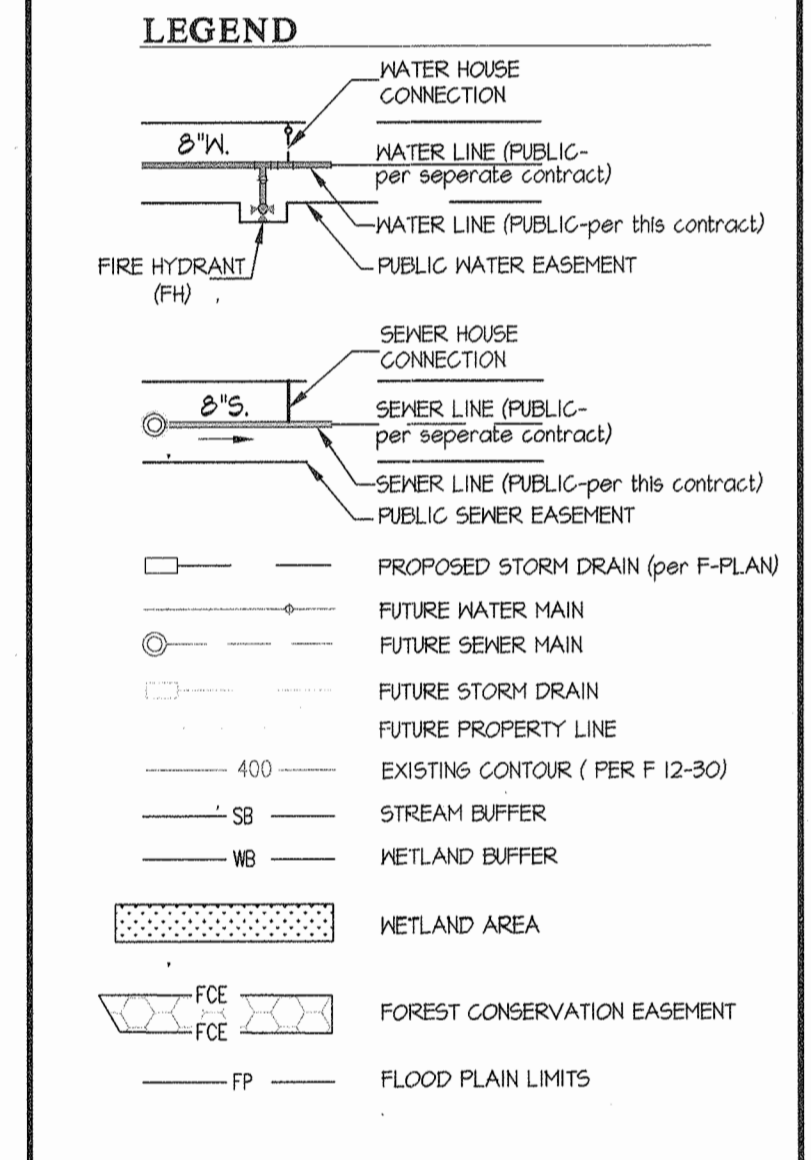


QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
8" WATER MAIN	667 LF	745 LF	C400 DR18 PVC	NATIONAL PIPE
16" WATER MAIN	1533 LF	1432 LF	C405 DR18 PVC	NATIONAL PIPE
8" SEWER MAIN	1043 LF	1043 LF	DIP	AMERICAN CAST IRON PIPE
8" SEWER MAIN	85 LF	85 LF	PVC	NATIONAL PIPE & PLASTIC
4" MANHOLE	0	8 EA	PRECAST CONCRETE	BACK RIVER
16" x 16" T.	1 EA	1 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" x 16" T.S.E.V.	1 EA	1 EA	TAPPING VALVE	MUELLER CO.
16" x 8" T.	2 EA	2 EA	DIP EPOXY	TYLER/UNION FOUNDRY
8" x 8" T.	2 EA	2 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" x 6" F.H.T.	4 EA	4 EA	DIP EPOXY	MUELLER CO. / TYLER/UNION
8" x 6" F.H.T.	1 EA	1 EA	DIP EPOXY	MUELLER CO. / TYLER/UNION
16" x 1/2" H.B.	8 EA	8 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" x 1/2" H.B.	1 EA	1 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" x 1/2" H.B.	5 EA	5 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" x 1/4" H.B.	1 EA	1 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" x 1/4" H.B.	6 EA	6 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" x 1/2" V.B.	8 EA	8 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" x 1/2" V.B.	1 EA	1 EA	DIP EPOXY	TYLER/UNION FOUNDRY
6" x 1/2" V.B.	2 EA	2 EA	DIP EPOXY	TYLER/UNION FOUNDRY
8" x 1/4" V.B.	2 EA	2 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" x 8" REDUCER	1 EA	1 EA	DIP EPOXY	TYLER/UNION FOUNDRY
16" V.	2 EA	2 EA	GATE VALVE	MUELLER CO.
8" V.	5 EA	5 EA	GATE VALVE	MUELLER CO.
6" V.	5 EA	5 EA	GATE VALVE	MUELLER CO.
1" CAP	4 EA	5 EA	STEEL EPOXY	TYLER/UNION FOUNDRY
8" x 1/2" H.B.	1 EA	1 EA	STEEL EPOXY	TYLER/UNION FOUNDRY
8" x 5" SWEEP	1 EA	1 EA	PLASTIC	NORTH AMERICAN SPECIALTY
16" WATER MAIN		166 LF	DIP	AMERICAN CAST IRON PIPE

NAME OF UTILITY CONTRACTOR: **HIGHLAND TUBE INC. (HTI)**

SURVEY AND DRAFTING DIV. CHECKBOX: AS-BUILT DATE: **11/11/17**



SHEET INDEX

- COVER SHEET
- WATER & SEWER EXTENSION PLAN
- WATER ABANDONMENT/REMOVAL PLAN
- WATER & SEWER EXTENSION PROFILES
- WATER & SEWER EXTENSION PROFILES
- WATER & SEWER EXTENSION PROFILES
- BLOCKING DETAIL AND SPECIFICATIONS

SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE SPECIFICATIONS AND WITH ROAD DRAWINGS F 15-106, FOR SEDIMENT AND EROSION CONTROL.

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENT.

