FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS FOR

BENSON BRANCH ESTATES

LOT 4 THRU 19 AND PRESERVATION PARCEL "A"
A RESUBDIVISION OF BENSON BRANCH ESTATES
LOTS 1 - 3 (PLAT No.11820)

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3	PARK OVERLOOK CT. PLAN & PROFILE
4	TYP. RD. SECTIONS & CROSS SECTIONS ALONG TRIADELPHIA RD.
5	CROSS SECTIONS ALONG TRIADELPHIA RD.
6	STREET TREES, LANDSCAPING, GRADING & SEDIMENT CONTROL PLAN
7	STREET TREES, LANDSCAPING, GRADING & SEDIMENT CONTROL PLAN
8	SEDIMENT CONTROL NOTES & DETAILS
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13	SWM PROFILE & DETAIL SHEET
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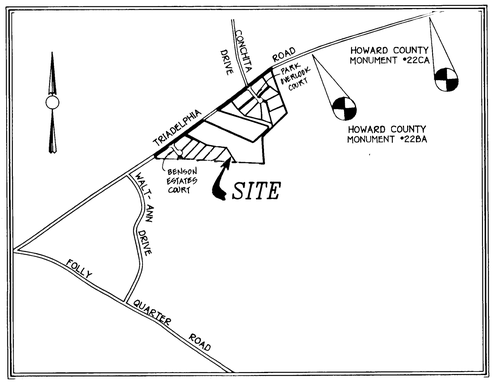


VICINITY MAP
SCALE: 1" = 1200'

TAX MAP 22 PARCEL 16
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING:
   a) HOWARD COUNTY STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION, VOLUME IV.
   b) MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, AS MARKED.
   c) SOIL CONSERVATION SERVICE 1983 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
   d) SOIL CONSERVATION SERVICE 1993 MARYLAND STANDARD AND SPECIFICATIONS FOR POND CONSTRUCTION. (CODE 378).
   e) EXISTING UTILITIES ARE BASED ON FIELD RUN TOPOGRAPHY.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, DIVISION OF CONSTRUCTION INSPECTION AT (410)-313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION.
4. TOPOGRAPHY SHOWN HEREON IS FIELD RUN TOPOGRAPHY SURVEYED BY FISHER, COLLINS AND CARTER, INC. ON OR ABOUT JULY 14, 1995.
5. STORMWATER MANAGEMENT FOR THIS PROJECT SHALL BE PROVIDED BY A RETENTION POND. EXISTING POND ON THE SITE SHALL BE UPDATED TO MEET CURRENT MD-378 REQUIREMENTS.
6. THE HORIZONTAL AND VERTICAL DATUM SHOWN IS BASED ON THE FOLLOWING NAD'83 HOWARD COUNTY CONTROL STATIONS:

   HOWARD COUNTY MONUMENT 22BA — N 585134.805, E 1323322.655, ELEV. 576.75

   HOWARD COUNTY MONUMENT 22CA — N 585783.320, E 1325230.593

7. FOREST STAND DELINEATION AND FOREST CONSERVATION PLANS WERE PROVIDED BY WILDMAN ENVIRONMENTAL SERVICES, INC. AND APPROVED UNDER P 96-07. MAY 5, 1995.
8. THE 100 YEAR FLOODPLAIN AS SHOWN ON THESE PLANS IS BASED ON A FLOODPLAIN STUDY BY FISHER, COLLINS AND CARTER APPROVED UNDER P 96-07.
9. THE WETLANDS STUDY WAS PREPARED BY WILDMAN ENVIRONMENTAL SERVICES, INC. AND APPROVED UNDER P 96-07.
10. THE TRAFFIC STUDY WAS PROVIDED BY THE TRAFFIC GROUP AND APPROVED UNDER S 95-14.
11. THE SOILS INVESTIGATION REPORT WAS PREPARED BY HERBST & ASSOCIATES AND APPROVED UNDER P 96-07.
12. THE SKETCH PLAN S-95-14 WAS APPROVED ON MAY 5, 1995.
    PRELIMINARY PLAN P96-07 WAS APPROVED ON OCTOBER 16, 1995.
    WAIVER PETITION WP-95-104 WAS APPROVED ON MAY 5, 1995.
    FINAL PLAN (F95-168) FOR LOTS 1-3 WAS APPROVED ON JUNE 30, 1995.
13. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
14. PRIVATE WATER AND SEWER WILL BE USED WITHIN THIS DEVELOPMENT.
15. ANY EXISTING DWELLINGS ON LOTS 4 & 5 ARE TO REMAIN.
16. THE CONSTRUCTION OF THE STORMWATER MANAGEMENT FACILITY SHALL BE IN ACCORDANCE WITH THE POND SPECIFICATIONS ON SHEET 14 OF 15 AND RECOMMENDATIONS SET IN THE GEOTECHNICAL SOILS REPORT APPROVED UNDER THIS PLAN.

TRAFFIC CONTROL SIGNS			
STREET NAME	STATION	POSTED	SIGN CODE
BENSON ESTATES COURT	0+34	STOP (22" LT.) STREET SIGN (20" RT.)	R1-1 R2-1
PARK OVERLOOK COURT	0+33	STOP (22" LT.)	R1-1
PARK OVERLOOK COURT	0+30	STREET SIGN (20" RT.)	R2-1

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 3/8/96

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/7/96

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-5-96

SCHEDULE A PERIMETER LANDSCAPE EDGE											
CATEGORY	Adjacent to Roadways Front	Adjacent to Perimeter Properties	Adjacent to Perimeter Properties	Adjacent to Perimeter Properties	Adjacent to Perimeter Properties	Adjacent to Perimeter Properties	Adjacent to Roadway	Adjacent to Roadway	Adjacent to Roadway	Adjacent to Perimeter Properties	TOTALS
PERIMETER	1	2	3	4	5	6	7	8	9	10	
LANDSCAPE TYPE	B	A	A	A	A	A	B	B	B	A	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	317'	33'	1340'	1018'	335'	760'	460'	350'	275'	855'	
CREDIT FOR EXISTING VEGETATION OR BERM, (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 132'	NO	NO	YES 1018	NO	NO	YES 220'	YES 120'	YES 50'	NO	
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS TOTAL SHDE TREE EQUIVALENCE	0 105÷40=4 EVERGREEN TREES	1 SHADE TREE	1340÷60=22 SHADE TREES	0	335÷60=5 SHADE TREES	760÷60=12 SHADE TREES	240÷50=4 SHADE TREES 240÷40=6 EVERGREEN TREES	230÷50=4 SHADE TREES 230÷40=5 EVERGREEN TREES	225÷50=4 SHADE TREES 225÷40=5 EVERGREEN TREES	855÷60= 14 SHADE TREES	66 SHADE TREES 20 EVERGREEN TREES
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SMALL FLOWERING TREES TOTAL SHDE TREE EQUIVALENCE	0 SHADE 4 EVERGREEN TREES	1 SHADE TREE	22 SHADE TREES	0	5 SHADE TREES	12 SHADE TREES	4 SHADE TREES 6 EVERGREEN TREES	4 SHADE TREES 5 EVERGREEN TREES	4 SHADE TREES 6 EVERGREEN TREES	14 SHADE TREES	66 SHADE TREES 20 EVERGREEN TREES

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPING MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPE TREES IN THE AMOUNT OF $9,000 IS PART OF THE DEVELOPER'S AGREEMENT.

NOTES: 1. ALONG PERIMETER NO. 1 EXISTING TREES FULFILL THE SHADE TREE REQUIREMENT ALONG 185' OF THE PERIMETER.
2. 100% CREDIT IS REQUESTED FOR EXISTING TREES ALONG PERIMETER 4.

NOTE: DETAILS CONCERNING THE PERIMETER LANDSCAPING FOR THE S.W.M POND ARE PROVIDED ON SHEET 13.

OWNER AND DEVELOPER
ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUIT 215
COLUMBIA, MARYLAND 21044

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — REGISTERED PROFESSIONAL ENGINEER

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CHARLES J. CROVO, SR. — DATE 11/20/95

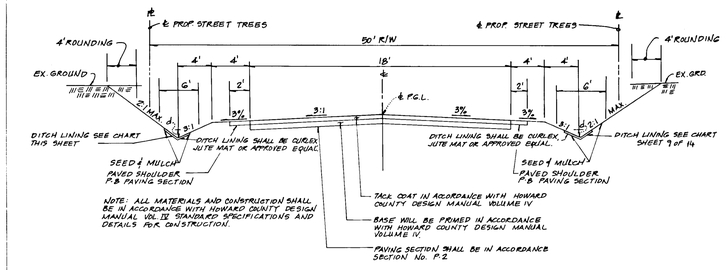
AS-BUILT 11-17-97
DATE: OCTOBER 31, 1995

SHEET 1 OF 14

1752

F 96-72

30520rd7.DWG



NOTE: ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOL III STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.

TYPICAL ROADWAY SECTION

NO SCALE

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS
BENSON ESTATES COURT	LOCAL/CUL-DE-SAC	25 MPH	RR-DEO	0+00 TO 2+36
PARK OVERLOOK COURT	LOCAL/CUL-DE-SAC	25 MPH	RR-DEO	0+00 TO 3+17.16

- PROPOSED SHOULDER

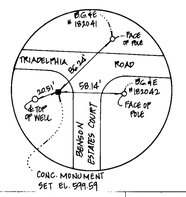
APPROVED: DEPARTMENT OF PUBLIC WORKS

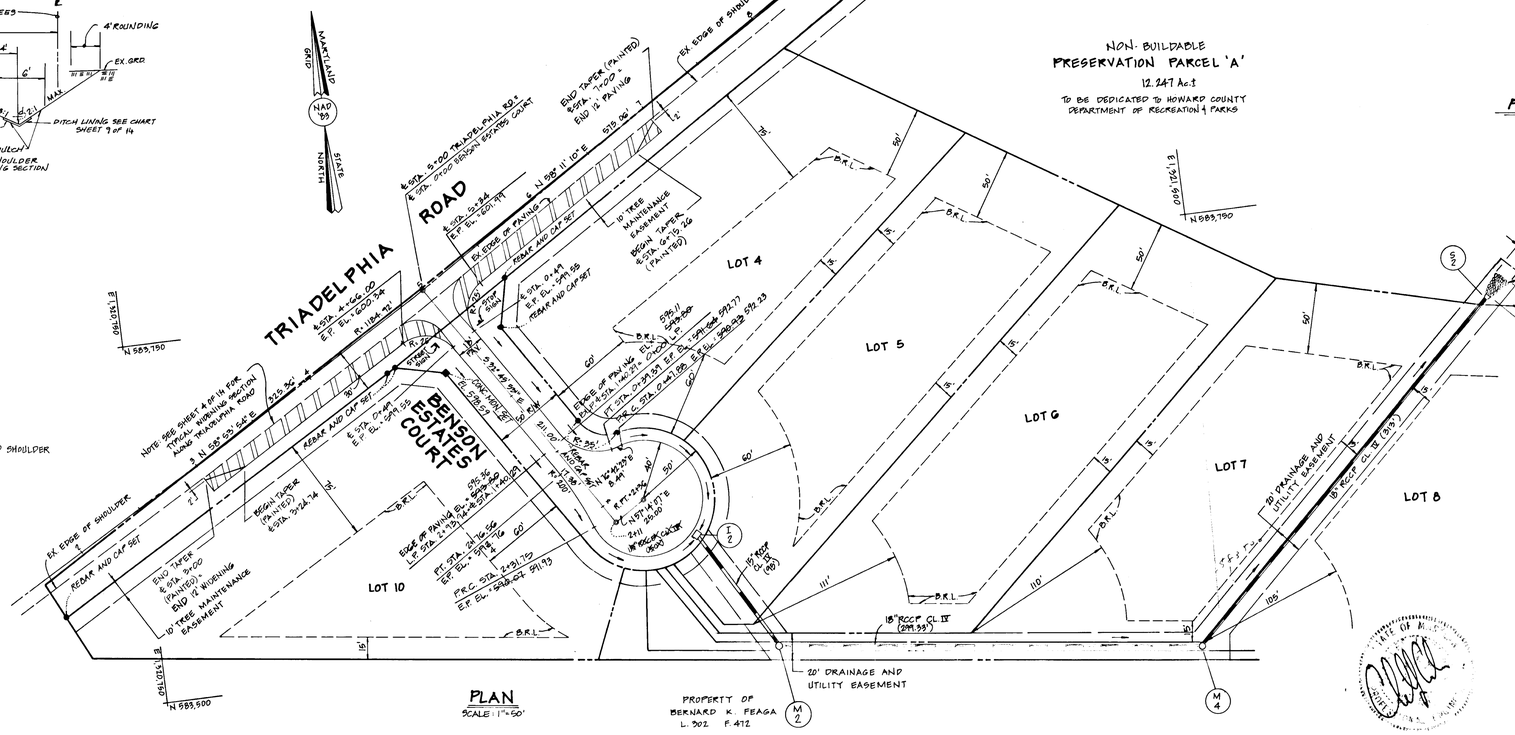
Charles M. Dameker 3-5-96
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Gina Simmons 3/8/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

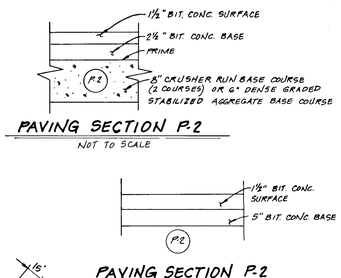
3/7/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE





PLAN

SCALE: 1"=50'



PAVING SECTION P-2

NOT TO SCALE

PAVING SECTION P-2

NOT TO SCALE

BENSON BRANCH ESTATES

TAX MAP 22 PARCEL 16
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

BENSON ESTATES COURT

PLAN AND PROFILE & TYPICAL ROAD SECTION

OWNER

ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUITE 215
COLUMBIA, MARYLAND 21044

AS SHOWN	NOV. 20, 1995	2 14
ANR	JAL	CJC

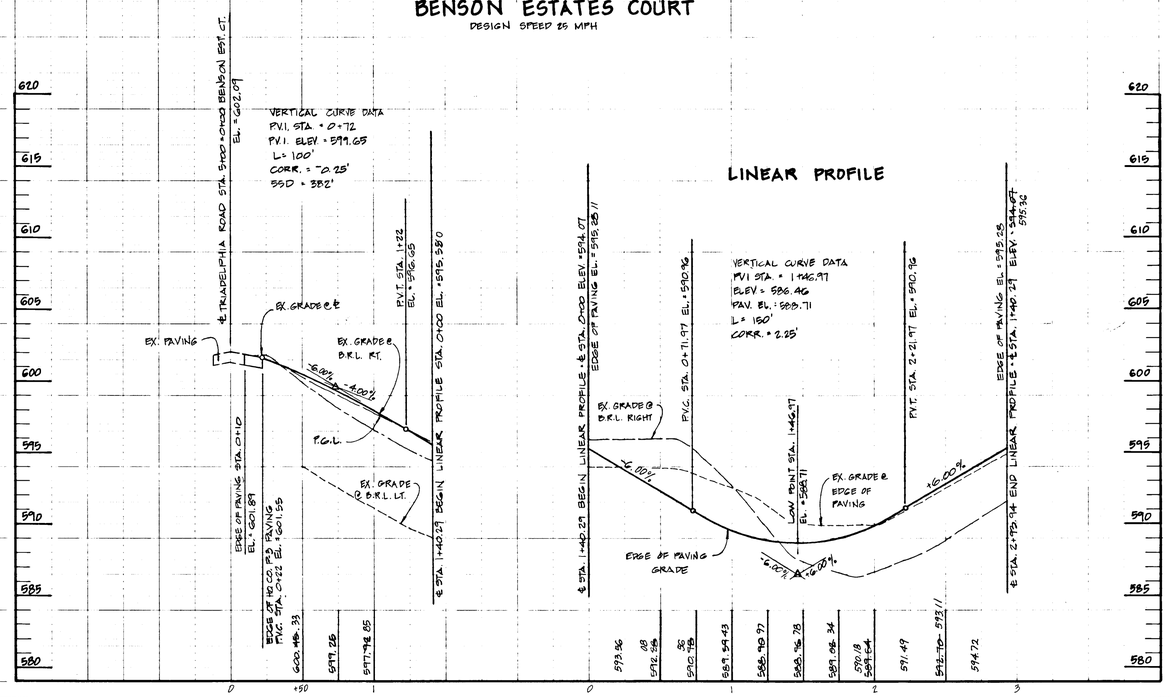
FISHER COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS AND LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE- ELLICOTT CITY, MD. 21042
PHONE (410) 461-2855 FAX (410) 750-5784

