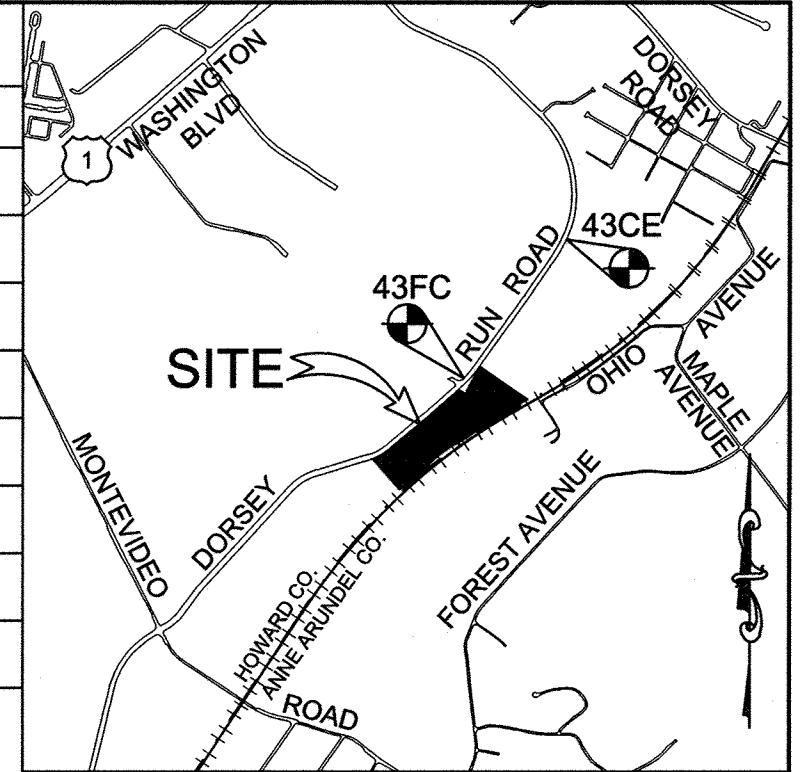


WATER AND SEWER PLANS

TERRAPIN COMMERCE CENTER - BUILDING B

DORSEY RUN ROAD 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND CONTRACT NO. 14-5012-D

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



VICINITY MAP

SCALE: 1"=2,000'
HOWARD COUNTY
ADC MAP 35 GRID A7
ADC MAP USE LICENSE #3652

BENCHMARKS

HOWARD COUNTY SURVEY CONTROL: 43CE
ELEVATION 199.143
N 549,955.535 E 1,381,719.698
LOCATION IS 3' FROM FACE OF CURB ALONG DORSEY RUN ROAD.

HOWARD COUNTY SURVEY CONTROL: 43FC
ELEVATION 157.933
N 548,199.445 E 1,380,681.244
LOCATION IS 3' FROM FACE OF CURB ALONG DORSEY RUN ROAD.

LEGEND:

- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- PROPOSED SEWER MAIN
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE

