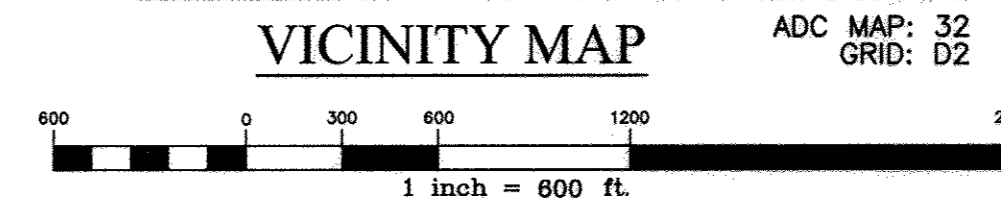
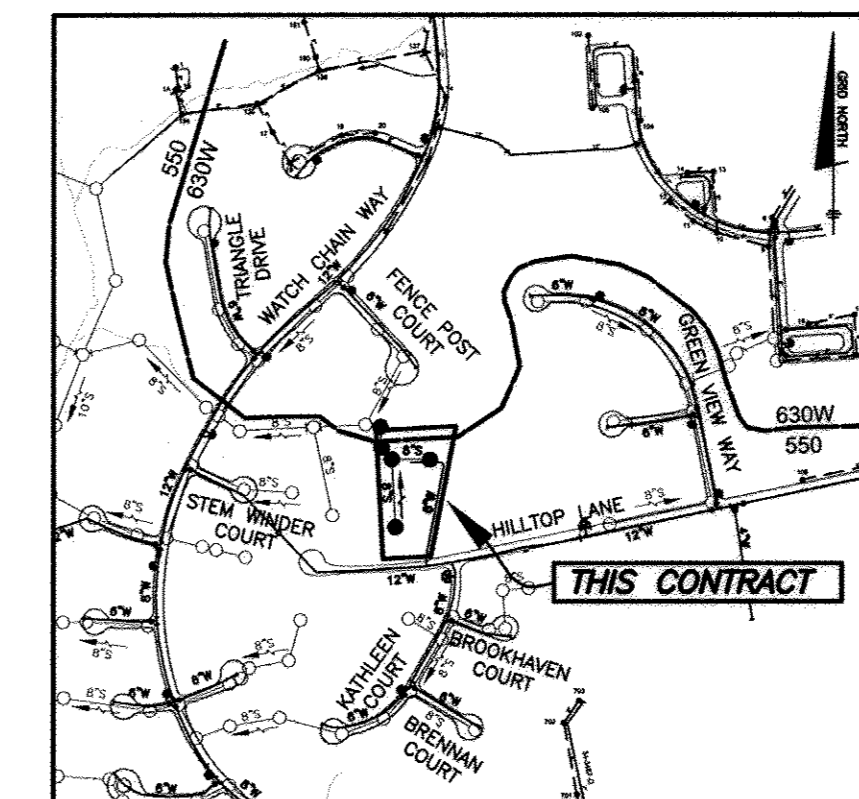


HILLTOP LANDING LOTS 1-7 AND OPEN SPACE LOT 8 CONTRACT NO. 24-4902-D

BENCHMARK NAD'83 HORIZONTAL

HO. CO. #35FA
STAMPED BRASS DISK SET ON TOP OF
CONCRETE BASE
N 559266.1334' E 1344682.6389'
ELEVATION: 410.329'

HO. CO. #35F1
STAMPED BRASS DISK SET ON TOP OF
CONCRETE BASE
N 557787.3788' E 1345217.2645'
ELEVATION: 400.439'



TYPE OF BUILDING:	SFD
NUMBER OF WHC'S:	7
NUMBER OF SHC'S:	7
DRAINAGE AREA:	LITTLE PATUXENT
TREATMENT PLANT:	LITTLE PATUXENT WRP
WATER ZONE:	550
TEST GRADIENT:	700

FILE REFERENCES: S-15-005, F-17-037

GENERAL NOTES

- PART I**
- 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.
 - 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. 35FA AND NO. 35F1.
ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE 0012 AND 16E1.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
 - REMOVE 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.
 - 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.
 - WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL [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 MADE SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
 - 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
BCE (CONTRACTOR SERVICES).....410-837-8713
BCE (EMERGENCY).....410-885-0123
BUREAU OF UTILITIES.....410-313-4900
COLUMBIAN PIPELINE CO.....410-795-1580
MESS UTILITY.....1-800-257-7777
STATE HIGHWAY ADMINISTRATION.....410-531-5533
VERIZON.....1-800-743-0333
 - 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.
 - THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
 - 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 DWM REQUIREMENTS PER SECTION 18.114(a) OF THE HOWARD COUNTY CODE.

