

# EMERSON PROJECT

## FINAL WATER AND SEWER PLAN

### CONTRACT NO. 24-5162-D

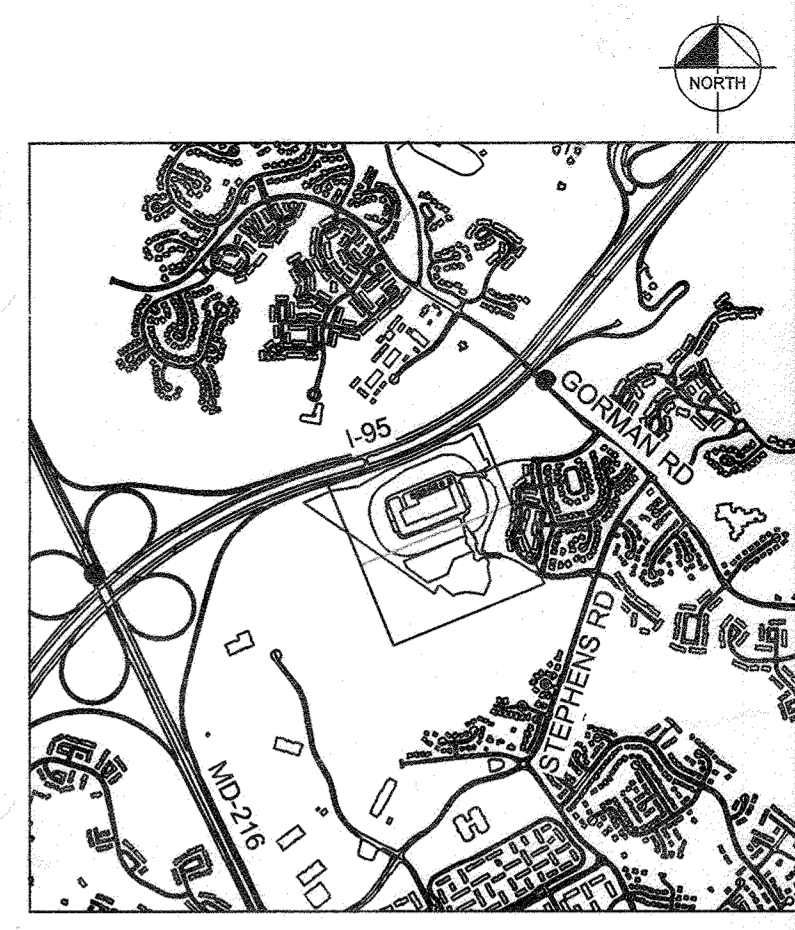
### ELECTION DISTRICT NO. 6

### HOWARD COUNTY, MD

CALL 48 HOURS  
BEFORE YOU DIG

**811**  
Know what's below.  
Call before you dig.

IT'S THE LAW!  
DIAL 811



VICINITY MAP  
SCALE: 1" = 2000'  
ADC MAP 5169

#### WATER AND SEWER 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 MAINTAINS 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 JUNE 29, 2020 BY BOWMAN CONSULTING GROUP.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
  - THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 47G2 AND NO. 47E4. (HORIZONTAL AND VERTICAL DATUMS ESTABLISHED BY STATIC GPS CONTROL METHODS)
- 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 TUNNELS 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 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.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 

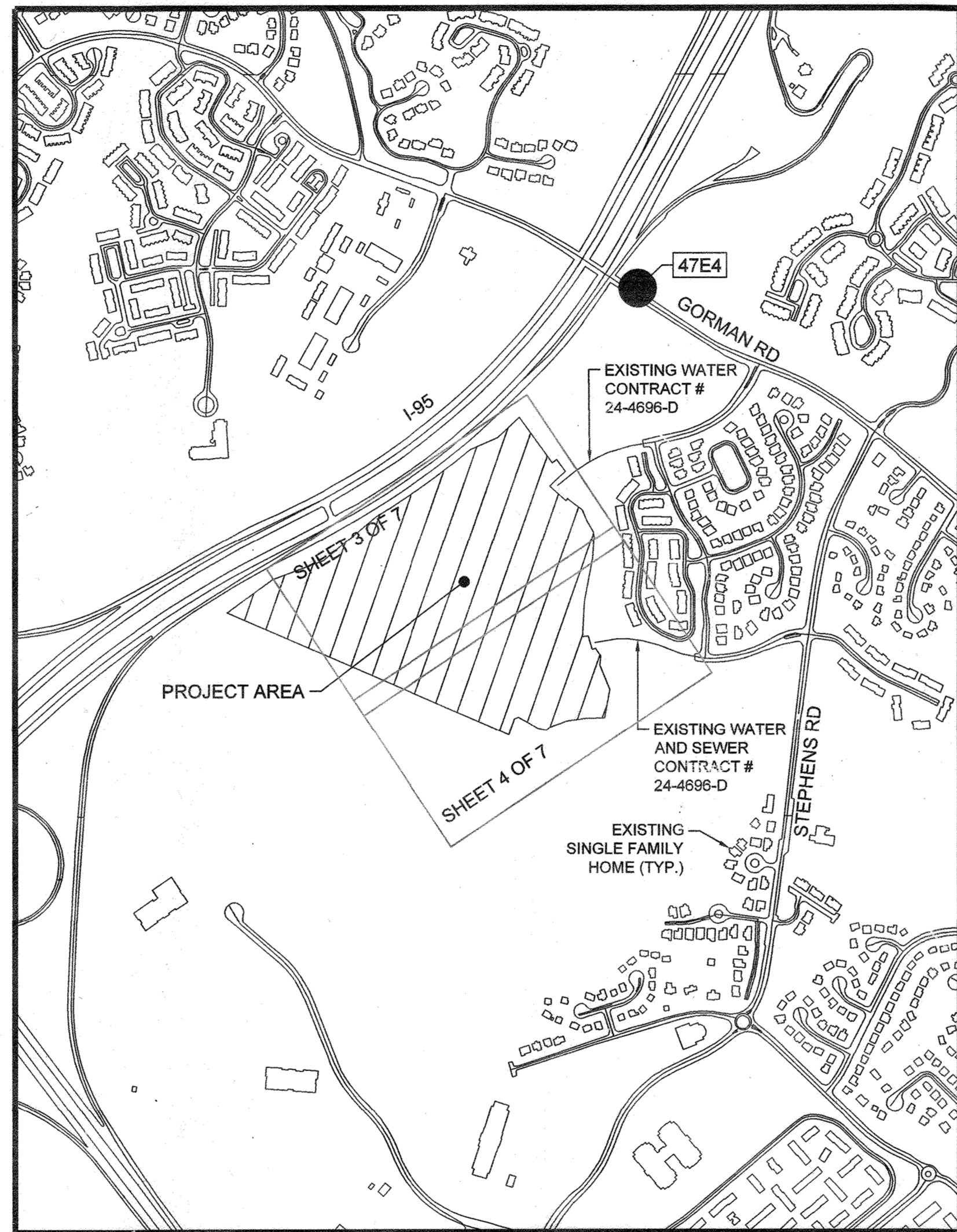
AT&T	800-252-1133
BGE (CONTRACTOR SERVICES)	410-637-8713
BGE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO.	410-795-1390
MISS UTILITY	800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	800-743-0033
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE 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 THE 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 ROADS FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.11(A) OF THE HOWARD COUNTY CODE.

#### WATER AND SEWER GENERAL NOTES PART II:

- ALL WATER MAINS SHALL BE PVC C900 DR-14 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 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 QUALIFICATIONS TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 FOR PVC PRESSURE PIPES 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.
- 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. 17 POUND MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSSES. 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 THE 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 ON 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 CERTAINTED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL.
- FIVE DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 225 PSI, DR 18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR 18 OR EQUAL.
- 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 PIPE LINES, 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 INCORPORATES 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 APPROVAL EQUAL.

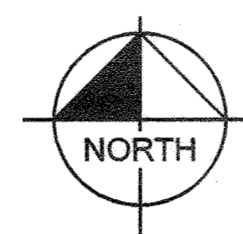
#### WATER AND SEWER GENERAL NOTES PART III:

- 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 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED 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.
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THE CELLAR CANNOT BE SERVED.



