

MD ROUTE 108 WATER AND SEWER MAIN EXTENSION

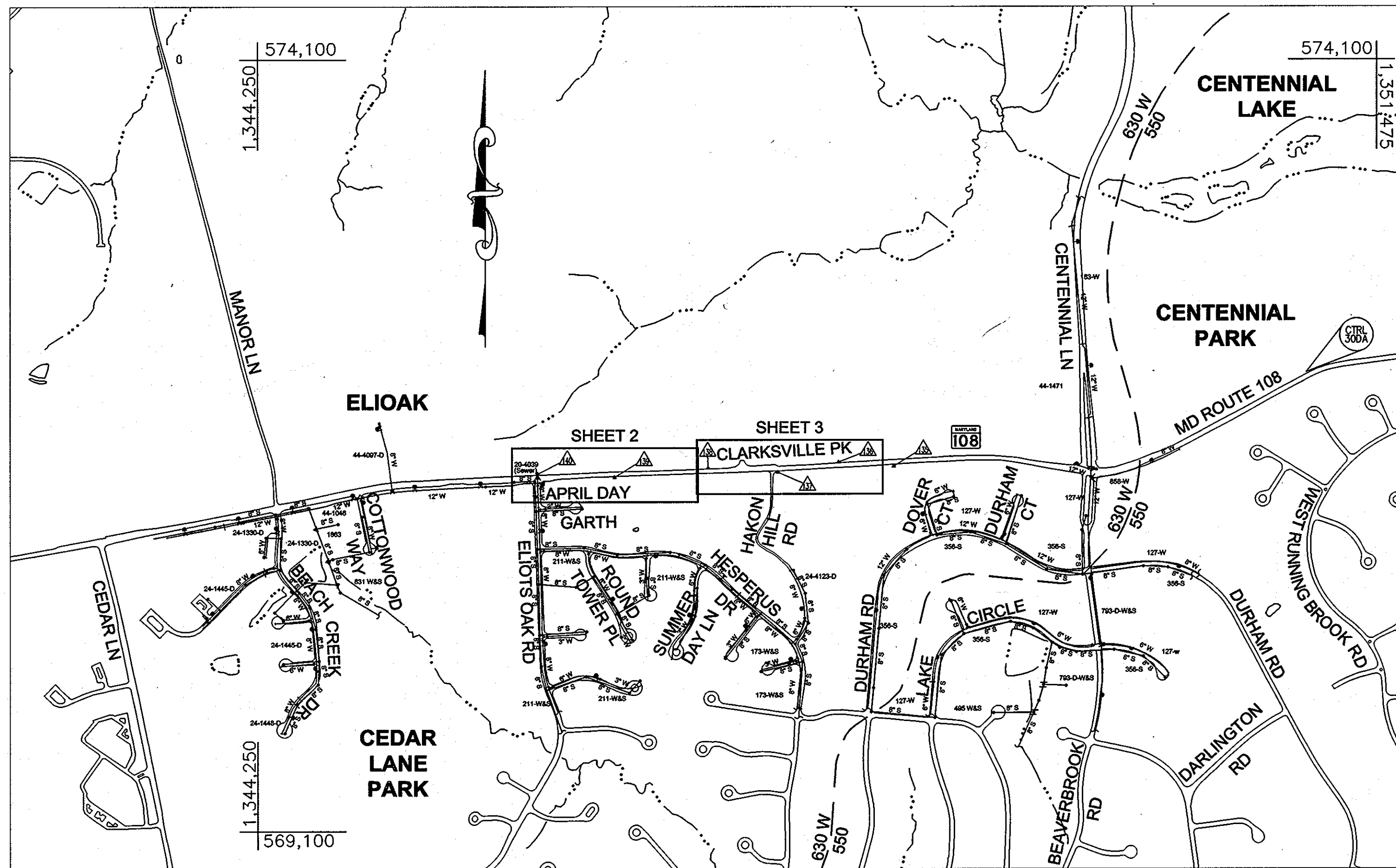
CAPITAL PROJECT NO. S-6262 CONTRACT NO. 24-4690 HOWARD COUNTY, MARYLAND



NO.	INDEX OF SHEETS
1	TITLE SHEET
2	PLAN & PROFILE
3	PLAN & PROFILE
4	EROSION & SEDIMENT CONTROL DETAILS
5	TRAFFIC CONTROL NOTES & DETAILS
6	MISCELLANEOUS DETAILS
7	MISCELLANEOUS DETAILS

LEGEND

	EXIST. WATER MAIN / VALVE VAULT
	PROP. WATER MAIN
	EXIST. WATER MAIN TO BE ABANDONED
	EXIST. SEWER MAIN / MANHOLE
	PROP. SEWER MAIN / MANHOLE
	PROP. LOW PRESSURE SEWER
	EXIST. STORM DRAIN
	EXIST. GAS
	EXIST. ELECTRIC (UNDERGROUND)
	EXIST. ELECTRIC (ABOVE GROUND)
	EXIST. CABLE TV
	EXIST. TELEPHONE (UNDERGROUND)
	EXIST. TELEPHONE (ABOVE GROUND)
	RIGHT OF WAY
	GUARDRAIL
	FENCE
	PROPERTY LINE
	SILT FENCE
	SUPER SILT FENCE
	LIMITS OF DISTURBANCE
	ROAD CENTERLINE
	TRAVERSE
	STREAM / WATERWAY EDGE
	630 W 550 WATER PRESSURE ZONE BOUNDARY
	SHRUB
	VALVE
	FIRE HYDRANT
	BGE POLE
	35 BORING LOCATION
	CONTINUITY TEST STATION
	### SAN. MANHOLE IDENTIFICATION



WATER ZONE PRESSURE: 630W

TEST GRADIENT: 780

DRAINAGE AREA: PATAPSCO

WH'S: 2

SH'S: 2

TYPE OF BUILDING: RESIDENTIAL/COMMERCIAL

VICINITY MAP
SCALE: 1" = 600'

HORIZONTAL AND VERTICAL CONTROL BASED ON MARYLAND NAD83 (91) (HORIZONTAL) AND NAVD88 (VERTICAL) DATUM.

HOWARD COUNTY GEODETIC SURVEY CONTROL NUMBERS:

NO. 30 40 003 RESET	NO. 300A
N 577,373.17	N 572,073.85
E 1,349,751.20	E 1,351,018.29
ELEV. 479	ELEV. 435

Point	Northing	Easting	Elevation	Feature
135	571463.51	1348356.40	437.29	R&C
136	571489.88	1347999.17	439.33	R&C
137	571425.26	1347608.13	445.17	R&C
138	571452.25	1347157.99	431.25	R&C
139	571392.55	1348553.01	445.06	R&C
140	571414.60	1348056.04	434.24	R&C

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 on January 2010 by J.A. Rice Inc.

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. 30 40 003, No. 2841001R and No 30DA.

All vertical controls are based on NAVD '88. Vertical controls provided on the drawings are Iron Rods w/ Caps.

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 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 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)	410-850-4620
BGE (Emergency)	410-685-1400
Bureau of Utilities	410-313-4900
Colonial Pipeline Company	410-795-1390
Miss Utility	1-800-257-7777
State Highway Administration	410-531-5533
Verizon	1-800-743-0033 / 410-224-9210

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.

PART II - WATER

1. All water mains to be D.I.P. Class 54 unless otherwise noted.

2. Tops of all water mains to have a minimum of 3'-6" of cover unless otherwise noted.

3. Valves adjacent to tees shall be strapped to tees.

4. All fittings shall be buttressed or anchored with concrete in accordance with the 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 restrained and buttressed with concrete 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.

6. The contractor shall not operate any water main valves on the existing water system.

7. 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.

8. Unless otherwise noted on the plans or in the specifications, seventeen (17) pound 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. Magnesium anodes shall be installed on all valves and ductile iron fittings including restraints and hammers. 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.

PART III - SEWER

1. All sewer mains shall be D.I.P. or P.V.C. unless otherwise noted.

2. All manholes shall be 4' - 0" inside diameter unless otherwise noted.

3. Force mains shall be D.I.P. only.

4. Manholes shown with 12" and 16" walls are for brick manholes only.

5. Manholes designed W.T. in plan and profile shall have watertight frame and cover, Standard Detail G5.52. Where watertight manhole frames and covers are used, set top of frame 1'-6" above finished grade unless otherwise noted on the drawings.

6. House(s) with the symbol "C.N.S." indicates that cellar cannot be served.

AS-BUILT 10-25-2013

QUANTITIES				
NAME OF UTILITY CONTRACTOR: W.F. WILSON				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:				
ITEMS	QUANTITIES ESTIMATED	QUANTITIES	AS-BUILT TYPE	MANUFACTURER / SUPPLIER
WATER				
8" Water Pipe	2,000 L.F.	2,000 L.F.	PVC	NORTH AMERICAN
Fire Hydrants	4 EA.	4 EA.		AMERICAN
8" X 6" Tees	4 EA.	4 EA.		TYLER UNION
8" Valves	2 EA.	2 EA.		AMERICAN
6" Hydrant Shut-off Valves	4 EA.	4 EA.		AMERICAN
Water House Connections	499 L.F.	465 L.F.		COLONIAL WIRE
Water Meter (outside setting)	8 EA.	8 EA.		FORD METER BOX
8" Cap & Buttress	1 EA.	1 EA.		TYLER UNION
8" X 8" Tee	1 EA.	NA	NA	TYLER UNION
1/2" Air Release Valve	2 EA.	2 EA.		VALMATIC
1.9" WHC	L.F.	40 L.F.		COLONIAL WIRE
SANITARY SEWER				
8" San.	492 L.F.	487 L.F.	PVC	JM EAGLE
4' Dia. Std. MH	1 EA.	1 EA.		ATLANTIC CONCRETE
1.50" SHC	344 L.F.	340 L.F.		CHARTER PLASTICS
1.5" Low Pressure San. Line	1,525 L.F.	1,521 L.F.		CHARTER PLASTICS
Air Vacuum & Release Valve	1 EA.	1 EA.		VALMATIC
IN-LINE FLUSHING CONN.	3 EA.	3 EA.		FORD METER BOX
Pressure Sewer In-line Valve	8 EA.	8 EA.		FORD METER BOX
Terminal Flushing Connection	1 EA.	1 EA.		FORD METER BOX
Gravity Transition MH	1 EA.	1 EA.		ATLANTIC CONCRETE
6" SHC	L.F.	135 L.F.	PVC	JM EAGLE

HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

J. G. H. DIRECTOR OF PUBLIC WORKS DATE *4/24/12*

M. P. S. CHIEF, BUREAU OF ENGINEERING DATE *4/24/12*

S. C. G. CHIEF, BUREAU OF UTILITIES DATE *4/24/12*

C. D. P. CHIEF, UTILITY DESIGN DIVISION DATE *4/24/12*

URS

MONTGOMERY PARK BUSINESS CENTER
1800 WASHINGTON BOULEVARD, SUITE 410
BALTIMORE, MARYLAND 21230
(410) 468-0875

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. 28817
Expiration Date: 08/01/13

NATHAN C. ATKINSON

DESIGN: CSP

DRAWN: BJW

CHK: NCA

DATE: 04/20/12

NO. AS-BUILT

REVISION

DATE: 10-25-2013

BY: L.M.H.

TITLE SHEET

600' SCALE MAP NO. 29

BLOCK NO. 12

MD ROUTE 108
WATER AND SEWER MAIN EXTENSION
CAPITAL PROJECT NO. S-6262
CONTRACT NO. 24-4690
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

