

GENERAL NOTES

- PART I**
- APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
 - THE EXISTING TOPOGRAPHICAL INFORMATION FROM HOWARD COUNTY GIS, COUNTY RECORDS, AND A FIELD TOPOGRAPHICAL SURVEY WITH TWO FOOT CONTOUR INTERVALS PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC. DATED JANUARY 2014. EXISTING UTILITIES WERE LOCATED FROM PREVIOUSLY APPROVED ROAD CONSTRUCTION PLAN, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS.
 - HORIZONTAL AND VERTICAL SURVEY CONTROLS, COORDINATES AND ELEVATIONS ARE BASED ON MARYLAND COORDINATE SYSTEM - NAD83 (1991) AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 301F AND 301C.
 - THE PROJECT BOUNDARY SHOWN HEREON ARE BASED ON A PLAT BY ROBERT H. VOGEL ENGINEERING, INC. DATED JANUARY 2014.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED.
 - 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 DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED TO THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
 - FOR DETAILS NOT SHOWN ON THE DRAWINGS, 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 LOCATION OF THE TEST PIT. A NOTES 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 OPERATION AT HIS OWN EXPENSE.
 - THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN THESE PLANS:

PART II - WATER

- ALL WATER MAINS TO BE PVC C900 (DR-18) UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3'-6" 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 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 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 ANWA C900 FOR PVC PRESSURE PIPES SHALL BE SUBMITTED WITH THE PIPE MATERIAL CERTIFICATIONS OR SHOP DRAWINGS PRIOR TO THE APPROVAL OF THE MATERIAL FOR USE. THE TEST RECORDS SHALL BE FOR THE PIPE TO BE INSTALLED UNDER THE CONTRACT. ALL PVC SHALL CONTAIN MARKINGS TO ALLOW CROSS REFERENCING OF THE PIP 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 THE 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 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 LINES SHALL REMAIN VISIBLE. DUAL INSERTION LINES ON GASKETED PVC PIPE INDICATE THE MAXIMUM AND MINIMUM DEPTH OF INSERTION INTO THE SPIGOT 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 PROMOTE ON FULL PIPE LENGTH (20-FOOT LONG) ON EITHER SIDE OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP. THE CONTRACTOR SHALL USE A WEDGING PLATE COMPACTOR OR OTHER EQUIPMENT TO THOROUGHLY COMPACT THE #37 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 (1/2-DEGREE ON EITHER END OF THE COUPLING). SHALL BE RATED FOR A MINIMUM 200 PSI MEETING THE REQUIREMENTS OF ANWA 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 ANWA 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 FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF ANWA 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 INCORPORATES AN EXPANSION RETENTION SPRING TO ALLOW FOR PIPE EXPANSION AND CONTRACTION. THE BELL STOPS SHALL BE SERIES 5000 MEGA-STOP, AS MANUFACTURED BY EGA IRON, INC. OR APPROVAL 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 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED "W.T. IN PLAN AND PROFILE SHALL HAVE WATER TIGHT FRAME AND COVERS. STANDARD DETAIL GS-52 WHERE WATER TIGHT 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 THAT CELLAR CANNOT BE SERVED.

SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE SPECIFICATIONS AND WITH SITE DEVELOPMENT PLAN SDP-21-003

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

Alexander Bratchis 01/25/2021
SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 1-13-21
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND

