

# LANDING ROAD

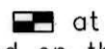
## WATER AND SEWER EXTENSIONS

CAPITAL PROJECT NO. S-6217/W-8698L

CONTRACT NO. 14-3986

### HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS

#### GENERAL NOTES

- Approximate location 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.
- Coordinates shown hereon are based on Maryland State Reference System NAD '83/'91 as projected by Howard County Geodetic Control Stations No. 31E7, No. 37CA and No. 37C3.
- All vertical controls are based on NAVD 29, and are iron bars and caps or PK nails.
- All pipe elevations shown are invert elevations unless otherwise noted on the plans.
- Clear all utilities by a minimum of 12 inches. Clear all poles by 5'-0" minimum or tunnel as required unless otherwise noted. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the contractor's work requires the bracing of additional poles, any cost incurred by the owner for the bracing of additional poles or damages shall be deducted from monies owed the contractor. The contractor shall coordinate with the utility companies to schedule the bracing of the poles.
- For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and 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.
- The contractor shall notify the following utility companies or agencies at least five working days before starting work shown on these plans:
 

AT&T	1-800-252-1133
BGE (Contractor Services)	410-850-4620
BGE (Underground Damage Control)	410-787-9068
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 / 410-224-9210
- Trees and shrubs are to be protected from damage to the maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged by the contractor.
- The contractor shall remove trees, stumps and roots along the line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- The contractor shall notify the Bureau of Highways, Howard County, at 410-313-7450 at least five working days before open cutting or boring/jacking of any County 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.
- Site survey was performed by PHR&A, September, 2000.

#### WATER NOTES

- All water mains shall be D.I.P. Class 54 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 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 installed in accordance with Standard Details. The soil around the fire hydrant shall be compacted in accordance with Section 1000 and 1005 of the Standard Specifications.
- The contractor shall not operate any water main valves on the existing water system.
- All WHC's shall be for an outside meter vault setting.

#### SEWER NOTES

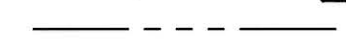

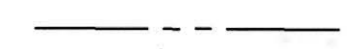



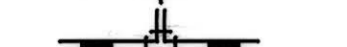

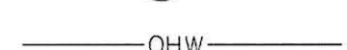




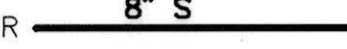
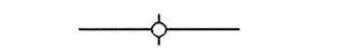


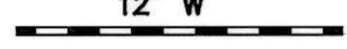







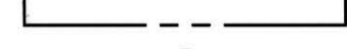



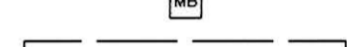

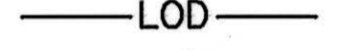
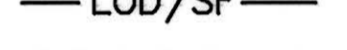





- All sewer mains shall be P.V.C. unless otherwise noted.
- All manholes shall be 4'-0" inside diameter unless otherwise noted.
- Manholes shown with 12" and 16" walls are for brick manholes only.
- Manholes designated W.T. in plan and profile shall have watertight frame and covers, Standard Detail G5.52. Where watertight manhole frames and covers 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.

#### INDEX OF DRAWINGS

SHEET NO.	TITLE
1	TITLE SHEET
2	WATER AND SEWER PLAN
3	WATER AND SEWER PLAN
4	WATER PROFILE
5	WATER PROFILE
6	SEWER PROFILES
7	SEDIMENT AND EROSION CONTROL PLAN
8	SEDIMENT AND EROSION CONTROL PLAN AND NOTES
9	SEDIMENT AND EROSION CONTROL NOTES
10	SEDIMENT AND EROSION CONTROL DETAILS
11	TRAFFIC CONTROL PLAN AND DETAILS
12	TRAFFIC CONTROL PLAN AND DETAILS

AS-BUILT  
FEBRUARY, 2007

#### LEGEND

- |                           |   |                     |   |
|---------------------------|---|---------------------|---|
| R.O.W. LINE               |    | WETLANDS            |  |
| PROPERTY LINE             |    | WETLANDS BUFFER     |  |
| PROP. WATER VALVE         |    | TRAVERSE POINT (TP) |  |
| PROP. WATER CROSS         |    |                     |   |
| PROP. OUTSIDE METER VAULT |    |                     |   |
| OVERHEAD WIRE             |    |                     |   |
| EX. FENCE LINE            |    |                     |   |
| EX. INLET                 |    |                     |   |
| EX. TREE LINE             |    |                     |   |
| EX. POWER POLE            |    |                     |   |
| PROPOSED SANITARY SEWER   |    |                     |   |
| EX. WATER VALVE           |    |                     |   |
| EX. SEWER MANHOLE         |    |                     |   |
| PROP. MANHOLE (S)         |    |                     |   |
| PROPOSED WATER MAIN       |    |                     |   |
| EX. WATER MAIN            |    |                     |   |
| EX. SEWER                 |    |                     |   |
| EX. STORMDRAIN            |    |                     |   |
| EX. STREAM                |    |                     |   |
| EX. STORMDRAIN MAN HOLE   |    |                     |   |
| EX. WATER METER           |    |                     |   |
| EX. FIRE HYDRANT          |    |                     |   |
| EX. PROP. CORNER          |    |                     |   |
| PROP. EASEMENT            |    |                     |   |
| BORINGS                   |    |                     |   |
| PROPOSED WATER CAP        |    |                     |   |
| PROPOSED FH               |    |                     |   |
| BENCH MARKS               |    |                     |   |
| EX. MAILBOX               |    |                     |   |
| EX. CULVERT               |    |                     |   |
| SILT FENCE                |   |                     |   |
| LIMIT OF DISTURBANCE      |  |                     |   |
| LIMIT OF DISTURBANCE      |  |                     |   |
| DEFINED BY SILT FENCE     |  |                     |   |
| FLOOD PLAIN               |  |                     |   |

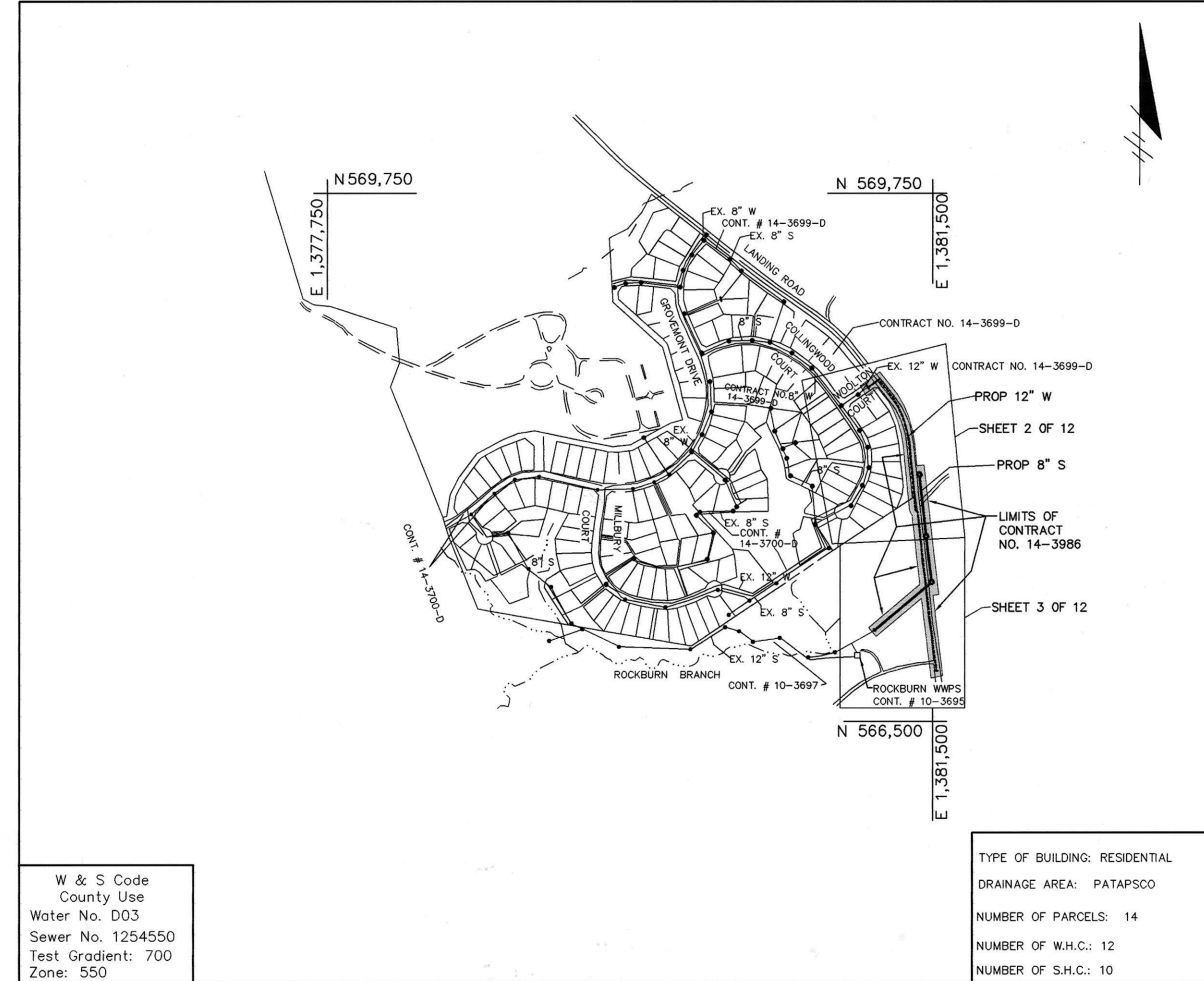
**HOWARD COUNTY  
GEODETIC SURVEY CONTROL**

BM #1 HO. CO. MONUMENT 31E7  
ELEV. 478.648  
N 572335.322  
E 1377503.920

BM #2 HO. CO. MONUMENT 37CA  
ELEV. 257.697  
N 564321.638  
E 1382742.840

BM #3 HO. CO. MONUMENT 37C3  
ELEV. 258.510  
N 562916.003  
E 1384856.679

ALL MONUMENTS ARE OUTSIDE THE BORDERS OF THE VICINITY MAP.



W & S Code  
County Use  
Water No. D03  
Sewer No. 1254550  
Test Gradient: 700  
Zone: 550

TYPE OF BUILDING: RESIDENTIAL  
DRAINAGE AREA: PATAPSCO  
NUMBER OF PARCELS: 14  
NUMBER OF W.H.C.: 12  
NUMBER OF S.H.C.: 10

#### VICINITY MAP SCALE: 1"=600'

#### DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL THE DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATION OF ATTENDANCE AT A MARYLAND DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT"

*Paul B. Jenson* 12/22/04  
BUREAU OF ENGINEERING  
DEPARTMENT OF PUBLIC WORKS

#### ENGINEER'S CERTIFICATION

"I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICABLE AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT"

*J. C. Daniel*  
PATTON HARRIS RUST & ASSOCIATES, PC  
8818 CENTRE PARK DRIVE, COLUMBIA, MD 21045

#### QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER / SUPPLIER
12" DIP WATER MAIN	1858 LF	1,858 LF		
12" HDPE SDR9 WATER MAIN	300 LF	300 L.F.		
12" VALVE	6 EACH	6 EA.		
12" PLUG	2 EACH	2 EA.		
FIRE HYDRANT	5 EACH	5 EA.		
8" PVC SEWER MAIN	696 LF	772 L.F.		
10" HDPE SDR 9 SEWER MAIN	418 LF	418 L.F.		
STANDARD MANHOLE	4 EACH	4 EA.		
TYPE A DROP MANHOLE CONN.	1 EACH	0		
ADDITIONAL MANHOLE DEPTH	14 V.F.	13.4 VF		
12" x 6" TEE	5 EACH	5 EA.		
6" VALVE	5 EACH	5 EA.		
1" WATER HOUSE CONNECTION	275 L.F.	334 L.F.		
4" SEWER HOUSE CONNECTION	220 L.F.	250.3 L.F.		
12" x 12" TEE	1 EACH	1 EA.		

NAME OF UTILITY CONTRACTOR :

Sediment control measures for this contract will be implemented in accordance with Section 219 of the Specifications and as shown on the drawings.

*Jim Myers* 12/22/04  
NATURAL RESOURCES CONSERVATION SERVICE

This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

*Paul B. Jenson* 12/22/04  
HOWARD SOIL CONSERVATION DISTRICT

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James* 12/22/04  
DIRECTOR OF PUBLIC WORKS

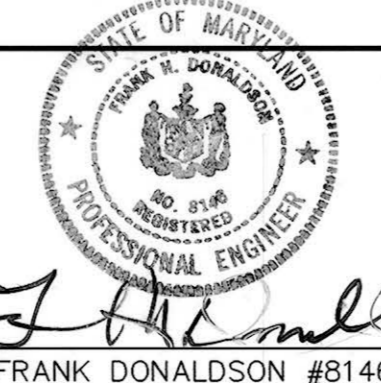
*Paul B. Jenson* 12/22/04  
CHIEF, BUREAU OF ENGINEERING

*Robert* 12-22-04  
CHIEF, BUREAU OF UTILITIES

*Frank Donaldson* 12-22-04  
CHIEF, UTILITY DESIGN DIVISION

Patton Harris Rust & Associates, PC  
Engineers, Surveyors, Planners, Landscape Architects.

