

QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
8" D.I.P. WATER MAIN	5320 L.F.	5322	DIPCL52	U.S. PIPE & FOUNDRY
6" D.I.P. WATER MAIN	165 L.F.	146	DIPCL52	"
4" D.I.P. WATER MAIN	176 L.F.	180	D.I.P.	"
FIRE HYDRANTS	8 EA.	8	A.12&TYPEA	KENNEDY VALVE
8"X6" FH TEES	8 EA.	8	8"X6"	TYLER
8"X8" TEES	6 EA.	6	M.J. TEE	TYLER
8"X4" TEES	1 EA.	1	M.J. TEE	TYLER
8" WATER VALVES	16 EA.	16	GATE VALVE	KENNEDY VALVE
8" WATER VALVES	8 EA.	8	"	"
4" WATER VALVES	1 EA.	1	"	"
1/8 BENDS	9 EA.	9	D.I.P.	TYLER
1/16 BENDS	5 EA.	4	D.I.P.	"
1/32 BENDS	29 EA.	26	D.I.P.	"
8" PLUGS	4 EA.	5	M.J. CAP	"
4" PLUGS	1 EA.	7	M.J. CAP	"
1" WHC	1415 L.F.	1420	COPPER	HOWELL METAL
8" SEWER PVC	6487 L.F.	6617	S.D.R. 35	DIAMOND
8" SEWER D.I.P.	400 L.F.	410	D.I.P. CL 52	U.S. PIPE FOUNDRY
MANHOLES	52 EA.	53	PRECAST	ATLANTIC
4" SHC	1626 L.F.	1430	S.D.R. 35	DIAMOND
		576	DIPCL52	U.S. PIPE FOUNDRY

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

BENCH MARKS NAD'83	
HO. CO. #31E6	
3/4" REBAR 0.5' BELOW SURFACE	
5' SOUTHWEST OF ILCHESTER ROAD PAVING	
500'± WEST OF WHARF LANE.	
N 570852.3717'	E 1376700.6467'
HO. CO. #31E7	
3/4" REBAR 0.5' BELOW SURFACE	
9' SOUTHWEST OF ILCHESTER ROAD PAVING	
250'± WEST OF BEECHWOOD ROAD	
N 572335.3503'	E 1377504.0332'
HO. CO. BM#2745004	ELEV. 364.78'
USED FOR VERTICAL CONTROL.	

# PUBLIC WATER AND SEWER CONSTRUCTION PLANS CASCADE OVERLOOK SECTION ONE

1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
CONTRACT No. 14-4080-D

### GENERAL NOTES

#### PART 1 - GENERAL

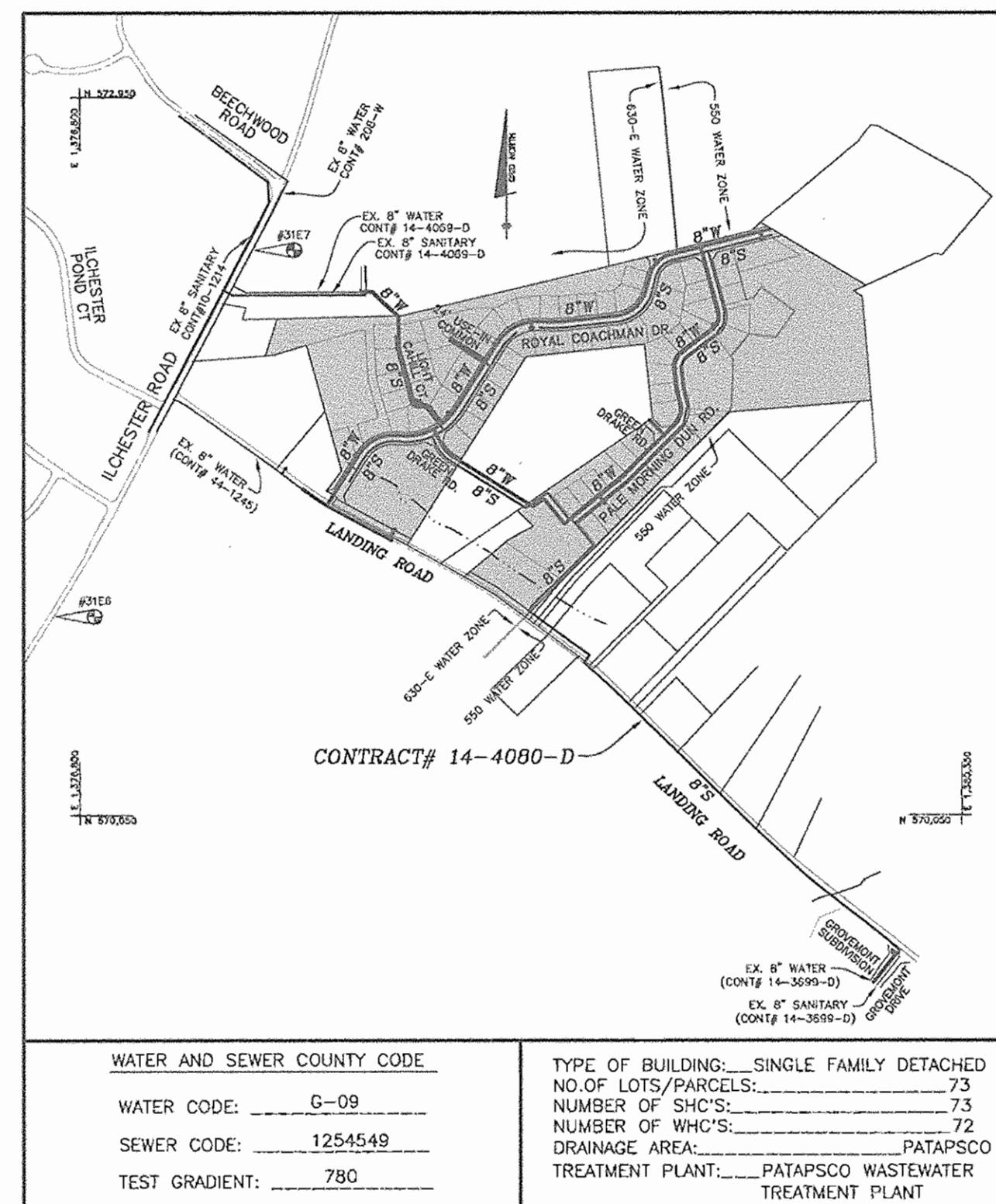
- APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SUPPLY. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES.
- ALL VERTICAL CONTROLS ARE BASED ON U.S.G.S. DATA.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. 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 MONEY 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 DETAIL 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 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. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:  
 STATE HIGHWAY ADMINISTRATION.....410-531-5533  
 BALTIMORE GAS & ELECTRIC CO.....410-850-4620  
 CONTRACTOR SERVICES.....410-257-7777  
 BALTIMORE GAS & ELECTRIC CO.....410-787-9066  
 UNDERGROUND DAMAGE CONTROL.....1-800-257-7777  
 MISS UTILITY.....410-785-1390  
 COLONIAL PIPELINE CO.....410-785-1390  
 HOWARD CO. DEPT. OF PUBLIC WORKS.....410-313-4900  
 BUREAU OF UTILITIES.....1-800-446-5266  
 VERIZON.....1-800-446-5266
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- PLACE REGULATION "MEN WORKING" AND WARNING SIGNS AS REQUIRED TO COMPLY WITH MARYLAND STATE HIGHWAY ADMINISTRATION MANUAL OF TRAFFIC CONTROL FOR HIGHWAY MAINTENANCE OPERATIONS.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-2450 AT LEAST FIVE WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN 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(c) OF THE HOWARD COUNTY CODE.

#### PART 2 - WATER

- ALL WATER MAINS TO BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3'-1/2" COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TREES 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 STANDARD DETAILS. 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.
- ALL WATER HOUSE CONNECTIONS SHALL BE FOR INSIDE METER SETTING UNLESS OTHERWISE NOTED ON PLANS OR IN SPECIFICATIONS. ALL WATER HOUSE CONNECTIONS SHALL BE 1" CONNECTION WITH A 3/4" METER.

#### PART 3 - SEWER

- ALL SEWER MAINS SHALL BE DIP OR P.V.C. UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL SEWER MAINS WITHIN 2' - 0" OF EXTERIOR MANHOLE WALL.
- ALL MANHOLES SHALL BE 4' - 0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- MANHOLES SHOWN WITH 12" AND 18" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATER-TIGHT FRAME AND COVERS, STANDARD DETAIL 05.52, WHERE WATER-TIGHT MANHOLE 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 CELLAR CANNOT BE SERVED.



WATER AND SEWER COUNTY CODE		TYPE OF BUILDING - SINGLE FAMILY DETACHED	
WATER CODE:	6-09	NO. OF LOTS/PARCELS:	73
SEWER CODE:	1254549	NUMBER OF SHCS:	73
TEST GRADIENT:	780	NUMBER OF WHCS:	72
		DRAINAGE AREA:	PATAPSCO
		TREATMENT PLANT:	PATAPSCO WASTEWATER TREATMENT PLANT

VICINITY MAP  
SCALE: 1" = 600'

SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	SEWER AND WATER PLAN (ON-SITE)
3	SEWER AND WATER PLAN (ON-SITE)
4	SEWER AND WATER PLAN (ON-SITE)
5	SEWER AND WATER PLAN (OFF-SITE)
6	LANDING ROAD SEWER MAIN PROFILE (OFF-SITE)
7	LANDING ROAD SEWER MAIN PROFILE (OFF-SITE)
8	SEWER AND WATER PROFILE, 24" USE-IN-COMMON AND LANDING RD. WATER PROFILE
9	ROYAL COACHMAN DRIVE SEWER AND WATER PROFILE
10	ROYAL COACHMAN DRIVE SEWER AND WATER PROFILE
11	PALE MORNING DUN ROAD SEWER AND WATER PROFILE
12	LIGHT CAHILL CT. SEWER AND WATER PROFILE

HOWARD SOIL CONSERVATION DISTRICT  
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

*J. M. Noyes* 12/10/03  
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

*Shirley Selby* 12/10/03  
HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS F-03-134

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**



DES:	DAM			
DRN:	RPS			
CHK:	DAM	K.C. 2	AS-BUILT DATA ADDED TO PLAN	08/10/03
DATE:	11/03	RPS	REVISE QUANTITIES	
	BY	NO.	REVISIONS	DATE

TITLE SHEET

**CASCADE OVERLOOK**

SECTION ONE

LOTS 1-72

1st ELECTION DISTRICT

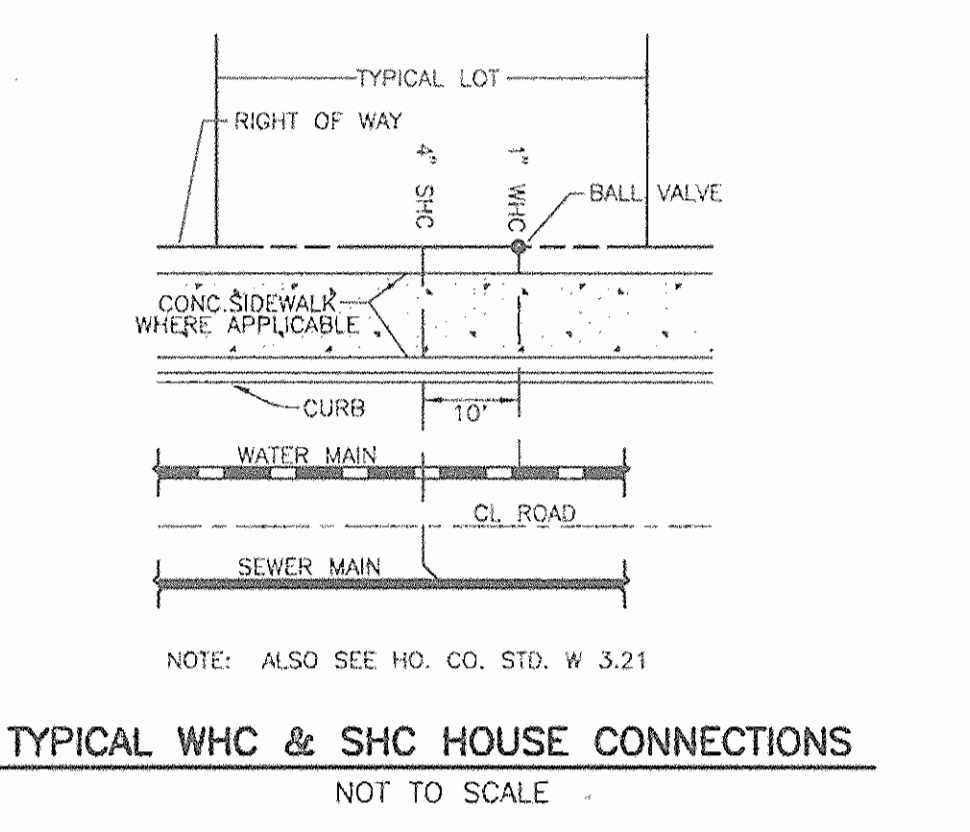
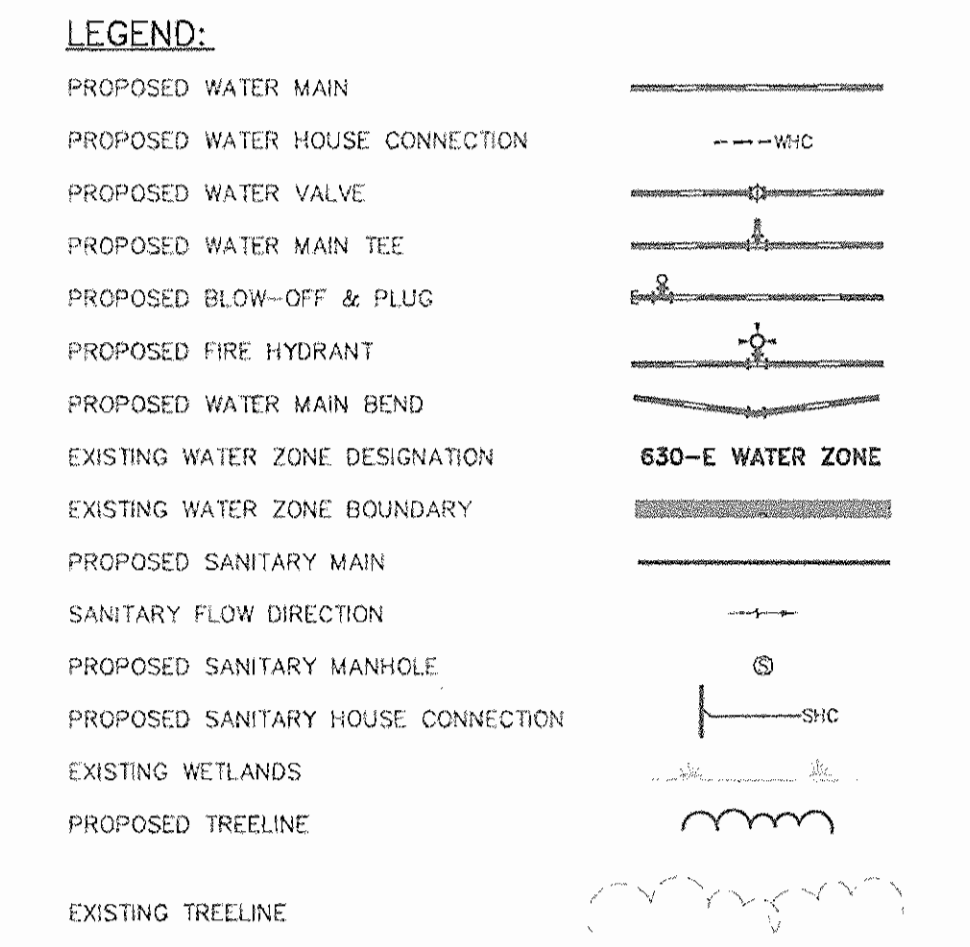
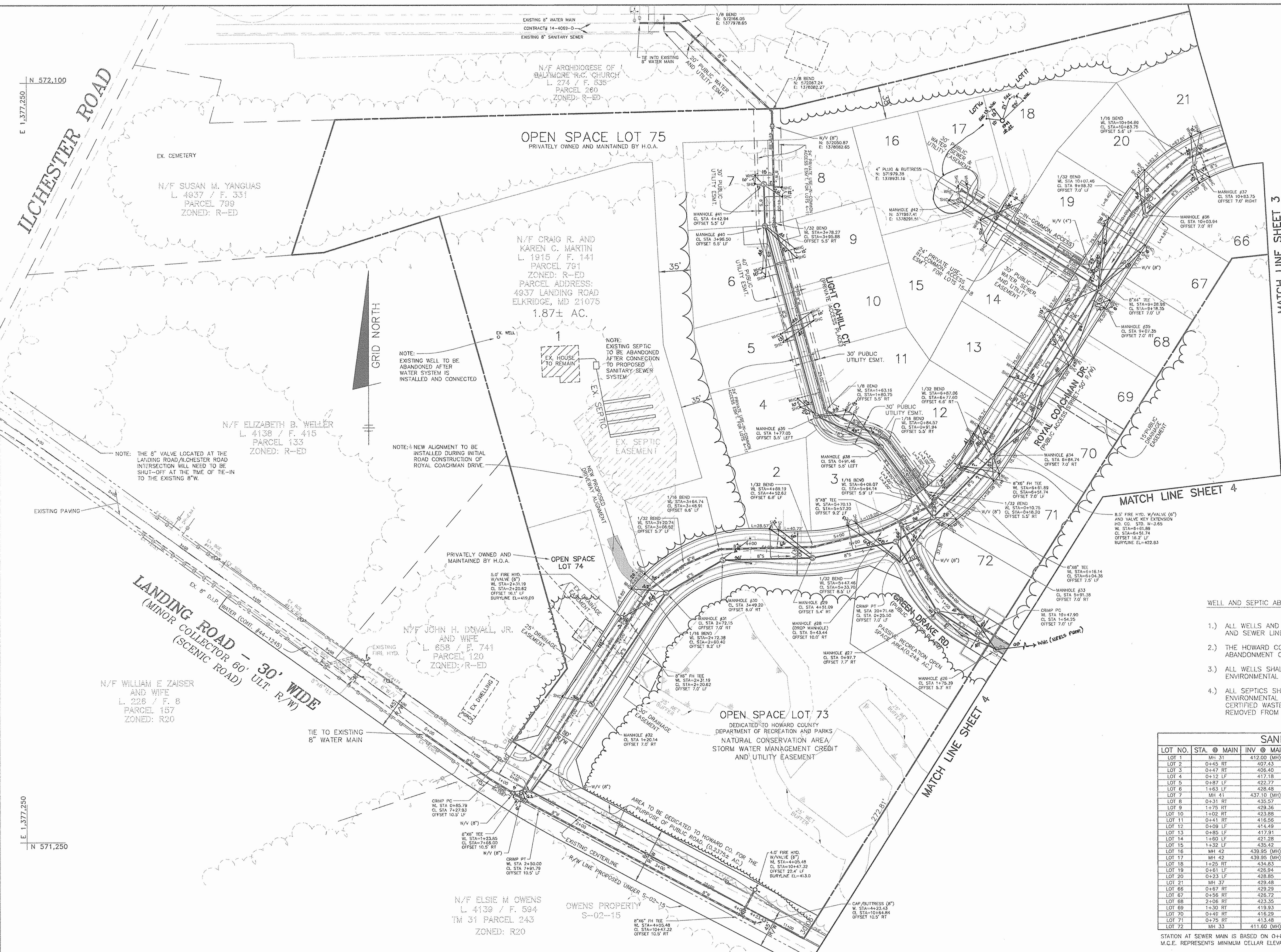
CONTRACT No. 14-4080-D