[Signature] 2-8-21
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

FINAL WATER AND SEWER CONSTRUCTION PLAN

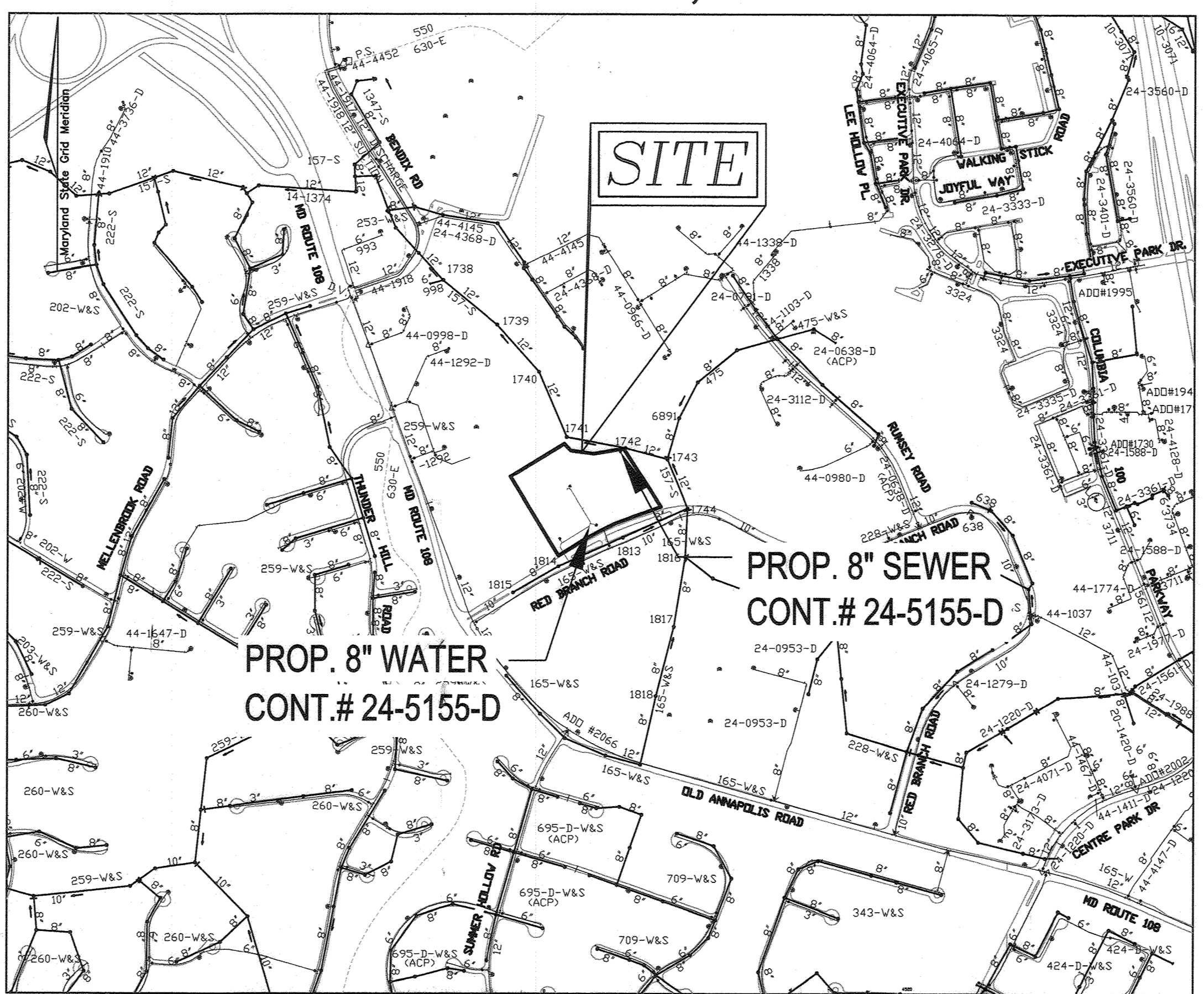
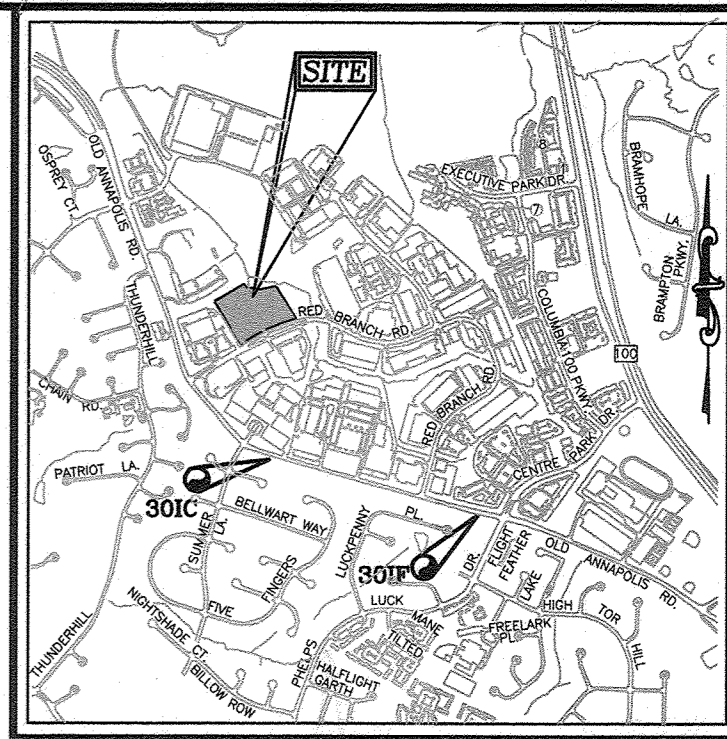
OAKLAND RIDGE INDUSTRIAL PARK