LOCATION MAP  
SCALE: 1"=600'  
GRAPHIC SCALE IN FEET  
0 300 600 1200

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
12" PVC C900 DR-14	3,232 LF	3,269 LF	C900	NATIONAL PIPE
8" PVC C900 DR-14	93 LF	71 LF	C900	NATIONAL PIPE
6" PVC C900 DR-14	280 LF	272 LF	C900	NATIONAL PIPE
4" PVC C900 DR-14	84 LF	0	-	-
12" 1/4 HB	1 EA.	0	-	-
12" 1/8 HB	11 EA.	11	DIP	TYLER UNION
12" 1/16 HB	1 EA.	4	DIP	TYLER UNION
12" X 6" FHT	10 EA.	10	DIP	TYLER UNION
FIRE HYDRANT	10 EA.	10	DIP	MUELLER
8" 1/32 VB	15 EA.	15	DIP	TYLER UNION
WATER METER	1 EA.	1	BRASS	-
8" PVC SDR 35 SWR	135 LF	135	SDR 35	NATIONAL PIPE
PRECAST MANHOLE	1 EA.	1	CONCRETE	ATLANTIC



LEGEND	
---	PROPERTY LINE
— W — W —	EXISTING WATER LINE
— S — S —	EXISTING SEWER LINE
⊙	EXISTING SEWER MANHOLE
— P — P —	PROPOSED PRIVATE SEWER LINE
— P — P —	PROPOSED PUBLIC SEWER
⊙	PROPOSED SEWER MANHOLE
— W — W —	PROPOSED WATER LINE
— S — S —	PROPOSED PRIVATE STORM SEWER
⊙	PROPOSED FIRE HYDRANT
⊙	PROPOSED VALVE
⊙	PROPOSED WATER METER

Sheet List Table	
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4 OF 7	UTILITY PLAN
5 OF 7	WATER PROFILES
6 OF 7	WATER PROFILES
7 OF 7	SEWER PROFILES

W & S CODE:	EXISTING SERVICE
TEST GRADIENT:	804
WATER ZONE:	550
TEST PRESSURE:	229 PSI
SITE AREA:	24.29 AC
TREATMENT PLANT:	
NUMBER OF BUILDABLE LOTS:	1
NUMBER OF NON-BUILDABLE LOTS:	0
NUMBER OF BUILDINGS:	1
TYPE OF BUILDINGS:	DATA CENTER
NUMBER OF W.H.C.:	2
NUMBER OF S.H.C.:	2
REFERENCE FILES:	EMERSON SECTION 3, AREA 7 - PARCEL A (CONTRACT NO. 24-4696-D)

NAME OF UTILITY CONTRACTOR:	CHECKBOX
SITE DEVELOPMENT PLAN REFERENCE #: SDP-21-017.	AS-BUILT
THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.	SURVEY AND DRAFTING DIVISION
<i>Alexander Butch</i> 3/24/21 HOWARD SOIL CONSERVATION DISTRICT DATE	OWNER: EMERSON DEVELOPMENT IX LLC 2 TEXAS STATION CT SUITE 200 TIMONIUM MD 21093
SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE SPECIFICATIONS LOCATED IN THE DESIGN MANUAL IV AND AS SHOWN ON SDP-21-017.	DEVELOPER: KTJ 371, LLC. ATTN: DREW JOHNSON 400 WATER STREET, SUITE 200 EXCELSIOR, MN 55331

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING  
HOWARD COUNTY, MARYLAND

3-11-21  
CHIEF, BUREAU OF UTILITIES DATE

3-3-21  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

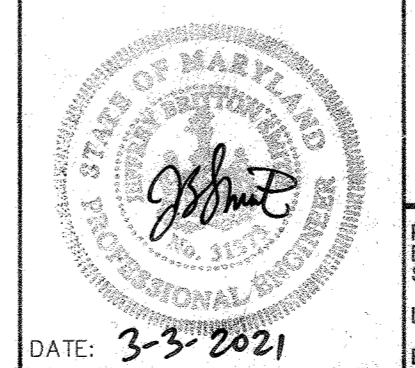
**Kimley»Horn**

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1801 PORTER ST. SUITE 401, BALTIMORE, MD 21230  
PHONE: 443-743-3470  
WWW.KIMLEY-HORN.COM

KHA PROJECT 110718001  
DATE 03/03/2021  
SCALE AS SHOWN  
DESIGNED BY CJC  
DRAWN BY CJC  
CHECKED BY KTB

**COVER SHEET - WATER AND SEWER**

HOWARD COUNTY MARYLAND



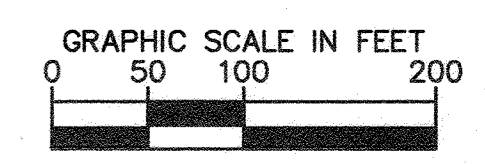
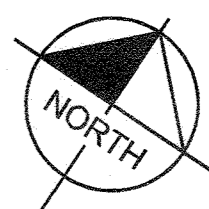
**EMERSON PROJECT**  
FINAL WATER AND SEWER PLAN  
CONTRACT NO. 24-5162-D

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO. 31373  
EXPIRATION DATE 01/21/2023

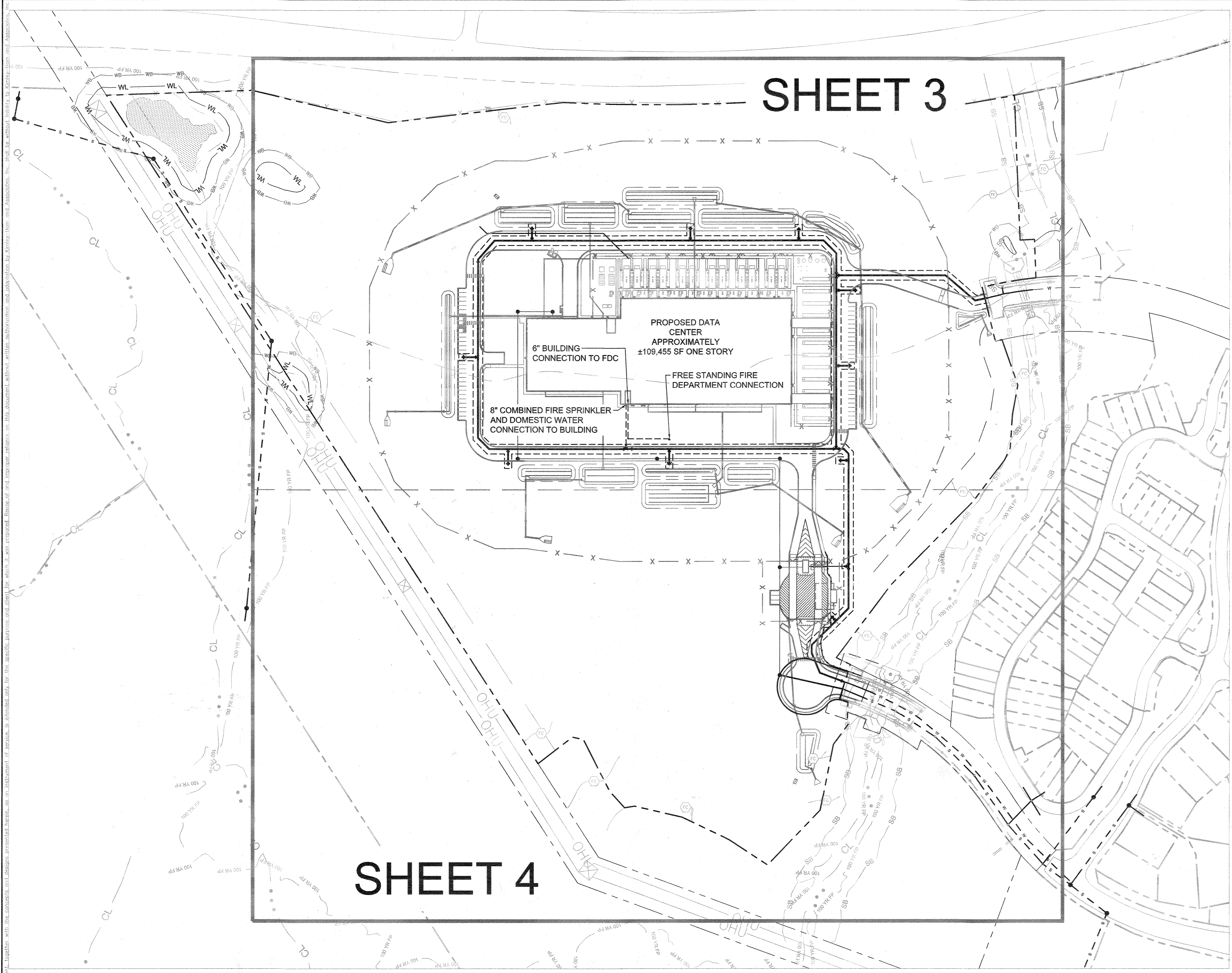
SHEET NUMBER  
**1 OF 7**

CALL 48 HOURS BEFORE YOU DIG  
 IT'S THE LAW! DIAL 811  
 Know what's below. Call before you dig.



