SHEET INDEX

ROAD CONSTRUCTION PLANS

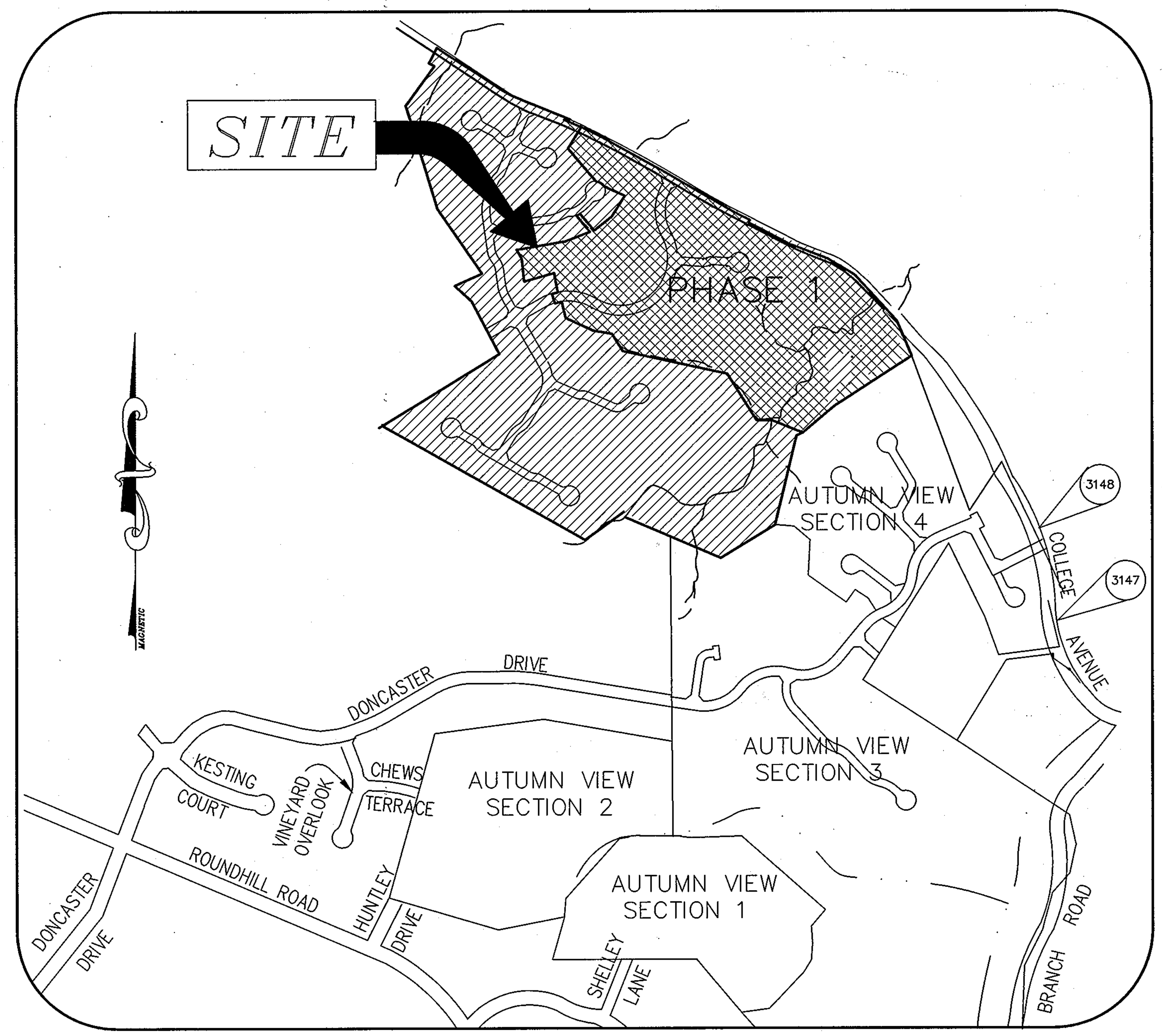
AUTUMN VIEW

SECTION 5, PHASE 1

LOT 211 THRU 259

SECOND ELECTION DISTRICT

HOWARD COUNTY, MARYLAND



VICINITY MAP

SCALE: 1'=500'

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

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."

Bruce Taylor Pre — 12/6/01
SIGNATURE OF DEVELOPER — DATE
Bruce Taylor, Pres
PRINTED NAME OF DEVELOPER

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."

12/6/01
SIGNATURE OF ENGINEER — DATE
JOHN MILDENBERG
PRINTED NAME OF ENGINEER

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.

Jim Myers / GS — 12/18/01
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

12/18/01
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

1-30-02
CHIEF BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton — 2/5/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

12/28/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE

99072\PHASE 1\DWG\FINAL\COVER.DWG

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: TAX MAP 25 &31, P/O PARCEL 75
   ZONING: R–ED
   ELECTION DISTRICT: 2ND
   SECTION: 5
   PHASE: 1
   TOTAL AREA: 31.14 AC ±
   DPZ FILES: S–99–01 APPROVED 7/1/99, PB 329
   P–00–08 APPROVED 5/14/00
5. TOPOGRAPHIC INFORMATION ARE BASED ON AERIAL TOPOGRAPHIC SURVEY BY WINGS AERIAL MAPPING CO.,INC. FLOWN ON MARCH 25,1995. VERTICAL DATUM IS NAD 83.
6. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 3147 AND 3148.
   √STA. 3147 N575598.0794, E137581.7684 EL.335.987
   √STA. 3148 N576015.4313 E1375770.4364 EL.379.248
7. BOUNDARY INFORMATION IS BASED ON MONUMENTED FIELD RUN SURVEY BY MILDENBERG, BOENDER AND ASSOC., INC. PERFORMED IN OR ABOUT MAY, 2000.
8. STORMWATER MANAGEMENT CONTROL WILL BE PROVIDED BY THE METHOD OF EXTENDED DETENTION STORMWATER MANAGEMENT FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY H.O.A.
9. HOUSES NOT CONTROLLED BY THE SWM PONDS TO HAVE DRY WELLS AT SDP STAGE. SEE DETAIL ON SHEET 8 OF 21.
10. WETLANDS AND STREAM DELINEATION IS BY WILDMAN ENVIRONMENTAL SERVICES. DATED OCTOBER 1998.
11. FLOODPLAIN STUDY PERFORMED BY MILDENBERG, BOENDER & ASSOC., INC. IN OCTOBER 1999.
12 GEOTECHNICAL REPORT PREPARED BY HILLIS–CARNES ENGINEERING ASSOC. INC. IN OCTOBER 1999.
13. DEED REFERENCE: P/O PARCEL 4, L.380 , F. 426: P/P PARCEL 75, L. 530, F. 165.
14. NO CEMETERIES OR HISTORIC STRUCTURES EXIST ON SITE.
15. ALL EXISTING STRUCTURES AND DRIVEWAYS ARE TO BE REMOVED UNLESS OTHERWISE NOTED.
16. TRAFFIC STUDY BY TRAFFIC GROUP, DATED JUNE 4, 1998.
17. PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER ARE PUBLIC WATER CONTRACT NO. 266–W. SEWER PROVIDED VIA PROPOSED PUMP STATION.
18. PROPOSED WATER AND SEWER ARE PUBLIC, CONTRACT # 14–3895–D.
19. LOTS 216–220 SHALL HAVE UNITS FACING COLLEGE AVE. IN ACCORDANCE WITH P.B. CASE 329, S–99–01 AND THE SCENIC ROAD GUIDELINES OF SUBDIVISION SECTION 16.125.
20. ON PROPOSED LOTS WHERE SLOPES EXCEED 10%, RETAINING WALLS, CUSTOM HOUSES AND/OR HOMES WITH WALK–OUT WILL BE PROPOSED AT THE SITE DEVELOPMENT PLAN STAGE.
21. P.B. CASE NO. 329, APPROVED ON JULY 1, 1999. PB 354 APPROVED 01/10/02
22. ALL LOTS WILL HAVE A MINIMUM OF 2 ON–SITE PARKING SPACES. NO STREET PARKING SPACES ARE REQUIRED.
23. THE FOREST CONSERVATION OBLIGATION IN ACCORDANCE WITH SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL HAVE BEEN SATISFIED UNDER AUTUMN VIEW SECTION 3 (F–99–45), BY THE PLACEMENT OF 41.22 ACRES IN FOREST CONSERVATION EASEMENT. AND UNDER AUTUMN VIEW SECTION 5 PHASE 1 (F–01–12), BY THE PLACEMENT OF 7.59 ACRES IN FOREST CONSERVATION EASEMENT, TOTAL FOREST CONSERVATION PROVIDED IS 48.81 ACRES, OF WHICH 43.84 IS THE REQUIRED BREAK EVEN POINT FOR THE ACREAGE OF AUTUMN VIEW, SECTION 3, 4 AND 5 PHASE 1) COMBINED. THE REMAINING 4.97 ACRES IS TO BE CREDITED TOWARD THE REMAINING PHASES OF AUTUMN VIEW, SECTION 5.
24. 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.
25. COMPACTION IN FILL AREAS TO BE 95% AS DETERMINED PER AASHTO T–180.
26. CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION.
27. ALL STORM DRAIN PIPES TO BE HDPE PIPES UNLESS OTHERWISE NOTED.
28. ALL DRIVEWAYS ENTRANCES TO BE H.C.STD. R–6.03 UNLESS OTHERWISED NOTED.
29. 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.
30. PROVIDE 150–WATT HPS VAPOR PEDANT FIXTURE (CUTOFF) MOUNTED ON A 30' BRONZE FIBERGLASS POLE USING 12' ARM AT HIGH CASTLE ROAD, STA. 0+28, OFFSET 28' RIGHT. PROVIDE 100–WATT HPS VAPOR TRADITIONAIRE POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE AT HIGH CASTLE ROAD, STA. 4+70 OFFSET 20' LEFT; STA. 7+91, OFFSET 16' LEFT; STA. 10+92, OFFSET 16' RIGHT AND AT BROADGATE CIRCLE L.P. STA. 1+92, OFFSET 3'.

AREA TABULATION:

	SECTION 3 (EXISTING)	SECTION 4	SECTION 5	SECTION 3, 4 & 5	SECTION 5 PHASE 1
GROSS AREA:	87.39 AC ±	19.08 AC ±	84.91 AC ±	191.38 AC ±	31.15 AC ±
AREA OF STEEP SLOPES:	13.20 AC. ±	2.05 AC. ±	11.44 AC ±	26.69 AC ±	6.28 AC ±
AREA OF FLOODPLAIN:	6.19 AC ±	0	2.03 AC ±	8.22 AC ±	0.90 AC ±
NET AREA:	68.00 AC ±	17.03 AC ±	71.44 AC ±	156.47 AC ±	23.97 AC ±
AREA OF PROPOSED BUILDABLE LOTS SFD:	16.46 AC ±	14.39 AC ±	32.64 AC ±	63.49 AC ±	9.93 AC ±
AREA OF PROPOSED BUILDABLE LOTS SFA:	0	0	1.12 AC ±	1.12 AC ±	0
TOTAL AREA OF PROPOSED BUILDABLE LOTS:	16.46 AC ±	14.39 AC ±	33.76 AC ±	64.61 AC ±	9.93 AC ±
AREA OF PROPOSED ROAD (R/W):	6.11 AC ±	2.12 AC ±	7.62 AC ±	15.85 AC ±	2.75 AC ±
REQUIRED OPEN SPACE (25% OF GROSS AREA):	21.85 AC ±	4.77 AC ±	21.23 AC ±	47.85 AC ±	7.88 AC ±
PROVIDED OPEN SPACE:	60.50 AC ±	6.89 AC ±	41.67 AC ±	109.06 AC ±	18.47 AC ±
NON CREDITED OPEN SPACE:	0.06 AC ±	0.08 AC ±	0.20 AC ±	0.34 AC ±	0.09 AC ±
NET OPEN SPACE:	60.44 AC ±	6.79 AC ±	41.47 AC ±	108.57 AC ±	18.38 AC ±
REQUIRED RECREATIONAL OPEN SPACE (250 S.F. PER LOT):	18,000 S.F.	14,250 S.F.	44,500 S.F.	76,750 S.F.	11,500 S.F.
PROVIDED RECREATIONAL OPEN SPACE:	18,000 S.F.	14,250 S.F.	44,500 S.F.	76,750 S.F.	15,000 S.F.
NUMBER OF BUILDABLE LOTS ALLOWED (NET AREA x 2):	136	34	142	312	48
NUMBER OF PROPOSED BUILDABLE LOTS (SFD):	72	56	156	284	46
NUMBER OF PROPOSED BUILDABLE LOTS (SFA):	0	0	22	22	0
NUMBER OF PROPOSED BUILDABLE LOTS:	72	56	178	306	46
NUMBER OF PROPOSED OPEN SPACE LOTS:	4	3	7	14	3
NUMBER OF BULK PARCELS:	1	0	0	1	0
TOTAL NUMBER OF PROPOSED LOTS:	76	59	185	320	49

AREA OF BULK PARCEL "A": 4.32 AC ±
*GROSS AREA OF PHASE 4 (INCLUDING PARCEL "A"): 23.40 AC ±

SECTION 5 SUMMARY

TOTAL NUMBER OF BUILDABEL LOTS/UNITS ALLOWED: 178
TOTAL NUMBER OF BUILDABLE LOTS/UNITS –PHASE 1–ALLOWED: 46
TOTAL NUMBER OF BUILDABLE LOTS/UNITS –PHASE 1–PROPOSED: 46
TOTAL NUMBER OF BUILDABLE LOTS/UNITS REMAIN: 132

STATE OF MARYLAND — PROFESSIONAL ENGINEER — No. 132
ASBUILT 1/6/09
FISHER COLLINS AND CARTER INC.

project	date
99072	DEC. 2001
illustration	engineering
MMP	MMP
scale	approval
AS SHOWN	JBM

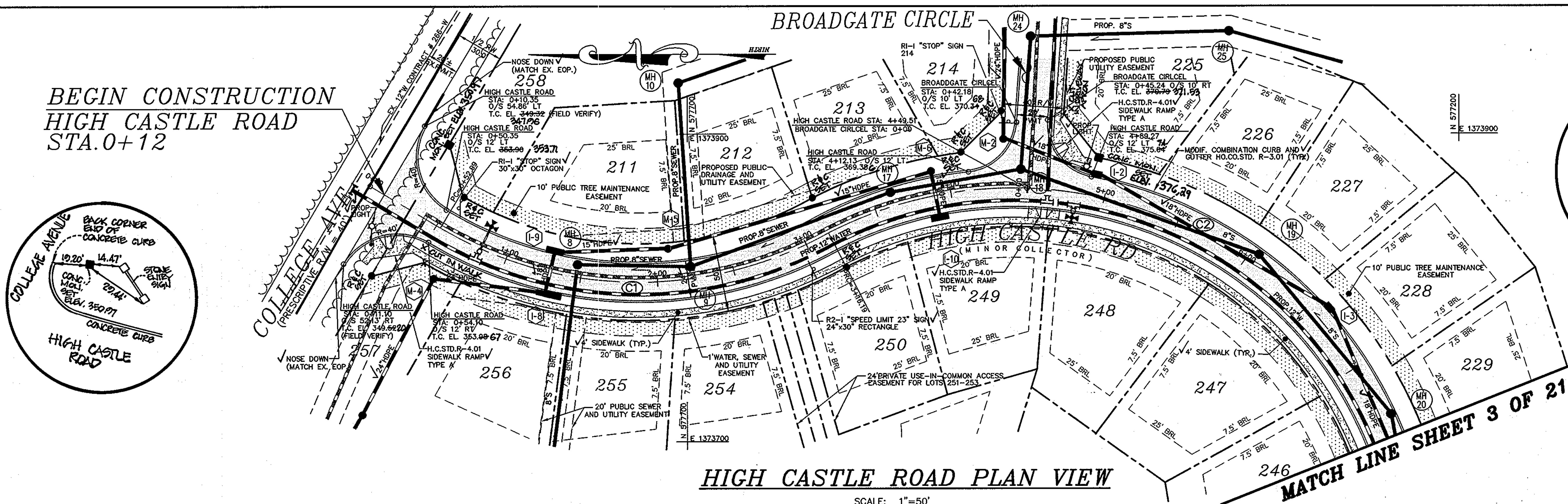
no.	description	date
1	REVISIONS PER ROAD AS-BUILT	1/6/09

revisions

AUTUMN VIEW, SECTION 5, PHASE 1
LOTS: 211–259
TAX MAP 25 & 31; P/O PARCEL 75
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
COVER SHEET

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

ASBUILT F-01-23



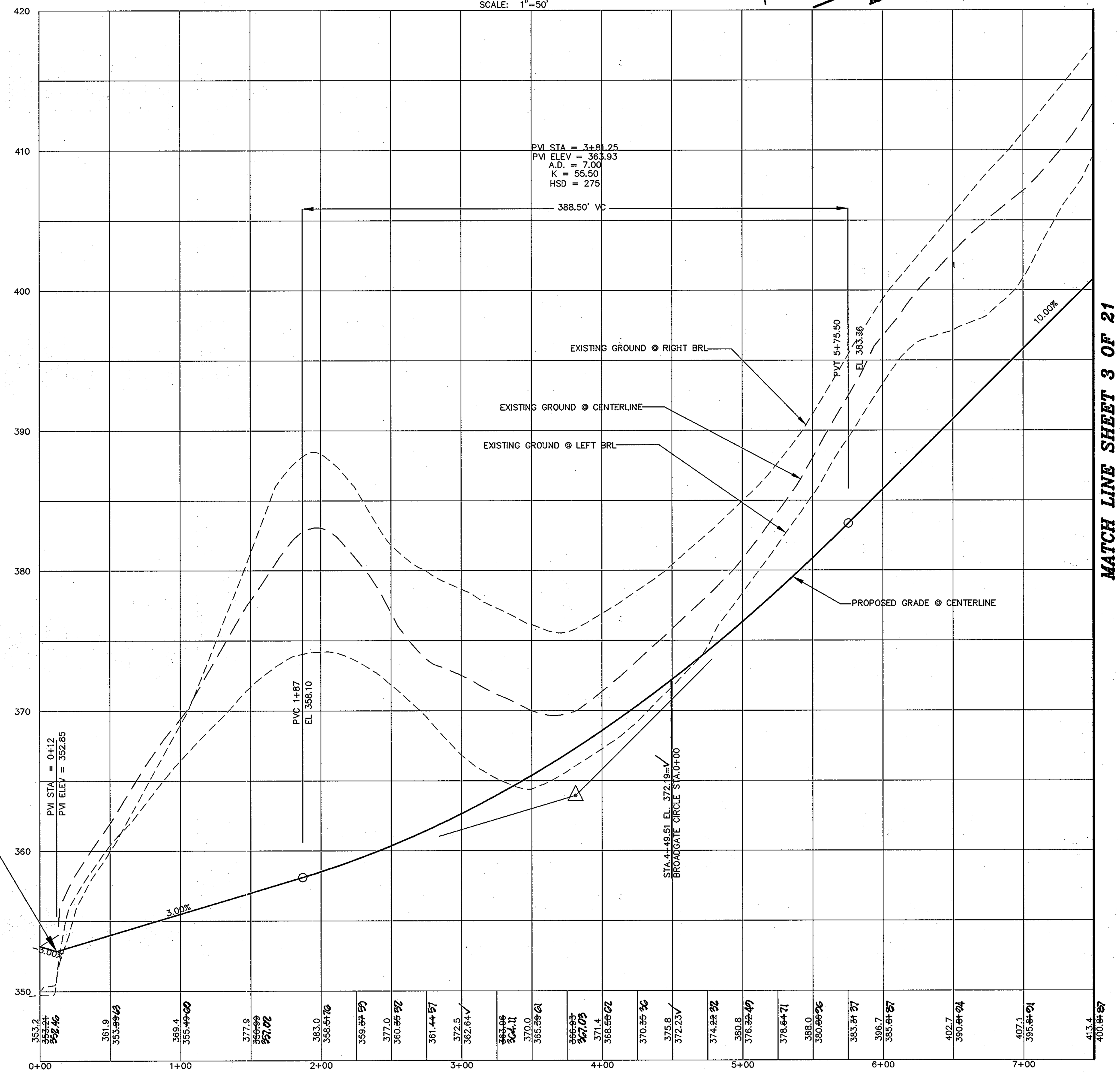
HIGH CASTLE ROAD PLAN VIEW

SCALE: 1"=50'

CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	251.34'	263.20'	145.11'	251.34'	S00°48'16"W	60°00'00"
C2	260.00'	279.14'	154.73'	265.93'	N03°25'33"E	61°30'52"

NOTES:

1. FOR STREET TREE LOCATION SEE LANDSCAPE PLAN.
2. ALL SIDEWALK RAMPS TO BE TYPE "A" HOWARD COUNTY STD R-4.01.



HIGH CASTLE ROAD PROFILE

SCALE: HOR. 1"=50'
VER. 1"=5'

CLASSIFICATION: MINOR COLLECTOR

DESIGN SPEED: 35 MPH

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/5/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/28/01

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

AS BUILT 1/6/09
FISHER COLLINS AND CARTER INC.

project	date
99072	DEC.2001
illustration	engineering
MMP	MMP
scale	approval
1"=50'	JBM

no.	description	date
1	REVISED PER ROAD AS-BUILT	1/6/09

AUTUMN VIEW SECTION 5, PHASE 1
LOTS 211-259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
ROAD PLAN AND PROFILE

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.

AS BUILT F-01-23

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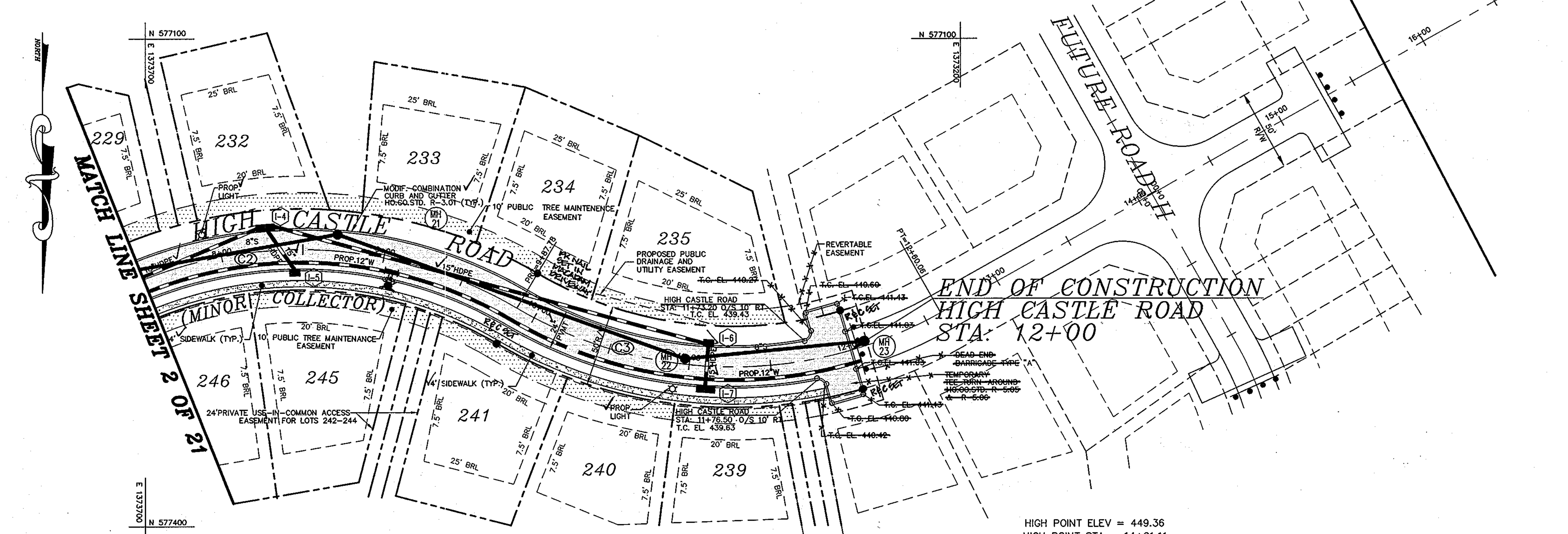


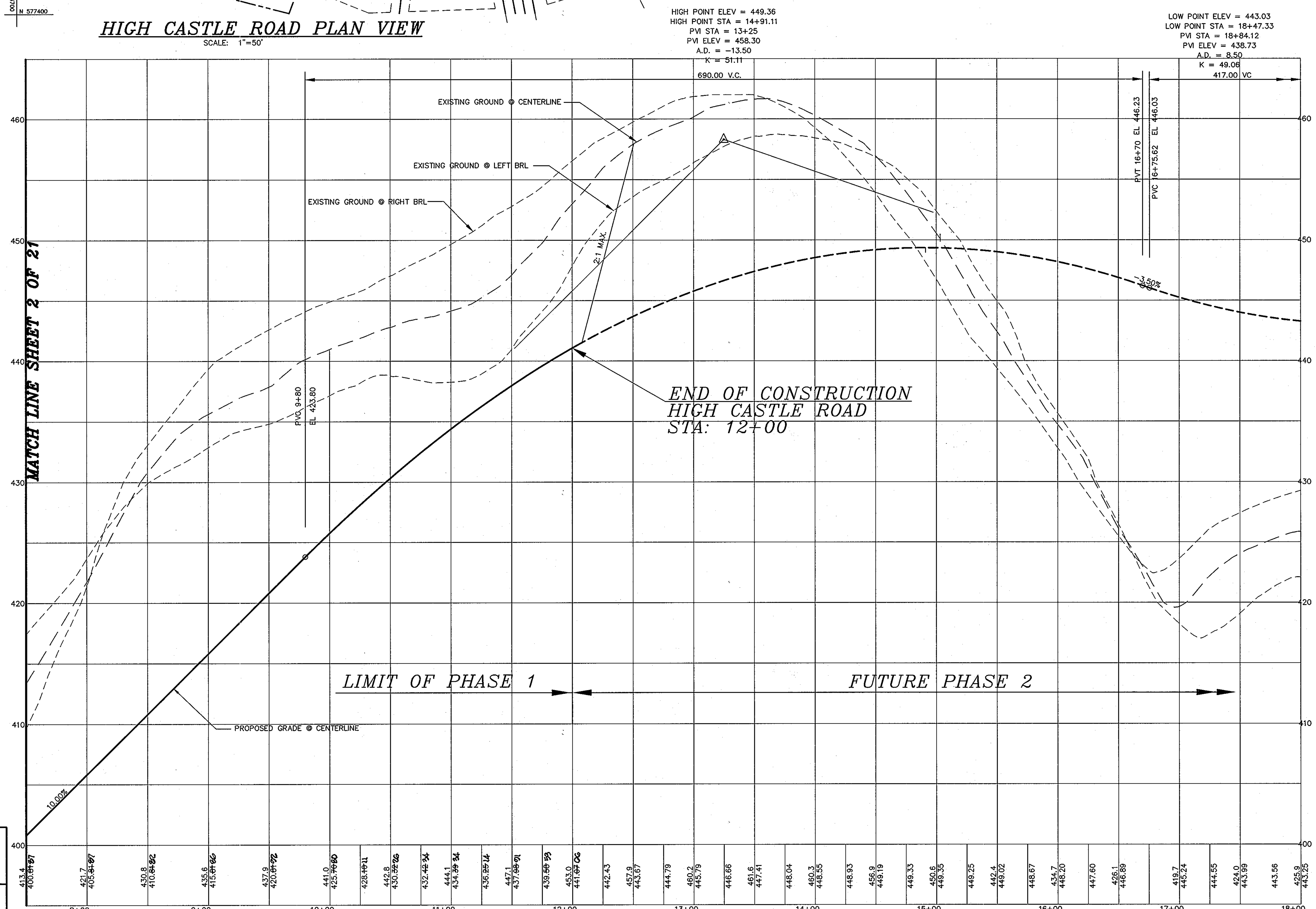
HIGH CASTLE ROAD PLAN VIEW

SCALE: 1"=50'

CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C2	260.00'	279.14'	154.73'	265.93'	N03°25'33"E	61°30'52"
C3	260.00'	272.27'	150.11'	260.00'	N89°20'03"W	60°00'00"

NOTES:

1. FOR STREET TREE LOCATION SEE LANDSCAPE PLAN.
2. ALL SIDEWALK RAMPS TO BE TYPE "A" HOWARD COUNTY STD R-4.01.



HIGH CASTLE ROAD PROFILE

CLASSIFICATION: MINOR COLLECTOR – DESIGN SPEED: 35 MPH

SCALE: HOR. 1"=50'
VER. 1"=5'

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/5/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/20/01

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ASBUILT 1/6/09
FISHER COLLINS AND CARTER INC.