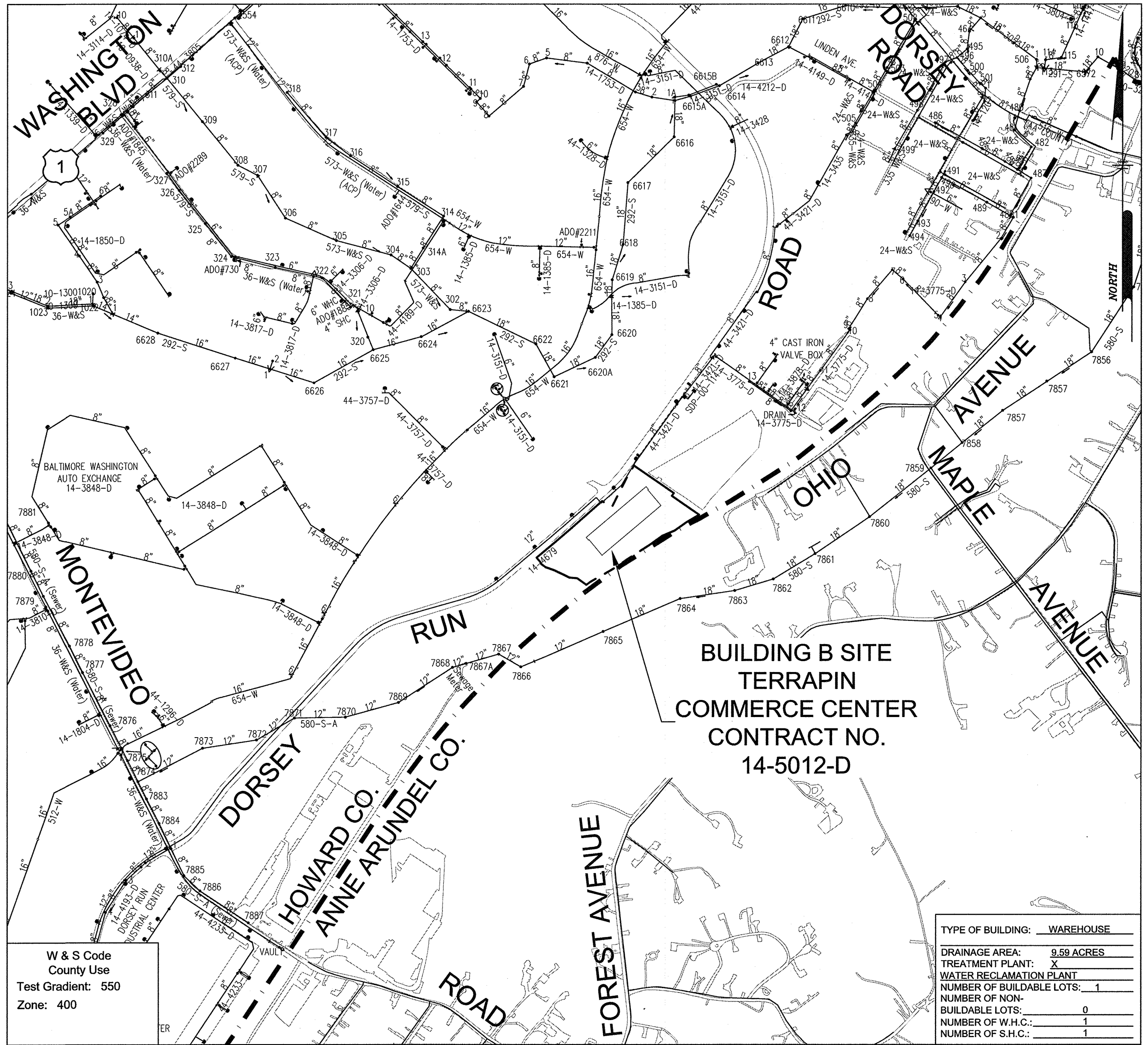
QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER / SUPPLIER
8" PVC C900 WATER DR 18"	1,475 L.F.	1,475 LF	C900 DR18	JM EAGLE
6" PVC C900 WATER DR 18"	81 L.F.	81 LF	C900 DR18	JM EAGLE
8" 1/8 HB	4 EA.	4 EA	M.J	TYLER UNION
8" HDC	2 EA.	2 EA	M.J	TYLER UNION
8" 1/32 HB	2 EA.	2 EA	M.J	TYLER UNION
12" X 8" TS&V	1 EA.	1 EA	2500 MJ	AMERICAN FLOW
8" X 8" TS&V	1 EA.	1 EA	2500 MJ	AMERICAN FLOW
8" X 6" FHT	3 EA.	3 EA	M.J	TYLER UNION
FIRE HYDRANT	3 EA.	3 EA		AMERICAN DARLING
8" 1/32 VB	6 EA.	6 EA	M.J	TYLER UNION
8" TEE	1 EA.	1 EA	M.J	TYLER UNION
8" 5" SWEEP	2 EA.	2 EA	DR-18	TYLER UNION
12" VALVE	1 EA.			

*SEE NOTE 1 OF WATER NOTES

GENERAL NOTES

1. 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.
2. Topographic field surveys were performed in February 2016 by Pennoni Associates and Mapping Resource Group. The boundary survey is provided by Pennoni Associates, Inc., dated February 2016.
3. 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. 43CE and No. 43FC.
4. All pipe elevations shown are invert elevations unless otherwise noted on the plans.
5. 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.
6. 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.
7. 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.
8. 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 (contractor services)	410-637-8713
BGE (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
9. 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.
10. 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.
11. 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.
12. The final pavement repair associated with the work of contracts 4995 and 5012 shall extend 50 feet in both directions from the centerline of the farthest utility cut on either end - i.e., one complete final pavement patch is required.



WATER NOTES

1. ALL WATER MAINS TO BE C900 PVC WITH MIN WALL THICKNESS SDR 18 UNLESS OTHERWISE NOTED.
2. TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 4'-0" OF COVER UNLESS OTHERWISE NOTED.
3. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
4. ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
5. 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.
6. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
7. TRACER WIRE AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
8. 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.
9. 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 HARNESES. 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.
10. 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.
11. 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. 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 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 (17X) BLUE BRUTE DR18 OR EQUAL.
12. 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

1. ALL SEWER MAINS SHALL BE P.V.C. WITH MINIMUM WALL THICKNESS OF SDR 35 UNLESS OTHERWISE NOTED.
2. ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
3. FORCE MAINS SHALL BE D.I.P. ONLY.
4. MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
5. MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVERS, STANDARD DETAIL GS.52. WHERE WATERTIGHT FRAME AND COVER IS USED, SET TOP OF FRAME 1" - 6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
6. HOUSE(S) WITH THE SYMBOL "C.N.S" INDICATES THAT THE CELLAR CANNOT BE SERVED.

