

# FINAL PUBLIC WATER & PUBLIC SEWER PLANS FOR ARNOLD'S CORNER

## LOCATION OF SITE

5320 PHELPS LUCK DRIVE, COLUMBIA, MD  
 TAX MAP 30, GRID 24, PARCEL N & O  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY  
 CONTRACT NO.: 24-5098-D



LOCATION MAP  
 COPYRIGHT ADC THE MAP PEOPLE  
 PERMIT USE NO. 20502153-5  
 SCALE: 1"=2000'  
 ADC MAP COORDINATES: 4935-J5

**LEGEND**

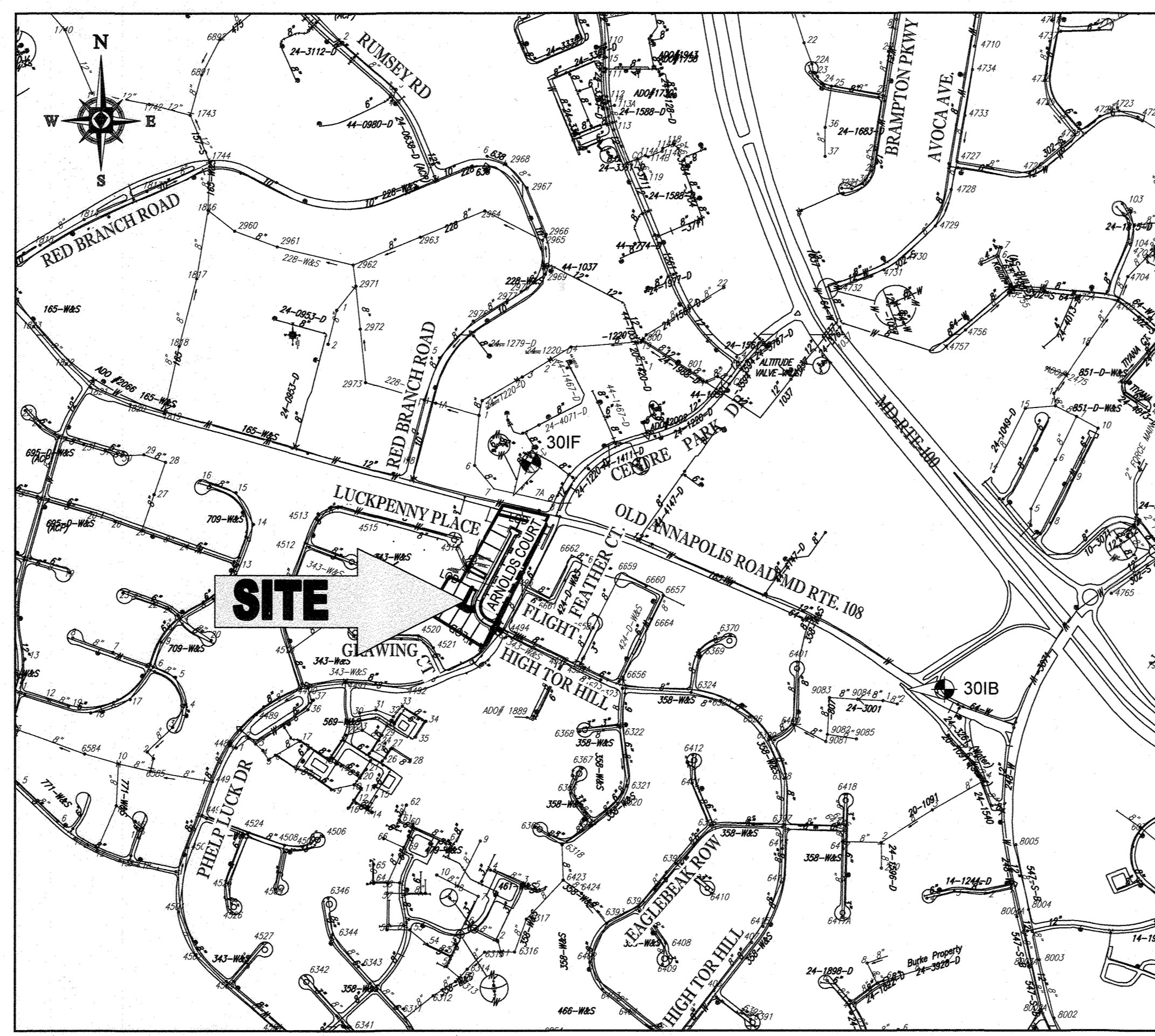
- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY TERMINAL MANHOLE
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED WATER BEND
- PROPOSED SEWER HOUSE CONNECTION
- PROPOSED WATER HOUSE CONNECTION
- DOMESTIC WATER METER
- SEWER CLEANOUT
- UTILITY TEST PIT LOCATION

**SHEET INDEX**

SHEET TITLE	SHEET NUMBER
TITLE SHEET	1
FINAL PUBLIC WATER & PUBLIC SEWER PLAN	2
FINAL PUBLIC WATER & PUBLIC SEWER PROFILE	3

**QUANTITIES TABLE**

ITEMS	QUANTITIES ESTIMATED	QUANTITIES	AS-BUILT TYPE	MANUFACTURER / SUPPLIER
6" HIGH DEFLECTION COUPLING	1	1	PVC C900	NORTH AMERICAN / LB WATER
8" HIGH DEFLECTION COUPLING	2	2	PVC C900	NORTH AMERICAN / LB WATER
22.50" BEND (1/16 H.B.) (6")	1	1	MJ	STAR PIPE / LB WATER
11.25" BEND (1/32 H.B.) (6")	3	3	MJ	STAR PIPE / LB WATER
11.25" BEND (1/32 V.B.) (8")	2	2	MJ	STAR PIPE / LB WATER
22.50" BEND (1/16 H.B.) (8")	3	3	MJ	STAR PIPE / LB WATER
1 1/2" WHC	430 L.F.	430 L.F.	TYPE K COPPER	CAMBRIDGE LEE / LB WATER
8" W PVC C900 DR-18	633 L.F.	633 L.F.	C900 DR-18	JM EAGLE / LB WATER
6" W PVC C900 DR-18	205 L.F.	205 L.F.	C900 DR-18	JM EAGLE / LB WATER
8" VALVE	1	1	2500 RW GATE	AMERICAN FLOW / LB WATER
6" VALVE	4	4	2500 RW GATE	AMERICAN FLOW / LB WATER
FIRE HYDRANTS	3	3	B84B	AMERICAN DARLING / LB WATER
8" x 6" TEE	4	4	MJ	STAR PIPE / LB WATER
4" SDR 35 PVC SHC	395 L.F.	395 L.F.	SDR 35	JM EAGLE / LB WATER
8" SDR 35 PVC	865 L.F.	865 L.F.	SDR 35	JM EAGLE / LB WATER
SANITARY MANHOLE	4	4	PRECAST	CPC / LB WATER
TERMINAL MANHOLE	2	2	PRECAST	CPC / LB WATER
NAME OF UTILITY CONTRACTOR	UTILITIES UNLIMITED INC.			CHECK BOX
				AS-BUILT DATE
				SURVEY AND DRAFTING DIVISION