PROFILE

SURVEYED	
PLOTTED	
GRADES CHECKED	
BY/DATE	
NOTE BOOK	
NO.	
STRUCTURE NOTATIONS CHKD	

BENSON ESTATES COURT

DESIGN SPEED 25 MPH



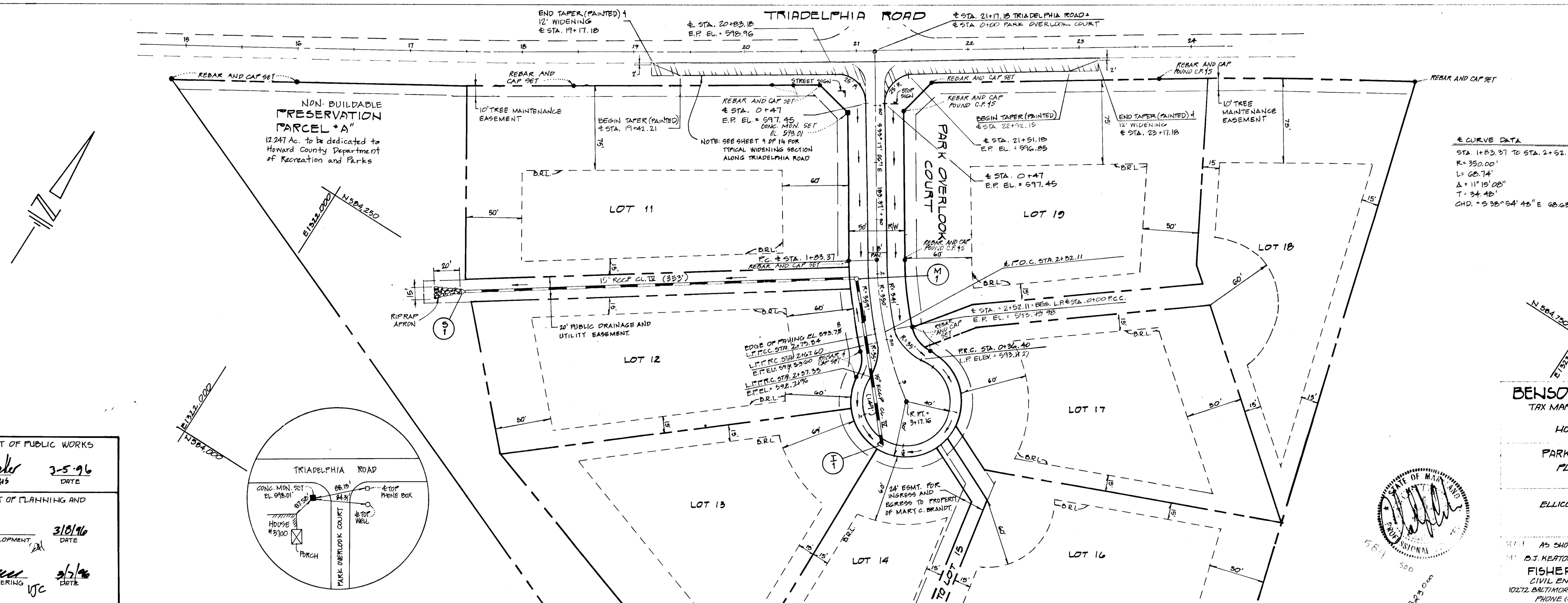
PROFILES

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

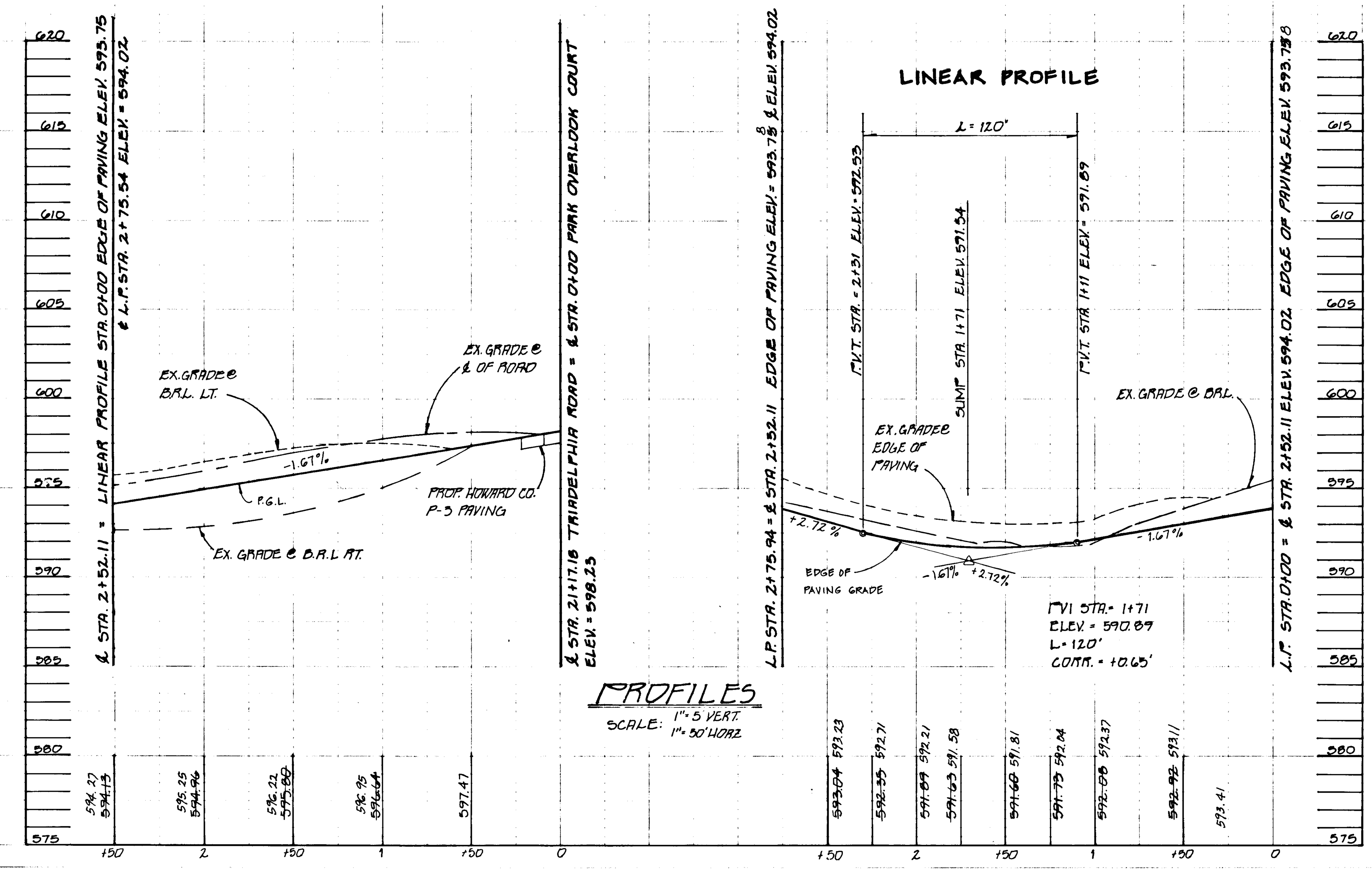
AS-BUILT 11-17-97

F 96-72

1752



PARK OVERLOOK COURT (DESIGN SPEED = 25 M.P.H.)



PROFILES
SCALE: 1" = 5' VERT.
1" = 50' HORIZ.

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 3-5-96
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING.
[signature] 3/8/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH. — DATE

[signature] 3/7/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

BENSON BRANCH ESTATES

TAX MAP 22 PARCEL 16
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

PARK OVERLOOK COURT
PLAN AND PROFILE

OWNER AND DEVELOPER
ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUIT 2.5
COLUMBIA, MARYLAND 21044

SCALE AS SHOWN | DATE NOV. 20, 1995 | SHEET NO. 3 OF 14
DES. B.J. KEATON | DRN. R. POOLE | CHK. C. CROVO

FISHER, COLLINS AND CARTER
CIVIL ENGINEERS AND LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE · ELLICOTT CITY, MARYLAND
PHONE (410) 461-2855 - FAX (410) 750-3784

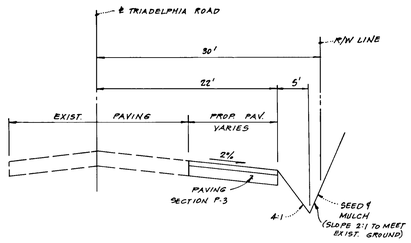
PLAN — NOTE BOOK NO. — SURVEYED, PLOTTED, ALIGNMENT CHECKED, RT. OF WAY CHECKED — BY — DATE

PROFILE — NOTE BOOK NO. — SURVEYED, PLOTTED, GRADES CHECKED, B.M. NOTED, STRUCTURE NOTATIONS CHK'D — BY — DATE

1752

AS-BUILT 11-17-97

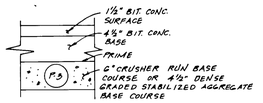
F 96-72



CLASSIFICATION: MAJOR COLLECTOR
DESIGN SPEED: 45 MPH
ZONING: RR-DEO
℄ STATION LIMITS 3+00 TO 7+00

TYPICAL WIDENING SECTION ALONG TRIADELPHIA ROAD

NOT TO SCALE



PAVING SECTION P-3

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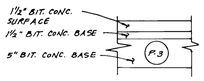
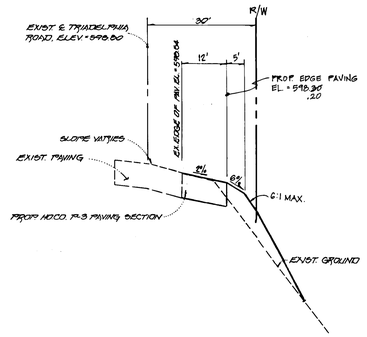


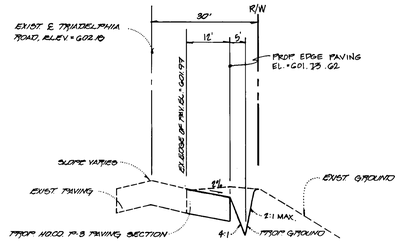
PAVING SECTION P-3

NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	3-5-96 DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING.	
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH.	3/8/96 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	3/7/96 DATE



STA. 4+05 | ELEV.=592



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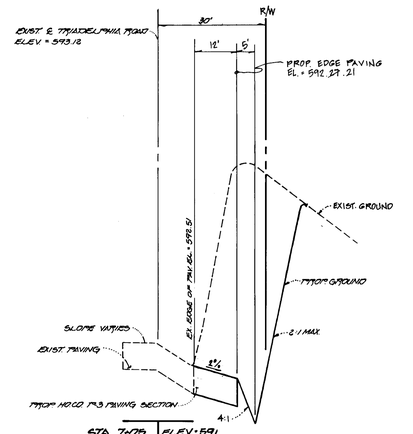

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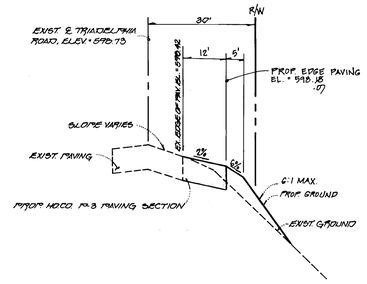

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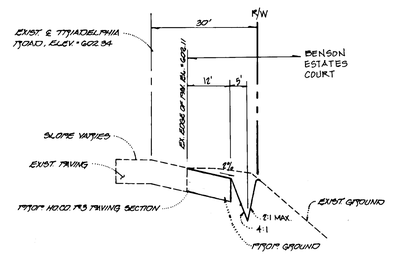

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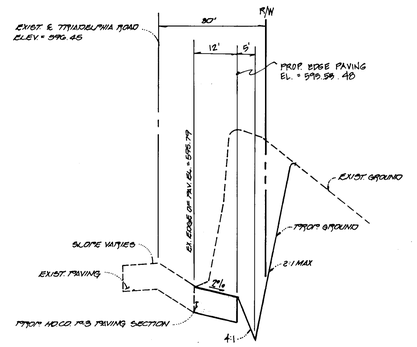

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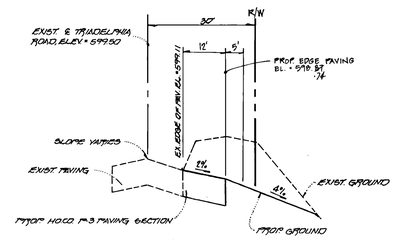

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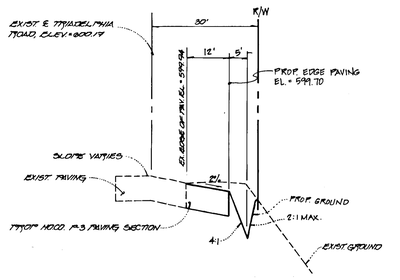

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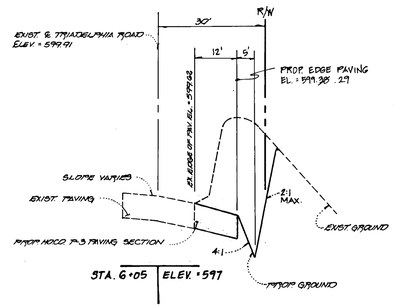


STA. 6+05 | ELEV.=597

CROSS SECTIONS

SCALE 1"=2' VERT.
1"=20' HOR.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER AND DEVELOPER
ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUIT 215
COLUMBIA, MARYLAND 21044

TYPICAL ROAD SECTION & CROSS SECTIONS ALONG TRIADELPHIA ROAD

BENSON BRANCH ESTATES

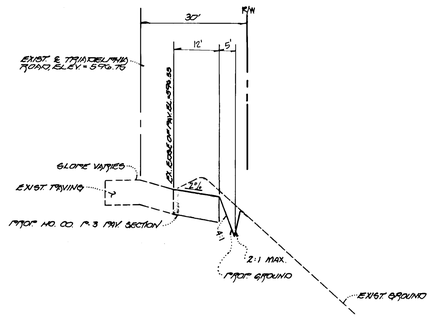
LOTS 4 THRU 19 AND PRESERVATION PARCEL "A"

THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22 PARCEL 16
SCALE : AS SHOWN
SHEET 4 OF 14 DATE: NOVEMBER 20, 1995

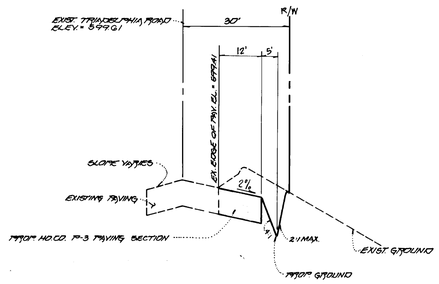
AS-BUILT 11-17-97

F 96-72

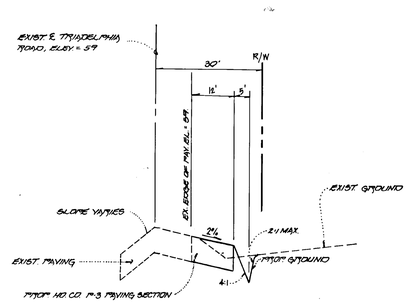
1752



STA. 19+17.18 | ELEV.= 591



STA. 20+67.18 | ELEV.= 594



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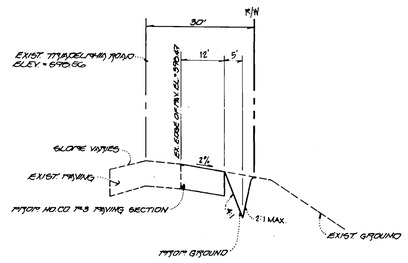

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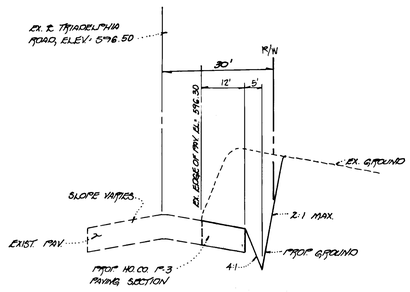
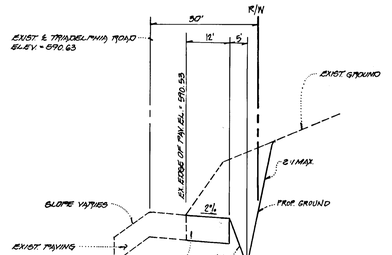


STA. 21+67.18 | ELEV.= 594



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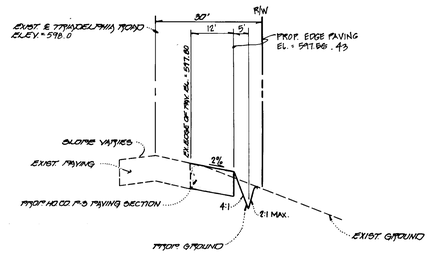

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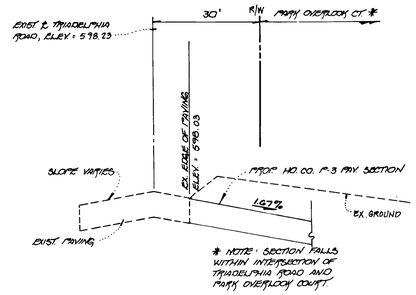
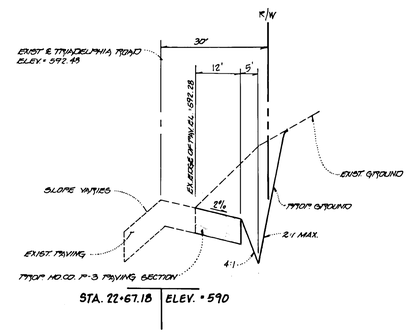


STA. 21+17.18 | ELEV.= 595



STA. 22+67.18 | ELEV.= 590

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-5-96

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 3/8/96

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/7/96

CROSS SECTIONS

SCALE: 1"= 2' VERT. 1"= 20' HORZ.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER AND DEVELOPER
ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUIT 215
COLUMBIA, MARYLAND 21044

CROSS SECTIONS ALONG
TRIADELPHIA ROAD
BENSON BRANCH ESTATES
LOTS 4 THRU 19 AND
PRESERVATION PARCEL "A"
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22 PARCEL 16
SCALE : AS SHOWN
SHEET 5 OF 14 DATE: NOVEMBER 20, 1995

AS-BUILT 11-17-97

F 96-72

25-17

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER _____ DATE 11/20/95

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER _____ DATE 11/20/95

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

SOIL CONSERVATION DISTRICT REVIEW _____ DATE 2/23/96

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

APPROVED: _____ DATE: 2/23/96
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

_____ DATE 3/8/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH

APPROVED: DEPARTMENT OF PLANNING AND ZONING

_____ DATE 3/7/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

_____ DATE 3-5-96
CHIEF, BUREAU OF HIGHWAYS

REVISIONS		
NO.	DESCRIPTION	DATE
1	RELOCATION OF 17 RED MAPLE TREES FROM E. SIDE OF SITE TO THE AREA ADJACENT TO TRIADELPHIA ROAD AND THE CONVERSION TO WHITE PINE	10/11/96

STATE NORTH — NAD '83 — MARYLAND GRID

TRIADELPHIA ROAD

BERTHA MAY BURGESS PROPERTY
LOT 1
PLAN No. 6816

BENSON ESTATES COURT

LOT 4 · LOT 5 · LOT 6 · LOT 7 · LOT 8 · LOT 9 · LOT 10

PRESERVATION PARCEL 'A'

FOREST CONSERVATION EASEMENT

12'± M.N.I. ACCESS PATH

100 YEAR FLOODPLAIN LIMITS

WETLANDS

PROPOSED STORMWATER MANAGEMENT POND (SEE PLAN ON SHEET 13 OF 14)

LIMIT OF DISTURBANCE

10' TREE MAINTENANCE EASEMENT

20' DRAINAGE AND UTILITY EASEMENT

EX. TREE LINE

EX. CONTOURS

PROPERTY OF BERNARD K. FEAGA AND TRACY L. SOLOMON L.3505 F.580

PROPERTY OF BERNARD K. FEAGA L.302 F.472

Existing Misc. Driveway

Edge Of Woods & Fence Line

N 584,000

E 1322,000

E 1320,750

N 583,750

E 1320,750

N 583,500

P.1 P.2 P.3 P.4 P.9

STONE OUTLET SEDIMENT TRAP #2

DRAINAGE AREA = 0.56 Ac ±
STORAGE REQUIRED = 2016 c.f.
STORAGE PROVIDED = 2272 c.f.
WEIR CREST ELEV. = 587.0
BOTTOM ELEV. = 582.0
DEPTH = 4'
SIDE SLOPES = 2:1
TOP OF EMBANKMENT = 588.0
WEIR LENGTH = 2.24'

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE AND ROOT	COMMENTS	TOTAL
○	QUERCUS COCCINEAS SCARLET OAK	MIN. 2½" CALIPER	40' APART ON PUBLIC R/W	50 TREES

TOTAL STREET TREES: THIS SHEET : 22 TREES
SHEET No. 7 : 28 TREES

NOTE: TREES SHALL BE PLANTED IN TREE MAINTENANCE EASEMENT.