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211–259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
ROAD PLAN AND PROFILE

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
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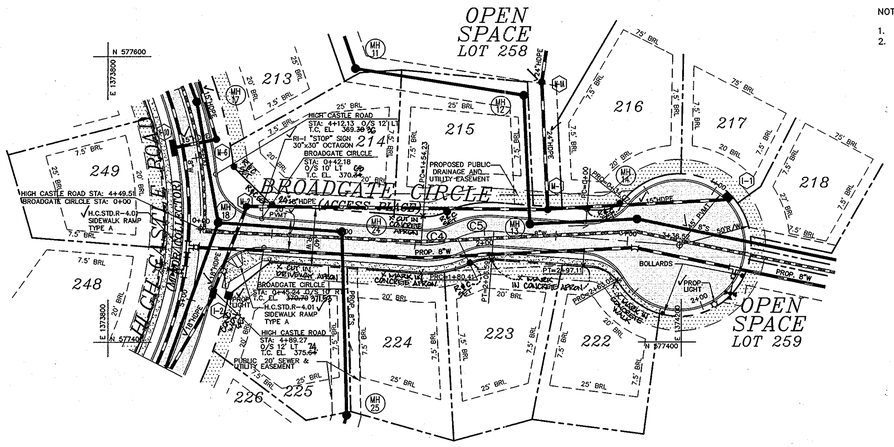
no.	description	date
1	REVISIONS PER ROAD AS-BUILT	1/6/09

revisions

project	date
99072	DEC.2001
illustration	engineering
MMP	MMP
scale	approval
1"=50'	JBM

AS BUILT F-01-23



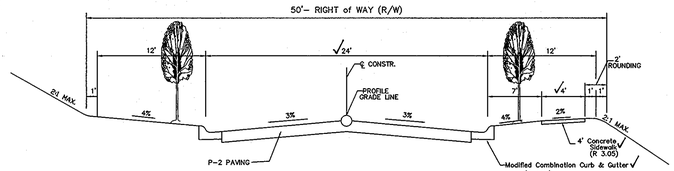
BROADGATE CIRCLE PLAN VIEW

SCALE: 1"=50'

CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C4	50.00'	26.18'	13.40'	25.88'	N79°19'18"E	30°00'00"
C5	50.00'	26.18'	13.40'	25.88'	S79°19'18"W	30°00'00"

NOTES:

1. FOR STREET TREE LOCATION SEE LANDSCAPE PLAN.
2. ALL SIDEWALK RAMPS TO BE TYPE "A" HOWARD COUNTY STD R-4.01.



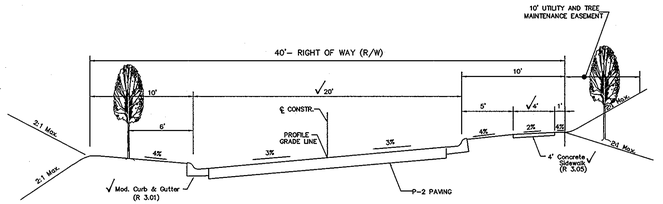
TYPICAL ROADWAY SECTION

CLASSIFICATION: MINOR COLLECTOR

DESIGN SPEED: 35 MPH

HIGH CASTLE ROAD

SECTION NOT TO SCALE



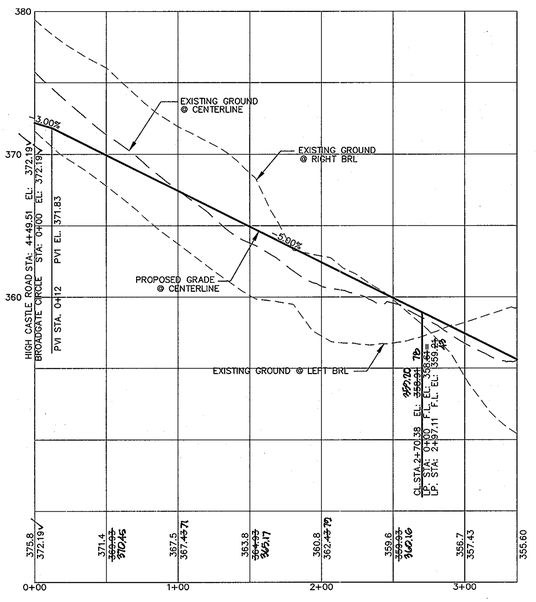
TYPICAL ROADWAY SECTION

CLASSIFICATION: ACCESS PLACE

DESIGN SPEED: 15 MPH

BROADGATE CIRCLE

SECTION NOT TO SCALE

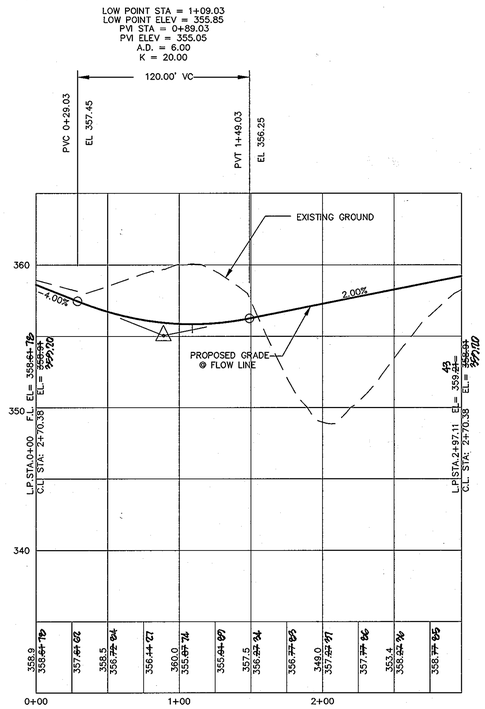


BROADGATE CIRCLE PROFILE

CLASSIFICATION: ACCESS PLACE

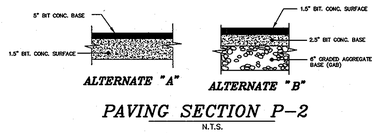
DESIGN SPEAD: 15 MPH

SCALE: HOR. 1"=50
VER. 1"=5'



LINEAR PROFILE

SCALE: HOR. 1"=50'
VER. 1"=5'



PAVING SECTION P-2

N.T.S.

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/5/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/28/01

project 98072 | date DEC.2001
illustration MMP | engineering MMP
scale 1"=50' | approval JBM

no.	description	date
1.	REVISIONS PER ROAD AS-BUILT	1/6/09

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
HOWARD COUNTY, MARYLAND
SECOND ELECTION DISTRICT

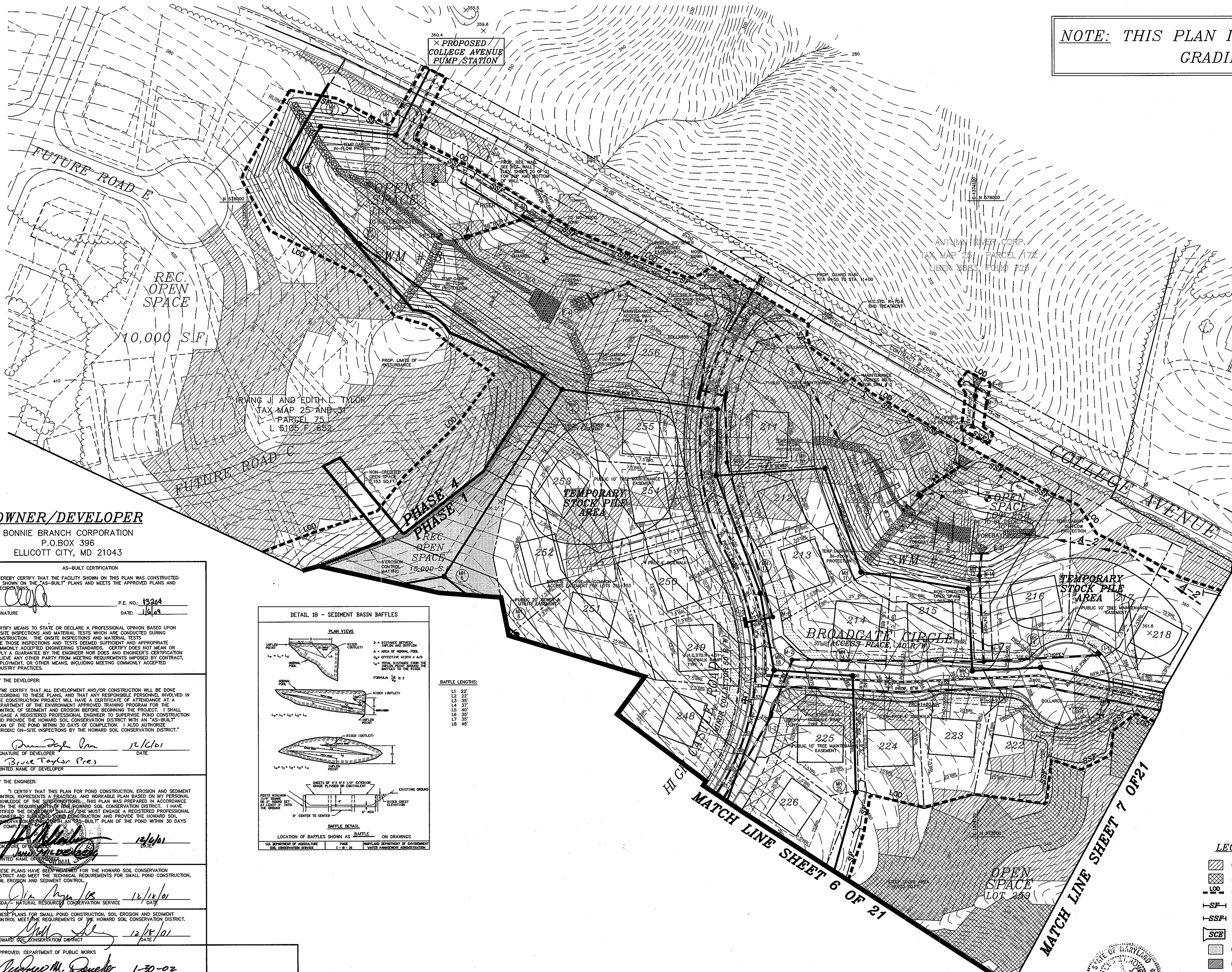
ROAD PLAN , PROFILE AND TYPICAL SECTIONS

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.

AS BUILT. F-01-23

F:\98072\PHASE 1\FINAL\PROF-3.DWG

NOTE: THIS PLAN IS TO BE USED FOR GRADING PURPOSES ONLY



OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

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.: 13204 DATE: 1/6/09

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 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 12/6/01

Bruce Taylor Pres
PRINTED NAME OF DEVELOPER

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 12/6/01

John Mildenberg
PRINTED NAME OF ENGINEER

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 12/18/01

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 12/18/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS ________ DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT ________ DATE 2/5/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ ________ DATE 12/20/01

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DETAIL 18 - SEDIMENT BASIN BAFFLES

PLAN VIEWS

BAFFLE DETAIL

LOCATION OF BAFFLES SHOWN AS BAFFLE ON DRAWINGS

BAFFLE LENGTHS:
L1 22'
L2 22'
L3 35'
L4 37'
L5 40'
L6 35'
L7 35'
L8 45'

LEGEND

- DENOTES AREA OF 15%–24.99% SLOPES
- DENOTES AREA OF 25% SLOPES OR GREATER
- LOD — DENOTES LIMITS OF DISTURBANCE
- SF — DENOTES SILT FENCE
- SSF — DENOTES SUPER SILT FENCE
- SCE — DENOTES STABILIZED CONSTRUCTION ENTRANCE
- DENOTES REC. OPEN SPACE
- DENOTES EROSION CONTROL MATTING

NOTE: ENDS OF SUSPSER SILT FENCE AND SILT FENCE SHALL BE TURNED AND EXTENDED UPHILL 2 FEET IN ELEVATION.

ASBUILT 1/6/09
FISHER COLLINS AND CARTER INC

project	date
99072	DEC.2001
illustration	engineering
MMP	MMP
scale	approval
1"=50'	JBM

no.	description	date
1	REVISIONS PER ROAD AS-BUILT	1/6/09

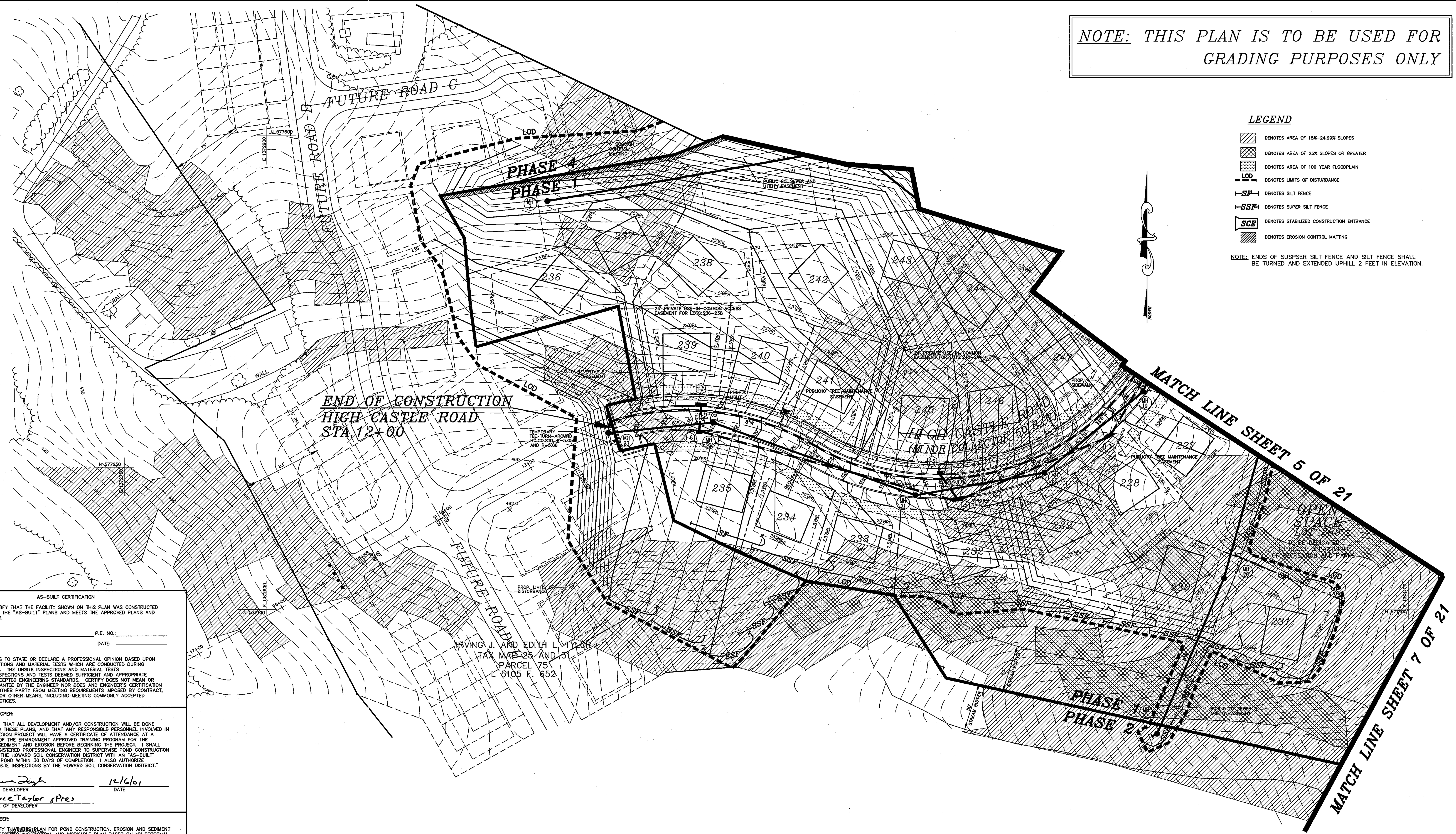
revisions

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
GRADING AND 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.

AS BUILT F-01-23

NOTE: THIS PLAN IS TO BE USED FOR GRADING PURPOSES ONLY



LEGEND

- DENOTES AREA OF 15%-24.99% SLOPES
- DENOTES AREA OF 25% SLOPES OR GREATER
- DENOTES AREA OF 100 YEAR FLOODPLAIN
- LOD — DENOTES LIMITS OF DISTURBANCE
- SF — DENOTES SILT FENCE
- SSF — DENOTES SUPER SILT FENCE
- SCE — DENOTES STABILIZED CONSTRUCTION ENTRANCE
- DENOTES EROSION CONTROL MATTING

NOTE: ENDS OF SUSPSER SILT FENCE AND SILT FENCE SHALL BE TURNED AND EXTENDED UPHILL 2 FEET IN ELEVATION.

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.

__________ P.E. NO.: ______

SIGNATURE DATE: ______

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 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] 12/6/01
SIGNATURE OF DEVELOPER DATE

Bruce Taylor, Pres
PRINTED NAME OF DEVELOPER

BY THE ENGINEER:

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John Mildenberg
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[signature] 12/18/01
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APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] HS 1-30-02
CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

[signature] 2/5/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] for 12/28/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ DATE

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OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

AS BUILT 1/6/09
FISHER COLLINS AND CARTER, INC.

ASBUILT F-01-23

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AUTUMN VIEW SECTION 5, PHASE 1

LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

GRADING AND SEDIMENT CONTROL PLAN

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Engineers Planners Surveyors
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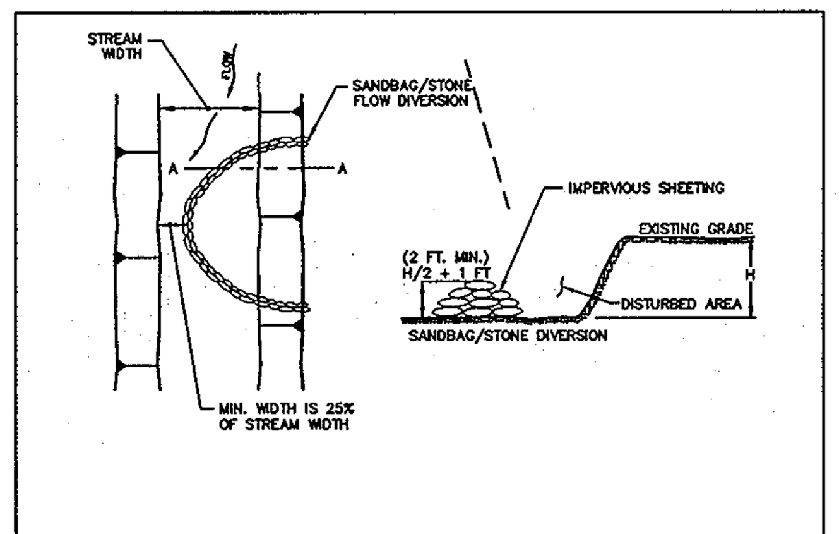

I. DESCRIPTION

THE WORK SHALL CONSIST OF INSTALLING FLOW DIVERSIONS FOR THE PURPOSE OF EROSION CONTROL WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL, SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.

II. MATERIAL SPECIFICATIONS

1. SANDBAGS: SANDBAGS SHALL CONSIST OF MATERIALS WHICH ARE RESISTANT TO ULTRAVIOLET RADIATION, TEARING AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL (I.E., SAND, FINE GRAVEL, ETC.)
2. STONE: STONE SHALL BE WASHED AND HAVE A MINIMUM DIAMETER OF 6 INCHES.
3. SHEETING: SHEETING SHALL CONSIST OF POLYETHYLENE OR OTHER MATERIAL WHICH IS IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.

III. CONSTRUCTION REQUIREMENTS

1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
2. THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
3. THE HEIGHT OF THE DIVERSION STRUCTURE SHALL BE ONE HALF THE DISTANCE FROM STREAM BED TO STREAM BANK PLUS ONE FOOT, AS INDICATED ON THE CROSS SECTION VIEW.
4. ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF IN A SCD APPROVED DISPOSAL AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE WRA.
5. ALL DEWATERING OF THE CONSTRUCTION AREA SHALL BE PUMPED TO A DEWATERING BASIN PRIOR TO RE-ENTERING THE STREAM.
6. SHEETING SHALL BE OVERLAPPED SUCH THAT THE UPSTREAM PORTION COVERS THE DOWNSTREAM PORTION WITH AT LEAST AN 18-INCH OVERLAP.
7. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTING AUTHORITY APPROVES THEIR

WATER RESOURCES ADMINISTRATION	SANDBAG/STONE DIVERSION	APPROVED ON ______ CHIEF, WATERWAY PERMITS	WPD 2.3

NOTE: REFER TO MDE PERMIT AND DETAIL FOR STREAM CROSSING.

LEGEND

- DENOTES AREA OF 15%-24.99% SLOPES
- DENOTES AREA OF 25% SLOPES OR GREATER
- LOD — DENOTES LIMITS OF DISTURBANCE
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[signature] 12/6/01

SIGNATURE OF DEVELOPER DATE

Bruce Taylor, Pres

PRINTED NAME OF DEVELOPER

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[signature] 12/6/01

SIGNATURE OF ENGINEER DATE

JOHN MILDENBERG

PRINTED NAME OF ENGINEER

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.

Jim Myers / ES. 12/18/01

USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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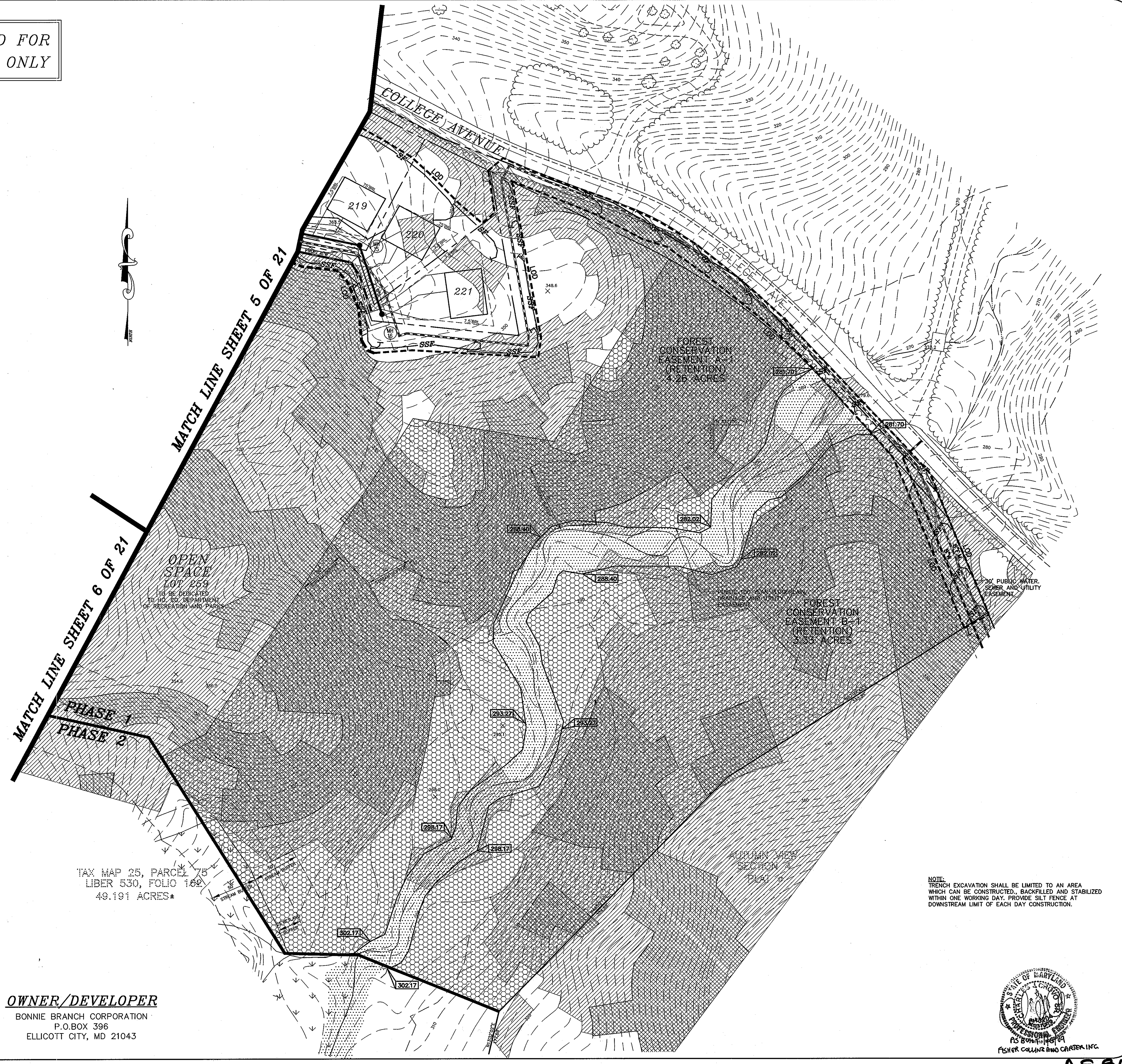

NOTE:
TRENCH EXCAVATION SHALL BE LIMITED TO AN AREA WHICH CAN BE CONSTRUCTED, BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY. PROVIDE SILT FENCE AT DOWNSTREAM LIMIT OF EACH DAY CONSTRUCTION.