NAME OF UTILITY CONTRACTOR :		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 SDP-17-037		AS-BUILT DATE <u>9/24/16</u>
SITE DEVELOPMENT PLAN REFERENCE #: SDP-17-037 This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.		SURVEY AND DRAFTING DIVISION
DEVELOPER: DCT INDUSTRIAL... 12011 GUILFORD ROAD SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020		OWNER: DCT MEARS LLC 12011 GUILFORD ROAD SUITE 102 ANNAPOLIS JUNCTION, MD 20701 ATTN: FRED FERRARO PHONE: 410-645-5020
HOWARD SOIL CONSERVATION DISTRICT	DATE <u>8/1/17</u>	

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND [Signature] <u>7/19/17</u> CHIEF, BUREAU OF UTILITIES DATE	DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND [Signature] <u>8-7-17</u> CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
--	---

Pennoni

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



DES: AGS			
DRN: AGS			
CHK: SKC	VC1	7	AS-BUILT
DATE: 03/21/17	NTD	1	ADD GENERAL NOTE 12
BY	NO.	REVISION	DATE

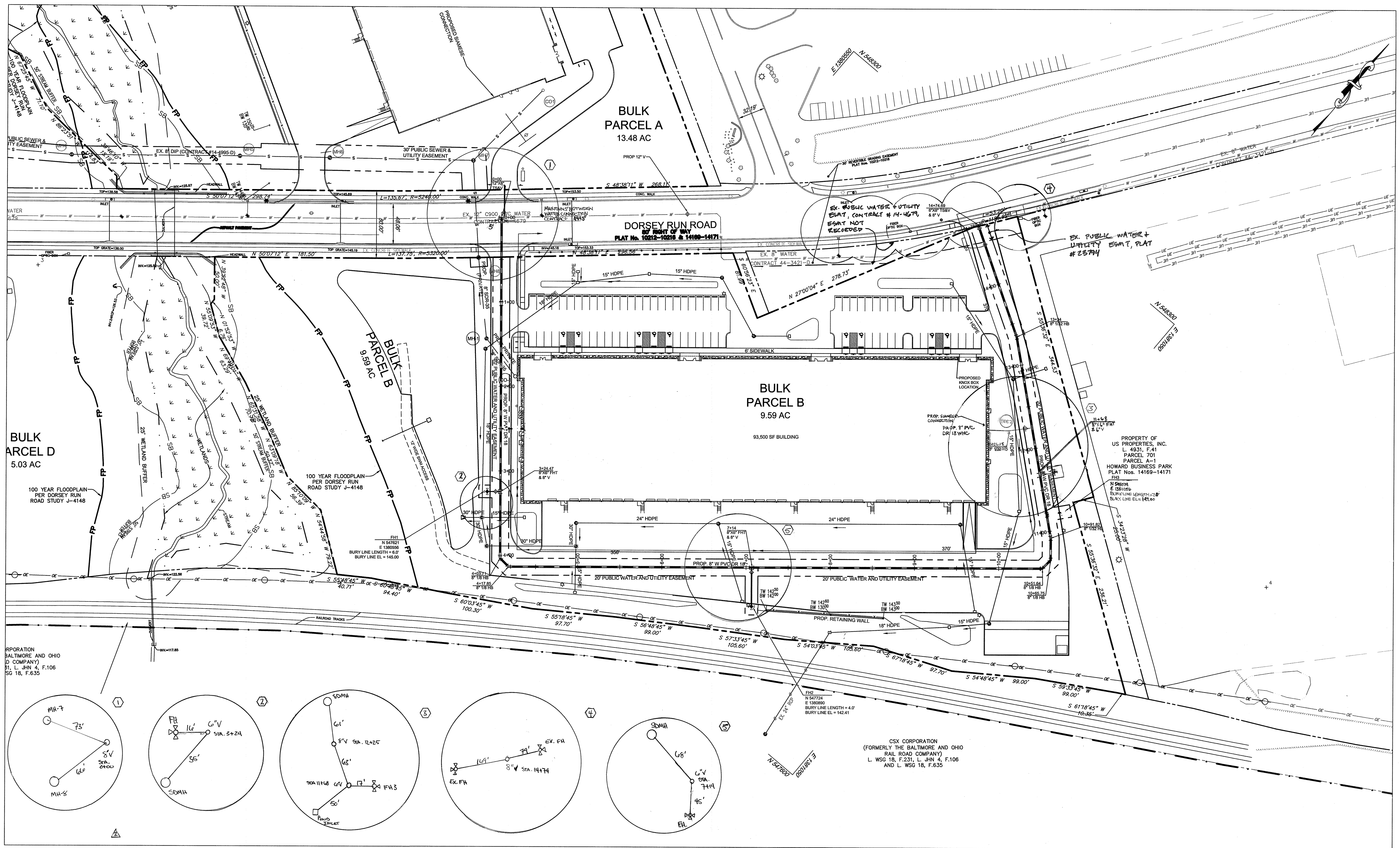
PUBLIC WATER AND SEWER MAIN PLAN

600' SCALE MAP NO. _____ BLOCK NO. _____

TERRAPIN COMMERCE CENTER
T.M. 43, PARCELS 51 GRID 10 ZONED M-2
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 14-5012-D

