

QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER / SUPPLIER
8" PVC C900 WATER*	782 L.F.	782	C900	National
6" PVC C900 WATER*	172 L.F.	172	C900	National
8" 1/8 HB	2 EA.	2	---	Tyler Union
8" 1/16 HB	3 EA.	3	---	Tyler Union
8" 1/32 HB	2 EA.	2	---	Tyler Union
8" X 6" TS&V	2 EA.	2	---	Smith Blair
8" VALVES	1 EA.	1	---	American Flow
6" VALVES	3 EA.	3	---	American Flow
8" X 6" FHT	3 EA.	3	---	Tyler Union
FIRE HYDRANT	3 EA.	3	---	American Flow
8" 1/8 VB	3 EA.	3	---	Tyler Union
8" PVC SDR 35 SEWER	35 L.F.	42	---	National Pipe
PRECAST MANHOLE	1 EA.	1	---	Precast
4" VALVE	1 EA.	1	---	American Flow

\*SEE NOTE 1 OF WATER NOTES

### 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 June 25, 2015 by Pennoni Associates, Inc. and Virginia Resource Mapping on July 5, 2014. The boundary survey is provided by Pennoni Associates, Inc., dated June 25, 2015.
- 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. x No. x and No. x. (Engineering/Survey firm shall provide descriptions of vertical control points, i.e. iron bars cross cuts on concrete structures).
- 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 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 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 1-800-252-1133  
BCE (contractor services) 410-637-8713  
BCE (emergency) 410-685-0123  
Bureau of Utilities 410-313-4900  
Colonial Pipeline Co. 410-795-1390  
Miss Utility 1-800-257-7777  
State Highway Administration 410-531-5533  
Verizon 1-800-743-0033
- 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 18.114(a) of the Howard County Code.

NAME OF UTILITY CONTRACTOR: <b>COSTELLO</b>	CHECKBOX
Sediment control measures for this contract will be implemented in accordance with Section 308 of the Specifications located in Design Manual IV and as shown on <b>SDP-16-038</b>	AS-BUILT DATE: <b>11/2/17</b>
SITE DEVELOPMENT PLAN REFERENCE #: <b>SDP-16-038</b>	DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MARK STROMDAHL 410-313-2700
This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.	DATE: <b>7/19/16</b>
HOWARD SOIL CONSERVATION DISTRICT	DATE: <b>7-26-16</b>