9190 RED BRANCH ROAD

CONTRACT # 24-5155-D

HOWARD COUNTY, MARYLAND

BENCHMARKS
HOWARD COUNTY GEODETIC SURVEY CONTROL 301F
N 568,033.070 E 1,363,934.332 ELEV. 473.359
HOWARD COUNTY GEODETIC SURVEY CONTROL 301C
N 568,598.518 E 1,361,633.753 ELEV. 441.456



WATER ZONE: 630-E
TEST GRADIENT: 907
TEST PRESSURE: 217.98

TYPE OF BUILDING :	FLEX WAREHOUSE
NUMBER OF BUILDING :	2
NO. OF LOTS/PARCELS :	1
NO. OF SINGLE WATER HOUSE CONNECTIONS :	2
NO. OF TWIN WATER HOUSE CONNECTIONS :	0
NO. OF SEWER HOUSE CONNECTIONS :	2
DRAINAGE AREA:	LITTLE PATUXENT RIVER

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET & LOCATION MAP	1 OF 2
LAYOUT PLAN, WATER AND SEWER PROFILES	2 OF 2

QUANTITIES

NAME OF UTILITY CONTRACTOR :
SURVEY AND DRAFTING DIVISION AS-BUILT DATE :

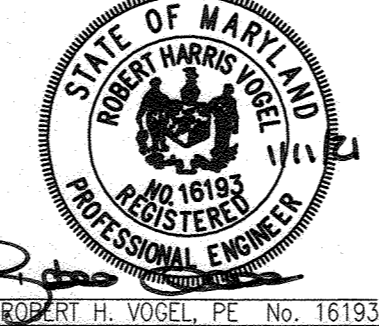
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
PUBLIC WATER				
10"x8" TAPPING SLEEVE & VALVE	1 EA	1	55' DIP	FORD/AMERICAN FLOW CONTROL
8" WATER - C900 (DR-18)	618 LF	618	C900	NORTH AMERICAN
8" WATER - DIP (FH)	77 LF	77	DIP	U.S. PIPE
8" 1/8" H. BEND	3 EA	5	DIP	STAR PIPE
8" 1/32" H. BEND	1 EA	1	DIP	STAR PIPE
8" - 1/32" VERT. BEND	2 EA	2	DIP	STAR PIPE
8" - 5" SWEEP	2 EA	2	PVC	CERTAINTED PIPE/MULTI FITTINGS
8" - VERT. COUPLING	3 EA	3	PVC	MULTI FITTINGS
8" X 6" TEE	3 EA	3	DI	STAR PIPE
6" VALVE	3 EA	3	DI	AMERICAN FLOW CONTROL
FIRE HYDRANT	3 EA	3	DI	AMERICAN DARLING
8" CAP AND BUTTRISS	3 EA	3	CONCRETE	
8" X 8" TEE	2 EA	2	DI	STAR PIPE
8" VALVE	4 EA	4	DI	AMERICAN FLOW CONTROL
PUBLIC SEWER				
8" PVC SEWER	21 LF	21	SPR-35	NATIONAL PIPE
STANDARD MANHOLES	1 EA	1	CONCRETE	CPC
DOGHOUSE MANHOLE	1 EA	1	CONCRETE	CPC