VICINITY MAP  
 SCALE: 1"=600'

**REFERENCE DRAWINGS**

S-18-006	P-19-001
ECR-19-052	F-19-008
WP-19-101	

TYPE OF BUILDING: RESIDENTIAL  
 DRAINAGE AREA: LITTLE PATUXENT  
 NUMBER OF LOTS/PARCELS/SUITS: 18  
 AREA OF RESIDENTIAL LOT/PARCEL: 5.06 AC  
 NUMBER OF W.H.C.: 18 (PROPOSED)  
 NUMBER OF S.H.C.: 18 (PROPOSED)  
 WATER ZONE: 630 E  
 TEST GRADIENT: 908  
 TEST PRESSURE (PSI): 199 (PSI) = (908-449.08) / 2.308  
 TREATMENT PLANT: LITTLE PATUXENT WATER RECLAMATION PLANT

**GENERAL NOTES**

- 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.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON 05/10/19 BY BOHLER ENGINEERING.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HORIZONTAL AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 30IB AND 30IF WHICH WERE USED FOR THIS PROJECT.  
 HOWARD COUNTY MONUMENT NO. 30IB ELEV. = 526.108'  
 HOWARD COUNTY MONUMENT NO. 30IF ELEV. = 473.359'
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- 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 BY 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 [ ] AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IN CLUDDED 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.
- 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  
 MISS UTILITY 1-800-257-7777  
 STATE HIGHWAY ADMINISTRATION 410-531-5533  
 VERIZON 1-800-743-0033

**WATER NOTES**

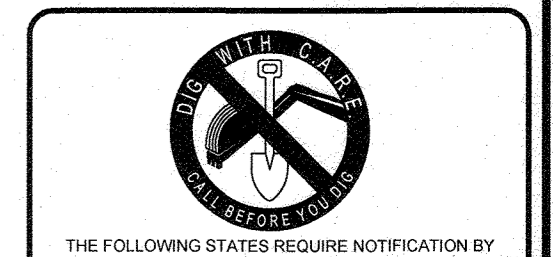
- ALL WATER MAINS TO BE P.V.C. C900 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS 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 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.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- TRACER WIRES AND CONTINUITY TEST WATER SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL.
- FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATIONS TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 FOR PVC PRESSURE PIPE SHALL BE SUBMITTED WITH PIPE MATERIALS CERTIFICATIONS OR SHOP DRAWING FOR 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 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 RESTRAINS AND HARNESSSES. 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 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 PVC PIPE.
- 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 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 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 CERTAINTEE PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL.  
 FIVE DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 225 PSI, DR18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR18 OR EQUAL.

- WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO VERTICALIZE 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.
- EACH DWELLING WILL BE SERVED BY A 1-1/2" DIAMETER WHC, WITH A 1" METER WHICH WILL BE LOCATED AT THE PROPERTY LINE. THE PREFERRED LOCATION OF THE OUTSIDE WATER METER SETTING IS IN A GRASS AREA WITH THE ROAD RIGHT-OF-WAY AND OUTSIDE OF TRAFFIC BEARING AREAS.

**SEWER NOTES**

- ALL SEWER MAINS SHALL BE SDR 35 OR SCH. 40 PVC 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 WATERTIGHT FRAME AND COVERS. STANDARD DETAIL G5.52 WHERE WATERTIGHT FRAME AND COVER IS USED, SET TOP OF FRAME 1" - 6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE SERVED. (NON PROPOSED WITH THIS PLAN)



THE FOLLOWING STATES REQUIRE NOTIFICATION BY EDUCATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 811 (VA: 1-800-245-4644) (PA: 1-800-245-1778) (DC: 1-800-257-7777) (VA: 1-800-552-7601) (MD: 1-800-257-7777) (DC: 1-800-257-8555)

**BENCHMARK**

GEODETIC SURVEY CONTROL - 30IB ELEV. 526.108 N 556.937.954 E 1,366.270.807
GEODETIC SURVEY CONTROL - 30IF ELEV. 473.359 N 568.033.070 E 1,363.934.332

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE SPECIFICATIONS AND AS SHOWN ON **(E-19-088)**

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*David Woessner* 1/21/20  
 DATE

**OWNER/DEVELOPER**

ARNOLD'S CORNER, LLC  
 308 MAGDOOTHY ROAD  
 SEVERNA PARK, MD 21146  
 CONTACT: DAVID WOESSNER  
 PHONE: (240) 319-1735

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  
*Chris Stapp* 1-10-2020  
 CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND  
*David Woessner* 1-23-20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**BOHLER ENGINEERING**  
 901 DULANEY VALLEY ROAD, SUITE 801  
 TOWSON, MARYLAND 21284  
 Phone: (410) 821-7900  
 Fax: (410) 821-7987  
 www.BohlerEngineering.com

**B.R. ROWE**  
 PROFESSIONAL ENGINEER  
 MARYLAND LICENSE NO. 40088  
 1/16/2020  
 I, B.R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY APPROPRIATELY EDUCATED AND TRAINED PERSONNEL UNDER MY SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 40088 EXPIRATION DATE: 7/31/2021