# WATER AND SEWER PLANS

# HCLS ELKRIDGE BRANCH AND 50+ CENTER

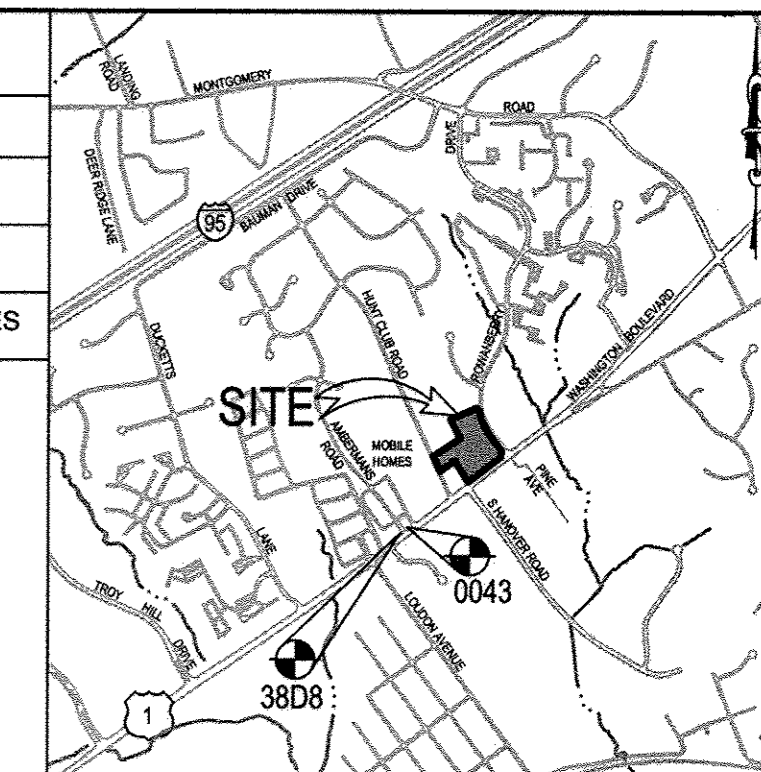
## 6540 WASHINGTON BOULEVARD

## 1st ELECTION DISTRICT

## HOWARD COUNTY, MARYLAND

## CONTRACT NO.

SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	PUBLIC WATER AND SEWER PLAN
3	PUBLIC WATER AND SEWER PROFILES



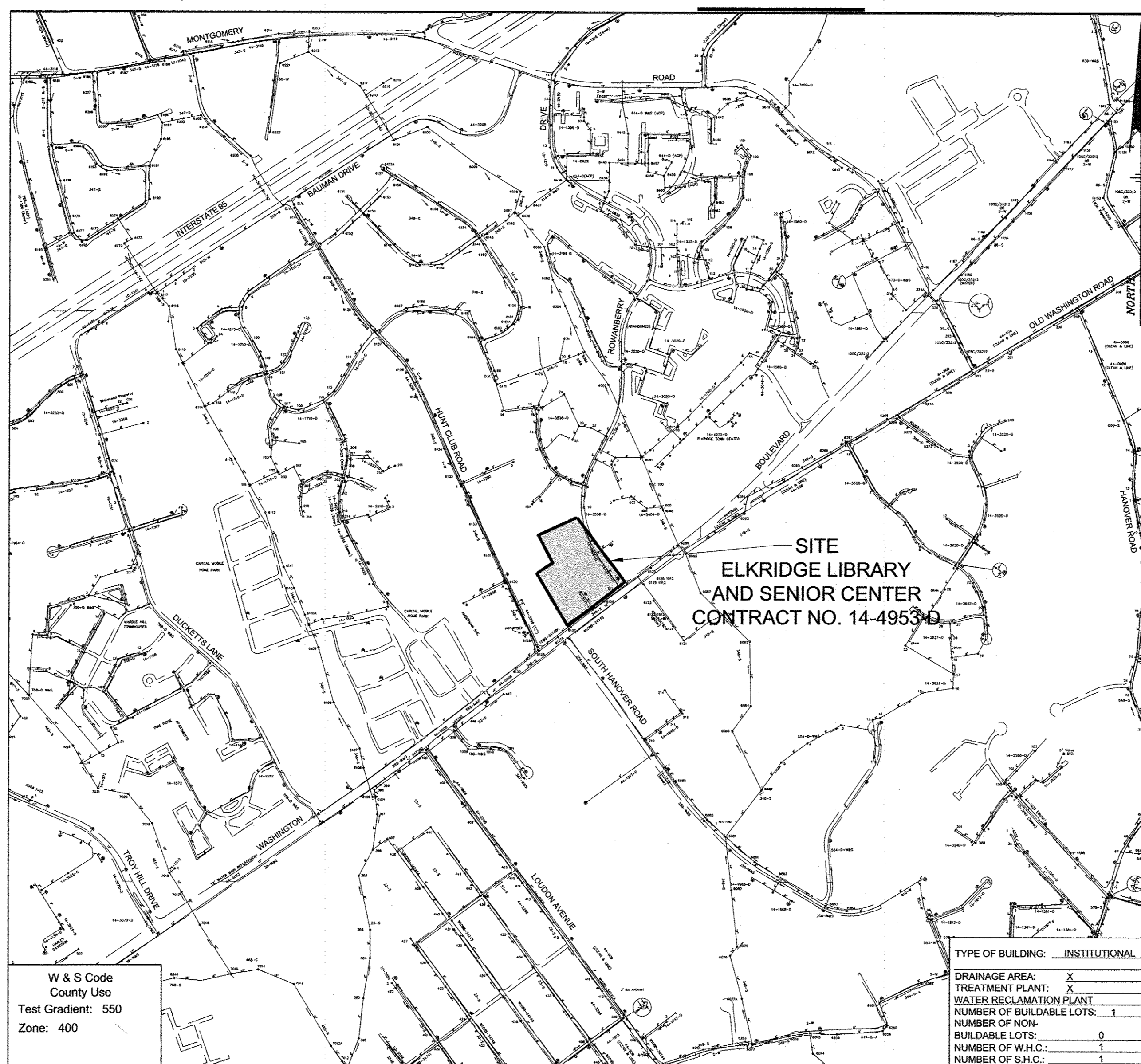
### VICINITY MAP

SCALE: 1"=2,000'  
HOWARD COUNTY  
ADC MAP/GRID NO. 4937-C8  
ADC MAP USE LICENSE #3652

### BENCHMARKS

HOWARD COUNTY SURVEY CONTROL: 0043  
ELEVATION 188.491  
LOCATION IS 14.8' FROM THE CENTERLINE OF AMBERMANS ROAD AND 7.8' FROM THE SIDEWALK ALONG ROUTE 1.  
HOWARD COUNTY SURVEY CONTROL: 38D8  
ELEVATION 192.132  
LOCATION IS 46.8' SOUTH OF BSE POLE #235170 AND 3.5' FROM THE SIDEWALK ALONG ROUTE 1.

LEGEND:	
	EXISTING SEWER MAIN
	EXISTING WATER MAIN
	PROPOSED WATER MAIN
	PROPOSED SEWER MAIN
	PROPOSED FIRE HYDRANT
	PROPOSED VALVE



LOCATION MAP  
SCALE: 1"=600'

### AS-BUILT

By: *[Signature]* Date: **11/2/17**

### WATER NOTES

- ALL WATER MAINS TO BE C900 PVC WITH MIN WALL THICKNESS SDR 18 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 4'-0" 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 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 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.
- 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 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 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 BENDINGS 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. THAT 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 CERTAINTIED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL.