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

STATE OF MARYLAND — CHARLES J. CROWL — PROFESSIONAL ENGINEER
AS BUILT
FISHER COLLINS AND CARTER INC.

project	date
99072	SEP.2001
illustration	engineering
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AS BUILT F-01-23

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:	31.14	ACRES
AREA DISTURBED:	18.25	ACRES
AREA TO BE ROOFED OR PAVED:	4.17	ACRES
AREA TO BE VEGITATIVELY STABILIZED:	13.08	ACRES
TOTAL CUT:	50,000	CU. YDS.
TOTAL FILL:	50,000	CU. YDS.
TOTAL WASTE/BORROW AREA LOCATION:	(NOT REQUIRED)	

THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY.
CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN QUANTITY 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, JOHNSONSON 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.

SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

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 FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

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

TEMPORARY DUST CONTROL MEASURES

1. MULCHES – SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.

2. VEGETATIVE COVER – SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.

3. TILLAGE – TO ROUGHTN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS APCED ABOUT 12" APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

4. IRRIGATION – THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THAT RUNOFF BEGINS TO FLOW.

5. BARRIERS – SOLID BOARD FENCES, SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALT OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.

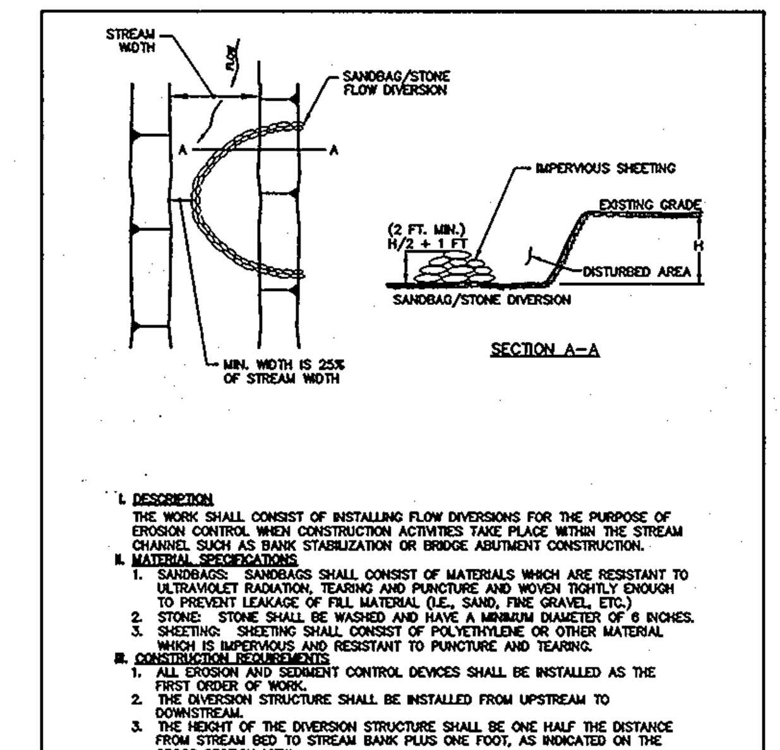
6. CALCIUM CHLORIDE – APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM AT LOCATION INDICATED. (1 DAY)
3. CONSTRUCT SILT FENCES, SUPER SILT FENCES AND TREE PROTECTION FENCES (4 DAYS)
4. CONSTRUCT AND STABILIZE STORMWATER MANAGEMENT PONDS 2 & 3. INCLUDING TEMPORARY LOW FLOW PLATES. CREST OF EMERGENCY SPILLWAY FOR SED. BASIN NO.2=339.5 FOR SED. CONTROL ONLY. PROVIDE BAFFLES FOR SEDIMENT BASIN NO. 2 PER DETAILS. (10 DAYS)
5. IMMEDISTELLY STABILIZE DISTURBED AREA BELOW E-1 & E-3 WITH EROSION CONTROL MATTING, SEED AND MULCH.
6. BLOCK SWM POND RISERS AS SHOWN IN WEIR BLOCKING DETAILS ON SHEETS NO 20 OR 21. INSTALL TEMPORARY STANDPIPES. CONTRUCT EARTH DIKE AS INDICATED. (2 DAYS)
7. AFTER RECEIVING PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, CLEAR SITE PER LIMITS INDICATED. (30 DAYS)
8. BRING SITE TO GRADE INDICATED ON THE PLANS. CONSTRUCT STORM DRAIN SYSTEM & UTILITIES. (PROVIDE DUST CONTROL MEASURES AS REQUIRED.(30 DAYS)
9. DURING CONSTRUCTION, SEDIMENT SHALL BE REMOVED FROM THE STORMWATER MANAGEMENT PONDS WHEN THEIR CLEANOUT ELEVATIONS HAVE BEEN REACHED.
10. CONSTRUCT PAVEMENT AND CURB AND GUTTER AS INDICATED. (10 DAYS)
11. STABILIZE REMAINING DISTURBED AREAS. (10 DAYS)
12. WHEN ALL CONTRIBUTING DRAINAGE AREAS TO SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILZE REMAINING DISTURBED AREAS (10 DAYS)
13. CONTRACTOR SHALL FLUSH ALL STORM DRAIN SYSTEMS PRIOR TO CONVERSION OF SEDIMENT BASIN TO STORM WATER MANAGEMENT POND. (2 DAYS)
14. AFTER RECEIVING PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR CONVERT SEDIMENT BASIN TO PERMANENT STORM WATER MANAGEMENT FACILITIES. REMOVE AND REPLACE PERFORATED STANDPIPES AND LOW FLOW PLATES. CONSTRUCT CREST OF EMERGENCY SPILLWAY TO 339.0 FOR SWMF # 2 AND STABILIZE.
15. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
    A. 7 CALENDAR DAYS FOR ALL PERIMETER SLOPES AND ALL SLOPES GREATER
    B. 14 CALENDER DAYS FOR ALL OTHER DISTURBED AREAS ON THE SITE.

SEQUENCE OF CONSTRUCTION FOR CULVERT REPLACEMENT UNDER COLLEGE AVE.

1. DIVERT ALL TRAFFIC TO EXISTING WESTBOUND LANE. FLAGMEN ARE REQUIRED DURING ENTIRE DIVERSION ACTIVITY.
2. CONSTRUCT CULVERT TO CULVERT STATION 0+51±
3. BACKFILL CULVERT TO DESIGN GRADES.
4. DIVERT ALL TRAFFIC TO NEWLY CONSTRUCTED LANE.
5. COMPLETE CONSTRUCTION OF CULVERT.
6. BACKFILL REMAINING CULVERT TRENCH.
7. REFER TO MUTCD STANDARD 6B-7 FOR DETAILS NOT SHOWN.



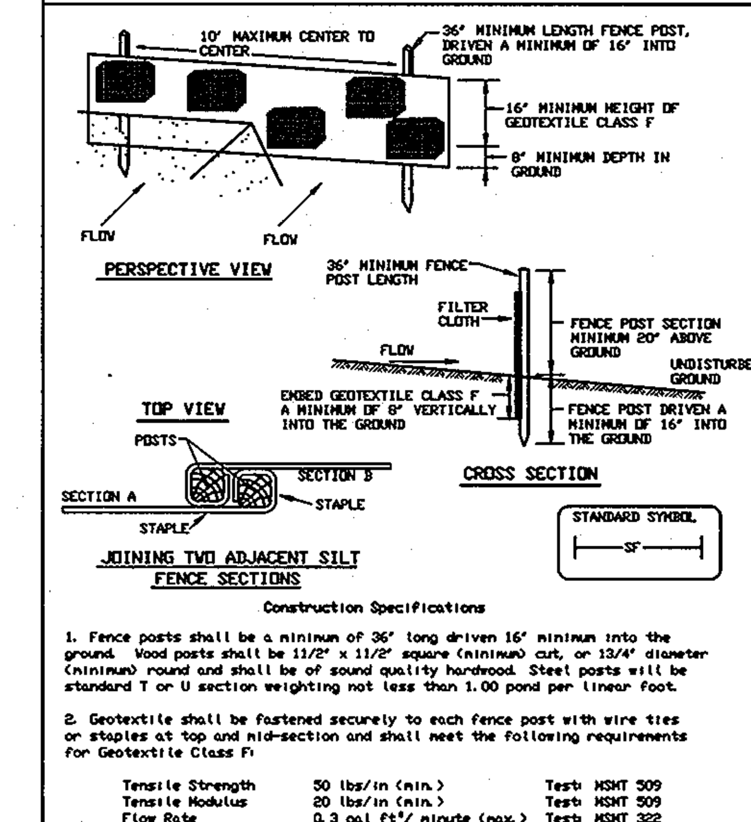
I. DESCRIPTION
THE WORK SHALL CONSIST OF INSTALLING FLOW DIVERSIONS FOR THE PURPOSE OF EROSION CONTROL WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.

II. MATERIAL SPECIFICATIONS
1. SANDBAGS: SANDBAGS SHALL CONSIST OF MATERIALS WHICH ARE RESISTANT TO ULTRAVIOLET RADIATION, TEARING AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL (I.E., SAND, FINE GRAVEL, ETC.)
2. STONE: STONE SHALL BE WASHED AND HAVE A MINIMUM DIAMETER OF 6 INCHES.
3. SHEETING: SHEETING SHALL CONSIST OF POLYETHYLENE OR OTHER MATERIAL WHICH IS IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.

III. CONSTRUCTION REQUIREMENTS
1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
2. THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
3. THE HEIGHT OF THE DIVERSION STRUCTURE SHALL BE ONE HALF THE DISTANCE FROM STREAM BED TO STREAM BANK PLUS ONE FOOT, AS INDICATED ON THE CROSS SECTION VIEW.
4. ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF IN A SCD APPROVED DISPOSAL AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE WRA.
5. ALL DEWATERING OF THE CONSTRUCTION AREA SHALL BE PUMPED TO A DEWATERING BASIN PRIOR TO RE-ENTERING THE STREAM.
6. SHEETING SHALL BE OVERLAPPED SUCH THAT THE UPSTREAM PORTION COVERS THE DOWNSTREAM PORTION WITH AT LEAST AN 18-INCH OVERLAP.
7. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTING AUTHORITY APPROVES THEIR REMOVAL.

WATER RESOURCES ADMINISTRATION	SANDBAG/STONE DIVERSION	APPROVED ON ______ CHIEF, WATERWAY PERMITS	WPD 2.3

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.

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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.

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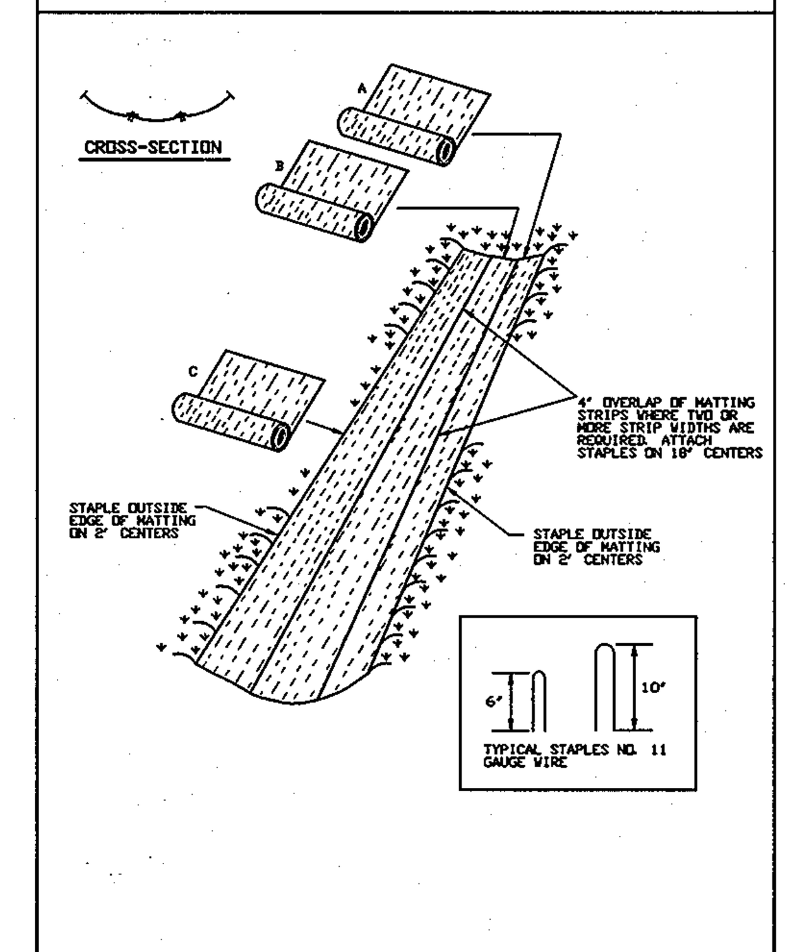
DETAIL 30 - EROSION CONTROL MATTING



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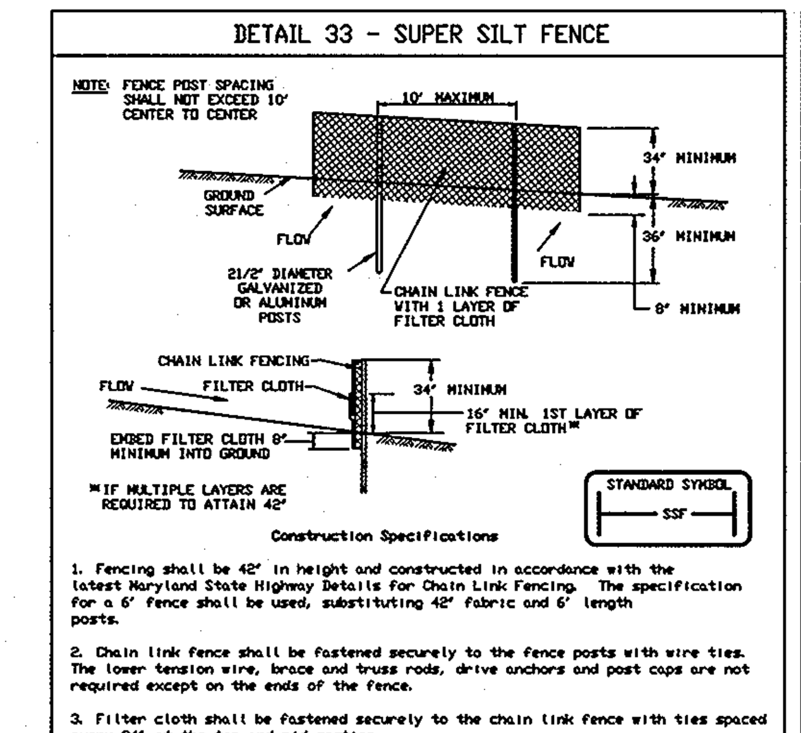
DETAIL 33 - SUPER SILT FENCE



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

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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

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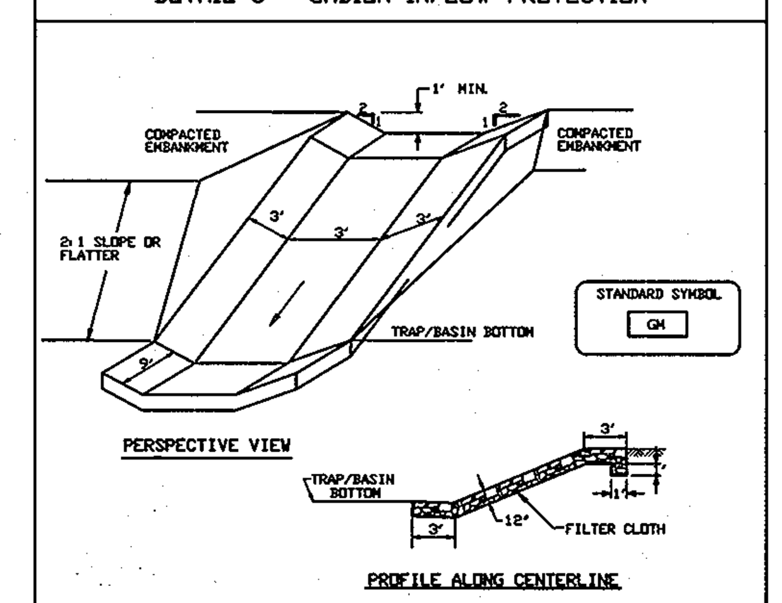
DETAIL 6 - GABION INFLOW PROTECTION



Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9' gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.

2. Geotextile Class C shall be installed under all gabion baskets.

3. The stone used to fill the gabion baskets shall be 4" - 7".

4. Gabions shall be installed in accordance with manufacturers reconmendations.

5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

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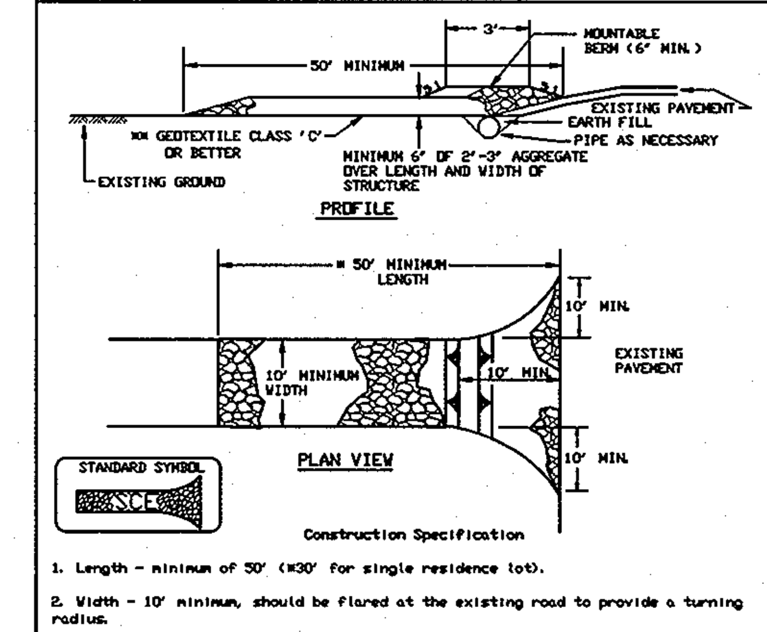
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



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 reclaimed 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.

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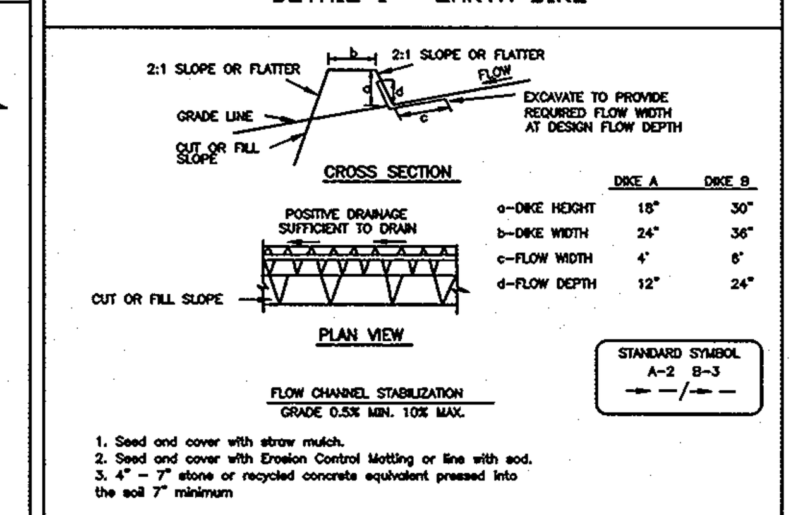
DETAIL 1 - EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.

2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.

4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.

6. Fill shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

8. Inspection and maintenance must be provided periodically and after each rain event.

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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.

______ P.E. NO.:______

SIGNATURE DATE: ______

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 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] 12/6/01
SIGNATURE OF DEVELOPER DATE
Bruce Taylor Pres
PRINTED NAME OF DEVELOPER

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] 12/6/01
SIGNATURE OF ENGINEER DATE
[signature]
PRINTED NAME OF ENGINEER

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.

[signature] / 65 12/18/01
USDA – NATURAL RESOURCES CONSERVATION SERVICE DATE

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

[signature] 12/18/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 1-30-02
CHIEF BUREAU OF HIGHWAYS HS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

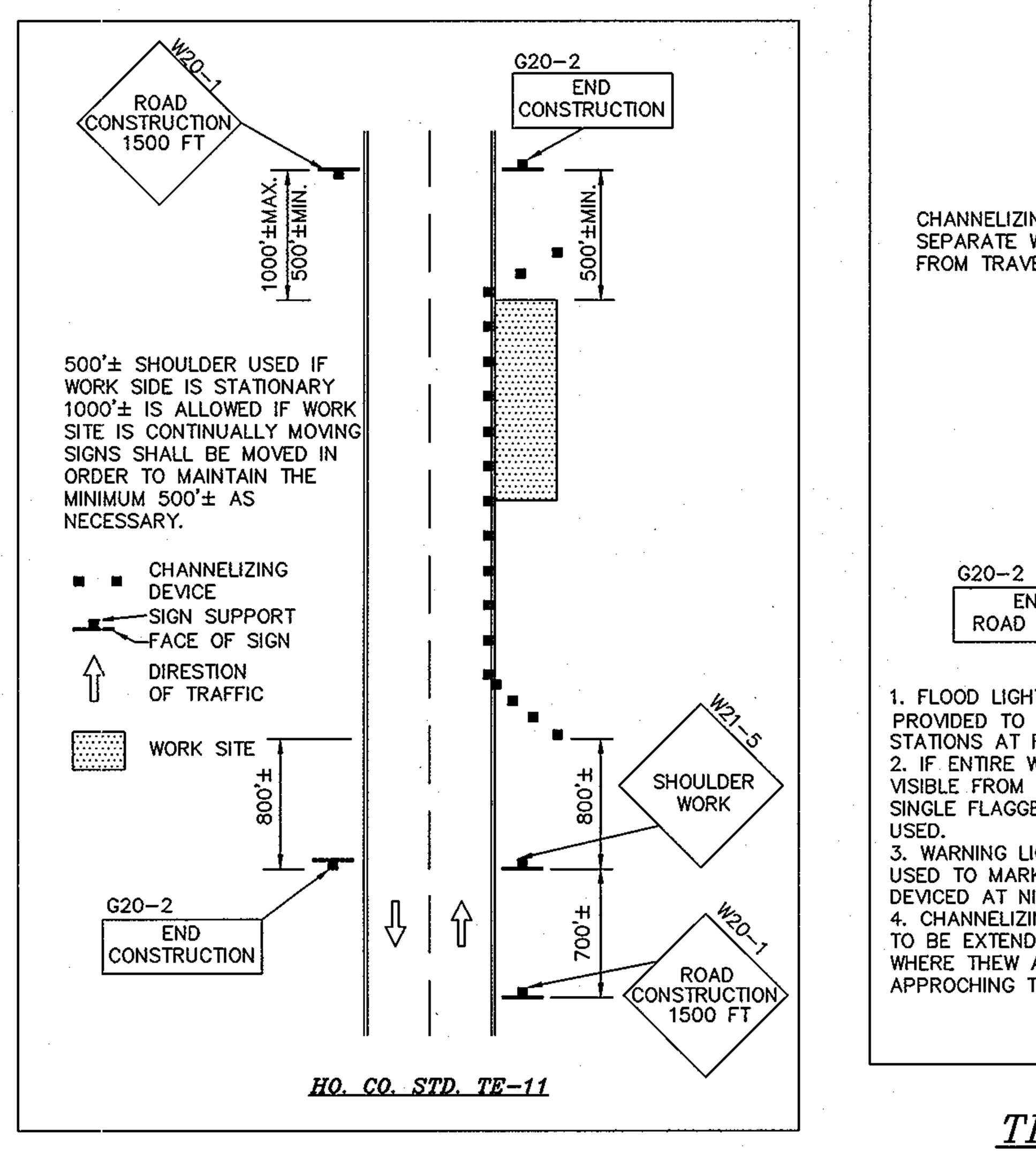
[signature] 2/5/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] for 12/28/01
CHIEF DEVELOPMENT ENGINEERING DIVISION MAJ DATE