DES. A.V.G.	DRN. A.V.G.	CK. B.R.R.	DATE: 01/03/20	REV.	DATE	AS-BUILT	DESCRIPTION	WRA	BY

**TITLE SHEET**

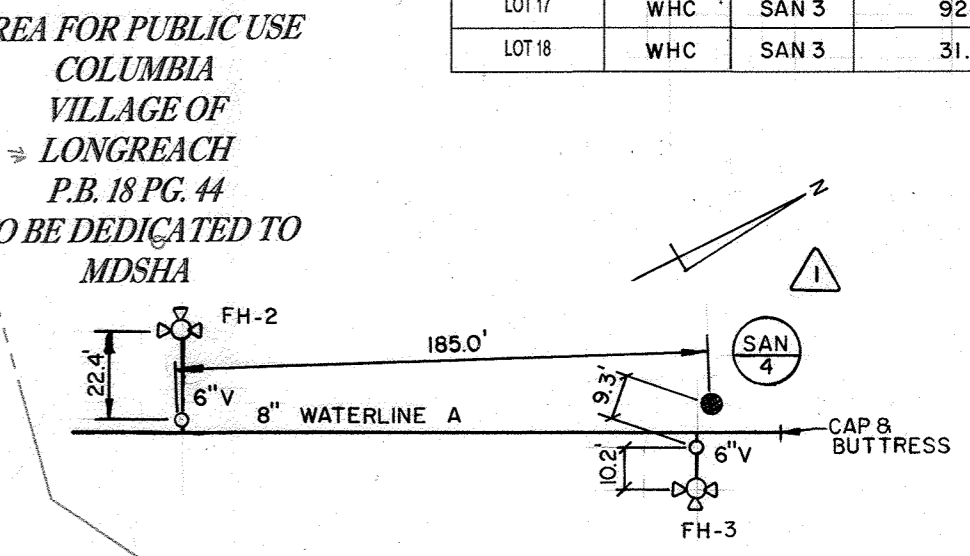
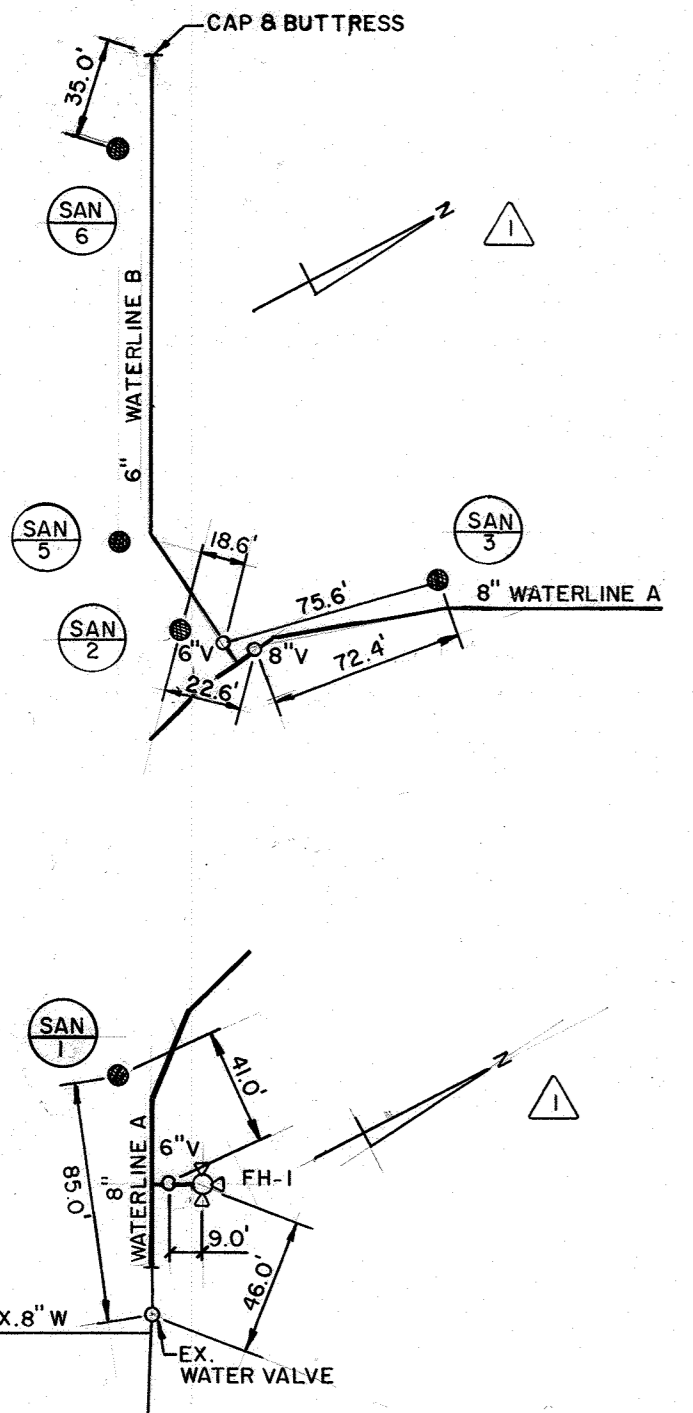
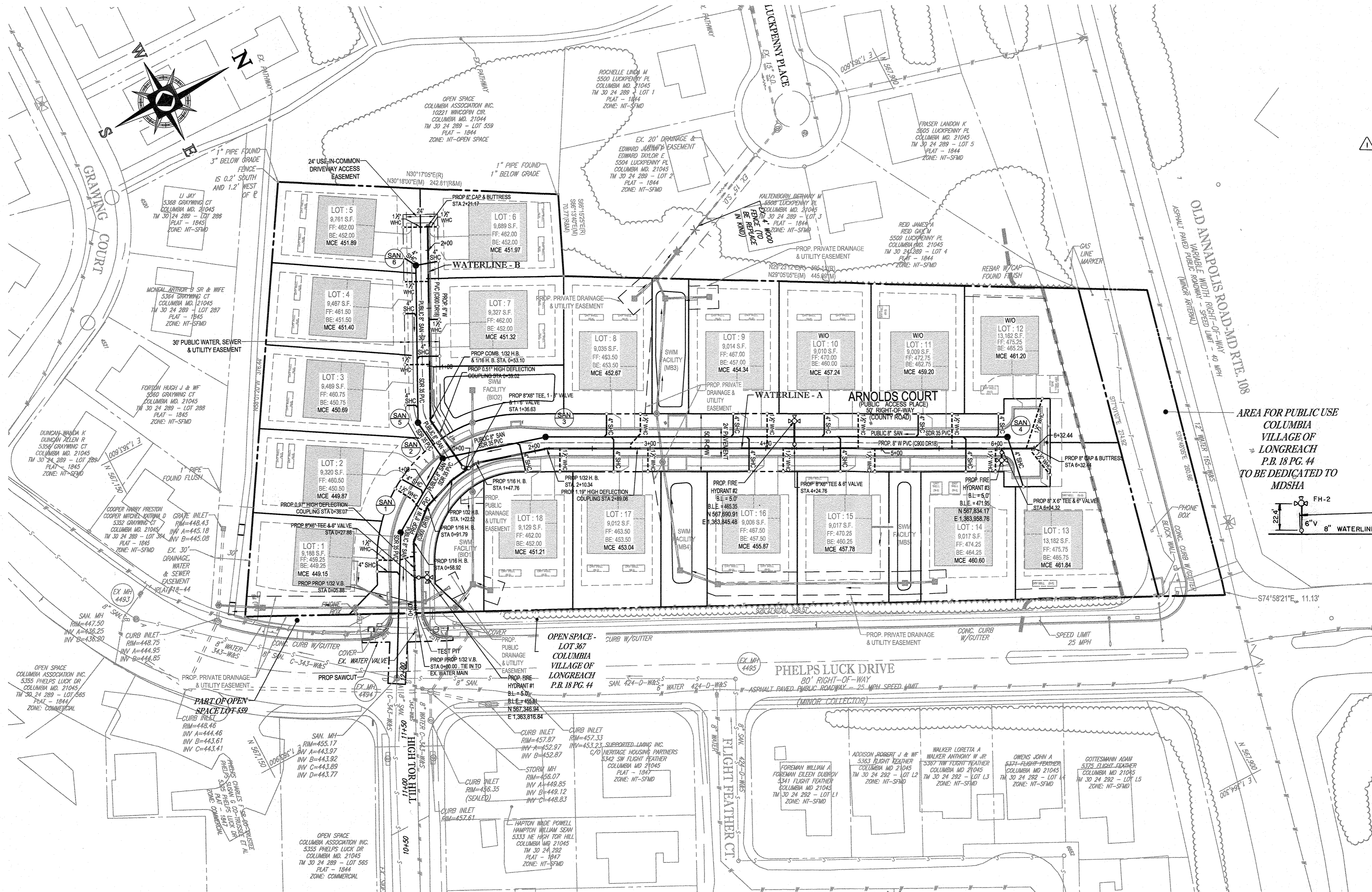
PARCEL NO.	N, O, & 462, PUBLIC USE PARCELS
600' SCALE MAP NO.	30
BLOCK NO.	9

