AND MONTGOMERY ROAD
   N. RUXTON DRIVE AND MONTGOMERY ROAD
   O. TIMBERVIEW DRIVE AND MONTGOMERY ROAD
   P. LANDING ROAD AND MONTGOMERY ROAD
   Q. HARMAN AVENUE AND MONTGOMERY ROAD
   R. OLD LANDING ROAD AND MONTGOMERY ROAD
   S. HUNT CLUB ROAD AND MONTGOMERY ROAD
   T. OLD HUNT CLUB ROAD AND MONTGOMERY ROAD
   U. ELIBANK DRIVE AND MONTGOMERY ROAD
   V. BAUMAN DRIVE AND MONTGOMERY ROAD
   W. MILLERS CORNER AND MONTGOMERY ROAD
2. THE CONTRACTOR IS TO USE DETAIL MD 104.02-10 ALONG MONTGOMERY ROAD AND MILLERS CORNER EXCEPT AT INTERSECTIONS.
3. THE CONTRACTOR SHALL CONFORM TO THE TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS AND OTHER TEMPORARY TRAFFIC CONTROL STANDARDS FOUND IN THE "STATE OF MARYLAND, DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION, BOOK OF STANDARDS, HIGHWAY AND INCIDENTAL STRUCTURES". THE TYPICAL APPLICATIONS THAT ARE MOST PERTINENT TO THIS PROJECT ARE INCLUDED IN THE PROJECT PLANS, BUT THE CONTRACTOR IS RESPONSIBLE FOR TO FOLLOW ALL STANDARDS FOUND IN THIS BOOK OF STANDARDS.
4. THE CONTRACTOR SHALL CONTINUOUSLY PROVIDE ACCESS TO ALL EXITS, INTERSECTING ROADS, DRIVEWAYS AND ENTRANCES ALONG MONTGOMERY ROAD DURING THE COURSE OF THIS PROJECT.
5. THE CONTRACTOR SHALL BACKFILL THE TRENCH IMMEDIATELY AFTER THE INSTALLATION OF A SECTION OF PIPE. THE CONTRACTOR SHALL NOT LEAVE AN OPEN TRENCH UNATTENDED.
6. ANY EXCAVATED AREA NOT BACKFILLED AT THE END OF A WORK-DAY/WORK-NIGHT MUST BE COVERED WITH STEEL PLATES AS PER MARYLAND STATE HIGHWAY ADMINISTRATION STANDARDS.
7. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR ALL ACCIDENTS AND/OR DAMAGE TO PERSONS AND/OR PROPERTY DAMAGE RESULTING FROM HIS OPERATIONS.



NOTICE SIGN
WORK TO BEGIN
NOT TO SCALE



NOTICE SIGN
WORK HAS BEGUN
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION PSD	DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36630 — REGISTERED 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.: 36630
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

TRAFFIC CONTROL DETAILS

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 25 OF 32

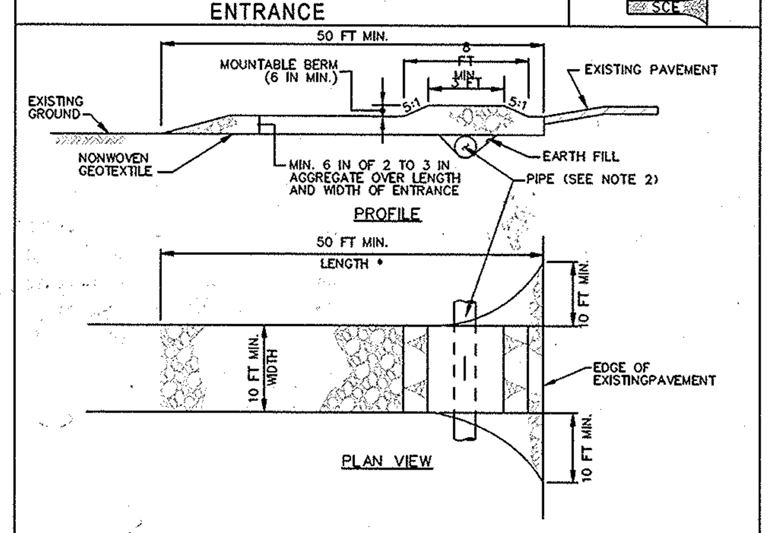
HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
   A. PRIOR TO THE START OF EARTH DISTURBANCE,
   B. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING,
   C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
   D. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

   OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.
6. SITE ANALYSIS:
   TOTAL AREA OF SITE: 4.12 ACRES
   AREA DISTURBED: 4.12 ACRES
   AREA TO BE ROOFED OR PAVED: 3.65 ACRES
   AREA TO BE VEGETATIVELY STABILIZED: 0.47 ACRES
   TOTAL CUT: N/A CU. YDS.
   TOTAL FILL: N/A CU. YDS.
   OFFSITE WASTE/BORROW AREA LOCATION: N/A
7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
   - INSPECTION DATE
   - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
   - NAME AND TITLE OF INSPECTOR
   - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
   - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
   - EVIDENCE OF SEDIMENT DISCHARGES
   - IDENTIFICATION OF PLAN DEFICIENCIES
   - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
   - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
   - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
   - PHOTOGRAPHS
   - MONITORING/SAMPLING
   - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
   - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
   - USE I AND IP MARCH 1 – JUNE 15
   - USE III AND IIIP OCTOBER 1 – APRIL 30
   - USE IV MARCH 1 – MAY 31
16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

