SHEET INDEX	
SHEET No.	DESCRIPTION
1	TITLE SHEET
2	McCANN FARM ROAD PLAN AND PROFILE
3	SUSAN MARIE WAY PLAN AND PROFILE
4	OLD FREDERICK ROAD PLAN & PROFILE
5	OLD FREDERICK ROAD CROSS SECTION
6	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
7	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
8	SEDIMENT CONTROL PLAN AND DETAIL SHEET
9	STORM DRAIN PROFILES
10	DRAINAGE AREA MAP & LANDSCAPE PLAN
11	S.W.M. NOTES AND DETAILS
12	S.W.M. NOTES AND DETAILS
13	SEDIMENT CONTROL NOTES AND DETAILS
14	FOREST CONSERVATION PLAN
15	FOREST CONSERVATION NOTES AND DETAILS

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/25/02

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO

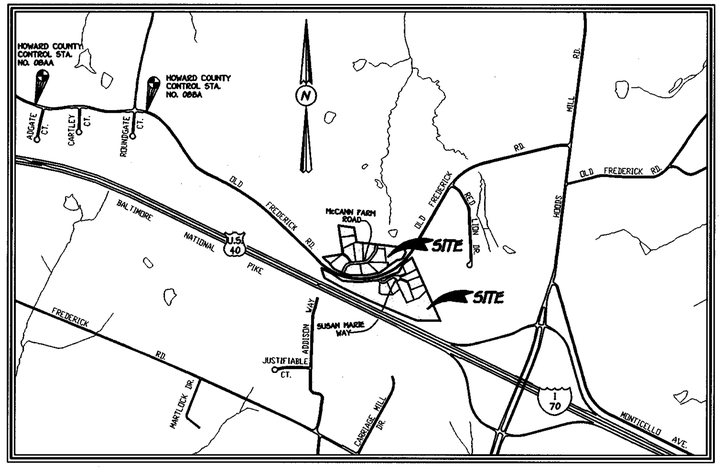
TAX MAP No. 8 PARCEL No. 78 GRID No. 16

ROAD CLASSIFICATION CHART		
ROAD NAME	CLASSIFICATION	R/W WIDTH
McCANN FARM ROAD	PUBLIC ACCESS PLACE	40'
SUSAN MARIE WAY	PUBLIC ACCESS PLACE	40'

TRAFFIC CONTROL SIGNS				
STREET NAME	C.L. STATION	OFFSET	POSTED SIGN	SIGN CODE
McCANN FARM ROAD	0+34	18'L	STOP	R1-1
McCANN FARM ROAD	2+00	11'R	SPEED LIMIT 25	R2-1
McCANN FARM ROAD	3+75	11'R	ROAD NARROWS	W5-1
McCANN FARM ROAD	4+55	11'L	ROAD NARROWS	W5-1
McCANN FARM ROAD	6+25	11'R	ROAD NARROWS	W5-1
McCANN FARM ROAD	7+05	11'L	ROAD NARROWS	W5-1
SUSAN MARIE WAY	0+34	18'L	STOP	R1-1
SUSAN MARIE WAY	1+05	11'R	SPEED LIMIT 25	R2-1

STREET LIGHT TABLE			
Street Name	Station	OFF-Set	Fixture/ Pole Type
McCann Farm Rd.	0+35	Rt. 35'	☼
Susan Marie Way	0+33	Rt. 37'	☼

☼ = 250 Watt High Pressure Sodium (HPS) Vapor Pendant (SAE) Mounted on a 20' Bronze Fiberglass Pole Using a 12' Arm.



VICINITY MAP
SCALE: 1" = 1200'

FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. 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.
5. 2 FOOT CONTOUR TOPOGRAPHY AND EXISTING CONDITIONS BASED ON FIELD SURVEY PREPARED BY FISHER, COLLINS & CARTER, INC. ON OR ABOUT JULY 1998 TOGETHER WITH HOWARD COUNTY AERIAL TOPOGRAPHY.
6. THE COORDINATES SHOWN HEREON ARE BASED UPON HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT Nos. 08AA AND 08BA WERE USED FOR THIS PROJECT.

   08AA N 609,214.9869 E 1,299,547.5360 — 08BA N 609,098.5311 E 1,301,409.1070
7. WATER IS PRIVATE.
8. SEWER IS PRIVATE.
9. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC. DATED SEPT. 1998 AND APPROVED BY HOWARD COUNTY ON 7/29/99 UNDER S 99-03.
10. UNMITIGATED 65 dBA NOISE LINE DETERMINED BY WILDMAN ENVIRONMENTAL SERVICES DATED SEPT., 1998 AND APPROVED BY HOWARD COUNTY ON 7/29/99 UNDER S 99-03.
11. NOISE MITIGATION MEASURES AND THE MITIGATED 65 dBA NOISE LINE SHOWN ON THIS PLAN WERE PREPARED BY WILDMAN ENVIRONMENTAL SERVICES AND WERE REVIEWED AND APPROVED BY HOWARD COUNTY ON 7/29/99 UNDER S 99-03.
12. BACKGROUND INFORMATION:
    - A. SUBDIVISION NAME: McCANN PROPERTY
    - B. TAX MAP NO.: 8
    - C. PARCEL NO.: 78
    - D. ZONING: RC-DEO
    - E. ELECTION DISTRICT: FOURTH
    - F. TOTAL TRACT AREA: 34.32 AC. ±
    - G. NO. OF BUILDABLE LOTS: 16
    - H. NO. OF PARCELS: 5
    - I. NO. OF OPEN SPACE LOTS: 0
    - J. THE SKETCH PLAN WAS APPROVED ON 7/29/99.
    - K. PRELIMINARY PLAN APPROVAL DATE: 9/1/00
    - L. PREVIOUS FILE Nos.: S 99-03, P 00-12
    - M. NUMBER OF DWELLING UNITS ALLOWED WITHOUT IMPORTING DEVELOPMENT RIGHTS: 34.32 / 4.25 = 8 UNITS
    - N. NUMBER OF DWELLING UNITS ALLOWED WITH IMPORTING DEVELOPMENT RIGHTS: 34.32 / 2 = 17 UNITS
    - O. NUMBER OF DWELLING UNITS PROPOSED: 17
    - P. NUMBER OF D.E.O. UNITS TO BE IMPORTED: 17 - 8 = 9 UNITS
13. REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE TO BE PROVIDED AT THE JUNCTION OF THE PIPE / FLAG STEM AND THE ROAD R/W AND NOT ONTO THE PIPE / FLAG STEM DRIVEWAY.
14. NO CEMETERIES EXIST ON THE PROPERTY.
15. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF ASTM T-180.
16. THE WETLAND AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED SEPT. 1998 AND APPROVED BY HOWARD COUNTY ON 7/29/99 UNDER S 99-03.
17. THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
18. STORMWATER MANAGEMENT FACILITY:
    STORMWATER MANAGEMENT IS PROVIDED BY A PUBLIC RETENTION POND AND A SHALLOW MARSH FACILITY. THE SHALLOW MARSH WAS APPROVED AS A DESIGN MANUAL WAIVER ON 3/7/2000.
19. THIS FINAL PLAN IS PREPARED IN ACCORDANCE WITH THE APPROVED ZONING, SUBDIVISION AND DESIGN MANUAL GUIDELINES AS EXISTED AT THE TIME OF THE PRELIMINARY EQUIVALENT SKETCH PLAN SIGNATURE ON APRIL 4, 1996, UNLESS A WAIVER PETITION OR DESIGN MANUAL WAIVER HAS BEEN APPROVED BY THE DEPARTMENT OF PLANNING & ZONING. A WAIVER OF DESIGN MANUAL, VOLUME I, SECTION 5.27 G (1) WAS APPROVED ON MARCH 7, 2000. THIS WAIVER ALLOWS FOR A CONTRIBUTING DRAINAGE AREA OF LESS THAN 5.0 ACRES FOR CONSTRUCTION UTILIZING A SHALLOW MARSH DESIGN BASED ON THE EXISTING HIGH GROUNDWATER TABLE AT THE PROPOSED FACILITY.
20. MINIMUM AREA OF OPEN SPACE REQUIRED: 34.32 x 5% = 1.72 AC.±. REQUIRED OPEN SPACE IS SUBSTITUTED BY H.O.A. OWNED AND MAINTAINED NON-BUILDABLE PRESERVATION PARCELS 'A', 'C', 'D', AND 'E' WHICH CONSISTS OF 5.613 ACRES±.
21. A LANDSCAPE SURETY IN THE AMOUNT OF $44,440.00 FOR PERIMETER LANDSCAPE REQUIREMENTS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AAND LANDSCAPE MANUAL IS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.
22. THE USE-IN-COMMON DRIVEWAY FOR LOTS 2 AND 3 MUST BE CONSTRUCTED AS FAR AWAY FROM THE PROJECT BOUNDARY LINE AS POSSIBLE IN ORDER TO PROTECT THE EXISTING TREES ALONG THAT PROPERTY LINE.

STATE OF MARYLAND — ROD MICHAEL VITUCCI — NO. 20748 — REGISTERED PROFESSIONAL ENGINEER
12-20-01

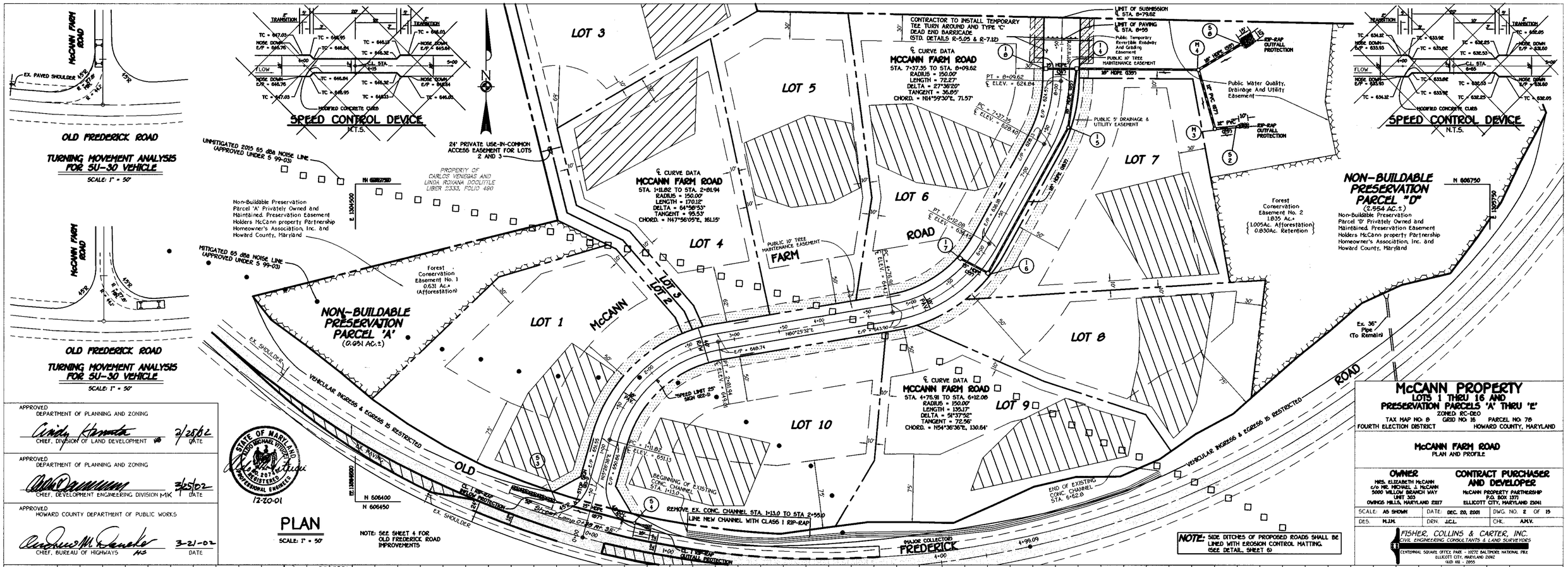
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK • 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER
MRS. ELIZABETH McCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

