

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 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 1998 BY POTOMAC AERIAL.
- 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 4382 AND 4387.
ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON DRAWINGS ARE:
GEODETIC SURVEY CONTROL 4382 (N 551,654.993/E 1,378,176.951)
BRASS DISC SET ON TOP OF A CONCRETE MONUMENT.
GEODETIC SURVEY CONTROL 4386 (N 550,601.597/E 1,376,866.072)
BRASS DISC SET ON TOP OF A CONCRETE MONUMENT.
- 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 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 SHOWING THESE PLANS:
AT&T 1-800-252-1133
BGE (CONSTRUCTION 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
- 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 ANY OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD 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.

PART II - WATER

- ALL WATER MAINS SHALL BE C-900 PVC (DR-18) UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TREES SHALL BE STRAPPED TO TREES.
- 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 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 REST 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 HARNESSES. TWELVE (12) POUND ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TESTS" 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 #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, DR18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR18 OR EQUAL.
- SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE SPECIFICATIONS AND WITH SITE DEVELOPMENT PLAN SDP-14-029

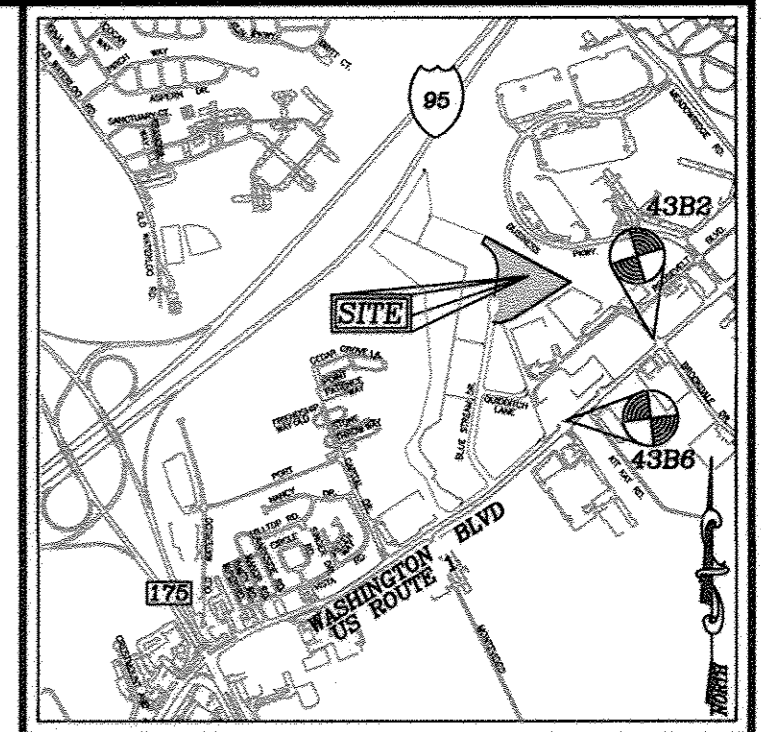
THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson / *8/26/14*
SOIL CONSERVATION DISTRICT / DATE

FINAL WATER AND SEWER CONSTRUCTION PLAN

BLUESTREAM TOWNS - SECTION 2

BLUE STREAM LOTS 1-105 AND OPEN SPACE LOT 106 A RESUBDIVISION OF BUILDABLE BULK PARCEL L-1 TOWNHOMES CONTRACT 14-4837-D HOWARD COUNTY, MARYLAND



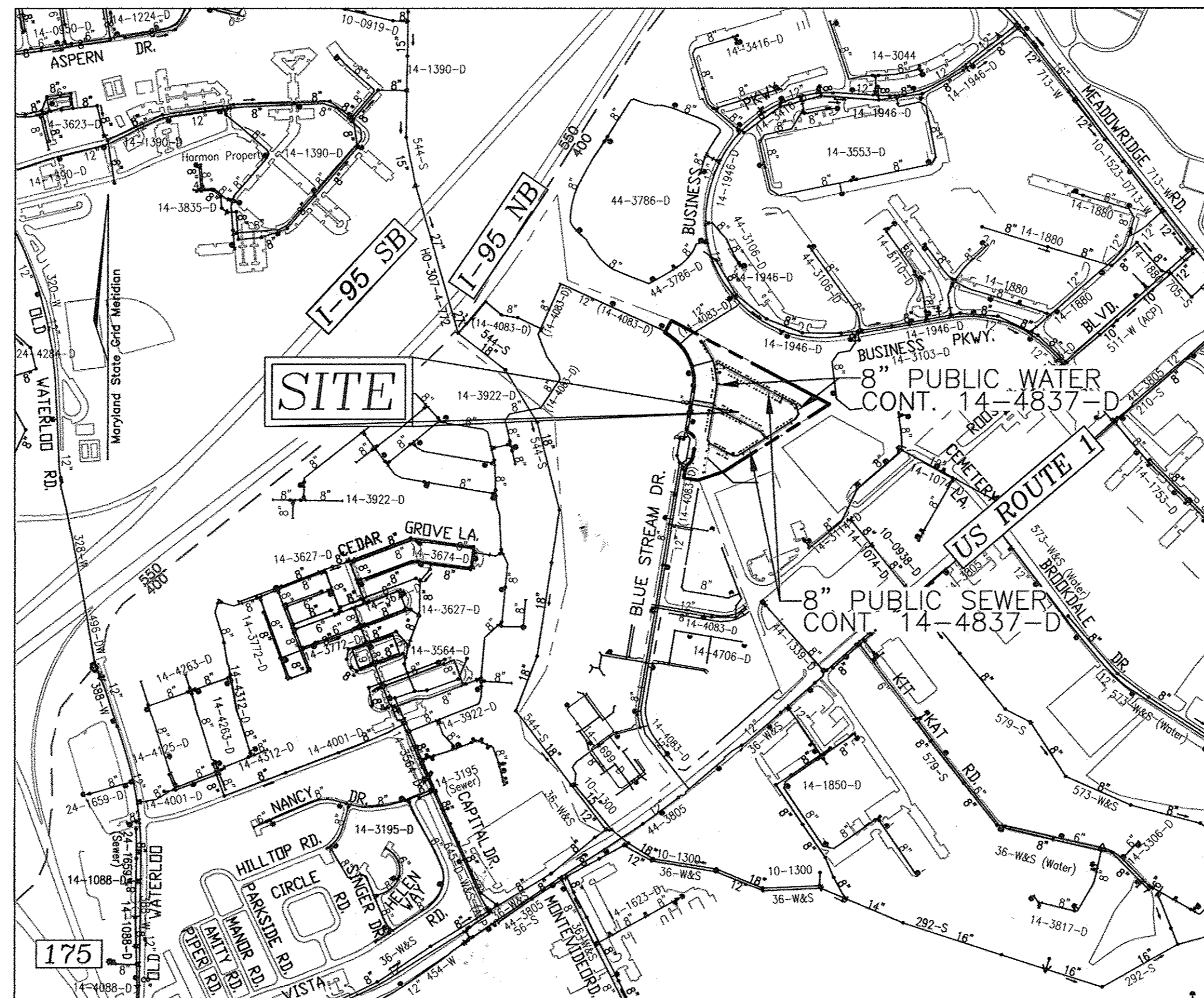
VICINITY MAP
SCALE: 1" = 2000'
ADC MAP COORDINATES 5054/62

BENCHMARKS

HOWARD COUNTY BENCHMARK 4382
N 551,654.993 E 1,378,176.951 ELEV.: 209.601'
HOWARD COUNTY BENCHMARK 4386
N 550,601.597 E 1,376,866.072 ELEV.: 210.559'

LEGEND

- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED TEE
- EXISTING SEWER MAIN
- SEWER MANHOLE
- PROPOSED SEWER MAIN
- PROPOSED WATER HOUSE CONNECTION
- PROPOSED SEWER HOUSE CONNECTION



LOCATION MAP
SCALE: 1" = 600'

WATER ZONE: 550
TEST GRADIENT: 700

PART II - WATER CONTINUED

- 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 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 INCORPORATE 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.
- SPRINKLER SYSTEM FOR SINGLE RESIDENTIAL DWELLING UNITS SHALL HAVE WATER HOUSE CONNECTIONS AND WATER METERS THAT ARE SIZED IN ACCORDANCE WITH THE DESIGN OF THE SPRINKLER SYSTEMS. SPRINKLER SYSTEMS FOR SINGLE RESIDENTIAL DWELLINGS SHALL HAVE A MINIMUM OF 1.5" SERVICE CONNECTION WITH A 1" OUTSIDE METER SETTING.

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 WATERTIGHT FRAME AND COVER, STANDARD DETAIL C5.52. 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.