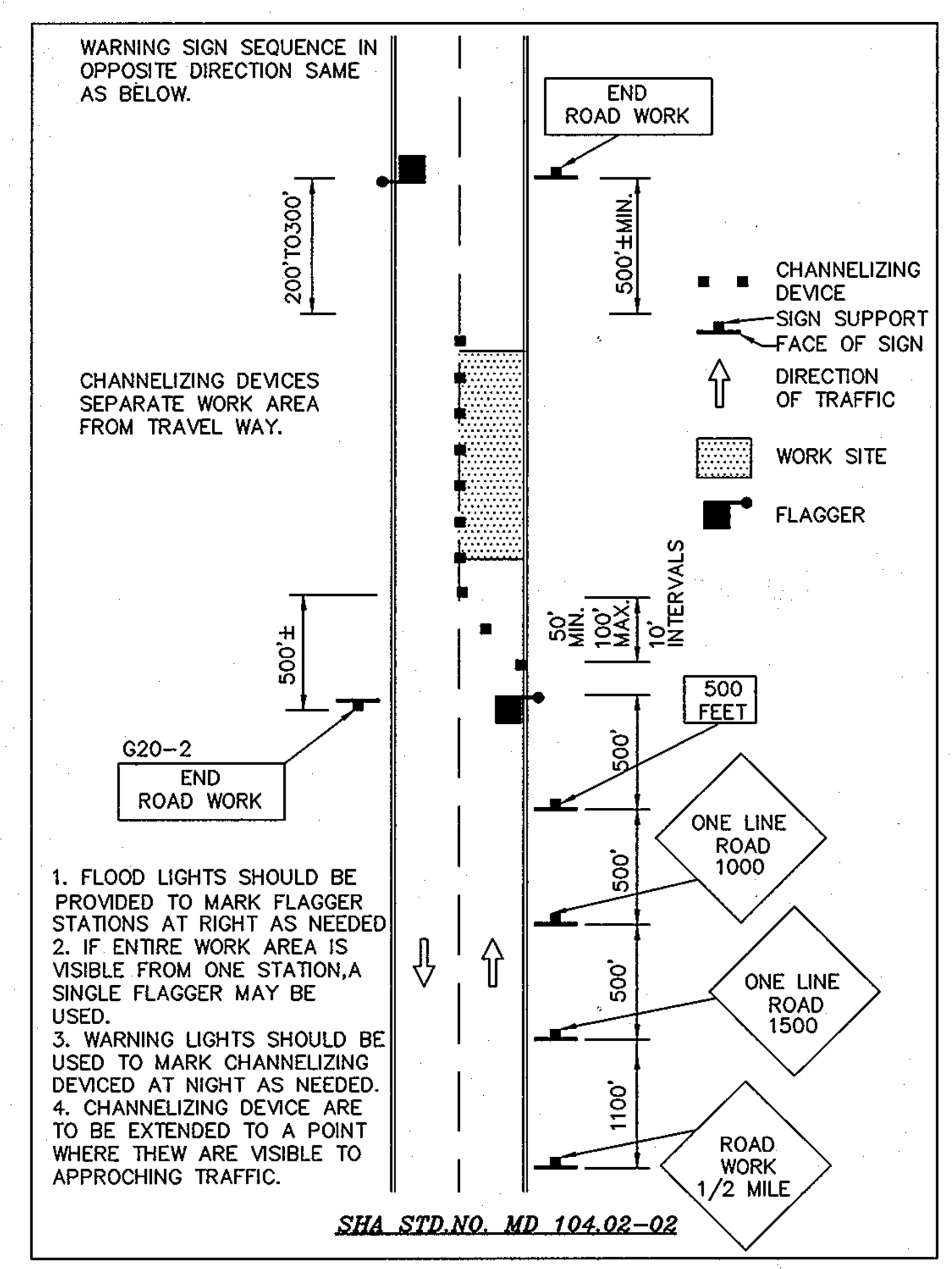
99072\PHASE-1\DWG\FINAL\SEDNO.DWG

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

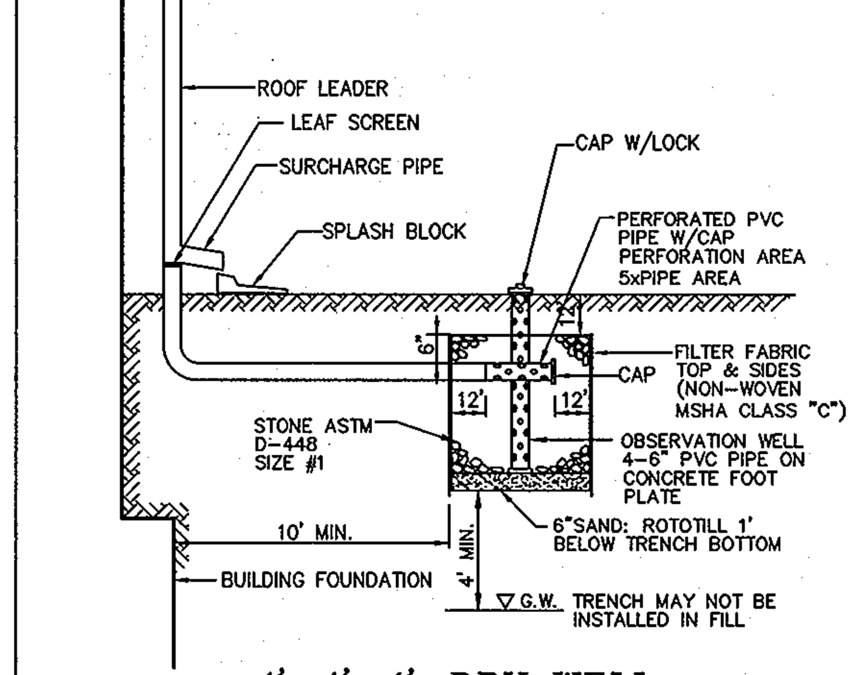


HO. CO. STD. TE-11



SHA STD.NO. MD 104.02-02

TRAFFIC CONTROL PLAN

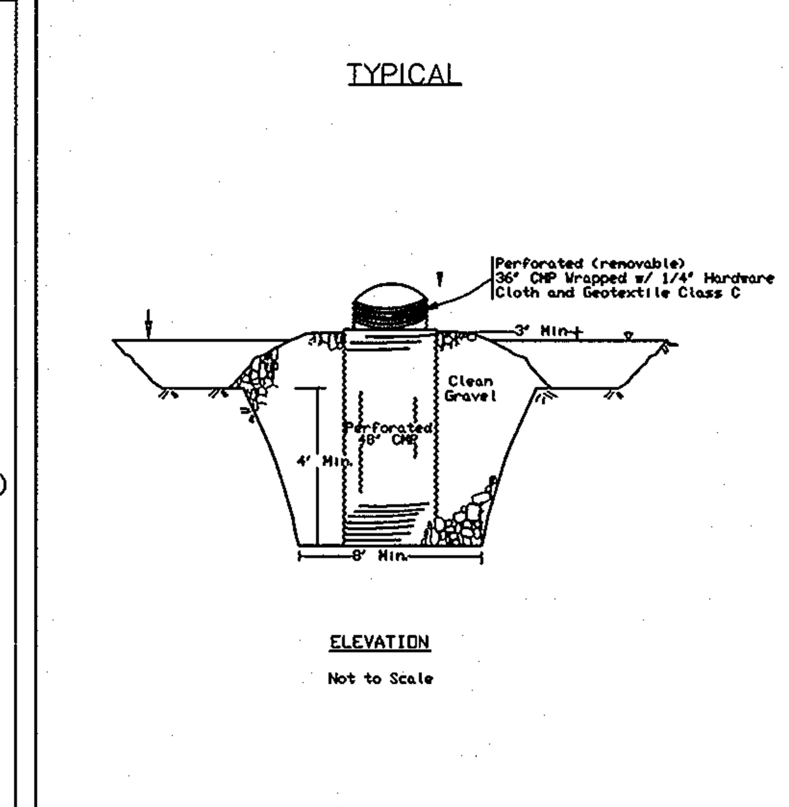


4' x4' x4' DRY WELL
TYP. DETAIL

LOTS: 219 THRU 221 AND 229, 230 ,231 AND 256.

NOTE:
DRY WELLS ARE TO BE PROVIDED AT EACH DOWNSPOUT DRAINING AWAY FROM THE ROAD.

REMOVABLE PUMP STATION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D-12-3	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 filters 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" aggregate. 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 area downslope of unstabilized areas to prevent erosion. Meadow or wooded areas are preferred discharge locations but storm drain and paved areas are acceptable.

5. Maintenance- The inner pipe can easily be removed to facilitate changing the geotextile when it clogs. Maintenance must be performed when the pump runs dry abd backed up water remains.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D-12-3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

project	date	illustration	engineering	scale	approval
99072	DEC.2001	MMP	MMP	AS SHOWN	JBM

no.	description	date
	revisions	

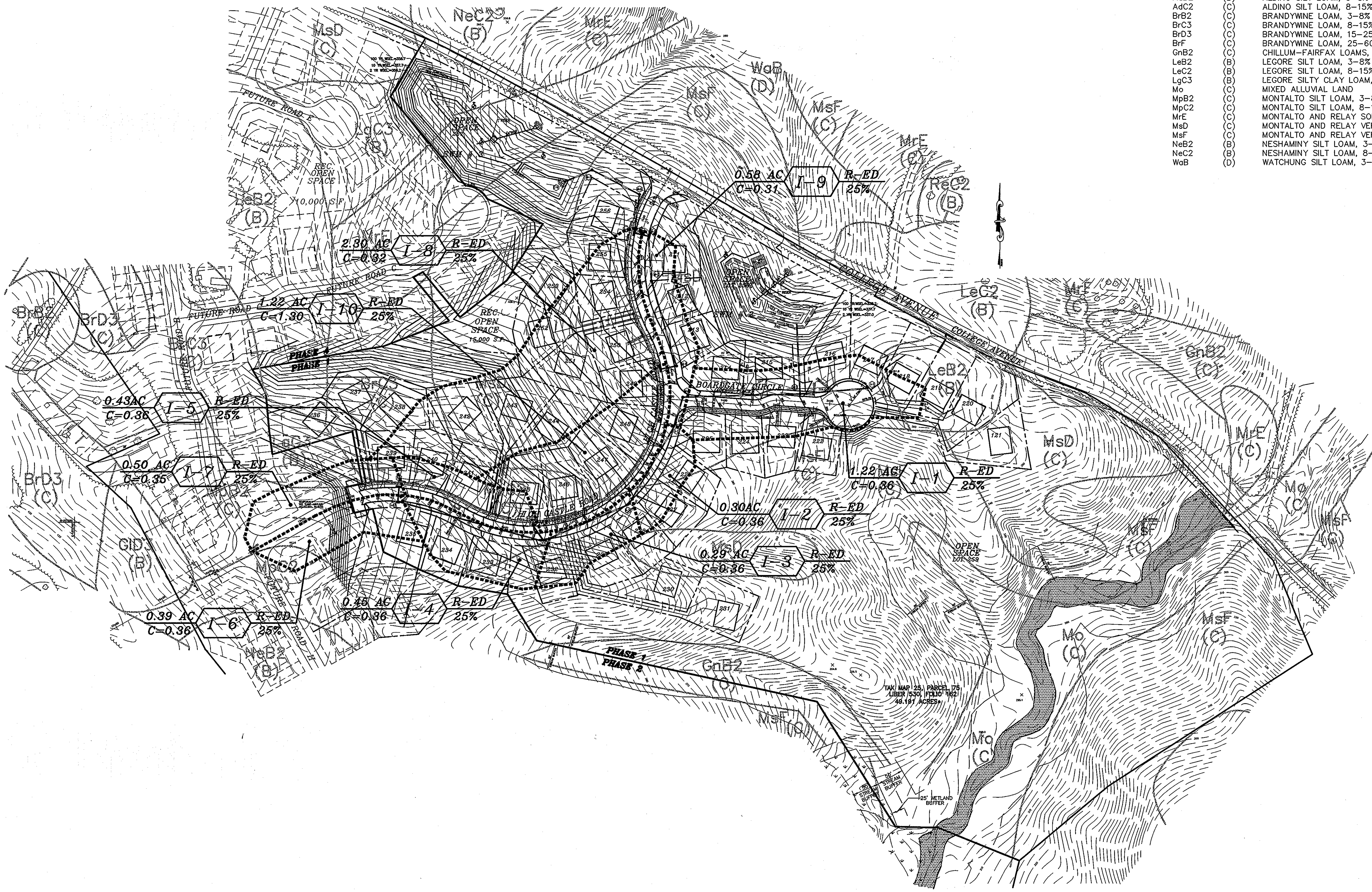
AUTUMN VIEW, SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 AND 31, P/O PARCEL 75
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

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.

AS BUILT F-01-23

SOIL CLASSIFICATION CHART

AdB2	(B)	ALDINO SILT LOAM, 3-8% SLOPES, MODERATELY ERODED
AdC2	(C)	ALDINO SILT LOAM, 8-15% SLOPES, MODERATELY ERODED
BrB2	(C)	BRANDYWINE LOAM, 3-8% SLOPES, MODERATELY EROADED
BrC3	(C)	BRANDYWINE LOAM, 8-15% SLOPES, SEVERELY ERODED
BrD3	(C)	BRANDYWINE LOAM, 15-25% SLOPES, SEVERELY ERODED
BrF	(C)	BRANDYWINE LOAM, 25-60% SLOPES
GnB2	(C)	CHILLUM-FAIRFAX LOAMS, 1-5% SLOPES, MODERATELY ERODED
LeB2	(B)	LEGORE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED
LeC2	(B)	LEGORE SILT LOAM, 8-15% SLOPES, MODERATELY ERODED
LgC3	(B)	LEGORE SILTY CLAY LOAM, 8-15% SLOPES, SEVERELY ERODED
Mo	(C)	MIXED ALLUVIAL LAND
MpB2	(C)	MONTALTO SILT LOAM, 3-8% SLOPES, MODERATELY ERODED
MpC2	(C)	MONTALTO SILT LOAM, 8-15% SLOPES, MODERATELY ERODED
MrE	(C)	MONTALTO AND RELAY SOILS, 15-45% SLOPES
MsD	(C)	MONTALTO AND RELAY VERY STINY SILT LOAMS, 3-25% SLOPES
MsF	(C)	MONTALTO AND RELAY VERY STONY SILT LOANS, 25-60% SLOPES
NeB2	(B)	NESHAMINY SILT LOAM, 3-8% SLOPES, MODERATELY ERODED
NeC2	(B)	NESHAMINY SILT LOAM, 8-15% SLOPES, MODERATELY ERODED
WaB	(D)	WATCHUNG SILT LOAM, 3-8% SLOPES



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APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF BUREAU OF HIGHWAYS	DATE 1-30-02
APPROVED: DEPARTMENT OF PLANNING AND ZONNING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 2/5/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ	DATE 12/28/01

PROFESSIONAL ENGINEER 10020

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

STATE OF MARYLAND PROFESSIONAL ENGINEER
AS BUILT 1/6/09
FISHER COLLINS AND CARTER INC.

project	date
99072	DEC.2001
illustration	engineering
MMP	MMP
scale	approval
1"=100'	JBM

no.	description	date
1	REVISIONS PER ROAD AS-BUILT	1/6/09
	revisions	

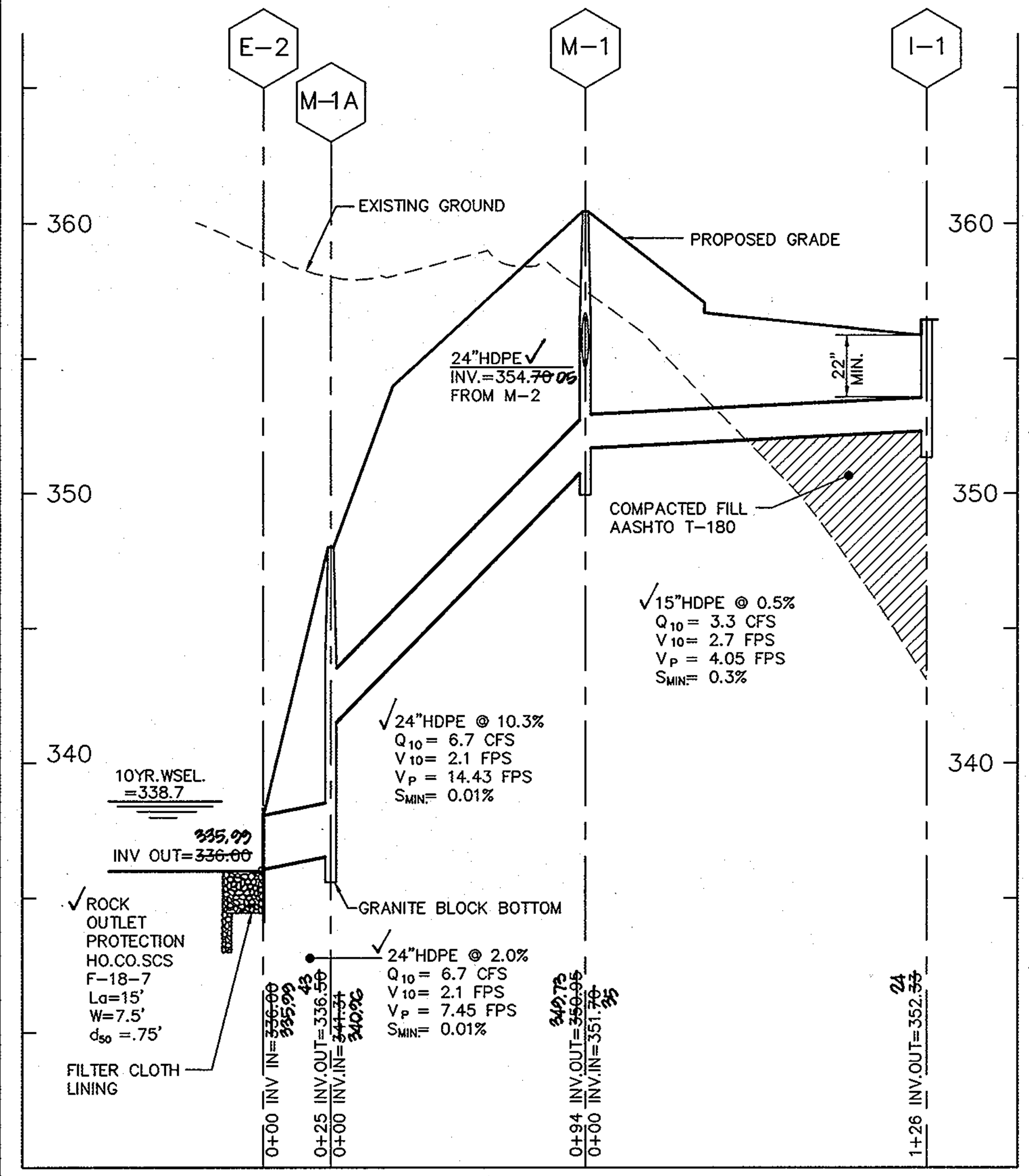
AUTUMN VIEW SECTION 5, PHASE 1

LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

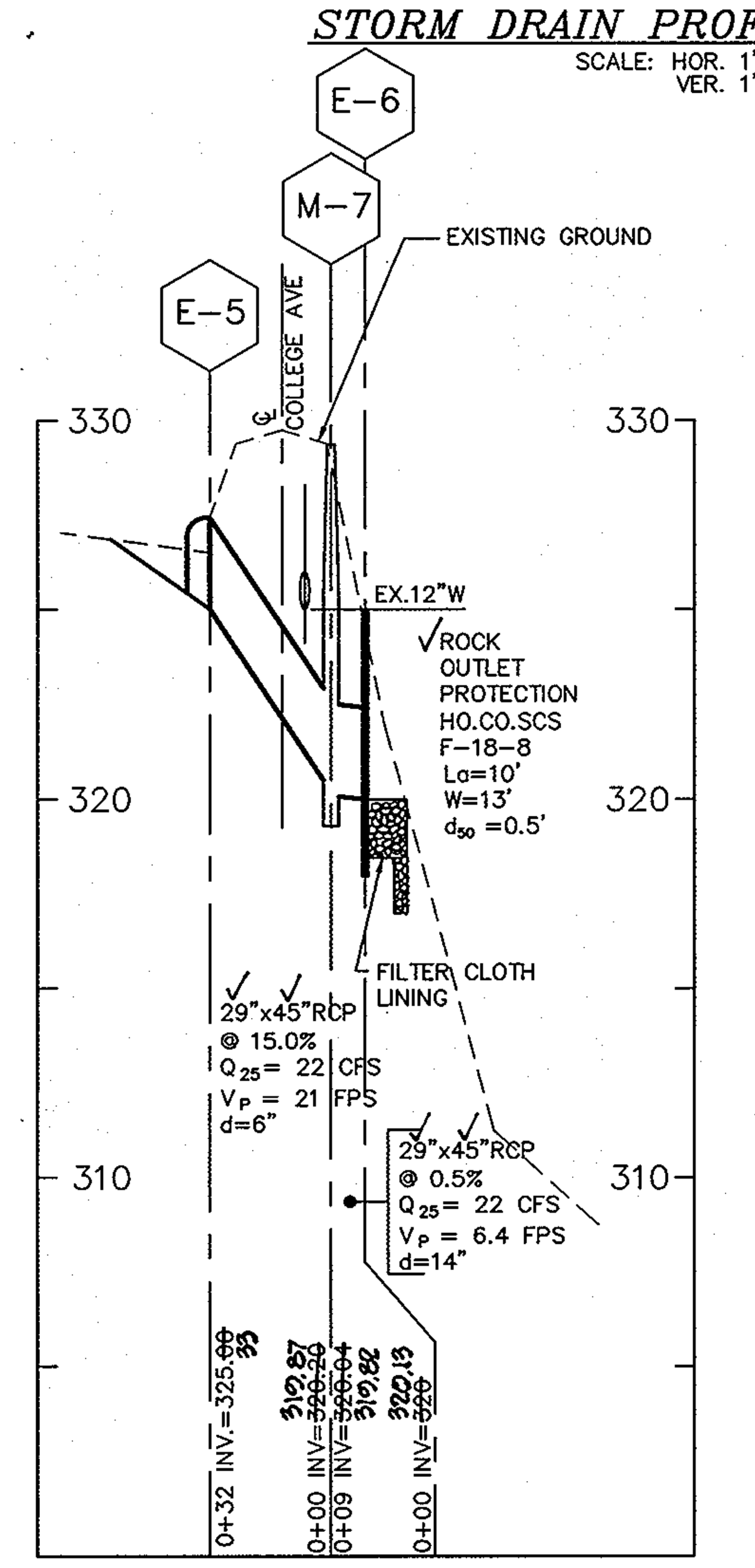
STORM DRAIN DRAINAGE AREA MAP

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.

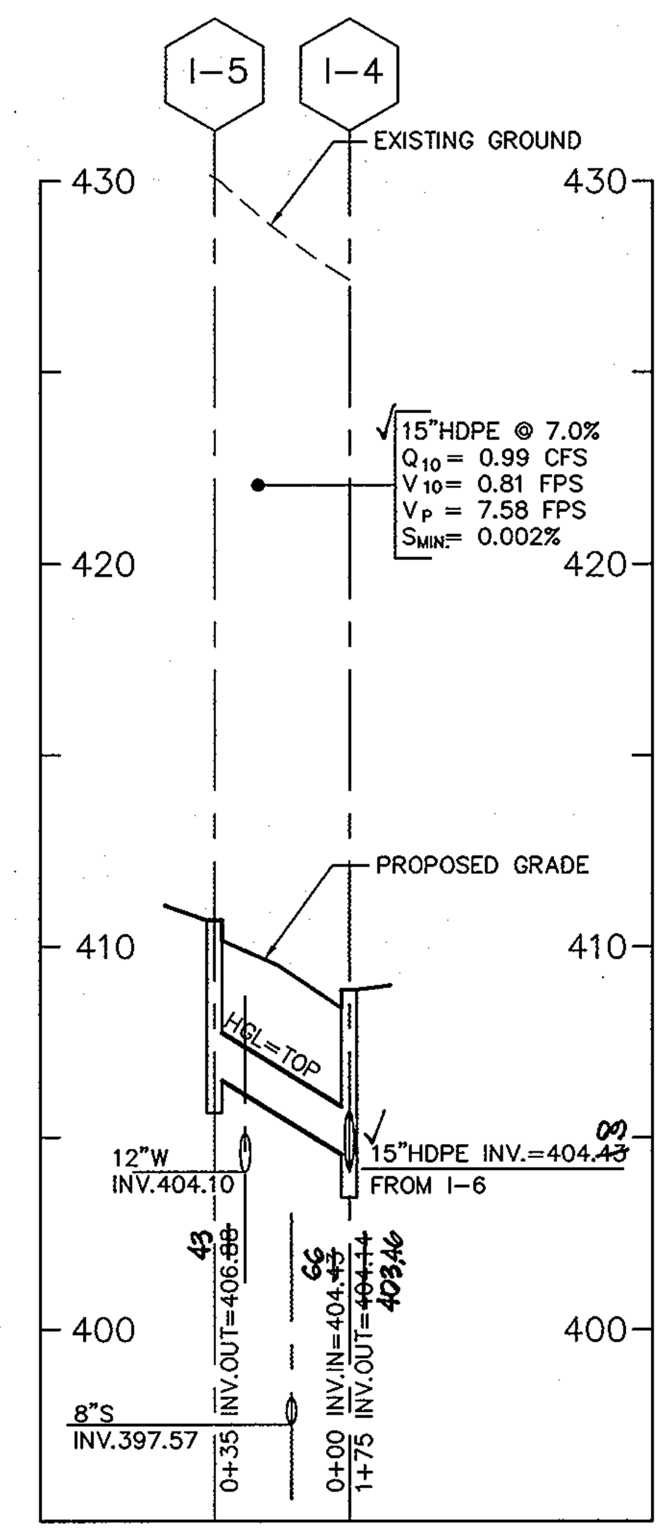
AS BUILT F-01-23



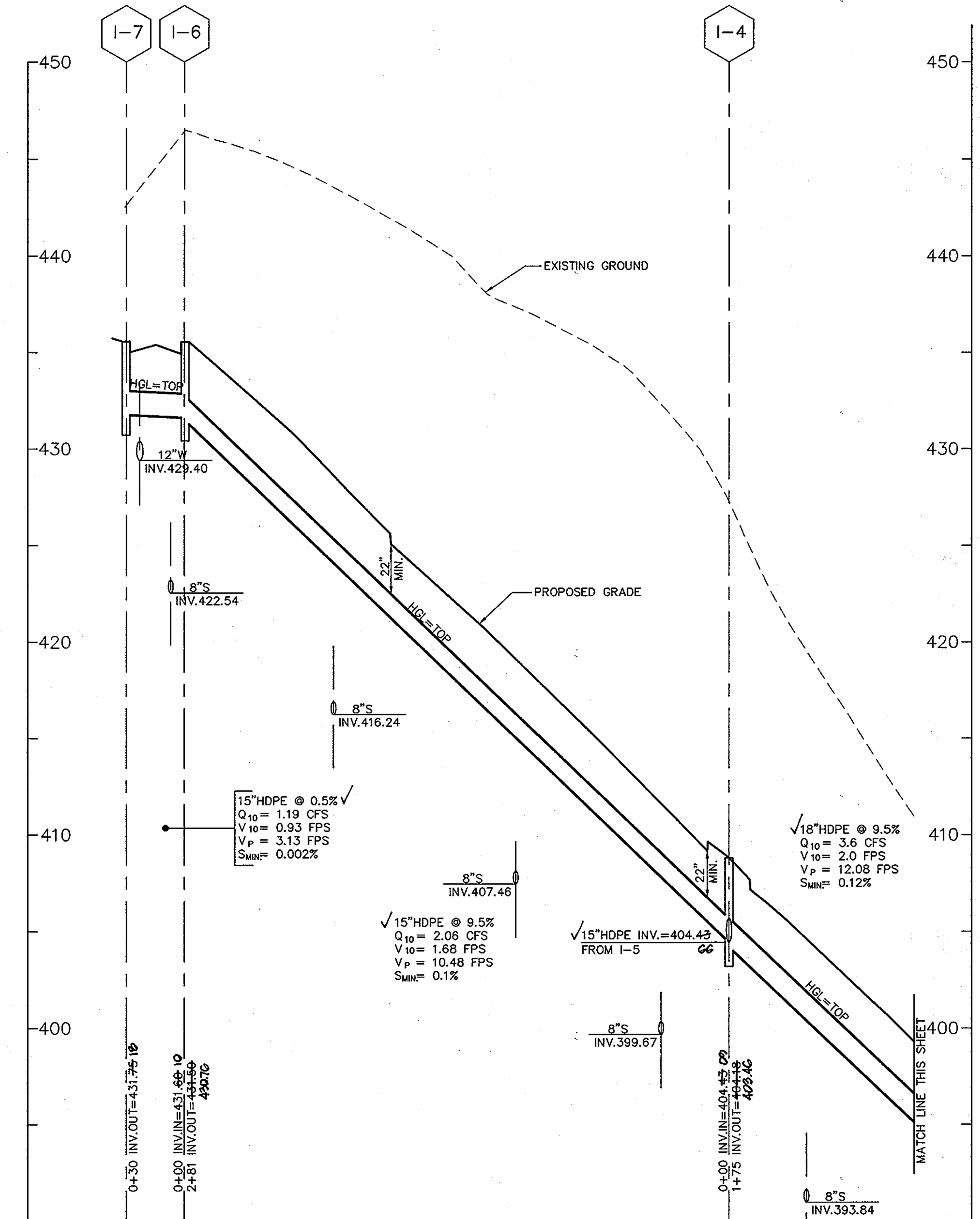
STORM DRAIN PROFILES 1-1 TO E-2
SCALE: HOR. 1"=50' VER. 1"=5'