8818 Centre Park Drive  
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T 410.997.8900  
F 410.997.9282



DES:	J.S.C.	RJC	AS-BUILT	1/07
DRN:	J.A.P.			
CHK:	G.C.L.			
DATE:	FEBRUARY, 2004			
BY:	NO.	REVISION	DATE	

TITLE SHEET

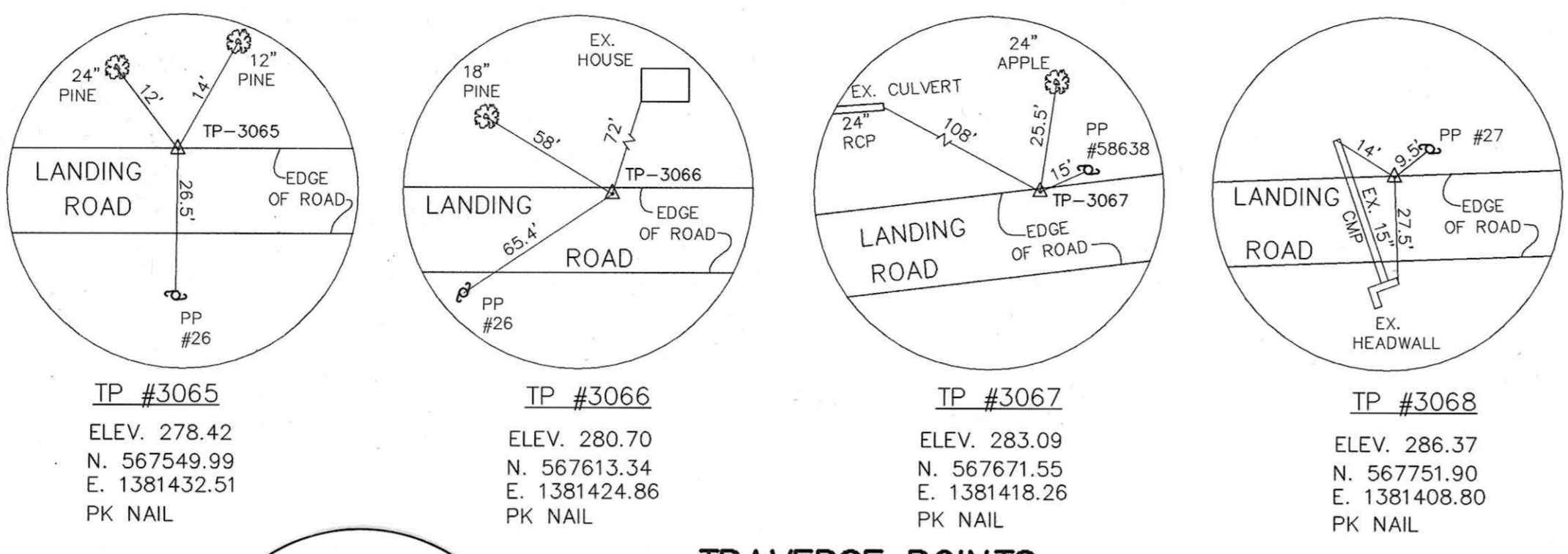
600' SCALE MAP NO. 31 BLOCK NO. 17 & 23

LANDING ROAD  
WATER & SEWER EXTENSION  
CAPITAL PROJECT S-6217/W-8698L  
CONTRACT NO. 14-3986  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

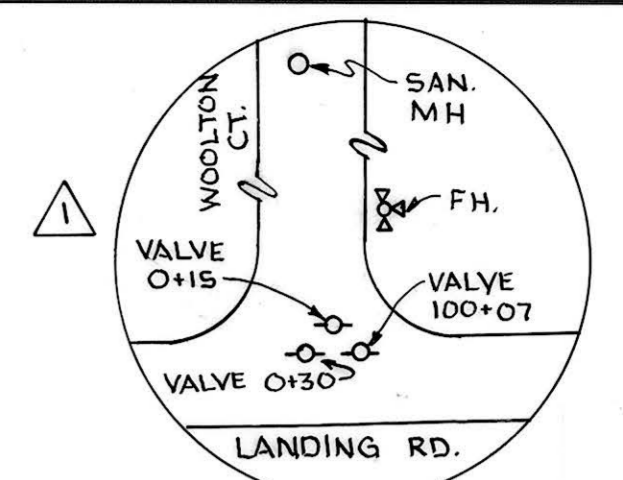
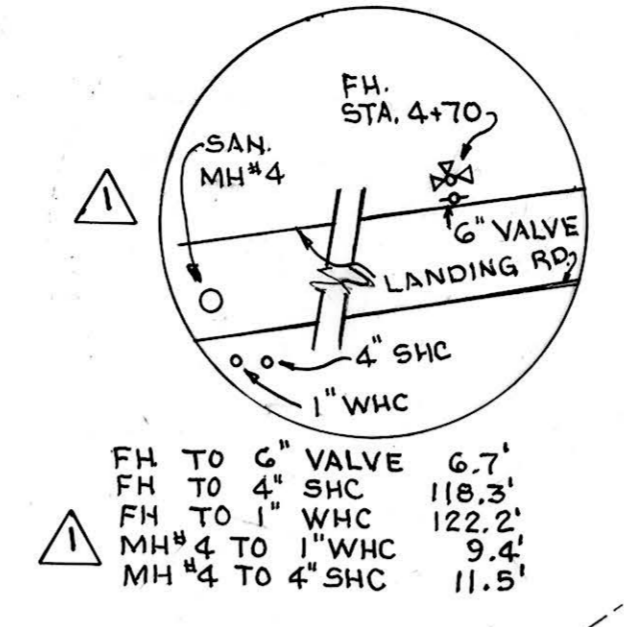
SCALE AS SHOWN

SHEET 1 OF 12

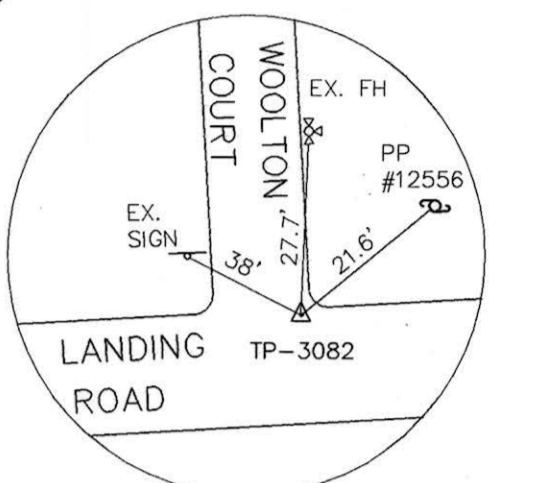
EP.04.07



**TRAVERSE POINTS**  
SCALE: NOT TO SCALE

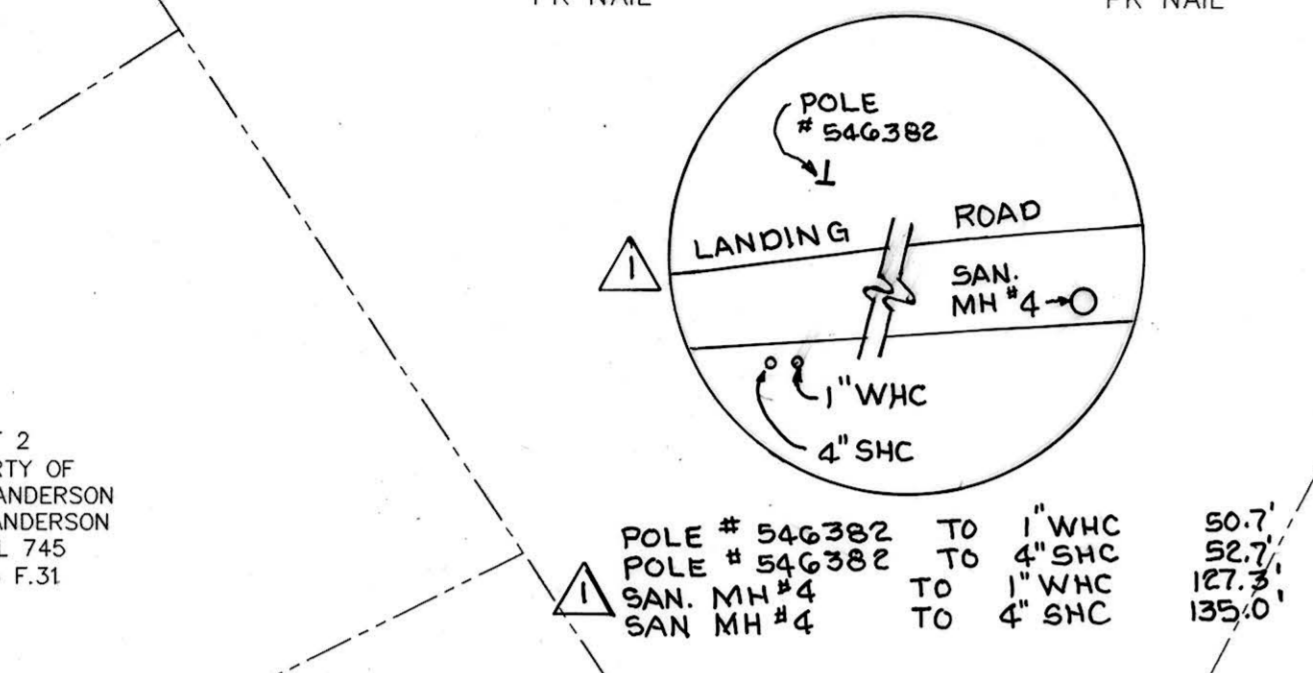


SAN MH TO VALVE 0+15 149.5'  
SAN MH TO VALVE 0+30 152.5'  
SAN MH TO VALVE 100+07 154.5'  
FH TO VALVE 0+15 36.0'  
FH TO VALVE 0+30 42.0'  
FH TO VALVE 100+07 39.8'

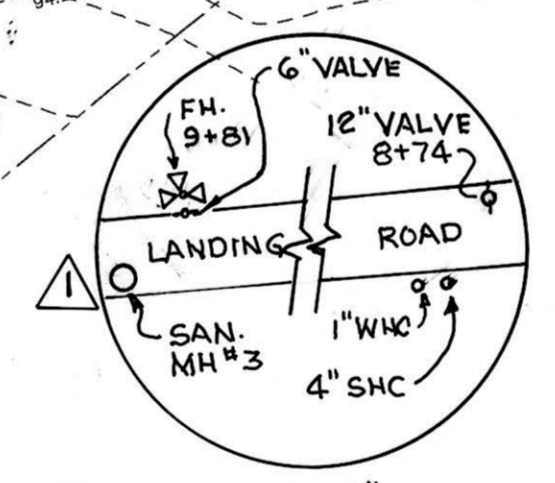


TP #3082  
ELEV. 341.40  
N. 568612.75  
E. 1381138.04  
PK NAIL

**TRAVERSE POINTS**  
SCALE: NOT TO SCALE



POLE #546382 TO 1\"/>



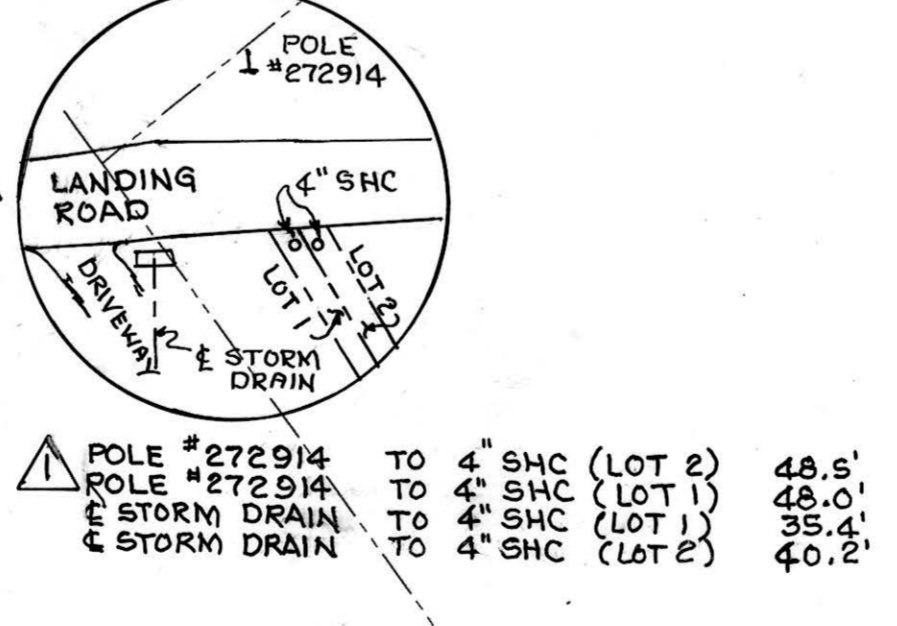
FH 9+81 TO 12\"/>

SEWER MH	NORTHING	EASTING
MH-1	567054.55	1381161.77
MH-2	567331.26	1381474.64
MH-3	567644.89	1381437.35
MH-4	568022.52	1381394.94

WATER MAIN STATION	DESCRIPTION	NORTHING	EASTING
0+00	CONNECTION POINT	568594.48	1381136.62
0+15	12" VALVE	568603.75	1381148.82
0+22	12" TEE	568608.14	1381154.34
0+30	12" VALVE	568602.45	1381158.76
1+85	PC	568480.01	1381253.92
4+57	PT	568231.14	1381355.77
4+70	12" x 6" TEE	568216.95	1381356.92
8+74	12" VALVE	567816.30	1381404.17
9+81	12" x 6" TEE	567710.25	1381416.05
14+25	12" x 6" TEE	567269.76	1381467.95
17+32	12" x 6" TEE	566964.40	1381503.59
17+42	12" VALVE	566954.46	1381504.75
21+07	12" VALVE	566591.31	1381547.10
21+20	12" x 6" TEE	566579.57	1381548.49
21+36	12" PLUG	566563.57	1381550.36
100+07	12" VALVE	568613.89	1381149.87
100+22	12" PLUG	568625.58	1381140.78

LOCATION	RESTORATION
STA. 100+00 TO STA. 100+22 (LANDING RD.)	PAVING P3
STA. 0+00 TO STA. 0+22 (WOOLTON CT.)	PAVING P3
STA. 0+22 TO STA. 17+76	PAVING P3
STA. 17+76 TO STA. 20+76	PAVING P3
STA. 17+76 TO STA. 21+36	LINE INSTALLED BY DIRECTIONAL DRILLING. RESTORATION NOT REQUIRED. PITS TO BE RESTORED IN KIND. PAVING P3

LOCATION	RESTORATION
MH4 TO MH3	PAVING P3
MH3 TO MH2	PAVING P3
MH2 TO MH1	LINE INSTALLED BY DIRECTIONAL DRILLING. RESTORATION NOT REQUIRED. PITS TO BE RESTORED IN KIND.