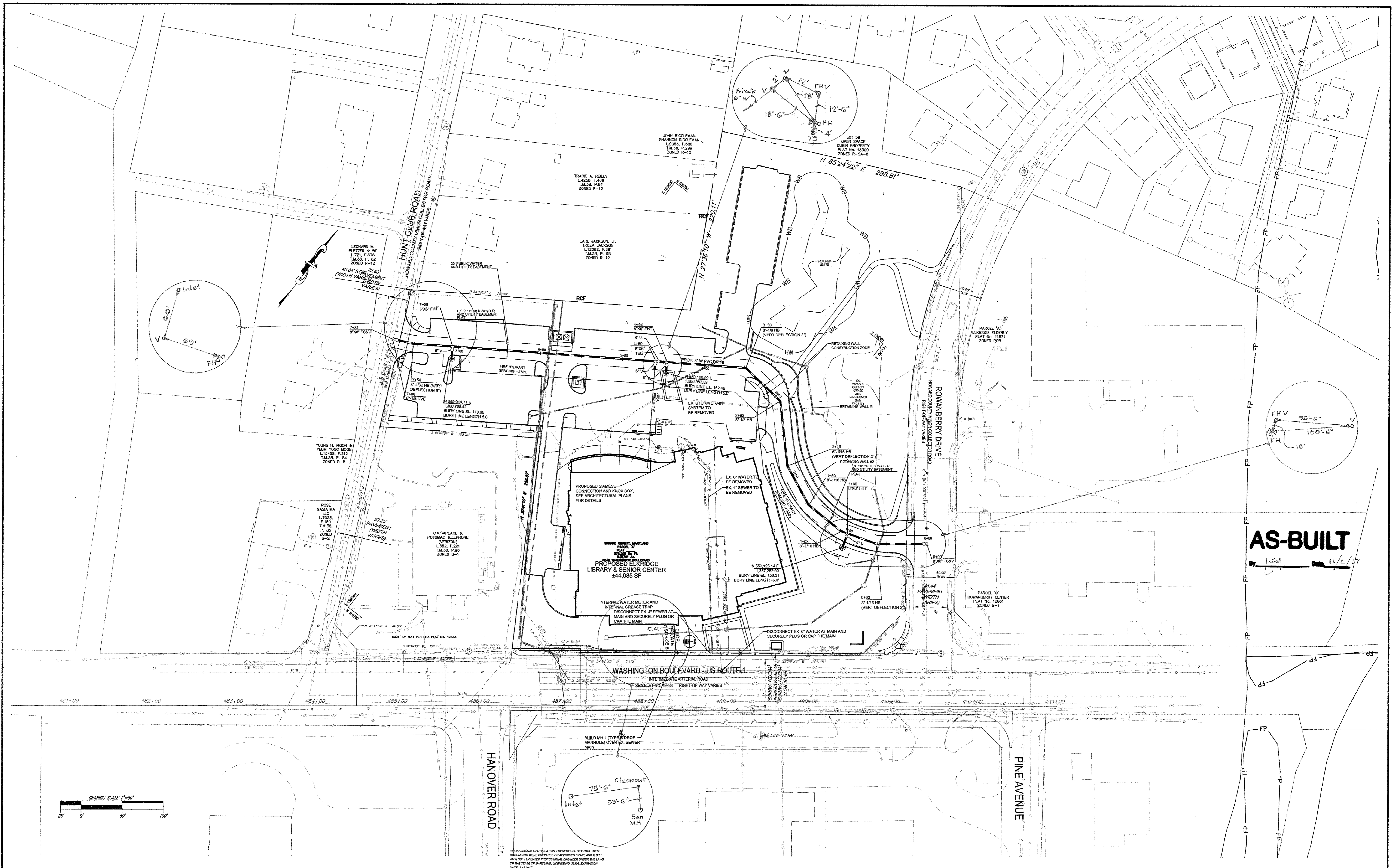
FIVE DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 225 PSI, DR 18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR18 OR EQUAL.

WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF AWWA C900 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 EBAA IRON, INC. OR APPROVED EQUAL.