QUANTITIES				
NAME OF UTILITY CONTRACTOR : UTILITIES UNLIMITED INC.				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE : 6 / 20 / 18				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
WATER				
8" WATER (PVC C-900) (DR-18)	2,384 LF	2285	C-900	J M EAGLE
6" WATER (PVC C-900) (DR-18)	84 LF	90	C-900	J M EAGLE
12" X 8" TAPPING SLEEVE	2 EA	2	C-228, C-207	FORD METER BOX
8" X 8" TEE	5 EA	5	C-153	TYLER UNION
8" X 6" TEE	4 EA	4	C-153	TYLER UNION
12" VALVE	3 EA	3	C-515	AMERICAN FLOW CONTROL
8" VALVE	15 EA	15	C-515	AMERICAN FLOW CONTROL
6" VALVE	4 EA	4	C-515	AMERICAN FLOW CONTROL
FIRE HYDRANT	4 EA	4	C-502	AMERICAN FLOW CONTROL
8" - 1/8" HORIZ. BEND	4 EA	4	C-104	TYLER UNION
8" - 1/16" HORIZ. BEND	6 EA	6	C-104	TYLER UNION
8" - 1/32" HORIZ. BEND	7 EA	7	C-104	TYLER UNION
1 1/2" WRC	1,549 LF	1510	TYPE K	CAMBRIDGE LEE
8" VERTICAL COUPLING	1 EA	1	C-116	CERTAINTIED PIPE
6" VERTICAL COUPLING	1 EA	1	C-116	TYLER UNION
SEWER				
STANDARD MANHOLE	14 EA	14	SMH	CONTRACTORS PRECAST CORP.
TYPE 'A' DROP MANHOLE	1 EA	1	SMH	CONTRACTORS PRECAST CORP.
TYPE 'B' DROP MANHOLE	2 EA	2	SMH	CONTRACTORS PRECAST CORP.
DOGHOUSE MANHOLE	1 EA	1	SMH	CONTRACTORS PRECAST CORP.
8" PVC SEWER	2,033 LF	2050	SDR-35	J M EAGLE
6" DIP SEWER	143 LF	145	SDR-35	J M EAGLE
4" SIC	2,035 LF	2040	SDR-35	J M EAGLE

TYPE OF BUILDING :	RESIDENTIAL (TOWNHOMES)
NO. OF LOTS/PARCELS :	106
NO. OF SINGLE WATER HOUSE CONNECTIONS :	29
NO. OF TWIN WATER HOUSE CONNECTIONS :	39
NO. OF SINGLE SEWER HOUSE CONNECTIONS :	7
NO. OF TWIN SEWER HOUSE CONNECTIONS :	49
SEWER SHED :	PATAPSCO
TREATMENT PLANT :	PATAPSCO RIVER

AS-BUILT
By: *[Signature]* Date: 7/13/18

OWNER/DEVELOPER
BLUE STREAM LLC
P.O. BOX 416
ELLCOTT CITY, MD 21041
C/O: ARNOLD SAGNER
410-465-2020

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
S. C. Con / *8/26/14*
CHIEF, BUREAU OF UTILITIES / DATE

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
Chad Edson / *9-3-14*
CHIEF, DEVELOPMENT ENGINEERING DIVISION / DATE

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

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. 16143
EXPIRATION DATE: 09-27-2014

DRN: CH/RJ DES: GAH
CHK: RHV
DATE: JULY 2014

RECONFIGURE WATER SYSTEM TO AVOID CONFLICT WITH BGE DUCT BANK; PROVIDE NEW WATER LOOP

DATE: 2/3/15

BY	NO.	REVISION	DATE

FINAL WATER & SEWER PLAN
COVER SHEET

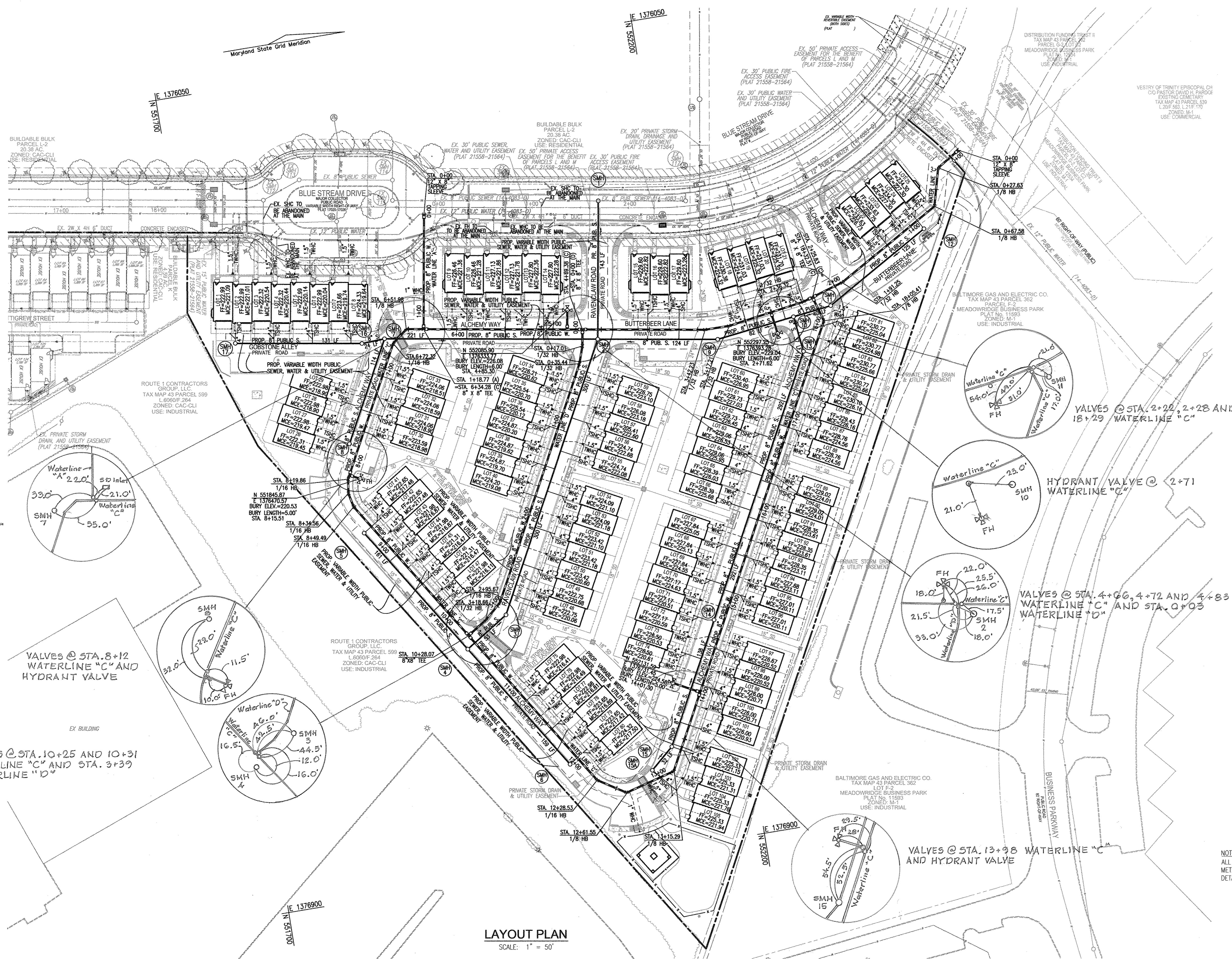
BLUE STREAM TOWN - SECTION 2
LOTS 1-105, AND OPEN SPACE LOT 106
A RE-SUBDIVISION OF BUILDABLE BULK PARCEL L-1
TOWNHOMES
CONTRACT 14-4837-D

SCALE AS SHOWN
SHEET 1 OF 5

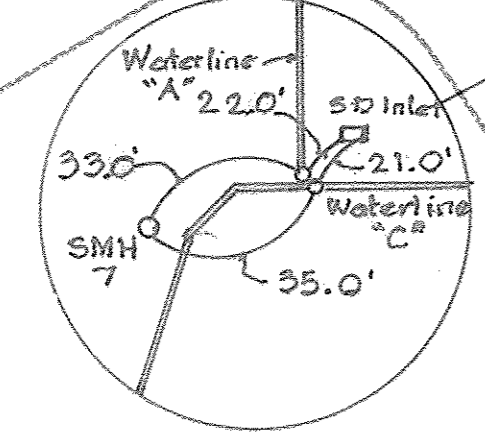
ZONING: CAC-CL1
PARCEL 14
HOWARD COUNTY, MARYLAND