LANDSCAPING PLANT LIST (SHEETS 6 & 7)

QTY.	KEY	NAME	SIZE
20		PINUS STROBUS EASTERN WHITE PINE	6'-8' HEIGHT
49		ACER RUBRUM RED SUNSET / RED SUNSET RED MAPLE	2½"-3" CAL.
48		PINUS STROBUS EASTERN WHITE PINE	6'-8' HEIGHT
17		ACER RUBRUM RED SUNSET / RED SUNSET RED MAPLE	REMOVED

⚠

LEGEND

- INLET PROTECTION
- EARTH DIKE
- S — S — SILT FENCE
- P-3 LANDSCAPE PERIMETER NUMBERS
- S.C.E. — STONE CONSTRUCTION ENTRANCE
- EX. TREES TO REMAIN

PLAN VIEW
0' 50' 100' 150'
Scale: 1" = 50'

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
ELLICOTT CITY, MARYLAND 21043
(410) 461 - 2855

OWNER AND DEVELOPER
ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUIT 215
COLUMBIA, MARYLAND 21044

STREET TREE, LANDSCAPING, GRADING, SEDIMENT AND EROSION CONTROL PLAN
BENSON BRANCH ESTATES
Lots 4 Thru 19 AND Preservation Parcel 'A'

(A Resubdivision of Lots 1 - 3, Benson Branch Estates, Plat No. 11820 and all of the Land Conveyed to Ellicott City Land Holding, Inc., Liber 3384, Folio 502)

ZONED: RR
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22, PART OF PARCEL 16
SCALE: AS SHOWN DATE: NOVEMBER 20, 1995
SHEET 6 OF 14

AS-BUILT 11-17-97

1752

F 96-72

30520RD4.DWG

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER _____ DATE 11/20/95

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER _____ DATE 11/20/95

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE _____ DATE 2/23/96

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

APPROVED:
HOWARD SOIL CONSERVATION DISTRICT _____ DATE 2/23/96

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH _____ DATE 3/8/96

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF ENGINEERING _____ DATE 3/7/96

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS _____ DATE 3-5-96

REVISIONS		
NO.	DESCRIPTION	DATE
1	RELOCATION OF 17 RED MAPLE TREES FROM E. SIDE OF SITE TO THE AREA ADJACENT TO TRIADELPHIA ROAD AND THE CONVERSION TO WHITE PINES.	10/1/96

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. (1 DAY)
2. NOTIFY "MISS UTILITY" 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-777. NOTIFY HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION DIVISION AT (410) 313-1880, 24 HOURS BEFORE STARTING WORK. (1 DAY)
3. INSTALL SEDIMENT CONTROL MEASURES, STONE CONSTRUCTION STONE OUTLET SEDIMENT TRAPS, EARTH DIKES, SILT FENCE, AND STABILIZE TRAPS, DIKES WITH TEMPORARY SEEDING. (1 WEEK)
4. GRADE SITE TO SUBGRADE, STABILIZE AND INSTALL STORM DRAINS, INSTALL INLET PROTECTION AROUND INLETS. (3 WEEKS)
5. SEDIMENT SHALL BE REMOVED FROM STONE OUTLET SEDIMENT TRAPS ONCE THE CLEANOUT ELEVATIONS HAVE BEEN REACHED. (1 DAY)
6. INSTALL ROAD BASE COURSE. (4 DAYS)
7. REMOVE SEDIMENT FROM ROADWAYS AND DRESS STONE CONSTRUCTION ENTRANCE AS REQUIRED AND STABILIZE ALL DISTURBED AREAS. (2 DAYS)
8. REMOVE INLET PROTECTION AND FLUSH STORM DRAIN SYSTEM TO REMOVE ANY TRAPPED SEDIMENT. (2 DAYS)
9. APPLY TACK COAT TO SUBBASE AND LAY SURFACE COURSE. (4 DAYS)
10. CONSTRUCT STORM WATER MANAGEMENT/WATER QUALITY POND. STABILIZE WITH PERMANENT SEEDING. (7 DAYS)
11. REMOVE ALL SEDIMENT CONTROL MEASURES UPON SEDIMENT CONTROL INSPECTORS APPROVAL. (2 DAYS)
12. ALL DISTURBED AREAS DUE TO REMOVAL OF SEDIMENT CONTROL MEASURES SHALL BE GRADED AND STABILIZED BY PERMANENT SEEDING. (3 DAYS)

STONE OUTLET SEDIMENT TRAP #1

DRAINAGE AREA = 0.55 Ac.±
STORAGE REQUIRED = 1920 c.f.
STORAGE PROVIDED = 2024 c.f.
WEIR CREST EL. = 590.0
BOTTOM EL. = 585.0
DEPTH = 4'
SIDE SLOPES = 2:1
TOP OF EMBANKMENT = 591.0
WEIR LENGTH = 2.0'

PROPERTY OF
HOWARD COUNTY MARYLAND
L.662 F.455
L.662 F.458

PROPERTY OF
MARY C. BRANDT
L.867 F.332

24' EASEMENT FOR INGRESS AND EGRESS TO PROPERTY OF MARY C. BRANDT.

LOT 2
KIELMAN PROPERTY
PLAT No. 10032

TRIADELPHIA RIDGE ESTATES
PLAT No. 7883

LEGEND

- EX. TREES TO REMAIN
- INLET PROTECTION
- EARTH DIKE
- S—S SILT FENCE
- P-8 LANDSCAPE PERIMETER NUMBERS
- S.C.E. STONE CONSTRUCTION ENTRANCE

PLAN VIEW
0' 50' 100' 150'
Scale: 1" = 50'

OWNER AND DEVELOPER

ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUIT 215
COLUMBIA, MARYLAND 21044

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
ELLICOTT CITY, MARYLAND 21043
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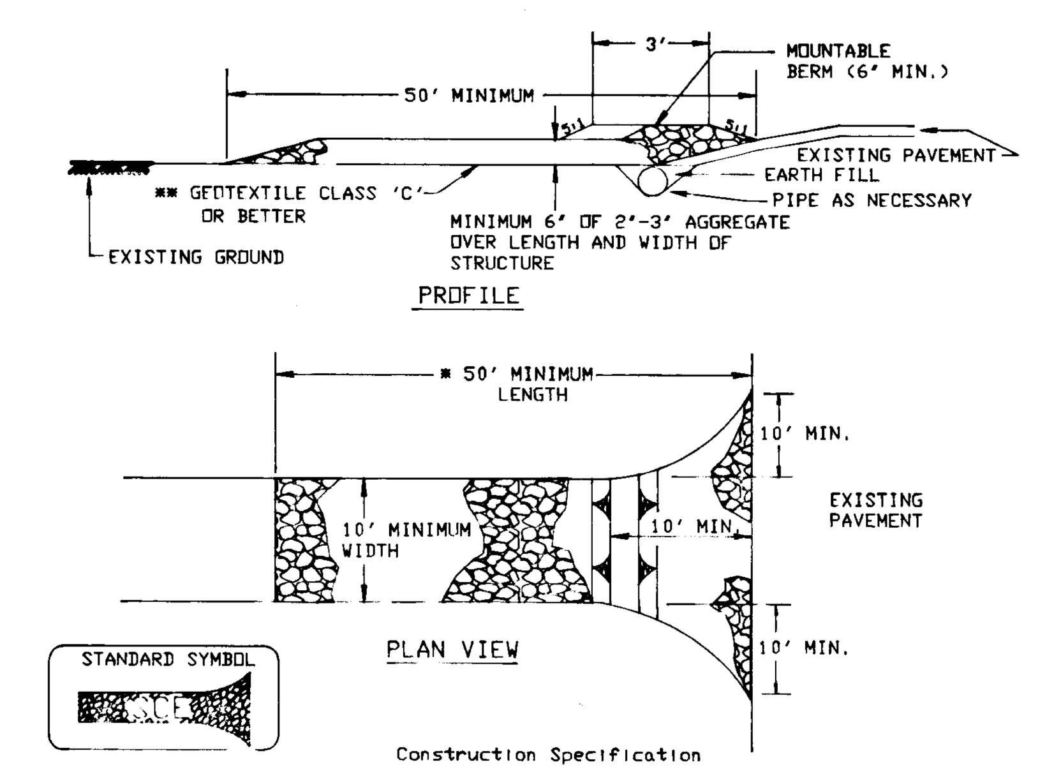
STREET TREE, LANDSCAPING, GRADING SEDIMENT AND EROSION CONTROL PLAN
BENSON BRANCH ESTATES
Lots 4 Thru 19 AND Preservation Parcel 'A'

(A Resubdivision of Lots 1 - 3, Benson Branch Estates, Plat No. 11820 and all of the Land Conveyed to Ellicott City Land Holding, Inc., Liber 3384, Folio 502)

ZONED: RR
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22, PART OF PARCEL 16
SCALE: AS SHOWN DATE: NOVEMBER 20, 1995
SHEET 7 OF 14
AS-BUILT 11-17-97

F 96-72

1752



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.

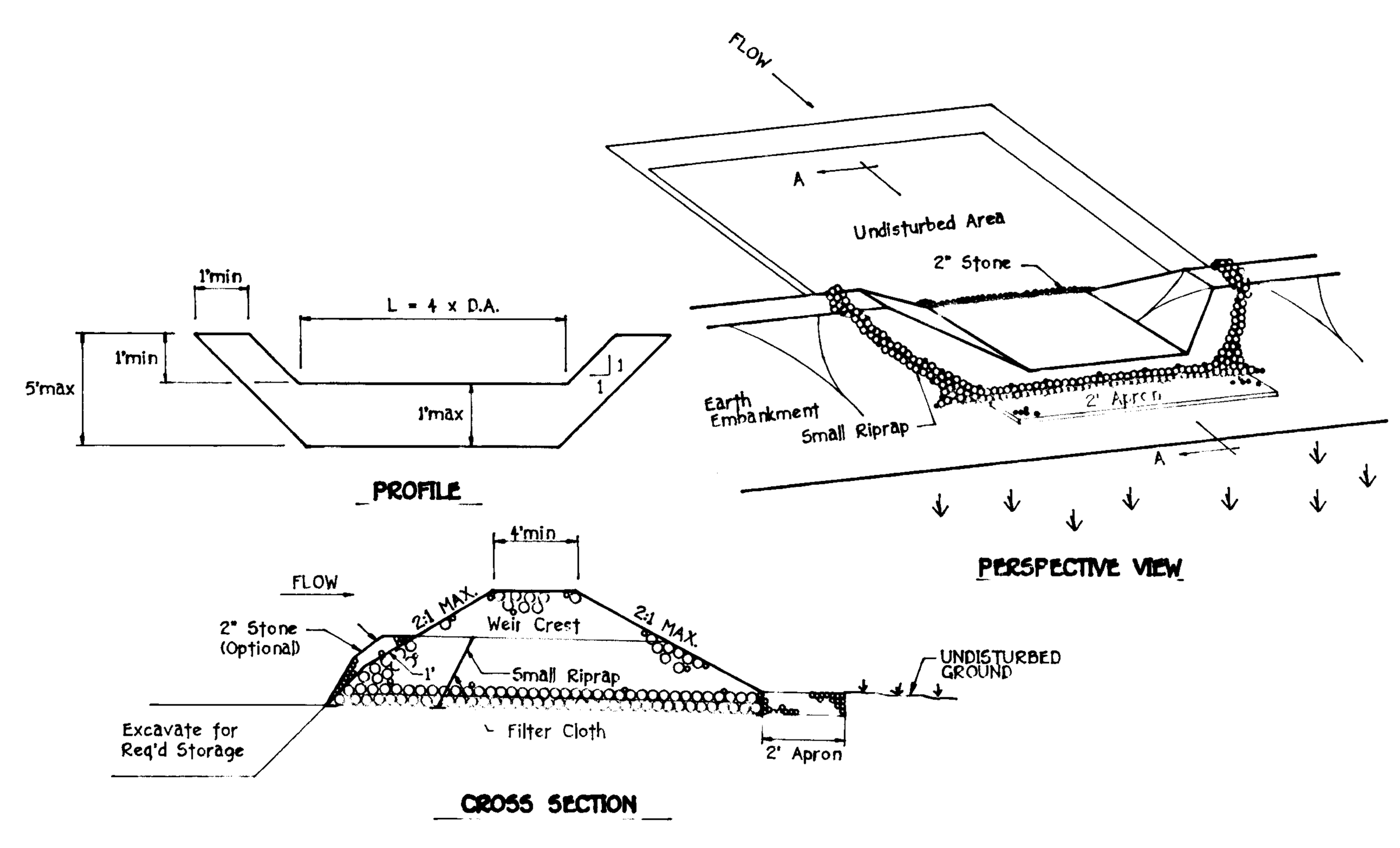
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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.

STABILIZED CONSTRUCTION ENTRANCE - 2

NOT TO SCALE

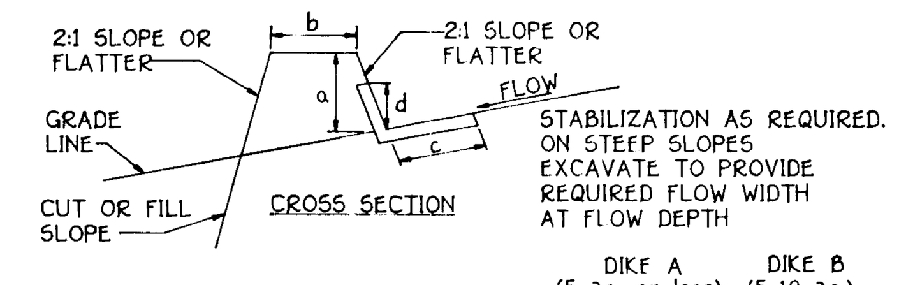


CROSS SECTION

STONE OUTLET SEDIMENT TRAP ST-VI

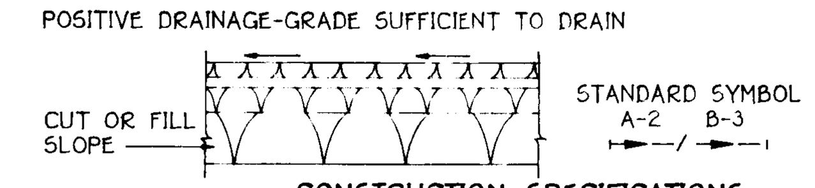
OPTION: A one foot layer of 2" stone may be placed on the upstream side of the riprap in place of the embedded filter cloth.

1. THE AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRED AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABLIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



	DIKE A (5 ac. or less)	DIKE B (5-10 ac.)
a-DIKE HEIGHT	18"	36"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	8"	15"

POSITIVE DRAINAGE-GRADE SUFFICIENT TO DRAIN



CONSTRUCTION SPECIFICATIONS

1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

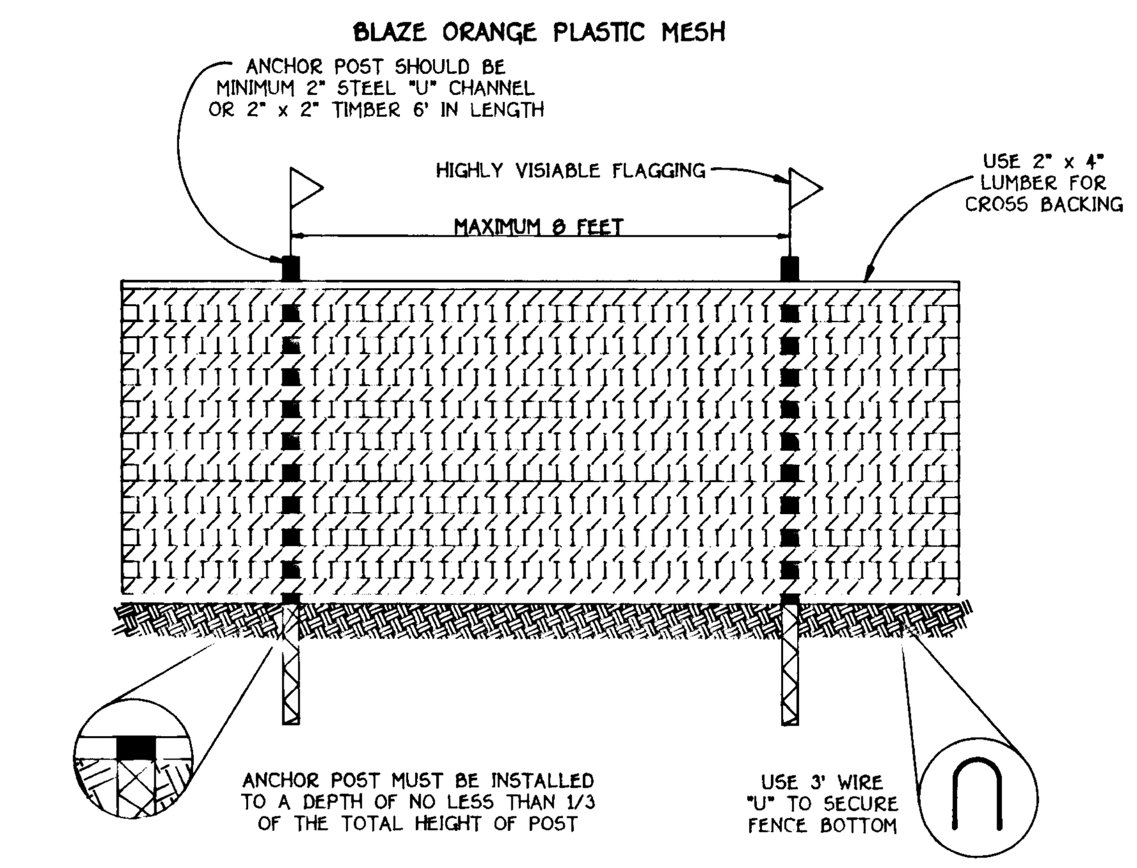
TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSIOR; SOD; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIP-RAP 4"-8"
4	8.1-20%	LINED RIP-RAP 4"-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.