SCALE:

AS SHOWN

SHEET NO.

1 OF 12

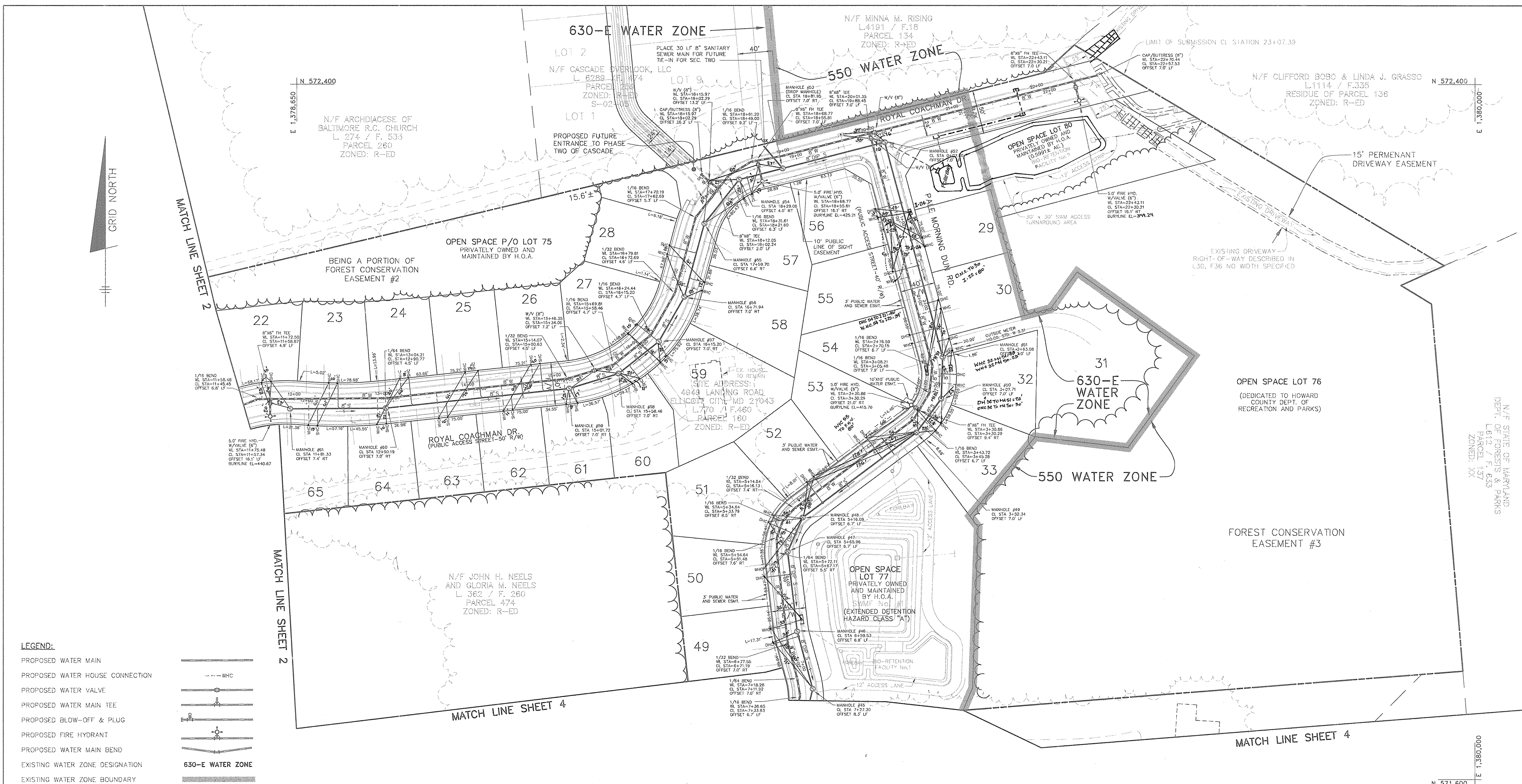


- WELL AND SEPTIC ABANDONMENT NOTES:
- 1.) ALL WELLS AND SEPTICS SHALL BE ABANDONED UPON COMPLETION OF THE PUBLIC WATER AND SEWER LINES WITHIN THIS SITE.
  - 2.) THE HOWARD COUNTY BUREAU OF ENVIRONMENTAL HEALTH SHALL BE NOTIFIED PRIOR TO ABANDONMENT OF THE WELLS OR SEPTICS.
  - 3.) ALL WELLS SHALL BE ABANDONED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ENVIRONMENTAL HEALTH DEPARTMENT BY A CERTIFIED WELL DRILLER.
  - 4.) ALL SEPTICS SHALL BE ABANDONED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ENVIRONMENTAL HEALTH DEPARTMENT. THE SEPTIC TANKS SHALL BE PUMPED BY A CERTIFIED WASTE HAULER AND THE TANKS DISPOSED ON-SITE. IF THE TANK IS TO BE REMOVED FROM THE SITE IT MUST BE REMOVED BY A CERTIFIED WASTE HAULER.

SANITARY SEWER LOT LATERAL DATA						
LOT NO.	STA. @ MAIN	INV. @ MAIN	INV. @ R/W	M.C.E.	EXIST. HOUSE	COMMENT
LOT 1	MH 31	412.00 (MH)	412.64	412.64	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 2	0+45 RT	407.43	408.10	411.83	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 3	0+47 RT	406.40	406.97	410.72	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 4	0+12 LF	417.18	417.47	421.21	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 5	0+87 LF	422.77	423.06	426.67	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 6	1+63 LF	426.45	426.77	432.29	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 7	MH 41	437.10 (MH)	437.29	440.81	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 8	0+31 RT	435.57	435.98	439.96	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 9	1+75 RT	429.36	429.87	433.79	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 10	1+02 RT	423.88	424.39	428.19	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 11	0+41 RT	416.56	416.96	420.80	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 12	0+09 LF	414.49	415.13	418.87	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 13	0+85 LF	417.91	418.55	422.25	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 14	1+60 LF	421.28	421.92	425.62	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 15	1+32 LF	435.42	435.91	440.03	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 16	MH 42	439.95 (MH)	440.18	444.95	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 17	MH 42	439.95 (MH)	440.18	444.95	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 18	1+25 RT	434.83	435.54	440.19	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 19	0+81 LF	426.94	427.58	431.28	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 20	0+23 LF	428.85	429.57	433.51	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 21	MH 37	429.48	430.28	434.00	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 66	0+67 RT	429.29	429.63	433.37	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 67	0+56 RT	426.72	427.08	430.74	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 68	2+06 RT	423.35	423.71	427.37	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 69	1+30 RT	419.93	420.29	423.89	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 70	0+49 RT	416.29	416.65	420.35	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 71	0+75 RT	413.48	413.90	417.63	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	
LOT 72	MH 33	411.80 (MH)	412.00	415.90	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	

STATION AT SEWER MAIN IS BASED ON 0+00 AT THE DOWNSTREAM MANHOLE WITH INCREASING STATION TO UPSTREAM MANHOLE  
M.C.E. REPRESENTS MINIMUM CELLAR ELEVATION.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>R. H. B...</i> 12-2-03 CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND <i>...</i> 12/16/03 CHIEF, DEVELOPMENT ENGINEERING DIVISION	<b>BENCHMARK</b> ENGINEERS - LAND SURVEYORS - PLANNERS <i>Donald Moor</i> 8460 BALTIMORE NATIONAL PIKE - SUITE 415 - ELLICOTT CITY, MARYLAND 21103 PHONE: 410-485-0105 FAX: 410-485-8844	DES: DAM DRN: RPS CHK: DAM DATE: 11/03	KCI 1 BY NO. 4 ASBUILT DATA SHOWN ON PLAN REVISIONS DATE	PLAN VIEW (ON-SITE) 600 SCALE MAP NO. 31 BLOCK 10 & 11	<b>CASCADE OVERLOOK</b> SECTION ONE LOTS 1-72 1st ELECTION DISTRICT CONTRACT No. 14-4080-D	SCALE: 1" = 50' SHEET NO. 2 OF 12
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**LEGEND:**

- PROPOSED WATER MAIN
- PROPOSED WATER HOUSE CONNECTION
- PROPOSED WATER VALVE
- PROPOSED WATER MAIN TEE
- PROPOSED BLOW-OFF & PLUG
- PROPOSED FIRE HYDRANT
- PROPOSED WATER MAIN BEND
- EXISTING WATER ZONE DESIGNATION
- EXISTING WATER ZONE BOUNDARY
- PROPOSED SANITARY MAIN
- SANITARY FLOW DIRECTION
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY HOUSE CONNECTION
- EXISTING WETLANDS
- EXISTING TREELINE
- PROPOSED TREELINE

SANITARY SEWER LOT LATERAL DATA						SANITARY SEWER LOT LATERAL DATA					
LOT NO.	STA. @ MAIN	INV @ MAIN	INV @ R/W	M.C.E.	COMMENT	LOT NO.	STA. @ MAIN	INV @ MAIN	INV @ R/W	M.C.E.	COMMENT
LOT 22	MH 61	429.00 (MH)	429.78	433.87	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	LOT 51	0+20 LF	395.64	405.14	408.94	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13
LOT 23	MH 62	428.92	432.64	432.64	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	LOT 52	0+27 LF	396.00	405.42	409.06	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13
LOT 24	1+80 RT	427.38	428.02	431.78	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	LOT 53	1+12 LF	396.42	405.84	409.48	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13
LOT 25	1+00 RT	426.58	427.22	430.98	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	LOT 54	0+32 LF	397.62	404.10	407.74	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13
LOT 26	0+28 RT	425.86	426.50	430.26	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	LOT 55	1+07 LF	398.00	403.50	407.14	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13
LOT 27	MH 57	424.20 (MH)	424.84	428.84	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	LOT 56	1+82 LF	398.37	403.79	411.53	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13
LOT 28	0+34 RT	422.07	422.71	426.45	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11	LOT 57	0+41 LF	419.48	419.77	423.64	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 29	1+38 RT	398.15	402.33	406.03	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13	LOT 58	0+74 LF	423.07	423.44	427.15	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 30	0+63 RT	397.78	402.04	405.74	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13	LOT 59	MH 57	424.20 (MH)	424.55	428.61	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 31	0+17 RT	397.55	400.81	407.59	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13	LOT 60	0+45 LF	424.65	425.05	429.13	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 32	0+27 RT	397.26	404.46	408.17	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13	LOT 61	0+53 LF	425.42	425.80	429.50	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 33	0+23 RT	396.90	405.07	408.81	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13	LOT 62	0+65 LF	426.23	426.59	430.29	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 38	0+34 LF	394.13	405.41	409.35	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13	LOT 63	1+49 LF	426.98	427.34	431.04	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 49	0+63 LF	394.75	405.15	408.95	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13	LOT 64	MH 60	429.92 (MH)	430.28	434.00	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 50	0+65 LF	395.31	405.71	409.51	HO. CO. STD. 45' DROP HOUSE CONNECTION, APPENDIX 13	LOT 65	0+76 LF	428.56	428.96	432.70	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11

STATION AT SEWER MAIN IS BASED ON 0+00 AT THE DOWNSTREAM MANHOLE WITH INCREASING STATION TO UPSTREAM MANHOLE. M.C.E. REPRESENTS MINIMUM CELLAR ELEVATION.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