SCALE
AS SHOWN

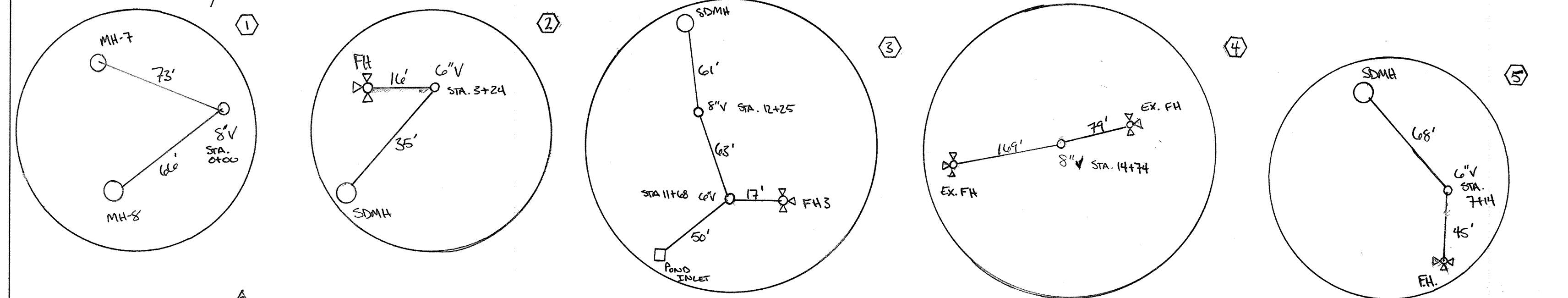
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1 OF 4



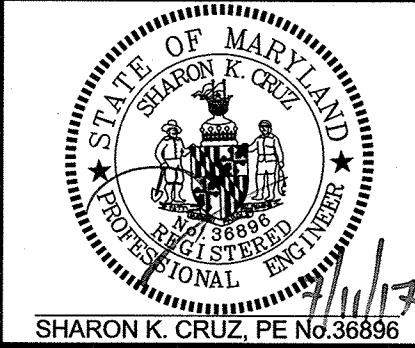
PROPRIETARY AND CONFIDENTIAL
 CORPORATION
 BALTIMORE AND OHIO
 ID COMPANY)
 31, L. JHN 4, F.106
 SG 18, F.635

PROPERTY OF
 US PROPERTIES, INC.
 L. 4931, F.41
 PARCEL 701
 PARCEL A-1
 HOWARD BUSINESS PARK
 PLAT Nos. 14169-14171

CSX CORPORATION
 (FORMERLY THE BALTIMORE AND OHIO
 RAIL ROAD COMPANY)
 L. WSG 18, F.231, L. JHN 4, F.106
 AND L. WSG 18, F.635



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. 36886, EXPIRATION
 DATE 3-15-2017



DES:	AGS				
DRN:	AGS				
CHK:	SKC	KCL	2	AS-BUILT	7/24/18
DATE:	03/21/17	NTD	1	REVISE WMC AND FHS	1/22/18
BY:				REVISION	DATE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 CHIEF, BUREAU OF UTILITIES