7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

EARTH DIKE

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.

TREE PROTECTION DETAIL

NOT TO SCALE

DEVELOPER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — 11/20/95 DATE

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER — 11/20/95 DATE

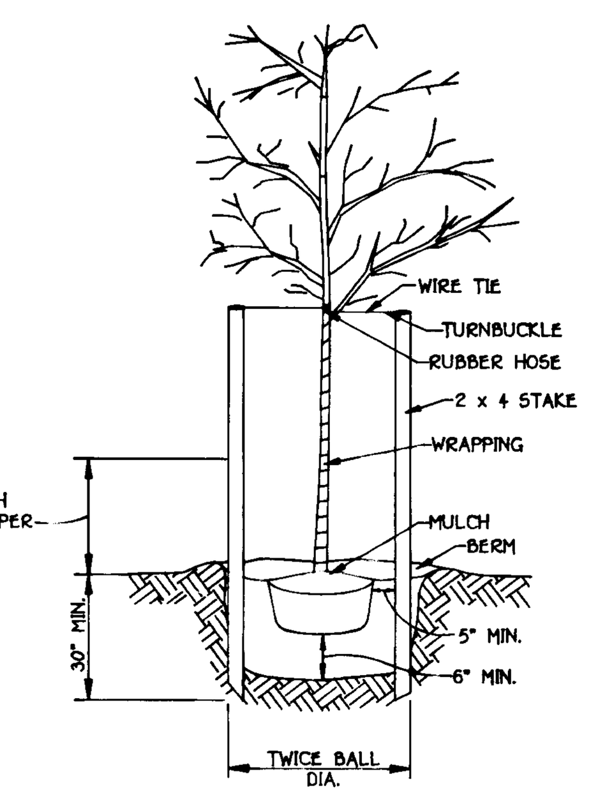
REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
J. G. Warfield — 2/23/96
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED:
Robert W. Zichm — 2/23/96
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — 3/8/96 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 3/7/96 DATE

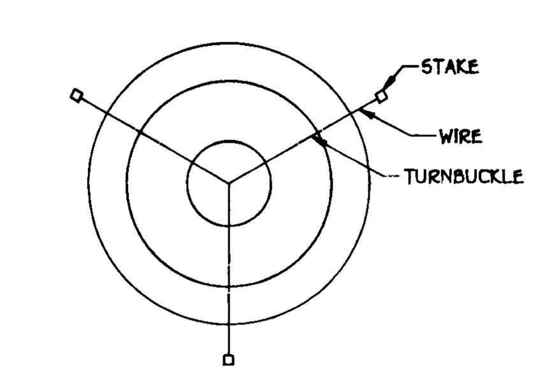
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 3-5-96 DATE



NOTE: REMOVE BURLAP FROM TOP 1/3 OF BALL

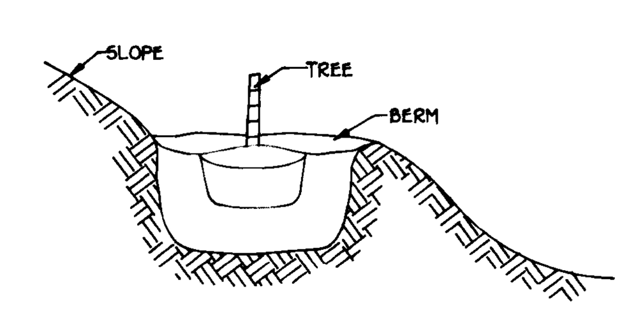
TREE PLANTING

NOT TO SCALE



STAKING DETAIL

NOT TO SCALE



GRADING FOR PLANTING ON SLOPES

NOT TO SCALE

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LISCENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY 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 RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER 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 1994 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	32.100	ACRES ±
AREA DISTURBED	3.478	ACRES ±
AREA TO BE ROOFED OR PAVED	0.502	ACRES ±
AREA TO BE VEGETATIVELY STABILIZED	2.976	ACRES ±
TOTAL CUT	5,000	CU.YDS.
TOTAL FILL	5,000	CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A	CU.YDS.

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 CONTROLS 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 LENGHTS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE

Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation
  i. Install erosion and sediment control structures (either temporary of permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
  ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
  iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)
  i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
  ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.
  iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve.
  iv. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.

C. Seedbed Preparation
  i. Temporary Seeding
    a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
    b. Apply fertilizer and lime as prescribed on the plans.
    c. In corporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
  ii. Permanent Seeding
    a. Minimum soil conditions required for permanent vegetative establishment:
      1. Soil pH shall be between 6.0 and 7.0.
      2. Soluble salts shall be less than 500 parts per million (ppm).
      3. The soil shall contain less than 40% clay, but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedezas is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
      4. Soil shall contain 1.5% minimum organic matter by weight.
      5. Soil must contain sufficient pore space to permit adequate root penetration.
      6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
    b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
    c. Apply soil amendments as per soil test or as included on the plans.
    d. Mix soil amendments into the top 3-5" of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

D. Seed Specifications
  i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
  Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
  ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75°-80° F. can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding
  i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cultipacker seeder.
    a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P2O5 (phosphorous): 200 lbs/ac; K2O (potassium): 200 lbs/ac.
    b. Lime - use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
    c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
  ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
    a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
    b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
  iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
    a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
    b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (In order of preference)
  i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
  ii. Wood Cellulose Fiber Mulch (WCFM)
    a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
    b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
    c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
    d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
    e. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-toxic.
    f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.
  Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.
  i. If grading is completed outside of the seeding season, mulch along shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
  ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
  iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

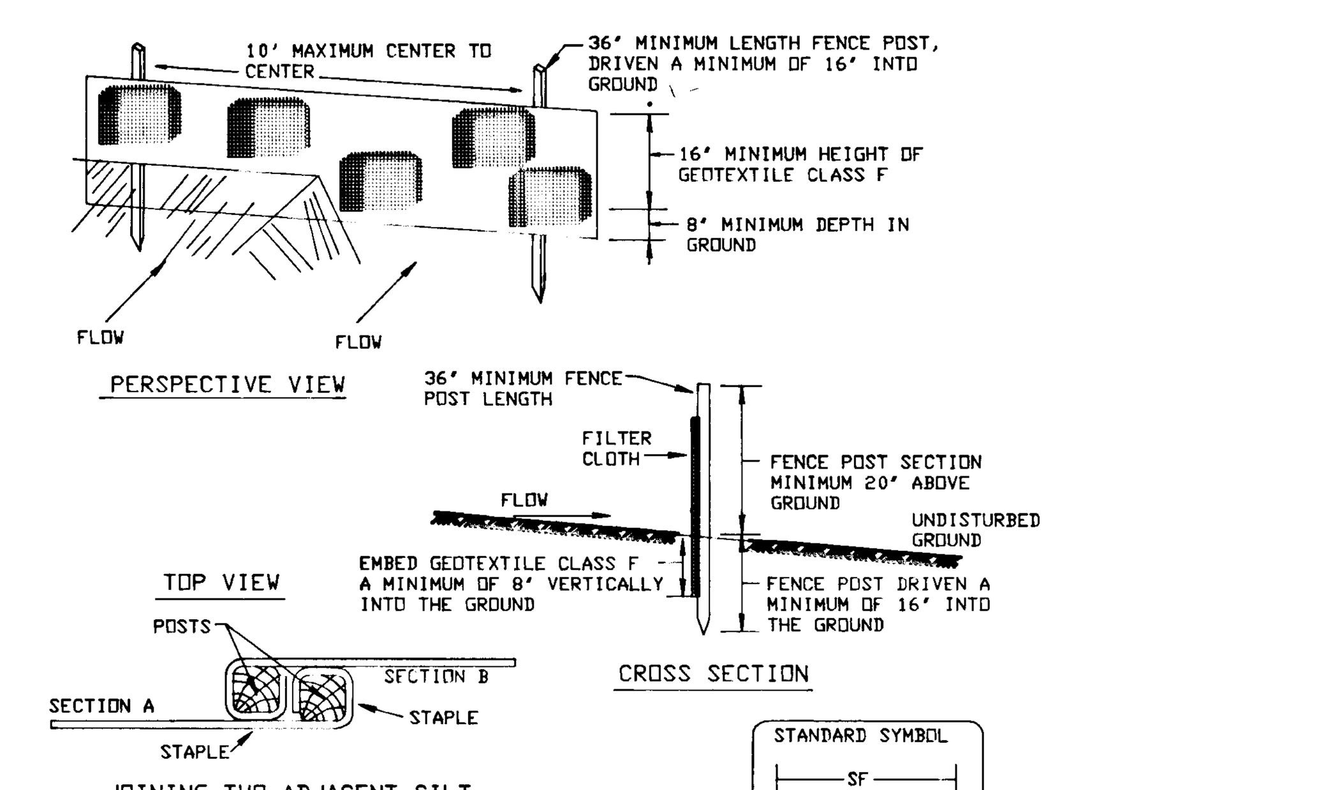
H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
  i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
  ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
  iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
  iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

I. Incremental Stabilization - Cut Slopes
  i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
  ii. Construction sequence (Refer to Figure 3 below):
    a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
    b. Perform Phase 1 excavation, dress, and stabilize.
    c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
    d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions int he operation of completing the operation out of the seeding season will necessitate the application of temporary stabilization.

J. Incremental Stabilization of Embankments - Fill Slopes
  i. Embankments shall be constructed in lifts as prescribed on the plans.
  ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.
  iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
  iv. Construction sequence: Refer to Figure 4 (below).
    a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct slope silt fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.
    b. Place Phase 1 embankment, dress and stabilize.
    c. Place Phase 2 embankment, dress and stabilize.
    d. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.



Construction Specifications

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

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:

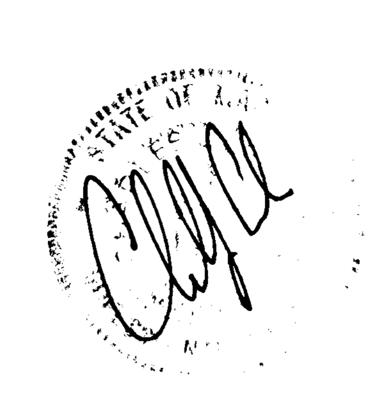
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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.

SILT FENCE

NOT TO SCALE



NOTE: SEE SHEET 7 OF 15 FOR CONSTRUCTION SEQUENCE.

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SEDIMENT CONTROL NOTES AND DETAILS
BENSON BRANCH ESTATES
LOTS 4 THRU 19 AND PRESERVATION PARCEL "A"

(A Resubdivision of Lots 1 - 3 , Benson Branch Estates, Plat No. 11820 and all of the Land Conveyrd to Ellicott City Land Holding, Inc., Liber 3384, Folio 502)

ZONED: RR
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22 PARCEL 16
SCALE: AS SHOWN DATE: NOVEMBER 20, 1995

SHEET 8 OF 14

AS-BUILT 11-17-97

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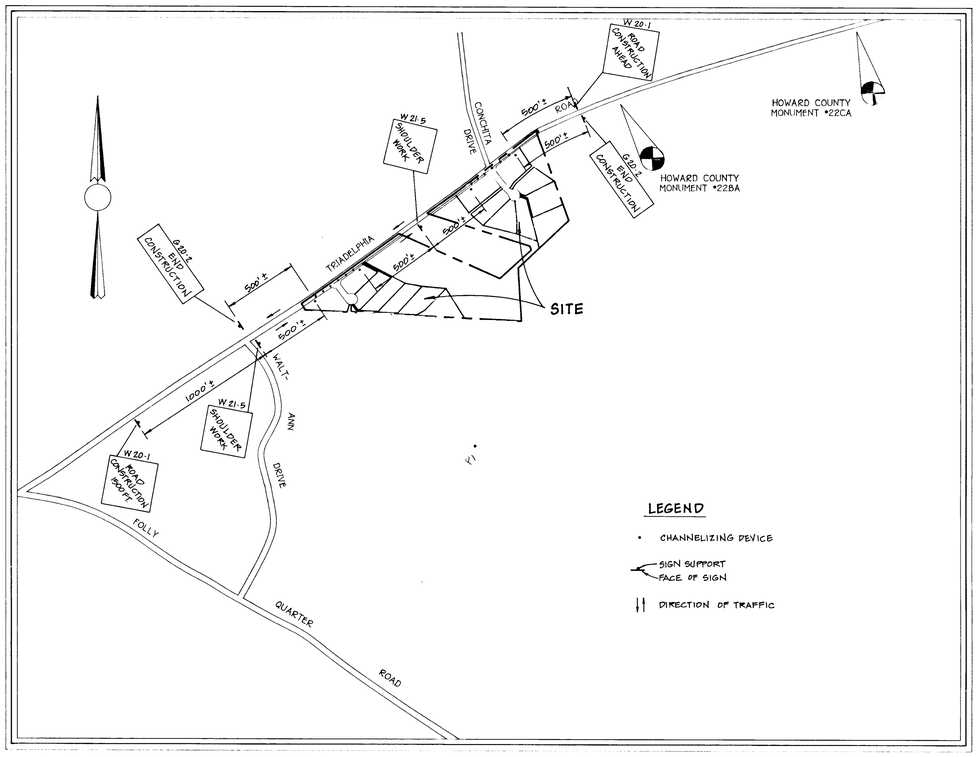
TRAFFIC PLAN FOR ROAD WIDENING ALONG TRIADELPHIA ROAD

SCALE : 1"= 600'



MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS

GENERAL

1. THE PURPOSE OF THIS PORTION OF THE SPECIAL PROVISION IS TO SET THE TRAFFIC CONTROL REQUIREMENTS NECESSARY FOR THE SAFE AND EFFICIENT MAINTENANCE OF TRAFFIC WITHIN WORK AREAS, AND TO MINIMIZE ANY INCONVENIENCES TO THE TRAVELING PUBLIC AND THE CONTRACTOR AND/OR PERMITTEE.
2. PROPER TRAFFIC CONTROL THROUGH WORK AREAS IS ESSENTIAL INSURING THE SAFETY OF HIGHWAY WORKERS HAS THE HIGHEST PRIORITY OF ALL TASKS WITHIN THIS PROJECT. THE PROPER APPLICATION OF THE APPROVED TRAFFIC CONTROL PLAN (TCP) WILL PROVIDE THE DESIRED LEVEL OF SAFETY.
3. THROUGHOUT THESE SPECIAL PROVISIONS, ANY MENTION OF THE TCP SHALL BE IMPLIED TO INCLUDE ANY COMBINATION OF TYPICAL TRAFFIC CONTROL STANDARDS WHICH FORM THE OVERALL TCP FOR THIS PROJECT WHICH HAS BEEN APPROVED BY THE APPROPRIATE HOWARD COUNTY TRAFFIC ENGINEER.
4. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 1988 EDITION, ESPECIALLY PART VI, AND TO SECTION 104 OF THE MARYLAND DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JANUARY, 1982; INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.
5. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FOR IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE MINOR CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THREE(3) WORKING DAYS PRIOR TO THE PROPOSED SCHEDULING CHANGE. THE CONTRACTOR AND/OR PERMITTEE SHALL HAVE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO THE IMPLEMENTATION OF ANY CHANGE.
6. NO WORK SHALL BEGIN ON ANY WORK ACTIVITY OR WORK PHASE UNTIL ALL REQUIRED TRAFFIC CONTROL PATTERNS AND DEVICES INDICATED ON THE TCP FOR THAT ACTIVITY OR PHASE ARE COMPLETELY AND CORRECTLY IN PLACE AND HAVE BEEN CHECKED FOR APPROVED USAGE.
7. GENERAL AND SPECIFIC WARNING SIGNS SHALL ONLY BE IN PLACE WHEN SPECIFIC WORK TASKS AND ACTIVITIES ARE ACTUALLY UNDERWAY OR CONDITIONS EXIST THAT POSE A POTENTIAL HAZARD TO THE PUBLIC, AND ANY ADDITIONAL SIGNING HAS BEEN APPROVED BY THE APPROPRIATE HOWARD COUNTY TRAFFIC ENGINEER. NOTE: THE PRACTICE OF PLACING SIGNING AND OTHER TRAFFIC CONTROL DEVICES IN ADDITION TO THOSE INDICATED ON THE APPROVED TCP IS NOT PERMITTED.
8. THE CONTRACTOR AND/OR PERMITTEE SHALL PROVIDE, MAINTAIN IN NEW CONDITION, AND MOVE WHEN NECESSARY, OR AS DIRECTED BY THE ENGINEER, ALL TRAFFIC CONTROL DEVICES USED FOR THE GUIDANCE AND PROTECTION OF MOTORISTS, PEDESTRIANS, AND WORKERS.
9. ALL TRAFFIC CONTROL DEVICES REQUIRED BY THE TCP SHALL BE KEPT IN GOOD CONDITION, FULLY PERFORMING AS SET FORTH IN THE TCP, THE MUTCD, AND/OR SECTION 104 OF THE SPECIFICATIONS. FOR REFLECTIVE DEVICES, A PARTICULAR DEVICE IS ASSUMED TO HAVE FAILED TO MEET MINIMUM OPERATIONAL STANDARDS WHEN THE DEVICE NO LONGER HAS RETRO-REFLECTANCE CAPABILITY OF AT LEAST 60% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST 90% OF THE VISIBLE REFLECTIVE SURFACE.
10. ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC, OR OTHERWISE TAKEN OUT OF SERVICE. IT IS INTENDED THAT NO TRAFFIC CONTROL DEVICE IS TO BE IN SERVICE WHEN THERE IS NO CLEAR CUT REASON FOR THE DEVICE.
11. THROUGHOUT THE PERIOD(S) OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP. IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS, THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OR PREPARING AND SUBMITTING A TCP, WHOLLY OR IN PART, OF HIS OWN DESIGN, FOLLOWING GUIDELINES SET FORTH IN THE MUTCD AND PRESCRIBED BY THE ADMINISTRATION. A TCP DEVELOPED BY THE CONTRACTOR AND/OR PERMITTEE SHALL NOT BE IMPLEMENTED UNTIL ADVANCE WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. TCP'S MAY BE IMPLEMENTED WITHIN A SINGLE PROJECT OR JOINTLY BETWEEN TWO OR MORE PROJECTS. IN SITUATIONS WHERE TCP'S JOINTLY IMPLEMENTED, CARE SHALL BE EXERCISED TO PRESENT CORRECT AND NON-CONFLICTING GUIDANCE TO THE TRAVELING PUBLIC.
12. THROUGHOUT THESE SPECIAL PROVISIONS, WHERE SPEED OF TRAFFIC IS NOTED, THIS MEANS THE POSTED SPEED OR PREVAILING TRAVEL SPEED, WHICHEVER IS HIGHER, UNLESS OTHERWISE NOTED.
13. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT, UNLESS OTHERWISE NOTED. NO TRAVEL LANE(S) OTHER THAN THOSE DESIGNATED FOR POSSIBLE CLOSURE IN THE TCP SHALL BE CLOSED WITHOUT OBTAINING PRIOR APPROVAL FORM THE ENGINEER. ALL INGRESS AND EGRESS TO THE WORK AREA BY THE CONTRACTOR AND/OR PERMITTEE SHALL BE PERFORMED WITH THE FLOW OF TRAFFIC.