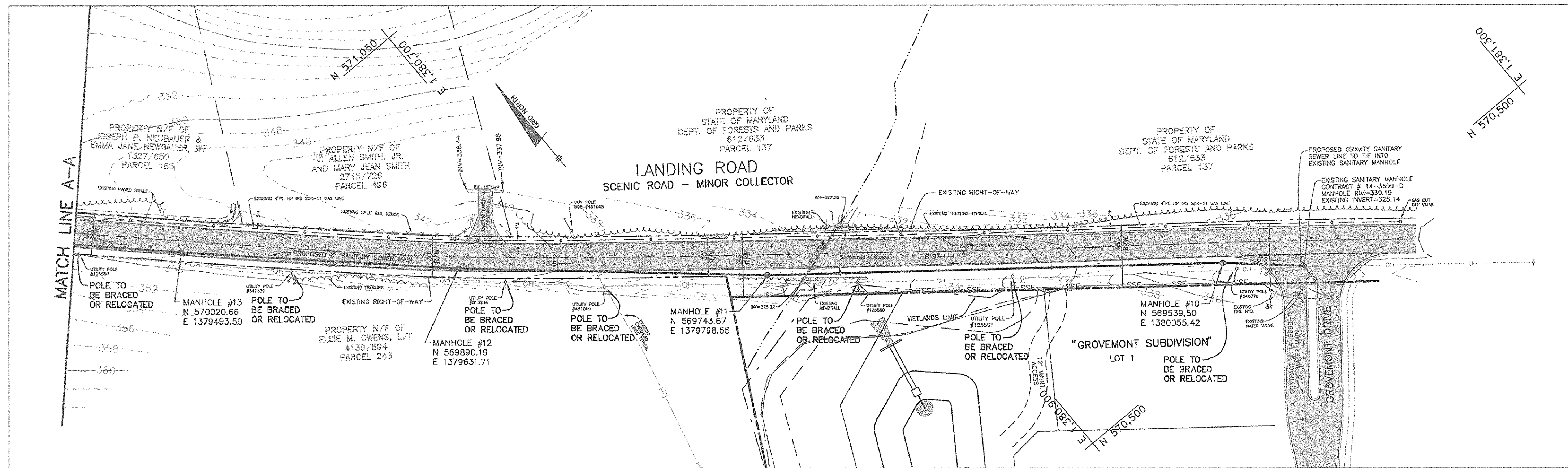
**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELICOTT CITY, MARYLAND 21043  
PHONE: 410-485-8100 FAX: 410-485-6844

DES: DAM  
DRN: RPS  
CHK: DAM KCI  
DATE: 11/03  
BY NO. RPS

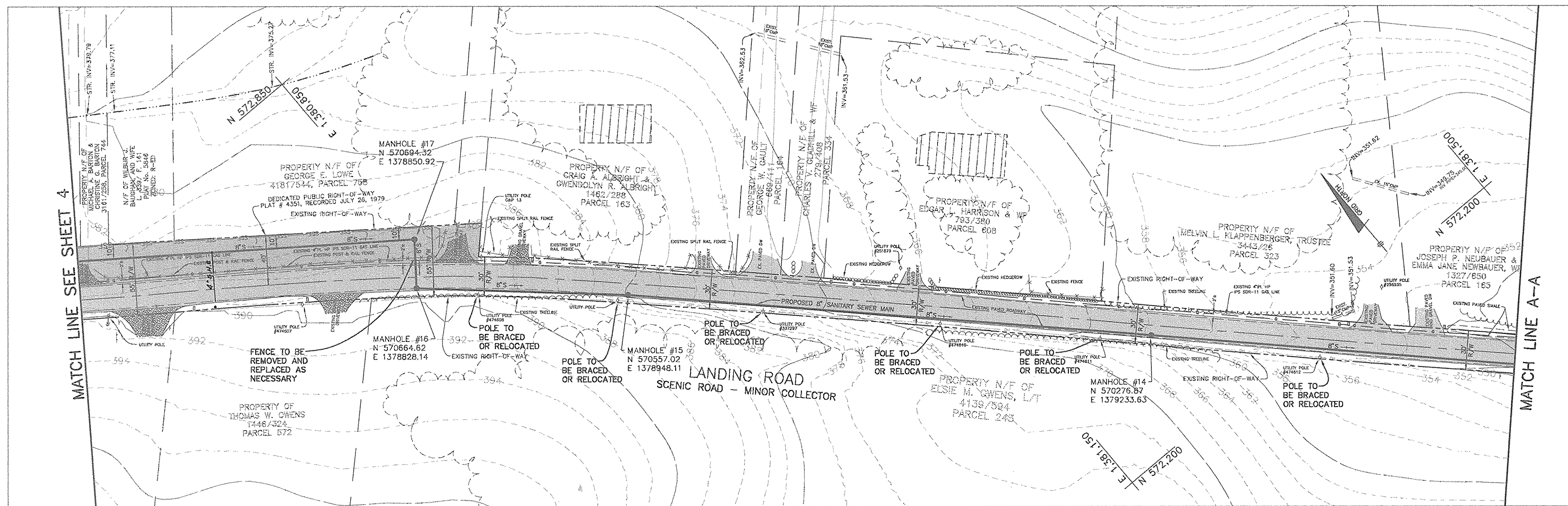
PLAN VIEW (ON-SITE)  
REMOVED MH 62 AND FIRE BACK TO MH 52  
REV. BURYLINE ELEV. ON ENH AT END OF ROYAL COACHMAN DR. 02-08-09

**CASCADE OVERLOOK**  
SECTION ONE  
LOTS 1-72  
1st ELECTION DISTRICT  
CONTRACT No. 14-4080-D  
SCALE: 1" = 50'  
SHEET NO. 3 OF 12

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PLAN VIEW  
SCALE: 1" = 50'

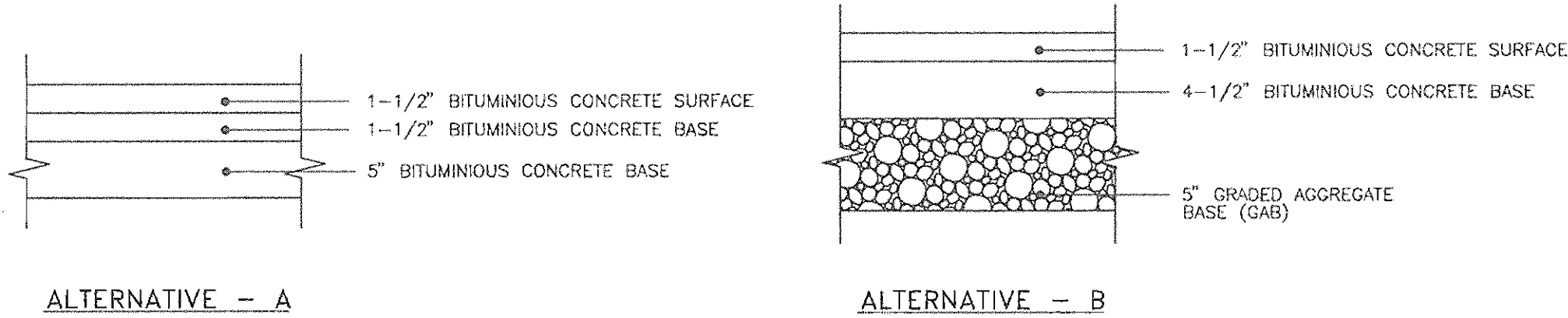


PLAN VIEW  
SCALE: 1" = 50'

GENERAL NOTES:

- CONTRACTOR SHALL REPLACE PAVING AS NECESSARY ALONG LANDING ROAD IN ACCORDANCE WITH THE HOWARD COUNTY P-3 PAVING SPECIFICATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC MAINTENANCE DURING CONSTRUCTION IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- CONTRACTOR SHALL TAKE EXTREME CAUTION WHEN WORKING IN THE VICINITY OF THE OVERHEAD POWER LINES.
- CONTRACTOR SHALL REMOVE AND REPLACE THE EXISTING FENCE AS NECESSARY ON PARCEL 758.
- THE CONTRACTOR/OWNER SHALL CONTACT THE UTILITY COMPANY TO MAKE ARRANGEMENTS FOR BRACING AND/OR RELOCATION OF POLES AS SHOWN ON THE DRAWINGS.
- CONTRACTOR SHALL ADHERE TO SEDIMENT CONTROL NOTES OF FOS-134, ESP. LIMIT OF OPEN TRENCH NOTE (NO. 11) TO 3 PIPE LENGTHS, MAX.

7) CONTRACTOR MUST STABILIZE ALL DITCH AND SUMP AREAS WITH EROSION CONTROL MATTING.

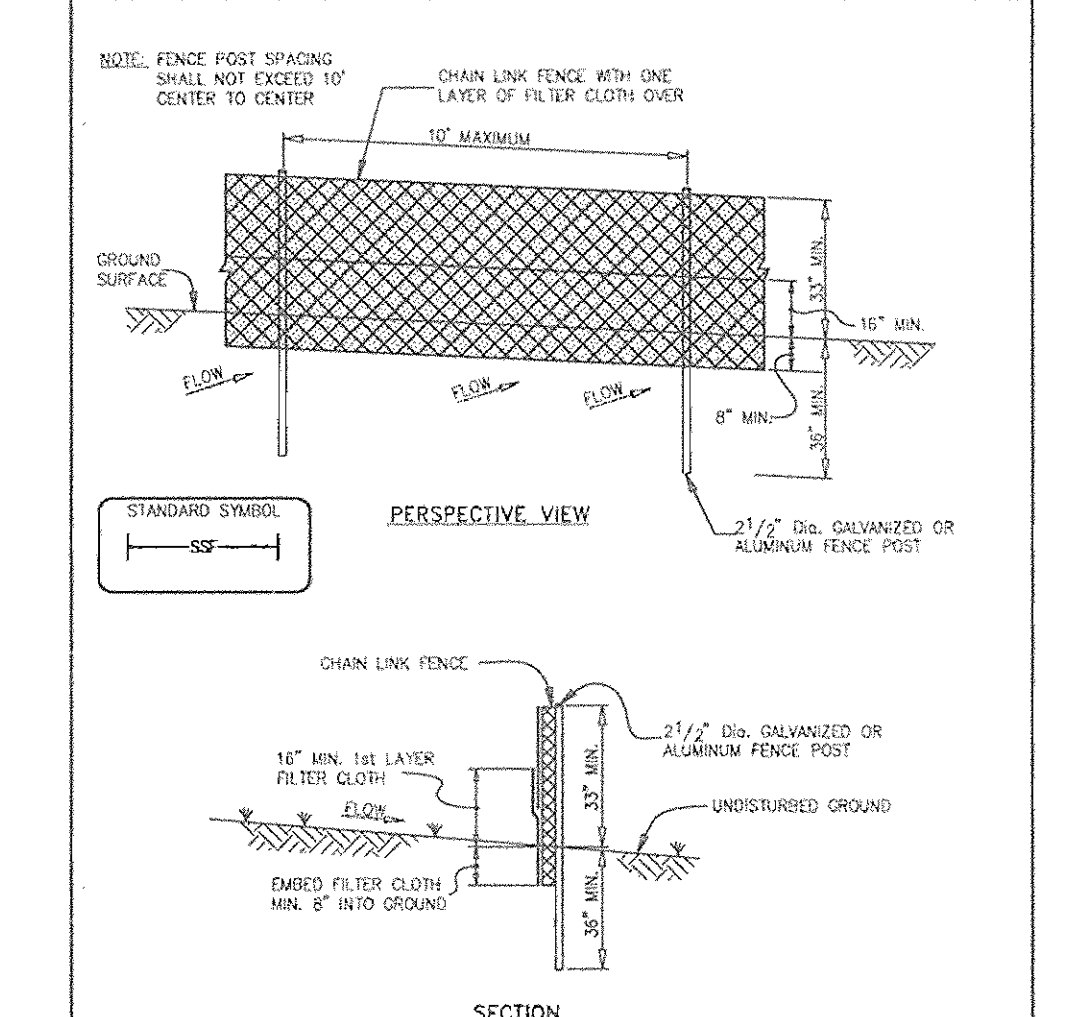


P-3 PAVING SECTION  
NOT TO SCALE

LANDING ROAD ADJOINERS INFORMATION

MAP No.	PARCEL	OWNER	ADDRESS	LIBER/FOLIO	PLAT No. LOT No.
31	163	CRAIG A. ALBRIGHT	5025 LANDING ROAD ELKRIDGE, MD 21075	6253/370	N/A
31	164	GEORGE W. GAULT	5063 LANDING ROAD ELKRIDGE, MD 21075	669/111	N/A
31	165	JOSEPH P. NEUBAUER AND EMMA JANE NEUBAUER WF	5079 LANDING ROAD ELKRIDGE, MD 21075	1327/650	N/A
31	323	RAFT J. HIKMAT	5067 LANDING ROAD ELKRIDGE, MD 21075	6234/634	N/A
31	334	CHARLES V. GLADHILL	5037 LANDING ROAD ELKRIDGE, MD 21075	6438/591	N/A
31	498	KATHY H. GREISMAN	5089 LANDING ROAD ELKRIDGE, MD 21075	6090/171	N/A
31	608	EDGAR L. HARRISON AND WIFE	5041 LANDING ROAD ELKRIDGE, MD 21075	793/300	N/A
31	744	JEFFREY BOLSTER AND MICHELLE BOLSTER, T/E	5027 LANDING ROAD ELKRIDGE, MD 21075	2604/066	LOT 1
31	744	MICHAEL A. BARTON AND CHRISTINE G. BARTON	5021 LANDING ROAD ELKRIDGE, MD 21075	3161/258	LOT 2
31	758	DONALD W. ALBRIGHT	5003 LANDING ROAD ELKRIDGE, MD 21075	6015/691	4351 LOT 2
31	758	WILBUR J. BAUGHAN AND WIFE	5003 LANDING ROAD ELKRIDGE, MD 21075	0339/141	5846 LOT 3
31	758	GEORGE E. LOWE	5007 LANDING ROAD ELKRIDGE, MD 21075	4181/544	5846 LOT 4

DETAIL 33 - SUPER SILT FENCE



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 26-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

CONSTRUCTION SPECIFICATIONS

- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
- Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
- Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
- Filter cloth shall be embedded a minimum of 8" into the ground.
- When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and lapped.
- Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.
- Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Property	Requirement	Test Method
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.5 gal/ft <sup>2</sup> /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (Maximum)	Silt Fence Length (Maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 26-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

LEGEND:

EXISTING SEWER MAIN	—●—●—●—
EXISTING SEWER MH	○
PROPOSED SEWER MAIN	—○—○—○—
PROPOSED SEWER MH	○
EXISTING OVERHEAD LINE	—OH—
EXISTING GUARDRAIL	— — — —
EXISTING ROAD SIGN	—T—
EXISTING UTILITY POLE	—○—
EXISTING GAS VALVE	—G—
EXISTING TREELINE	— — — —
EXISTING UNDERGROUND GAS LINE	—○—○—○—
EXISTING MAILBOX	—M—
EXISTING FENCE LINE	—X—X—X—
PROPOSED SUPER SILT FENCE	—SSF—