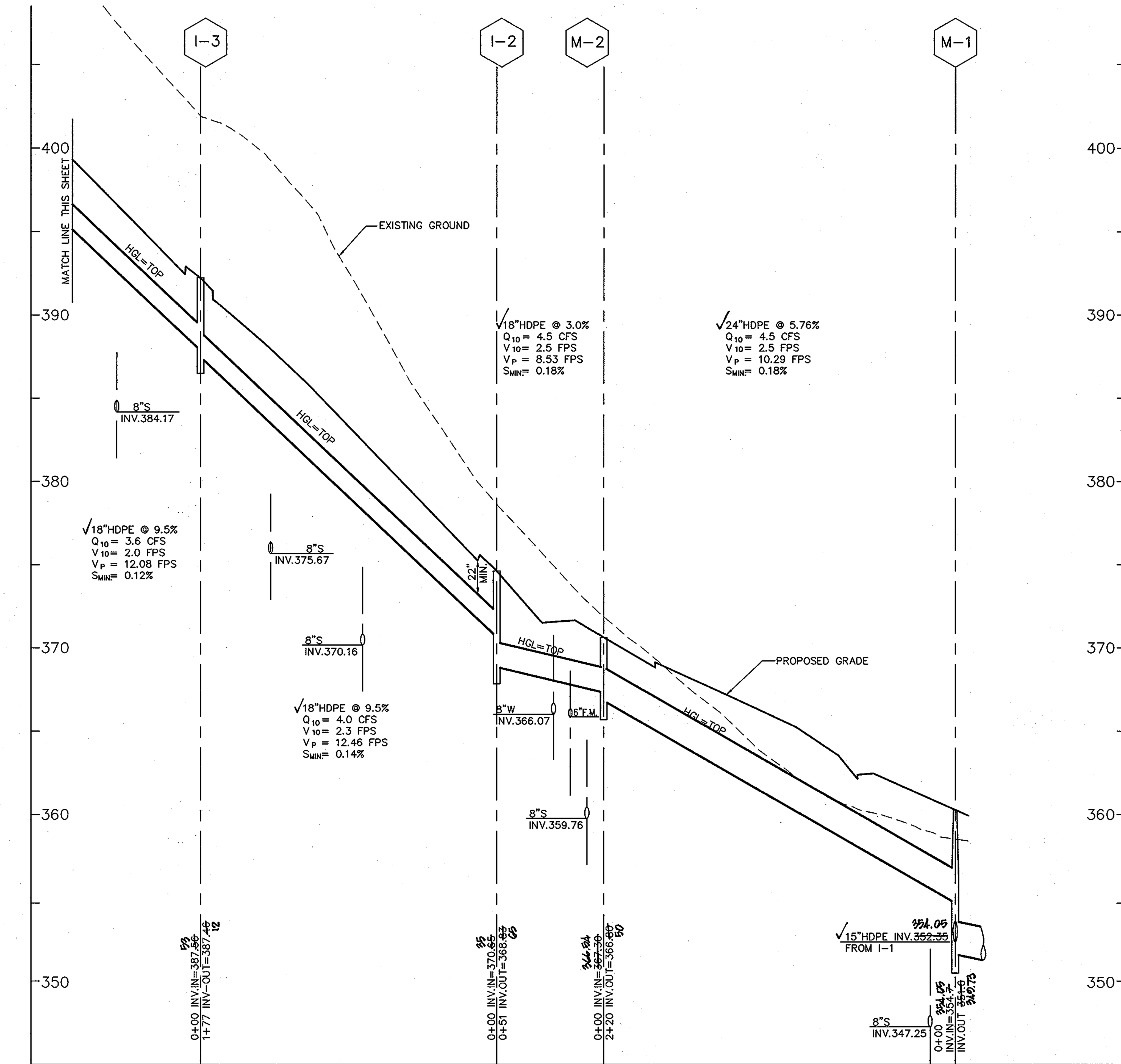
CULVERT PROFILE E-5 TO E-6
SCALE: HOR. 1"=50' VER. 1"=5'



STORM DRAIN PROFILES I-5 TO I-4
SCALE: HOR. 1"=50' VER. 1"=5'



STORM DRAIN PROFILES I-7 TO I-5
SCALE: HOR. 1"=50' VER. 1"=5'

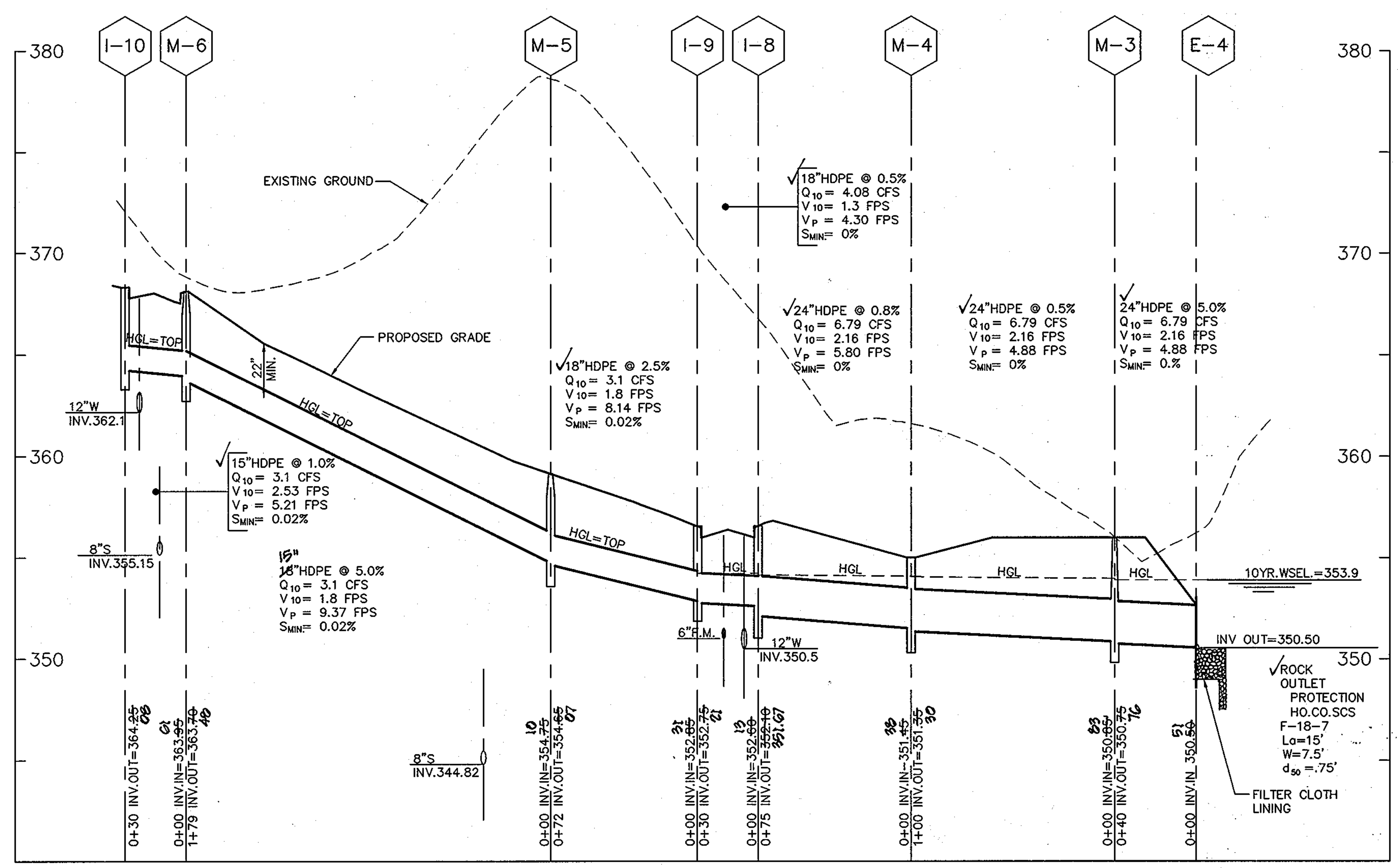


STORM DRAIN PROFILES I-5 TO M-1
SCALE: HOR. 1"=50' VER. 1"=5'

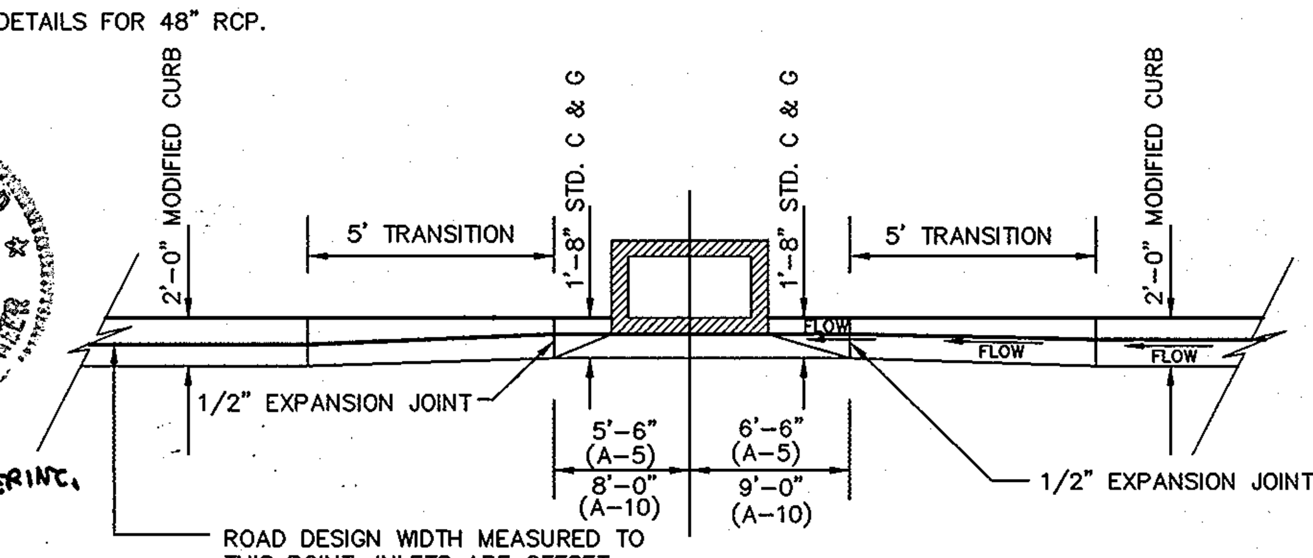
NOTE: H.G.L.= TOP OF PIPE UNLESS OTHERWISE NOTED.

NO.	LOCATION	TOP EL.	INV. IN	INV.OUT	COMMENTS
I-1	LINEAR PROF. STA. 1+09√	356.45 10	–	352.35 24	√TYPE A-5, H.C.STD. SD-4.01
I-2	HIGH CASTLE RD. STA.4+92√O/S 12.44'√LT.	375.64 07	370.65 35	368.83 65	√TYPE A-5, H.C.STD. SD-4.01
I-3	HIGH CASTLE RD. STA.6+60√O/S 12.44'√LT.	392.04 08	387.56 53	387.46 12	√TYPE A-5, H.C.STD. SD-4.01
I-4	HIGH CASTLE RD. STA.8+28√O/S 12.44'√LT.	408.84 87	404.43 66	404.18 403.46	√TYPE A-10, H.C.STD. SD-4.02
I-5	HIGH CASTLE RD. STA.8+45 44 O/S 12.44'√RT.	410.54 43	– 404.09	406.88 43	√TYPE A-5, H.C.STD. SD-4.01
I-6	HIGH CASTLE RD. STA.11+11√O/S 12.44'√LT.	435.45 30	431.60 10	431.50 430.76	√TYPE A-5, H.C.STD. SD-4.01
I-7	HIGH CASTLE RD. STA.11+11√O/S 12.44'√RT.	435.45 38	–	431.75 18	√TYPE A-10, H.C.STD. SD-4.02
I-8	HIGH CASTLE RD. STA.1+30 20 O/S 12.44'√RT.	356.62 52	352.60 13	352.10 351.67	√TYPE A-15, H.C.STD. SD-4.02
I-9	HIGH CASTLE RD. STA.1+30 20 O/S 12.44'√LT.	356.92 56	352.85 31	352.75 21	√TYPE A-10, H.C.STD. SD-4.02
I-10	HIGH CASTLE RD. STA.3+90√O/S 12.44'√RT.	368.13 08	–	364.25 08	√TYPE A-10, H.C.STD. SD-4.02
M-1	BROADGATE CIR. STA.2+43.5 O/S 18.0' LT.	360.60 43	351.70, 354.70	350.95 349.73	√H.C.STD. G-5.12
M-2	BROADGATE CIR. STA.0+30 O/S 18.0'√LT.	370.40 72	367.30 366.54	366.80 50	√H.C.STD. G-5.12
M-3	N577910.312, E1373717.680	356.50 46	350.85 83	350.75 76	√H.C.STD. G-5.12
M-4	HIGH CASTLE RD. STA.0+64.5√O/S 30.70' RT.	355.02 36	351.45 38	351.34 30	√H.C.STD. G-5.12
M-5	HIGH CASTLE RD. STA.2+20.5, O/S 23.0√LT.	359.17 05	354.75 10	354.65 07	√H.C.STD. G-5.12
M-6	HIGH CASTLE RD. STA.3+90√O/S 16.1' LT.	367.99 8.11	363.95 61	363.70 48	√H.C.STD. G-5.12
M-1A	N577587, E1374102	348.00 347.01	341.34 340.96	336.74 43	√H.C.STD. S-1.32 TYPE A
M-7	N577811, E1374100	328.50 67	316.88 319.87	320.04 319.82	√H.C.STD. S-1.32 TYPE A
E-1	N577788, E1374082	–	329.00 328.79	–	√H.C.STD. S.D-5-21
E-2	N577612, E1374105	–	344.20 335.97	–	√H.C.STD. S.D-5.21
E-3	N577982, E1373608	–	336.00 344.27	–	√H.C.STD. S.D-5.21
E-4	N577892, E1373678	–	350.50 51	–	√H.C.STD. S.D-5.21
E-5	N577754, E1374096.45	–	–	325.00 33	√H.C.STD. S.D-5.42
E-6	N577794, E1374098	325.00 324.03	–	320.00 13	√MSHA STD. MD-354.01 *

* USE DIMENSIONS AND DETAILS FOR 48" RCP.



STORM DRAIN PROFILES I-10 TO E-4
SCALE: HOR. 1"=50' VER. 1"=5'



CURB TRANSITION - INLETS
NTS

AS BUILT 1/6/09
FISHER COLLINS AND CARTER INC.

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/5/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/28/01

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project	date
99072	SEP.2001
illustration	engineering
MMP	MMP
scale	approval
1"=50'	JBM

no.	description	date
1	REVISIONS PER ROAD AS-BUILT	1/6/09

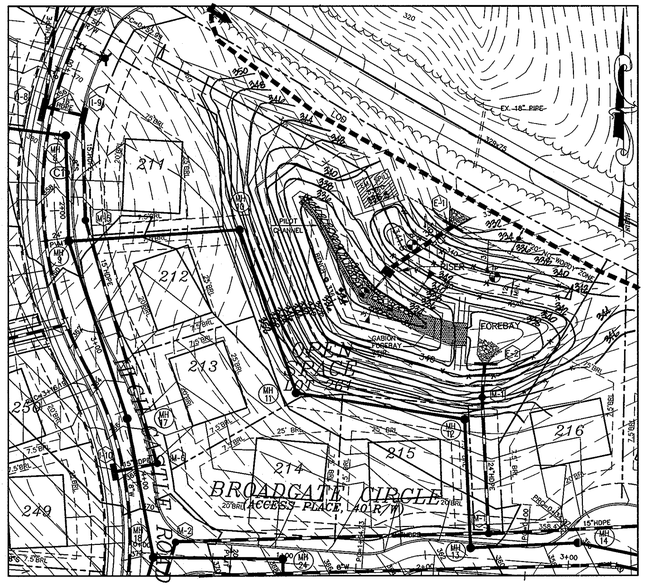
revisions

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211-159
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STORM DRAIN PROFILE

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.

AS BUILT F-01-23



SWM POND #2 PLAN VIEW
SCALE: 1"=50'

SWM #2 SUMMARY	2 YR.	10 YR.	100 YR.
Q EXISTING	7.4	20.3	N/A
Q DEVELOPED	2.1	18.4	N/A
Q FROM SWMF	1.3	16.8	34.5
WSEL	338.1	338.7	339.1

TEMPORARY SWM	2 YR.	10 YR.
Q EXISTING		N/A
Q DEVELOPED	7.5	29.1
WSEL	339.0	339.7

BASIN #2	
EXIST. DRAINAGE AREA	5.93 AC
PROP. DRAINAGE AREA	5.93 AC
REQ'D STORAGE	21,348 CU. FT.
STORAGE PROV'D @ 338.0	21,348 CU. FT.
WET STORAGE REQ'D	10,674 CU. FT.
WET STORAGE PROV'D @ 336.5	10,674 CU. FT.
CLEANOUT ELEV.	335.3
BOTTOM ELEV.	332.0
Q2 EXIST.	7.5
Q2 PROP	7.5
EMBANKMENT ELEV. (INITIAL)	342.5

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.: 13204 — DATE: 1/6/09

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 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: 12/6/01
Bruce Taylor Rice
PRINTED NAME OF DEVELOPER

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 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."

SIGNATURE OF ENGINEER — DATE: 12/6/01
JOHN D. MILDENBERG
PRINTED NAME OF ENGINEER

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: 12/18/01

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: 12/18/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

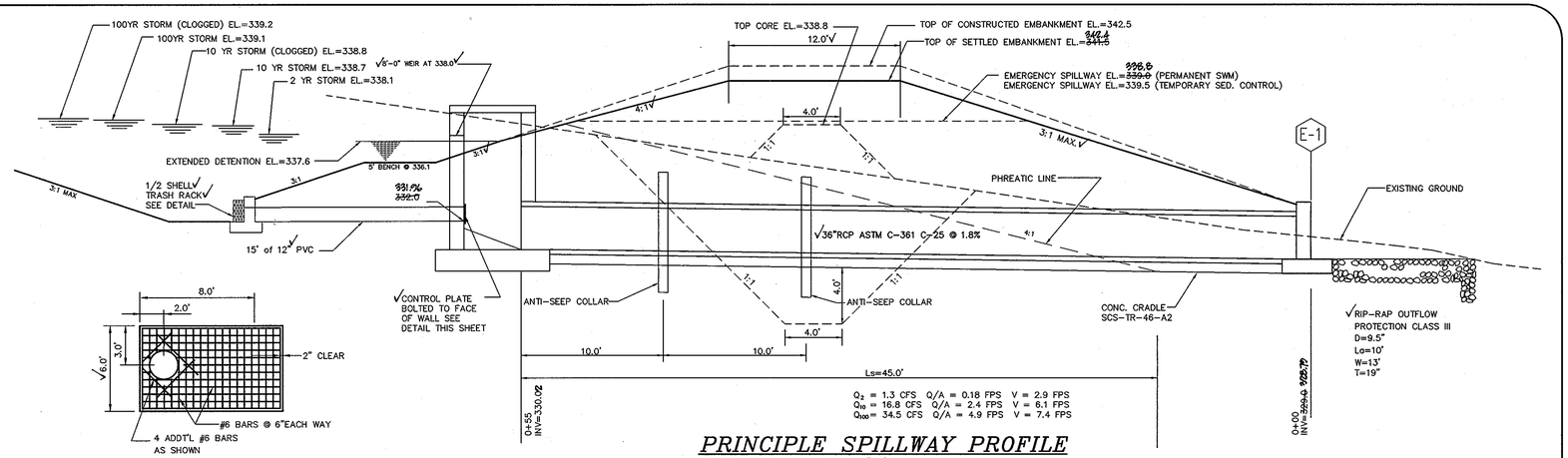
CHIEF BUREAU OF HIGHWAYS — DATE: 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 2/5/02

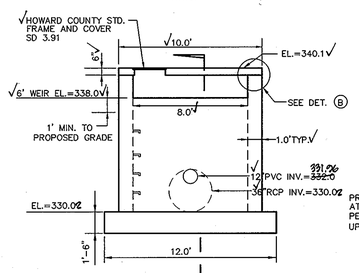
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 12/28/01

F:\99072\PHASE 1\FINAL\SWM-2.DWG

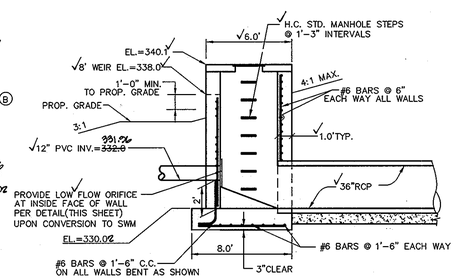


PRINCIPLE SPILLWAY PROFILE
SCALE: 1"=5'

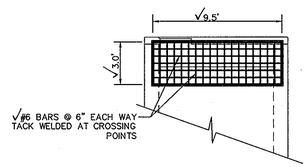
TOP SLAB DETAIL
N.T.S.



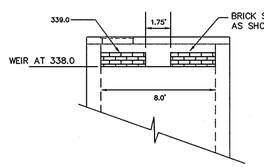
FRONT WALL ELEVATION (2)
N.T.S.



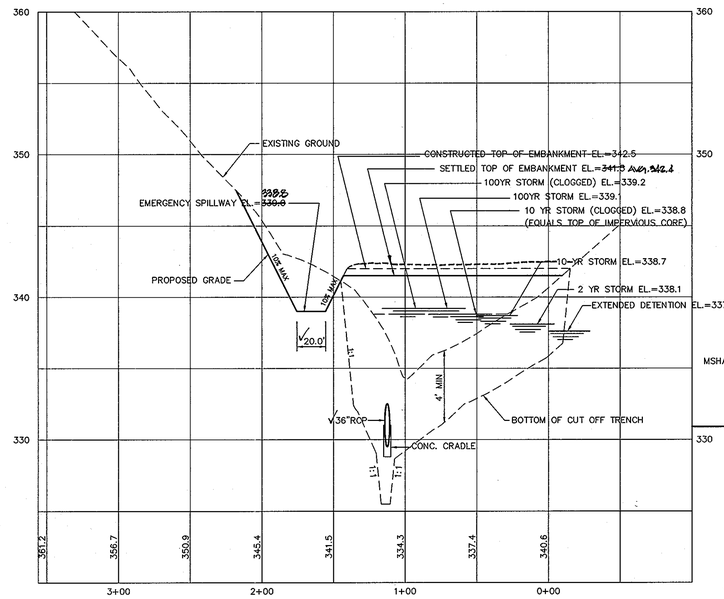
SECTION (2)
N.T.S.



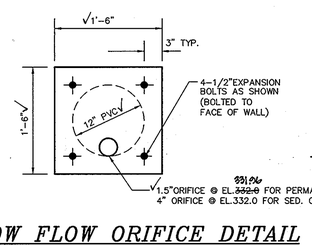
ELEVATION OF TRASH RACK
N.T.S.



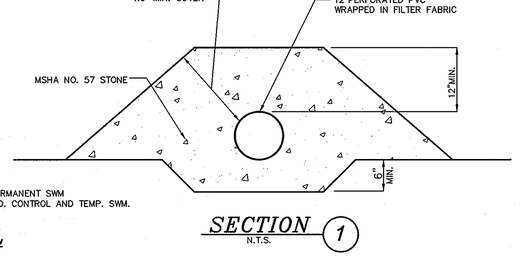
TEMPORARY BLOCKING DETAIL FOR SEDIMENT CONTROL
N.T.S.



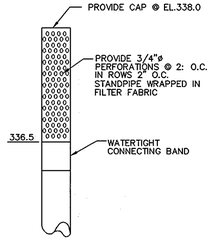
CENTERLINE DAM PROFILE
SCALE: 1"=100'



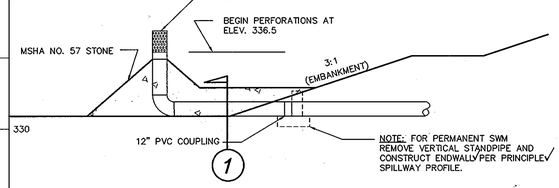
LOW FLOW ORIFICE DETAIL
N.T.S.



SECTION (1)
N.T.S.



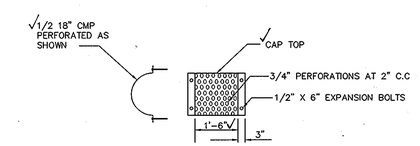
TEMPORARY STANDPIPE DETAIL



TEMPORARY DEWATERING STANDPIPES

DRAW-DOWN DEVICE CONSTRUCTION SPECIFICATIONS

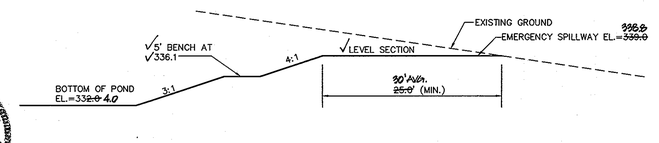
1. PERFORATIONS IN THE DRAW DOWN DEVICE MAY NOT EXCEED INTO THE WET STORAGE.
2. THE TOTAL AREA OB THE PERFORATIONS MUST BE GREATER THAN 4 TIMES THE AREA OF THE INTERNAL ORIFICE.
3. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS C.
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.



HALF SHELL TRASH RACK

OWNER/DEVELOPER
BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

STATE OF MARYLAND — CHARLES A. THOMAS — No. 13204 — PROFESSIONAL ENGINEER
AS BUILT BY
FISHER COLLINS AND CARTER INC.



EMERGENCY SPILLWAY PROFILE
SCALE: 1"=10'

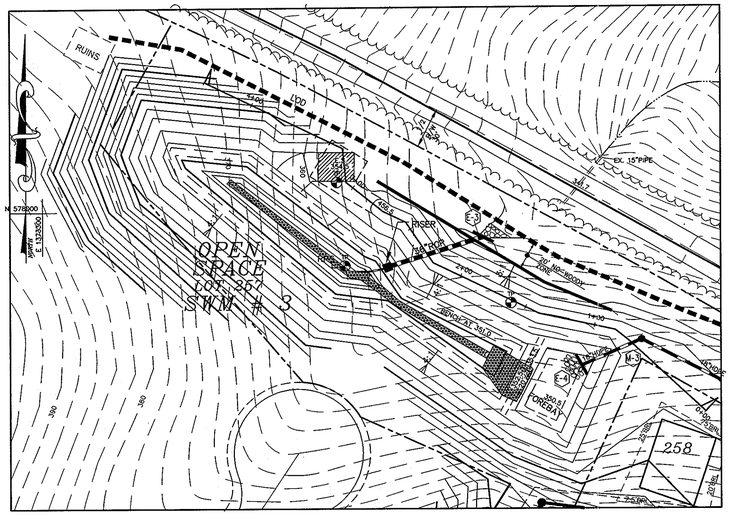
project	date
99072	DEC.2001
illustration	engineering
MAP	MAP
scale	approval
AS SHOWN	JBM

no.	description	date
1	REVISIONS PER CONST. AS-BUILT	1/6/09

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
HOWARD COUNTY, MARYLAND
SECOND ELECTION DISTRICT
SWM PLAN , PROFILES AND DETAILS, POND #2

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.