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

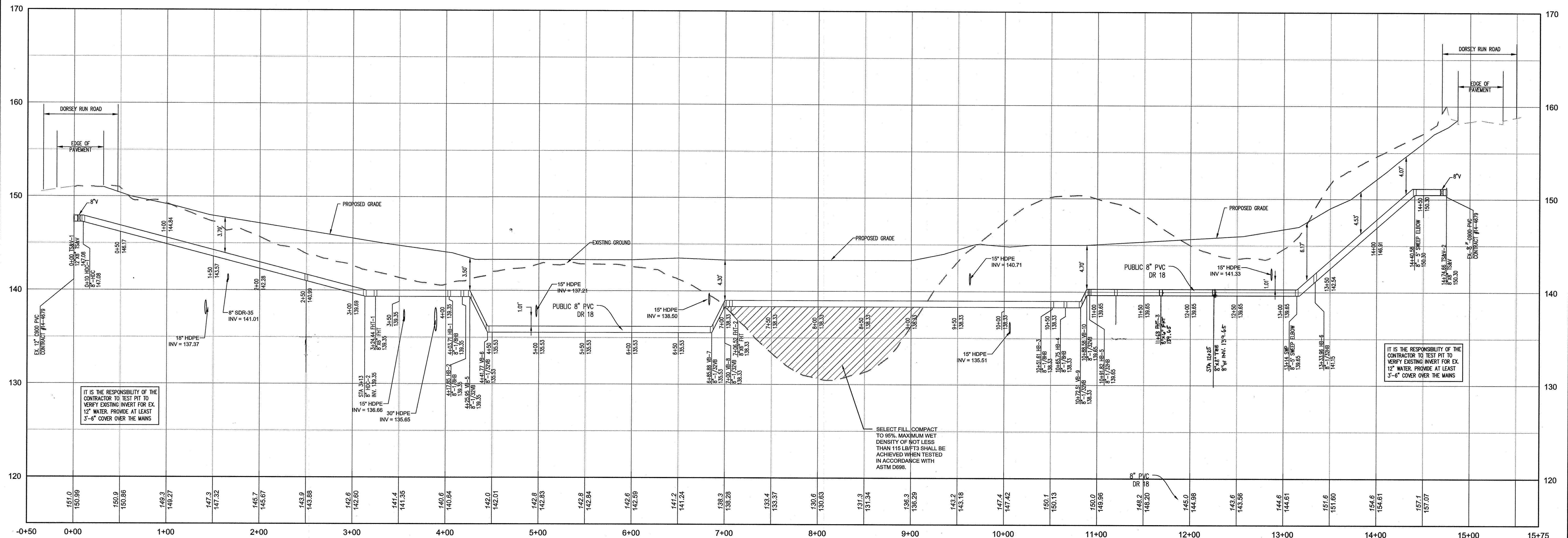
Pennoni
 Pennoni Associates Inc.
 Consulting Engineers
 8818 Centre Park Drive Suite 200
 Columbia, MD 21045
 T 410.997.8900 F 410.997.9282

PUBLIC WATER AND SEWER MAIN PLAN

600' SCALE MAP NO. BLOCK NO.

TERRAPIN COMMERCE CENTER
 T.M. 43, PARCELS 51 GRID 10 ZONED M-2
 1st ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 14-5012-D

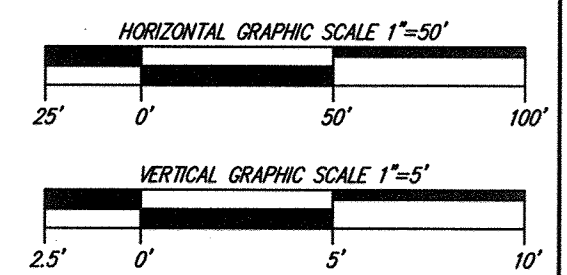
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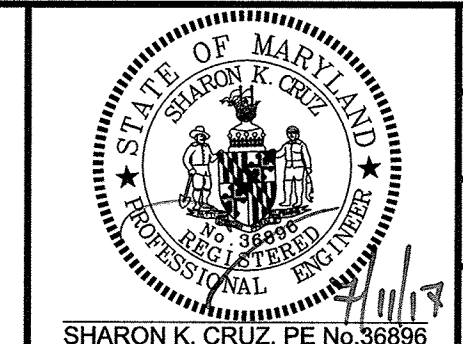
WATER ALIGNMENT BUILDING B 17+00
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 VERTICAL SCALE: 1" = 5'

ID	TYPE	NORTHING	EASTING	STATION
FHT-1	8"X8" FHT	547831.0941	1380568.1326	3+24.44
FHT-2	8"X8" FHT	547755.3143	1380854.0436	7+06.52
FHT-3	8"X8" FHT	548074.6447	1381055.5160	11+46.8
HB-1	8" 1/8 HB	547570.4857	1380619.1794	4+03.68
HB-2	8" 1/8 HB	547569.2790	1380633.2700	4+17.82
HB-3	8" 1/8 HB	547977.5625	1381118.0294	10+51.61
HB-4	8" 1/8 HB	547991.6531	1381119.2361	10+65.75
HB-5	8" 1/32 HB	548011.5936	1381102.4414	10+91.82
HB-6	8" 1/32 HB	548167.3803	1380917.0671	13+33.96
HDC-1	8" HIGH DEFLECTION COUPLING	547871.5932	1380365.5748	0+10
HDC-2	8" HIGH DEFLECTION COUPLING	547639.8698	1380560.7413	3+12.96
SWP-1	8" 5 DEG SWEEP ELBOW	548221.2747	1380826.1095	14+39.69
SWP-2	8" 5 DEG SWEEP ELBOW	548154.5144	1380932.3766	13+13.96
TEE2	8"X8" TEE (WHC)	548074.6447	1381000.3227	12+25
TS&V-1	12"X8" TS&V	547879.2418	1380359.1329	0+00
TS&V-2	12"X8" TS&V	548239.1005	1380796.0247	14+74.66
VALVE	12" VALVE INSTALLED ON EX. 12" MAIN	548025.0926	1380524.7612	
VB-5	8" 1/32 VB	547574.5174	1380639.4895	4+25.95
VB-6	8" 1/32 VB	547884.7085	1380651.5896	4+41.77
VB-7	8" 1/32 VB	547741.9632	1380838.2998	6+85.88