**ARNOLD'S CORNER**  
 LOTS 1 - 18 & OPEN SPACE LOTS 19-23  
 5320 PHELPS LUCK DRIVE, COLUMBIA, MD  
 TAX MAP 30, GRID 24, PARCEL N & O  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY  
 CONTRACT NO.: 24-5098-D

SCALE AS SHOWN  
 SHEET 1 of 3

SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE					
LOT NUMBER	FROM	TO	FEET	TO	FEET
LOT1	SHC	SAN1	41.0	SAN2	114.0
LOT2	SHC	SAN1	47.0	SAN2	41.0
LOT3	SHC	SAN5	20.0	SAN6	122.0
LOT4	SHC	SAN5	95.0	SAN6	44.0
LOT5	SHC	SAN5	143.0	SAN6	12.0
LOT6	SHC	SAN5	140.0	SAN6	19.0
LOT7	SHC	SAN5	61.0	SAN6	82.0
LOT8	SHC	SAN3	56.0	SAN2	145.5
LOT9	SHC	SAN3	163.0	FH.2	54.0
LOT10	SHC	SAN4	162.0	FH-2	27.0
LOT11	SHC	SAN4	82.0	FH-3	85.0
LOT12	SHC	SAN4	27.0	FH-3	43.0
LOT13	SHC	SAN4	43.0	FH-3	30.0
LOT14	SHC	SAN4	47.0	FH-3	33.0
LOT15	SHC	SAN4	148.0	FH-2	59.0
LOT16	SHC	SAN3	178.0	FH-2	57.5
LOT17	SHC	SAN3	65.0	FH-2	167.0
LOT18	SHC	SAN3	34.0	SAN2	71.5

WATER HOUSE CONNECTION AS-BUILT LOCATION TABLE					
LOT NUMBER	FROM	TO	FEET	TO	FEET
LOT1	WHC	SAN1	31.0	SAN-2	103.0
LOT2	WHC	SAN1	38.1	SAN2	49.4
LOT3	WHC	SAN5	50.6	SAN6	88.5
LOT4	WHC	SAN5	121.3	SAN6	19.0
LOT5	WHC	SAN5	170.0	SAN6	34.5
LOT6	WHC	SAN5	170.0	SAN6	37.6
LOT7	WHC	SAN5	90.9	SAN6	52.0
LOT8	WHC	SAN3	83.2	FH-2	134.0
LOT9	WHC	SAN3	192.0	FH-2	25.0
LOT10	WHC	SAN4	133.0	FH-2	54.8
LOT11	WHC	SAN4	54.0	FH-3	60.0
LOT12	WHC	SAN4	47.5	FH-3	64.5
LOT13	WHC	SAN4	46.5	FH-3	43.0
LOT14	WHC	SAN4	28.5	FH-3	9.5
LOT15	WHC	SAN4	119.0	FH-2	82.0
LOT16	WHC	SAN3	206.0	FH-2	44.0
LOT17	WHC	SAN3	92.0	FH-2	134.3
LOT18	WHC	SAN3	31.0	SAN2	100.8



- LEGEND**
- +— PROPOSED FIRE HYDRANT
  - PROPOSED WATER MAIN
  - PROPOSED SANITARY SEWER
  - PROPOSED WHC'S
  - PROPOSED SHC'S
  - - - EXISTING STORM DRAIN
  - - - EXISTING WATER MAIN
  - - - EXISTING SANITARY SEWER
  - EXISTING SANITARY SEWER
  - PROPOSED SANITARY SEWER
  - PROPOSED WATER VALVE, TEE & CROSS
  - PROPOSED SANITARY TERMINAL MANHOLE

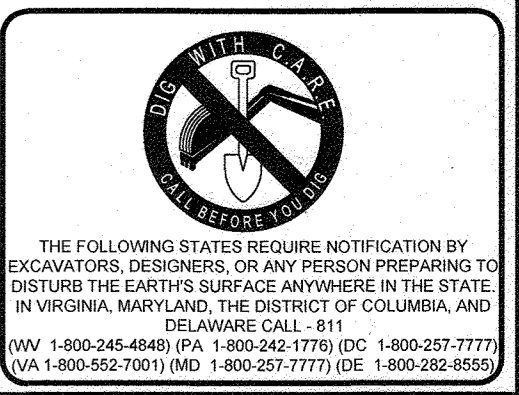
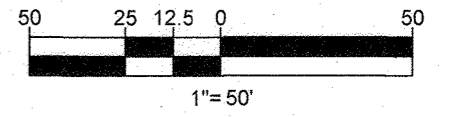
**BENCHMARK**

GEODETIC SURVEY CONTROL - 3018  
 ELEV. 528.108  
 N 566,937.964  
 E 1,366,276.907

GEODETIC SURVEY CONTROL - 301F  
 ELEV. 473.359  
 N 568,033.070  
 E 1,363,934.332

PLAN  
 SCALE: 1" = 50'

**TEST PIT NOTE:**  
 CONTRACTOR TO TEST PIT FOR EXACT LOCATION OF EXISTING UTILITY AND SUBMIT ANY DISCREPANCIES AT BOHLER ENGINEERING IN WRITING.