POLE #272914 TO 4\"/>

**PLAN**  
SCALE: 1"=50'

**AS-BUILT**  
**FEBRUARY, 2007**

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 12/23/04  
Chief, Bureau of Engineering: *[Signature]* 12/22/04

Chief, Bureau of Utilities: *[Signature]* 12-22-04  
Chief, Utility Design Division: *[Signature]* 12-22-04

Patton Harris Rust & Associates, PC  
Engineers, Surveyors, Planners, Landscape Architects.

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Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

FRANK DONALDSON #8146  
FEBRUARY, 2004

DES: J.S.C.	RJC	AS-BUILT: ADDED LOCATING COOKIES	2/07
DRN: J.A.P.			
BHK: G.C.L.			
BY NO.	REVISION	DATE	

**WATER AND SEWER PLAN**

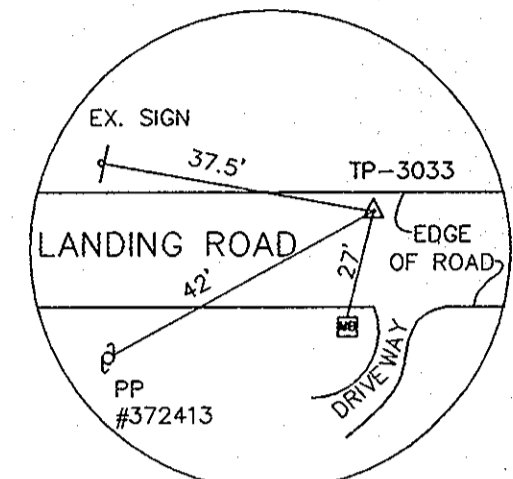
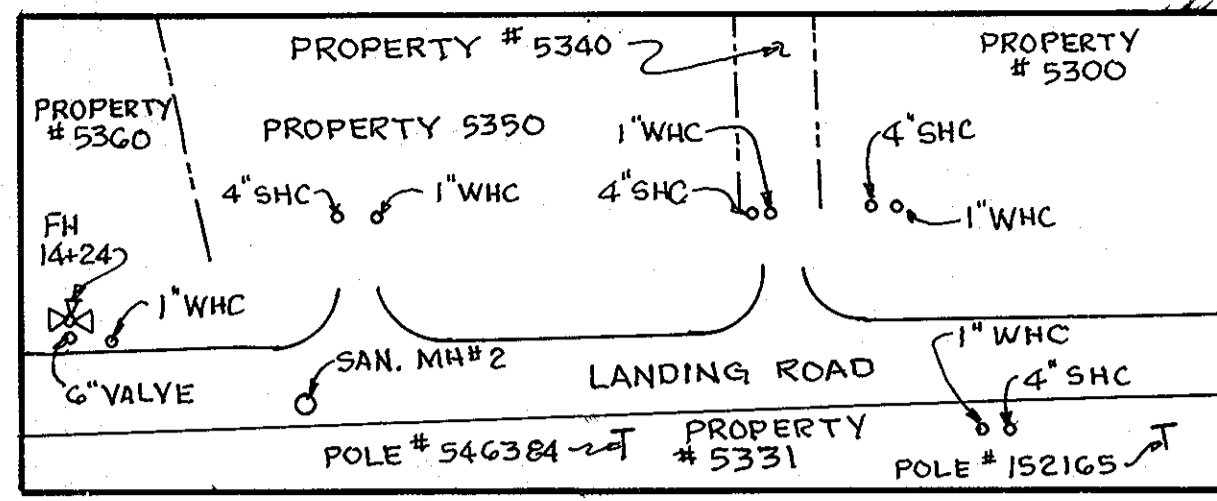
600' SCALE MAP NO. 31 BLOCK NO. 17 & 23

**LANDING ROAD WATER & SEWER EXTENSION**  
CAPITAL PROJECT S-6217/W-8698L  
CONTRACT NO. 14-3986  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

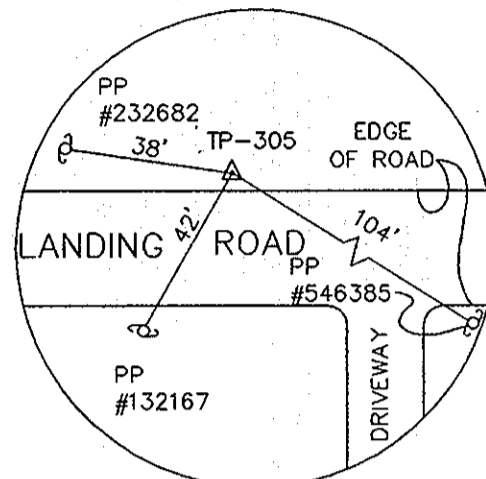
SCALE AS SHOWN  
SHEET 2 OF 12

Project: 001631plan1-VIS.dwg, Layout: 1, 12/19/2004 02:27:47 PM, camichael, HP750C(96).pc3, Arch D - 24 x 36 in. (landscape), 1:50

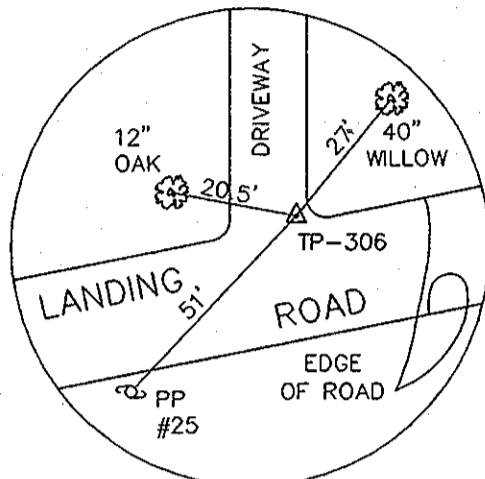
FH 14+24	TO 6" VALVE	4.5'
FH 14+24	TO 1" WHC (5330)	6.1'
FH 14+24	TO 4" SHC (5350)	73.6'
FH 14+24	TO 1" WHC (5350)	82.5'
SAN. MH #2	TO 1" WHC (5330)	53.6'
SAN. MH #2	TO 4" SHC (5350)	51.7'
SAN. MH #2	TO 1" WHC (5350)	42.7'
POLE 546384	TO 4" SHC (5340)	64.7'
POLE 546384	TO 1" WHC (5340)	67.3'
POLE 546384	TO 1" WHC (5331-LOT 3)	82.6'
POLE 546384	TO 4" SHC (5331-LOT 3)	87.1'
POLE 546384	TO 1" WHC (5300)	81.5'
POLE 546384	TO 4" SHC (5300)	78.2'
POLE 132165	TO 4" SHC (5340)	125.1'
POLE 132165	TO 1" WHC (5340)	112.9'
POLE 132165	TO 1" WHC (5331-LOT 3)	49.0'
POLE 132165	TO 4" SHC (5331-LOT 3)	45.2'
POLE 132165	TO 1" WHC (5330)	93.9'
POLE 132165	TO 4" SHC (5330)	99.3'



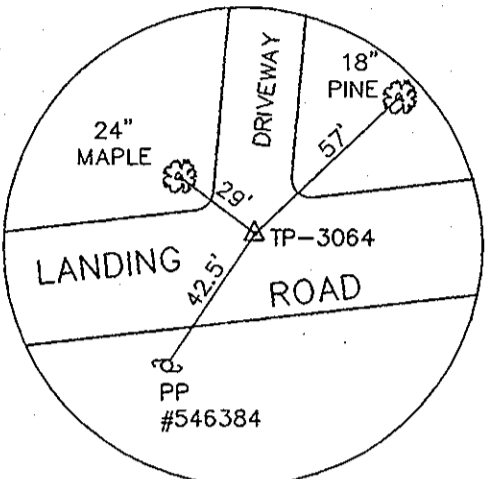
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ELEV. 256.44  
N. 566936.64  
E. 1381504.99  
PK NAIL



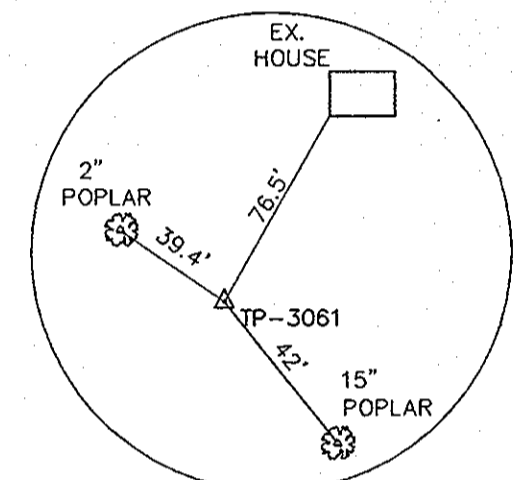
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N. 567090.61  
E. 1381483.13  
IRON BAR & CAP



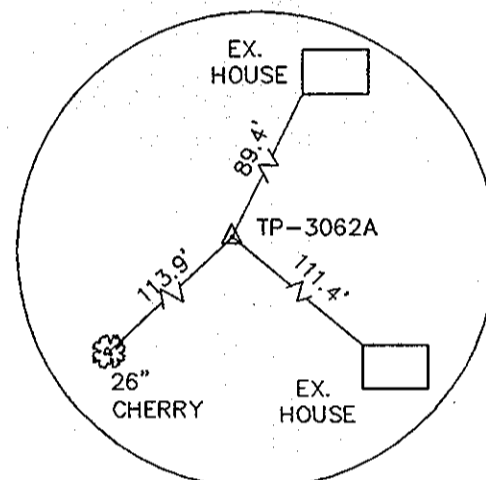
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ELEV. 270.15  
N. 567351.35  
E. 1381453.87  
PK NAIL



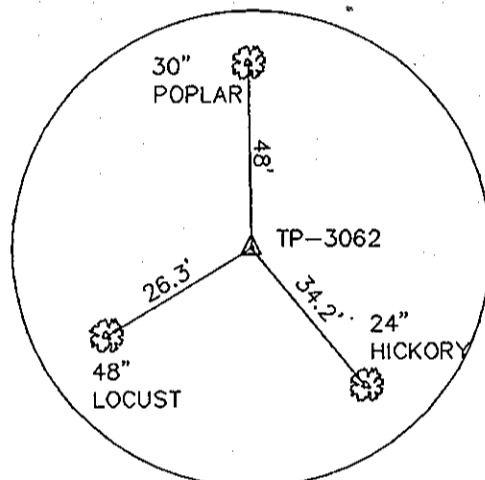
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ELEV. 274.38  
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E. 1381442.57  
PK NAIL



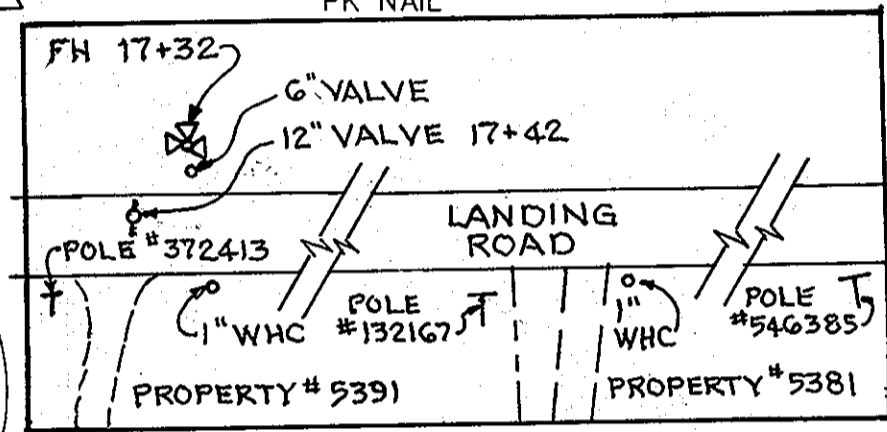
**TP #3061**  
ELEV. 266.84  
N. 567252.75  
E. 1381332.12  
IRON BAR & CAP