ID	TYPE	NORTHING	EASTING	STATION
VB-8	8" 1/32 VB	547751.0592	1380849.0996	7+00
VB-9	8" 1/32 VB	547996.7971	1381114.8486	10+72.51
VB-10	8" 1/32 VB	548009.1154	1381104.5286	10+88.58



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3888. EXPIRATION DATE: 2-15-2019



DES:	AGS			
DRN:	AGS			
CHK:	SKC			
DATE:	03/21/17			
NTD	1	REVISE WHC AND FH3		1/18/18
BY	NO.	REVISION		DATE

PUBLIC WATER AND SEWER MAIN PROFILES

TERRAPIN COMMERCE CENTER
 T.M. 43, PARCELS 51 GRID 10 ZONED M-2
 1st ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 14-5012-D

SCALE AS SHOWN
 SHEET 3 OF 4

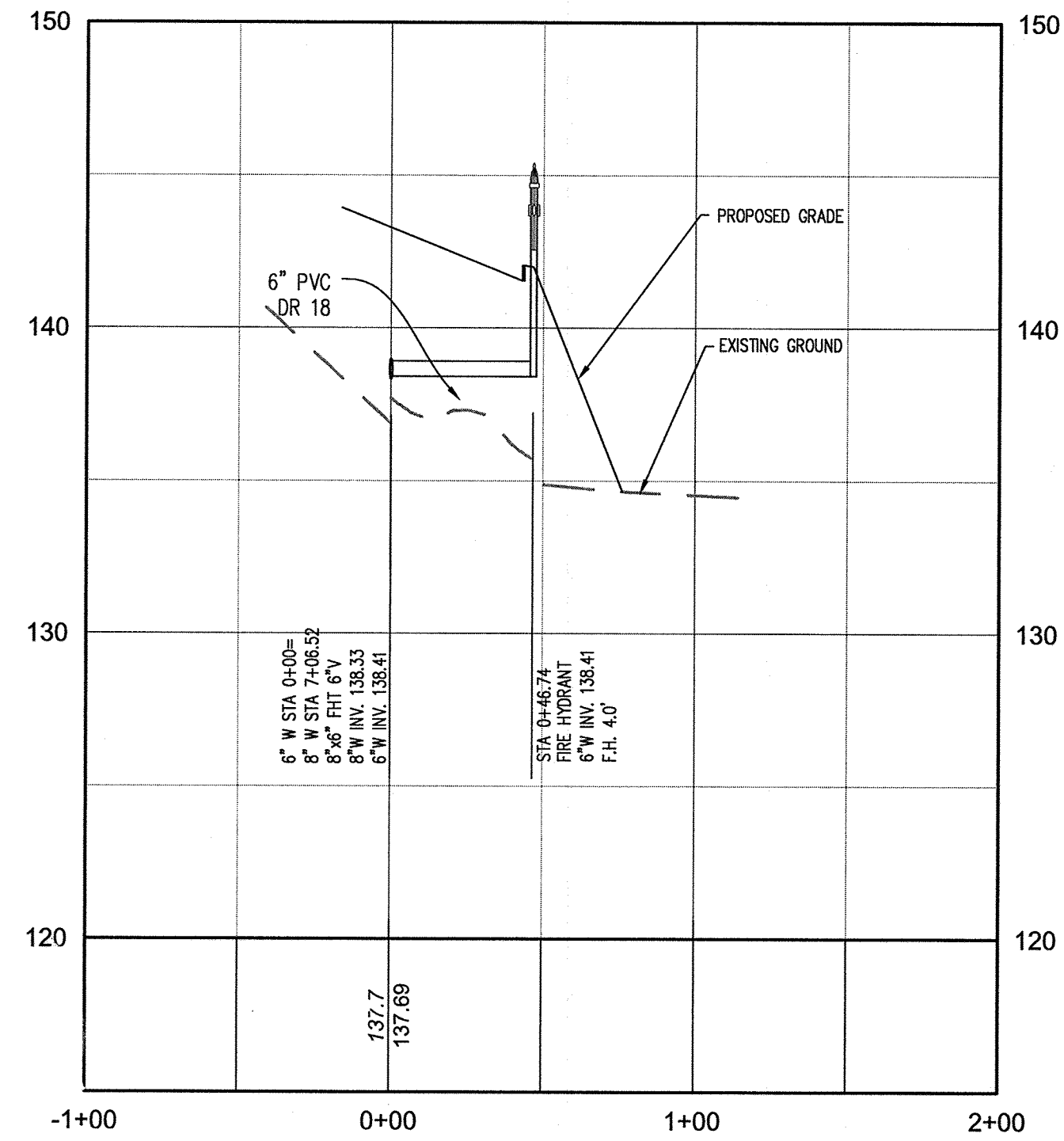
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING
 HOWARD COUNTY, MARYLAND