### SEWER NOTES

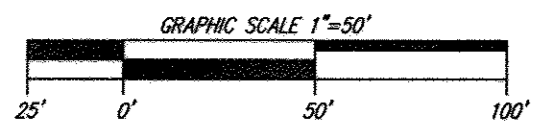
- ALL SEWER MAINS SHALL BE P.V.C. WITH MINIMUM WALL THICKNESS OF SDR 35 UNLESS OTHERWISE NOTED.
- ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND 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 THE CELLAR CANNOT BE SERVED.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND	<b>Pennoni</b> Pennoni Associates Inc. Consulting Engineers 8818 Centre Park Drive Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282	DES: JSN DRN: JSN CHK: SKC DATE: 6/16/16	BY: _____ NO. _____ REVISION _____ DATE _____	600' SCALE MAP NO. _____ BLOCK NO. _____	HCLS ELKRIDGE BRANCH AND 50+ CENTER T.M. 38, PARCELS 97 & 478 ZONED B-1 & R-12 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND CONTRACT NO. 14-4953-D	SCALE AS SHOWN SHEET 1 OF 3
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**AS-BUILT**

11/2/17



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

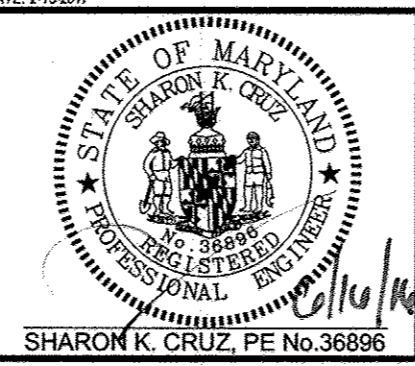
*Steve C. Coon* 7/26/16  
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING  
HOWARD COUNTY, MARYLAND

*Chad Elmer* 7/26/16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**Pennoni**

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Consulting Engineers  
8818 Centre Park Drive Suite 200  
Columbia, MD 21045  
T 410.997.8900 F 410.997.9282



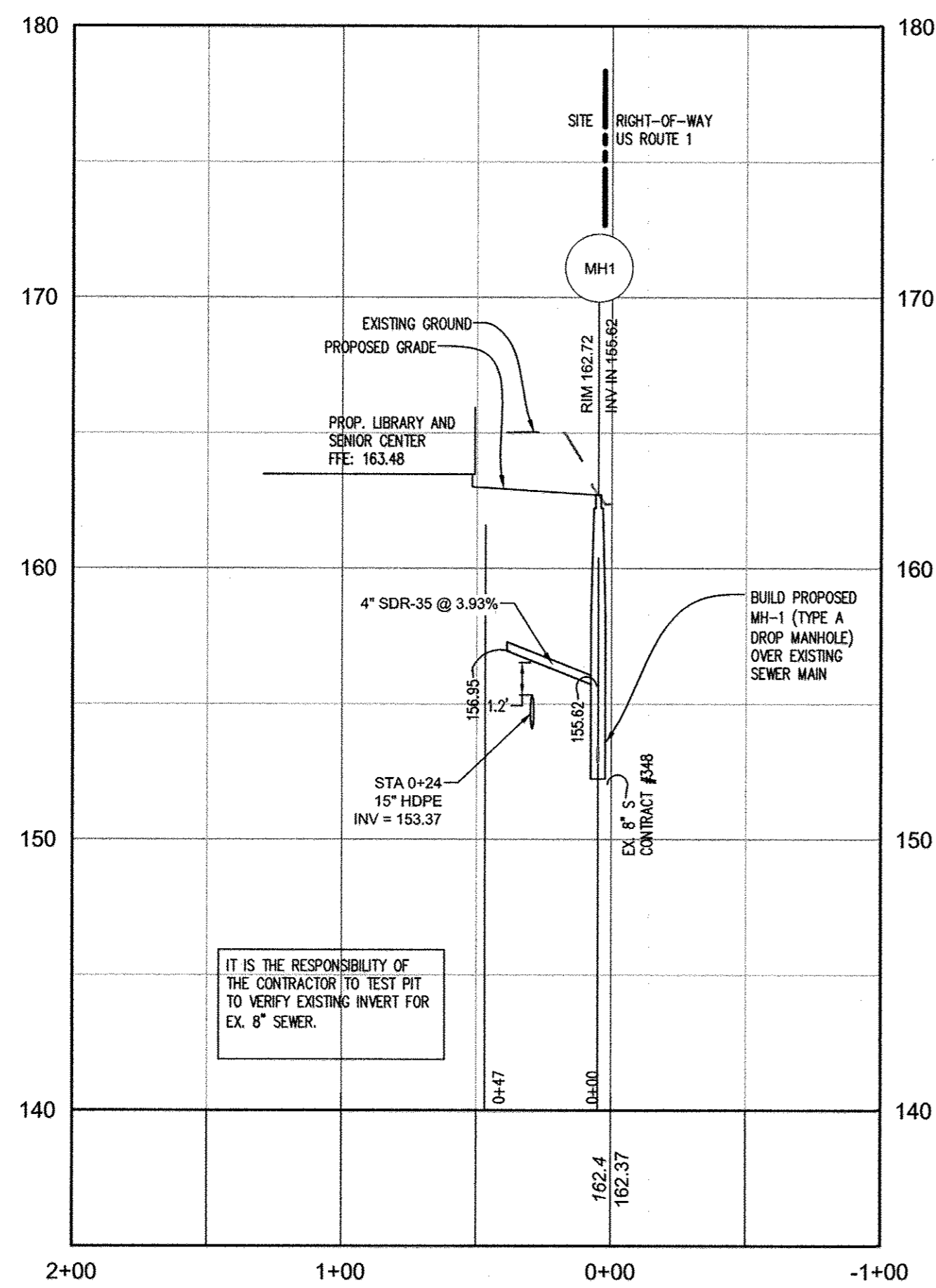
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**PUBLIC WATER AND SEWER MAIN PLAN**