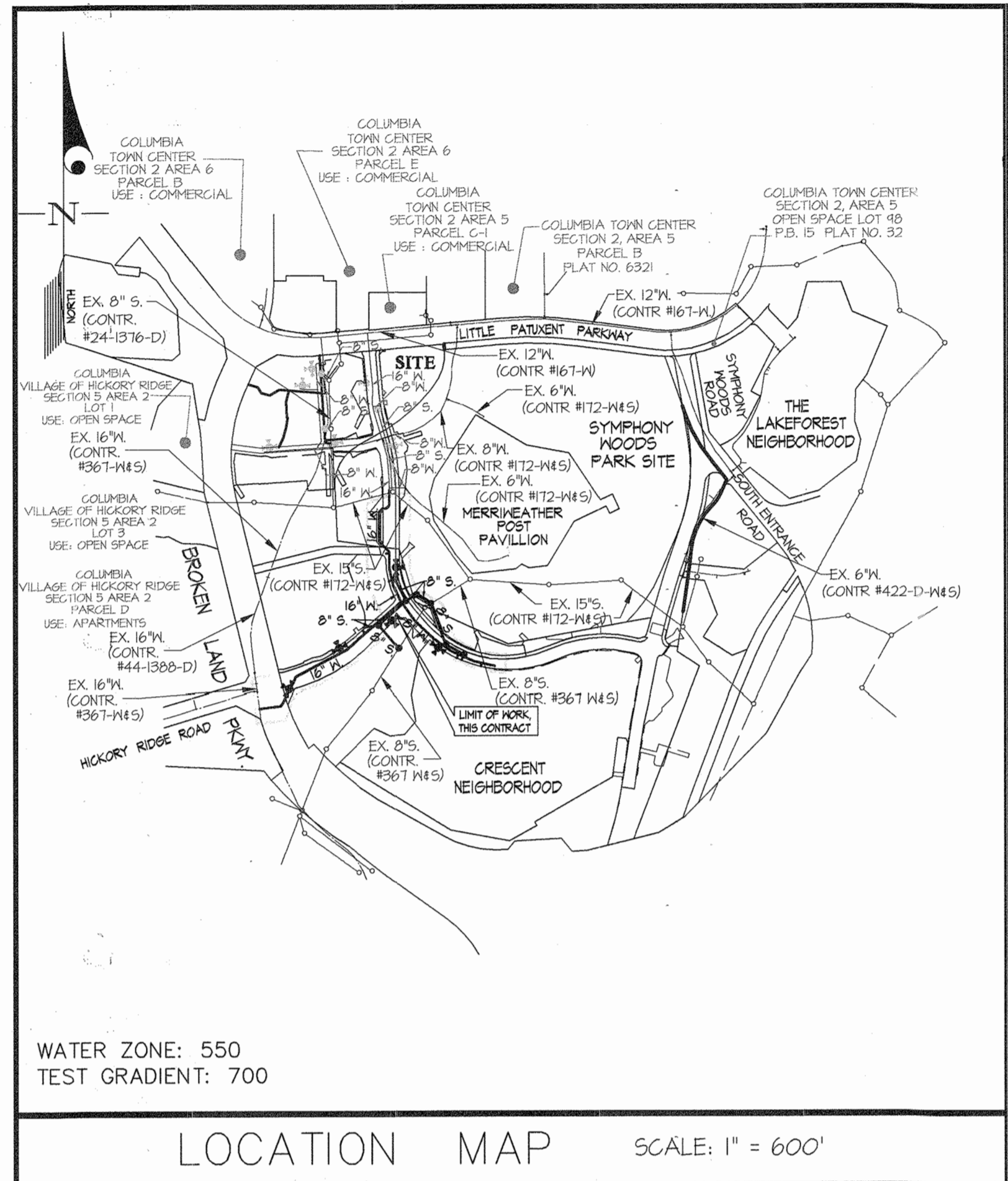
John R. Robertson 8/26/14

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE

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

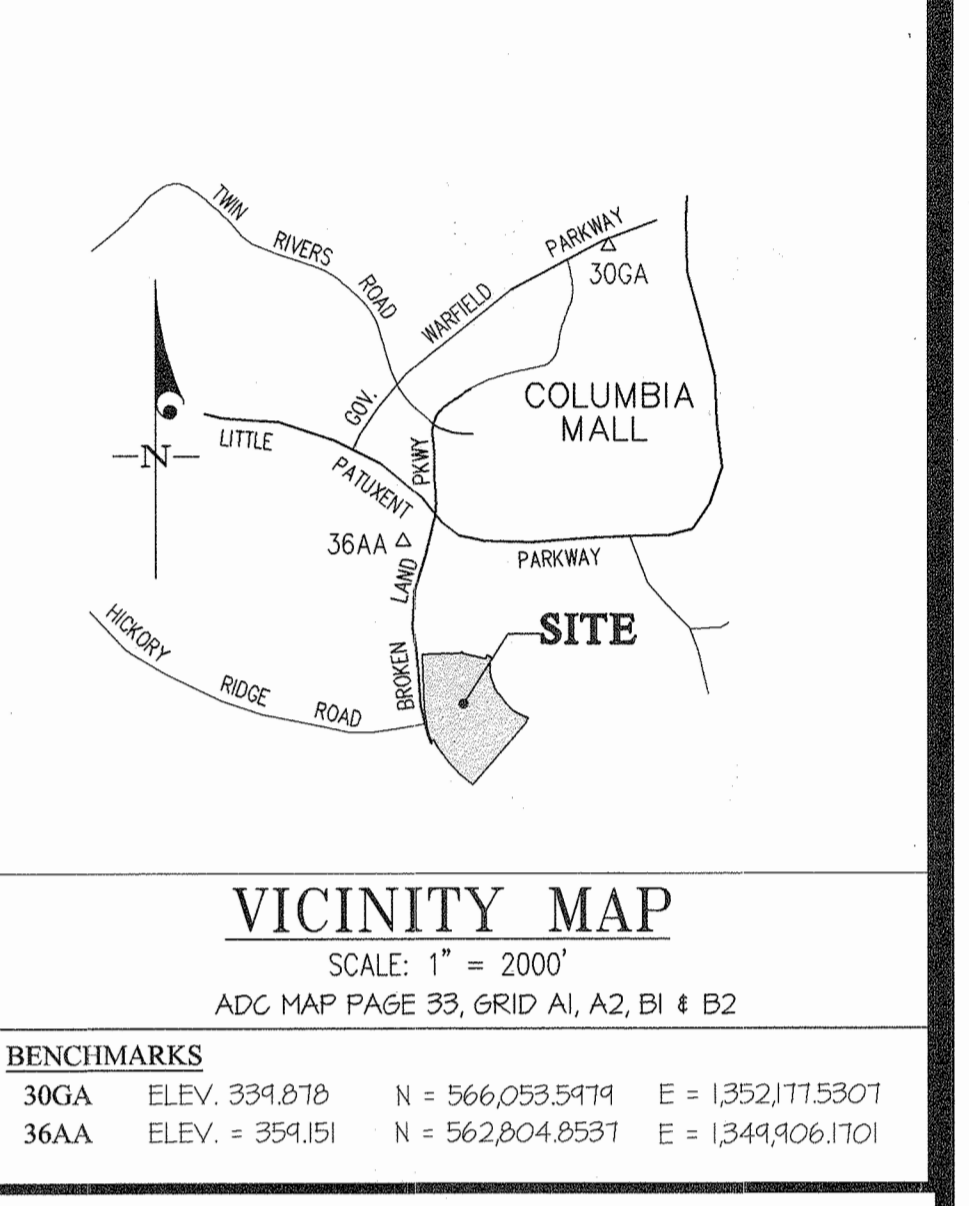
APPROVED: _____ DATE: _____

HOWARD S.C.D.



WATER AND SEWER CONSTRUCTION PLANS
CONTRACT No. 24-4931-D
DOWNTOWN COLUMBIA
COLUMBIA TOWN CENTER
CRESCENT NEIGHBORHOOD
PARCELS A THRU D & OPEN SPACE LOT 1 & 2
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

TYPE OF BUILDING	COMMERCIAL
NUMBER OF LOTS	7 BULK PARCELS
NUMBER OF S.H.C.'s	6
NUMBER OF W.H.C.'s	8
AREA OF COMMERCIAL LOT/PARCEL	32.6 AC.
SEWER SHED	MIDDLE PATUXENT
PUMPING STATION	LITTLE PATUXENT 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 March, 2003 by McKenzie Snyder.
 - Horizontal and Vertical Survey Controls.
 - The coordinates shown on the drawings are based on Maryland State Reference System NAD '83/M as projected by Howard County Geodetic Control Stations No. 31A4 and No. 316A.
 - All vertical controls are based on NAVD '88. Vertical controls provided on the drawings are (Engineering / Survey Firm shall provide description of vertical control points, i.e., iron bars, cross cuts on concrete structures, etc.).
 - 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 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 | 1-800-252-1133 |
| BCE (Contractor Services) | 410-631-9713 |
| BCE (Emergency) | 410-685-0123 |
| Bureau of Utilities | 410-313-4400 |
| Colonial Pipeline Co. | 410-745-1340 |
| Mesa Utility | 1-800-221-7111 |
| 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)-313-1450 at least five working days before open cutting or boring/lacking of any County roads for laying water/sewer mains or house connections. The approval of these drawings will constitute compliance with DFM requirements per Section 18.114(a) of the Howard County Code.

Part II WATER

- All water mains shall be PVC C400 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 stoppered 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 wires 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 51 of the ANNA Standard C400 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 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 fittings including restrainers and harnesses. 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 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 #51 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 ANNA C400, shall have a minimum lay length of 4-inches and shall have center stops. PVC High deflection couplings shall be CertainTeed PVC High Deflection (HD) Stop Couplings or equal.

Five degree sweeps shall be bell by spigot, rated for a minimum 225 psi, meeting the requirements of ANNA C400 and shall be Multi Fittings (Apex) Blue Brute DR18 or 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 "HT" in plan and profile shall have watertight frame and cover, Standard Detail 65.52. 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 that the cellar cannot be served.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve C. Oren 8/26/16
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Chad Plank 9.7.16
CHIEF, DEVELOPMENT ENGINEERING DIVISION

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20886
TEL: 301-421-4024 FAX: 301-989-2524

DATE: JULY, 2016

G.L.W. No. 11071

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 12975

EXP. DATE: MAY 26, 2018

Chad Plank 7/21/16

BY	NO	REVISION	DATE
		AS-BUILT	11-14-2017
		Revise waterline 'A'	4-11-2017

COVER SHEET

600' SCALE MAP NO. 36 & 39 BLOCK NO. 01

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

PREPARED FOR:
THE HOWARD HUGHES CORP.
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

SCALE: AS SHOWN

SHEET: 1 OF 7

L:\CAD\DRAWINGS\11071\PLANS BY GUY WEAVER & SEWER\FINAL PHASE-TA & 1B\11071-WR-C15 (1 & 1B).DWG PLOTTED: 7/20/2016 4:46 PM. LAST SAVED: 7/20/2016 1:51 PM. PLOTTED BY: Guy Weaver

FITTING CHART			
STATION	FITTING	NAD '83/'91 COORDINATES	
WATER MAIN 'A'			
8+24	16" CAP	N 561065.8295	E 1350729.3114
8+77	16" 1/2 H.B.	N 561035.0551	E 1350729.3114
8+49	16" 1/2 H.B.	N 561191.0483	E 1350713.3046
9+17	16" 1/2 H.B.	N 561191.0483	E 1350695.7041
9+45	16" 1/2 H.B.	N 561177.3781	E 1350675.5909
10+89	16" 1/2 H.B.	N 561633.2694	E 1350675.5909
11+65	16" 1/2 H.B.	N 561519.5557	E 1350729.3046
11+72	16" x 8" T.	N 561512.7495	E 1350729.3046
12+41	16" x 6" F.H.T.	N 561503.4628	E 1350729.2675
12+50	16" 1/2 H.B.	N 561494.4561	E 1350729.3028
13+36	16" 1/2 H.B.	N 561410.8689	E 1350748.2334
14+16	16" 1/2 H.B.	N 561357.1295	E 1350780.8358
14+28	16" x 6" T.	N 561327.8466	E 1350787.8231
15+44	16" 1/4 H.B.	N 561233.2695	E 1350854.6914
16+76	16" 1/4 H.B.	N 56142.2264	E 1350450.6686
16+51	16" x 6" F.H.T.	N 561180.1688	E 1350450.9483
17+82	16" 1/4 H.B.	N 561081.909	E 135051.5466
18+21	16" x 8" T.	N 561065.7154	E 1351072.1307
18+60	16" 1/4 H.B.	N 561050.2959	E 1351071.0592
20+23	16" x 8" T.	N 561014.4101	E 1351266.2988
20+25	16" CAP	N 561013.9461	E 1351266.3578

SEWER MH CHART			
MH	NAD '83/'91 COORDINATES		
1	N 561320.0152	E 1350734.1908	
2	N 561366.2230	E 1350863.1435	
3	N 561333.7065	E 1350804.7712	
4	N 561211.6848	E 1350673.8224	
5	N 561095.3641	E 1350773.5862	
6	N 56114.3471	E 1351011.033	
7	N 561064.2022	E 135102.9983	
8	N 561443.7091	E 1350755.2738	

NAD '83/'91 COORDINATES			
FH	FIRE HYDRANT CHART		
G	N 561503.4628	E 1350763.2675	
H	N 561180.1688	E 1350450.9483	
I	N 561236.9867	E 1350740.7822	
J	N 561071.5800	E 1350470.4457	
K	N 560895.7037	E 1350222.1475	

FITTING CHART			
WATER LINE 'A'			
STATION	FITTING	NAD '83/'91 COORDINATE	
14+27	16" VALVE	N 561333.0467	E 1350780.7213
14+79	8" VALVE	N 561319.8795	E 1350779.4990

WATER MAIN 'C'			
STATION	FITTING	NAD '83/'91 COORDINATE	
0+00	16" x 16" T.S.&V.	N 560791.3529	E 1350072.5582
1+10	16" 1/2 H.B.	N 560811.3736	E 1350181.5164
1+84	16" 1/16 H.B.	N 560873.6389	E 1350224.5842
2+07	16" x 6" F.H.T.	N 560891.6590	E 1350235.1777
2+73	16" 1/2 H.B.	N 560954.2152	E 1350254.5985
3+35	16" x 6" F.H.T.	N 561076.4268	E 1350486.8289
5+64	16" 1/2 H.B.	N 561089.6145	E 135051.8889
6+88	16" x 8" T.	N 561171.3879	E 1350606.8036
8+33	16" x 6" F.H.T.	N 561265.8417	E 1350716.0035
8+93	16" 1/4 H.B.	N 561305.1746	E 1350761.5632
9+11	16" 1/2 H.B.	N 561317.5442	E 1350773.2830
9+28	16" x 8" T.	N 561327.8466	E 1350787.8231

INSTALL NEW 16" D.I. CAP AND STRAP TO NEW BLOCK.