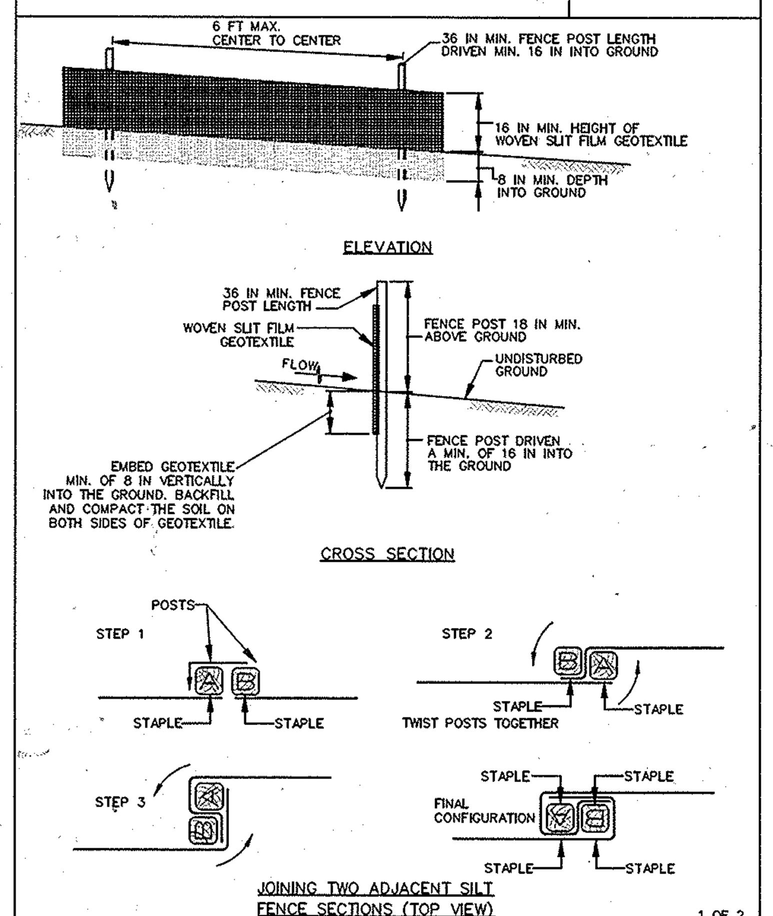
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING 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

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

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: —SF—

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅛ 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

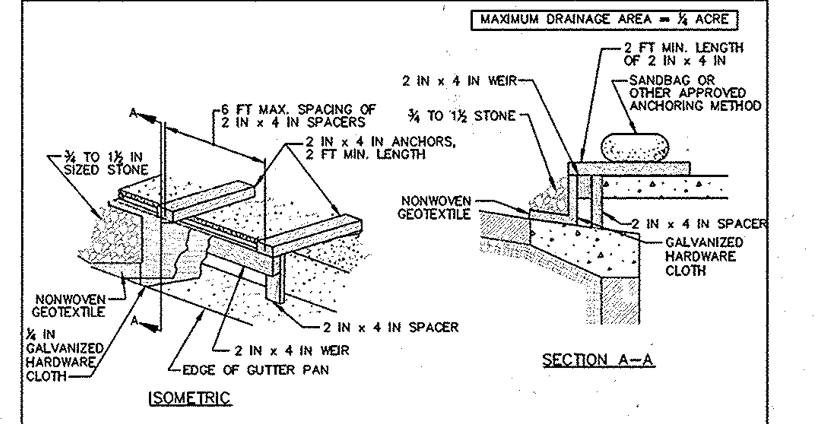
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. 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.

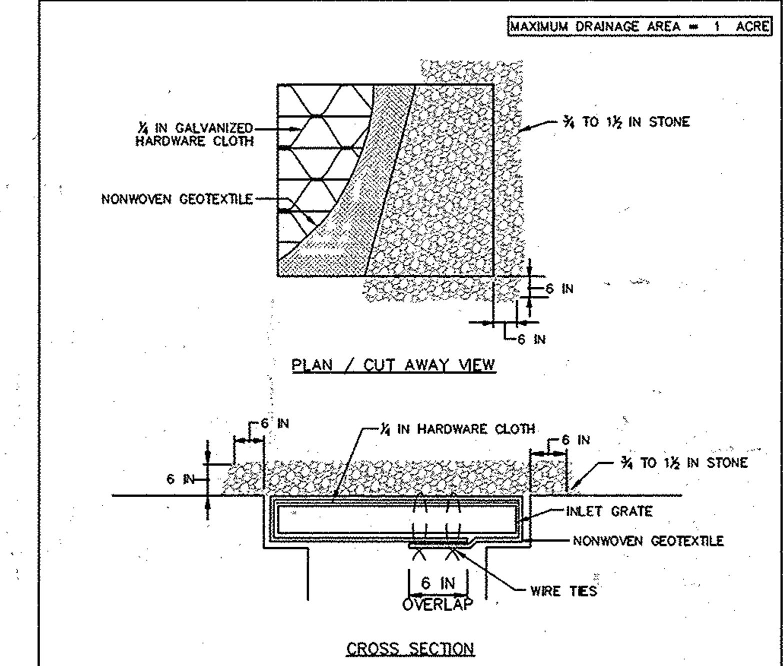
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

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

SEQUENCE OF CONSTRUCTION:

NOTES:

A. ALL SEDIMENT CONTROLS ARE TO BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
B. ALL SEEDING AND/OR STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
C. A STABILIZED CONSTRUCTION ENTRANCE IS TO BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