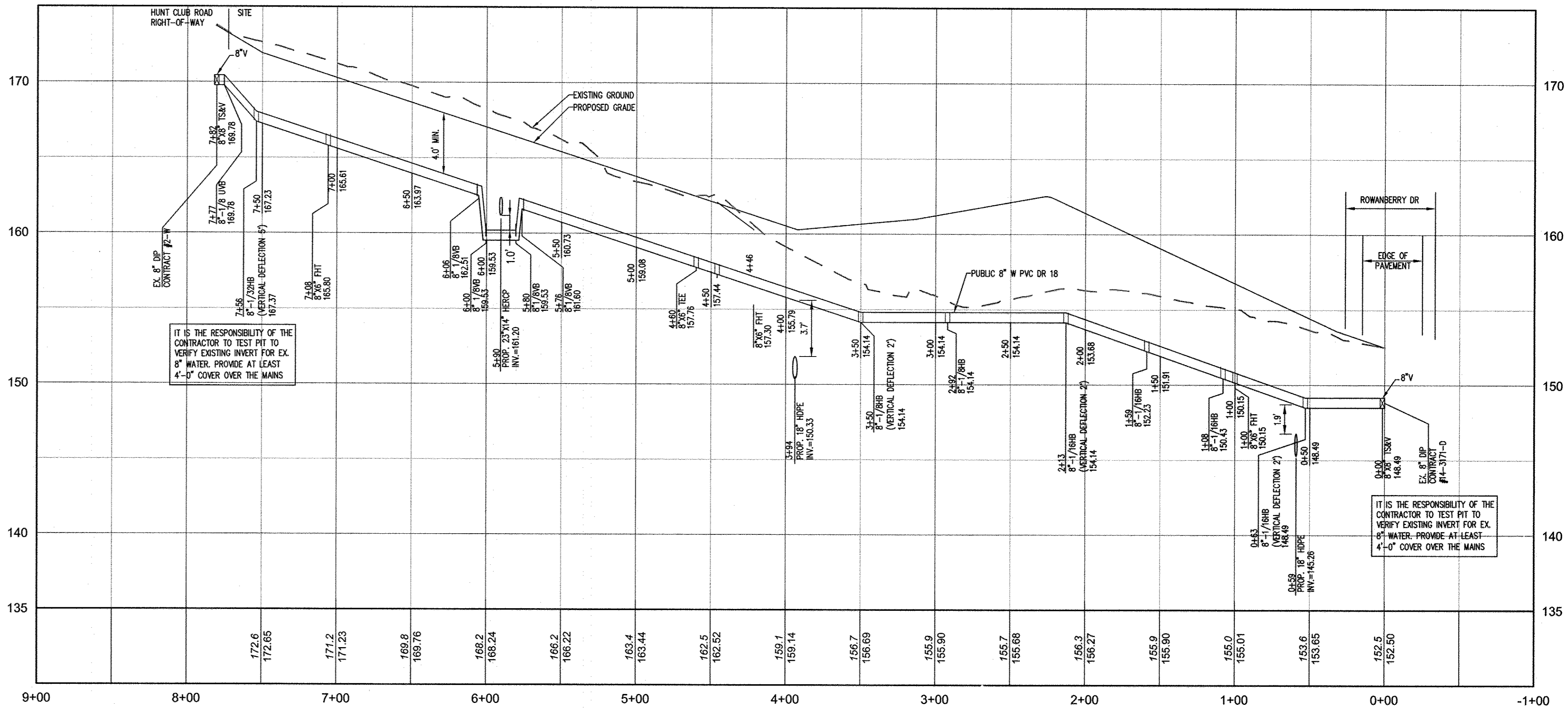
**HCLS ELKRIDGE BRANCH AND 50+ CENTER**  
T.M. 38, PARCELS 97 & 478 ZONED B-1 & R-12  
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HOWARD COUNTY, MARYLAND  
CONTRACT NO. 14-4953-D

SCALE  
1"=50'