# SHEET 3

# SHEET 4



DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 [Signature]  
 3-11-21  
 CHIEF, BUREAU OF UTILITIES

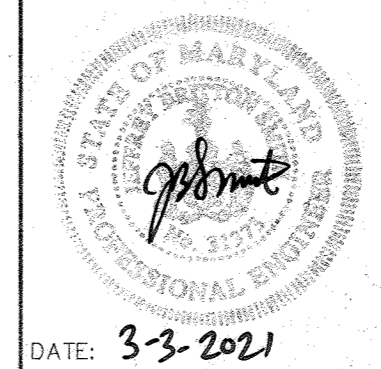
DEPARTMENT OF PLANNING & ZONING  
 HOWARD COUNTY, MARYLAND  
 [Signature]  
 3-3-21  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

No.	REVISIONS	DATE	BY

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KHA PROJECT 110718001  
 DATE 03/03/2021  
 SCALES SHOWN  
 DESIGNED BY CJC  
 DRAWN BY CJC  
 CHECKED BY KTB

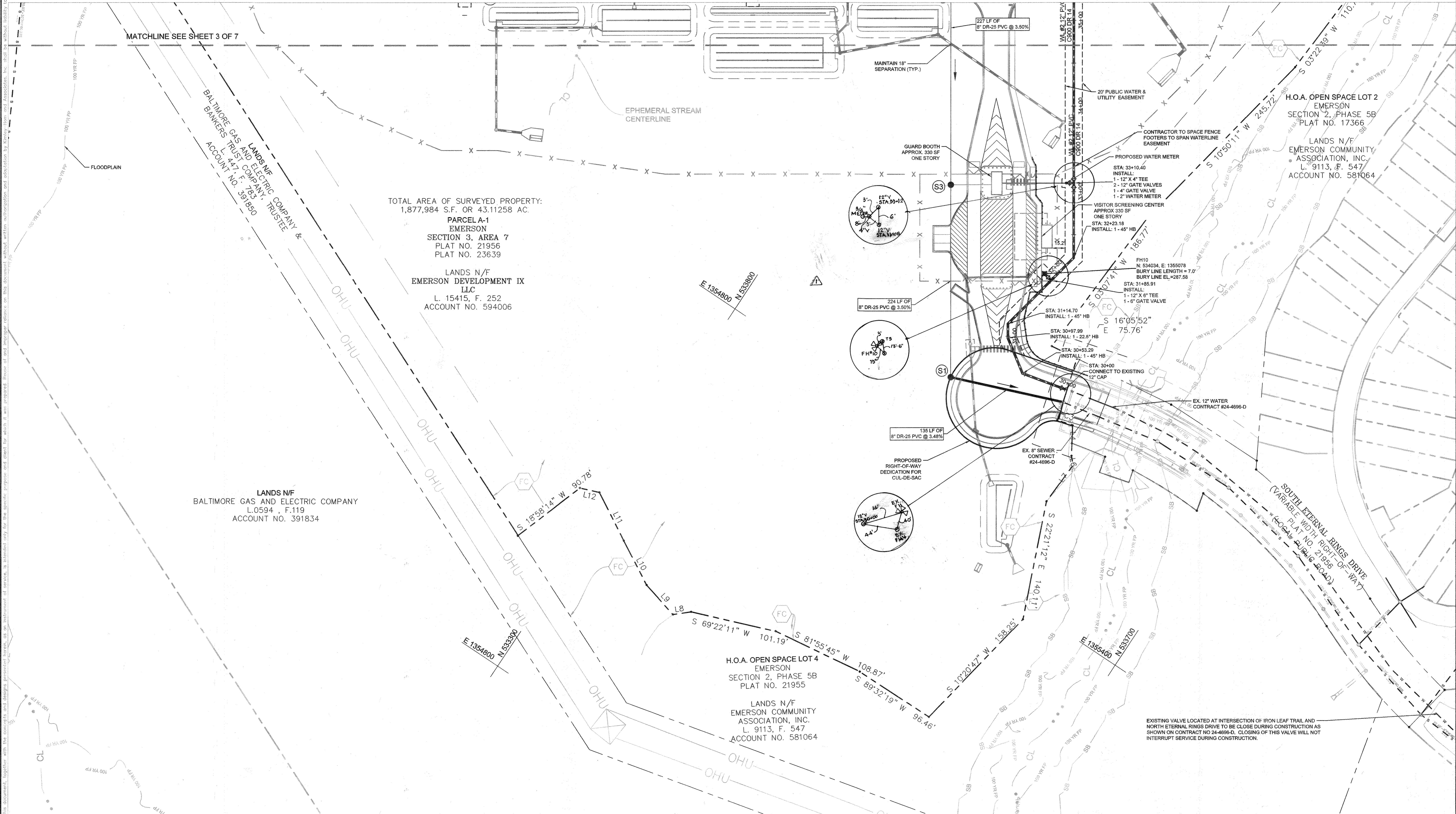
**UTILITY OVERALL PLAN**  
 HOWARD COUNTY MARYLAND



**EMERSON PROJECT**  
**FINAL WATER AND SEWER PLAN**  
 CONTRACT NO. 24-5162-D  
 PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 31373  
 EXPIRATION DATE 01/21/2023

SHEET NUMBER  
**2 OF 7**





TOTAL AREA OF SURVEYED PROPERTY:  
1,877,984 S.F. OR 43.11258 AC.

PARCEL A-1  
EMERSON  
SECTION 3, AREA 7  
PLAT NO. 21956  
PLAT NO. 23639

LANDS N/F  
EMERSON DEVELOPMENT IX  
LLC  
L. 15415, F. 252  
ACCOUNT NO. 594006

LANDS N/F  
BALTIMORE GAS AND ELECTRIC COMPANY  
L.0594, F.119  
ACCOUNT NO. 391834

H.O.A. OPEN SPACE LOT 4  
EMERSON  
SECTION 2, PHASE 5B  
PLAT NO. 21955

LANDS N/F  
EMERSON COMMUNITY  
ASSOCIATION, INC.  
L. 9113, F. 547  
ACCOUNT NO. 581064

EXISTING VALVE LOCATED AT INTERSECTION OF IRON LEAF TRAIL AND NORTH ETHERNAL RINGS DRIVE TO BE CLOSED DURING CONSTRUCTION AS SHOWN ON CONTRACT NO. 24-4696-D. CLOSING OF THIS VALVE WILL NOT INTERRUPT SERVICE DURING CONSTRUCTION.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]*  
3-3-21  
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING & ZONING  
HOWARD COUNTY, MARYLAND

*[Signature]*  
3-3-21  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

No.	REVISIONS	DATE	BY
AS BUILT		3/17/22	WKA

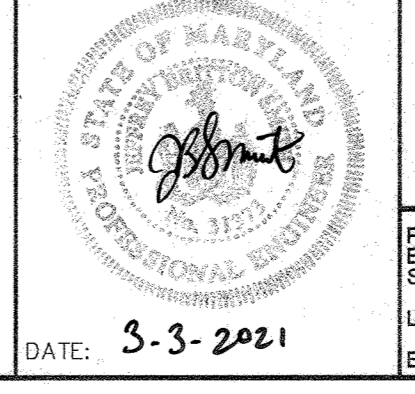
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KHA PROJECT  
110718001  
DATE  
03/03/2021  
SCALE AS SHOWN  
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CHECKED BY KTB

**UTILITY PLAN**

HOWARD COUNTY  
MARYLAND

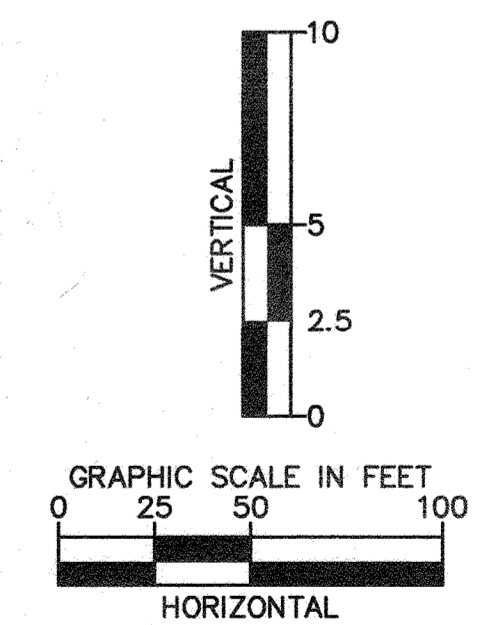
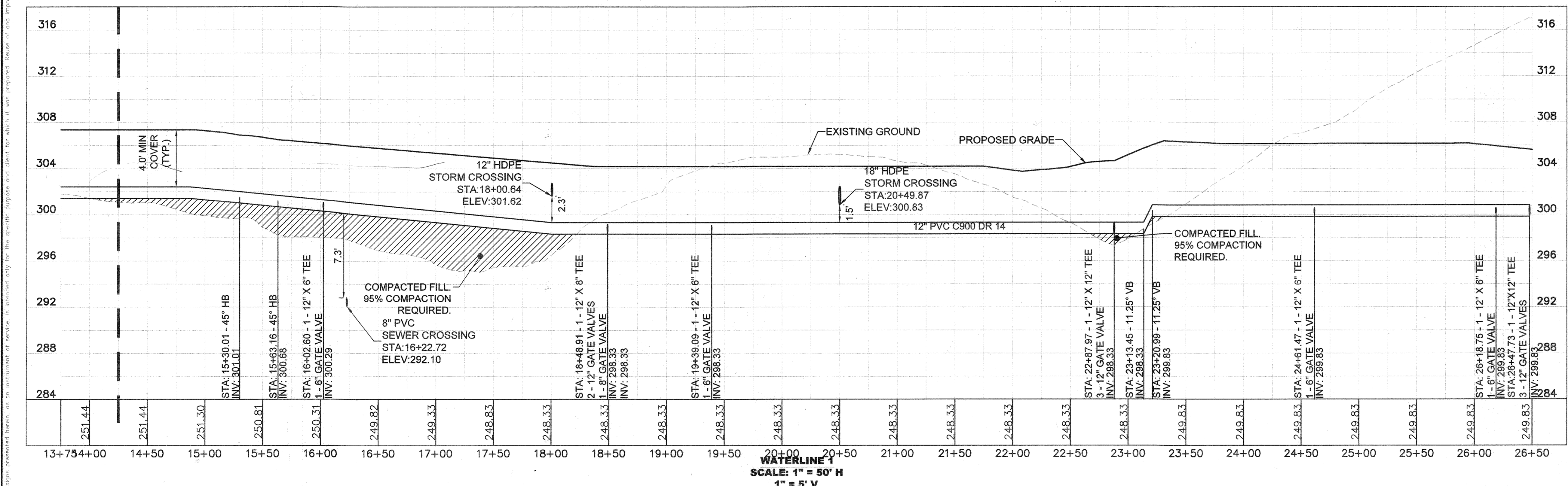
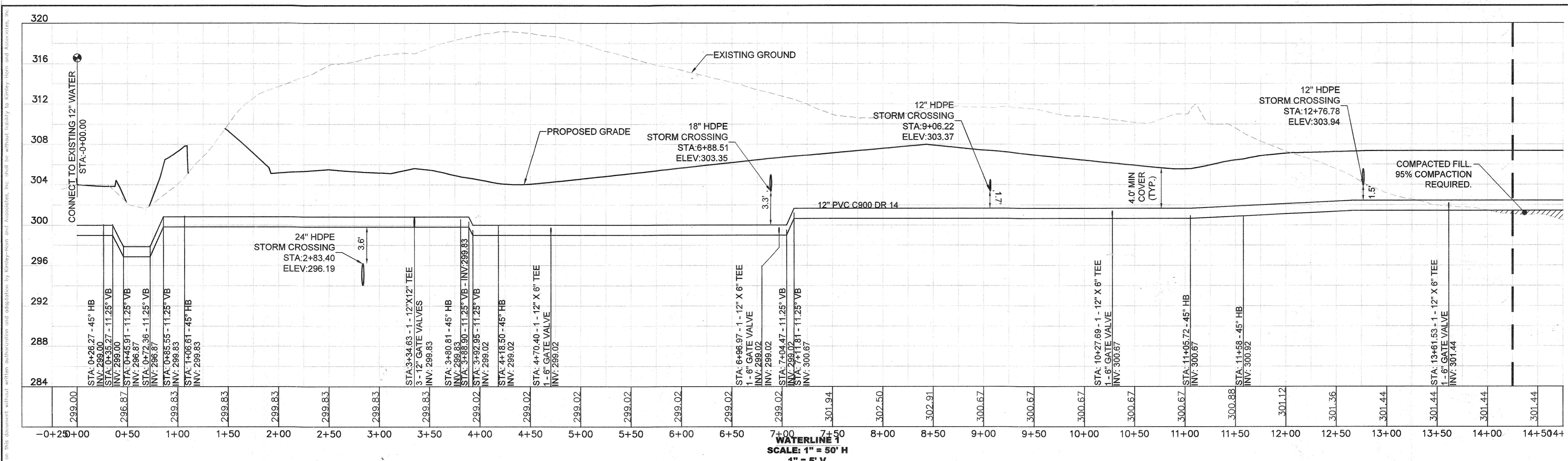


