ROAD CONSTRUCTION PLANS
JAMESTOWN LANDING, SECTION II, LOTS 1 THRU 66 OPEN SPACE LOTS 67 THRU 71
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/CONSTRUCTION INSPECTIONS DIVISION AT (410) 313–1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS PRIOR TO ANY EXCAVATION WORK:

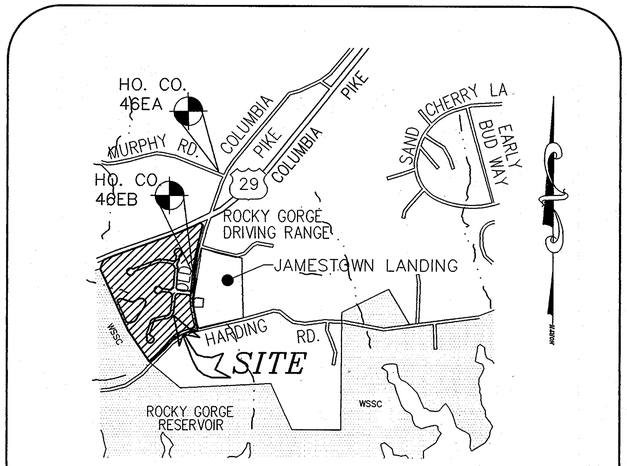
MISS UTILITY	1–800–257–7777
C&P TELEPHONE COMPANY	(410) 725–9976
HOWARD COUNTY BUREAU OF UTILITIES	(410) 313–4900
AT&T CABLE LOCATION DIVISION	(410) 393–3533
BALTIMORE GAS & ELECTRIC	(410) 685–0123
STATE HIGHWAY ADMINISTRATION	(410) 531–5533
HOWARD COUNTY DEPT. OF PUBLIC WORKS/ CONSTRUCTION INSPECTION DIVISION	(410) 313–1880

4. PROJECT BACKGROUND:
   LOCATION: SIXTH ELECTION DISTRICT – TAX MAP 46 – PARCEL 229 & 352 – BLOCK 15
   DEED REFERENCE : 3355/223 & 2508/188.
   ZONING: R–20
   TOTAL TRACT AREA: 37.66 ACRES ±
   NUMBER OF PROPOSED LOTS: 71 (66 BUILDABLE)
   ACREAGE OF PROPOSED BUILDABLE LOTS : 21.68 ACRES ±
   OPEN SPACE REQUIRED : 30% OR 11.30 ACRES.
   OPEN SPACE PROVIDED : 11.47 ACRES (11.36 ACRES CREDITED).
   RECREATIONAL OPEN SPACE REQUIRED (66 UNITS X 200 SQ. FT.) : 13,200 SQ. FT. (0.30 ACRES)
   RECREATIONAL OPEN SPACE PROVIDED : 21,346 SQ. FT. (13,200 SQ. FT. CREDITED).
   PROPOSED ROAD DEDICATION : 4.51 ACRES ±
   AREA OF 100 YEAR FLOODPLAIN : N/A
   DPZ REFERENCE # : F–00–169; SP–01–01; WP–01–65; S–01–081; P–05–03.
5. TWO FOOT CONTOUR TOPOGRAPHY AND EXISTING CONDITIONS BASED ON FIELD RUN TOPOGRAPHIC SURVEY BY MILDENBERG, BOENDER & ASSOCIATES, INC. IN APRIL 2000. OFF–SITE TOPOGRAPHY WEST OF THE PROPERTY LINE ON WSSC PROPERTY SUPPLEMENTED BY HOWARD COUNTY 200 SCALE TOPOGRAPHIC MAPS. BOUNDARY SHOWN HEREON BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT MAY 2000 BY MILDENBERG, BOENDER & ASSOCIATES, INC.
6. COORDINATES BASED ON NAD '83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 46EA & 46EB.

STA. No. 46EA	N 536,185.423 E 1,338,091.710	ELEV. 415.10
STA. No. 46EB	N 534,750.221 E 1,337,742.800	ELEV. 413.24

7. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
8. WATER AND SEWER ARE PUBLIC BY EXTENSION OF CONTRACT #24–3904–D & 24–3905–D.
9. GEOTECHNICAL REPORT PREPARED BY GEO–TECHNOLOGY ASSOCIATES, INC. ON OCTOBER 20, 2000.
10. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
11. COMPACTION IN FILL AREAS TO BE 95% AS DETERMINED PER AASHTO T–180.
12. CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION.
13. FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING, OF CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OR CONSERVATION EASEMENT ARE ALLOWED.
14. FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION HAS BEEN FULFILLED BY RETENTION OF 2.75 ACRES AND AFFORESTATION OF 4.65 ACRES. FINANCIAL SURETY FOR THE ON–SITE RETENTION OF 2.75 ACRES (119,790 SQ.FT.) IN THE AMOUNT OF $23,958.00 AND AFFORESTATION OF 4.65 ACRES (202,554 SQ.FT.) IN THE AMOUNT OF $101,277.00 HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $125,235.00.
15. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING (109 SHADE TREES, 118 EVERGREENS) HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $50,400.00.
16. PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
17. GRAVES, IDENTIFIED AS CEMETERY SITE 46–4 ON THE HOWARD COUNTY CEMETERY INVENTORY, EXIST ON–SITE ON PROPOSED OPEN SPACE LOT 68 WHERE INDICATED. ON–SITE TESTING HAS BEEN PERFORMED TO DETERMINE LOCATION OF THE EXTENTS OF THE GRAVE SITES. THESE EXTENTS HAVE BEEN FIELD VERIFIED BY MILDENBERG, BOENDER & ASSOCIATES, INC. IN OCTOBER 2000. NO GRADING MAY BE CONDUCTED WITHIN 30 FEET OF THE LIMITS OF THE GRAVE SITES. THE PLANNING BOARD APPROVED THE ACCOMMODATION OF, AND ACCESS TO THE CEMETERY A SPECIAL SUBJECT ON JANUARY 24, 2001 UNDER S–01–08. THE DESIGN ON THESE PLANS IS CONSISTENT WITH THE APPROVED DESIGN.
18. ALL EXISTING STRUCTURES ON–SITE ARE TO BE REMOVED.
19. ALL STORM DRAIN PIPES TO BE HDPE PIPE UNLESS OTHERWISE NOTED.
20. STORMWATER MANAGEMENT REQUIREMENTS WILL BE MET ON–SITE VIA A WET POND AND STONE TRENCH. STORM WATER MANAGEMENT FACILITY WILL BE PRIVATELY OWNED, OPERATED AND MAINTAINED.
21. STORMWATER MANAGEMENT FACILITIES WILL BE REQUIRED ON OPEN SPACE LOT 67 SHOWN ON THIS PLAT IN ACCORDANCE WITH THE DESIGN MANUALS. PRIOR TO SIGNATURE APPROVAL OF THE SITE DEVELOPMENT PLAN, THE DEVELOPER WILL BE REQUIRED TO EXECUTE THE DEVELOPER'S AGREEMENT FOR THE CONSTRUCTION OF THE STORMWATER MANAGEMENT FACILITY AND A MAINTENANCE AGREEMENT.
22. WETLAND AND FOREST STAND DELINEATIONS PREPARED BY WILDMAN ENVIRONMENTAL SERVICES IN OCTOBER 2000 AND WETLAND LOCATIONS VERIFIED IN JULY 2004.
23. NO HISTORIC STRUCTURES EXIST ON–SITE. SITE IS NOT ADJACENT TO A DESIGNATED SCENIC ROAD.
24. NOISE STUDY APPROVED UNDER P–05–03, JAMESTOWN LANDING, SECTION II.
25. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS :
   A) WIDTH – 12 FEET (14 FEET SERVING MORE THAN ONE RESIDENT).
   B) SURFACE – 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING.
   C) GEOMETRY – MAXIMUM 15% GRADE CHANGE AND MINIMUM OF 45–FOOT RADIUS.
   D) STRUCTURES (CULVERT/BRIDGES) – CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
   E) DRAINAGE ELEMENTS – CAPABLE OF SAFELY PASSING 100–YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
   F) STRUCTURE CLEARANCES – MINIMUM 12 FEET
   G) MAINTENANCE – SUFFICIENT TO ENSURE ALL WEATHER USE.
26. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT–OF–WAY LINE AND NOT TO THE PIPESTEM LOT DRIVEWAY.
27. IF MATERIAL IS WITHIN 8% OF OPTIMUM MOISTURE, WORKING THE MATERIAL UNTIL REQUIRED COMPACTION IS ACHIEVED IS CONTRACTOR'S RESPONSIBILITY.
28. SIDEWALKS SHALL MEET CURRENT ADA REQUIREMENTS. HANDICAP RAMPS AT THE ENTRANCE SHALL BE PROVIDED IN ACCORDANCE WITH HO. CO. STD. DTL. R–4.01.
29. THE 65 dBA NOISE CONTOUR LINE DRAWN ON THIS SUBDIVISION PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992 AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65 dBA NOISE EXPOSURE. THE 65 dBA NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS, AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.
30. THIS PLAN IS SUBJECT TO THE FOURTH EDITION OF THE SUBDIVISION REGULATIONS AND TO THE 1993 ZONING REGULATIONS AMENDED BY CB50–2001.
31. PROPOSED NOISE BERM TO BE MAINTAINED BY THE HOA.
32. PROPOSED STRUCTURES MUST MAINTAIN A TWO–FOOT SETBACK FROM PUBLIC DRAINAGE AND UTILITY EASEMENTS.
32. REQUEST TO WAIVER BASEMENT GRAVITY SEWER SERVICE TO LOTS 14, 30, 31, 42, 43, & 46, FIRST FLOOR AND BASEMENT GRAVITY SEWER SERVICE FOR LOTS 44 & 45, AND CLEARANCE REQUIREMENTS FOR LOTS 28, 29, 32, 39, AND 40 WERE APPROVED ON DECEMBER 3, 2003 AND MARCH 5, 2004 SUBJECT TO THE FOLLOWING CONDITIONS :
   1. THE SEWER BETWEEN MANHOLES 126 AND 127 SHALL BE DUCTILE IRON PIPE CLASS 54 WITH FIELD LOCK GASKETS.
   2. THE SEWER HOUSE CONNECTIONS FOR LOTS 28 AND 29 SHALL BE RELOCATED TO THE LOW POINT OF THE LOTS AT THE REAR OF THE PROPERTIES.
   3. A NOTE SHALL BE PLACED ON THE WATER AND SEWER PLAN AND ON THE SITE DEVELOPMENT PLAN REGARDING ACCESS TO PUBLIC WATER AND SEWER MAINS.
33. ON MAY 10, 2005, A WAIVER WAS GRANTED TO MODIFY STANDARD DETAILS (INLET TYPES SD–4.02 ADN SD–4.14) TO ALLOW THE STRUCTURES TO BE GREATER THAN AND LESS THAN THE COUNTY STANDARDDEPTH REQUIREMENTS. THIS APPROVAL WAS SUBJECT TO ADDING THE APPROPRIATE DESIGN INFORMATION TO THE PLANS.

SHEET INDEX



VICINITY MAP
SCALE: 1'=1000'

DEVELOPER
JAMESTOWN LANDING, LC
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734–9730

STATE OF MARYLAND
R. JACOB WRIGHT
No. 17942
PROFESSIONAL ENGINEER
10/6/11

NO AS–BUILT INFO REQUIRED ON THIS SHEET

LEGEND
- 15% TO 25% SLOPES
- 25% OR GREATER SLOPES
- LAND TO BE DEDICATED TO THE STATE OF MARYLAND FOR STATE ROAD
- LAND TO BE DEDICATED TO HOWARD COUNTY, MARYLAND, FOR PUBLIC ROAD
- PROPOSED PUBLIC DRAINAGE & UTILITY EASEMENT
- PROPOSED PRIVATE USE–IN–COMMON DRIVEWAY EASEMENT
- PROPOSED PUBLIC WATER, SEWER, & UTILITY EASEMENT
- EXISTING WETLANDS
- EXISTING SPECIMEN TREES
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PRIVATE NOISE WALL MAINTENANCE EASEMENT
- PRIVATE REFORESTATION & NOISE BERM MAINTENANCE EASEMENT
- 10' PUBLIC STORM DRAIN, TREE MAINTENANCE, & UTILITY EASEMENT
- RETAINING WALL MAINTENANCE EASEMENT
- INLET PROTECTION
- SSF SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE

AS–BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS–BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE _____ P.E. NO.: 17942 DATE: 10/6/11

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER _____ DATE 2/13/06
JOHN S. MILDENBERG
PRINTED NAME OF ENGINEER

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON–SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER _____ DATE 2/13/06
RUSSELL DICKENS, MANAGER, TANTERRA, L.C.
PRINTED NAME OF DEVELOPER

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE _____ DATE 2/27/06

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT _____ DATE 2/27/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS _____ DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE 3/31/06

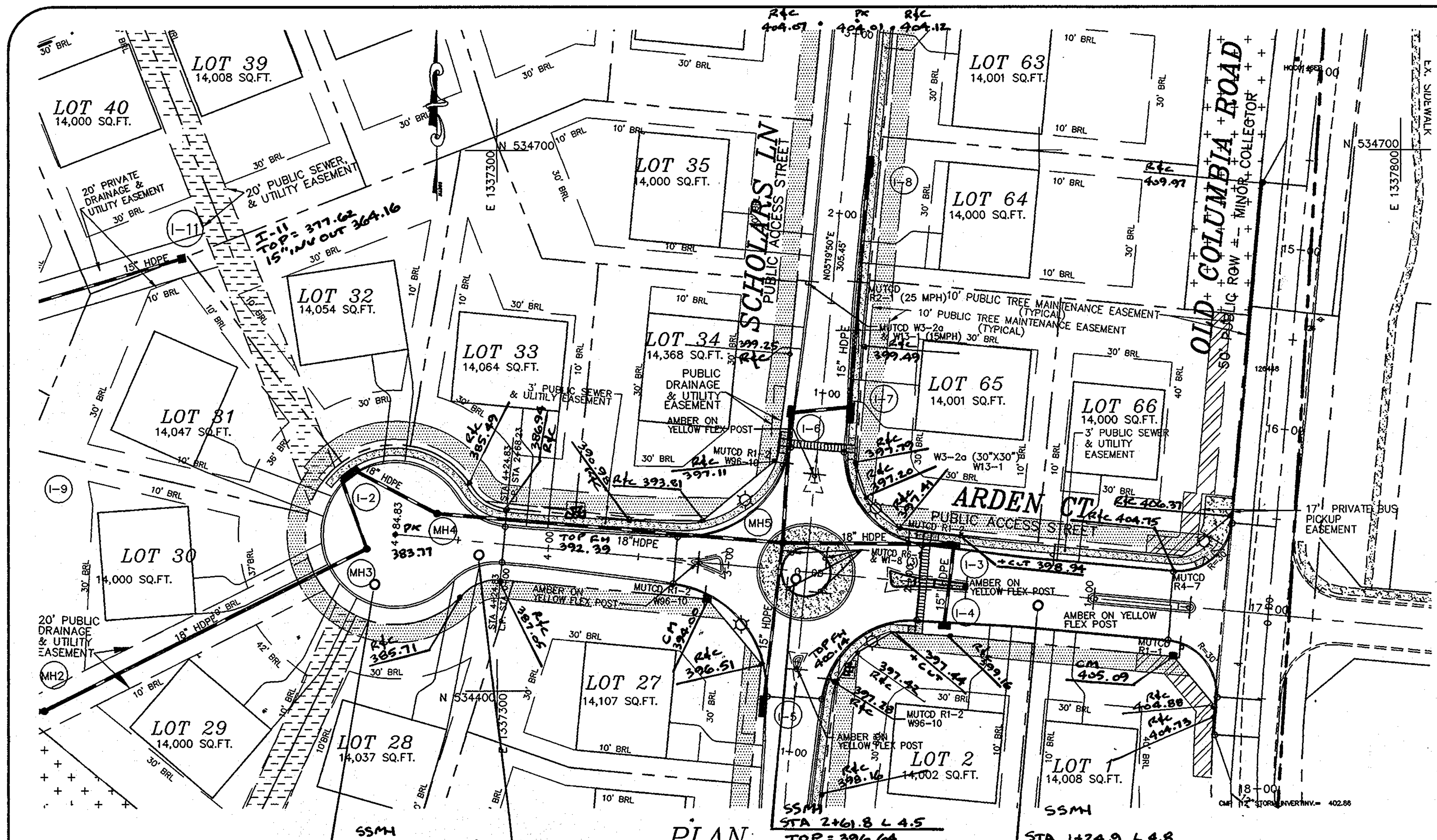
CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 3/29/06

project	date
00–020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description revisions	date

JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 – PARCEL 229 & 352 – GRID 15
HOWARD COUNTY, MARYLAND
FIFTH ELECTION DISTRICT
COVER SHEET

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997–0296 Balt. (301) 621–5621 Wash. (410) 997–0298 Fax.



PLAN

SCALE : 1" = 50'

I-8
TOP= 402.51
15" INV OUT 392.88

I-7
TOP= 398.54
15" INV IN 390.45
18" INV OUT 390.19

I-6
TOP= 398.05
18" INV IN 389.50
18" INV OUT 389.33

I-3
TOP= 398.76
15" INV IN 390.81
18" INV OUT 390.37

I-4
TOP= 398.73
15" INV OUT 391.13

MH 2
TOP= 366.07
18" INV IN 354.39
18" INV OUT 354.29

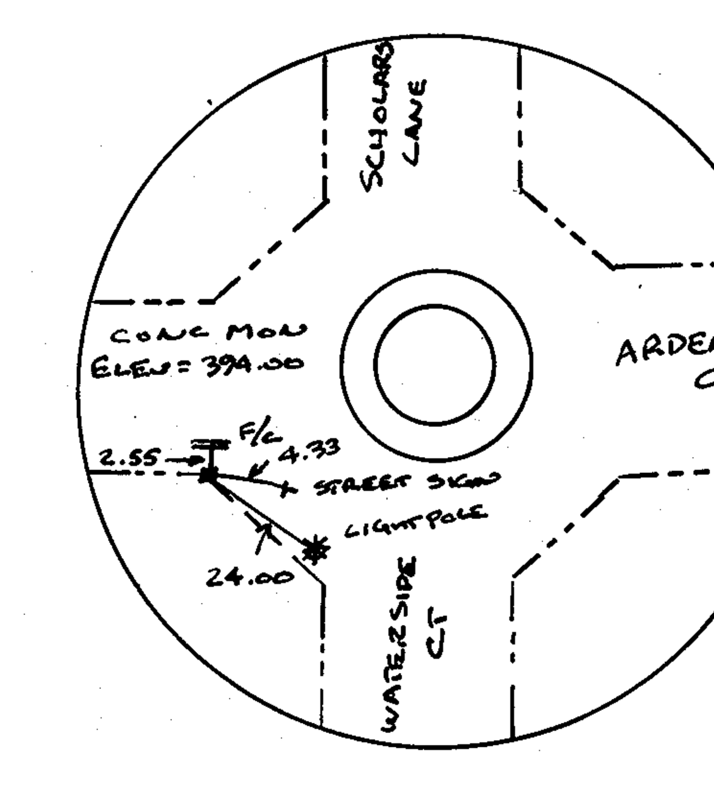
MH 3
TOP= 383.44
18" INV IN 370.44
18" INV OUT 370.34

I-2
TOP 382.60
18" INV IN 372.71
18" INV OUT 372.65

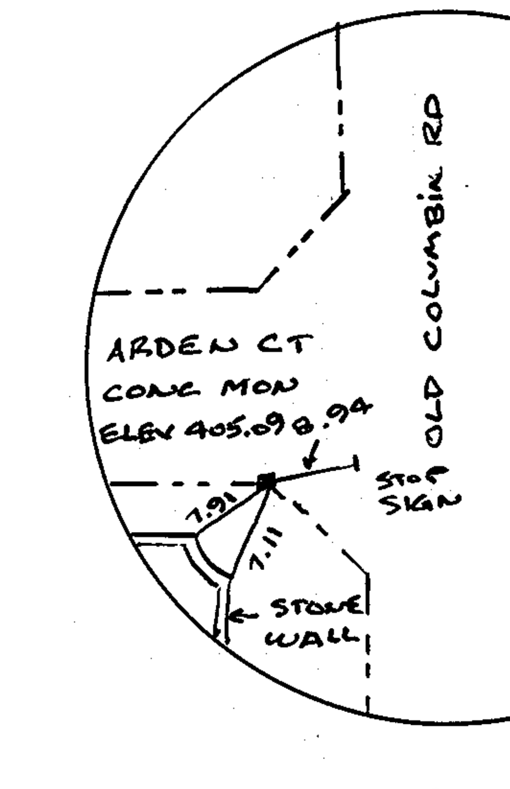
MH 4
TOP= 384.49
18" INV IN 374.09
18" INV OUT 373.99

MH 5
TOP= 395.38
18" INV IN 385.68
18" INV IN 385.68
15" INV IN 385.78
18" INV OUT 385.58

I-5
TOP= 397.30
15" INV OUT 387.69



N.T.S.

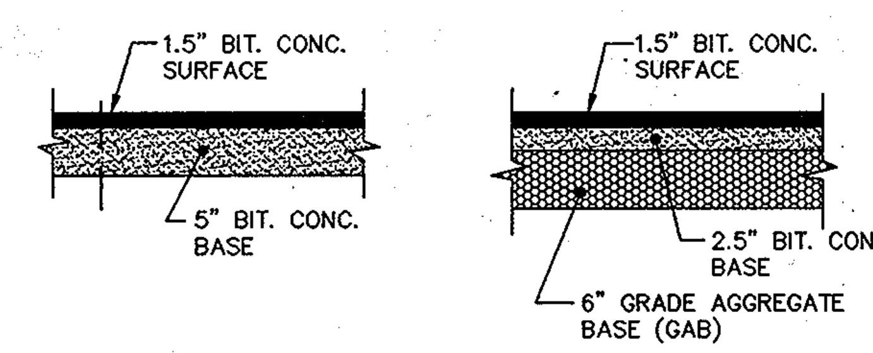


N.T.S.

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THESE PLANS WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS

1-6-11

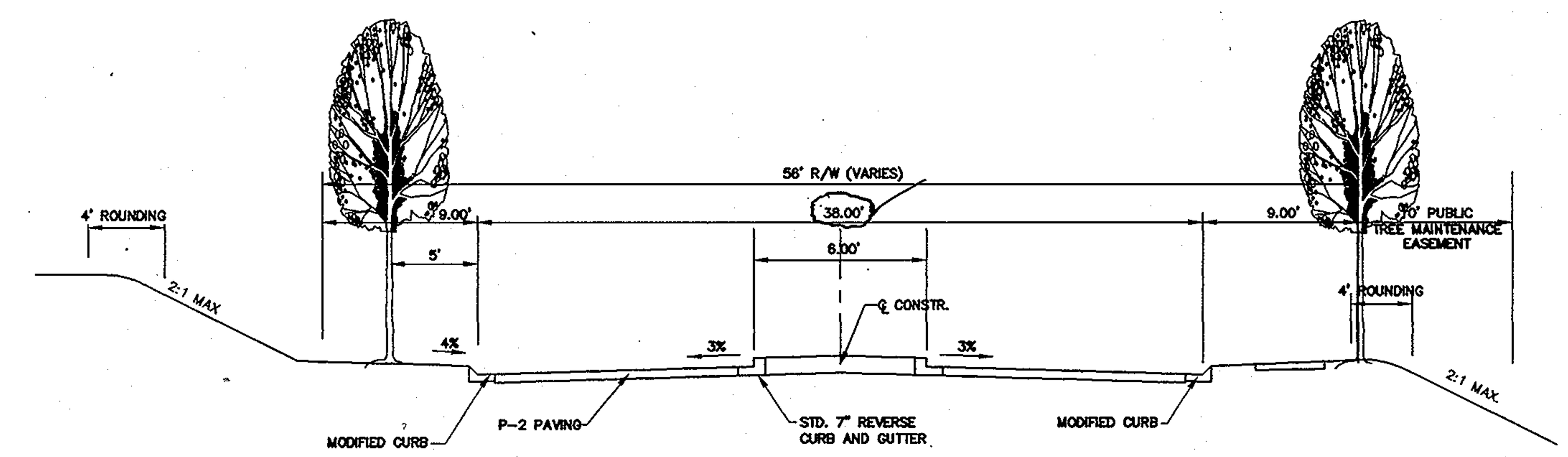
AS-BUILT SURVEY
Shaneberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043



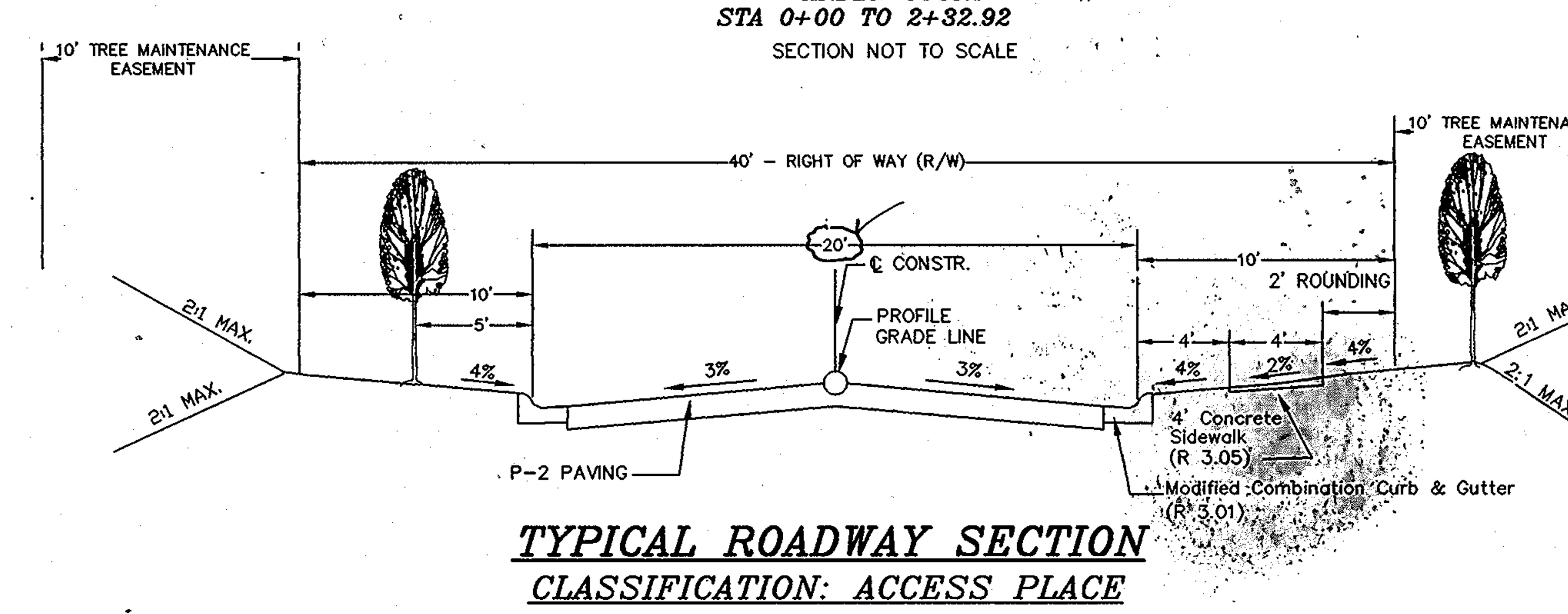
ALTERNATE "A" ALTERNATE "B"

PAVING SECTION – P-2

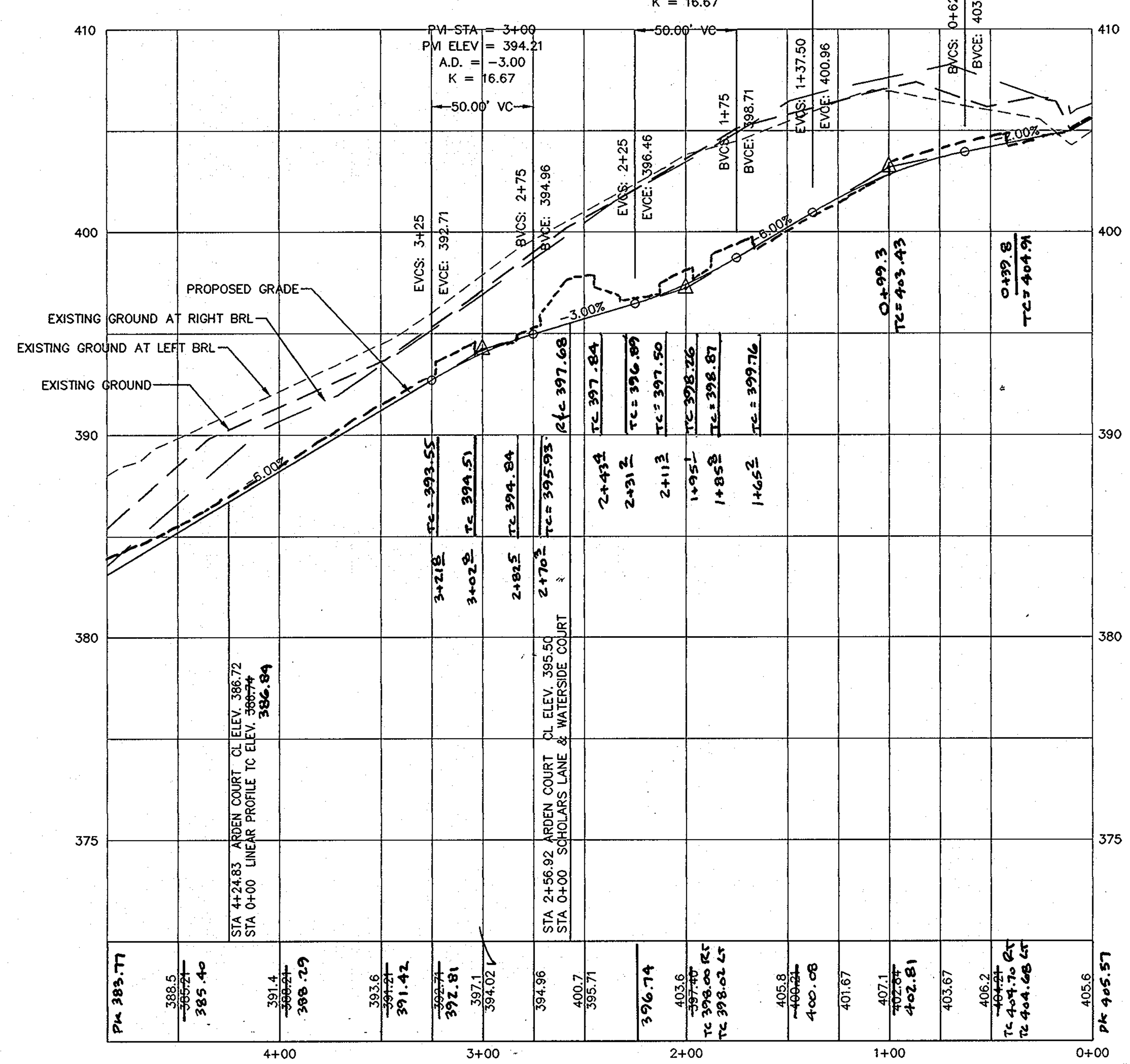
N.T.S.



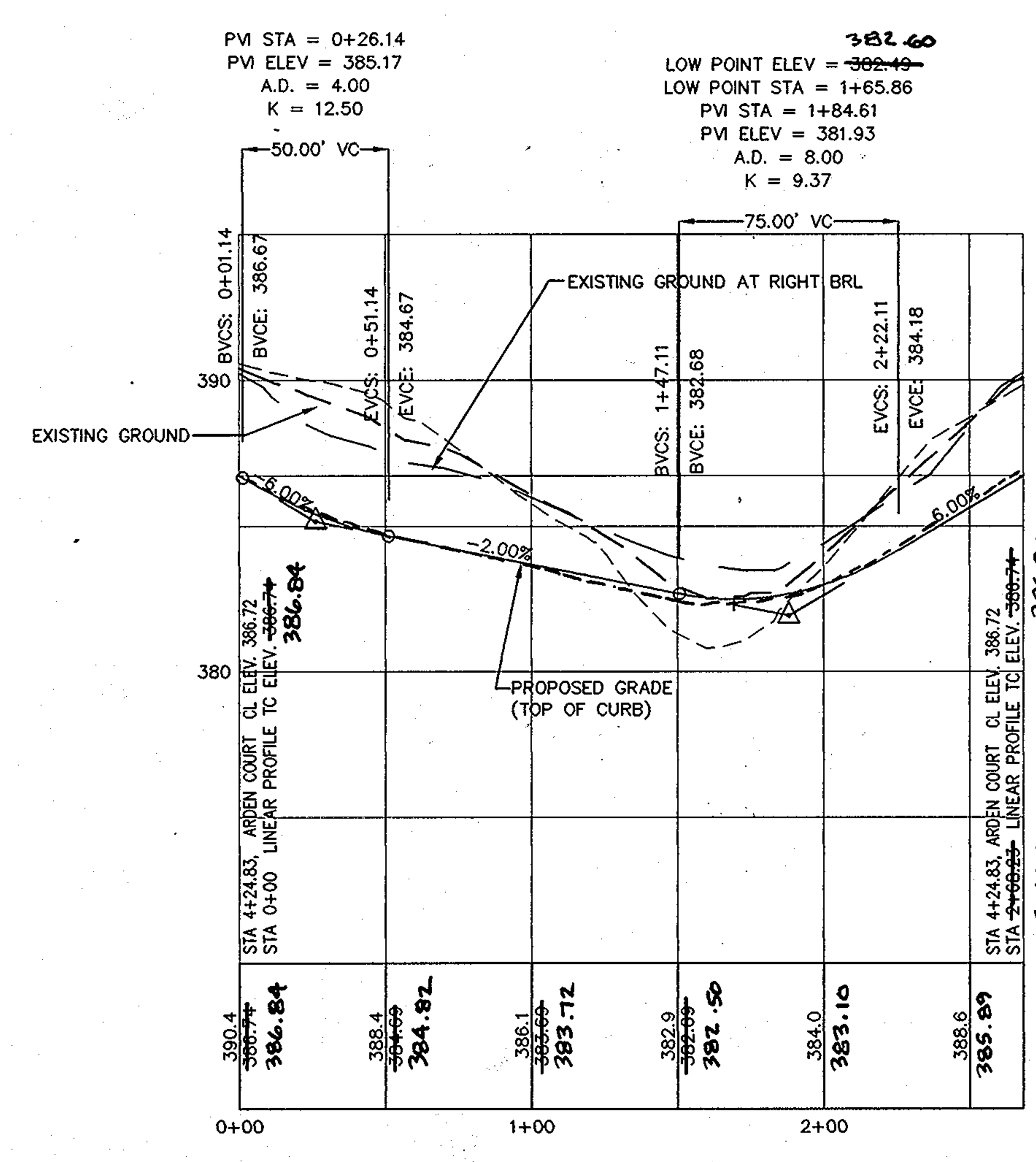
TYPICAL ROADWAY SECTION
CLASSIFICATION: ACCESS STREET
DESIGN SPEED: 30 MPH
ARDEN COURT
STA 0+00 TO 2+32.92
SECTION NOT TO SCALE



TYPICAL ROADWAY SECTION
CLASSIFICATION: ACCESS PLACE
DESIGN SPEED: 15 MPH
ARDEN COURT
STA 2+80.92 TO 4+84.83
SECTION NOT TO SCALE



ARDEN COURT PROFILE (PUBLIC ACCESS STREET)
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



ARDEN COURT LINEAR PROFILE
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'

OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-6-06
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/31/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/29/06

project	date
00-020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description revisions	date

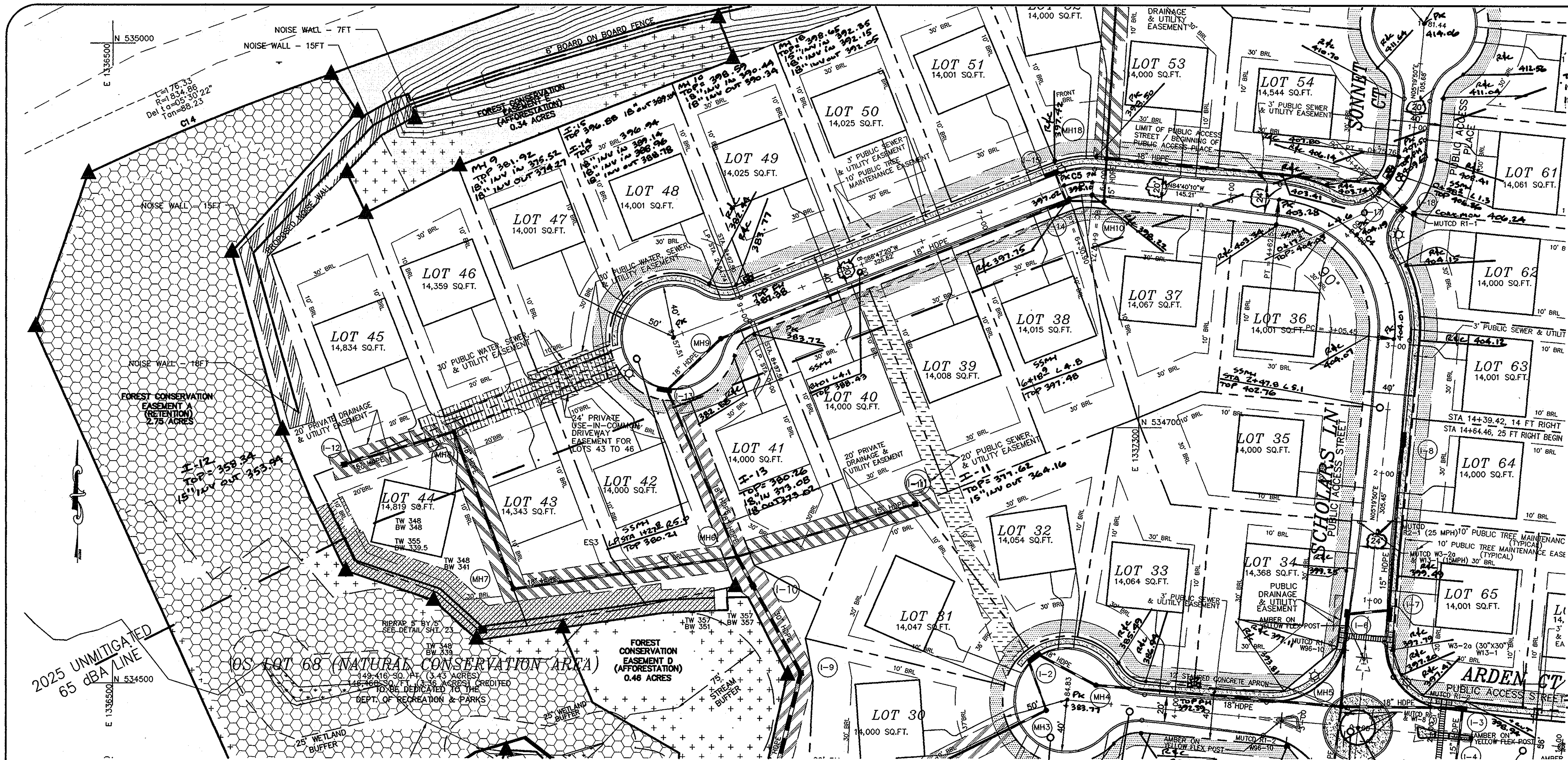
JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 – PARCEL 229 & 352 – GRID 15
FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROAD PLAN AND PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

00-020/dwg/sec-II/final/020-II-road-sht2.dwg

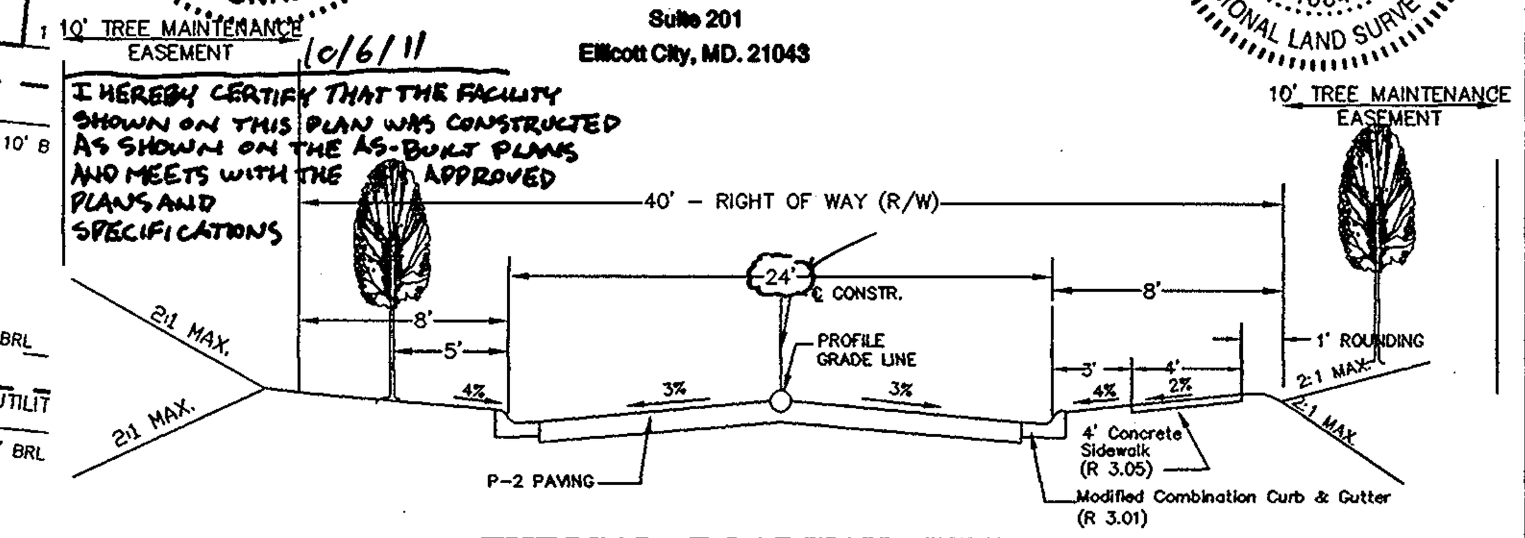


PLAN
SCALE : 1" = 50'

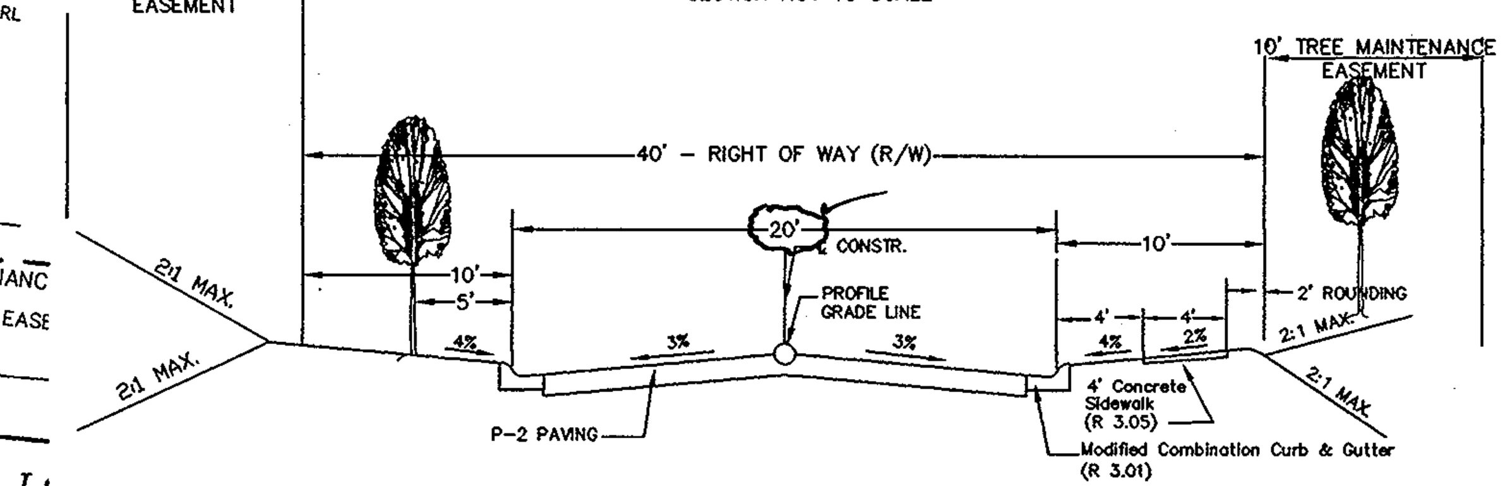
CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING & DISTANCE
C4	100.00'	157.08'	90°00'00"	100.00'	N39°40'10"W 141.42'
C5	50.00'	23.16'	26°32'30"	11.79'	S82°03'35"W 22.96'
C6	50.00'	33.88'	38°49'41"	17.62'	N24°44'41"E 33.24'
C12	2950.00'	431.79'	08°23'11"	216.28'	S09°13'10"W 431.41'
C14	1834.86'	176.33'	05°30'22"	88.23'	S67°21'50"W 176.26'