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
12-2-03  
DATE

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND  
12/16/03  
DATE

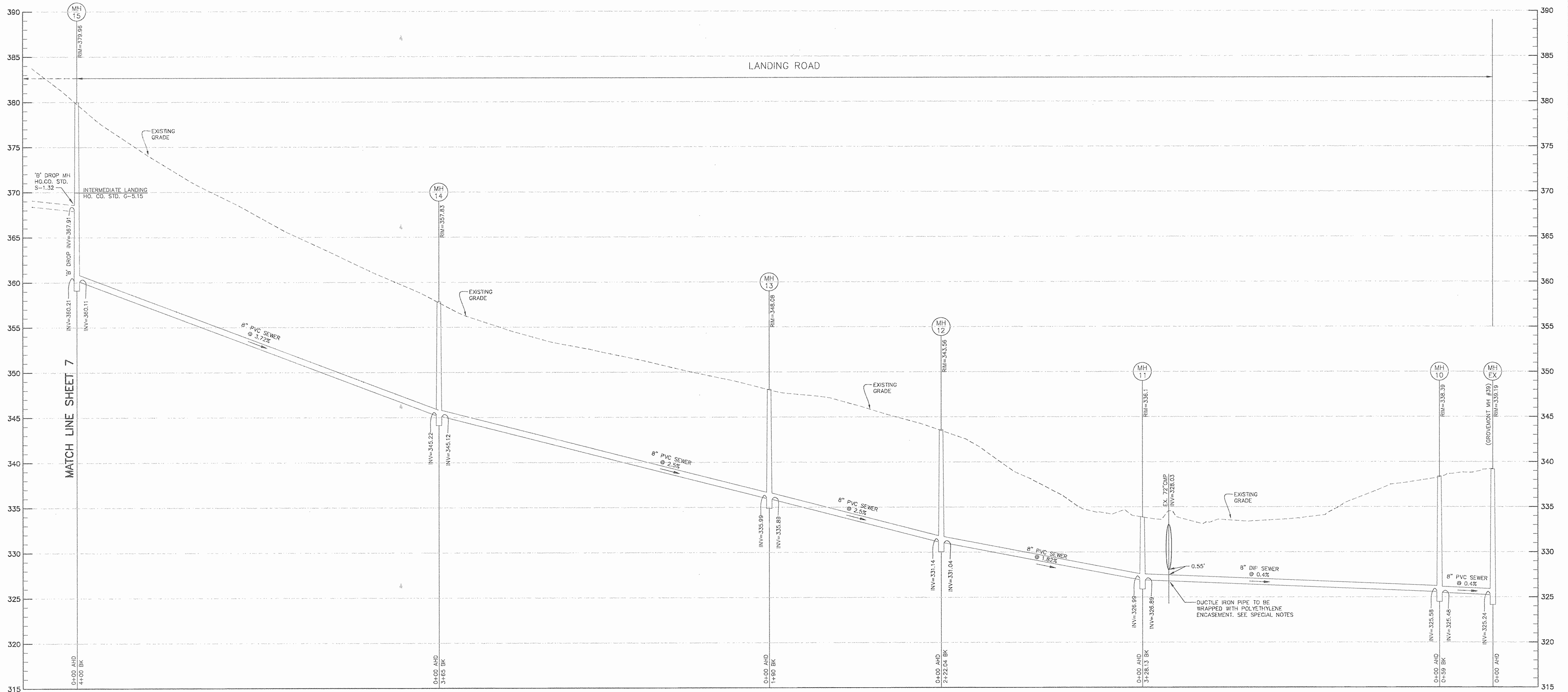
**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
*Donald Mason*  
11/17/03

DES: DAM  
DRN: RPS  
CHK: DAM  
DATE: 11/03

NO.	REVISIONS	DATE
1	AS BUILT DATA ADDED TO PLAN	8/5/05

LANDING ROAD PLAN VIEW  
(OFF-SITE SEWER MAIN)  
600 SCALE MAP NO. 31  
BLOCK 10 & 11

**CASCADE OVERLOOK**  
SECTION ONE  
LOTS 1-72  
1st ELECTION DISTRICT  
CONTRACT No. 14-4080-D  
SCALE: AS SHOWN  
SHEET NO. 5 OF 12



- SPECIAL NOTES:
1. INSTALLATION OF D.I.P. UNDER EXISTING 72" CMP WILL REQUIRE PIPE BEING WRAPPED WITH POLYETHYLENE ENCASUREMENT, CONFORMING TO THE REQUIREMENTS OF ANSI/ASTM STANDARD SPECIFICATION D1248.
  2. MATERIAL, REQUIRED MARKINGS, AND INSTALLATION METHODS ARE TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF AWWA C105.
  3. MINIMUM LENGTH OF ENCASUREMENT UTILIZED WILL BE 22 LINEAR FEET EACH SIDE OF THE CENTERLINE OF THE EXISTING 72" CMP.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*R. J. [Signature]*  
CHIEF, BUREAU OF UTILITIES

12-2-03  
DATE

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

*[Signature]*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

11/14/03  
DATE

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-485-0100 FAX: 410-485-0644



DES:	DAM				
DRN:	RPS				
CHK:	DAM				
DATE:	11/03				
	BY	NO.	REVISIONS	DATE	

SEWER MAIN PROFILE  
(LANDING ROAD OFF-SITE)

600 SCALE MAP NO. 31

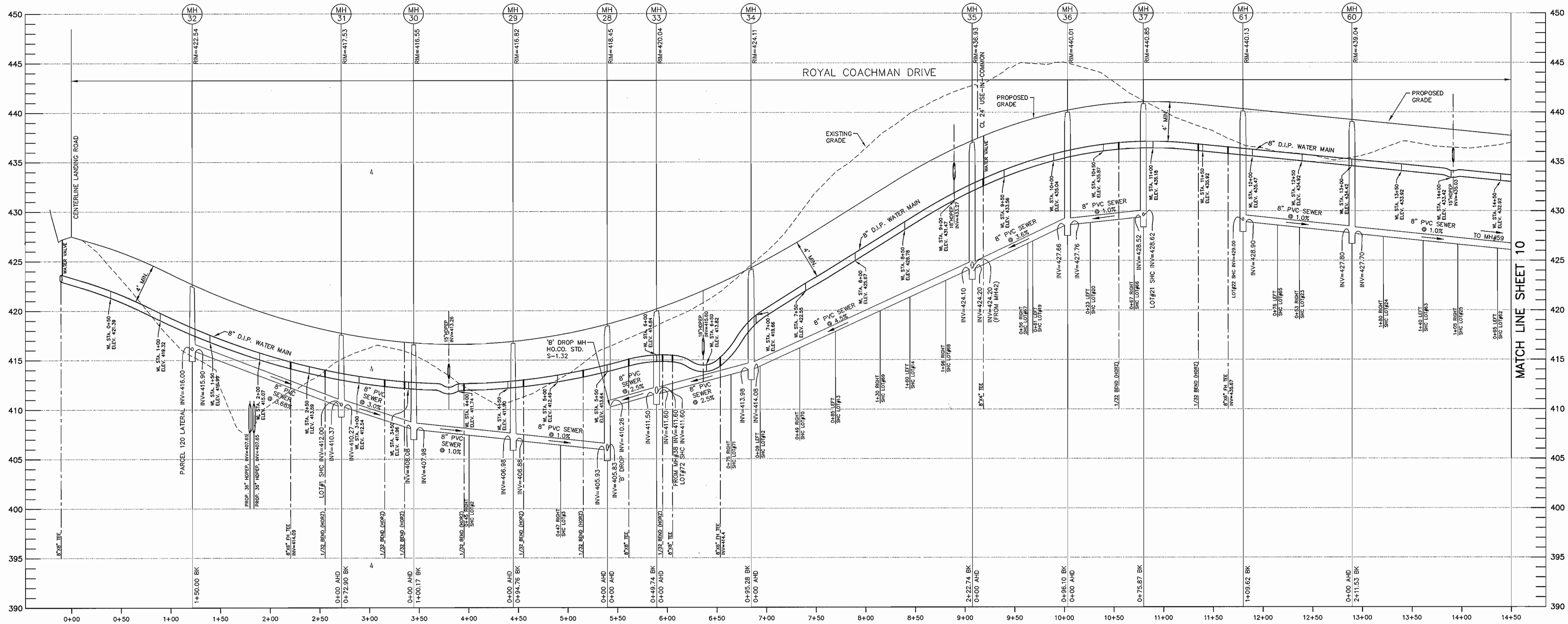
BLOCK 10 & 11

**CASCADE OVERLOOK**  
SECTION ONE  
LOTS 1-72  
1st ELECTION DISTRICT

CONTRACT No. 14-4080-D

SCALE:  
AS SHOWN

SHEET NO.  
6 OF 12



PUBLIC SEWER MAIN PROFILE (MH#28 TO MH#32) AND (MH#28 TO MH#37) AND (MH#59 TO MH#61)  
 HORIZONTAL: 1" = 50'  
 VERTICAL: 1" = 5'

WATER MAIN FITTING DATA				
ITEM	W/L STATION	CL STATION	INVERT	COMMENT
8" X 8" TEE	0+00	-0+10.50	422.54	HO. CO. STD. WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
8" VALVE	0+03	-0+07.50	422.54	HO. CO. STD. 8" WATER VALVE, ALSO SEE W 2.14
8" X 8" TEE	2+31.19	2+20.62	414.11	HO. CO. STD. WATER MAIN 8" X 8" FH TEE, ALSO SEE W 2.11
1/32 BEND	2+65.84	2+54.42	413.24	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	3+25.82	3+11.95	412.21	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	3+45.82	3+30.90	412.00	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	4+05.84	3+87.95	411.73	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	4+65.84	4+48.19	412.06	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	5+25.84	5+09.92	413.05	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
8" X 8" TEE	5+71.76	5+57.22	414.26	HO. CO. STD. WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
1/32 BEND	6+05.84	5+92.17	415.40	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
8" X 8" TEE	6+15.89	6+02.54	415.78	HO. CO. STD. WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
8" X 8" TEE	6+64.04	6+52.14	417.84	HO. CO. STD. WATER MAIN 8" X 8" FH TEE, ALSO SEE W 2.11
8" X 4" TEE	9+23.11	9+18.35	432.73	HO. CO. STD. WATER MAIN 8" X 4" TEE, ALSO SEE W 2.23
1/32 BEND	10+65.62	10+52.64	436.04	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	11+45.62	11+28.91	435.98	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
8" X 8" TEE	11+75.48	11+57.34	435.69	HO. CO. STD. WATER MAIN 8" X 8" FH TEE, ALSO SEE W 2.11

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 12-2-03  
 CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND  
 12/16/03  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21103  
 PHONE: 410-465-6105 FAX: 410-465-6844

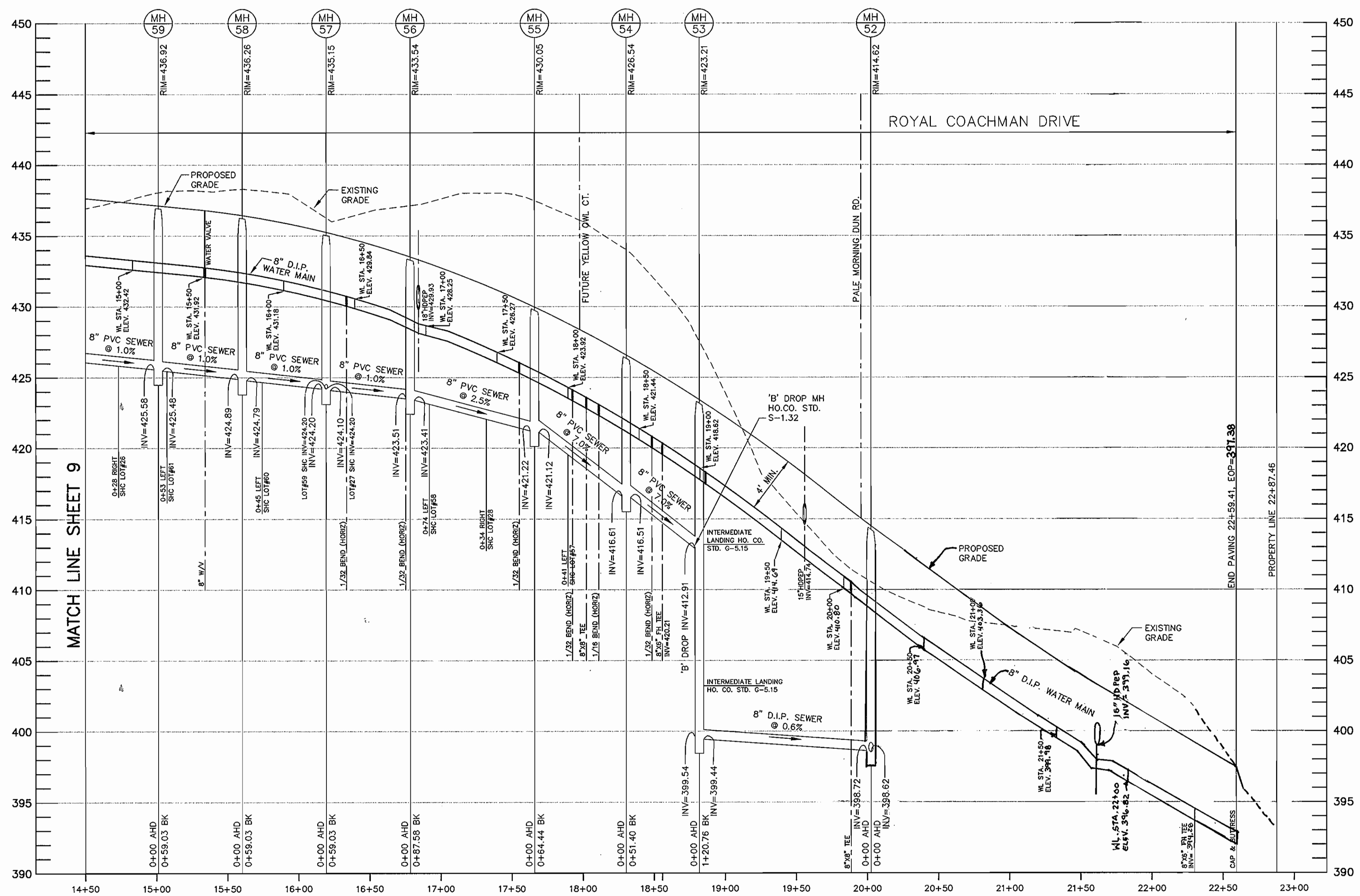
STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 11/14/03

DES:	DAM	
DRN:	RPS	
CHK:	DAM	
DATE:	11/03	
BY:		
NO.:		
REVISIONS:		
DATE:		

SEWER MAIN AND  
 WATER MAIN PROFILE  
 (ROYAL COACHMAN DRIVE)  
 (ON-SITE)  
 600 SCALE MAP NO. 31 BLOCK 10 & 11

**CASCADE OVERLOOK**  
 SECTION ONE  
 LOTS 1-72  
 1st ELECTION DISTRICT  
 CONTRACT No. 14-4080-D

SCALE:  
 AS SHOWN  
 SHEET NO.  
 9 OF 12



PUBLIC SEWER MAIN PROFILE (MH#52 TO MH#59)

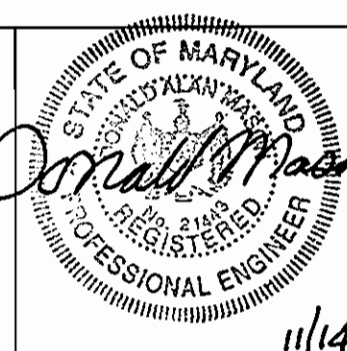
HORIZONTAL: 1" = 50'  
 VERTICAL: 1" = 5'

WATER MAIN FITTING DATA				
ITEM	W/L STATION	CL STATION	INVERT	COMMENT
8" VALVE	15+50.05	15+34.15	431.92	HO. CO. STD. 8" WATER VALVE, ALSO SEE W 2.14
1/32 BEND	16+45.62	16+33.72	430.01	HO. CO. STD. WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
1/32 BEND	16+45.62	16+75.34	428.75	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	17+45.62	17+55.20	425.59	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	18+05.62	17+92.68	423.77	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
8" X 8" TEE	18+15.97	18+02.29	423.26	HO. CO. STD. WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
1/16 BEND	18+23.61	18+11.14	422.79	HO. CO. STD. 1/16 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	18+45.62	18+48.44	420.64	HO. CO. STD. 1/32 BEND HORIZ. ALSO SEE W 2.21
8" X 6" TEE	19+03.91	18+86.14	418.26	HO. CO. STD. WATER MAIN 8" X 6" FH TEE, ALSO SEE W 2.11
8" X 8" TEE	20+06.12	19+88.53	410.70	HO. CO. STD. WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
8" VALVE	22+09.12	19+91.53	410.70	HO. CO. STD. 8" WATER VALVE, ALSO SEE W 2.14
8" X 6" TEE	22+47.87	22+30.21	397.21	HO. CO. STD. WATER MAIN 8" X 6" FH TEE, ALSO SEE W 2.11
8" VALVE	22+72.00	22+54.33	396.36	HO. CO. STD. 8" WATER VALVE, ALSO SEE W 2.14
8" CAP	22+75.00	22+57.33	396.25	HO. CO. STD. 8" CAP AND BUTTRESS, ALSO SEE W 2.21