**EMERSON PROJECT**  
**FINAL WATER AND SEWER PLAN**  
CONTRACT NO. 24-5162-D

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LICENSE NO. 31373  
EXPIRATION DATE 01/21/2023

SHEET NUMBER  
**4 OF 7**



NOTE: ALL WATER PIPES WILL CROSS ABOVE OTHER PRIVATE UTILITIES UNLESS OTHERWISE NOTED. 95% COMPACTION REQUIRED FOR MAINS CONSTRUCTED IN FILL.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]*  
3-11-21  
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING & ZONING  
HOWARD COUNTY, MARYLAND

*[Signature]*  
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CHIEF, DEVELOPMENT ENGINEERING DIVISION

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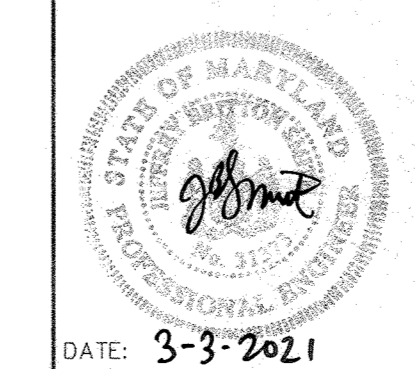
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**WATER PROFILES**

HOWARD COUNTY  
MARYLAND

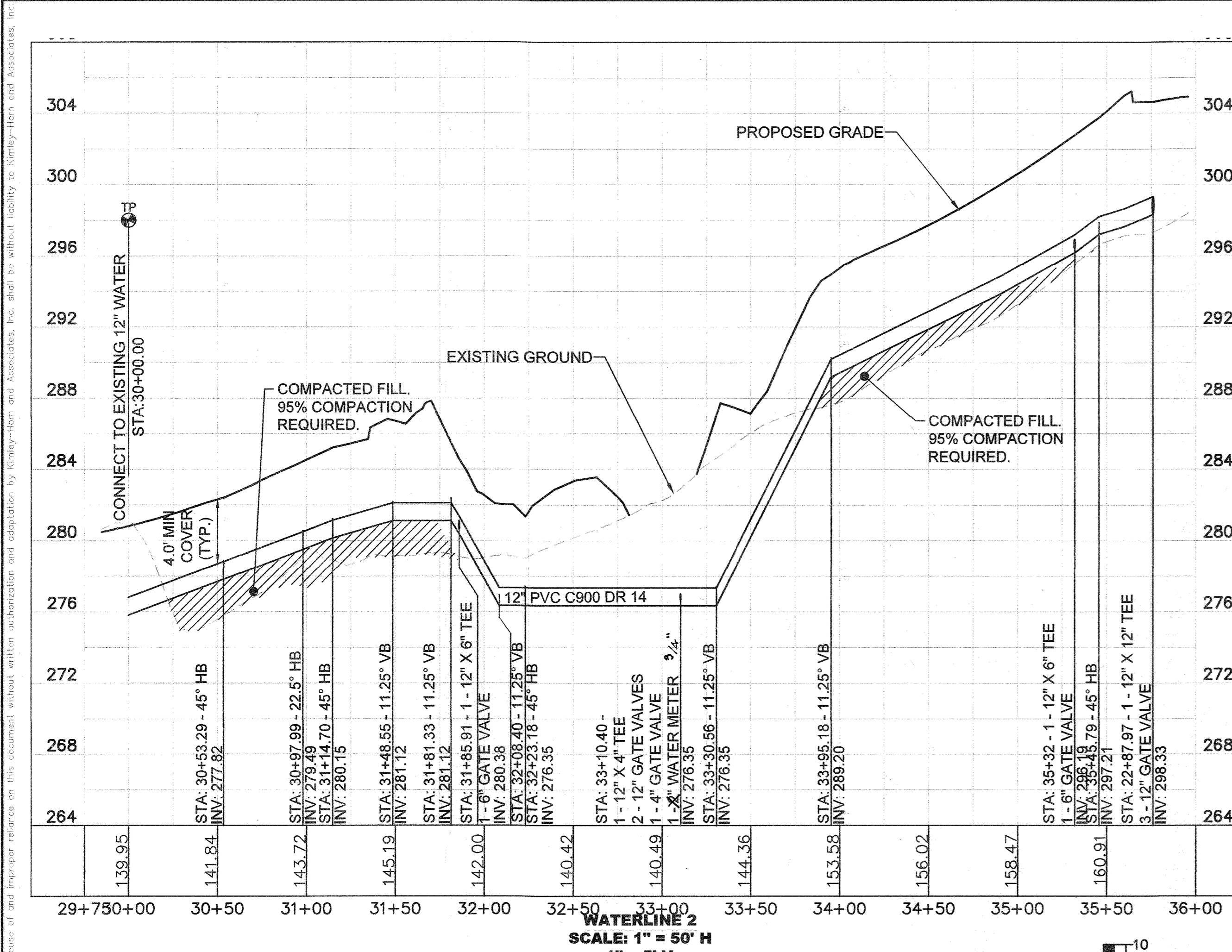


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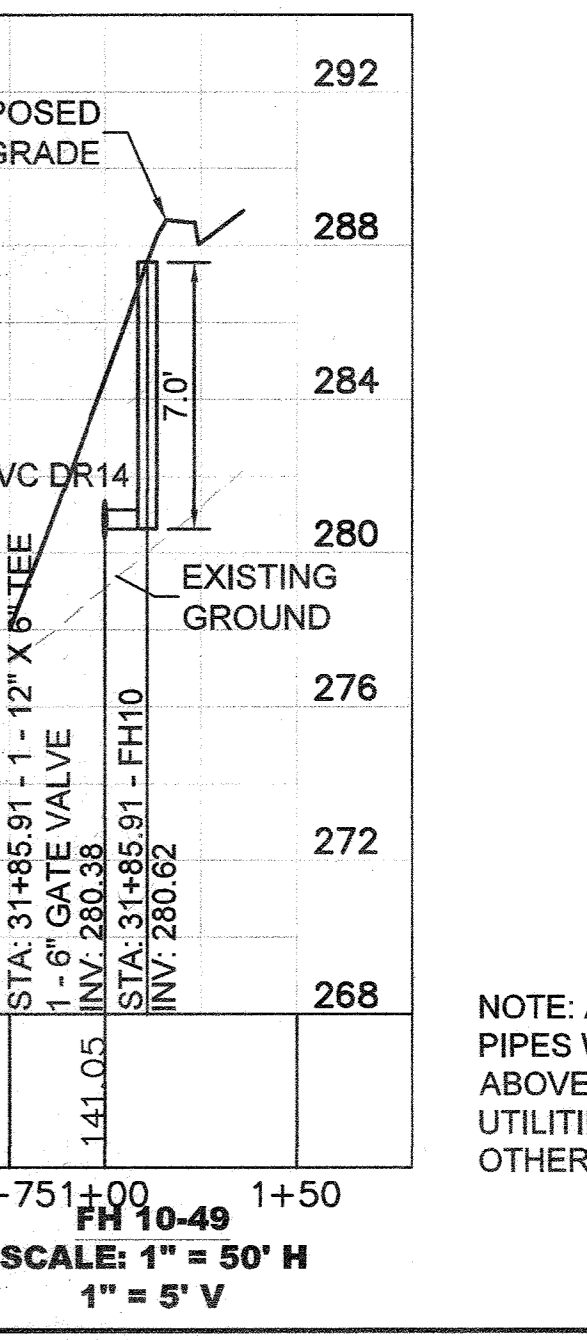