AS BUILT F-01-23



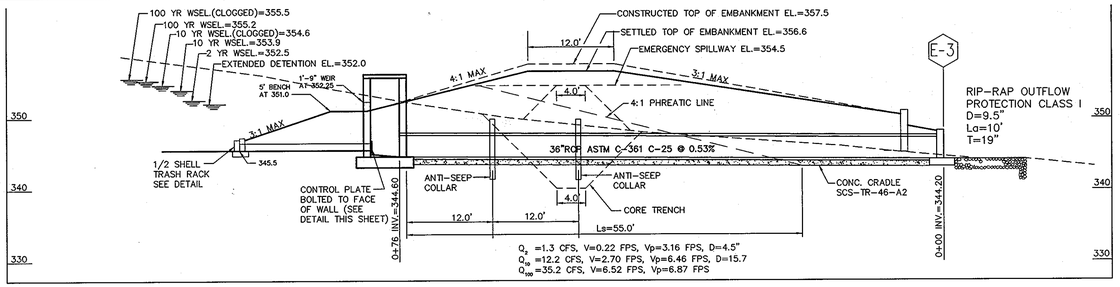
SWM POND # 3 PLAN VIEW

SCALE: 1"=50'

SWM #3 SUMMARY			
	2 YR.	10 YR.	100 YR.
Q EXISTING	6.8	22.0	42.2
Q DEVELOPED	3.7	14.8	N/A
Q FROM SWMF	1.3	12.2	35.2
WSEL	352.5	353.9	355.2

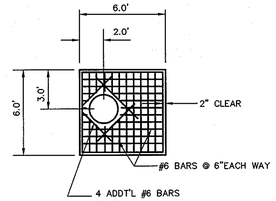
TEMPORARY SWM		
	2 YR.	10 YR.
Q EXISTING	6.8	N/A
Q DEVELOPED	6.6	50.9
WSEL	354.5	355.3

BASIN #3	
EXIST. DRAINAGE AREA	10.4 AC
PROP. DRAINAGE AREA	12.98 AC
REQ'D STORAGE	46,728 CU.FT.
STORAGE PROV'D @ 354.0	69,485 CU. FT.
WET STORAGE REQ'D	23,364 CU. FT.
WET STORAGE PROV'D @ 351.5	23,364 CU. FT.
CLEANOUT ELEV.	350.0
BOTTOM ELEV.	345.5
Q2 EXIST.	6.8
Q2 PROP.	6.6
EMBANKMENT ELEV. (INITION)	357.5



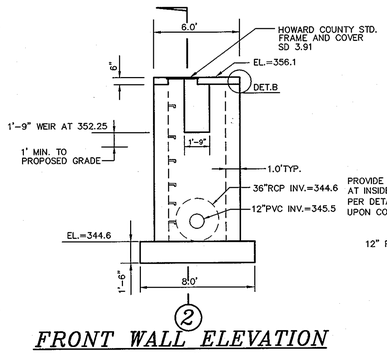
PRINCIPLE SPILLWAY PROFILE

SCALE: 1"=10'



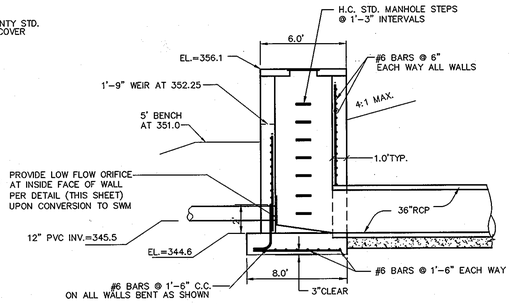
TOP SLAB DETAIL

N.T.S.



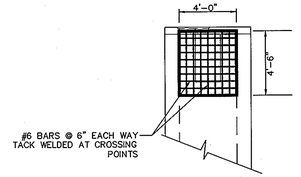
FRONT WALL ELEVATION (2)

N.T.S.



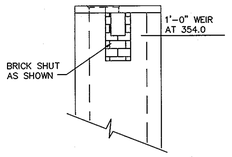
SECTION (2)

N.T.S.



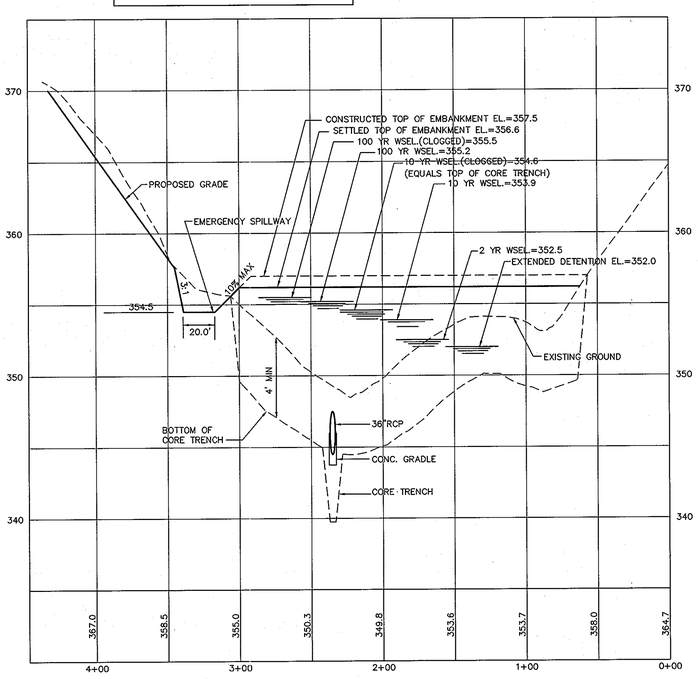
ELEVATION OF TRASH RACK

N.T.S.



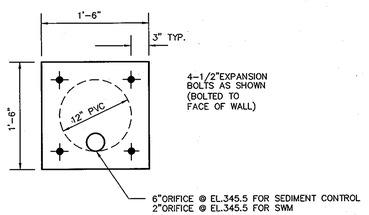
BLOCKING DETAIL FOR TSWM

N.T.S.



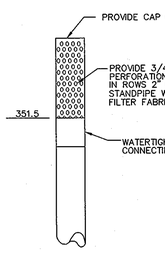
CENTERLINE DAM PROFILE

SCALE: HOR. 1"=50'
VER. 1"=5'

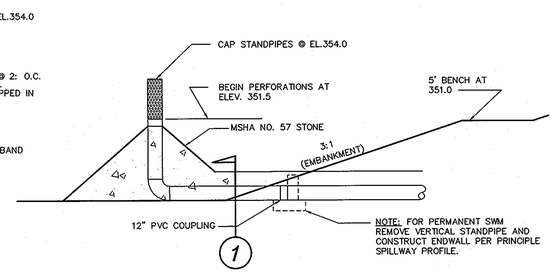


LOW FLOW ORIFICE DETAIL

N.T.S.



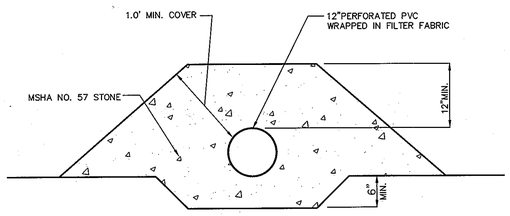
TEMPORARY STANDPIPE DETAIL



TEMPORARY DEWATERING STANDPIPES

DRAW-DOWN DEVICE CONSTRUCTION SPECIFICATIONS

1. PERFORATIONS IN THE DRAW DOWN DEVICE MAY NOT EXCEED INTO THE WET STORAGE.
2. THE TOTAL AREA OB 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 DEV ICE 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.



SECTION (1)

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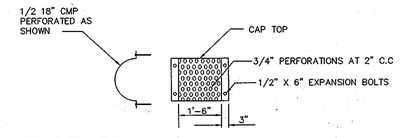
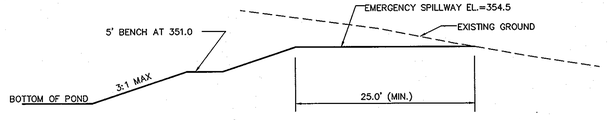


HALF SHELL TRASH RACK



EMERGENCY SPILLWAY PROFILE

SCALE: 1"=10'

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.

P.E. NO.: _____

SIGNATURE _____ DATE: _____

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 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 12/6/01

Bruce Taylor Pres
PRINTED NAME OF DEVELOPER

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS 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 12/6/01

PRINTED NAME OF ENGINEER

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 12/12/01

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 12/12/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS _____ DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE 2/3/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 12/28/01

F:\99072\PHASE 1\FINAL\SWM-3

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

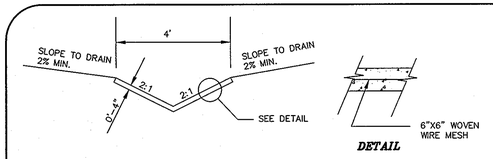
project	date
99072	DEC.2001
illustration	engineering
MMP	MMP
scale	approval
AS SHOWN	JBM

no.	description	date
	revisions	

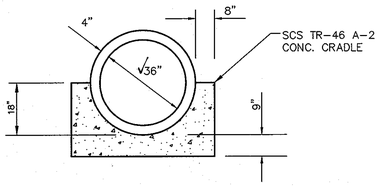
AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 4 & 75
HOWARD COUNTY, MARYLAND
SECOND ELECTION DISTRICT
SWM PLAN, PROFILES AND DETAILS, POND #3

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.

AS BUILT F-01-23



DETAIL OF PILOT CHANNEL
N.T.S.



DETAIL OF CONCRETE CRADLE
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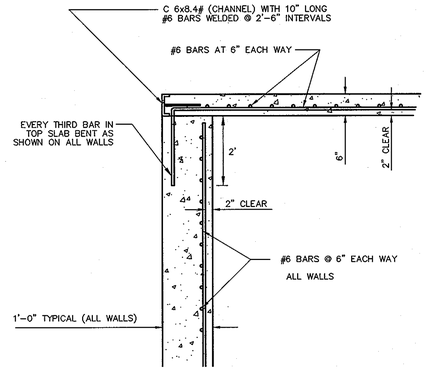
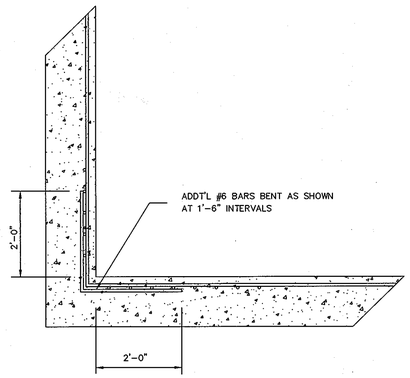


DETAIL B
N.T.S.



CORNER TREATMENT DETAIL C
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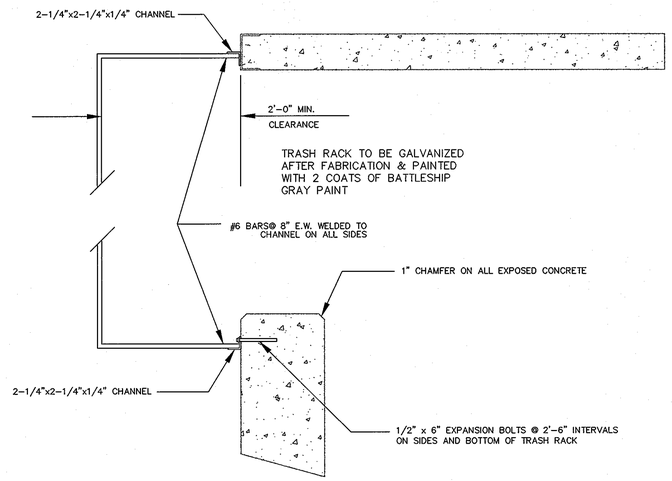
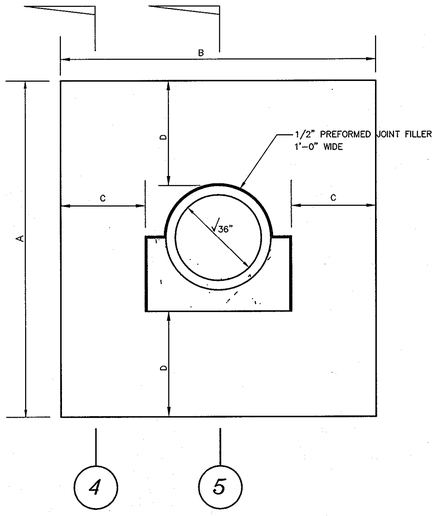


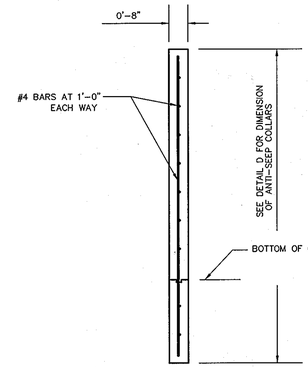
SECTION 3
N.T.S.

	POND # 2	POND # 3
A	8'-5"	8'-11"
B	9'-0"	9'-6"
C	2'-0"	2'-3"
D	2'-0"	2'-3"

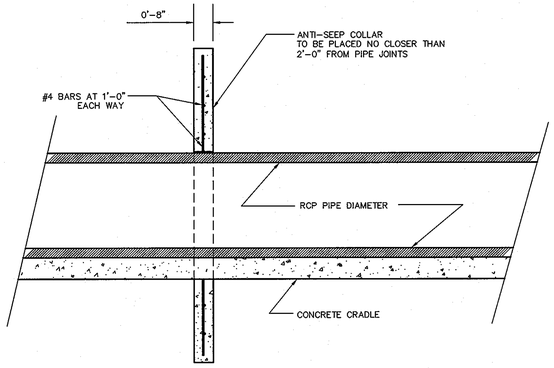


4 5

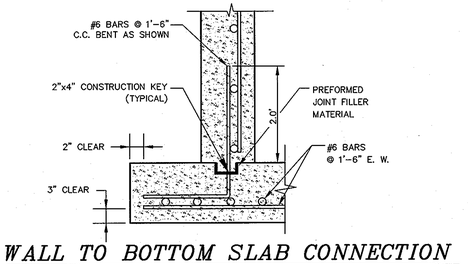
ANTI-SEEP COLLAR DETAIL D
N.T.S.



SECTION 4
N.T.S.



SECTION 5
N.T.S.



WALL TO BOTTOM SLAB CONNECTION DETAIL
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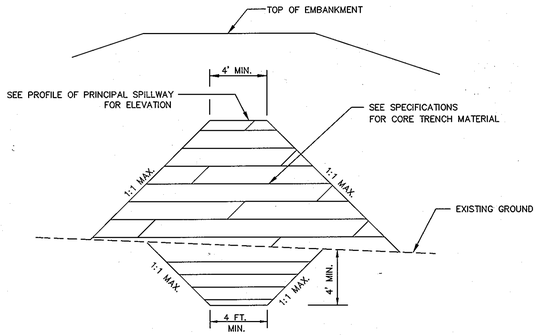

CORE TRENCH DETAIL
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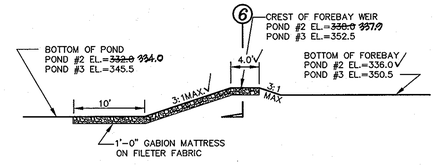
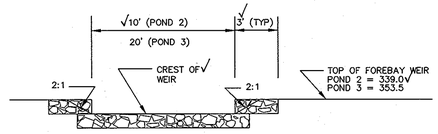


DETAIL OF FOREBAY WEIR
N.T.S.



FOREBAY WEIR SECTION 6
N.T.S.

AS-BUIT 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. 13294

DATE: 11/6/01

CERTIFY MEANS TO START 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 ENGINEERS 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 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 12/6/01 DATE

Bruce Taylor Bros
PRINTED NAME OF DEVELOPER

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 12/6/01 DATE

Louis Mildenberg
PRINTED NAME OF ENGINEER

STATE OF MARYLAND — LOUIS MILDENBERG — No. 13294 — PROFESSIONAL ENGINEER

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 12/18/01 DATE

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

HOWARD SOIL CONSERVATION DISTRICT 12/18/01 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS 1-30-02 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT 2/5/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 12/28/01 DATE

OWNER/DEVELOPER
BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

99072\PHASE 1\FINAL\SWM-DET

project	date
99072	DEC.2001
illustration	engineering
MMP	MMP
scale	approval
AS SHOWN	JBM

no.	description	date
1	REVISIONS PER "AS BUILT"	1/6/02

AUTUMN VIEW, SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND 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.

STATE OF MARYLAND — LOUIS MILDENBERG — No. 13294 — PROFESSIONAL ENGINEER
AS BUILT 1/6/02
FISHER, COLLINS AND CARTER, INC.

AS BUILT F-01-23

POND 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

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED TO THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 50 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 DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUALITY 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 GC, SC, CH, OR CL. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

PLACEMENT– AREAS ON WHICH FILL IS TO BE 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 AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSE BY NOT LESS THAN ONE TREAD TRACK OF THE 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.

WHERE A MINIMUM REQUIRED DENSITY IS SPECIFIED, IT SHALL NOT BE LESS 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

CUT OFF TRENCH– THE CUFF OFF 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.

STRUCTURE 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 MATERIAL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND 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 FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE– ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:
1. MATERIALS– (STEEL PIPE)– THIS PIPE AND ITS APPURTENANCE SHALL BE GALVANIZED AND FULLY BITUMINOUS COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M–190 TYPE A WITH WATERTIGHT COUPLING BANDS. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THE FOLLOWING COATINGS OR AN APPROVED EQUAL MAY BE USED: NEXON, PLASTI–COTE, BLAC–KLAD, AND BETH–CU–LOY. COATED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M–245 AND M–246.

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. ANY ALUMINUM COATING DAMAGED OF OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND.?

MATERIALS–(ALUMINUM PIPE)– THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M–196 OR M–211 WITH WATERTIGHT COUPLINGS BANDS OR FLANGES. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER. 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 AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE 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–STEEP 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 OF NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE–ROLLED AND ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BAND WIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPE LESS THAN 24" IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE, A 12" WIDE STANDARD LAP TYPE BAND WITH 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12" WIDE HUGGER TYPE BAND WITH 0–RING GASKETS HAVING MINIMUM DIAMETER OF 1/2" GREATER THAN THE CORRUGATION DEPTH. PIPES 24: IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24" LONG ANNULAR CORRUGATED BAND USING RODS AND LUGS. A 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED ON THE END OF EACH PIPE FOR A TOTAL OF 24"

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS 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 DESIGNATION C–361.

2. BEDDING– ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING FOR THEIR ENTIRE LENGTH. THIS BEDDING SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 10% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 3 INCHES, OR AS SHOWN ON THE DRAWINGS.

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 2 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.

POLYVINYL CHLORIDE (PVC) PIPE– ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR POLYVINYL CHLORIDE (PVC) PIPE:

1. MATERIALS–PVC PIPE SHALL BE PVC–1120 OR PVC–1220 CONFORMING TO ASTM D–1785 OR ASTM D–2241.

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. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

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

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 905.

THE RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIPRAP IN PLACE SHALL BE REASONABLY HOMOGENOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. FILTER CLOTH SHALL BE REPLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 919.12.?

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON THE 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 THE 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 OF THE REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL AND 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 TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY 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 MARYLAND SOIL 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 TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS.

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.

GEOTECHNICAL RECOMENDATIONS: EMBANKMENT AND CUT–OFF TRENCH CONSTRUCTION

THE SITE SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OT STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES.
AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES REESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.
A REPRESENTATIVE OF GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR EMBANKMENT AND CUT–OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT–OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, SH OR CL. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SSC 378 SPECIFICATIONS.

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.

P.E. NO.: ____________

SIGNATURE ____________ DATE: ____________

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 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."

Bruce Taylor Pres — 12/6/01
SIGNATURE OF DEVELOPER — DATE
Bruce Taylor, Pres
PRINTED NAME OF DEVELOPER

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] — 12/6/01
SIGNATURE OF ENGINEER — DATE
JOHN MILDENBERG
PRINTED NAME OF ENGINEER

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.

Jim Myers /CS — 1/17/02
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

[signature] — 1/17/02
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] — 1-30-02
CHIEF BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

Cindy Hamilton — 2/5/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] for — 12/28/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

[Professional engineer seal: STATE OF MARYLAND ... 10020 ... PROFESSIONAL ENGINEER]

99072\PHASE 1\DWG\FINAL\SWM–SPEC

HILLIS – CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

PROJECT NAME: AUTUMN VIEW SEC.5 BORING # B–4
LOCATION : HOWARD COUNTY, MARYLAND JOB # 99354B

DATUM ______ HAMMER WT. 140LBS. HOLE DIAMETER 6" FOREMAN K. CALLENDER
SURF. ELEV. ______ HAMMER DROP 30 INCHES ROCK CORE DIA. ______ INSPECTOR ______
DATE STARTED 10–25–99 PIPE SIZE 2 INCHES OD BORING METHOD HSA DATE COMPLETE 10–25–99

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
	SURFACE	—	0.0					
	BROWN/GRAY, MOIST, MEDIUM STIFF TO VERY STIFF, SANDY SILT WITH SOME ROCK FRAGMENTS (ML) USDA–LOAM			I	2–5–4	1	18"	4" TOPSOIL
				D	35–11–15	2	18"	NO GROUNDWATER ENCOUNTERED WHILE DRILLING
	BROWN/GREEN, MOIST, STIFF TO VERY STIFF, SILT, SIME FINE SAND, TRACE WEATHERED ROCK FRAGMENTS (ML) USDA–SANDY LOAM	4.5	5	D	6–6–9	3	18"	* CAVED IN AT 10.7' AT COMPLETION
				I	5–6–8	4	18"	** CAVED IN AT 10.7' AFTER 24 HOURS
			10	I	6–10–14	5	18"	GROUNDWATER ENCOUNTERED AT 3.0'
	BROWN, MOIST, MEDIUM DENSE TO DENSE FINE SILTY SAND, LITTLE MICA AND ROCK FRAGMENTS (SM) USDA–SANDY LOAM	12.5	15	I	9–11–17	6	18"	
				I	28–24–22	7	18"	
	BOTTOM HOLE AT 20.0'	20.0	20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT–PRESSED SHELBY TUBE CA–CONTINUOUS FLIGHT AUGER RC–ROCK CORE
SAMPLER CONDITIONS: D–DISINTEGRATED I–INTACT U–UNDISTURBED L–LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT. AFTER 24r 10.5 FT. AFTER ______ FT.
BORING METHOD: HSA–HOLLOW STEM AUGERS CFA–CONT. FLIGHT AUGERS DC–DRIVING CASING MD–MUD DRILLING

STANDARD PENETRATION TEST–DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS – CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

PROJECT NAME: AUTUMN VIEW, SEC 5 BORING # B–5
LOCATION : HOWARD COUNTY, MARYLAND JOB # 99354B

DATUM ______ HAMMER WT. 140LBS. HOLE DIAMETER 6" FOREMAN K. CALLENDER
SURF. ELEV. ______ HAMMER DROP 30 INCHES ROCK CORE DIA. ______ INSPECTOR ______
DATE STARTED 10–25–99 PIPE SIZE 2 INCHES OD BORING METHOD HSA DATE COMPLETE 10–25–99

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
	SURFACE	—	0.0					
	BROWN, MOIST, MEDIUM STIFF, CLAYEY SILT TRACE FINE SAND (MH) USDA–SILTY CLAY LOAM			I	1–4–5	1	18"	5" TOPSOIL
	BROWN/GRAY, MOIST, MEDIUM DENSE, SSANDY SILT, SOME ROCK FRAGMENTS (ML–SM) USDA–SANDY LOAM	2.0		D	17–14–15	2	18"	NO GROUNDWATER ENCOUNTERED WHILE DRILLING
	BROWN/GREEN, MOIST, STIFF TO VERY STIFF, SILT, JITTLE FINE SAND, TRACE CLAY (ML) USDA–LOAM	4.5	5	I	7–8–8	3	18"	* CAVED IN AT 10.0' AT COMPLETION
				I	6–7–7	4	18"	** CAVED IN AT 4.4' AFTER 24 HOURS
			10	D	7–9–13	5	18"	BACKFILLED AFTER 24 HOURS
	BROWN, MOIST, MEDIUM DENSE TO VERY DENSE, MICACEOUS FINE SILTY SAND, TRACE ROCK FRAGMENTS (SM) USDA–SANDY LOAM	12.0	15	D	8–10–13	6	18"	
				D	21–28–36	7	18"	
	BOTTOM OF HOLE AT 20.0'		20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT–PRESSED SHELBY TUBE CA–CONTINUOUS FLIGHT AUGER RC–ROCK CORE
SAMPLER CONDITIONS: D–DISINTEGRATED I–INTACT U–UNDISTURBED L–LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT. AFTER 24 HR DRY FT. AFTER ______ FT.
BORING METHOD: HSA–HOLLOW STEM AUGERS CFA–CONT. FLIGHT AUGERS DC–DRIVING CASING MD–MUD DRILLING

STANDARD PENETRATION TEST–DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS – CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

PROJECT NAME: AUTUMN VIEW, SEC 5 BORING # B–6
LOCATION : HOWARD COUNTY, MARYLAND JOB # 99354B

DATUM ______ HAMMER WT. 140LBS. HOLE DIAMETER 6" FOREMAN K. CALLENDER
SURF. ELEV. ______ HAMMER DROP 30 INCHES ROCK CORE DIA. ______ INSPECTOR ______
DATE STARTED 10–25–99 PIPE SIZE 2 INCHES OD BORING METHOD HSA DATE COMPLETE 10–25–99

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
	SURFACE	—	0.0					
	BROWN, STIFF, MOIST, SILT, LITTLE CLAY AND FINE SAND, TRACE ROOTMATTER (ML–MH)			D	1–2–1	1	18"	HOARD ROSK LAYER 7–8' / 6" TOPSOIL
	BROWN, MOIST, HARD, SILT, LITTLE CLAY AND FINE SAND (ML) USDA–LOAM	2.0		I	10–14–16	2	18"	NO GROUNDWATER ENCOUNTERED WHILE DRILLING
	BROWN, VERY MOIST, DENSE, FINE CLAYEY SAND TRACE ROCK FRAGMENTS (SC) USDA–SANDY LOAM	4.5	5	D	10–13–17	3	18"	* CAVED IN AT 10.5' AT COMPLETION
				I	21–17–15	4	18"	** CAVED IN AT 10.5' AFTER 24 HOURS
	BROWN/ORANGE/GRAY, MOIST, HARD SILTY CLAY–TRACE FINE SAND (CL) USDA–CLAY LOAM	10.0	10	I	14–16–18	5	18"	BACKFILLED AFTER 24 HOURS
	BROWN, DRY, VERY STIFF, SANDY CALY, SOME ROCK FRAGMENTS (CL) USDA–CLAY LOAM	12.0		D	21–16–13	6	18"	
	GREEN/GRAY/WHITE MOIST, STIFF SILT, SOME FINE SAND, TRACE CLAY (ML) USDA–LOAM	15.5	15	I	5–4–10	7	12"	
	BOTTOM OF HOLE AT 20.0'		20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT–PRESSED SHELBY TUBE CA–CONTINUOUS FLIGHT AUGER RC–ROCK CORE
SAMPLER CONDITIONS: D–DISINTEGRATED I–INTACT U–UNDISTURBED L–LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT. AFTER 24 HR DRY FT. AFTER ______ FT.
BORING METHOD: HSA–HOLLOW STEM AUGERS CFA–CONT. FLIGHT AUGERS DC–DRIVING CASING MD–MUD DRILLING