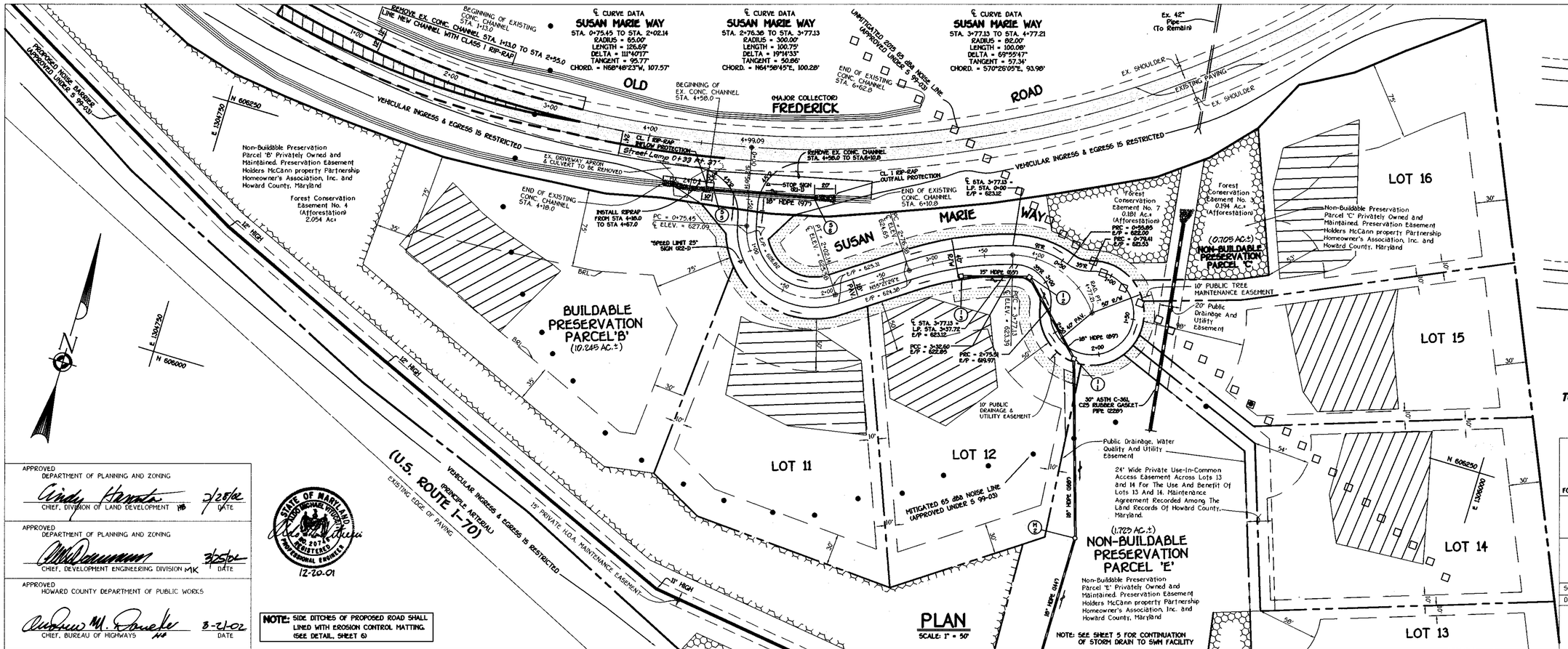
CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

McCANN PROPERTY
LOTS 1 THRU 16 AND
PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 1 OF 15

F 01-105

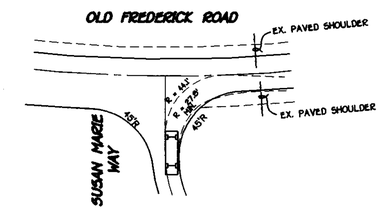

McCANN FARM ROAD
OLD FREDERICK ROAD
TURNING MOVEMENT ANALYSIS FOR SU-30 VEHICLE
SCALE: 1" = 50'
SPEED CONTROL DEVICE
N.T.S.
TRANSITION
NOSE DOWN
FLOW
MODIFIED CONCRETE CURB
UNMITIGATED 2015 65 dBa NOISE LINE (APPROVED UNDER S 99-03)
MITIGATED 65 dBa NOISE LINE (APPROVED UNDER S 99-03)
24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 2 AND 3
PROPERTY OF CARLOS VENEGAS AND LINDA ROXANA DOOLITTLE LIBER 2333, FOLIO 490
Non-Buildable Preservation Parcel 'A' Privately Owned and Maintained. Preservation Easement Holders McCann property Partnership Homeowner's Association, Inc. and Howard County, Maryland
NON-BUILDABLE PRESERVATION PARCEL 'A' (0.651 AC.±)
Forest Conservation Easement No. 1 0.631 Ac.± (Afforestation)
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
McCANN FARM ROAD
℄ CURVE DATA
STA. 1+11.82 TO STA. 2+81.94
RADIUS = 150.00'
LENGTH = 170.12'
DELTA = 64°39'53"
TANGENT = 95.53'
CHORD. = N47°56'05"E, 161.15'
STA. 7+37.35 TO STA. 8+09.62
RADIUS = 150.00'
LENGTH = 72.27'
DELTA = 27°38'20"
TANGENT = 36.89'
CHORD. = N14°59'30"E, 71.57'
STA. 4+75.91 TO STA. 6+12.08
RADIUS = 150.00'
LENGTH = 135.17'
DELTA = 51°37'52"
TANGENT = 72.56'
CHORD. = N54°36'36"E, 130.64'
CONTRACTOR TO INSTALL TEMPORARY TEE TURN AROUND AND TYPE 'C' DEAD END BARRICADE (STD. DETAILS R-5.05 & R-7.12)
LIMIT OF SUBMISSION ℄ STA. 8+79.62
LIMIT OF PAVING ℄ STA. 8+55
Public Temporary Revertible Roadway And Grading Easement
PUBLIC 10' TREE MAINTENANCE EASEMENT
PUBLIC 5' DRAINAGE & UTILITY EASEMENT
Public Water Quality, Drainage And Utility Easement
RIP-RAP OUTFALL PROTECTION
Forest Conservation Easement No. 2 1.835 Ac.± (1.005Ac. Afforestation) 0.830Ac. Retention
NON-BUILDABLE PRESERVATION PARCEL 'D' (2.954 AC.±)
Non-Buildable Preservation Parcel 'D' Privately Owned and Maintained. Preservation Easement Holders McCann property Partnership Homeowner's Association, Inc. and Howard County, Maryland
Ex. 36" Pipe (To Remain)
VEHICULAR INGRESS & EGRESS IS RESTRICTED
OLD FREDERICK ROAD
MAJOR COLLECTOR
"SPEED LIMIT 25" SIGN (R2-1)
BEGINNING OF EXISTING CONC. CHANNEL STA. 1+13.0
END OF EXISTING CONC. CHANNEL STA. 6+62.13
REMOVE EX. CONC. CHANNEL STA. 1+13.0 TO STA 2+55.0
LINE NEW CHANNEL WITH CLASS I RIP-RAP
CL. I RIP-RAP OUTFALL PROTECTION
NOTE: SIDE DITCHES OF PROPOSED ROADS SHALL BE LINED WITH EROSION CONTROL MATTING. (SEE DETAIL, SHEET 6)
PLAN
SCALE: 1" = 50'
NOTE: SEE SHEET 4 FOR OLD FREDERICK ROAD IMPROVEMENTS
McCANN FARM ROAD
DESIGN SPEED = 25 M.P.H.
P.G.L. (℄ OF ROAD)
EXISTING GROUND @ ℄ OF ROAD
EXISTING GROUND @ LEFT B.R.L.
EXISTING GROUND @ RIGHT B.R.L.
FUTURE GRADE
VERTICAL CURVE DATA
PVI STA. = 4+50
PVI ELEV. = 615.91
LENGTH = 250.00'
CORR. = -1.53'
SSDreq. = 150'
SSDprov. = 252'
PVI STA. = 8+75
PVI ELEV. = 619.50
LENGTH = 300.00'
CORR. = +3.54'
SSDreq. = 150'
SSDprov. = 153.60'
PROFILE
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'
APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/25/02
APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/25/02
APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02
STATE OF MARYLAND
ALLEN MICHAEL WILLIAMS
No. 26767
REGISTERED PROFESSIONAL ENGINEER
12-20-01
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'
ZONED RC-DEO
TAX MAP NO: 8 GRID NO: 15 PARCEL NO: 78
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
McCANN FARM ROAD
PLAN AND PROFILE
OWNER
MRS. ELIZABETH McCANN c/o MR. MICHAEL J. McCANN 5000 WILLOW BRANCH WAY UNIT 303 OWINGS MILLS, MARYLAND 21117
CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP P.O. BOX 1373 ELLICOTT CITY, MARYLAND 21041
SCALE: AS SHOWN DATE: DEC. 20, 2001 DWG. NO. 2 OF 15
DES. M.J.M. DRN. J.C.L. CHK. A.M.V.
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F-01-105



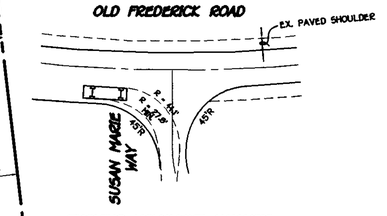
PLAN

SCALE: 1" = 50'



TURNING MOVEMENT ANALYSIS FOR SU-30 VEHICLE

SCALE: 1" = 50'



TURNING MOVEMENT ANALYSIS FOR SU-30 VEHICLE

SCALE: 1" = 50'

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONED RC-DEO

TAX MAP NO: 8 GRID NO: 16 PARCEL NO: 78

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SUSAN MARIE WAY

PLAN AND PROFILE

OWNER	CONTRACT PURCHASER AND DEVELOPER
MRS. ELIZABETH McCANN c/o MR. MICHAEL J. McCANN 5000 WILLOW BRANCH WAY UNIT 303 OWINGS MILLS, MARYLAND 21117	McCANN PROPERTY PARTNERSHIP P.O. BOX 1373 ELLICOTT CITY, MARYLAND 21041

SCALE: AS SHOWN	DATE: DEC. 20, 2001	DWG. NO. 3 OF 15
DES. M.J.M.	DRN. J.C.L.	CHK. A.M.V.