PART II WATER

- ALL WATER MAINS TO BE PVC C900 DR-18 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- TRACER WIRE AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
- FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE ANNA STANDARD C900 FOR PVC PRESSURE PIPE SHALL BE SUBMITTED WITH THE 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.
- 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.
- PROPER ASSEMBLY OF GASKETED PVC PIPE JOINTS: THE MANUFACTURER'S INSERTION LINE OF GASKETED PVC PIPE 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 PVC PIPE.
- ALL CHANGES IN HORIZONTAL AND 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 DEFLECTION 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 (1 1/2 DEGREE ON EITHER END OF THE COUPLING), SHALL BE RATED FOR A MINIMUM 225 PSI MEETING THE REQUIREMENTS OF ANNA C900. SHALL HAVE A MINIMUM LAY LENGTH OF 8-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL.
- 5-DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 225 PSI, DR18 MEETING THE REQUIREMENTS OF ANNA C900 AND SHALL BE MULTI FITTINGS (PEX) BLUE BRUTE DR18 OR EQUAL.
- WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF ANNA 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 STOP SHALL BE SERIES 5000 MEGA-STOP, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL.

PART III SEWER

- ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C. UNLESS OTHERWISE NOTED.
- ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- MANHOLES SHOWN WITH 12" AND 18" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERIGHT FRAME AND COVER, STANDARD DETAIL G5.52. WHERE WATERIGHT MANHOLE FRAMES AND COVERS ARE USED, SET TOP OF FRAME 1'-8" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE SERVED.

QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
6" DIP CLASS 54 WATER	313 LF	341	LF	American Cast Iron Pipe
8" DIP CLASS 54 WATER	115 LF	123	LF	American Cast Iron Pipe
12" x 8" TS&V	1 EA	1	EA	Muehler Company
FIRE HYDRANT INCLUDES 8"x6" TEE AND 6" VALVE	1 EA	1	EA	Muehler Company
1.5" WHC	102 LF	143	LF	Tyler / Union Foundry
1" METER VAULT	7 EA	7	EA	Horne Concrete
8" PVC SDR-35 SEWER MANHOLES	537 LF 5 EA	493 5	LF EA	North American Pipe/Diamond Capital Foundry
4" PVC SHC	75 LF	72	LF	North American Pipe/Diamond

NAME OF UTILITY CONTRACTOR: UTILITIES UNLIMITED (Foreman - Rich Merryman)

SURVEY AND DRAFTING DIVISION AS-BUILT DATE:

Sewer Manhole Schedule

Manhole	Location (NAD '83)	Invert In	Invert Out	Rim Elevation	Ho.Co.St. Detail
1	N 559425.74 E 1342955.15	382.65	382.55	391.21	G-5.11
2	N 559322.86 E 1342960.98	384.05	393.95	394.00	G-5.11
3	N 559323.42 E 1342991.00	394.45 (s) 384.45 (w)	384.35	394.67	G-5.11
4	N 559113.60 E 1343002.91	-	386.55	399.00	G-5.11/S-1.31
5	N 559325.62 E 1343110.33	-	385.64	397.00	G-5.11/S-1.31

SHC CHART

Lot Number	Invert at main or manhole	Drop Connection?	Standpipe Length (ft)	Invert @ R/W or smt line	Minimum Cellar Elevation	Basement Floor
1	386.45	No	4.0	388.84	392.76	393.73
2	386.12	Yes	3.0	390.32	394.44	395.62
3	385.30	Yes	3.0	388.50	392.82	393.29
4	385.12	Yes	2.0	387.42	391.32	392.13
5	384.78	No	-	384.98	388.88	389.20
6	385.31	No	-	385.51	389.35	391.20
7	385.97	No	-	386.19	390.17	392.30