**TP #3062A**  
ELEV. 263.49  
N. 567201.45  
E. 1381203.93  
IRON BAR & CAP



**TP #3062**  
ELEV. 263.49  
N. 567201.45  
E. 1381203.93  
IRON BAR & CAP



FH 17+32 TO 6" VALVE 4.0'  
FH 17+32 TO 12" VALVE (17+42) 12.4'  
FH 17+32 TO 1" WHC @ (5391) 27.5'  
POLE #372413 TO 1" WHC @ (5391) 64.0'  
POLE #372413 TO 12" VALVE (17+42) 54.0'  
POLE #132167 TO 1" WHC @ (5381) 51.0'  
POLE #546385 TO 1" WHC @ (5381) 75.2'

**TRAVERSE POINTS**  
SCALE: NOT TO SCALE

STA. 21+19  
12"x 6" TEE, 6" VALVE & FH  
BURY LINE ELEV. 253.2  
BURY LENGTH = 5'

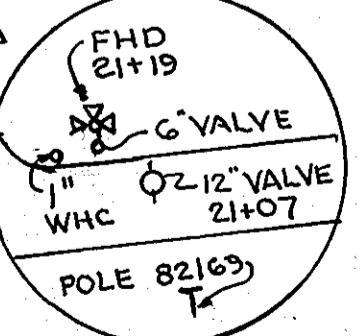
STA. 20+64  
ANTI-CREEP COLLAR

STA. 17+76  
ANTI-CREEP COLLAR

STA. 17+32  
12"x 6" TEE, 6" VALVE & FH  
BURY LINE ELEV. 256.9  
BURY LENGTH = 4'

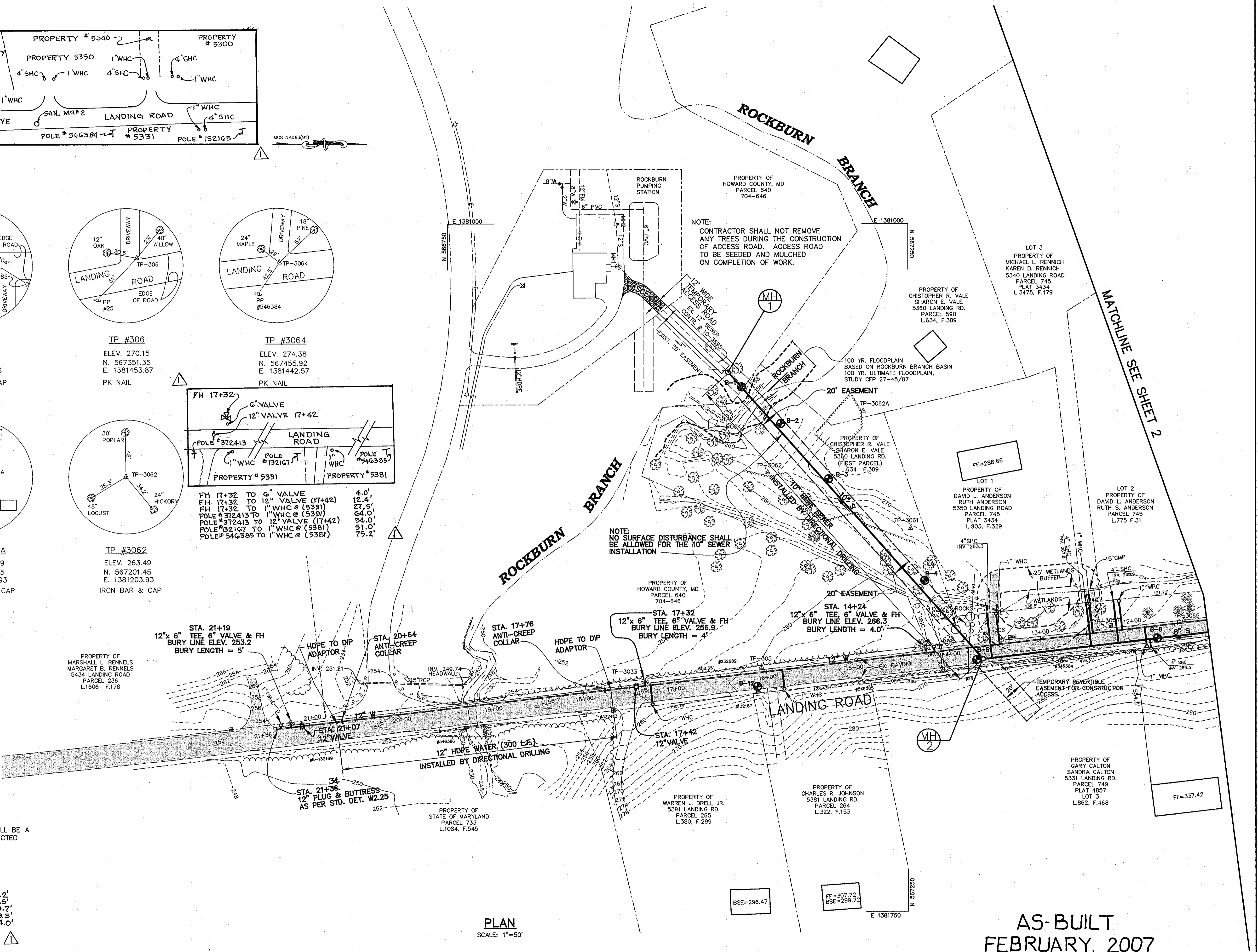
STA. 14+24  
TEE, 6" VALVE & FH  
BURY LINE ELEV. 266.3  
BURY LENGTH = 4.0'

NOTE:  
THE DETECTION WIRE TO BE INSTALLED WITH THE WATER MAIN SHALL BE A MINIMUM OF AWG NO. 8 BARE COPPER WIRE AND SHALL BE CONNECTED TO THE VALVE BONNETS AT STATION 17+35 AND STATION 21+12



POLE 82169 TO 12" VALVE 21+07 39.2'  
FHD 21+19 TO 6" VALVE 3.5'  
POLE 82169 TO 1" WHC 59.7'  
FHD 21+19 TO 1" WHC 9.3'  
FHD 21+19 TO 12" VALVE 21+07 14.0'

**PLAN**  
SCALE: 1"=50'



**AS-BUILT**  
**FEBRUARY, 2007**

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND		Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects.	
<i>John J. ...</i> DIRECTOR OF PUBLIC WORKS	12/22/04 DATE	<i>Robert ...</i> CHIEF, BUREAU OF ENGINEERING	12/22/04 DATE
<i>Robert ...</i> CHIEF, BUREAU OF UTILITIES	12-22-04 DATE	<i>...</i> CHIEF, UTILITY DESIGN DIVISION	12-22-04 DATE

STATE OF MARYLAND  
FRANK DONALDSON #8146  
FEBRUARY, 2004

DES: J.S.C.	RJC	AS-BUILT (LOCATING DETAILS)	2/07
DRN: J.A.P.			
CHK: G.C.L.			
BY: NO.	REVISION	DATE	600' SCALE MAP NO. 31 BLOCK NO. 17 & 23

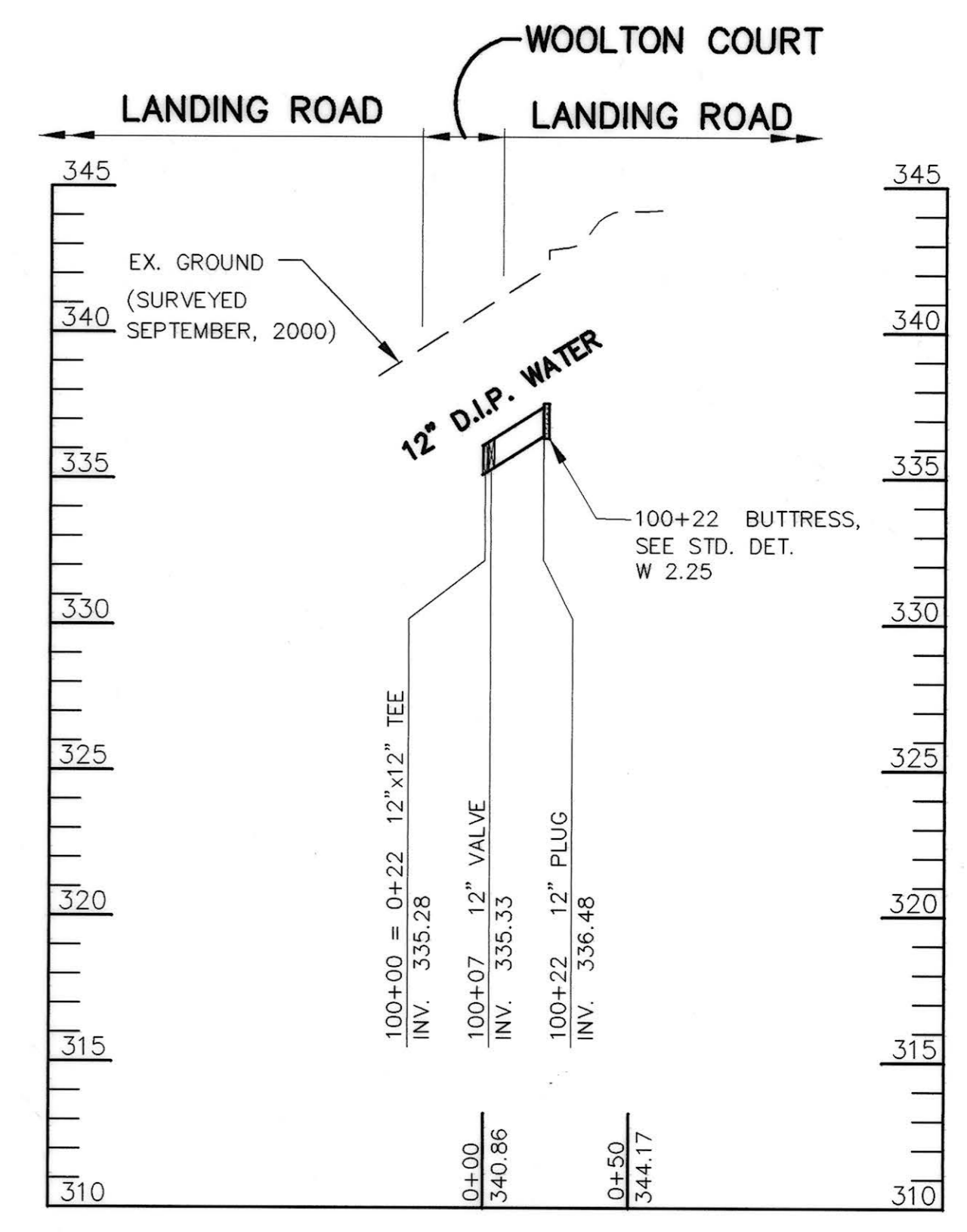
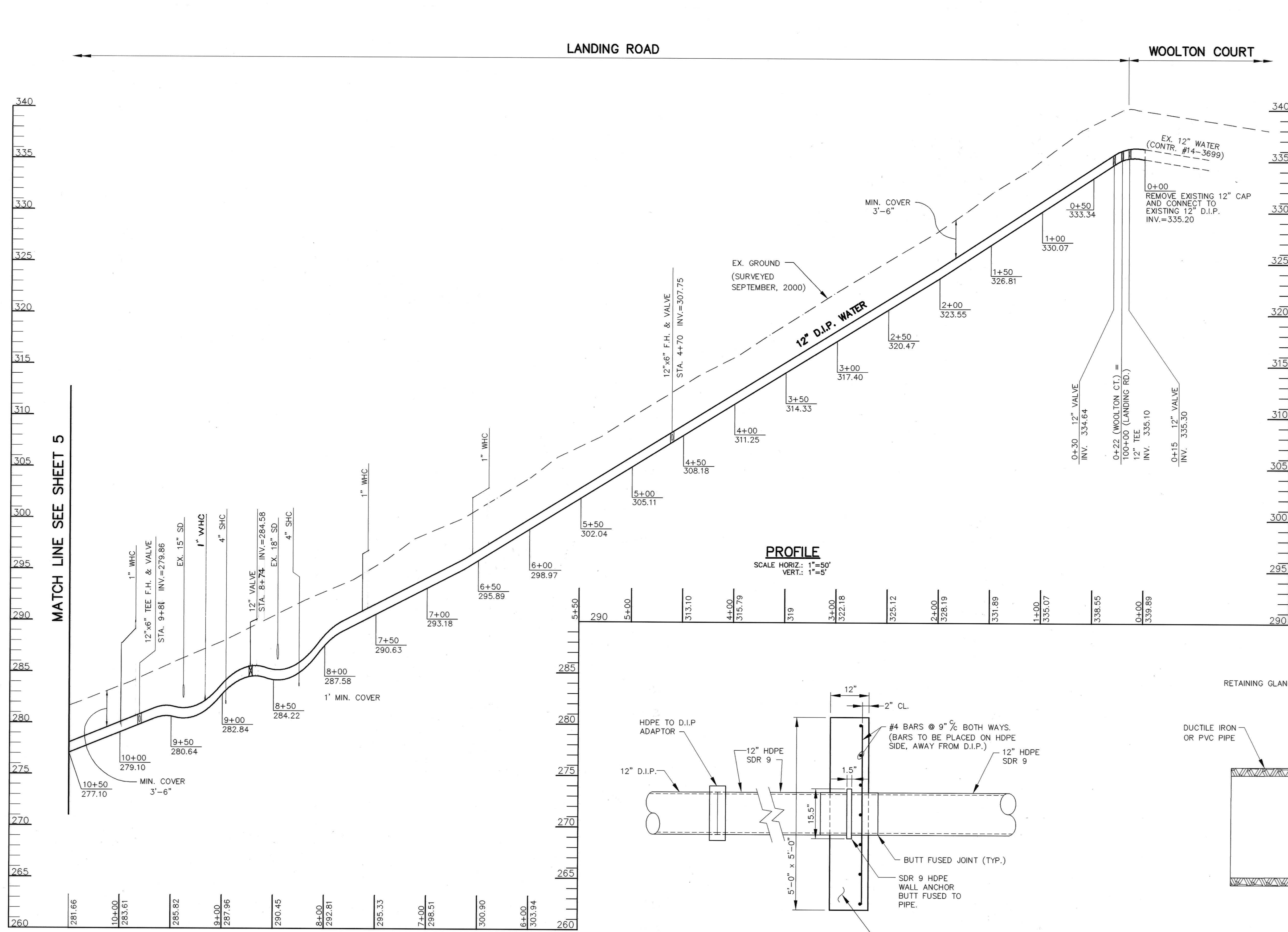
**WATER AND SEWER PLAN**