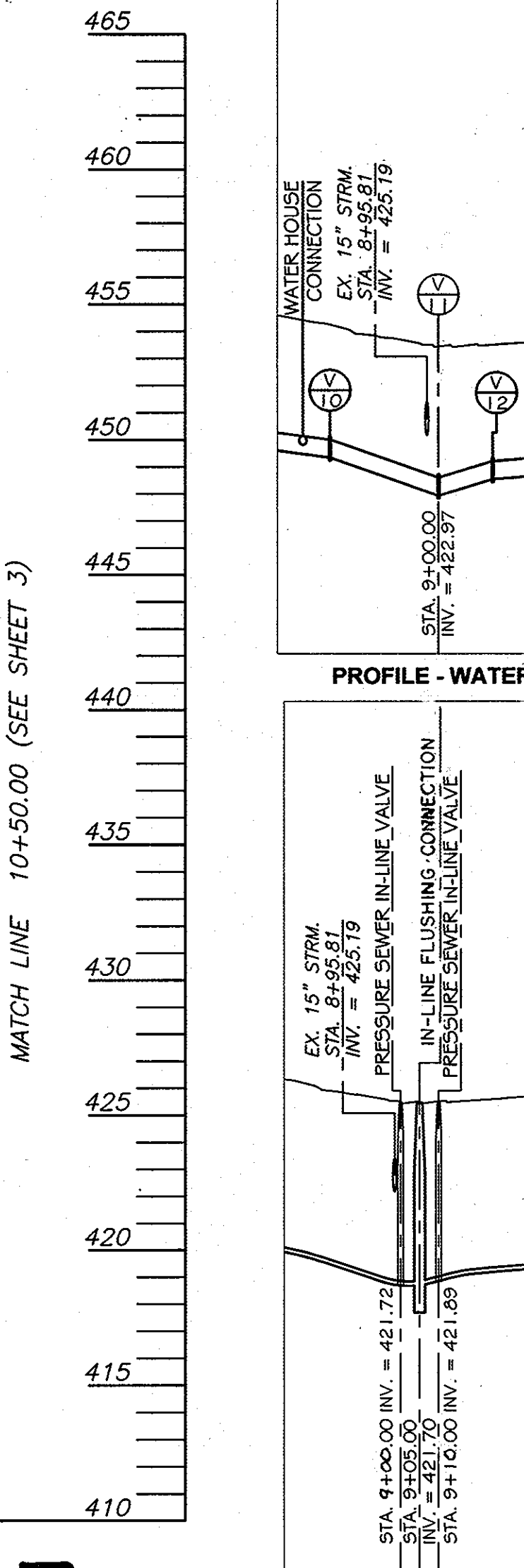
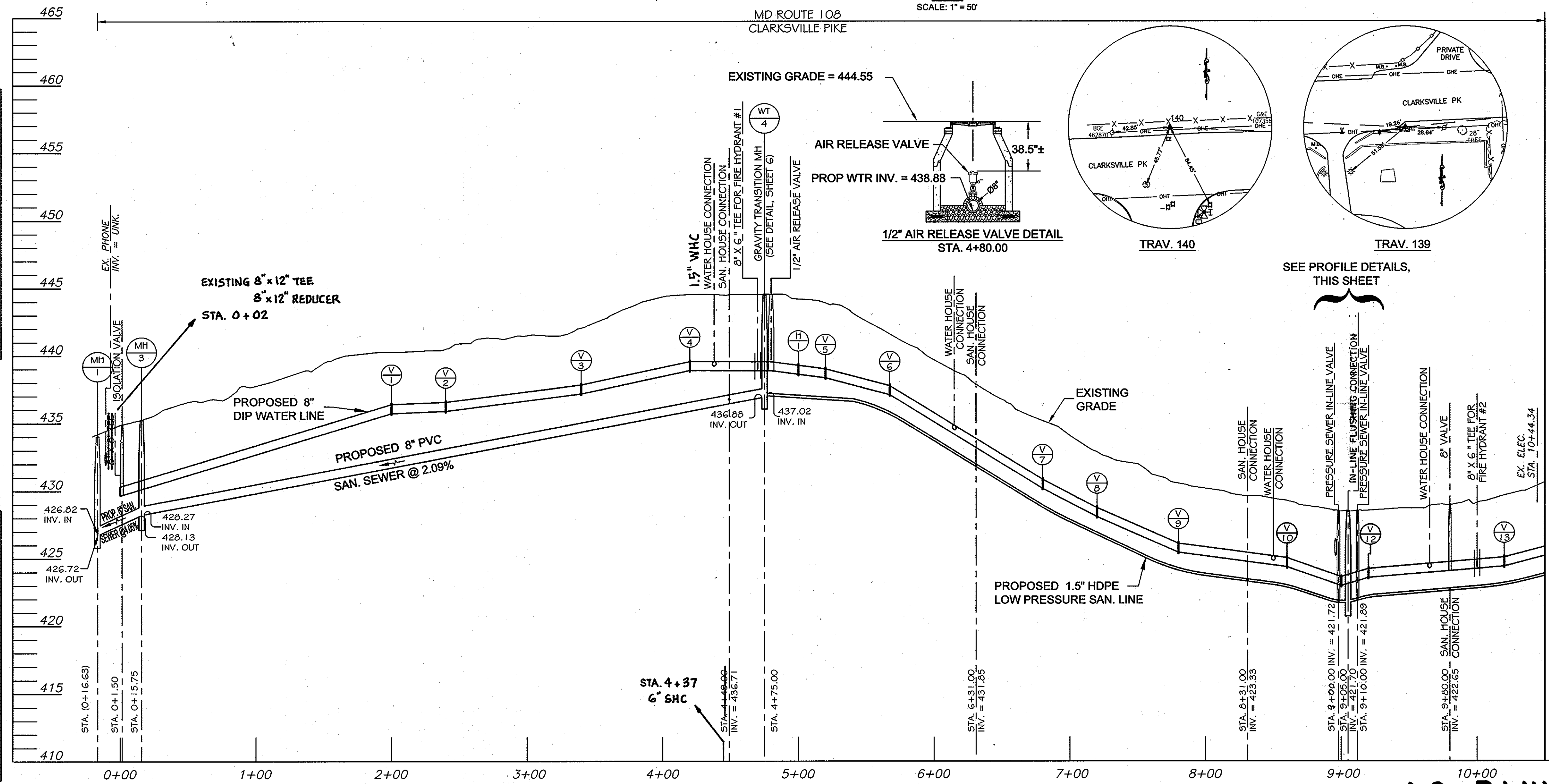
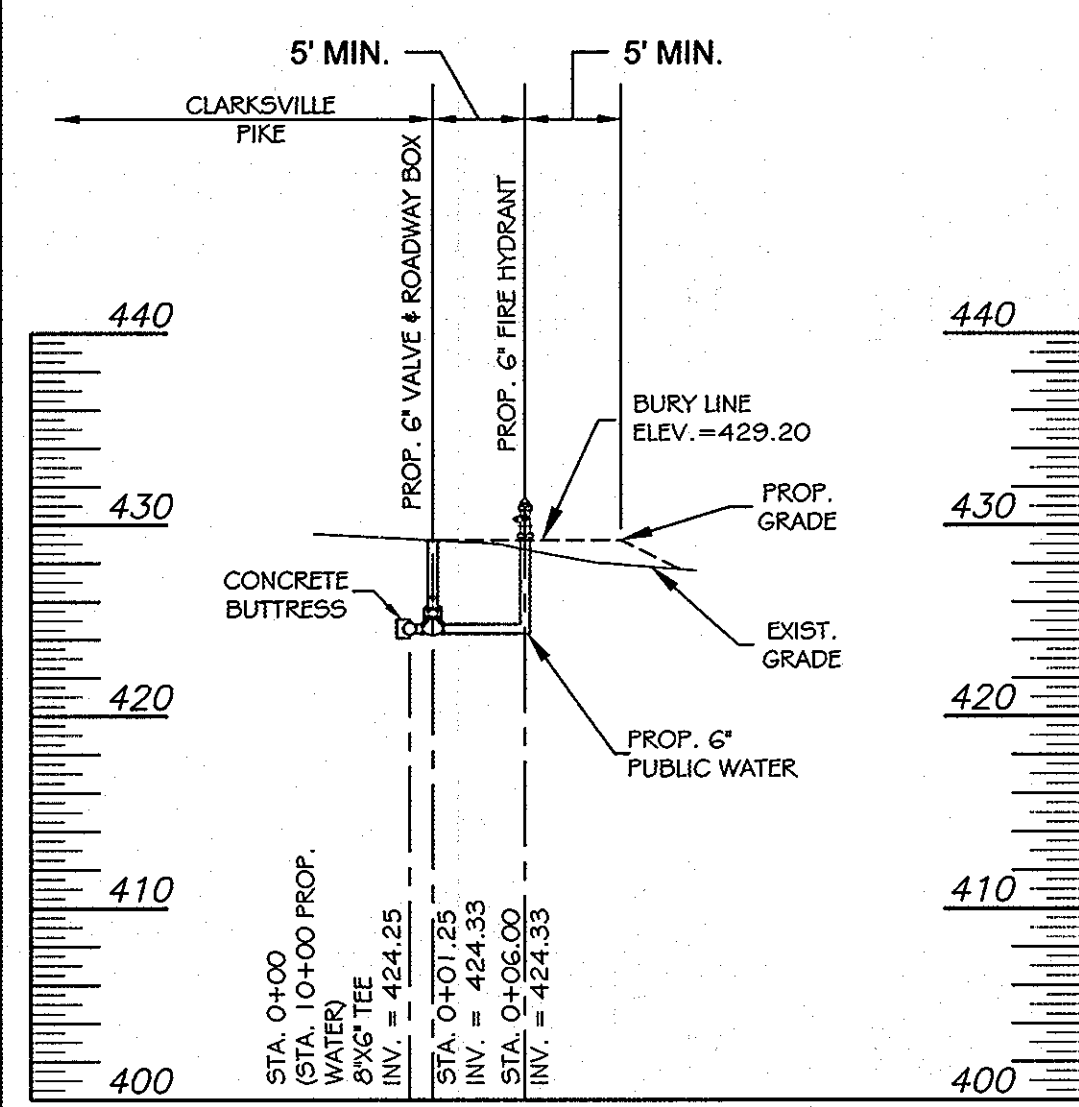
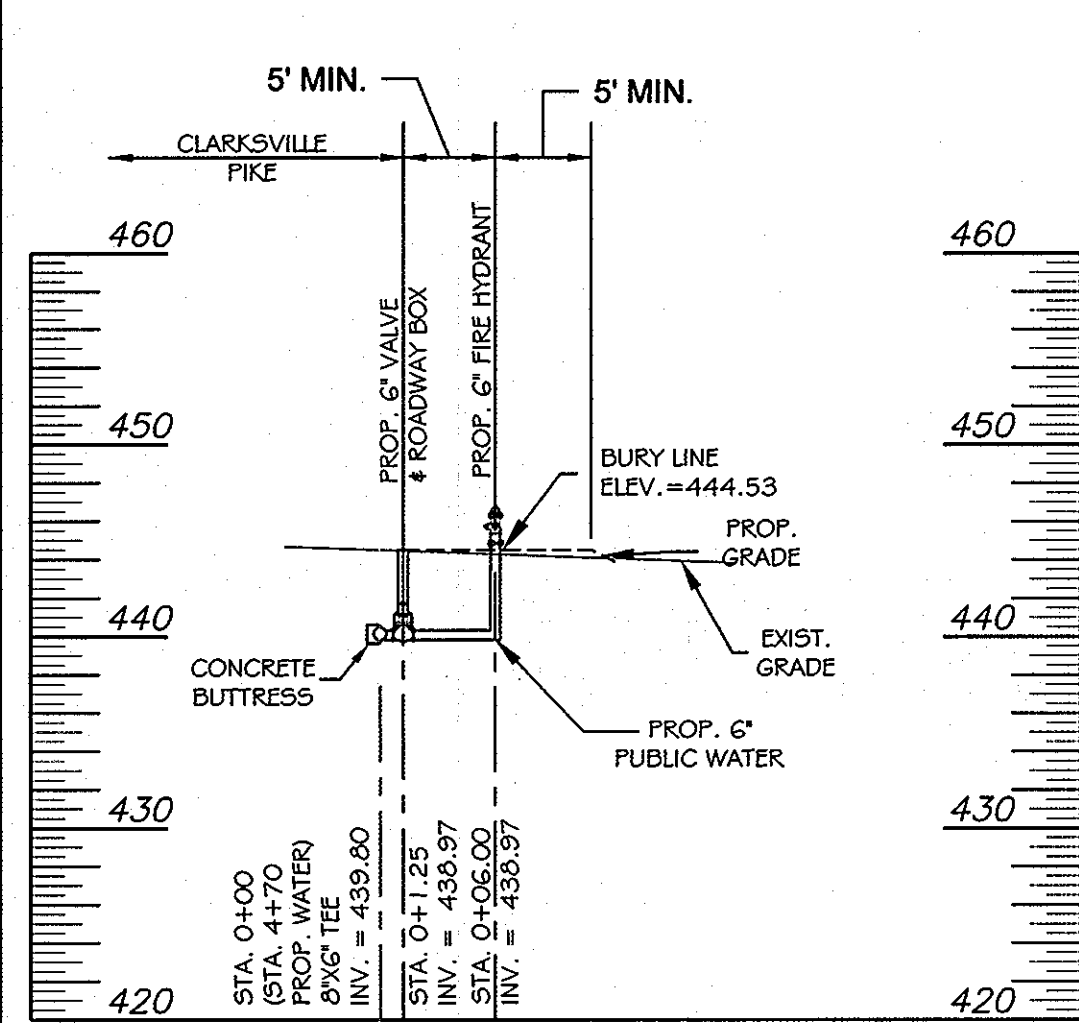
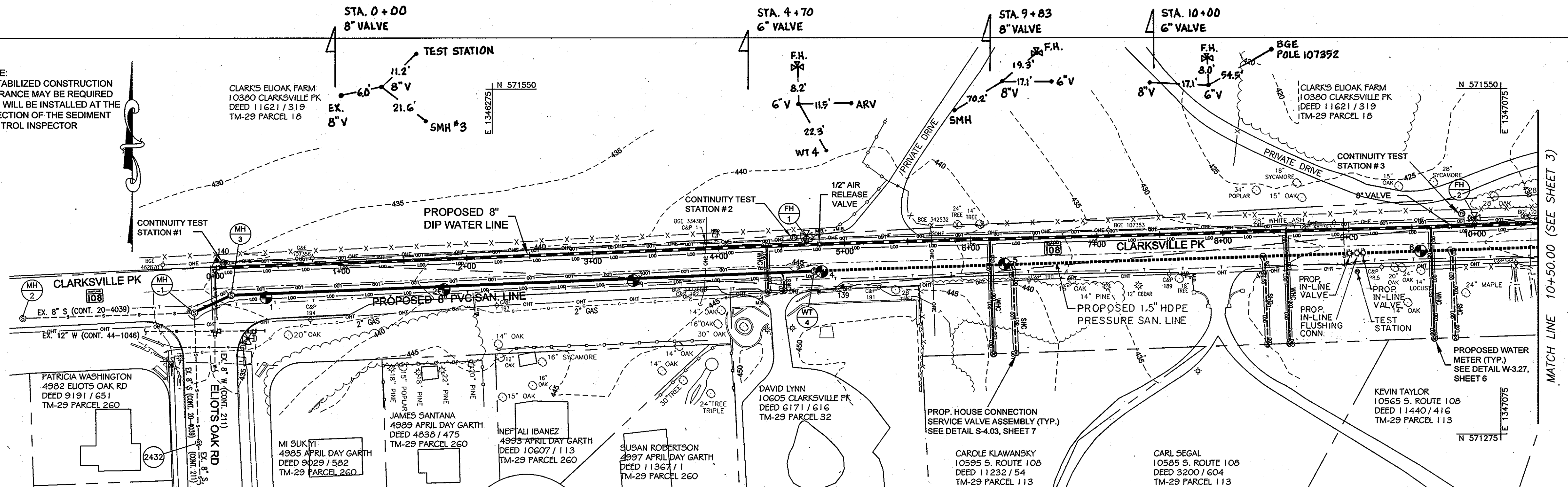
SCALE: AS SHOWN

SHEET 1 OF 7

STATION	FITTING	EASTING / NORTHING	INVERT
0+00.00	8" X 8" TEE	E = 1346054.91 N = 571408.08	429.67
0+01.50	ISOLATION VALVE	E = 1346057.42 N = 571408.18	429.71
2+00.00	1.5" HD COUPLING (VERT.)	E = 1346254.77 N = 571415.76	435.73
2+40.00	0.5" HD COUPLING (VERT.)	E = 1346304.73 N = 571417.67	435.89
3+40.00	1.0" HD COUPLING (VERT.)	E = 1346394.66 N = 571421.13	437.17
4+20.00	1.5" HD COUPLING (VERT.)	E = 1346474.61 N = 571424.20	438.90
4+38.00	WATER HOUSE CONNECTION	E = 1346492.60 N = 571424.89	439.56
4+70.00	8" X 6" TEE TO FIRE HYDRANT #1	E = 1346524.24 N = 571433.24	439.80
4+80.00	1/2" AIR RELEASE VALVE	E = 1346534.57 N = 571426.50	438.88
5+00.00	0.75" HD COUPLING (HOR.)	E = 1346554.55 N = 571427.27	438.62
5+20.00	0.75" HD COUPLING (VERT.)	E = 1346574.55 N = 571427.82	438.35
5+40.00	1.0" HD COUPLING (VERT.)	E = 1346594.54 N = 571428.36	438.00
6+15.00	WATER HOUSE CONNECTION	E = 1346669.51 N = 571430.42	434.51
6+80.00	0.5" HD COUPLING (VERT.)	E = 1346734.48 N = 571432.20	430.18
7+20.00	1.0" HD COUPLING (VERT.)	E = 1346774.47 N = 571433.29	428.08
7+80.00	1.75" HD COUPLING (VERT.)	E = 1346834.45 N = 571434.94	425.44
8+50.00	WATER HOUSE CONNECTION	E = 1346904.42 N = 571436.85	425.17
8+60.00	1.25" HD COUPLING (VERT.)	E = 1346914.42 N = 571437.13	424.38
9+00.00	3.75" HD COUPLING (VERT.)	E = 1346954.40 N = 571438.22	422.97
9+20.00	1.25" HD COUPLING (VERT.)	E = 1346974.39 N = 571438.77	423.57
9+65.00	WATER HOUSE CONNECTION	E = 1346994.42 N = 571438.85	424.29
9+80.00	8" VALVE	E = 1347034.37 N = 571440.41	424.08
10+00.00	8" X 6" TEE TO FIRE HYDRANT #2	E = 1347054.16 N = 571446.96	424.25
10+20.00	1.00" HD COUPLING (VERT.)	E = 1347074.35 N = 571441.68	424.42

NOTE:
A STABILIZED CONSTRUCTION
ENTRANCE MAY BE REQUIRED
AND WILL BE INSTALLED AT THE
DIRECTION OF THE SEDIMENT
CONTROL INSPECTOR

Point	Northing	Easting	Elevation	Feature
139	571392.55	1346553.01	445.06	R&C
140	571414.60	1346056.04	434.24	R&C



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DIRECTOR OF PUBLIC WORKS: *James C. Gorman* 4/22/12
CHIEF, BUREAU OF UTILITIES: *Steve C. Gorman* 4/22/12
CHIEF, BUREAU OF ENGINEERING: *Mamas & Buttle* 4/24/12
CHIEF, UTILITY DESIGN DIVISION: *Chris D. ...* 4/24/12

URS
MONTGOMERY PARK BUSINESS CENTER
1800 WASHINGTON BOULEVARD, SUITE 410
BALTIMORE, MARYLAND 21230
(410) 468-0875

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. 22817,
Expiration Date: 08/01/13
NATHAN C. ATKINSON

DESIGN: CSP					
DRAWN: BJW					
CHK: NCA					
DATE: 04/20/12					
NO.	AS-BUILT	REVISION	10-25-2013	L.M.H.	