LEGEND:

- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING CLEANOUT
- EXISTING STORM DRAIN
- EXISTING STORM DRAIN INLET
- TREE LINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED WATER
- PROPOSED FIRE HYDRANT
- PROPOSED SEWER

OWNER / DEVELOPER
9190 LLC
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT
508 OLNEY SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21143
P: 410.461.7666 F: 410.461.8961 www.timmons.com



PROFESSIONAL CERTIFICATE
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. 16193
EXPIRATION DATE: 08-27-2023

DES: DZE
DRN: MP/KG
CHK: RHV
DATE: JANUARY 2021

NO. WRA "AS BUILT" QUANTITIES DATE: 4/6/23

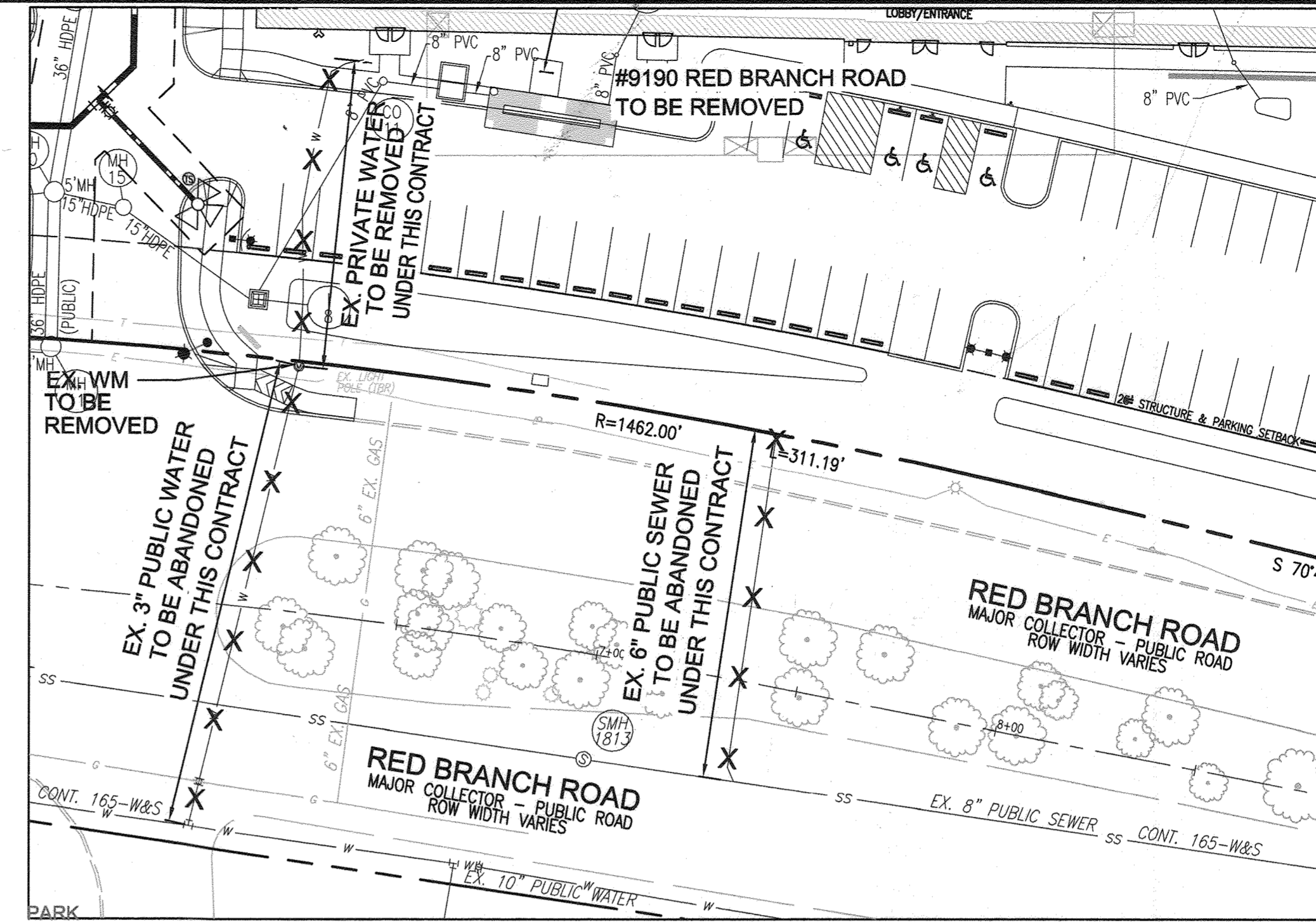
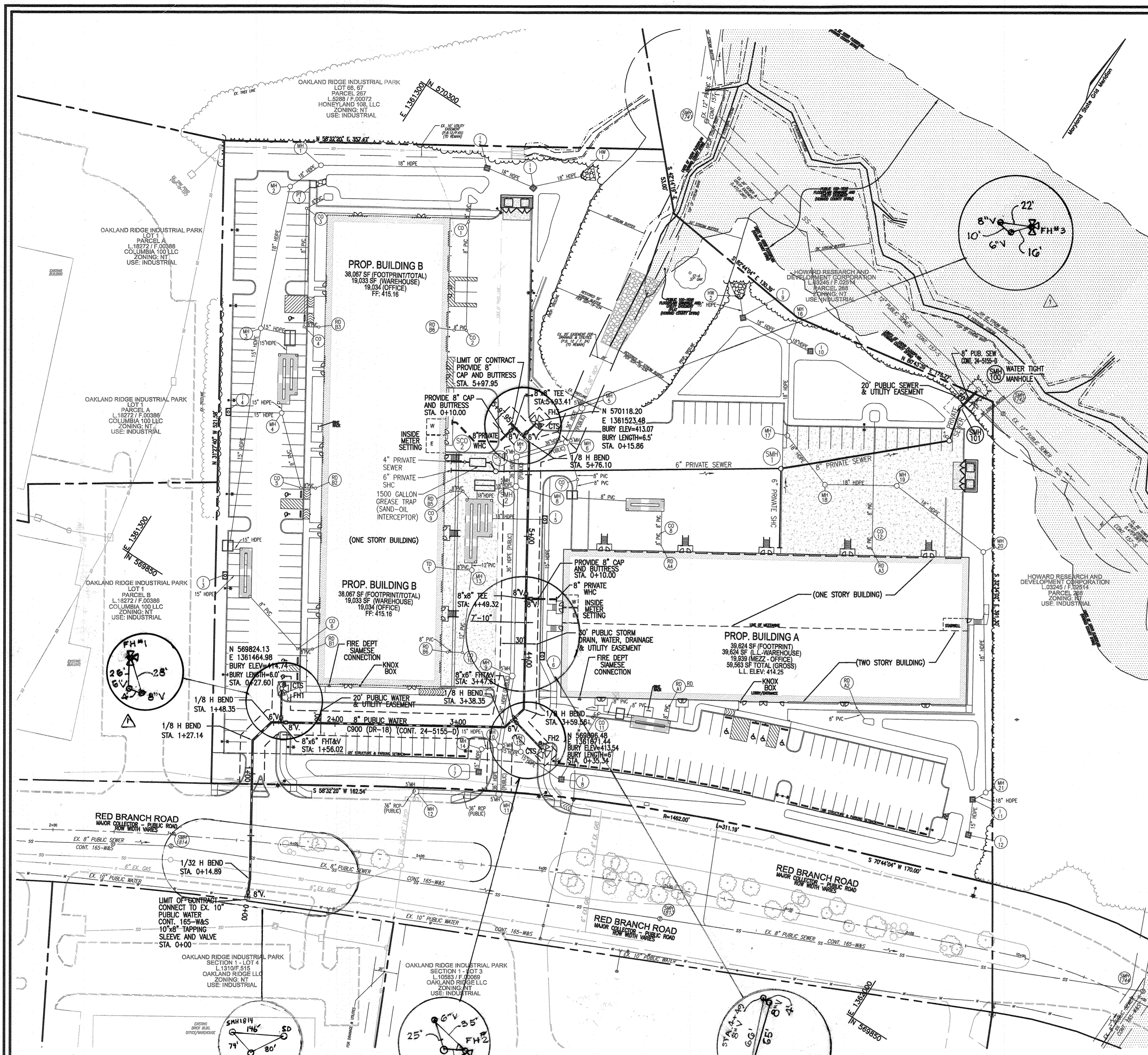
FINAL WATER AND SEWER CONSTRUCTION PLAN
CONTRACT 24-5155-D
COVER SHEET