600' SCALE MAP NO. 43 BLOCK NO. 4
TAX MAP: 43 GRID: 4
1ST ELECTION DISTRICT

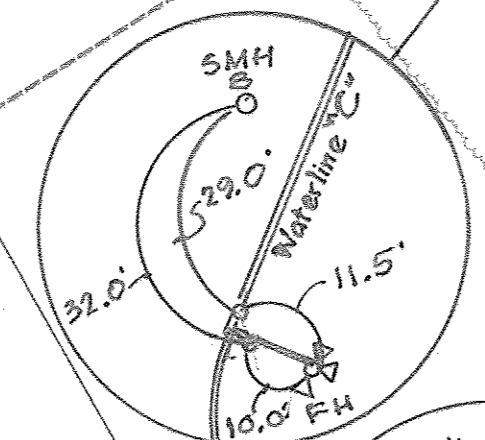
- LEGEND**
- EXISTING TREELINE
 - PROPOSED TREELINE
 - EXISTING WATER MAIN
 - PROPOSED WATER MAIN
 - FIRE HYDRANT
 - PROPOSED VALVE
 - PROPOSED TEE
 - EXISTING STORM DRAIN
 - EXISTING SEWER
 - PRIVATE WATER HOUSE CONNECTION
 - PUBLIC SEWER
 - PRIVATE SEWER HOUSE CONNECTION



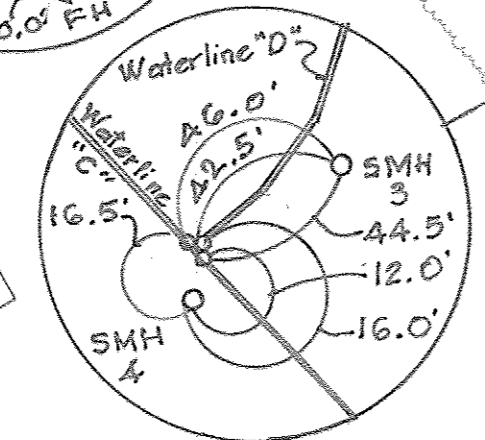
VALVES @ STA. 6+31
WATERLINE "C" AND
STA. 1+15 WATERLINE "A"



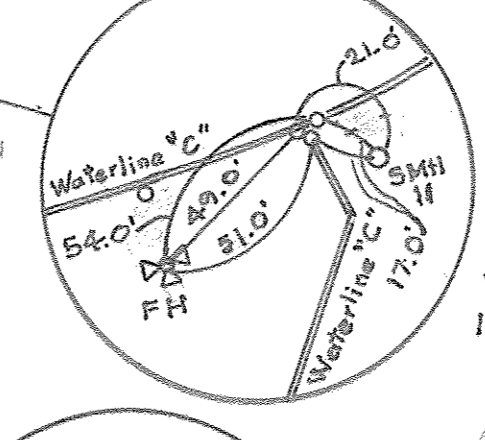
VALVES @ STA. 8+12
WATERLINE "C" AND
HYDRANT VALVE



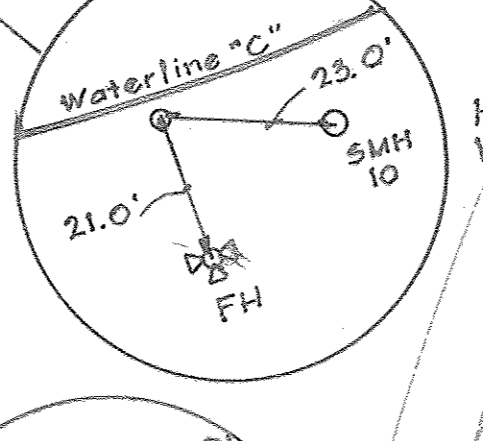
VALVES @ STA. 10+25 AND 10+31
WATERLINE "C" AND STA. 3+39
WATERLINE "D"



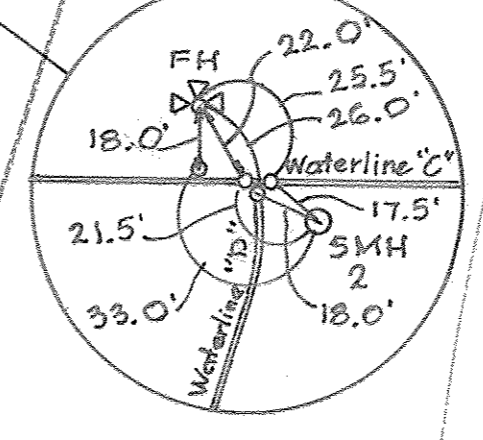
VALVES @ STA. 2+22, 2+28 AND
18+29 WATERLINE "C"



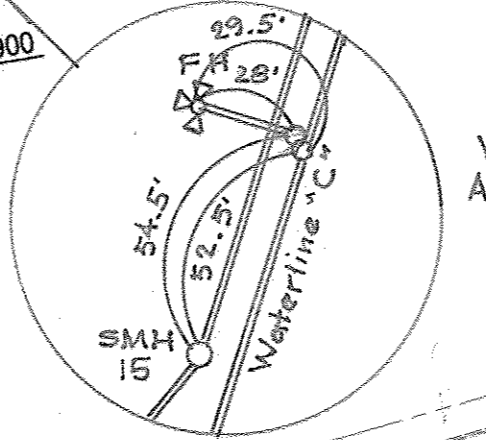
HYDRANT VALVE @ 2+71
WATERLINE "C"



VALVES @ STA. 4+66, 4+72 AND 4+83
WATERLINE "C" AND STA. 0+03
WATERLINE "D"



VALVES @ STA. 13+98 WATERLINE "C"
AND HYDRANT VALVE



LAYOUT PLAN
SCALE: 1" = 50'

AS-BUILT

by *[Signature]* Date 7/13/15

NOTE:
ALL TOWNHOUSE WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE
METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY
DETAILS W.3-28 AND W-3.32 FOR SINGLE AND TWIN OUTSIDE METER SETTINGS.

OWNER/DEVELOPER

BLUE STREAM LLC
P.O. BOX 416
ELLCOTT CITY, MD 21041
C/O: ARNOLD SAGNER
410-465-2020

BLUE STREAM TOWNS - SECTION 2

BLUE STREAM
LOTS 1-105, AND OPEN SPACE LOT 106
A RE-SUBDIVISION OF BUILDABLE BULK PARCEL L-1
TOWNHOMES
CONTRACT 14-4837-D

SCALE
AS
SHOWN

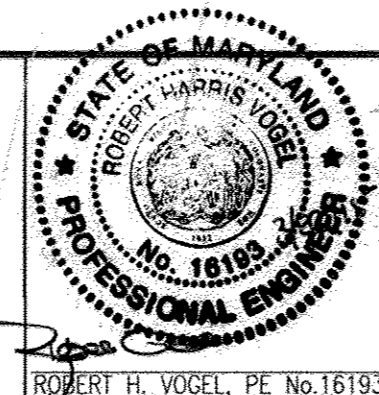
SHEET
2 OF 5

TAX MAP: 43 GRID: 4
1ST ELECTION DISTRICT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERING, INC.**
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043 TEL: 410.461.7666
FAX: 410.461.8961



PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS
WERE PREPARED OR APPROVED BY ME, AND
THAT I AM A LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE
OF MARYLAND, LICENSE NO. 18193
EXPIRATION DATE: 09-27-2014

DRN: GH/JR DES: GAH
CHK: RHW
DATE: JULY 2014

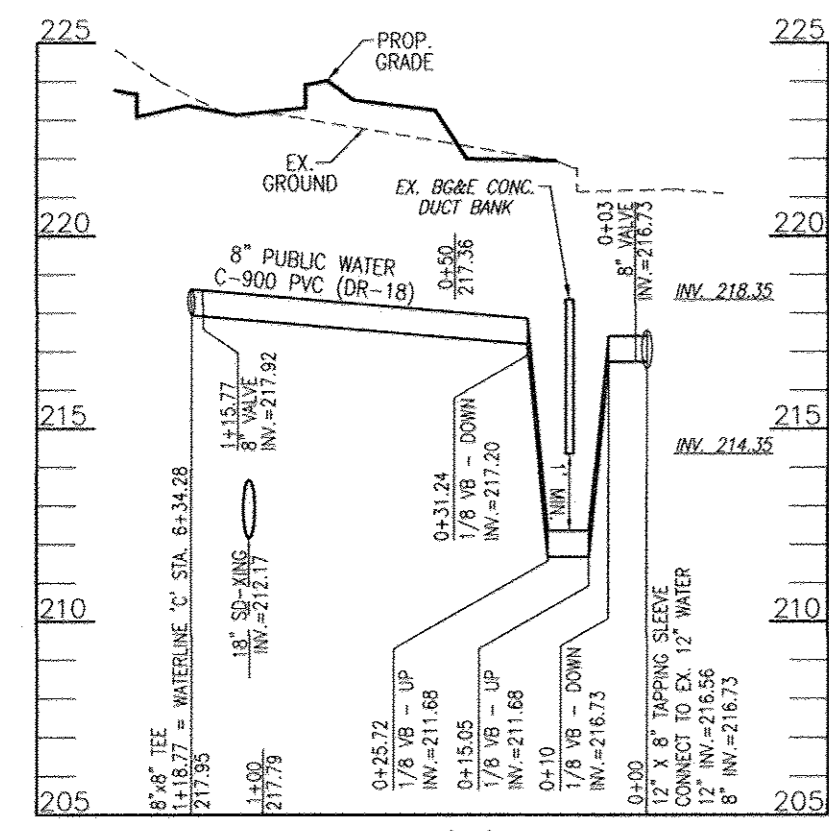
**FINAL WATER & SEWER PLAN
LAYOUT PLAN**