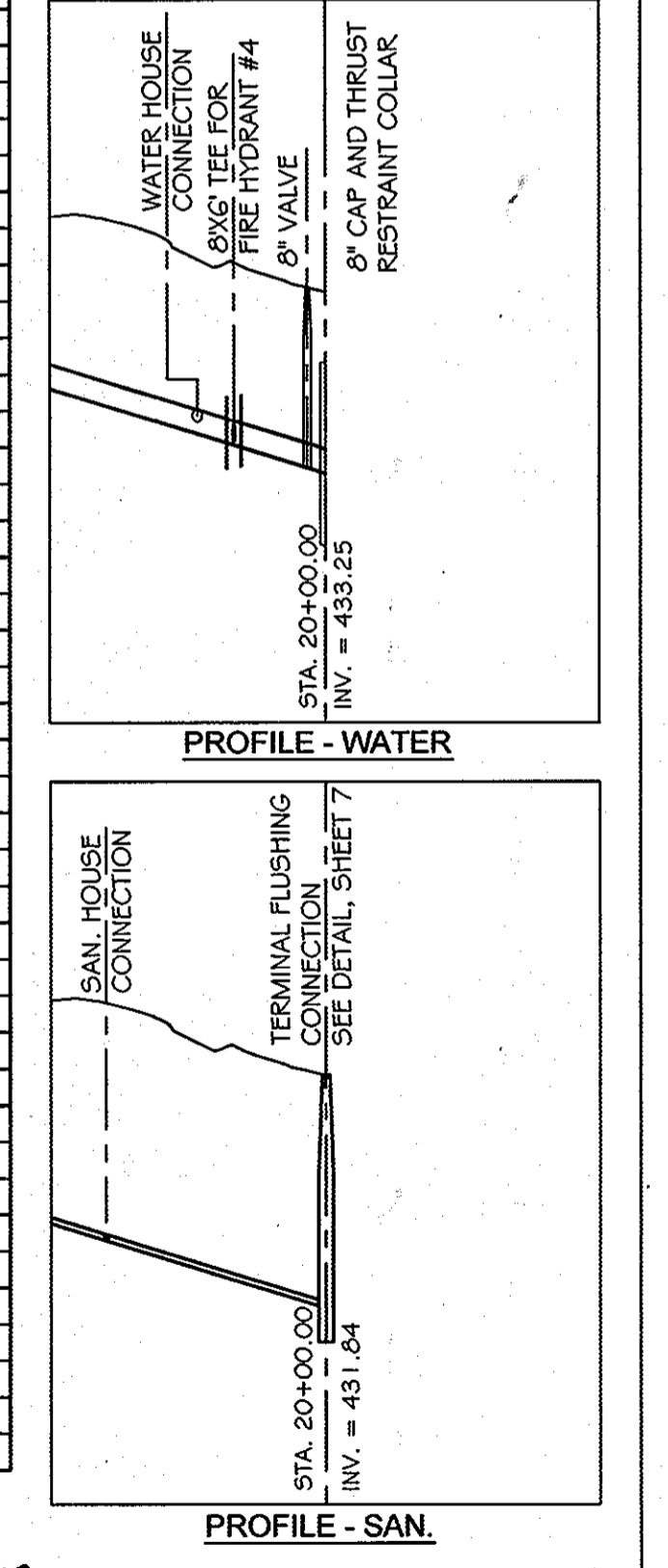
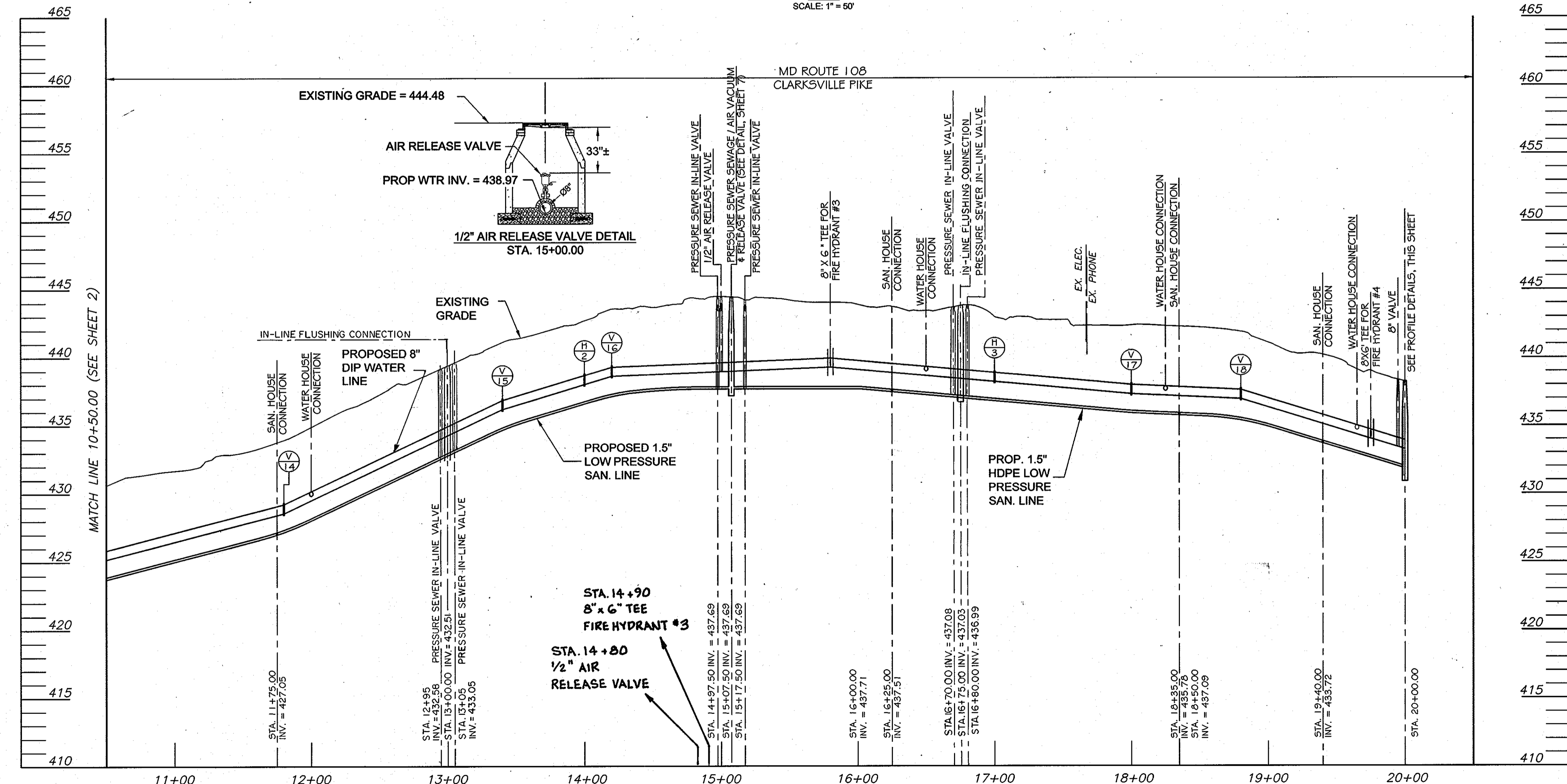
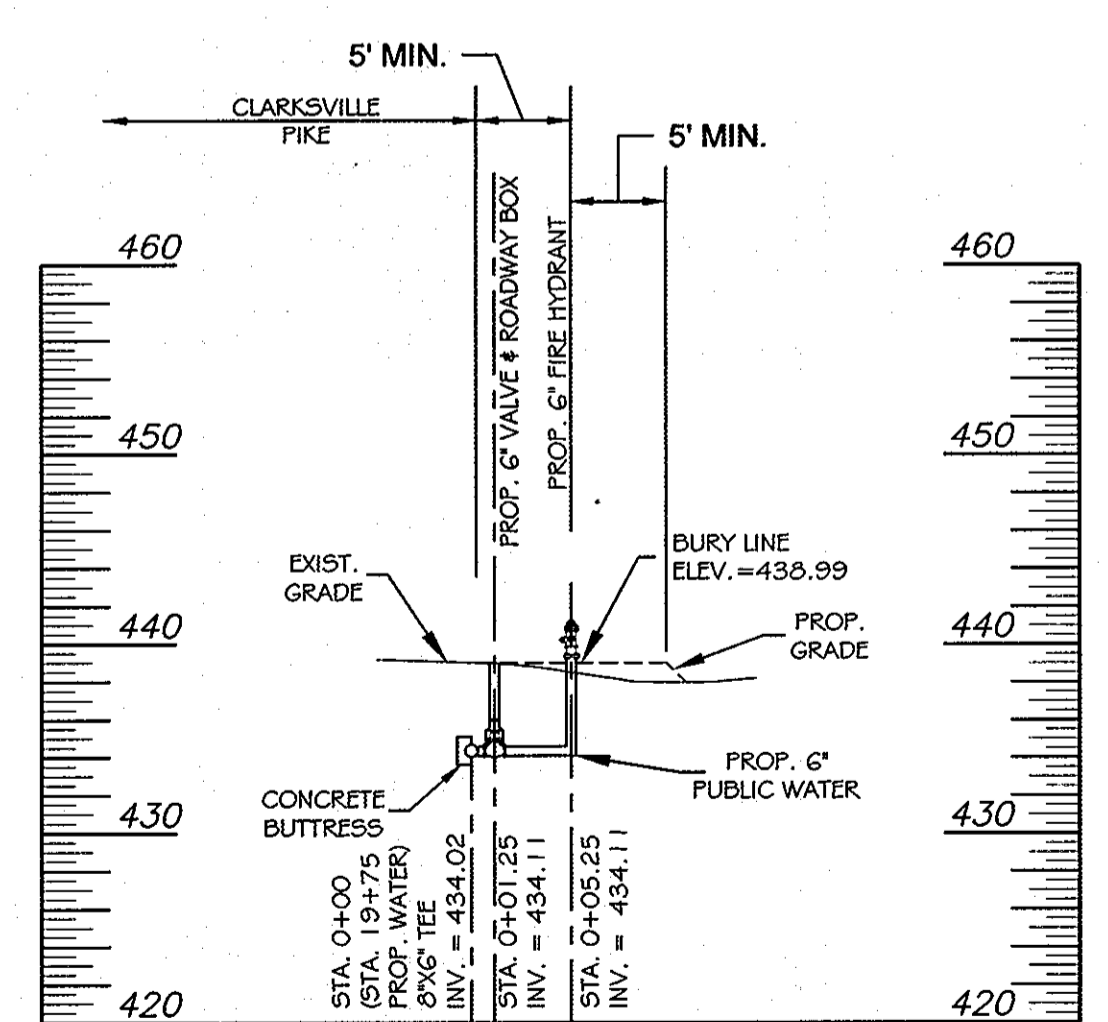
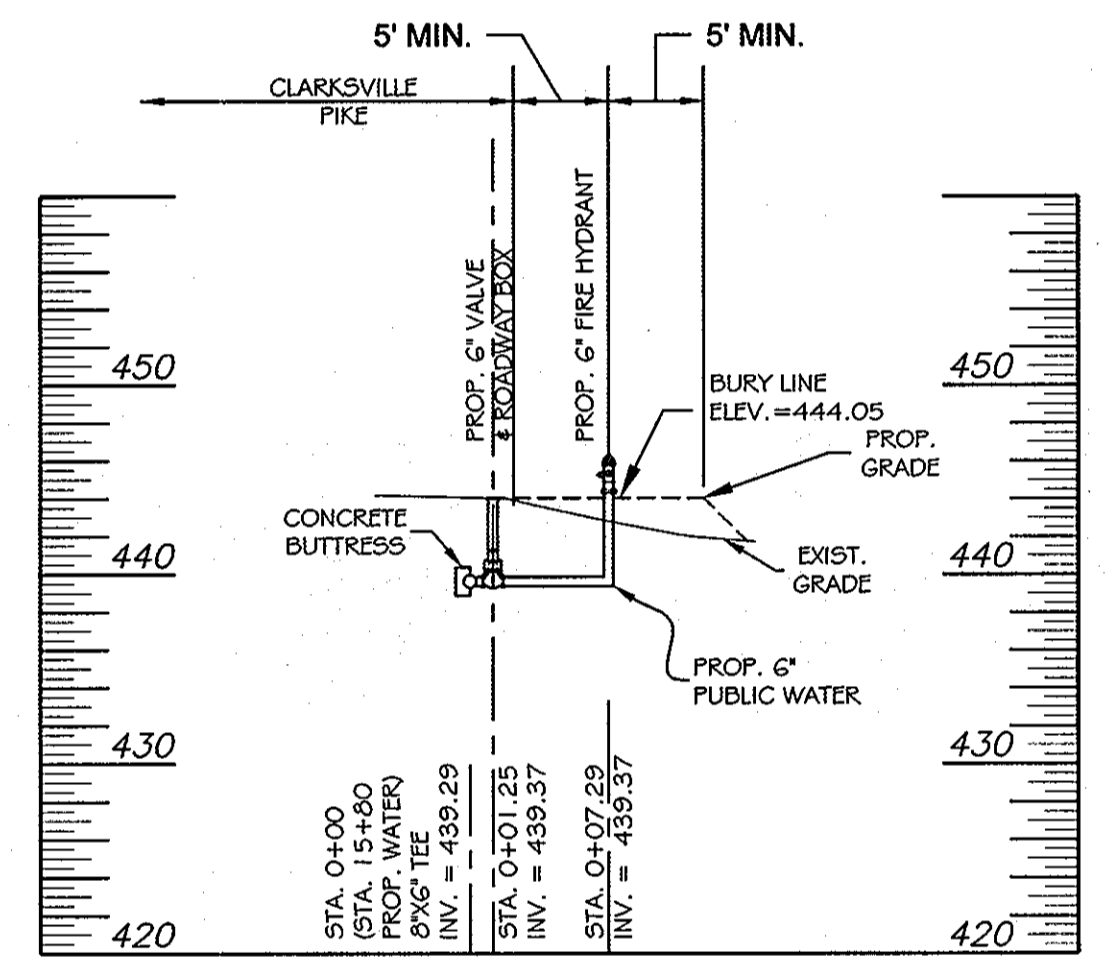
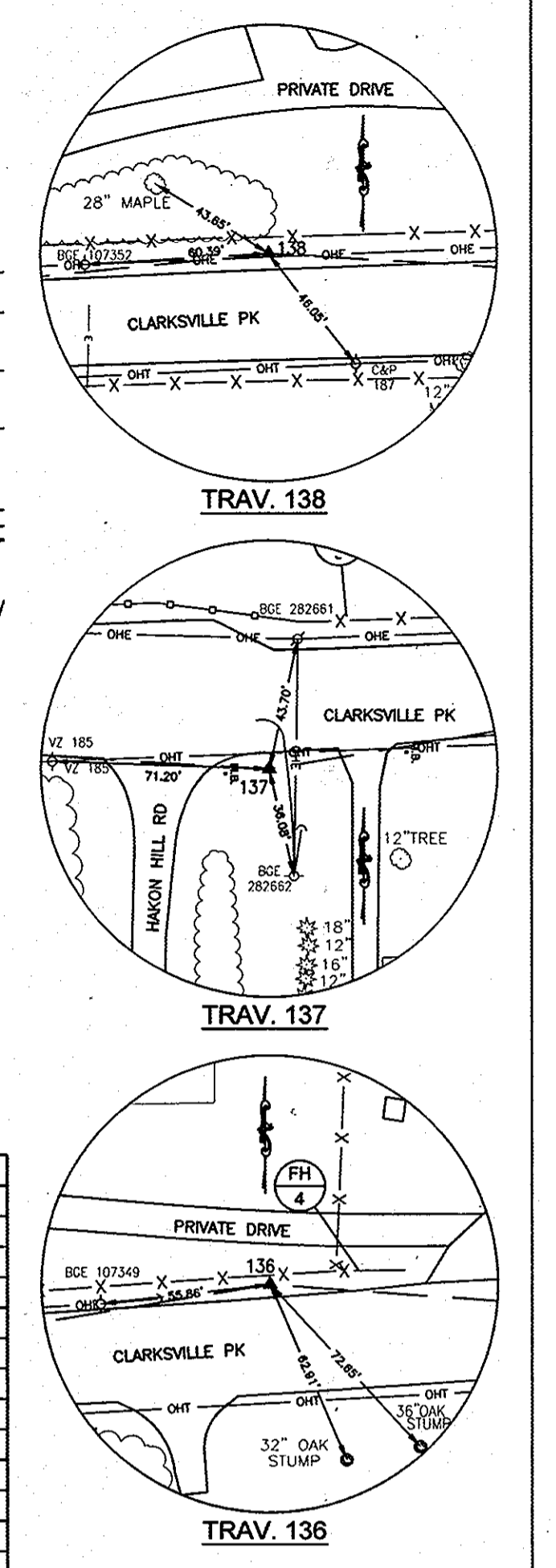
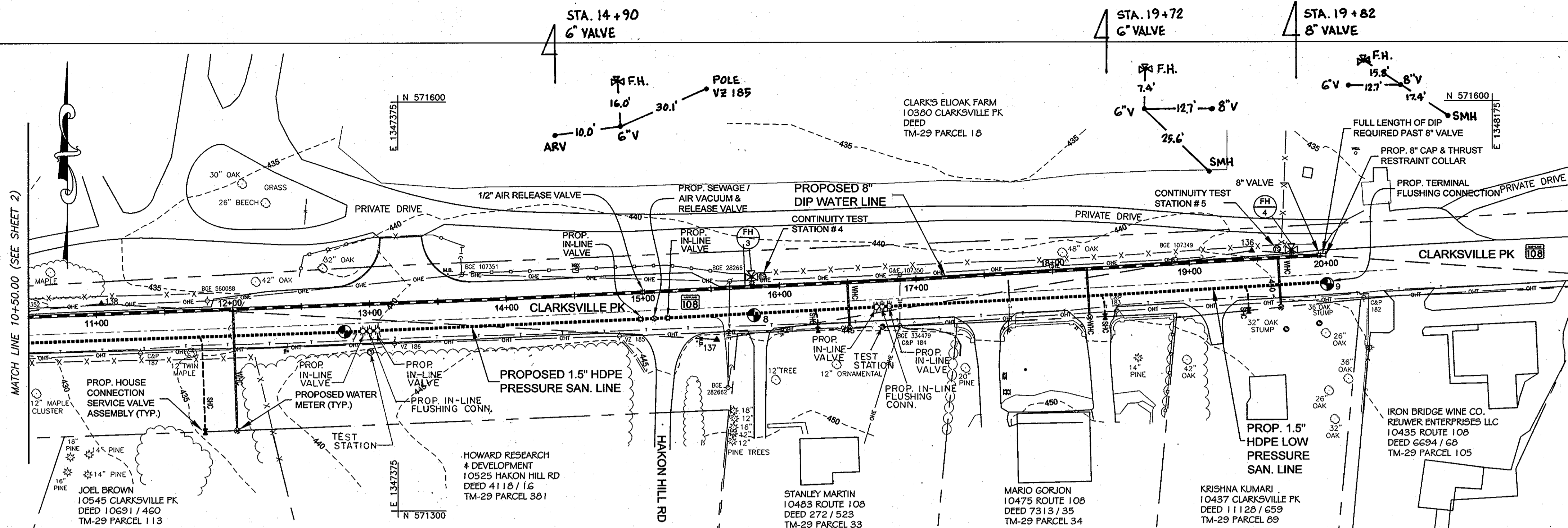
PLAN AND PROFILE
600' SCALE MAP NO. 29
BLOCK NO. 12

MD ROUTE 108
WATER AND SEWER MAIN EXTENSION
CAPITAL PROJECT NO. S - 6262
CONTRACT NO. 24-4690
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN
SHEET 2 OF 2