AS-BUILT SURVEY
Shanaberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043

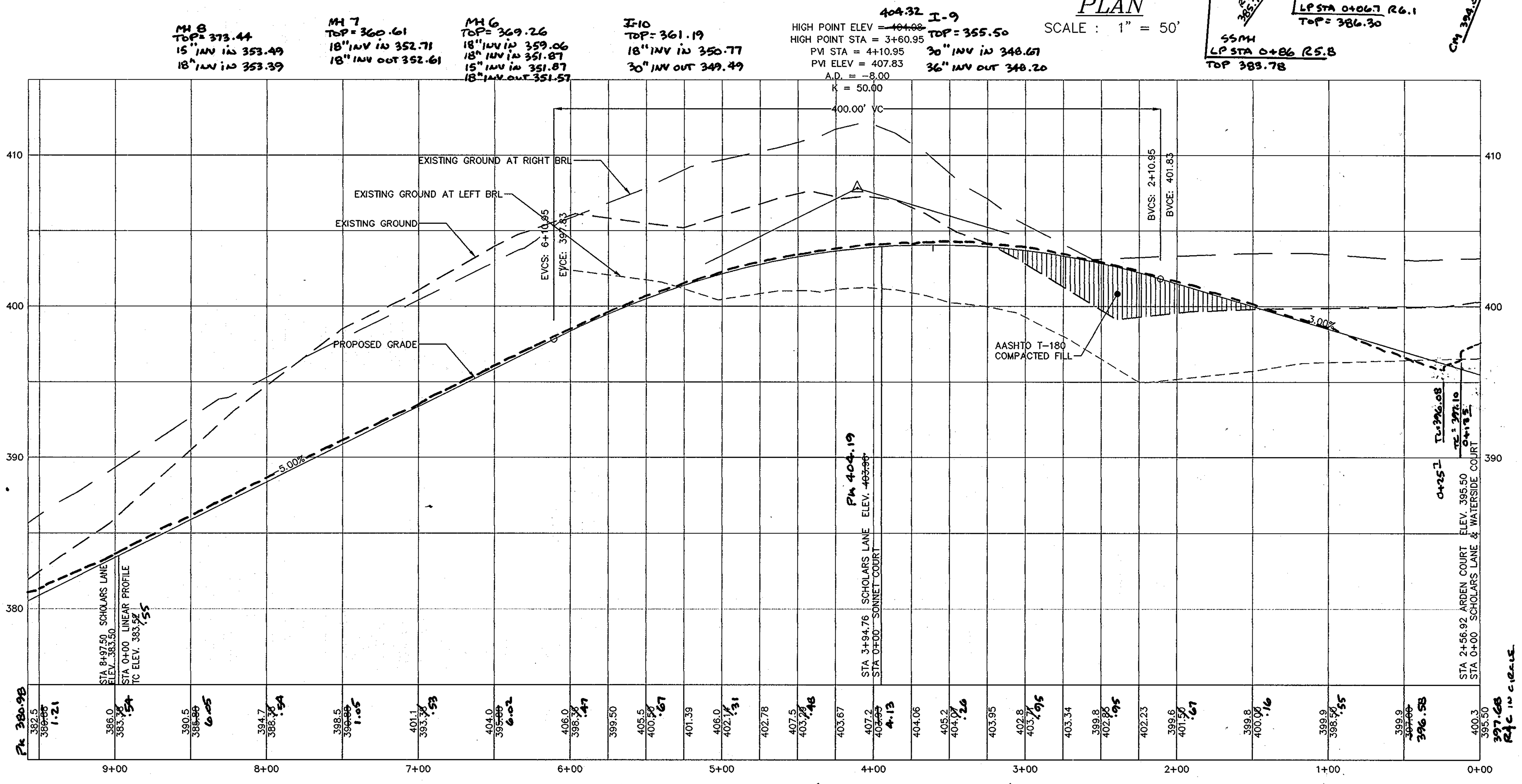
10/6/11
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS



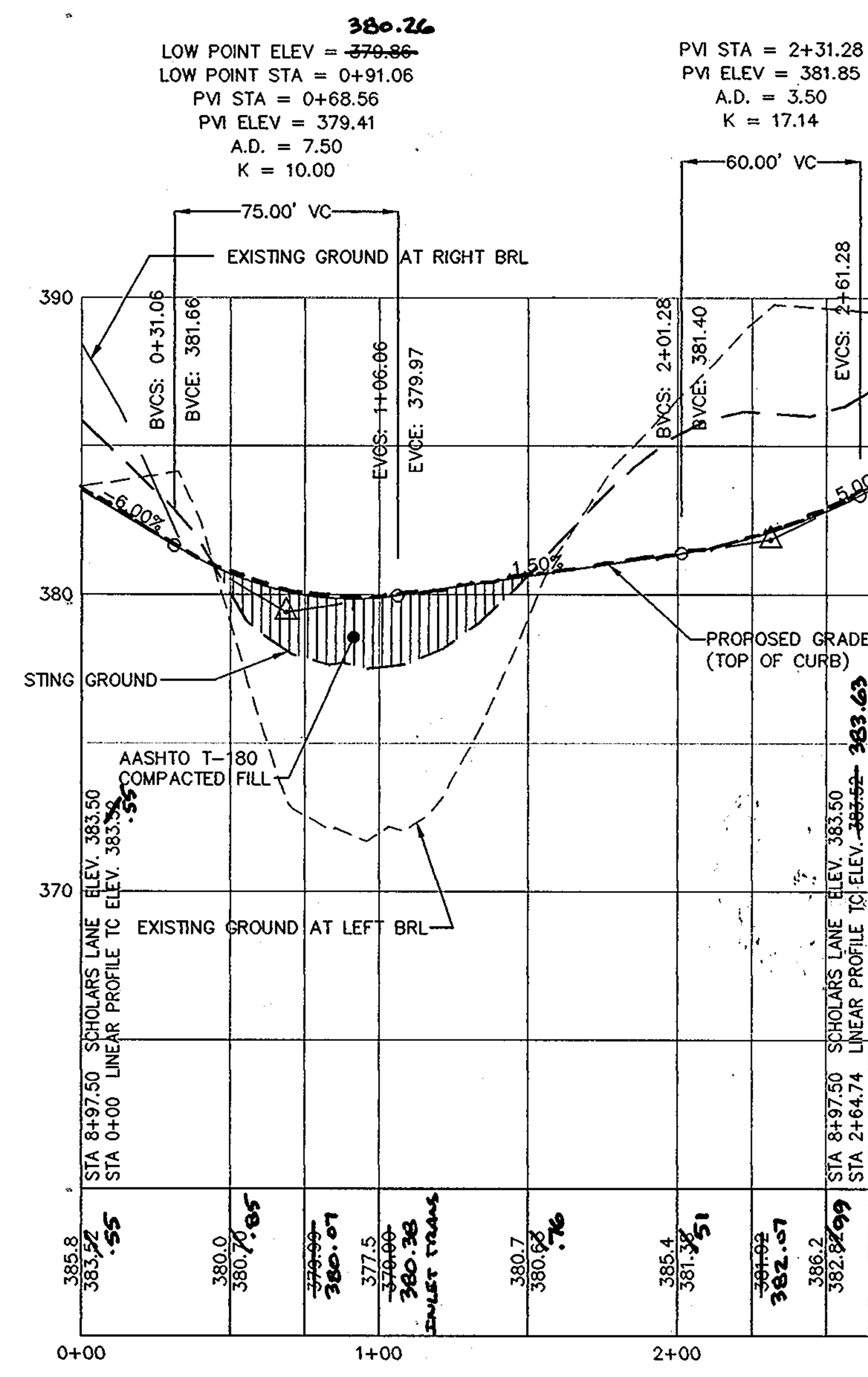
TYPICAL ROADWAY SECTION
CLASSIFICATION: ACCESS STREET
DESIGN SPEED: 25 MPH
SCHOLARS LANE
STA 0+24 TO 4+72.53
SECTION NOT TO SCALE



TYPICAL ROADWAY SECTION
CLASSIFICATION: ACCESS PLACE
DESIGN SPEED: 15 MPH
SCHOLARS LANE
STA 5+22.63 TO 9+67.51



SCHOLARS LANE PROFILE (PUBLIC ACCESS STREET)
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



SCHOLARS LANE LINEAR PROFILE
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'

OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — 3-6-06 — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — 3/21/06 — DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 3/21/06 — DATE

project	date
00-020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description revisions	date

JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 – PARCEL 229 & 352 – GRID 15
FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROAD PLAN AND PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

00-020/dwg/sec-ii/final/020-ii-road-sht3.dwg

I19
TOP: 394.20
15" INV OUT: 386.47

I 20
TOP: 384.97
24" INV IN: 364.32
18" INV IN: 377.47
24" INV OUT: 364.12

I 21
TOP: 384.83
18" INV IN: 378.21
18" INV OUT: 377.85

I 22
TOP: 373.01
18" INV OUT: 365.62

I 23
TOP: 387.09
18" INV OUT: 384.09

MH 11
TOP: 354.47
24" INV IN: 349.17
24" INV OUT: 349.12
36" PERF INV: 342.69

MH 12
TOP: 362.27
24" INV IN: 353.82
24" INV OUT: 353.72

MH 13
TOP: 370.61
24" INV IN: 361.41
24" INV OUT: 361.31

MH 14
TOP: 388.79
24" INV IN: 363.59
15" INV IN: 381.74
24" INV OUT: 363.49

MH 15
TOP: 390.69
15" INV IN: 383.44
15" INV OUT: 383.34

MH 16
TOP: 379.88
18" INV IN: 364.98
24" INV OUT: 364.88

MH 17
TOP: 390.52
18" INV IN: 381.57
18" INV OUT: 381.47

MH 19
TOP: 392.09
15" INV IN: 384.69
15" INV OUT: 384.59

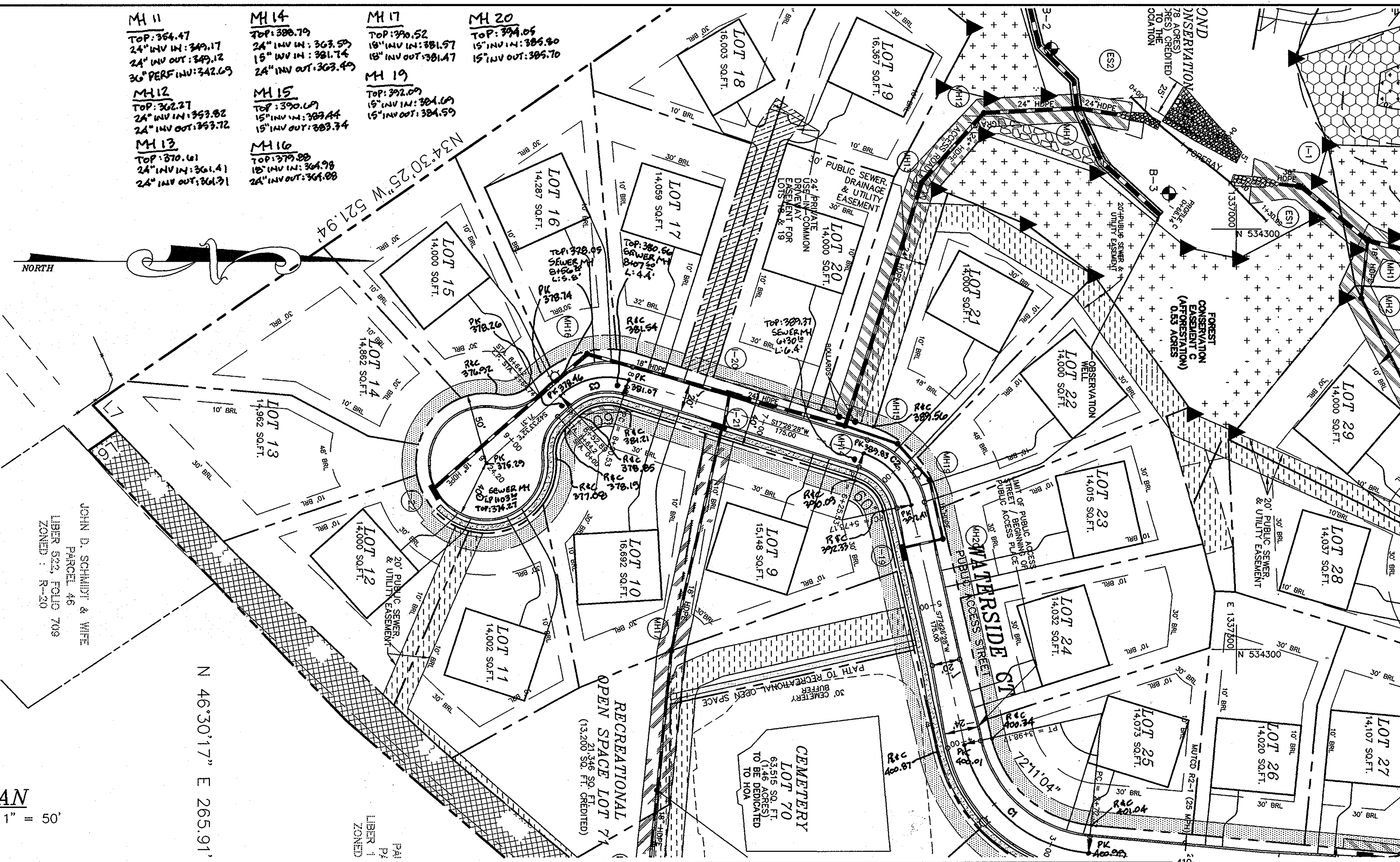
MH 20
TOP: 394.05
15" INV IN: 385.80
15" INV OUT: 385.70

MH 2
TOP: 366.07
18" INV IN: 354.39
18" INV OUT: 354.29

MH 1
TOP: 355.13
36" INV IN: 347.83
18" INV IN: 348.78
36" INV OUT: 347.73

I-1
TOP: 351.90
36" INV IN: 347.30
36" INV OUT: 347.20

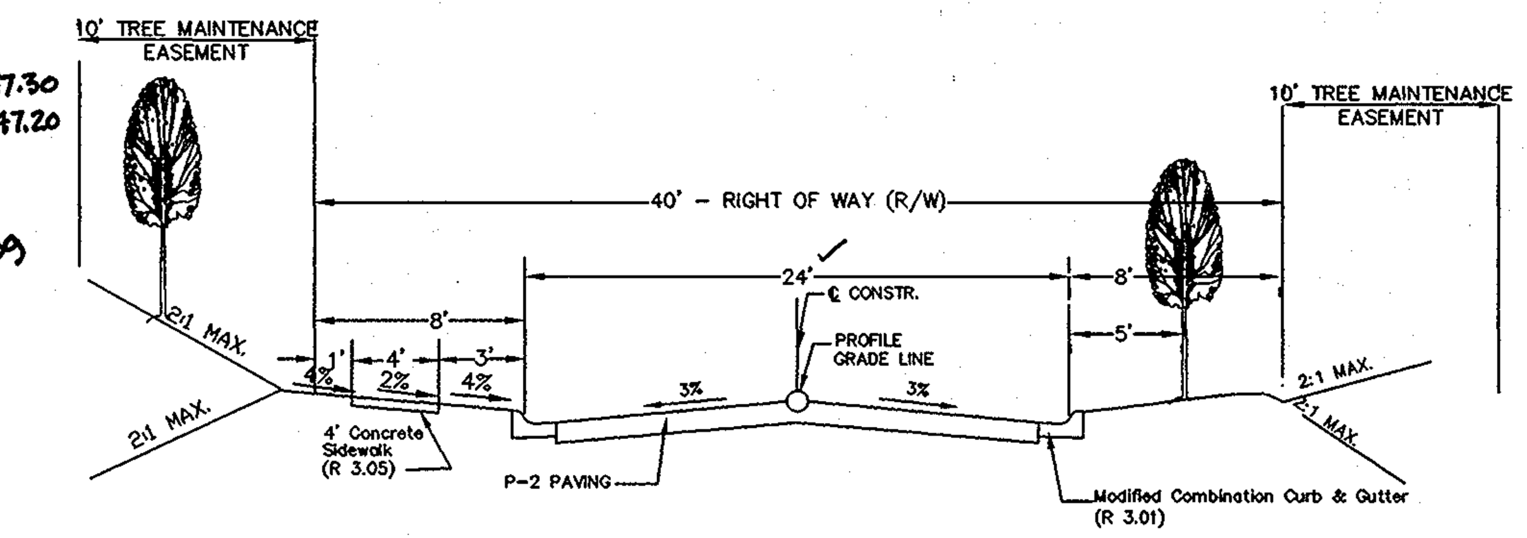
ES1
INV: 346.99



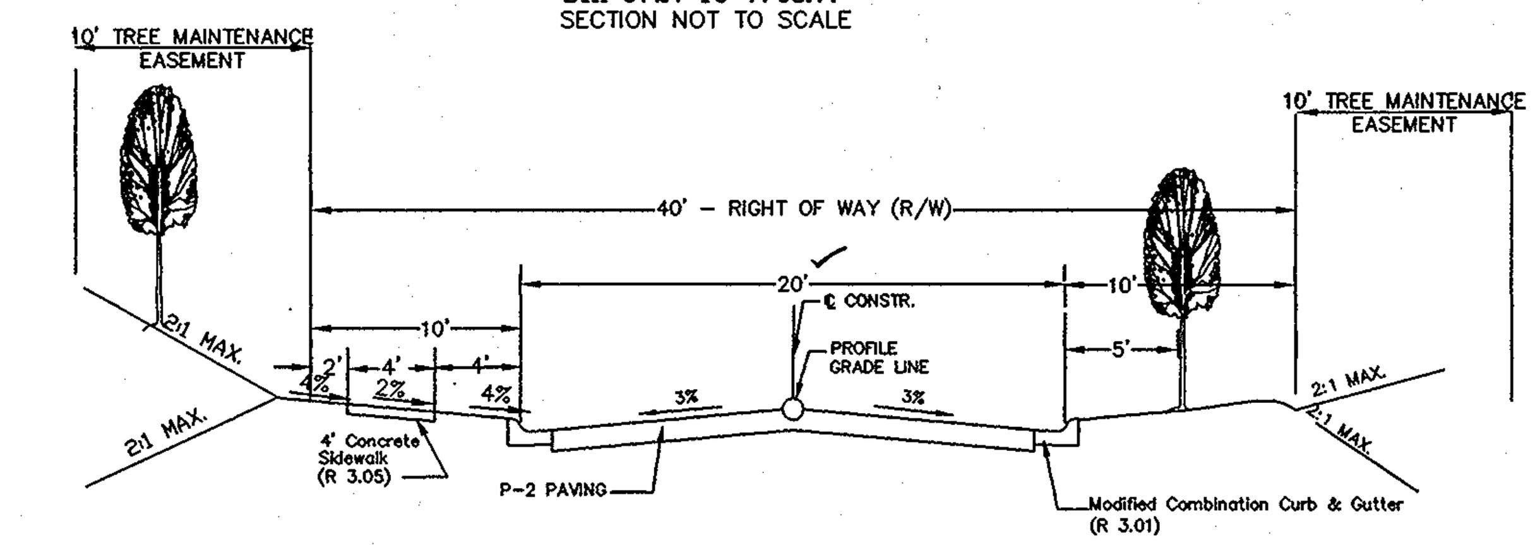
PLAN
SCALE : 1" = 50'

CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING & DISTANCE
C1	100.00'	125.86'	72°06'37"	72.80'	N41°23'09"E 117.71'
C2	50.00'	52.36'	60°00'00"	28.87'	S47°26'28"W 50.00'
C3	50.00'	52.36'	60°00'00"	28.87'	S12°33'32"E 50.00'
C7	900.00'	40.27'	02°33'50"	20.14'	N45°06'50"E 40.27'
C8	975.00'	61.59'	03°37'10"	30.81'	N42°01'20"E 61.58'
C9	255.00'	146.55'	32°55'46"	75.36'	S56°40'38"W 144.55'



TYPICAL ROADWAY SECTION
CLASSIFICATION: ACCESS STREET
DESIGN SPEED: 25 MPH
WATERSIDE COURT
STA 0+24 TO 4+08.17
SECTION NOT TO SCALE



TYPICAL ROADWAY SECTION
CLASSIFICATION: ACCESS PLACE
DESIGN SPEED: 15 MPH
WATERSIDE COURT
STA 4+58.17 TO 9+24.20
SECTION NOT TO SCALE

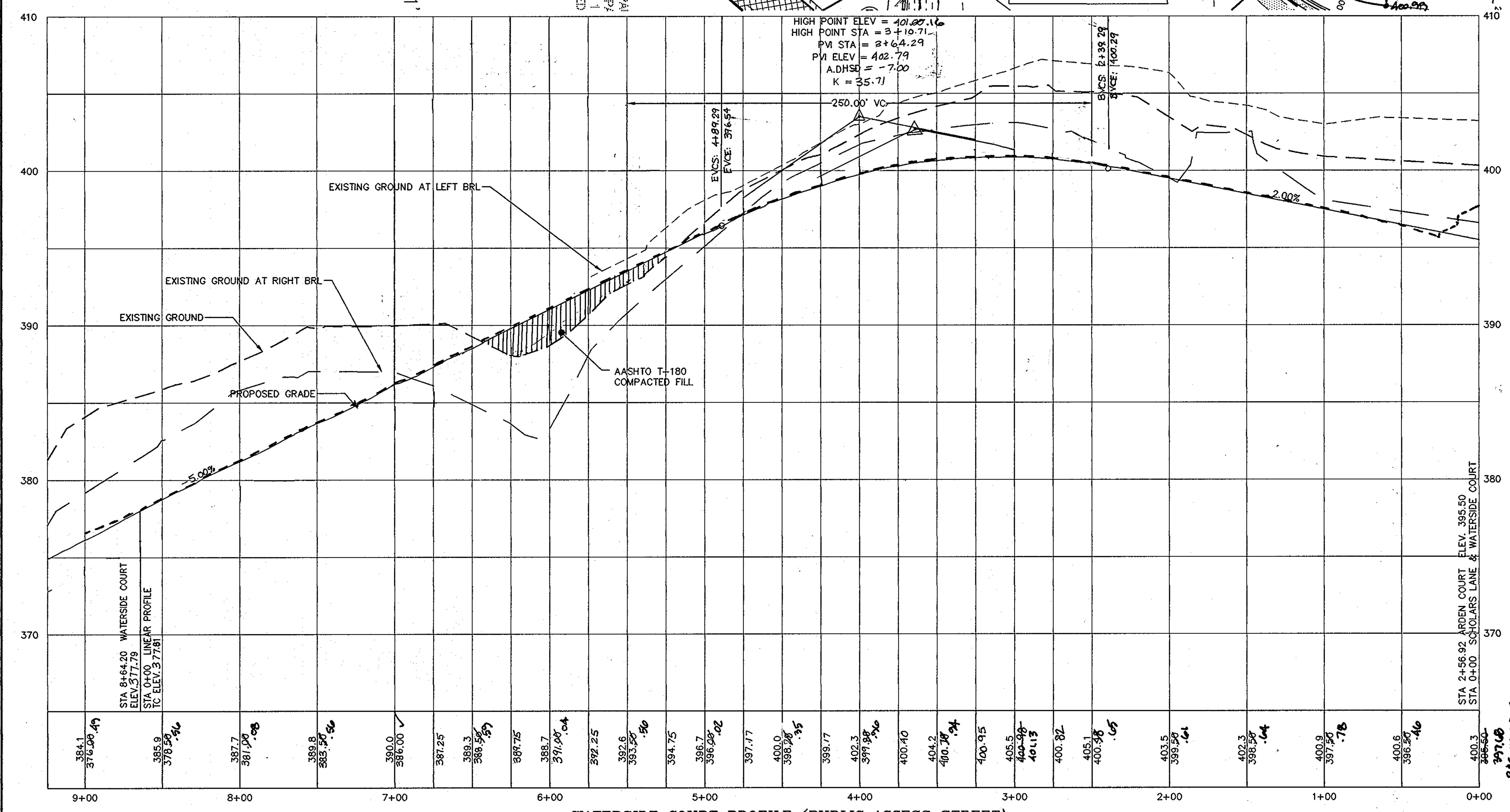
AS-BUILT SURVEY 9/30/11
Shanaberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043

STATE OF MARYLAND GREGORY SCOTT SHANABERGER No. 10849 PROFESSIONAL LAND SURVEYOR

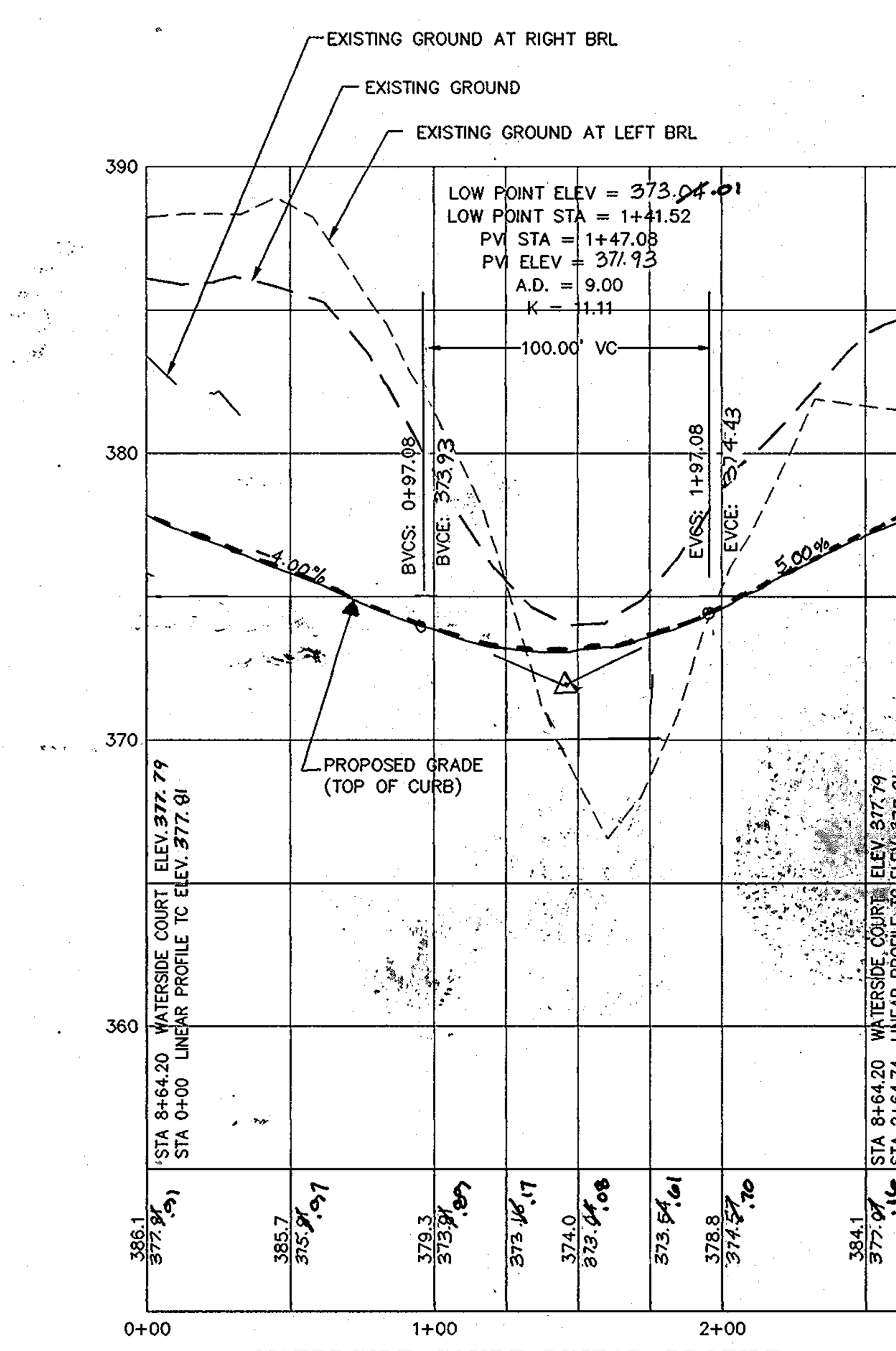
STATE OF MARYLAND R. JACOB HIKMAT No. 17942 PROFESSIONAL ENGINEER

10/6/11

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS



WATERSIDE COURT PROFILE (PUBLIC ACCESS STREET)
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



WATERSIDE COURT LINEAR PROFILE
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'

OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — 3-6-06 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — 3/21/06 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 3/29/06 DATE

project	date
00-020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description	date
1	CHANGED GRADING ON WATERSIDE COURT PROFILE AND LINEAR PROFILE	10/2/06

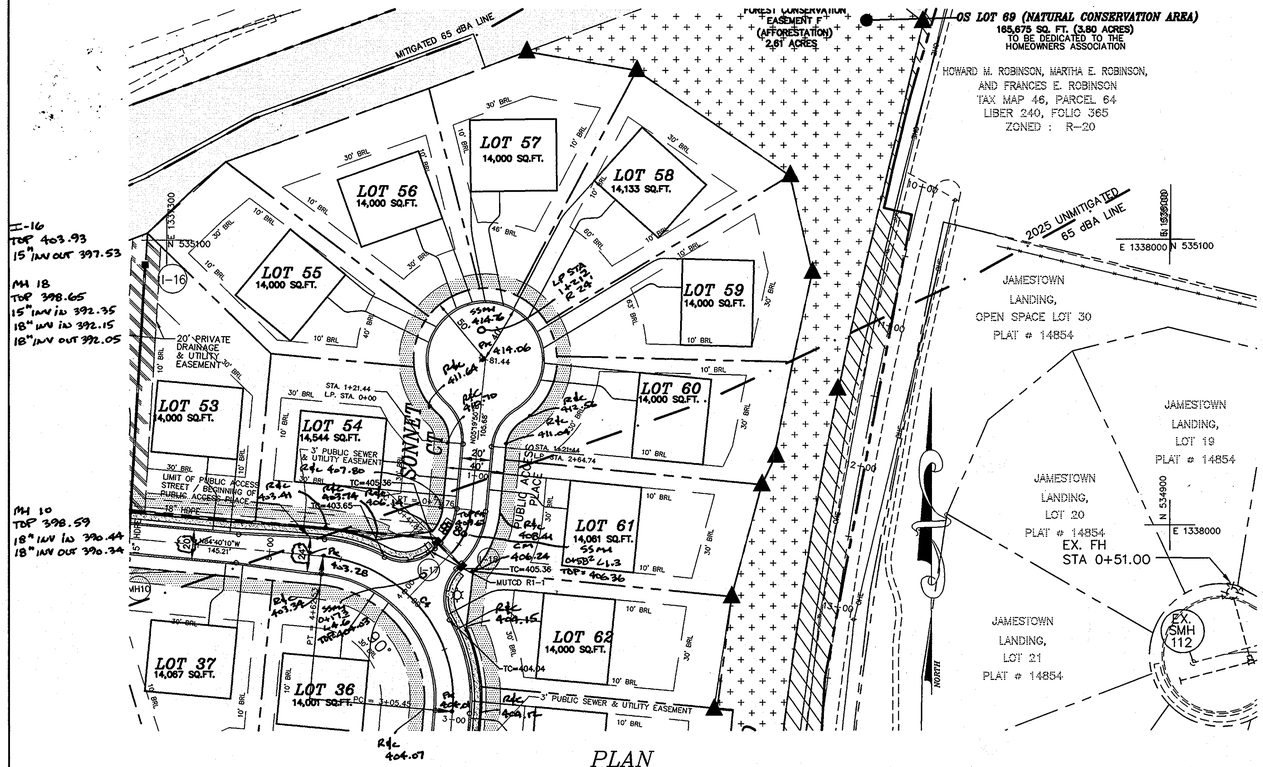
revisions

JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROAD PLAN AND PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

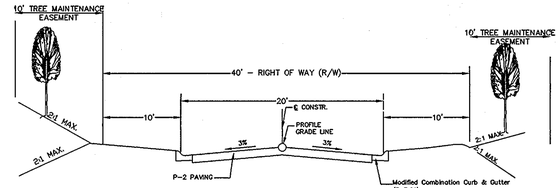
00-020/dwg/sec-ii/final/020-II-road-sht4.dwg



PLAN

SCALE : 1" = 50'

CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING & DISTANCE
C4	100.00'	157.08'	90°00'00"	100.00'	N39°40'10"W 141.42'
C6	50.00'	33.88'	38°49'41"	17.62'	N24°44'41"E 33.24'
C12	2950.00'	431.79'	08°23'11"	216.28'	S09°13'10"W 431.41'



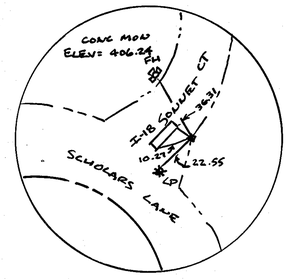
TYPICAL ROADWAY SECTION

CLASSIFICATION: ACCESS PLACE

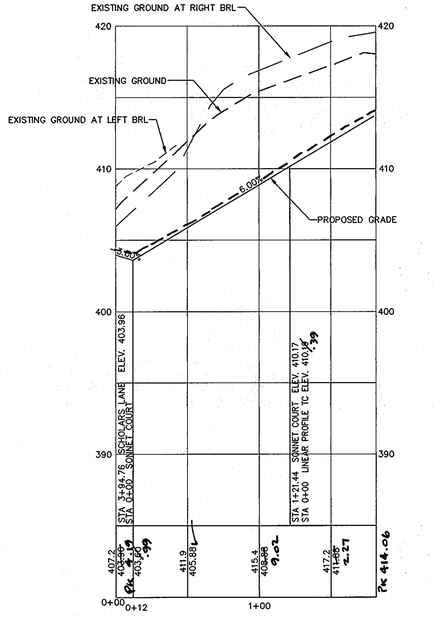
DESIGN SPEED: 15 MPH

SONNET COURT

SECTION NOT TO SCALE

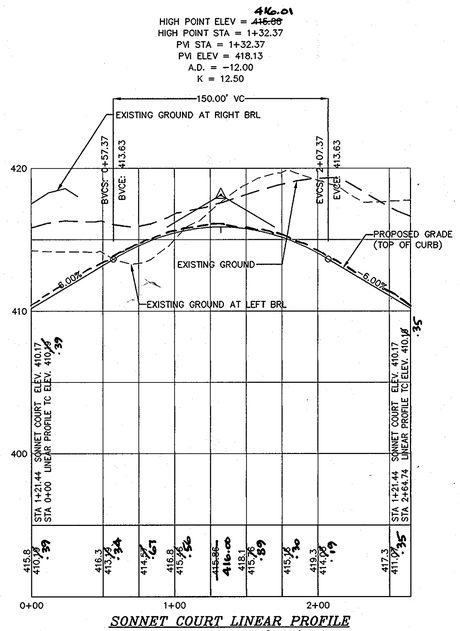


NTS



SONNET COURT PROFILE (PUBLIC ACCESS PLACE)

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



SONNET COURT LINEAR PROFILE

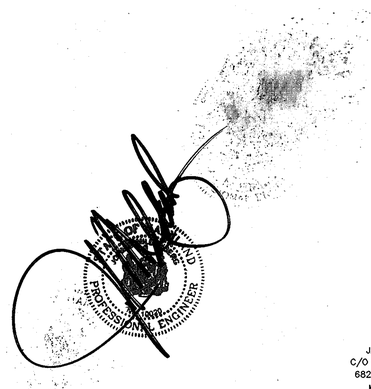
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS.

10/6/11

AS-BUILT LANGUAGE

Shaneberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043



OWNER

JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/3/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/3/06

project 00-020 | date FEB 2006
illustration SJD | engineering SJD
scale AS SHOWN | approval JBM

no.	description / revisions	date

JAMESTOWN LANDING, SECTION II

LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROAD PLAN AND PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

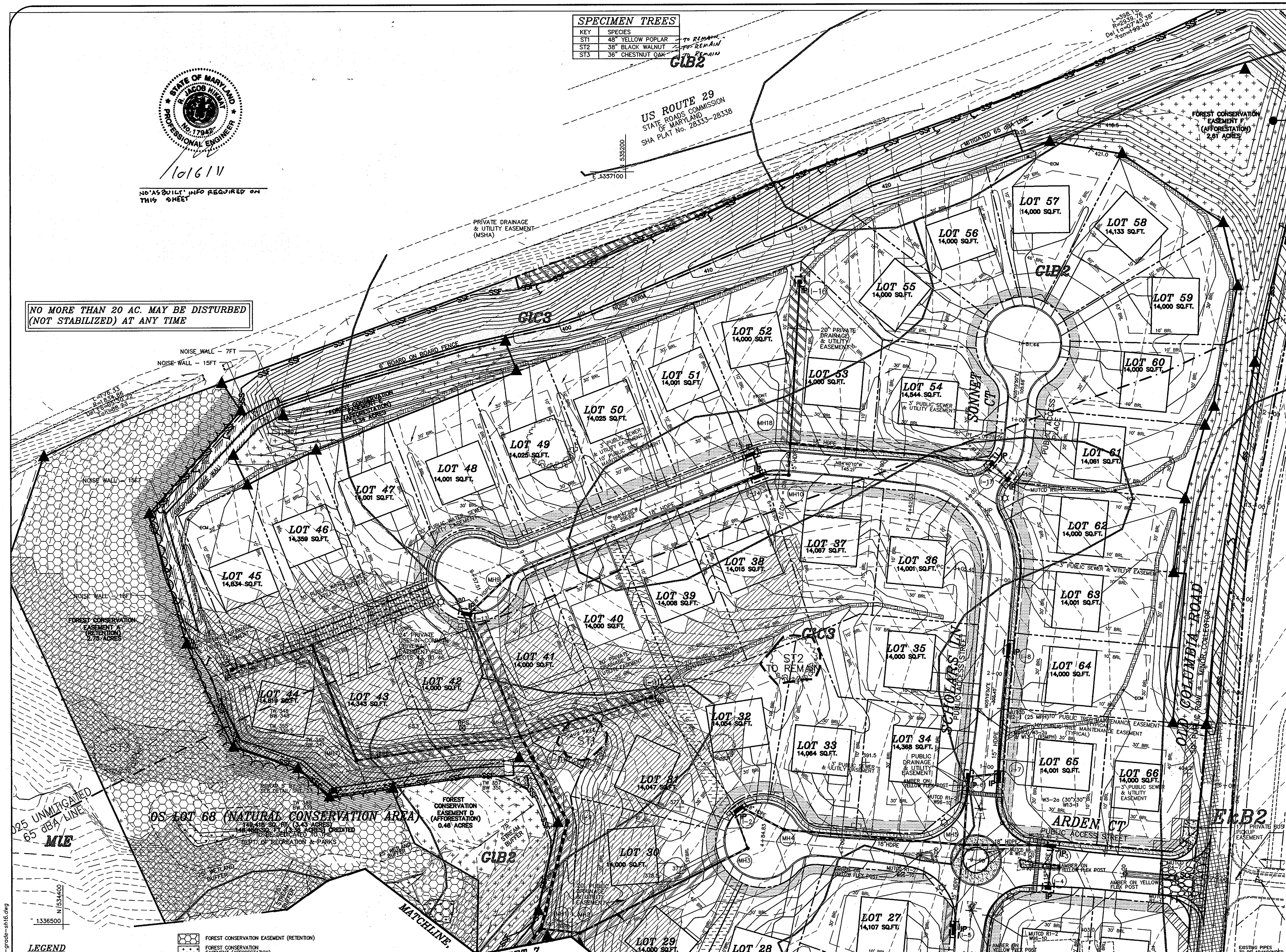
F-05-104

00-020/dwg/sec-II/final/020-fr-road-sht5.dwg

SPECIMEN TREES		
KEY	SPECIES	
ST1	48" YELLOW POPLAR	TO REMAIN
ST2	38" BLACK WALNUT	TO REMAIN
ST3	36" CHESTNUT OAK	TO REMAIN

NO 'AS-BUILT' INFO REQUIRED ON THIS SHEET

NO MORE THAN 20 AC. MAY BE DISTURBED (NOT STABILIZED) AT ANY TIME



OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

LEGEND

- 15% TO 25% SLOPES
- 25% OR GREATER SLOPES
- LAND TO BE DEDICATED TO THE STATE OF MARYLAND FOR STATE ROAD
- LAND TO BE DEDICATED TO HOWARD COUNTY, MARYLAND FOR PUBLIC ROAD
- PROPOSED PUBLIC DRAINAGE & UTILITY EASEMENT
- PROPOSED PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
- PROPOSED PUBLIC WATER, SEWER, & UTILITY EASEMENT
- EXISTING WETLANDS
- EXISTING SPECIMEN TREES
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PRIVATE NOISE WALL MAINTENANCE EASEMENT
- PRIVATE REFORESTATION & NOISE BERM MAINTENANCE EASEMENT
- 10' PUBLIC STORM DRAIN, TREE MAINTENANCE, & UTILITY EASEMENT
- RETAINING WALL MAINTENANCE EASEMENT
- INLET PROTECTION
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE

SOILS DESCRIPTION

SYMBOL	DESCRIPTION
EkB2	ELIOAK SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE C
GlB2	GLENELG SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE B
GlC3	GLENELG SILT LOAM, 8% TO 15% SLOPES, SEVERELY ERODED -- TYPE B
MIC3	MANOR LOAM, 8% TO 15% SLOPES, SEVERELY ERODED -- TYPE B
MID2	MANOR LOAM, 15% TO 25% SLOPES, MODERATELY ERODED -- TYPE B
MIE	MANOR LOAM, 25% TO 45% SLOPES -- TYPE B

00-020/dwg/sec-ii/final/020-ii-grade-sht6.dwg

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE P.E. NO. 1794? DATE: 10/6/11

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 2/13/06
JOHN B. MILDENBERG
PRINTED NAME OF ENGINEER

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 4/13/06
RUSSELL DICKENS, MANAGER, TANTERRA, L.C.
PRINTED NAME OF DEVELOPER

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/27/06

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/27/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS HS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT JA — DATE 3/31/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION YQ — DATE 3/29/06

project	date
00-020	FEB. 2006
illustration	engineering
SJD	SJD
scale	approval
1"=50'	JBM

no.	description	date
	revisions	

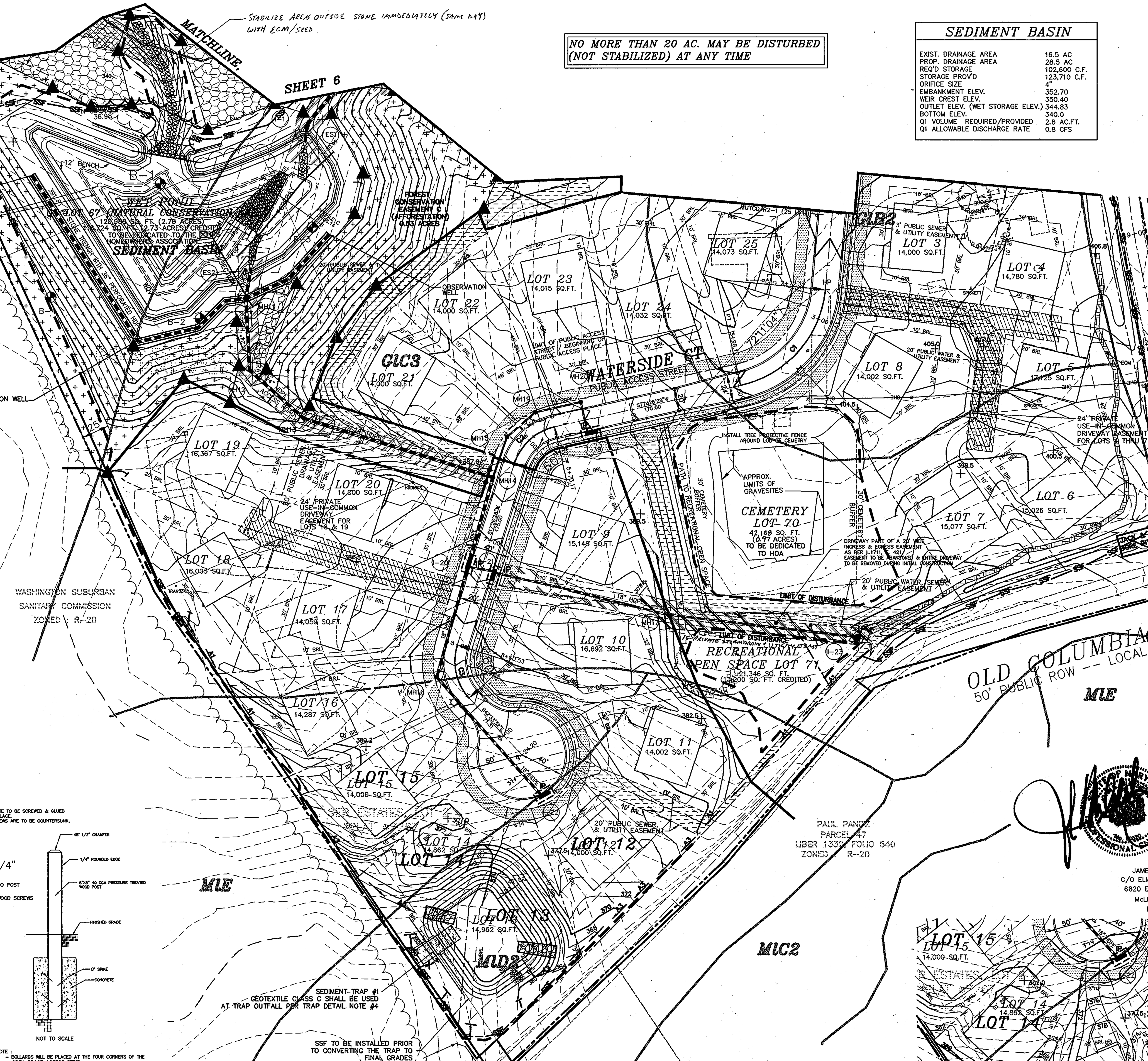
JAMESTOWN LANDING, SECTION II

LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

GRADING AND EROSION & SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

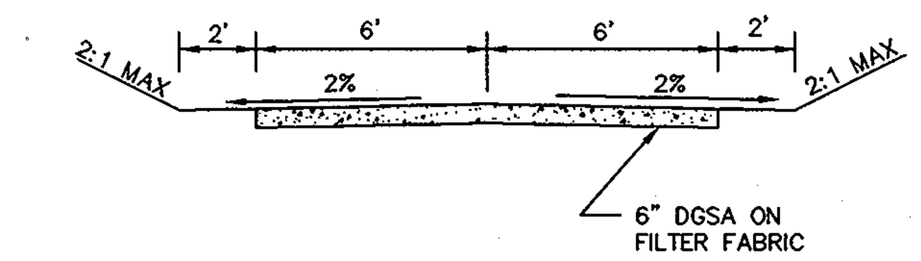
F-05-104



NO MORE THAN 20 AC. MAY BE DISTURBED (NOT STABILIZED) AT ANY TIME

SEDIMENT BASIN

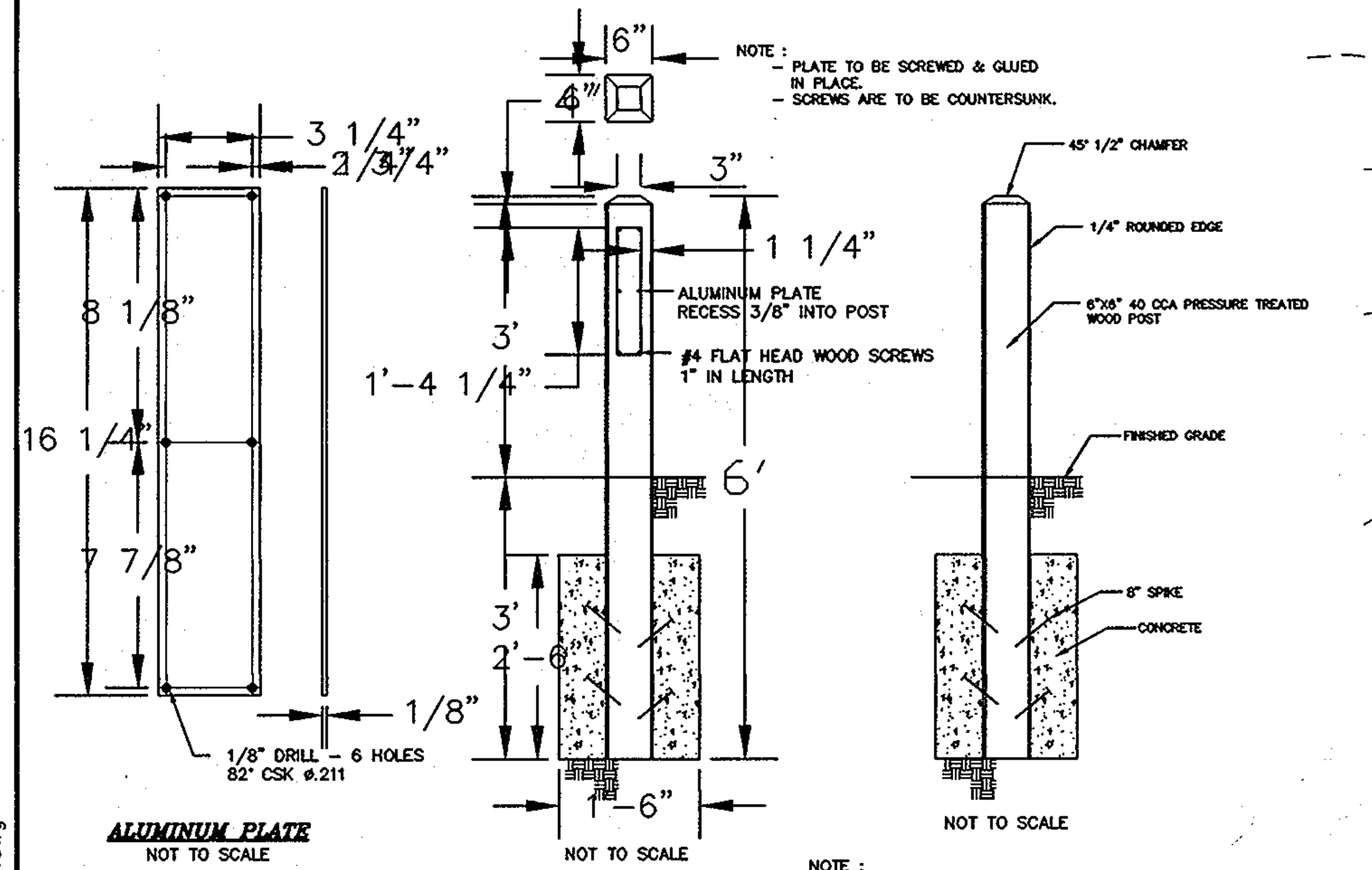
EXIST. DRAINAGE AREA	16.5 AC
PROP. DRAINAGE AREA	28.5 AC
REQ'D STORAGE	102,600 C.F.
STORAGE PROV'D	123,710 C.F.
ORIFICE SIZE	4"
EMBANKMENT ELEV.	352.70
WEIR CREST ELEV.	350.40
OUTLET ELEV. (WET STORAGE ELEV.)	344.83
BOTTOM ELEV.	340.0
Q1 VOLUME REQUIRED/PROVIDED	2.8 AC.FT.
Q1 ALLOWABLE DISCHARGE RATE	0.8 CFS



SWM ACCESS DRIVE

LEGEND

- 15% TO 25% SLOPES
- 25% OR GREATER SLOPES
- LAND TO BE DEDICATED TO THE STATE OF MARYLAND FOR STATE ROAD
- LAND TO BE DEDICATED TO HOWARD COUNTY, MARYLAND FOR PUBLIC ROAD
- PROPOSED PUBLIC DRAINAGE & UTILITY EASEMENT
- PROPOSED PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
- PROPOSED PUBLIC WATER, SEWER, & UTILITY EASEMENT
- EXISTING WETLANDS
- EXISTING SPECIMEN TREES
- FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PRIVATE NOISE WALL MAINTENANCE EASEMENT
- PRIVATE REFORESTATION & NOISE BERM MAINTENANCE EASEMENT
- 10' PUBLIC STORM DRAIN, TREE MAINTENANCE, & UTILITY EASEMENT
- INLET PROTECTION
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE



ALUMINUM PLATE
NOT TO SCALE

NOTE:
- PLATE TO BE SCREWED & GLUED IN PLACE.
- SCREWS ARE TO BE COUNTERSUNK.