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  
 Chief, Bureau of Utilities  
 1-10-2020

DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND  
 Chief, Development Engineering Division  
 1-20-23

**BOHLER ENGINEERING**  
 901 DULANEY VALLEY ROAD, SUITE 801  
 TOWSON, MARYLAND 21284  
 Phone: (410) 821-7900  
 Fax: (410) 821-7987  
 www.BohlerEngineering.com

**B. ROWE**  
 PROFESSIONAL ENGINEER  
 STATE OF MARYLAND LICENSE NO. 4492  
 1818 BOWEN ROAD, PARRISVILLE, MARYLAND 21774  
 DATE: 01/03/20

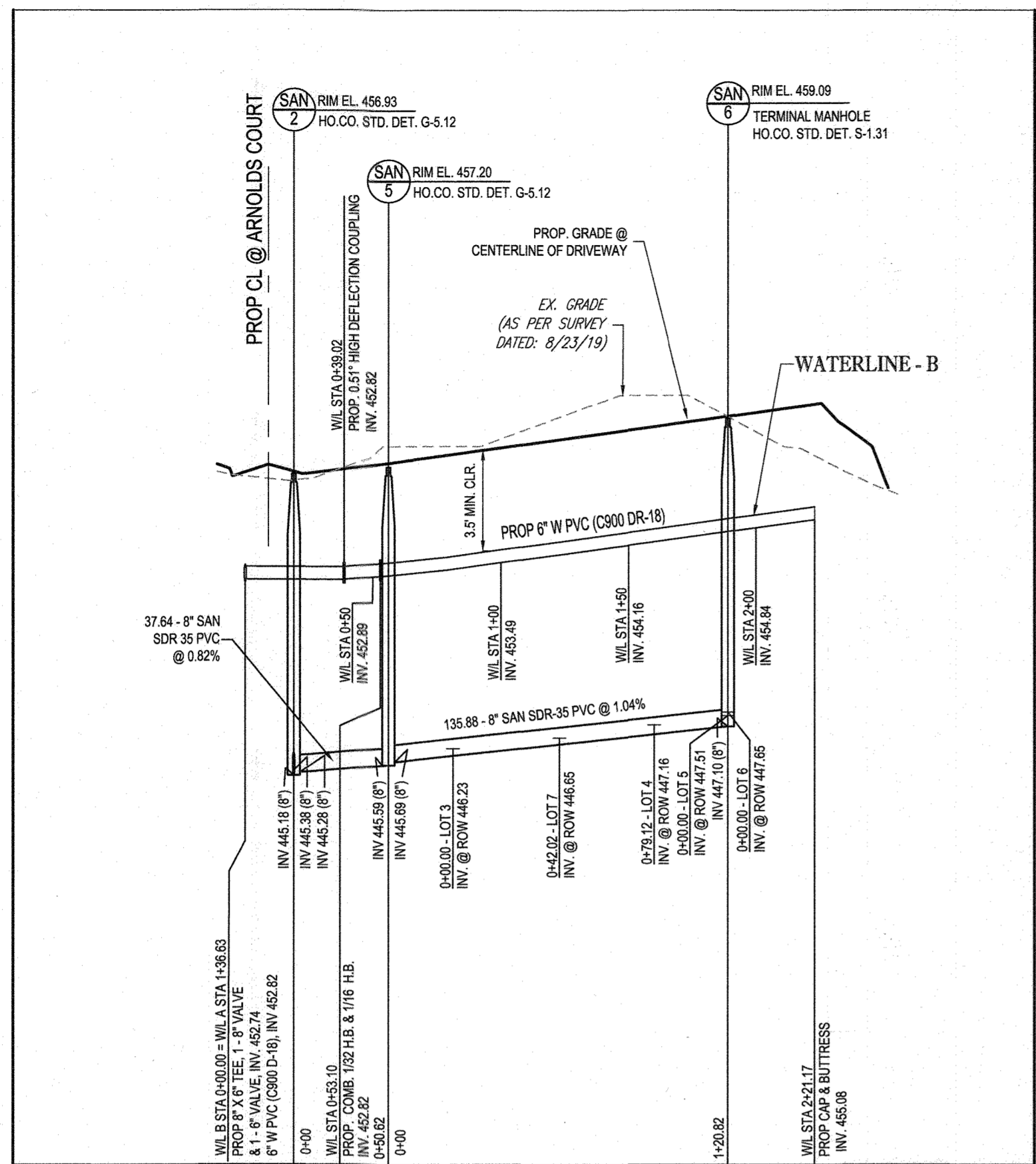
DES. A.V.G.	DRN. A.V.G.	CK. B.R.R.	DATE: 01/03/20
REV.	DATE	DESCRIPTION	BY
12/2020	AS-BUILT		