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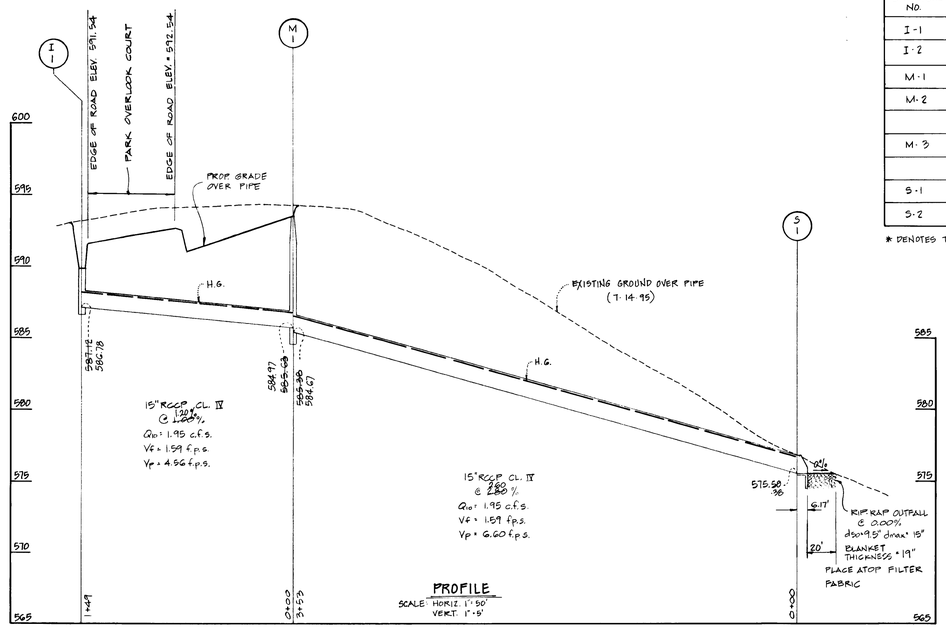


STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	*589.89	—	586.78 / 587.12	PARK OVERLOOK COURT	L.P. STA 1+71	5' LT.	K	S.D. 4.12
I-2	*587.09	—	581.49 / 581.99	BENSON ESTATES COURT	L.P. STA 1+46.97	5' LT.	K	S.D. 4.12
M-1	593.67.28	585.27 / 585.67	585.38 / 584.61	PARK OVERLOOK COURT	2+03	19' RT.	STD. MANHOLE	G. 5.01
M-2	585.49	579.90 / 579.40	579.78 / 579.28			N 691347.40 E 1921176.82	STD MANHOLE	G. 5.01
M-3	585.51.26	573.85 / 573.35	573.00 / 572.46			N 690449.95 E 1921473.39	STD. MANHOLE	G. 5.01
S-1	576.75.63	575.50 / 575.00	575.50 / 575.00			N 690240.91 E 1921391.72	CONC. END SECT.	S.D. 5.51
S-2	567.50.98	566.00 / 565.78	566.00 / 565.78			N 689665.01 E 1921701.21	CONC. END SECT.	S.D. 5.51

* DENOTES THROAT ELEVATION TOP OF GRATE IS 1.25' ABOVE THROAT ELEVATION.

DITCH LINING CHART

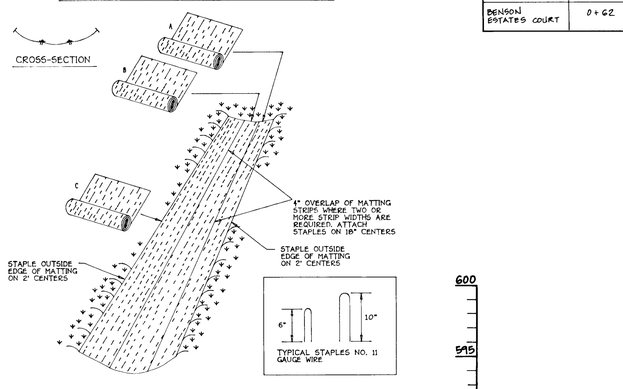
ROAD	FROM	TO	LOCATION	d
BENSON ESTATES COURT	0+62	1+70	RIGHT AND LEFT OF ℄	0.55'

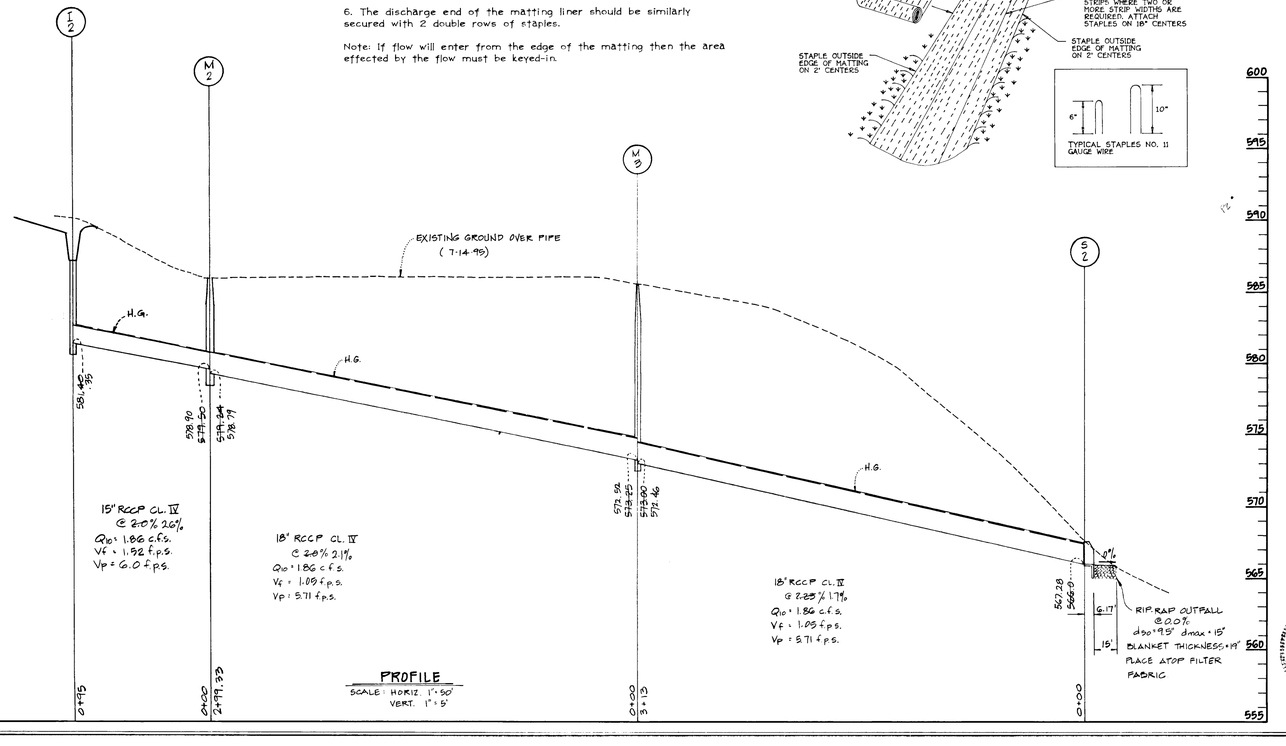
Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

EROSION CONTROL MATTING





APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-5-96

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 3/8/96

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/8/96

STORM DRAIN PROFILES TRAFFIC CONTROL AND DETAIL SHEET

BENSON BRANCH ESTATES

LOTS 4 THRU 19 AND PRESERVATION PARCEL "A"

(A Resubdivision of Lots 1 - 3, Benson Branch Estates, Plat No. 11820 and all of the Land Conveyed to Ellicott City Land Holding, Inc., Liber 3384, Folio 502)

ZONED: RR
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22, PART OF PARCEL 16
SCALE: AS SHOWN DATE: NOVEMBER 20, 1995
SHEET 9 OF 14

AS-BUILT 11-17-97

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APPROVED: DEPARTMENT OF PLANNING AND ZONING

Gina Tuirmany (signature) — 3/8/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

(signature) — 3/7/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Dancker (signature) — 3-5-96
CHIEF, BUREAU OF HIGHWAYS — DATE

DRAINAGE AREA MAP					
INLET	DRAINAGE AREA	AREA (ACRES ±)	'C'	ZONED	PERCENT IMPERVIOUS
I-2	B	0.50 Ac.±	0.62	RR-DEO	52%

PLAN VIEW

Scale: 1" = 50'

OWNER AND DEVELOPER

ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUIT 215
COLUMBIA, MARYLAND 21044

DRAINAGE AREA MAP

BENSON BRANCH ESTATES

Lots 4 Thru 19 AND
Preservation Parcel 'A'

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FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
ELLICOTT CITY, MARYLAND 2104?
(410) 461 - 2855

1752

F96-72

DRAINAGE AREA DATA					
INLET	DRAINAGE AREA	AREA (ACRES ±)	'C'	ZONED	PERCENT IMPERVIOUS
I-1	A	0.55	0.56	RR-DEO	44%

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Gina Zoviinary · 3/8/96

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH CMH — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

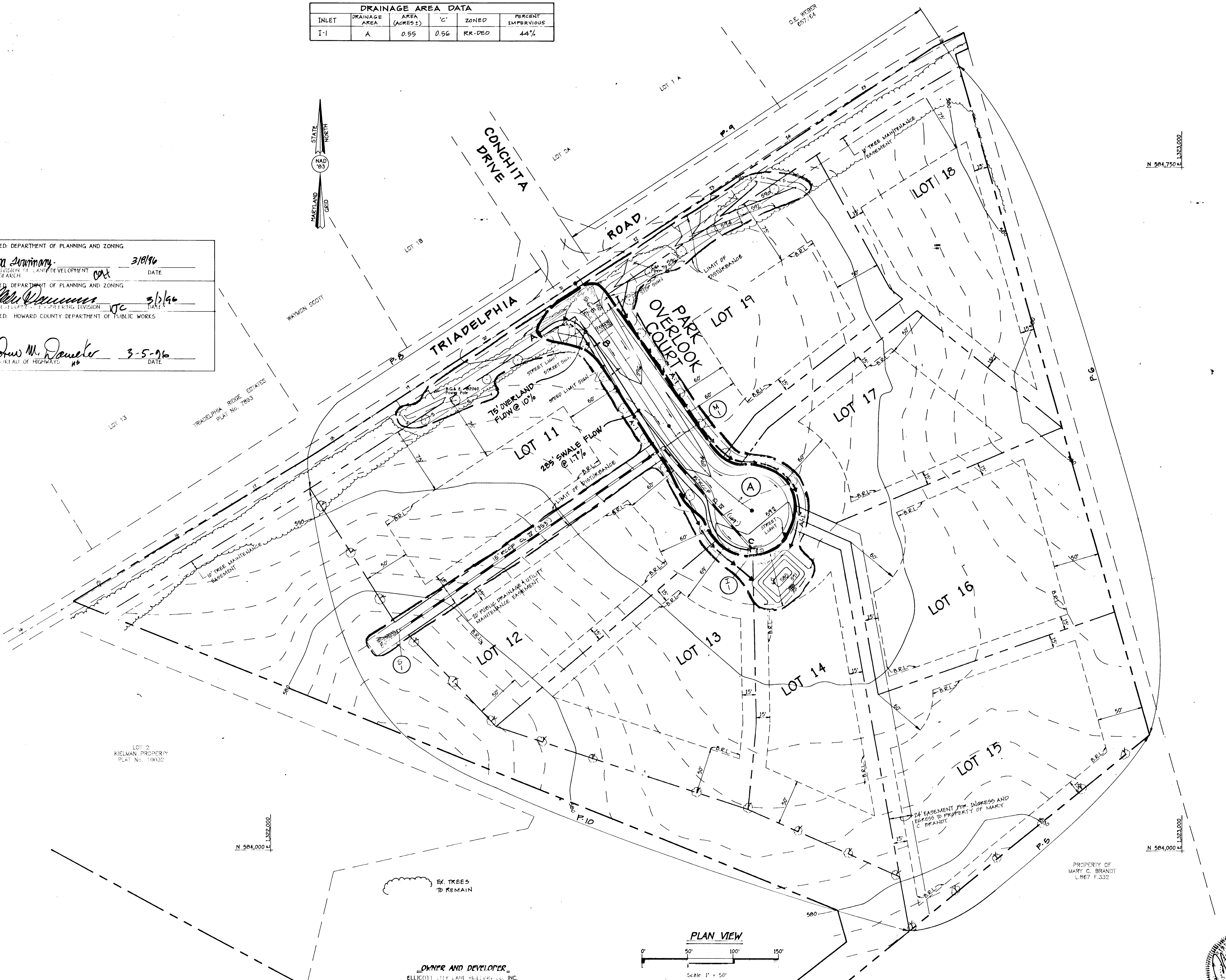
[signature] 3/7/96

CHIEF, DEVELOPMENT ENGINEERING DIVISION VJC — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Dameler 3-5-96

CHIEF, BUREAU OF HIGHWAYS HS — DATE



PLAN VIEW

0' 50' 100' 150'

Scale 1" = 50'

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
(410) 461 - 2855

OWNER AND DEVELOPER
ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUIT 215
COLUMBIA, MARYLAND 21044

DRAINAGE AREA MAP

BENSON BRANCH ESTATES

Lots 4 Thru 19 AND Preservation Parcel 'A'

(A Resubdivision of Lots 1 - 3, Benson Branch Estates, Plat No. 11820 and all of the Land Conveyed to Ellicott City Land Holding, Inc., Liber 3384, Folio 502)

ZONED: RR
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22, PART OF PARCEL 16
SCALE: AS SHOWN DATE: NOVEMBER 20, 1995

AS-BUILT 11-17-97

F96-72

1752

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY".

SIGNATURE OF DEVELOPER — 11/20/95 DATE

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER — 11/20/95 DATE

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — 2/23/96 DATE

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

APPROVED: Robert W. Zinkan

HOWARD SOIL CONSERVATION DISTRICT — 2/23/96 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Gina Levinnany — CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — 3/8/96 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 3/7/96 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Daneker — CHIEF, BUREAU OF HIGHWAYS — 3-5-96 DATE

SOILS LEGEND

SOIL	NAME	CLASS
CgC2	Chester gravelly silt loam, 8 to 15 percent slopes, moderately eroded	B
ChA	Chester silt loam, 0 to 3 percent slopes	B
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
ChC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded	B
CnB2	Chillum-Fairfax loams, 1 to 5 percent slopes, moderately eroded	C
* Cs	Comus silt loam	B

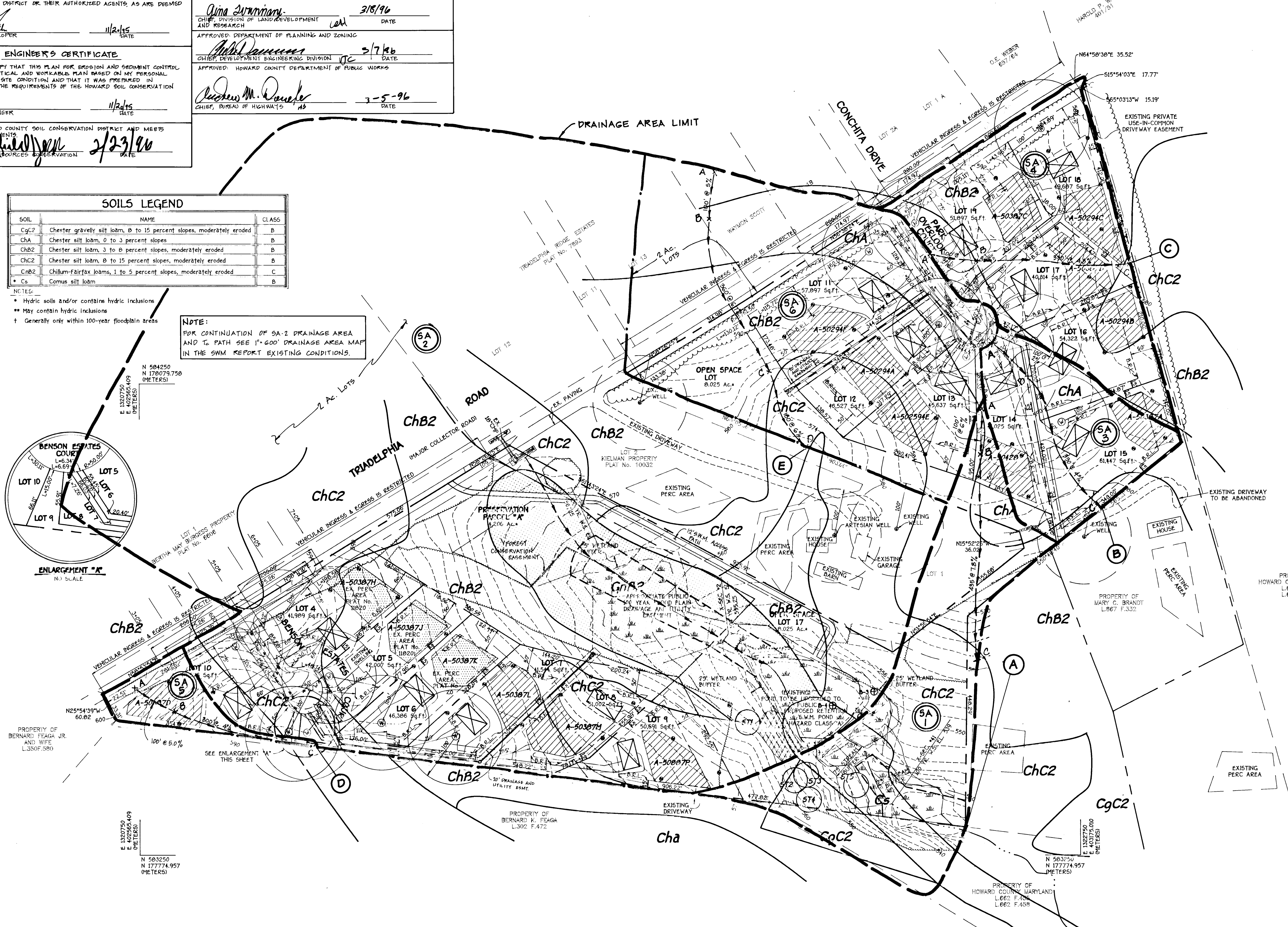
NOTES:

* Hydric soils and/or contains hydric inclusions

** May contain hydric inclusions

† Generally only within 100-year floodplain areas

NOTE:
FOR CONTINUATION OF SA-2 DRAINAGE AREA AND Tc PATH SEE 1"=600' DRAINAGE AREA MAP IN THE SWM REPORT EXISTING CONDITIONS.