1. OBTAIN GRADING PERMIT.
2. PRE-CONSTRUCTION MEETING: NOTIFY THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS (1-410-313-3800) AT LEAST 48 HOURS BEFORE COMMENCING WORK. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE PERSONNEL HAVE MET ON SITE WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS.
3. CONTRACTOR SHALL LOCATE AND PROCURE ALL STAGING AND STOCKPILING AREAS WHICH SHALL BE APPROVED BY THE PROJECT INSPECTOR.
4. CONDUCT TEST PIT OPERATIONS. PRESENT FINALIZED SCHEDULE OF WORK TO THE ENGINEER AND HOWARD COUNTY INSPECTIONS, LICENSES AND PERMITS DIVISION.
5. CLEAR AND GRUB THOSE AREAS FOR INSTALLATION OF SEDIMENT AND EROSION PERIMETER CONTROLS.
6. INSTALL AND STABILIZE PERIMETER CONTROLS.
7. CLEAR AND GRUB THE REMAINING AREAS WITHIN THE PERIMETER CONTROLS AS REQUIRED PER THE PLANS. OBTAIN APPROVAL FROM THE COUNTY SEDIMENT AND EROSION CONTROL INSPECTOR.
8. PERFORM THE FOLLOWING SEQUENCE FOR EACH DAY OF UTILITY CONSTRUCTION OPERATION:
   A. INSTALL SILT FENCE DOWNSTREAM OF AREA TO THE WORKED ON A DAILY BASIS.
   B. CLEAR AND GRUB AREA WHERE PIPELINE WILL BE INSTALLED. REMOVE AND SALVAGE TOPSOIL.
   C. EXCAVATE DITCH TO THE GRADE SPECIFIED ON THE PROFILE AND INSTALL WATER MAIN AND APPURTENANCES. PLACE BACKFILL AND COMPACT.
   D. PLACE TOPSOIL, FINE GRADE, SEED AND APPLY MULCH TO DISTURBED AREA OR RESURFACE WITH BITUMINOUS PAVING AS APPROPRIATE.
   E. STREETS ARE TO BE SWEPT FREE OF DIRT AND DEBRIS.
9. DIRECT ALL WATER PUMPED DURING TRENCH DEWATERING OPERATIONS TO AN APPROVED PORTABLE SEDIMENT TANK. CLEAN OUT TANK WHEN ONE-THIRD IS FILLED WITH SILT. HAUL SEDIMENT TO A COUNTY APPROVED SITE.
10. NO EXCAVATED MATERIAL SHALL BE PLACED IN THE DITCH ADJACENT TO THE EXISTING ROADWAY. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT THE DISTURBANCE OF EXISTING VEGETATED AREAS TO THE MAXIMUM EXTENT POSSIBLE. ANY EXISTING VEGETATED AREAS DISTURBED AS A RESULT OF THE CONTRACTOR'S WORK OPERATIONS SHALL BE STABILIZED BY THE END OF THE WORK DAY.
11. STABILIZE THE TOP OF ALL TRENCHES BY THE END OF EACH WORK DAY. ALL EXCESS STOCKPILED SOIL REMAINING AFTER REFILLING OF THE TRENCH(S) SHALL BE REMOVED FROM THE SURFACE AND HAULED FROM THE SITE BY THE END OF THE WORKING DAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS FOR HIS OFF-SITE STOCKPILE AREAS. THE CONTRACTOR SHALL ALSO ADEQUATELY CLEAN ALL DIRT AND MUD OFF THE ROADWAYS BY THE END OF EACH WORKING DAY.
12. PERMANENTLY STABILIZE ANY REMAINING DISTURBED AREAS AS REQUIRED.
13. REMOVE ANY REMAINING SEDIMENT CONTROLS AFTER PRIOR APPROVAL FROM HOWARD COUNTY INSPECTIONS AND PERMITS DIVISIONS.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS:

A. SOIL PREPARATION
1. TEMPORARY STABILIZATION
   a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
   b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
   c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
2. PERMANENT STABILIZATION
   a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
      I. SOIL PH BETWEEN 6.0 AND 7.0.
      II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
      III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
      IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
      V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
   b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
   c. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
   d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
   e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
   a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
   b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
   c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
   d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
   a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
   b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
   c. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
6. TOPSOIL APPLICATION
   a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
   b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
   c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (CONT'D):

2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING:

A. SEEDING
1. SPECIFICATIONS
   a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
   b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
   c. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
   d. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
   a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
      I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
   b. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
      I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
   c. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
      I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (POTASSIUM), 200 POUNDS PER ACRE.
      II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
      III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
      IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING
1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
   a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
   b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
      I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
      II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
      III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
      IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
      V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING (CONT'D):

2. APPLICATION
   a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
   b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
   c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
   a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
      I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
      II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
      III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
      IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA:

A. CRITERIA
1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

B. MAINTENANCE
THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION:

THE DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/12/16

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

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Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — NO. 36630 — REGISTERED 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.: 36630
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM				
DRAWN: EAM				
CHECKED: ERA				
DATE: 4/5/2016	NO.	REVISION	DATE	BY

EROSION & SEDIMENT CONTROL NOTES & DETAILS

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE: AS SHOWN

TEMPORARY SEEDING NOTES:

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT.)

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30, AND FROM AUGUST 1 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (0.07 LBS/1000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ DT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FT OR HIGHER, USE 348 GAL PER ACRE SPREADER MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ FT.) FOR ANCHORING.

PERMANENT SEEDING NOTES:

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS OF BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1) PREFERRED – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ FT.).
2) ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (0.5 LBS/1000 SQ FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY, OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT.) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING FOR SITE STABILIZATION

HARDINESS ZONE (FROM FIGURE B.3): 6b
SEED MIXTURE (FROM TABLE B.1): SEE BELOW

NO.	PLANT SPECIES	SEEDING RATE 1/ (LB/AC)	SEEDING DATES 3/	SEEDING DEPTH 2/ (INCHES)	FERTILIZER RATE (10-20-20)	LIME RATE
	COOL-SEASON GRASSES				436 LB/AC (10 LB./1000 SF)	2 TONS/AC (90 LB./1000 SF)
	ANNUAL RYEGRASS (LOLIUM PERENNE SSP. MULTIFLORUM)	40	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	0.5		
	BARLEY (HORDEUM VULGARE)	96	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1.0		
	OATS (AVENA SATIVA)	72	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1.0		
	WHEAT (TRITICUM AESTIVUM)	120	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1.0		
	CEREAL RYE (SECALE CEREALE)	112	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	1.0		
	WARM-SEASON GRASSES					
	FOXTAIL MILLET (SETARIA ITALICA)	30	MAY 16 TO JUL. 31	0.5		
	PEARL MILLET (PENNISETUM GLAUCUM)	20	MAY 16 TO JUL. 31	0.5		

NOTES:

1/ SEEDING RATES FOR THE WARM-SEASON GRASSES ARE IN POUNDS OF PURE LIVE SEED (PLS). ACTUAL PLANTING RATES SHALL BE ADJUSTED TO REFLECT PERCENT SEED GERMINATION AND PURITY, AS TESTED. ADJUSTMENTS ARE USUALLY NOT NEEDED FOR THE COOL-SEASON GRASSES.

SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS, WHEN PLANTED ALONE. WHEN PLANTED AS A NURSE CROP WITH PERMANENT SEED MIXES, USE 1/3 OF THE SEEDING RATE LISTED ABOVE FOR BARLEY, OATS, AND WHEAT. FOR SMALLER-SEEDED GRASSES (ANNUAL RYEGRASS, PEARL MILLET, FOXTAIL MILLET), DO NOT EXCEED MORE THAN 5% (BY WEIGHT) OF THE OVERALL PERMANENT SEEDING MIX. CEREAL RYE GENERALLY SHOULD NOT BE USED AS A NURSE CROP, UNLESS PLANTING WILL OCCUR IN VERY LATE FALL BEYOND THE SEEDING DATES FOR OTHER TEMPORARY SEEDINGS. CEREAL RYE HAS ALLELOPATHIC PROPERTIES THAT INHIBIT THE GERMINATION AND GROWTH OF OTHER PLANTS. IF IT MUST BE USED AS A NURSE CROP, SEED AT 1/3 OF THE RATE LISTED ABOVE.