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND

**BENCHMARK**  
 ENGINEERS - LAND SURVEYORS - PLANNERS  
**ENGINEERING, INC.**



DES: DAM  
 DRN: RPS  
 CHK: DAM  
 DATE: 11/03

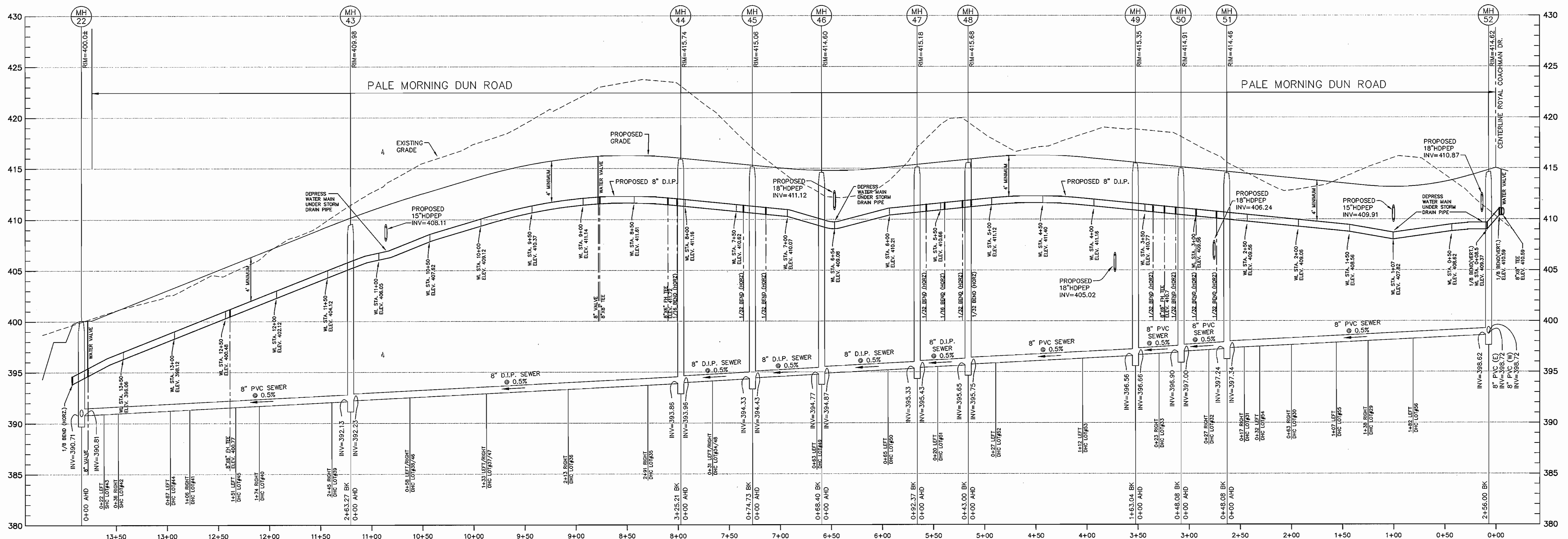
REVISIONS  
 BY NO. DATE

SEWER MAIN AND  
 WATER MAIN PROFILE  
 (ROYAL COACHMAN DRIVE)  
 (ON-SITE)

600 SCALE MAP NO. 31 BLOCK 10 & 11

**CASCADE OVERLOOK**  
 SECTION ONE  
 LOTS 1-72  
 1st ELECTION DISTRICT  
**CONTRACT No. 14-4080-D**

SCALE:  
 AS SHOWN  
 SHEET NO.  
 10 OF 12



PUBLIC SEWER MAIN PROFILE (MH#22 TO MH#52)

HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

WATER MAIN FITTING DATA					
ITEM	W/L STATION	CL STATION	INVERT	HO. CO. STD.	COMMENT
8" X 8" TEE	0+00	-0+07	411.09	HO. CO. STD.	WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
8" VALVE	0+03	-0+04	411.09	HO. CO. STD.	8" WATER VALVE, ALSO SEE W 2.14
1/8 BEND	0+04	-0+03	411.09	HO. CO. STD.	1/8 BEND VERT. ALSO SEE W 2.22
1/8 BEND	0+08.5	0+01.5	409.37	HO. CO. STD.	1/8 BEND VERT. ALSO SEE W 2.22
1/32 BEND	2+79.97	2+74.05	409.90	HO. CO. STD.	1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	3+00.00	2+56.48	410.12	HO. CO. STD.	1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	3+20.00	3+19.09	410.35	HO. CO. STD.	1/32 BEND HORIZ. ALSO SEE W 2.21
8" X 8" TEE	3+31.09	3+31.82	410.48	HO. CO. STD.	WATER MAIN 8" X 8" FH TEE, ALSO SEE W 2.11
1/32 BEND	3+40.00	3+41.94	410.58	HO. CO. STD.	1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	5+20.00	5+21.48	410.85	HO. CO. STD.	1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	5+40.00	5+39.26	410.76	HO. CO. STD.	1/32 BEND HORIZ. ALSO SEE W 2.21
1/18 BEND	5+60.00	5+55.98	410.59	HO. CO. STD.	1/18 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	7+20.00	7+14.10	410.30	HO. CO. STD.	1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	7+40.00	7+35.76	410.52	HO. CO. STD.	1/32 BEND HORIZ. ALSO SEE W 2.21
1/32 BEND	7+79.98	7+79.51	410.98	HO. CO. STD.	1/32 BEND HORIZ. ALSO SEE W 2.21
1/18 BEND	8+00.00	8+00.82	411.17	HO. CO. STD.	1/18 BEND HORIZ. ALSO SEE W 2.21
8" X 8" TEE	8+08.86	8+09.85	411.25	HO. CO. STD.	WATER MAIN 8" X 8" FH TEE, ALSO SEE W 2.11
8" X 8" TEE	8+74.91	8+76.85	411.34	HO. CO. STD.	WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
8" VALVE	8+75.49	8+77.23	411.34	HO. CO. STD.	8" WATER VALVE, ALSO SEE W 2.14
8" X 8" TEE	12+36.15	12+38.57	400.62	HO. CO. STD.	WATER MAIN 8" X 8" FH TEE, ALSO SEE W 2.11
8" VALVE	N: 571249.69	E: 1378786.12	395.08	HO. CO. STD.	8" WATER VALVE, ALSO SEE W 2.14
1/8 BEND	N: 571239.49	E: 1378773.44	395.12	HO. CO. STD.	1/8 BEND HORIZ. ALSO SEE W 2.21

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**

2480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-8844

DES: DAM  
DRN: RPS  
CHK: DAM  
DATE: 11/03

12-2-03  
CHIEF, BUREAU OF UTILITIES

12/16/03  
CHIEF, DEVELOPMENT ENGINEERING DIVISION



REVISIONS

NO.	DATE	REVISIONS

SEWER MAIN AND  
WATER MAIN PROFILE  
(PALE MORNING DUN ROAD)  
(ON-SITE)

600 SCALE MAP NO. 31 BLOCK 10 & 11

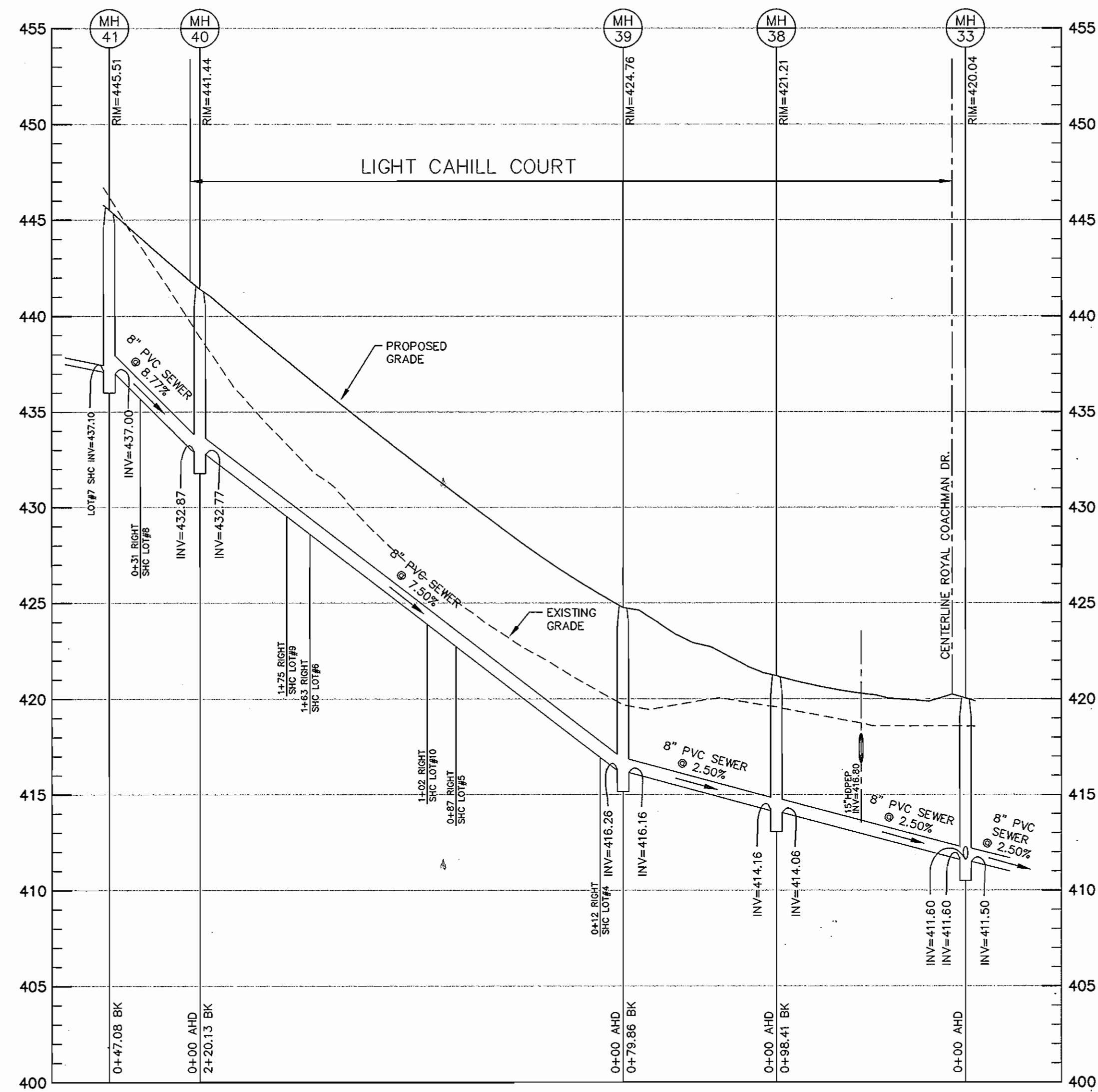
CASCADE OVERLOOK  
SECTION ONE  
LOTS 1-72  
1st ELECTION DISTRICT

SCALE:  
AS SHOWN

SHEET NO.  
11 OF 12

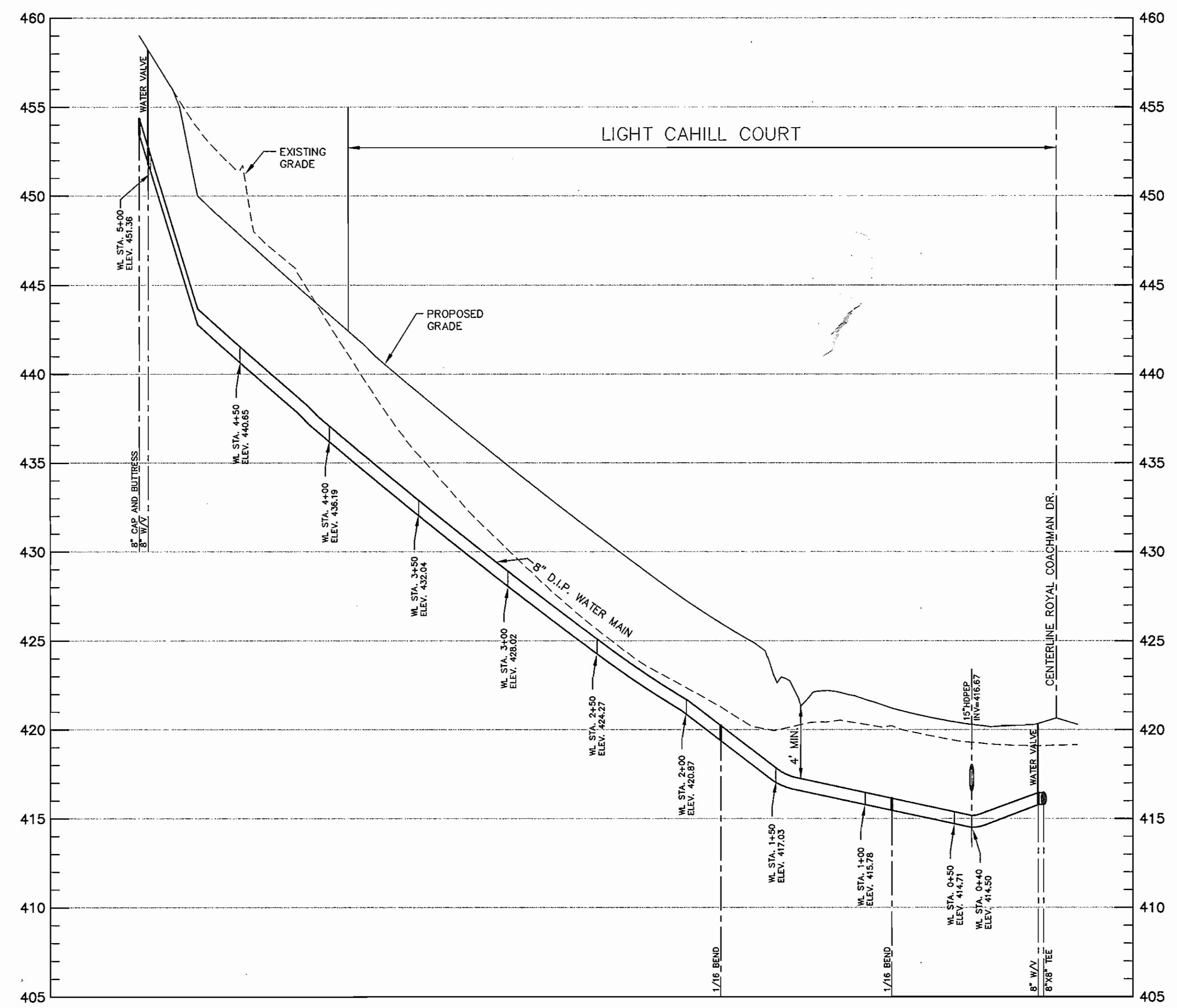
CONTRACT No. 14-4080-D





PUBLIC SEWER MAIN PROFILE (MH#33 TO MH#41)

HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'



LIGHT CAHILL COURT WATER MAIN PROFILE

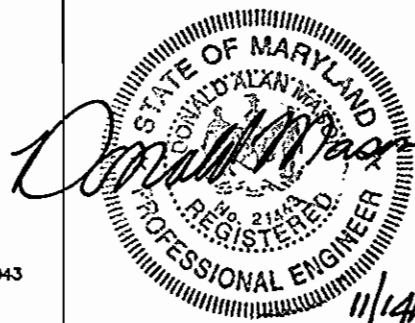
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

GREEN DRAKE ROAD AND OFF-SITE WATER MAIN FITTING DATA				
ITEM	W/L STATION	CL STATION	INVERT	COMMENT
8" X 8" TEE	0+00	0+07	414.26	HO. CO. STD. WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
8" VALVE	0+03		414.26	HO. CO. STD. 8" WATER VALVE, ALSO SEE W 2.14
1/16" BEND	20+87.06	0+17.72	413.32	HO. CO. STD. 1/16" BEND HORIZ., ALSO SEE W 2.21
1/16" BEND	20+85.06	0+19.72	411.32	HO. CO. STD. 1/16" BEND HORIZ., ALSO SEE W 2.21
1/32" BEND	20+12.27	0+94.48	411.09	HO. CO. STD. 1/32" BEND HORIZ., ALSO SEE W 2.21
8" PLUG	19+92.27	1+15.23	409.37	HO. CO. STD. 8" PLUG AND BUTTRESS, ALSO SEE W 2.21

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**



DES: DAM

DRN: RPS

CHK: DAM

DATE: 11/03

BY NO.