Area	Subarea	RCN	Tc
A = 5.50 ACS	SA 1	RCN = 65	Tc = .257 HRS
A = 49.5 ACS	SA 2	RCN = 66	Tc = .468 HRS
A = 2.50 ACS	SA 3	RCN = 68	Tc = 0.27 HRS.
A = 4.70 ACS	SA 4	RCN = 68	Tc = 0.23 HRS.
A = 0.60 ACS	SA 5	RCN = 68	Tc = 0.18 HRS.
A = 8.80 ACS	SA 6	RCN = 67	Tc = 0.19 HRS.

STATE NORTH
NAD '83
MARYLAND GRID

- DENOTES 'C' SOIL

(A) - DENOTES DESIGN POINTS

SOILS NOTE:

ALL HYDROLOGIC SOIL GROUPS ARE 'B' SOILS UNLESS OTHERWISE SHOWN.

USE NOTE:

ALL LAND USES WITHIN SA-1 & SA-2 DRAINAGE AREAS ARE CONSIDERED 2 ACRE LOTS FOR THE PROPOSED CONDITIONS.

FOR EXISTING CONDITIONS DRAINAGE AREA MAP SEE EXISTING CONDITIONS HYDROLOGY.

ALL LAND USES WITHIN SA-3, SA-4 & SA-5 ARE CONSIDERED 1 ACRE LOTS.

ALL LAND USES WITHIN SA-6 ON-SITE ARE CONSIDERED 1 ACRE LOTS, OFF-SITE IS CONSIDERED 2 ACRE LOTS.

OWNER AND DEVELOPER

ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUIT 215
COLUMBIA, MARYLAND 21044

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

1752

SOILS MAP AND STORM WATER MANAGEMENT DRAINAGE AREA MAP (PROPOSED CONDITIONS)

BENSON BRANCH ESTATES

LOTS 4 THRU 19 AND PRESERVATION PARCEL "A"

THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22 PARCEL 16

0' 100' 150' 200'
Scale: 1" = 100'

DATE: NOVEMBER 20, 1995
SHEET 12 OF 14
AS-BUILT 11-17-97

30520DA1.DWG

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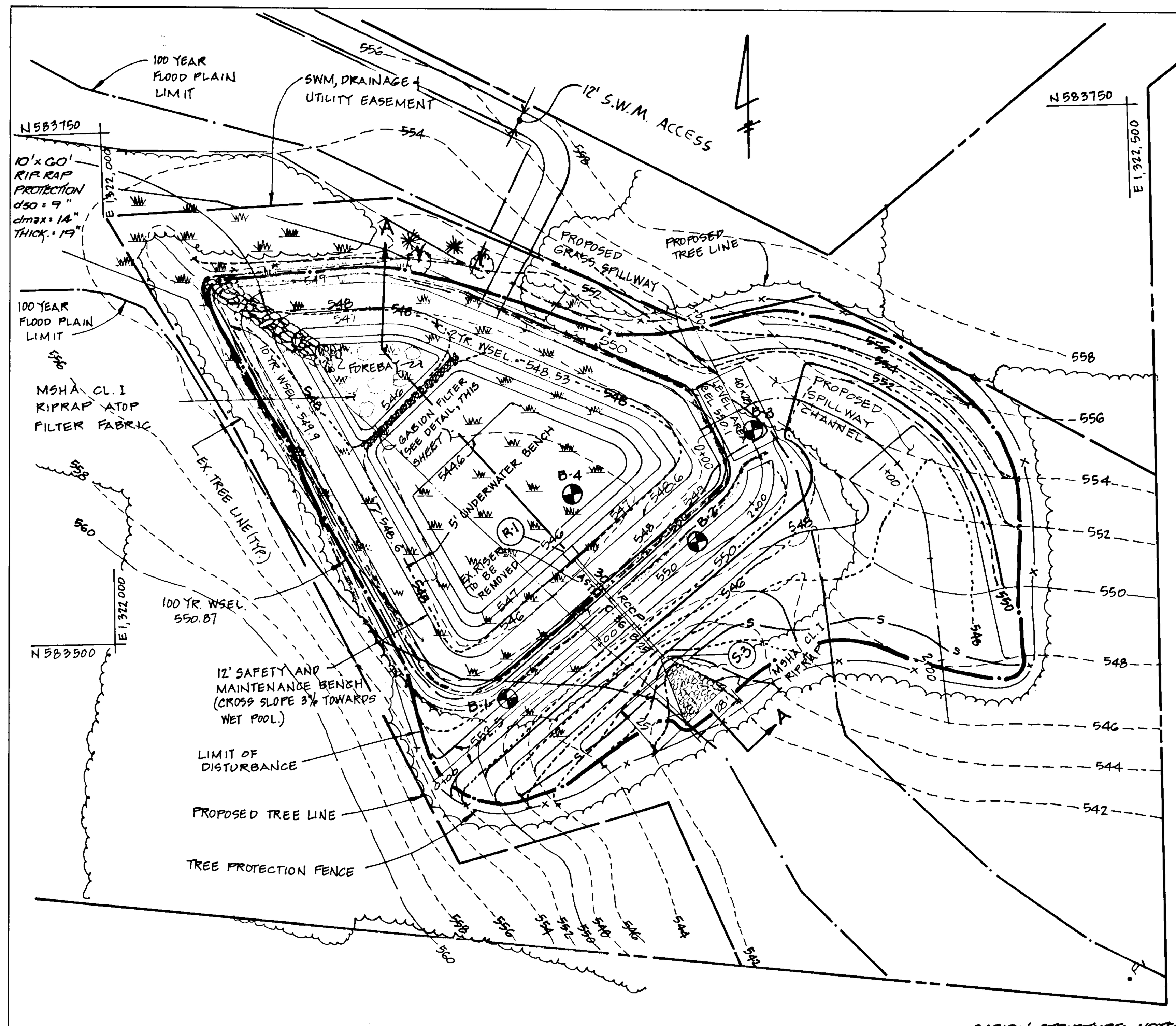
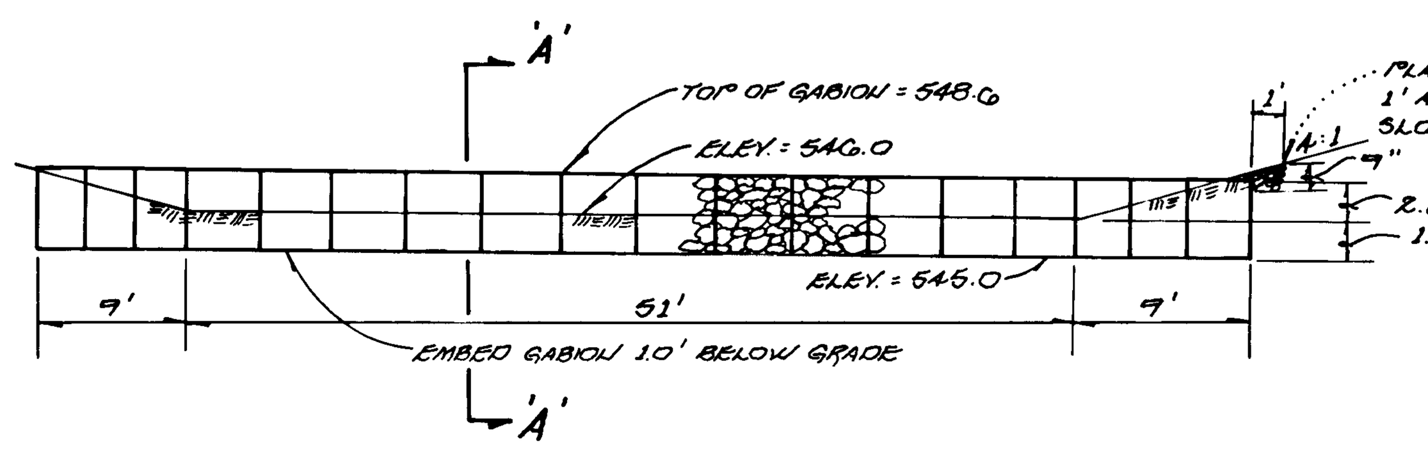


STORMWATER MANAGEMENT POND PLAN

SCALE: 1"=50'

NOTE: SHOULD WATER BE ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT WILL BE REMOVED BY PUMPING.

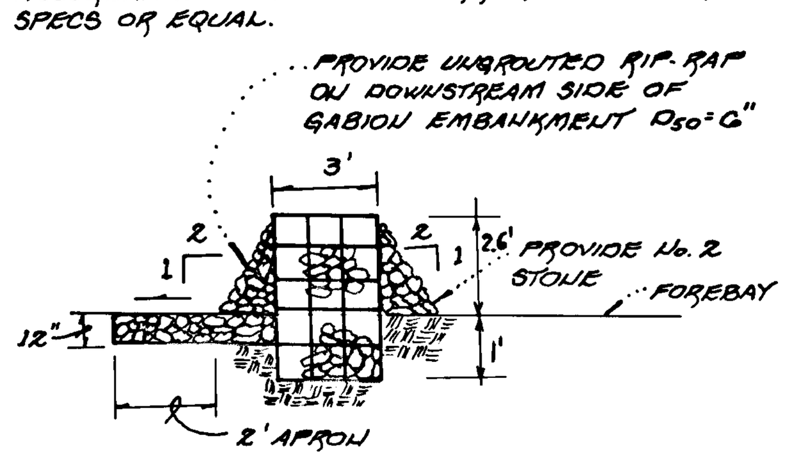


SECTION THRU EMBANKMENT @ FOREBAY

(NO SCALE)

GABION STRUCTURE NOTES:

1. ALL WIRE USED IN GABION CONSTRUCTION SHALL BE GALVANIZED AND PLASTIC COATED. ALL PLIERS AND TOOLS SHALL BE PLASTIC COATED.
2. FILTER CLOTH SHALL BE PLACED WHENEVER GABION COMES IN CONTACT WITH SOIL.
3. STONE FILL SHALL CONSIST OF HARD, DURABLE CLEAN STONE. 4"-8" IN SIZE OR APPROVED BY THE ENGINEER.
4. CONSTRUCTION MATERIALS & METHODS SHALL BE IN ACCORDANCE WITH MACCAFFERRI GABIONS INC., SPECS OR EQUAL.



SECTION 'A-A'

(NO SCALE)

SCHEDULE D STORMWATER MANAGEMENT POND LANDSCAPING

LINEAR FEET OF PERIMETER	1130'
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	PERIMETER = 1130' - 1030' = 100' 2 SHADE TREES 2 EVERGREEN TREES
CREDIT FOR EXISTING VEGETATION (YES, NO, AND %)	1030'
CREDIT FOR OTHER LANDSCAPING (YES, NO, AND %)	-
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION)	2 SHADE TREES 2 EVERGREEN TREES

LEGEND
- EVERGREEN TREE
- SHADE TREE

STORMWATER MANAGEMENT POND SUMMARY

STORM EVENT	EXISTING CONDITION DISCHARGE (C.F.S.)	DEVELOPED CONDITION DISCHARGE (C.F.S.)	ALLOWABLE RELEASE (C.F.S.) W/ROAD R//W MANAGEMENT	ACTUAL RELEASE (C.F.S.)	STORAGE ELEVATION (FT)	STORAGE (CF)
2 YEAR	26.59	22.14	21.70	14.95	548.58	19,880
10 YEAR	80.09	72.66	71.21	52.11	550.10	58,980,
100 YEAR	150.29	140.63	N/A	146.07	551.03	92,600

POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated an 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 quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6', frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification 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 placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction)layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of 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 than 95% of maximum dry density with a moisture content within ?2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

Cut Off Trench- The cutoff trench shall be excavated 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 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 structure or pipe, unless there is a compacted 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 appurtenances 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 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 or 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 coupling 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 of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

   All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 24" in diameter flanges on both ends of the pipe, a 12' wide standard lap type band with 12' wide by 3/81 thick closed cell circular neoprene gasket; and a 12' wide hugger type band with 0-ring gaskets having a 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 0-1 785 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 608, Mix No. 3

Rock Rip-rap

Rock rip-rap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 905.

The rip-rap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the rip-rap in place shall be reasonably homogeneous 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 placed under all rip-rap 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 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 required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such 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 sightly condition. All exposed surfaces of the embankment spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the 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.

NOTE: DURING RECONSTRUCTION OF THE POND, GEOTECHNICAL INSPECTION AND TESTING WILL BE REQUIRED TO VERIFY CONSTRUCTION ACCORDING TO THE SPECIFICATIONS.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY".

[signature] — SIGNATURE OF DEVELOPER — 11/20/95 DATE

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[signature] — SIGNATURE OF ENGINEER — 11-22-95 DATE

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

[signature] — U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — 2/23/96 DATE

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

APPROVED: [signature] — HOWARD SOIL CONSERVATION DISTRICT — 2/23/96 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

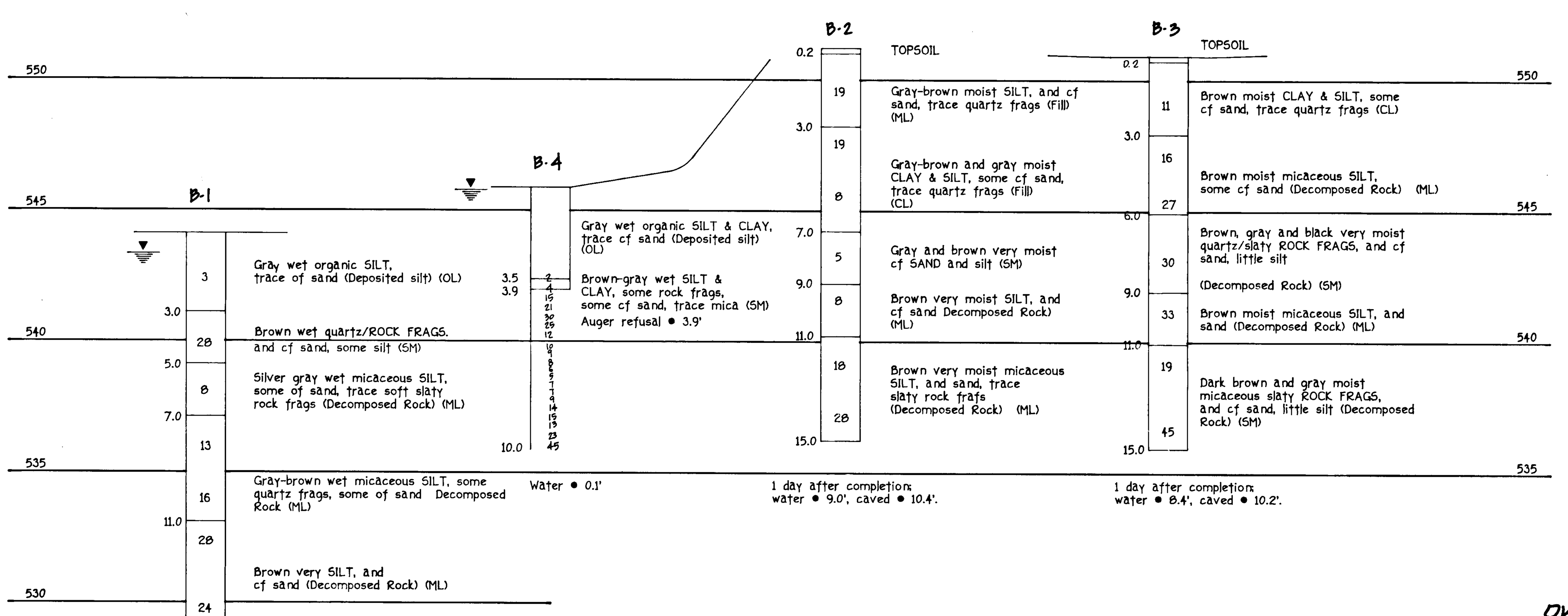
[signature] — CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — COH — 3/8/96 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] — CHIEF, DEVELOPMENT ENGINEERING DIVISION — UJC — 3/7/96 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] — CHIEF, BUREAU OF HIGHWAYS — HS — 3-5-96 DATE



SOIL BORING PROFILES

NOT TO SCALE

OWNER AND DEVELOPER

ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUITE 215
COLUMBIA, MARYLAND 21044

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

[Professional engineer seal: STATE OF MARYLAND, PROFESSIONAL ENGINEER, signed]

STORMWATER MANAGEMENT POND PLAN AND DETAILS

BENSON BRANCH ESTATES

Lots 4 Thru 19 AND Preservation Parcel 'A'