NOTE:
- BOLLARDS WILL BE PLACED AT THE FOUR CORNERS OF THE OPEN SPACE ACCESS STRIP.
- THE ALUMINUM PLATE WILL ONLY BE REQUIRED ON THE FRONT RIGHT BOLLARD DIRECTLY FACING THE ROAD.

BOLLARD DETAIL

SEDIMENT TRAP NO. 1
STONE OUTLET SEDIMENT TRAP – ST-II
MAXIMUM DRAINAGE AREA = 3.7 ACRES
STORAGE REQUIRED = 13,320 CU. FT.
STORAGE PROVIDED AT WEIR CREST (355.0) = 27,664 CU. FT.
WET STORAGE REQUIRED = 6,660 CU. FT.
WET STORAGE PROVIDED AT 352.0 = 9,378 CU. FT.
WEIR LENGTH = 15 FEET
STORAGE DEPTH BELOW CREST = 5 FEET
EMBANKMENT HEIGHT = 3 FEET
BOTTOM DIMENSIONS = 56 FT. X 70 FT.
CREST ELEVATION = 355.0

FOR TSWM, ONE YEAR STORM IS STORED IN DRY POOL, REQ'D VOLUME = 6,660 CU. FT.
WET POOL VOLUME AT 352.0 = 18,286 CU. FT.

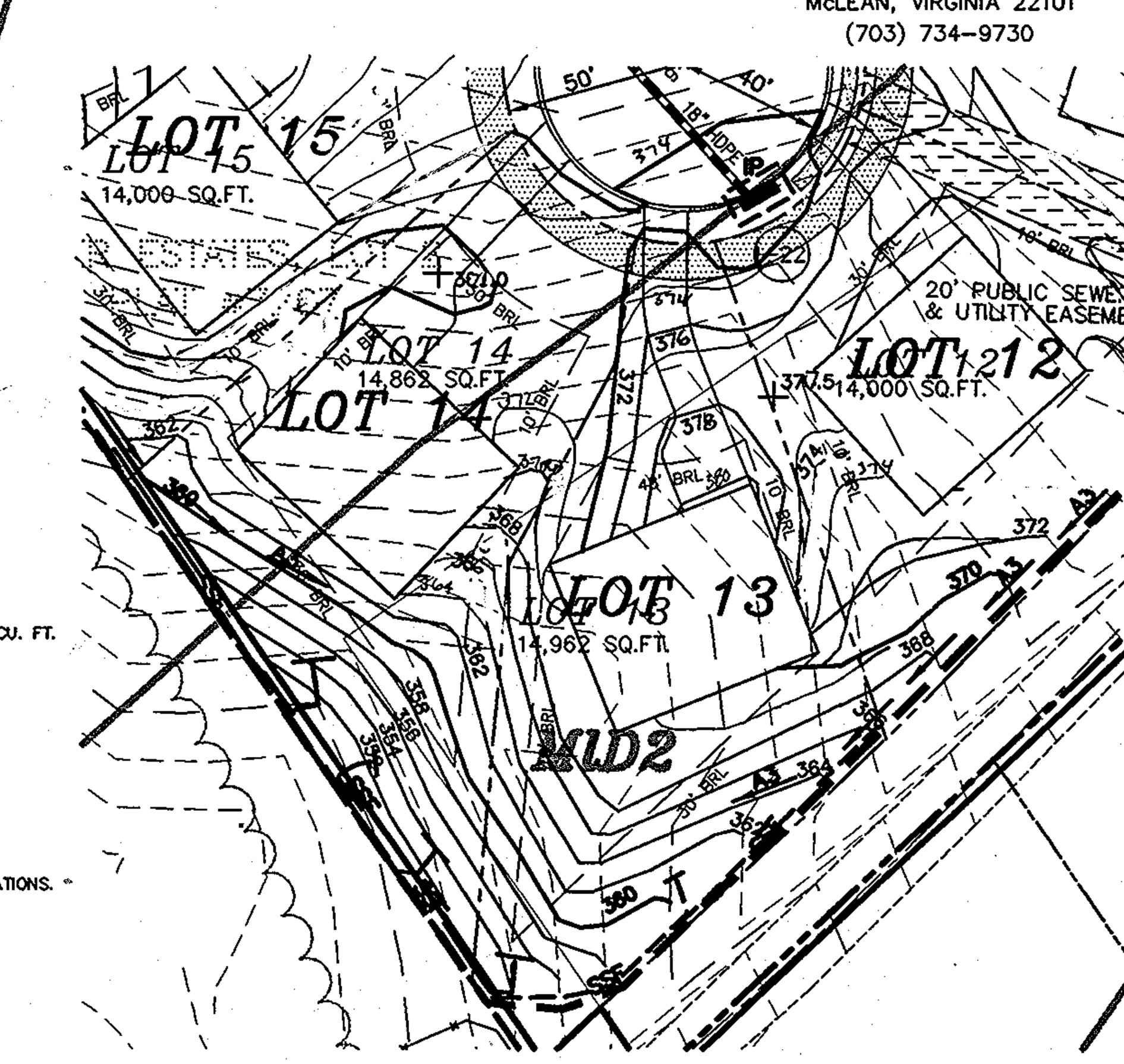
SEE SHEET 14 FOR TRAP DETAIL AND SPECIFICATION.
USE FABRIC OPTION FOR OUTFALL PER TRAP SPECIFICATIONS.

SPECIMEN TREES

KEY	SPECIES
ST1	48" YELLOW POPLAR
ST2	38" BLACK WALNUT
ST3	36" CHESTNUT OAK

SOILS DESCRIPTION

SYMBOL	DESCRIPTION
EkB2	ELIOAK SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE C
GIB2	GLENELG SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE B
GIC3	GLENELG SILT LOAM, 8% TO 15% SLOPES, SEVERELY ERODED -- TYPE B
MIC3	MANOR LOAM, 8% TO 15% SLOPES, SEVERELY ERODED -- TYPE B
MID2	MANOR LOAM, 15% TO 25% SLOPES, MODERATELY ERODED -- TYPE B
MIE	MANOR LOAM, 25% TO 45% SLOPES -- TYPE B



FINAL GRADES AT SEDIMENT TRAP #1
SCALE 1"=50'

OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE P.E. NO.: 19942 DATE: 10/6/11

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 2/13/06
JOHN B. MILDENBERG
PRINTED NAME OF ENGINEER

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 2/13/06
RUSSELL DICKENS, MANAGER, TANTERRA, L.C.
PRINTED NAME OF DEVELOPER

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/22/06

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/27/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/31/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/29/06

PROFESSIONAL ENGINEER — R. JACOB HIKMAT — STATE OF MARYLAND — No. 17942
10/6/11
NO 'AS-BUILT' INFO REQUIRED ON THIS SHEET

00-020/dwg/sec-ii/final/020-ii-grade-sh17.dwg

JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 – PARCEL 229 & 352 – GRID 15
FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

GRADING AND EROSION & SEDIMENT CONTROL PLAN

project	date
00-020	FEB.2006
illustration	engineering
SJD	SJD
scale	approval
1"=50'	JBM

no.	description	date
1.	CHANGED SITE GRADING SHOWING WATERSHED CHANGE	11.13.06

revisions

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

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

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

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

1) PREFERRED – APPLY 2 TONS PER ACRES DOLOMITIC LIMESTONE (92 LBS/1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING , APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS./1000 SQ.FT.).
2) ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING – FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE 1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LOBS. PER ACRE (.05 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) – 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) – USE SOD. OPTION (3) – SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONE/ACRE WELL ANCHORED STRAW.

MULCHING – APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./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/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

MAINTENANCE – INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

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

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

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

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU NOVEMBER 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.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED WEED FREE SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

STANDARD SEDIMENT CONTROL NOTES

1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF NAY CONSTRUCTION, (313-1855).

2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.

3) FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC.51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC.52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

6) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7) SITE ANALYSIS:

TOTAL AREA OF SITE:	37.66	ACRES
AREA DISTURBED:	31.20	ACRES
AREA TO BE ROOFED OR PAVED:	9.40	ACRES
AREA TO BE VEGITATIVELY STABILIZED:	21.80	ACRES
TOTAL CUT:	150,000	CU. YDS.
TOTAL FILL:	150,000	CU. YDS.
TOTAL WASTE/BORROW AREA LOCATION:	N/A	

THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY.
CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN QUANTITIES MEASUREMENTS.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

9) ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

STANDARD AND SPECIFICATIONS FOR TOPSOIL

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 SPECIFICATION. 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 EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

i. 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 CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.

ii. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSON-SON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

iii. WHERE THE 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:

i. 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:

i. 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 TOPSOILS SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A pH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PERSCRIBED 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 MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR 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 APPLLICATION

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, ALBEIT 4" – 8" HIGHER IN ELEVATION.

iii. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" TO 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.

VI. 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 AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

a. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS WHO 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 LEASE 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHOURUS, 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.

iv. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILLIZER 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-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. (1 DAY)
2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE (1 DAY)
3. CONSTRUCT SEDIMENT TRAP NO. 1 AND SEDIMENT BASIN NO. 1. SEDIMENT BASIN NO. 1 IS TO INCLUDE TEMPORARY LOW FLOW ORIFICE AT INVERT INDICATED AND 8" PVC PIPE RISER CONSTRUCT RIP-RAP OUTLET CHANNEL FROM BASIN, AND ECM ON DISTURBED AREAS OF OUTFALL CHANNEL. INSTALL SUPER SILT FENCE BELOW TRAP AND BASIN PER PLAN (4 DAYS).
4. CONSTRUCT REMAINING SUPER SILT FENCES AND EARTH DIKES (3 DAYS)
5. RECEIVE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED.
6. CONSTRUCT STORM DRAIN FROM I10 TO ES1.
DIRECT RUNOFF TO CONSTRUCTED INLETS UNTIL ALL CONTRIBUTING AREAS HAVE RECEIVED PERMANENT STABILIZATION
7. WITH PERMISSION FROM THE INSPECTOR, BEGIN MASS GRADING (45 DAYS).
8. BEGIN CONSTRUCTION ON REMAINING UTILITIES(90 DAYS).
DELAY CONSTRUCTION ON LOTS 13 AND 14 UNTIL DISTURBED AREA DRAINING TO THE TRAP IS STABILIZED.
9. WHEN DISTURBED AREAS TO SEDIMENT TRAP 1 HAS BEEN STABILIZED, AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE TRAP AND CONSTRUCT SITE TO FINAL GRADES INDICATED. (5 DAYS)
10. PLANT AFFORESTATION AREA PER PLANS. (5 DAYS)
11. WHEN ALL CONTRIBUTING AREAS TO SEDIMENT AND EROSION CONTROL DEVICES HAVE BEEN STABILIZED, AND WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT AND EROSION CONTROL DEVICES AND STABILIZE REMAINING DISTURBED AREAS. (15 DAYS)
12. WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, RECONSTRUCT SEDIMENT BASIN TO PERMANENT DESIGN CONTOURS. REMOVE TEMPORARY DEWATERING STANDPIPE. BRICK SHUT TEMPORARY LOW FLOW ORIFICE. CONSTRUCT WEIR WALL PER FINAL CONFIGURATION AND CONSTRUCT LOW FLOW PLATE.
ATTACH HALF SHELL TRASH RACK, AND CONSTRUCT REMAINDER OF STORM DRAIN SYSTEM. (3 DAYS).
13. STABILIZE REMAINING DISTURBED AREAS. (2 DAYS)

EROSION AND SEDIMENT CONTROL NOTES

1. ALL SEDIMENT CONTROL OPERATIONS ARE TO BE DONE IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY VOLUME IV DESIGN MANUAL AND THE STANDARDS AND SPECIFICATIONS FOR SEDIMENT CONTROL IN DEVELOPING AREAS.
2. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF BUSINESS.
3. ALL EXCAVATED MATERIALS SHALL BE STOCKPILED ON THE UPGRADE SIDE OF THE MAIN TRENCH.
4. EXCAVATION AND BACKFILL SHALL BE LIMITED TO THAT WHICH CAN BE STABILIZED WITHIN ONE WORKING DAY.
5. IMMEDIATELY FOLLOWING BACKFILL OF THE SEWER TRENCH, ALL DISTURBED AREAS ARE TO BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION AND SEEDING NOTES SHOWN ON THIS SHEET.
6. THROUGHOUT THE PROJECT, THE CONTRACTOR SHALL REGULARLY INSPECT ALL SEDIMENT CONTROL DEVICES AND PROVIDE ALL NECESSARY MAINTENANCE TO INSURE THAT ALL DEVICES ARE IN OPERATIVE CONDITION.
7. ALL SEDIMENT CONTROL FACILITIES SHALL REMAIN IN PLACE UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

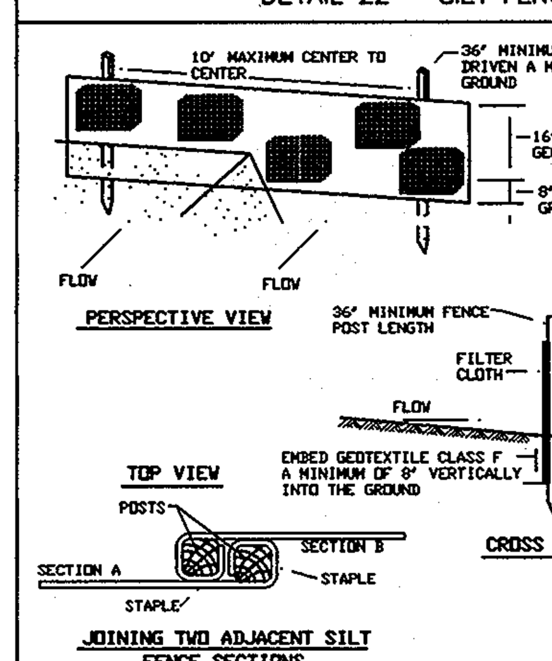
10/6/11

NO AS-BUILT INFO REQUIRED ON THIS SHEET

STATE OF MARYLAND R. JACOB HIKMAT No. 17942 PROFESSIONAL ENGINEER

* FOR REMOVABLE PUMP STATION DETAIL AND SPECIFICATIONS, BAFFLE DETAIL, AND BASIN DRAW DOWN SCHEMATIC HORIZONTAL DRAWN DOWN DEVICE, SEE SHEETS 13 & 14.

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" 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.

2. 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 ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. 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

SILT FENCE

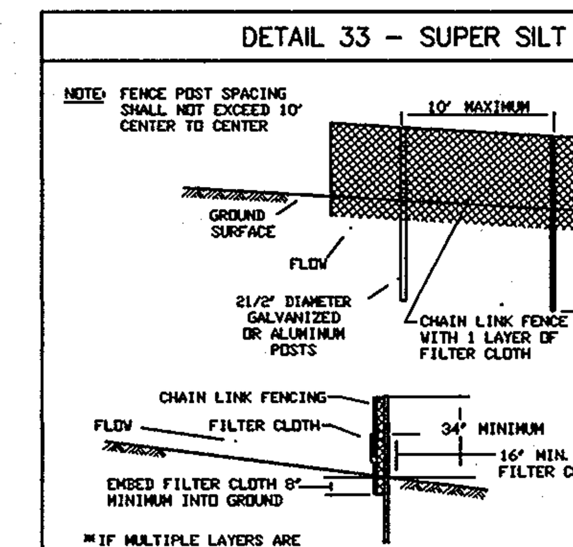
Silt Fence Design Criteria

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

DETAIL 33 – SUPER SILT FENCE



Construction Specifications

1. 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.

2. 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.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

6. 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.

7. 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:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

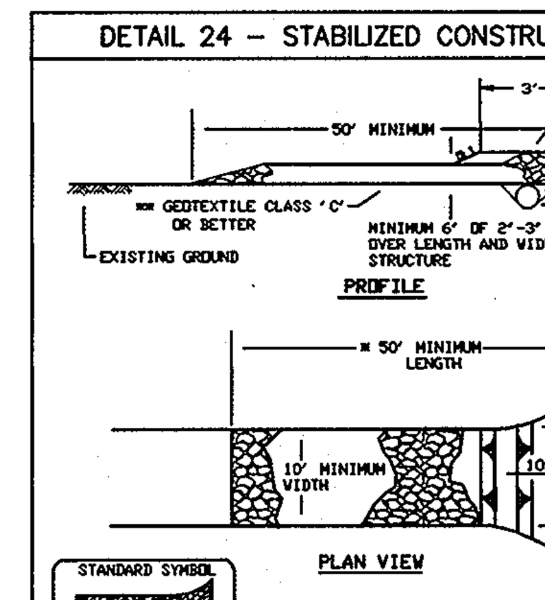
SUPER SILT FENCE

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 H - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length - minimum of 50' (*30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.

3. 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.

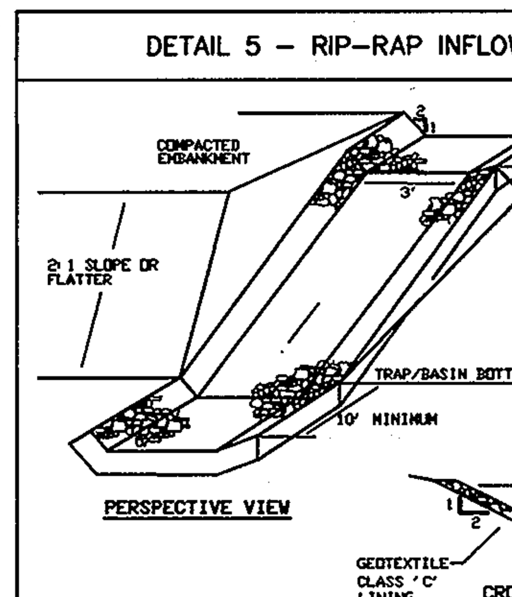
4. Stone - crushed aggregate (2" to 3") or reclained or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. 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.

6. 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 5 – RIP-RAP INFLOW PROTECTION



Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".

2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.

3. Entrance and exit sections shall be installed as shown on the detail section.

4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.

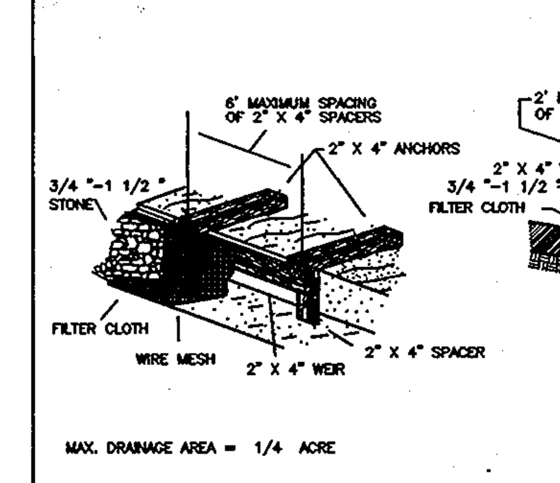
5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.

6. Rip-rap should blend into existing ground.

7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B - 6 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).

4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

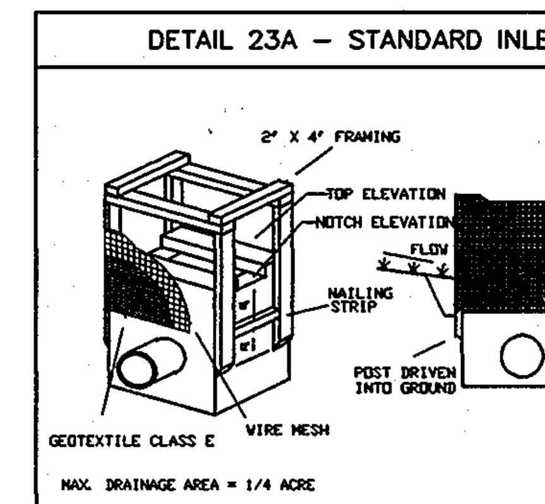
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A – STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.

2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.

3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.

4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE P.E. NO.: 17942 DATE: 10/6/11

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER DATE 2/13/06
JOHN B. MILDENBERG
PRINTED NAME OF ENGINEER

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER DATE 2/13/06
RUSSELL DICKENS, MANAGER, TANTERRA, L.C.
PRINTED NAME OF DEVELOPER

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE DATE 2/27/06

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT DATE 2/27/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 3/21/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 3/28/06

project	date
00-020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
NTS	JBM

no.	description	date
	revisions	

JAMESTOWN LANDING, SECTION II

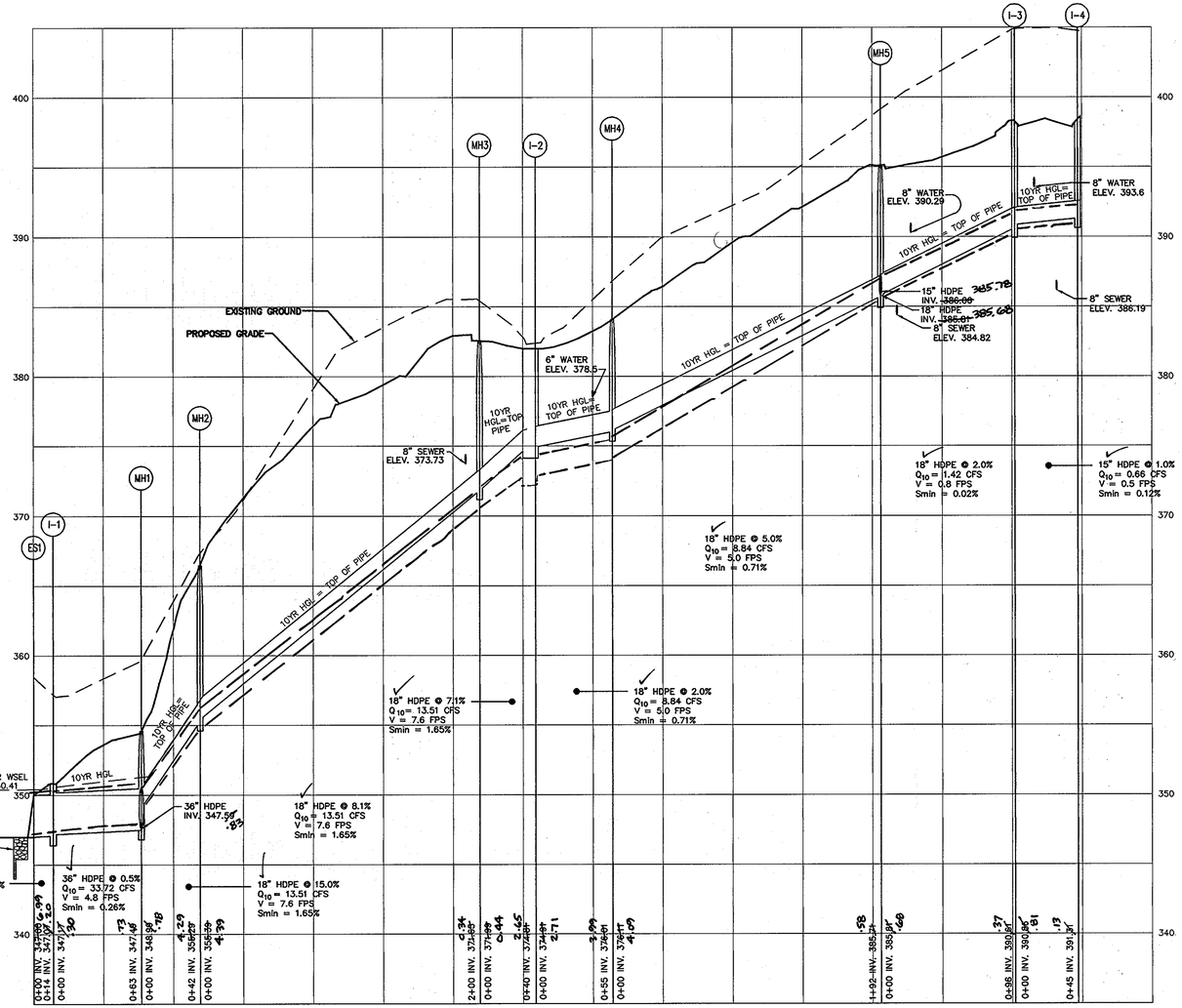
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 – PARCEL 229 & 352 – GRID 15
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

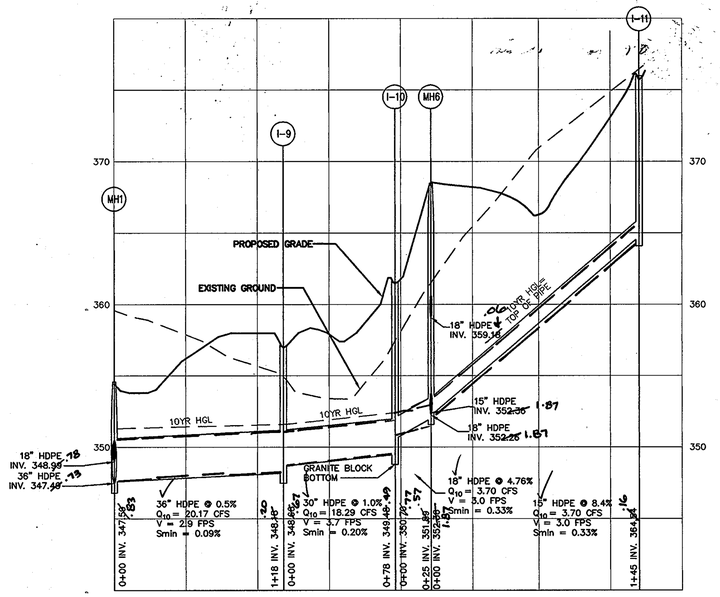
F-05-104

00-020/dwg/sec-ii/final/020-ii-sed-notes-sht8.dwg



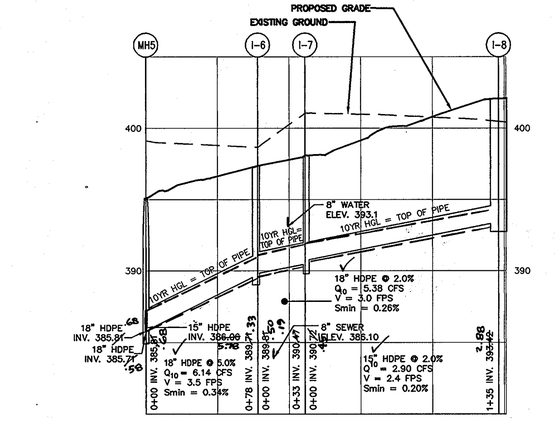
STORM DRAIN PROFILE – ES1 TO I-4

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



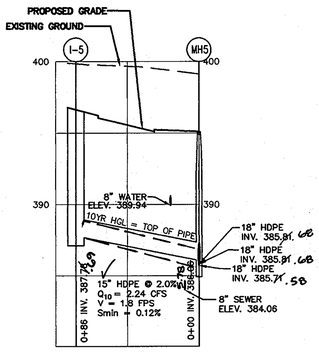
STORM DRAIN PROFILE – MH1 TO I-11

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



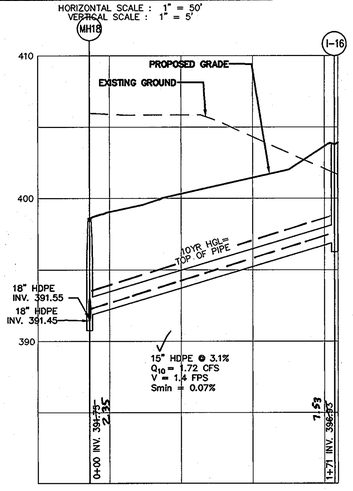
STORM DRAIN PROFILE – MH5 TO I-8

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



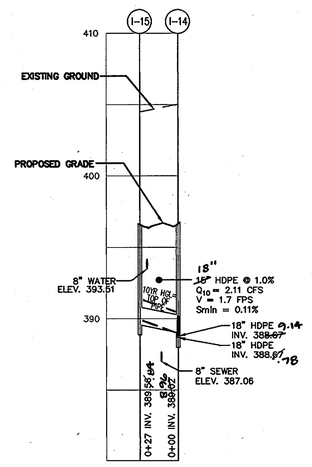
STORM DRAIN PROFILE – I-5 TO MH5

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



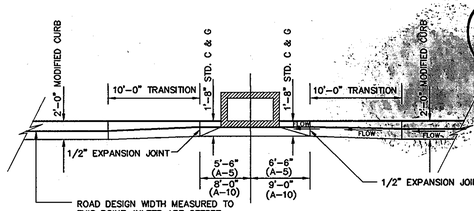
STORM DRAIN PROFILE – MH18 TO I-16

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



STORM DRAIN PROFILE – I-15 TO I-14

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



CURB TRANSITION – INLETS

NTS

STATE OF MARYLAND
GREGORY SCOTT SHANEBERGER
No. 10849
PROFESSIONAL LAND SURVEYOR

AS-BUILT SURVEY 10/30/11

Shaneberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043

STATE OF MARYLAND
JACOB TUKWA
No. 17942
PROFESSIONAL ENGINEER

10/6/11

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS

OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT JA — DATE 3/1/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION YG — DATE 3/2/06

project	date
00-020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description	date
	revisions	

JAMESTOWN LANDING, SECTION II

LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 – PARCEL 229 & 352 – GRID 15
FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STORM DRAIN PROFILES

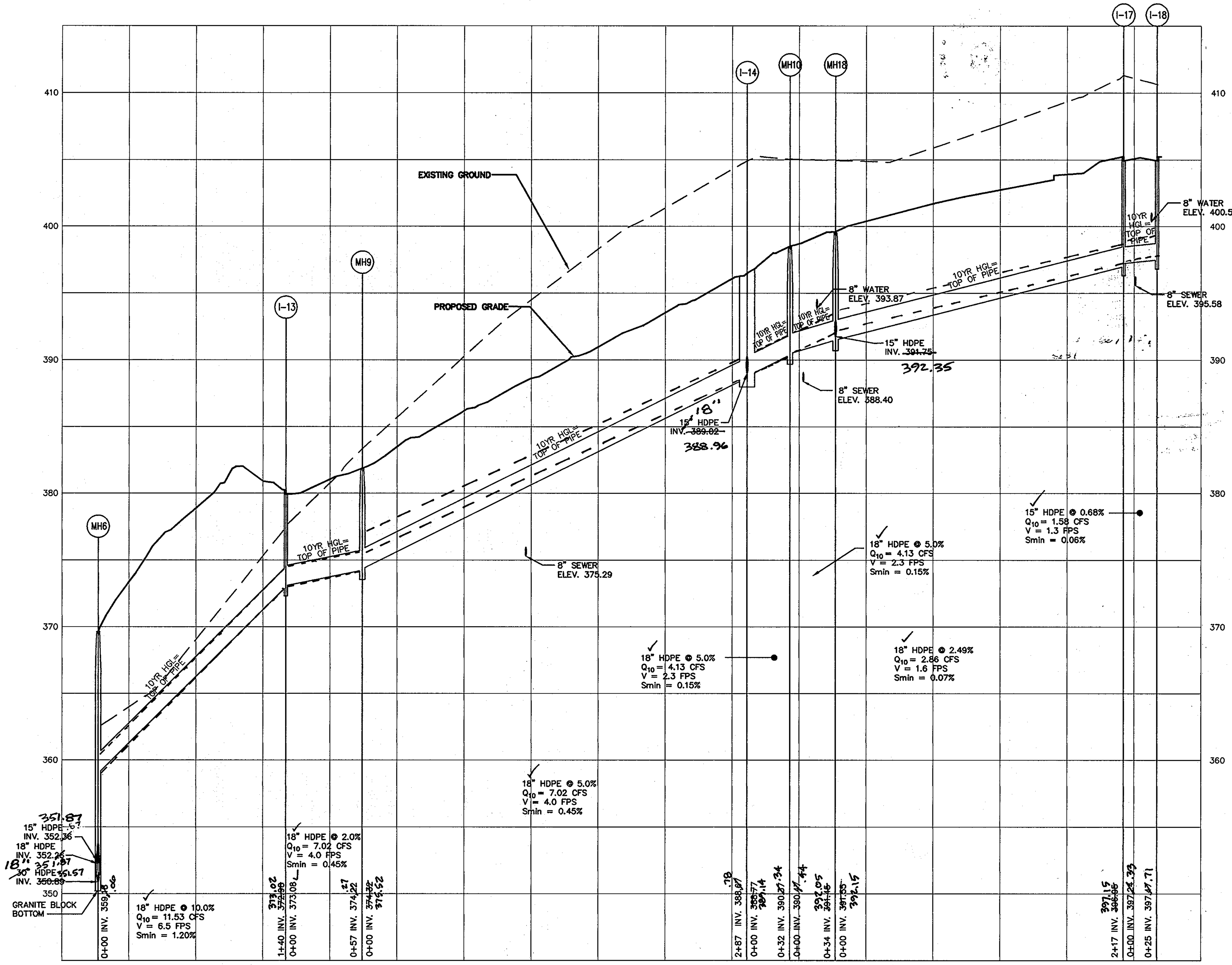
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Bdlt. (301) 621-5531 Wash. (410) 997-0298 Fax.

F-05-104

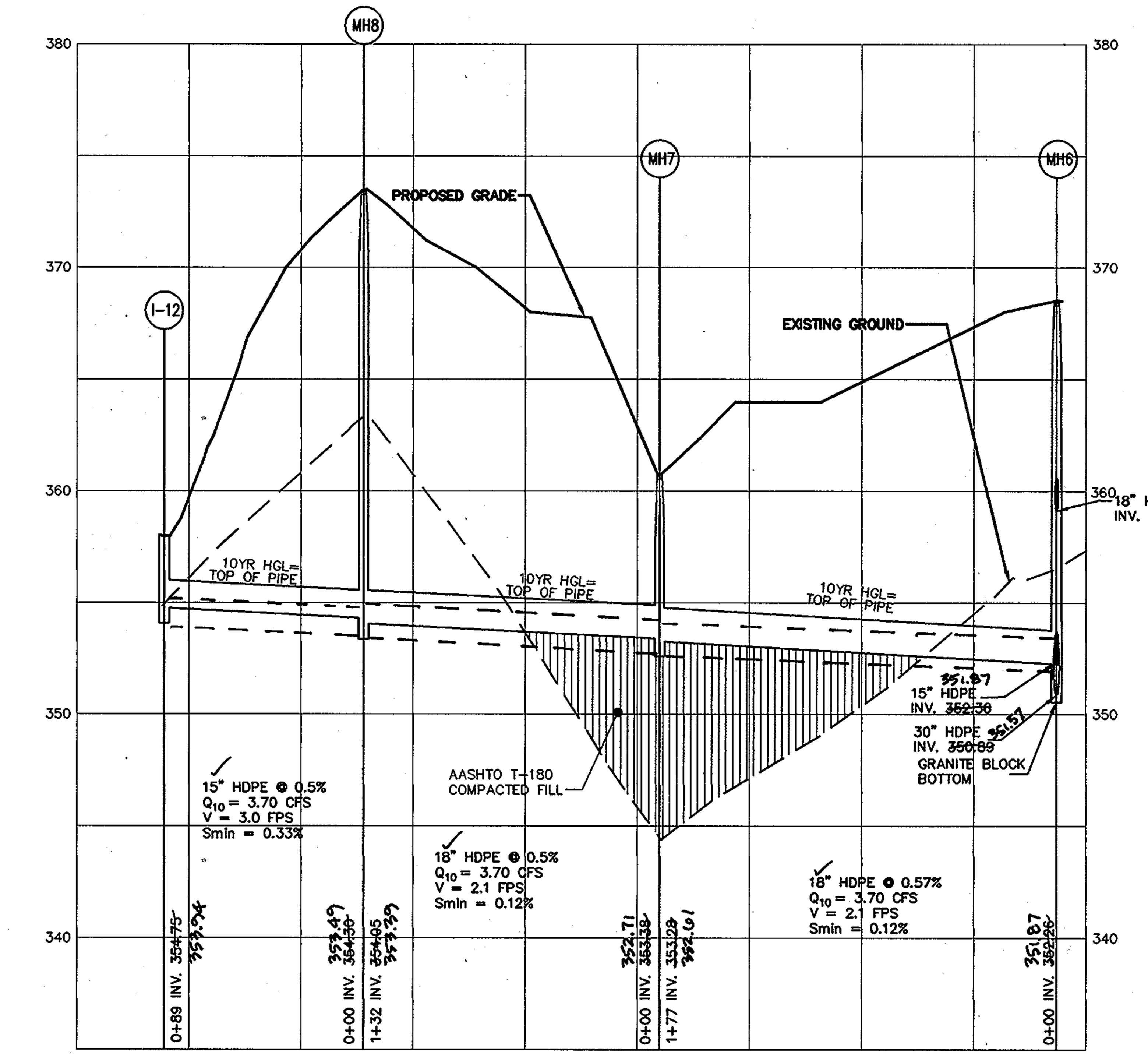
00-020/dwg/sec-ii/final/020-ii-storm-prof-sh19.dwg

AS-BUILT
Shanaberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043

10/6/11
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS.



STORM DRAIN PROFILE MH 6 TO I-18
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



STORM DRAIN PROFILE - I-12 TO MH 6
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'

I-12: USE STANDARD RCP. BREAK INVERT AS SHOWN ON PLANS AND DETAIL SD-4.14. INVERT SHALL BE 3' BELOW GRATE ELEVATION. FILL BOTTOM OF RCP TO INVERT PER STANDARD DETAIL.

OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS 3-6-06 DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT 3/31/06 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION 3/29/06 DATE

project	date
00-020	FEB 06
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description revisions	date

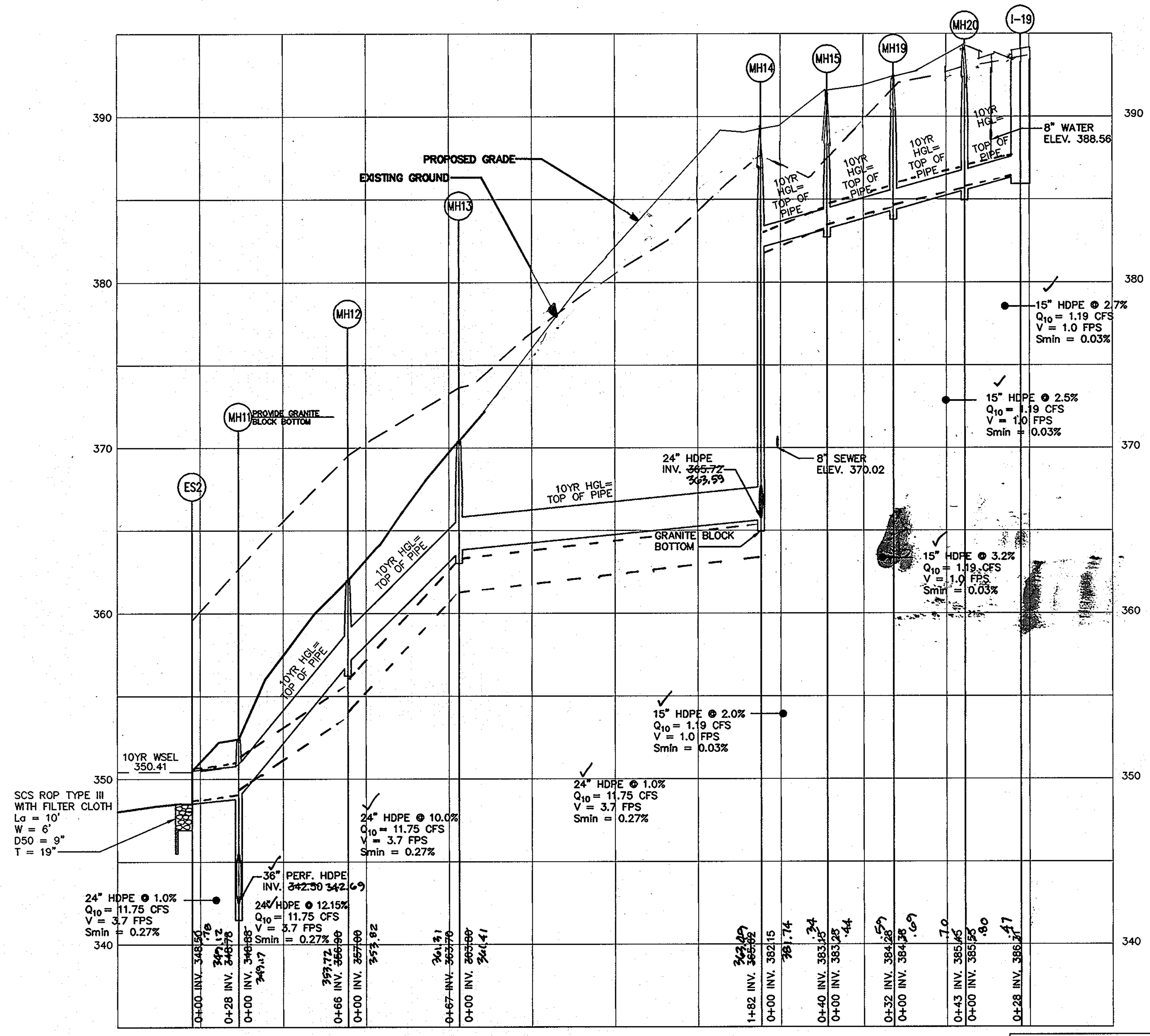
JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STORM DRAIN PROFILES

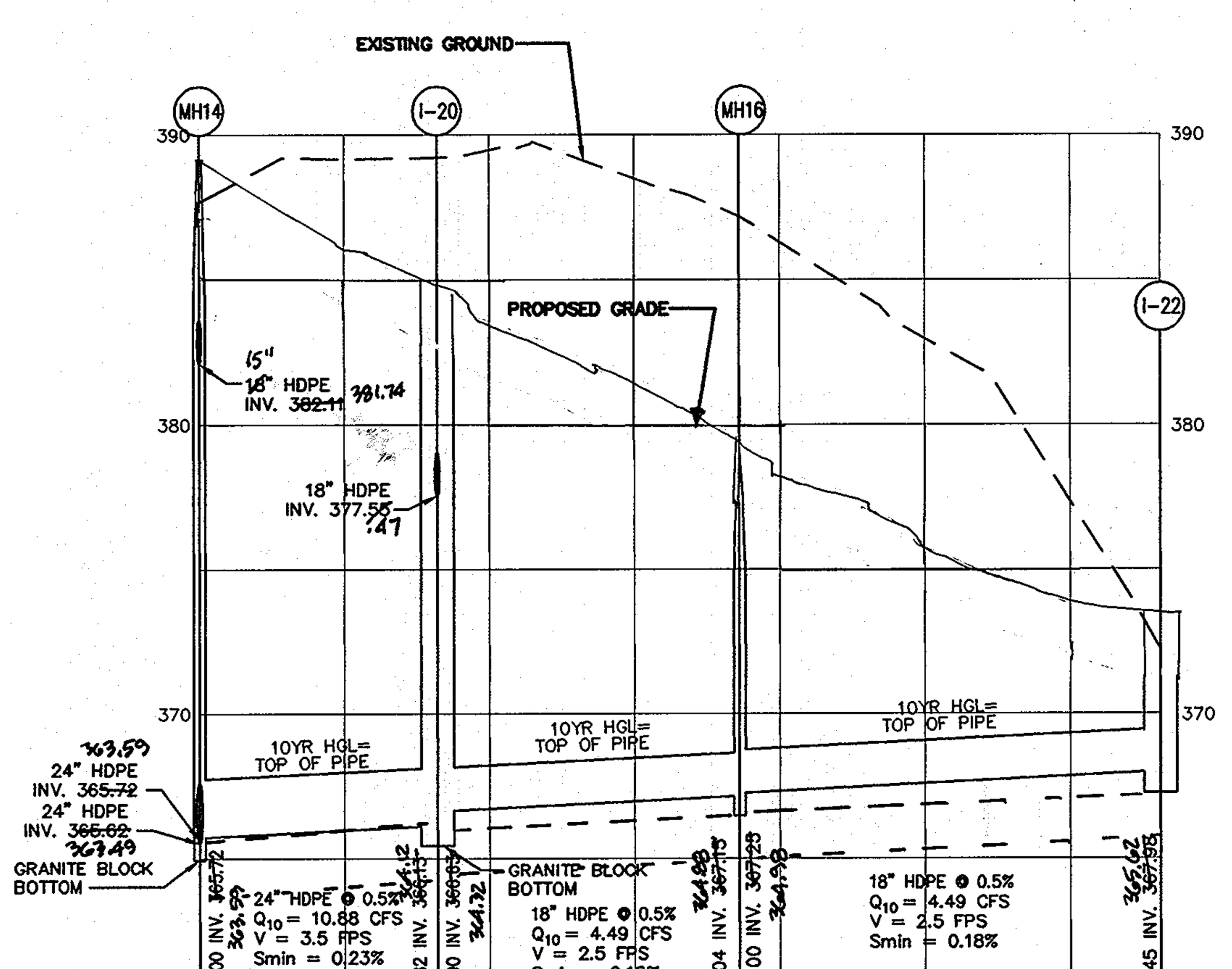
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

00-020/dwg/sec-ii/final/020-ii-storm-prof-sht10.dwg

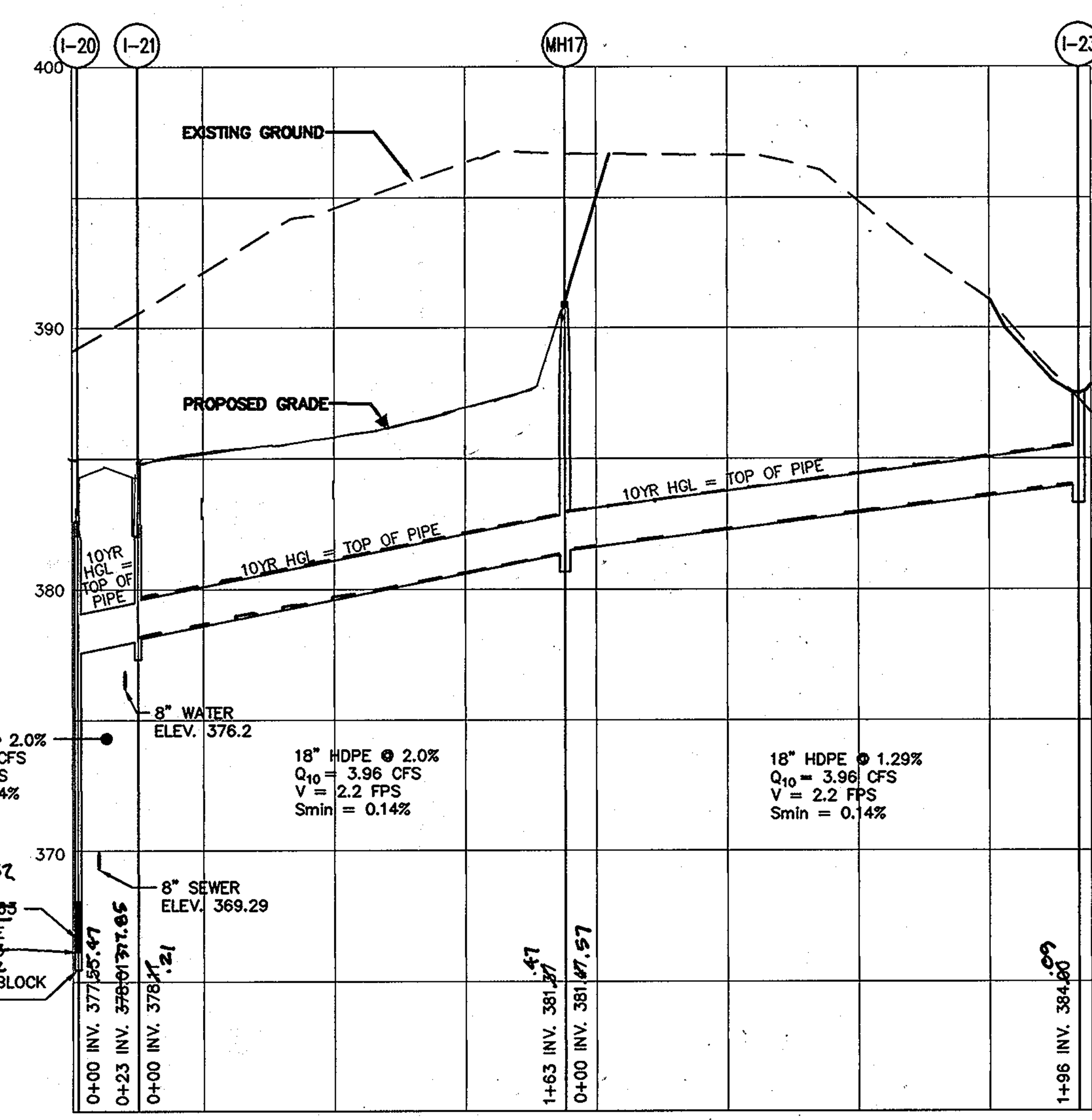


STORM DRAIN PROFILE - ES2 TO I-19
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



STORM DRAIN PROFILE - MH14 TO I-22
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'

I-20: WALL THICKNESS SHALL BE 8" FROM 0 TO 12'.
WALLS WILL BE 12" THICK FROM 12' TO BOTTOM OF STRUCTURE.



STORM DRAIN PROFILE - I-20 TO I-23
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS
10/6/11

AS-BUILT SURVEY
Shanaberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043

ROCK OUTLET PROTECTION III

CONSTRUCTION SPECIFICATIONS

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

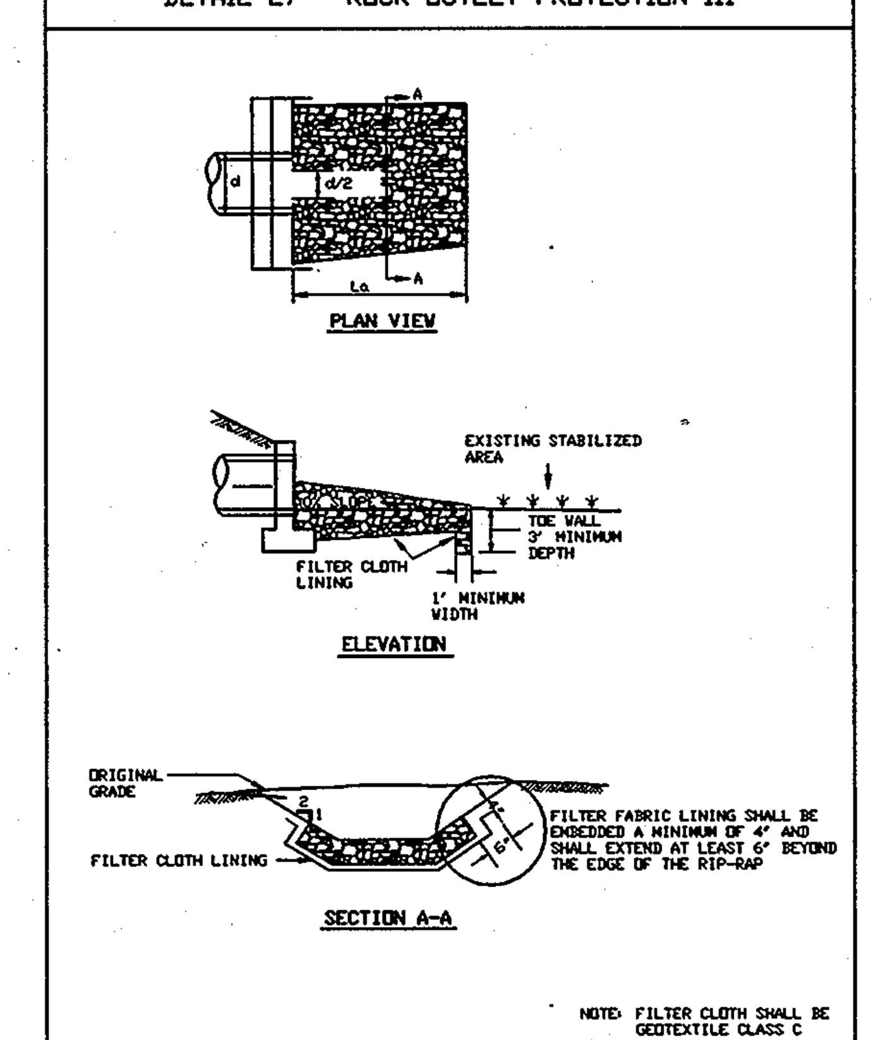
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two places of geotextile shall be a minimum of one foot.

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

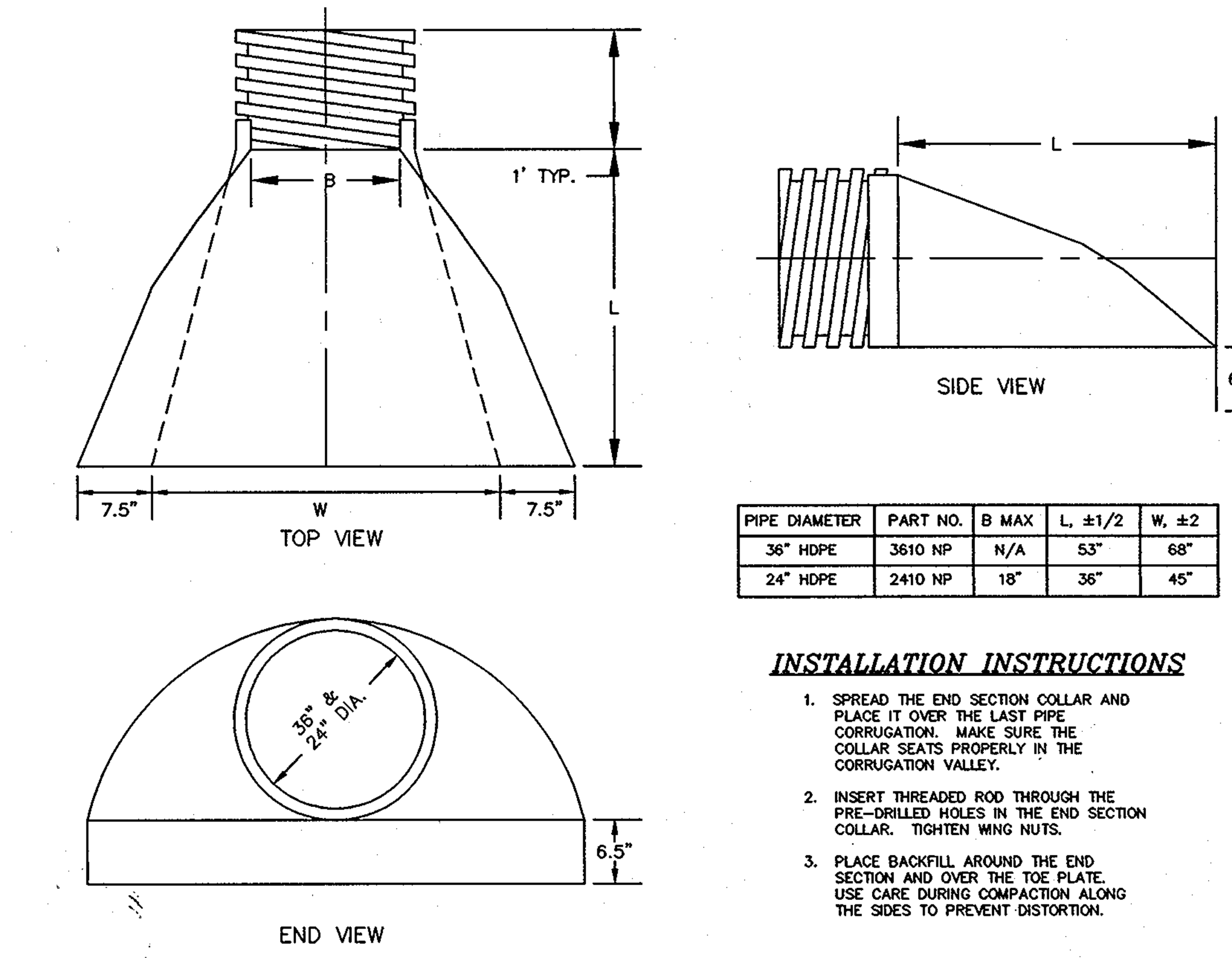
5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE F-11-16 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 27 - ROCK OUTLET PROTECTION III



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE F-11-16 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



PIPE DIAMETER	PART NO.	B MAX	L, ±1/2	W, ±2
36" HDPE	3610 NP	N/A	53"	68"
24" HDPE	2410 NP	18"	36"	45"

INSTALLATION INSTRUCTIONS

1. SPREAD THE END SECTION COLLAR AND PLACE IT OVER THE LAST PIPE CORRUGATION. MAKE SURE THE COLLAR SEATS PROPERLY IN THE CORRUGATION VALLEY.
2. INSERT THREADED ROD THROUGH THE PRE-DRILLED HOLES IN THE END SECTION COLLAR. TIGHTEN WING NUTS.
3. PLACE BACKFILL AROUND THE END SECTION AND OVER THE TOE PLATE. USE CARE DURING COMPACTION ALONG THE SIDES TO PREVENT DISTORTION.

HDPE END SECTIONS
(PART NO. 3610NP & 2410 NP)
NOT TO SCALE

STRUCTURE SCHEDULE

NO.	LOCATION*	TOP**	INV. IN	INV. OUT	COMMENTS
I-1	N 534,344.606 E 1,336,969.545	351.67	347.17	347.07	INLET TYPE S (HO. CO. STD SD 4.22)
I-2	ARDEN COURT LINEAR PROFILE STA 1+65.86, 0.03' LEFT	382.84	374.91	374.81	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-3	ARDEN COURT STA 1+76.41, 20.36' RIGHT	398.63	390.86	390.81	INLET TYPE A-5 (HO. CO. STD SD 4.01)
I-4	ARDEN COURT STA 1+77.93, 21.05' LEFT	398.57	----	391.31	INLET TYPE A-5 (HO. CO. STD SD 4.01)
I-5	WATERSIDE COURT STA 0+76.31, 15.10' RIGHT	396.64	----	387.76	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-6	SCHOLARS LANE STA 0+88.00, 16.41' LEFT	397.50	389.81	389.71	INLET TYPE A-5 (HO. CO. STD SD 4.01)
I-7	SCHOLARS LANE STA 0+90.99, 14.40' RIGHT	398.12	390.72	390.47	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-8	SCHOLARS LANE STA 2+27.66, 12.44' RIGHT	402.26	----	398.42	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-9	N 534,507.863 E 1,337,036.595	357.00	348.58	348.18	INLET TYPE E (HO. CO. STD SD 4.21)
I-10	N 534,640.205 E 1,337,125.609	361.50	349.48	349.70	INLET TYPE YARD (HO. CO. STD SD 4.14)
I-11	N 534,625.413 E 1,337,087.080	376.00	----	364.64	INLET TYPE YARD (HO. CO. STD SD 4.14) 24" YARD INLET
I-12	N 534,671.037 E 1,336,680.585	358.50	----	354.73	INLET TYPE YARD (HO. CO. STD SD 4.14) 24" YARD INLET
I-13	N 534,729.642 E 1,336,920.936	380.21	373.08	372.98	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-14	SCHOLARS LANE STA 6+36.56, 12.44' LEFT	396.50	389.02 / 388.77	388.67	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-15	SCHOLARS LANE STA 6+36.56, 12.44' RIGHT	396.50	----	389.56	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-16	N 535,082.725 E 1,337,285.021	403.80	----	396.95	INLET TYPE YARD (HO. CO. STD SD 4.14)
I-17	SONNET COURT STA 0+40.32, 12.44' LEFT	405.25	397.24	396.99	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-18	SONNET COURT STA 0+40.32, 12.44' RIGHT	405.25	----	397.47	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-19	WATERSIDE COURT 5+44.57, 10.44' LEFT	394.16	364.52	386.31	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-20	WATERSIDE COURT STA 7+25.95, 10.44' RIGHT	384.70	377.85 / 380.03	360.12	INLET TYPE A-10 (HO. CO. SD 4.02) MODIFIED SEE PROFILE
I-21	WATERSIDE COURT STA 7+26.74, 10.44' LEFT	384.83	378.11	378.01	INLET TYPE A-10 (HO. CO. STD SD 4.02)
I-22	N 533,731.000 E 1,337,186.254	373.38	----	367.98	INLET TYPE A-10 (HO. CO. STD SD 4.02) - SUMP
I-23	N 533,877.374 E 1,337,495.921	386.00	----	384.00	INLET TYPE YARD (HO. CO. STD SD 4.14) 24" YARD INLET
MH1	N 534,393.600 E 1,337,007.991	354.50	348.99 / 347.59	347.49	MH (HO. CO. STD G 5.01)
MH2	N 534,388.987 E 1, 337,049.402	366.30	355.39	355.29	MH (HO. CO. STD G 5.01)
MH3	N 534,478.880 E 1,337,227.964	382.72	374.00	371.05	MH (HO. CO. STD G 5.01)
MH4	ARDEN COURT, STA 4+63.95, 13.05' RIGHT	384.06	376.11	376.01	MH (HO. CO. STD G 5.01)
MH5	ARDEN COURT, STA 2+71.27, 9.71' RIGHT	395.45	386.06 / 385.81 / 385.81	385.71	MH (HO. CO. STD G 5.01)
MH6	N 534,598.769 E 1,336,986.850	368.40	359.18 / 352.261 / 352.261	351.86	MH (HO. CO. STD G 5.01)
MH7	N 534,573.495 E 1,336,812.399	360.40	353.38	353.28	MH (HO. CO. STD G 5.01)
MH8	N 534,696.025 E 1, 336,765.755	373.40	354.30	354.08	MH (HO. CO. STD G 5.01)
MH9	SCHOLARS LANE, STA 9+23.54, 14.54' LEFT	381.88	374.32	374.22	MH (HO. CO. STD G 5.01)
MH10	SCHOLARS LANE, STA 5+98.26, 14.57' LEFT	398.50	390.47	390.37	MH (HO. CO. STD G 5.01)
MH11	N 534,186.824 E 1,336,913.704	352.50	348.88	348.78 / 342.50	MH (HO. CO. STD G 5.01)
MH12	N 534,120.508 E 1,336,917.095	362.00	357.00	356.90	MH (HO. CO. STD G 5.01)
MH13	N 534,076.173 E 1,336,966.694	370.50	363.80	363.70	MH (HO. CO. STD G 5.01)
MH14	WATERSIDE COURT, STA 6+43.61, 15.00' RIGHT	389.21	382.15 / 365.72	365.02	MH (HO. CO. STD G 5.01)
MH15	WATERSIDE COURT, STA 5+96.80, 17.32' RIGHT	391.56	383.25	383.15	MH (HO. CO. STD G 5.01)
MH16	WATERSIDE COURT, STA 8+28.00, 18.03' RIGHT	379.74	367.26	367.16	MH (HO. CO. STD G 5.01)
MH17	N 533,897.077 E 1,337,300.707	390.52 / 380.80	381.27 / 363.38	381.47 / 363.28	MH (HO. CO. STD G 5.01)
MH18	SCHOLARS LANE, STA 5+99.76, 10.07' LEFT	398.70	391.65	391.45	MH (HO. CO. STD G 5.01)
MH19	WATERSIDE COURT, STA 5+83.76, 17.07' RIGHT	392.38	384.38	384.28	MH (HO. CO. STD G 5.01)
MH20	WATERSIDE COURT, STA 5+44.57, 18.81' RIGHT	394.87	385.55	385.45	MH (HO. CO. STD G 5.01)
ES-1	N 534,330.855 E 1,336,968.007	----	----	347.00	36" ø HDPE END SECTION
ES-2	N 534,209.955 E 1,336,914.223	----	----	348.50	24" ø HDPE END SECTION

* STATIONS GIVEN TO CENTERLINE FACE OF INLET AT TOP OF CURB FOR INLETS LOCATED WITHIN THE ROAD RIGHT-OF-WAY. STATIONS FOR "K" INLETS TO CL OF INLET. LOCATION OF MANHOLES IS TO CL OF MANHOLE COVER. END SECTION GIVEN TO THE CENTERLINE OF PIPE AT THE CONNECTION OF THE STORM DRAIN PIPE TO THE END SECTION.

** ELEVATIONS MEASURED TO CENTER OF ALL INLETS.

PIPE SCHEDULE

QUANTITY	PIPE SIZE
801'	15" HDPE
2460'	18" HDPE
343'	24" HDPE
78'	30" HDPE
195'	36" HDPE

OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-6-06
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/21/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/20/06

project	date
00-020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description	date
1	CHANGED GRADING ON WATERSIDE COURT STORM DRAIN PROFILE AND TOP, 2' CHANGE TO BALANCE CUT/FILL	10/12/06

revisions

JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STORM DRAIN PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

00-020/dwg/sec-ii/final/020-ii-storm-prof-sht11.dwg

MD-378 POND SPECIFICATIONS (JANUARY 2000)

CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORM WATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DRAIN AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL – THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT – AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION – THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT. WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT OFF TRENCH – THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE – THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURAL BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7". TO ASSURE FLOWABILITY OF THE MATERIAL, ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.). TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPER OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUIT

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

I. MATERIALS – (POLYMER COATED STEEL PIPE) – STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING BANDS OR FLANGES.

MATERIALS – (ALUMINUM COATED STEEL PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS – (ALUMINUM PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-21 L WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS – ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12-INCH WIDE HUGGER TYPE BAND WITH 0-RING GASKETS HAVING A MINIMUM DIAMETER OF ½ INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEARNS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING – THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS – REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING – REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE – BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE – THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS – PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D1785 OR ASTM D-2241 CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" – 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING –THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILL SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

DRAINAGE DIAPHRAGMS – WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BY PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA. SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378), THE POND OWNER(S) AND THE HEIRS SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

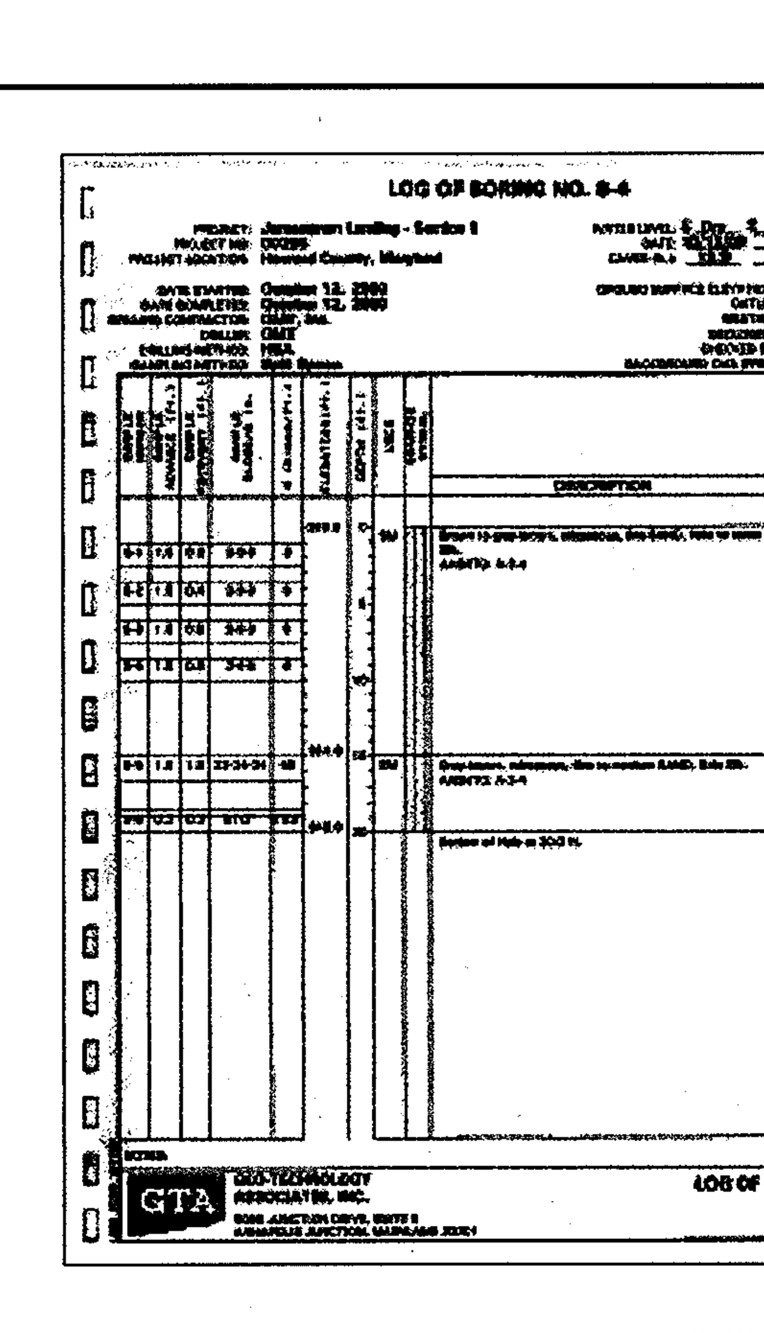
OPERATION, MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

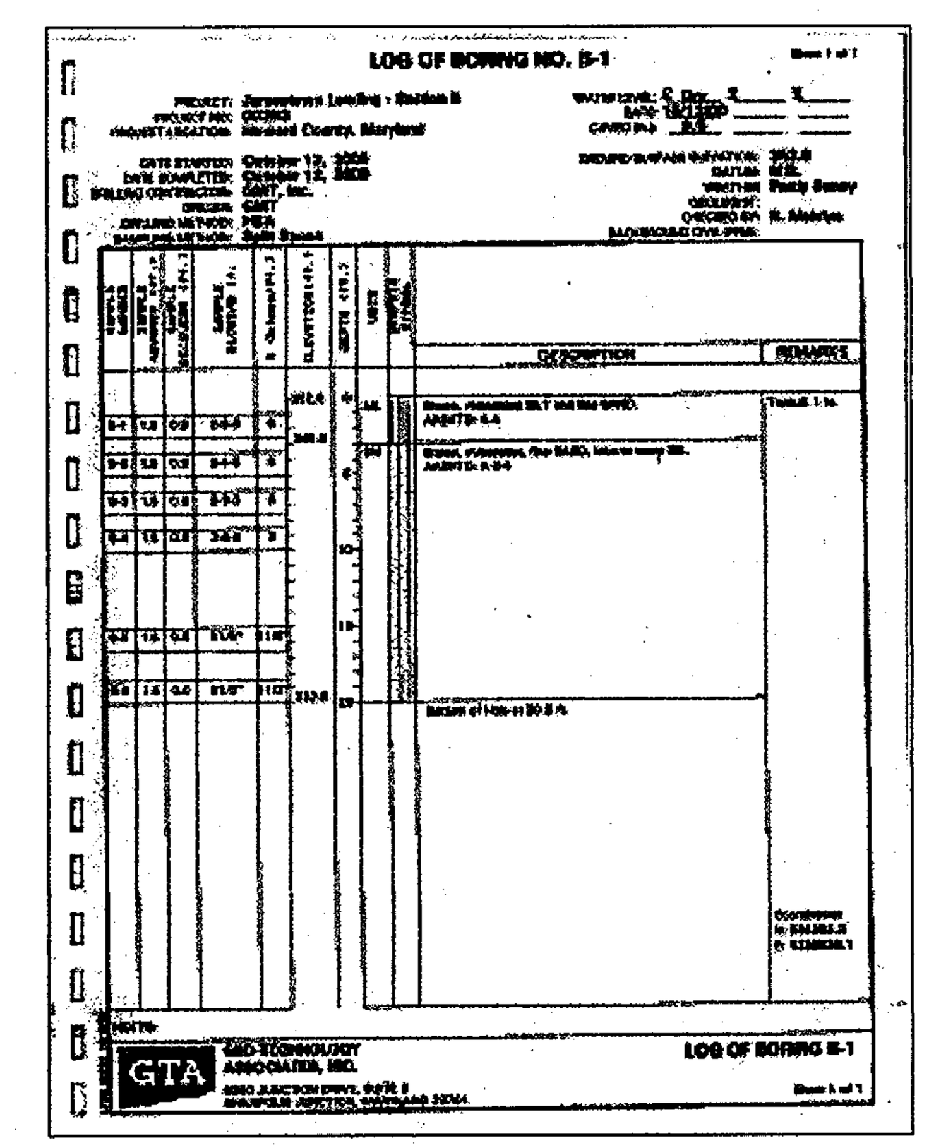
ROUTINE MAINTENANCE:

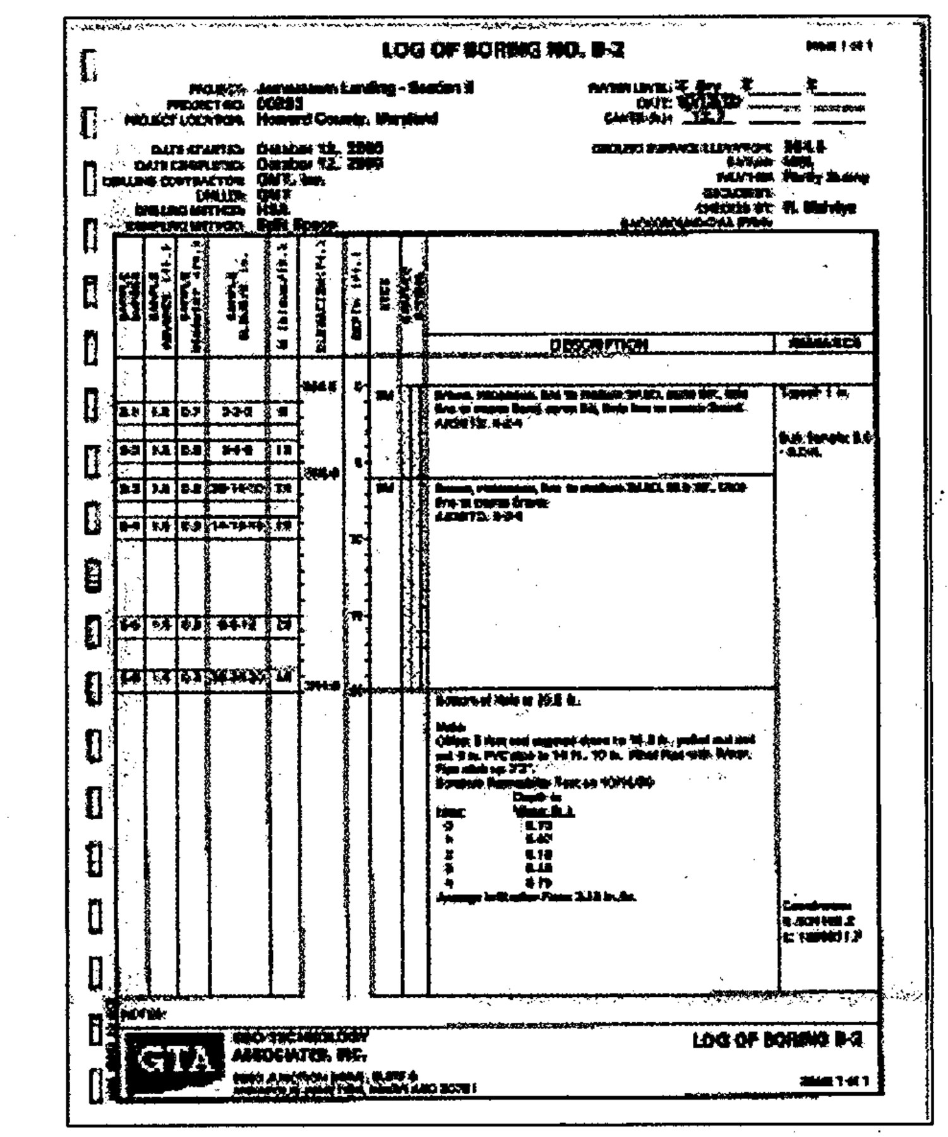
1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF EMBANKMENT SHALL ME MOWED A MINIMUM TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

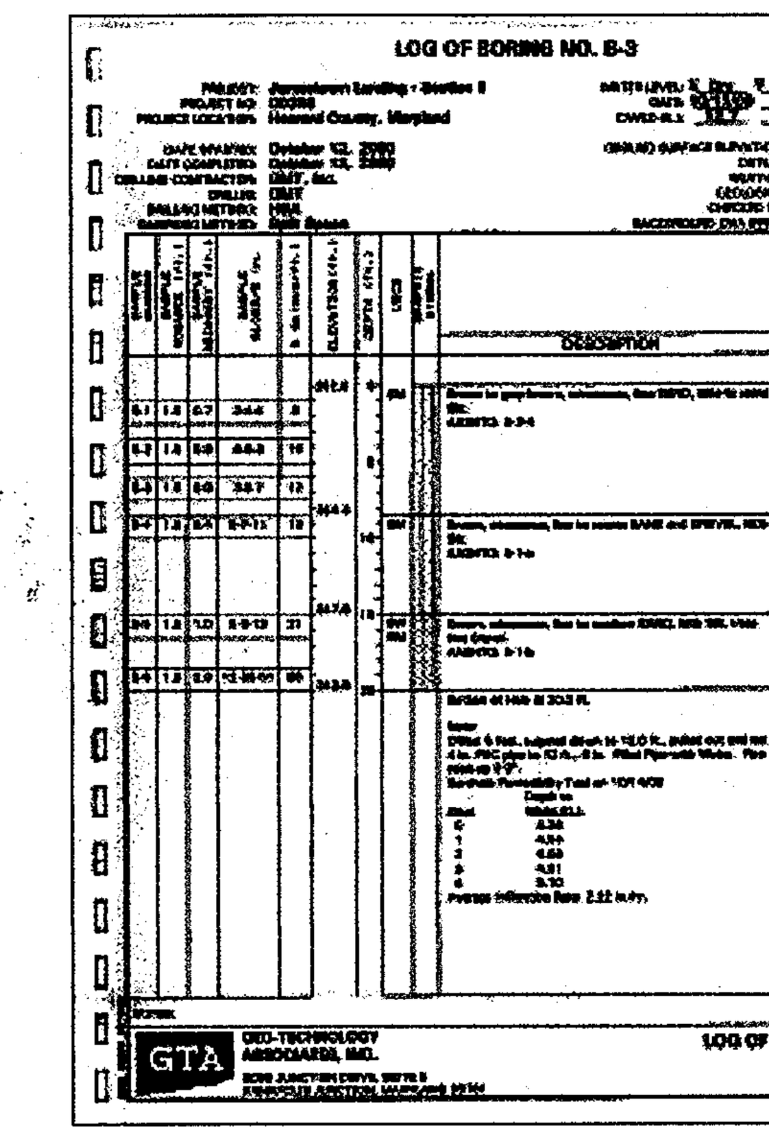
NON-ROUTINE MAINTENANCE:

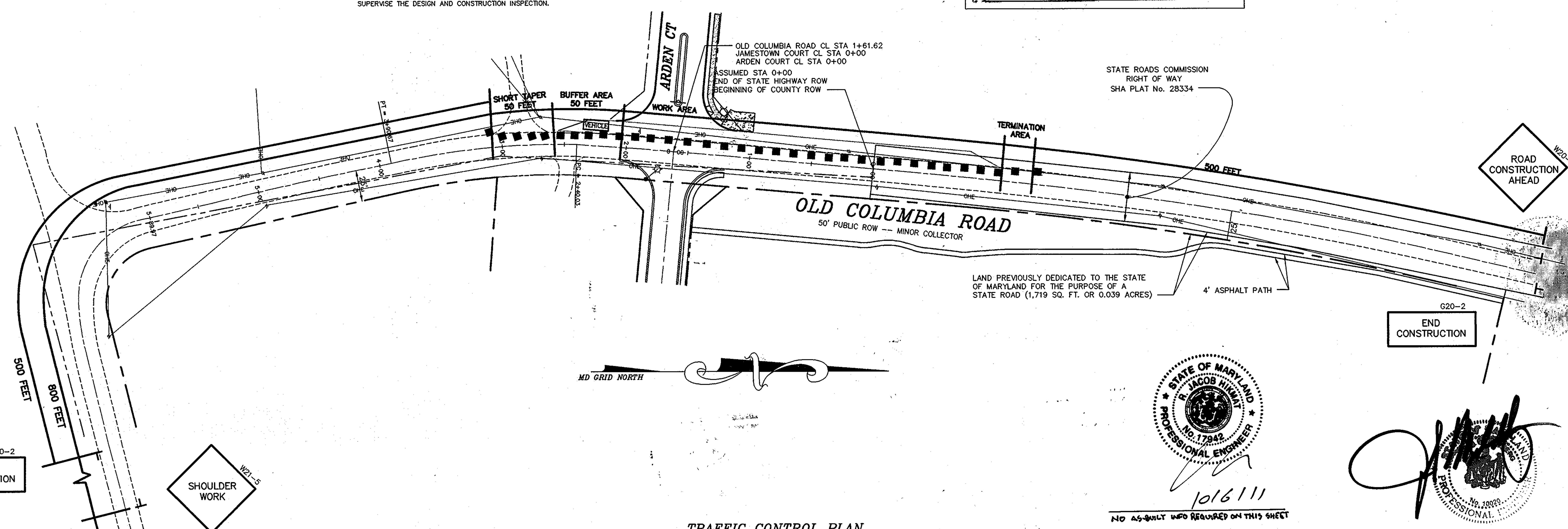
1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.











TRAFFIC CONTROL PLAN
SCALE: 1" = 50'

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE _______ P.E. NO. 17942 DATE: 10/6/11

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER _______ DATE 2/13/06
JOHN B. MILDENBERG
PRINTED NAME OF ENGINEER

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER _______ DATE 2/14/06
RUSSELL DICKENS, MANAGER, TANTERRA, L.C.
PRINTED NAME OF DEVELOPER

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE _______ DATE 2/27/06

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT _______ DATE 2/27/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS HS _______ DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT JA _______ DATE 3/31/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION YQ _______ DATE 3/29/06

project	date
00-020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description	date
	revisions	

JAMESTOWN LANDING, SECTION II

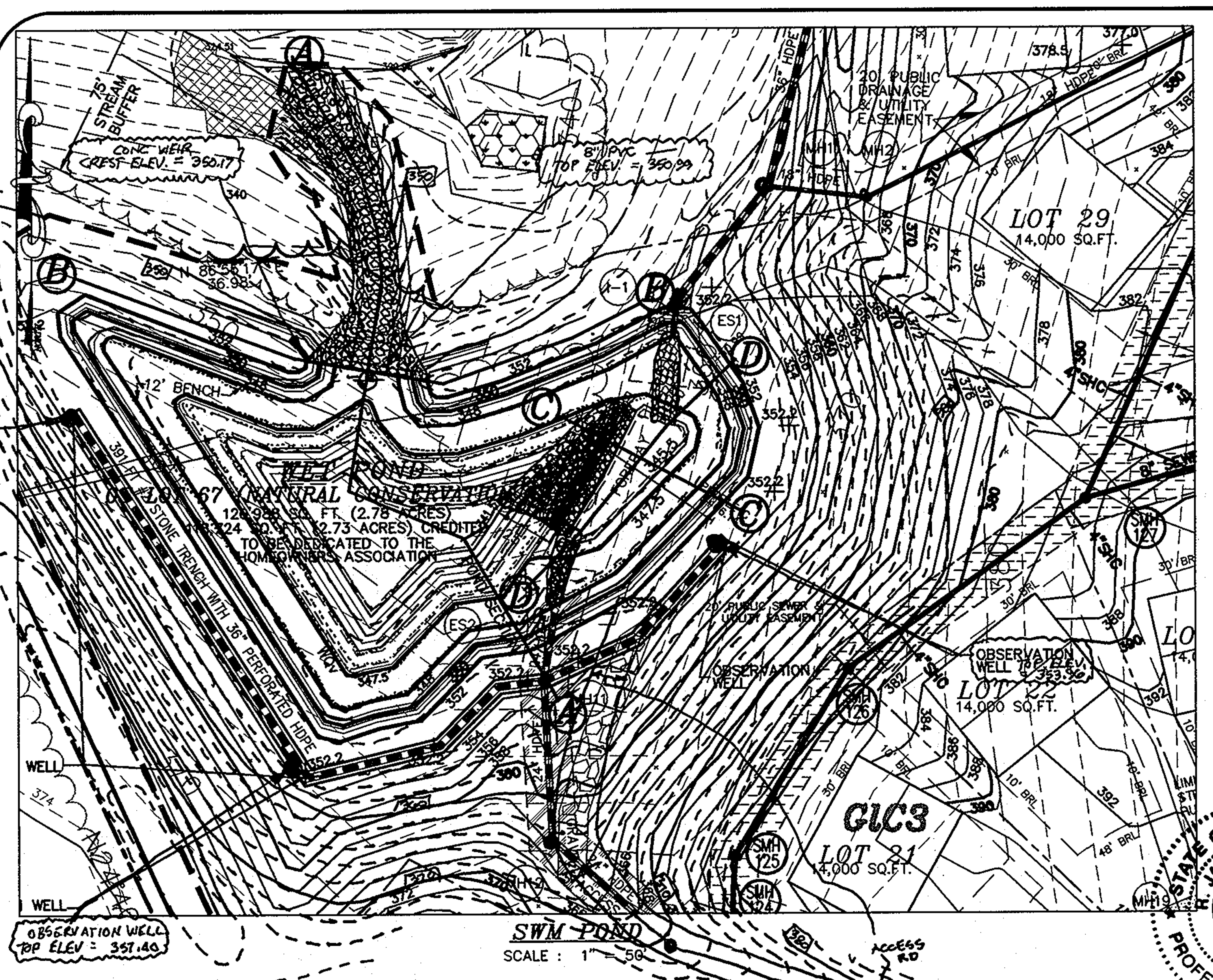
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 – PARCEL 229 & 352 – GRID 15
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SWM NOTES & SPECIFICATIONS AND TRAFFIC CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

00-020/dwg/sec-ii/final/020-ii-swm-specs-sht12.dwg



SWM SUMMARY

	1 YR.	10 YR.	100 YR.
Q EXISTING	1.4	N/A	N/A
Q DEVELOPED	0.4	N/A	N/A
Q FROM SWMF	0.4	N/A	N/A
WSEL	349.31	350.68	351.38

MH2
TOP: 366.07
18" INV. IN: 354.39
18" INV OUT: 354.29

MH1
TOP: 355.13
36" INV IN: 347.83
18" INV IN: 348.78
36" INV OUT: 347.73

I-1
TOP: 351.90
36" INV IN: 347.30
36" INV OUT: 347.20

ES1
INV: 346.99

ES2
INV: 348.78

MH12
TOP: 362.27
24" INV IN: 353.82
24" INV OUT: 353.72

MH11
TOP: 354.47
24" INV IN: 349.17
24" INV OUT: 349.12
36" PERF INV: 342.69

MH13
TOP: 370.61
24" INV IN: 361.41
24" INV OUT: 361.31

MH14
TOP: 388.79
24" INV IN: 363.59
15" INV IN: 381.74
24" INV OUT: 363.49

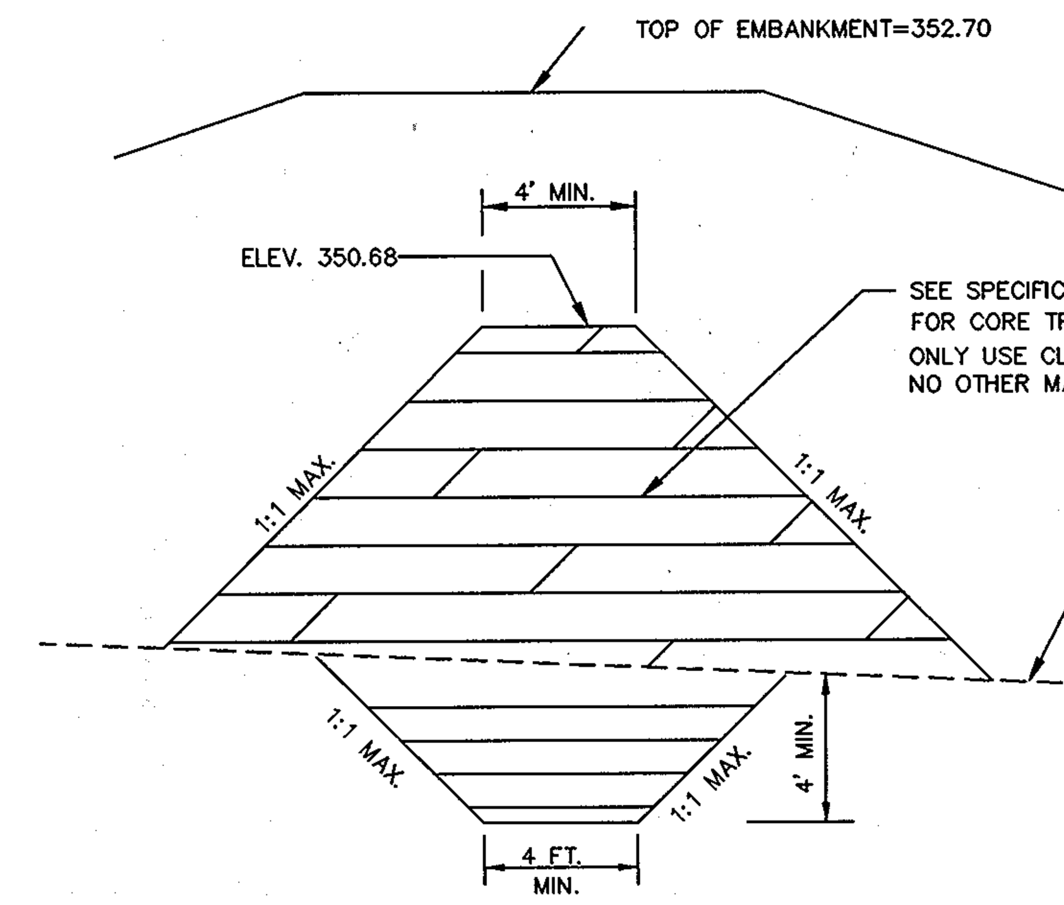
STATE OF MARYLAND — GREGORY SCOTT SHANABERGER — PROFESSIONAL LAND SURVEYOR — No. 10849

AS-BUILT SURVEY 10/6/11
Shanaberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043

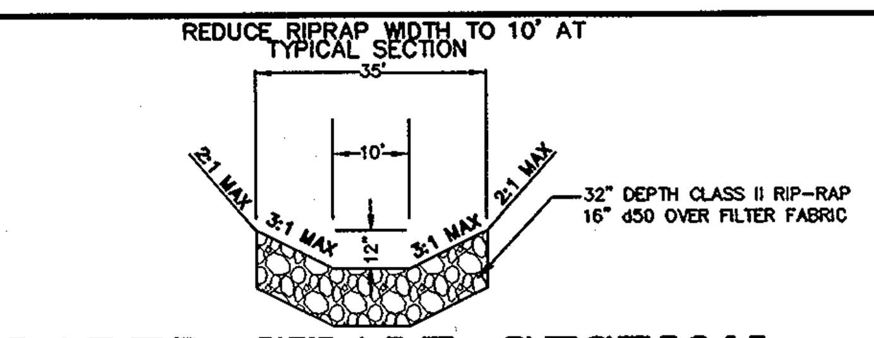
STATE OF MARYLAND — R. JACOB HIKMAT — PROFESSIONAL ENGINEER — No. 17942

10/6/11

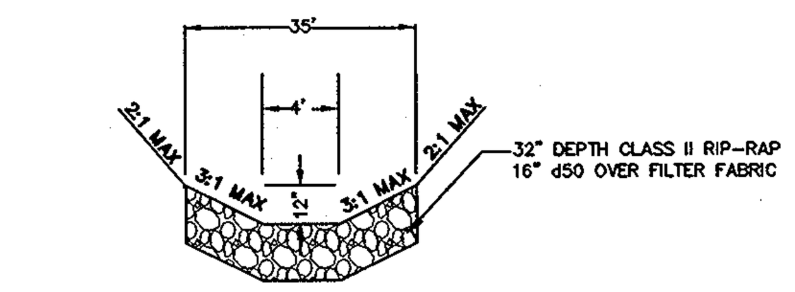
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS.