INSTALL IN-LINE THRUST BLOCK (MINIMUM 10' NORTH OF EX. ELECTRIC LINE). SEE DETAIL ON SHEET T OF T.

HICKORY RIDGE ROAD MAJOR COLLECTOR 100' PUBLIC R/W

COLUMBIA VILLAGE OF HICKORY RIDGE SECTION 5 AREA 2 PARCEL D

EXISTING VALVES TO BE CLOSED BY BUREAU OF UTILITIES

VALVE #1

VALVE #2

FOR MAINTENANCE OF TRAFFIC DURING THE INSTALLATION OF THE 16" W, SEE PLANS PROVIDED AS PART OF F-15-106.

THRUST BLOCK PER HO COUNTY DETAIL G-2.12

CONTRACTOR TO INSTALL WATER CROSSING IN BROKEN LAND PARKWAY USING OPEN CUT EXCAVATION WITH STEEL PLATES. (SEE HOWARD COUNTY DETAILS G-2.12, G-4.01, AND G-4.02)

SEWER MANHOLE NOTE: ALL SEWER MANHOLES ARE TO BE STANDARD PRECAST (HOWARD COUNTY DETAIL G-5.52). MANHOLES 1 AND 5 ARE TO HAVE WATERTIGHT FRAME AND COVER (HOWARD COUNTY DETAIL G-5.12). MANHOLES 3 AND 6 ARE TO HAVE DROP CONNECTION TYPE 'B' (HOWARD COUNTY DETAIL G-5.32).

RESTRAINING BLOCK DETAIL SCALE: 1"=20'

LENGTH OF EX. PIPE TO BE REMOVED

SPECIAL RESTRAINING BLOCK

AIR RELEASE MANHOLE

FOR REMOVAL AND RELOCATION OF EXISTING FEATURES AT OR NEAR THE INTERSECTION OF HICKORY RIDGE RD AND BROKEN LAND PARKWAY, SEE PLANS PROVIDED AS PART OF F-15-106

FOR WATER AND SEWER PROFILES SEE SHEETS 4546 OF 6

CONTRACTOR IS TO REMOVE THE 16" CAP AND BUTTRISS INSTALLED UNDER CONT # 24-4931-D AND BEGIN INSTALLATION OF 16" W SHOWN ON THESE PLANS.

SEQUENCE OF CONSTRUCTION FOR ABANDONMENT OF EXISTING 16" WATER

NOTE: CONSTRUCTION OF ALL OF THE 16" W WITHIN MERRIWEATHER DRIVE AND HICKORY RIDGE ROAD UP TO AND INCLUDING THE TIE IN AT THE EX. 16" W WITHIN BROKEN LAND PARKWAY AS SHOWN ON CONT. #24-4931-D AND THESE PLANS MUST BE COMPLETED, IN SERVICE, AND AUTHORIZATION FROM THE BUREAU OF UTILITIES MUST BE GRANTED PRIOR TO THE COMMENCEMENT OF THE BLOCKING AND ABANDONMENT OF THE EX. 16" W SHOWN ON THESE PLANS.

1. INSTALL MAINTENANCE OF TRAFFIC AS NECESSARY PER F-15-106.

2. ARRANGE FOR A PRE-CONSTRUCTION MEETING WITH THE BUREAU OF UTILITIES.

3. CONSTRUCT NEW 16" W IN HICKORY RIDGE ROAD, CROSSING BROKEN LAND PARKWAY, INCLUDING 16" x 16" TAPPING SLEEVE AND VALVE CONNECTION TO EXISTING 16" W AND THRUST BLOCK.

4. CONSTRUCT SPECIAL RESTRAINING BLOCK, PER DETAILS ON SHEET T, APPROXIMATELY TWO PIPE LENGTHS NORTH OF THE AIR RELEASE MANHOLE AND A MINIMUM 10' NORTH OF THE EXISTING ELECTRIC LINE. ALLOW THRUST COLLAR CONCRETE TO CURE PER STRUCTURAL NOTES.

5. BUREAU OF UTILITIES TO CLOSE 12" VALVE IN HICKORY RIDGE ROAD (VALVE #1) AND 16" VALVE IN TURNING LANE (VALVE #2).

6. AT THE NORTH END OF THE PIPE, REMOVE A SUFFICIENT LENGTH OF PIPE THAT WOULD ALLOW INSTALLATION OF 16" CAP.

7. INSTALL THE 16" CAP AND RESTRAINING RODS PER DETAILS ON SHEET T.

8. BUREAU OF UTILITIES TO OPEN THE TWO CLOSED VALVES UPON COMPLETION OF THE SPECIAL RESTRAINING WORK.

9. TAP INTO THE EXISTING 16" W TO BE ABANDONED IN BROKEN LAND PARKWAY AND FILL WITH FLOWABLE FILL.

10. PUBLIC STREET TREE, STREET LIGHT, GUARDRAIL, STORMWATER MANAGEMENT, WATER, SEWER, STORM DRAIN & UTILITY EASEMENT

11. PUBLIC STREET TREE, STREET LIGHT, GUARDRAIL, STORMWATER MANAGEMENT, WATER, SEWER, STORM DRAIN & UTILITY EASEMENT

12. PUBLIC STREET TREE, STREET LIGHT, GUARDRAIL, STORMWATER MANAGEMENT, WATER, SEWER, STORM DRAIN & UTILITY EASEMENT

EX. 16" W TO BE REMOVED

EX. 16" W TO BE ABANDONED IN PLACE (ROADWAY WITH FLOWABLE FILL)