**FINAL PUBLIC WATER & PUBLIC SEWER PLAN**

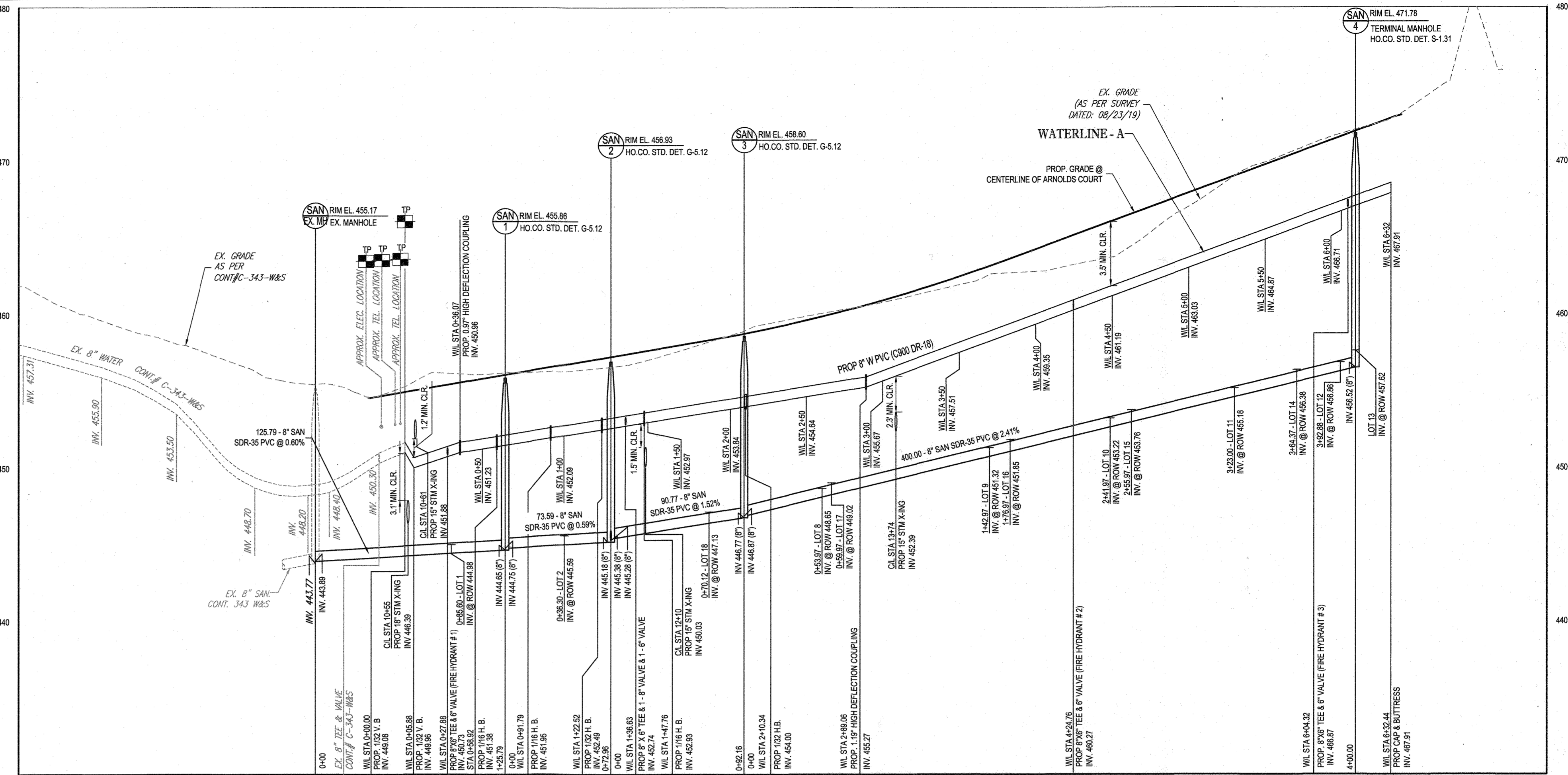
PARCEL NO. N. O. & 462, PUBLIC USE PARCELS  
 600' SCALE MAP NO. 30 BLOCK NO. 9

**ARNOLD'S CORNER**  
 LOTS 1 - 18 & OPEN SPACE LOTS 19-23  
 5320 PHELPS LUCK DRIVE, COLUMBIA, MD  
 TAX MAP 30, GRID 24, PARCEL N & O  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY  
 CONTRACT NO.: 24-5098-D

SCALE: 1" = 50'  
 SHEET: 2 of 3



PROP. 6 WATER & 8 SEWER MAIN - PROFILE (WATERLINE-B)  
SCALE: 1"= 50' HORIZONTAL  
1"= 5' VERTICAL



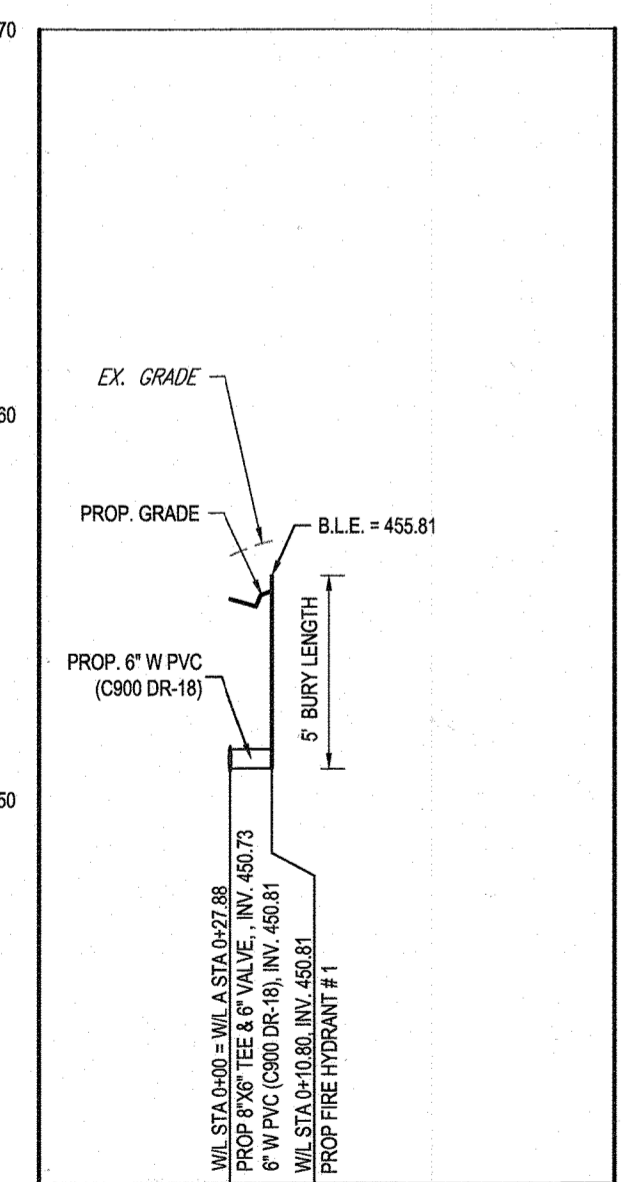
PROP. 8 WATER MAIN & 8 SEWER MAIN - PROFILE (WATERLINE A)  
SCALE: 1"= 50' HORIZONTAL  
1"= 5' VERTICAL