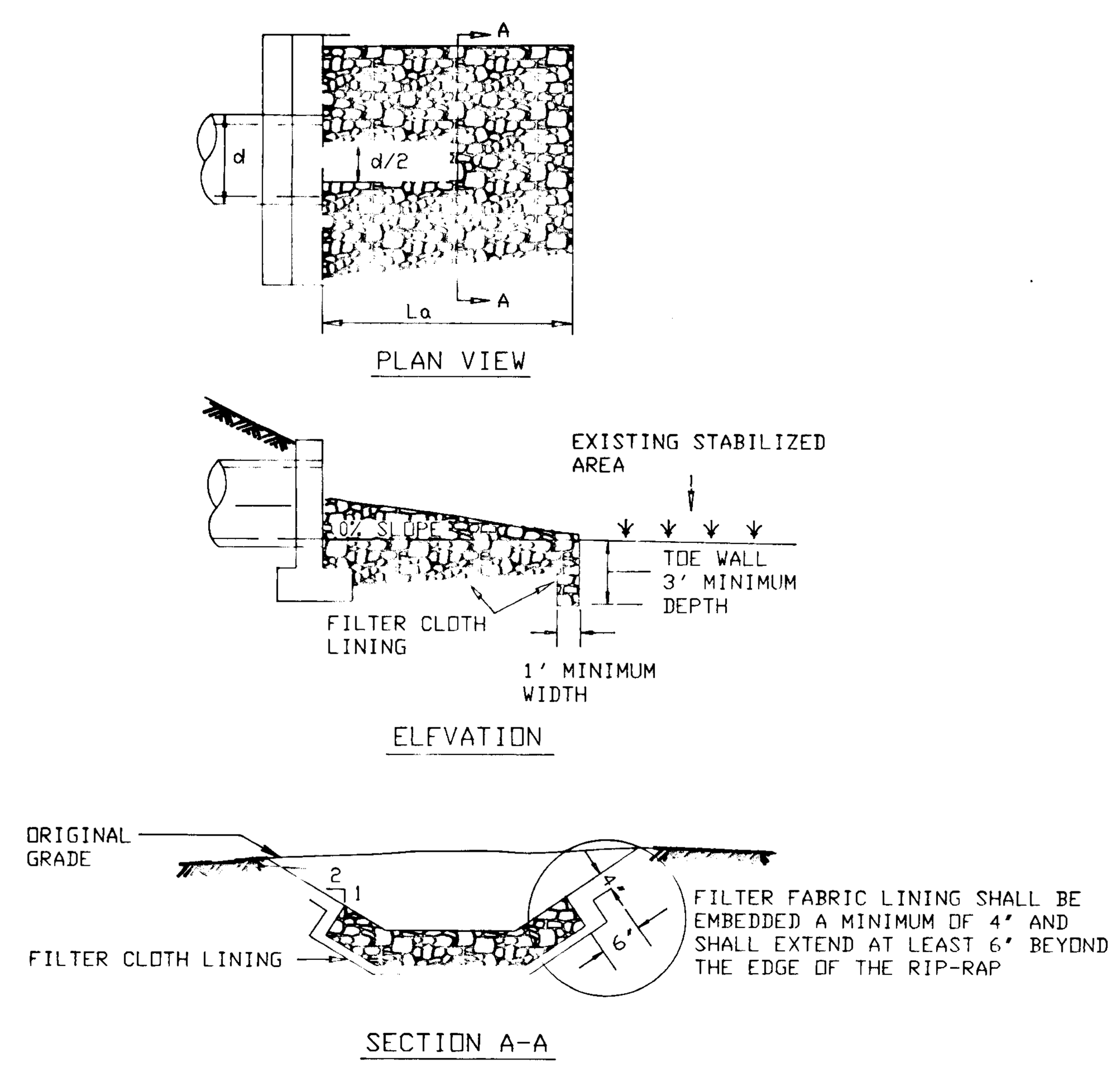
(A Resubdivision of Lots 1 - 3, Benson Branch Estates, Plat No. 11820 and all of the Land Conveyed to Ellicott City Land Holding, Inc., Liber 3384, Folio 502)

ZONED: RR
THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22, PART OF PARCEL 16
SCALE: AS SHOWN DATE: NOVEMBER 20, 1995
SHEET 13 OF 14

AS-BUILT 11-17-97

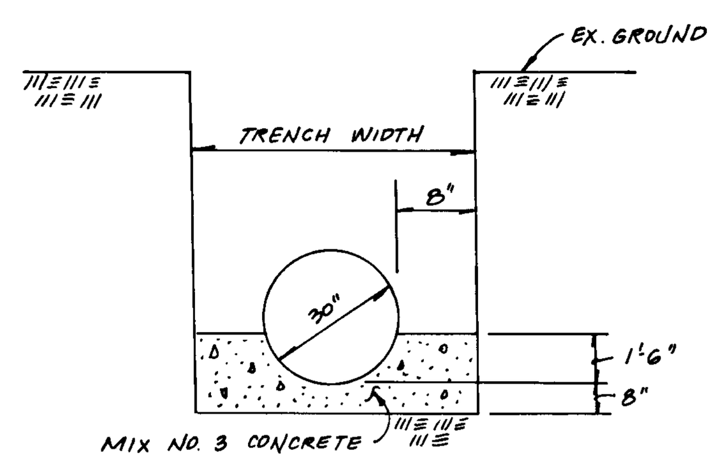
F 96-72

30520RD

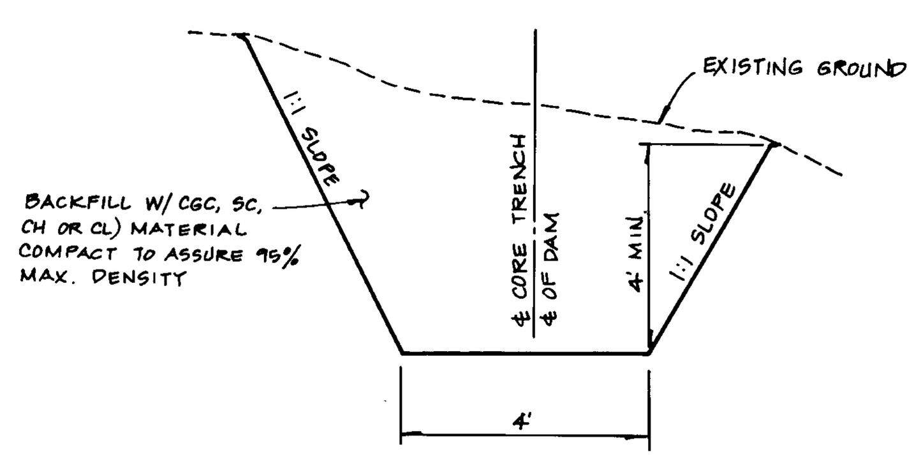


NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

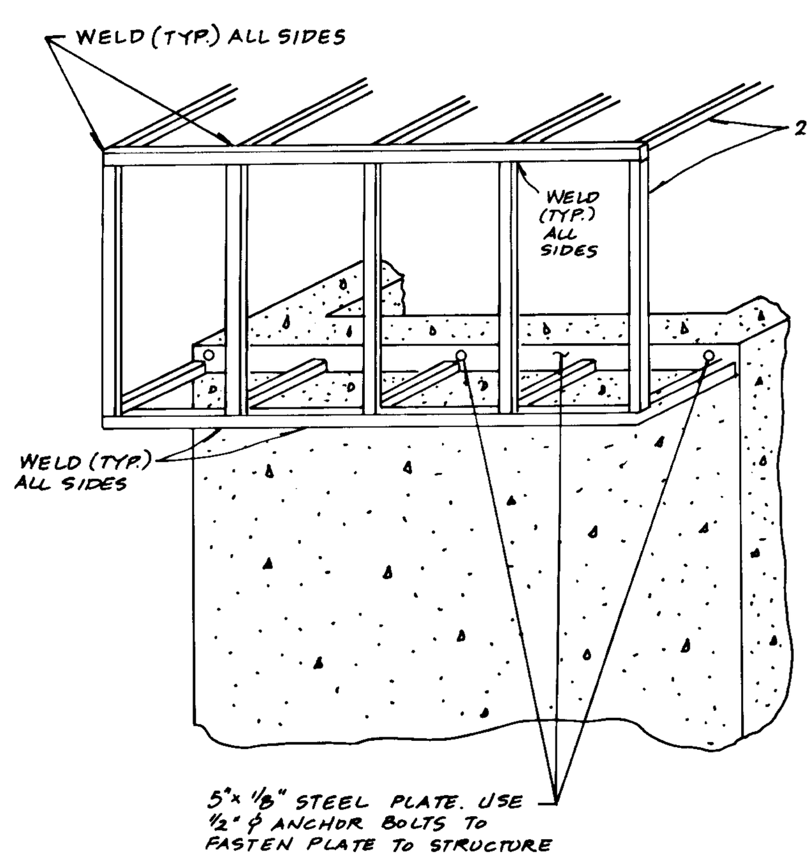
DETAIL 27 - ROCK OUTLET PROTECTION III



CONCRETE CRADLE DETAIL
NO SCALE



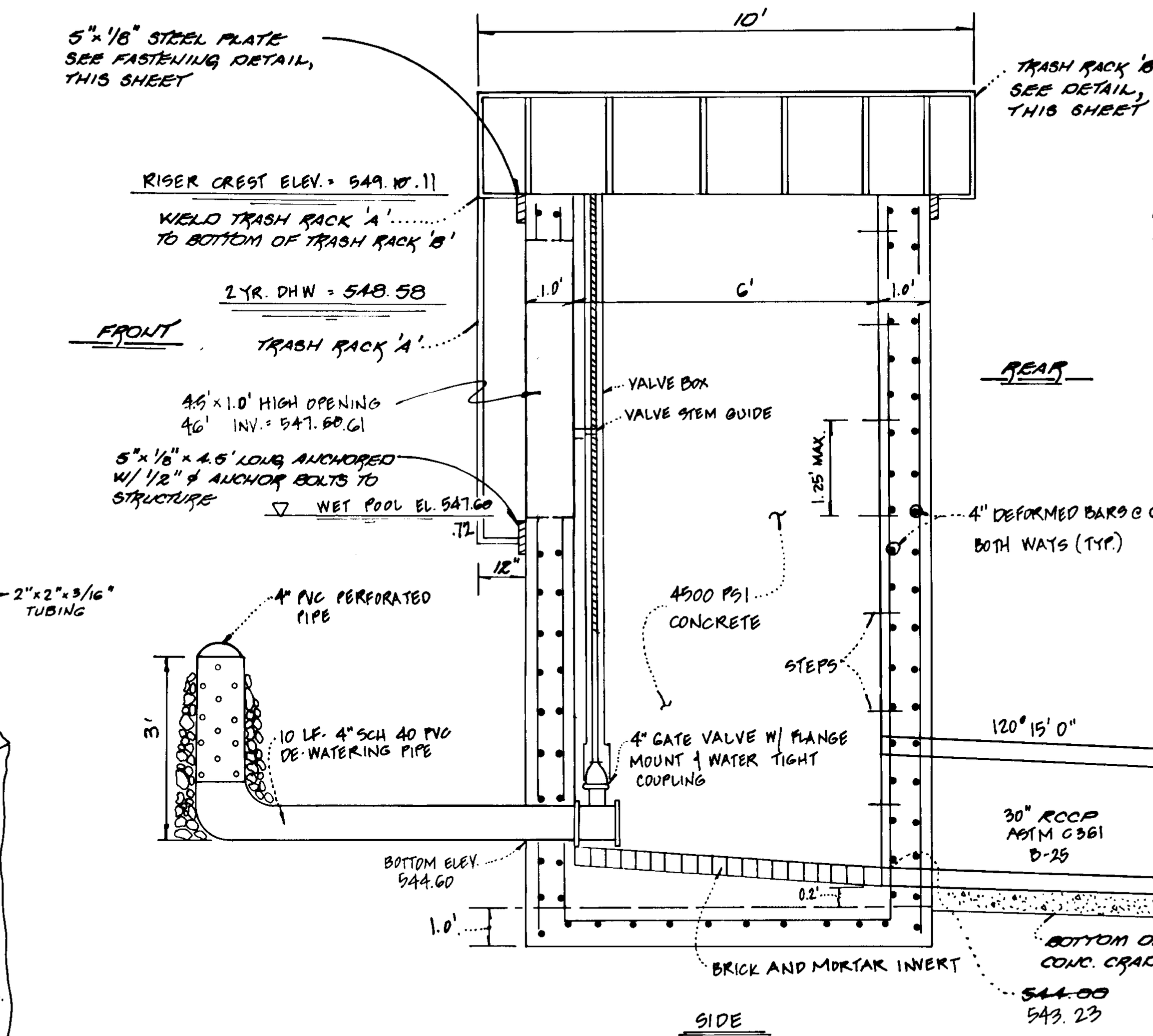
CORE TRENCH DETAIL
NOT TO SCALE



FASTENING DETAIL
NO SCALE

NOTE: CONTRACTOR SHALL

1) FIELD MEASURE THE STRUCTURE DIMENSIONS FOR EXACT FITTING OF TRASH RACK.
2) GALVANIZE ENTIRE TRASH RACK AND PAINT BATTLESHIP GREY AFTER FABRICATION.
3) ALL NUTS AND BOLTS SHALL BE GALVANIZED.



RISER ELEVATION
NOT TO SCALE

OWNER AND MAINTENANCE SCHEDULE OF HOME OWNERS ASSOCIATION OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY WET POND

HOME OWNERS ASSOCIATION'S MAINTENANCE RESPONSIBILITIES:

1. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MIN. OF (TWO) 2 TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
2. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
3. WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, SEDIMENT SHOULD BE REMOVED FROM THE POND. APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS IS NEEDED.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY" * AND ALSO PROVIDE FOR H.C.S.C.D. WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION.

SIGNATURE OF DEVELOPER — DATE 11/20/95

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. AND PROVIDE "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION - FOR H.C.S.C.D.

SIGNATURE OF ENGINEER — DATE 11-22-95

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION & SEDIMENT CONTROL

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/23/96

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

APPROVED:

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/23/96

APPROVED: DEPARTMENT OF PLANNING AND ZONING

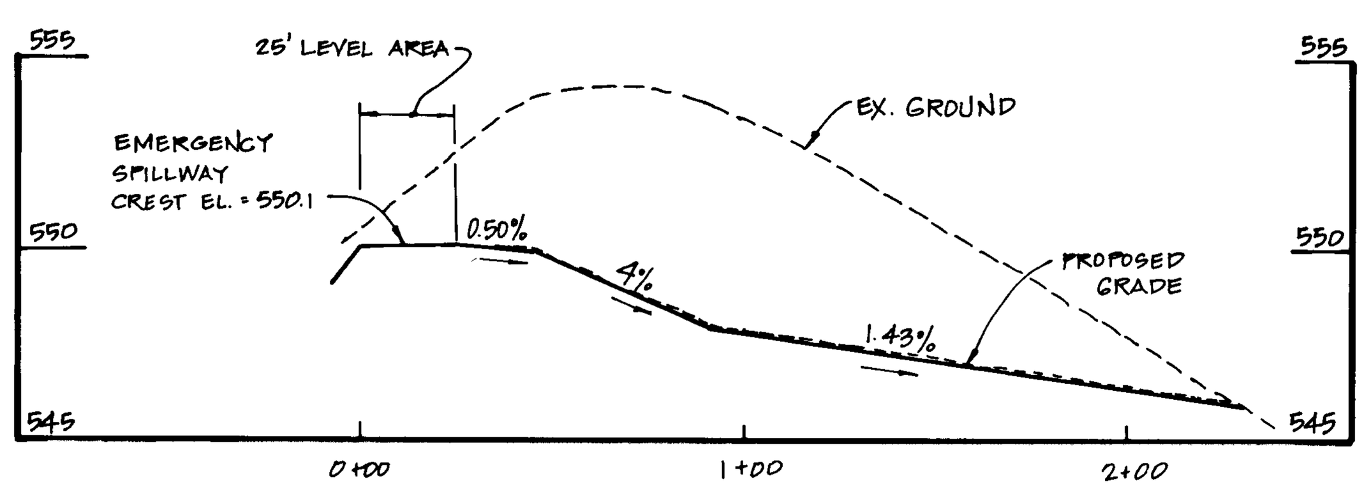
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 3/8/96

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/7/96

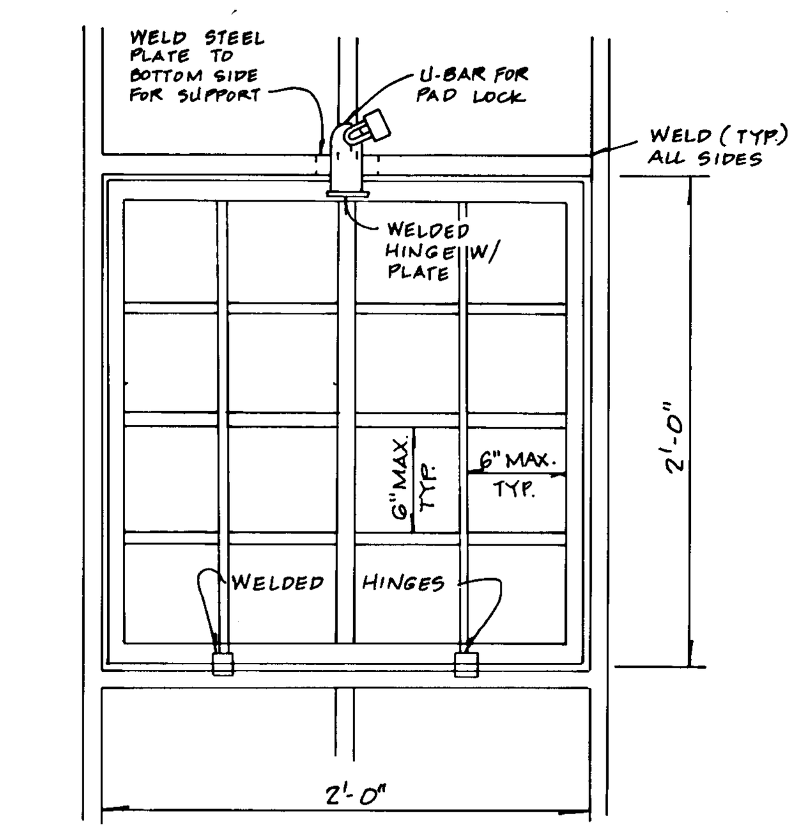
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-5-96