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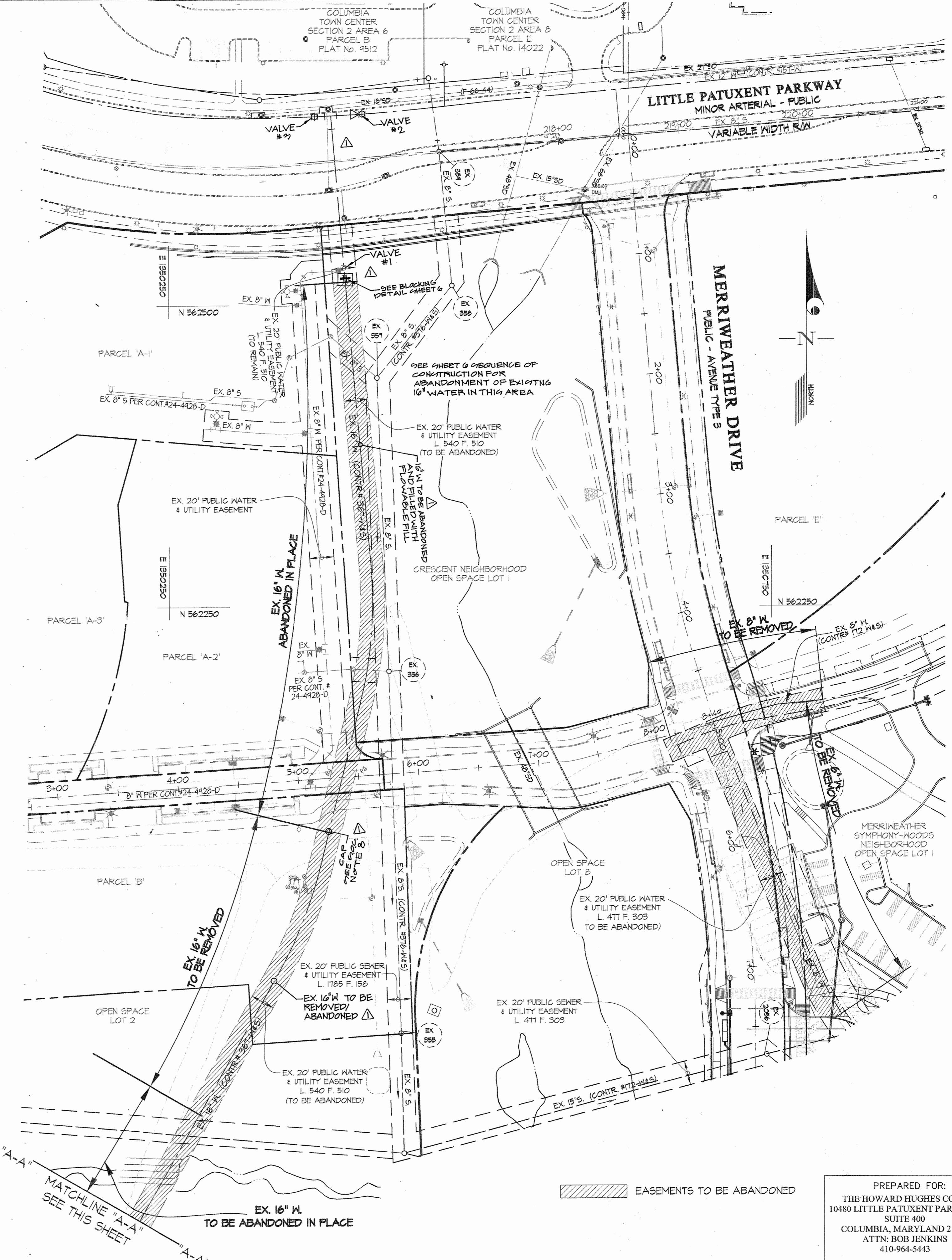
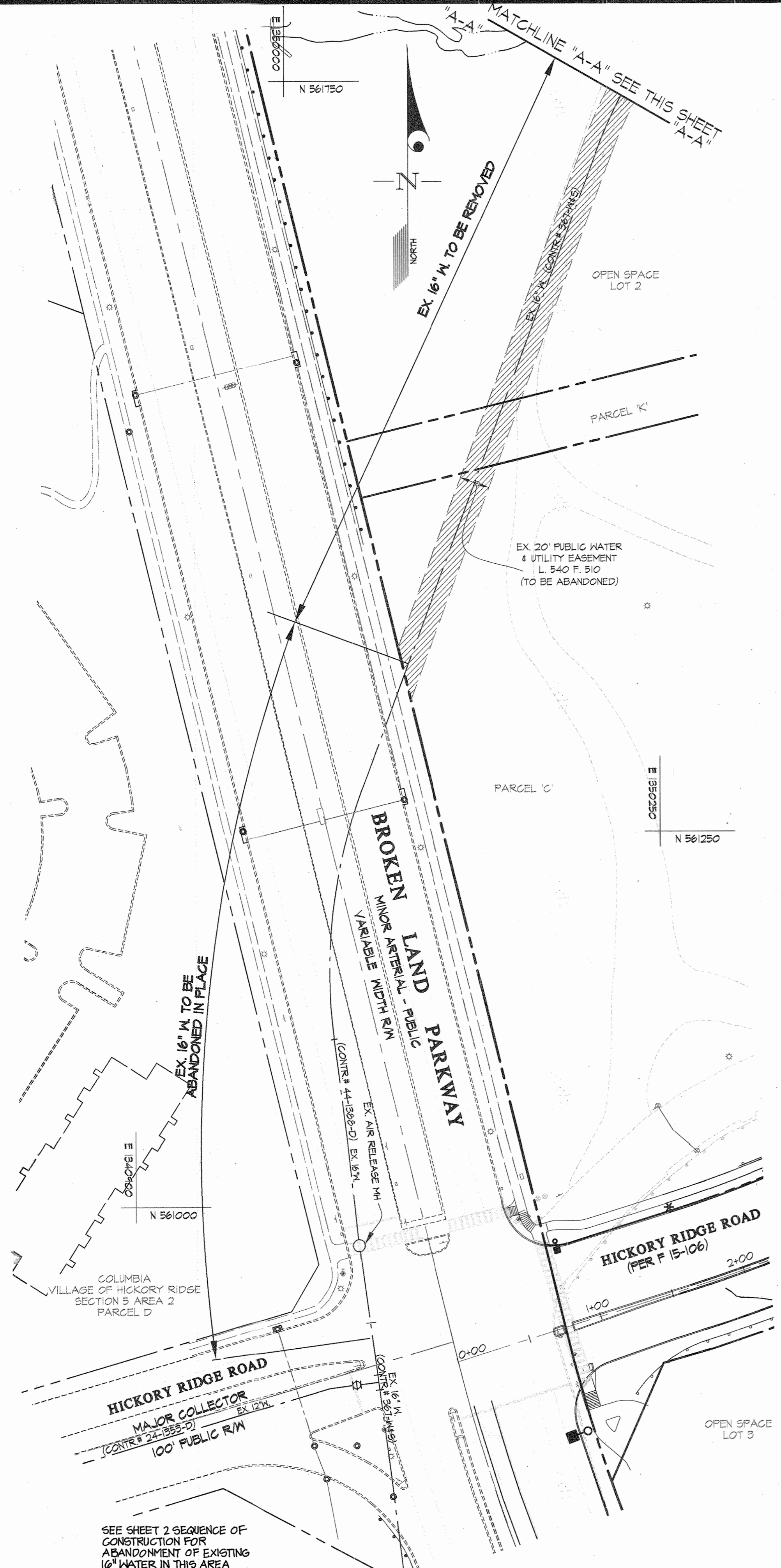
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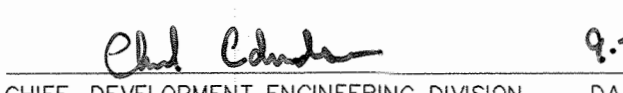
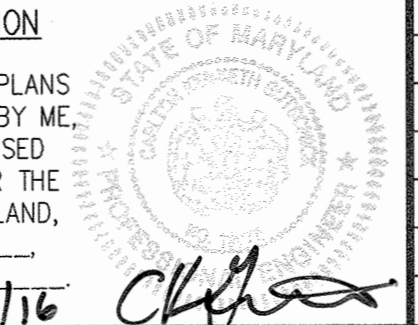
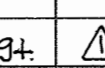
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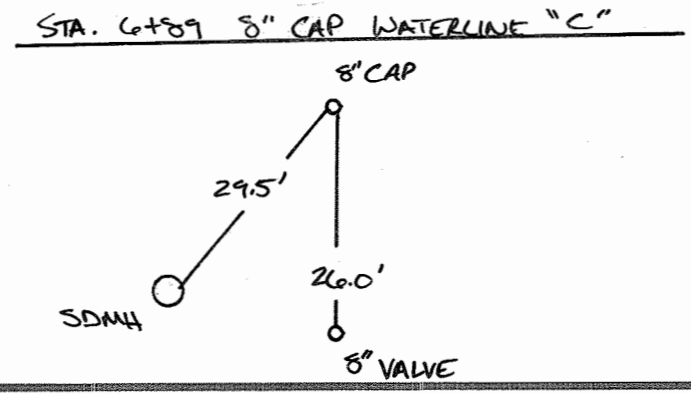
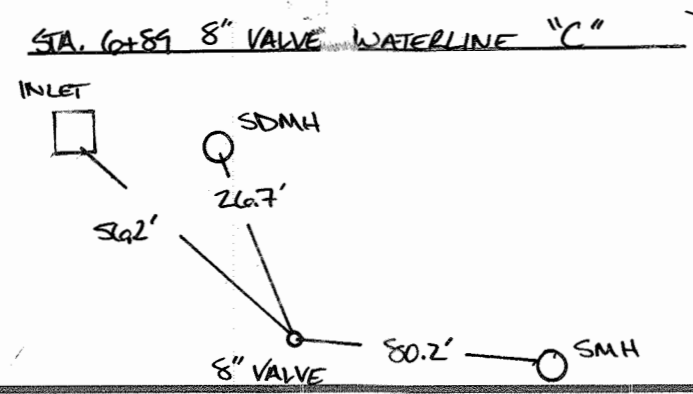
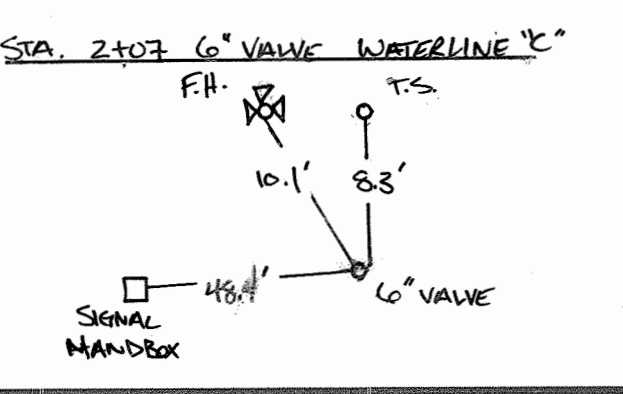
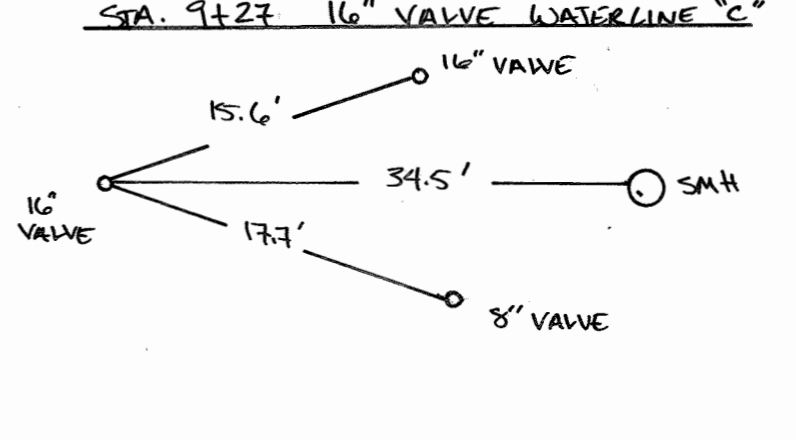
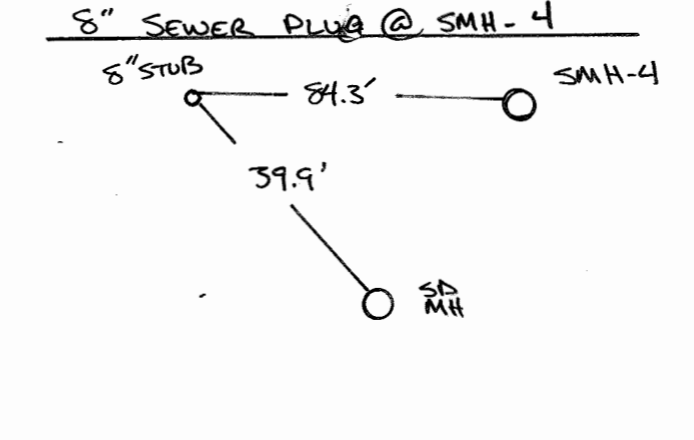
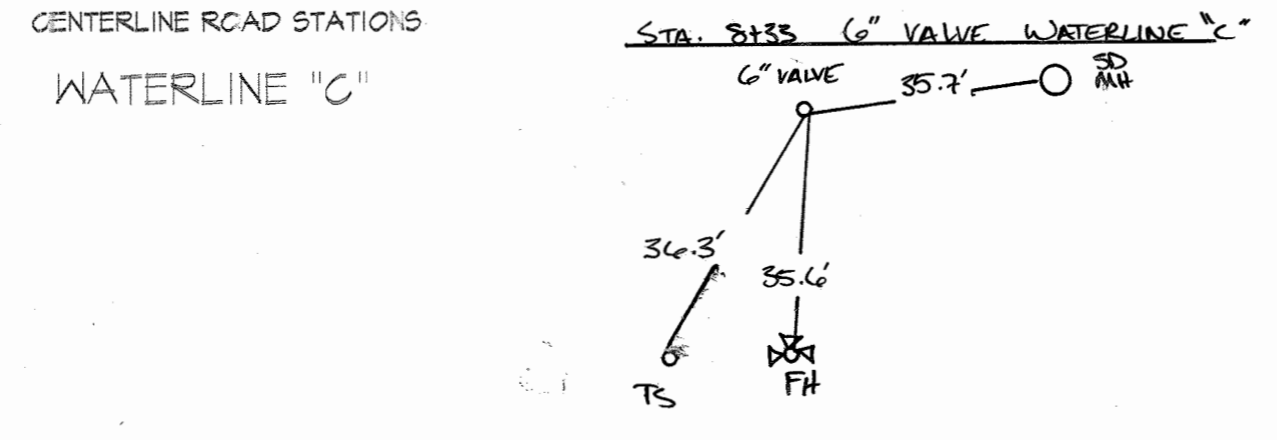
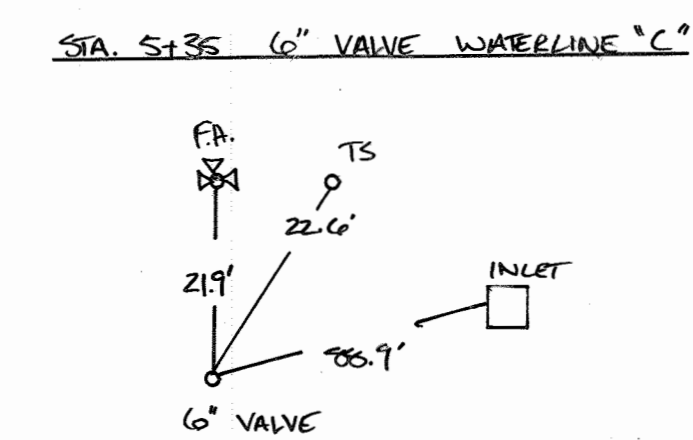
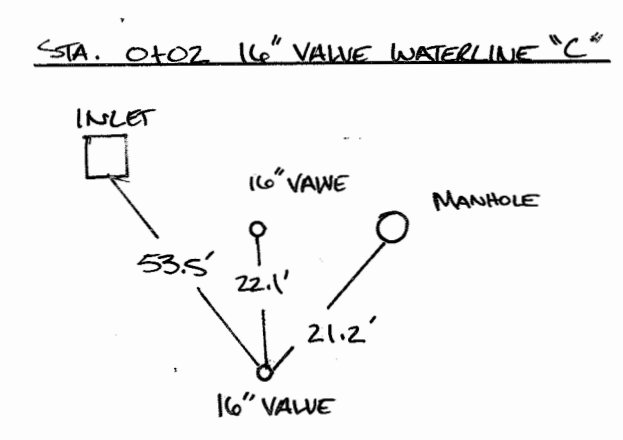
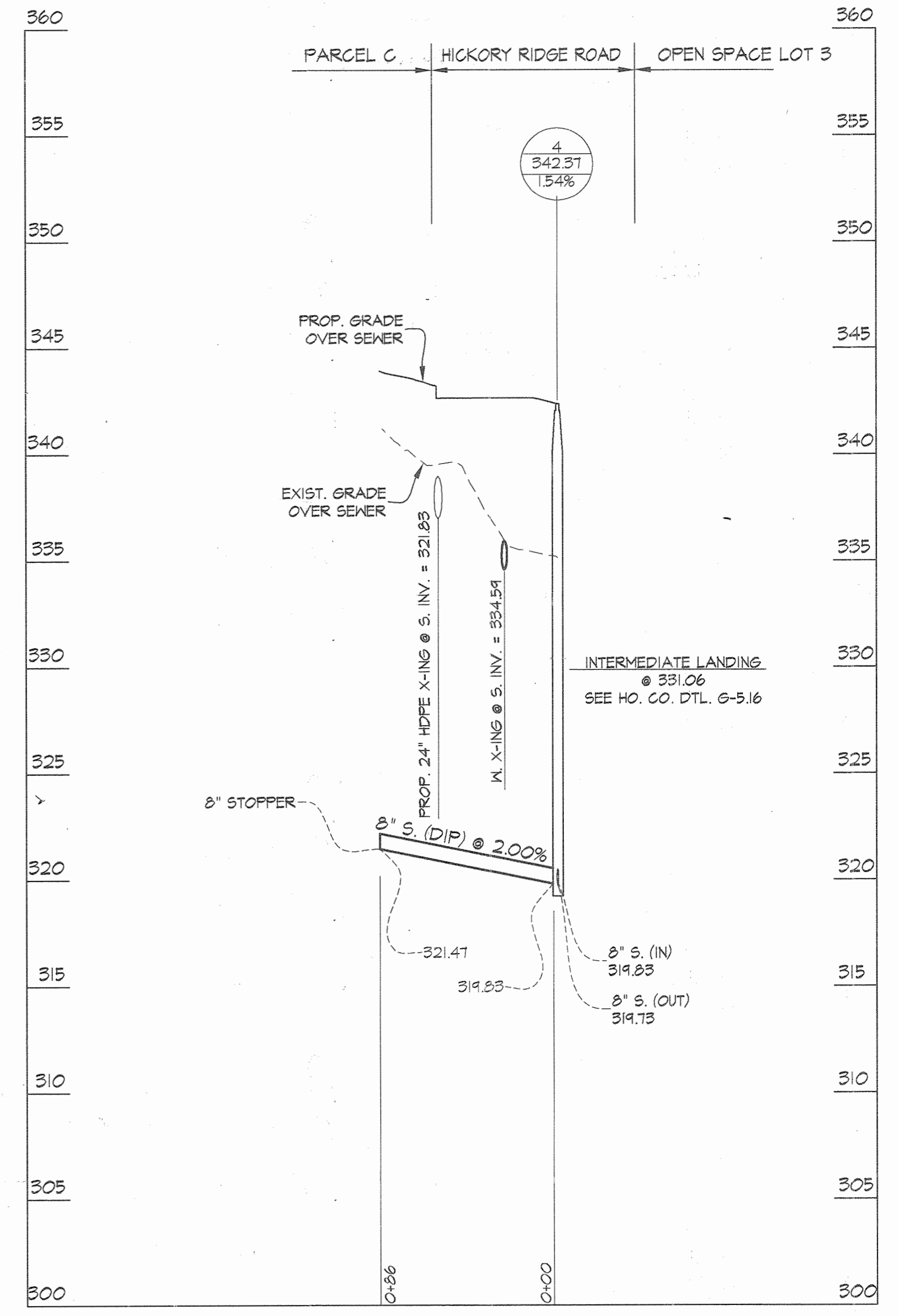
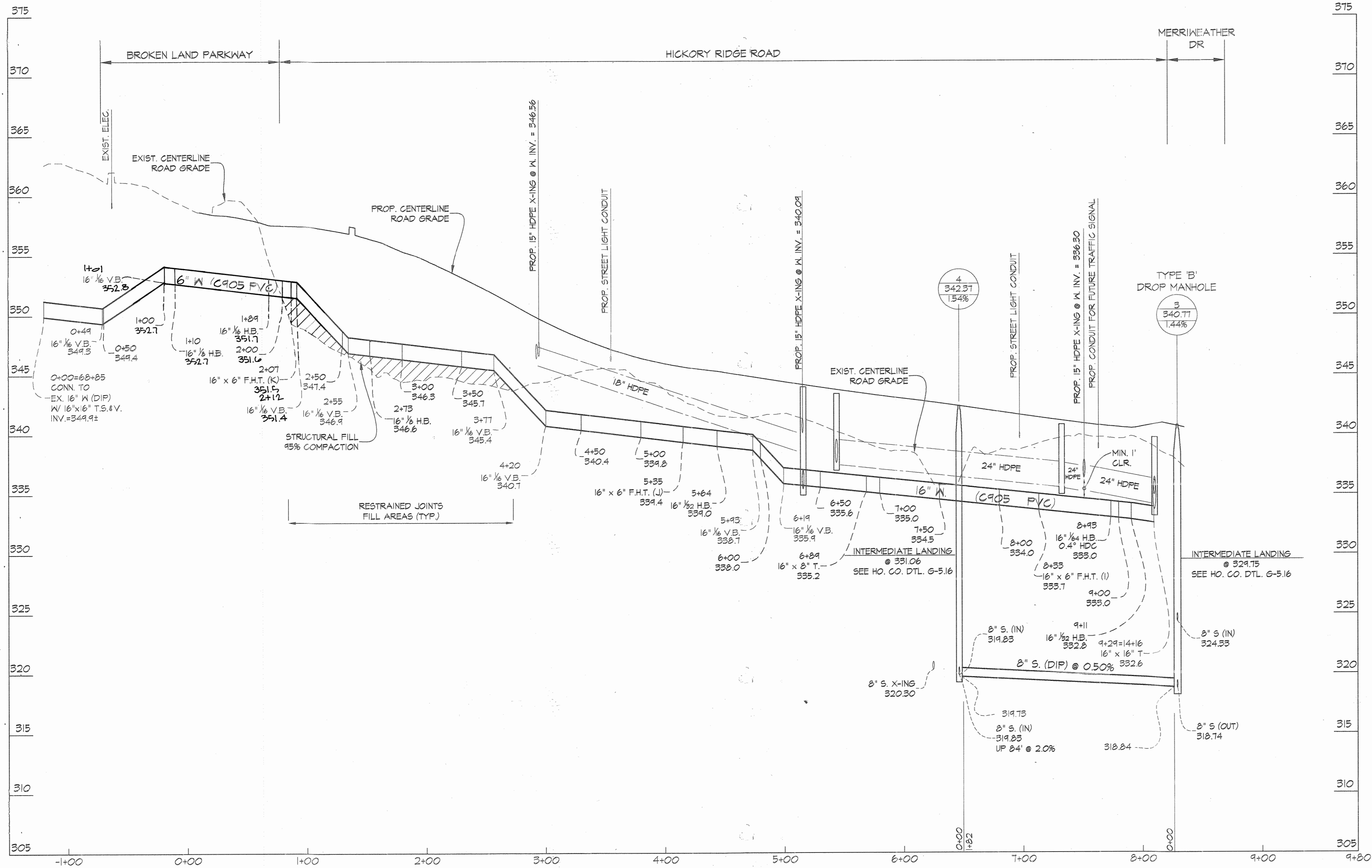