600' SCALE MAP NO. 43

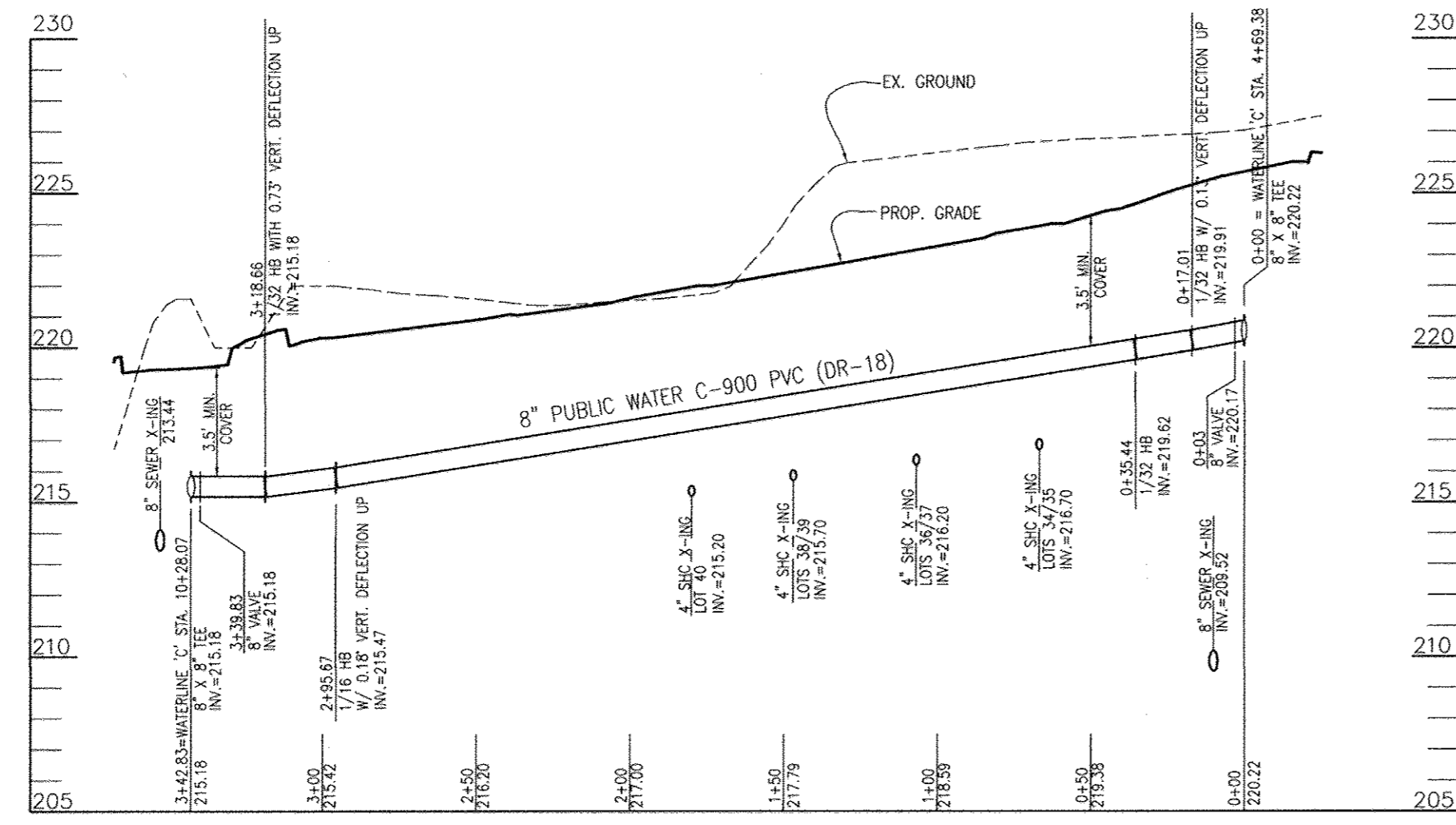
BLOCK NO. 4

[Signature] 4/22/15
CHIEF, BUREAU OF UTILITIES DATE

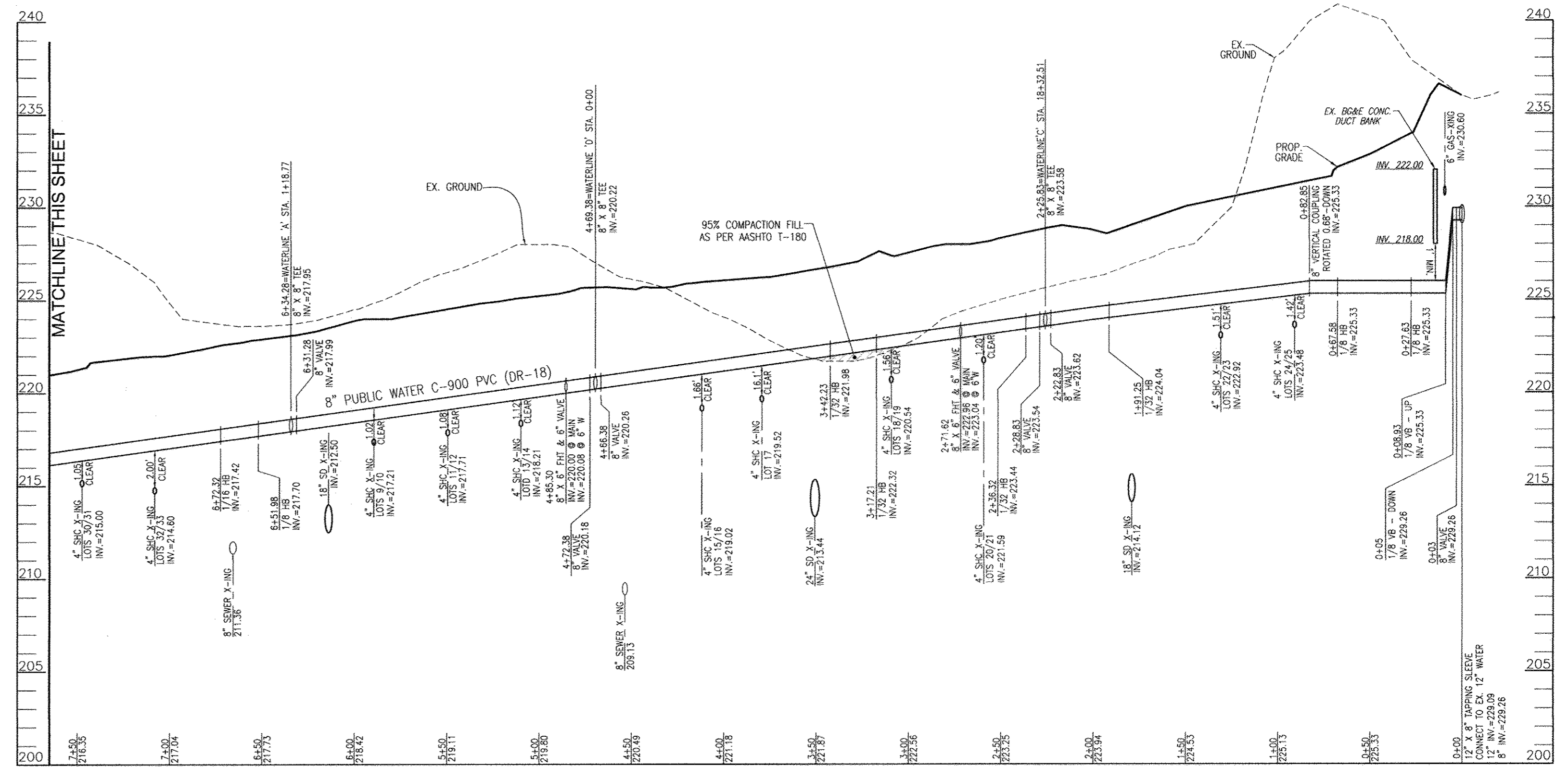
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CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