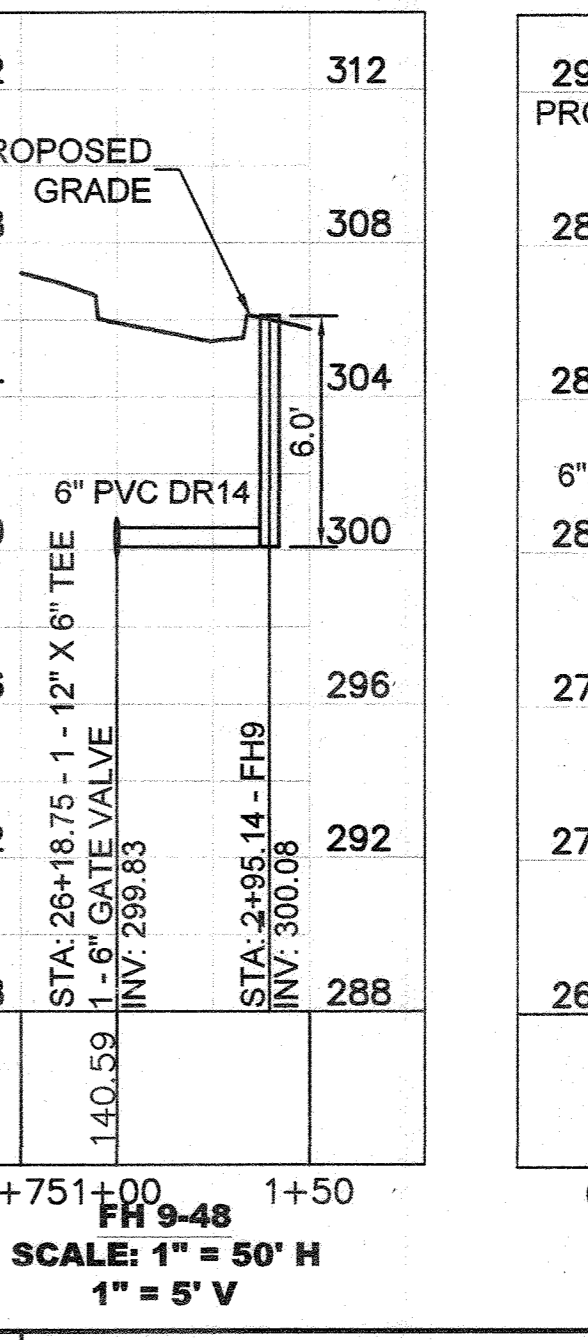
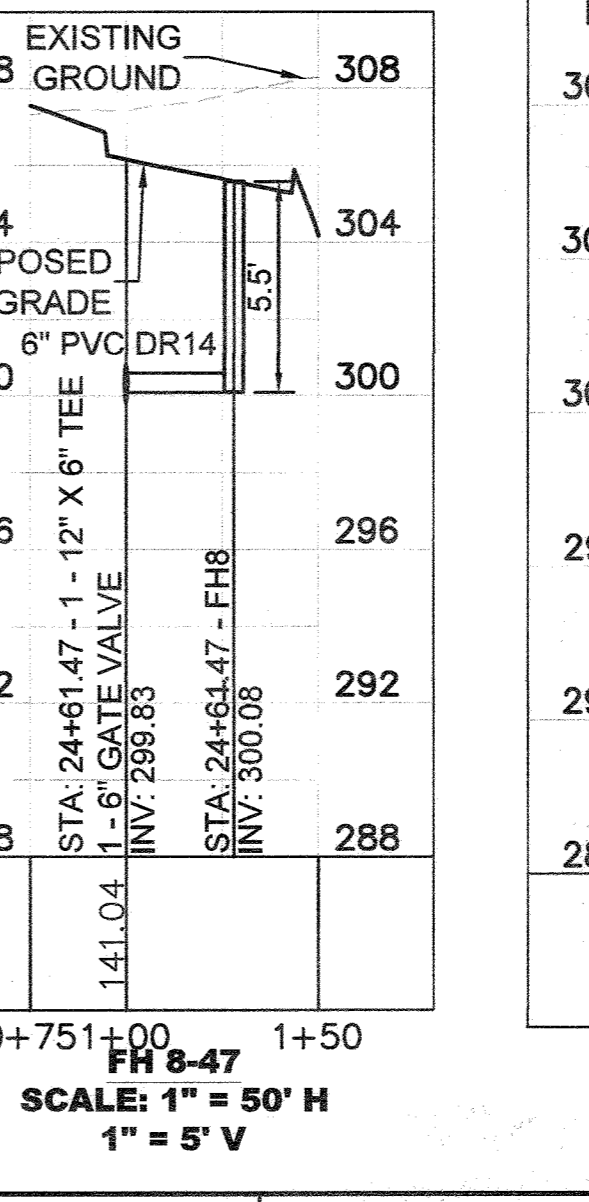
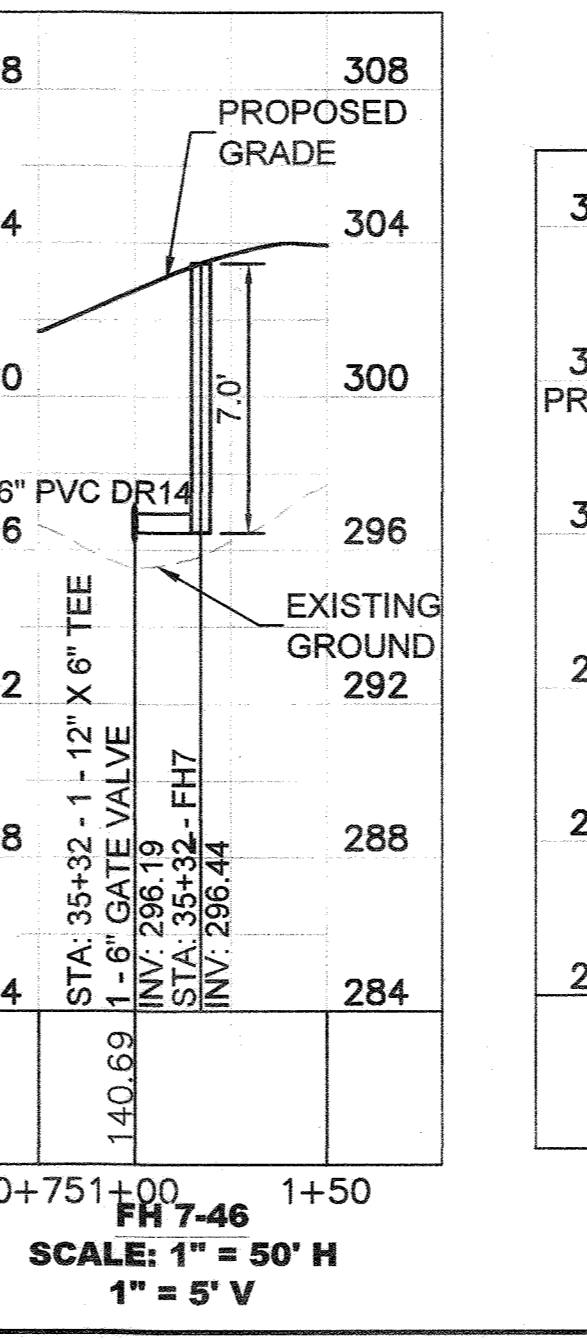
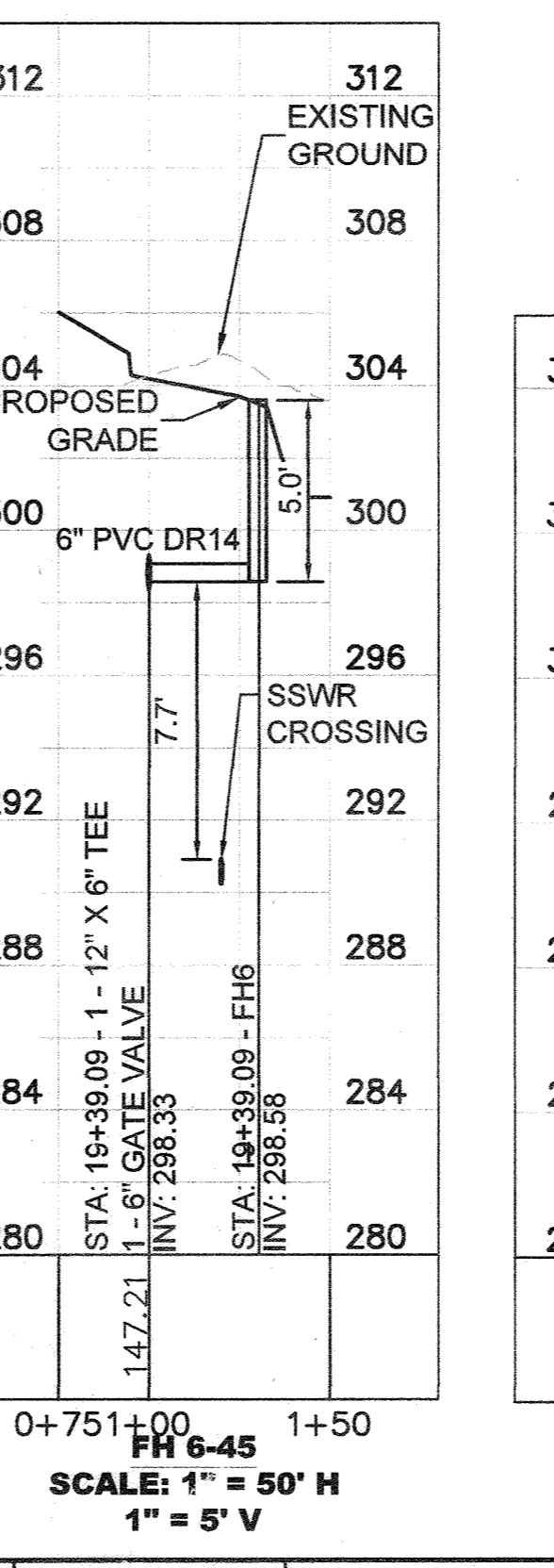
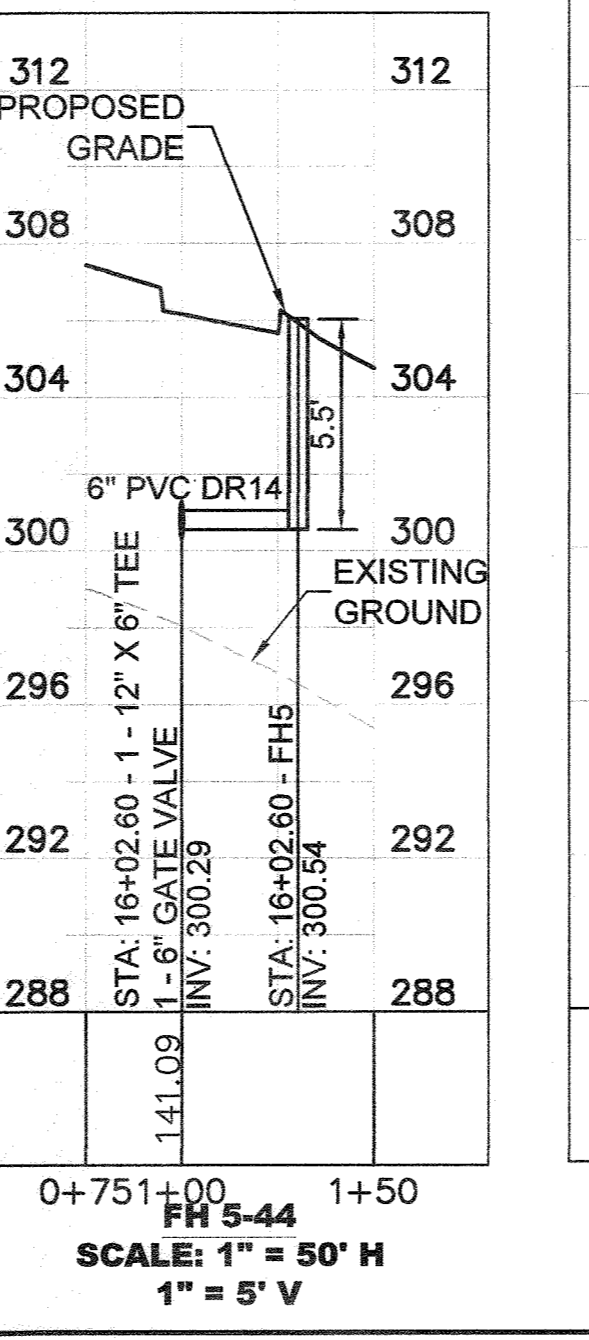
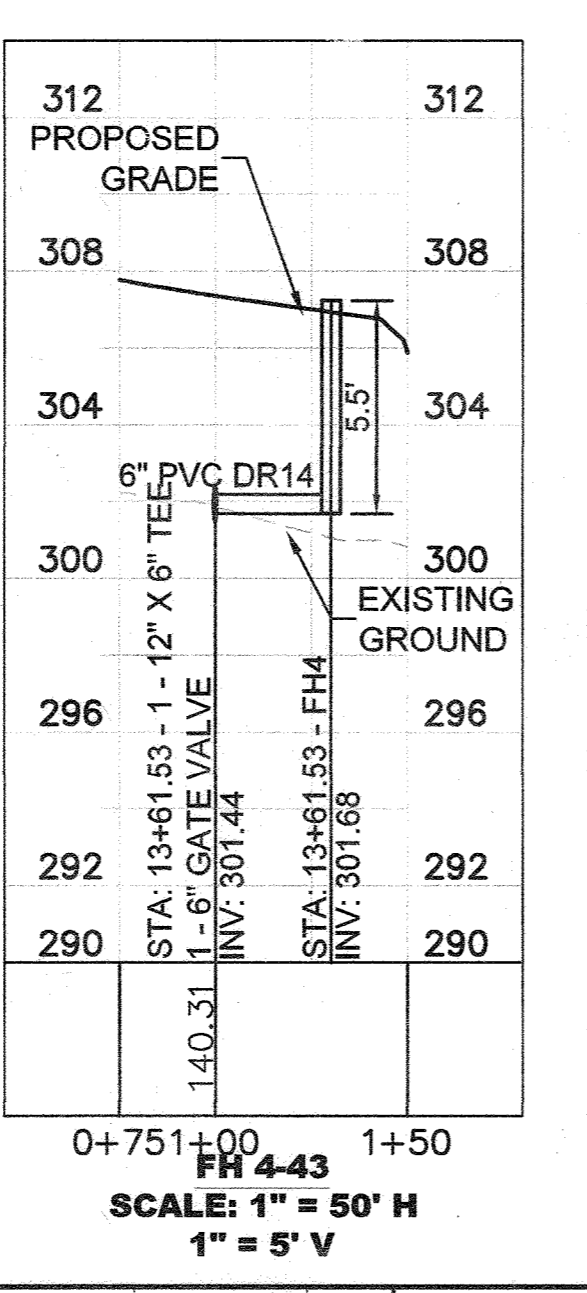
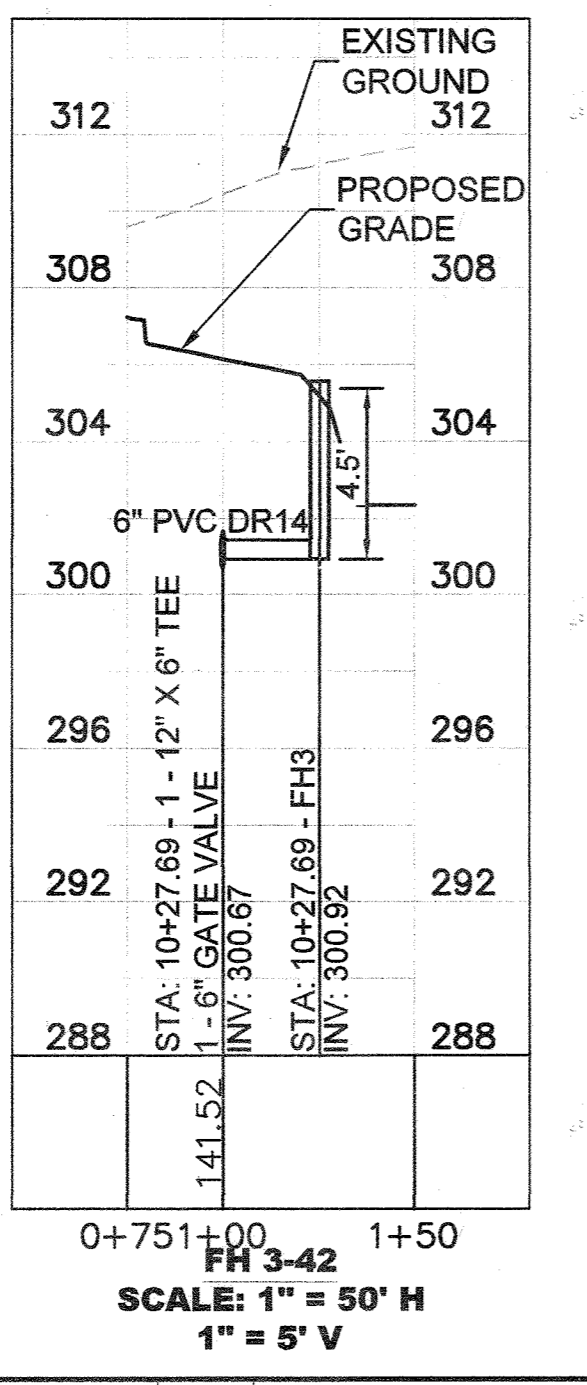
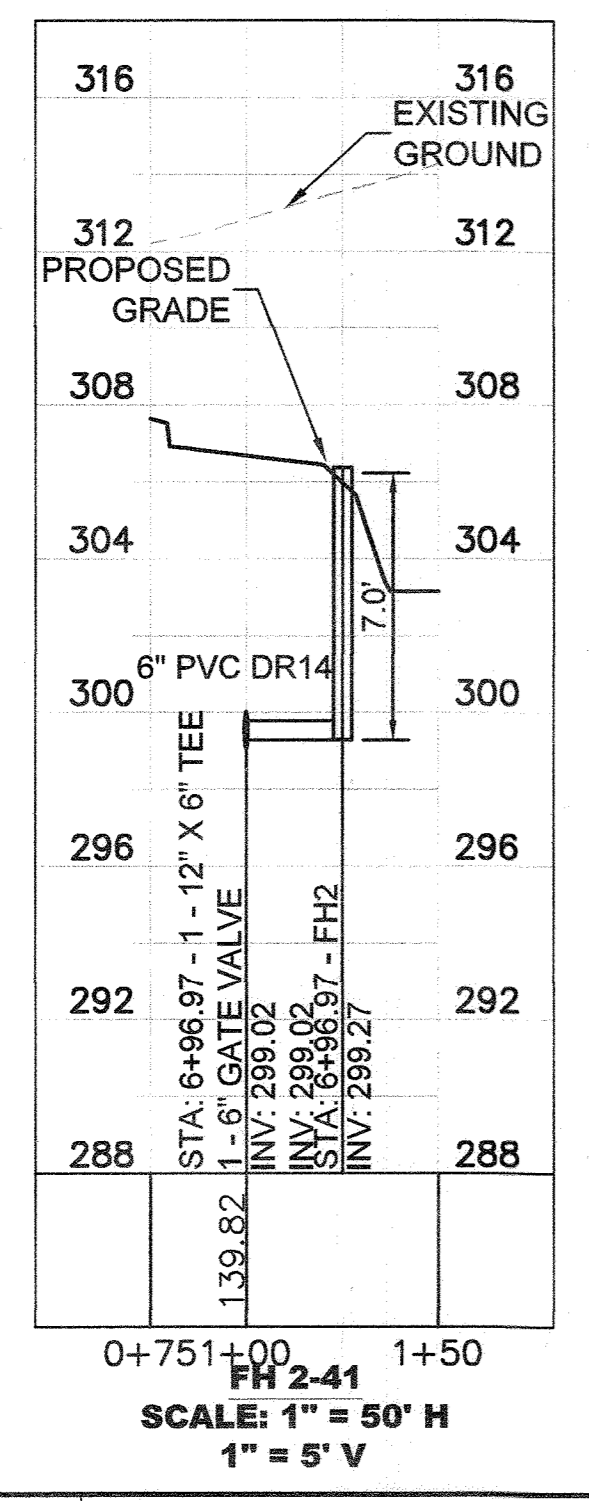
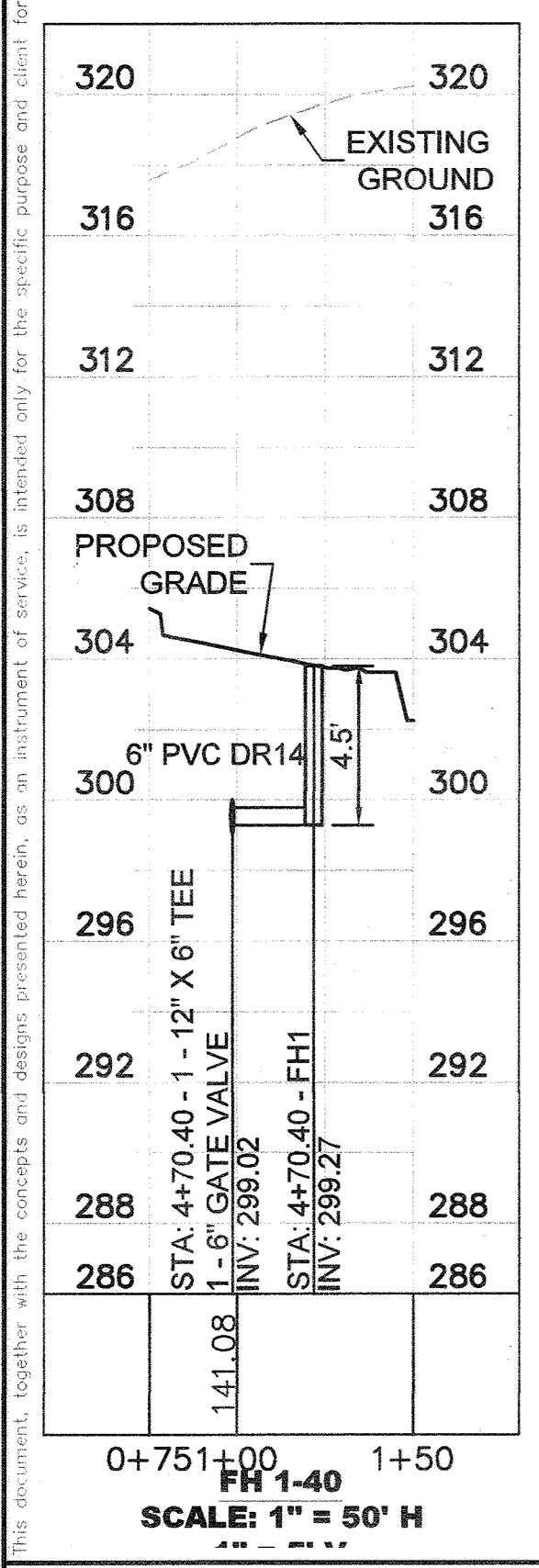
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SHEET NUMBER  
**5 OF 7**