OATS ARE THE RECOMMENDED NURSE CROP FOR WARM-SEASON GRASSES.

2/ FOR SANDY SOILS, PLANT SEEDS AT TWICE THE DEPTH LISTED ABOVE.

3/ THE PLANTING DATES LISTED ARE AVERAGES FOR EACH ZONE AND MAY REQUIRE ADJUSTMENT TO REFLECT LOCAL CONDITIONS, ESPECIALLY NEAR THE BOUNDARIES OF THE ZONE.

PERMANENT SEEDING FOR SITE STABILIZATION

HARDINESS ZONE (FROM FIGURE B.3): 6b
SEED MIXTURE (FROM TABLE B.1): SEE BELOW

WARM-SEASON/COOL-SEASON GRASS MIXES					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	PLANT SPECIES	SEEDING RATE 1/ (LB/AC)	SEEDING DATES	SEEDING DEPTH (INCHES)	N	P_2O_5	K_2O	
1	SWITCH GRASS (PANICUM VIRGATUM)	10	MAY 16 TO JUL. 31	¼"-½"	45 LB/AC (1 LB./1000 SF)	90 LB/AC (2 LB./1000 SF)	90 LB/AC (2 LB./1000 SF)	2 TONS/AC (90 LB./1000 SF)
	CREEPING RED FESCUE (FESTUCA RUBRA VAR. RUBRA)	15	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	¼"-½"				
	PARTRIDGE PEA (CHAMAECRISTA FASCICULATE)	4	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	¼"-½"				

NOTES:

1/ SEEDING RATES: SEEDING RATES FOR THE WARM-SEASON GRASSES ARE IN POUNDS OF PURE LIVE SEED (PLS). ACTUAL PLANTING RATES MUST BE ADJUSTED TO REFLECT PERCENT SEED GERMINATION AND PURITY, AS TESTED. ADJUSTMENTS ARE USUALLY NOT NEEDED FOR THE COOL-SEASON GRASSES, LEGUMES, OR WILDFLOWERS. ALL LEGUME SEEDS MUST BE INOCULATED BEFORE PLANTING WITH THE APPROPRIATE RHIZOBIUM BACTERIA. WHEN FEASIBLE, HARD-SEEDED LEGUMES SHOULD BE SCARIFIED TO IMPROVE GERMINATION.

THIS DEVELOPMENT PLAN
IS APPROVED FOR SOIL
EROSION AND SEDIMENT
CONTROL BY THE HOWARD
SOIL CONSERVATION
DISTRICT
Approved: [signature]
Howard SCD
4/7/16

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION FSD	DATE 4/5/16

Michael Baker INTERNATIONAL
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Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36538 — REGISTERED 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.: 36538
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

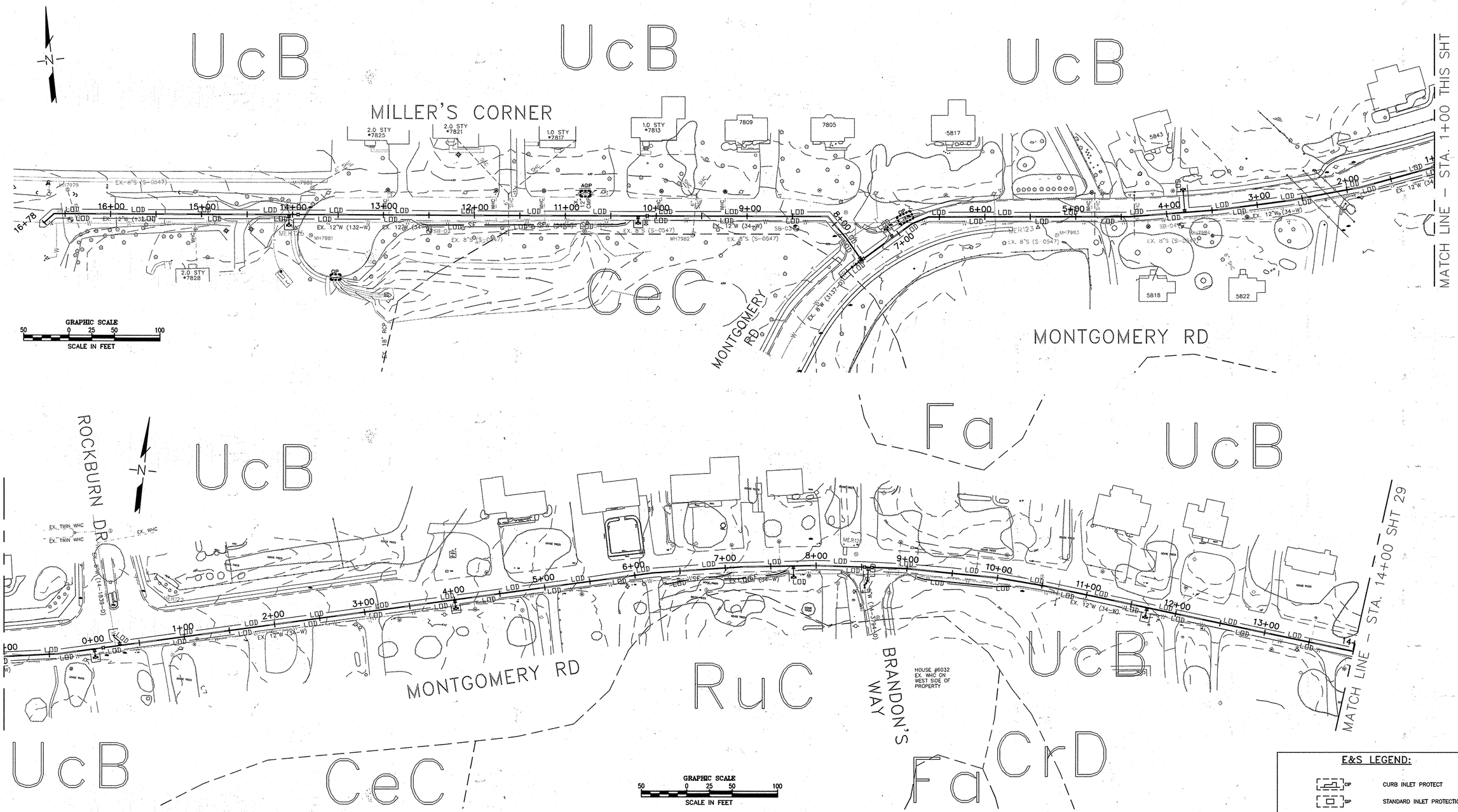
EROSION & SEDIMENT CONTROL NOTES & DETAILS