SEE SHEET 2 SEQUENCE OF CONSTRUCTION FOR ABANDONMENT OF EXISTING 16" WATER IN THIS AREA

▨ EASEMENTS TO BE ABANDONED

PREPARED FOR:
THE HOWARD HUGHES CORP.
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND  CHIEF, DEVELOPMENT ENGINEERING DIVISION	GLW GUTSCHICK LITTLE & WEBER, P.A. CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK BURTONSVILLE, MARYLAND 20886 TEL: 301-421-4024 BALT. 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186	DATE JULY, 2016	PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS 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. 12975 EXP. DATE: MAY 26, 2016 	34.  Blocking and abandonment of water line at Little Patuxent Parkway added to this contract BY NO REVISION	DATE 4/19/2017	WATER ABANDONMENT/REMOVAL PLAN 600' SCALE MAP NO. 36 & 39 BLOCK NO. 01	DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD CONTRACT No. 24-4931-D PARCELS A THRU D & OPEN SPACE LOTS 1 and 2 HOWARD COUNTY, MARYLAND ELECTION DISTRICT No. 5	SCALE 1" = 50'
			G.L.W. No. 11071						DES. WSJ DRN. WSJ CHK. MJT



FOR WATER AND SEWER PLAN SEE SHEETS 2 OF 6

PROFILE SCALES:
1" = 5' VERT.
1" = 50' HORIZ.