LANDING ROAD  
WATER & SEWER EXTENSION  
CAPITAL PROJECT S-6217/W-8698L  
CONTRACT NO. 14-3986  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 3 OF 12

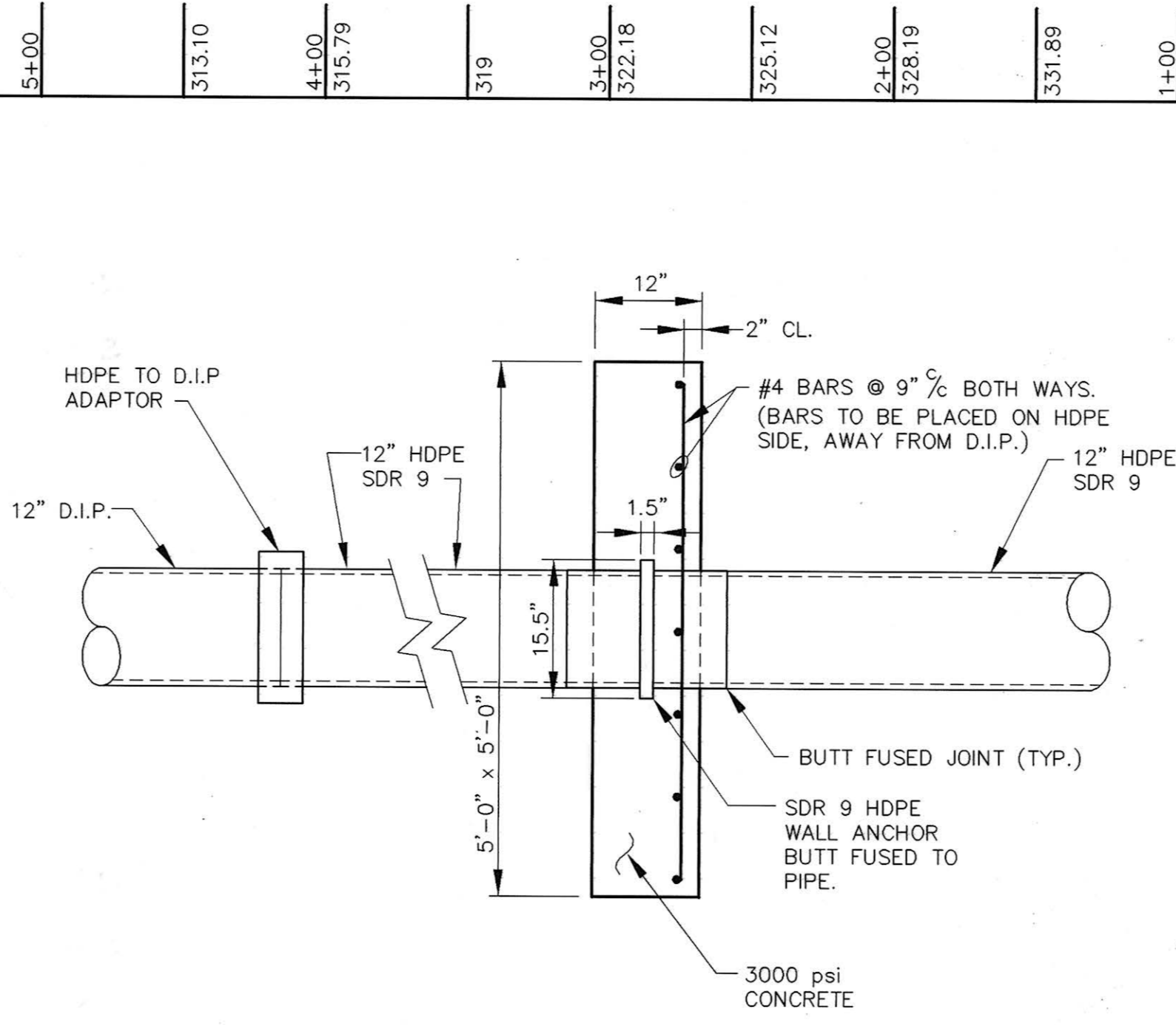
12-20-04

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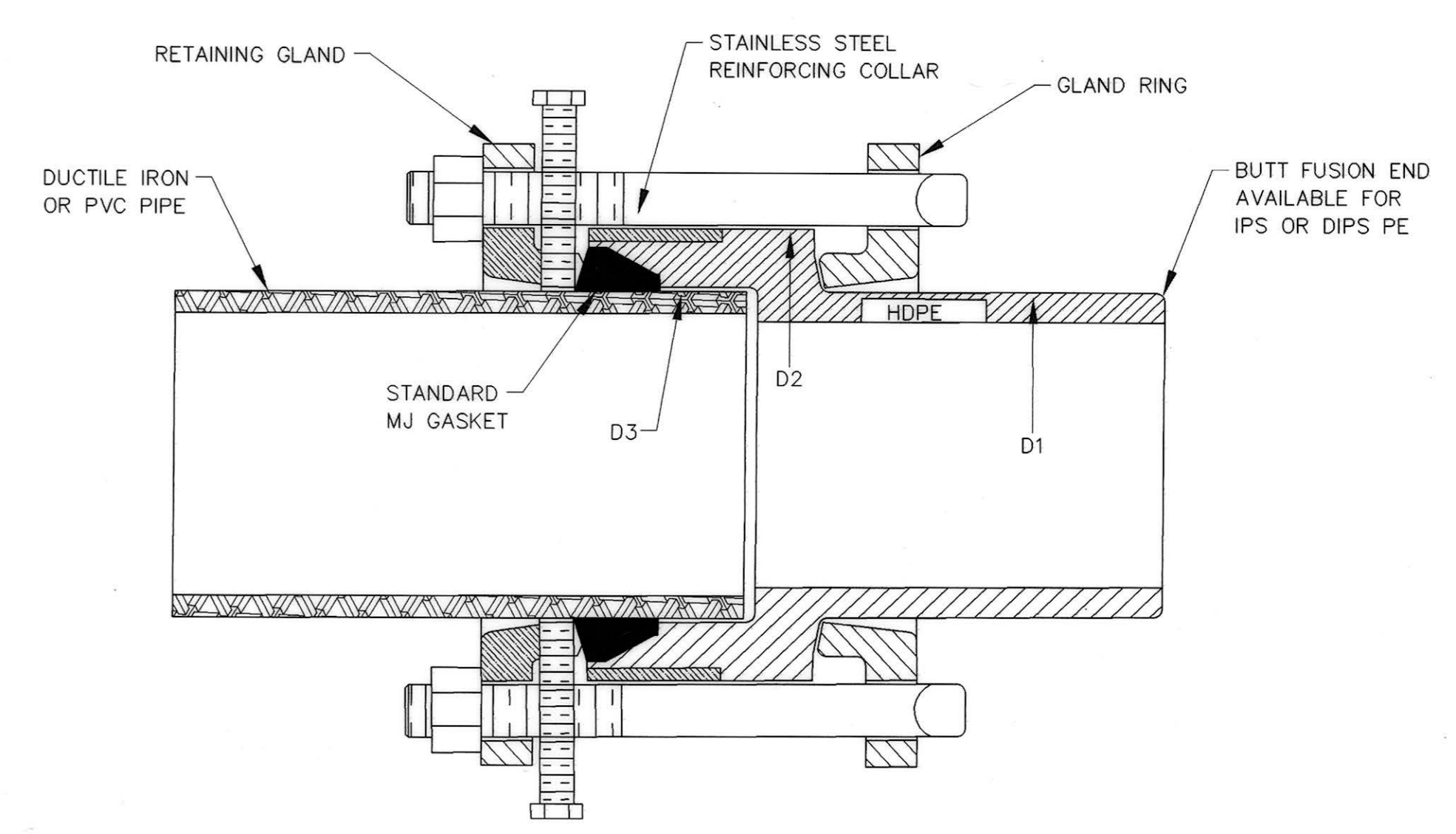


**PROFILE**  
SCALE HORIZ.: 1"=50'  
VERT.: 1"=5'

**PROFILE**  
SCALE HORIZ.: 1"=50'  
VERT.: 1"=5'



**PIPE ANTI-CREEP COLLAR**  
SCALE: 3/4" = 1'-0"



**HDPE TO DIP ADAPTOR**  
NOT TO SCALE

**AS-BUILT**  
**FEBRUARY, 2007**

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Robert M. Brannan* 12-22-04  
DIRECTOR OF PUBLIC WORKS DATE

*Robert M. Brannan* 12-22-04  
CHIEF, BUREAU OF UTILITIES DATE

*Robert M. Brannan* 12-22-04  
CHIEF, BUREAU OF ENGINEERING DATE

*Robert M. Brannan* 12-22-04  
CHIEF, UTILITY DESIGN DIVISION DATE

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.

8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

**P-H-R-A**

STATE OF MARYLAND  
FRANK DONALDSON #8146  
FEBRUARY, 2004

DES: J.S.C.	RJC	AS-BUILT (NO CHANGES)	2/07
DRN: J.A.P.			
CHK: G.C.L.			
BY NO.	REVISION	DATE	

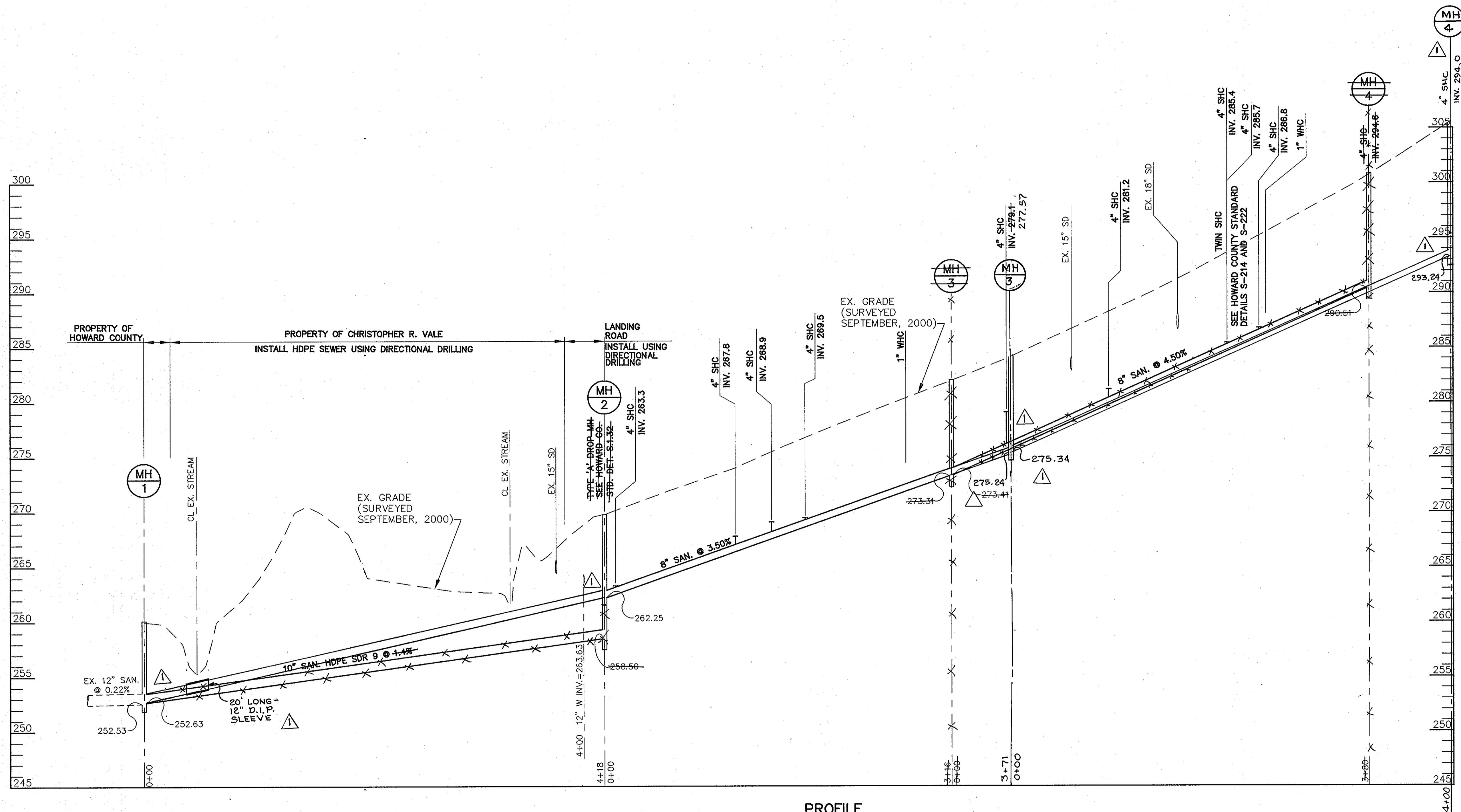
**WATER PROFILE**

600' SCALE MAP NO. 31 BLOCK NO. 17 & 23

LANDING ROAD  
WATER & SEWER EXTENSION  
CAPITAL PROJECT S-6217/W-8698L  
CONTRACT NO. 14-3986  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 4 OF 12





PROFILE  
 SCALE HORIZ: 1"=50'  
 VERT: 1"=5'

AS-BUILT FEBRUARY, 2007

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
<i>[Signature]</i> DIRECTOR OF PUBLIC WORKS	12/23/04 DATE
<i>[Signature]</i> CHIEF, BUREAU OF UTILITIES	12-22-04 DATE
<i>[Signature]</i> CHIEF, BUREAU OF ENGINEERING	12/22/04 DATE
<i>[Signature]</i> CHIEF, UTILITY DESIGN DIVISION	12-22-04 DATE

Patton Harris Rust & Associates, pc  
 Engineers. Surveyors. Planners. Landscape Architects.