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12"
WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 27 OF 32



NOTES:

1. SOIL DATA IS BASED ON THE WEB SOIL SURVEY WEBSITE BY THE USDA NATURAL RESOURCES CONSERVATION SERVICE.
   CeC: CHILLUM LOAM, 2 TO 5 PERCENT SLOPES
   CrD: CROOM AND EVESBORO SOILS, 10 TO 15 PERCENT SLOPES
   Fa: FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES
   RuC: RUSSETT AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES
   SfB: SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES
   UcB: URBAN LAND–CHILLUM–BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES
   UsB: URBAN LAND–SASSAFRAS–BELTSVILLE COMPLEX, 0 TO 15 PERCENT SLOPES
   UsD: URBAN LAND–SASSAFRAS–BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES
   WoB: WOODSTOWN SANDY LOAM, 2 TO 5 PERCENT SLOPES
2. TOP SOIL SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF THE SHA STANDARD SPECIFICATION OF CONSTRUCTION AND MATERIALS, SECTION 920–LANDSCAPING MATERIALS.

E&S LEGEND:

CIP	CURB INLET PROTECT
SIP	STANDARD INLET PROTECTION
AGIP	AT GRADE INLET PROTECTION
—— LOD —— LOD ——	LIMIT OF DISTURBANCE
	SOIL BOUNDARY
AbC	SOIL TYPE
—— SF —— SF ——	SILT FENCE
—— SSF —— SSF ——	SUPER SILT FENCE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 4/5/16
CHIEF, BUREAU OF UTILITIES — DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION — DATE 4/5/16

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
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Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36630 — REGISTERED 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.: 36630
EXPIRATION DATE: 06/07/16
ERIN A. MCKENNA–STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

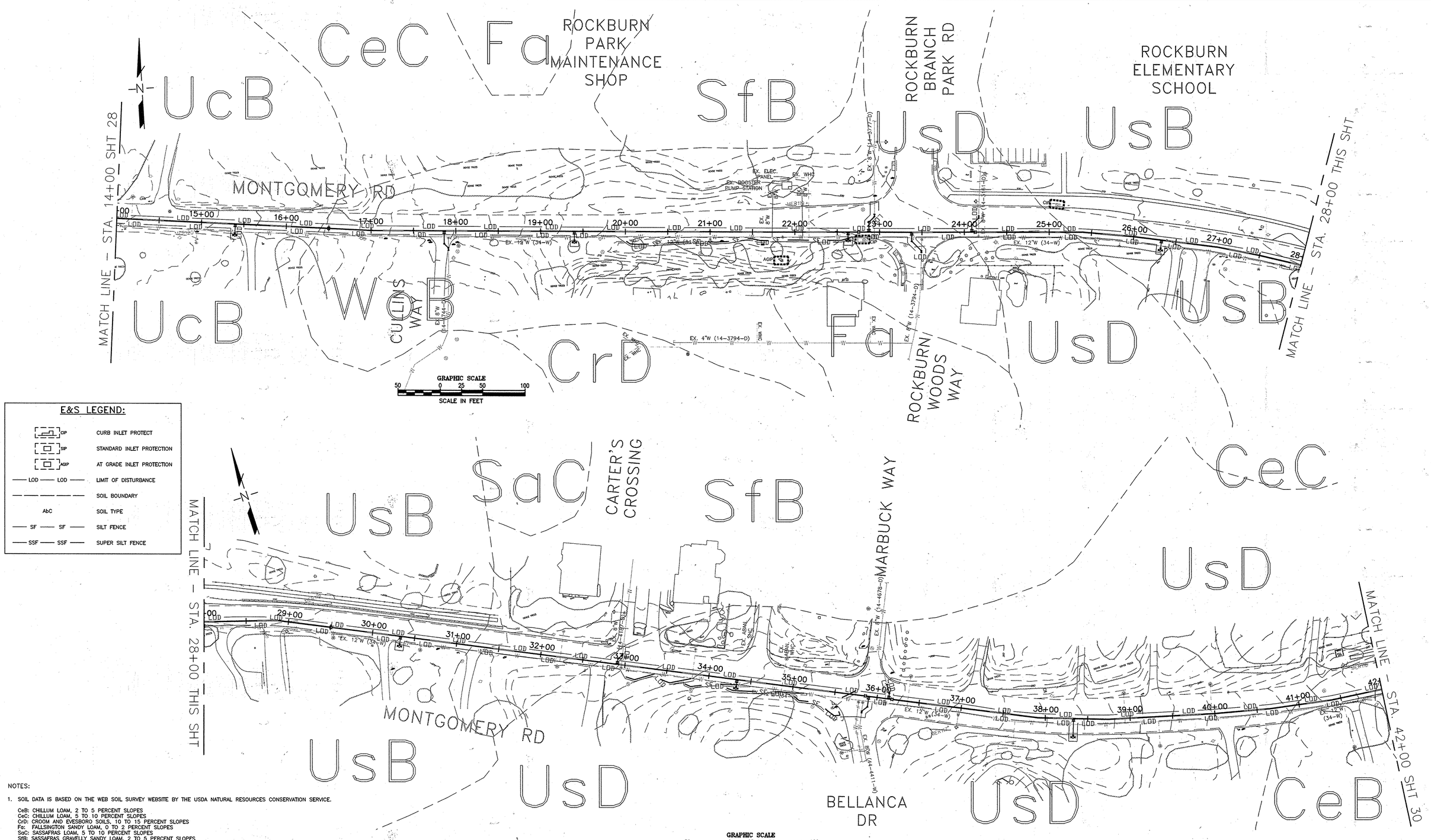
EROSION & SEDIMENT CONTROL PLAN

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 28 OF 32



NOTES:

1. SOIL DATA IS BASED ON THE WEB SOIL SURVEY WEBSITE BY THE USDA NATURAL RESOURCES CONSERVATION SERVICE.

   CeB: CHILLUM LOAM, 2 TO 5 PERCENT SLOPES
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   Fa: FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES
   SaC: SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES
   SfB: SASSAFRAS GRAVELLY SANDY LOAM, 2 TO 5 PERCENT SLOPES
   UcB: URBAN LAND–CHILLUM–BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES
   UsB: URBAN LAND–SASSAFRAS–BELTSVILLE COMPLEX, 0 TO 15 PERCENT SLOPES
   UsD: URBAN LAND–SASSAFRAS–BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES
   WoB: WOODSTOWN SANDY LOAM, 2 TO 5 PERCENT SLOPES

2. TOP SOIL SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF THE SHA STANDARD SPECIFICATION OF CONSTRUCTION AND MATERIALS, SECTION 920–LANDSCAPING MATERIALS.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/6/16
CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16
CHIEF, UTILITY DESIGN DIVISION	DATE 4/8/16

Michael Baker INTERNATIONAL

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1304 Concourse Drive, Suite 200
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Phone: (410) 689-3400

STATE OF MARYLAND – ERIN A. MCKENNA-STREYLE – NO. 38630 – REGISTERED 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.: 38630
EXPIRATION DATE: 06/07/16

ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

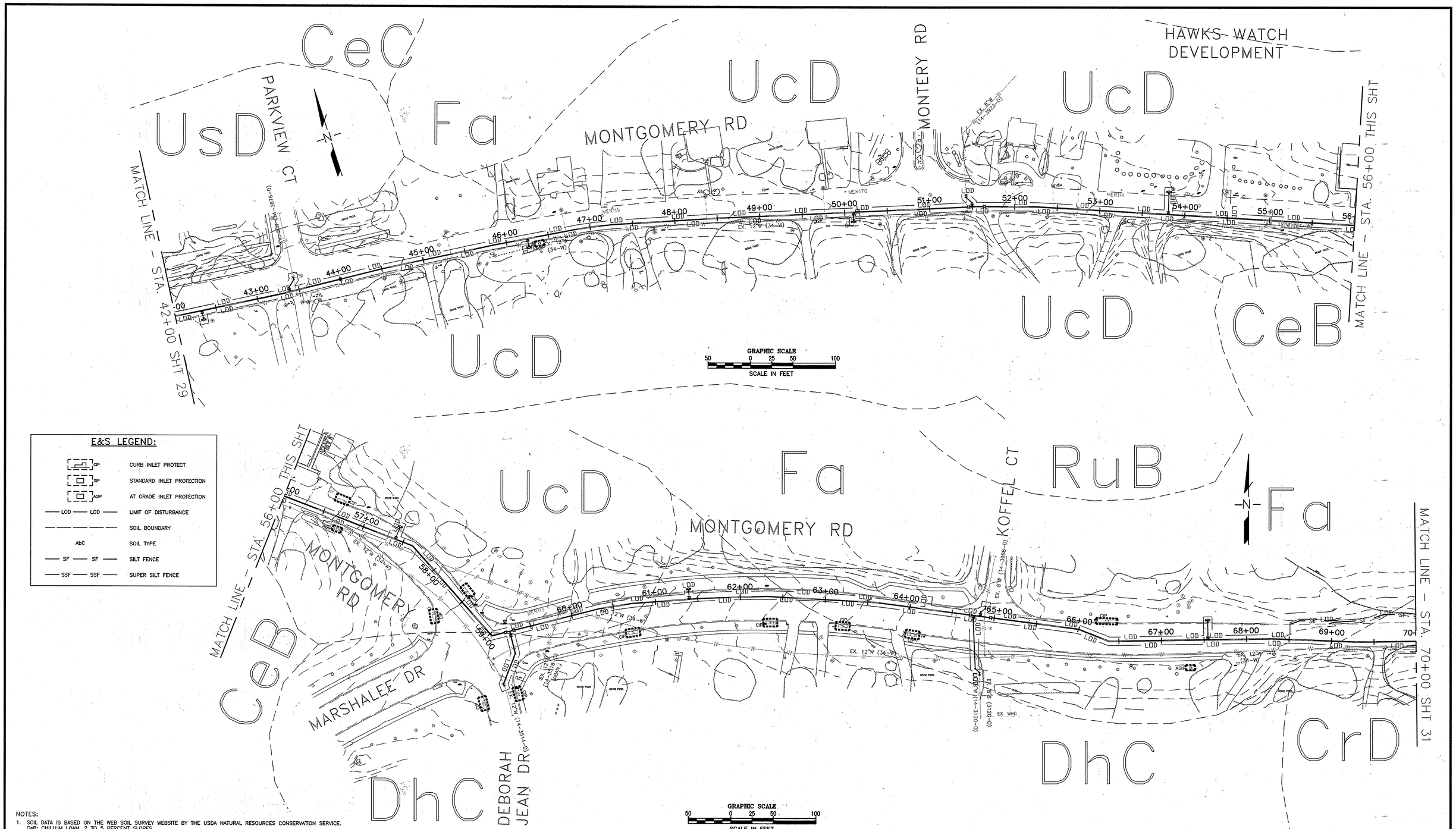
EROSION & SEDIMENT CONTROL PLAN

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 29 OF 32



E&S LEGEND:

CIP	CURB INLET PROTECT
SIP	STANDARD INLET PROTECTION
AGIP	AT GRADE INLET PROTECTION
LOD — LOD	LIMIT OF DISTURBANCE
	SOIL BOUNDARY
AbC	SOIL TYPE
SF — SF	SILT FENCE
SSF — SSF	SUPER SILT FENCE

NOTES:

1. SOIL DATA IS BASED ON THE WEB SOIL SURVEY WEBSITE BY THE USDA NATURAL RESOURCES CONSERVATION SERVICE.
   CeB: CHILLUM LOAM, 2 TO 5 PERCENT SLOPES
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   CrD: CROOM AND EVESBORO SOILS, 10 TO 15 PERCENT SLOPES
   DhC: DOWNNER-HAMMONTON SANDY LOAMS, 2 TO 5 PERCENT SLOPES
   Fa: FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES
   RuB: RUSSETT AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES
   UcD: URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES
   UsB: URBAN LAND-SASSAFRAS-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES
2. TOP SOIL SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF THE SHA STANDARD SPECIFICATION OF CONSTRUCTION AND MATERIALS, SECTION 920-LANDSCAPING MATERIALS.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION PSD	DATE 4/5/16