WATER LINE 'A' PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

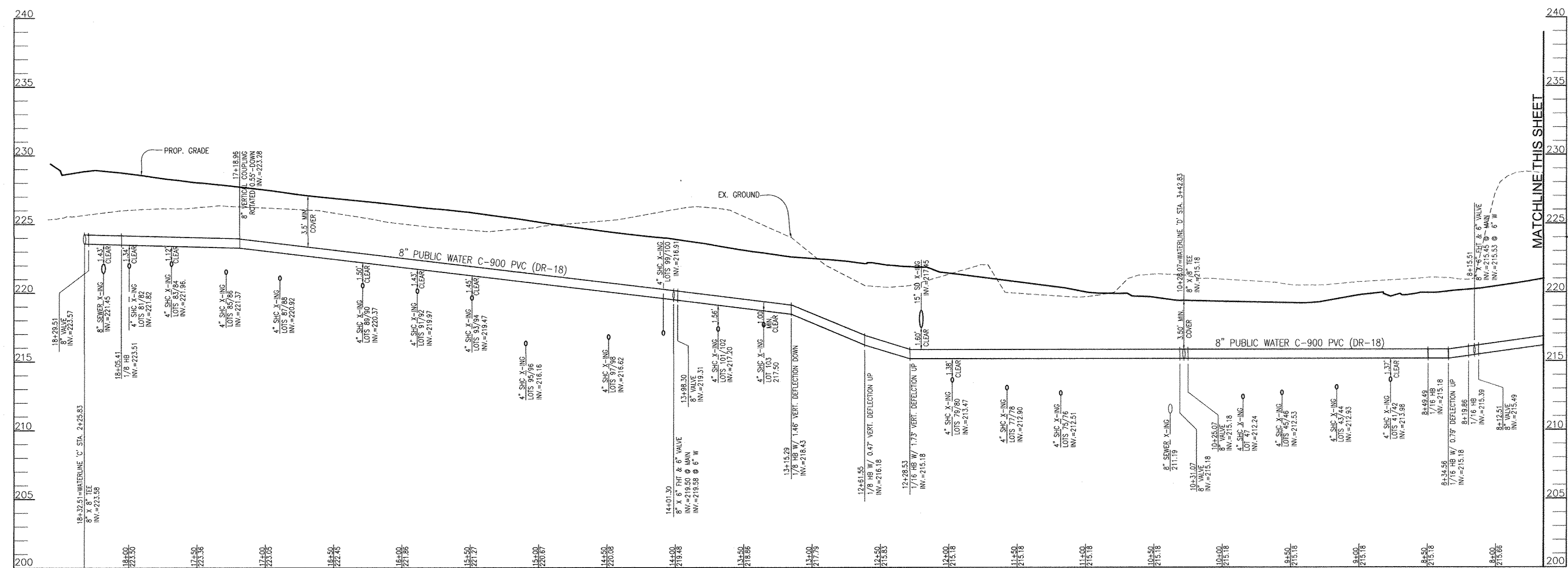


WATER LINE 'D' PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



WATER LINE 'C' PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

WATER MAIN LOCATION CHART			
WATERLINE 'A'			
STATION	APPURTENANCE	INVERT ELEVATION	REMARKS
0+00	12" X 8" TAPPING SLEEVE	12"-216.56/8"-216.73	CONNECT TO EX. 12" WATER
0+03	8" VALVE	216.73	
0+10	1/8 VB - DOWN	216.73	PROVIDE RESTRAINED JOINT
0+15.05	1/8 VB - UP	211.68	PROVIDE RESTRAINED JOINT
0+25.72	1/8 VB - UP	211.68	PROVIDE RESTRAINED JOINT
0+31.24	1/8 VB - DOWN	217.20	PROVIDE RESTRAINED JOINT
1+15.77	8" VALVE	217.92	
1+18.77	8" X 8" TEE	217.95	WATERLINE 'C' STA. 6+34.28
WATERLINE 'C'			
0+00	12" X 8" TAPPING SLEEVE	12"-229.09/8"-229.26	CONNECT TO EX. 12" WATER
0+03	8" VALVE	229.26	
0+05	1/8 VB - DOWN	229.26	PROVIDE RESTRAINED JOINT
0+08.93	1/8 VB - UP	225.33	PROVIDE RESTRAINED JOINT
0+27.63	1/8 HB	225.33	
0+67.58	1/8 HB	225.33	
0+82.85	8" VERTICAL COUPLING	225.33	ROTATED 0.68' DOWN
1+91.25	1/32 HB	224.04	
2+22.83	8" VALVE	223.62	
2+25.83	8" X 8" TEE	223.58	WATERLINE 'C' STA. 18+32.5
2+28.83	8" VALVE	223.54	
2+36.32	1/32 HB	223.44	
2+71.62	8" X 6" FHT & 6" VALVE	223.04	INVERT OF 6" W
3+17.21	1/32 HB	222.32	
3+42.23	1/32 HB	221.98	
4+66.38	8" VALVE	220.26	
4+69.38	8" X 8" TEE	220.22	WATERLINE 'D' STA. 0+00
4+72.38	8" VALVE	220.18	
4+85.30	8" X 6" FHT & 6" VALVE	220.08	INVERT OF 6" W
6+31.28	8" VALVE	217.99	
6+34.28	8" X 8" TEE	217.95	WATERLINE 'A' STA. 1+18.77
6+51.98	1/8 HB	217.70	
6+72.32	1/16 HB	217.42	
8+12.51	8" VALVE	215.49	
8+15.51	8" X 6" FHT & 6" VALVE	215.53	INVERT OF 6" W
8+18.86	1/16 HB	215.39	
8+34.56	1/16 HB	215.18	W/ 0.79' VERT. DEFLECTION UP
8+49.49	1/16 HB	215.18	
10+25.07	8" VALVE	215.18	
10+28.07	8" X 8" TEE	215.18	WATERLINE 'D' STA. 3+42.83
10+31.07	8" VALVE	215.18	
12+28.53	1/16 HB	215.18	W/ 1.73' VERT. DEFLECTION UP
12+61.55	1/8 HB	216.18	W/ 0.47' VERT. DEFLECTION UP
13+15.29	1/8 HB	216.43	W/ 1.46' VERT. DEFLECTION DN
13+98.30	8" VALVE	219.31	
14+01.30	8" X 6" FHT & 6" VALVE	219.58	INVERT OF 6" W
17+18.96	8" VERTICAL COUPLING	223.28	ROTATED 0.55' DOWN
18+05.41	1/8 HB	223.51	
18+29.51	8" VALVE	223.57	
18+32.51	8" X 8" TEE	223.58	WATERLINE 'C' STA. 2+25.83
WATERLINE 'D'			
0+00	8" X 8" TEE	220.22	WATERLINE 'C' STA. 4+69.38
0+03	8" VALVE	220.17	
0+17.01	1/32 HB	219.91	W/ 0.13' VERT. DEFLECTION UP
0+35.44	1/32 HB	219.62	
2+95.67	1/16 HB	215.47	W/ 0.18' VERT. DEFLECTION UP
3+18.66	1/32 HB	215.18	W/ 0.73' VERT. DEFLECTION UP
3+39.83	8" VALVE	215.18	
3+42.83	8" X 8" TEE	215.18	WATERLINE 'C' STA. 10+28.07



WATER LINE 'C' PROFILE (CONT'D)
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

AS-BUILT
Date 7/15/18

OWNER/DEVELOPER
BLUE STREAM LLC
P.O. BOX 416
ELLICOTT CITY, MD 21041
C/O: ARNOLD SAGNER
410-465-2020

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES
DATE 6/19/15

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE 6/19/15

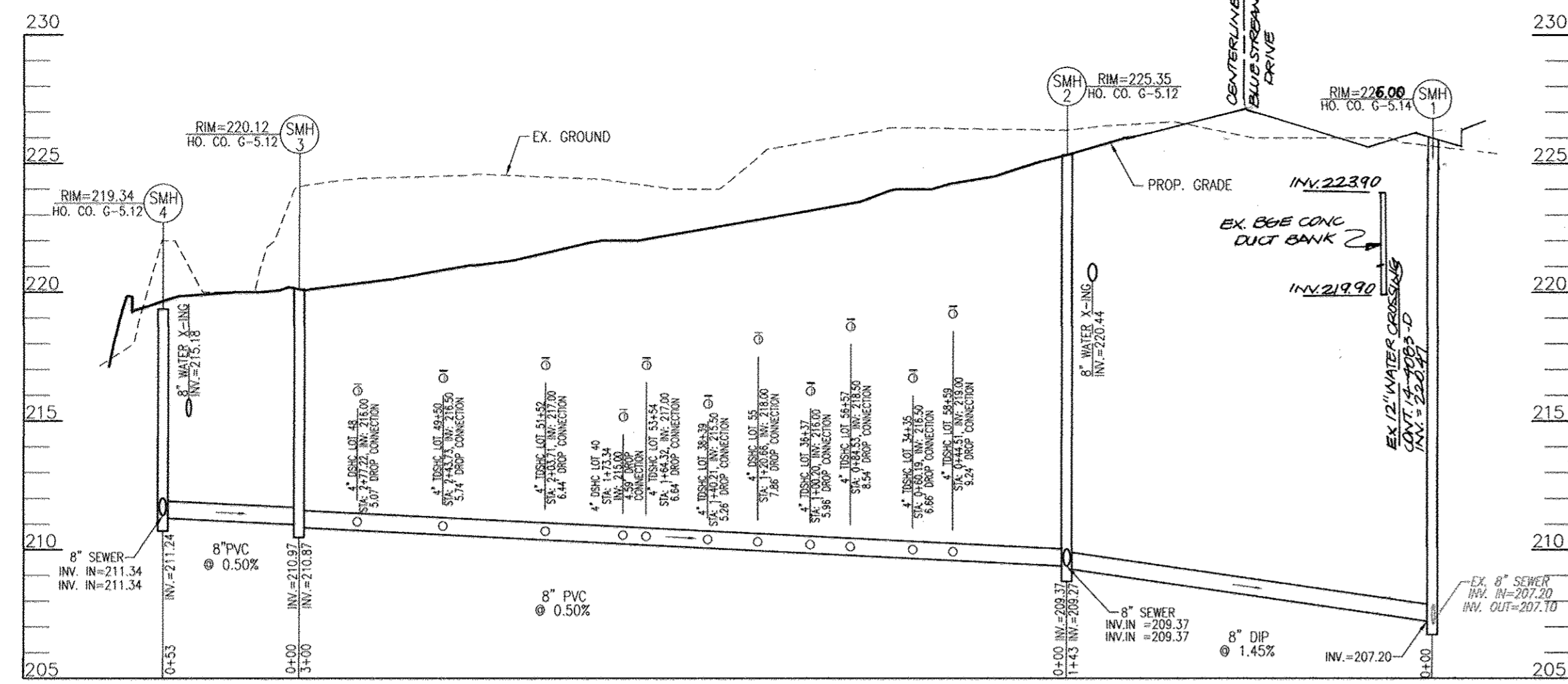
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8956
ROBERT H. VOGEL, P.E. No. 16193