**P.H.R.A.**

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 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

FRANK DONALDSON #8146  
 FEBRUARY, 2004

DES: J.S.C.	RJC	AS-BUILT - 2 MIN. MOVED, PIPE INV'S. CHANGED	PROF MH CHANGED	2/07
DRN: J.A.P.				
CHK: G.C.L.				
BY	NO.	REVISION	DATE	

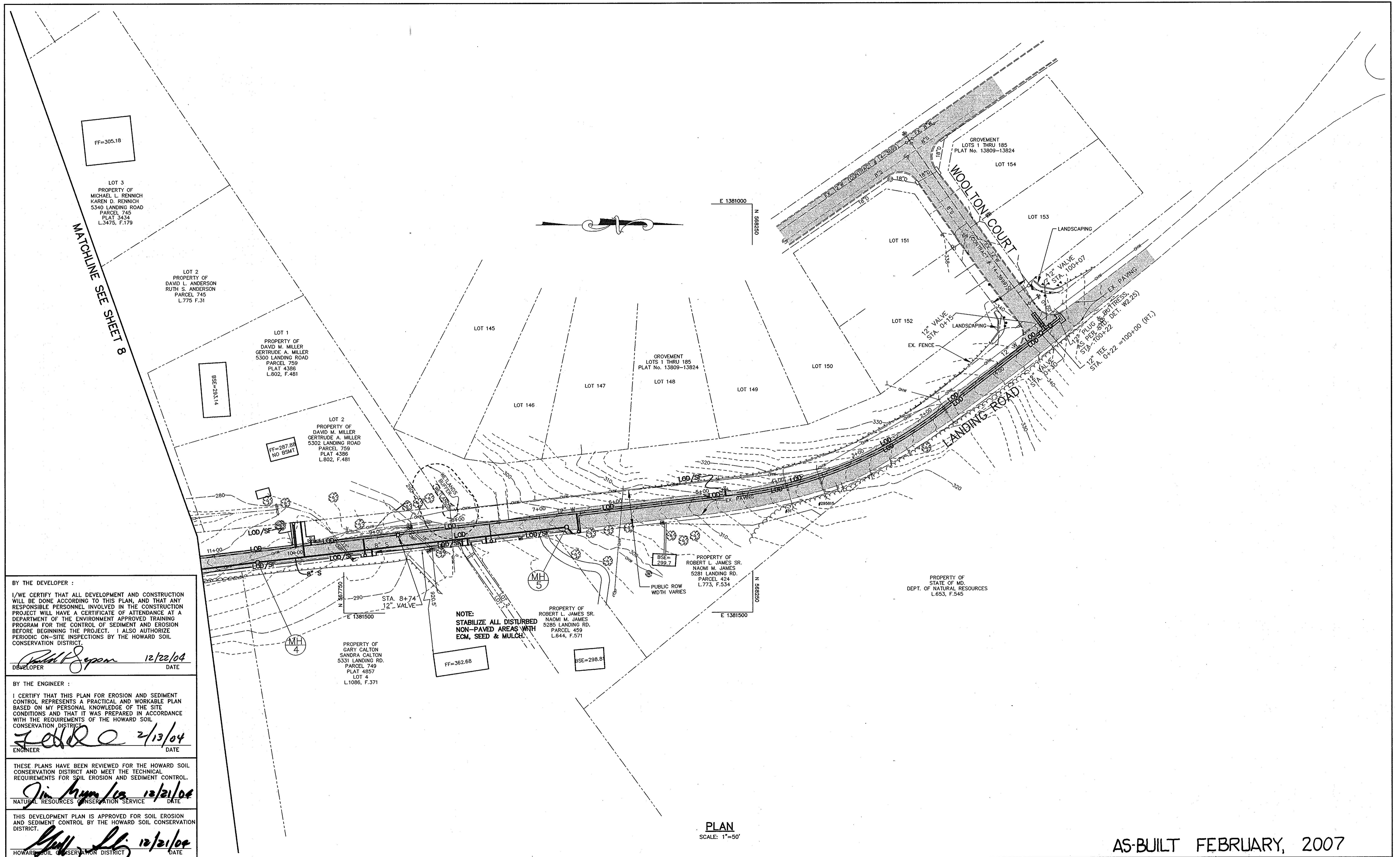
SEWER PROFILES	
600' SCALE MAP NO.	31
BLOCK NO.	17 & 23

LANDING ROAD  
 WATER & SEWER EXTENSION  
 CAPITAL PROJECT S-6217/W-8698L  
 CONTRACT NO. 14-3986  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
 SHEET 6 OF 12

12-20-04

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BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Robert Segan* 12/22/04  
 DEVELOPER DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*John A. P.* 2/13/04  
 ENGINEER DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*Jim Myers* 12/21/04  
 NATURAL RESOURCES CONSERVATION SERVICE DATE

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

*John A. P.* 12/21/04  
 HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*John A. P.* 12/23/04  
 DIRECTOR OF PUBLIC WORKS DATE

*Robert Segan* 12/22/04  
 CHIEF, BUREAU OF ENGINEERING DATE

*Robert Segan* 12-22-04  
 CHIEF, BUREAU OF UTILITIES DATE

*John A. P.* 12-22-04  
 CHIEF, UTILITY DESIGN DIVISION DATE

Patton Harris Rust & Associates, pc  
 Engineers, Surveyors, Planners, Landscape Architects.

**PHRA**

8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER

FRANK DONALDSON #8146  
 FEBRUARY, 2004

DES: J.S.C.	RJC	AS-BUILT - NO CHANGES	2/07
DRN: J.A.P.			
CHK: G.C.L.			
BY NO.		REVISION	DATE

SEDIMENT AND EROSION CONTROL PLAN

600' SCALE MAP NO. 31 BLOCK NO. 17 & 23

AS-BUILT FEBRUARY, 2007

LANDING ROAD  
 WATER & SEWER EXTENSION  
 CAPITAL PROJECT S-6217/W-8698L  
 CONTRACT NO. 14-3986  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
 SHEET 7 OF 12

2/13/04





**SEQUENCE OF CONSTRUCTION**

**21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL**

1. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS (410) 313-2455 AT LEAST 48 HOURS PRIOR TO BEGINNING WORK ON-SITE AND OBTAIN GRADING PERMIT.	WORK DAYS	(1 DAY)
2. CLEAR AND GRUB FOR SEDIMENT AND EROSION CONTROL MEASURES OR DEVICES ONLY.	(5 DAYS)	
3. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES INCLUDING STABILIZED CONSTRUCTION ENTRANCE.	(5 DAYS)	
4. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS UPON COMPLETION OF SAID INSTALLATION.	(1 DAY)	
5. WITH THE APPROVAL OF THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, CLEAR AND GRUB THE REMAINDER OF THE SITE.	(10 DAYS)	
6. COMMENCE EXCAVATION AND INSTALLATION OF WATER & SEWER MAINS. WORK SHALL BE LIMITED TO THREE (3) PIPE LENGTHS OR THAT LENGTH OF TRENCH WHICH CAN BE BACKFILLED AND STABILIZED AT THE END OF THE WORKING DAY.	(100 DAYS)	
7. CONNECT TO EXISTING UTILITIES WHERE APPLICABLE.	(5 DAYS)	
8. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE STABILIZED CONSTRUCTION ENTRANCE.	(2 DAYS)	
9. STABILIZE ALL DISTURBED AREAS.	(2 DAYS)	
10. FOLLOWING APPROVAL FROM THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES AND STABILIZE ANY REMAINING AREAS.	(2 DAYS)	

**DEFINITION**  
 PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

**PURPOSE**  
 TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

**CONDITIONS WHERE PRACTICE APPLIES**

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:  
 a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.  
 b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.  
 c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.  
 d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

**CONSTRUCTION AND MATERIAL SPECIFICATIONS**

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTATION STATION.

II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:  
 1. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF GINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1" IN DIAMETER.  
 2. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.  
 3. WHERE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:  
 1. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:  
 1. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:  
 a. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.  
 b. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.  
 c. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.  
 d. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL, UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIAL.

NOTE: TOPSOIL SUBSTITUTES TO AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY MAY BE USED IN LIEU OF NATURAL TOPSOIL.

II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION

I. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

II. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT + 6" HIGHER IN ELEVATION.

III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

V. ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW.

I. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:  
 A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.  
 B. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.  
 C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.  
 D. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD-VI, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

**SECTION I VEGETATIVE STABILIZATION METHODS AND MATERIALS**

A. SITE PREPARATION

I. INSTALL SEDIMENT AND EROSION CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS OR SEDIMENT CONTROL BASINS.

II. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.

III. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS):

I. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.

II. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTIES OF THE PRODUCER.

III. LIME MATERIAL SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98-100% WILL PASS THROUGH A #20 MESH SIEVE.

IV. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDBED PREPARATION:

I. TEMPORARY SEEDING

a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL, AT A DEPTH OF 3-6" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHEST CONDITION. SLOPED AREA (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

c. INCORPORATE LIME AND FERTILIZER INTO THE 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

II. PERMANENT SEEDING.

a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:

- SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.
- SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
- THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IF LOVEGRASS OR SERICIA LESPEDEZEA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
- SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
- SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
- IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARDS AND SPECIFICATIONS FOR TOPSOIL.

b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3-5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.

c. APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.

d. MIX SOIL AMENDMENTS INTO THE TOP 3-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS SUCH AS STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (GREATER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1-3" OF SOIL SHOULD BE LOOSE AND FRAGILE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

D. SEED SPECIFICATIONS

I. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

II. INOCULANT - THE INOCULANT FOR TREATING LEGUME SEEDS IN THE MIXTURE SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75-80F CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING:

I. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER). BROADCAST OR DROP SEEDER, OR A CULTPACKER SEEDER.

a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN, MAXIMUM OF 100 LB TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS); 200 LBS/AC. K2O (POTASSIUM); 200 LBS/AC.

b. LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

c. SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

II. DRYSEEDING: THIS INCLUDES USE OF CONVENTIONAL, DROP OR BROADCAST SPREADERS.

a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL, AT THE RATES PRESCRIBED FOR TEMPORARY OR PERMANENT SEEDING. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

III. DRILL OR CULTPACKER SEEDING. MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

a. CULTPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)

I. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE, OR OAT STRAW. REASONABLY BRIGHT IN COLOR AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY, AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.

II. WOOD CELLULOSE FIBER MULCH (WCFM)

a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN A PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

d. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER. ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS WHAT WILL BE PHYTO-TOXIC.

f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 MM. DIAMETER APPROXIMATELY 1MM. PH RANGE OF 4.0 TO 8.5. ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM. NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREA WHERE ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

I. IF GRADING IS COMPLETED OUTSIDE THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.

II. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 25 TONS/ACRE.

III. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (MULCH ANCHORING) - MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD.

I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE. A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE SLOPES, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.

II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

III. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS OR ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TACK II, TERRA TACK AR OR OTHER APPROVED EQUAL BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.

IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4-15 FEET WIDE AND 300-3,000 FEET LONG.

**SECTION II TEMPORARY SEEDING**

A. APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

I. SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

II. SOIL AMENDMENTS: APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. PER 1000 SQ.FT.).

III. SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS. PER 1000 SQ.FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.07 LBS. PER 1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

IV. MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL. PER 1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES, 8 FT. OR HIGHER, USE 347 GAL. PER ACRE (8 GAL. PER 1000 SQ.FT.) FOR ANCHORING.

B. REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

**SECTION III PERMANENT SEEDING**

A. APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

I. SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

II. SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

a. PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS. PER 1000 SQ.FT.) AND 100 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. PER 1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS. PER 1000 SQ.FT.).

b. ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS. PER 1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 TONS PER ACRE) (5 GALLONS PER 1000 SQUARE FEET) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 347 GALLONS PER ACRE (8 GALLONS PER 1000 SQUARE FEET) FOR ANCHORING.

III. SEEDING: FOR THE PERIOD MARCH 1 THRU APRIL 30 AND FROM AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (14 LBS. PER 1000 SQ.FT.) KENTUCKY 31 TALL FESCUE AND 2 LBS. PER ACRE (0.05 LBS. PER 1000 SQ.FT.) OF WEEPING LOVEGRASS DURING THE PERIOD OCTOBER 16 THRU FEBRUARY 28. PROTECT SITE BY ONE OF THE FOLLOWING OPTIONS:

a. 2 TONS PER ACRE OF WELL ANCHORED MULCH STRAW AND SEED AS SOON AS POSSIBLE IN THE SPRING.

b. USE SOD.

c. SEED WITH 60 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE WELL ANCHORED STRAW.

IV. MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GALLONS PER 1000 SQUARE FEET) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 347 GALLONS PER ACRE (8 GALLONS PER 1000 SQUARE FEET) FOR ANCHORING.

V. MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

**SECTION IV SOD**

A. GENERAL SPECIFICATIONS

I. CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

II. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4", AT THE TIME OF CUTTING, MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

III. STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION. IT MAY ADVERSELY AFFECT ITS SURVIVAL.

IV. SOD SHALL NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

V. SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPORTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

I. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.

II. THE FIRST ROW SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

III. WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SUPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

IV. SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

I. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.

II. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

III. THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

**AS-BUILT - FEBRUARY, 2007**

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER: *Patton Harris Rust & Associates, Inc.* DATE: 12/22/04

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER: *John D. ...* DATE: 2/13/04

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*Jim ...* DATE: 12/21/04

NATURAL RESOURCES CONSERVATION SERVICE

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

*...* DATE: 12/21/04

HOWARD SOIL CONSERVATION DISTRICT

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*...* DATE: 12/23/04

DIRECTOR OF PUBLIC WORKS

*...* DATE: 12-22-04

CHIEF, BUREAU OF ENGINEERING

CHIEF, UTILITY DESIGN DIVISION

Patton Harris Rust & Associates, Inc.  
 Engineers, Surveyors, Planners, Landscape Architects.

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PROFESSIONAL ENGINEER

FRANK DONALDSON #8146

2/13/04

DES: J.S.C.	RJC	AS-BUILT - NO CHANGES	2/07
DRN: J.A.P.			
CHK: G.C.L.			
FEBRUARY, 2004	BY NO.	REVISION	DATE

SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. 31

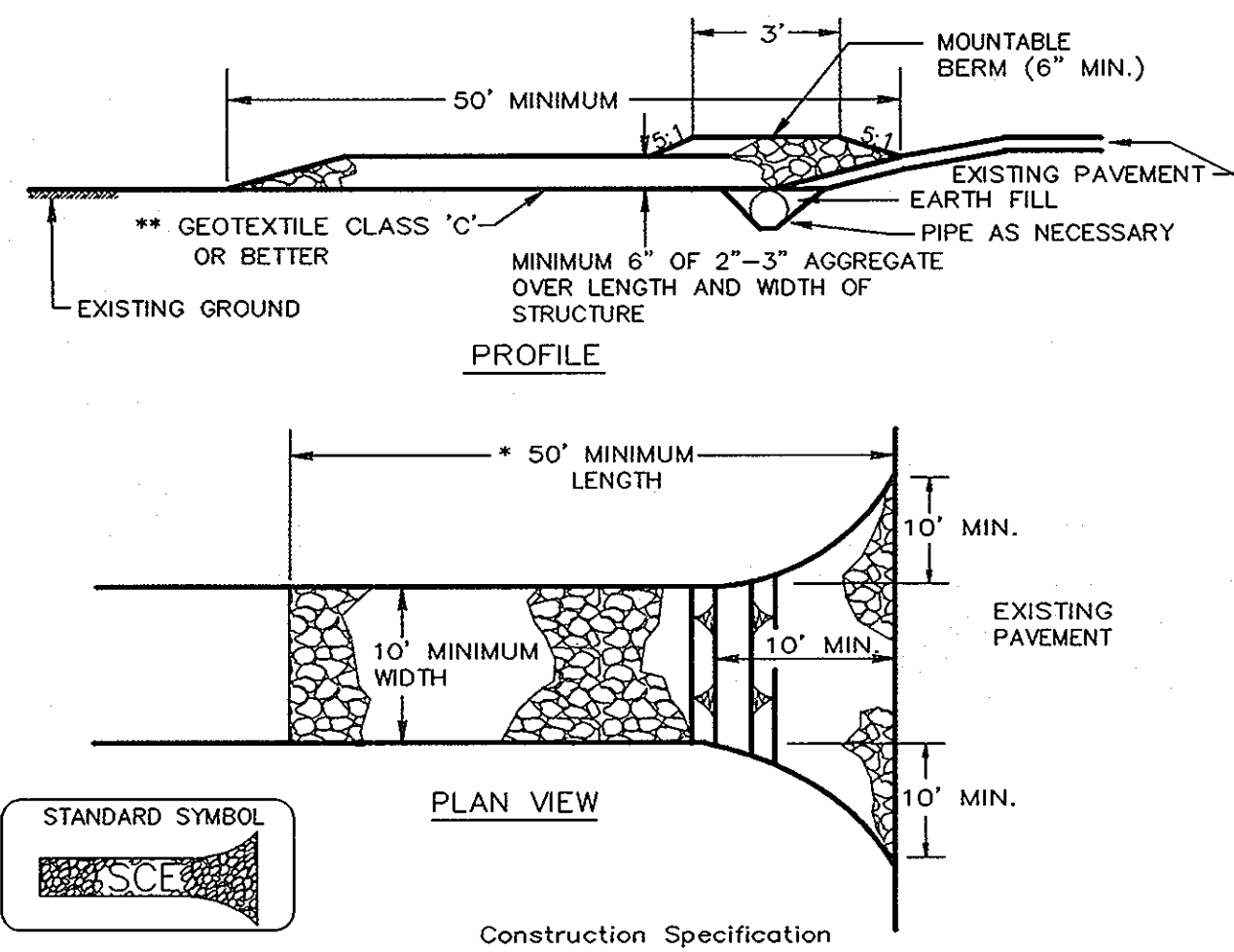
BLOCK NO. 17 & 23

LANDING ROAD  
 WATER & SEWER EXTENSION  
 CAPITAL PROJECT S-6217/W-8698L  
 CONTRACT NO. 14-3986  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 9 OF 12

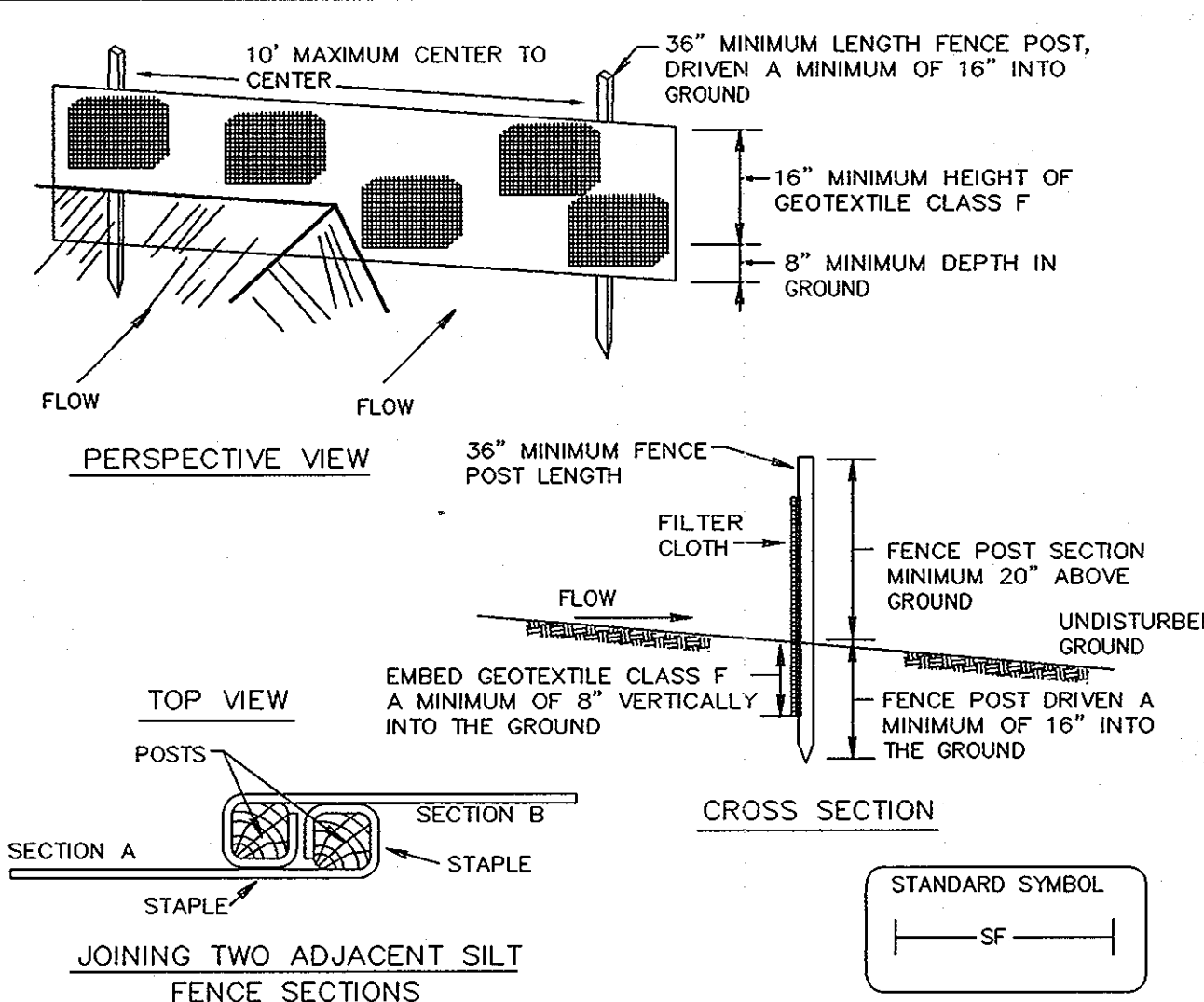
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



- Length - minimum of 50' (\*30' for single residence lot).
- Width - 10' minimum, should be flared at the existing road to provide a turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. \*\*The plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE

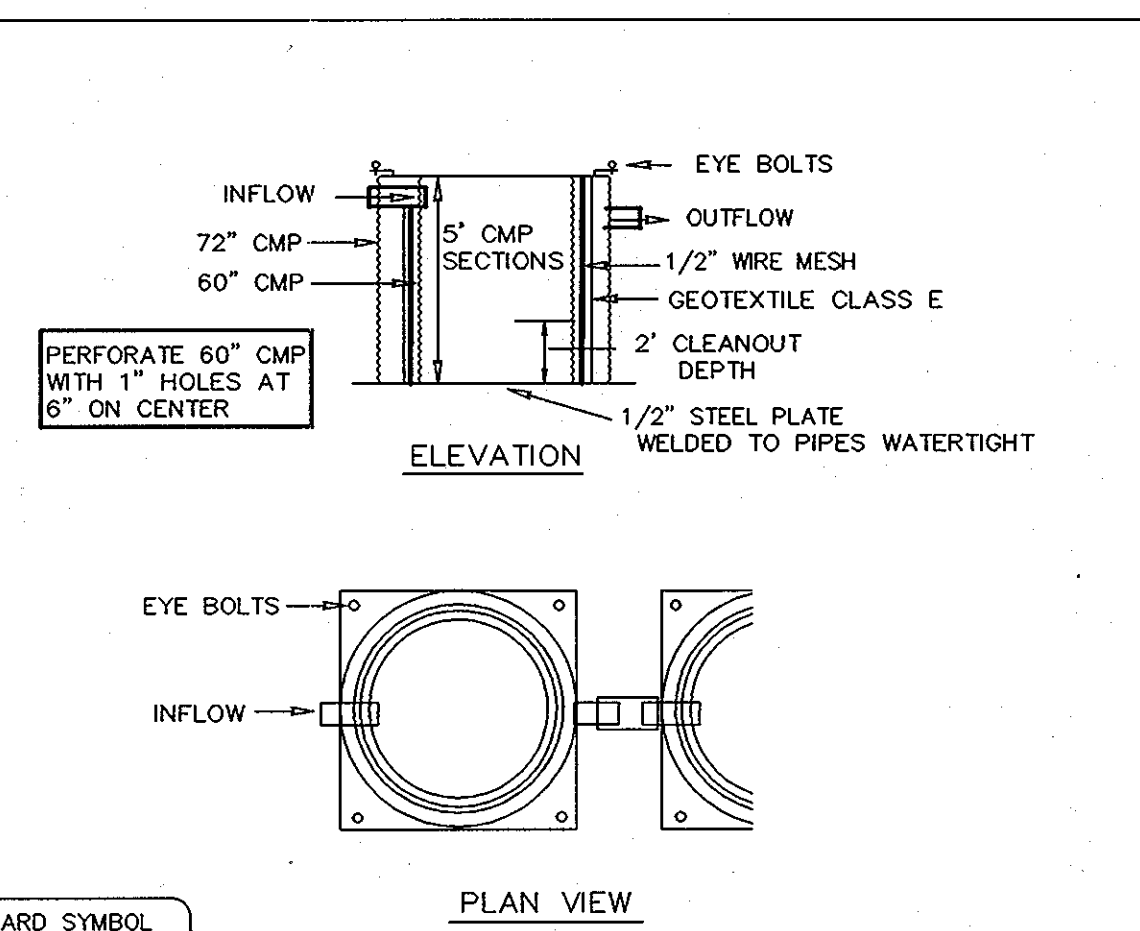


- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.
- Geotextile 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:
 

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft <sup>2</sup> / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 21 - PORTABLE SEDIMENT TANK



- The following formula should be used in determining the storage volume of the sediment tank: 1 cubic foot of storage for each gallon per minute of pump discharge capacity.
- An example of a typical sediment tank is shown above. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency.
- Tanks may be connected in series.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE D-14-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER: *Rudolf Sepsom* 12/22/04 DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER: *J. J. Deel* 2/13/04 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

REVIEWER: *Jim Myer* 12/21/04 DATE

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

HOWARD SOIL CONSERVATION DISTRICT: *Shirley A. ...* 10/21/04 DATE

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Jan G. ...* 12/23/04 DATE  
DIRECTOR OF PUBLIC WORKS

*Rudolf Sepsom* 12/22/04 DATE  
CHIEF, BUREAU OF ENGINEERING

*R. J. ...* 12-22-04 DATE  
CHIEF, BUREAU OF UTILITIES

*Oliver ...* 12-22-04 DATE  
CHIEF, UTILITY DESIGN DIVISION

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.