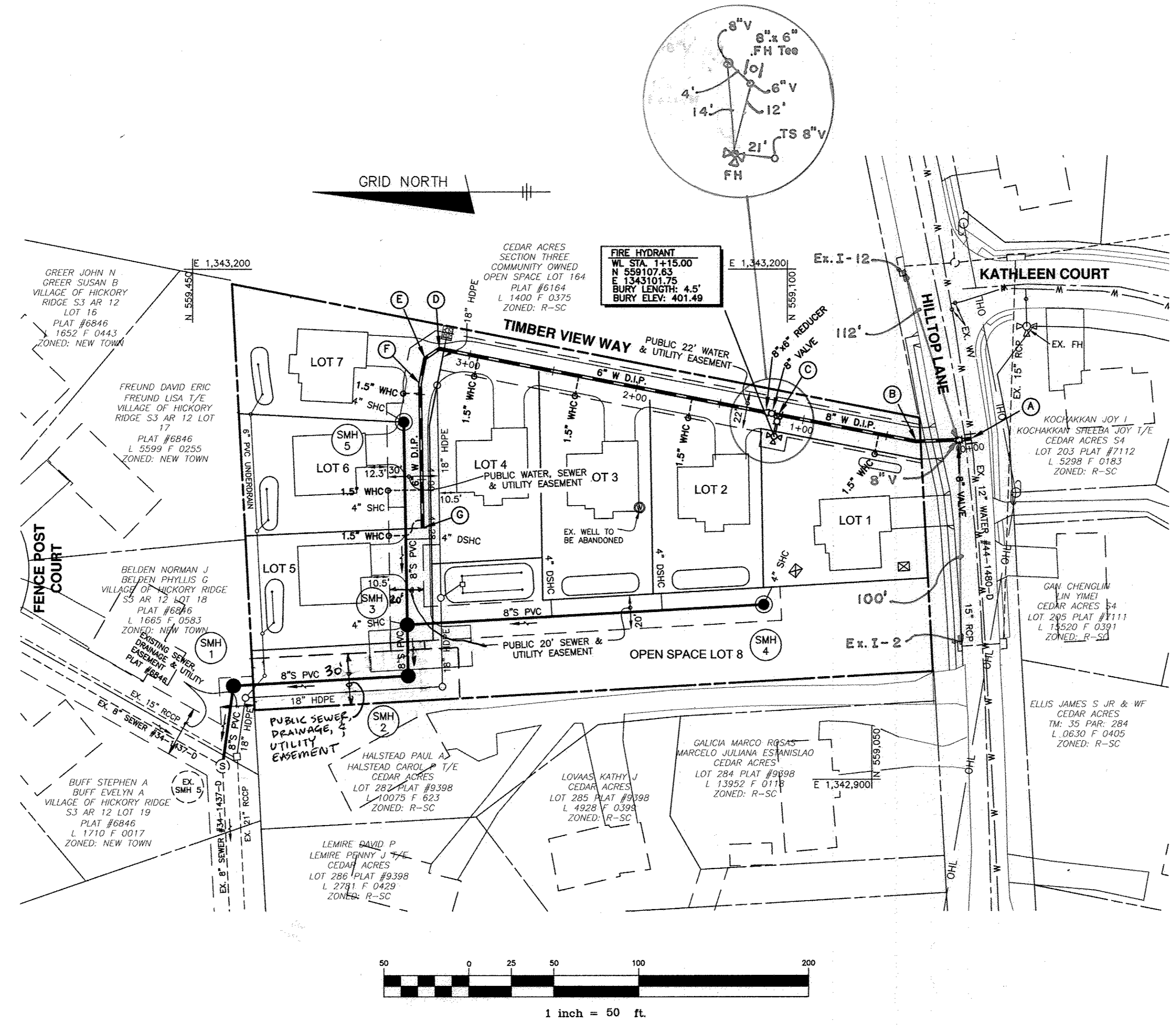
All drop sewer house connections are HoCoStd S-2.12 Type 'A'