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: 09-27-2014

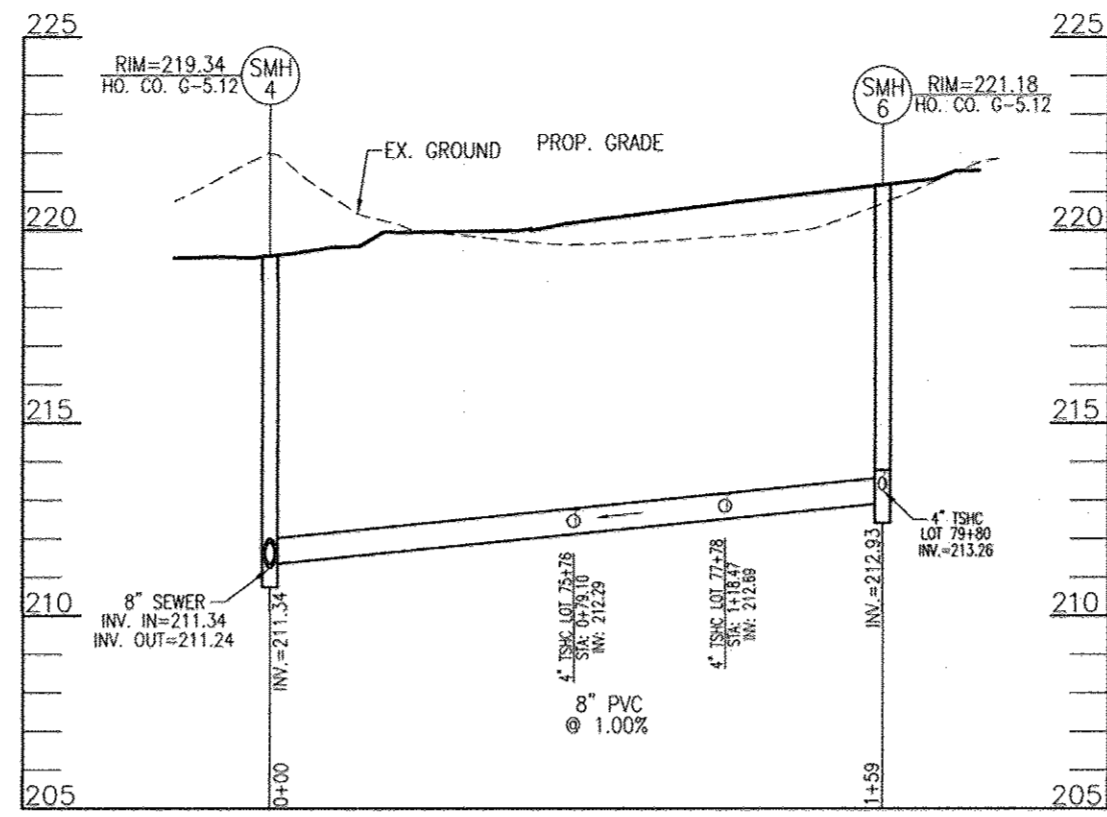
DRN:	GH/JR	DES:	GAH
CHK:	RHV		
DATE:	JULY 2014		
BY:	NO.	REVISION	DATE

FINAL WATER & SEWER PLAN
WATER LINE PROFILES
600' SCALE MAP NO. 43
BLOCK NO. 4

BLUE STREAM TOWNS - SECTION 2
BLUE STREAM
LOTS 1-105 AND OPEN SPACE LOT 106
A RE-SUBDIVISION OF BUILDABLE BULK PARCEL L-1
TOWNHOMES
CONTRACT 14-4837-D
ZONING: CAC-CL1
PARCEL: 14
HOWARD COUNTY, MARYLAND
SHEET 3 OF 5