PREPARED FOR:
THE HOWARD HUGHES CORP.
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

L: CADD DRAWINGS (1/17/16) BY: GUY WEAVER & STEVE VINAIA PHASE-1A & 1B (1/17/16) MS-PROFILE 1 (1A & 1B) DWG. PLOTTED: 7/27/2016 2:13 PM, LAST SAVED: 7/19/2016 10:07 AM, PLOTTED BY: GUY WEAVER, INC.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Steve C. Crum
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Phil Edick
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE: 9-7-16

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DES. WSJ DRN. WSJ CHK. MJT

DATE: JULY, 2016

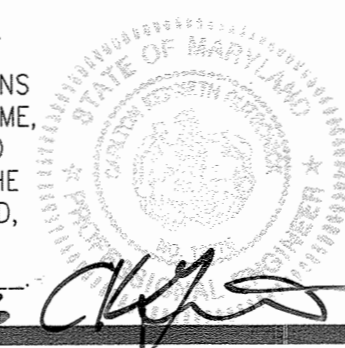
G.L.W. No. 11071

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 12975
EXP. DATE: MAY 26, 2018

7/21/16



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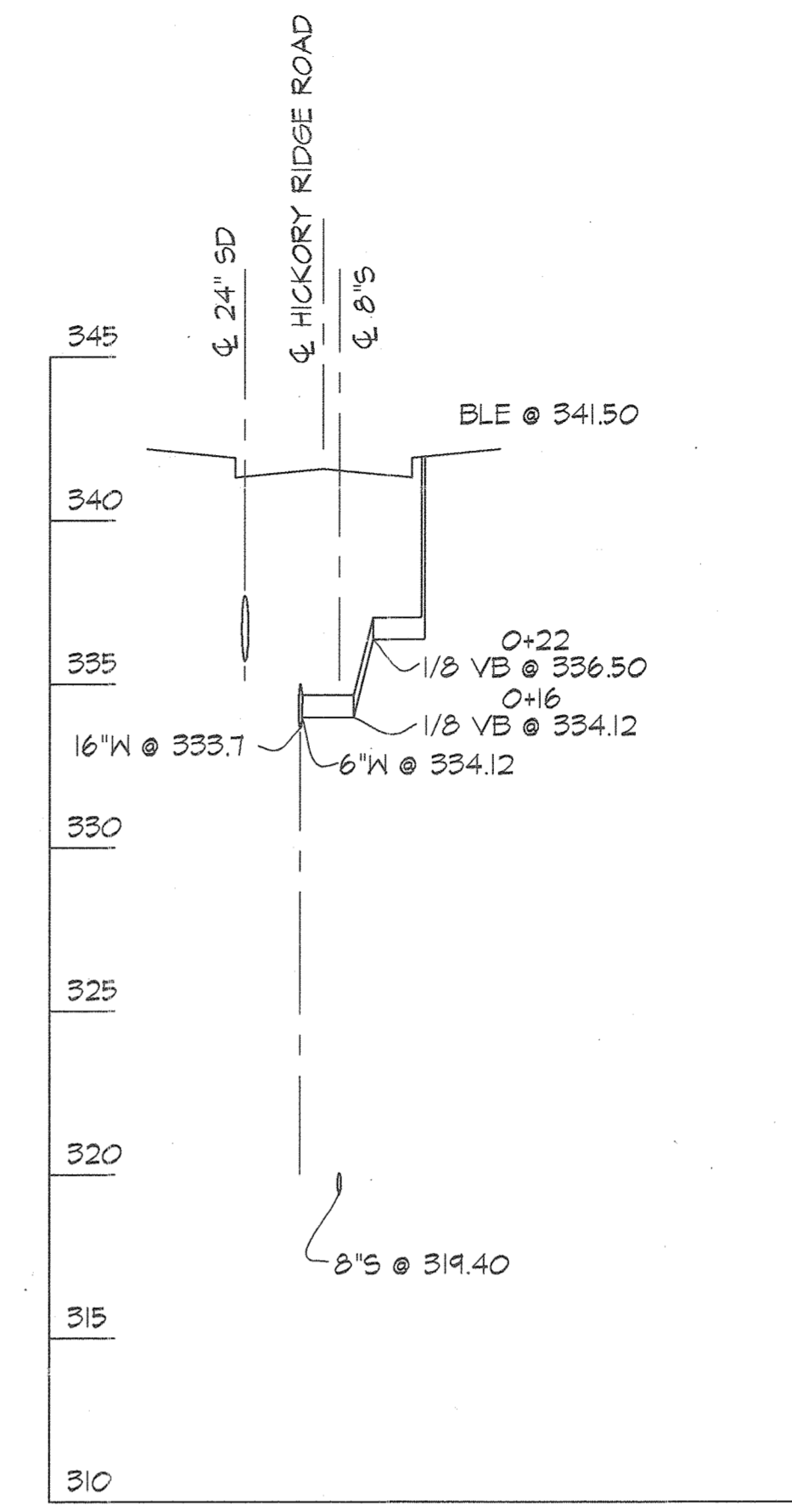
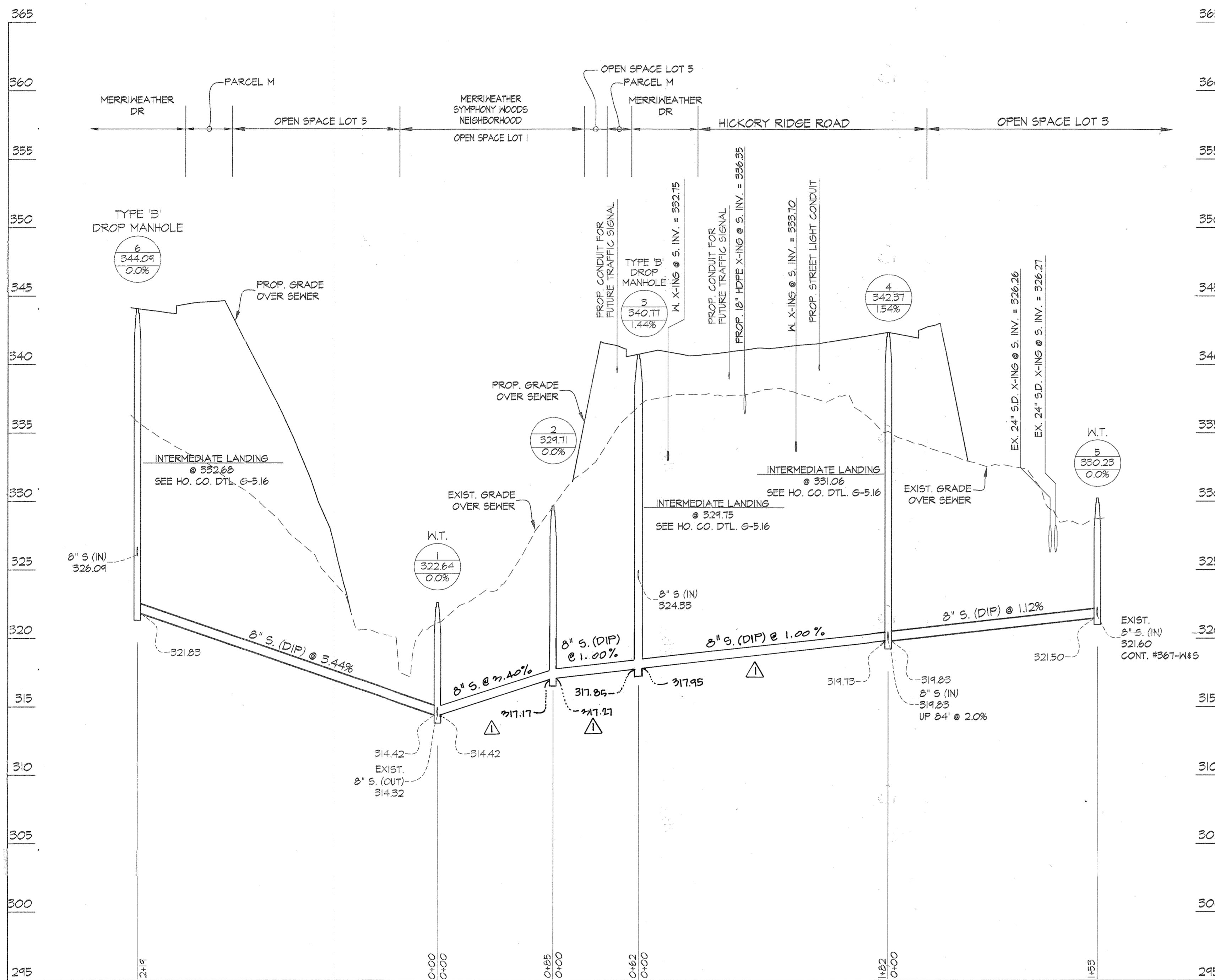
WATER & SEWER EXTENSION PROFILES