WATER MAIN TABULATION CHART				WATER MAIN TABULATION CHART				WATER MAIN TABULATION CHART			
WATER LINE #1				WATER LINE #1				WATER LINE #2			
STATION:	DESCRIPTION	NORTHING	EASTING	STATION:	DESCRIPTION	NORTHING	EASTING	STATION:	DESCRIPTION	NORTHING	EASTING
0+00.00	CONNECT TO EXISTING	534768.7341	1354978.0044	13+61.53	FH4	534059.9641	1354135.8018	30+00.00	CONNECT TO EXISTING	533935.6220	1355173.1600
0+26.27	45° HB	534750.1368	1354959.4485	13+61.53	1 - 12" X 6" TEE 1 - 6" GATE VALVE	534076.7026	1354160.9636	30+05.00	1 - 12" GATE VALVE	533934.4833	1355168.2914
0+35.27	11.25° VB	534751.1352	1354950.5011	15+30.01	45° HB	533936.4312	1354254.2764	30+53.29	45° HB	533923.4864	1355121.2710
0+45.91	11.25° VB	534752.3150	1354939.9273	15+63.16	45° HB	533929.8969	1354286.7797	30+97.99	22.5° HB	533948.4339	1355084.1838
0+72.36	11.25° VB	534755.2473	1354913.6485	16+02.60	FH5	533926.6580	1354336.3010	31+14.70	45° HB	533962.3486	1355074.9273
0+85.55	11.25° VB	534756.7109	1354900.5320	16+02.60	1 - 12" X 6" TEE 1 - 6" GATE VALVE	533951.7403	1354319.6155	31+48.55	11.25° VB	533995.5362	1355081.5992
1+06.61	45° HB	534759.0458	1354879.6071	18+48.91	1 - 12" X 8" TEE 2 - 12" GATE VALVES 1 - 8" GATE VALVE	534088.1650	1354524.6942	31+81.33	11.25° VB	534027.6729	1355088.0598
2+95.14	FH9	534628.6257	1354739.9296	19+39.09	FH6	534113.1034	1354616.4155	31+85.91	FH10	534034.3313	1355078.1782
3+34.63	1 - 12" X 12" TEE 3 - 12" GATE VALVES	534632.7513	1354689.7566	19+39.09	1 - 12" X 6" TEE 1 - 6" GATE VALVE	534138.1132	1354599.7782	31+85.91	1 - 12" X 6" TEE 1 - 6" GATE VALVE	534032.1633	1355088.9625
3+80.81	45° HB	534671.2039	1354664.1767	22+87.97	1 - 12" X 6" TEE 3 - 12" GATE VALVE	534331.3495	1354890.2583	32+08.40	11.25° VB	534054.2101	1355093.3947
3+88.90	11.25° VB	534672.7979	1354656.2477	23+13.45	11.25° VB	534352.5594	1354876.1489	32+23.18	45° HB	534068.6988	1355096.3074
3+92.95	11.25° VB	534673.5962	1354652.2769	23+20.99	11.25° VB	534358.8379	1354871.9722	33+10.40	1 - 12" X 4" TEE 2 - 12" GATE VALVES 1 - 4" GATE VALVE 1 - 3/4" WATER METER	534141.3253	1355047.9939
4+18.50	45° HB	534678.6320	1354627.2277	24+61.47	FH8	534491.3143	1354817.4743	33+23.69	2" DOMESTIC WATER METER	534152.3870	1355040.6354
4+70.40	FH1	534669.0357	1354571.2763	24+61.47	1 - 12" X 6" TEE 1 - 6" GATE VALVE	534475.8059	1354794.1615	33+30.56	11.25° VB	534158.1109	1355036.8276
4+70.40	1 - 12" X 6" TEE 1 - 6" GATE VALVE	534649.8857	1354584.0152	26+18.75	1 - 12" X 6" TEE 1 - 6" GATE VALVE	534606.7538	1354707.0510	33+76.42	11.25° VB	534196.2909	1355011.4291
6+96.97	FH2	534545.2327	1354381.5145	35+32.00	1 - 12" X 6" TEE 1 - 6" GATE VALVE	534325.8274	1354925.2575	35+32.00	FH7	534316.3567	1354911.0209
6+96.97	1 - 12" X 6" TEE 1 - 6" GATE VALVE	534524.3967	1354395.3753	35+45.79	45° HB	534337.3049	1354917.6223				
7+04.47	11.25° VB	534520.2426	1354389.1308								
7+11.81	11.25° VB	534516.1746	1354353.0156								
10+27.69	1 - 12" X 6" TEE 1 - 6" GATE VALVE	534341.2196	1354120.0166								
10+27.69	FH3	534362.1197	1354106.1133								
11+05.72	45° HB	534298.0017	1354055.0499								
11+58.00	45° HB	534246.1613	1354048.2345								