REVISIONS

DATE

SEWER MAIN AND  
WATER MAIN PROFILE  
(LIGHT CAHILL COURT)

**CASCADE OVERLOOK**

SECTION ONE

LOTS 1-72

1st ELECTION DISTRICT

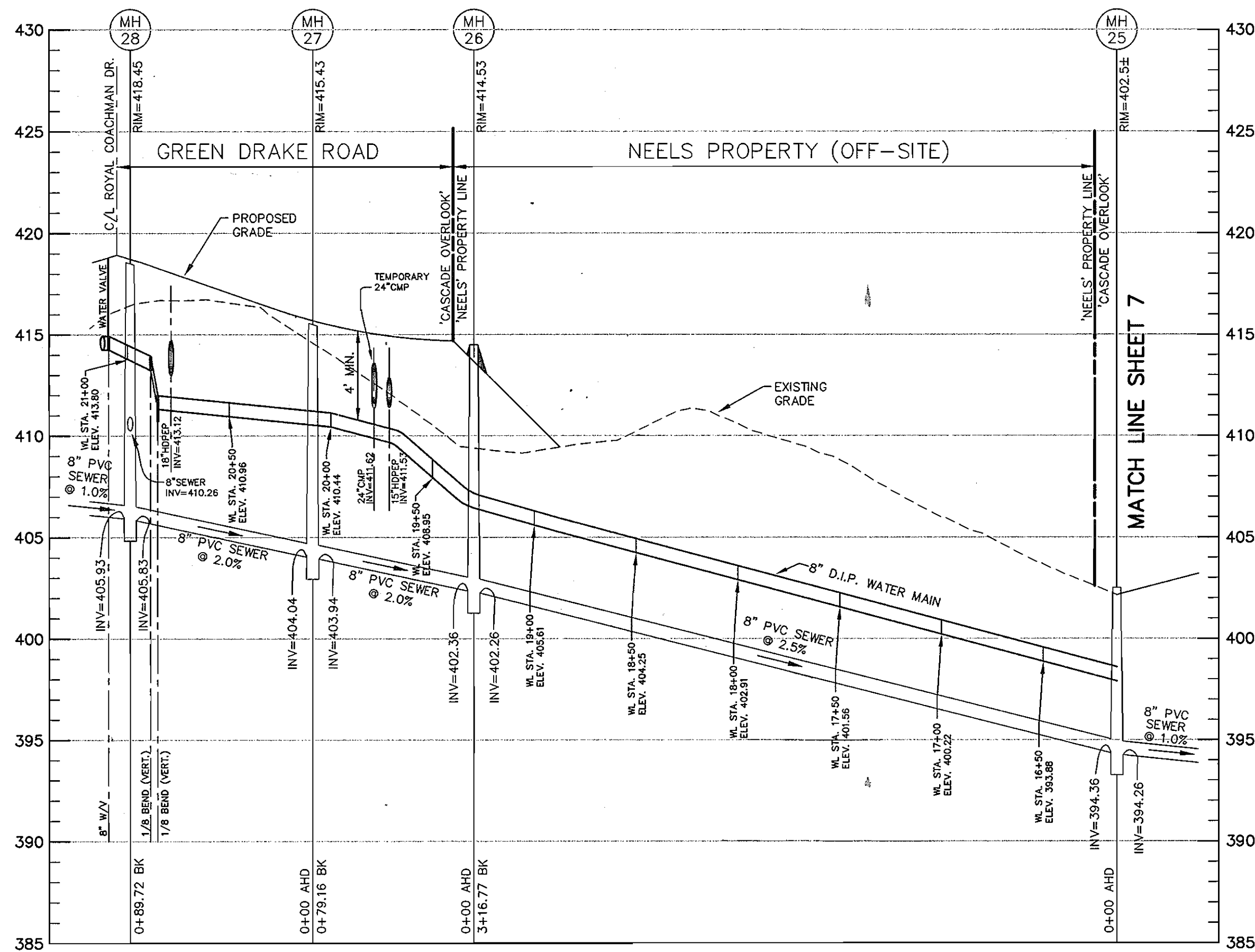
CONTRACT No. 14-4080-D

SCALE:  
AS SHOWN

SHEET NO.  
12 OF 12

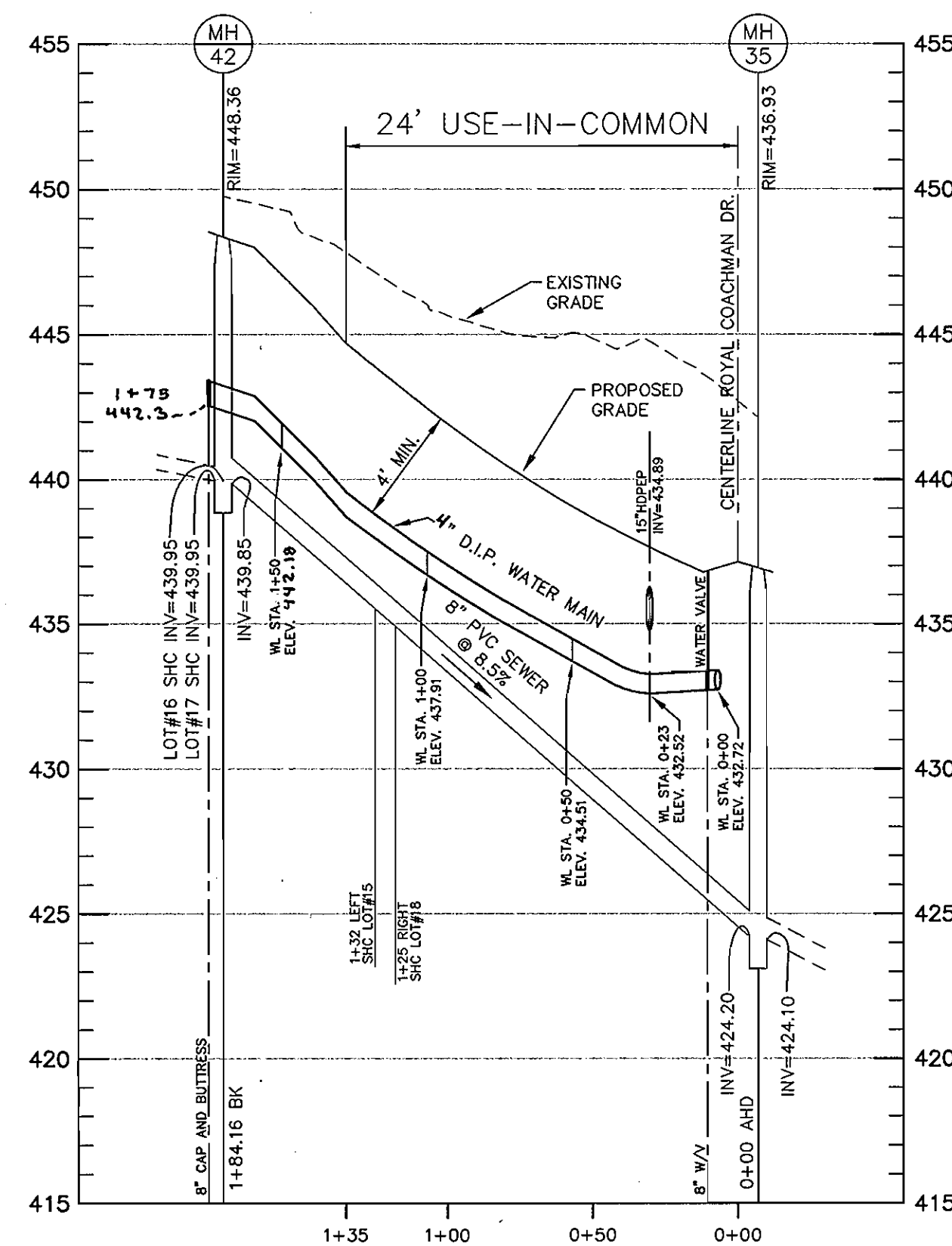
600 SCALE MAP NO. 31

BLOCK 10 & 11



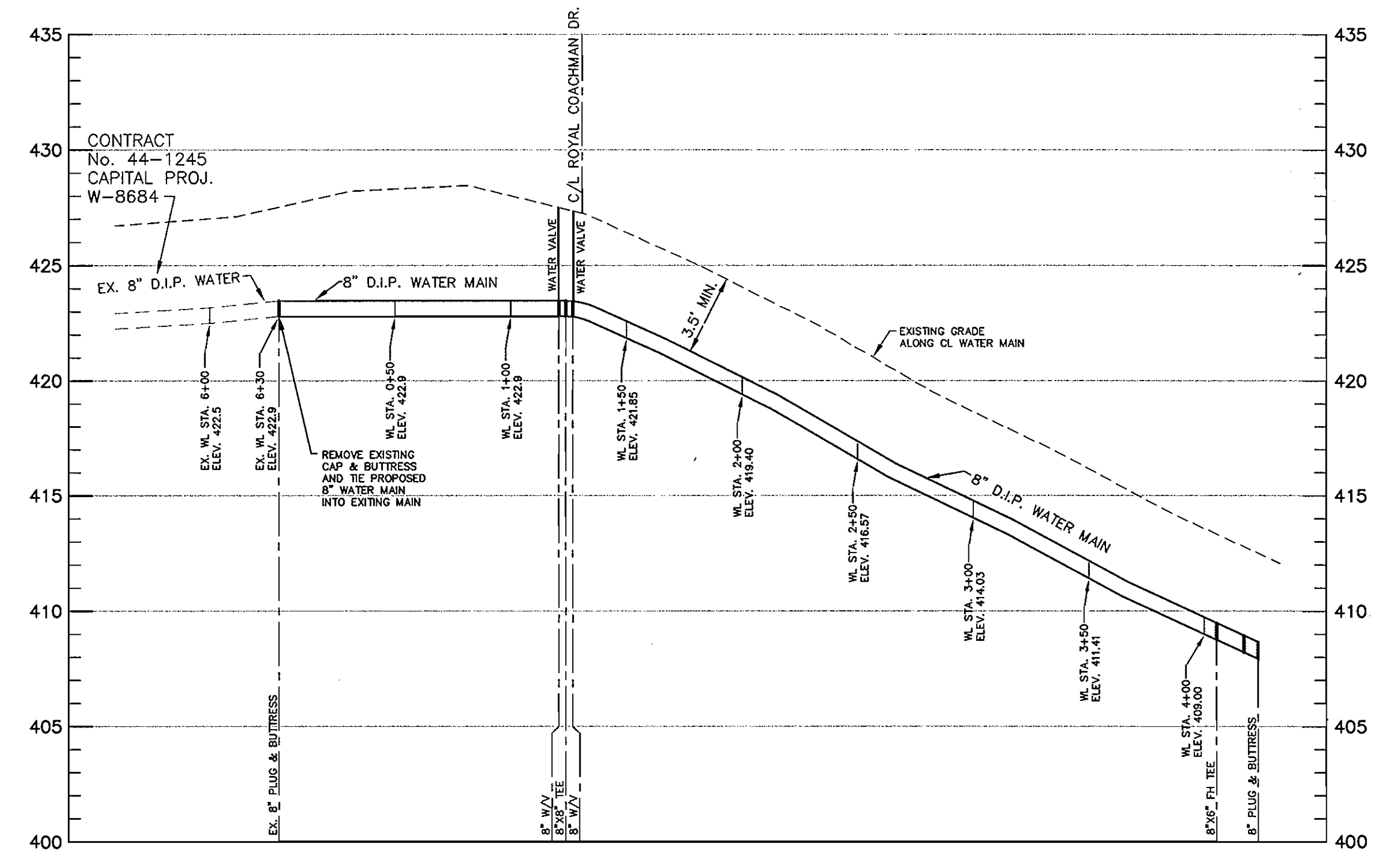
PUBLIC SEWER MAIN PROFILE (MH#25 TO MH#28)

HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'



24' USE-IN-COMMON WATER MAIN PROFILE & PUBLIC SEWER MAIN PROFILE (MH#35 TO MH#42)

HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'