Lot Frontage Chart

Lot Number	Distance (feet)
1	69.63
2	4.12
3	4.12
4	4.12
5	4.12
6	4.12
7	4.12

Water Appurtenance Schedule

No.	Appurtenance	WL Station	Location (NAD '83)
A	12"XB" TAPPING SLEEVE & VALVE	5+052 (EX) = 0+000	N 558991.72 E 1343100.23
B	1/16 HORIZONTAL BEND	0+32.2	N 559023.90 E 1343098.71
C	8"XB" FH TEE	1+15.0	N 559105.14 E 1343114.51
D	1/8 HORIZONTAL BEND	3+18.4	N 559304.76 E 1343153.35
E	1/8 HORIZONTAL BEND	3+28.5	N 559313.14 E 1343147.70
F	1/16 HORIZONTAL BEND	3+43.7	N 559316.04 E 1343132.79
G	6" PLUG AND BUTTRESS	4+28.4	N 559314.47 E 1343048.02

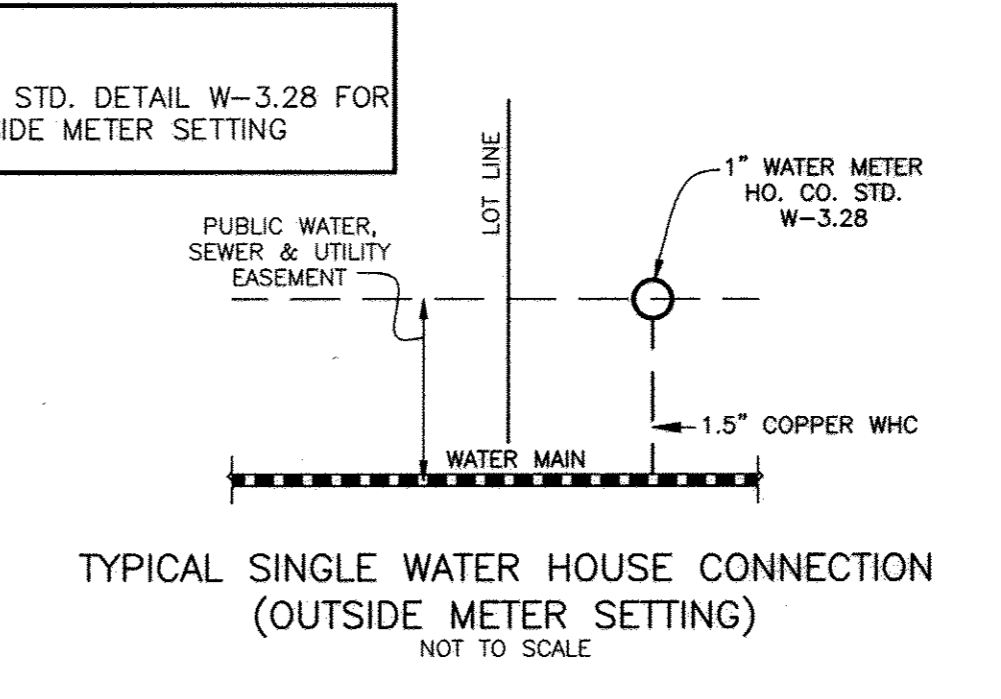
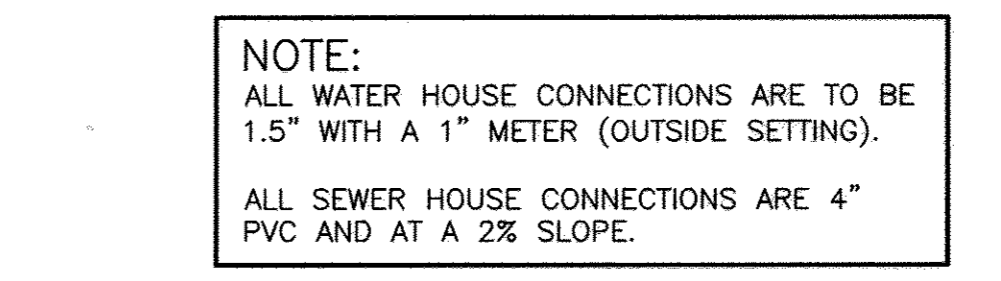