CORE TRENCH DETAIL
N.T.S.



FLARED SWALE SECTION AT POND OUTFALL
N.T.S.

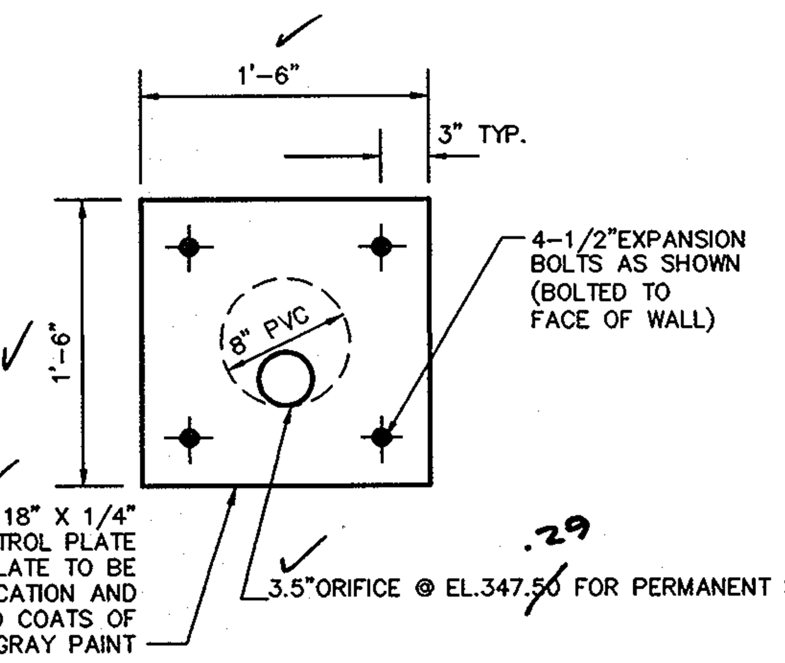


NOTE : FLARE TYPICAL RIPRAP SECTION TO 35' WIDTH ADJACENT TO WEIR WALL. TAPER TO TYPICAL 10' CHANNEL SECTION WITHIN 13' OF FACE OF WEIR WALL.

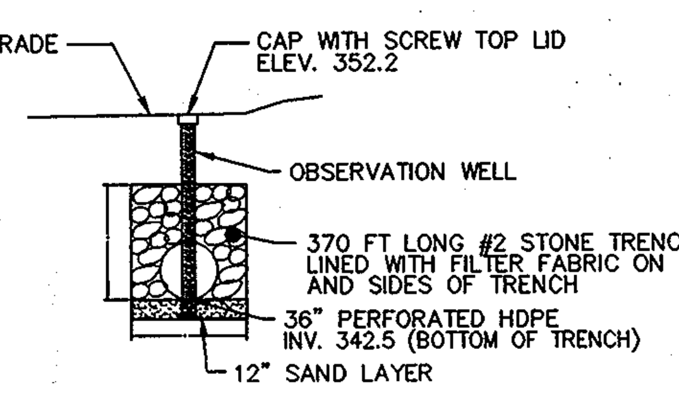
TYPICAL SWALE SECTION AT POND OUTFALL
N.T.S.

DRAW-DOWN DEVICE CONSTRUCTION SPECIFICATIONS

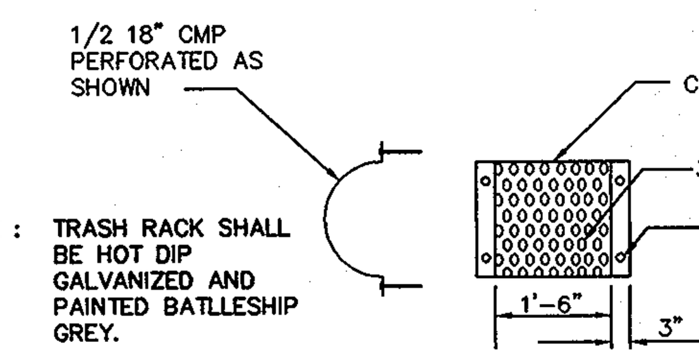
1. PERFORATIONS IN THE DRAW DOWN DEVICE MAY NOT EXCEED INTO THE WET STORAGE.
2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 4 TIMES THE AREA OF THE INTERNAL ORIFICE.
3. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
4. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOTATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW DOWN DEVICE WITH 1" STEEL ANGLE OR 1' BY 4" SQUARE OR 2" ROUND WOODEN POSTS SET 3' MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GUAGE MINIMUM WIRE.



LOW FLOW ORIFICE DETAIL (PERMENANT SWM)
N.T.S.

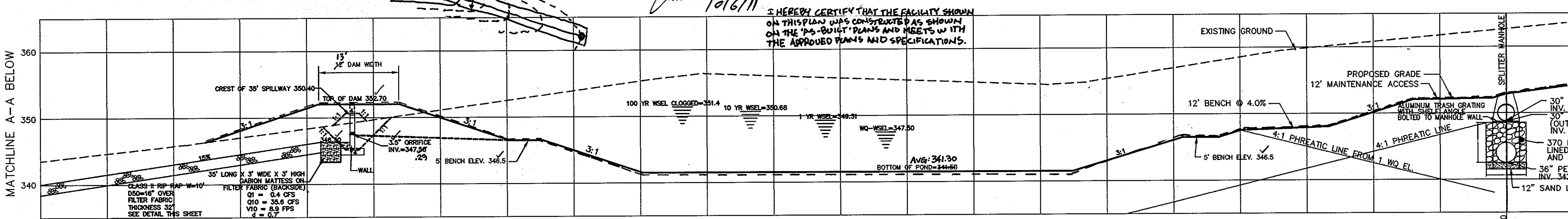


OBSERVATION WELL DETAIL
SCALE : 1" = 10'



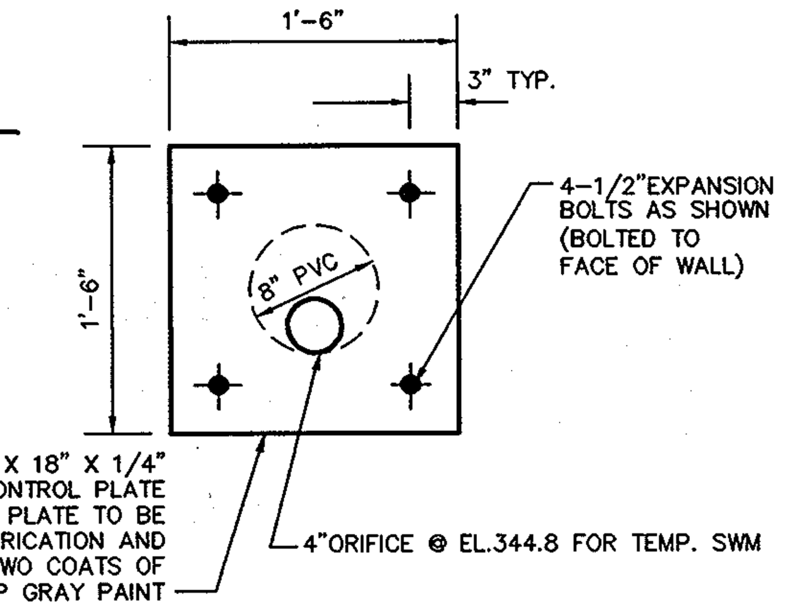
NOTE : TRASH RACK SHALL BE HOT DIP GALVANIZED AND PAINTED BATTLESHIP GREY.

HALF SHELL TRASH RACK

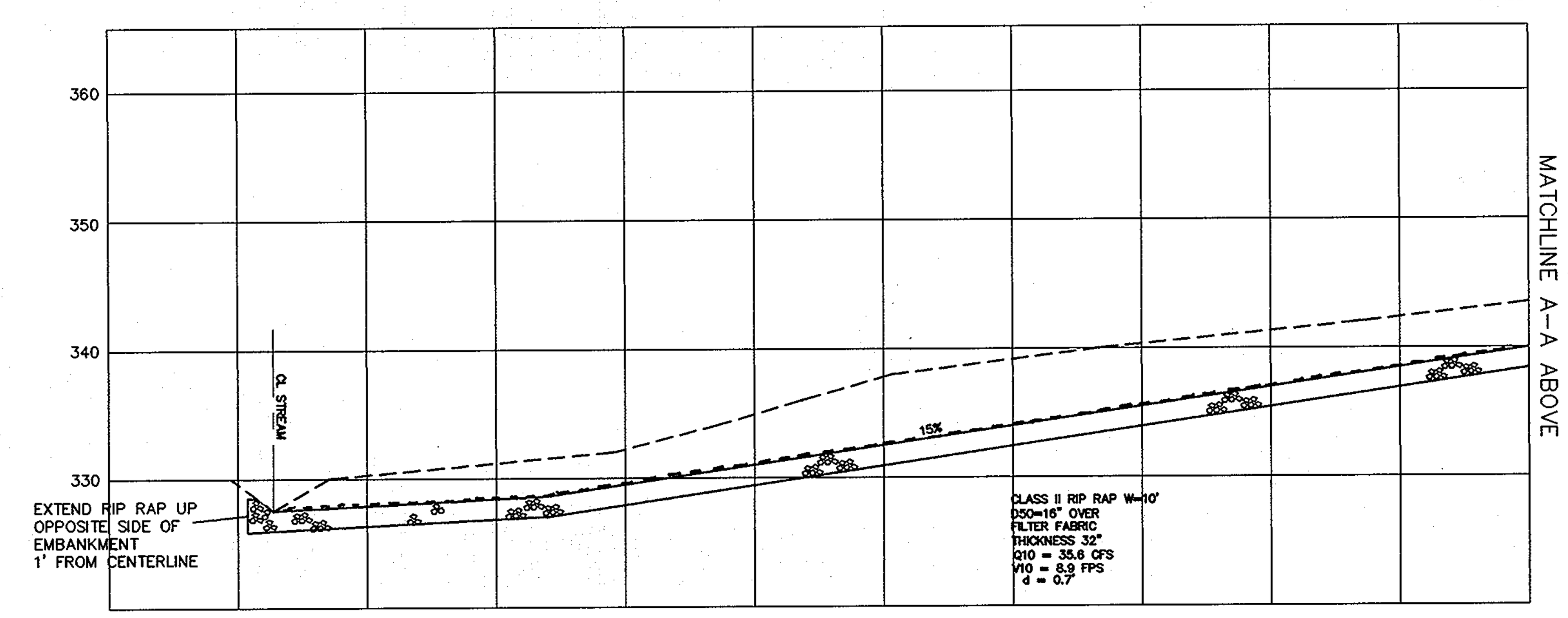


SECTION THROUGH POND AND STONE TRENCH (A-A)
SCALE : 1" = 10'

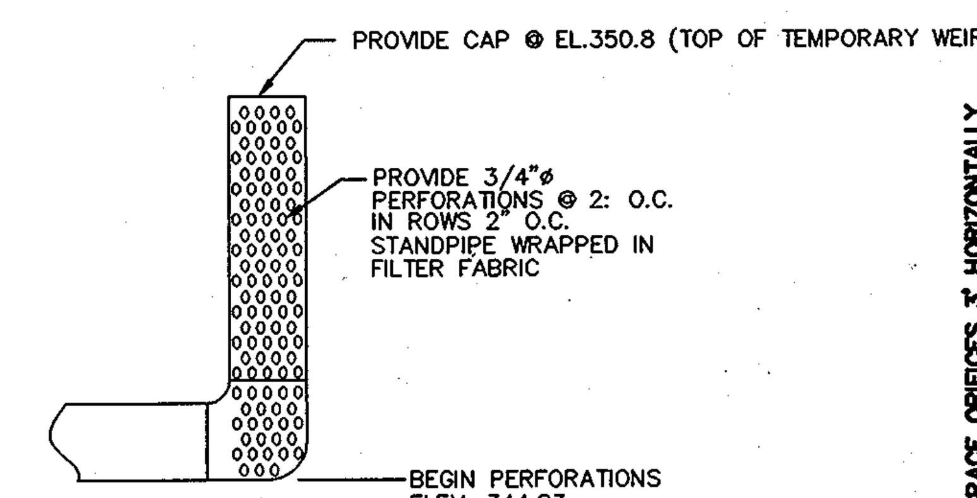
AS-BUILT
Shanaberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043



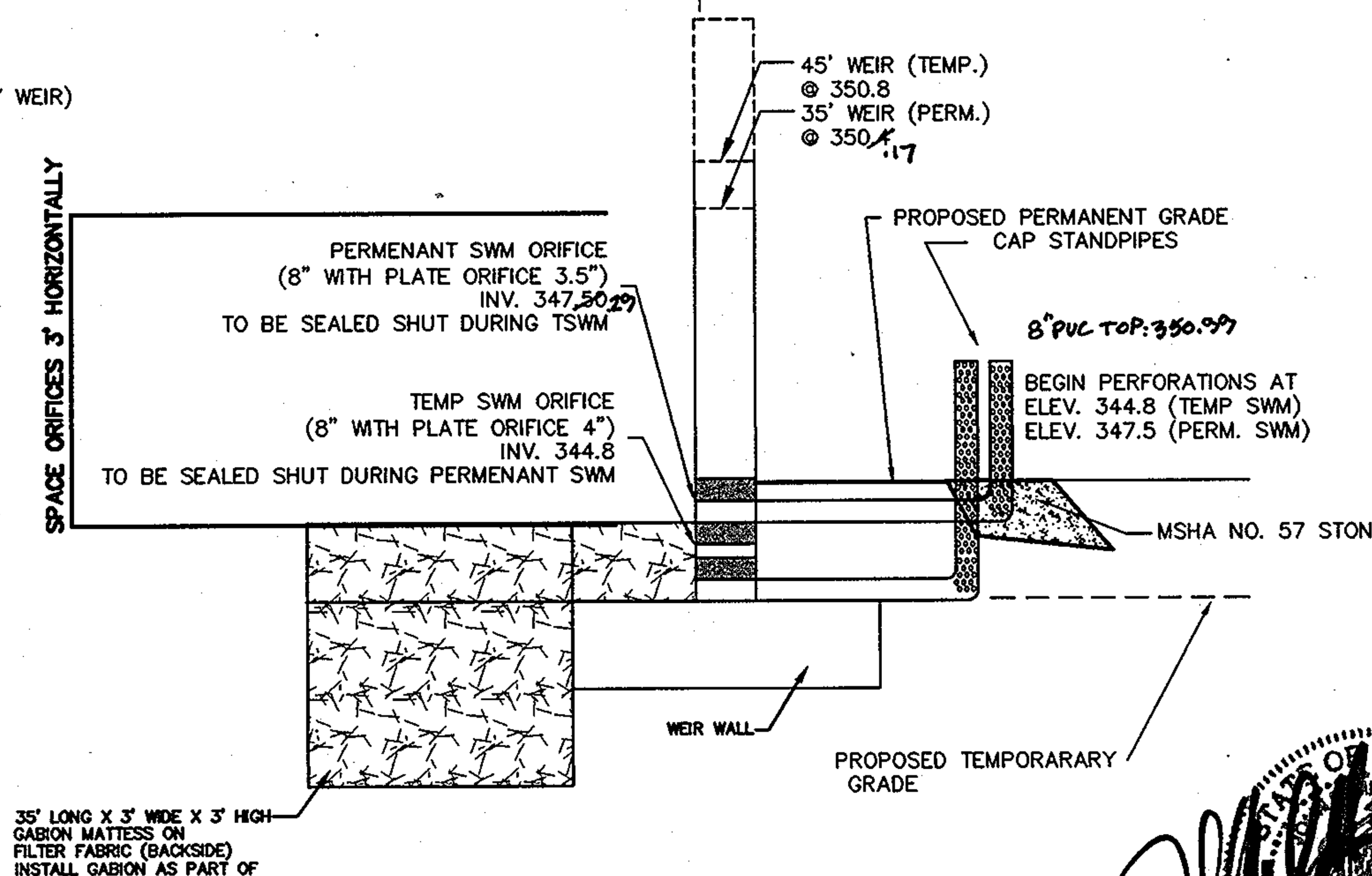
LOW FLOW ORIFICE DETAIL (TEMP SWM)
N.T.S.



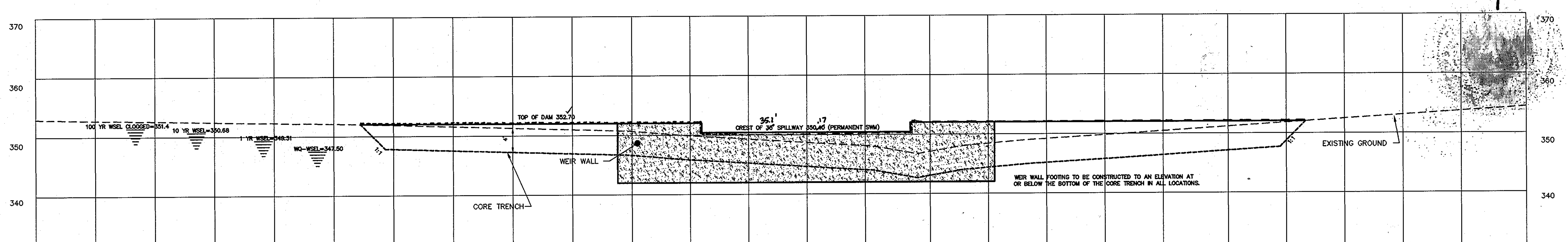
OUTFALL CHANNEL-MATCHLINE A-A SEE ABOVE
SCALE : 1" = 10'



TEMPORARY STANDPIPE DETAIL



DEWATERING STANDPIPES
SCALE : 1" = 2'



DAM PROFILE (B-B)
SCALE : 1" = 10'

00-020/dwg/sec-ii/final/020-ii-swm-dtls-sht13.dwg

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE — P.E. NO.: 17942 — DATE: 10/6/11

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 2/18/06
JOHN B. MILDENBERG
PRINTED NAME OF ENGINEER

STATE OF MARYLAND — MILDENBERG — PROFESSIONAL ENGINEER — No. 10020

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 2/14/06
RUSSELL DICKENS, MANAGER, TANTERRA, L.C.
PRINTED NAME OF DEVELOPER

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/22/06

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/27/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS HS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT JH — DATE 3/31/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION YQ — DATE 3/29/06

project	date
00-020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description revisions	date

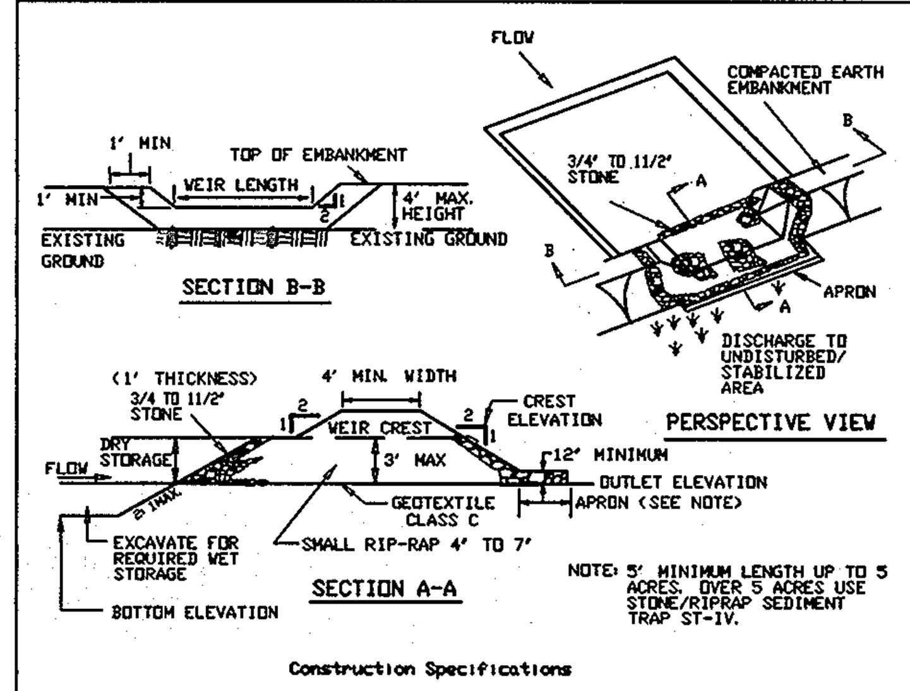
JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

DETAIL 9 - STONE OUTLET SEDIMENT TRAP - ST II



Construction Specifications

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.

2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.

3. All cut and fill slopes shall be 2:1 or flatter.

** 4. The stone used in the outlet shall be small rip-rap 4' to 7' in size with a 1' thick layer of 3/4' to 11/2' washed aggregate placed on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C shall be substituted for the stone facing by placing it on the inside face of the stone outlet.

5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 9 - 10	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

** GEOTEXTILE FABRIC MUST BE USED AT THE OUTFALL OF THE SEDIMENT TRAP #1 IN ACCORDANCE WITH NOTE #4 ABOVE.

STONE OUTLET SEDIMENT TRAP - ST II

Constuction Specifications

6. Filter cloth shall be placed over the botton and sides of the outlet channel prior to placement of stone. Section of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 6' into existing ground at entrance of outlet channel.

7. Stone used in the outlet channel shall be 4' - 7' placed 18' thick.

8. Outlet - An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel. Protection against scour at the discharge end shall be provided as necessary.

9. Outlet channel must have positive drainage from the trap.

10. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/4 of the wet storage depth of the trap (1350 cf/ac). Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

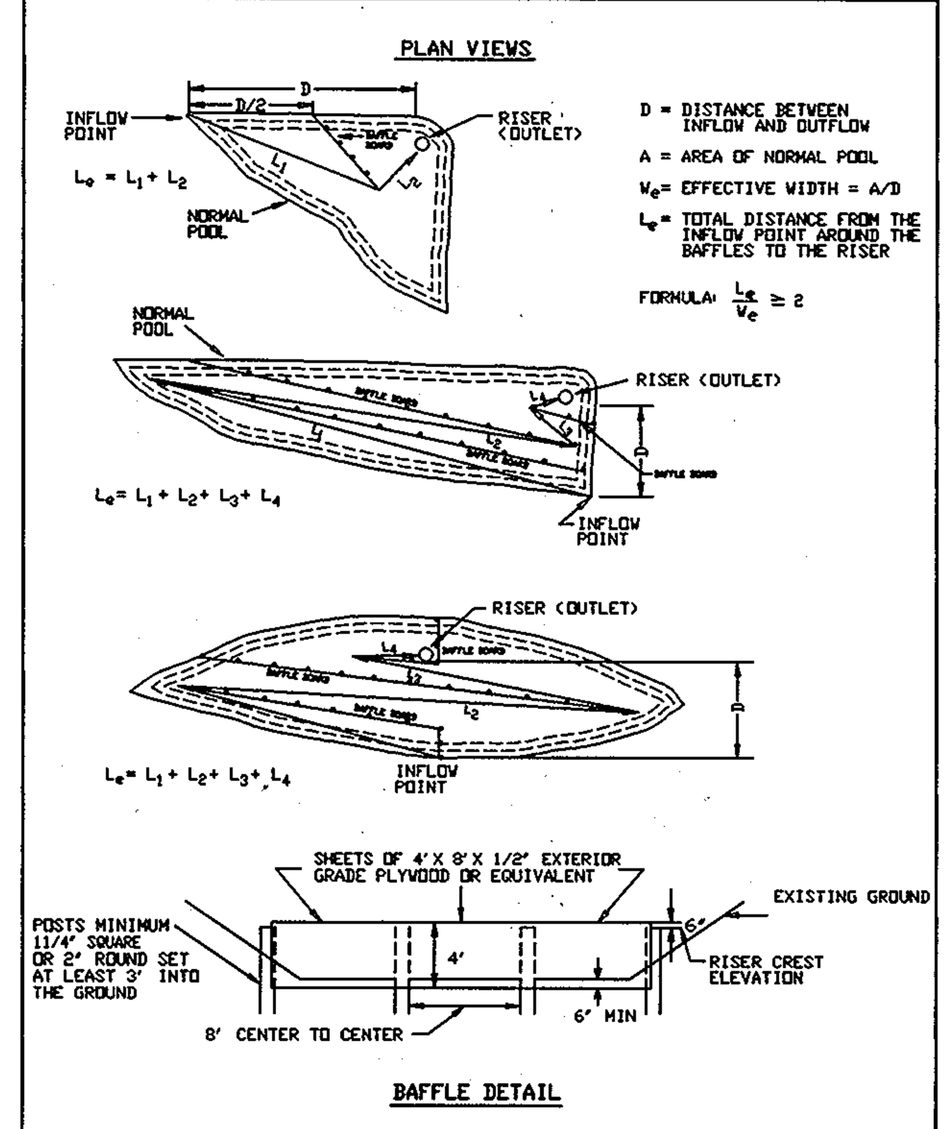
11. The structure shall be inspected periodically after each rain and repaired as needed.

12. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.

13. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

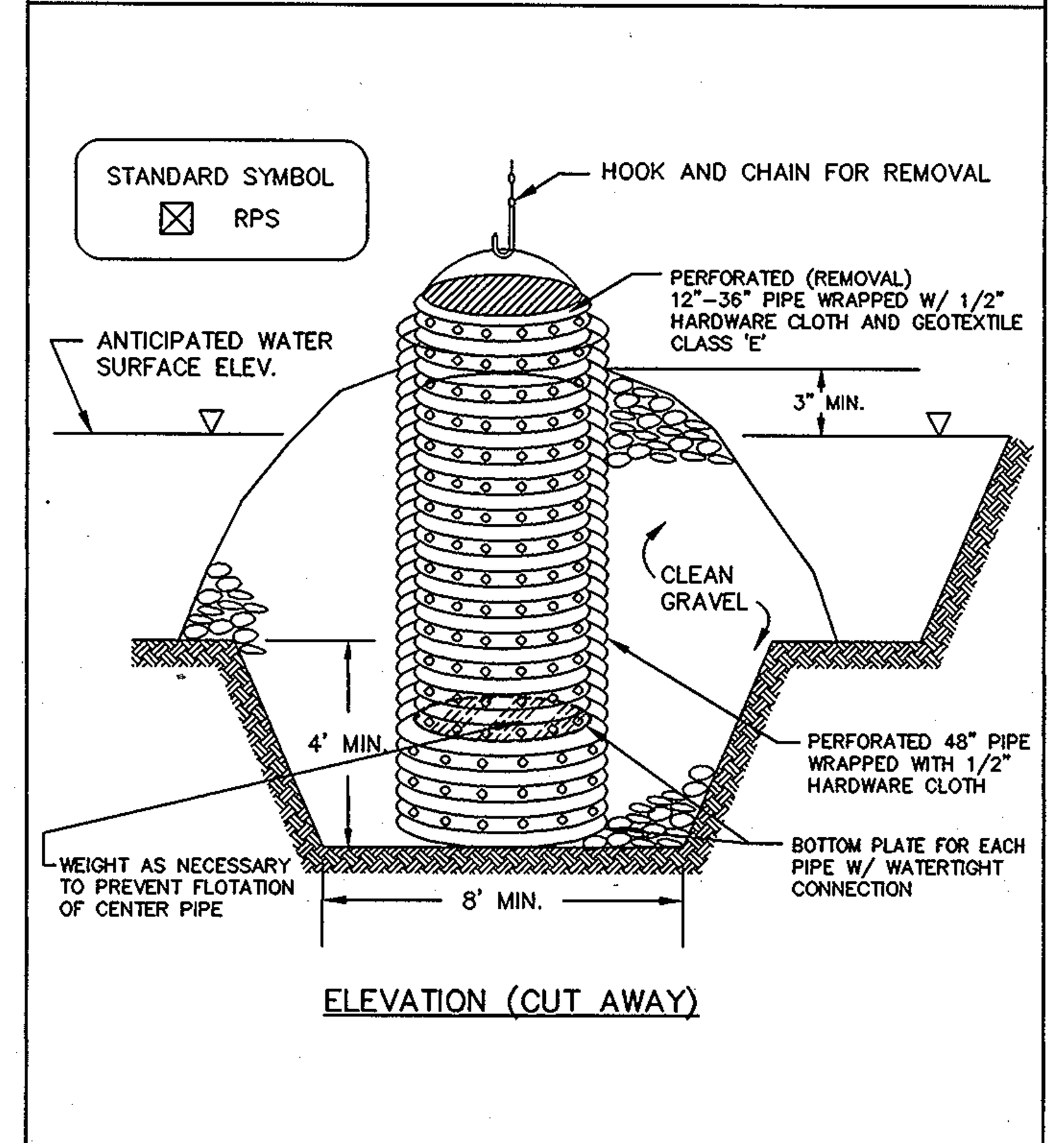
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 9 - 13A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 18 - SEDIMENT BASIN BAFFLES



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 18 - 26	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20A - REMOVABLE PUMP STATION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D-12-5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SPECIFICATIONS FOR REMOVABLE PUMP STATION

12.0 DEWATERING SPECIFICATIONS FOR REMOVABLE PUMPING STATION

Description of Practice

A temporary sturcture which is used to remove water from exacvated areas, sediment traps and basins.

Purpose

The pumping staton provides a device that fiters sediment laden water for pumping to a suitable discharge area.

Conditions Where Practice Applies

The pumping station will be used to dewater sediment traps and basins for maintenance or removal.

Design Criteria

A design is not requierd but construction must conform to the general criteria outlined on the next page.

A perforated vertical stand pipe is placed inside another pipe. The outside pipe is then enveloped by a cone of washed 2' aggreagate. Water is then pumped from the center of the inside pipe to a suitable dischage area.

Water pumped from the standpipe should discharge into a sediment traap, sediment basin of stabilized area. If water from the sump pit will be pumped directley to a storm drainage system, geotextile fabric and wire mesh must be wrapped around the standpipe to ensure clean water discharge.

Water pumped from the standpipe should discharge into a sediment trap, sediment basin or stabilized area.

Construction Specifications

1. the inner pipe shall be constructed by perforating a 12' to 36' diameter pipe with a watertight cap on the bottom end and wrapping it with 1/2' hardware cloth and Geotexrile Class E. The perforations shall be 1/2'X6' slits or 1' diameter holes 6' on center.

2. The outer pipe shall be at least 4' larger in diameter than the inside pipe. Both the inner and outer pipes should extend 12' to 18' above the riser crest elevation, or anticipated high water elevation.

3. Filter material ranging from clean gravel (minimum fines) to #57 stone (1 1/2' maximum diameter) should be backfilled around the outer pipe.

4. The suction hose from the pump shall be placed inside the inner pipe to begin dewatering. the discharge hose shall be placed in a stabilized areas downslope of unstabilized area to prevent erosion. Meadow or wooded areas are preferred discharge locations, but storm drains and paved areas are acceptable.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D-12-5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

STATE OF MARYLAND R. JACOB HIKMAT No. 17942 PROFESSIONAL ENGINEER

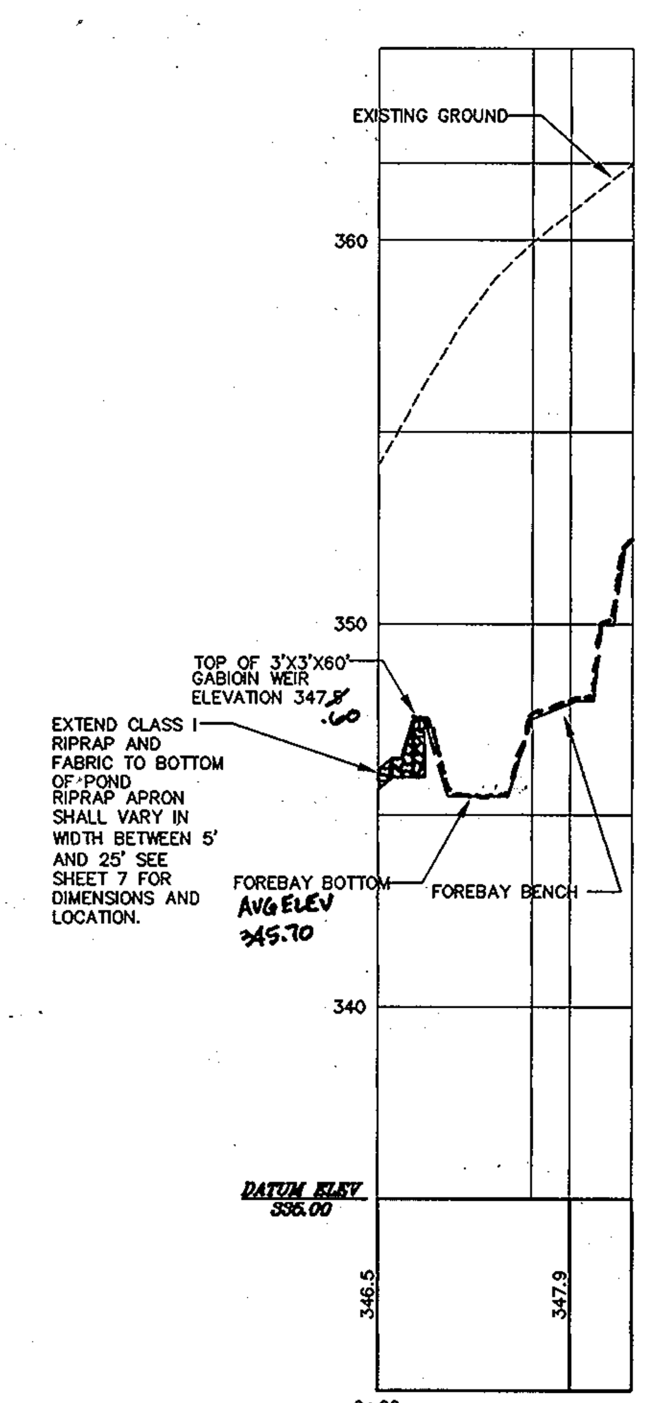
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS.

10/6/11

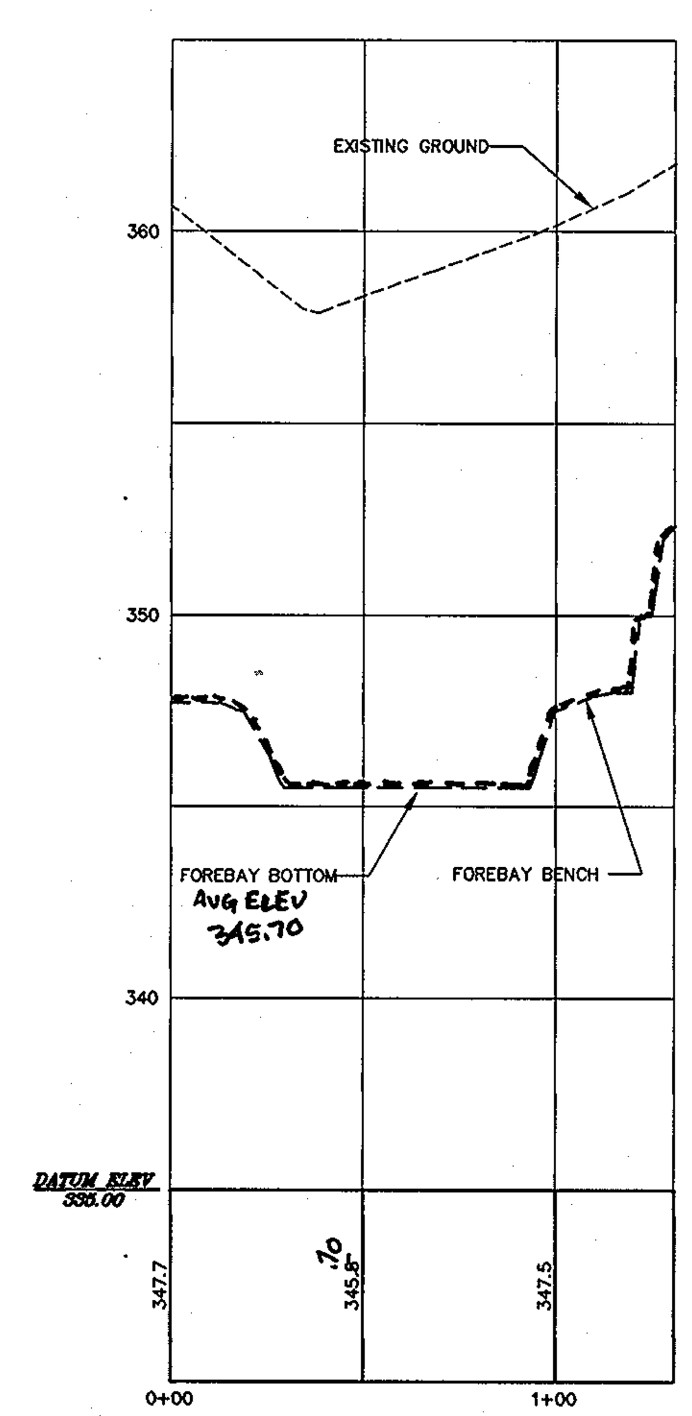
STATE OF MARYLAND GREGORY SCOTT SHANEBERGER No. 10849 PROFESSIONAL LAND SURVEYOR

AS-BUILT SURVEY

Shaneberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043



FORBAY PROFILE C



FOREBAY PROFILE D

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE ____ P.E. NO.: 17942 DATE: 10/6/11

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 2/13/06
JOHN B. MILDENBERG
PRINTED NAME OF ENGINEER

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 2/13/06
RUSSELL DICKENS, MANAGER, TANTERRA, L.C.
PRINTED NAME OF DEVELOPER

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/27/06

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/27/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/31/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/29/06

project	date
00-020	FEB 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description revisions	date

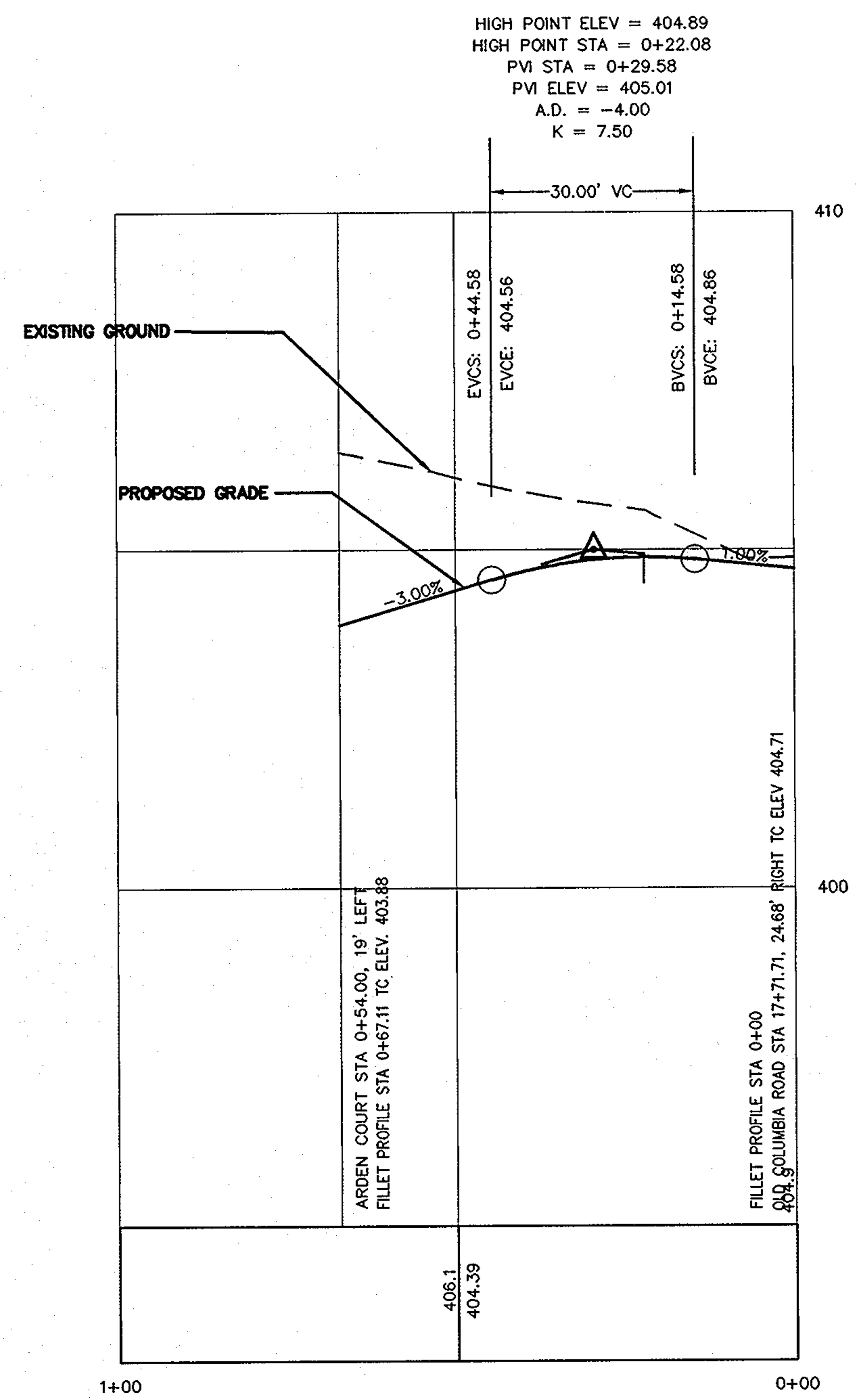
JAMESTOWN LANDING, SECTION II

LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

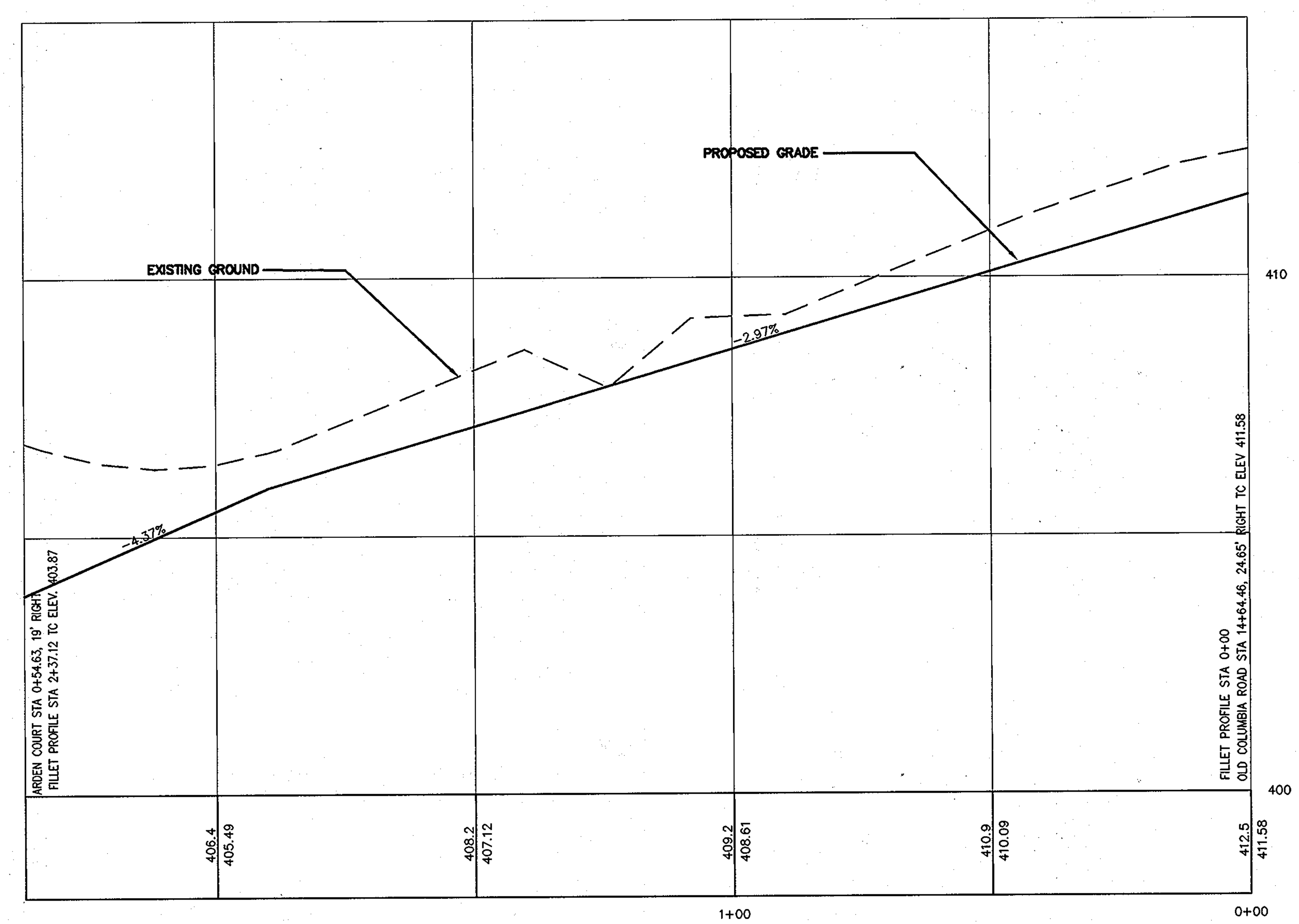
SEDIMENT DETAILS & PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