STANDARD PENETRATION TEST–DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS – CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

PROJECT NAME: AUTUMN VIEW, SEC 5 BORING # B–7
LOCATION : HOWARD COUNTY, MARYLAND JOB # 99354B

DATUM ______ HAMMER WT. 140LBS. HOLE DIAMETER 6" FOREMAN K. CALLENDED
SURF. ELEV. ______ HAMMER DROP 30 INCHES ROCK CORE DIA. ______ INSPECTOR ______
DATE STARTED 10–26–99 PIPE SIZE 2 INCHES OD BORING METHOD HSA DATE COMPLETE 10–26–99

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
	SURFACE	—	0.0					
	DARK BROWN TO BROWN, MOIST, STIFF, SILT, SOME FINE SAND, TRACE TO LITTLE CLAY AND MICA (ML) USDA–LOAM			D	1–4–8	1	18"	6" TOPSOIL
				I	3–4–8	2	18"	NO GROUNDWATER ENCOUNTERED WHILE DRILLING
	BROWN ORANGE, MOIST, MEDIUM DENSE FINE SILTY SAND, TRACE MICA AND WEATHERED ROCK FRAGMENTS (SM) USDA–SANDY LOAM	4.5	5	I	3–5–7	2	18"	* CAVED IN AT 11.4' AT COMPLETION
				D	5–7–8	4	18"	** CAVED IN AT 10.6' AFTER 24 HOURS
			10	D	4–6–8	5	18"	BACKFILLED AFTER 24 HOURS
	GRAY/GREEN/WHITE, MOIST, MEDIUM DENSE, FINE SILTY SAND TRACE ROCK FRAGMENTS (SM) USDA–SANDY LOAM	13.0	15	D	4–6–11	6	18"	
				D	7–5–7	7	18"	
	BOTTOM OF HOLE AT 20.0'		20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT–PRESSED SHELBY TUBE CA–CONTINUOUS FLIGHT AUGER RC–ROCK CORE
SAMPLER CONDITIONS: D–DISINTEGRATED I–INTACT U–UNDISTURBED L–LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT. AFTER 24 HR. DRY FT. AFTER ______ FT.
BORING METHOD: HSA–HOLLOW STEM AUGERS CFA–CONT. FLIGHT AUGERS DC–DRIVING CASING MD–MUD DRILLING

STANDARD PENETRATION TEST–DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS – CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

PROJECT NAME: AUTUMN VIEW, SEC.5 BORING # B–8
LOCATION : HOWARD COUNTY, MARYLAND JOB # 99354B

DATUM ______ HAMMER WT. 140LBS. HOLE DIAMETER 6" FOREMAN K. CALLENDER
SURF. ELEV. ______ HAMMER DROP 30 INCHES ROCK CORE DIA. ______ INSPECTOR ______
DATE STARTED 10–26–99 PIPE SIZE 2 INCHES OD BORING METHOD HSA DATE COMPLETE 10–26–99

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
	SURFACE	—	0.0					
	BROWN, MOIST, MEDIUM STIFF, SILT, LITTLE FINE SAND AND CLAY, TRACE MICA AND SOME FINE ROOTMATER (ML) USDA–LOAM			D	1–2–4	1	18"	4" TOPSOIL
				D	3–4–5	2	18"	NO GROUNDWATER ENCOUNTERED WHILE DRILLING
			5	D	3–4–6	3	18"	* CAVED IN AI 10.7' AT COMPLETION
	BROWN TO GRAY, MOIST, MEDIUM DENSE TO DENSE, FINE SILTY SAND, TRACE MICA SND ROCK FRAGMENTS (SM) USDA–SANDY LOAM	7.0		D	5–7–9	4	18"	** CAVED IN AT 10.8' AFTER 24 HOURS
			10	D	15–17–20	5	18"	BACKFILLED AFTER 24 HOURS
			15	D	8–12–16	6	18"	
	ORANGE BROWN, MOIST, DENSE, FINE SANDY SILT, TRACE MOCA (ML) USDA–LOAM	5.5		D	14–18–26	7	18'	
	BOTTON OF HOLE AT 20.0'		20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT–PRESSED SHELBY TUBE CA–CONTINUOUS FLIGHT AUGER RC–ROCK CORE
SAMPLER CONDITIONS: D–DISINTEGRATED I–INTACT U–UNDISTURBED L–LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT. AFTER 24 HR DRY FT. AFTER ______ FT.
BORING METHOD: HSA–HOLLOW STEM AUGERS CFA–CONT. FLIGHT AUGERS DC–DRIVING CASING MD–MUD DRILLING

STANDARD PENETRATION TEST–DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS – CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

PROJECT NAME: AUTUMN VIEW, SWC.5 BORING # B–9
LOCATION : HOWARD COUNTY, MARYLAND JOB # 99354B

DATUM ______ HAMMER WT. 140LBS. HOLE DIAMETER 6" FOREMAN K. CALLENDER
SURF. ELEV. ______ HAMMER DROP 30 INCHES ROCK CORE DIA. ______ INSPECTOR ______
DATE STARTED 10–25–99 PIPE SIZE 2 INCHES OD BORING METHOD HSA DATE COMPLETE 10–25–99

ELEV.	SOIL DESCRIPTION (COLOR,MOISTURE,DENSITY,SIZE,PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
	SURFACE	—	0.0					
	BROWN, MOIST, SOFT TO VERY STIFF, SILT, LITTLE TO SOME CLAY, TRACE FINE SAND AND MICA (ML–MH) USDA–LOAM/SILTY CLAY LOAM			D	1–2–2	1	18"	4" TOPSOIL
				I	4–5–8	2	18"	NO GROUNDWATER ENCOUNTERED WHILE DRILLING
			5	I	9–10–12	3	18"	* CAVED IN AT 11.0' AT COMPLETION
	BROWN, MOIST, VERY STIFF, CLAYEY SILT WITH QUARTZ GRAVEL (MH) USDA–SILTY CLAY LOAM	7.0		D	6–9–11	4	18"	AFTER 24 HOURS REFUSED AT 5.0'
	TAN TO GRAY/WHITE, MOIST, MEDIUM DENSE TO DENSE, SILTY SAND WITH SOME ROCK FRAGMENTS (SM) USDA–SANDY LOAM	9.5	10	D	6–10–13	5	18"	BACKFILLED AFTER 24 JOURS
			15	D	6–9–13	6	18"	
				D	9–14–17	7	18"	
	BOTTOM OF HOLE AT 20.0'		20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT–PRESSED SHELBY TUBE CA–CONTINUOUS FLIGHT AUGER RC–ROCK CORE
SAMPLER CONDITIONS: D–DISINTEGRATED I–INTACT U–UNDISTURBED L–LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT. AFTER 24 HR 11.9 FT. AFTER ______ FT.
BORING METHOD: HSA–HOLLOW STEM AUGERS CFA–CONT. FLIGHT AUGERS DC–DRIVING CASING MD–MUD DRILLING

STANDARD PENETRATION TEST–DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

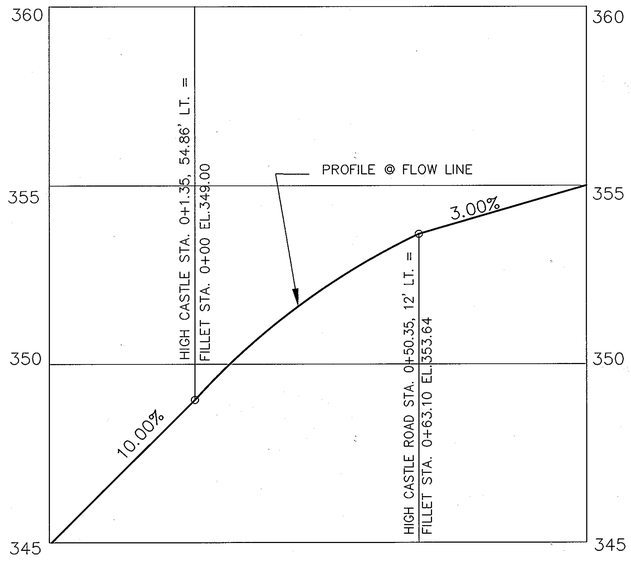
project	date
99072	DEC. 2001
illustration	engineering
MMP	MMP
scale	approval
NTS	JBM

no.	description / revisions	date

AUTUMN VIEW, SECTION 5, PHASE 1
LOTS: 211–259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SWM SPECIFICATIONS AND SOIL BORINGS

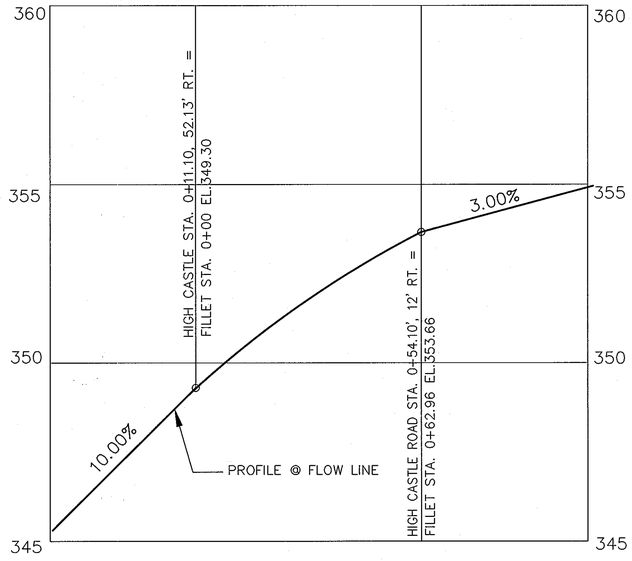
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997–0296 Balt. (301) 621–5521 Wash. (410) 997–0298 Fax.

AS BUILT F-01-23



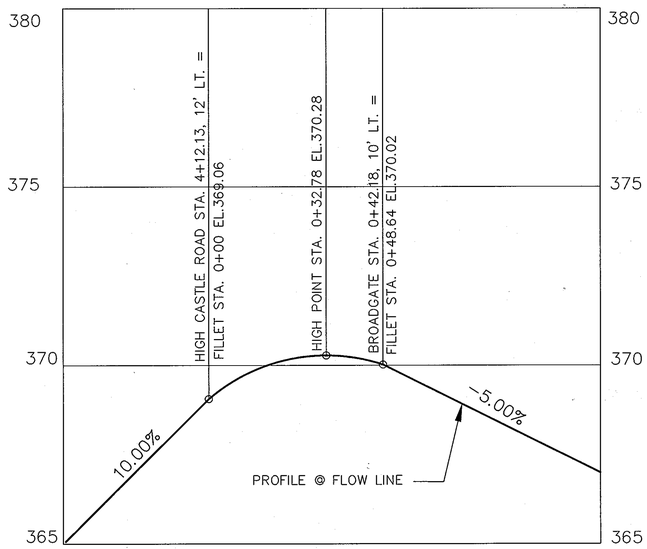
COLLEGE AVENUE LEFT TURN TO HIGH CASTLE ROAD

SCALE: HOR. 1" = 20', VER 1" = 2'



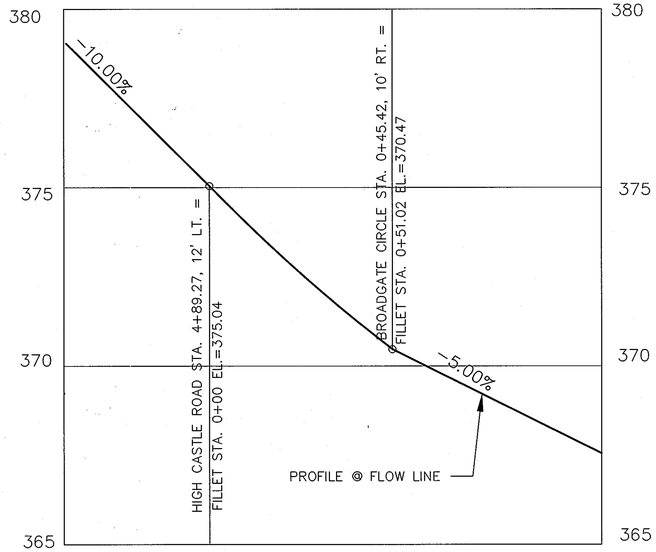
COLLEGE AVENUE RIGHT TURN TO HIGH CASTLE ROAD

SCALE: HOR. 1" = 20', VER 1" = 2'



HIGH CASTLE ROAD LEFT TURN TO BROADGATE CIRCLE

SCALE: HOR. 1" = 20', VER 1" = 2'



HIGH CASTLE ROAD RIGHT TURN TO BROADGATE CIRCLE

SCALE: HOR. 1" = 20', VER 1" = 2'

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/5/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/28/01

STATE OF MARYLAND — JAMES B. MILDENBERG — 7002 — PROFESSIONAL ENGINEER

F:\00-021\DWG\FINAL\FILL-PROF.DWG

project 99072 | date DEC.2001
illustration SAA | engineering SAA
scale AS SHOWN | approval JBM

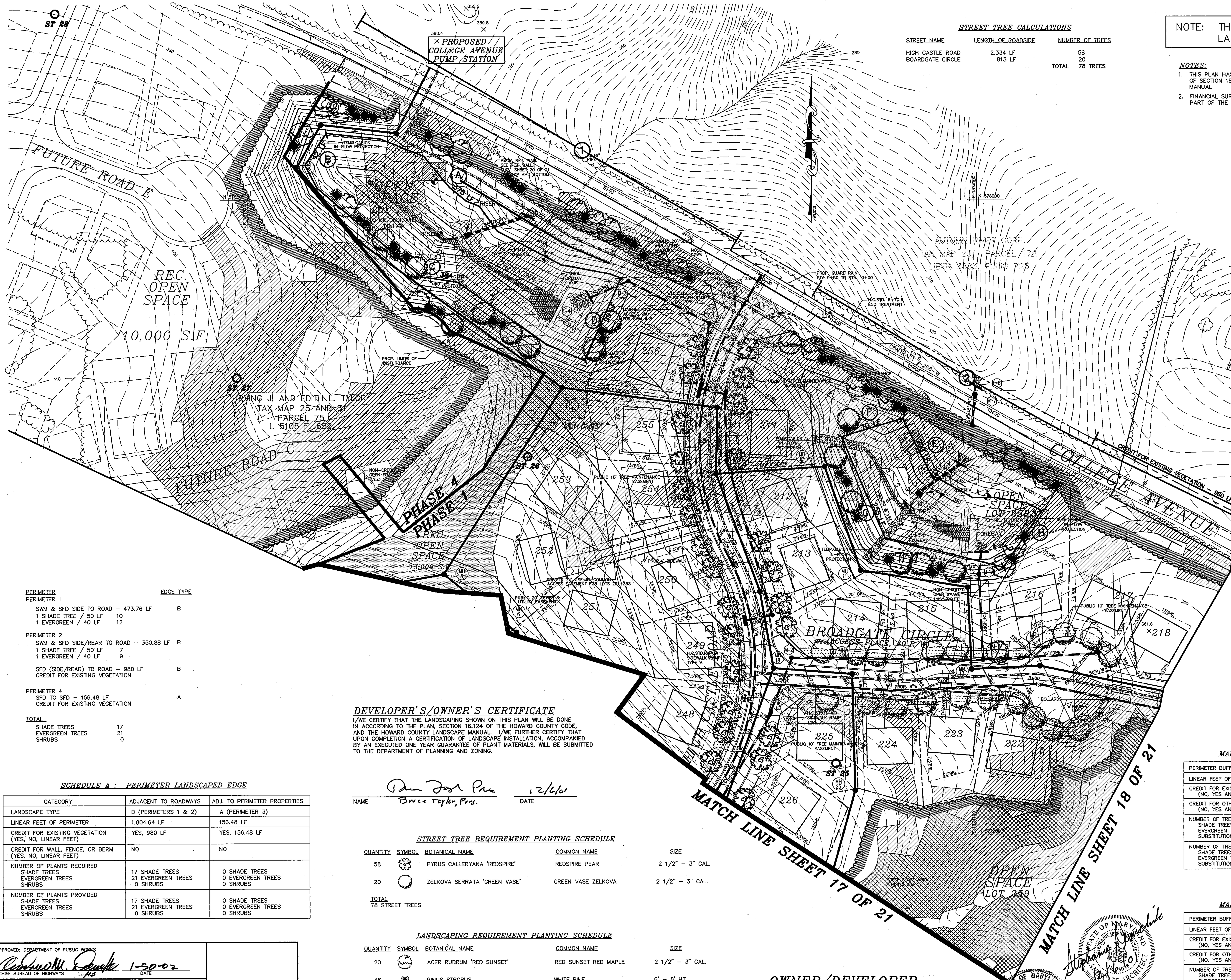
no.	description / revisions	date

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
HOWARD COUNTY, MARYLAND
SECOND ELECTION DISTRICT

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.

AS BUILT F-01-23



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

STREET TREE CALCULATIONS

STREET NAME	LENGTH OF ROADSIDE	NUMBER OF TREES
HIGH CASTLE ROAD	2,334 LF	58
BOARDGATE CIRCLE	813 LF	20
	TOTAL	78 TREES

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
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $17,400.00.

LEGEND

- DENOTES AREA OF 15%-24.99% SLOPES
- DENOTES AREA OF 25% SLOPES OR GREATER
- (#) DENOTES PERIMETER LANDSCAPE EDGE

SWM #3 PERIMETER EDGE

SWM PERIMETER		EDGE TYPE
SWM PERIMETER A – 375 LF CREDIT FOR PERIMETER #1 LANDSCAPING		B
SWM PERIMETER B – 42 LF		B
1 SHADE TREE / 50 LF	1	
1 EVERGREEN / 40 LF	1	
SWM PERIMETER C – 384 LF		B
1 SHADE TREE / 50 LF	8	
1 EVERGREEN / 40 LF	10	
SWM PERIMETER D – 99 LF		B
1 SHADE TREE / 50 LF	2	
1 EVERGREEN / 40 LF	2	
TOTAL PLANTING OBLIGATION		
SHADE TREES	11	
EVERGREEN TREES	13	
SHRUBS	0	

SWM #2 PERIMETER EDGE

SWM PERIMETER		EDGE TYPE
SWM PERIMETER E – 200 LF CREDIT FOR PERIMETER #1 LANDSCAPING		B
SWM PERIMETER F – 70 LF		B
1 SHADE TREE / 50 LF	1	
1 EVERGREEN / 40 LF	2	
SWM PERIMETER G – 255 LF		B
1 SHADE TREE / 50 LF	5	
1 EVERGREEN / 40 LF	6	
SWM PERIMETER D – 75 LF		B
1 SHADE TREE / 50 LF	2	
1 EVERGREEN / 40 LF	2	
TOTAL PLANTING OBLIGATION		
SHADE TREES	8	
EVERGREEN TREES	10	
SHRUBS	0	

PERIMETER		EDGE TYPE
PERIMETER 1		
SWM & SFD SIDE TO ROAD – 473.76 LF		B
1 SHADE TREE / 50 LF	10	
1 EVERGREEN / 40 LF	12	
PERIMETER 2		
SWM & SFD SIDE/REAR TO ROAD – 350.88 LF		B
1 SHADE TREE / 50 LF	7	
1 EVERGREEN / 40 LF	9	
SFD (SIDE/REAR) TO ROAD – 980 LF CREDIT FOR EXISTING VEGETATION		B
PERIMETER 4		
SFD TO SFD – 156.48 LF CREDIT FOR EXISTING VEGETATION		A
TOTAL		
SHADE TREES	17	
EVERGREEN TREES	21	
SHRUBS	0	

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJ. TO PERIMETER PROPERTIES
LANDSCAPE TYPE	B (PERIMETERS 1 & 2)	A (PERIMETER 3)
LINEAR FEET OF PERIMETER	1,804.64 LF	156.48 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 980 LF	YES, 156.48 LF
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	17 SHADE TREES 21 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	17 SHADE TREES 21 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS

DEVELOPER'S/OWNER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE IN ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE, AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: Bruce Taylor, Pres. — DATE: 12/6/01

STREET TREE REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
58		PYRUS CALLERYANA 'REDSPIRE'	REDSPIRE PEAR	2 1/2" – 3" CAL.
20		ZELKOVA SERRATA 'GREEN VASE'	GREEN VASE ZELKOVA	2 1/2" – 3" CAL.

TOTAL
78 STREET TREES

LANDSCAPING REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
20		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.
46		PINUS STROBUS	WHITE PINE	6' – 8' HT.
15		ZELKOVA SERRATA 'GREEN VASE'	GREEN VASE ZELKOVA	2 1/2" – 3" CAL.

TOTAL
81 TREES (35 SHADE TREES, 46 EVERGREENS)

SCHEDULE D : STORMWATER MANAGEMENT AREA #3 LANDSCAPING

PERIMETER BUFFER TYPE	B
LINEAR FEET OF PERIMETER	900 LF (PERIMETERS A THRU D)
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	YES, 375 LF
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES SUBSTITUTION TREES (2:1)	11 SHADE TREES 13 EVERGREEN TREES 0 SUBSTITUTION TREES
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES SUBSTITUTION TREES (2:1)	10 SHADE TREES 13 EVERGREEN TREES 2 SUBSTITUTION TREES

SCHEDULE D : STORMWATER MANAGEMENT AREA #2 LANDSCAPING

PERIMETER BUFFER TYPE	B
LINEAR FEET OF PERIMETER	600 LF (PERIMETERS E THRU H)
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	YES, 200 LF
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES SUBSTITUTION TREES (2:1)	8 SHADE TREES 10 EVERGREEN TREES 0 SUBSTITUTION TREES
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES SUBSTITUTION TREES (2:1)	8 SHADE TREES 10 EVERGREEN TREES 0 SUBSTITUTION TREES

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/05/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ — DATE 12/28/01

OWNER/DEVELOPER
BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

STATE OF MARYLAND — LANDSCAPE ARCHITECT — 12/6/01
STATE OF MARYLAND — PROFESSIONAL ENGINEER
ASBUILT 1/6/09 FISHER COLLINS AND CARTER INC.

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project	date
99072	DEC 2001
illustration	engineering
MMP/SJD	SJD
scale	approval
1"=50'	JBM

no.	description	date
1	REVISIONS PER ROAD AS-BUILT	1/6/09

revisions

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211–259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
LANDSCAPE 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.

AS BUILT F-01-23

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE 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.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $ 17,400.00.
3. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
4. SEE SHEET 18 FOR SCHEDULES A & D, PLANTING SCHEDULES, AND PERIMETER EDGE CALCULATIONS.

LEGEND

- DENOTES AREA OF 15%-24.99% SLOPES
- DENOTES AREA OF 25% SLOPES OR GREATER
- DENOTES PERIMETER LANDSCAPE EDGE

DEVELOPER'S/OWNER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE IN ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE, AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME Bruce Taylor, Pres. DATE 12/6/01

APPROVED: DEPARTMENT OF PUBLIC WORKS CHIEF BUREAU OF HIGHWAYS DATE 1-30-02	
APPROVED: DEPARTMENT OF PLANNING AND ZONING CHIEF, DIVISION OF LAND DEVELOPMENT DATE 2/5/02	
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 12/27/01	

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

STATE OF MARYLAND — STEPHEN J. JENEWEIN — No. 21320 — LANDSCAPE ARCHITECT — 12/27/01

STATE OF MARYLAND — JAMES B. MILDENBERG — No. 7320 — REGISTERED PROFESSIONAL ENGINEER

AS BUILT 1/6/09
FISHER COLLINS AND CARTER INC.

project	date
99072	DEC 2001
illustration	engineering
MMF/SJD	SJD
scale	approval
1"=50'	JBM

no.	description	date
1	REVISIONS PER ROAD DEVELOPER	1/6/09

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
LANDSCAPE PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.

AS BUILT F-01-23

F:\99072\PHASE 1\FINAL\LANDSCAPE-2.DWG

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE 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.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $ 17,400.00.
3. SEE SHEET 18 FOR SCHEDULES A & D, PLANTING SCHEDULES, AND PERIMETER EDGE CALCULATIONS.

LEGEND

- DENOTES AREA OF 15%-24.99% SLOPES
- DENOTES AREA OF 25% SLOPES OR GREATER
- (#) DENOTES PERIMETER LANDSCAPE EDGE

DEVELOPER'S/OWNER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE IN ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE, AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME Bruce Taylor, P.E. — DATE 12/6/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/5/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/28/01

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O.BOX 396
ELLICOTT CITY, MD 21043

F:\99072\PHASE 1\FINAL LANDSCAPE-3.DWG

project	date
99072	DEC 2001
illustration	engineering
MMP/SJD	SJD
scale	approval
1"=50'	JBM

no.	description	date
	revisions	

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT / HOWARD COUNTY, MARYLAND
LANDSCAPE 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.

AS BUILT F-01-23

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

NOTE :

1. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY RETENTION OF 7.59 ACRES OF FOREST. FINANCIAL SURETY FOR THE ON-SITE RETENTION (7.59 ACRES OR 330,620.40 SQ. FT.) HAS BEEN POSTED AS PART OF THE DEVELOPERS AGREEMENT IN THE AMOUNT OF $66,124.08.
2. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
3. SILT FENCE AND SUPER SILT FENCE SHALL SERVE AS PROTECTIVE FENCING ALONG THE LIMITS OF DISTURBANCE OF THE FORESTED AREAS. ADDITIONAL TREE PROTECTIVE FENCING SHALL BE INSTALLED AS NECESSARY.

SPECIMEN TREE LIST

No#	COMMON NAME	SCIENTIFIC NAME	DIA.	CONDITION
1	Silver Maple	Acer saccharinum	36"	Excellent
3	Red Oak	Quercus rubra	33"	Excellent
4	American Elm	Ulmus americana	40"	Excellent
23	American Beech	Fagus grandifolia	39"	Excellent
24	White Ash	Fraxinus americana	54"	Excellent
25	Tulip Poplar	Liriodendron tulipifera	39"	Excellent
26	Red Oak	Quercus rubra	31"	Excellent
27	Tulip Poplar	Liriodendron tulipifera	38"	Excellent
28	Tulip Poplar	Liriodendron tulipifera	36"	Excellent

GENERAL NOTES

FOREST PROTECTION

1. ALL FOREST RETENTION AREAS SHALL BE TEMPORARILY PROTECTED BY WELL ANCHORED BLAZE ORANGE PLASTIC MESH FENCING AND SIGNAGE 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 DAMAGE TO 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 MAY 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.