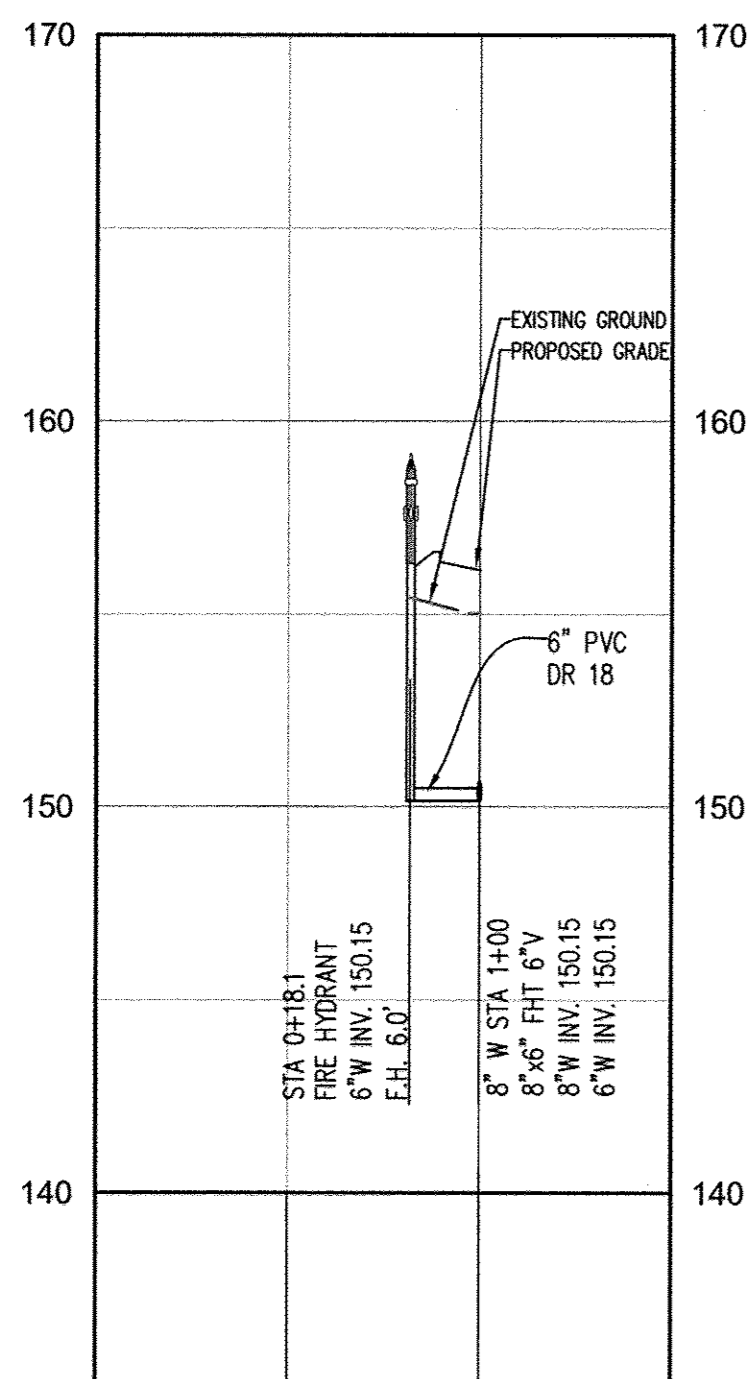
SHEET  
2 OF 3



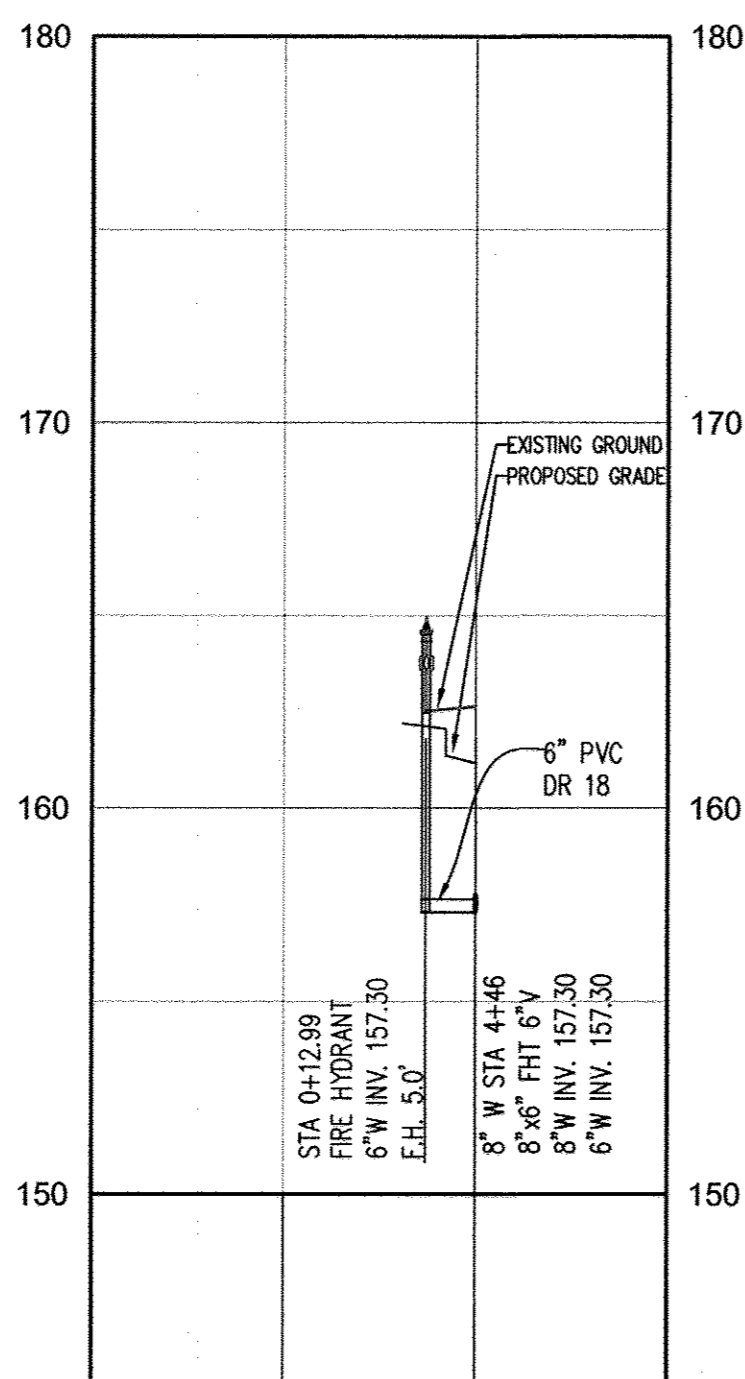
SEWER SERVICE 3+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