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

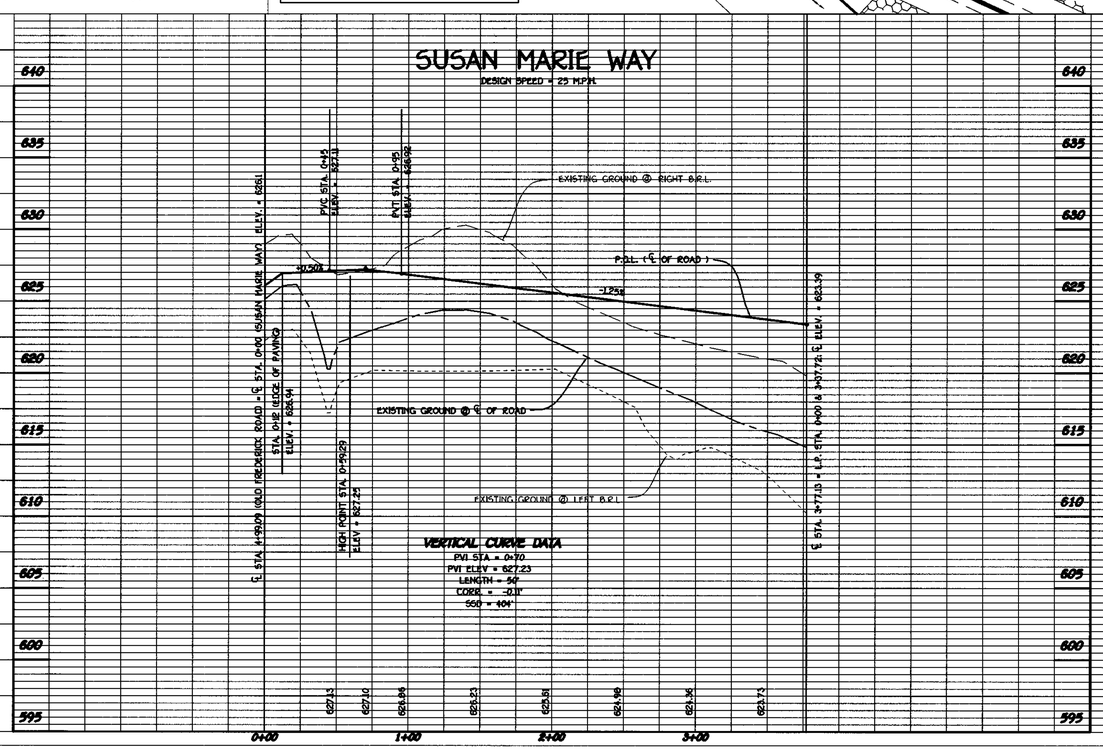
APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/28/02

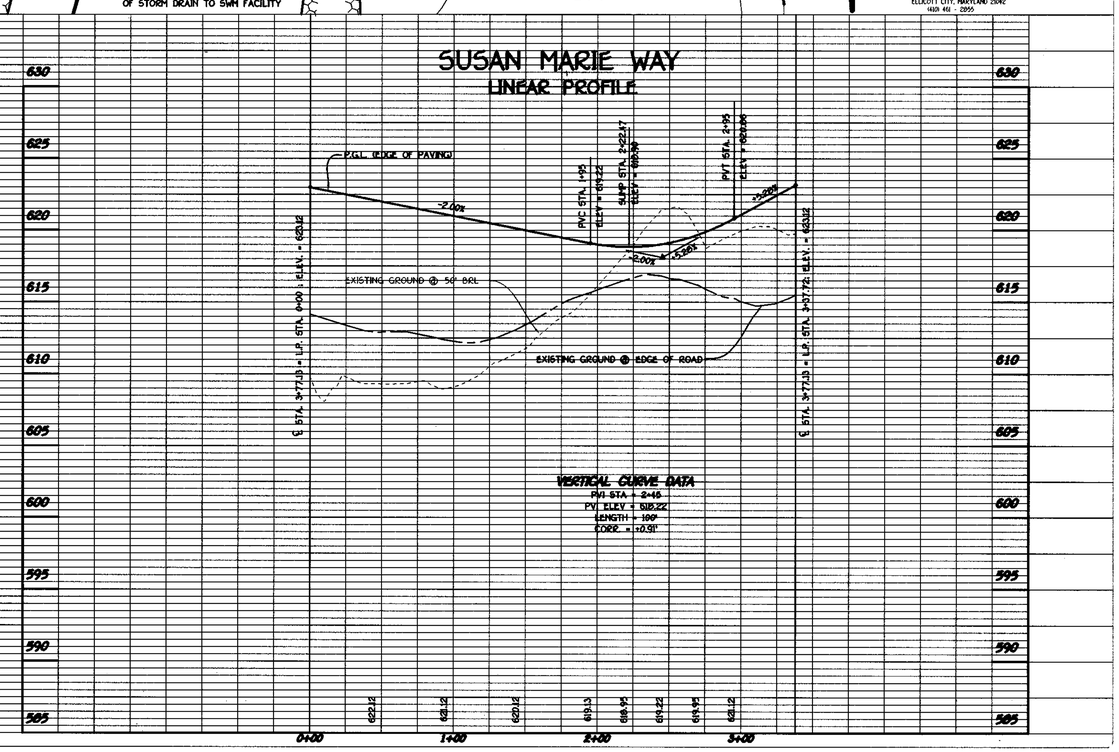
APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/25/02

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER No. 20776
12-20-01

NOTE: SIDE DITCHES OF PROPOSED ROAD SHALL LINED WITH EROSION CONTROL MATTING. (SEE DETAIL, SHEET 6)





PROFILES

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

F-01-105

NON-BUILDABLE PRESERVATION PARCEL 'A' (0.691 AC.±)
Forest Conservation Easement No. 1 0.631 Ac.± (Afforestation)
Non-Buildable Preservation Parcel 'A' Privately Owned and Maintained. Preservation Easement Holders McCann property Partnership Homeowner's Association, Inc. and Howard County, Maryland

LOT 1 · LOT 2 · LOT 3 · LOT 8 · LOT 9 · LOT 10 · LOT 11 · LOT 12 · LOT 13 · LOT 14 · LOT 15

McCANN FARM ROAD

OLD FREDERICK ROAD (MAJOR COLLECTOR)

SUSAN MARIE WAY

U.S. ROUTE I-70

EDGE OF PAVING (I-70)

15' PRIVATE H.O.A. MAINTENANCE EASEMENT

BUILDABLE PRESERVATION PARCEL 'B' (10.248 AC.±)

Non-Buildable Preservation Parcel 'B' Privately Owned and Maintained. Preservation Easement Holders McCann property Partnership Homeowner's Association, Inc. and Howard County, Maryland

Forest Conservation Easement No. 4 (Afforestation) 2.054 Ac.±

Forest Conservation Easement No. 3 0.194 Ac.± (Afforestation)

Forest Conservation Easement No. 7 0.181 Ac.± (Afforestation)

NON-BUILDABLE PRESERVATION PARCEL 'C' (0.705 AC.±)

10' PUBLIC TREE MAINTENANCE EASEMENT

10' DRAINAGE & UTILITY EASEMENT

N 606500 · E 1304250 · N 606250 · E 1304250 · N 606500 · E 1305750

SOLID DOUBLE YELLOW LINES · SOLID WHITE LINE · 300' TRANSITION · EX. SHOULDER · EX. PAVING · 50' DUCK-IN · 75' DUCK-IN · 300' DECEL LANE · 100' - SOLID WHITE LINE · 200' - 2' LONG / 6' GAP PUPPIES (WHITE) · 2' LONG / 6' GAP PUPPIES (WHITE) · 15" HDPE (1977) · 18" HDPE (1977) · STRIPE TO MIDPOINT OF RADIUS

BEGINNING OF EXISTING CONC. CHANNEL STA. 1+13.0

REMOVE EX. CONC. CHANNEL STA. 1+13.0 TO STA 2+55.0
LINE NEW WITH CLASS I RIP-RAP CHANNEL STA. 1+13.0 TO STA 2+55.0

END OF EXISTING CONC. CHANNEL STA. 6+62.6

END OF EXISTING CONC. CHANNEL STA. 6+10.8

REMOVE EX. CONC. CHANNEL STA. 4+98.0 TO STA. 6+10.8

BEGINNING OF EXISTING CONC. CHANNEL STA. -0+92.5

END OF EXISTING CONC. CHANNEL STA. 4+18.0

INSTALL RIPRAP FROM STA 4+18.0 TO STA 4+67.0

BEGINNING OF EXISTING CONC. CHANNEL STA. 4+98.0

PC = 1+11.82 · PC = 0+75.45 · R/D = 4+12.25 · 50' R/W

NOTE:
ANY EXISTING PAVEMENT MARKINGS IN CONFLICT W/ PROPOSED PLAN MUST BE REMOVED BY GRINDING

NOTE:
SEE SHEET 5 FOR TYPICAL SECTION & CROSS-SECTIONS OF OLD FREDERICK ROAD WIDENING

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/02

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/25/02

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02

STATE OF MARYLAND · MICHAEL WILLIAMS · No. 20714 · REGISTERED PROFESSIONAL ENGINEER
12-20-01

McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONED: RC-DEO
TAX MAP NO: 8 · GRID NO: 15 · PARCEL NO: 78
FOURTH ELECTION DISTRICT · HOWARD COUNTY, MARYLAND

OLD FREDERICK ROAD ROAD IMPROVEMENTS
PLAN AND PROFILE

OWNER
MRS. ELIZABETH McCANN
c/o MR. MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

SCALE: AS SHOWN	DATE: DEC. 20, 2001	DWG. NO. 4 OF 15
DES. M.J.M.	DRN. J.C.L.	CHK. A.M.V.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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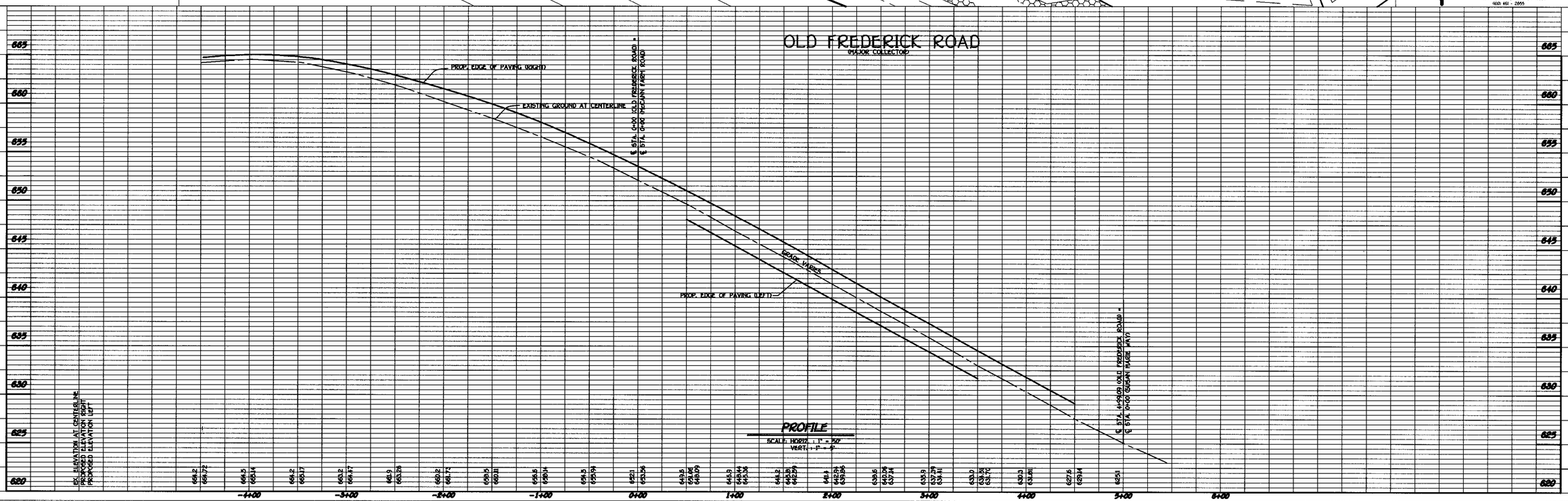
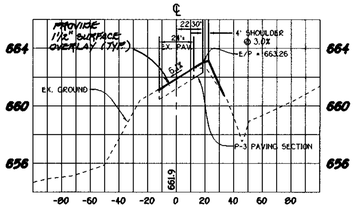


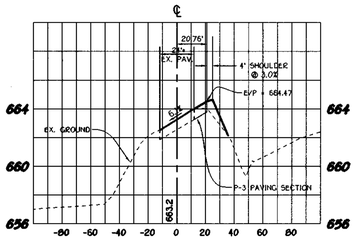
F-01-105

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/25/02



-2+50



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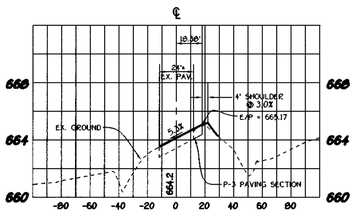

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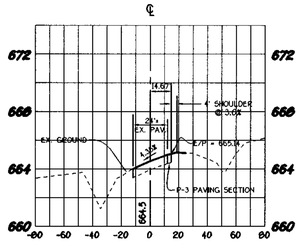

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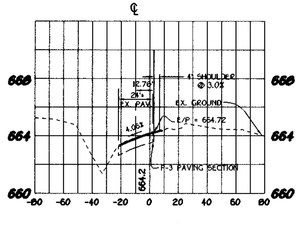