WATER HOUSE CONNECTION AS-BUILT LOCATION TABLE

LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	10940 HILLTOP LANE	Manhole 4 - 15'6"	Fire Hydrant - 35'
2	10807 TIMBER VIEW WAY	Manhole 4 - 118'	Fire Hydrant - 63'
3	10811 TIMBER VIEW WAY	Manhole 4 - 82'	Sewer Manhole 5 - 100'
4	10815 TIMBER VIEW WAY	Sewer Manhole 5 - 48'	Manhole 4 - 24'
5	10819 TIMBER VIEW WAY	Manhole 3 - 47'	Sewer Manhole 3 - 54'
6	10823 TIMBER VIEW WAY	Sewer Manhole 3 - 80'	Manhole 3 - 70'
7	10827 TIMBER VIEW WAY	Sewer Manhole 5 - 16'	Manhole 4 - 20'

SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	10940 HILLTOP LANE	Sewer Manhole 4 - 14'	Inlet 1 - 14'5"
2	10807 TIMBER VIEW WAY	Manhole 4 - 62'	Inlet 1 - 111'
3	10811 TIMBER VIEW WAY	Sewer Manhole 4 - 119'	Inlet 1 - 50'
4	10815 TIMBER VIEW WAY	Sewer Manhole 3 - 61'	Manhole 3 - 36'
5	10819 TIMBER VIEW WAY	Sewer Manhole 3 - 10'	Manhole 3 - 34'
6	10823 TIMBER VIEW WAY	Sewer Manhole 3 - 55'	Manhole 3 - 35'
7	10827 TIMBER VIEW WAY	Sewer Manhole 5 - 14'	Manhole 4 - 33'



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

John R. Robertson 6/1/17 DATE
HOWARD COUNTY CONSERVATION DISTRICT

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER HOWARD SDP-17-059

OWNER/DEVELOPER:
DEVELOPMENT PARTNERS, LLC
9693 GERWIG LANE, SUITE L
COLUMBIA, MARYLAND 21046
410-792-2565

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. 22390, Expiration Date: 6-30-2017.

Chad Edwards 5-10-17

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve C. Cuen 5/17/17 DATE
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Chad Edwards 5-10-17 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION

BENCHMARK
ENGINEERS, LAND SURVEYORS, PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 3154 ELLOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-6644
WWW.BE-CVAENGINEERING.COM