NOTE: ALL WATER PIPES WILL CROSS ABOVE OTHER PRIVATE UTILITIES UNLESS OTHERWISE NOTED.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
*[Signature]*  
CHIEF, BUREAU OF UTILITIES  
DATE: 3-11-21

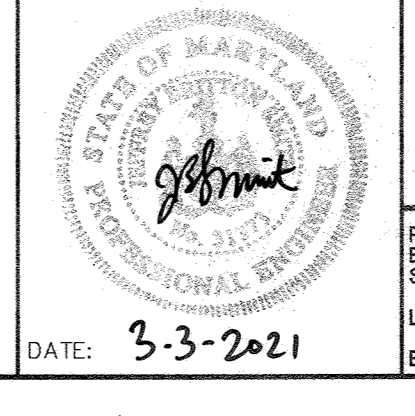
DEPARTMENT OF PLANNING & ZONING  
HOWARD COUNTY, MARYLAND  
*[Signature]*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 3-3-21

No.	REVISIONS	DATE	BY
AS BUILT		3/17/22	MRA

**Kimley»Horn**  
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1801 PORTER ST. SUITE 401, BALTIMORE, MD 21230  
PHONE: 443-743-3470  
WWW.KIMLEY-HORN.COM

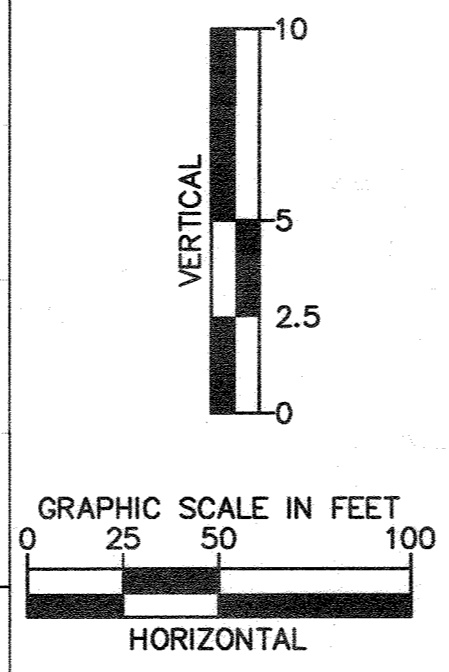
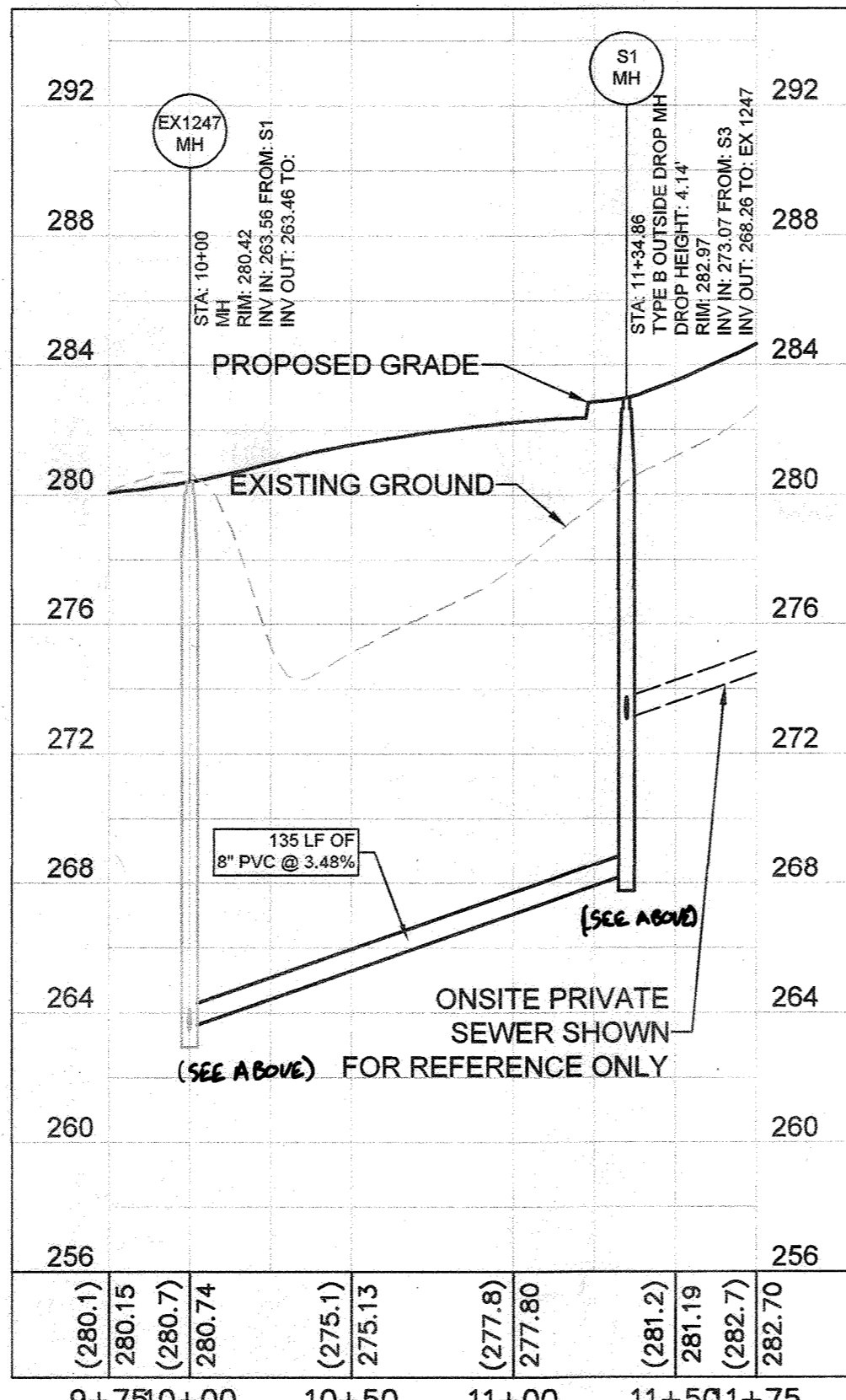
KHA PROJECT  
110718001  
DATE  
03/03/2021  
SCALE AS SHOWN  
DESIGNED BY CJC  
DRAWN BY CJC  
CHECKED BY KTB

**WATER PROFILES**  
HOWARD COUNTY  
MARYLAND



**EMERSON PROJECT**  
FINAL WATER AND SEWER PLAN  
CONTRACT NO. 24-5162-D  
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 31373  
EXPIRATION DATE 01/21/2023

SHEET NUMBER  
**6 OF 7**



STRUCTURE TABLE			
STRUCTURE NAME:	DETAILS:	PIPES IN:	PIPES OUT:
EX 1247	MH RIM: 280.42 INV IN: 263.56 INV OUT: 263.46	FROM S1, 8" PVC INV IN: 263.56 @ 3.48%	TO , 8" PVC INV OUT: 263.46 @ 0.50%
S1	MH RIM: 282.97 INV IN: 273.07 INV OUT: 268.26	FROM S3, 8" PVC INV IN: 273.07 @ 3.50%	TO EX 1247, 8" PVC INV OUT: 268.26 @ 3.48%

EX 1247 TO S1  
 SCALE: 1" = 50' H  
 1" = 5' V

This document, together with the concepts and designs presented herein, is an instrument of service and client for which it was prepared. Review of and improper reliance on this document without written authorization and calculation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  CHIEF, BUREAU OF UTILITIES DATE: 3-11-21	DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND  CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 3-3-21	 © 2021 KIMLEY-HORN AND ASSOCIATES, INC. 1801 PORTER ST. SUITE 401, BALTIMORE, MD 21230 PHONE: 443-743-3470 WWW.KIMLEY-HORN.COM	KHA PROJECT 110718001 DATE 03/03/2021 SCALE AS SHOWN DESIGNED BY CJC DRAWN BY CJC CHECKED BY KTB	SEWER PROFILES HOWARD COUNTY MARYLAND	 DATE: 3-3-2021	EMERSON PROJECT FINAL WATER AND SEWER PLAN CONTRACT NO. 24-5162-D PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 31373 EXPIRATION DATE 01/21/2023	SHEET NUMBER 7 OF 7
			No. REVISIONS DATE BY				