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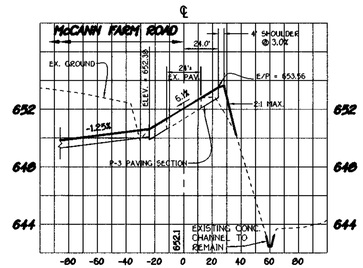

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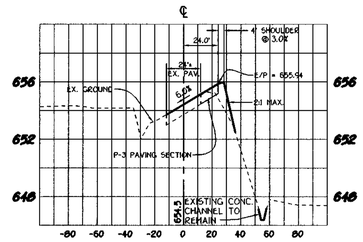

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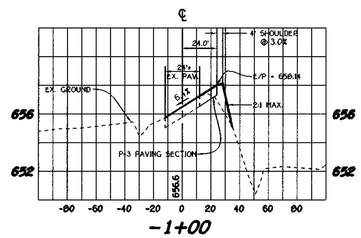

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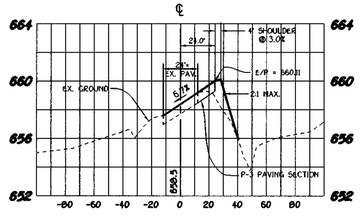

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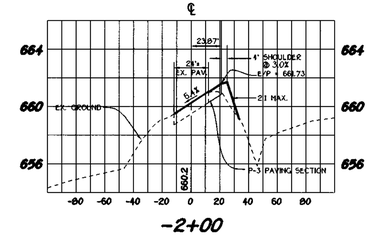

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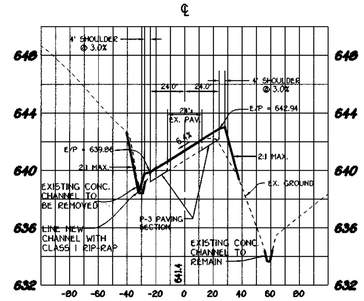

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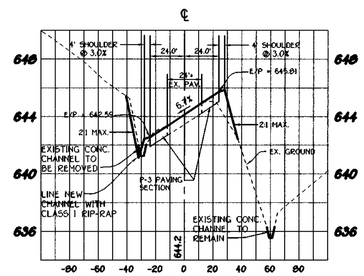

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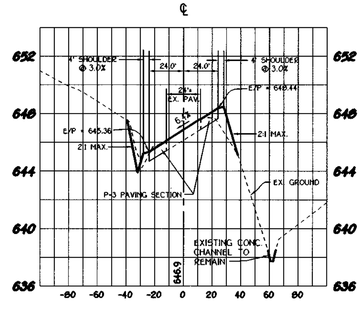

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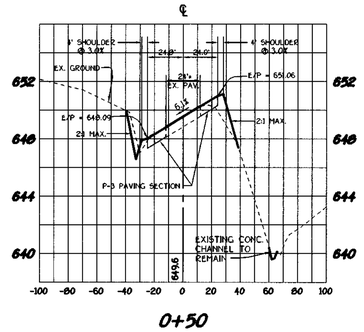

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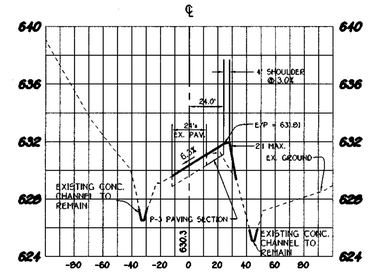

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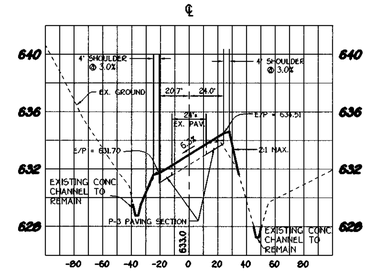

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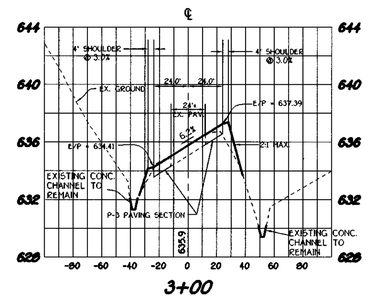

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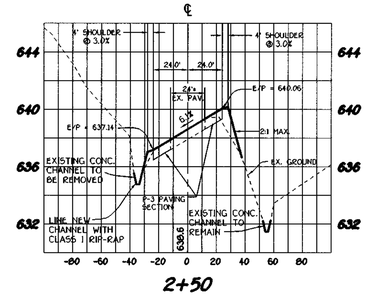

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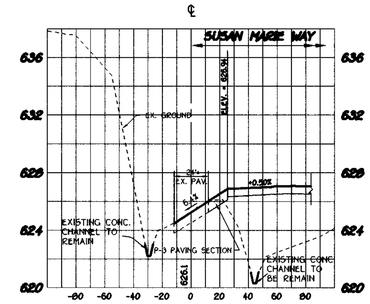

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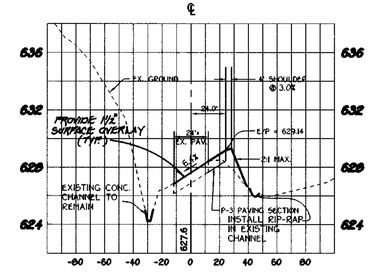

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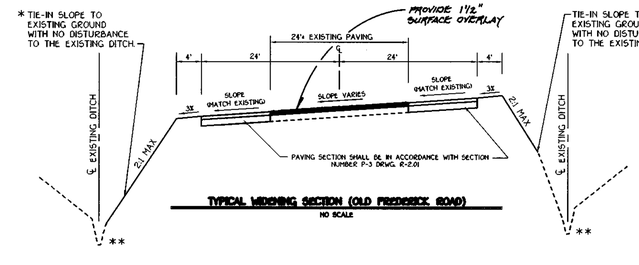


* NOTE: FROM STA. 0+00 TO STA. 2+00 CONSTRUCT NEW DITCH (SEE SECTIONS, THIS SHEET)

** LINE ALL DITCHES WITH EROSION CONTROL MATTING, EXCEPT AS NOTED ON PLAN.

CROSS-SECTIONS

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

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

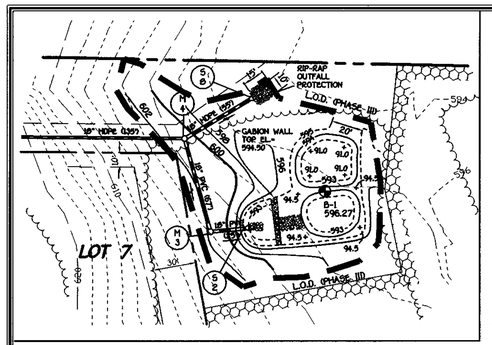
STATE OF MARYLAND — MICHAEL J. WEIDA — No. 20749 — REGISTERED PROFESSIONAL ENGINEER
12-20-01

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

CROSS-SECTIONS (OLD FREDERICK ROAD)
McCANN PROPERTY
LOTS 1 THRU 16 AND
PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 17, 2001
SHEET 5 OF 15

F 01-105



SHALLOW MARSH GRADING PLAN

SCALE: 1" = 50'

NOTE: RECORDATION OF THE MCCANN PROPERTY PLAT WILL FORFEIT ANY RIGHT/ USE TO THE EXISTING PRIVATE 40' R/W BY THE MCCANN PROPERTY.

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	ACER PLATANOIDES 'EMERALD QUEEN' NORWAY MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	PLATANUS X ACERIFOLIA 'BLOODGOOD' LONDON PLANETREE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTES: 1. STREET TREE TYPES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT FROM THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE 62 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $18,600.00.

- 39 TREES (McCANN FARM ROAD)
- 23 TREES (SUSAN MARIE WAY)

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The " As-Built" Plans And Meets The Approved Plans And Specifications.

Signature _____ P.E. No. _____

Date: _____

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee Or 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.

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer _____ Date _____

Printed Name Of Developer _____

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Informed The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An As-Built Plan Within 30 Days Of Completion."

Signature _____ 12-20-01 Date

Printed Name Of Engineer _____

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA Natural Resources Conservation Service _____ 1/9/02 Date

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District _____ 1/9/02 Date

Approved: Department Of Public Works

Chief, Bureau Of Highways _____ 3-21-02 Date

Approved: Department Of Planning And Zoning

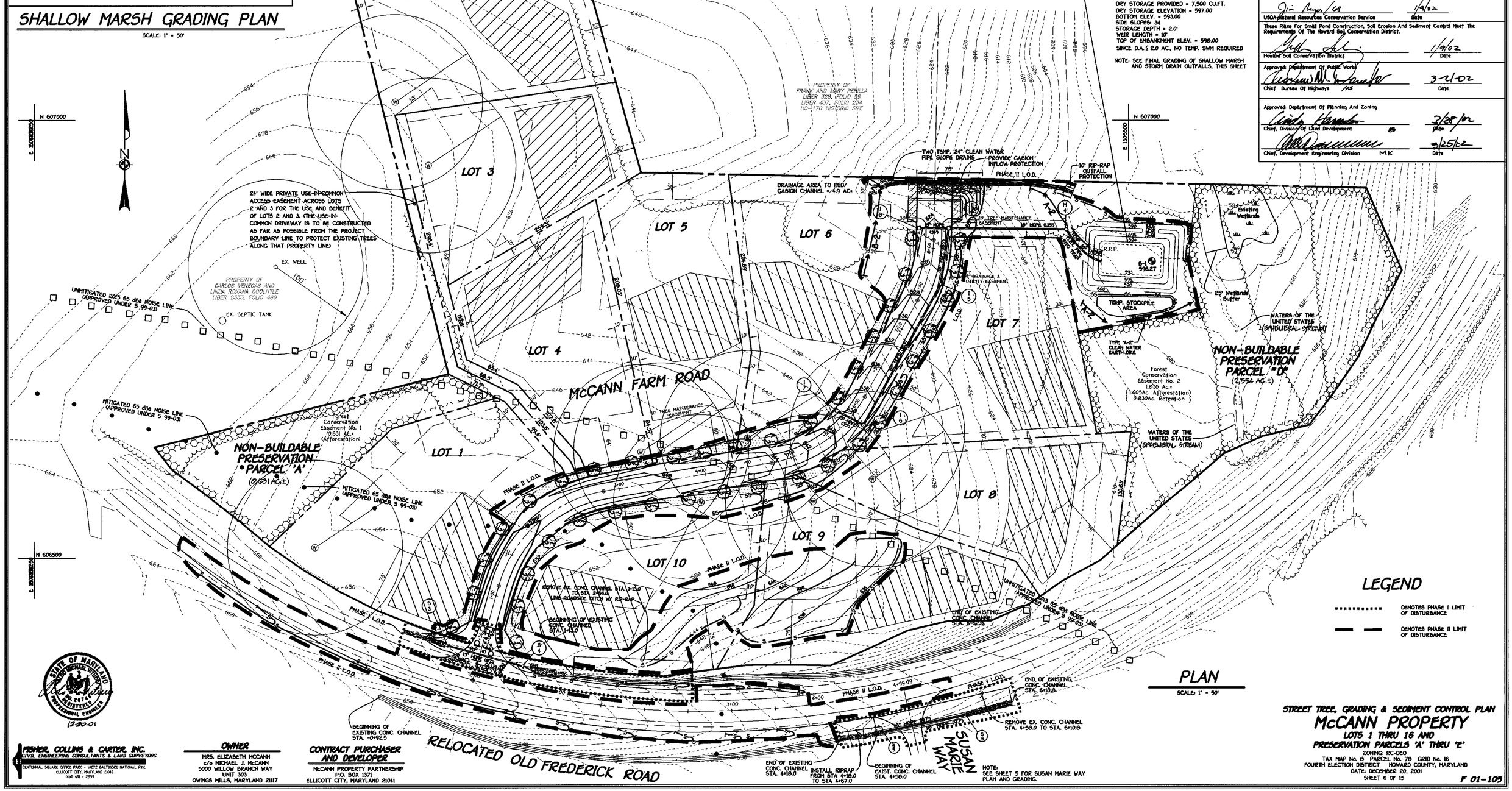
Chief, Division Of Land Development _____ 3/28/02 Date

Chief, Development Engineering Division MK _____ 3/25/02 Date

STONE OUTLET SEDIMENT TRAP No. 1

INITIAL DRAINAGE AREA = 1.40 AC.±
FINAL DRAINAGE AREA = 2.00 AC.±
WET STORAGE REQUIRED = 3,600 CU.FT.
WET STORAGE PROVIDED = 5,400 CU.FT.
WET STORAGE ELEVATION = 595.00
DRY STORAGE REQUIRED = 3,600 CU.FT.
DRY STORAGE PROVIDED = 7,500 CU.FT.
DRY STORAGE ELEVATION = 597.00
BOTTOM ELEV. = 593.00
SIDE SLOPES: 3:1
STORAGE DEPTH = 2.0'
WEIR LENGTH = 10'
TOP OF EMBANKMENT ELEV. = 598.00
SINCE D.A. ≤ 2.0 AC., NO TEMP. SWM REQUIRED

NOTE: SEE FINAL GRADING OF SHALLOW MARSH AND STORM DRAIN OUTFALLS, THIS SHEET



NOTE: SEE SHEET 5 FOR SUSAN MARIE WAY PLAN AND GRADING.