DES:	DBT				
DRAFT:	DBT				
CHK:	CAM				
DATE:	5/2017	BY	NO.	REVISIONS	DATE

PLAN VIEW
PUBLIC WATER AND SEWER

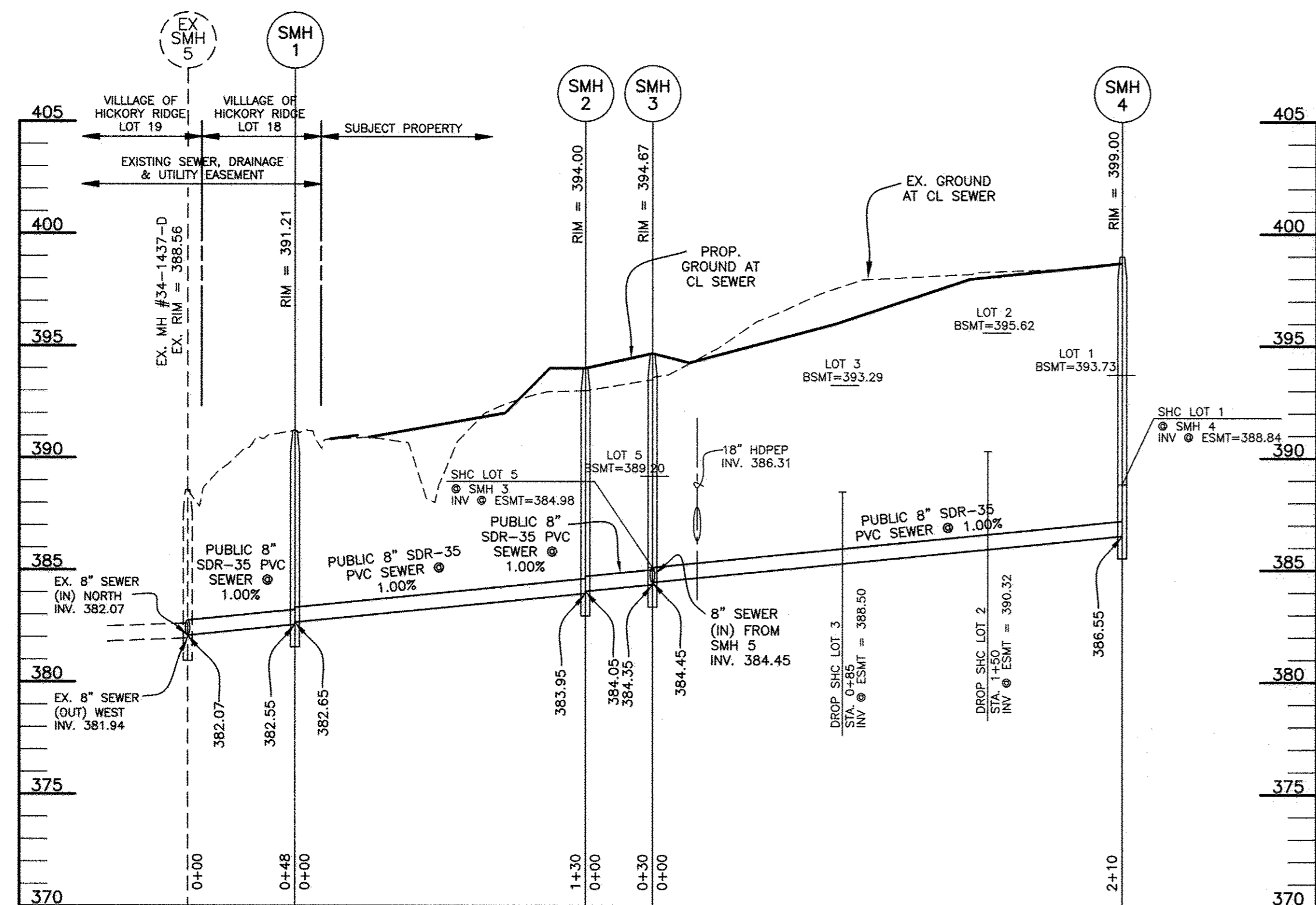
SCALE MAP # 35 BLOCK: 11