Michael Baker INTERNATIONAL

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Phone: (410) 689-3400

STATE OF MARYLAND — ERIN A. MCKENNA-STREYLE — No. 36636 — REGISTERED 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.: 36636
EXPIRATION DATE: 06/07/16

ERIN A. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

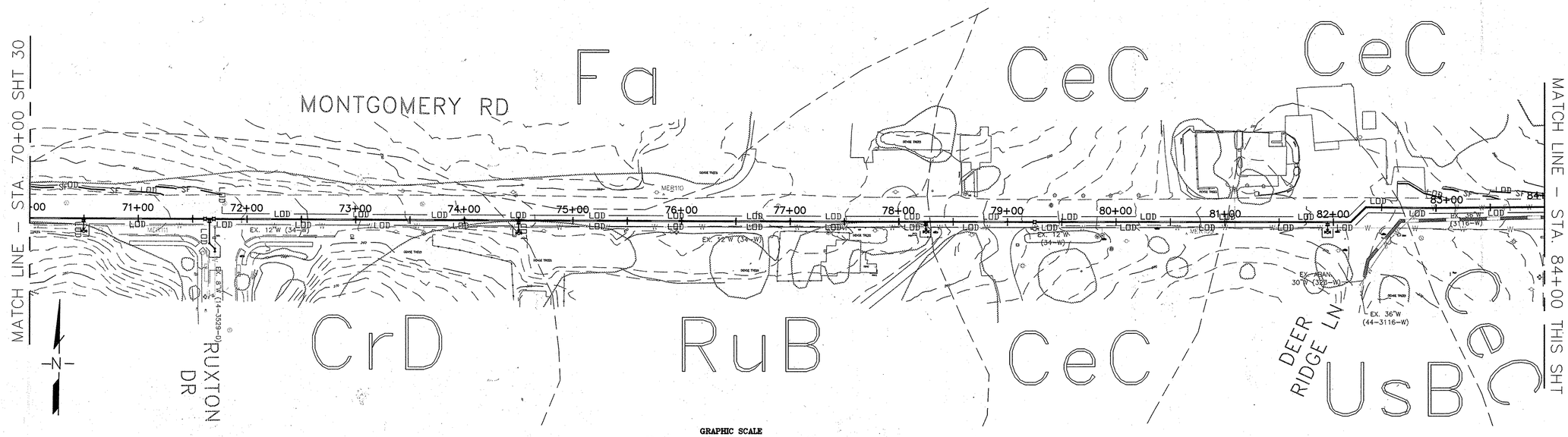
EROSION & SEDIMENT CONTROL PLAN

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

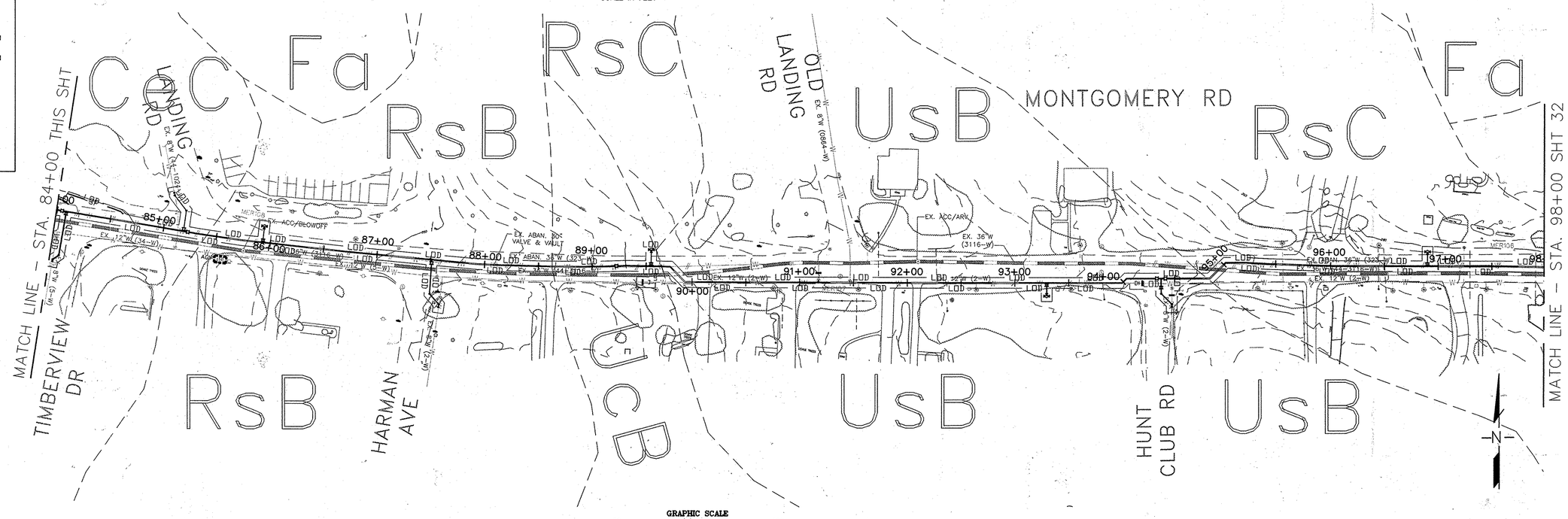
SHEET 30 OF 32



GRAPHIC SCALE
50 0 25 50 100
SCALE IN FEET

E&S LEGEND:

CIP	CURB INLET PROTECT
SIP	STANDARD INLET PROTECTION
AGIP	AT GRADE INLET PROTECTION
LOD — LOD	LIMIT OF DISTURBANCE
	SOIL BOUNDARY
AbC	SOIL TYPE
SF — SF	SILT FENCE
SSF — SSF	SUPER SILT FENCE



GRAPHIC SCALE
50 0 25 50 100
SCALE IN FEET

NOTES:

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   Fa: FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES
   RsB: RUSSETT FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES
   RsC: RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES
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   UsB: URBAN LAND–SASSAFRAS–BELTSVILLE–COMPLEX, 0 TO 5 PERCENT SLOPES
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 4/6/16	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION	DATE 4/5/16

Michael Baker INTERNATIONAL

MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
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STATE OF MARYLAND — ERIN K. MCKENNA-STREYLE — No. 36639 — REGISTERED 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.: 36639
EXPIRATION DATE: 06/07/16
ERIN K. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