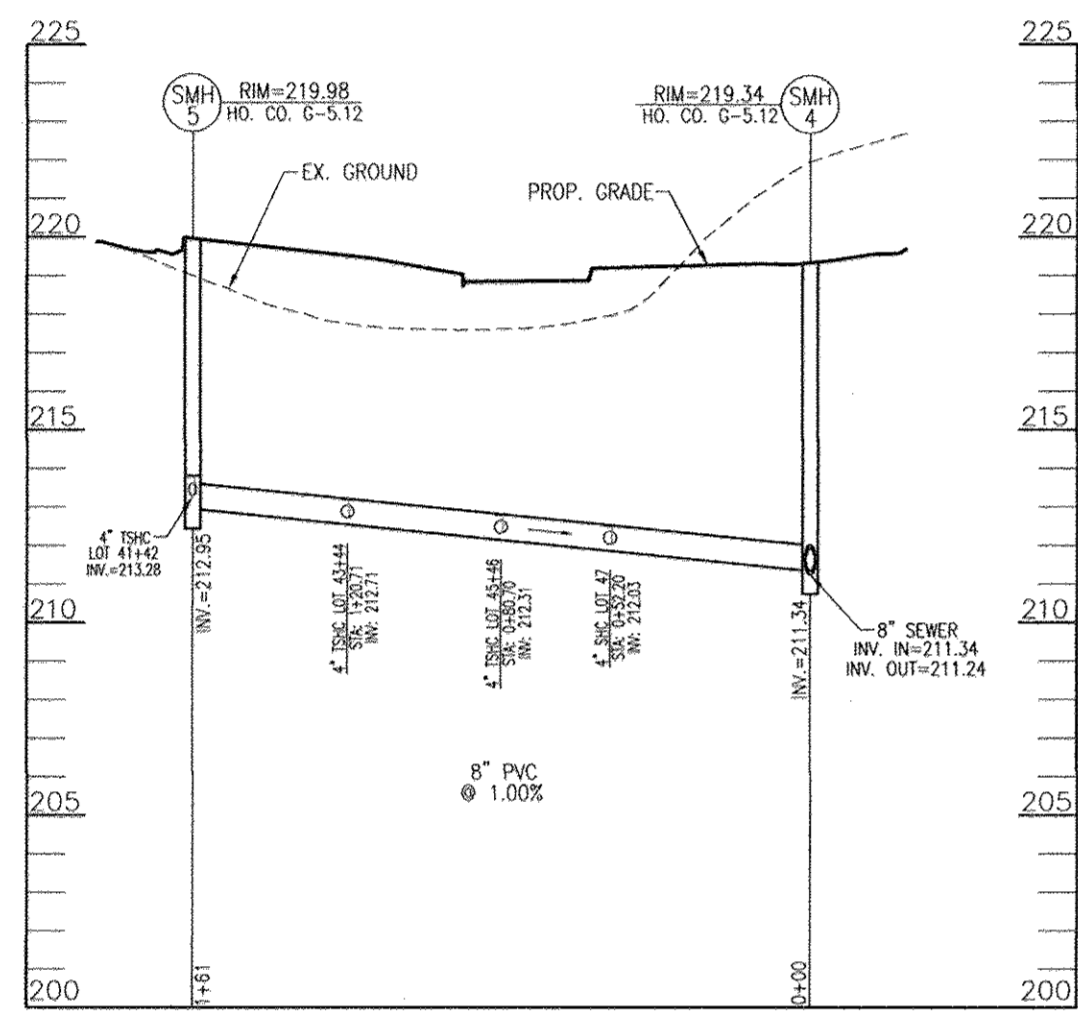


SEWER PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

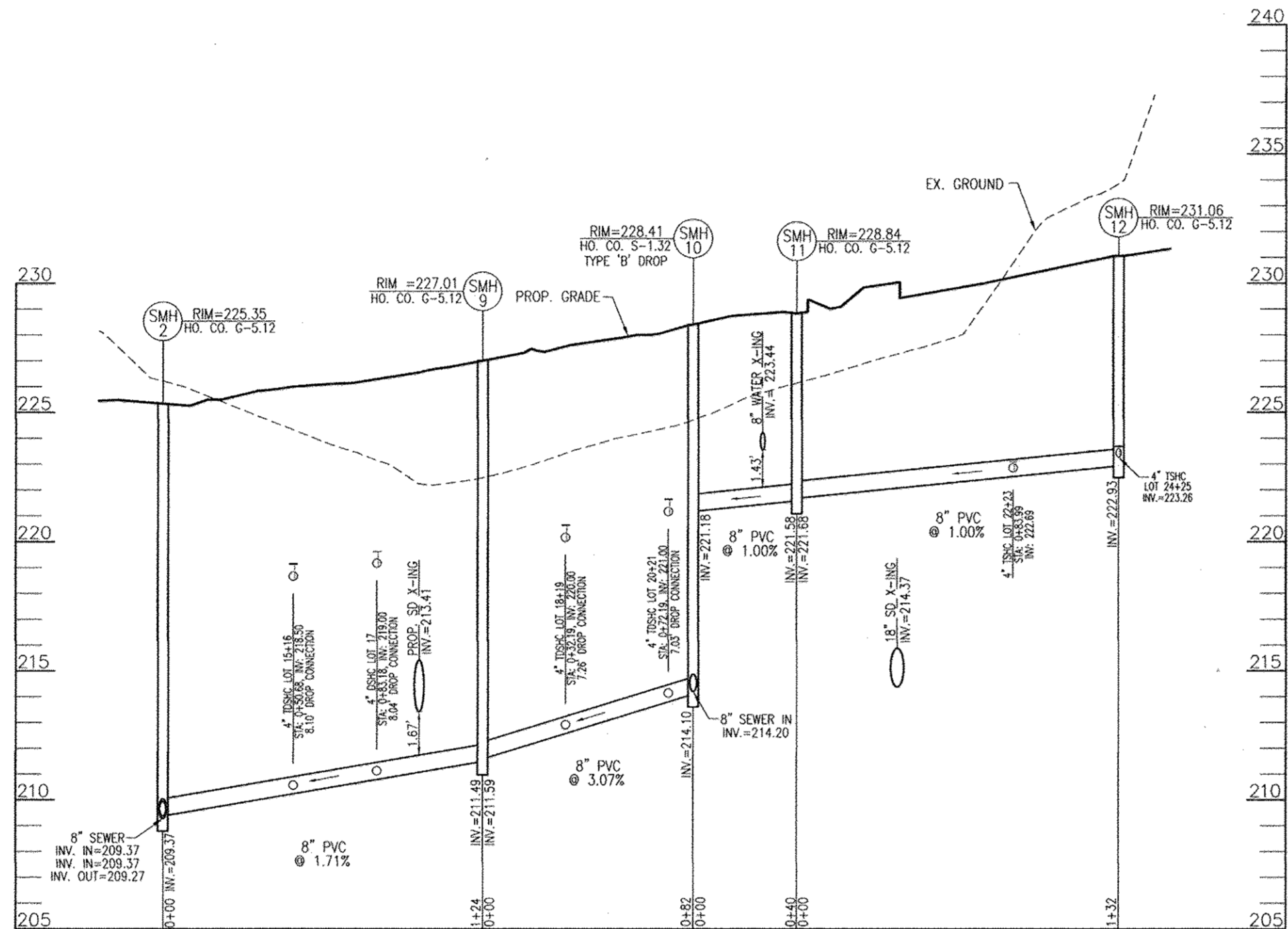


SEWER PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

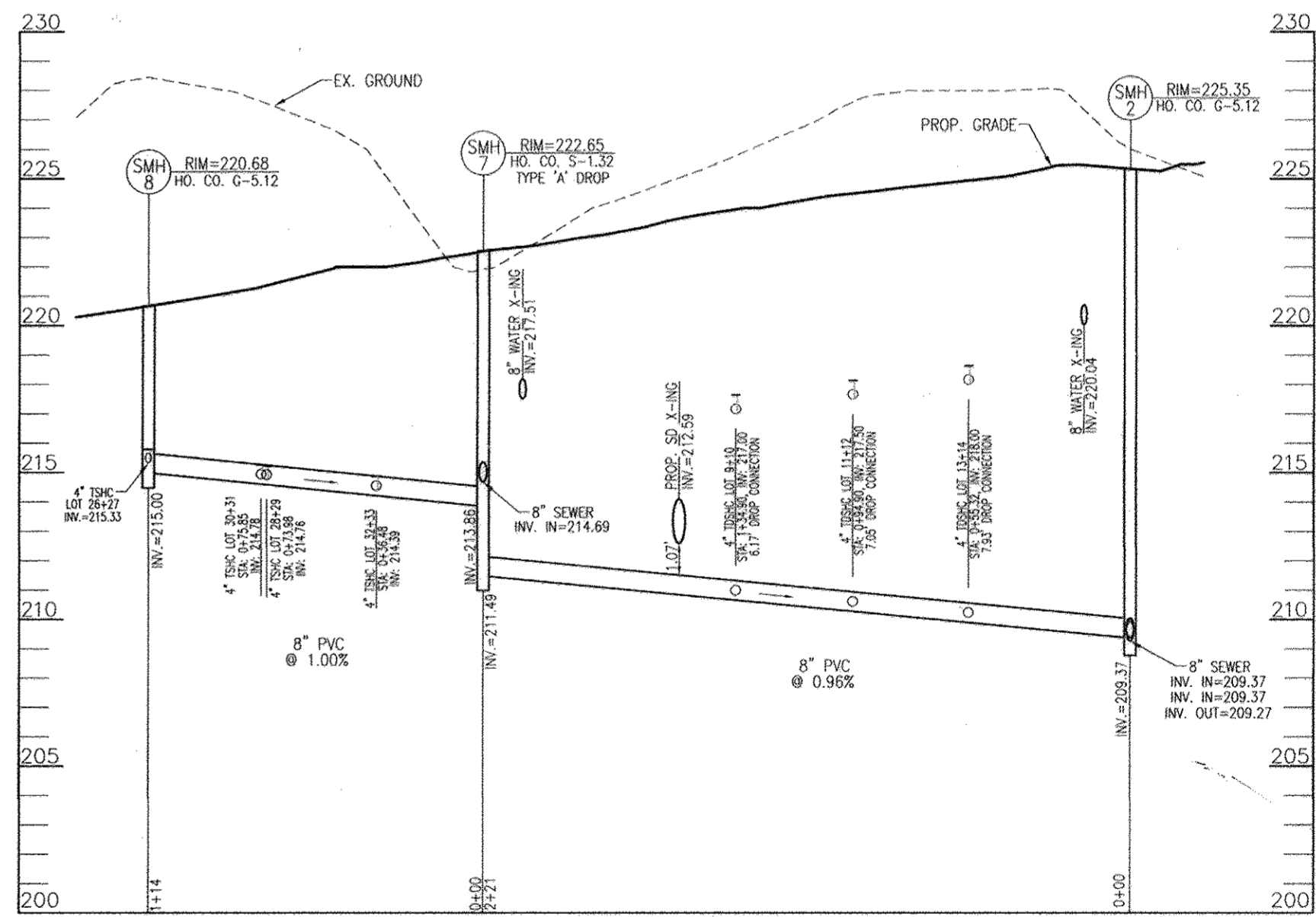
MANHOLE LOCATION CHART						
MH NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	REMARKS
1	PRECAST DOGHOUSE MANHOLE (G-5.14)	N 552135.97 E 1376227.58	225.06	(2) 207.20	207.10	
2	STD. PRECAST MANHOLE (G-5.12)	N 552112.36 E 1376368.39	225.35	(3) 209.37	209.27	
3	STD. PRECAST MANHOLE (G-5.12)	N 551972.19 E 1376633.63	220.12	210.97	210.87	
4	STD. PRECAST MANHOLE (G-5.12)	N 551927.29 E 1376620.20	219.34	(2) 211.34	211.24	
5	STD. PRECAST MANHOLE (G-5.12)	N 551840.82 E 1376526.28	219.98	213.26	212.95	
6	STD. PRECAST MANHOLE (G-5.12)	N 552012.90 E 1376796.75	221.18	213.26	212.93	
7	TYPE 'A' DROP MANHOLE (S-1.32)	N 551894.17 E 1376331.81	222.65	214.69 / 213.86	211.49	
8	STD. PRECAST MANHOLE (G-5.12)	N 551840.75 E 1376432.91	220.68	215.33	215.00	
9	STD. PRECAST MANHOLE (G-5.12)	N 552234.95 E 1376388.94	227.01	211.59	211.49	
10	TYPE 'B' DROP MANHOLE (S-1.32)	N 552316.17 E 1376378.84	228.41	221.18 / 214.20	214.10	
11	STD. PRECAST MANHOLE (G-5.12)	N 552356.12 E 1376373.86	228.84	221.68	221.58	
12	STD. PRECAST MANHOLE (G-5.12)	N 552464.36 E 1376311.27	231.06	(2) 223.26	222.93	
13	TYPE 'B' DROP MANHOLE (S-1.32)	N 552320.76 E 1376415.78	228.21	221.50 / 214.49	214.39	
14	STD. PRECAST MANHOLE (G-5.12)	N 552184.25 E 1376674.11	224.87	216.38 / 216.05	215.95	
15	STD. PRECAST MANHOLE (G-5.12)	N 552119.79 E 1376796.09	223.27	217.07 / 216.84	216.74	
15A	STD. PRECAST MANHOLE (G-5.12)	N 552096.00 E 1376816.86	222.59	217.40	217.07	
16	STD. PRECAST MANHOLE (G-5.12)	N 551870.31 E 1376332.79	222.80	215.59	215.49	
17	SHALLOW PRECAST MANHOLE (G-5.12)	N 551740.74 E 1376311.07	221.50	217.23	216.90	