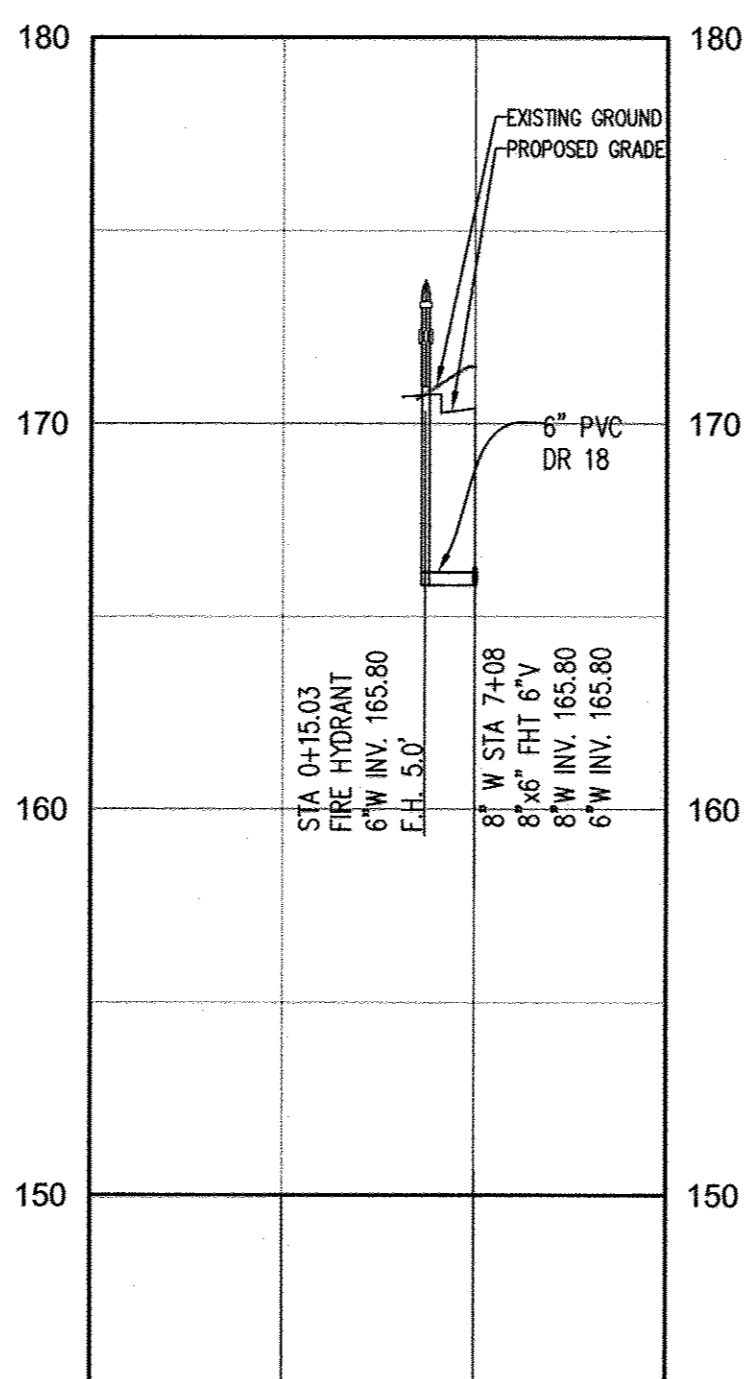
WATERLINE 10+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