HILLTOP LANDING
LOTS 1 thru 7 AND OPEN SPACE LOT 8

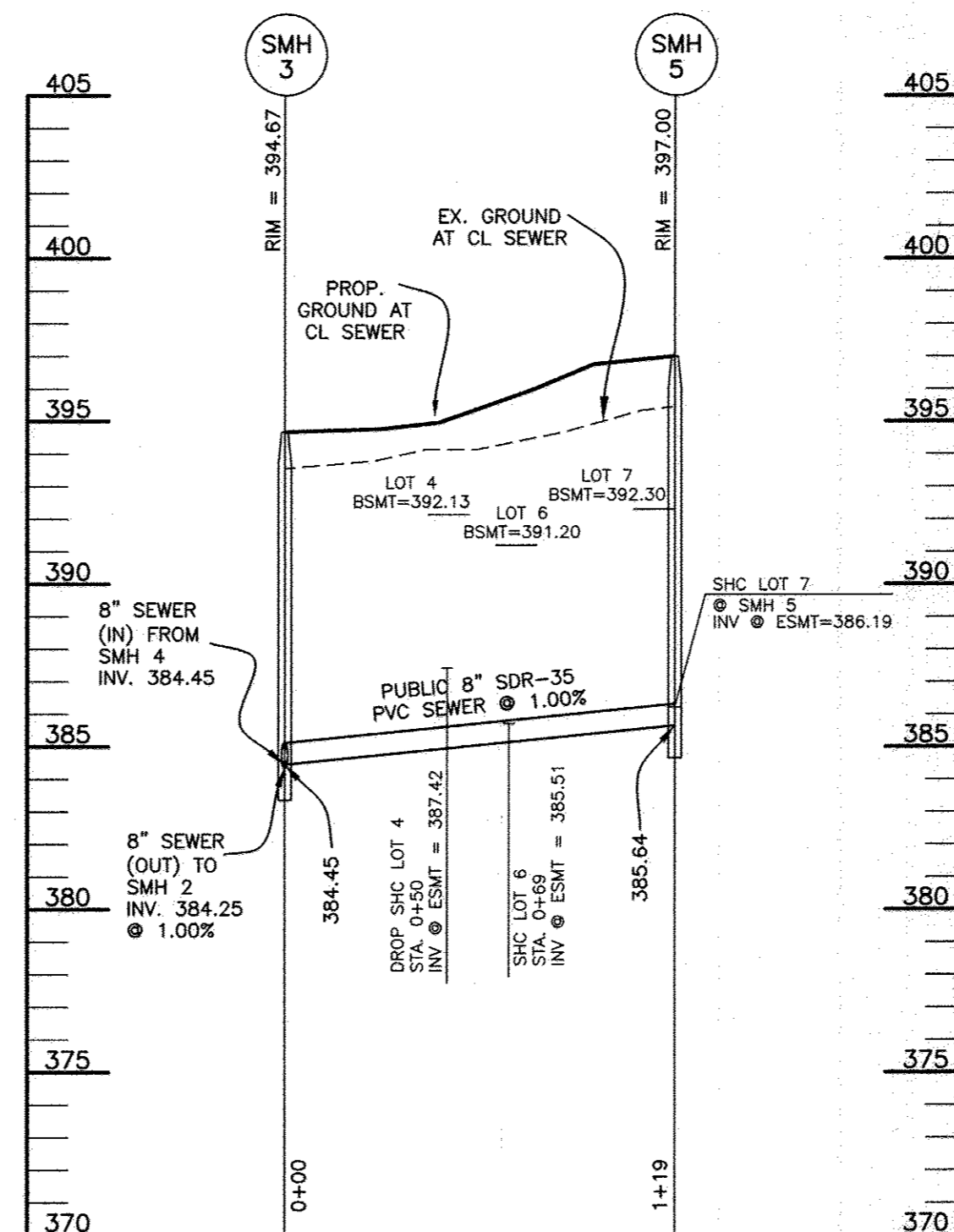
TAX MAP: 35 - BLOCK: 11 - PARCEL: 41 - ZONED: R-SC - ELECTION DISTRICT: 5