**PHRA**

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FRANK DONALDSON #8146  
2/13/04

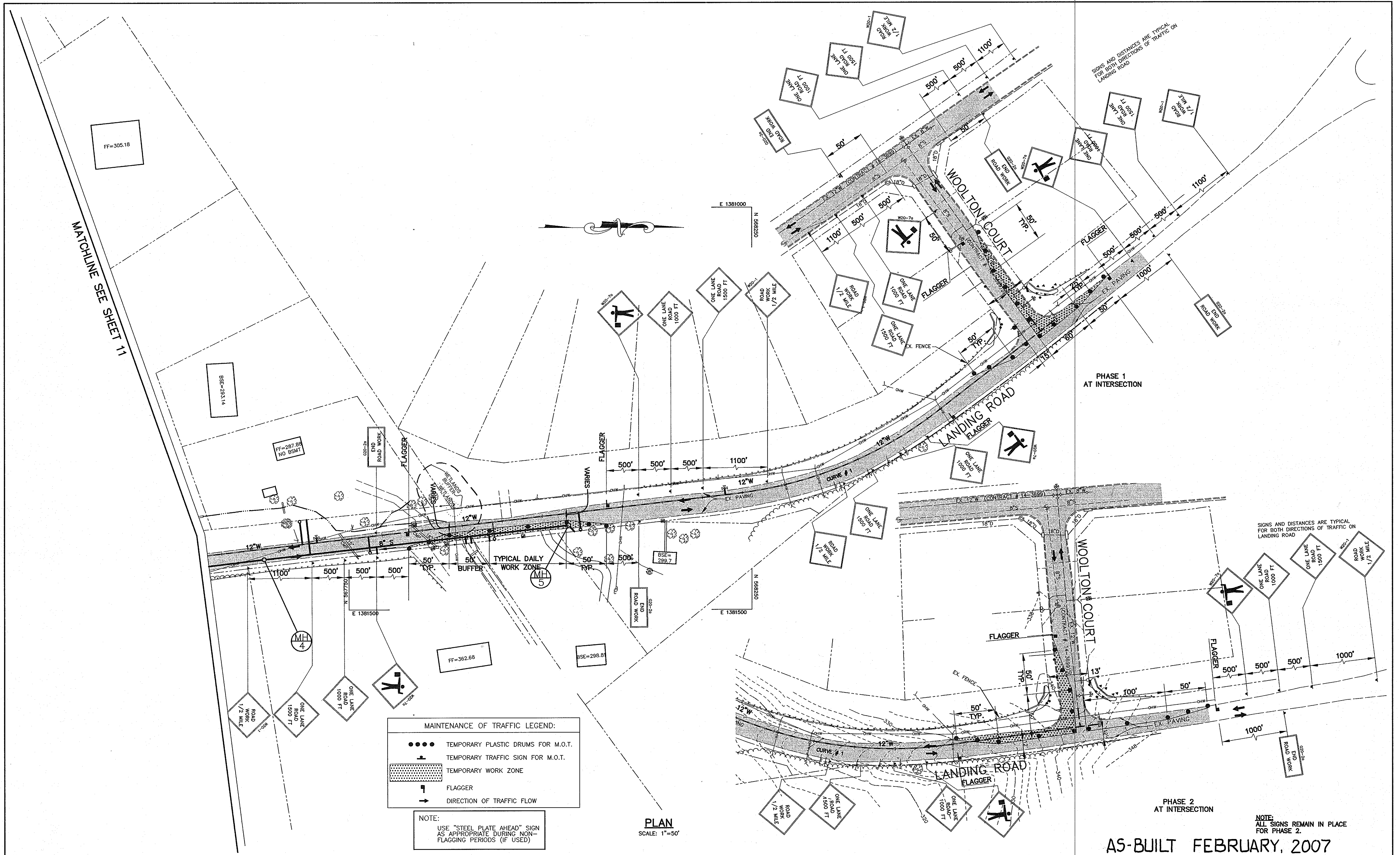
DES: J.S.C.	RJC	AS-BUILT - NO CHANGES	2/07
DRN: J.A.P.			
CHK: G.C.L.			
FEBRUARY, 2004	BY NO.	REVISION	DATE

600' SCALE MAP NO. 31 BLOCK NO. 17 & 23

AS-BUILT FEBRUARY, 2007

LANDING ROAD  
WATER & SEWER EXTENSION  
CAPITAL PROJECT S-6217/W-8698L  
CONTRACT NO. 14-3986  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 10 OF 12



**MAINTENANCE OF TRAFFIC LEGEND:**

- ● ● ● TEMPORARY PLASTIC DRUMS FOR M.O.T.
- ⚠ TEMPORARY TRAFFIC SIGN FOR M.O.T.
- ▨ TEMPORARY WORK ZONE
- ⚑ FLAGGER
- DIRECTION OF TRAFFIC FLOW

**NOTE:**  
USE "STEEL PLATE AHEAD" SIGN AS APPROPRIATE DURING NON-FLAGGING PERIODS (IF USED)

**PLAN**  
SCALE: 1"=50'

**AS-BUILT FEBRUARY, 2007**

**NOTE:**  
ALL SIGNS REMAIN IN PLACE FOR PHASE 2.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 12/23/04  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 12/22/04  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* 12-22-04  
CHIEF, BUREAU OF UTILITIES DATE

*[Signature]* 12-22-04  
CHIEF, UTILITY DESIGN DIVISION DATE

Patton Harris-Rust & Associates, PC  
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**PHRA**

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STATE OF MARYLAND  
FRANK DONALDSON #8146  
2/13/04

DES:	J.S.C.	RJC	AS-BUILT - NO CHANGE	2/07
DRN:	J.A.P.			
CHK:	G.C.L.			
	FEBRUARY, 2004	BY NO.	REVISION	DATE

**TRAFFIC CONTROL PLAN**

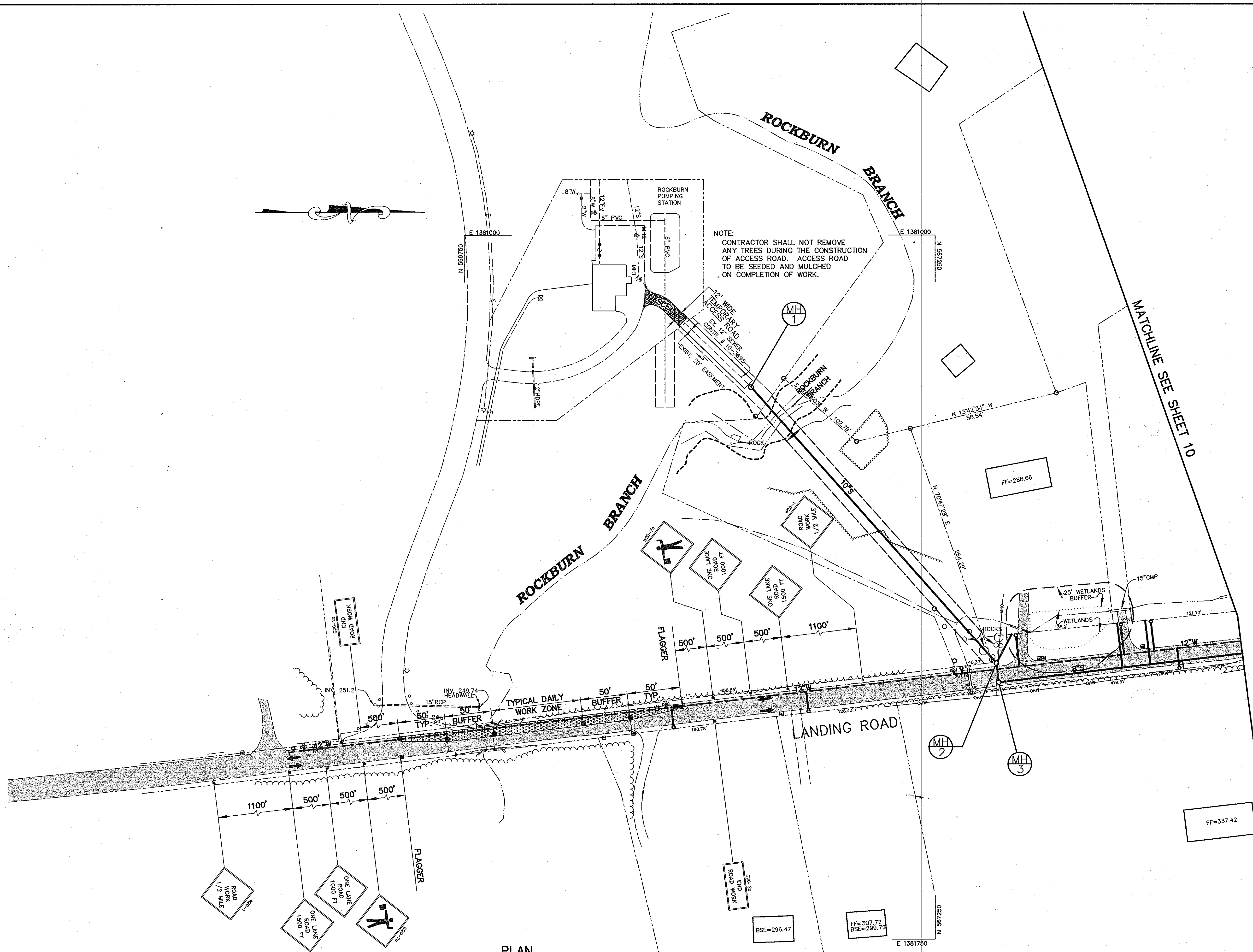
60' SCALE MAP NO. 31 BLOCK NO. 17 & 23

**LANDING ROAD  
WATER & SEWER EXTENSION**  
CAPITAL PROJECT S-6217/W-8698L  
CONTRACT NO. 14-3986  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 11 OF 12

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**MAINTENANCE OF TRAFFIC LEGEND:**

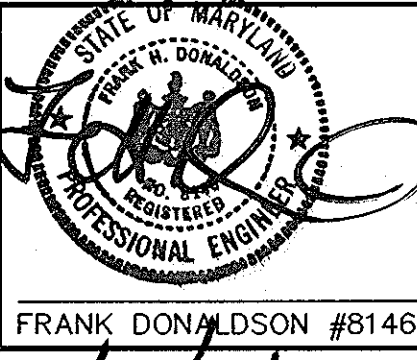
●●●●	TEMPORARY PLASTIC DRUMS FOR M.O.T.
+	TEMPORARY TRAFFIC SIGN FOR M.O.T.
▨	TEMPORARY WORK ZONE
⚠	FLAGGER
→	DIRECTION OF TRAFFIC FLOW

AS-BUILT - FEBRUAR, 2007

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
<i>[Signature]</i> DIRECTOR OF PUBLIC WORKS	12/23/04 DATE
<i>[Signature]</i> CHIEF, BUREAU OF UTILITIES	12-22-04 DATE
<i>[Signature]</i> CHIEF, BUREAU OF ENGINEERING	12/22/04 DATE
<i>[Signature]</i> CHIEF, UTILITY DESIGN DIVISION	12-22-04 DATE

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.

**PHRA**  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282



DES: J.S.C.	RJC	AS-BUILT - NO CHANGES	e/07
DRN: J.A.P.			
CHK: G.C.L.			
FEBRUARY, 2004	BY NO.	REVISION	DATE

<b>TRAFFIC CONTROL PLAN</b>	
600' SCALE MAP NO. 31	BLOCK NO. 17 & 23

LANDING ROAD  
WATER & SEWER EXTENSION  
CAPITAL PROJECT S-6217/W-8698L  
CONTRACT NO. 14-3986  
1ST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 12 OF 12

2/13/04

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