PLAN

SCALE: 1" = 50'

LEGEND

..... DENOTES PHASE I LIMIT OF DISTURBANCE

— — DENOTES PHASE II LIMIT OF DISTURBANCE

STATE OF MARYLAND — MICHAEL VINCENT PETRONI — No. 21714 — REGISTERED PROFESSIONAL ENGINEER

12-20-01

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
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c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

STREET TREE, GRADING & SEDIMENT CONTROL PLAN

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO
TAX MAP No. 9 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 6 OF 15

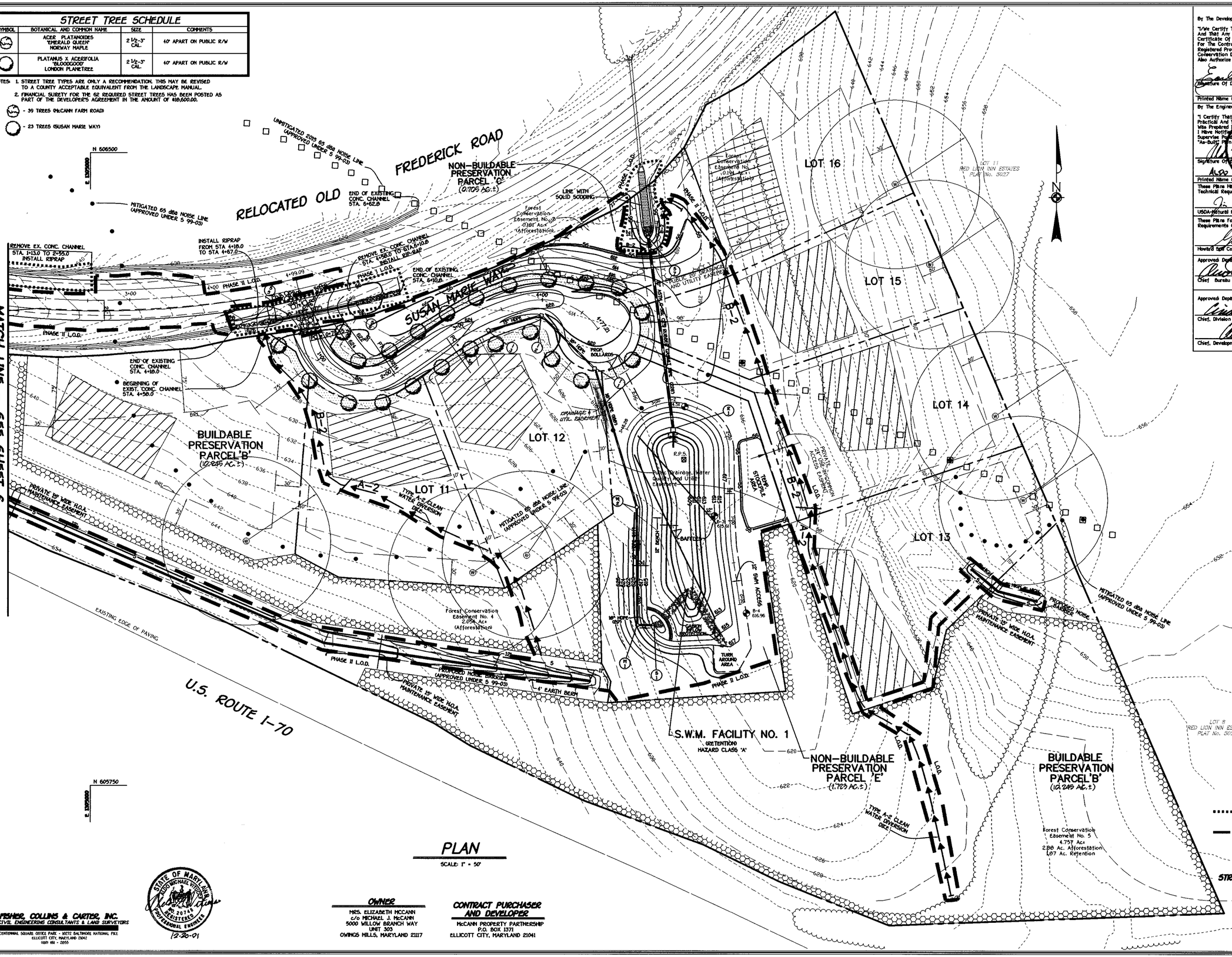
F 01-105

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	ACER PLATANOIDES 'EMERALD QUEEN' NORWAY MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	PLATANUS X ACERIFOLIA 'BLOODGOOD' LONDON PLANETREE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTES: 1. STREET TREE TYPES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT FROM THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE 62 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $19,600.00.

- 39 TREES (McCANN FARM ROAD)
- 23 TREES (SUSAN MARIE WAY)



PLAN

SCALE: 1" = 50'

TEMPORARY SEDIMENT BASIN SCHEDULE

INITIAL D.A. = 8.89 AC.±
FINAL D.A. = 9.43 AC.±
STORAGE REQUIRED
WET = 1800 x 9.43 = 16,974 CU.FT.
DRY = 1800 x 9.43 = 16,974 CU.FT.
STORAGE PROVIDED
WET = 16,974 CU.FT. AT ELEV. = 611.64
DRY = 20,409 CU.FT. AT ELEV. = 613.20
BOTTOM ELEV. = 609.00
STORAGE DEPTH = 4.20'
SIDE SLOPES = 3:1
TOP OF EMBANKMENT = 617.00
CLEAN-OUT ELEV. = 610.63
TEMP. 2 YR. WEIR CREST = 613.20
TEMP. 10 YR. WEIR CREST = 614.20
Q2 EXISTING = 6.8 CFS
Q2 PROPOSED = 2.1 c.f.s AT ELEV. 613.37

LEGEND

- DENOTES PHASE I LIMIT OF DISTURBANCE
- DENOTES PHASE II LIMIT OF DISTURBANCE

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer — Date

Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — Date 12-20-01

ALAN MICHAEL FISHER — REG. NO. 20748 — REGISTERED PROFESSIONAL ENGINEER

Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service — Date 1/9/02

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — Date 1/9/02

Approved Department Of Public Works

Chief, Bureau Of Highways — Date 3-21-02

Approved Department Of Planning And Zoning

Chief, Division Of Land Development — Date 3/21/02

Chief, Development Engineering Division — Date 3/25/02

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The " As-Built" Plans And Meets The Approved Plans And Specifications.

Signature — P.E. No.

Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party from Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

STATE OF MARYLAND — ALAN MICHAEL FISHER — REG. NO. 20748 — REGISTERED PROFESSIONAL ENGINEER — 12-20-01

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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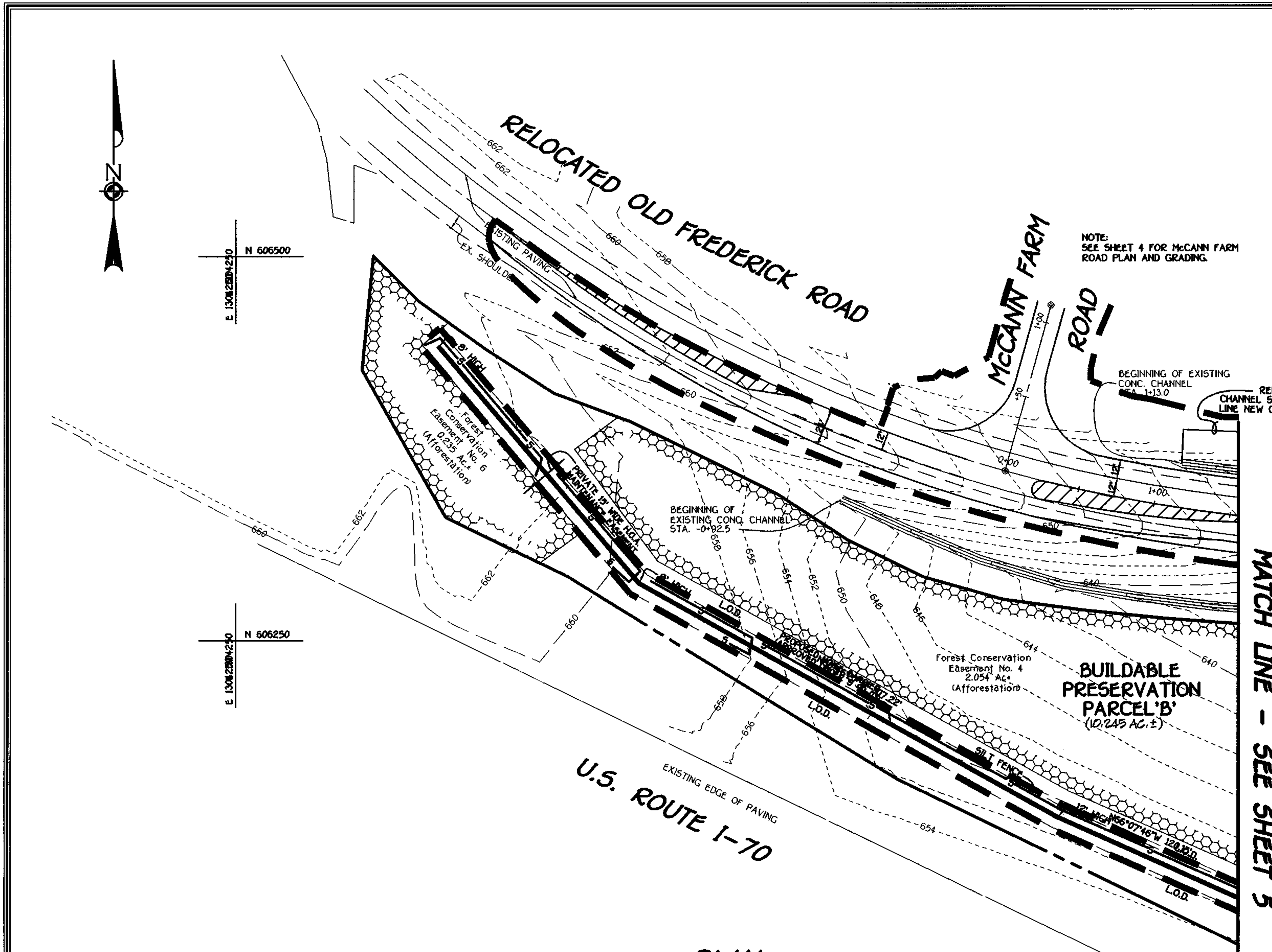
STREET TREE, GRADING & SEDIMENT CONTROL PLAN