LANDING ROAD WATER MAIN PROFILE

HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

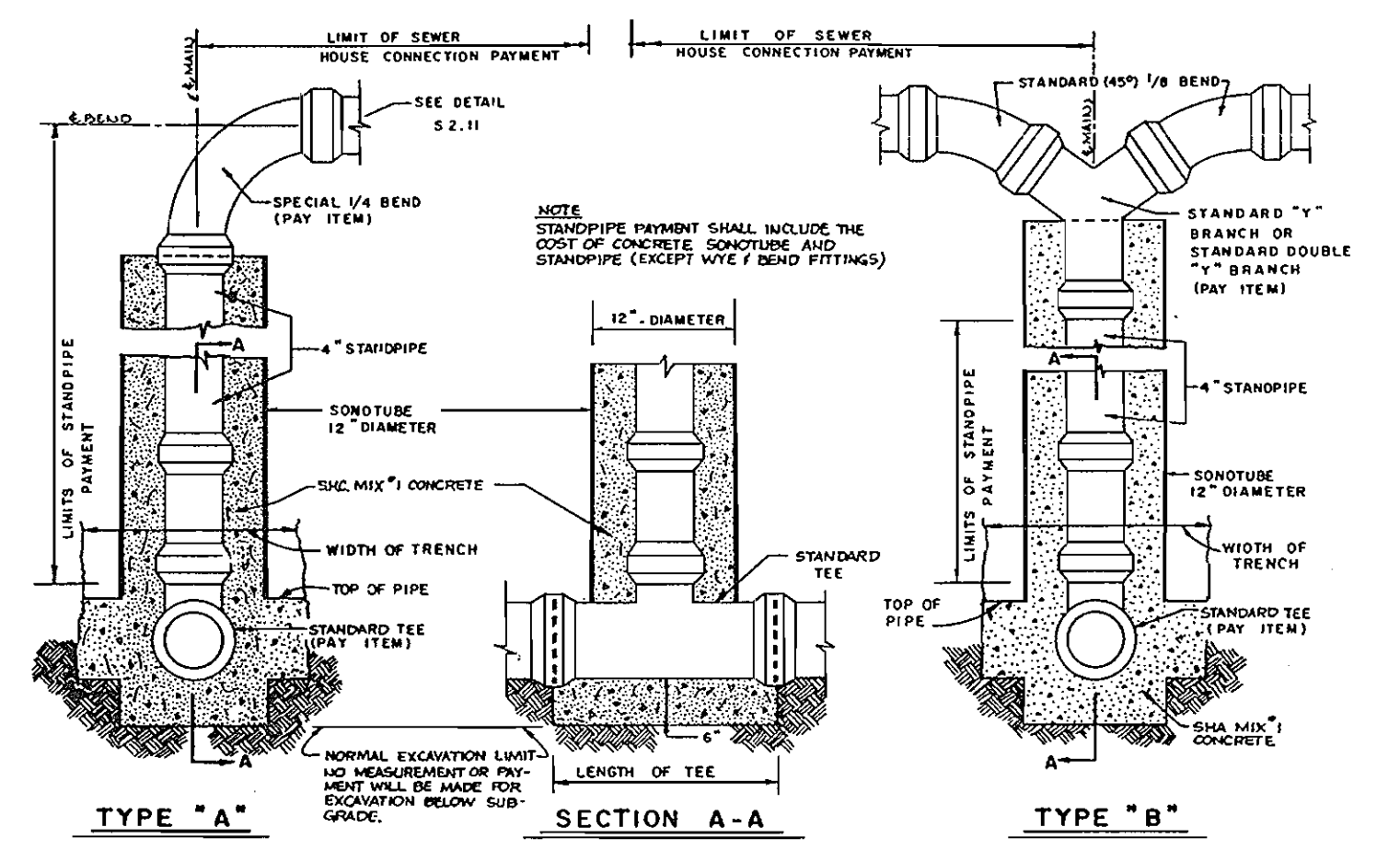
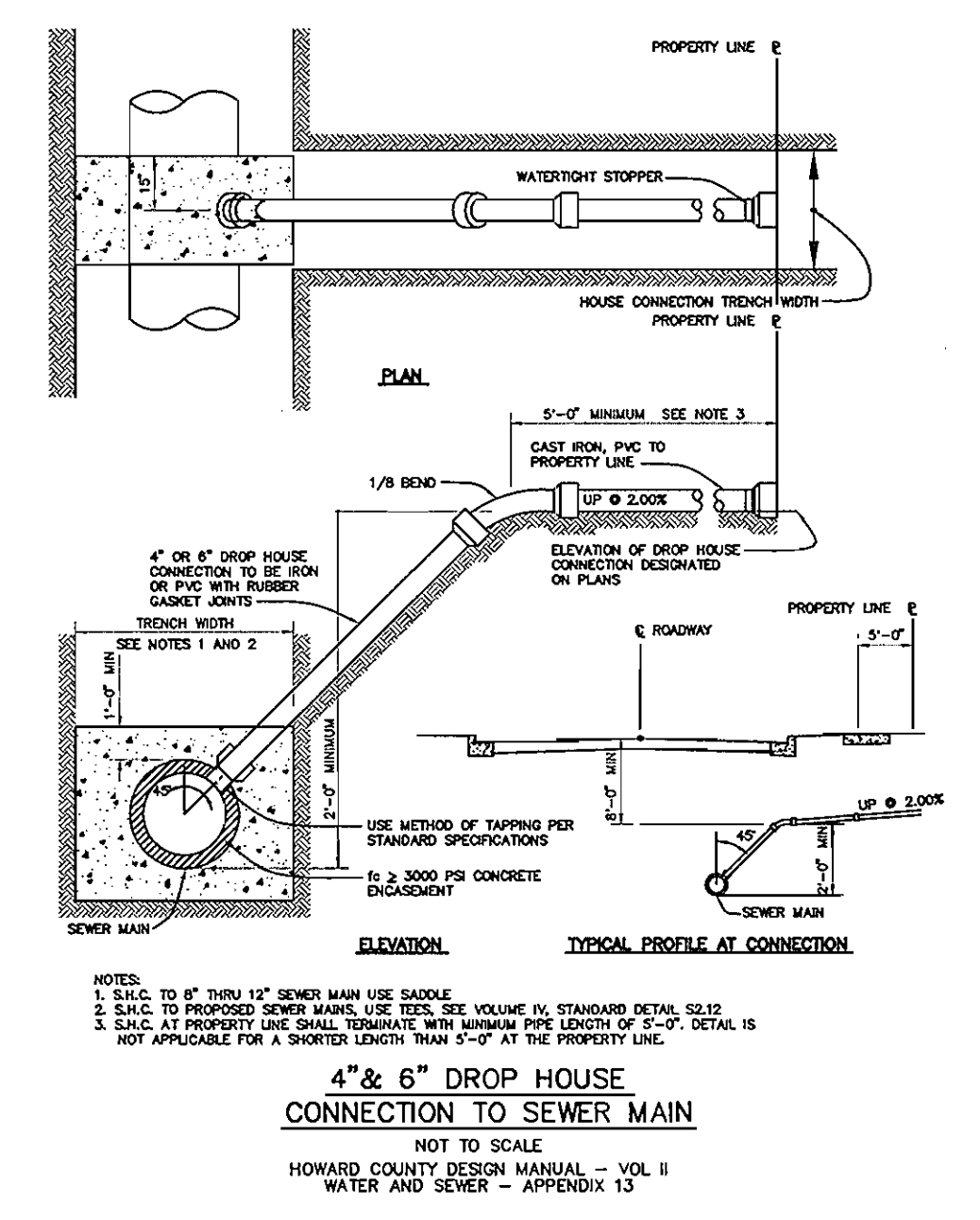
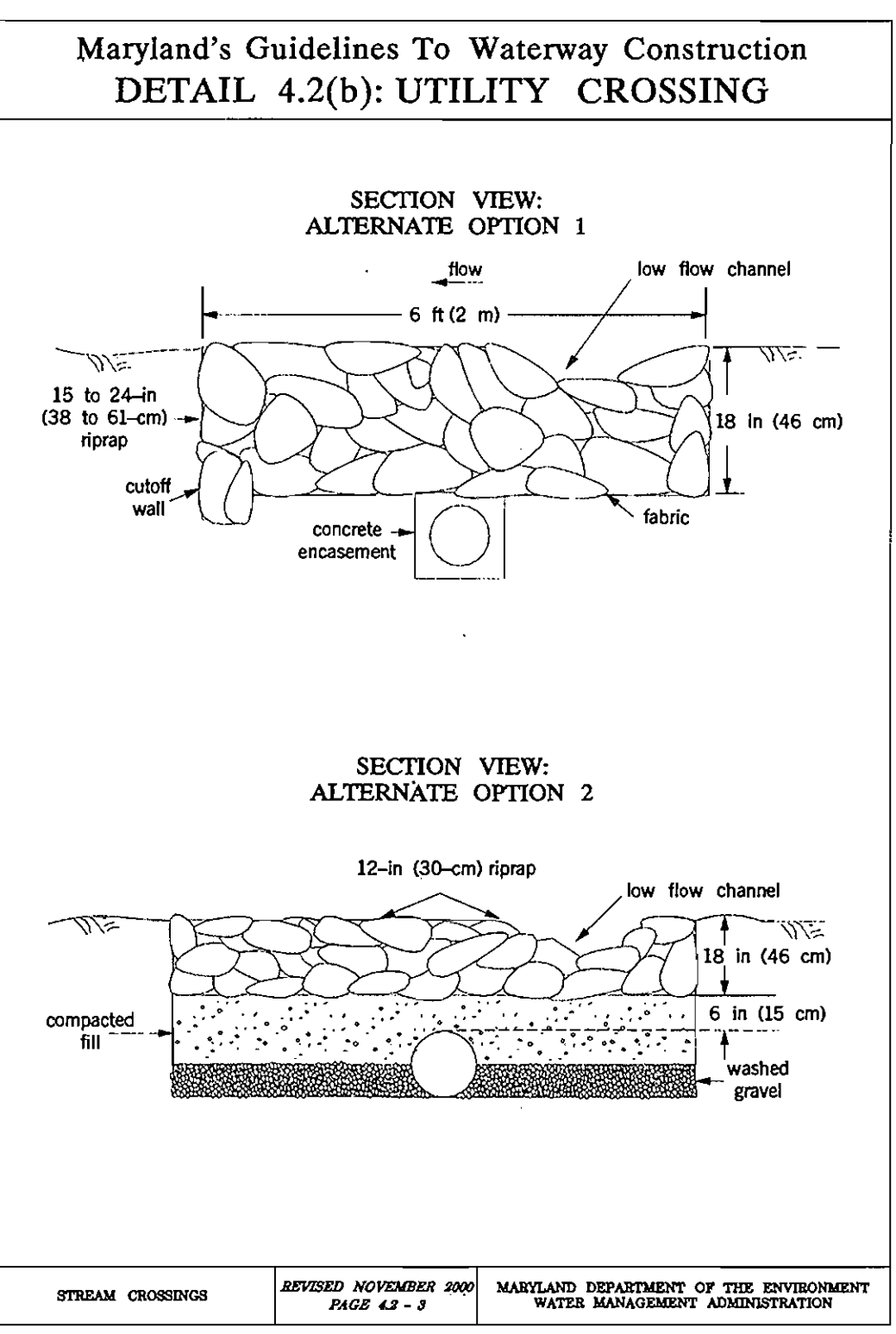
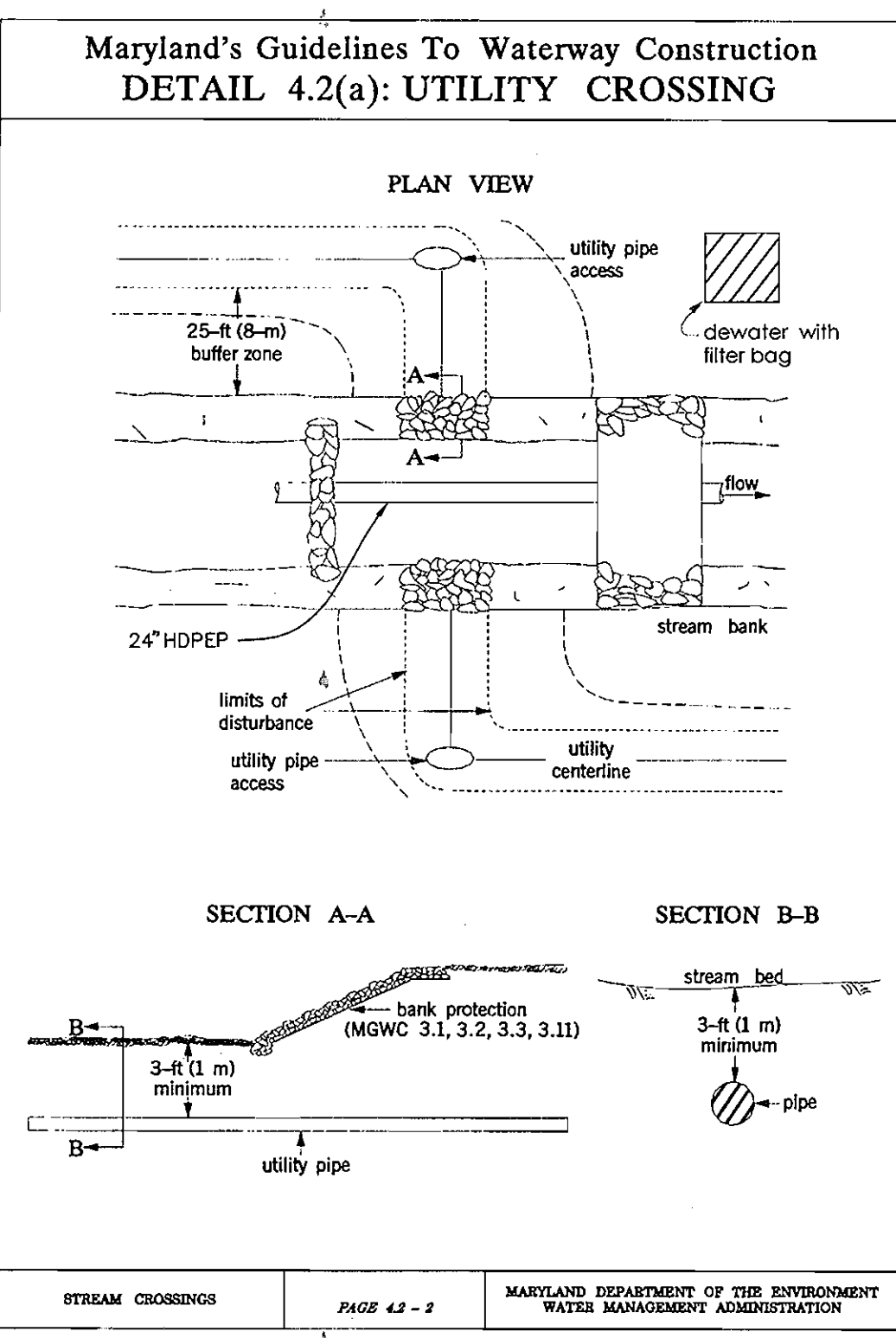
MGWC 4.2: Utility Crossing

Temporary in-stream construction

**Description**  
The work should consist of installing erosion control devices in and adjacent to the construction of utility crossings.

**Installation Guidelines**  
All erosion and sediment control devices, including filter bags should be implemented as the first order of business according to a plan approved by the WMA or local authority. (See the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control.) The proposed construction sequence is as follows (refer to Detail 4.2):

- The contractor should insure that a continuous perimeter control barrier is in place to minimize the amount of pollutants entering the flow. A diversion pipe as shown in MGWC 1.4: Diversion Pipe or other measure should be installed and sandbag or stone barriers as shown in MGWC 1.5: Sandbag/Stone Diversion should be constructed according to specifications to divert the stream flow.
- All construction should take place during stream low flows. The length of construction time should be limited to a maximum of 5 consecutive days for each crossing.
- All utility crossings should be placed a minimum of 3 feet (1 meter) beneath the stream bed unless an alternative section is specifically approved by the WMA. For instances where a 3-foot cover is not viable, two alternate stabilization options are given in the Detail 4.2. A low flow channel shall be constructed through all riprap placements across the stream bed.
- The stream should be diverted by an approved temporary stream diversion, the construction area should be dewatered, and any disturbed banks should be stabilized. The contractor may elect to construct the utility crossing in two stages. In this case, a WMA approved flow barrier may be constructed to keep the construction area dry.
- Once the crossing is completed, the diversion should be removed from upstream to downstream. Sediment control devices, including perimeter erosion controls, are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspection authority approves their removal.



STANDARD SANITARY SEWER DETAILS DROP HOUSE CONNECTIONS - TYPE 'A' AND 'B' NOT TO SCALE

GREEN DRAKE ROAD AND OFF-SITE WATER MAIN FITTING DATA					
ITEM	W/L STATION	CL STATION	INVERT	HO. CO. STD.	COMMENT
8" X 8" TEE	21+12.27	-0+07	414.26	HO. CO. STD.	WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
8" VALVE	21+09.27	-0+04	414.26	HO. CO. STD.	8" WATER VALVE, ALSO SEE W 2.14
1/8 BEND	20+87.05	0+17.72	413.32	HO. CO. STD.	1/8 BEND VERT., ALSO SEE W 2.22
1/8 BEND	20+85.05	0+19.72	411.32	HO. CO. STD.	1/8 BEND VERT., ALSO SEE W 2.22
1/32 BEND	20+12.27	0+24.45	411.09	HO. CO. STD.	1/32 BEND HORIZ., ALSO SEE W 2.21
1/32 BEND	19+92.27	1+15.23	409.37	HO. CO. STD.	1/32 BEND HORIZ., ALSO SEE W 2.21
1/32 BEND	N: 571304.21	E: 1378609.55	397.13	HO. CO. STD.	1/32 BEND HORIZ., ALSO SEE W 2.21
1/8 BEND	N: 571299.87	E: 1378629.91	396.74	HO. CO. STD.	1/32 BEND HORIZ., ALSO SEE W 2.21
1/32 BEND	N: 571310.21	E: 1378647.59	396.37	HO. CO. STD.	1/32 BEND HORIZ., ALSO SEE W 2.21
1/8 BEND	N: 571334.83	E: 1378676.12	395.52	HO. CO. STD.	1/32 BEND HORIZ., ALSO SEE W 2.21
1/8 BEND	N: 571333.79	E: 1378686.17	395.36	HO. CO. STD.	1/32 BEND HORIZ., ALSO SEE W 2.21
1/8 BEND	N: 571240.86	E: 1378761.86	394.59	HO. CO. STD.	1/32 BEND HORIZ., ALSO SEE W 2.21
1/8 BEND	N: 571239.48	E: 1378773.44	394.35	HO. CO. STD.	1/32 BEND HORIZ., ALSO SEE W 2.21