STATION	FITTING	EASTING / NORTHING	INVERT
11+80.00	1.25" HD COUPLING (VERT.)	E = 1347234.25 N = 571447.46	428.57
12+00.00	WATER HOUSE CONNECTION	E = 1347254.25 N = 571448.18	430.19
13+40.00	1" HD COUPLING (VERT.)	E = 1347394.14 N = 571453.24	436.21
14+00.00	1" HD COUPLING (HORIZ.)	E = 1347454.10 N = 571455.40	438.03
14+20.00	1" HD COUPLING (VERT.)	E = 1347474.08 N = 571456.33	438.64
15+00.00	1/2" AIR RELEASE VALVE	E = 1347553.99 N = 571460.06	438.97
15+80.00	8" X 6" TEE TO FIRE HYDRANT #3	E = 1347633.62 N = 571471.07	439.29
16+50.00	WATER HOUSE CONNECTION	E = 1347703.83 N = 571487.04	439.00
17+00.00	1" HD COUPLING (HORIZ.)	E = 1347793.78 N = 571469.37	439.22
18+00.00	0.25" HD COUPLING (VERT.)	E = 1347853.61 N = 571475.16	437.32
18+25.00	WATER HOUSE CONNECTION	E = 1347878.57 N = 571476.61	437.54
18+80.00	1.5" HD COUPLING (VERT.)	E = 1347933.48 N = 571479.79	436.95
19+65.00	WATER HOUSE CONNECTION	E = 1348018.33 N = 571484.72	434.66
19+75.00	8" X 6" TEE TO FIRE HYDRANT #4	E = 1348028.11 N = 571490.54	434.02
19+95.00	8" VALVE	E = 1348018.33 N = 571484.72	433.41
20+00.00	8" CAP AND THRUST RESTRAINT COLLAR	E = 1348053.27 N = 571488.74	433.25

NOTES:
 1) SEE SHEET 7 FOR PRESSURE SEWER HOUSE CONNECTION SERVICE VALVE ASSEMBLY DETAIL AND HOUSE CONNECTION CAP & PLUG BLOCKING.
 2) A STABILIZED CONSTRUCTION ENTRANCE MAY BE REQUIRED AND WILL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR

Point	Northing	Easting	Elevation	Feature
135	571463.51	1348356.40	437.29	R&C
136	571489.88	1347999.17	439.33	R&C
137	571425.26	1347608.13	445.17	R&C
138	571452.25	1347157.99	431.25	R&C



AS-BUILT 10-25-2013

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *John C. Lewis* 4/22/12
 Chief, Bureau of Engineering: *Morgan & Butler* 4/24/12
 Chief, Bureau of Utilities: *Steve C. Lewis* 4/22/12
 Chief, Utility Design Division: *C. J. DePina* 4/24/12

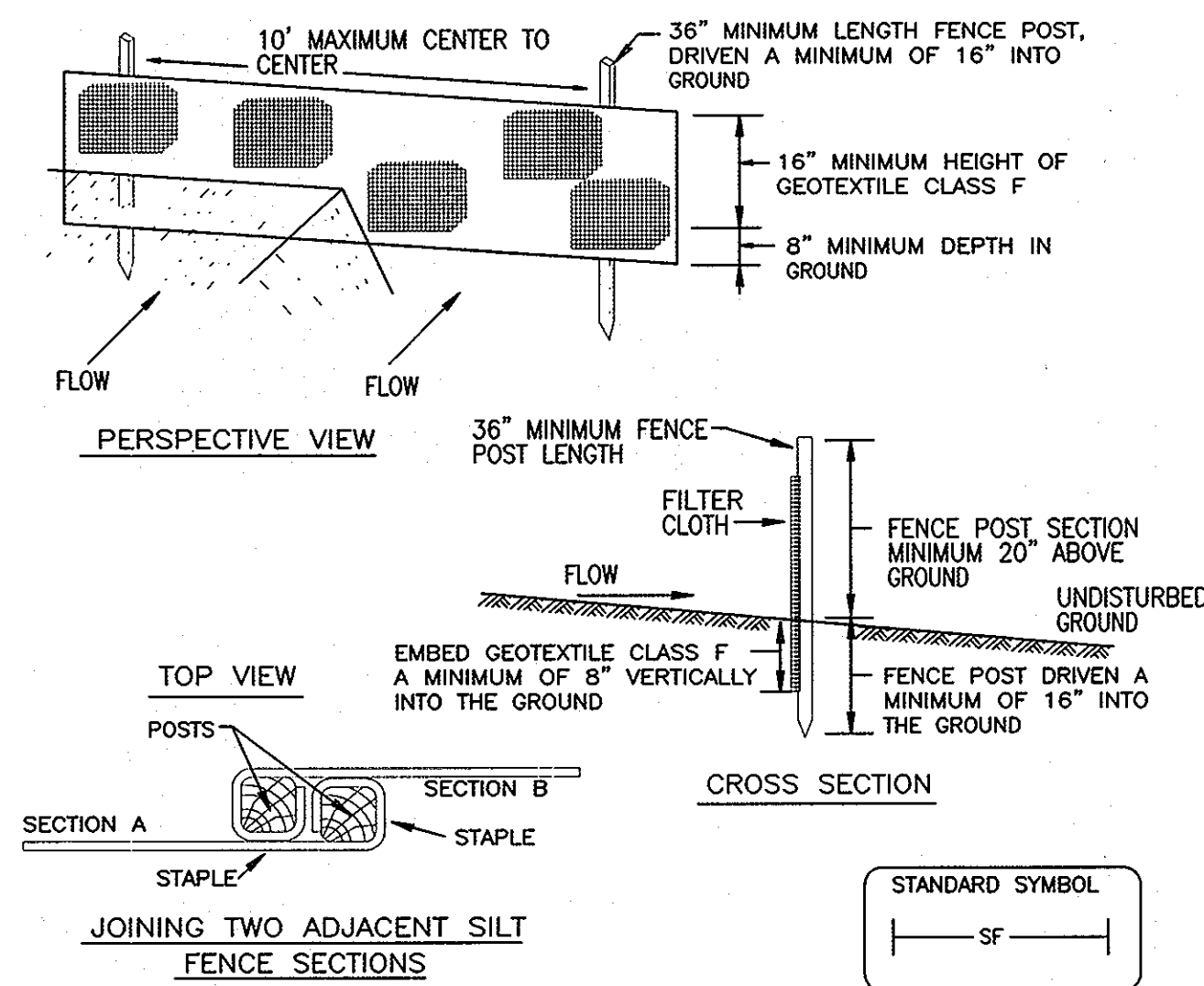
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Professional Certification
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28817, Expiration Date: 08/01/13
 NATHAN C. ATKINSON

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PLAN AND PROFILE
 600' SCALE MAP NO. 29
 BLOCK NO. 12

MD ROUTE 108
 CAPITAL PROJECT NO. S - 6262
 CONTRACT NO. 24-4690
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SHEET 3 OF 7



HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410) 313-1855.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 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 HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS:

TOTAL AREA OF SITE .75 ACRES
 AREA DISTURBED .75 ACRES
 AREA TO BE ROOFED OR PAVED 0 ACRES
 AREA TO BE VEGETATIVELY STABILIZED 0 ACRES
 TOTAL CUT 990 CU. YDS.
 TOTAL FILL 800 CU. YDS.
 OFF-SITE WASTE/BORROW AREA LOCATION: N/A

- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

*9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS. BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

SEQUENCE OF CONSTRUCTION

- OBTAIN ALL REQUIRED PERMITS AND APPROVALS FROM APPROPRIATE AGENCIES. OBTAIN GRADING PERMIT PRIOR TO STARTING CONSTRUCTION.
- NOTIFY HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION - SEDIMENT CONTROL (410)313-1855 SEVEN DAYS PRIOR TO STARTING CONSTRUCTION.
- NOTIFY MDE INSPECTION AND COMPLIANCE (410) 537-3510 7 DAYS PRIOR TO STARTING CONSTRUCTION.
- INSTALL SEDIMENT CONTROL DEVICES.
- ESTABLISH TRAFFIC CONTROL DEVICES AS NEEDED.
- INSTALL SEWER LINE AND SEWER HOUSE CONNECTIONS (SEE GENERAL CONSTRUCTION NOTE SHEETS).
- INSTALL NEW THRUST COLLAR ON EXISTING WATER MAIN.
- INSTALL PROPOSED WATER MAIN, FIRE HYDRANTS AND WATER HOUSE CONNECTIONS. CONTRACTOR TO COORDINATE WATER METER LOCATION WITH HOME OWNER. LOCATION OF WATER METER AND WATER HOUSE CONNECTION IS SUBJECT TO APPROVAL BY THE COUNTY.
- PERFORM HYDROSTATIC PRESSURE AND LEAK TEST ON INSTALLED WATER MAIN AS PER THE LATEST EDITION OF THE HOWARD COUNTY VOLUME IV DESIGN MANUAL.
- DISINFECT AND BACTERIA TEST THE INSTALLED WATER MAIN. SEE HOWARD COUNTY VOLUME IV DESIGN MANUAL SECTIONS 1007 AND 1008.
- FLUSH NEW WATER MAIN IN PREPARATION FOR CONNECTION.
- CONNECTION THE WATER MAIN TO THE EXISTING WATER MAIN.
- CONTACT HOWARD COUNTY BUREAU OF UTILITIES (410) 313-4900 TO COORDINATE CLOSING OF VALVE UPSTREAM OF CONNECTION POINT. CONTRACTOR MUST COORDINATE CLOSING OF VALVE A MINIMUM OF 72 HOURS IN ADVANCE.
- CHECK CONNECTIONS FOR LEAKS.
- PERFORM CLEAN-UP AND RESTORATION.
- REMOVE TRAFFIC CONTROL DEVICES.
- UPON APPROVAL FROM THE COUNTY, REMOVE SEDIMENT CONTROL DEVICES.

HOWARD SOIL CONSERVATION DISTRICT 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 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/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/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/acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable -- Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/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 -- April 30, and August 1 -- October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue.

For the period May 1 -- July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/1000 sq. ft.) of weeping lovegrass.

During the period of October 16 -- February 28, protect site by:

- Option 1 -- Two 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 30 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 seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance -- Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.

Seedbed 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/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding: -- For periods March 1 -- April 30 and from August 15 -- October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 -- August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 -- February 28, protect site by applying 2 tons/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/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

SEDIMENT CONTROL CERTIFICATIONS

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."

[Signature] 4/25/12
 Date
 Bureau of Engineering
 Department of Public Works

Engineer's Certification:

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

[Signature] 4/26/12
 Date
 Signature of Engineer
 Nathan C. Atkinson, P.E.

Howard Soil Conservation District:

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 4/24/12
 Date
 Howard SCD

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.

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

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

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

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

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note:
 In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

SILT FENCE

AS-BUILT 10-25-2013

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *[Signature]* 4/23/12
 Chief, Bureau of Engineering: *[Signature]* 4/24/12
 Chief, Bureau of Utilities: *[Signature]* 4/23/12
 Chief, Utility Design Division: *[Signature]* 4/24/12

URS
 MONTGOMERY PARK BUSINESS CENTER
 1800 WASHINGTON BOULEVARD, SUITE 410
 BALTIMORE, MARYLAND 21230
 (410) 468-0875

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. 28817, Expiration Date: 08/01/13
 NATHAN C. ATKINSON

DESIGN: CSP					
DRAWN: BJW					
CHK: NCA					
DATE: 04/20/12	NO.	AS-BUILT	10-25-2013	BY	L.M.H.
		REVISION	DATE		

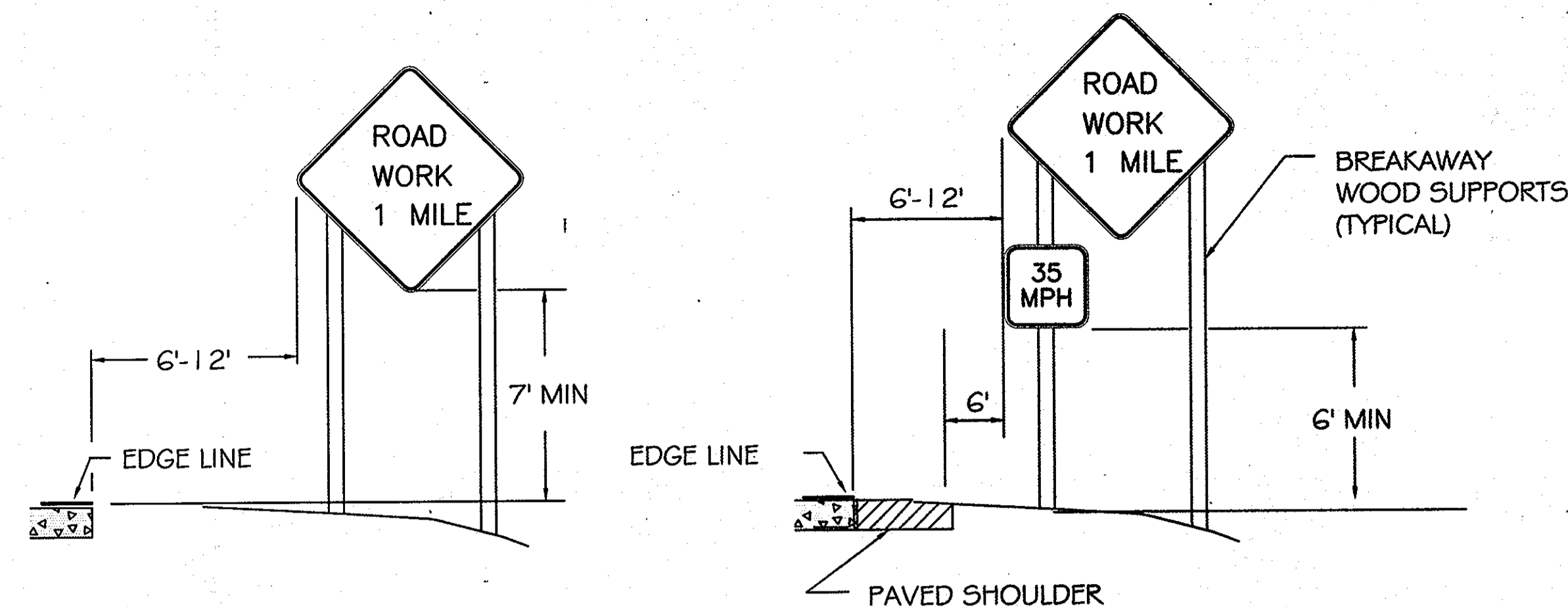
EROSION & SEDIMENT CONTROL DETAILS
 600' SCALE MAP NO. 29
 BLOCK NO. 12

MD ROUTE 108
 WATER AND SEWER MAIN EXTENSION
 CAPITAL PROJECT NO. S - 6262
 CONTRACT NO. 24-4690
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 4 OF 7