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

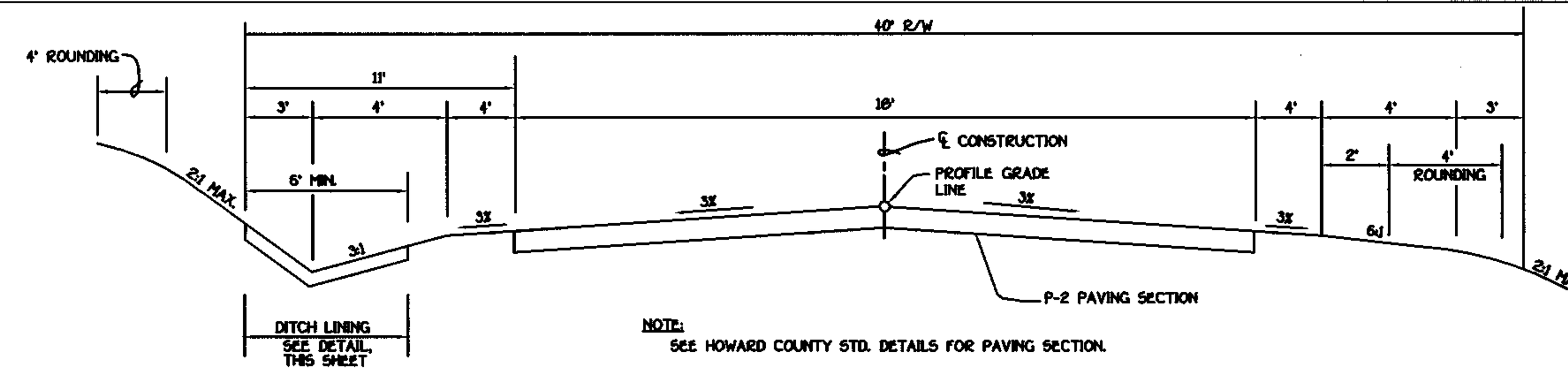
ZONING: RC-DEO
TAX MAP No. 6 PARCEL No. 76 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 7 OF 15

F 01-105



PLAN

SCALE: 1" = 50'



NOTE: SEE HOWARD COUNTY STD. DETAILS FOR PAVING SECTION.

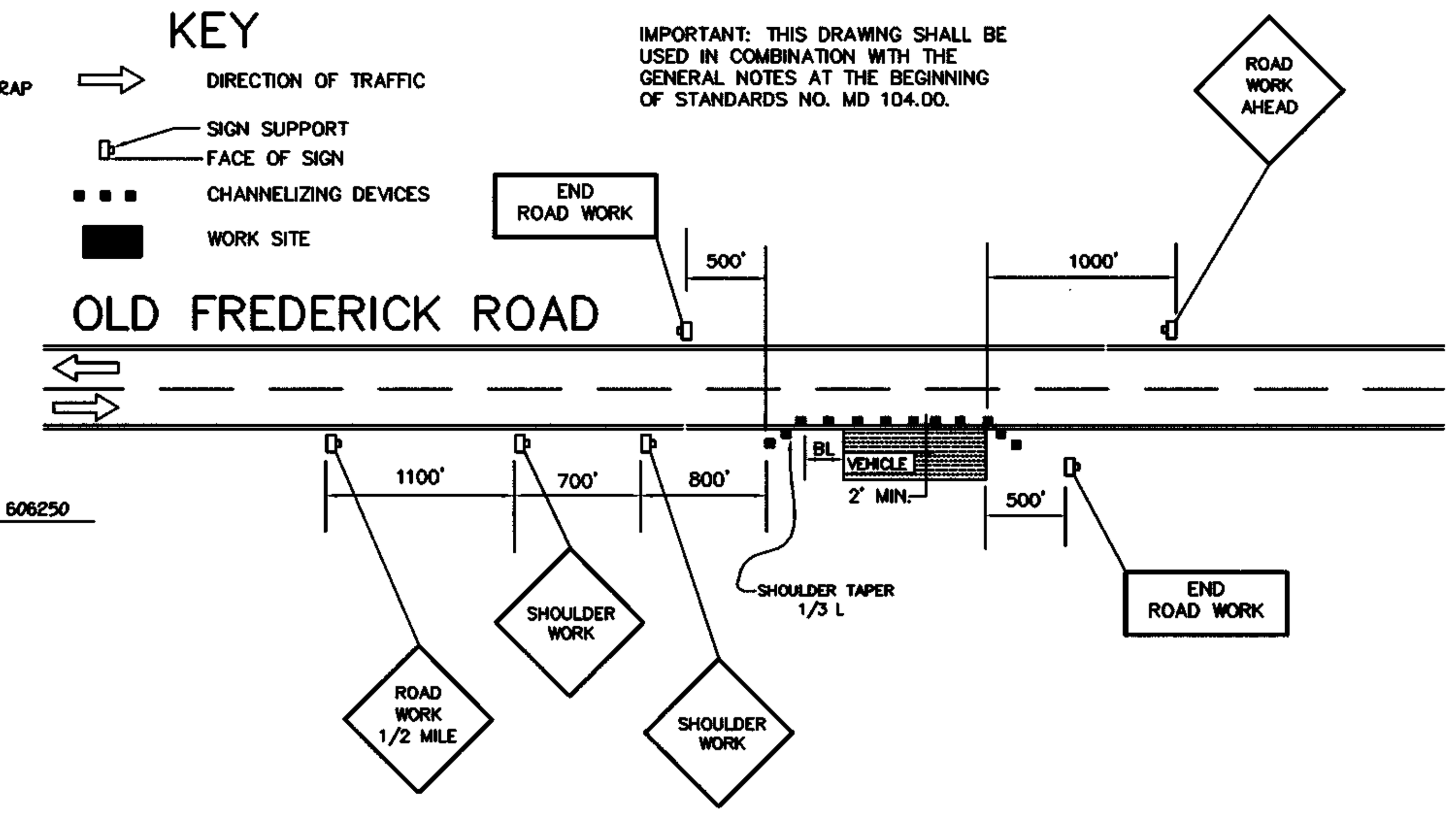
TYPICAL ROADWAY SECTION

NO SCALE

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	PAVING SECTION
McCANN FARM ROAD	PUBLIC ACCESS PLACE	25 M.P.H.	RC-DEO	0+00 TO 8+65	P-2
SUSAN MARIE WAY	PUBLIC ACCESS PLACE	25 M.P.H.	RC-DEO	0+00 TO 4+77.21	P-2

IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES AT THE BEGINNING OF STANDARDS NO. MD 104.00.



(STANDARD NO. MD 104.04-01)

TEMPORARY TRAFFIC CONTROL PLAN

NO SCALE

MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS

GENERAL

1. THE PURPOSE OF THIS PORTION OF THE SPECIAL PROVISION IS TO SET FOR THE TRAFFIC CONTROL REQUIREMENTS NECESSARY FOR THE SAFE AND EFFICIENT MAINTENANCE TO TRAFFIC WITHIN WORK AREAS, AND TO MINIMIZE ANY INCONVENIENCES TO THE TRAVELING PUBLIC AND THE CONTRACTOR AND/OR PERMITTEE.
2. PROPERTY TRAFFIC CONTROL THROUGH WORK AREAS IS ESSENTIAL FOR INSURING THE SAFETY AND THAT OF HIGHWAY WORKERS HAS THE HIGHEST PRIORITY OF ALL TASKS WITHIN THIS PROJECT. THE PROPERTY 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 SHA 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 814 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 TO 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 SHA 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 814 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 80% 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.

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 Conditions And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — 12-20-01 Date

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved 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

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements.

U.S.D.A. Natural Resources Conservation Service — 1/9/02 Date

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — 1/9/02 Date

Approved: Department Of Planning And Zoning

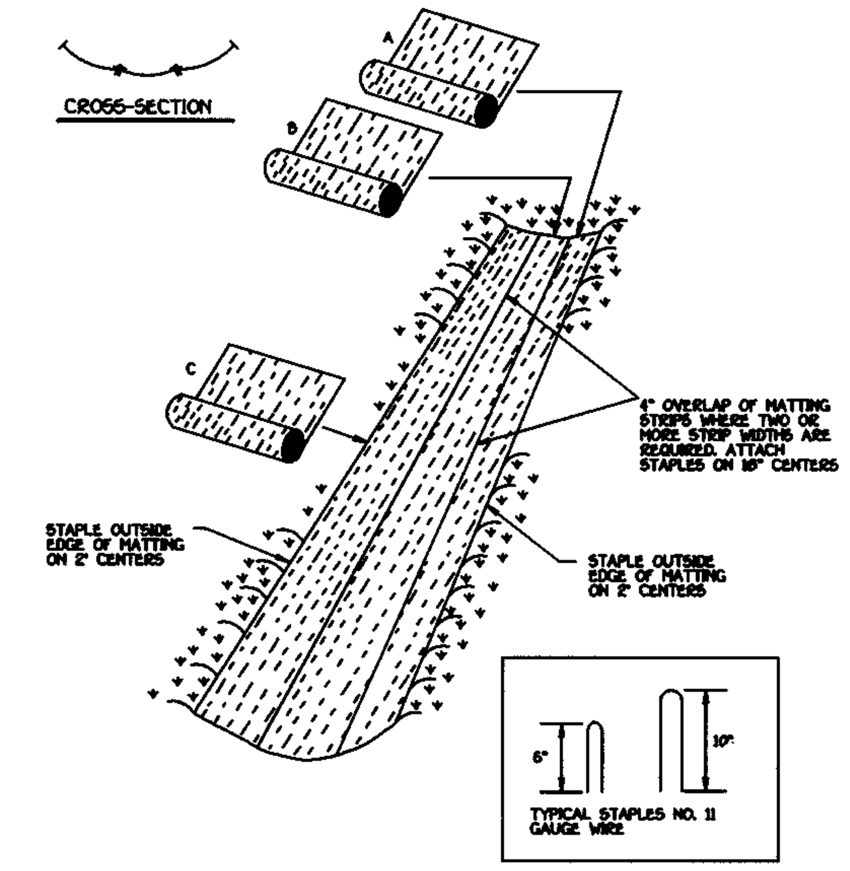
Chief, Division Of Land Development HB — 3/28/02 Date

Chief, Development Engineering Division MK — 3/25/02 Date

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 3-21-02 Date

EROSION CONTROL MATTING



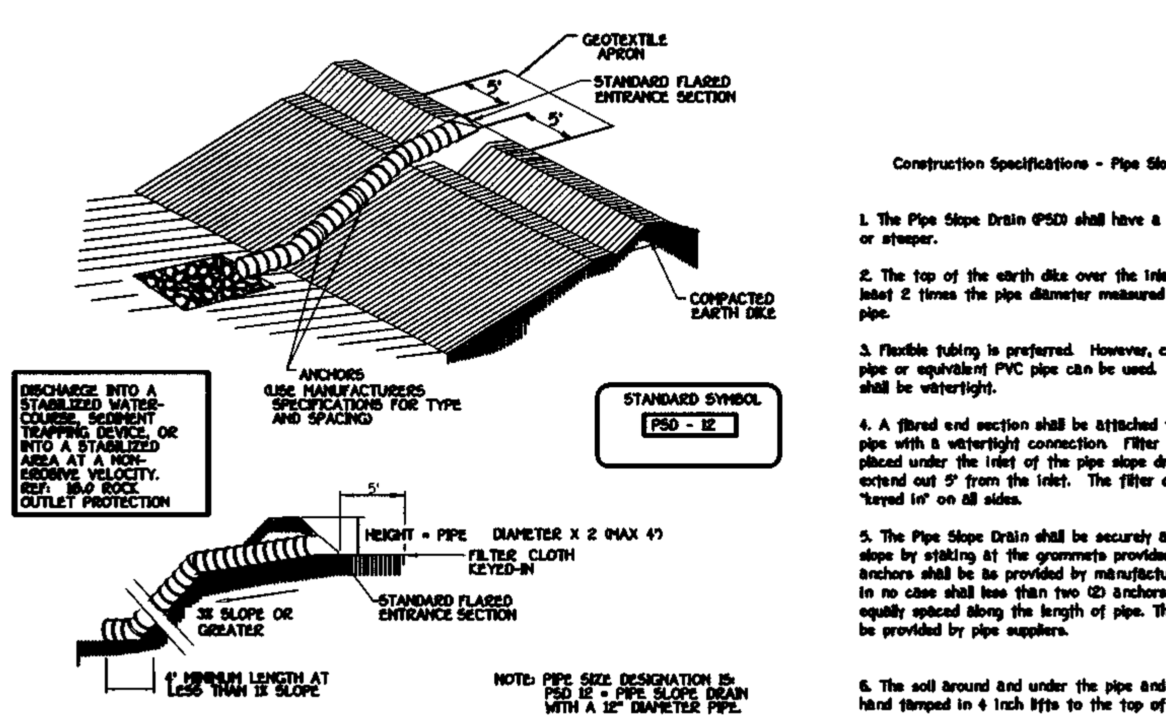
Construction Specifications

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.