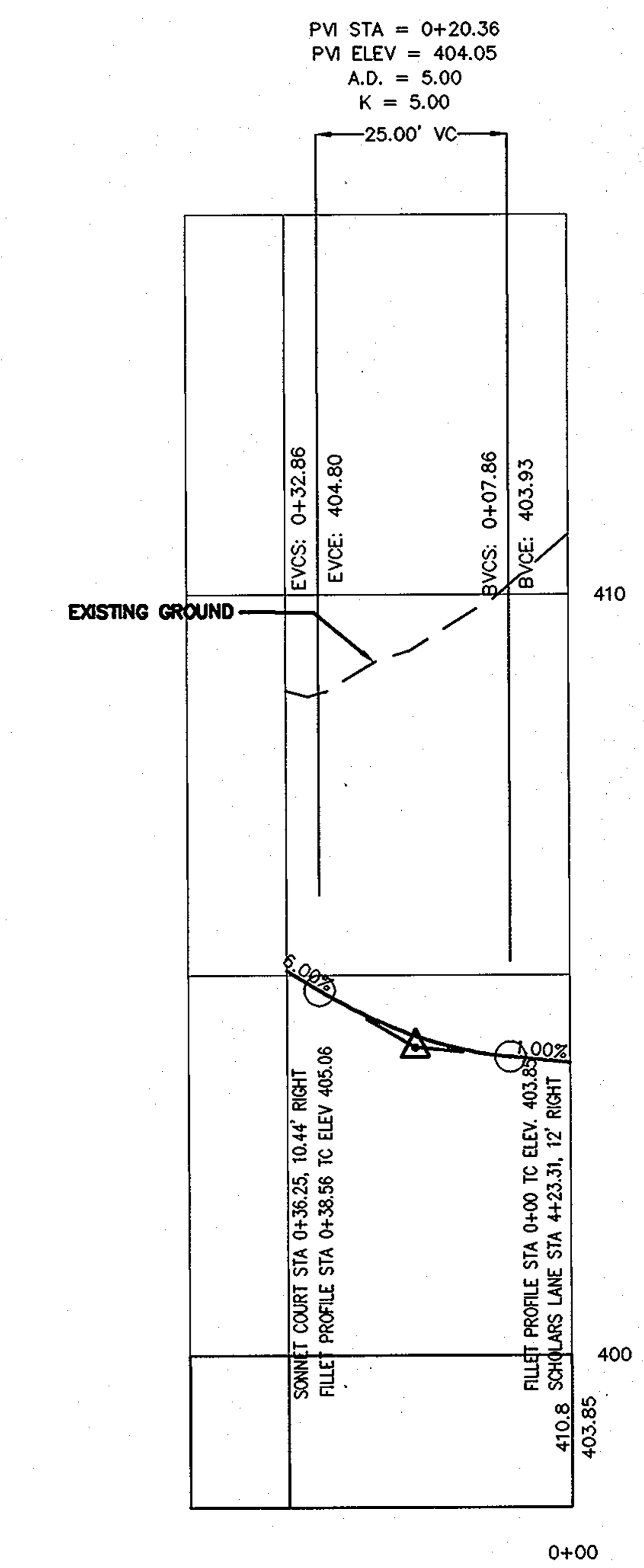
F-05-104



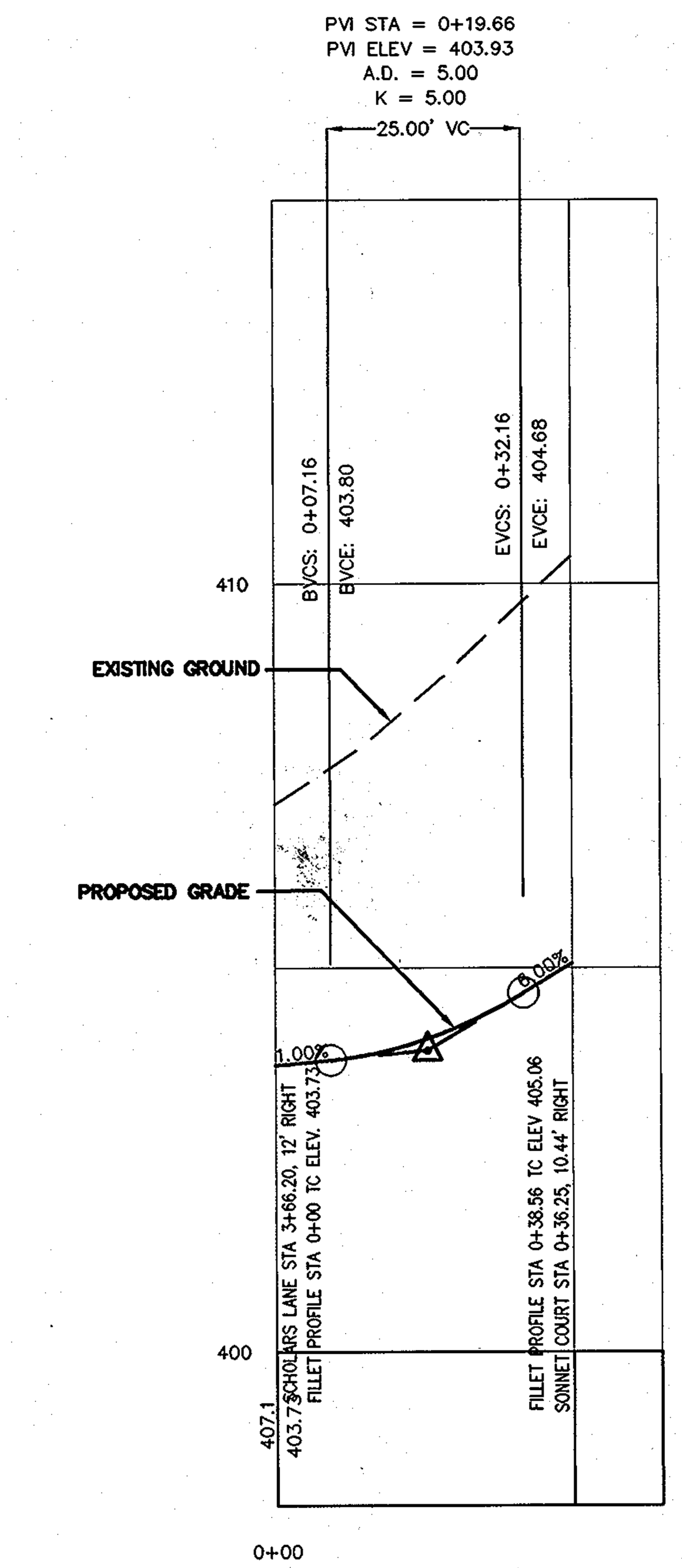
ARDEN COURT TO OLD COLUMBIA ROAD FILLET
HORIZONTAL SCALE : 1" = 20'
VERTICAL SCALE : 1" = 2'



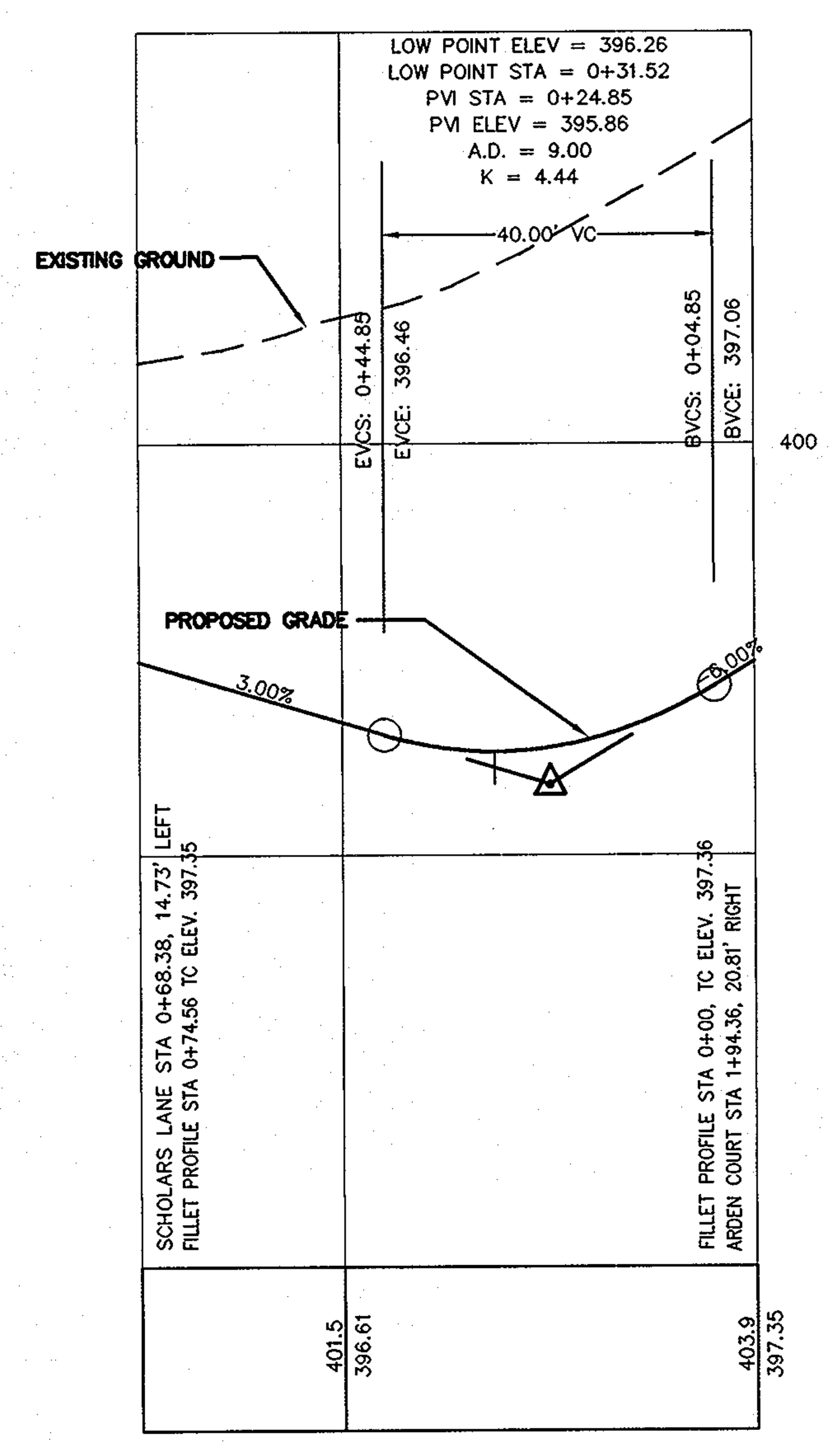
OLD COLUMBIA ROAD TO ARDEN COURT FILLET
HORIZONTAL SCALE : 1" = 20'
VERTICAL SCALE : 1" = 2'



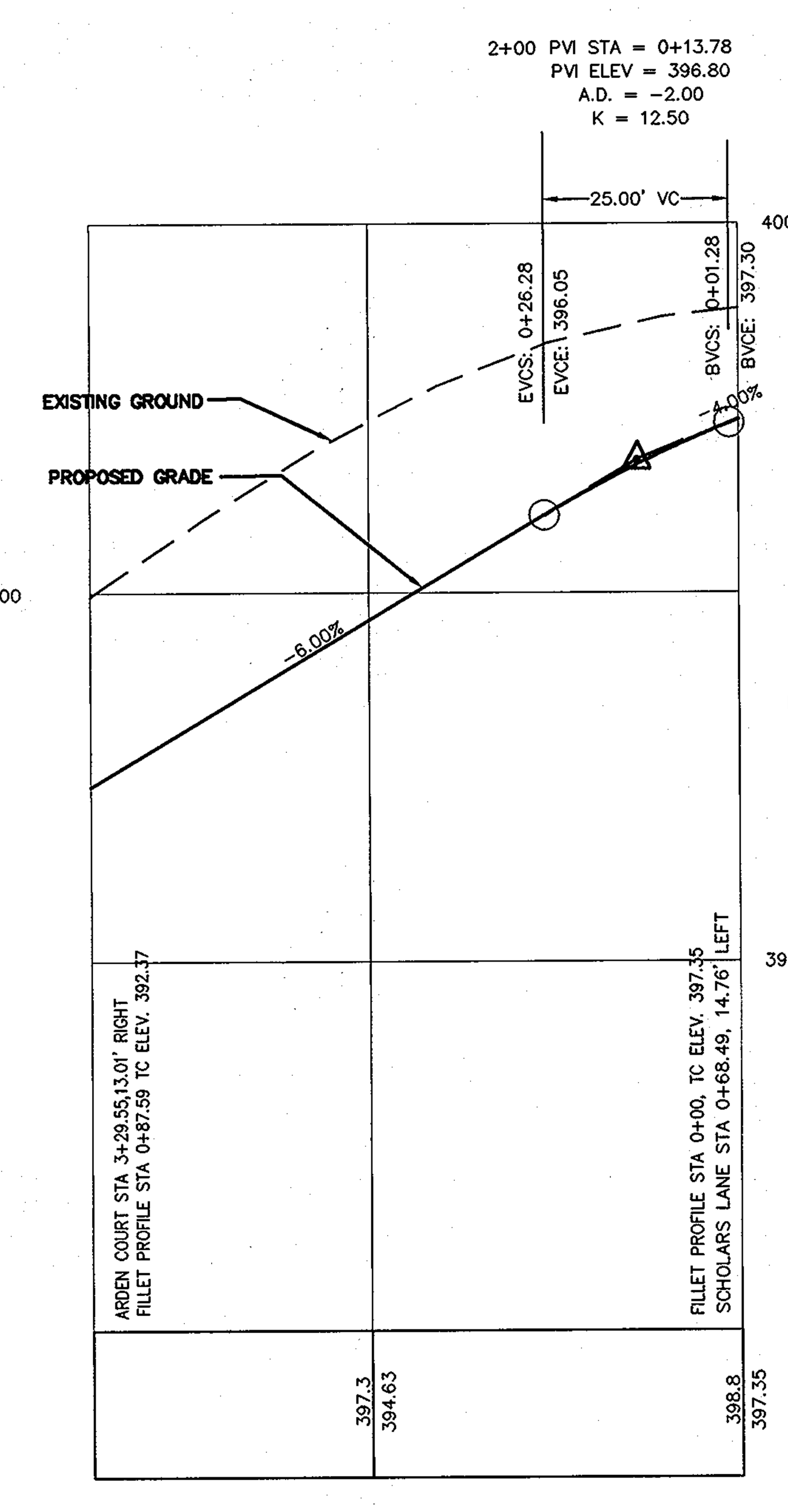
SONNET COURT TO SCHOLARS LANE FILLET
HORIZONTAL SCALE : 1" = 20'
VERTICAL SCALE : 1" = 2'



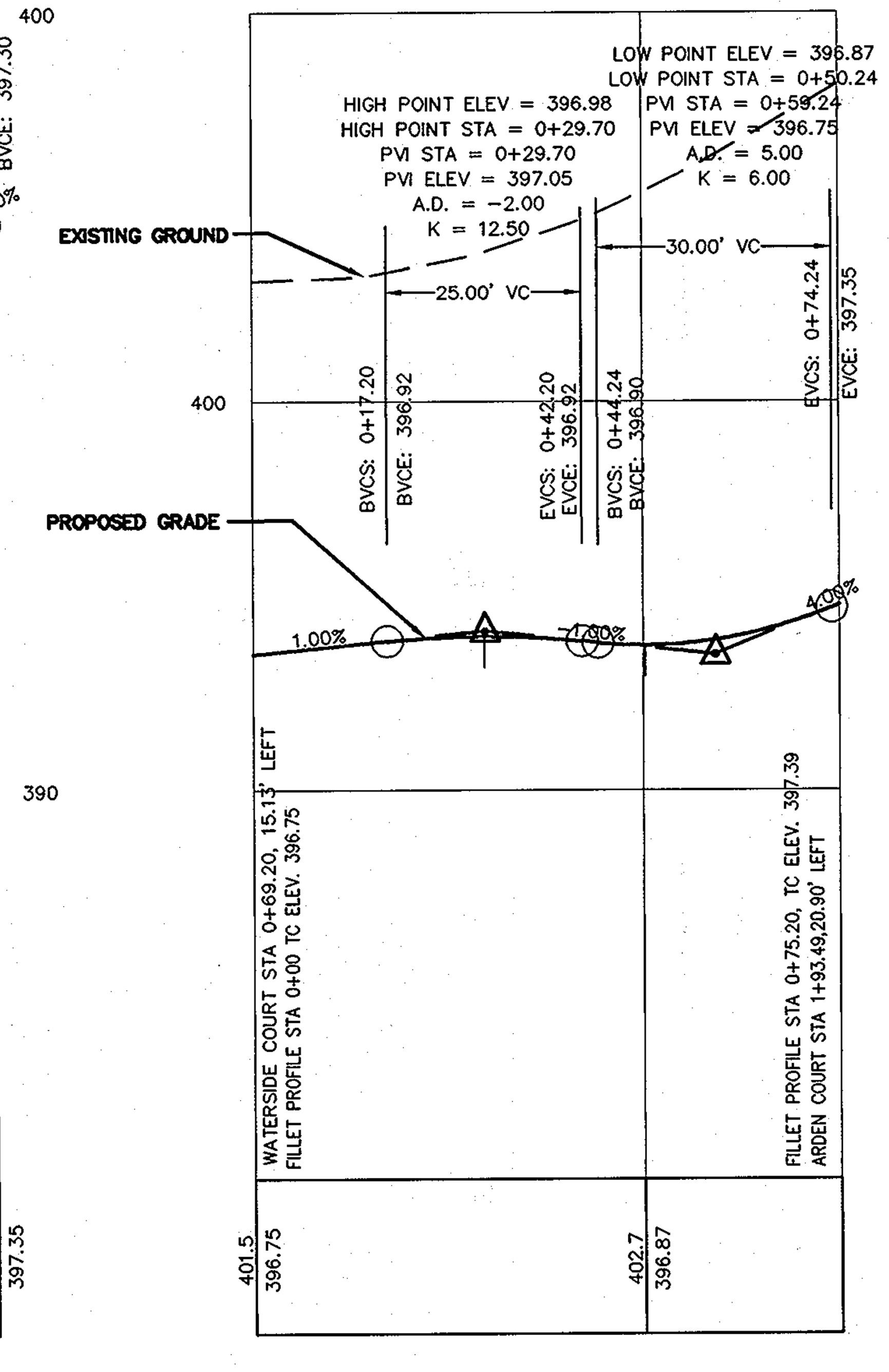
SCHOLARS LANE TO SONNET COURT FILLET
HORIZONTAL SCALE : 1" = 20'
VERTICAL SCALE : 1" = 2'



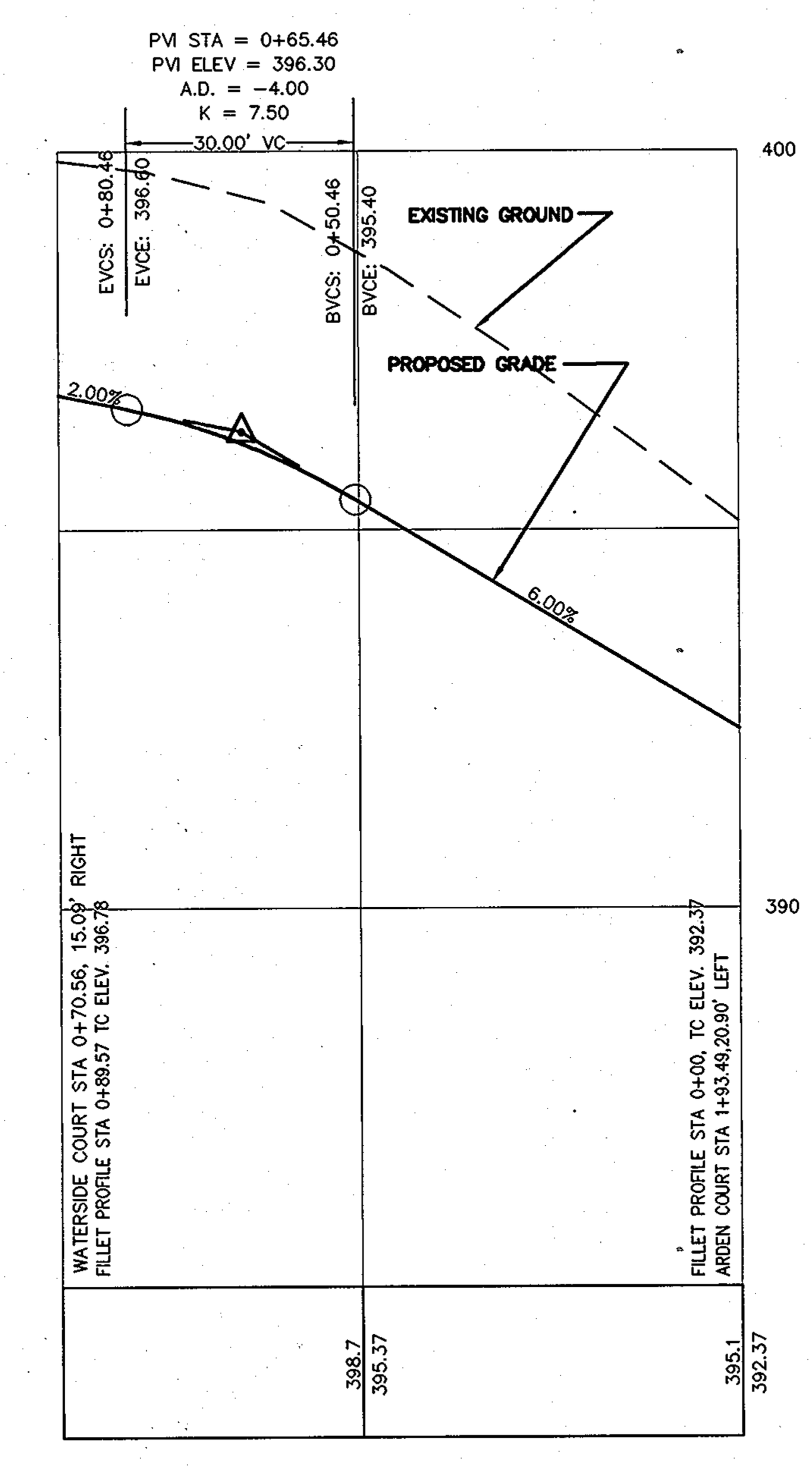
ARDEN COURT TO SCHOLARS LANE FILLET
HORIZONTAL SCALE : 1" = 20'
VERTICAL SCALE : 1" = 2'



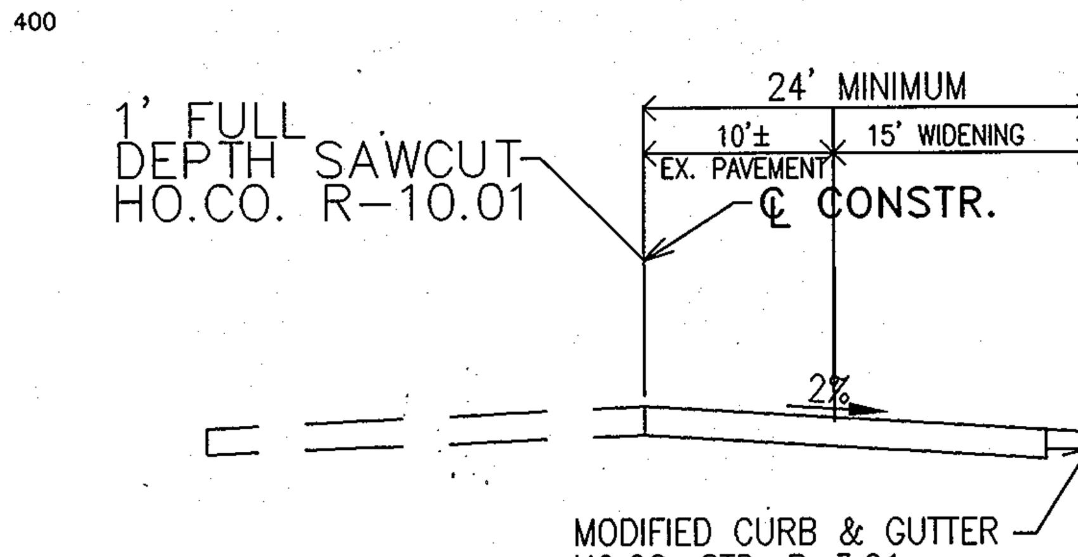
ARDEN COURT TO SCHOLARS LANE FILLET
HORIZONTAL SCALE : 1" = 20'
VERTICAL SCALE : 1" = 2'



WATERSIDE COURT TO ARDEN COURT FILLET
HORIZONTAL SCALE : 1" = 20'
VERTICAL SCALE : 1" = 2'



ARDEN COURT TO WATERSIDE COURT FILLET
HORIZONTAL SCALE : 1" = 20'
VERTICAL SCALE : 1" = 2'



TYPICAL SECTION FOR EXISTING COLUMBIA ROAD IMPROVEMENT, R/W=50'
N.T.S.
CLASSIFICATION = Minor Collector

STATE OF MARYLAND R. JACOB HIKMAT No. 17932 PROFESSIONAL ENGINEER

NO 'AS-BUILT' INFO REQUIRED ON THIS SHEET

10/6/11

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — 3-6-06 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 3/21/06 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 3/20/06 DATE

project	date
00-020	FEB. 2006
illustration	engineering
SJD	SJD
scale	approval
AS SHOWN	JBM

no.	description revisions	date

JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FILLET PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

00-020/dwg/sec-ii/..., 6-05 6:21:37 am EST

LEGEND

- 15% TO 25% SLOPES
- 25% OR GREATER SLOPES
- LAND TO BE DEDICATED TO THE STATE OF MARYLAND FOR STATE ROAD
- LAND TO BE DEDICATED TO HOWARD COUNTY, MARYLAND FOR PUBLIC ROAD
- PROPOSED PUBLIC DRAINAGE & UTILITY EASEMENT
- PROPOSED PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
- PROPOSED PUBLIC WATER, SEWER, & UTILITY EASEMENT
- EXISTING WETLANDS
- EXISTING SPECIMEN TREES
- FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PRIVATE NOISE WALL MAINTENANCE EASEMENT
- PRIVATE REFORESTATION & NOISE BERM MAINTENANCE EASEMENT
- 10' PUBLIC STORM DRAIN, TREE MAINTENANCE, & UTILITY EASEMENT

STATE OF MARYLAND — R. JACOB HIKMAT — No. 17942 — PROFESSIONAL ENGINEER

NO AS-BUILT INFO REQUIRED ON THIS SHEET

10/6/11

LINE TABLE

LINE	BEARING	LENGTH
L2	S50°02'34"E	54.81
L3	S13°39'40"W	51.82
L4	S12°30'26"W	28.16
L5	S76°29'27"E	20.00
L6	S34°30'25"E	24.82
L7	S46°23'45"W	25.32
L8	N46°23'45"E	95.76'
L9	N43°49'55"E	152.79'
L10	N40°12'45"E	95.77'
L11	N73°08'30"E	160.01'
L12	N12°24'04"W	215.33'
L13	N05°01'35"E	210.63'
L14	N05°01'35"E	58.37'
L15	N13°24'46"E	316.78'

CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	DELTA	CHORD
C1	100.00'	125.86'	72.80'	72°06'37"	N41°23'09"E 117.71'
C2	50.00'	52.36'	28.87'	60°00'00"	S47°26'28"W 50.00'
C3	50.00'	52.36'	28.87'	60°00'00"	S12°33'32"E 50.00'
C4	100.00'	157.08'	100.00'	90°00'00"	N39°40'10"W 141.42'
C5	50.00'	23.16'	11.79'	26°32'30"	S82°03'35"W 22.96'
C6	50.00'	33.88'	17.62'	38°49'41"	N24°44'41"E 33.24'
C7	900.00'	40.27'	20.14'	02°33'50"	N45°06'50"E 40.27'
C8	975.00'	61.59'	30.81'	03°37'10"	N42°01'20"E 61.58'
C9	255.00'	146.55'	75.36'	32°55'46"	S56°40'38"W 144.55'
C10	45.00'	67.19'	41.63'	85°32'34"	N30°22'13"E 61.12'
C11	600.00'	182.50'	91.96'	17°25'38"	S03°41'15"E 181.80'
C12	2950.00'	431.79'	216.28'	08°23'11"	S09°13'10"W 431.41'

SOILS DESCRIPTION

SYMBOL	DESCRIPTION
EkB2	ELIOAK SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE C
GIB2	GLENELG SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE B
GIC3	GLENELG SILT LOAM, 8% TO 15% SLOPES, SEVERELY ERODED -- TYPE B
MIC3	MANOR LOAM, 8% TO 15% SLOPES, SEVERELY ERODED -- TYPE B
MID2	MANOR LOAM, 15% TO 25% SLOPES, MODERATELY ERODED -- TYPE B
MIE	MANOR LOAM, 25% TO 45% SLOPES -- TYPE B

OWNER

JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

STATE OF MARYLAND — JOHN B. MILDENBERG — No. 10020 — PROFESSIONAL ENGINEER

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE P.E. NO.: 17942 DATE: 10/6/11

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 2/13/06
JOHN B. MILDENBERG
PRINTED NAME OF ENGINEER

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 2/13/06
RUSSELL DICKENS, MANAGER, TANTERRA, L.C.
PRINTED NAME OF DEVELOPER

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/27/06

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/27/06

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/21/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/29/06

project	date
00-020	FEB. 2006
illustration	engineering
SJD	SJD
scale	approval
1"=100'	JBM

no.	description	date
	revisions	

JAMESTOWN LANDING, SECTION II

LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

INLET DRAINAGE AREA MAP

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

00-020/dwg/sec-ii/final/020-ii-inlet-dam-sht16.dwg

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE & FOREST CONSERVATION PLAN PURPOSES ONLY.

NOTES

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING (109 SHADE TREES, 118 EVERGREENS) HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $50,400.00.
2. FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING, OF CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
3. FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION HAS BEEN FULFILLED BY RETENTION OF 2.75 ACRES AND AFFORESTATION OF 4.65 ACRES. FINANCIAL SURETY FOR THE ON-SITE RETENTION OF 2.75 ACRES (119,790 SQ.FT.) IN THE AMOUNT OF $23,958.00 AND AFFORESTATION OF 4.65 ACRES (202,554 SQ.FT.) IN THE AMOUNT OF $101,277.00 HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $125,235.00.
4. SUPER SILT FENCE TO BE USED AS TREE PROTECTIVE FENCING.

LEGEND

- 15% TO 25% SLOPES
- 25% OR GREATER SLOPES
- LAND TO BE DEDICATED TO THE STATE OF MARYLAND FOR STATE ROAD
- LAND TO BE DEDICATED TO HOWARD COUNTY, MARYLAND FOR PUBLIC ROAD
- PROPOSED PUBLIC DRAINAGE & UTILITY EASEMENT
- PROPOSED PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
- PROPOSED PUBLIC WATER, SEWER, & UTILITY EASEMENT
- EXISTING WETLANDS
- EXISTING SPECIMEN TREES
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PRIVATE NOISE WALL MAINTENANCE EASEMENT
- PRIVATE REFORESTATION & NOISE BERM MAINTENANCE EASEMENT
- 10' PUBLIC STORM DRAIN, TREE MAINTENANCE, & UTILITY EASEMENT
- RETAINING WALL MAINTENANCE EASEMENT

STREET TREE PLANTING SCHEDULE

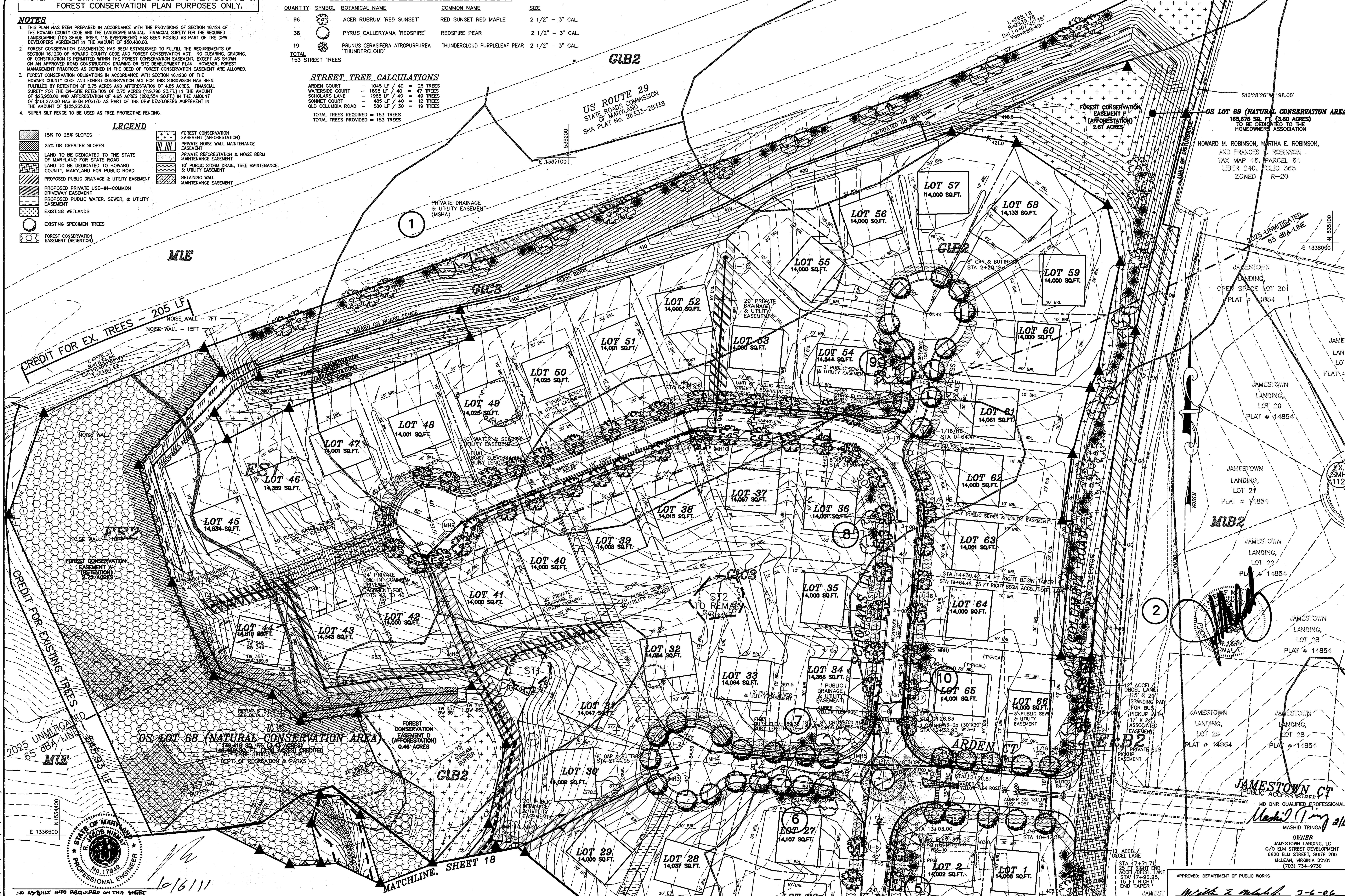
QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
96		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.
38		PYRUS CALLERYANA 'REDSPIRE'	REDSPIRE PEAR	2 1/2" – 3" CAL.
19		PRUNUS CERASIFERA ATROPURPUREA 'THUNDERCLOUD'	THUNDERCLOUD PURPLELEAF PEAR	2 1/2" – 3" CAL.

TOTAL
153 STREET TREES

STREET TREE CALCULATIONS

ARDEN COURT – 1045 LF / 40 = 26 TREES
WATERSIDE COURT – 1895 LF / 40 = 47 TREES
SCHOLARS LANE – 1965 LF / 40 = 49 TREES
SONNET COURT – 485 LF / 40 = 12 TREES
OLD COLUMBIA ROAD – 580 LF / 30 = 19 TREES

TOTAL TREES REQUIRED = 153 TREES
TOTAL TREES PROVIDED = 153 TREES



STATE OF MARYLAND
R. JACOB HIKMAT
No. 17942
PROFESSIONAL ENGINEER

10/6/11

NO AS-BUILT INFO REQUIRED ON THIS SHEET

SOILS DESCRIPTION

SYMBOL	DESCRIPTION
EkB2	ELIOAK SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE C
GlB2	GLENELG SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE B
GlC3	GLENELG SILT LOAM, 8% TO 15% SLOPES, SEVERELY ERODED -- TYPE B
MlC3	MANOR LOAM, 8% TO 15% SLOPES, SEVERELY ERODED -- TYPE B
MlD2	MANOR LOAM, 15% TO 25% SLOPES, MODERATELY ERODED -- TYPE B
MlE	MANOR LOAM, 25% TO 45% SLOPES -- TYPE B

SPECIMEN TREES

KEY	SPECIES	CONDITION	STATUS
ST1	48" YELLOW POPLAR	GOOD	REMAIN
ST2	38" BLACK WALNUT	FAIR	REMAIN
ST3	36" CHESTNUT OAK	GOOD	REMAIN

MD DNR QUALIFIED PROFESSIONAL
2/13/06
MASHID TRINGA

OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/31/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/29/06

00-020/dwg/sec-ii/final/020-ii-lp-fcp-sht17.dwg

project	date
00-020	FEB. 2006
illustration	engineering
SJD	SJD
scale	approval
1"=50'	JBM

no.	description	date
	revisions	

JAMESTOWN LANDING, SECTION II

LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 – PARCEL 229 & 352 – GRID 15
FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

LANDSCAPE & FOREST CONSERVATION PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

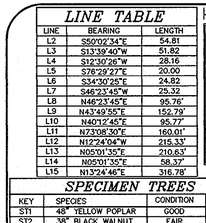
F-05-104

LINE TABLE

LINE	BEARING	LENGTH
L2	S50°02'34"E	54.81
L3	S13°39'40"W	51.82
L4	S12°30'26"W	28.16
L5	S76°29'27"E	20.00
L6	S34°30'25"E	24.82
L7	S46°23'45"W	25.32
L8	N46°23'45"E	95.76'
L9	N43°49'55"E	152.79'
L10	N40°12'45"E	95.77'
L11	N73°08'30"E	160.01'
L12	N12°24'04"W	215.33'
L13	N05°01'35"E	210.63'
L14	N05°01'35"E	58.37'
L15	N13°24'46"E	316.78'

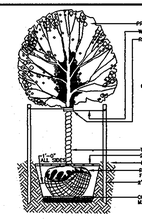
SPECIMEN TREES

KEY	SPECIES	CONDITION	STATUS
ST1	48" YELLOW POPLAR	GOOD	REMAIN
ST2	38" BLACK WALNUT	FAIR	REMAIN
ST3	36" CHESTNUT OAK	GOOD	REMAIN



SIGNAGE DETAILS
NOT TO SCALE

TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



TYPICAL DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO ROADWAYS			ADJ. TO PERIMETER PROPERTIES		ADJACENT TO ROADWAYS	
LANDSCAPE TYPE	B (PERIMETER 1)	B (PERIMETER 2)	B (PERIMETER 3)	A (PERIMETER 4)	B (PERIMETER 4)	B (PERIMETER 5)	B (PERIMETER 6)
LINEAR FEET OF PERIMETER	1452.51 LF	1482.59 LF	752.74 LF	1361.13 LF	234 LF	109.00 LF	107.57 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 205 LF OF EX. TREES TO REMAIN	N/A	N/A	YES, 545.93 LF OF EX. TREES TO REMAIN	N/A	N/A	N/A
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	25 SHADE TREES 31 EVERGREEN TREES 0 SHRUBS	30 SHADE TREES 37 EVERGREEN TREES 0 SHRUBS	15 SHADE TREES 19 EVERGREEN TREES 0 SHRUBS	14 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	5 SHADE TREES 6 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	25 SHADE TREES 31 EVERGREEN TREES 0 SHRUBS	30 SHADE TREES 37 EVERGREEN TREES 0 SHRUBS	15 SHADE TREES 19 EVERGREEN TREES 0 SHRUBS	14 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	5 SHADE TREES 6 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS

CATEGORY	ADJACENT TO ROADWAYS				TOTAL
LANDSCAPE TYPE	B (PERIMETER 7)	B (PERIMETER 8)	B (PERIMETER 9)	B (PERIMETER 10)	
LINEAR FEET OF PERIMETER	77.00 LF	118.38 LF	124.47 LF	111.03 LF	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	N/A	N/A	N/A	N/A	
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	2 SHADE TREES 2 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	3 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	102 SHADE TREES 110 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	2 SHADE TREES 2 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	3 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	102 SHADE TREES 110 EVERGREEN TREES 0 SHRUBS

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE & FOREST CONSERVATION PLAN PURPOSES ONLY.

NOTES

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING (109 SHADE TREES, 118 EVERGREENS) HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $50,400.00.
2. FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING, OF CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
3. FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION HAS BEEN FULFILLED BY RETENTION OF 2.75 ACRES AND AFFORESTATION OF 4.65 ACRES. FINANCIAL SURETY FOR THE ON-SITE RETENTION OF 2.75 ACRES (119,790 SQ.FT.) IN THE AMOUNT OF $23,958.00 AND AFFORESTATION OF 4.65 ACRES (202,554 SQ.FT.) IN THE AMOUNT OF $101,277.00 HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $125,235.00.
4. SUPER SILT FENCE TO BE USED AS TREE PROTECTIVE FENCING.

LEGEND

- 15% TO 25% SLOPES
- 25% OR GREATER SLOPES
- LAND TO BE DEDICATED TO THE STATE OF MARYLAND FOR STATE ROAD
- LAND TO BE DEDICATED TO HOWARD COUNTY, MARYLAND FOR PUBLIC ROAD
- PROPOSED PUBLIC DRAINAGE & UTILITY EASEMENT
- PROPOSED PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
- FOREST CONSERVATION AREA SIGN
- PROPOSED PUBLIC WATER, SEWER, & UTILITY EASEMENT
- EXISTING WETLANDS
- EXISTING SPECIMEN TREES
- FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PRIVATE NOISE WALL MAINTENANCE EASEMENT
- PRIVATE REFORESTATION & NOISE BERM MAINTENANCE EASEMENT
- 10' PUBLIC STORM DRAIN, TREE MAINTENANCE, & UTILITY EASEMENT

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	234 LF (PERIMETER A)	288 LF (PERIMETER B)
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	N/A	YES, 288 LF
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	YES, 234 LF OF PERIMETER LANDSCAPING	N/A
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	0 SHADE TREES 0 EVERGREEN TREES	0 SHADE TREES 0 EVERGREEN TREES
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES	0 SHADE TREES 0 EVERGREEN TREES	0 SHADE TREES 0 EVERGREEN TREES

LINEAR FEET OF PERIMETER	95 LF (PERIMETER C)	227 LF (PERIMETER D)	844 LF (TOTAL)
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	N/A	N/A	YES, 228 LF
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	N/A	N/A	N/A
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	2 SHADE TREES 2 EVERGREEN TREES	5 SHADE TREES 6 EVERGREEN TREES	7 SHADE TREES 8 EVERGREEN TREES
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES	2 SHADE TREES 2 EVERGREEN TREES	5 SHADE TREES 6 EVERGREEN TREES	7 SHADE TREES 8 EVERGREEN TREES

FOREST PROTECTION

1. ALL FOREST RETENTION AREAS SHALL BE TEMPORARILY PROTECTED BY WELL ANCHORED BLAZE ORANGE PLASTIC MESH FENCING AND SIGHAGE AS INDICATED ON THE PLANS. THE DEVICES SHALL BE INSTALLED ALONG THE FOREST RETENTION BOUNDARY PRIOR TO ANY LAND CLEARING, GRUBBING, OR GRADING ACTIVITIES.
2. THE FOREST PROTECTION DEVICES SHALL BE INSTALLED SUCH THAT THE CRITICAL ROOT ZONES OF ALL TREES WITHIN THE RETENTION AREA NOT OTHERWISE PROTECTED WILL BE WITHIN FOREST PROTECTION DEVICES.
3. ALL PROTECTION DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION, INCLUDING SILT FENCE BEING USED AS PROTECTIVE FENCING. ALL DEVICES SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS CEASED IN THE IMMEDIATE VICINITY.
4. ATTACHMENT OF SIGNS, OR ANY OTHER OBJECTS TO TREES IS PROHIBITED. NO EQUIPMENT, MACHINERY, VEHICLES, MATERIALS OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THESE PROTECTED AREAS.
5. INSTALLATION AND MAINTENANCE OF PROTECTIVE FENCING AND SIGNAGE SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL TAKE THE UTMOST CARE TO PROTECT TREE ROOT SYSTEMS DURING ALL CONSTRUCTION ACTIVITIES. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM SMOTHERING, FLOODING, EXCESSIVE WETTING FROM DE-WATERING OPERATIONS, OFF-SITE RUN OFF, SPILLAGE AND DRAINING OF MATERIALS THAT MAY BE HARMFUL TO TREES.
6. THE GENERAL CONTRACTOR SHALL PREVENT PARKING OF CONSTRUCTION VEHICLES AND EQUIPMENT, AND THE STORING OF BUILDING SUPPLIES OR STOCKPILING OF EARTH WITHIN FOREST CONSERVATION EASEMENTS.
7. REMOVAL OF TOPSOIL OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED.
8. THE GENERAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY TREES DAMAGED OR DESTROYED WITHIN THE FOREST CONSERVATION EASEMENTS.
9. ROOT PRUNING SHALL BE USED AT THE LIMIT OF DISTURBANCE OR LIMIT OF GRADING WITHIN AND ADJACENT TO ALL PRESERVATION AREAS, AS NECESSARY.