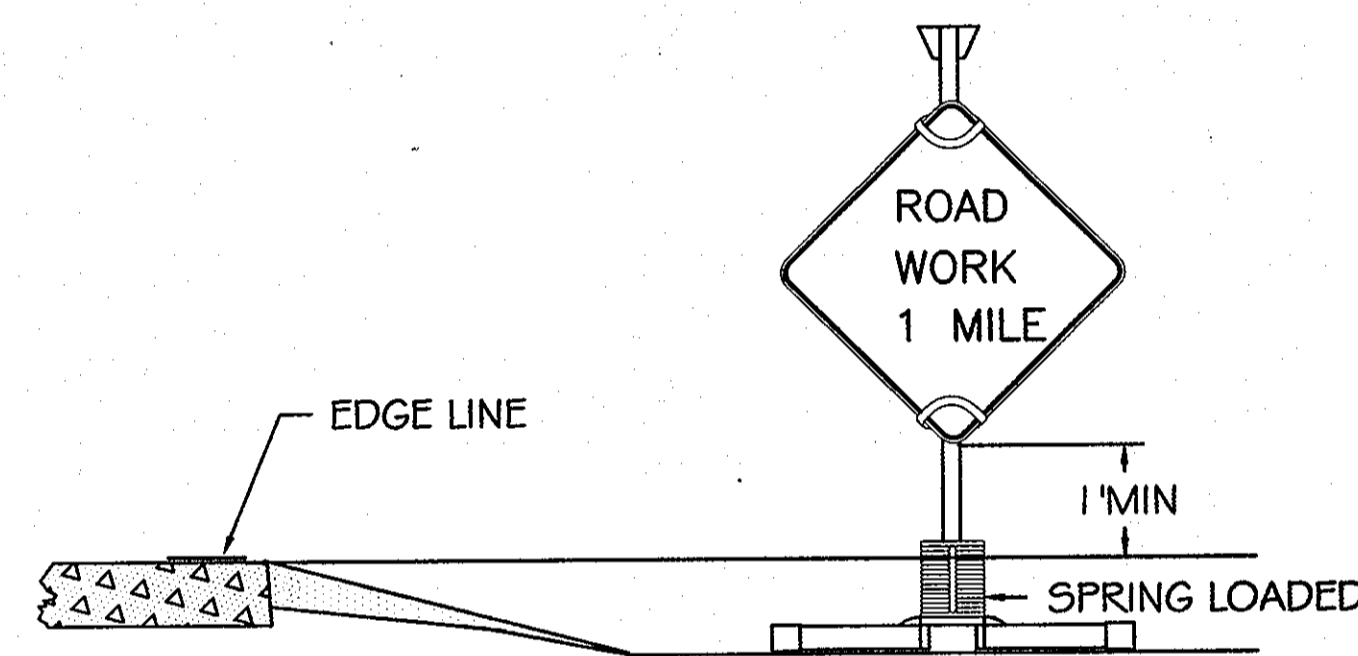
TEMPORARY TRAFFIC CONTROL GENERAL NOTES

1. AT THE COMPLETION OF THE WORK ACTIVITY, CONDITIONS WITHIN THE PROJECT SITE SHALL BE FULLY RESTORED TO THOSE WHICH EXISTED PRIOR TO THE WORK ACTIVITY.
2. ALL WARNING SIGNS SHALL BE FULLY REFLECTORIZED WITH HIGH INTENSITY, REFLECTIVE SHEETING AS PER THE CURRENT EDITION AND REVISIONS OF THE FEDERAL HIGHWAY MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (M.U.T.C.D.).
3. ALL TRAFFIC CONTROLS MUST BE IN ACCORDANCE WITH THE CURRENT EDITION AND REVISIONS OF THE MARYLAND MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MdMUTCD).
4. AT THE DIRECTION OF THE ENGINEER, THE SPACING OF TEMPORARY SIGNING MAY BE ADJUSTED SLIGHTLY TO IMPROVE VISIBILITY OF THE SIGN.
5. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL LOCAL BUSINESSES AND BUILDINGS DURING CONSTRUCTION AND COORDINATE WITH LOCAL BUSINESSES ABOUT THE RESTRICTIONS ON INGRESS AND EGRESS TRAFFIC CONTROL.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE REPLACEMENT OF ANY PAVEMENT MARKINGS REMOVED OR DESTROYED DURING CONSTRUCTION. ALL PAVEMENT MARKINGS REMOVED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED WITH EITHER LATEX PAINT OR THERMOPLASTIC TO MATCH EXISTING MARKINGS.
7. PROPERLY EQUIPPED FLAGGERS SHALL BE USED TO DIRECT TRAFFIC FOR A LANE CLOSURE OF A TWO-LANE STREET AND WHEN CONSTRUCTION VEHICLES ARE ENTERING AND EXITING THE WORK AREA OR AT OTHER LOCATIONS. FLAGGERS' CLOTHING AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITION OF THE M.U.T.C.D.
8. MUD AND CONSTRUCTION DEBRIS ON STREETS OR SIDEWALKS SHALL BE CLEANED OFF IMMEDIATELY.
9. TRAFFIC CONTROL DEVICES WHEN NOT IN USE SHALL BE COMPLETELY COVERED OR REMOVED FROM THE CONSTRUCTION SITE.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES ON AN AROUND THE CLOCK BASIS, WHETHER OR NOT WORK IS ACTIVELY BEING PURSUED AND ANY DEFICIENCIES NOTED SHALL BE CORRECTED IMMEDIATELY.
11. THE TRAFFIC CONTROL REQUIREMENTS SHOWN ON THESE PLANS ARE MINIMUM REQUIREMENTS ONLY AND DO NOT ATTEMPT TO ADDRESS IN DEPTH THE VARIETY OF SITUATIONS THAT MAY OCCUR ONCE CONSTRUCTION HAS STARTED. IN NO WAY DO THE REQUIREMENTS SHOWN ON THESE PLANS RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR SELECTING THE PROPER TRAFFIC CONTROL DEVICES AND IMPLEMENTATION PROCEDURES THAT WILL ASSURE THE SAFETY OF MOTORIST, PEDESTRIANS, AND WORKERS AT ALL TIMES.
12. SHOULD THE CONTRACTOR FAIL TO ENFORCE THE TRAFFIC CONTROL PLAN OR FAIL TO CLEAN, REPAIR, REPLACE OR OTHERWISE MAINTAIN THE TRAFFIC CONTROL DEVICES WHEN DIRECTED TO DO SO BY THE ENGINEER OR HIS REPRESENTATIVE, HOWARD COUNTY MAY STOP THE WORK UNTIL DEFICIENCIES ARE CORRECTED.
13. ANY PERMANENT SIGN CONFLICTING WITH THIS TRAFFIC CONTROL PLAN SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.
14. ACCESS SHALL BE MAINTAINED TO ALL DRIVES AND SIDE STREETS.
15. CONSTRUCTION VEHICLES SHALL BE PARKED ALONG STREETS SO AS NOT TO RESTRICT SIGHT DISTANCE FOR VEHICLES EXITING AT STREETS OR ANY DRIVES.
16. DURING ALL CONSTRUCTION PERIODS, THE CONTRACTOR SHALL HAVE AT THE JOBSITE ALL NECESSARY TRAFFIC CONTROL DEVICES (APPROPRIATE SIGNS, LIGHTED ARROW DISPLAY, CHANNELIZING DEVICES, ETC.) TO PROPERLY CLOSE AT LEAST ONE LANE OF TRAFFIC.
17. CONSTRUCTION SHALL BE SEQUENCED TO PROVIDE THE LEAST POSSIBLE ADVERSE EFFECT TO RESIDENCES.
18. THE CONTRACTOR IS RESPONSIBLE FOR AVOIDING ANY AND ALL UTILITIES WHEN SETTING SIGN POSTS AND WILL BE REQUIRED TO COORDINATE HIS ACTIVITIES WITH ANY AND ALL UTILITY COMPANIES WHETHER THEIR FACILITY IS INDICATED ON THE PLANS OR NOT.
19. TRENCH MUST BE BACKFILLED AND TEMPORARILY PATCHED DAILY OR STEEL PLATED PER SHA UTILITY PERMIT. STEEL PLATES, IF USED SHALL BE A36 CERTIFIED STEEL AT LEAST 1" THICK WITH LIFT HOOKS AND MUST BE PINNED AND COLD PATCHED DAILY. WHEN MORE THAN 1 STEEL PLATE IS USED AT A TIME THEY MUST BE TACK WELDED BY A CERTIFIED WELDER.
20. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING TEMPORARY PAVEMENT MARKINGS FOR ANY DOUBLE YELLOW OR EDGE LINES REMOVED OR DESTROYED DURING CONSTRUCTION.



SIGN SUPPORT PLACEMENT

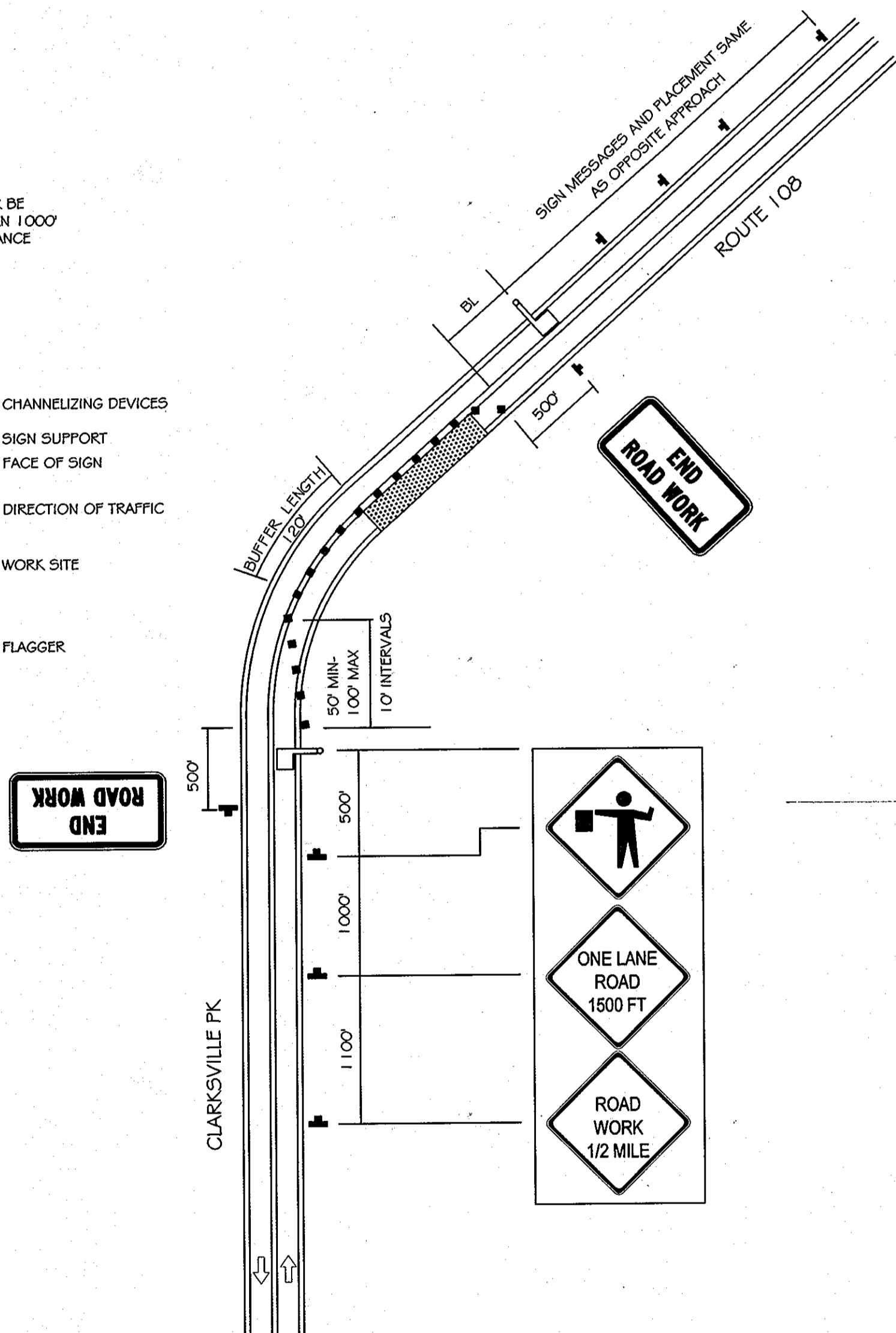
MD SHA'S OFFICE OF TRAFFIC AND SAFETY MAINTAINS A LIST OF APPROVED PORTABLE SIGN SUPPORTS. SHA RECOMMENDS "WINDMASTER" TEMPORARY SIGN SUPPORT STANDS; OTHERWISE SIGNS MUST BE COVERED DAILY.



TEMPORARY SIGN SUPPORT PLACEMENT

NOTE: FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

- KEY:**
- CHANNELIZING DEVICES
 - SIGN SUPPORT
 - FACE OF SIGN
 - ↑ DIRECTION OF TRAFFIC
 - ▨ WORK SITE
 - FLAGGER



TRAFFIC CONTROL PLAN (TYPICAL)

ADDRESS	FROM	TO	DISTANCE	REMARKS
10605 RTE 108	BGE POLE 547265	SHC	62.8'	
	SMH WT #4	SHC	28.4'	
	SMH WT #4	WHC	39.0'	
10595 RTE 108	BGE POLE 547265	WHC	51.4'	
	WHC 10595	SHC	16.5'	
	VERIZON POLE 109	SHC	57.6'	
10585 RTE 108	SHC 10595	WHC	16.5'	
	VERIZON POLE 109	WHC	69.3'	
	WHC 10585	SHC	19.9'	
10565 RTE 108	SEWER TEST STA.	SHC	90.6'	
	SHC 10585	WHC	19.9'	
	SEWER TEST STA.	WHC	77.2'	
10437 RTE 108	WHC 10565	SHC	17.2'	
	SEWER TEST STA.	SHC	101.0'	
	SHC 10565	WHC	17.2'	
10437 RTE 108	SEWER TEST STA.	WHC	88.9'	
	SHC 10437	SHC	23.5'	
	SMH STA. 20+00	SHC	59.3'	
10437 RTE 108	SHC 10437	WHC	23.5'	
	SMH STA. 20+00	WHC	39.4'	
	SHC 10437	WHC	23.5'	

ADDRESS	FROM	TO	DISTANCE	REMARKS
10545 RTE 108	WHC 10545	SHC	21.2'	
	BGE POLE 560089	SHC	95.4'	
10483 RTE 108	SHC 10545	WHC	21.2'	
	BGE POLE 560089	WHC	98.3'	
10475 RTE 108	WHC 10483	SHC	22.9'	
	SMH STA. 16+75	SHC	49.5'	
10475 RTE 108	SHC 10483	WHC	22.9'	
	SMH STA. 16+75	WHC	27.4'	
10475 RTE 108	WHC 10475	SHC	12.0'	
	C & P POLE 183	SHC	57.4'	
10475 RTE 108	SHC 10475	WHC	12.0'	
	C & P POLE 184	WHC	90.1'	
10437 RTE 108	WHC 10437	SHC	23.5'	
	SMH STA. 20+00	SHC	59.3'	
10437 RTE 108	SHC 10437	WHC	23.5'	
	SMH STA. 20+00	WHC	39.4'	

AS-BUILT 10-25-2013

Formula for Determining Taper Length

Speed (S) In mph	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet
W = width of offset in feet
S = posted speed limit

Guidelines for Length of Longitudinal Buffer Space	
Speed* (mph)	Length (feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	280

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director: *Janet R. ...* DATE: 4/22/12
 Chief, Bureau of Engineering: *Thomas J. Butler* DATE: 4/24/12
 Chief, Bureau of Utilities: *Walter C. ...* DATE: 4/23/12
 Chief, Utility Design Division: *Dr. ...* DATE: 4/24/12