PIPE SLOPE DRAIN

NOT TO SCALE



NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE DRAIN WITH A 12" DIAMETER PIPE.

Table 6 Design Criteria for Pipe Slope Drain

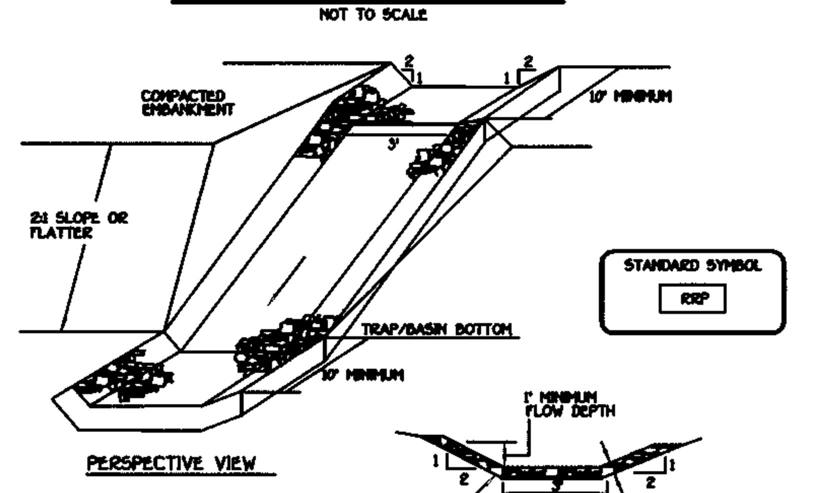
Size	Pipe/Tubing Diameter (D) in	Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (2)	24	5.0

Construction Specifications - Pipe Slope Drain

1. The Pipe Slope Drain (PSD) shall have a slope of 3 percent or steeper.
2. The top of the earth dike over the inlet pipe shall be at least 2 times the pipe diameter measured at the invert of the pipe.
3. Flexible tubing is preferred. However, corrugated metal pipe or equivalent PVC pipe can be used. All connections shall be watertight.
4. A flared end section shall be attached to the inlet end of pipe with a watertight connection. Filter cloth shall be placed under the inlet of the pipe slope drain and shall extend out 5' from the inlet. The filter cloth shall be "keyed in" on all sides.
5. The Pipe Slope Drain shall be securely anchored to the slope by staking at the grommets provided. Spacing for anchors shall be as provided by manufacturer's specification. In no case shall less than two (2) anchors be provided, equally spaced along the length of pipe. These details should be provided by pipe suppliers.
6. The soil around and under the pipe and end section shall be hand tamped in 4 inch lifts to the top of the earth dike.
7. All pipe connections shall be watertight.
8. Whenever possible where a PSD drains an unstabilized area, it shall outlet into a sediment trap or basin. If this is not possible then the slope drain will discharge into a stable conveyence that leads to a sediment trap or basin. When discharging into a trap or basin the PSD shall discharge at the same elevation as the wet pool elevation. The discharge from the PSD must be as far away from the sediment control outlet as possible.
9. When the drainage area is stabilized, the PSD shall discharge onto a stabilized area at a non-erosive velocity.
10. Inspection and any required maintenance shall be performed periodically and after each rain event.
11. The inlet must be kept open at all times.

RIP-RAP INFLOW PROTECTION

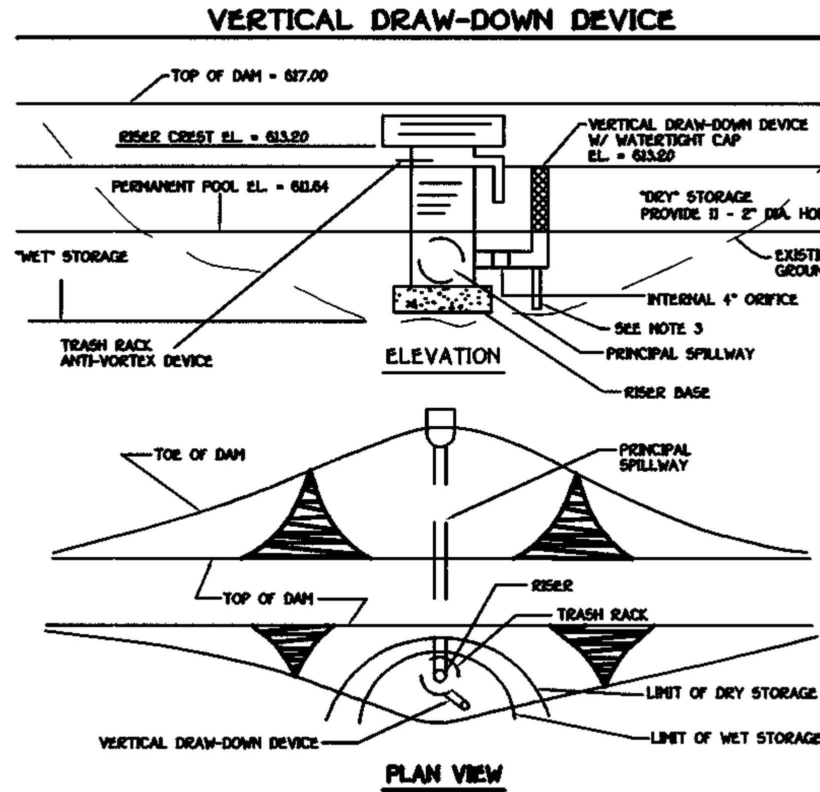
NOT TO SCALE



Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
6. Rip-rap should blend into existing ground.
7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

VERTICAL DRAW-DOWN DEVICE



CONSTRUCTION SPECIFICATIONS

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

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — NO. 20748 — REGISTERED PROFESSIONAL ENGINEER — 12-20-01

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

MRS. ELIZABETH McCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER

McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

SEDIMENT CONTROL PLAN AND DETAIL SHEET

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 8 OF 15

F-01-105

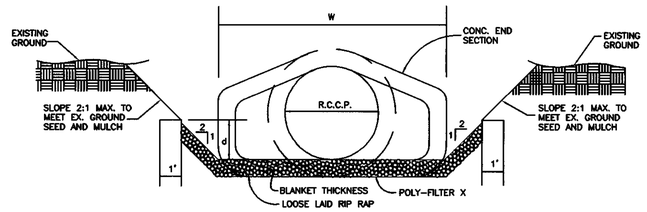
STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	* 617.45	614.22	614.12	SUSAN MARIE WAY	L.P. STA. 2+22.47	8'LT.	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-2	* 620.52	617.04	616.86	SUSAN MARIE WAY	L.P. STA. 3+16	8'LT.	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-3	* 622.32	------	619.00	SUSAN MARIE WAY	C.L. STA. 3+25	17'RT.	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-4	* 622.65	614.77, 618.66	614.27	McCANN FARM ROAD	C.L. STA. 8+23	17'RT.	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-5	* 625.23	620.47	619.97	McCANN FARM ROAD	C.L. STA. 7+63	17'RT.	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-6	* 636.42	631.96	631.46	McCANN FARM ROAD	C.L. STA. 5+86	17'RT.	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-7	* 636.94	------	633.00	McCANN FARM ROAD	C.L. STA. 5+78	17'LT.	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-8	* 622.65	------	619.00	McCANN FARM ROAD	C.L. STA. 8+23	17'LT.	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
M-1	618.00	612.46	612.36	----------	N 606,199.57 E 1,305,847.48	---	STD. MANHOLE	G - 5.01
M-2	618.50	613.28	613.18	----------	N 606,279.85 E 1,305,846.78	---	STD. MANHOLE	G - 5.01
M-3	602.00	593.33	593.23	----------	N 606,282.93 E 1,305,446.94	---	STD. MANHOLE	G - 5.01
M-4	600.50	595.10	594.00, 595.00	----------	N 606,275.09 E 1,305,426.75	---	STD. MANHOLE	G - 5.01
R-1	614.20	609.00, 612.00	608.75	----------	N 606,175.95 E 1,305,426.89	---	CONC. RISER	
S-1	613.50	612.00	612.00	----------	N 606,267.29 E 1,305,866.81	---	HDPE END SECTION	** A.D.S. FLARED END SECT.
S-2	594.00	593.00	593.00	----------	N 606,288.96 E 1,305,463.14	---	HDPE END SECTION	** A.D.S. FLARED END SECT.
S-3	649.95	646.70	646.70	McCANN FARM ROAD	C.L. STA. 0+30	37'LT.	HDPE END SECTION	** A.D.S. FLARED END SECT.
S-4	647.25	646.00	646.00	McCANN FARM ROAD	C.L. STA. 0+30	50'RT.	HDPE END SECTION	** A.D.S. FLARED END SECT.
S-5	622.50	621.00	621.00	SUSAN MARIE WAY	C.L. STA. 0+44	34'RT.	HDPE END SECTION	** A.D.S. FLARED END SECT.
S-6	618.11	616.61	616.61	SUSAN MARIE WAY	C.L. STA. 0+44	63'LT.	HDPE END SECTION	** A.D.S. FLARED END SECT.
S-7	610.45	606.95	606.95	----------	N 606,387.84 E 1,305,426.62	---	TYPE "C" ENDWALL	S.D. 5.41
S-8	595.95	594.45	594.45	----------	N 606,280.62 E 1,305,429.67	---	HDPE END SECTION	** A.D.S. FLARED END SECT.

* DENOTES THROAT ELEVATION
** - A.D.S. - ADVANCED DRAINAGE SYSTEMS
LONDON, OHIO
1-800-733-9554

PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	HDPE	221'
18"	HDPE	956'
18"	PVC SCH. 40	92'
30"	ASTM C-361, C25 RUBBER GASKET PIPE	226'



RIP RAP CHANNEL DETAIL
NO SCALE

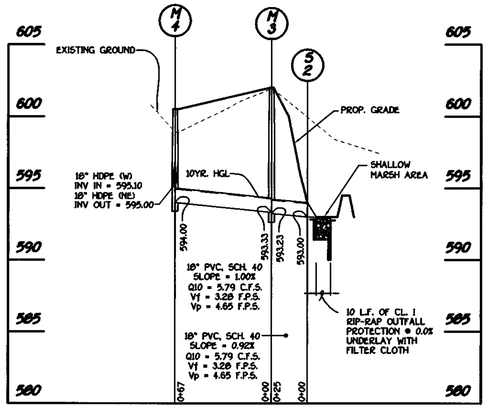
CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

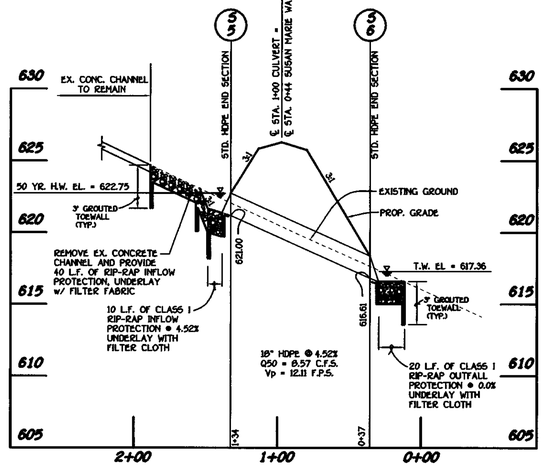
APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/25/02