PRE-CONSTRUCTION MEETING

1. AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:
   - A. TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS;
   - B. INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;
   - C. MAKE ALL NECESSARY ADJUSTMENTS;
   - D. ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.

CONSTRUCTION MONITORING

1. THE SITE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFYING DAMAGED OR PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH MAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES, SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK WOUNDS, LIMB INJURY, OR STRESS CAUSED BY FLOODING OR DROUGHT CONDITIONS.
2. ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS ARE REQUIRE CONSULTATION WITH A PROFESSIONAL ARBORIST.
3. THE CONSTRUCTION PROCEDURE SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS DESIGNATED ON THE PLANS. ANY DAMAGE SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

PLANTING SPECIFICATIONS AND NOTES

SITE PREPARATION AND SOILS

1. PROTECTION FENCING IS TO BE INSTALLED AS A FIRST ORDER OF BUSINESS. SEE PLAN FOR LOCATIONS.
2. DISTURBANCE OF SOILS SHOULD BE LIMITED TO THE PLANTING FIELD FOR EACH PLANT. AS SHOWN ON THE DETAIL VIEW, A PLANTING FIELD OF RADIUS = 5 X DIAMETER OF THE ROOT BALL OR CONTAINER IS RECOMMENDED.
3. SOIL MIX FOR ALL PLANTS EXCEPT ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE OR SUITABLE MANUFACTURED SOIL AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME OF COMPOSTED SLUDGE.
4. SOIL MIX FOR ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE OR SUITABLE SOIL MANUFACTURED SOLID MIX AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME PEAT MOSS.
5. ALL MIXING IN 3 AND 4 SHALL BE LIMITED TO CONTAINER GROWN OR BALL AND BURLAP STOCK ONLY AND CONFINED TO THE PLANTING FIELD AND IMMEDIATE ADJACENT SOIL SURFACE AREA AND SHALL BE DONE TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

PLANT STORAGE AND INSPECTION

1. FOR CONTAINER GROWN NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN 2 WEEKS AFTER DELIVERY TO THE SITE.
2. FOR BALL AND BURLAP NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN THREE DAYS AFTER DELIVERY TO THE SITE.
3. PLANTING STOCK SHOULD BE INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO STANDARD NURSERYMAN SPECIFICATIONS FOR SIZE, FORM, VIGOR, ROOTS, TRUNK WOUNDS, INSECTS AND DISEASE SHOULD BE REPLACED.
4. UNTIL PLANTED, ALL PLANT STOCK SHALL BE KEPT IN A SHADED, COOL, AND MOISTENED ENVIRONMENT.

PLANT INSTALLATION

1. THE PLANTING FIELD SHOULD BE PREPARED AS SPECIFIED (SEE DETAIL). NATIVE STOCKPILED SOILS SHOULD BE USED FOR SOIL MIX AND BACKFILL FOR PLANTING FIELD. AFTER PLANT INSTALLATION, RAKE SOILS EVENLY OVER THE PLANTING FIELD AND COVER WITH AT LEAST 4 INCHES OF MULCH. WATER, GENEROUSLY, TO SETTLE SOIL BACKFILLED AROUND TREES.
2. PLANTING FIELD DIAMETERS SHOULD BE REDUCED OR PLANTING FIELD MOVED IF IT APPEARS THAT EXCESSIVE EXISTING ROOT DAMAGE MAY OCCUR DURING DIGGING OPERATION NEAR EXISTING FOREST.
3. CARE SHALL BE TAKEN WHEN DIGGING PLANTING FIELDS NOT TO CHOP THROUGH OR LARGER EXISTING ROOTS FROM EXISTING MATURE TREES. IF ROOTS GREATER THAN 1/2 INCH ARE ENCOUNTERED PLEASE TRY TO DIG AROUND THEM AS MUCH AS POSSIBLE TO MINIMIZE IMPACT TO EXISTING TREES. DO NOT CUT ROOTS HERE FIRST.
4. CONTAINER GROWN STOCK SHOULD BE REMOVED FROM THE CONTAINER AND ROOTS GENTLY LOOSENED FROM THE SOIL. IF THE ROOTS ENCIRCLE THE ROOT BALL, SUBSTITUTION IS STRONGLY RECOMMENDED. J-SHAPED OR KINKED ROOT SYSTEMS SHOULD ALSO BE NOTED. ROOTS MAY NOT BE TRIMMED ON SITE, DUE TO THE INCREASED CHANCES OF SOIL BORNE DISEASES.
5. FOR BALL AND BURLAP STOCK, PLACE TREE IN PREPARED PLANTING FIELD AND REMOVE WIRE AND/OR STRING FROM ROOT BALL. THEN PEEL BACK BURLAP TO BASE OF ROOT BALL AND COVER ENTIRE ROOT BALL WITH TOPSOIL MIXTURE INDICATED ABOVE AND WATER GENEROUSLY.
6. FOR TREES PLANTED IN THE AFFORESTATION AREA, CONTRACTOR SHALL EVENLY DISPERSE SPECIES IN GROUPS OF TWO (2) OR FIVE (5), PER SPECIES, OVER THE ENTIRE DESIGNATED AREA TO BE PLANTED WHILE MAINTAINING AN AVERAGE RANDOM SPACING OF INDIVIDUAL TREES AT PROPER SPACING INDICATED ON PLANT LIST.
7. AVOID PLANTING IN A STRAIGHT GRID PATTERN. TREES SHALL BE PLANTED ON AN AVERAGE SPACING AS INDICATED ON PLANT LISTS TO OBTAIN A MORE NATURAL APPEARANCE.
8. NEWLY PLANTED TREES MAY NEED WATERING AS MUCH AS ONCE A WEEK FOR THE ENTIRE GROWING SEASON, DUE TO THE VERY DEEP, WELL DRAINED NATURE OF THE NATIVE SOILS FOUND ON THIS SITE COMBINED WITH THE LOOSENESS OF THE BACKFILLED AREA WITHIN THE PLANTING FIELD. THE NEXT TWO YEARS MAY REQUIRE WATERING ONLY A FEW TIMES A YEAR DURING SUMMER AND DRY MONTHS. AFTER THAT PERIOD, TREES SHOULD ONLY NEED WATER IN SEVERE DROUGHTS. ANY WATERING PLAN SHOULD COMPENSATE FOR RECENT RAINFALL PATTERNS.

FERTILIZING

1. DO NOT FERTILIZE NEWLY PLANTED TREES WITHIN THE FIRST GROWING SEASON AFTER PLANTING. DOING SO MAY CAUSE A SPURT OF CANOPY GROWTH WHICH THE ROOTS CANNOT SUPPORT AND ADD ADDITIONAL SHOCK TO THE ALREADY DISTURBED PLANT.
2. NOTHING SHOULD BE ADDED TO THE SOIL WITHOUT TESTING IT FIRST TO DETERMINE ITS NEEDS.
3. IF AND WHEN IT IS TIME TO FERTILIZE, ORGANIC FERTILIZERS ARE PREFERRED TO SYNTHETIC FERTILIZERS. BONE MEAL OR SEAWEED BASED PRODUCTS ARE AVAILABLE COMMERCIALLY AND ARE RECOMMENDED. THEY HAVE THE ABILITY TO SUPPLY NUTRIENTS TO THE PLANT AS NEEDED WHILE MINIMIZING THE RISK OF EXCESS NUTRIENTS ENTERING THE FOREST SYSTEM AND WATER SUPPLY.

MAINTENANCE SCHEDULE

1. ANNUAL MAINTENANCE DURING THE GROWING SEASON, FOR A THREE YEAR PERIOD.
2. ASSESS TREE MORTALITY OF PLANTING STOCK, REMOVE AND REPLACE ANY DEAD OR DISEASED PLANTINGS.
3. VOLUNTEER SEEDING OF NATIVE, LOCAL AND ENDEMIC VEGETATION IS TO BE EXPECTED. DO NOT DISCOURAGE THIS EFFORT UNLESS IT IS NEGATIVELY EFFECTING THE PLANTED STOCK.
4. REMOVE THROUGH MANUAL MEANS (GRUBBING, PULLING, CUTTING) AGGRESSIVE, NOXIOUS, INVASIVE SPECIES AND ALL HERBACEOUS VEGETATION WITHIN A 3-FOOT RADIUS SURROUNDING THE PLANTED WOODY NURSERY STOCK.
5. REMOVE AND DISPOSE OF MAN-MADE TRASH, INCLUDING ITEMS CONTAINED WITHIN TREE PLANTING AREA. DO NOT REMOVE DOWN AND DEAD MATERIAL NATURALLY OCCURRING OR ACCUMULATING, UNLESS IT IS SMOTHERING PLANTING STOCK.
6. A 75 PERCENT SURVIVAL OF PLANTED STOCK MUST BE ACHIEVED AT THE END OF THE 24 MONTH MANAGEMENT PERIOD. IF NOT, ADDITIONAL PLANTINGS MAY BE REQUIRED TO ACHIEVE THIS GOAL.

SUPERVISION

1. ALL FOREST CONSERVATION ACTIVITIES SHALL BY DONE UNDER THE DIRECT SUPERVISION OF SOMEONE FROM THE DESIGN TEAM OR OTHER "QUALIFIED PROFESSIONAL" AS DETERMINED BY THE REQUIREMENTS OF COMAR 08.19.06.01 AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, PUBLIC LANDS AND FORESTRY DIVISION.

SOILS DESCRIPTION

SYMBOL	DESCRIPTION
EnB2	ELIOAK SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE C
GlB2	GLENELG SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE B
GlC3	GLENELG SILT LOAM, 8% TO 15% SLOPES, SEVERELY ERODED -- TYPE B
MlC3	MANOR LOAM, 8% TO 15% SLOPES, SEVERELY ERODED --- TYPE B
MrD2	MANOR LOAM, 15% TO 25% SLOPES, MODERATELY ERODED --- TYPE B
MlE	MANOR LOAM, 25% TO 45% SLOPES --- TYPE B

AFFORESTATION PLANT LIST (FCE B, C & D)

ALTERNATIVE 1

QTY.	SPECIES	SHADE TOL.	MOIST. REGIME	WET. STATUS	MIN.O.C. SPACING	SIZE & REMARKS
136	Acer rubrum Red Maple	VT	D-W	FAC	15'	CONT/B & B 1" CALIPER
40	Lindera benzoin Spicebush	T	M	FACW-	15'	CONT/B & B 3'-5' HEIGHT
40	Liquidambar styraciflua American Sweet Gum	I	M-W	FAC	15'	CONT/B & B 1" CALIPER
68	Liriodendron tulipifera Tuliptree	MT	D-M	FAC	15'	CONT/B & B 1" CALIPER
68	Nyssa sylvatica Black Gum	T	M-W	FAC	15'	CONT/B & B 1" CALIPER
24	Prunus serotina Wild Black Cherry	I	M	FACU	15'	CONT/B & B 3'-5' HEIGHT

TOTAL 376 TREES & SHRUBS (340 TREES REQUIRED)

ALTERNATIVE 2

QTY.	SPECIES	SHADE TOL.	MOIST. REGIME	WET. STATUS	MIN.O.C. SPACING	SIZE & REMARKS
240	Acer rubrum Red Maple	VT	D-W	FAC	11'	SEEDLING/WHIP W/ TREE SHELTER
50	Lindera benzoin Spicebush	T	M	FACW-	11'	SEEDLING/WHIP W/ TREE SHELTER
65	Liquidambar styraciflua American Sweet Gum	I	M-W	FAC	11'	SEEDLING/WHIP W/ TREE SHELTER
120	Liriodendron tulipifera Tuliptree	MT	D-M	FAC	11'	SEEDLING/WHIP W/ TREE SHELTER
120	Nyssa sylvatica Black Gum	T	M-W	FAC	11'	SEEDLING/WHIP W/ TREE SHELTER
45	Prunus serotina Wild Black Cherry	I	M	FACU	11'	SEEDLING/WHIP W/ TREE SHELTER

TOTAL 640 WHIPS WITH TREE SHELTERS & SHRUBS (595 TREES WITH SHELTERS REQUIRED)

AFFORESTATION PLANT LIST (FCE E & F)

QTY.	SPECIES	SHADE TOL.	MOIST. REGIME	WET. STATUS	MIN.O.C. SPACING	SIZE & REMARKS
115	Acer rubrum Red Maple	VT	D-W	FAC	20'	CONT/B & B 2 1/2" - 3"CALIPER
60	Lindera benzoin Spicebush	T	M	FACW-	20'	CONT/B & B 1" - 2" CALIPER
25	Liquidambar styraciflua American Sweet Gum	I	M-W	FAC	20'	CONT/B & B 2 1/2" - 3"CALIPER
57	Liriodendron tulipifera Tuliptree	MT	D-M	FAC	20'	CONT/B & B 2 1/2" - 3"CALIPER
57	Nyssa sylvatica Black Gum	T	M-W	FAC	20'	CONT/B & B 2 1/2" - 3"CALIPER
36	Prunus serotina Wild Black Cherry	I	M	FACU	20'	CONT/B & B 1" - 2" CALIPER

TOTAL 360 TREES & SHRUBS (295 TREES REQUIRED)

NOTE : IN ADDITION TO THE TREES REQUIRED FOR ALTERNATIVES 1 & 2, VIRGINIA CREEPER TO BE PLANTED WITH 18" SPACING FOR THE 2.25 ACRE BERM AREA, AND 50 MAPLELEAF VIBURNUM ARE ALSO TO BE PLANTED.

LANDSCAPE REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
61		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2" - 3" CAL.
48		ACER SACCHARUM 'GREEN MOUNTAIN'	GREEN MOUNTAIN SUGAR MAPLE	2 1/2" - 3" CAL.
118		PINUS STROBUS	WHITE PINE	6' - 8' HT.

TOTAL 227 TREES (109 SHADE TREES, 118 EVERGREENS)

FOREST CONSERVATION DATA

I. BASIC SITE DATA — ACRES

GROSS SITE AREA	37.66
AREA WITHIN 100 YEAR FLOODPLAIN	0.00
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL	0.00
NET TRACT AREA	37.66
LAND USE CATEGORY RESIDENTIAL – SUBURBAN	

II. FOREST CONSERVATION WORKSHEET DATA SUMMARY

B. REFORESTATION THRESHOLD (20%)	7.53
C. AFFORESTATION MINIMUM (15%)	5.65
D. EXISTING FOREST ON NET TRACT AREA	9.40
E. FOREST AREAS TO BE CLEARED	1.75
F. FOREST AREAS TO BE RETAINED	2.75
V. AFFORESTATION CALCULATIONS	
AFFORESTATION FOR UNFORESTED AREAS BELOW MINIMUM	1.15
REFORESTATION FOR CLEARING BELOW MINIMUM	3.50
TOTAL REFORESTATION AND AFFORESTATION REQUIRED	4.65
TOTAL REFORESTATION AND AFFORESTATION PROVIDED	4.65

MD DNR QUALIFIED PROFESSIONAL

MASHID TRINEY 2/13/06

OWNER

JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/21/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/24/06

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Fax. (410) 997-0298 Wash. (301) 621-5521

JAMESTOWN LANDING, SECTION II
LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71
TAX MAP 46 - PARCEL 229 & 352 - GRID 15
HOWARD COUNTY, MARYLAND
FIFTH ELECTION DISTRICT
LANDSCAPE & FOREST CONSERVATION PLAN

project	date
00-020	FEB. 2006
illustration	engineering
SJD	SJD
scale	approval
1" = 50'	JBM

no.	description	date
	revisions	

F-05-104

00-020/dwg/sec-ii/final/020-ii-lp-fcp-sht17.dwg

STRUCTURAL NOTES

1. BUILDING CODES

   A. ALL CONSTRUCTION SHALL CONFORM WITH THE 2003 IBC BUILDING CODE AND ALL SUBSEQUENT SUPPLEMENTS.

   B. IN ADDITION, ALL CONSTRUCTION SHALL CONFORM WITH THE GOVERNING LOCAL BUILDING CODE.

2. MISCELLANEOUS

   A. SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS MUST BE SUBMITTED BY THE CONTRACTOR OR OWNER FOR REVIEW BY THE ENGINEER. IF THE CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS, THE ENGINEER WILL NOT BE RESPONSIBLE FOR STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT. THE SHOP DRAWINGS SHALL INDICATE ANY DEVIATIONS OR OMISSIONS FROM THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMISSION AND MAKE ALL CORRECTIONS DEEMED NECESSARY.

   B. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS BEFORE PROCEEDING WITH CONSTRUCTION. ALL DISCREPANCIES AND OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

   C. THE CONTRACTOR SHALL NOT SUBMIT REPRODUCTIONS OF THE STRUCTURAL CONTRACT DOCUMENTS AS SHOP DRAWINGS.

   D. SCALES SHOWN ON THE STRUCTURAL CONTRACT DRAWINGS ARE FOR GENERAL INFORMATION ONLY. DIMENSIONAL INFORMATION SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.

3. RETAINING WALLS

   A. FOOTINGS FOR ALL RETAINING WALLS HAVE BEEN DESIGNED FOR AN ASSUMED NET ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF. THE ALLOWABLE SOIL BEARING PRESSURE SHALL BE FIELD VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER AND APPROVED PRIOR TO PLACING FOOTINGS. SHOULD THE ACTUAL SOIL BEARING PRESSURE BE LESS THAN 2000 PSF, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.

   B. RETAINING WALLS HAVE BEEN DESIGNED WITH BACKFILL MATERIAL HAVING THE FOLLOWING CHARACTERISTICS:

      γ = 120 PCF
      ϕ = 30 DEGREES
      Ka = 0.33

      IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INSURE THE BACK FILL MATERIAL MEETS THESE CHARACTERISTICS AND COMPLIES WITH THE MD-378 CORE SPECIFICATIONS. FILL UNDER THE WEIR WALL SHALL CONFORM TO SC, CH OR CL. ALL OTHER MATERIALS ARE NOT PERMITTED.

   C. RETAINING WALLS HAVE BEEN DESIGNED FOR THE FOLLOWING MINIMUM FACTORS OF SAFETY:

      SLIDING 1.5
      OVERTURNING 2.0

   D. CONSTRUCTION OF ALL RETAINING WALLS SHALL BE PERFORMED UNDER THE SUPERVISION OF A REGISTERED GEOTECHINCAL ENGINEER.

   E. ALL RETAINING WALLS SHALL BE BRACED AND SHORED AS REQUIRED DURING BACKFILLING. BOTH SUPPORTING ELEMENTS SHALL BE IN PLACE AND DEVELOPING FULL REQUIRED STRENGTH PRIOR TO BACK FILLING OF WALLS SUPPORTED AT TOP AND BOTTOM.

4. STRUCTURAL FILL

   A. NEW FILL MATERIAL AND EXISTING BASE MATERIAL SHALL BE FREE OF ALL REFUSE, DEBRIS, AND ORGANIC MATTER AND SHALL BE APPROVED FOR USE BY A REGISTERED GEOTECHNICAL ENGINEER.

   B. FILL MATERIAL SHALL BE DEPOSITED IN 8 INCH MAXIMUM LOOSE LIFTS AND COMPACTED TO A DRY DENSITY OF AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698. FILL SHALL BE PLACED AND COMPACTED IN 8 INCH LOOSE LIFTS TO DESIRED FINISHED GRADE UNDER THE GUIDANCE AND OBSERVATION OF A PROFESSIONAL GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF MARYLAND.

   C. WHEN WORK IS INTERRUPTED BY RAIN, FILL OPERATIONS SHALL NOT RESUME UNTIL FIELD TESTS INDICATE THAT THE MOISTURE CONTENT AND SOIL DENSITY OF THE TOP 8 INCHES OF FILL IS WITHIN THE LIMITS SPECIFIED.

   D. ALL FILL MATERIAL SHALL BE PLACED IN SUCH A MANNER THAT THE SURFACE IS SLOPED TO PREVENT THE PONDING OF WATER.

5. CAST IN PLACE CONCRETE

   A. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301)"; AND TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)".

   B. IN ADDITION TO THE ABOVE, ALL CONCRETE WORK SHALL CONFORM TO THE FOLLOWING:

      1. RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING (ACI 305).
      2. RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING (ACI 306).
      3. RECOMMENDED PRACTICE FOR CONCRETE FORMWORK (ACI 347).

   C. ALL CONCRETE EXPOSED TO PUBLIC VIEW SHALL CONFORM TO THE REQUIREMENTS FOR ARCHITECTURAL CONCRETE CONTAINED IN ACI 301.

   D. ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL BE STONE AGGREGATE CONCRETE HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI. ALL CONCRETE EXPOSED TO WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 5% +/- 1%. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED. MAXIMUM AGGREGATE SIZE SHALL BE 1", AND MAXIMUM SLUMP SHALL BE 4", 3" FOR SLABS ON GRADE. ALL CONCRETE, EXCEPT FOOTINGS, SHALL CONTAIN A WATER REDUCING ADMIXTURE. PORTLAND CEMENT SHALL CONFORM TO ASTM C 150 AND NORMAL WEIGHT AGGREGATES SHALL CONFORM TO ASTM C 33.

   E. ALL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A 615 GRADE 60. ALL WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO ASTM A 185. LAP ALL REINFORCING BARS A MINIMUM OF 48 BAR DIAMETERS AND ALL W.W.F. A MINIMUM OF TWO FULL GRIDS, UNLESS OTHERWISE INDICATED.

   F. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH THE CRSI "MANUAL OF STANDARD PRACTICE", ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", ACI SP 66 "DETAILING MANUAL".

   G. ALL CONCRETE MIX DESIGNS, INCLUDING CEMENT CONTENT, WATER CEMENT RATIO, FINE AND COARSE AGGREGATE CONTENT AND ALL ADMIXTURES, SHALL BE REVIEWED BY ENGINEER PRIOR TO PLACING FIRST CONCRETE.

   H. ALL CONCRETE SHALL BE SAMPLED AND TESTED BY THE TESTING AGENCY. THE CONTRACTOR SHALL NOTIFY THE TESTING AGENCY 48 HOURS PRIOR TO THE PLACING OF ANY CONCRETE.

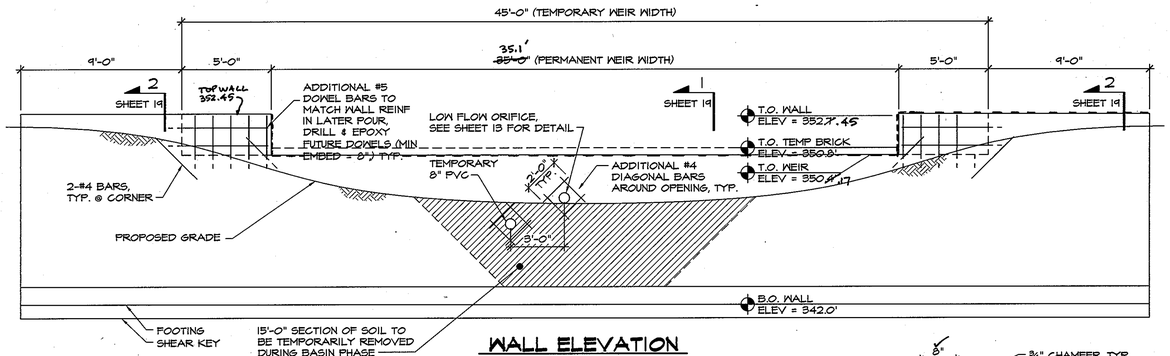
   I. THE CONCRETE STRUCTURE SHALL NOT SUPPORT THE DESIGN LIVE LOAD FOR A MINIMUM OF 28 DAYS AND ALL SHORING AND RESHORING REQUIRED TO SUPPORT THE CONCRETE STRUCTURE DURING CONSTRUCTION SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR. SHOP DRAWINGS, SIGNED AND SEALED BY A REGISTERED ENGINEER IN THE STATE OF MARYLAND, SHALL BE SUBMITTED FOR REVIEW. SHOP DRAWINGS SHALL INDICATE THE TYPE, EXTENT, SIZE, AND LOCATION OF ALL SHORING AND RESHORING AS WELL AS THE SEQUENCE OF CONSTRUCTION.

   J. GROUND BLAST FURNACE SLAG MAY BE USED TO REPLACE UP TO 50 PERCENT OF THE PORTLAND CEMENT IN A CONCRETE MIX, AND FLY ASH OR POZZOLAN MAY BE USED TO REPLACE UP TO 25 PERCENT OF PORTLAND CEMENT, SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER AND SHALL CONFORM TO ASTM C 989.

   K. MINIMUM COVER FOR ALL REINFORCING SHALL BE AS FOLLOWS UNLESS OTHERWISE INDICATED:

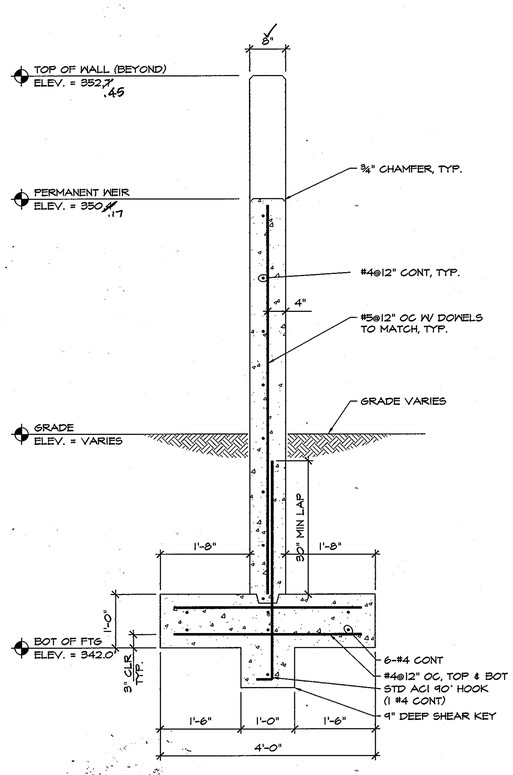
      FOUNDATIONS 3 INCHES
      WALLS 3/4 INCHES
      WALLS BELOW GRADE 2 INCHES

   L. THE GENERAL CONTRACTOR SHALL SUBMIT PLANS SHOWING ALL PENETRATIONS THROUGH THE FRAMED CONCRETE SLABS. THE OPENINGS SHALL BE ACCURATELY LOCATED AND DIMENSIONED.



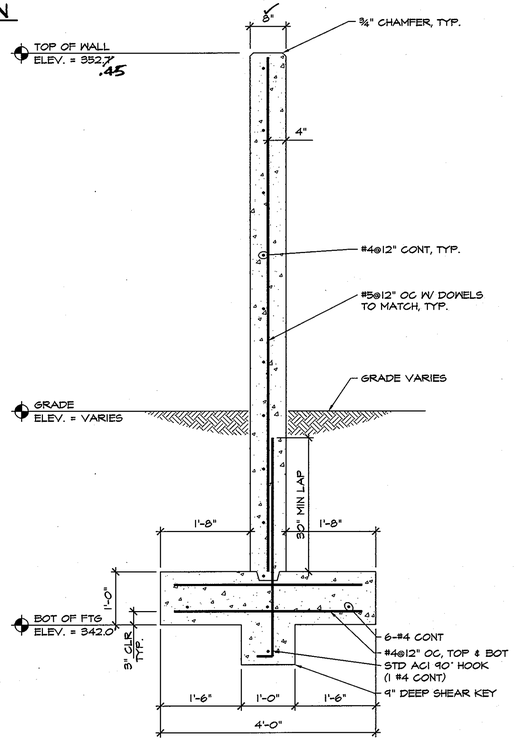
WALL ELEVATION

SCALE: 1/4" = 1'-0"



SECTION 1/SHEET 19

SCALE: ¾" = 1'-0"



SECTION 2/SHEET 19

SCALE: ¾" = 1'-0"

STATE OF MARYLAND — R. JACOB HIKARI — No. 17342 — PROFESSIONAL ENGINEER

10/6/17

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS WITH THE APPROVED PLANS AND SPECIFICATIONS.

AS-BUILT CERTIFICATION

Shanaberger & Lane
8726 Town & Country Blvd.
Suite 201
Ellicott City, MD. 21043

STATE OF MARYLAND — GREGORY SCOTT SHANABERGER — NO. 10848 — PROFESSIONAL LAND SURVEYOR

STATE OF MARYLAND — BRIAN E. SWERLING — NO. 23393 — PROFESSIONAL ENGINEER

MRA

MORRIS & RITCHIE ASSOCIATES, INC.
Engineers
1220-C East Joppa Rd, Suite 505
Towson, Maryland 21286
410-821-1690
410-821-7440 Fax

DATE	REVISIONS
1/11/06	PER CITY COMMENTS
7/19/05	PER CITY COMMENTS
4/19/05	PER CITY COMMENTS

JOB NO.: 14071
SCALE: AS NOTED
DATE: 12 / 13 / 04
DRAWN BY: DJC
DESIGN BY: DJC
REVIEW BY: BES
SHEET: 1 OF 2

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/21/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/28/06

project	date
00-020	DEC 2004
illustration	**engineering**
SJD	SJD
scale	**approval**
AS SHOWN	JBM

no.	description / revisions	date
1	REVISE NOTE #6	12/18/06

JAMESTOWN LANDING, SECTION II

LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71

TAX MAP 46 – PARCEL 229 & 352 – GRID 15

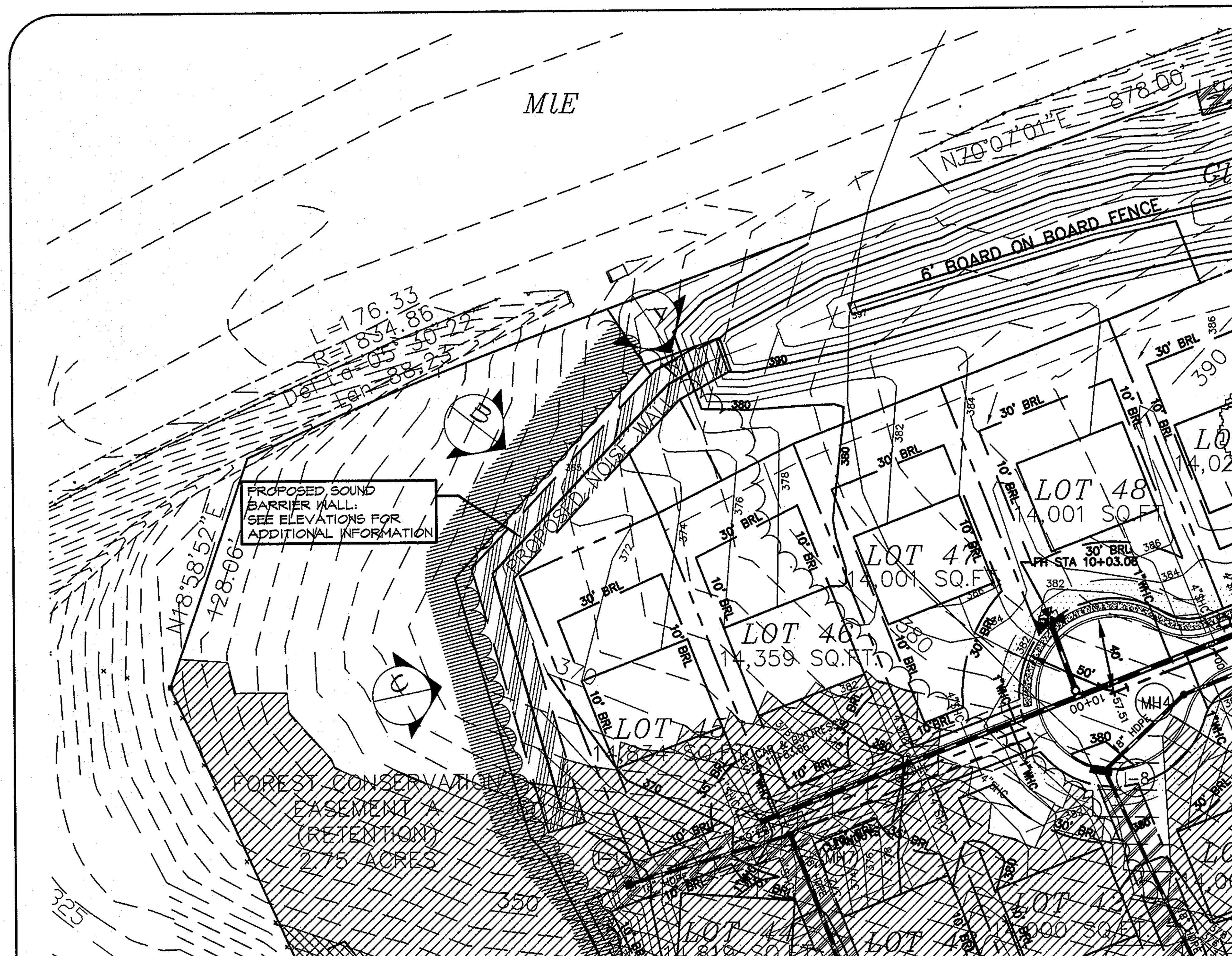
HOWARD COUNTY, MARYLAND

FIFTH ELECTION DISTRICT

STRUCTURAL SHEET

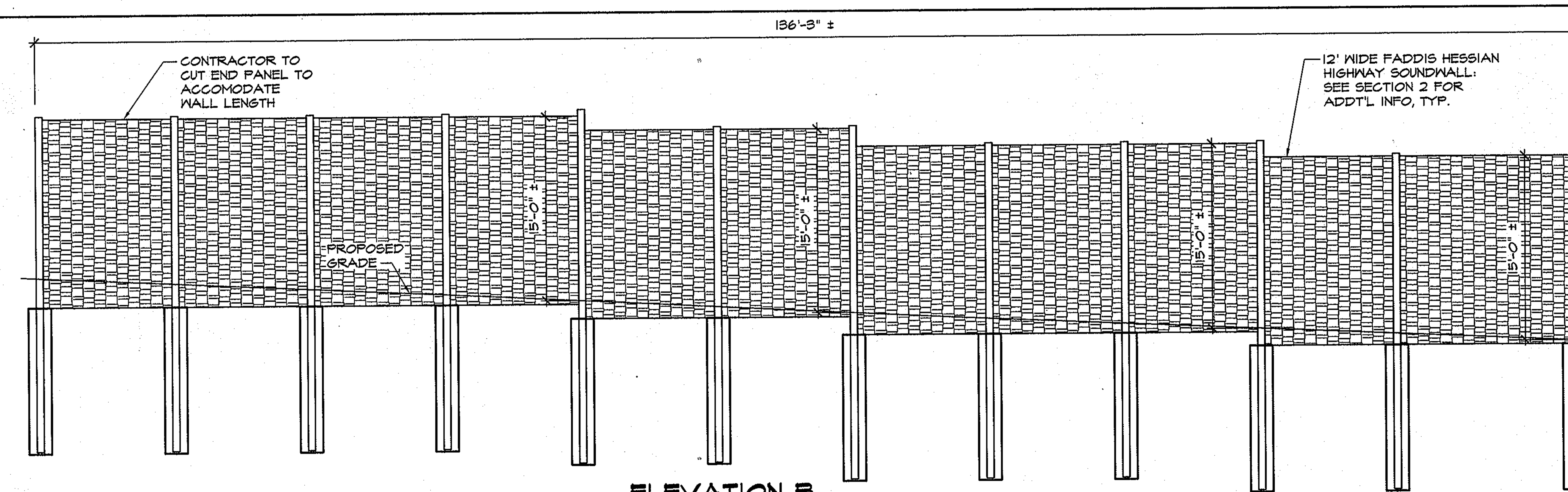
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

00-020/dwg/sec-II/final/



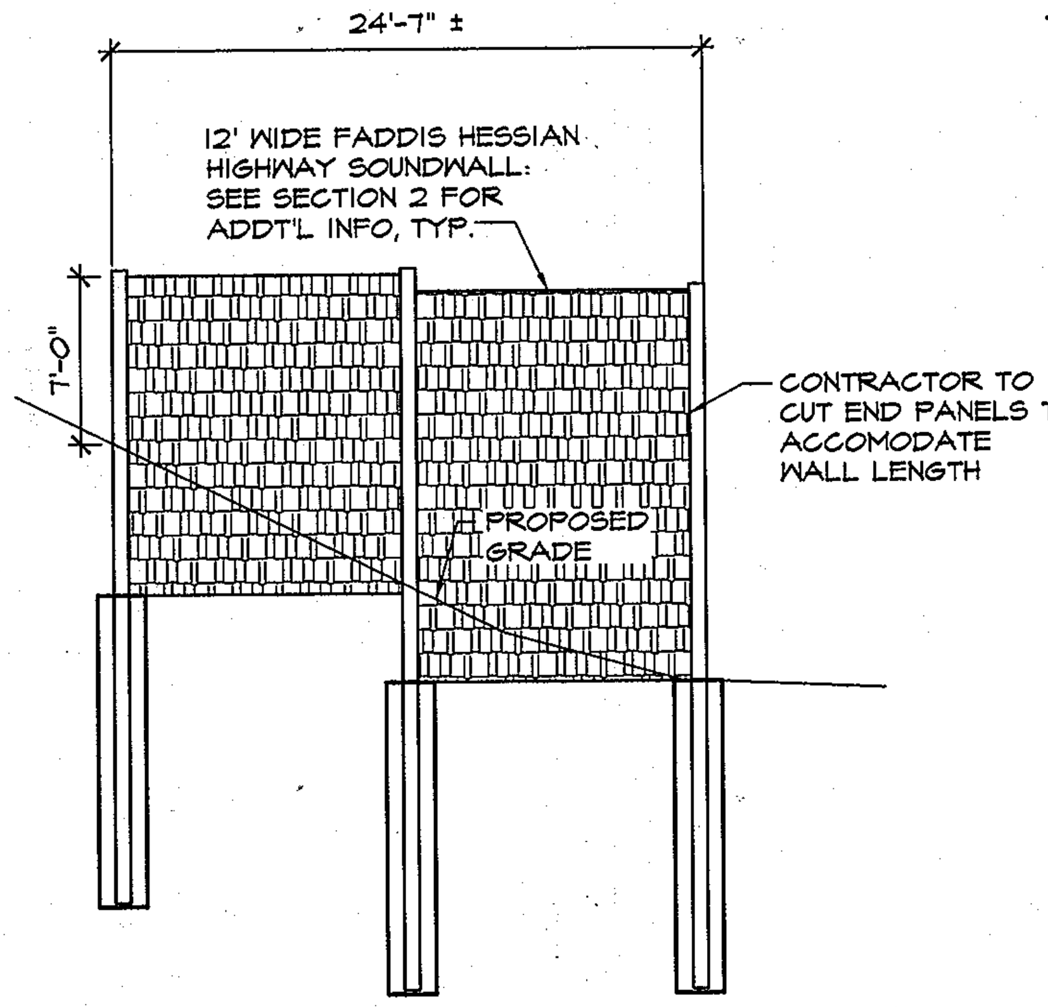
SITE PLAN

SCALE: 1" = 50'



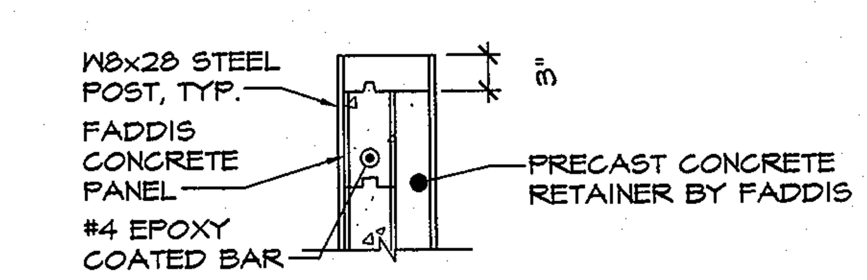
ELEVATION B

SCALE: 1/8" = 1'-0"



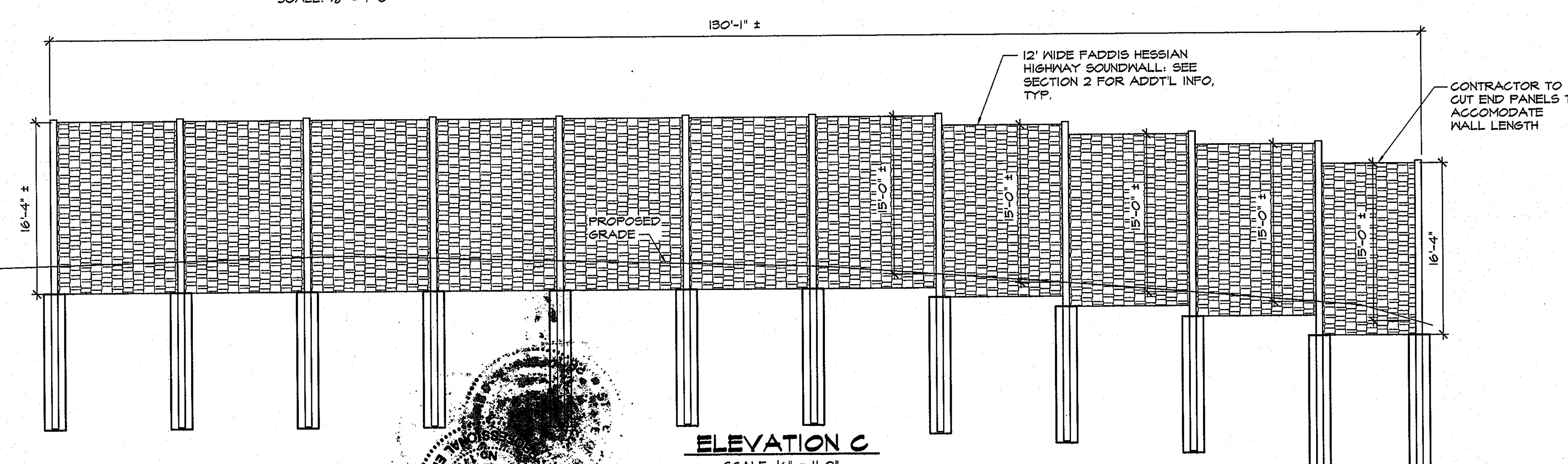
ELEVATION A

SCALE: 1/8" = 1'-0"



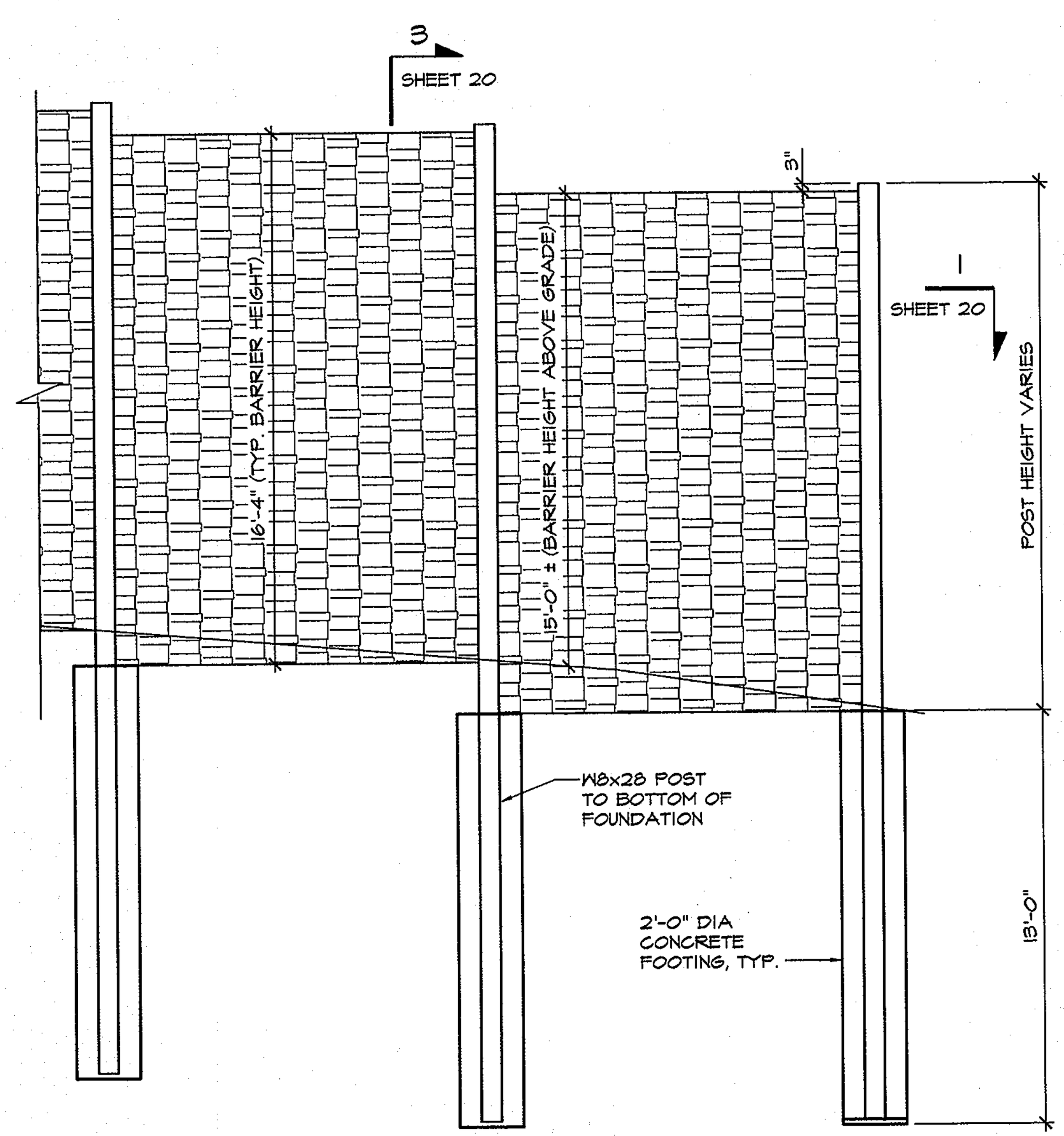
TYP. TOP OF POST - 3/SHEET 20

SCALE: 3/4" = 1'-0"



ELEVATION C

SCALE: 1/8" = 1'-0"

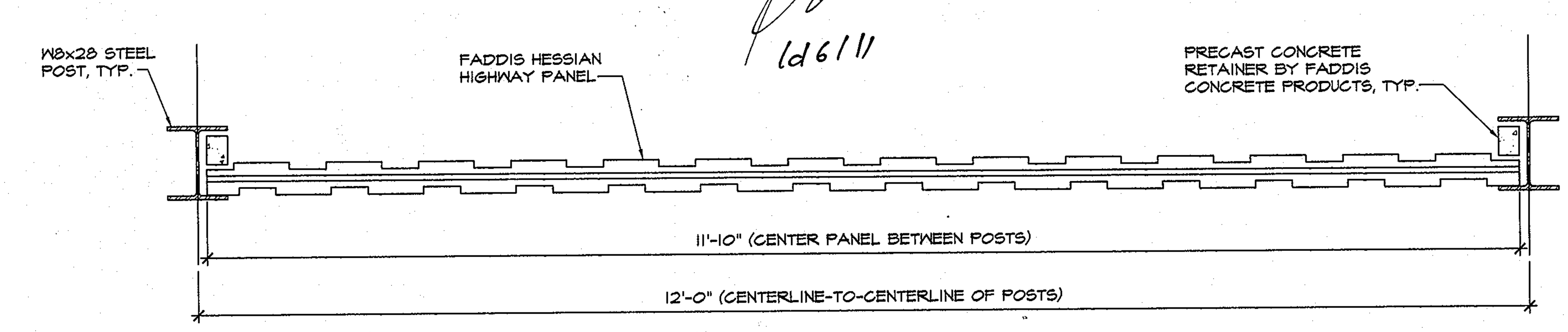


SECTION 2 - TYPICAL FOUNDATION

SCALE: 1/4" = 1'-0"

NO AS-BUILT INFO REQUIRED ON THIS SHEET

ld 6/11



STANDARD CONCRETE SOUND BARRIER (11'-10" W x 16'-4" H) DETAIL - 1/SHEET 20

SCALE: 1" = 1'-0"

NOTE:
SEE DRAWINGS BY FADDIS CONCRETE PRODUCTS FOR MORE INFORMATION.