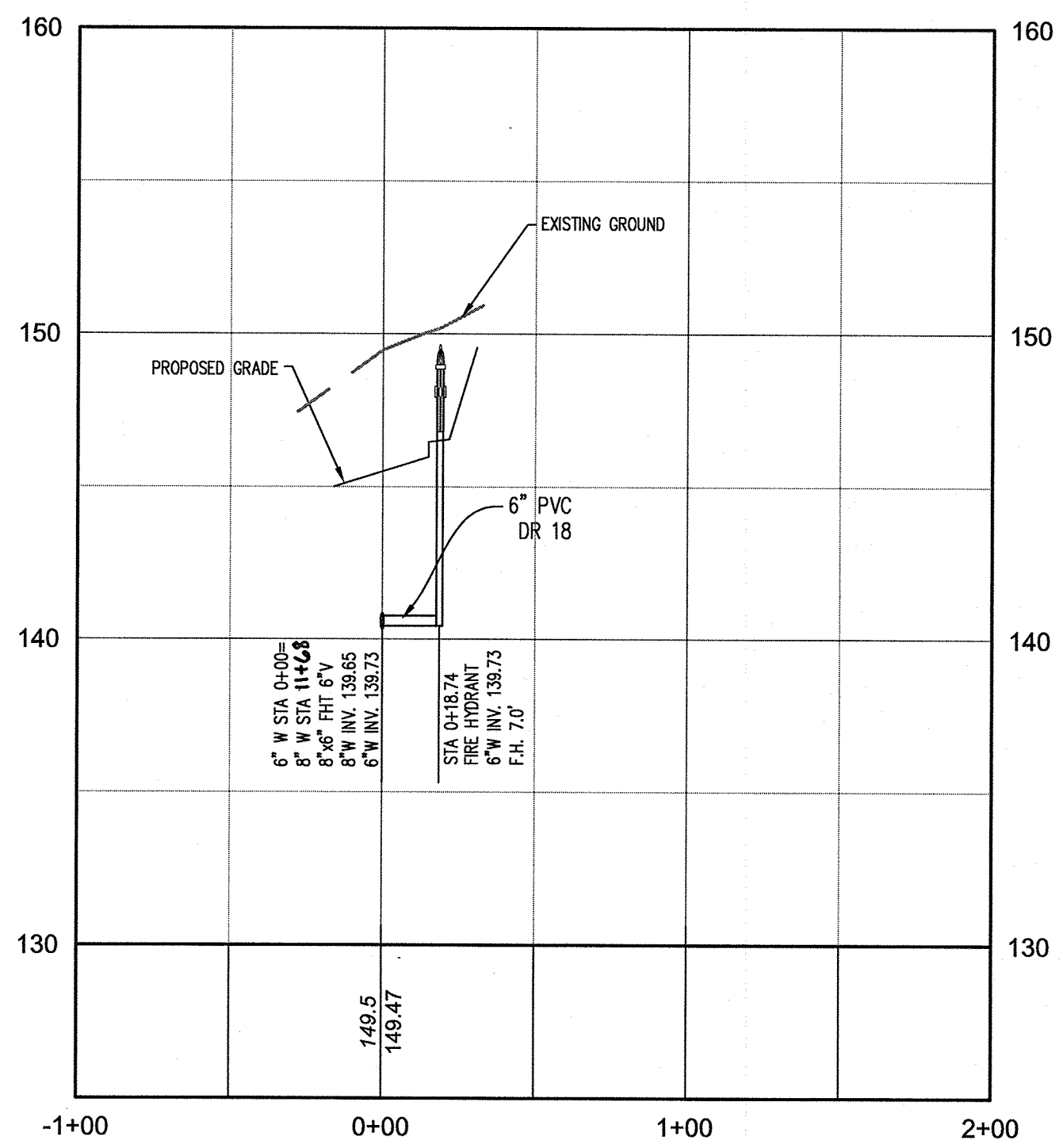
Pennoni
 Pennoni Associates Inc.
 Consulting Engineers
 8818 Centre Park Drive Suite 200
 Columbia, MD 21045
 T 410.997.8900 F 410.997.9282