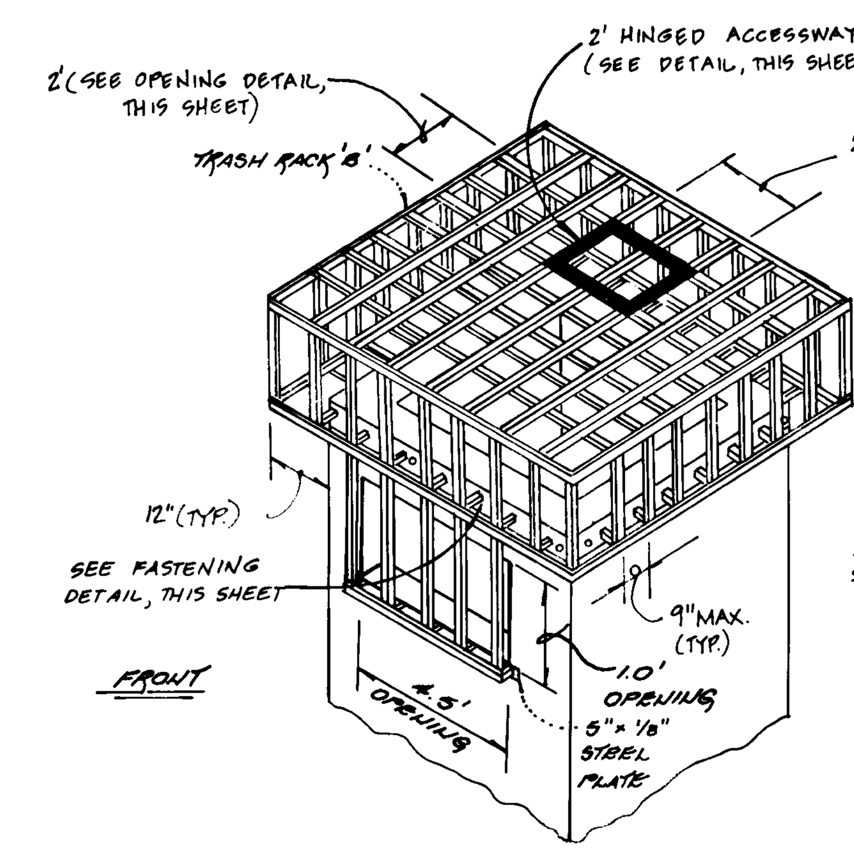


Q = 55.38 CFS
V = 2.1 FPS

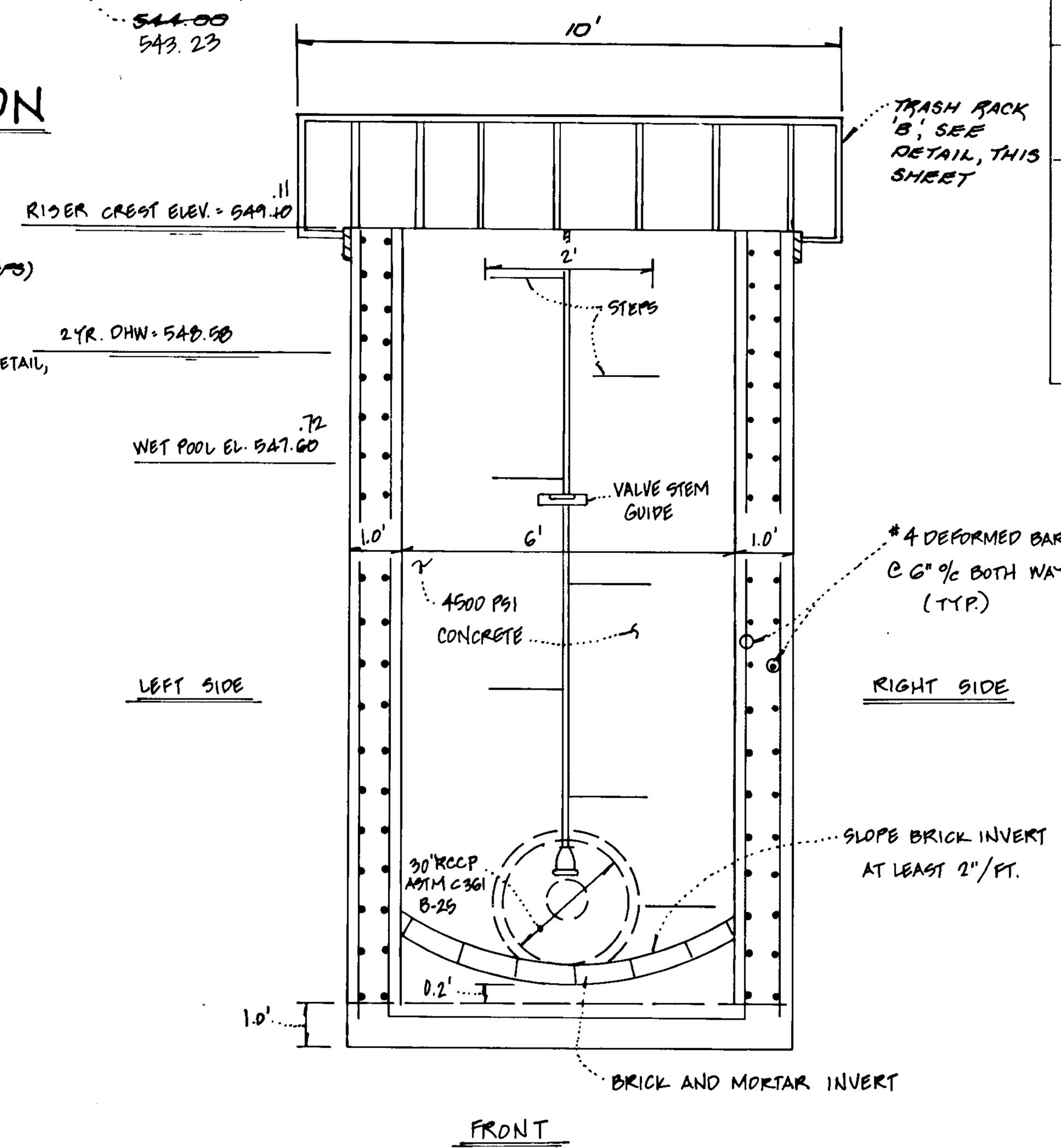
EMERGENCY SPILLWAY PROFILE
SCALE: 1" = 50' HORIZ. 1" = 5' VERT.



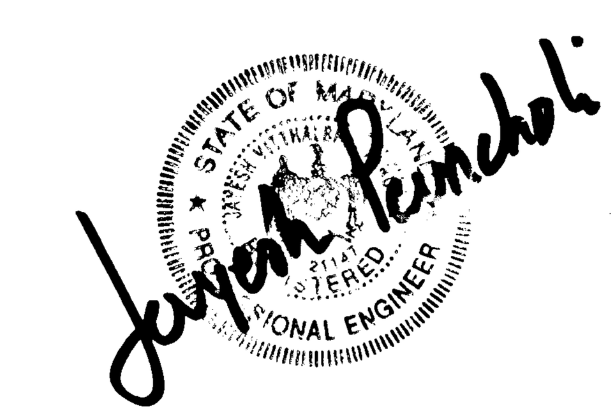
OPENING DETAIL
NO SCALE

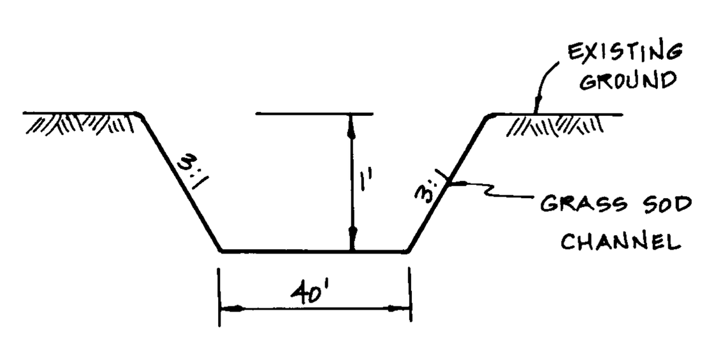


TRASH RACK 'A' & 'B'
NO SCALE



RISER ELEVATION
NOT TO SCALE





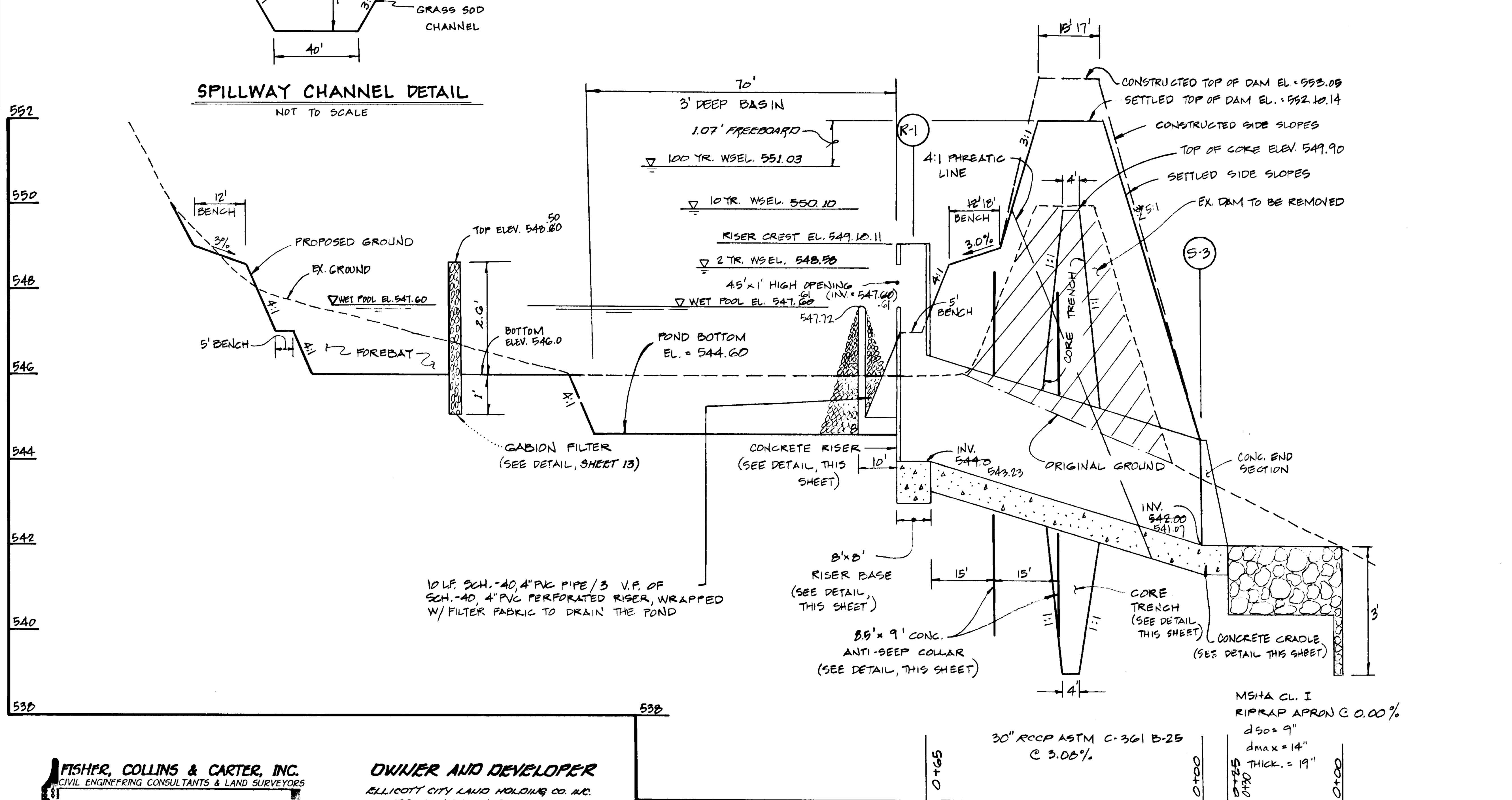
SPILLWAY CHANNEL DETAIL
NOT TO SCALE

AS-BUILT CERTIFICATION

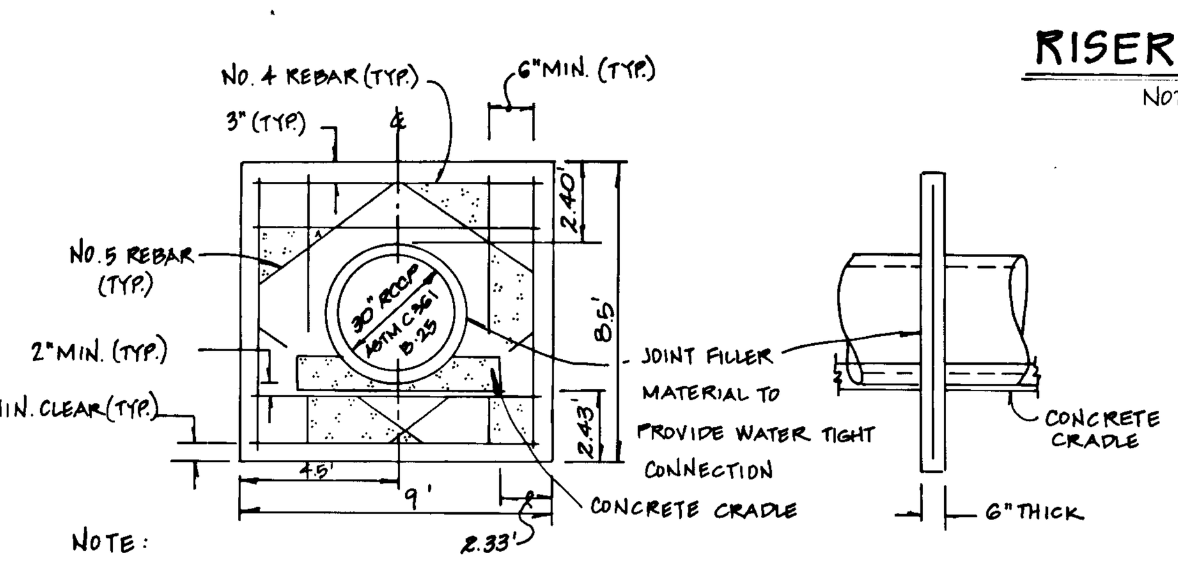
I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

Signature ______________ PE No. ______________
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 by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the engineer nor does an engineer's certification relieve any other party from meeting requirements imposed by contract, employment, or other means, including meeting commonly accepted industry practices.

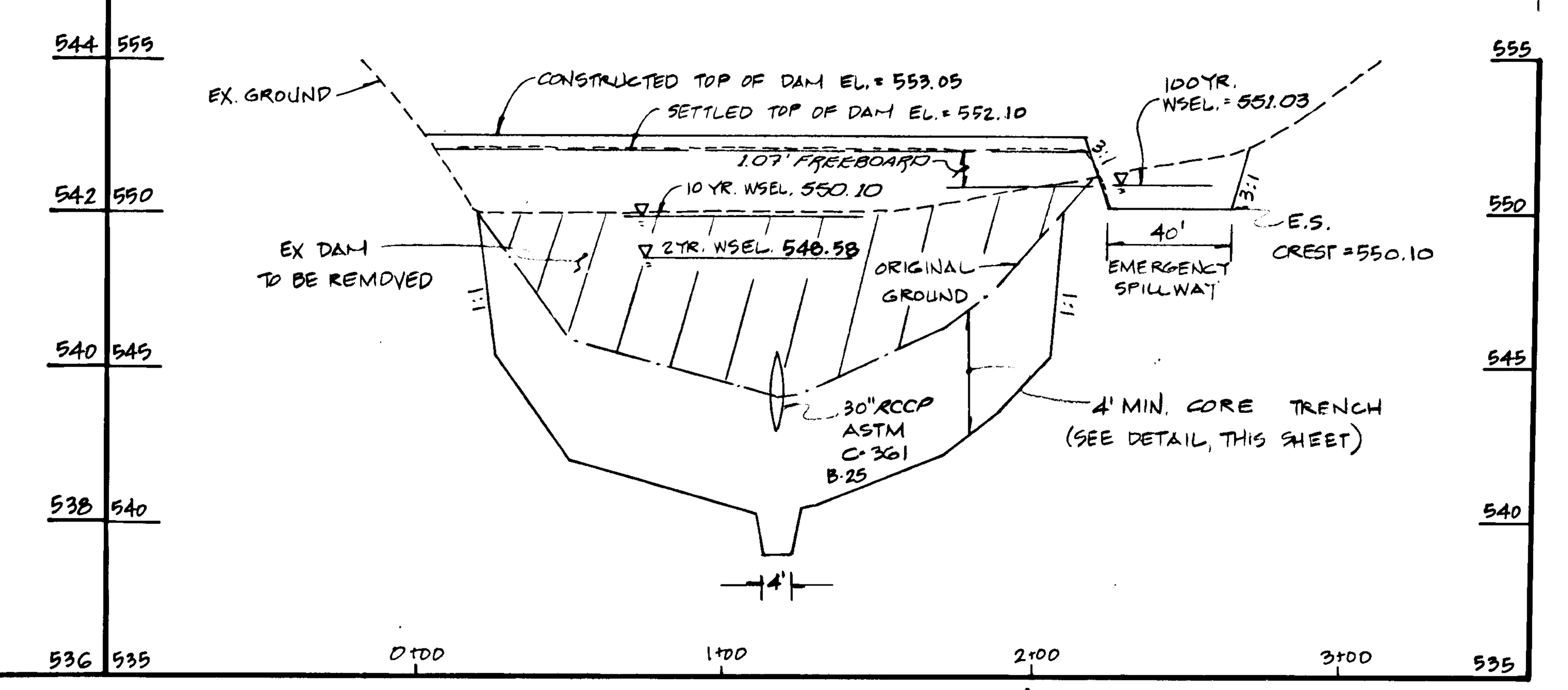


SECTION 'A-A'
SCALE: 1" = 20' HORIZ. 1" = 2' VERT.



NOTE:
1. ANTI-SEEP COLLAR SHALL BE LOCATED 2' MIN. FROM ANY PIPE JOINT.
2. USE TWO 8.5'×9.0' CONCRETE ANTI-SEEP COLLARS.

ANTI-SEEP COLLAR DETAIL
NOT TO SCALE



PROFILE ALONG DAM ℄
SCALE: 1" = 50' HORIZ., 1" = 5' VERT.

OPERATION, MAINTENANCE AND INSPECTION

Inspection of the pond(s) shown hereon shall be 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 any 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 slomping.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
ELLICOTT CITY, MARYLAND 21042

OWNER AND DEVELOPER
ELLICOTT CITY LAND HOLDING CO. INC.
10805 HICKORY RIDGE ROAD
SUITE 215
COLUMBIA, MARYLAND 21044

STORMWATER MANAGEMENT PROFILE AND DETAIL SHEET

BENSON BRANCH ESTATES

LOTS 4 THRU 19 AND PRESERVATION PARCEL "A"

THIRD ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 22 PARCEL 16

DATE: NOVEMBER 20, 1995

AS-BUILT 11-17-97

F 96-72

1752

30520RD6.DWG