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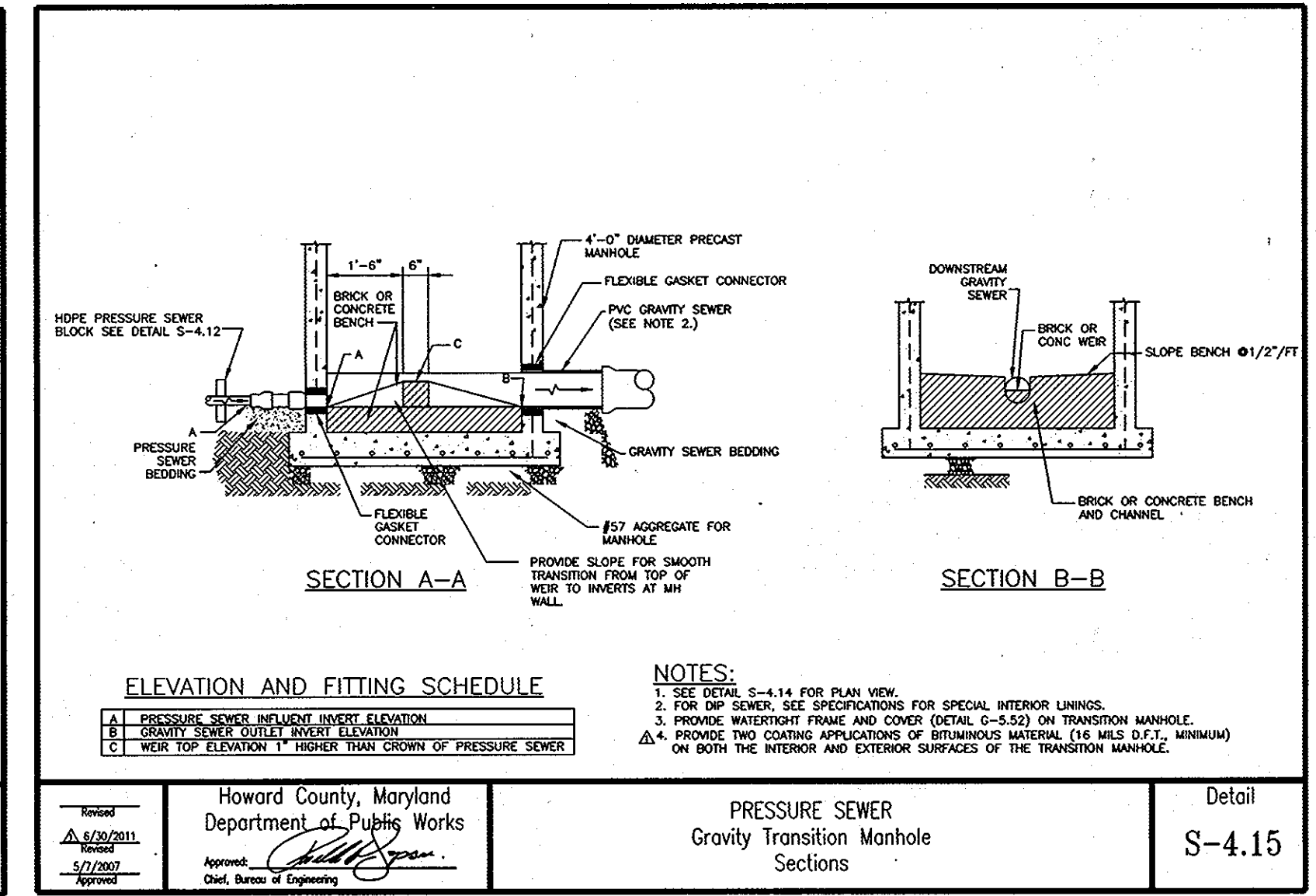
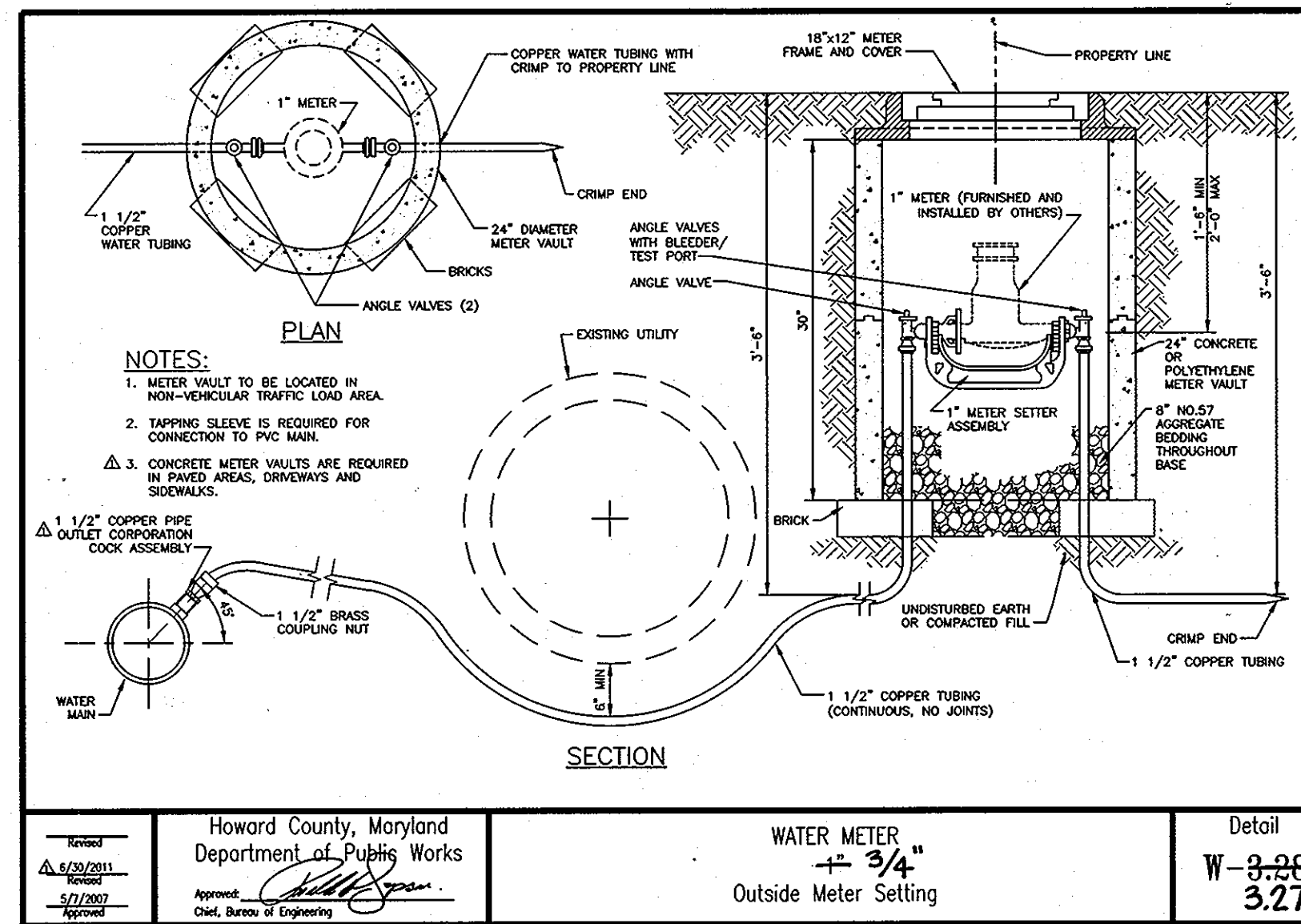
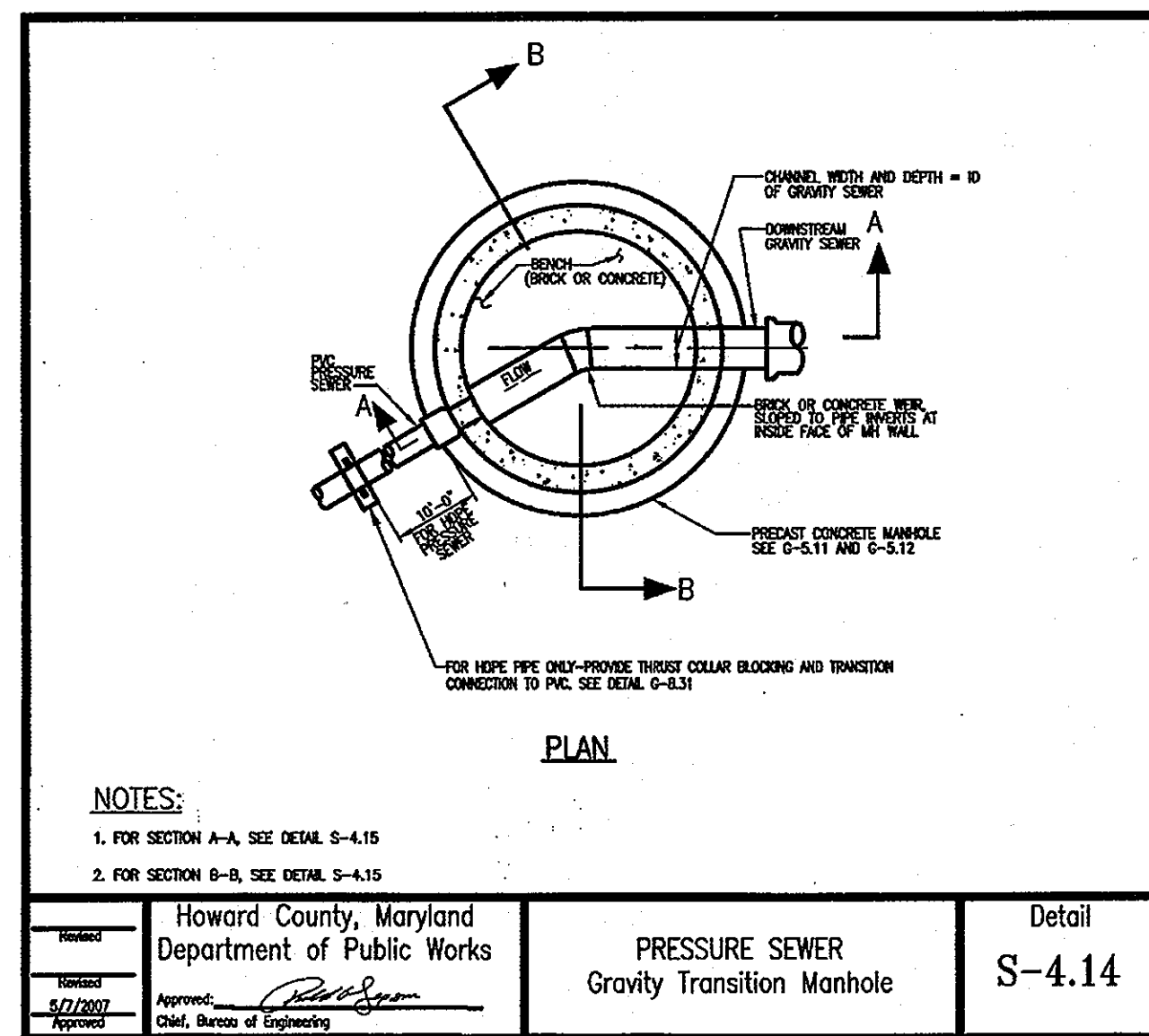
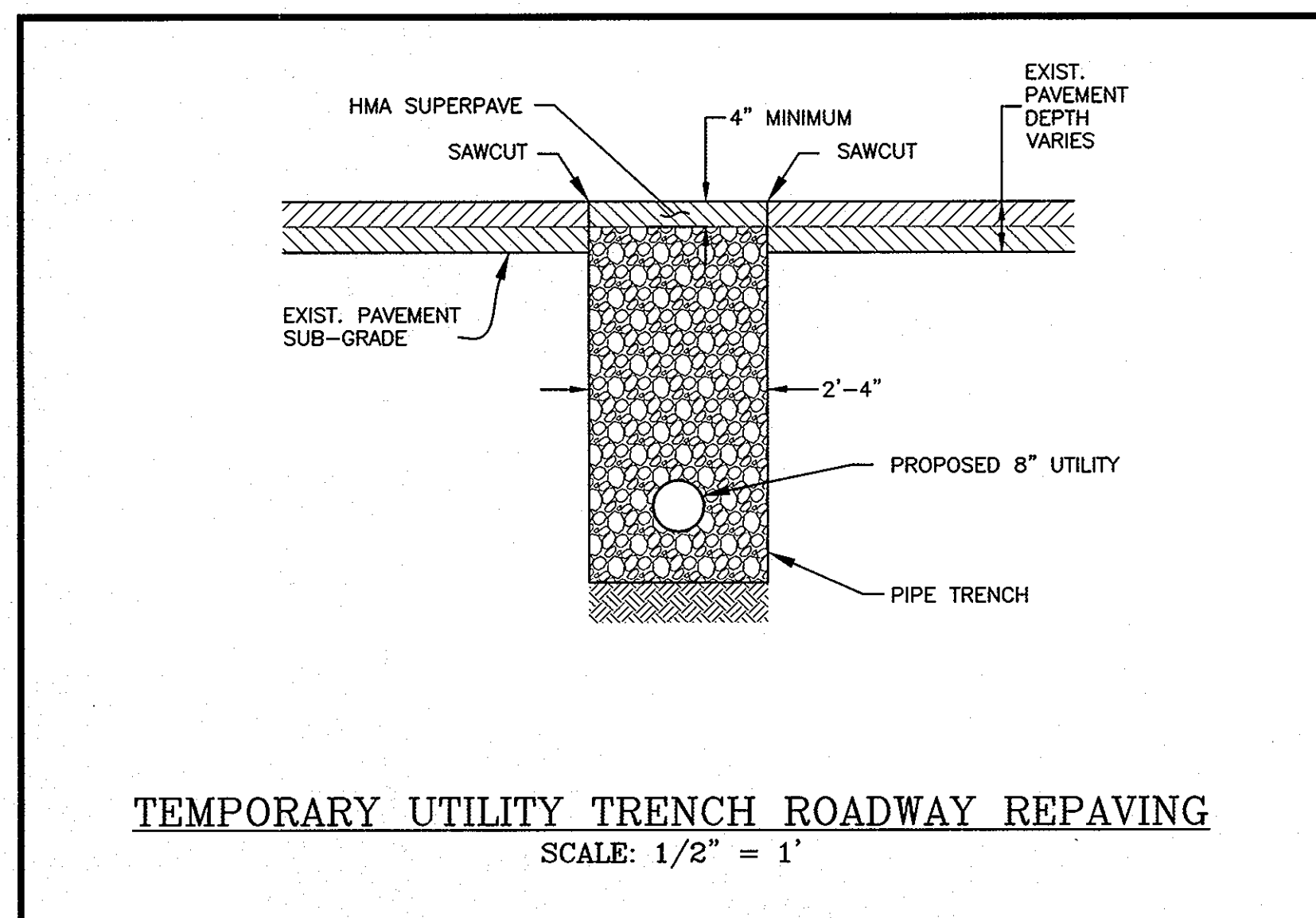
Professional Certification
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28817, Expiration Date: 08/01/13
NATHAN C. ATKINSON

DESIGN: CSP				
DRAWN: BJW				
CHK: NCA				
DATE: 04/20/12	NO.	AS-BUILT	REVISION	DATE BY
				10-25-2013 L.M.H.

600' SCALE MAP NO. 29	BLOCK NO. 12
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MD ROUTE 108
WATER AND SEWER MAIN EXTENSION
CAPITAL PROJECT NO. S-6262
CONTRACT NO. 24-4690
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 5 OF 7



NOTE:
SEE THE "MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" AND "MDSHA BOOK OF STANDARDS FOR HIGHWAYS, INCIDENTAL STRUCTURES AND TRAFFIC CONTROL APPLICATIONS" FOR DETAILS AND NOTES REFERENCED ON THIS SHEET.

NOTES:

- AGGREGATE SUB-BASE WIDTH SHALL BE 6' 4".
- CLEAN EXPOSED VERTICAL SURFACE OF ADJACENT PAVEMENT AND PLACE TACK COAT ON ALL VERTICAL SURFACES PRIOR TO PLACING HMA.
- IF THE REMAINING EXISTING PAVEMENT IS LESS THAN 4' WIDE, THE RESIDUAL PAVEMENT SHALL BE REMOVED IN ITS ENTIRETY AND REPLACED.
- SAW CUT FULL DEPTH ALL JOINTS OF EXISTING CONCRETE, BITUMINOUS AND BASE PAVEMENTS.
- TOTAL REPAIR WIDTH SHALL BE EQUAL TO THE LANE WIDTH IN ACCORDANCE WITH THE SPECIFICATIONS
- PAVING SHALL MEET HOWARD COUNTY PAVING SECTION NUMBER P-6, CBR 3 TO 5.

PERMANENT UTILITY TRENCH ROADWAY REPAVING
SCALE: 1/2" = 1'

HOT MIX ASPHALT PATCHES 505

SECTION 505 — HOT MIX ASPHALT PATCHES

505.01 DESCRIPTION. Repair rigid, flexible, or composite pavements by removing part or all of the section of the existing pavement and replacing the removed materials using hot mix asphalt (HMA) paving material. The locations and extent of the repairs will be as specified or as directed.

Partial Depth Patching (PDP). PDP consists of the removal of areas of unsound pavement material up to a 50 percent of the pavement thickness, and replacement with HMA. The pavement thickness is defined as the thickness of all bound materials in the pavement structure including HMA, portland cement concrete (PCC), and any other asphalt or cement modified materials.

Full Depth Patching (FDP). FDP consists of the removal of the full thickness of the pavement sections to the top of the aggregate base material and replacement with HMA. Construct FDP whenever more than 50 percent of the pavement thickness requires repair.

505.02 MATERIALS.

Graded Aggregate Base	901.01
Aggregates for HMA	901.01
Aggregates for Superpave Mixes	901.01 and MP2
Performance Graded Asphalt Binders and Hot Mix Asphalt	904
Crack Filler	911.01
Production Plant	915

505.03 CONSTRUCTION. Keep disturbance to the base material to a minimum. The faces of the remaining pavement shall be square and vertical without ragged edges. Do not use equipment that could damage the existing pavement.

505.03.01 Weather Restrictions. Section 504.

505.03.02 Existing Pavement. Each day complete all repairs for which excavation has been completed. Do not leave open excavated areas at the end of the work day.

Removal of Pavement for PDP. Remove existing pavement by milling, grinding, or saw cutting and removal to the specified depth. Maintain square vertical faces after removal. Where concrete is encountered, limit

HOT MIX ASPHALT PATCHES 505

the depth of the patch to the top elevation of the PCC. Prior to application of the patch, remove all loose and foreign materials. For PDP of composite pavements, protect the PCC from damage during removal of the HMA. Before placing the patch, treat all spalled cracks and joints by tack coating and filling and tamping with HMA. When the material at the bottom of the PDP is determined to be unsuitable, remove additional material until sound material is encountered. When PCC is encountered in a composite pavement and is determined to be unsuitable, follow the removal and replacement procedures for a FDP.

Removal of Pavement for FDP. Make a perpendicular saw cut full depth around the perimeter and remove the existing pavement to the top of the aggregate base. Refer to the applicable portions of 522.03.03 for the concrete portion of a composite pavement. Maintain square vertical faces after saw cutting.

505.03.03 Base and Subgrade Preparation. The Engineer will evaluate the aggregate base of the FDP area to determine if it is suitable. When it is determined to be unstable, compact it as specified in 501.03.10. When no aggregate base is present, construct the subgrade foundation as specified in Section 208 or as directed. When the aggregate base or subgrade material is unsuitable, replace the material with graded aggregate base conforming to Section 501. This operation is defined as the removal of unsuitable material and refill. Compact the replacement aggregate material in layers no greater than 4 in. depth. Immediately remove and dispose of the existing pavement materials.

Protect the aggregate base or subgrade after preparation. No payment will be made for removal and replacement of subgrade that was not protected.

505.03.04 Subgrade Drains. The Engineer may direct that subgrade drains be constructed in areas of wet underlying subgrade or areas where there may be a future drainage problem. For construction, refer to Section 306.

505.03.05 Emergency Filler. Have sufficient approved cold patch material readily available to fill the void of the repair area. Place and compact the material when directed. At the beginning of the next day's work, completely remove the material.

505.03.06 Steel Plates. Have readily available on site an ample supply of 12 x 14 ft by 1 in. thick steel plates to cover the emergency filler.

505.03.07 Patch Construction. Complete patch construction as specified in the applicable portions of Section 504. Manual operation will be permitted for placement of the HMA. Cores, control strip, and

HOT MIX ASPHALT PATCHES 505

pavement profile measurements are waived. Furnish equipment and perform placement, compaction, and quality control procedures as approved.

505.03.08 Patch Placement. Prior to placing the HMA, thoroughly clean and tack coat the exposed vertical surface of adjacent pavement as specified in 504.03.04. Spread the HMA mixture by shovel, rake, or other approved method approved. Do not place HMA on a frozen base.