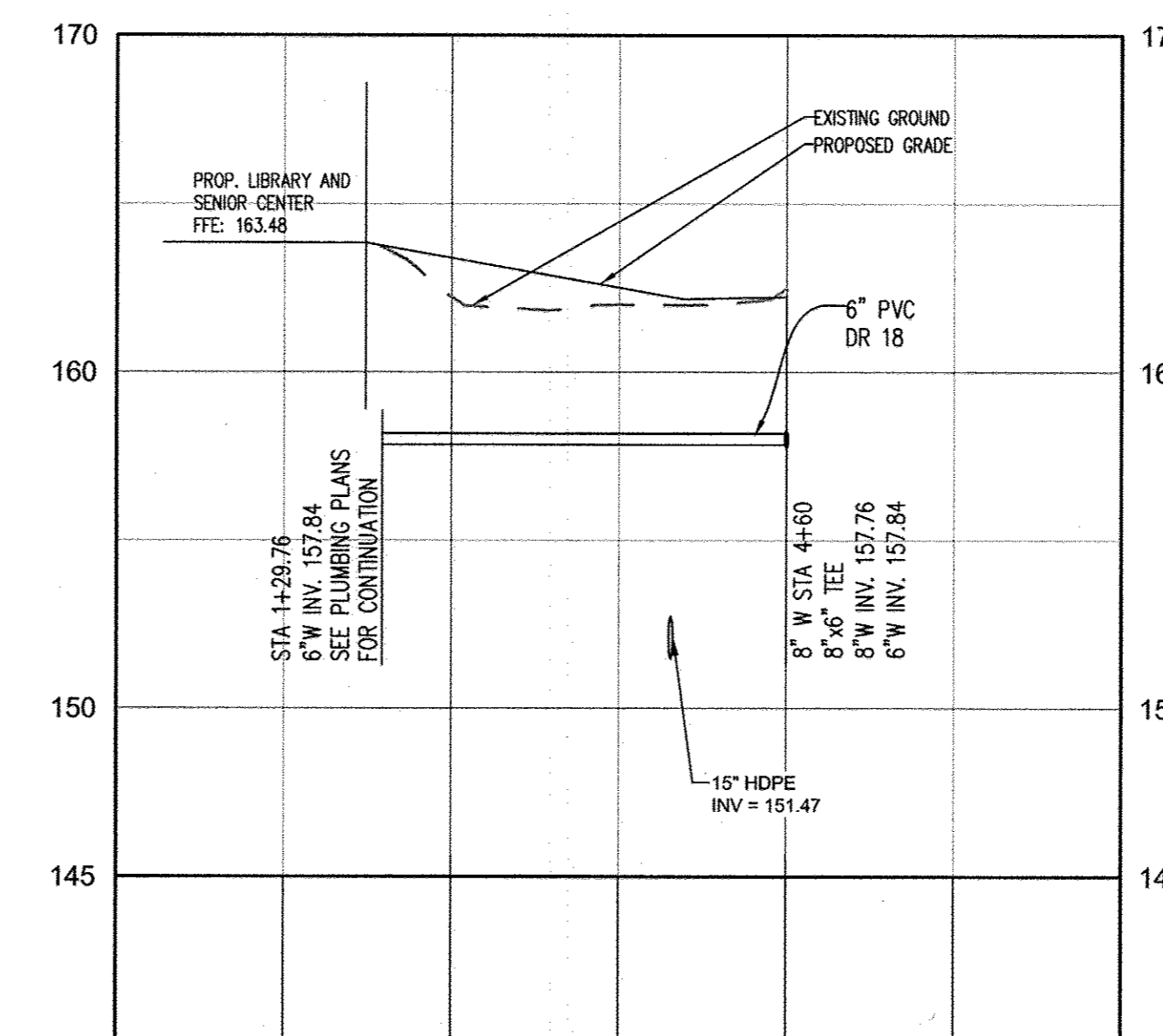
FIRE HYDRANT PROFILE 1+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



FIRE HYDRANT PROFILE 4+46  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



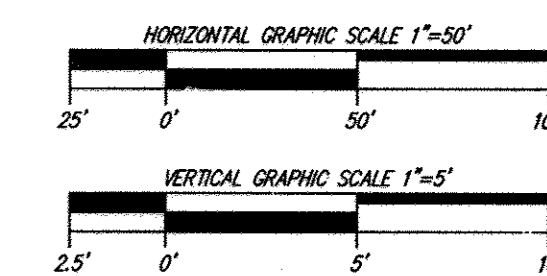
FIRE HYDRANT PROFILE 7+08  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



WATERLINE 4+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

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Date 11/2/17

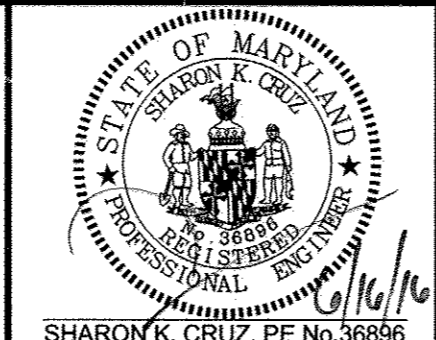


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