CHIEF, BUREAU OF UTILITIES
 DATE 2/19/17

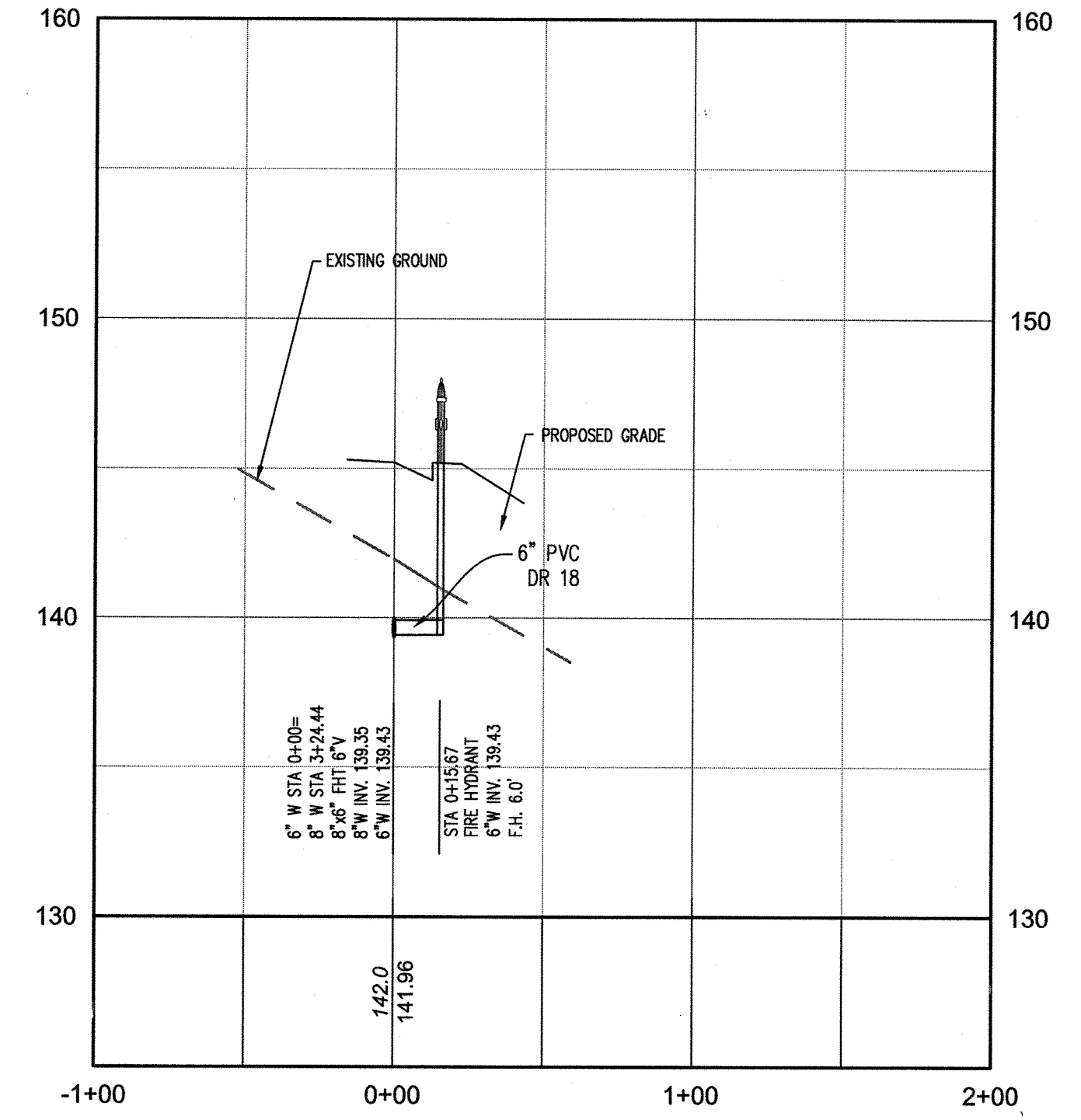
CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE M.G.



FH-2
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VERTICAL SCALE: 1" = 5'

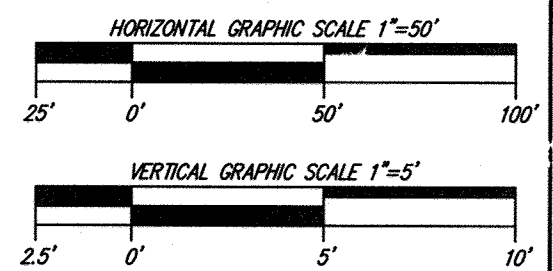


FH-3
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



FH-1
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

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. 30868. EXPIRATION DATE: 3-31-2019

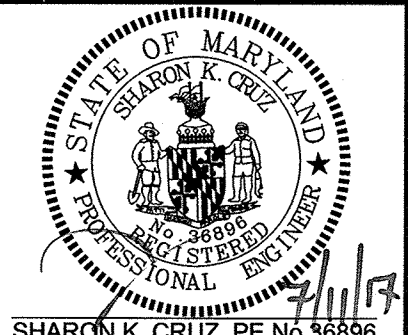


DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND



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



DES:	AGS			
DRN:	AGS			
CHK:	SKC			
DATE:	03/21/17	NTD	1	REVISE WHC AND FH3
BY:		NO.		
		REVISION		
		DATE:	1/18/18	

PUBLIC WATER
AND SEWER MAIN PROFILES

TERRAPIN COMMERCE CENTER
T.M. 43, PARCELS 51 GRID 10 ZONED M-2
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 14-5012-D

SCALE
AS SHOWN

SHEET
4 OF 4

CHIEF, BUREAU OF UTILITIES
[Signature]
DATE: 3/19/17

CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature]
DATE: 3-7-17
N.C.