SCALE MAP NO. 36 & 39 BLOCK NO. 01

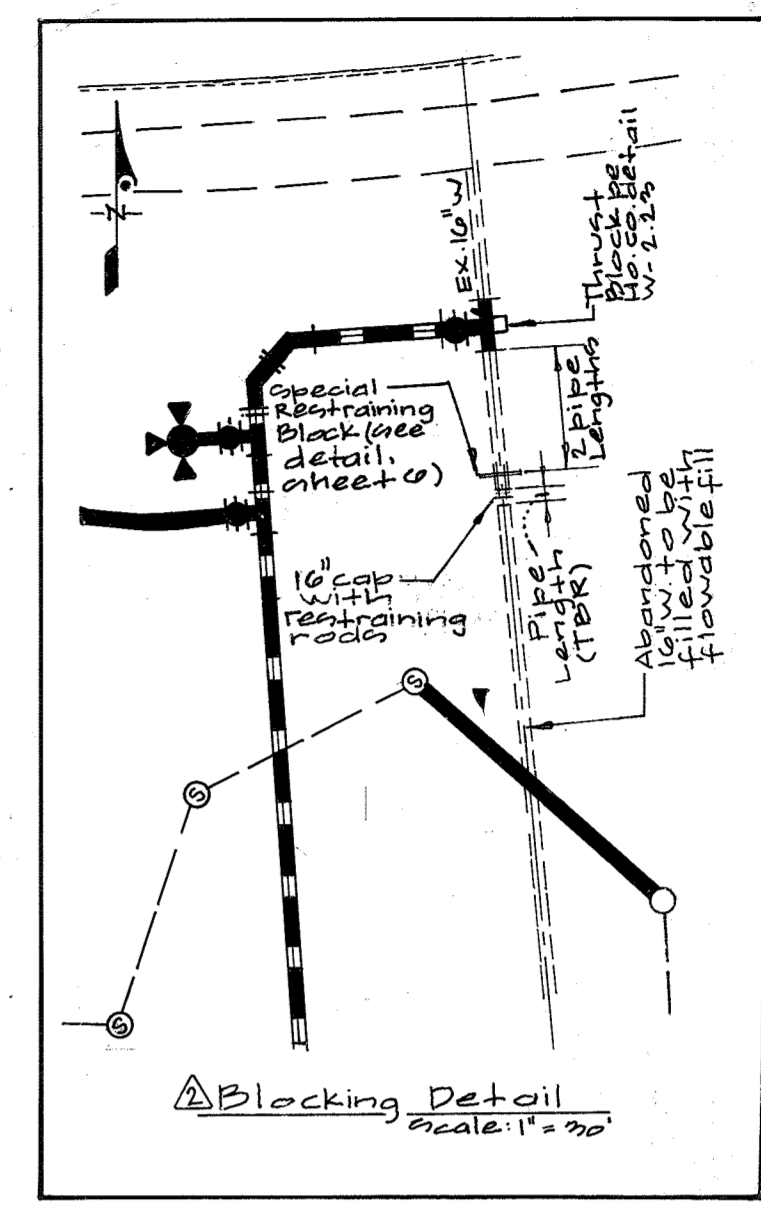
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
CONTRACT No. 24-4931-D
PARCELS A THRU D &
OPEN SPACE LOTS 1 and 2
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT No. 5

SCALE AS SHOWN

SHEET 5 OF 7



PROFILE FROM 16" W TO FIRE HYDRANT "



SEQUENCE OF CONSTRUCTION FOR ABANDONMENT OF EXISTING 16" WATER

- ARRANGE PRE-CONSTRUCTION MEETING WITH THE BUREAU OF UTILITIES.
- CONSTRUCT NEW 8" W IN GRANTCHESTER WAY, INCLUDING 16" x 8" TAPPING SLEEVE AND VALVE, CONNECTION TO EXISTING 16" W, WITH A THRUST BLOCK, AND CONNECTING AT THE 8" x 8" TEE IN DIVIDED SKY LANE.
- CONSTRUCT SPECIAL RESTRAINING BLOCK, PER DETAILS ON SHEET 6, APPROXIMATELY 2 PIPE LENGTHS SOUTH OF THE 16" x 8" TAPPING SLEEVE AND VALVE. ALLOW THRUST COLLAR TO CURVE PER STRUCTURAL NOTES.
- BUREAU OF UTILITIES TO CLOSE (3) VALVES WITHIN THE VICINITY OF CONSTRUCTION.
- AT THE SOUTH OF THE PIPE, REMOVE A SUFFICIENT LENGTH OF PIPE THAT WOULD ALLOW INSTALLATION OF 16" CAP.
- INSTALL THE 16" CAP AND RESTRAINING RODS PER DETAIL ON SHEET 6.
- BUREAU OF UTILITIES TO OPEN THE FOUR CLOSED VALVES UPON COMPLETION OF THE SPECIAL RESTRAINING WORK.
- TAP INTO THE EXISTING 16" W TO BE ABANDONED AND FILL WITH FLOWABLE FILL.

ALL ABANDONMENT WORK SHOWN ON BOTH THE 24-4928-D AND THE 24-4931-D CONTRACTS MUST BE COORDINATED SO THAT THE EXISTING 16" W IS SHUT DOWN AS REQUIRED AT THE OPPOSITE END.

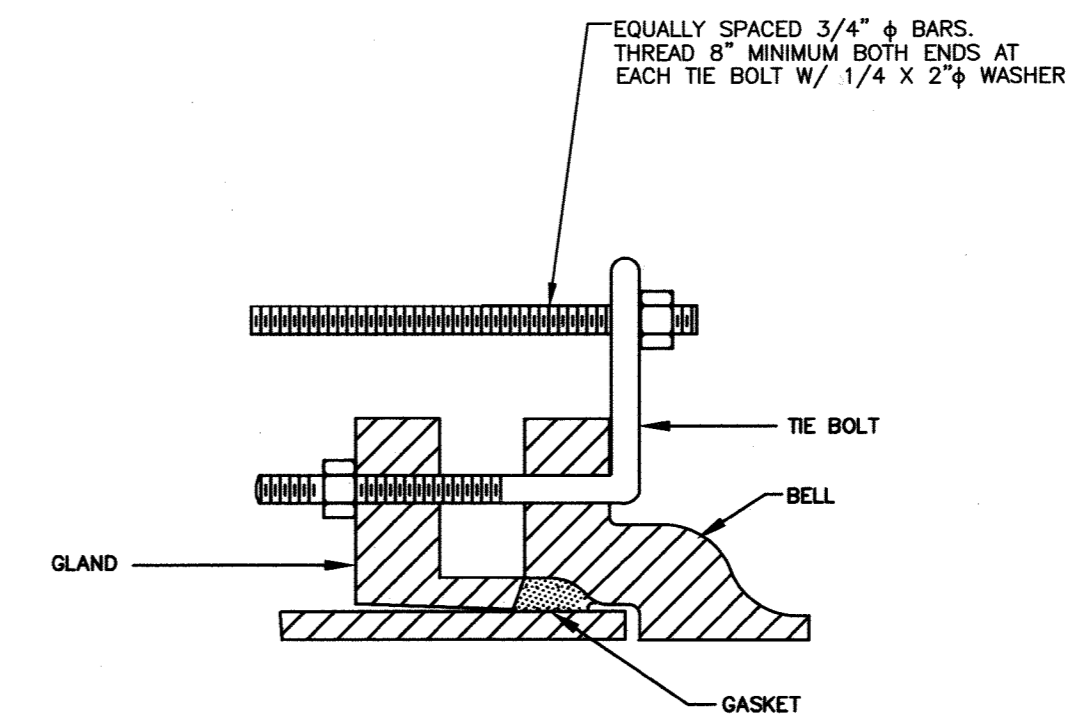
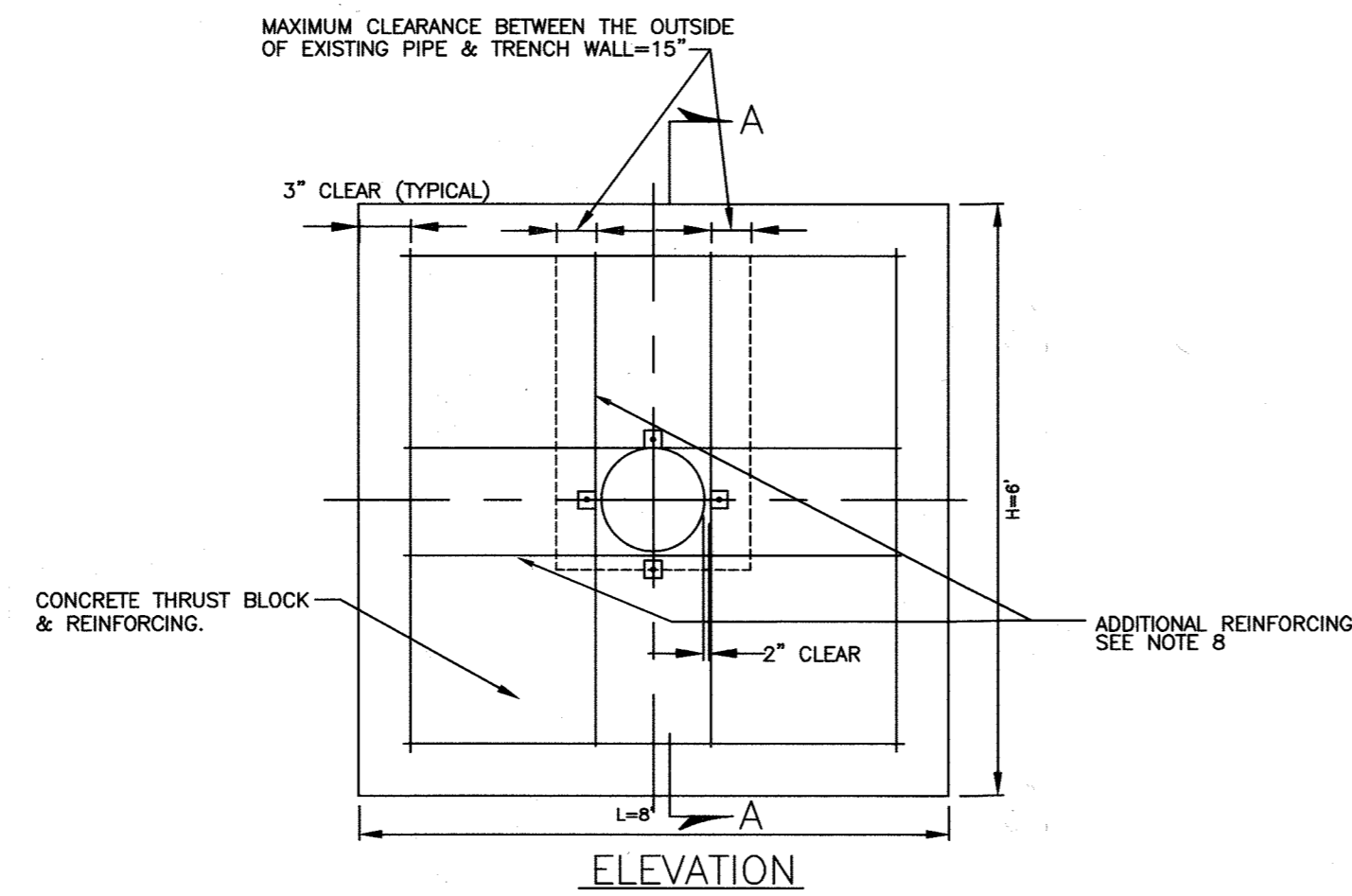
FOR WATER AND SEWER PLAN SEE SHEETS 2 OF 6

PROFILE SCALES:
1" = 5' VERT.
1" = 50' HORIZ.