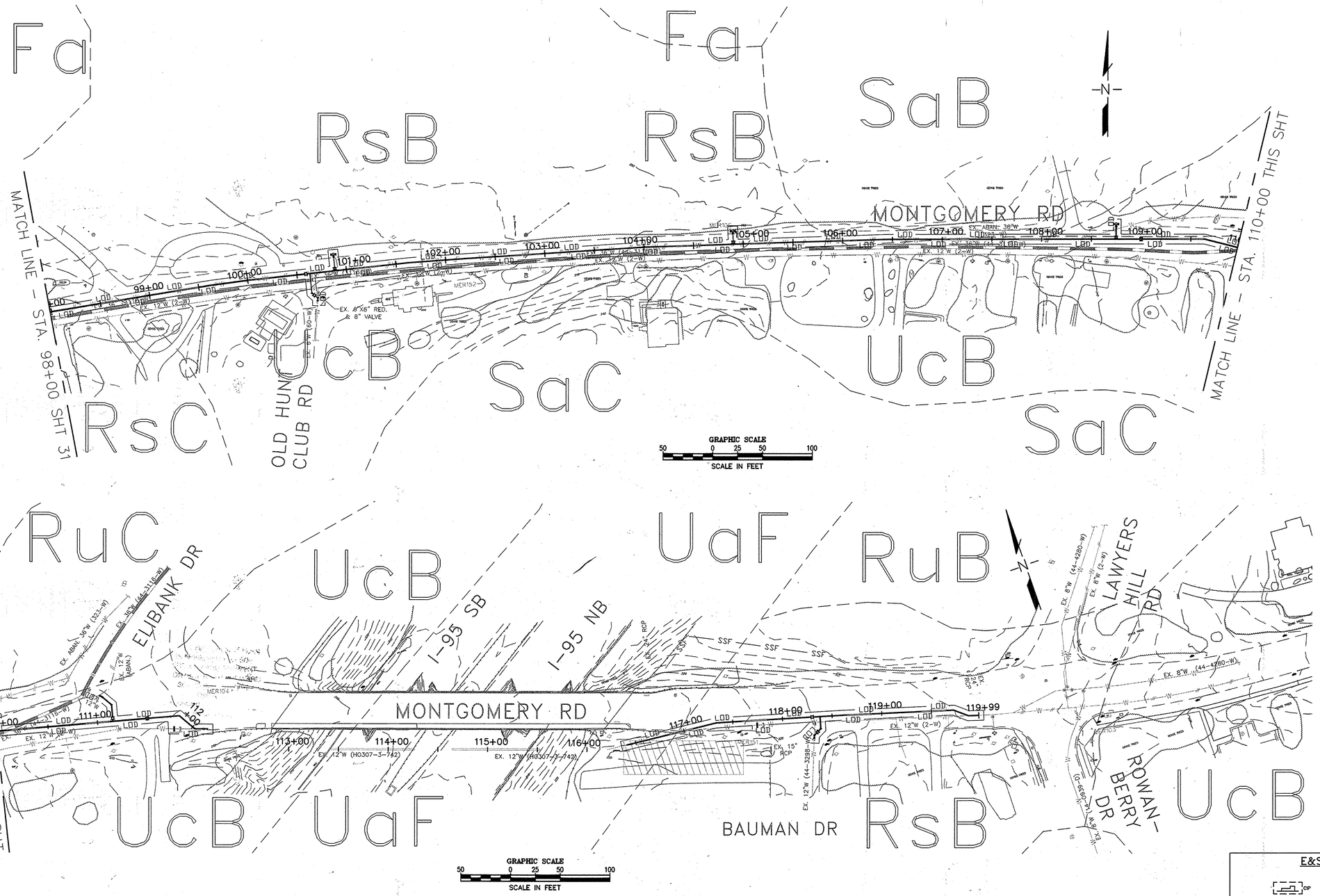
EROSION & SEDIMENT CONTROL PLAN

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 31 OF 32



NOTES:

1. SOIL DATA IS BASED ON THE WEB SOIL SURVEY WEBSITE BY THE USDA NATURAL RESOURCES CONSERVATION SERVICE.
   Fa: FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES
   RsB: RUSSETT FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES
   RsC: RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES
   RuB: RUSSETT AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES
   RuC: RUSSETT AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES
   UaF: UDORTHENTS, HIGHWAY, 0 TO 65 PERCENT SLOPES
   UcB: URBAN LAND–CHILLUM–BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES
2. TOP SOIL SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF THE SHA STANDARD SPECIFICATION OF CONSTRUCTION AND MATERIALS, SECTION 920–LANDSCAPING MATERIALS.

E&S LEGEND:

CIP	CURB INLET PROTECT
SIP	STANDARD INLET PROTECTION
AGIP	AT GRADE INLET PROTECTION
LOD —— LOD	LIMIT OF DISTURBANCE
	SOIL BOUNDARY
AbC	SOIL TYPE
SF —— SF	SILT FENCE
SSF —— SSF	SUPER SILT FENCE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE	CHIEF, BUREAU OF ENGINEERING	DATE 4/5/16
CHIEF, BUREAU OF UTILITIES	DATE 4/6/16	CHIEF, UTILITY DESIGN DIVISION PDD	DATE 4/5/16

Michael Baker INTERNATIONAL

MICHAEL BAKER INTERNATIONAL, INC.
1304 Concourse Drive, Suite 200
Linthicum, MD 21090-1014
Phone: (410) 689-3400

STATE OF MARYLAND – ERIN L. MCKENNA-STREYLE – No. 36690 – REGISTERED 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.: 36690
EXPIRATION DATE: 06/07/16
ERIN L. MCKENNA-STREYLE, P.E.

DESIGN: EAM
DRAWN: EAM
CHECKED: ERA
DATE: 4/5/2016

NO.	REVISION	DATE	BY

EROSION & SEDIMENT CONTROL PLAN

600 SCALE MAP NO. | BLOCK NO.

MONTGOMERY ROAD 12" WATER TRANSMISSION MAIN
MILLER'S CORNER TO LAWYERS HILL RD
CAPITAL PROJECT NO.: W-8318
CONTRACT NO.: 44-4843
1ST ELECTION DISTRICT, HOWARD COUNTY, MD

SCALE AS SHOWN

SHEET 32 OF 32