STATE OF MARYLAND PROFESSIONAL ENGINEER NO. 23303

MRA
MORRIS & RITCHIE ASSOCIATES, INC.
Engineers
1220-C East Joppa Rd, Suite 505
Towson, Maryland 21286
410-821-1690
410-821-7440 Fax

DATE	REVISIONS		
		JOB NO.:	14071
		SCALE:	AS NOTED
7/26/06	SOUND WALL TYPE CHANGE	DATE:	12 / 13 / 04
6/16/06	SOUND WALL MATERIAL CHANGE	DRAWN BY:	DJC
1/11/06	PER CITY COMMENTS	DESIGN BY:	DJC
7/19/05	PER CITY COMMENTS	REVIEW BY:	BES
4/19/05	PER CITY COMMENTS	SHEET:	2 OF 2

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/29/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/23/08

project	date
00-020	DEC 2004
illustration	engineering
SJD	SJD
scale	approved
AS SHOWN	JBM

no.	description	date
1	ADD SHEET 20A REVISE NOISE WALL	12/8/06

revisions

JAMESTOWN LANDING, SECTION II

LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71

TAX MAP 46 – PARCEL 229 & 352 – GRID 15

FIFTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STRUCTURAL SHEET

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

00-020/dwg/sec-II/fin.dwg

SEGMENTAL RETAINING WALL SPECIFICATIONS

PART 1 – GENERAL

1.1 Work includes furnishing and installing segmental retaining wall units, geogrid reinforcement, wall fill, and backfill to the lines and grades shown on the construction drawings and as specified herein. The contract also includes the furnishing and installing all appurtenant materials, equipment, and labor required for construction of the geogrid reinforced, segmental retaining wall. All existing and proposed construction and site grading information was referenced from the digital plan entitled "020-II-finalbase-alt.dwg", provided by Mildenberg, Boender & Associates, Inc. received April 12, 2005.

1.2 The installation of the 18" HDPE pipe behind the proposed retaining wall should be coordinated with the construction of the wall. The pipe must be installed concurrently or prior to construction of the walls.

1.2 REFERENCE STANDARDS

A. ASTM C90–75 (1981 rev) – Hollow Load Bearing Masonry Units
B. ASTM C140–75 (1981 rev) – Sampling and Testing Concrete Masonry Units
C. ASTM C145–75 (1981 rev) – Solid Load Bearing Concrete Masonry Units
D. Geosynthetic Research Institute (GRI), GRI–GG4 – Determination of Long Term Design Strength of Geogrids.
E. ASTM D 638 – Test Method for Tensile Properties of Plastic
F. ASTM D 1248 – Specification of Polyethylene Plastics Molding and Extrusion Materials
G. ASTM D 4218 – Test Method for Carbon Black Content in Polyethylene Compounds by the Muffle Furnace Technique
H. ASTM D 3034 – Specification for Polyvinyl Chloride (PVC) Pipe
I. ASTM C 1372 – Specifications for Segmental Retaining Wall Units

1.3 DELIVERY, STORAGE AND HANDLING

A. Contractor should check the materials upon delivery to assure that proper material has been received.
B. Contractor should prevent excessive mud, wet cement, epoxy, and like materials which may affix themselves, from coming in contact with the materials.
C. Geogrids should be stored above –20 degrees F.
D. Contractor should protect the materials from damage. Damaged material should not be incorporated into the reinforced retaining wall.

1.4 SUBMITTALS/CERTIFICATION

The contractor shall submit a Manufacturer's certification, prior to the start of the work, that the retaining wall system components meet the requirements of ASTM C 1372 and other requirements specified herein. This certification should be provided to the geotechnical engineer for review and approval prior to wall construction.

PART 2 – PRODUCTS

2.1 DEFINITIONS

A. Geogrid is a high density polyethylene, polyester, or polypropylene grid, specifically fabricated for use as a soil reinforcement.
B. Concrete retaining wall units are as detailed on the drawings and as specified herein.
C. Geosynthetic Drainage Composites are polyethylene net structure with non–woven geotextiles bonded to both sides.
D. Erosion Control Blankets consist of a web of polyolefin fibers securely bounded by polyolefin threads between two high strength polyolefin nets.
E. Backfill is the soil which is used as fill for the reinforced soil mass.
F. Foundation soil is the in–situ soil or controlled compacted fill placed below the bottom of the retaining wall and geogrid zone.

2.2 MATERIALS

The contractor should submit manufacturer's catalog and samples of the proposed materials for approval by the project geotechnical engineer a minimum of seven days before the start of construction. Materials should be transported to the site only after approval of the proposed materials by the project geotechnical engineer.

A. Concrete Units

1. Masonry units should be Keystone Standard II Retaining Wall Units. Substitution of other concrete units may be allowed with the prior approval of the Geotechnical Engineer.
2. Concrete wall units should have a minimum 28 day compressive strength of 3000 psi, in accordance with ASTM C–90. The concrete should have adequate freeze/thaw protection with a maximum moisture absorption of 6 percent.
3. Modular concrete materials shall conform to the requirements of ASTM C 1372 – Standard Specifications for Segmental Retaining Wall Units.
4. The units shall pass 100 freeze/thaw cycles in water with less than 1% weight loss in accordance with ASTM C 1372.
5. Exterior dimensions may vary. Units are required to have a minimum of one square foot of face area each.
6. Units should have angled sides and be capable of attaining concave and convex alignment curves in accordance with manufacturer's recommendations.
7. Units should be interlocked with non–corrosive reinforced fiberglass pins.
8. Units should be interlocked as to provide a maximum of 1 inch of setback per block, where required.

B. Leveling Pad

Material for leveling pad/footing should consist of compacted free–draining coarse aggregates meeting the requirements of ASTM #57 Stone or Graded Aggregate Base (GAB) per Maryland State Highway Administration Standard Specifications for Construction and Materials. A minimum of 6 inches deep and 22 inches wide compacted leveling pad is required.

C. Fiberglass Connecting pins

1. Thermoset isopthalic polyester resin pultruded fiberglass reinforcement rods, a minimum one–half inch in diameter.
2. Pins should have a minimum flexural strength of 128,000 psi and short beam shear of 6400 psi.
3. For substitute concrete units, use of other compatible connector systems may be allowed with the prior approval of the geotechnical engineer.

D. Geogrid

Geogrid should be Miragrid 10XT or equivalent as approved by the geotechnical engineer. The geogrid should have an allowable strength of 2619 pounds per foot. The allowable strength is defined as the Ultimate Strength divided by reduction factors for creep, durability, installation damage and an overall factor of safety.

E. Reinforced Backfill

Reinforced backfill soils for the wall should be non–plastic, controlled fill meeting the requirements of AASHTO A–2–4 or more granular, unless noted otherwise. The geotechnical report for the project indicates that A–2–4 material is present on site. If adequate quantities of this material are not available on–site, imported backfill should meet the above requirements and should be approved by the geotechnical engineer.

F. Controlled Fill

Controlled Fill soils to be placed outside the Reinforced Backfill area and where specified should consist of on–site or borrow soils meeting the requirements of AASHTO A–4 or more granular. All fill materials proposed to be placed behind the reinforced backfill should be placed as controlled fill compacted to 95 percent of maximum dry density in accordance with the Standard Proctor, ASTM D–698.

G. Low–Permeability Soil

Low–permeability soils to be placed at the top of the wall where specified should consist of sandy, silty or clayey soils meeting the requirements of ML, CL, SM, or SC with a minimum of 25% passing the #200 sieve.

H. Drainage Pipe

The drainage pipes should be perforated or slotted PVC pipe manufactured in accordance with ASTM D–3034.

I. Filter Fabric

Filter Fabric should be non–woven, polypropylene geotextile, 140 N manufactured by Nicolon Mirafi Group or approved equivalent.

J. Erosion Control Blanket

Erosion Control Blanket should be Tensar TB 1000 manufactured by the Tensar Corporation or approved equivalent.

K. Drainage Composite

The Drainage GeoComposite should be DC4200 Geotextile, manufactured by Tenax Corporation, or approved equivalent. Depending upon the construction sequence and the soil types used for backfill, it may be feasible to eliminate the drainage composite, with the prior approval of GTA.

L. Yard Drain

The Yard Drain should be a Nyloplast in–line grate connected to an 8–inch PVC pipe, or approved equivalent.

PART 3 – EXECUTION

A. Excavation

1. The contractor should excavate to the lines and grades shown on the construction drawings. Under no circumstances should the excavation lines and grades be exceeded, except with owner's approval. The contractor should protect the excavation from sloughing by placing a membrane over the face of the excavation.
2. Prior to retaining wall construction and the placement of fill, all topsoil should be stripped and removed from the site.
3. Excavations should be sloped or otherwise supported in accordance with Occupation Safety and Health Administration (OSHA) and other local and state regulations.

B. Foundation Subgrade Preparation

1. Foundation soil should be excavated as required for installation of leveling pad, geogrid and other elements and as shown on the construction drawings.
2. Foundation soil should be examined by the Engineer to assure that the actual foundation soil strength meets or exceeds assumed design strength. Soils not meeting required strength should be removed and replaced with controlled, compacted material.
3. Over–excavated areas should be filled with select and approved material and compacted to 95 percent of maximum dry density in accordance with the Standard Proctor, ASTM D–698.
4. Allowable bearing pressure for natural and controlled, compacted fill soils should be as specified in Part 5.
5. The exposed foundation subgrade should be proofrolled with a loaded dump truck. Any soft or unstable areas identified during proofrolling should be overexcavated and backfilled with Controlled Fill.
6. Any fills required to establish sloping surfaces in front of the walls should consist of Controlled Fill and should be placed, compacted and field tested in accordance with the requirements specified herein.

C. Leveling Pad

1. The leveling pad should be placed as shown on the construction drawings with a minimum thickness of 6 inches.
2. Leveling pad materials should be installed upon undisturbed in–situ soils or controlled, compacted backfill.
3. Leveling Pad should be prepared to insure complete contact of retaining wall unit with base. Gaps should not be allowed.

D. Unit Installation

1. First course of concrete wall units should be placed on the leveling pad. The units should be checked for level and alignment. The first course is the most important to provide accurate and acceptable results.
2. Insure that units are in full contact with base.
3. Units are placed side by side for full length of wall alignment. Alignment may be done by means of a string line or offset from base line.
4. Install fiberglass connecting pin.
5. Lay up each course insuring that the connecting pins are inserted through front slot of the unit, and into the receiving slot in the course beneath. Repeat procedure to the extent of wall height.
6. At the end of each course where the wall changes elevation, units should be turned into the backfill. Units should be laid as to create the minimum radius possible. Unless otherwise shown on the drawings, a minimum of one unit should be installed into the grade. Only the front face of the units should be visible from the side of the wall.
7. Convex and concave curves should be made using compac units or by trimming the Standard II units as required in accordance with manufacturer's recommendations.
8. Cap units should be installed and bonded with construction adhesive or epoxy cement as required by manufacturer.
9. Contractor should provide positive drainage for the back of the retaining wall during construction.

E. Geogrid Installation

1. All utilities in the vicinity of any retaining wall or geogrid reinforcement must be installed and properly backfilled prior to placing the geogrid soil reinforcement or constructing the wall.
2. The geogrid soil reinforcement should be laid horizontally on compacted backfill, connected to the concrete wall units. Hook grid over the fiberglass connecting pin, pull taut, and anchor before backfill is placed on the geogrid.
3. Slack in the geogrid at the wall unit connections should be removed in a manner, and to such a degree, as approved by the Engineer.
4. Geogrid should be laid at the proper elevation and orientation as shown on the construction drawings or as directed by the Engineer.
5. Correct orientation (roll direction) of the geogrid should be verified by the Contractor.
6. Geogrid should be secured in–place with staples, pins, sand bags, or backfill as required by fill properties, fill placement procedures, or weather conditions, or as directed by the Engineer.
7. Overlaps
   a. Uniaxial geogrid does not need to be overlapped in the across the roll direction, except to contain the fill at the slope face when wrap–around facing is used. Uniaxial grid should be overlapped 48" in the rolled direction.
   b. A layer of soil a minimum of 4 inches in thickness should be spread between uniaxial geogrid layers in the area to be overlapped, or as directed.

F. Fill Placement

1. Wall backfill material should be placed in no more than 8–inch lifts and compacted to 95 percent of the Standard Proctor (ASTM D–698).
2. Backfill should be placed, spread, and compacted in such a manner that minimizes the development of wrinkles in and/or movement of the geogrid.
3. Only hand–operated compaction equipment should be allowed within 4 feet of the wall face.
4. Backfill should be placed from the wall outward to insure that the geogrid remains taut.
5. Tracked construction equipment should not be operated behind or above the wall.
6. Rubber–tired equipment may pass over the geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning should be avoided.
7. Place filter fabric between the unit core fill and the reinforced backfill as shown on plans. The filter fabric should be embedded a minimum of two feet into the reinforced fill.
8. The finished sloping surface on the toe side of retaining walls should be protected by installing the permanent erosion control blanket and loaming and seeding in accordance with project requirements.

G. DRAINAGE

1. Drainage fill should be placed behind the wall to the limits shown. The drainage fill should be a minimum of 12–inches thick. The drainage fill should be ASTM #57 stone. The drainage fill should be wrapped in filter fabric (Mirafi 140N or equal) as shown on the drawings.
2. Positive drainage should be maintained during and after construction. Soils within the reinforced zone that become wet during construction should be dried to optimum moisture or removed.
3. Install the perforated drainage pipes and lateral drainage pipes incrementally along with the installation of concrete units and placement of fill.
4. To connect the drainage composite to the 4" PVC pipe, place the bottom of the drain behind the drain pipe and the aggregate/filter fabric. Peel back the bottom of the fabric flap. Wrap the filter fabric from the front to back completely around the pipe and tuck behind the core. Cover all terminal edges of the core with the fabric flap by tucking it behind the core.
5. The installation of a yard drain will be required behind the retaining wall at approximate Station 1+63. The yard drain should consist of a Nyloplast in–line grate connected to an 8–inch diameter PVC pipe as shown on the Yard Drain Detail on Sheet 23. Alternate drain types may be accepted with the prior approval of GTA. The yard drain should be constructed in general accordance with the manufacturer's requirements.

PART 4 – CONSTRUCTION OBSERVATION AND TESTING

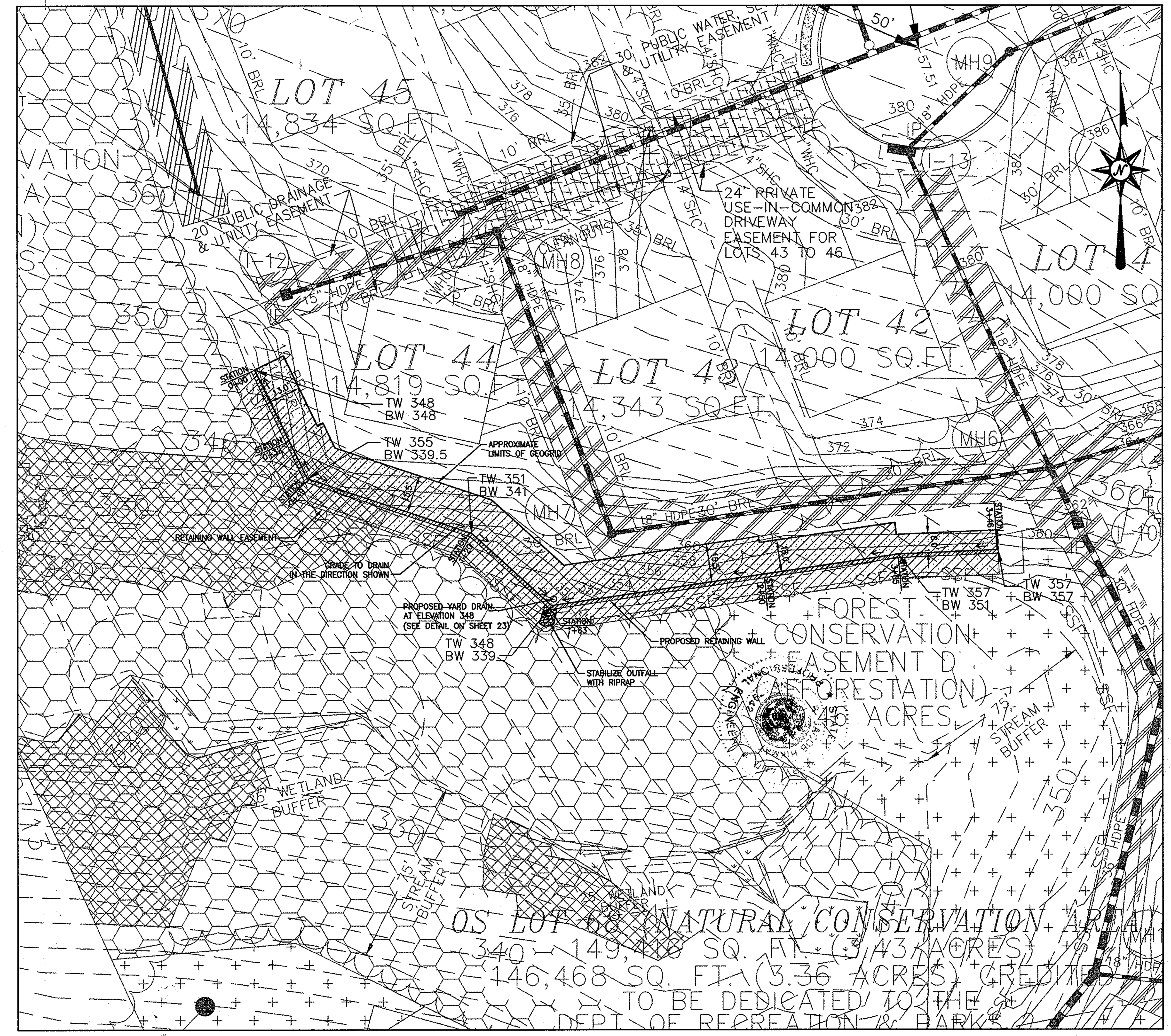
A. Retaining walls should only be constructed under the observation of a Registered Professional Engineer and a certified (NICET, WACEL, or equivalent) soils technician.

B. The required bearing pressure beneath the footing of the wall should be verified in the field by a certified soils technician. Testing documentation must be provided to the geotechnical engineer prior to the start of wall construction. The required test procedure shall be the Dynamic Cone Penetrometer (DCP) Test ASTM STP–399.

C. The suitability of fill material should be confirmed by the on–site soils technician.

PART 5 – DESIGN CRITERIA

1. Required minimum allowable foundation bearing pressure is 2,500 psf.
2. Design internal friction angle for reinforced soil = 30 degrees.
3. Design moist unit weight for reinforced soil = 125 pcf.
4. Foundation and retained soil internal friction angle = 28 degrees and cohesion = 0 psf.
5. Foundation and retained soil design moist unit weight = 125 pcf.
6. Retaining walls are not designed to resist hydrostatic pressure.



RETAINING WALL LOCATION PLAN

SCALE: 1" = 30'

The location plan was adopted from the digital plan entitled "020-II-finalbase-alt.DWG", prepared by Mildenberg, Boender & Assoc, Inc., received April 12, 2005

10/6/11
NO AS-BUILT INFO REQUIRED ON THIS SHEET

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

3-6-06
CHEIF, BUREAU OF HIGHWAY — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

3/29/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

3/31/06
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

~~DIRECTOR, DEPARTMENT OF PLANNING AND ZONING — DATE~~

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENIVRONMENTAL CONSULTANTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

STATE OF MARYLAND — RAVINDRA P. MALVIYA — No. 24495 — PROFESSIONAL ENGINEER

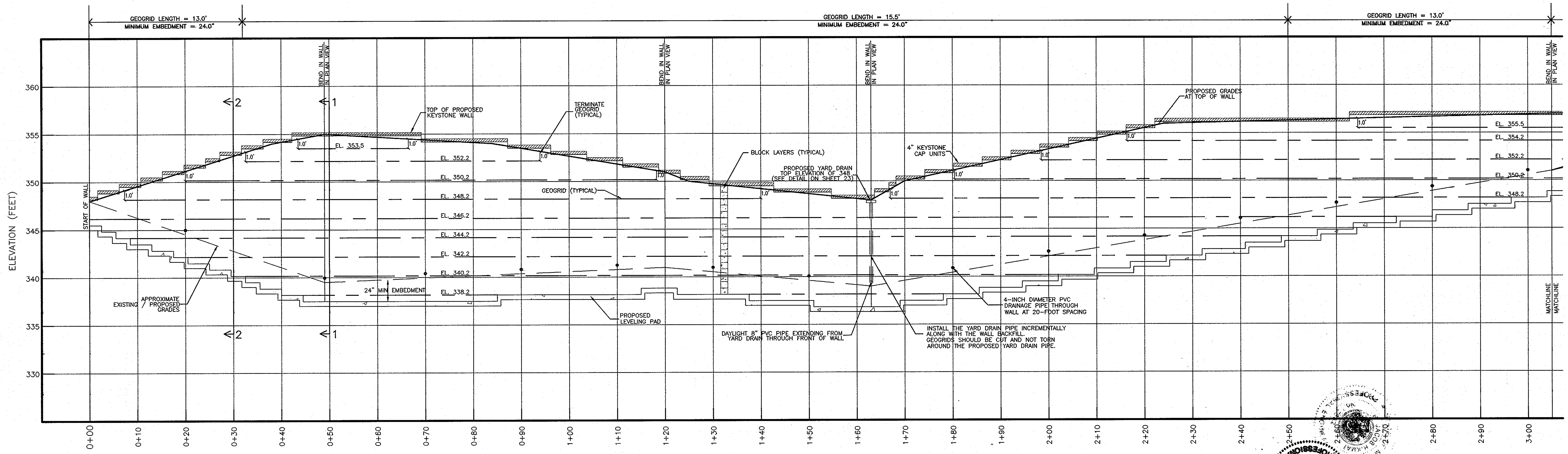
JAMESTOWN LANDING

PROPOSED RETAINING WALL
PLAN AND GENERAL NOTES

HOWARD COUNTY, MARYLAND

DATE	REVISIONS	
		JOB NO.: 041333
4/13/05	REVISED TO ADDRESS COUNTY COMMENTS	SCALE: AS SHOWN
		DATE: 12/14/04
		DRAWN BY: SPL
		DESIGN BY: SPL
		REVIEW BY: RPM
		SHEET: 21 of 24

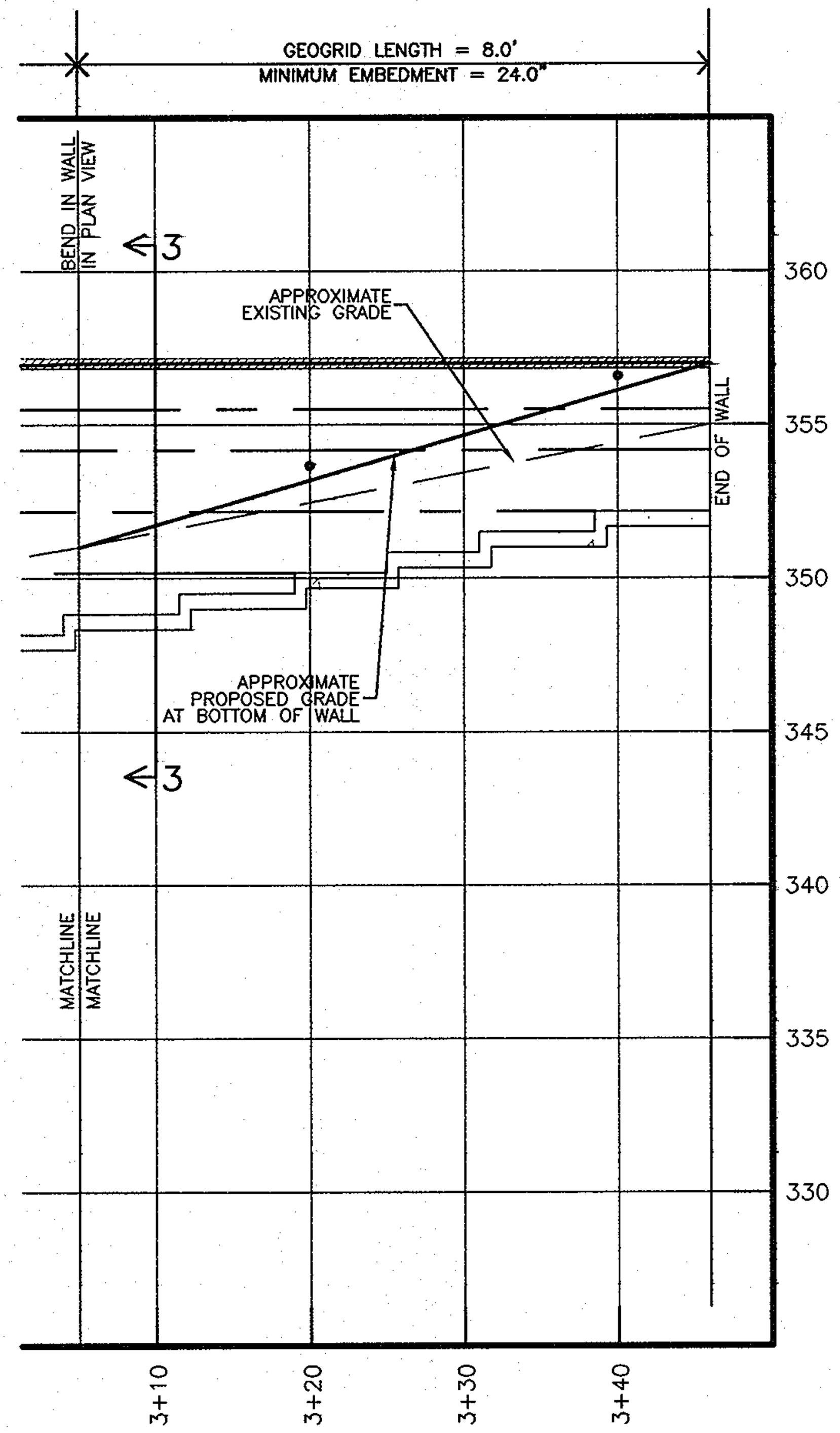
F-05-104

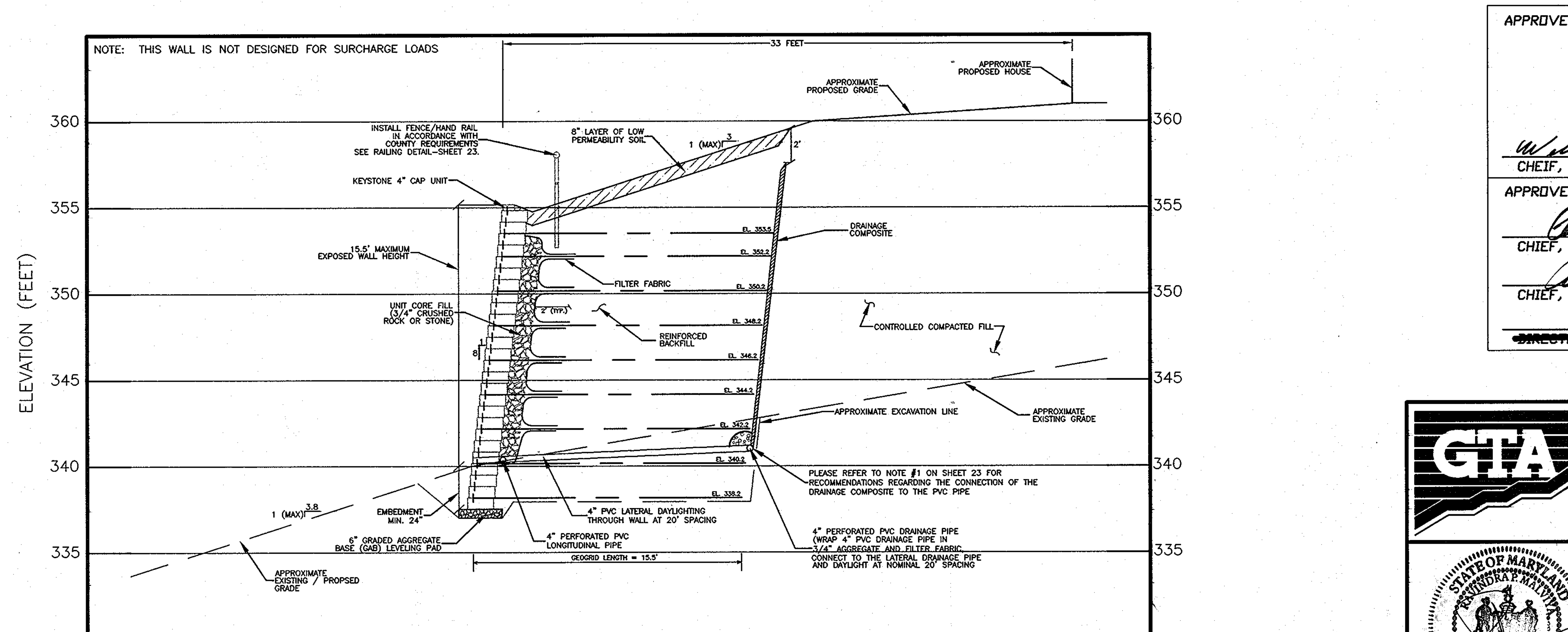


RETAINING WALL PROFILE

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'

6/6/11
NO AS-BUILT INFO REQUIRED ON THIS SHEET.





RETAINING WALL - SECTION 1 (APPROXIMATE STATION 0+50)

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHEIF, BUREAU OF HIGHWAY — DATE 3-6-06

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/23/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/31/06

~~DIRECTOR, DEPARTMENT OF PLANNING AND ZONING — DATE~~

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENIVRONMENTAL CONSULTANTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

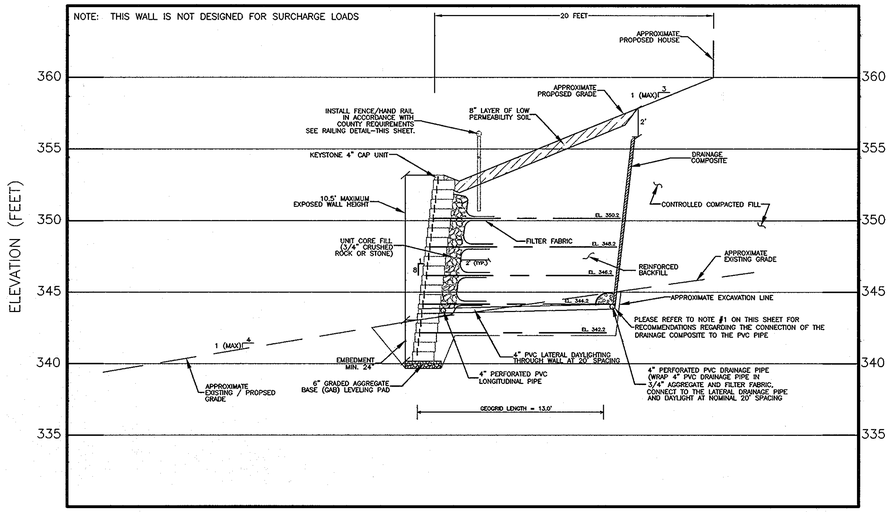
JAMESTOWN LANDING

PROPOSED RETAINING WALL
PROFILE AND SECTION VIEW

HOWARD COUNTY, MARYLAND

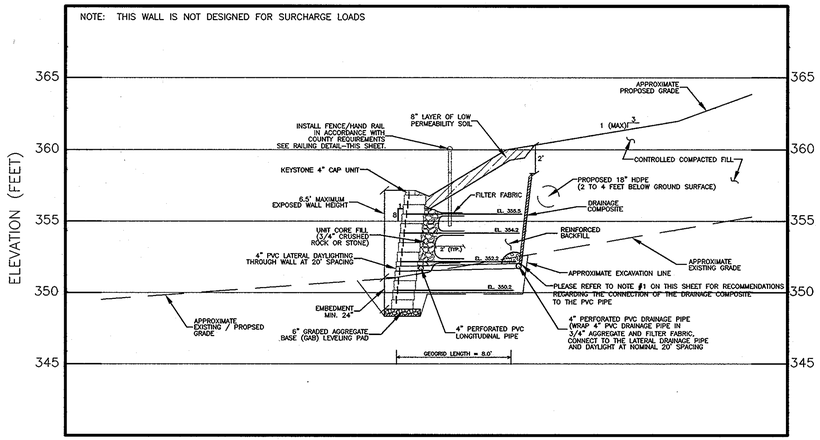
DATE	REVISIONS	
4/13/05	REVISED TO ADDRESS COUNTY COMMENTS	JOB NO.: 041333
		SCALE: AS SHOWN
		DATE: 12/14/04
		DRAWN BY: SPL
		DESIGN BY: SPL
		REVIEW BY: RPM
		SHEET: 22 of 24

F-05-104



RETAINING WALL - SECTION 2 (APPROXIMATE STATION 0+30)

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



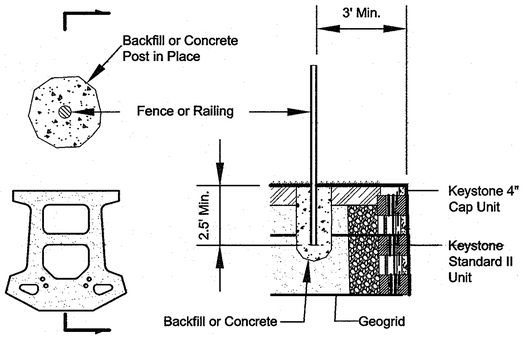
RETAINING WALL - SECTION 3 (APPROXIMATE STATION 3+10)

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

NOTE #1: TO CONNECT THE DRAINAGE COMPOSITE TO THE 4" PVC PIPE, PLACE THE BOTTOM OF THE DRAIN BEHIND THE DRAIN PIPE AND THE AGGREGATE/FILTER FABRIC. PEEL BACK THE BOTTOM OF FABRIC FLAP. WRAP THE FILTER FABRIC FROM FRONT TO BACK COMPLETELY AROUND PIPE AND TUCK BEHIND THE CORE. COVER ALL TERMINAL EDGES OF THE CORE WITH THE FABRIC FLAP BY TUCKING IT BEHIND THE CORE.

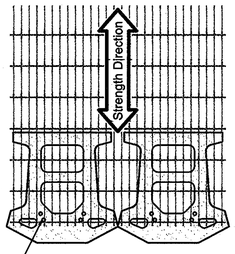
NO AS-BUILT INFO REQUIRED ON THIS SHEET.

10/6/11



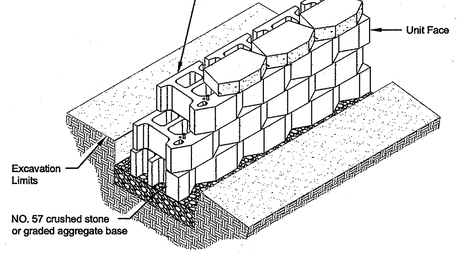
Fence Plan Detail
NOT TO SCALE

Fence SectionDetail
NOT TO SCALE

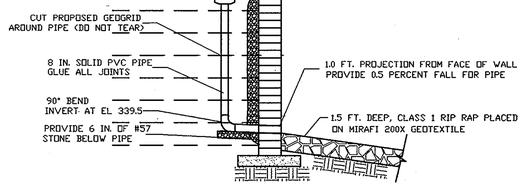


Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

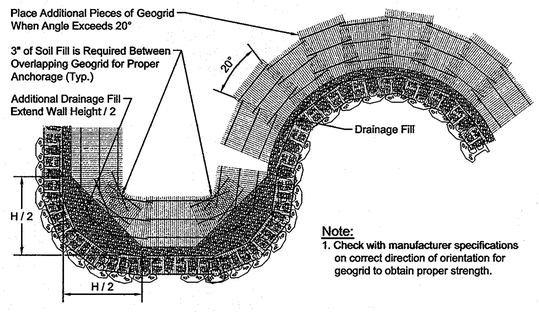
Grid & Pin Connection
NOT TO SCALE



Standard II Unit/Base Pad Isometric Section View
NOT TO SCALE

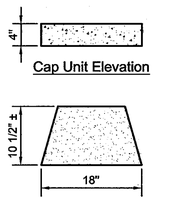


YARD DRAIN DETAIL (APPROX. STATION 1+63)
NOT TO SCALE

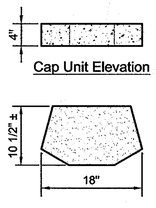


Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.

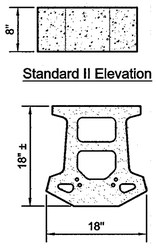
Geogrid Installation on Curves
NOT TO SCALE



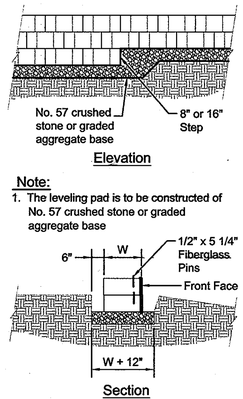
Universal Cap Unit Option
NOT TO SCALE



3-Plane Split Cap Unit Option
NOT TO SCALE



Standard II Unit
NOT TO SCALE



Leveling Pad Detail
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHEIF, BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/29/06

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/21/06

~~DIRECTOR, DEPARTMENT OF PLANNING AND ZONING~~ — ~~DATE~~

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENIVRONMENTAL CONSULTANTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

JAMESTOWN LANDING

PROPOSED RETAINING WALL
TYPICAL SECTIONS & DETAILS

HOWARD COUNTY, MARYLAND

DATE	REVISIONS
4/13/05	REVISED TO ADDRESS COUNTY COMMENTS

JOB NO.: 041333
SCALE: AS SHOWN
DATE: 12/14/04
DRAWN BY: SPL
DESIGN BY: SPL
REVIEW BY: RPM
SHEET: 23 of 24

F-05-104

NOTES:

1. ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TURBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE)- 3' LONG. A GALVANIZED STEEL POST CAP SHALL BE MOUNTED ON TOP OF EACH POST.
2. ALL SIGN LOCATIONS SHALL BE MARKED AND OR APPROVED BY THE COUNTY TRAFFIC ENGINEER PRIOR TO INSTALLATIION OF ANY SIGNS.
3. ALL MARKINGS SHALL BE LAYED OUT BY THE COUNTY TRAFFIC ENGINEER AND APPROVED BEFORE ANY ARE INSTALLED.
4. STREET NAME SIGNS WILL BE SUPPLIED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR TO BE MOUNTED ABOVE.

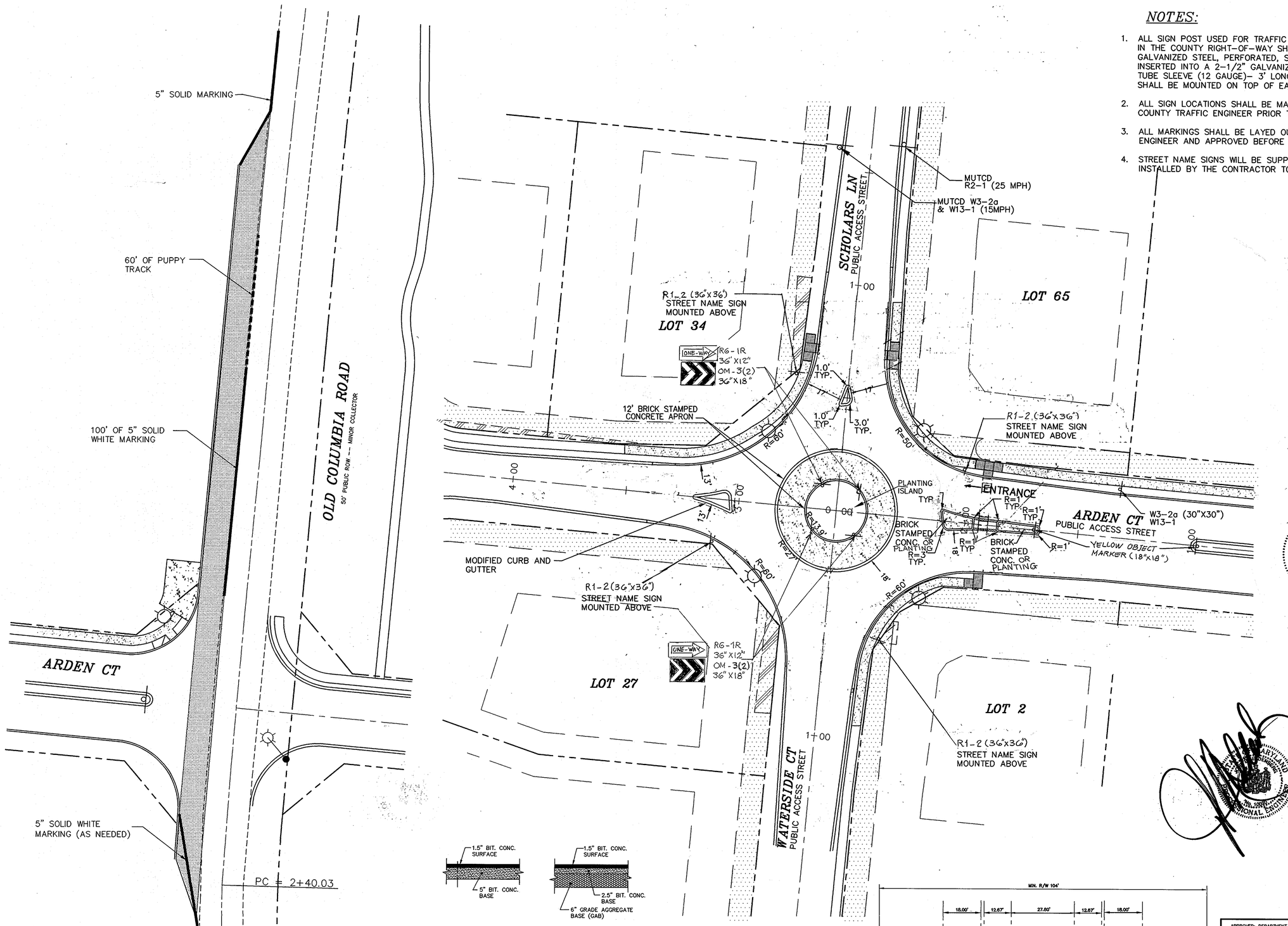
R1-2 (36"X36")

W3-2a

15 M.P.H. W13-1

ONE-WAY R6-1R 36"X12" OM-3(2) 36"X18"

100 WATT HPS VAPOR PREMIER POST-TOP

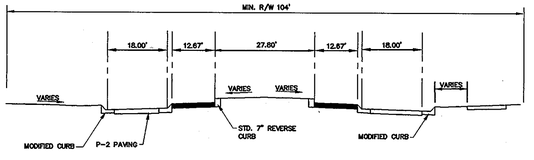


PAVMENT MARKING PLAN

ALTERNATE "A" ALTERNATE "B"

PAVING SECTION - P-2

N.T.S.



ROUNDABOUT TYPICAL SECTION

SECTION NOT TO SCALE

STATE OF MARYLAND JACOB HIKMAT ISSA No. 19342 PROFESSIONAL ENGINEER

NO AS-BUILT INFO REQUIRED ON THIS SHEET.

1/6/11

OWNER
JAMESTOWN LANDING, LC
C/O ELM STREET DEVELOPMENT
6820 ELM STREET, SUITE 200
McLEAN, VIRGINIA 22101
(703) 734-9730

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 3-6-06

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/21/06

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/20/06

project	date
00-020	FEB 2006
illustration	engineering
SJD/MMT	SJD
scale	approval
1" = 20'	JBM

no.	description	date
1	REVISED TRAFFIC CONTROL SIGNS	6-6-2011

JAMESTOWN LANDING, SECTION II

LOTS 1 THRU 66 & OPEN SPACE LOTS 67 THRU 71

TAX MAP 46 - PARCEL 229 & 352 - GRID 15

HOWARD COUNTY, MARYLAND

FIFTH ELECTION DISTRICT

TRAFFIC CIRCLE DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-05-104

00-020/dwg/sec-ii/final/020-ii-road-sht2.dwg