CONTRACT NO. 24-4902-D

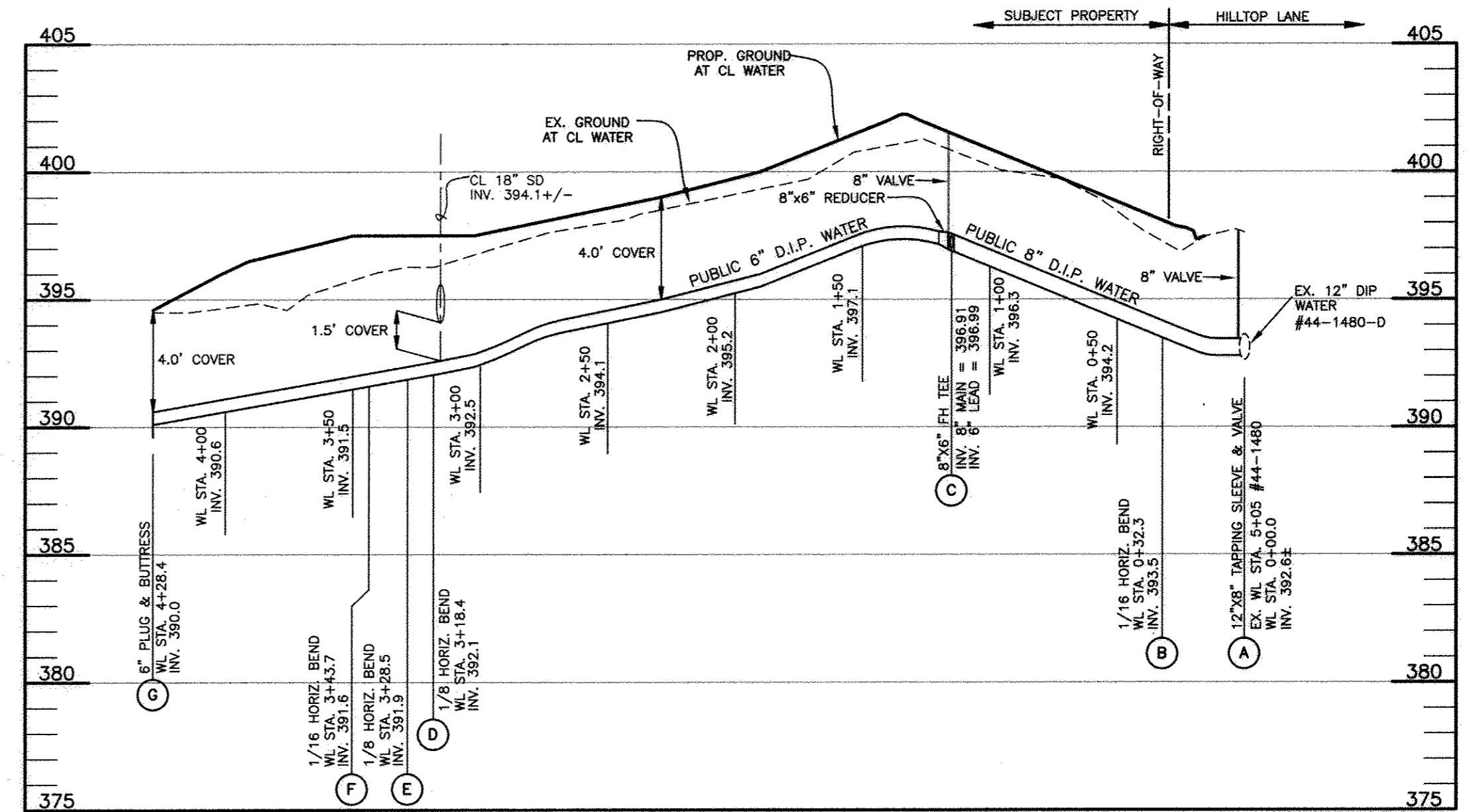
SCALE: AS SHOWN
SHEET NO. 1 OF 2



PROFILE OF PUBLIC SEWER MAIN
SCALE: 1"=50' HORIZ., 1"=5' VERT.



PROFILE OF PUBLIC SEWER MAIN
SCALE: 1"=50' HORIZ., 1"=5' VERT.



PROFILE OF PUBLIC WATER MAIN
SCALE: 1"=50' HORIZ., 1"=5' VERT.

OWNER/DEVELOPER:
DEVELOPMENT PARTNERS, LLC
9693 GERWIG LANE, SUITE L
COLUMBIA, MARYLAND 21046
410-792-2565

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. 22390, Expiration Date: 6-30-2017.

BENCHMARK ENGINEERING, INC.
ENGINEERS LAND SURVEYORS PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 • ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM



DES:	DBT				
DRAFT:	DBT				
CHK:	CAM				
DATE:	3/2017	BY	NO.	REVISIONS	DATE

PROFILE VIEW
PUBLIC WATER AND SEWER

600 SCALE MAP # 35 BLOCK: 11

HILLTOP LANDING
LOTS 1 thru 7 AND OPEN SPACE LOT 8
TAX MAP: 35 - BLOCK: 11 - PARCEL: 41 - ZONED: R-SC - ELECTION DISTRICT: 5
CONTRACT NO. 24-4902-D

SCALE:
AS SHOWN
SHEET NO.
2 OF 2

AS-BUILT

4/24/18