Maintain lift thickness in conformance with the following:

HMA SUPERPAVE LIFT THICKNESS		
MIX DESIGNATION (mm)	MINIMUM (in.)	MAXIMUM (in.)
9.5	1.0	2.0
12.5	1.5	2.5
19.0	2.0	3.0
25.0	3.0	4.0
37.5	4.0	5.0

505.03.09 Testing and Acceptance. Acceptance will be determined by in place density gauge test data witnessed by the Engineer. Calibrate the density gauge per the manufacturer's recommendation. Take one test from each lift of each patch. Randomly select test locations within the patch.

In place density gauge test data shall be expressed as a percentage of the maximum specific gravity determined for each day's production. An in place density of 92.0 to 97.0 percent is required for each patch.

Compliance will be determined for each patch separately by averaging all density tests performed within each specific patch.

505.04 MEASUREMENT AND PAYMENT. The payment will be full compensation for saw cutting, milling, grinding, removal, disposal, trimming of the existing pavement, subgrade preparation, placing all materials including tack coat, steel plates, emergency filler, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.

After removal, steel plates and emergency filler will remain the property of the Contractor.

Heavy Duty HMA Paving Sections
FUNCTIONAL CLASSIFICATION: ARTERIAL AND/OR
ADT: 10,000 OR GREATER
12" Hot Mix Asphalt Superpave 12.5 mm for Surface, PG 64-22, Level 2
6" Hot Mix Asphalt Superpave 19.0 mm for Base, PG 64-22, Level 2 (2 - 3" lifts)
12" Base Course Using Graded Aggregate (2 - 6" lifts)

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] DATE: 4/24/13
 Chief, Bureau of Engineering: [Signature] DATE: 4/24/13
 Chief, Bureau of Utilities: [Signature] DATE: 4/24/13
 Chief, Utility Design Division: [Signature] DATE: 4/24/13

URS
MONTGOMERY PARK BUSINESS CENTER
1800 WASHINGTON BOULEVARD, SUITE 410
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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. 28817, Expiration Date: 08/01/13
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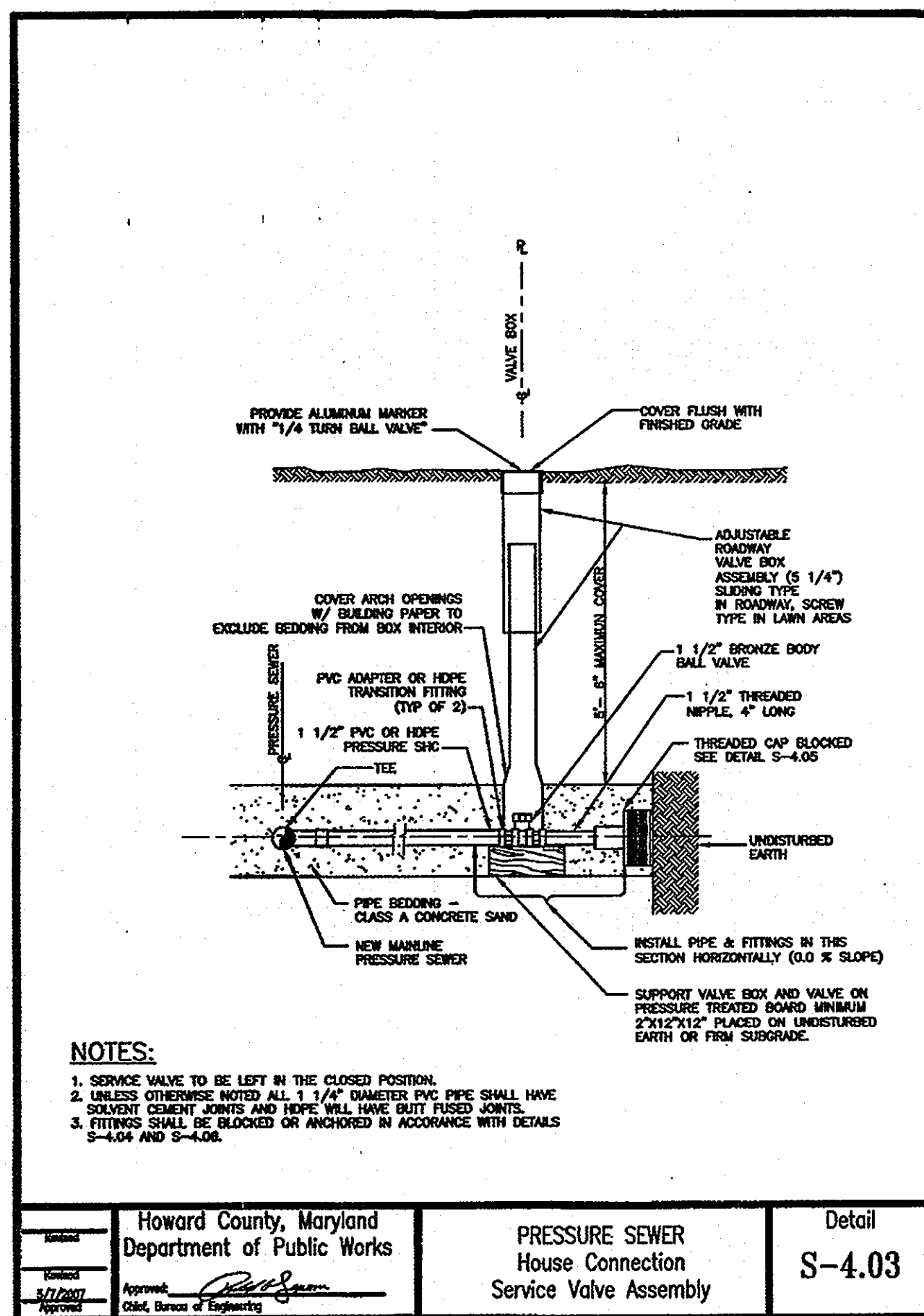
DESIGN: CSP					
DRAWN: BJW					
CHK: NCA					
DATE: 04/20/12	NO.	AS-BUILT	REVISION	10-25-2013	L.M.H.

MISCELLANEOUS DETAILS

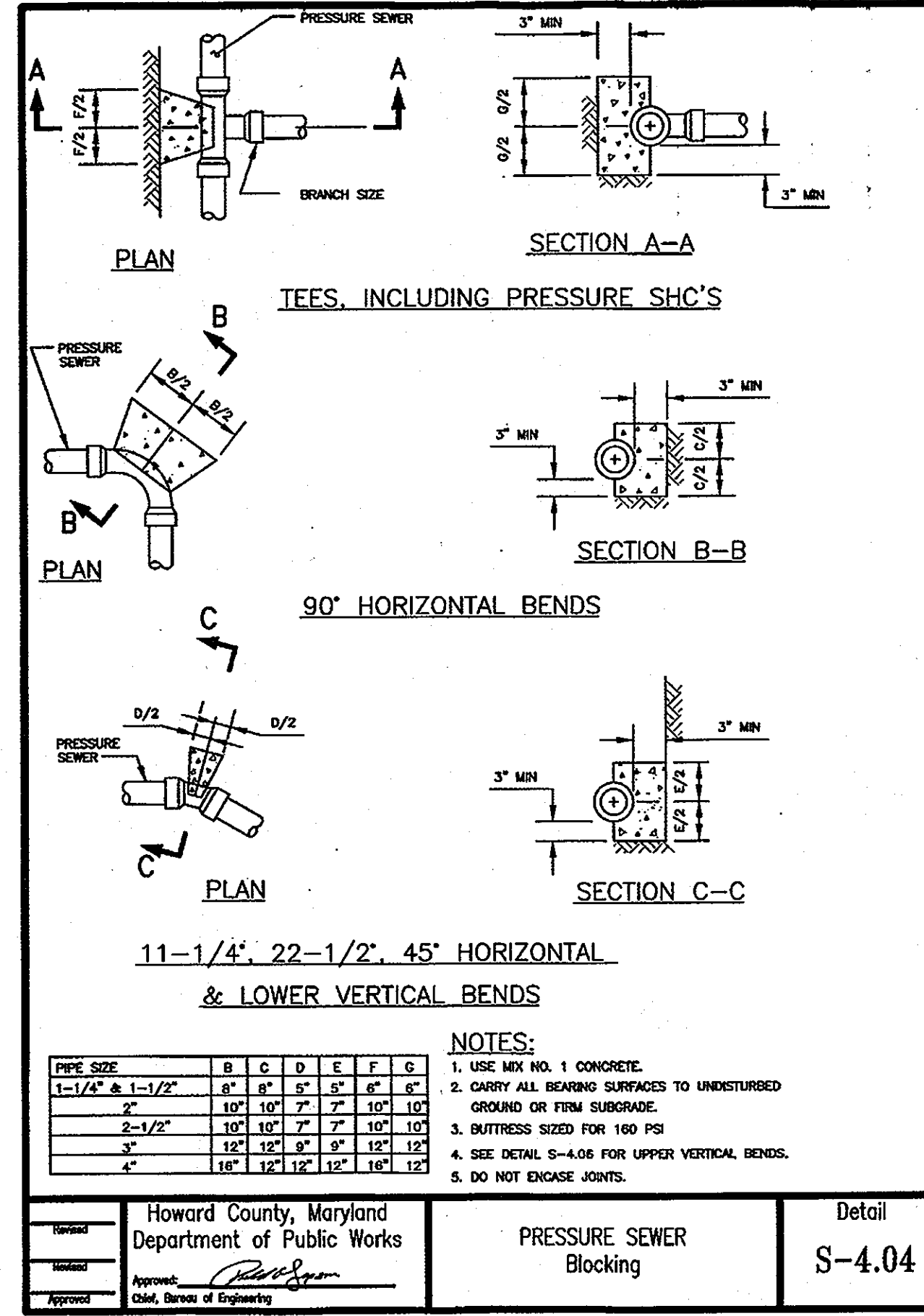
600' SCALE MAP NO. 29 BLOCK NO. 12

MD ROUTE 108
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6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

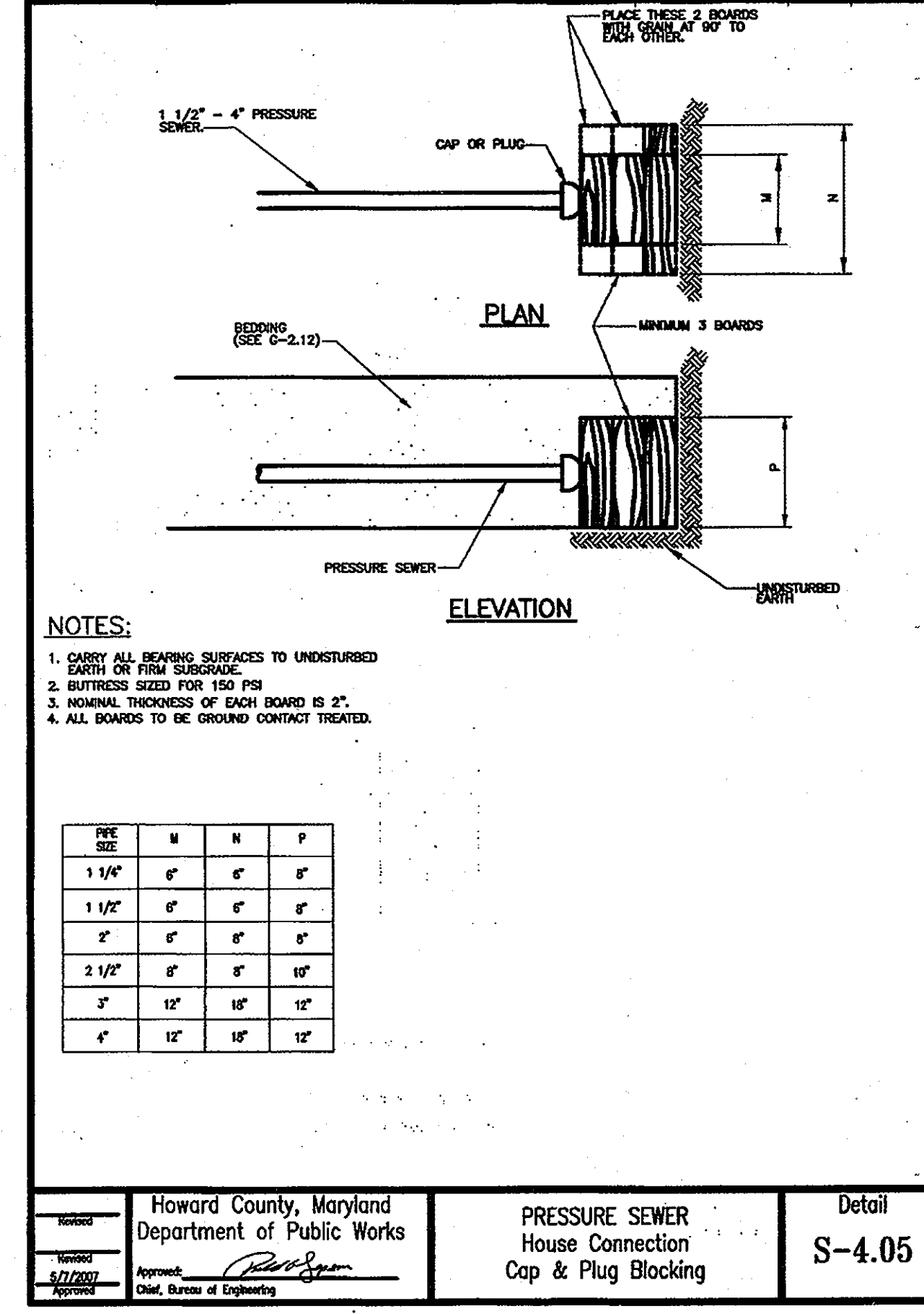
SCALE: AS SHOWN
SHEET 6 OF 7



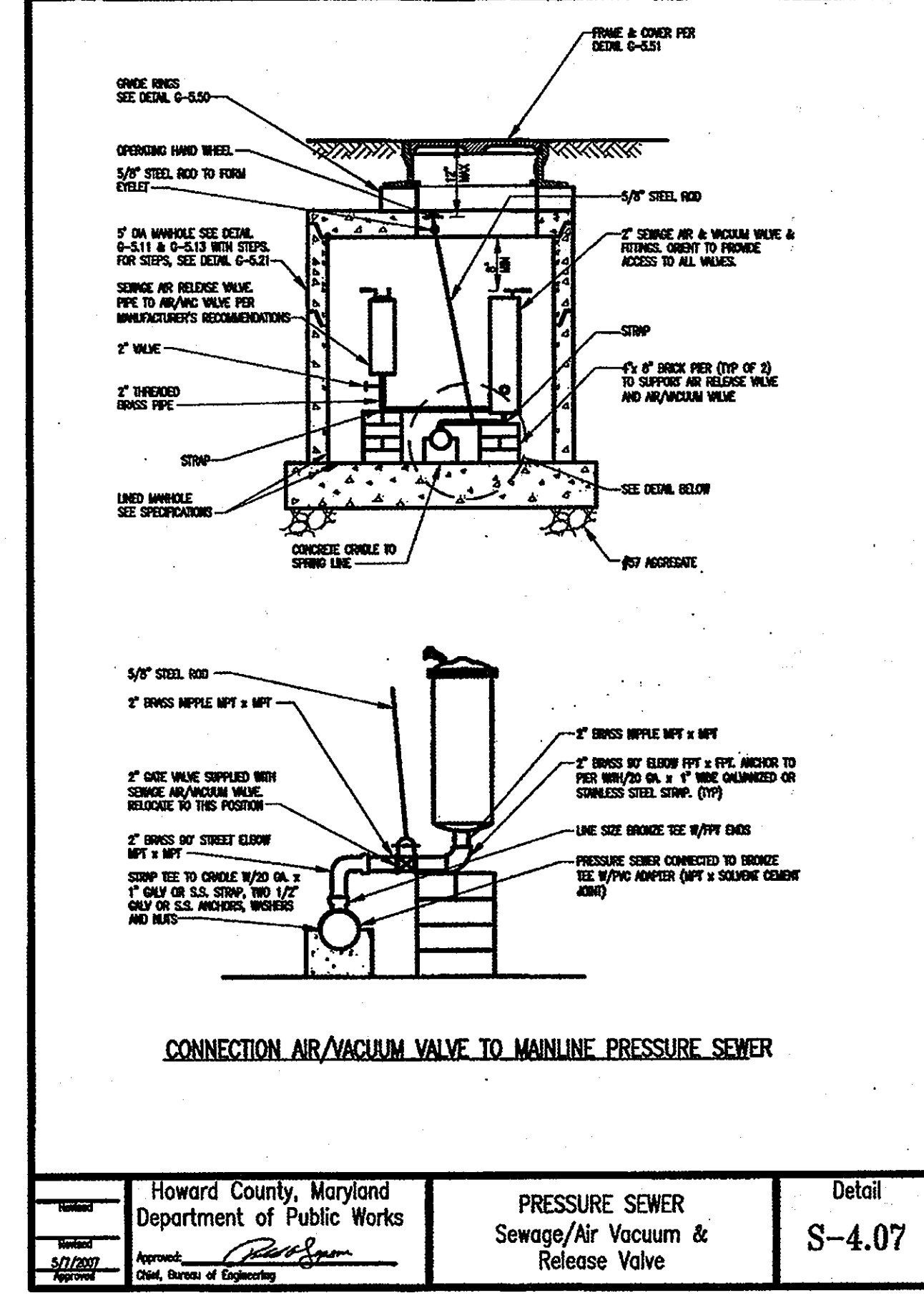
Howard County, Maryland
Department of Public Works
Pressure Sewer
House Connection
Service Valve Assembly
Detail
S-4.03