LOT	FF ELEV.	INV. @ MAIN	SHC LENGTH TO ROW (FT)	SHC SLOPE WITHIN ROW	INVERT @ ROW	SHC SLOPE WITHIN LOT	MAX SHC LENGTH (FT)	2.50 FT BELOW CELLAR	MIN. CELLAR ELEV. (MCE)	CELLAR ELEV.	CONNECTION TYPE
1	459.25	444.60	20.50	2.0%	445.01	2.0%	82.00	2.50	449.15	449.25	STD SHC
2	460.50	445.15	23.00	2.0%	445.61	2.0%	88.00	2.50	449.87	450.50	STD SHC
3	460.75	446.01	11.33	2.0%	446.23	2.0%	98.00	2.50	450.69	450.75	STD SHC
4	461.50	446.93	11.83	2.0%	447.16	2.0%	87.00	2.50	451.40	451.50	STD SHC
5	462.00	447.26	12.60	2.0%	447.51	2.0%	94.00	2.50	451.89	452.00	STD SHC
6	462.00	447.26	19.68	2.0%	447.65	2.0%	91.00	2.50	451.97	452.00	STD SHC
7	462.00	446.49	20.74	2.0%	446.90	2.0%	96.00	2.50	451.32	452.00	STD SHC
8	463.50	448.24	20.70	2.0%	448.65	2.0%	76.00	2.50	452.67	453.50	STD SHC
9	467.00	450.91	20.70	2.0%	451.32	2.0%	76.00	2.50	455.34	457.00	STD SHC
10	470.00	452.81	20.70	2.0%	453.22	2.0%	76.00	2.50	457.24	460.00	DROP TYPE A
11	472.75	454.77	20.70	2.0%	455.18	2.0%	76.00	2.50	459.20	462.75	DROP TYPE A
12	475.25	456.45	20.70	2.0%	456.86	2.0%	92.00	2.50	461.20	465.25	DROP TYPE A
13	475.75	456.88	47.00	2.0%	457.62	2.0%	86.00	2.50	461.84	465.75	DROP TYPE A
14	474.25	455.76	31.00	2.0%	456.38	2.0%	86.00	2.50	460.60	464.25	DROP TYPE A
15	470.25	453.14	31.00	2.0%	453.76	2.0%	76.00	2.50	457.78	460.25	STD SHC
16	467.50	451.23	31.00	2.0%	451.85	2.0%	76.00	2.50	455.87	457.50	STD SHC
17	463.50	448.41	30.70	2.0%	449.02	2.0%	76.00	2.50	453.04	453.50	STD SHC
18	462.00	446.57	27.07	2.0%	447.11	2.0%	80.00	2.50	451.21	452.00	STD SHC

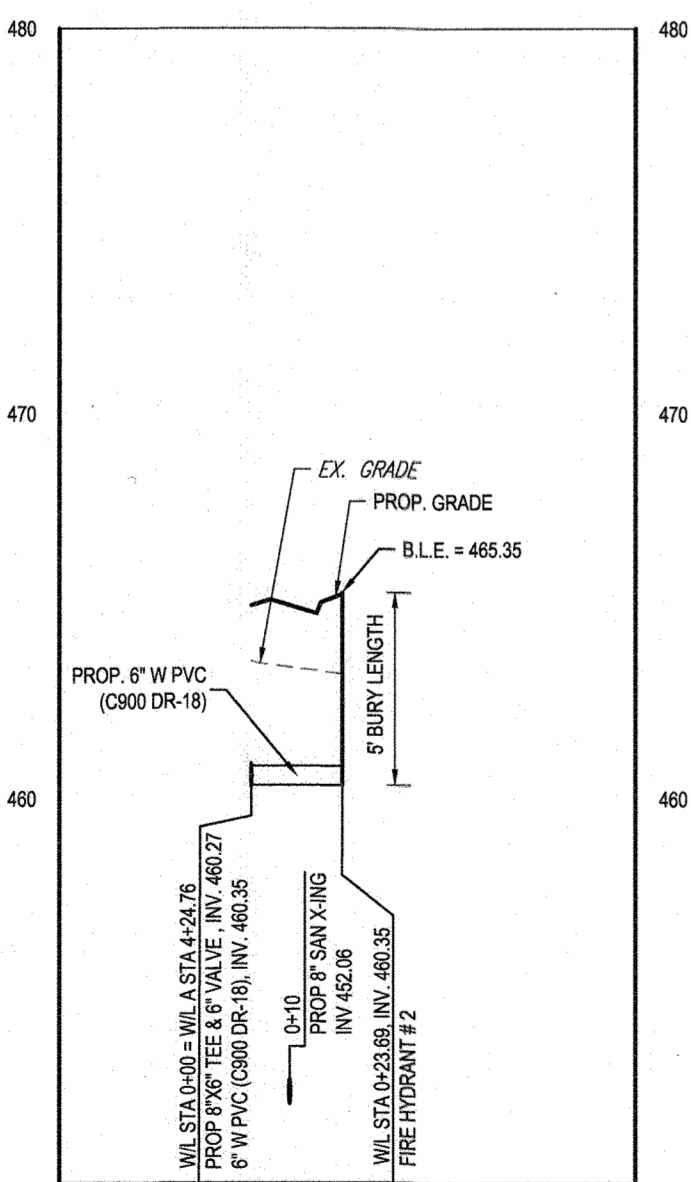
WATER MAIN CL STATION	FITTINGS	COORDINATES
WIL STA 0+00.00	PROP 132 V.B.	N 567324.91 E 1363837.05
WIL STA 0+05.88	PROP 132 V.B.	N 567327.51 E 1363831.78
WIL STA 0+27.88	8"X6" TEE & 6" VALVE	N 567337.25 E 1363812.05
WIL STA 0+27.88	FIRE HYDRANT #1	N 567346.94 E 1363816.84
WIL STA 0+36.07	0.97" HIGH DEFLECTION COUPLING	N 567340.88 E 1363804.71
WIL STA 0+58.92	1/16 H. B.	N 567351.00 E 1363784.21
WIL STA 0+91.79	1/16 H. B.	N 567375.72 E 1363782.55
WIL STA 1+22.52	132 H. B.	N 567404.83 E 1363782.68
WIL STA 1+36.63	8"X6" TEE, 1-8" VALVE & 1-8" VALVE	N 567418.83 E 1363750.85
WIL STA 1+47.76	1/16 H. B.	N 567429.86 E 1363749.40
WIL STA 2+10.34	132 H. B.	N 567489.97 E 1363766.79
WIL STA 2+89.06	1.19" HIGH DEFLECTION COUPLING	N 567559.68 E 1363803.37
WIL STA 4+24.76	8" X 6" TEE & 6" VALVE	N 567679.85 E 1363866.42
WIL STA 4+24.76	FIRE HYDRANT #2	N 567680.85 E 1363845.45
WIL STA 5+04.32	8" X 6" TEE & 6" VALVE	N 567838.86 E 1363849.82