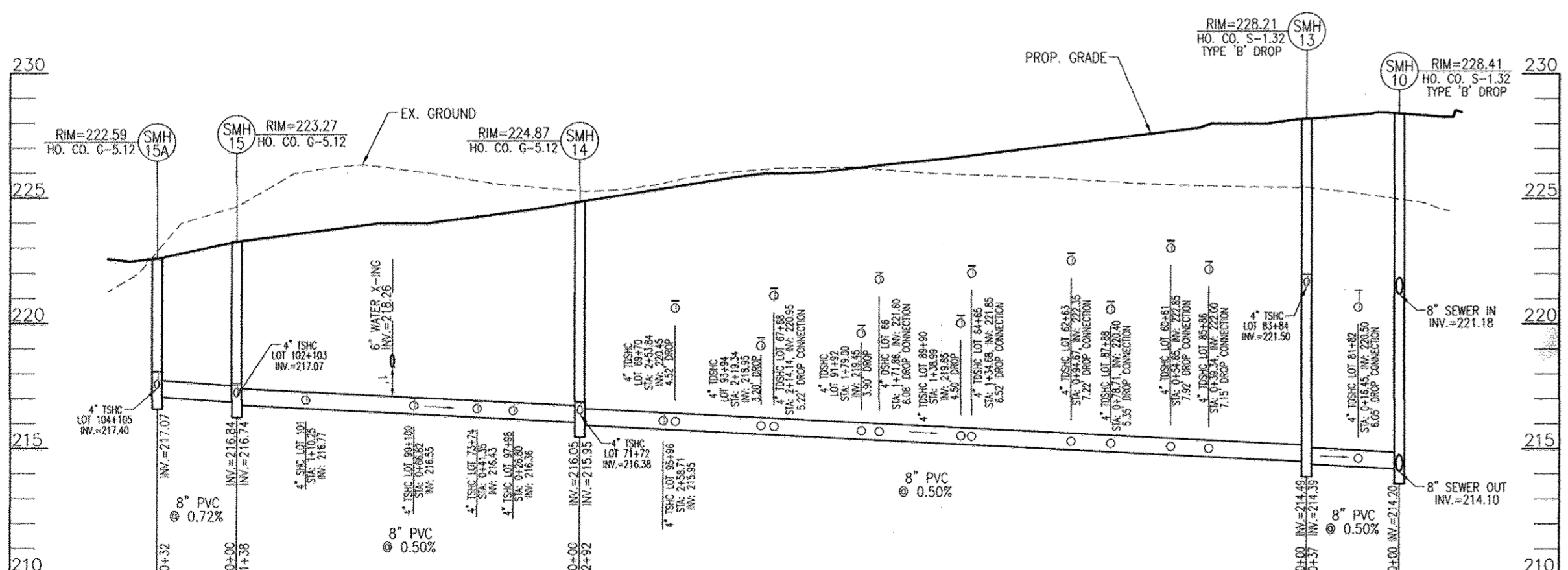
SEWER PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



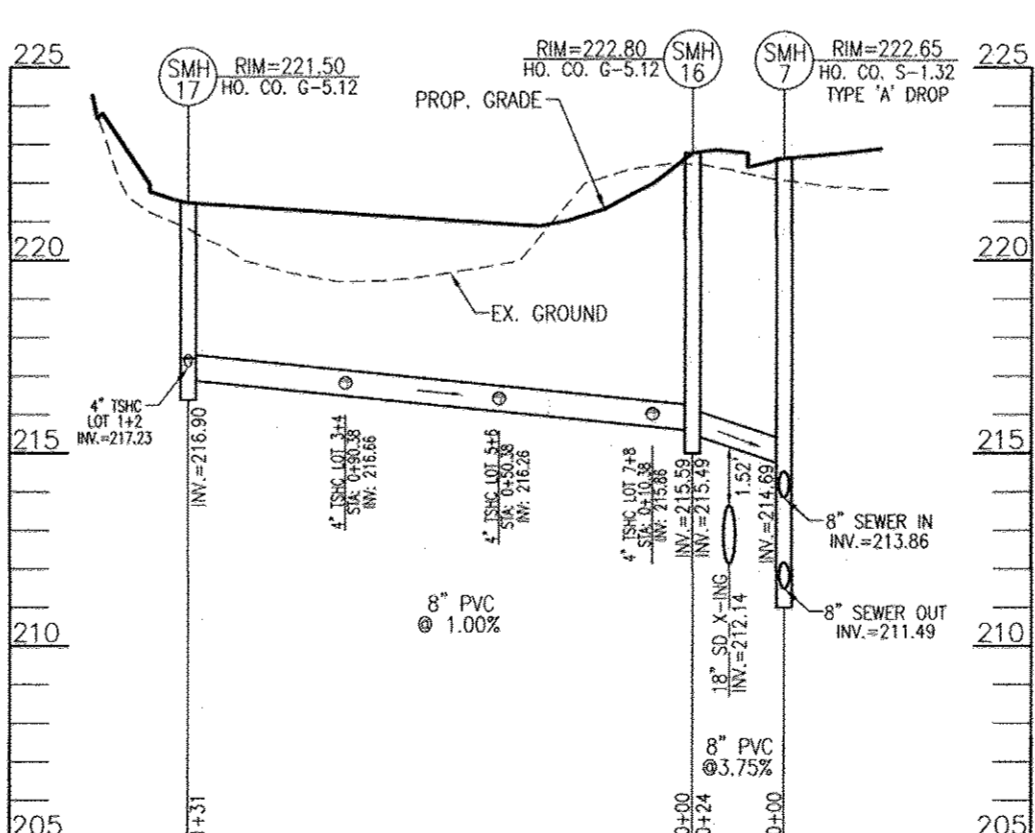
SEWER PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



SEWER PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



SEWER PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



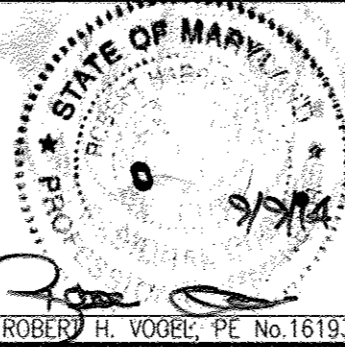
SEWER PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

AS-BUILT
By *[Signature]* Date 7/12/15
OWNER/DEVELOPER
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P.O. BOX 416
ELLCOTT CITY, MD 21041
C/O: ARNOLD SAGNER
410-465-2020

DEPARTMENT OF PUBLIC WORKS
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EXPIRATION DATE: 09-27-2014
DRN: GH/JR DES: GAH
CHK: RHV
DATE: JULY 2014

REV	NO.	REVISION	DATE
1		RECONFIGURE WATER SYSTEM TO AVOID CONFLICT WITH BGE DUCT BANK; PROVIDE NEW WATER LOOP	2/3/15

FINAL WATER & SEWER PLAN
SEWER PROFILES
600' SCALE MAP NO. 43 BLOCK NO. 4

BLUE STREAM TOWN - SECTION 2
BLUE STREAM
LOTS 1-105, AND OPEN SPACE LOT 106
A RE-SUBDIVISION OF BUILDABLE BULK PARCEL L-1 TOWNHOMES
CONTRACT 14-4837-D
ZONING: CAC-CU
PARCEL: 14
HOWARD COUNTY, MARYLAND
TAX MAP: 43 GRID: 4
1ST ELECTION DISTRICT