NOTE :

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENTS EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, SOIL COMPACTION, OR EXCAVATION, INTRODUCTION OF TOXIC CHEMICALS OR OTHER DISTURBANCES DETRIMENTAL TO THE LIVE SPECIMEN TREES OR CRITICAL ROOT ZONES FOR THESE TREES EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

* **FOR FOREST STAND DELINEATION INFORMATION, SEE PLAN PREPARED BY WILDMAN ENVIRONMENTAL SERVICES, INC.**

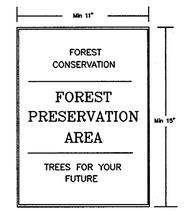
AUTUMN VIEW, SECTIONS 3 THRU 5 (PHASE 1)

FOREST CONSERVATION DATA

		ACRES
I.	BASIC SITE DATA	
	GROSS SITE AREA	137.64
	AREA WITHIN 100 YEAR FLOODPLAIN	6.99
	AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL	0.00
	NET TRACT AREA	130.65
	LAND USE CATEGORY RESIDENTIAL – SUBURBAN	
II.	FOREST CONSERVATION WORKSHEET DATA SUMMARY	
B.	REFORESTATION THRESHOLD (20%)	26.13
C.	AFFORESTATION MINIMUM (15%)	19.60
D.	EXISTING FOREST ON NET TRACT AREA	114.66
E.	FOREST AREAS TO BE CLEARED	65.61
F.	FOREST AREAS TO BE RETAINED	48.81
IV.	REFORESTATION CALCULATIONS	
G.	FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD	65.61
H.	FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD	0.00
I.	FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD	22.68
	REFORESTATION FOR CLEARING ABOVE THRESHOLD	16.40
	CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD	22.68
	TOTAL REFORESTATION REQUIRED	0.00 (6.28 CREDIT)
	TOTAL REFORESTATION PROVIDED	0.00
	RETENTION PROVIDED UNDER AUTUMN VIEW, SECTION 3 (F-99-45)	41.22 (CREDITED)
	RETENTION PROVIDED UNDER AUTUMN VIEW, SECTION 5 (PHASE 1)	7.59
	TOTAL RETENTION PROVIDED UNDER AUTUMN VIEW, SECTION 3 & 5 (PHASE 1)	48.81

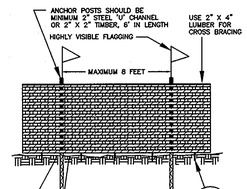
FOREST CONSERVATION TABULATION

EASEMENT A-1 (RETENTION)	3.33 ACRES
EASEMENT B-1 (RETENTION)	4.26 ACRES
TOTAL EASEMENT AREA	7.59 ACRES



SIGNAGE DETAIL

NOT TO SCALE



NOTES
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

PROTECTIVE FENCE DETAIL

BLAZE ORANGE PLASTIC MESH

SOIL CLASSIFICATION CHART

AdB2	(B)	ALDINO SILT LOAM, 3–8% SLOPES, MODERATELY ERODED
AdC2	(C)	ALDINO SILT LOAM, 8–15% SLOPES, MODERATELY ERODED
BrB2	(C)	BRANDYWINE LOAM, 3–8% SLOPES, MODERATELY ERODED
BrC3	(C)	BRANDYWINE LOAM, 8–15% SLOPES, SEVERELY ERODED
BrD3	(C)	BRANDYWINE LOAM, 15–25% SLOPES, SEVERELY ERODED
BrF	(C)	BRANDYWINE LOAM, 25–60% SLOPES
GnB2	(C)	CHILLUM–FAIRFAX LOAMS, 1–5% SLOPES, MODERATELY ERODED
LeB2	(B)	LEGORE SILT LOAM, 3–8% SLOPES, MODERATELY ERODED
LeC2	(B)	LEGORE SILT LOAM, 8–15% SLOPES, MODERATELY ERODED
LgC3	(B)	LEGORE SILTY CLAY LOAM, 8–15% SLOPES, SEVERELY ERODED
Mo	(C)	MIXED ALLUVIAL LAND
MpB2	(C)	MONTALTO SILT LOAM, 3–8% SLOPES, MODERATELY ERODED
MpC2	(C)	MONTALTO SILT LOAM, 8–15% SLOPES, MODERATELY ERODED
MrE	(C)	MONTALTO AND RELAY SOILS, 15–45% SLOPES
MsD	(C)	MONTALTO AND RELAY VERY STINY SILT LOAMS, 3–25% SLOPES
MsF	(C)	MONTALTO AND RELAY VERY STONY SILT LOANS, 25–60% SLOPES
NeB2	(B)	NESHAMINY SILT LOAM, 3–8% SLOPES, MODERATELY ERODED
NeC2	(B)	NESHAMINY SILT LOAM, 8–15% SLOPES, MODERATELY ERODED
WoB	(D)	WATCHUNG SILT LOAM, 3–8% SLOPES

LEGEND

- DENOTES AREA OF 15%–24.99% SLOPES
- DENOTES AREA OF 25% SLOPES OR GREATER
- DENOTES AREA OF 100 YEAR FLOODPLAIN
- DENOTES FOREST CONSERVATION EASEMENT
- DENOTES FOREST CONSERVATION SIGNAGE

AS BUILT 1/09 FISHER COLLINS AND CARTER INC.

MD DNR QUALIFIED PROFESSIONAL

STEPHANIE DEMCHIK

OWNER/DEVELOPER

BONNIE BRANCH, CORPORATION
P.O.BOX. 396
ELLICOTT CITY, MD 21041

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 1-30-02

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CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/5/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/23/02

F:\99072\PHASE 1\FCP.DWG

project 99072 | date DEC 2001
illustration MMP/SJD | engineering SJD
scale 1"=100' | approval JBM

no.	description	date
1	REVISIONS PER "AS BUILT"	1/09

AUTUMN VIEW SECTION 5, PHASE 1
LOTS: 211-259
TAX MAP 25 & 31, P/O PARCEL 75
SECOND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
FOREST CONSERVATION PLAN

MILDENBERG, BOENDER & ASSOC., INC.
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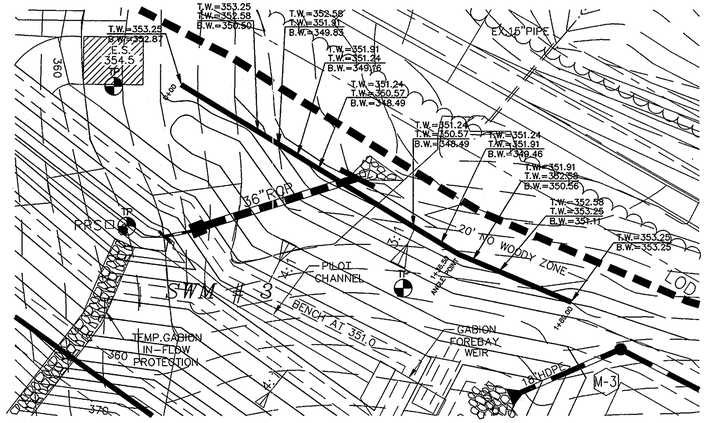
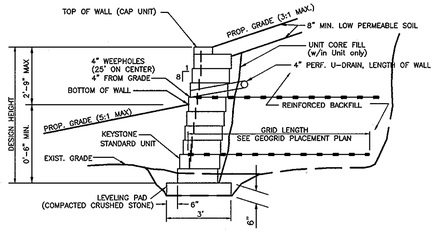
AS BUILT F-01-23

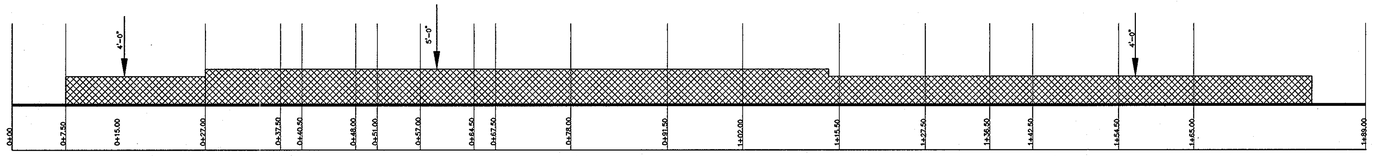


RETAINING WALL – SITE PLAN

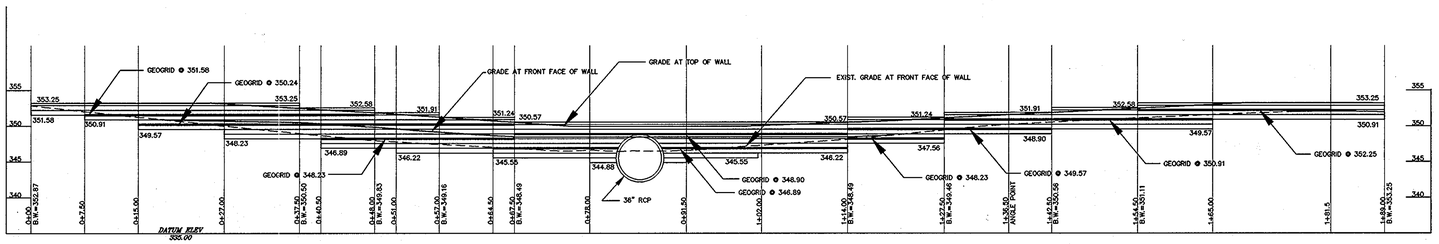
1" =30'



TYPICAL REINFORCED SECTION
STANDARD UNIT – 1" SETBACK

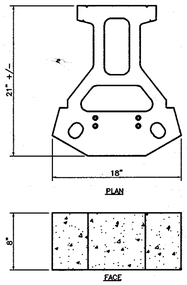


KEYSTONE PLAN – GEOGRID PLACEMENT

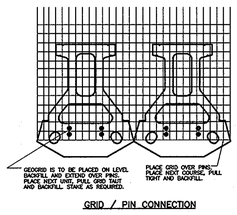


KEYSTONE RETAINING WALL – ELEVATION

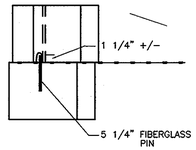
SCALE: 1"=10'



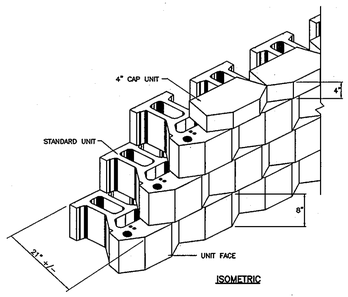
KEYSTONE STANDARD UNIT
SCALE: NONE



GRID / PIN CONNECTION



GRID CONNECTION



ISOMETRIC

KEYSTONE STD.UNIT

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/5/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/23/02

STATE OF MARYLAND — 10020 — PROFESSIONAL ENGINEER

RETAINING WALL – SPECIFICATIONS

2.02 MODULAR CONCRETE RETAINING WALL UNITS

A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:

FACE COLOR – STANDARD MANUFACTURERS' COLOR OR CUSTOM COLOR AS SPECIFIED BY THE OWNER.

FACE FINISH – SCULPTURED ROCK FACE IN ANGULAR MULTIPLANER CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.

BOND CONFIGURATION – RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.

EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING.

B. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING MATERIAL REQUIREMENTS:

1. CEMENT – MATERIALS SHALL CONFORM TO THE FOLLOWING APPLICABLE SPECIFICATIONS.

A. PORTLAND CEMENT – ASTM C 150

B. MODIFIED PORTLAND CEMENT – PORTLAND CEMENT CONFORMING TO ASTM C 150, MODIFIED AS FOLLOWS. LIMESTONE – CALCIUM CARBONATE, WITH A MINIMUM 85 % CONTENT, MAY BE ADDED TO THE CEMENT, PROVIDED THESE REQUIREMENTS OF C 150 AS MODIFIED ARE MET; (1) LIMITATION ON INSOLUBLE RESIDUE 1.5 %; (2) LIMITATION ON AIR CONTENT OF MORTAR – VOLUME PERCENT, 22% MAXIMUM; AND (3) LIMITATIONS OF LOSS OF IGNITION – 7 %

C. BLENDED CEMENTS – ASTM C 618

D. POZZOLANS – ASTM C 618

E. BLAST FURNACE SLAG CEMENT – ASTM C 989

2. AGGREGATES – AGGREGATES SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS, AS APPLICABLE.

A. NORMAL WEIGHT AGGREGATES – ASTM C 33

B. LIGHTWEIGHT AGGREGATES – ASTM C 331

3. OTHER CONSTITUENTS – AIR ENTRAINING AGENTS, COLORING PIGMENTS, INTEGRAL WATER REPELLENTS, FINELY GROUND SILICA, AND OTHER CONSTITUENTS SHALL BE PREVIOUSLY ESTABLISHED AS SUITABLE FOR USE IN MODULAR CONCRETE RETAINING WALL UNITS AND SHALL CONFORM TO APPLICABLE ASTM STANDARDS OR, SHALL BE SHOWN BY TEST OR EXPERIENCE TO BE NOT DETRIMENTAL TO THE DURABILITY OF THE MODULAR CONCRETE UNITS OR ANY MATERIAL CUSTOMARILY USED IN RETAINING WALL CONSTRUCTION.

C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS:

COMPRESSIVE STRENGTH = 3000 PSI MINIMUM;

ABSORPTION = 8 % MAXIMUM (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;

UNIT DEPTH – 20 INCHES MINIMUM;

UNIT WIDTH TO HEIGHT RATIO = 2.25: 1;

UNIT WEIGHT – 90 LBS/UNIT MINIMUM FOR STANDARD WEIGHT AGGREGATES

INTER-UNIT SHEAR STRENGTH – 1500 PLF MINIMUM AT 2 PSI NORMAL PRESSURE;

GEOGRID/UNIT PEAK CONNECTION STRENGTH –1000 PLF MINIMUM AT 2 PSI NORMAL FORCE

MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE – 1/2 INCH.

D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTABILITY REQUIREMENTS:

VERTICAL SETBACK = 1/8"± PER COURSE (NEAR VERTICAL) OR 1"± PER COURSE PER THE DESIGN DRAWINGS;
ALIGNMENT AND GRID POSITIONING MECHANISM – FIBERGLASS PINS, TWO PER UNIT MINIMUM;

2.03 SHEAR CONNECTORS

A. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10 DEGREES F TO + 100 DEGREES F. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN–PULTRUDED FIBERGLASS REINFORCEMENT RODS. CONNECTORS SHALL HAVE A MINIMUM FLEXURAL STRENGTH OF 128,000 PSI AND SHORT BEAM SHEAR OF 6,400 PSI.
B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE–TENSIONING AND BACKFILLING.

2.04 BASE LEVELING PAD MATERIAL

A. MATERIAL SHALL CONSIST OF A COMPACTED CRUSHED STONE BASE OR NON–REINFORCED CONCRETE AS SHOWN ON THE CONSTRUCTION DRAWINGS. THE LEVELING PAD SHALL BE A MINIMUM OF 6 INCHES THICK. AS AN OPTION, CONCRETE MAY BE 3 INCHES THICK WITH A COMPACTED GRANULAR BASE FOR A TOTAL THICKNESS OF 6 INCHES.

2.05 UNIT FILL

A. UNIT FILL SHALL CONSIST OF CLEAN 1" MINUS CRUSHED STONE OR CRUSHED GRAVEL MEETING THE GRADATION LISTED BELOW.

SIEVE SIZE	PERCENT PASSING
1 INCH	100
3/4 INCH	75–100
NO. 4	0 – 10
NO. 50	0 – 5

B. ONE CUBIC FOOT, MINIMUM, OF DRAIN FILL SHALL BE USED FOR EACH SQUARE FOOT OF WALL FACE. DRAIN FILL SHALL BE PLACED WITHIN CORES OF, BETWEEN, AND BEHIND UNITS TO MEET THIS REQUIREMENT.

2.06 REINFORCED BACKFILL

A. REINFORCED BACKFILL SHALL BE FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING
2 INCH	100–75
3/4 INCH	100–75
NO. 4	100–20
NO. 40	0–60
NO. 200	0–35

PHI ANGLE = 28°
C = 0
UNIT WGT. = 120 LBS./CU.FT.

PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <40.

B. THE MAXIMUM AGGREGATE SIZE SHALL BE LIMITED TO 3/4 INCH UNLESS FIELD TESTS HAVE BEEN OR WILL BE PERFORMED TO EVALUATE POTENTIAL STRENGTH REDUCTIONS TO THE GEOGRID DESIGN DUE TO DAMAGE DURING CONSTRUCTION.

C. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE BACKFILL OR IN THE REINFORCED SOIL MASS.

D. CONTRACTOR SHALL SUBMIT REINFORCED FILL SAMPLE AND LABORATORY TEST RESULTS TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO THE USE OF ANY PROPOSED REINFORCED FILL MATERIAL.

2.07 GEOGRID

A. TA, ALLOWABLE TENSILE DESIGN LOAD, SHALL BE DETERMINED AS FOLLOWS:
TA = TCR/((FD*FC*FS)
TA SHALL BE EVALUATED BASED ON A 75 YEAR DESIGN LIFE.

B. TCR, CREEP LIMITED TENSILE LOAD
TCR SHALL BE DETERMINED FROM 10,000 HOUR CREEP TESTING PERFORMED IN ACCORDANCE WITH ASTM D5262.

C. FD, FACTOR FOR DURABILITY/AGING
FD SHALL BE DETERMINED FROM POLYMER SPECIFIC DURABILITY TESTING COVERING THE RANGE OF EXPECTED SOIL ENVIRONMENTS.

D. FC, FACTOR FOR CONSTRUCTION DAMAGE
FC SHALL BE DETERMINED FROM PRODUCT SPECIFIC CONSTRUCTION DAMAGE TESTING PERFORMED IN ACCORDANCE WITH GRI–GC4. TEST RESULTS SHALL BE PROVIDED FOR EACH PRODUCT TO BE USED WITH PROJECT SPECIFIC OR MORE SEVERE SOIL TYPE.

E. FS, OVERALL FACTOR OF SAFETY
FS SHALL BE 1.5 UNLESS OTHERWISE NOTED.

F. THE MAXIMUM DESIGN TENSILE LOAD OF THE GEOGRID SHALL NOT EXCEED THE LABORATORY TESTED ULTIMATE STRENGTH OF THE GEOGRID/FACING UNIT CONNECTION AS LIMITED BY THE "HINGE HEIGHT" DIVIDED BY A FACTOR OF SAFETY OF 1.5. THE CONNECTION STRENGTH TESTING AND COMPUTATION PROCEDURES SHALL BE IN ACCORDANCE WITH NCMA TEST METHODS.

G. SOIL INTERACTION COEFFICIENT, CI
CI VALUES SHALL BE DETERMINED PER GRI:GG5 AT A MAXIMUM 0.75 INCH DISPLACEMENT.

H. MANUFACTURING QUALITY CONTROL

THE GEOGRID MANUFACTURER SHALL HAVE A MANUFACTURING QUALITY CONTROL PROGRAM THAT INCLUDES QC TESTING FOR EACH 40,000 SF OF PRODUCTION, EACH LOT, OR EACH PRODUCTION DAY. THE QC TESTING SHALL INCLUDE:
TENSILE MODULUS
SPECIFIC GRAVITY
MELT FLOW INDEX (PP&HDPE)
MOLECULAR WEIGHT (PETP)

G. GEOGRID SHALL CONFORM TO MIRAFI "MIRAGRID XT (8XT)" FABRIC.

PART 3 EXECUTION

3.01 EXCAVATION

A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. ARCHITECT/ENGINEER WILL INSPECT THE EXCAVATION AND APPROVE PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.

B. OVER–EXCAVATION OF DELETERIOUS SOILS AND REPLACEMENT WITH SUITABLE FILL WILL BE PAID AT UNIT COST RATES.

3.02 BASE LEVELING PAD

A. LEVELING PAD MATERIAL(S) SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES.

B. SOIL LEVELING PAD MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 95 % STANDARD OR 90 % MODIFIED PROCTOR.

C. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

3.03 KEYSTONE UNIT INSTALLATION

A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD, AND ALIGNMENT AND LEVEL CHECKED. PINS OR MOLDED SURFACES OF MODULAR CONCRETE UNITS SHALL BE USED FOR ALIGNMENT CONTROL.

B. POSITION VERTICALLY ADJACENT MODULAR CONCRETE UNITS AS RECOMMENDED BY THE MANUFACTURER.

C. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO WALL DRAIN FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED TWO COURSES.

D. WHOLE, OR CUT, UNITS ON CURVES AND CORNERS TO SHALL BE ERECTED WITH RUNNING BOND APPROXIMATELY CENTERED ON UNITS ABOVE AND BELOW.

E. CAP UNITS SHALL BE GLUED TO UNDERLAYING UNITS WITH AN ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.04 STRUCTURAL GEOGRID INSTALLATION

A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE ELEVATIONS AND TO THE EXTENT SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.

C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER GEOGRID. THE GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID IS NOT ALLOWED UNLESS PRE–APPROVED BY THEARCHITECT/ENGINEER PRIOR TO CONSTRUCTION.

3.05 REINFORCED BACKFILL PLACEMENT

A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID.

B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 8 INCHES WHERE HAND COMPACTION IS USED, OR 12 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED.

C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95 % OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D695. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE WITHIN 2 PERCENTAGE POINTS DRY OF OPTIMUM.

D. ONLY LIGHTWEIGHT HAND–OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OFTHE MODULAR CONCRETE UNIT.

E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.

F. RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O. BOX 395
ELLICOTT CITY, MD 21043

project	99072
illustration	JBM
scale	AS SHOWN
date	DEC.2001
engineering	JBM
approval	JBM

no.	description revisions	date

AUTUMN VIEW, SECTION 5, PHASE 1
LOTS: 211–259
TAX MAP 25 & 31; P/O PARCEL 75
HOWARD COUNTY, MARYLAND
SECOND ELECTION DISTRICT
RETAINING WALL DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
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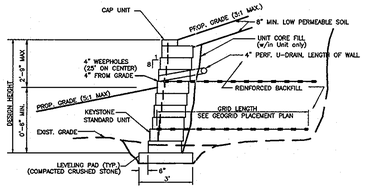
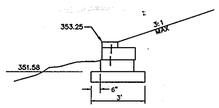
(410) 997–0296 Balt. (301) 621–5521 Wash. (410) 997–0298 Fax.

AS BUILT F-01-23

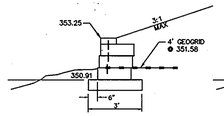
99072\PHASE 1\DWG\FINAL WALL-3-28



TYPICAL REINFORCED SECTION
STANDARD UNIT - 1" SETBACK



SECTION ONE
STA 0+00 TO STA 0+07.5
SCALE: 1"=4'



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STA 0+07.5 TO STA 0+15
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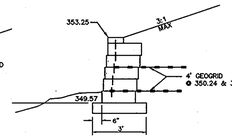
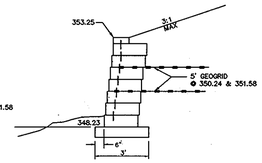
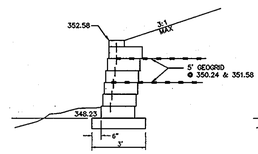


SECTION THREE
STA 0+15 TO STA 0+27
SCALE: 1"=4'



SECTION FOUR
STA 0+27 TO STA 0+37.5
SCALE: 1"=4'



SECTION FIVE
STA 0+37.5 TO STA 0+40.5
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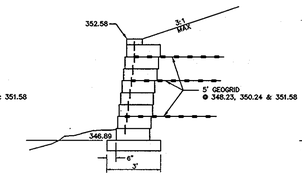
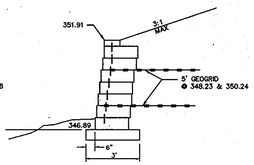
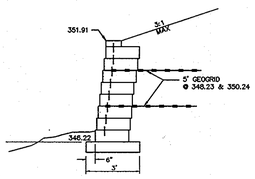


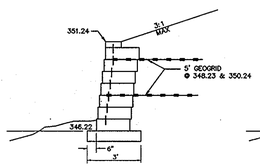
SECTION SIX
STA 0+40.5 TO STA 0+48
SCALE: 1"=4'



SECTION SEVEN
STA 0+48 TO STA 0+51
SCALE: 1"=4'



SECTION EIGHT
STA 0+51 TO STA 0+57
SCALE: 1"=4'



SECTION NINE
STA 0+57 TO STA 0+64.5
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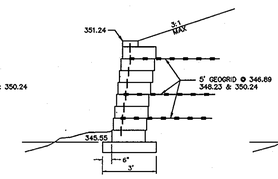
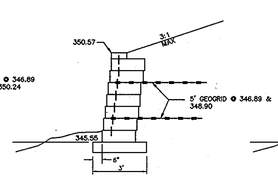
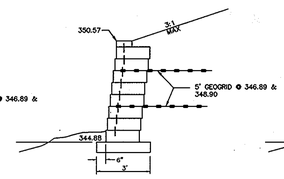


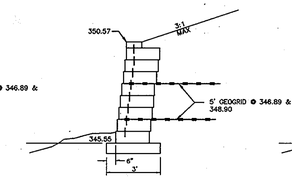
SECTION TEN
STA 0+64.5 TO STA 0+67.5
SCALE: 1"=4'



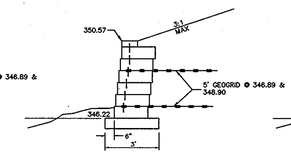
SECTION ELEVEN
STA 0+67.5 TO STA 0+78
SCALE: 1"=4'



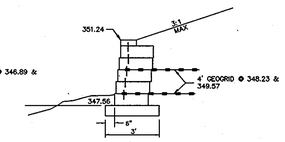
SECTION TWELVE
STA 0+78 TO STA 0+91.5
SCALE: 1"=4'



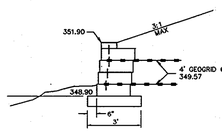
SECTION THIRTEEN
STA 0+91.5 TO STA 1+02
SCALE: 1"=4'



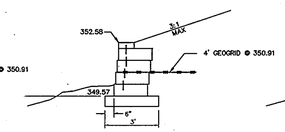
SECTION FOURTEEN
STA 1+02 TO STA 1+15.5
SCALE: 1"=4'



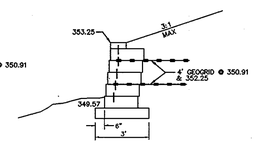
SECTION FIFTEEN
STA 1+15.5 TO STA 1+27.5
SCALE: 1"=4'



SECTION SIXTEEN
STA 1+27.5 TO STA 1+42.5
SCALE: 1"=4'



SECTION SEVENTEEN
STA 1+42.5 TO STA 1+54.5
SCALE: 1"=4'



SECTION EIGHTEEN
STA 1+54.5 TO STA 1+65
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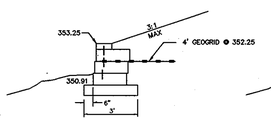
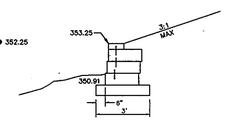


SECTION NINETEEN
STA 1+65 TO STA 1+81.5
SCALE: 1"=4'



SECTION TWENTY
STA 1+81.5 TO STA 1+89
SCALE: 1"=4'

NOTE: GEOTECHNICAL ENGINEER WILL CERTIFY THE SUITABILITY OF FILL MATERIALS AND THE BEARING PRESSURES REQUIRED FOR EACH WALL SECTION.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 1-30-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/5/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/23/02

10020 PROFESSIONAL ENGINEER

OWNER/DEVELOPER

BONNIE BRANCH CORPORATION
P.O. BOX 396
ELLICOTT CITY, MD 21043

AS BUILT

project	99072
illustration	JBM
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AUTUMN VIEW, SECTION 5, PHASE 1
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SECOND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
RETAINING WALL SECTIONS

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99072\PHASE 1\DWG\FINAL\WALL-sections