WATER MAIN CL STATION	FITTINGS	COORDINATES
WIL STA 6+04.32	FIRE HYDRANT #3	N 567834.17 E 1363958.76
WIL STA 6+32.44	6" CAP & BUTTRISS	N 567863.78 E 1363962.88
STA 0+00.00	8"X6" TEE, 1-8" VALVE & 1-8" VALVE	N 567418.827 E 1363750.849
STA 0+39.02	0.51" HIGH DEFLECTION COUPLING	N 567414.124 E 1363712.117
STA 0+53.10	COMB. 132 H.B. & 1/16 H. B.	N 567412.414 E 1363698.135
STA 2+21.17	6" CAP & BUTTRISS	N 567489.252 E 1363848.151

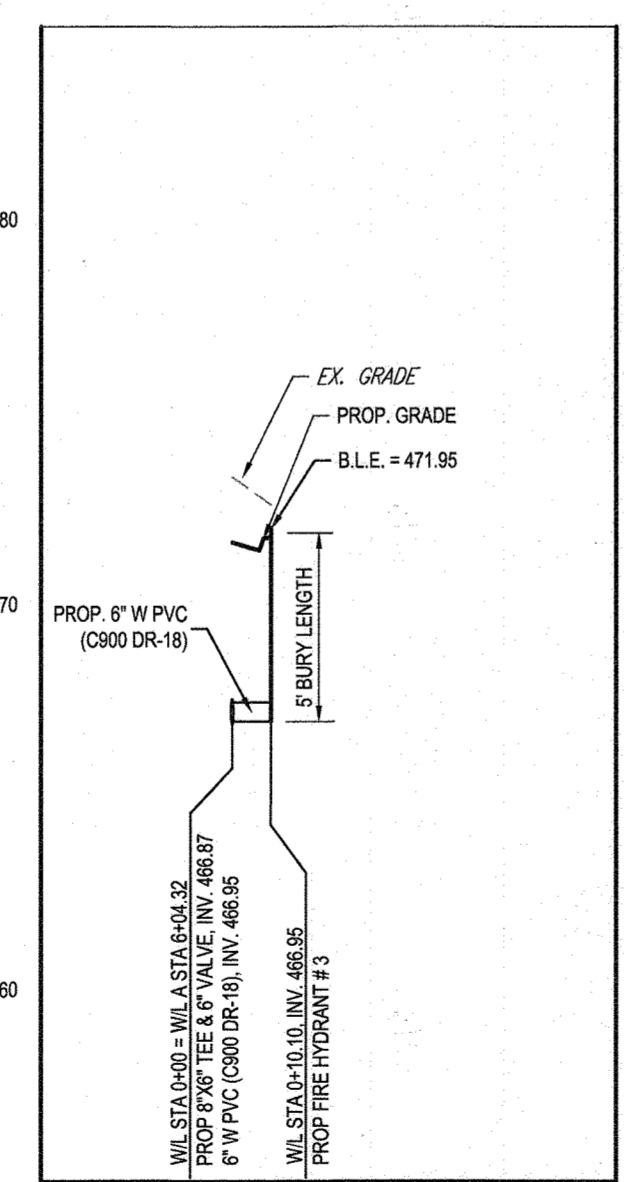
NAME	TYPE	RIM ELEV. (FT.)	INVERTS
EX. MH	EX. MANHOLE	455.17	
1	HO.CO. STD. DET. G-5.12	455.86	INV IN 444.74 INV OUT 444.64
2	HO.CO. STD. DET. G-5.12	456.83	INV IN 445.38 INV IN 445.28 INV OUT 445.18
3	HO.CO. STD. DET. G-5.12	458.60	INV IN 446.86 INV OUT 446.76
4	TERMINAL MANHOLE HO.CO. STD. DET. S-1.31	471.78	INV OUT 458.52
5	HO.CO. STD. DET. G-5.12	457.20	INV IN 445.68 INV OUT 445.59
6	TERMINAL MANHOLE HO.CO. STD. DET. S-1.31	459.09	INV IN 443.97 INV IN 443.89 INV OUT 443.77



PROP. FIRE HYDRANT #1  
SCALE: 1"= 50' HORIZONTAL  
1"= 5' VERTICAL



PROP. FIRE HYDRANT #2  
SCALE: 1"= 50' HORIZONTAL  
1"= 5' VERTICAL



PROP. FIRE HYDRANT #3  
SCALE: 1"= 50' HORIZONTAL  
1"= 5' VERTICAL

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  
1-10-2020  
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND  
1.23.20  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**BOHLER ENGINEERING**  
901 DULANEY VALLEY ROAD, SUITE 801  
TOWSON, MARYLAND 21284  
Phone: (410) 821-7900  
Fax: (410) 821-7987  
www.BohlerEngineering.com

**B.R. ROWE**  
PROFESSIONAL ENGINEER  
18 BARBARA DRIVE, SUITE 100  
COLUMBIA, MARYLAND 21046  
Phone: (410) 821-7900  
Fax: (410) 821-7987  
LICENSE NO. 4066, EXPIRATION DATE: 7/2025

DES: A.V.G.		
DRN: A.V.G.		
CK: B.R.R.		
DATE: 01/03/20		
REV.	DATE	DESCRIPTION

FINAL PUBLIC WATER & PUBLIC SEWER PROFILE  
PARCEL NO. N. O. & 462, PUBLIC USE PARCELS  
600' SCALE MAP NO. 30 BLOCK NO. 9

**ARNOLD'S CORNER**  
LOTS 1 - 18 & OPEN SPACE LOTS 19-23  
5320 PHELPS LUCK DRIVE, COLUMBIA, MD  
TAX MAP 30, GRID 24, PARCEL N & O  
6TH ELECTION DISTRICT  
HOWARD COUNTY  
CONTRACT NO. 24-5098-D  
SCALE AS SHOWN  
SHEET 3 OF 3

**TEST PIT NOTE:**  
CONTRACTOR TO TEST PIT FOR EXACT LOCATION OF EXISTING UTILITY AND SUBMIT ANY DISCREPANCIES AT BOHLER ENGINEERING IN WRITING.  
THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE OF VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL- 811  
(WV 1-800-246-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-652-7001) (MD 1-800-257-7777) (DC 1-800-252-5545)