600' SCALE MAP NO. 30 BLOCK NO. 17

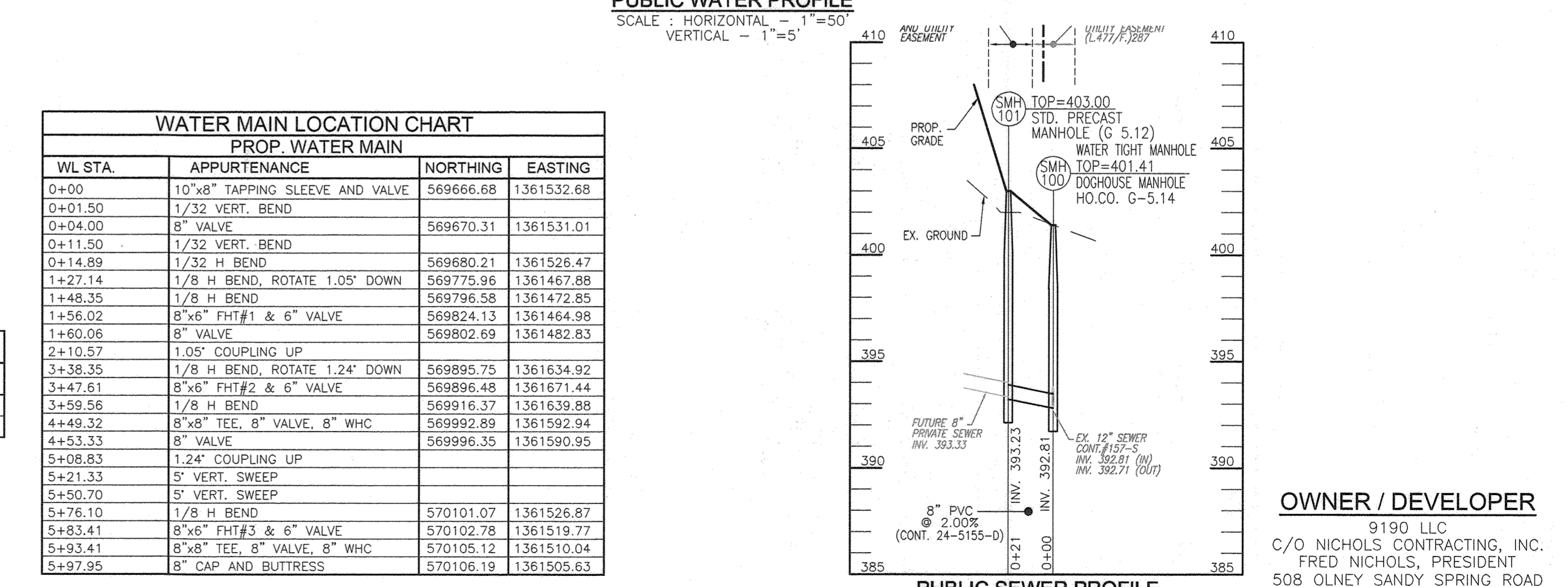
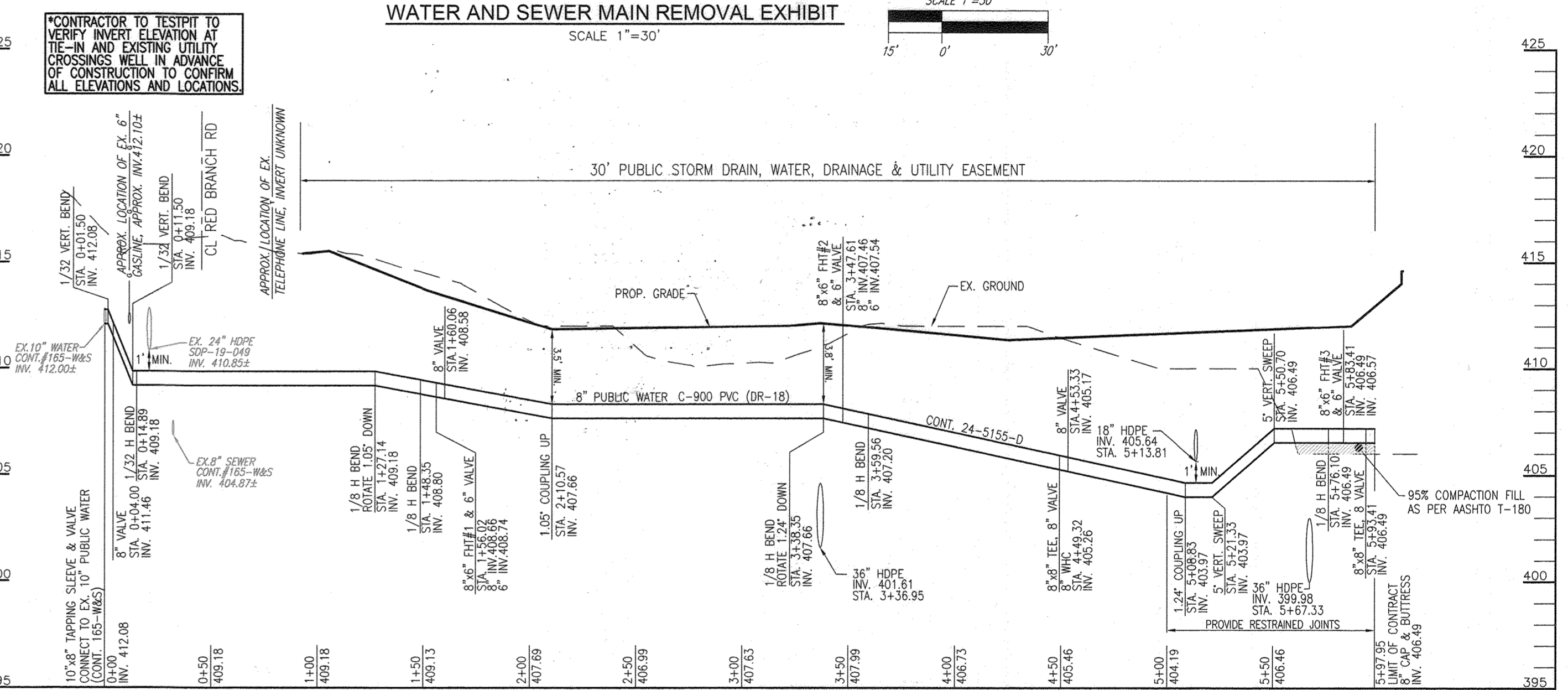
OAKLAND RIDGE INDUSTRIAL PARK
SECTION 1, LOT 2, PARCEL 239
9190 RED BRANCH ROAD