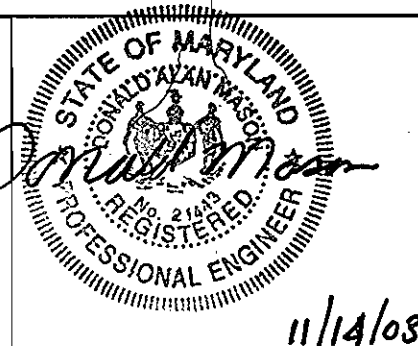
24' USE-IN-COMMON WATER MAIN FITTING DATA					
ITEM	W/L STATION	CL STATION	INVERT	HO. CO. STD.	COMMENT
8" X 8" TEE	0+00	0+07	411.09	HO. CO. STD.	WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
8" VALVE	0+03	0+10	411.09	HO. CO. STD.	8" WATER VALVE, ALSO SEE W 2.14
4" PLUG	N: 571972.84	E: 1378303.82	409.37	HO. CO. STD.	4" PLUG AND BUTTRISS, ALSO SEE W 2.21

LANDING ROAD WATER MAIN FITTING DATA					
ITEM	W/L STATION	CL STATION	INVERT	HO. CO. STD.	COMMENT
8" VALVE	1+26.85	7+63.00	422.90	HO. CO. STD.	8" WATER VALVE, ALSO SEE W 2.14
8" X 8" TEE	1+23.85	7+66.00	422.90	HO. CO. STD.	WATER MAIN 8" X 8" TEE, ALSO SEE W 2.23
8" VALVE	1+26.85	7+69.00	422.90	HO. CO. STD.	8" WATER VALVE, ALSO SEE W 2.14
8" X 8" TEE	4+05.48	10+47.12	403.75	HO. CO. STD.	WATER MAIN 8" X 8" TEE, ALSO SEE W 2.11
8" VALVE	4+17.28	10+57.72	403.20	HO. CO. STD.	8" WATER VALVE, ALSO SEE W 2.14
8" PLUG	4+23.43	10+64.84	402.92	HO. CO. STD.	8" PLUG AND BUTTRISS, ALSO SEE W 2.21

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

**BENCHMARK**  
ENGINEERS - LAND SURVEYORS - PLANNERS  
**ENGINEERING, INC.**

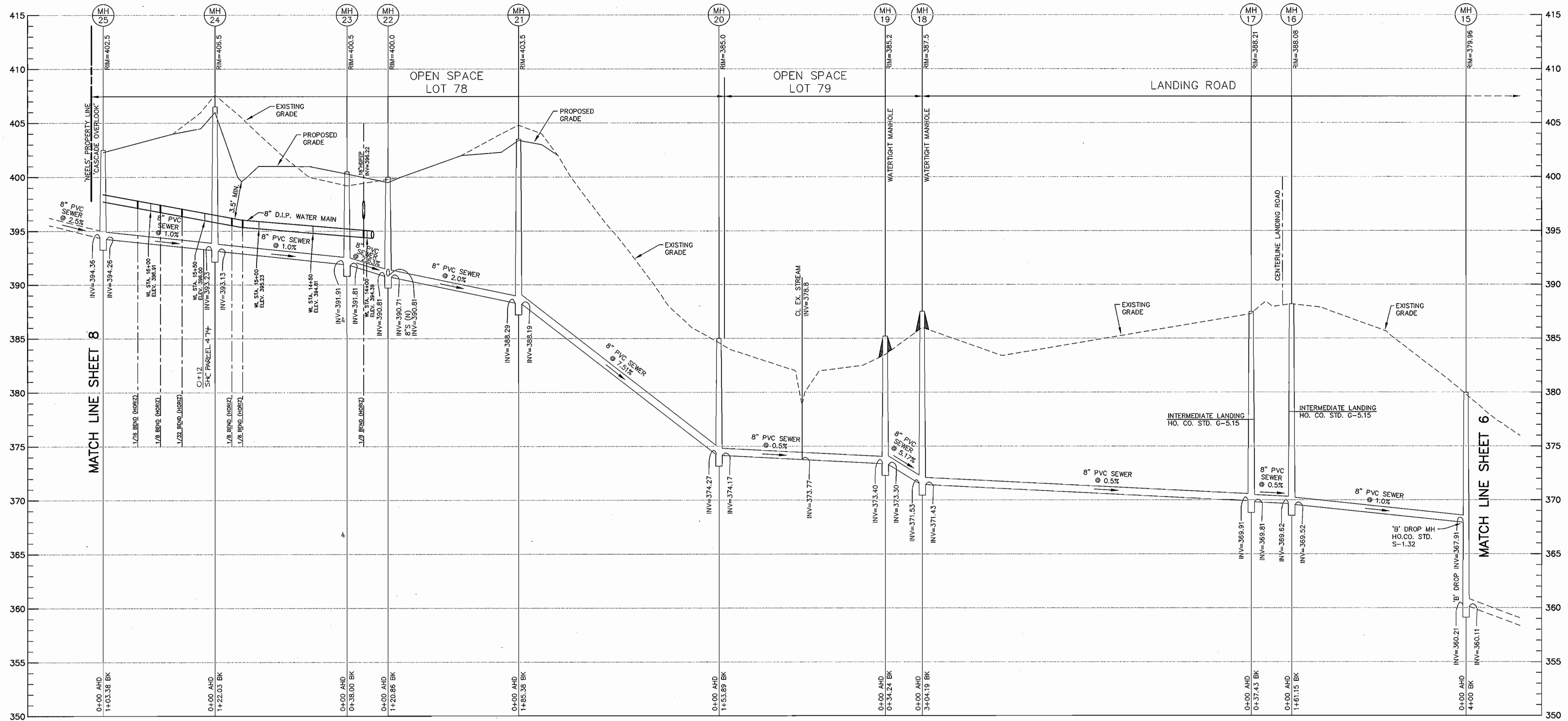


DES:	DAM		
DRN:	RPS		
CHK:	DAM	MFW	REVISE SHC TO PARCEL 479
DATE:	11/03		REVISE WATER MAIN SIZE 24' USE-IN-COMMON
DATE:	11/03	BY	NO.

**SEWER MAIN AND WATER MAIN PROFILE**  
(ROYAL COACHMAN DRIVE)  
(ON-SITE)

**CASCADE OVERLOOK**  
SECTION ONE  
LOTS 1-72  
1st ELECTION DISTRICT  
CONTRACT No. 14-4080-D

SCALE:  
AS SHOWN  
SHEET NO.  
8 OF 12



PUBLIC SEWER MAIN PROFILE (MH#15 TO MH#25)

HORIZONTAL: 1" = 50'  
 VERTICAL: 1" = 5'

SPECIAL SANITARY NOTE:

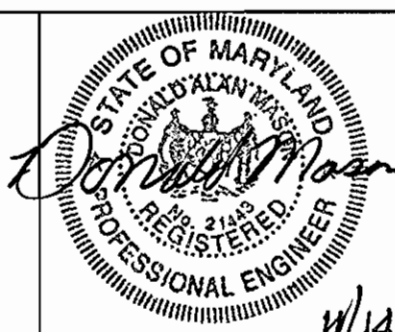
MANHOLES #18 AND #19 ARE LOCATED WITHIN THE 100 YEAR FLOODPLAIN AND ARE REQUIRED TO HAVE WATERTIGHT FRAMES AND COVERS. UTILIZE HOWARD COUNTY STANDARD DETAIL G 5.52. SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**

6480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6844



DES:	DAM		
DRN:	RPS		
CHK:	DAM		
DATE:	11/03	BY:	MFW
		NO.:	2
		REVISIONS:	REVISE SHC TO PARCEL 474
		DATE:	

SEWER MAIN PROFILE  
 LANDING ROAD OFF-SITE  
 AND SEWER MAIN ON-SITE

600 SCALE MAP NO. 31

BLOCK 10 & 11

**CASCADE OVERLOOK**  
 SECTION ONE  
 LOTS 1-72  
 1st ELECTION DISTRICT  
 CONTRACT No. 14-4080-D

SCALE:  
 AS SHOWN

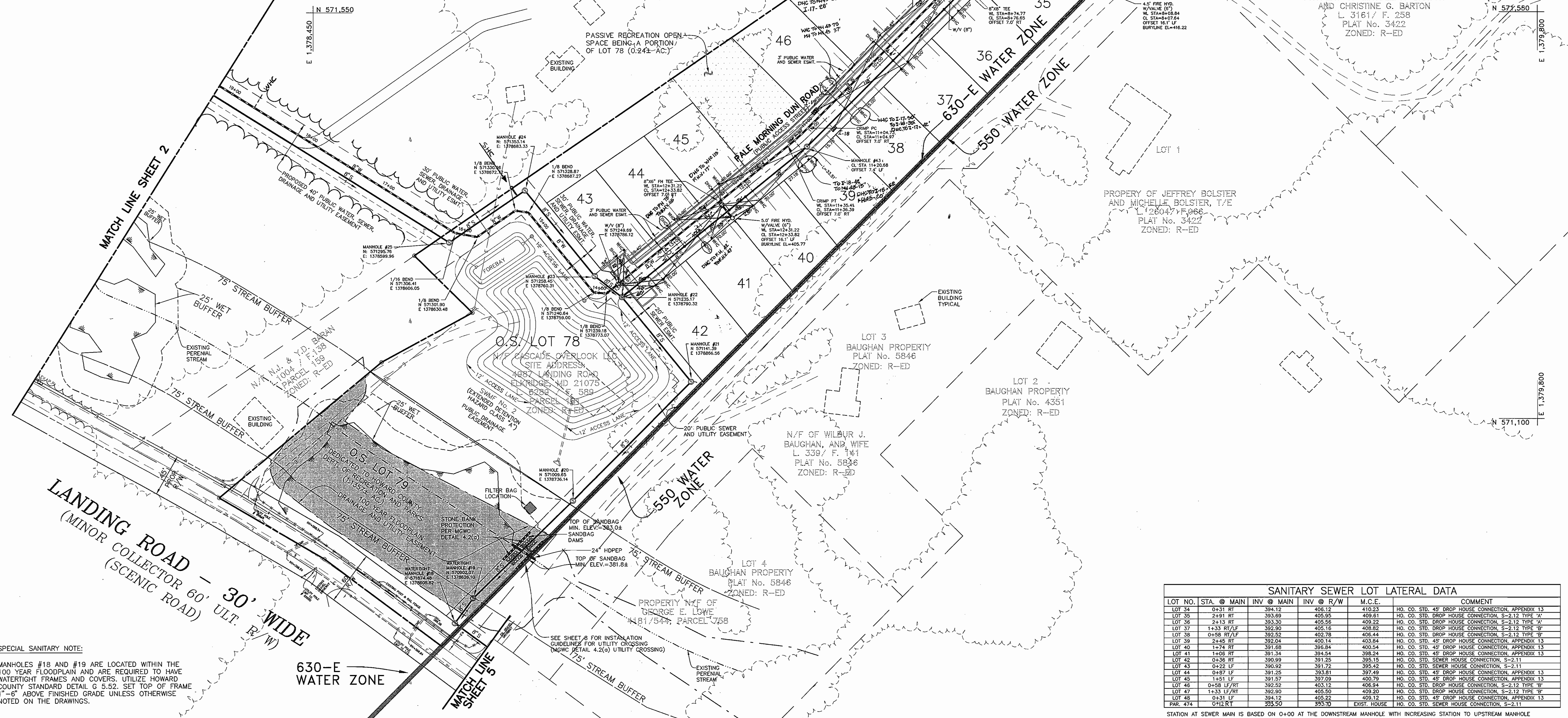
SHEET NO.  
 7 OF 12

*R. J. ...* 12-2-03  
 CHIEF, BUREAU OF UTILITIES DATE

*...* 12/14/08  
 CHIEF, DEVELOPMENT ENGINEERS DIVISION I DATE

11/14/08

- LEGEND:**
- PROPOSED WATER MAIN
  - PROPOSED WATER HOUSE CONNECTION
  - PROPOSED WATER VALVE
  - PROPOSED WATER MAIN TEE
  - PROPOSED BLOW-OFF & PLUG
  - PROPOSED FIRE HYDRANT
  - PROPOSED WATER MAIN BEND
  - EXISTING WATER ZONE DESIGNATION
  - PROPOSED SANITARY MAIN
  - SANITARY FLOW DIRECTION
  - PROPOSED SANITARY MANHOLE
  - PROPOSED SANITARY HOUSE CONNECTION
  - EXISTING WETLANDS
  - EXISTING TREELINE
  - PROPOSED TREELINE



**SPECIAL SANITARY NOTE:**  
 MANHOLES #18 AND #19 ARE LOCATED WITHIN THE 100 YEAR FLOODPLAIN AND ARE REQUIRED TO HAVE WATER-TIGHT FRAMES AND COVERS. UTILIZE HOWARD COUNTY STANDARD DETAIL G 5.52. SET TOP OF FRAME 1" - 6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.

SANITARY SEWER LOT LATERAL DATA					
LOT NO.	STA. @ MAIN	INV @ MAIN	INV @ R/W	M.C.E.	COMMENT
LOT 34	0+31 RT	394.12	406.12	410.23	HO. CO. STD. 45" DROP HOUSE CONNECTION, APPENDIX 13
LOT 35	2+91 RT	393.69	405.95	409.61	HO. CO. STD. DROP HOUSE CONNECTION, S-2.12 TYPE 'A'
LOT 36	2+13 RT	393.30	405.56	409.22	HO. CO. STD. DROP HOUSE CONNECTION, S-2.12 TYPE 'A'
LOT 37	1+33 RT/LF	392.90	405.16	408.82	HO. CO. STD. DROP HOUSE CONNECTION, S-2.12 TYPE 'B'
LOT 38	0+58 RT/LF	392.52	402.78	408.44	HO. CO. STD. DROP HOUSE CONNECTION, S-2.12 TYPE 'B'
LOT 39	2+45 RT	392.04	400.14	403.84	HO. CO. STD. 45" DROP HOUSE CONNECTION, APPENDIX 13
LOT 40	1+74 RT	391.68	396.84	400.54	HO. CO. STD. 45" DROP HOUSE CONNECTION, APPENDIX 13
LOT 41	1+08 RT	391.34	394.54	398.24	HO. CO. STD. 45" DROP HOUSE CONNECTION, APPENDIX 13
LOT 42	0+36 RT	390.99	391.25	395.15	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 43	0+25 LF	390.92	391.72	395.42	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11
LOT 44	0+87 LF	391.25	393.81	397.49	HO. CO. STD. 45" DROP HOUSE CONNECTION, APPENDIX 13
LOT 45	1+51 LF	391.57	397.09	400.79	HO. CO. STD. 45" DROP HOUSE CONNECTION, APPENDIX 13
LOT 46	0+58 LF/RT	392.52	403.12	408.94	HO. CO. STD. DROP HOUSE CONNECTION, S-2.12 TYPE 'B'
LOT 47	1+33 LF/RT	392.90	405.50	409.20	HO. CO. STD. DROP HOUSE CONNECTION, S-2.12 TYPE 'B'
LOT 48	0+31 LF	394.12	405.22	409.12	HO. CO. STD. 45" DROP HOUSE CONNECTION, APPENDIX 13
PAR. 474	0+12 RT	393.50	393.70	EXIST. HOUSE	HO. CO. STD. SEWER HOUSE CONNECTION, S-2.11

STATION AT SEWER MAIN IS BASED ON 0+00 AT THE DOWNSTREAM MANHOLE WITH INCREASING STATION TO UPSTREAM MANHOLE  
 M.C.E. REPRESENTS MINIMUM CELLAR ELEVATION.

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

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 HOWARD COUNTY, MARYLAND

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 410 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-685-8105 FAX: 410-685-8844

DES: DAM  
 DRN: RPS  
 CHK: DAM  
 DATE: 11/03

REVISIONS  
 NO. 1  
 DATE 08/04/05  
 REVISION: REVISE WHC & SHC LOCATIONS TO PARCEL 474 AS BUILT DATA ADDED TO PLAN

PLAN VIEW (ON-SITE)  
 600 SCALE MAP NO. 31 BLOCK 10 & 11

**CASCADE OVERLOOK**  
 SECTION ONE  
 LOTS 1-72  
 1st ELECTION DISTRICT  
 CONTRACT No. 14-4080-D  
 SCALE: 1" = 50'  
 SHEET NO. 4 OF 12

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