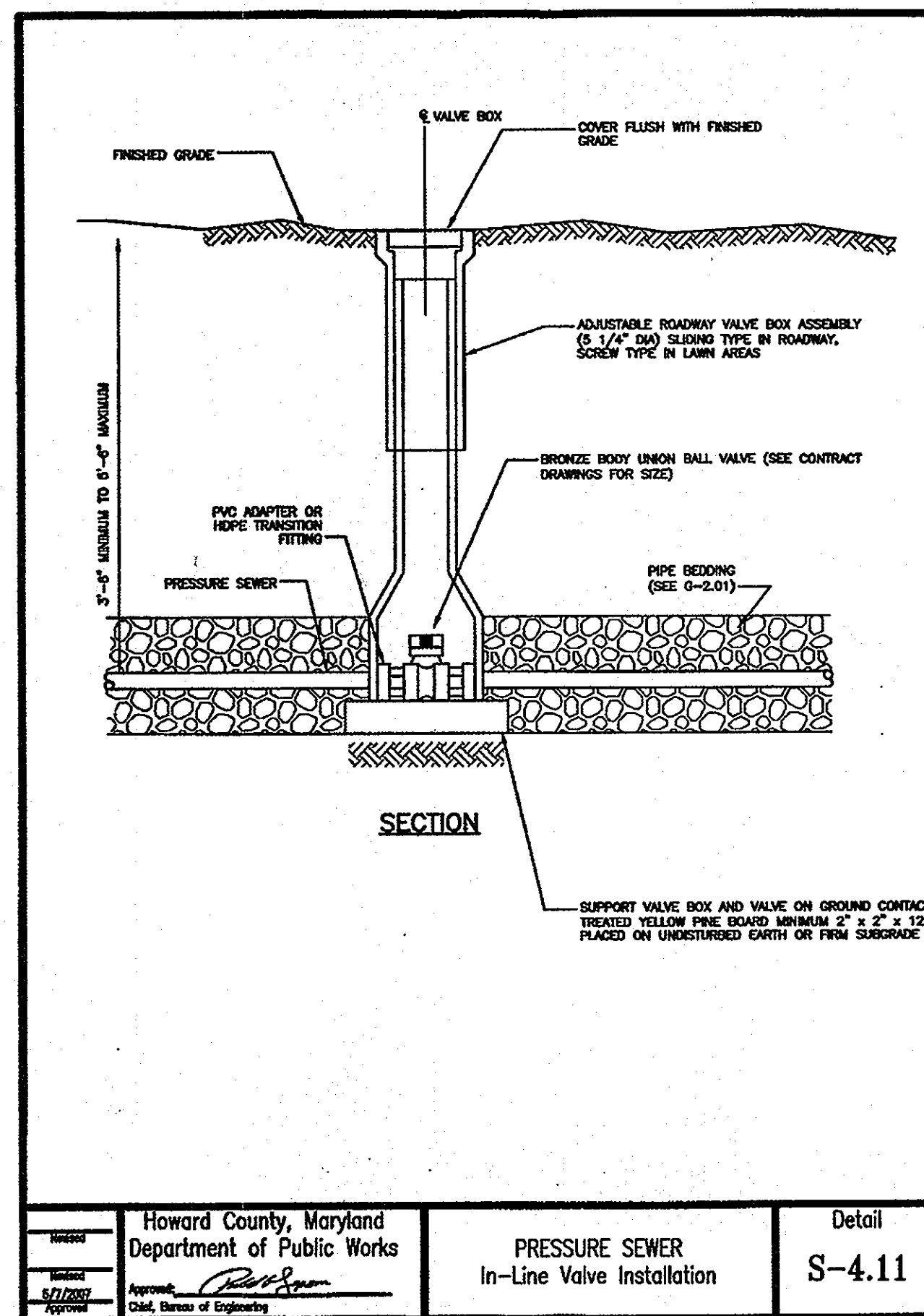
Howard County, Maryland
Department of Public Works
Pressure Sewer
Blocking
Detail
S-4.04



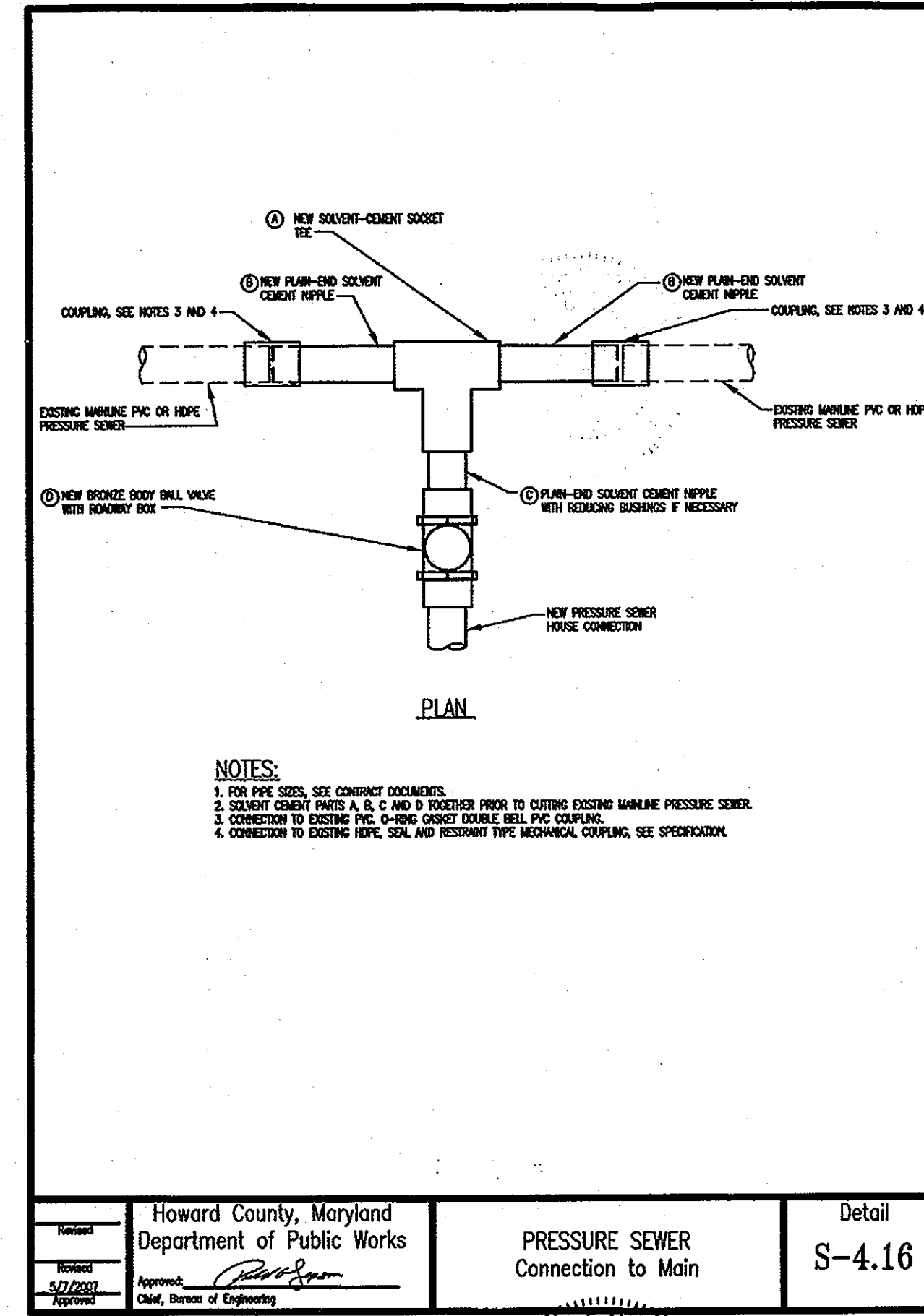
Howard County, Maryland
Department of Public Works
Pressure Sewer
House Connection
Cap & Plug Blocking
Detail
S-4.05



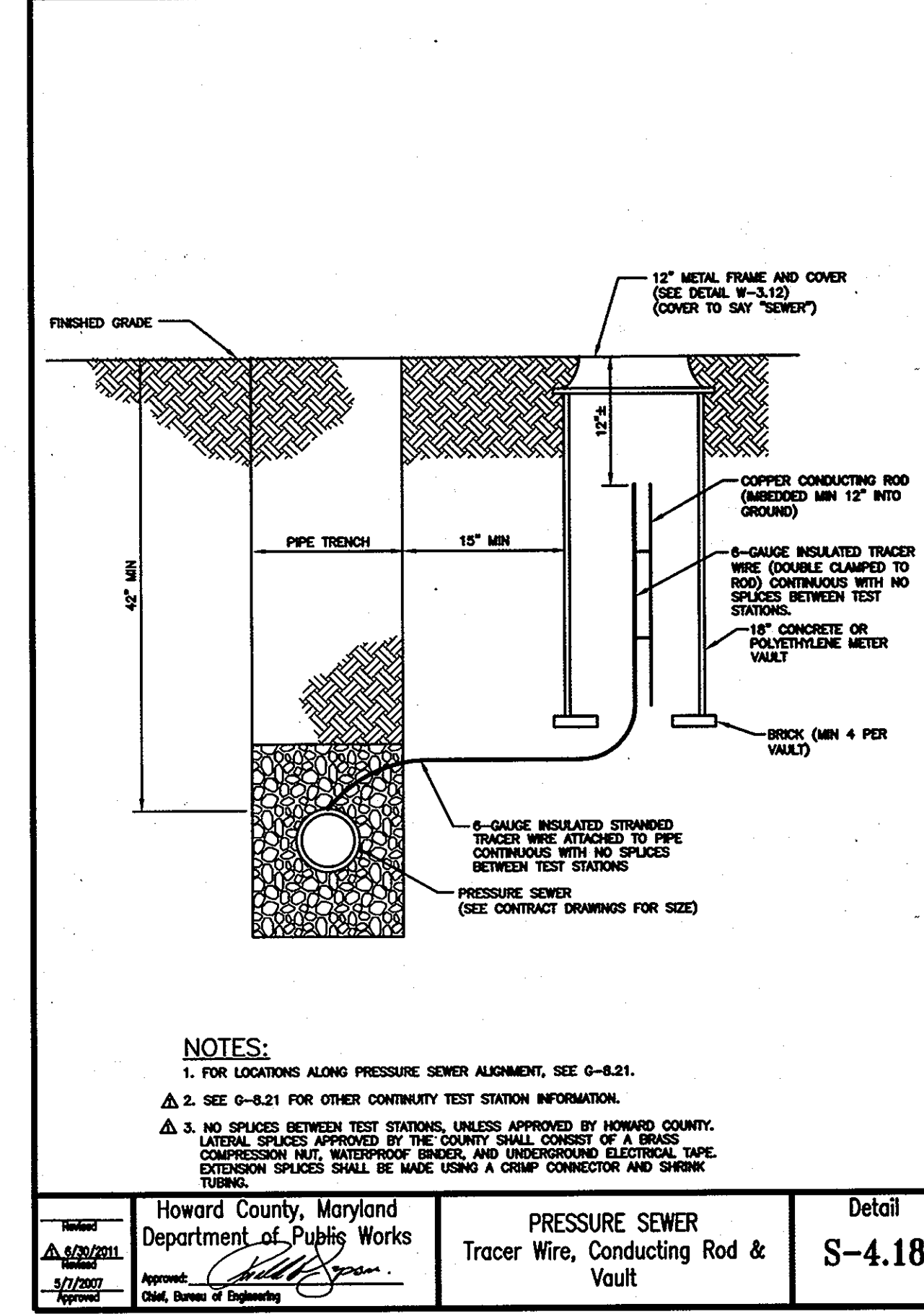
Howard County, Maryland
Department of Public Works
Pressure Sewer
Sewage/Air Vacuum &
Release Valve
Detail
S-4.07



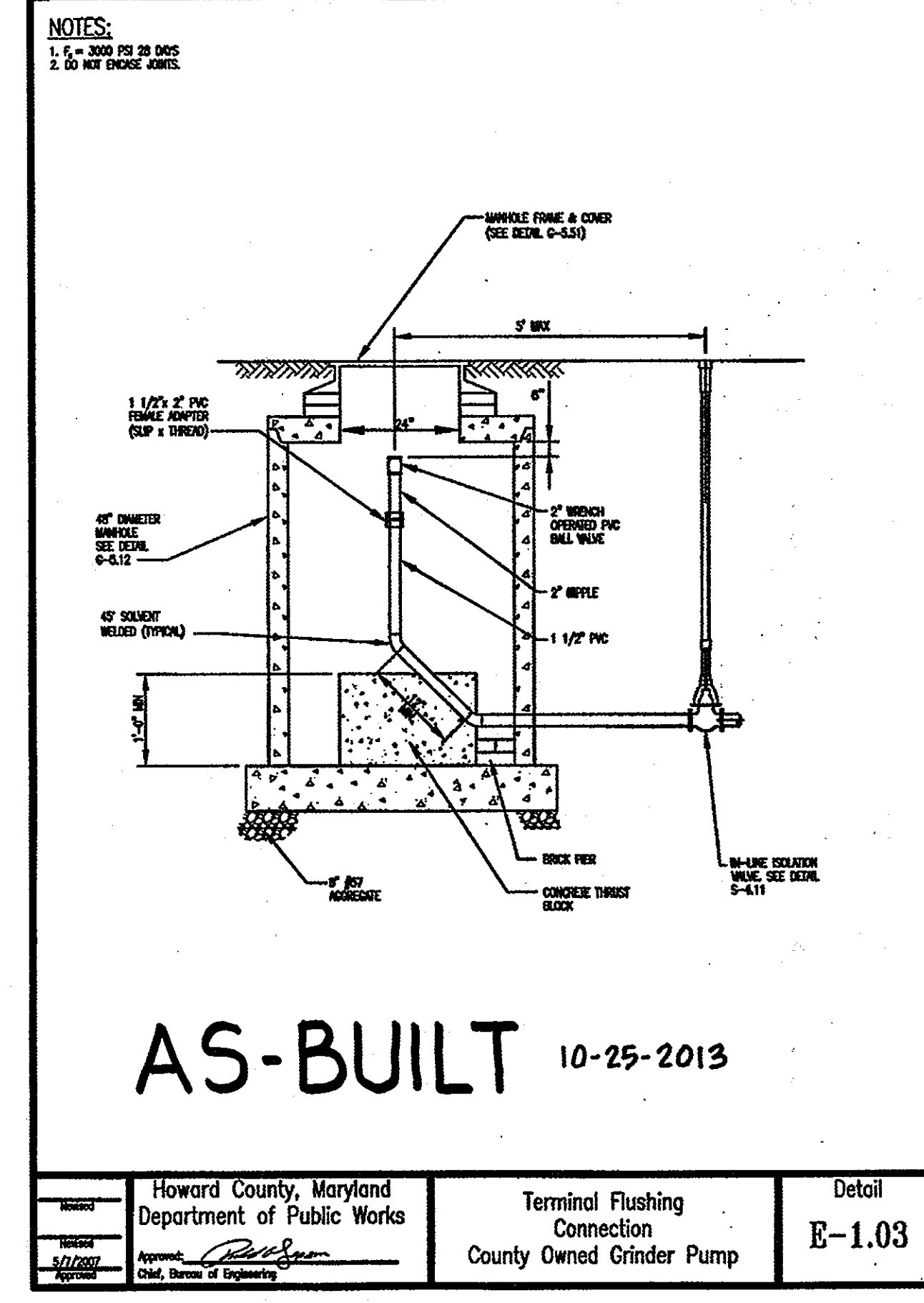
Howard County, Maryland
Department of Public Works
Pressure Sewer
In-Line Valve Installation
Detail
S-4.11



Howard County, Maryland
Department of Public Works
Pressure Sewer
Connection to Main
Detail
S-4.16



Howard County, Maryland
Department of Public Works
Pressure Sewer
Tracer Wire, Conducting Rod &
Vault
Detail
S-4.18



Howard County, Maryland
Department of Public Works
Terminal Flushing
Connection
County Owned Grinder Pump
Detail
E-1.03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *John R. ...* DATE: 4/26/12
 Chief, Bureau of Engineering: *Thomas S. ...* DATE: 4/26/12
 Chief, Bureau of Utilities: *Shane C. ...* DATE: 4/24/12
 Chief, Utility Design Division: *Ed ...* DATE: 4/24/12

URS
MONTGOMERY PARK BUSINESS CENTER
1800 WASHINGTON BOULEVARD, SUITE 410
BALTIMORE, MARYLAND 21230
(410) 468-0875

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. 28817, Expiration Date: 08/01/13
NATHAN C. ATKINSON

DESIGN: CSP				
DRAWN: BJW				
CHK: NCA				
DATE: 04/20/12	NO.	AS-BUILT	REVISION	DATE BY
				10-25-2013 L.M.H.

MISCELLANEOUS DETAILS

600' SCALE MAP NO. 29 BLOCK NO. 12

MD ROUTE 108
WATER AND SEWER MAIN EXTENSION
CAPITAL PROJECT NO. S-6262
CONTRACT NO. 24-4690
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 7 OF 7