LOT 2 / PARCEL 239
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 1 OF 2



- LEGEND:**
- EXISTING CURB AND GUTTER
 - PROPOSED CURB AND GUTTER
 - EXISTING EDGE OF PAVING
 - EXISTING UTILITY POLE
 - EXISTING LIGHT POLE
 - EXISTING MAILBOX
 - EXISTING SIGN
 - EXISTING CLEANOUT
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 - EXISTING SANITARY LINE
 - EXISTING FIRE HYDRANT
 - EXISTING WATER LINE
 - PUBLIC WATER MAIN
 - FIRE HYDRANT
 - PROPOSED VALVE
 - PROPOSED TEE
 - PRIVATE WATER MAIN
 - PROPOSED SEWER MANHOLE
 - PUBLIC SEWER MAIN
 - PRIVATE SEWER MAIN
 - PROPOSED SEWER CLEANOUT



WATER MAIN LOCATION CHART
PROP. WATER MAIN

WL STA.	APPURTENANCE	NORTHING	EASTING
0+00	10"x8" TAPPING SLEEVE AND VALVE	569666.68	1361532.68
0+01.50	1/32" VERT. BEND		
0+04.00	8" VALVE	569670.31	1361531.01
0+11.50	1/32" VERT. BEND		
0+14.89	1/32" H BEND	569680.21	1361526.47
1+27.14	1/8" H BEND, ROTATE 1.05" DOWN	569775.96	1361467.85
1+48.35	1/8" H BEND	569796.58	1361472.85
1+56.02	8"x6" FHT#1 & 6" VALVE	569824.13	1361464.98
1+60.06	8" VALVE	569802.69	1361482.83
2+10.57	1.05" COUPLING UP		
3+38.35	1/8" H BEND, ROTATE 1.24" DOWN	569895.75	1361634.92
3+47.61	8"x6" FHT#2 & 6" VALVE	569896.48	1361671.44
3+59.56	1/8" H BEND	569916.37	1361639.88
4+49.32	8"x8" TEE, 8" VALVE, 8" WHC	569922.89	1361592.94
4+53.33	8" VALVE	569996.35	1361590.95
5+08.83	1.24" COUPLING UP		
5+21.33	5" VERT. SWEEP		
5+50.70	5" VERT. SWEEP		
5+76.10	1/8" H BEND	570101.07	1361526.87
5+83.41	8"x6" FHT#3 & 6" VALVE	570102.78	1361519.77
5+93.41	8"x8" TEE, 8" VALVE, 8" WHC	570105.12	1361510.04
5+97.95	8" CAP AND BUTTRISS	570106.19	1361505.63

MANHOLE LOCATION CHART

MH No.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	COMMENTS
SMH 100	STD. PRECAST DOGHOUSE MANHOLE (G 5.14)	N 570334.33 E 1361812.02	401.41	392.81	392.71	WATER TIGHT MANHOLE
SMH 101	STD. PRECAST MANHOLE (G 5.12)	N 570314.19 E 1361807.77	403.00	-	393.23	STANDARD MANHOLE

SEWER HOUSE CONNECTION - AS-BUILT LOCATION TABLE

LOT	STREET ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
BUILDING 'A'	9188 RED BRANCH ROAD		
BUILDING 'B'	9190 RED BRANCH ROAD		

WATER HOUSE CONNECTION - AS-BUILT LOCATION TABLE

LOT	STREET ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
BUILDING 'A'	9188 RED BRANCH ROAD		
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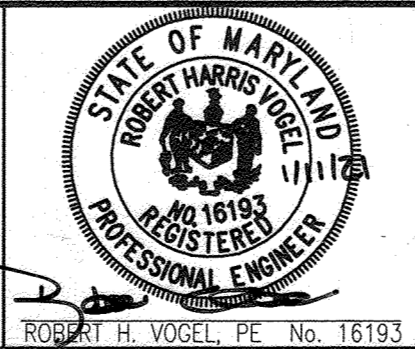
NOTE:
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C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT
508 OLNEY SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
1-24-13

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
2.8.21

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21143
P: 410.461.7666 F: 410.461.8961 www.timmons.com



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DES:	DZE
DRN:	MP/KG
CHK:	RVV
DATE:	JANUARY 2021
NO.	WRA "AS BUILT"
REVISION	4/6/23

**FINAL WATER AND SEWER
CONSTRUCTION PLAN
CONTRACT 24-5155-D
LAYOUT PLAN
WATER AND SEWER PROFILES**

OAKLAND RIDGE INDUSTRIAL PARK
SECTION 1, LOT 2, PARCEL 239
9190 RED BRANCH ROAD

TAX MAP 30, GRID 17
2ND ELECTION DISTRICT
LOT 2 / PARCEL 239
HOWARD COUNTY, MARYLAND

SCALE
AS
SHOWN
SHEET
2 OF 2