PREPARED FOR:
THE HOWARD HUGHES CORP.
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

L:\CADD\DRAWINGS\11071\PLANS BY G.W.WEBER & SHERYL VINA\PHASE-1A & 1B\11071-WS-PROFILE 1 (1A & 1B).dwg. DATE: 7/27/2016 2:13 PM. LAST MODIFIED: 7/27/2016 10:07 AM. PLOTTED BY: BOB JENKINS

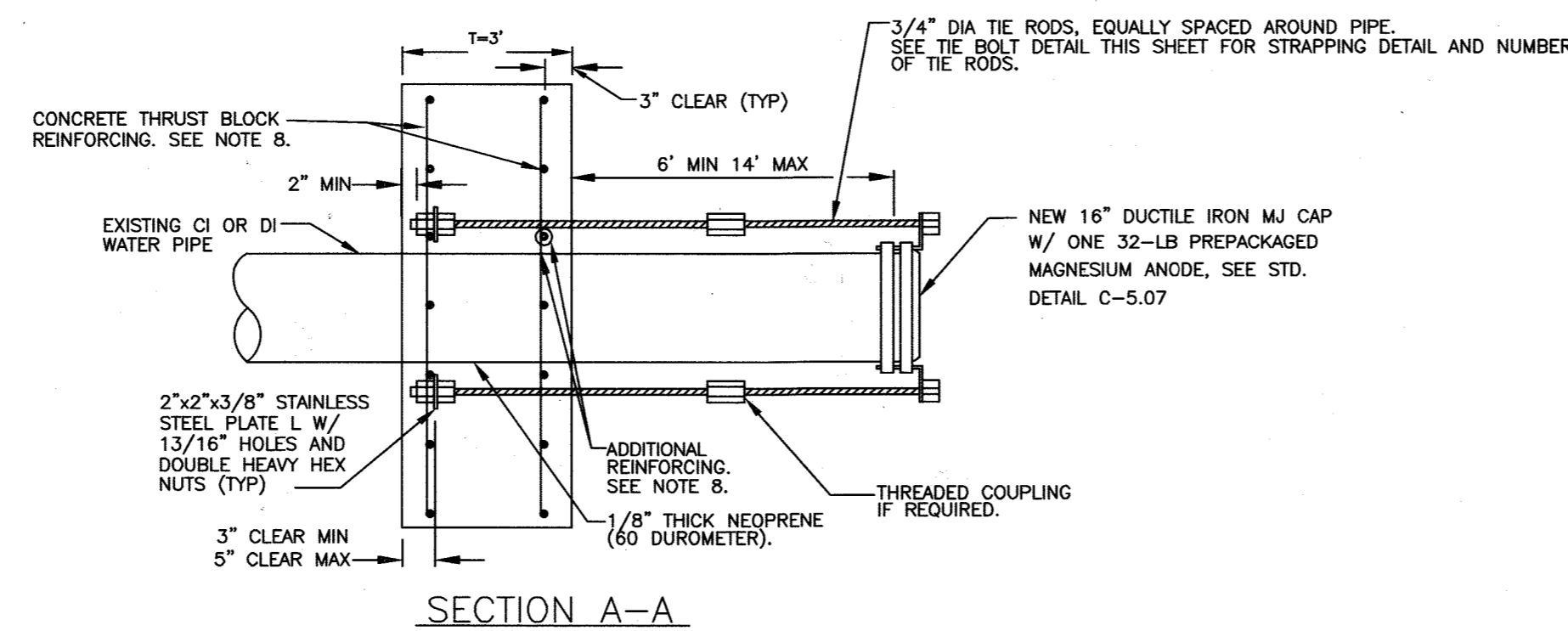
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Chief, Bureau of Utilities Date: 8/22/16	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND Chief, Development Engineering Division Date: 7-7-16	GLW GUTSCHICK LITTLE & WEBER, P.A. CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK BURTONSVILLE, MARYLAND 20866 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186	DATE JULY, 2016	PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS 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. 12975 EXP. DATE: MAY 26, 2018 7/21/16	REVISION 3+ Revised sequence of construction for abandonment, addition of blocking detail. 4/17/17 3+ Revise Profile to increase capacity. 1/17/17	WATER & SEWER EXTENSION PROFILES 600' SCALE MAP NO. 36 & 39 BLOCK NO. 01	DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD CONTRACT No. 24-4931-D PARCELS A THRU D & OPEN SPACE LOTS 1 and 2 HOWARD COUNTY, MARYLAND ELECTION DISTRICT No. 5	SCALE AS SHOWN
			G.L.W. No. 11071					SHEET 6 OF 7



NOTES

1. USE EIGHT (8) EQUALLY SPACED 3/4" TIE RODS.
2. TIE RODS SHALL CONFORM TO ASTM A588 SPECIFICATION AND SHALL BE HOT-DIP GALVANIZED.
3. ALL HARDWARE SHALL BE HOT-DIP GALVANIZED.
4. FIELD COAT TIE-RODS AND DI MJ CAP ASSEMBLY WITH PETROLATUM OR PETROLEUM WAX TAPE. COATING PRODUCT SHALL BE DENSO NORTH AMERICA OR TRENTON CORPORATION. APPLY COATING FOLLOWING COATING MANUFACTURER'S RECOMMENDATIONS.

TIE BOLT STRAPPING DETAIL
N.T.S.



NOTES

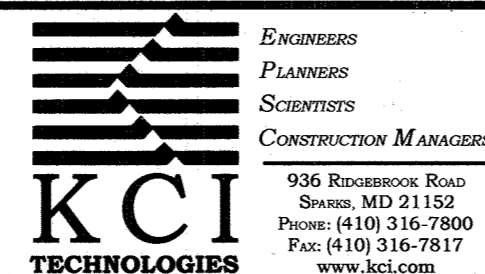
1. ALL CONCRETE SHALL BE 4000 PSL. PIPELINE SHALL NOT BE PRESSURIZED UNTIL CONCRETE STRENGTH REACHES 4000 PSL.
2. ALL REBARS SHALL BE ASTM A615 GRADE 60.
3. STEEL PLATES SHALL BE ASTM A36.
4. MAINTAIN 2" CLEAR BETWEEN ALL REBARS AND PIPE.
5. WHERE GALVANIZED COATING IS DAMAGED, COVER WITH BITUMINOUS MATERIAL.
6. BOLT CIRCLE FOR 3/4" TIE RODS AT THRUST COLLAR SHALL EQUAL BOLT CIRCLE AT TIE BOLTS.
7. ALL TIE RODS SHALL BE PARALLEL TO AXIS OF PIPE.
8. THRUST BLOCK REINFORCING SHALL BE #6 @ 12" C/C EW, EF + 4 #6 ADDITIONAL REINFORCING ON EACH FACE OF PIPE.
9. 4 TIE RODS SHOWN ON ELEVATION VIEW FOR CLARITY ONLY.
10. FIELD COAT TIE-RODS AND DI MJ CAP ASSEMBLY WITH PETROLATUM OR PETROLEUM WAX TAPE. COATING PRODUCT SHALL BE DENSO NORTH AMERICA OR TRENTON CORPORATION. APPLY COATING FOLLOWING COATING MANUFACTURER'S RECOMMENDATIONS.
11. SOIL CRITERIA:
 - a) ASSUMED EXISTING FILL (SILTY SAND/CLAYEY SAND).
 - b) SOIL PARAMETERS: EFFECTIVE FRICTION ANGLE = 28 DEGREES; MOIST UNIT WEIGHT = 120 PCF. SATURATED UNIT WEIGHT = 125 PCF; DESIGN SOIL BEARING PRESSURE OF 3,000 PSF.
 - c) GROUNDWATER LEVELS ABOVE PIPE INVERT.
 - d) REPLACE DISTURBED SOILS AROUND AND BELOW THRUST BLOCKS WITH NO. 57 STONE AGGREGATE COMPACTED AS STRUCTURAL BACKFILL.

THRUST BLOCK DETAIL FOR NEW 16" CAP
N.T.S.

PREPARED FOR:
THE HOWARD HUGHES CORP.
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BOB JENKINS
410-964-5443

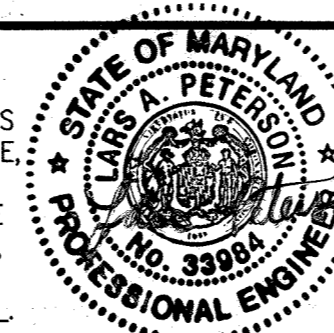
DEPARTMENT OF
PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF
PLANNING AND ZONING
HOWARD COUNTY, MARYLAND



DATE
JULY,
2016
G.L.W. No.
11071

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS
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. 35784
EXP. DATE: 1/8/17



BY	NO	REVISION	DATE

DETAILS

DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
CONTRACT No. 24-4931-D
PARCELS A THRU D &
OPEN SPACE LOTS 1 and 2
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT No. 5

SCALE
AS SHOWN
SHEET
7 OF 7

Steve C. Cern DATE 8/15/16
CHIEF, BUREAU OF UTILITIES

Chief, Development Engineering Division DATE 9-7-16
M.G.

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600' SCALE MAP NO. 36 & 39 BLOCK NO. 01