RIP-RAP CHANNEL DESIGN DATA

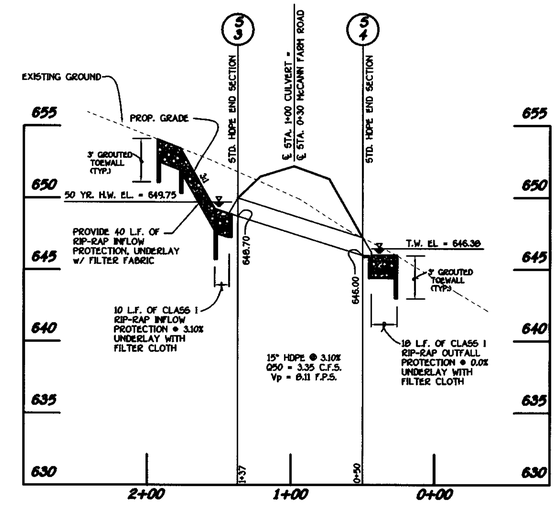
STRUCTURE	AREA	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	N	V (F.P.S.)	Q (C.F.S.)	RIP-RAP SIZE d_{50}	RIP-RAP SIZE d_{MAX}	BLANKET THICKNESS	DIA.
S-1	3.19	6.21	0.5137	0.6414	0.005	0.0707	3.0	0.72	0.04	1.68	5.37	9.5"	14"	19"	18"
S-4	2.29	5.49	0.4171	0.5583	0.005	0.0707	3.0	0.56	0.04	1.47	3.35	9.5"	14"	19"	15"
S-6	4.46	7.12	0.6264	0.7321	0.005	0.0707	3.0	0.92	0.04	1.92	8.57	9.5"	14"	19"	18"
S-8	1.77	5.02	0.3526	0.4991	0.005	0.0707	3.0	0.45	0.04	1.31	2.31	9.5"	14"	19"	18"



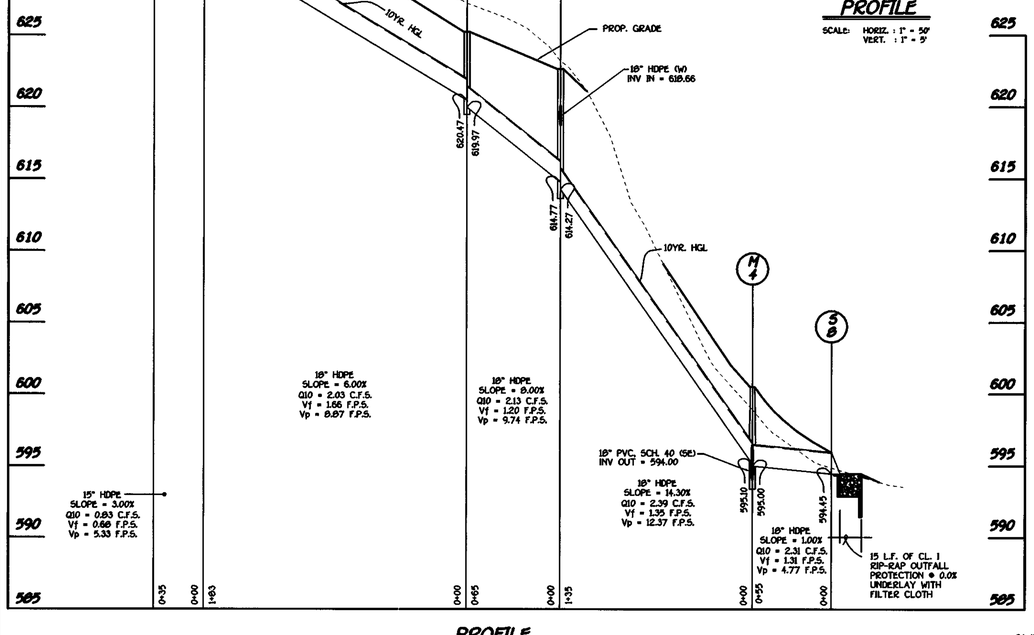
PROFILE
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'



CULVERT PROFILE @ SUSAN MARIE WAY
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'



CULVERT PROFILE @ McCANN FARM ROAD
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'



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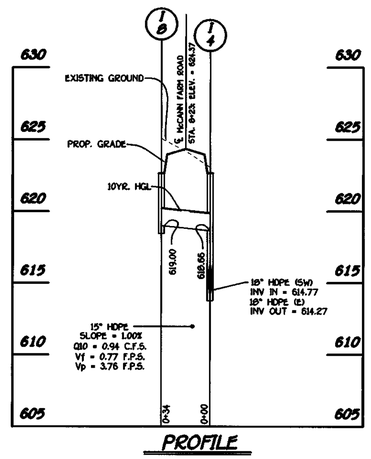

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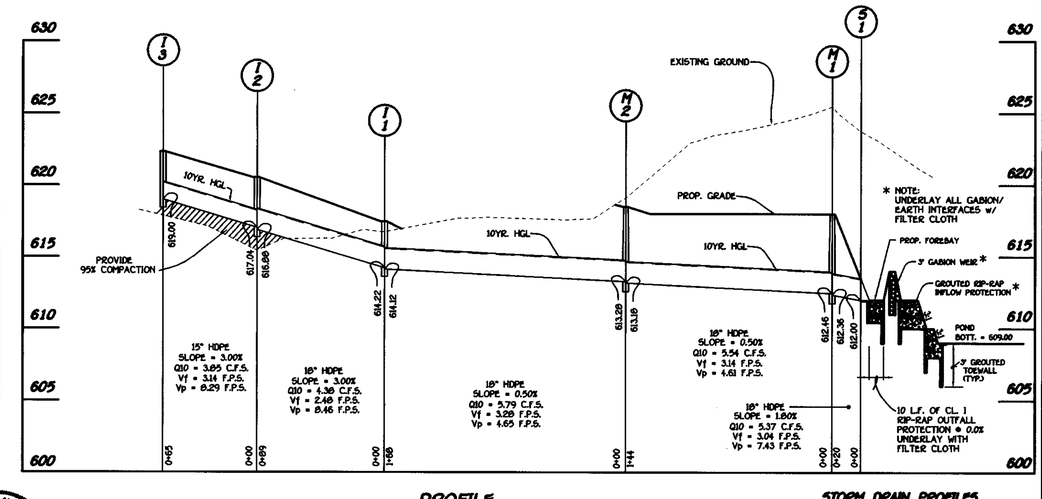

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ELLICOTT CITY, MARYLAND 21041

STATE OF MARYLAND — PAUL MICHAEL WITT — No. 20724 — REGISTERED PROFESSIONAL ENGINEER
12-20-01

STORM DRAIN PROFILES
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 9 OF 15
F 01-105

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/26/02

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02

DRAINAGE AREA DATA

STRUCTURE NO.	DRAINAGE AREA	AREA	'C'	ZONED	% IMP.
I-1	A	0.58 AC.	0.44	RC-DEO	35%
I-2	B	0.36 AC.	0.24	RC-DEO	67%
I-3	C	2.57 AC.	0.23	RC-DEO	3%
I-4	D	0.03 AC.	0.53	RC-DEO	48%
I-5	E	0.11 AC.	0.37	RC-DEO	24%
I-6	F	0.56 AC.	0.35	RC-DEO	21%
I-7	G	0.24 AC.	0.53	RC-DEO	48%
I-8	H	0.55 AC.	0.26	RC-DEO	8%
S-3	I	0.69 AC.	0.56	RC-DEO	53%
S-5	J	4.72 AC.	0.21	RC-DEO	0%

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

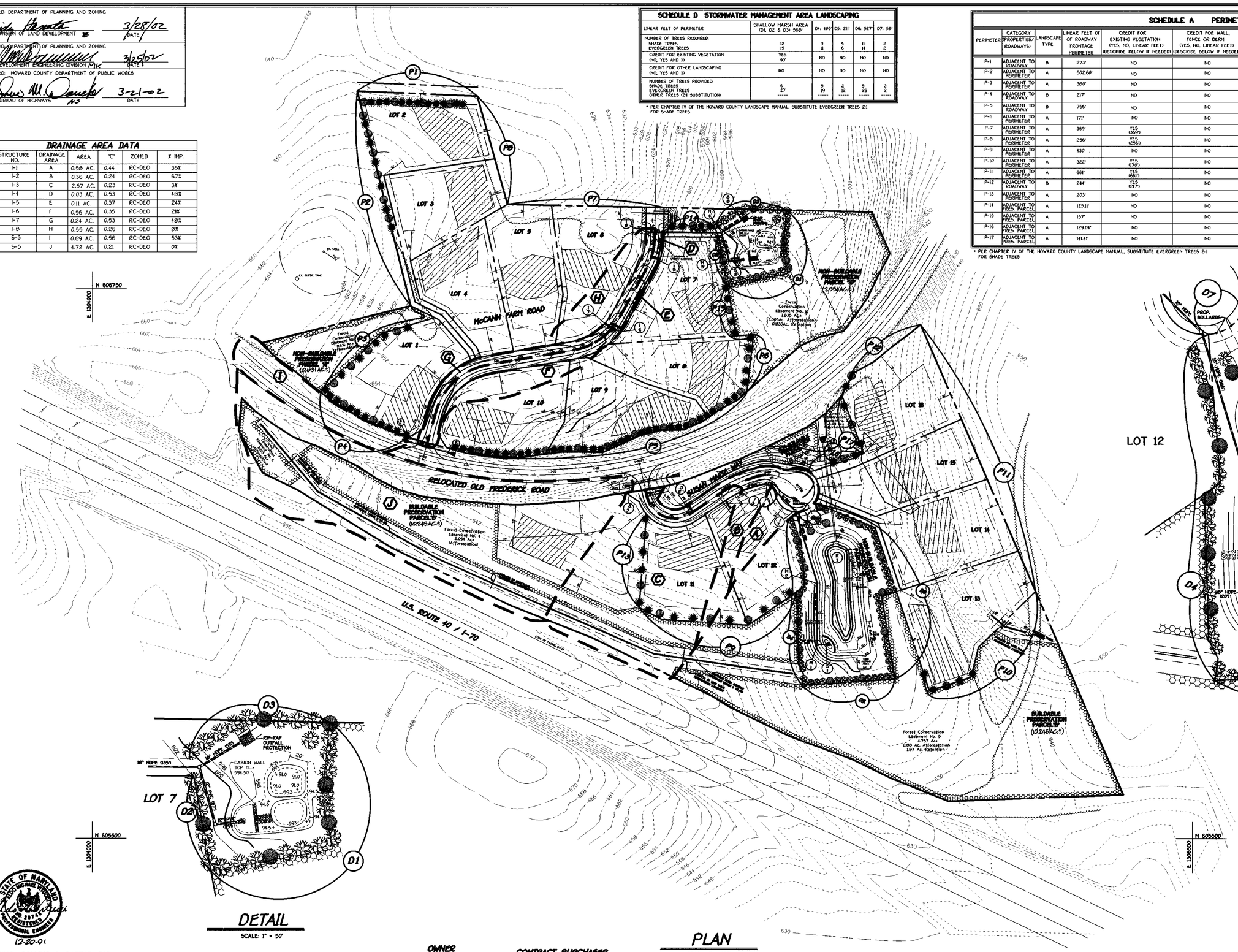
LINEAR FEET OF PERIMETER	SHALLOW MARSH AREA (D1, D2 & D3) 568'	D4: 405'	D5: 211'	D6: 527'	D7: 58'
NUMBER OF TREES REQUIRED: SHADE TREES / EVERGREEN TREES	12 / 15	9 / 11	5 / 6	11 / 14	2 / 2
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	YES 90%	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	NO	NO	NO	NO
NUMBER OF TREES PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTION)	6 / 27 / -----	5 / 19	2 / 12	5 / 26	2 / 2

* PER CHAPTER IV OF THE HOWARD COUNTY LANDSCAPE MANUAL, SUBSTITUTE EVERGREEN TREES 2:1 FOR SHADE TREES

SCHEDULE A PERIMETER LANDSCAPE EDGE

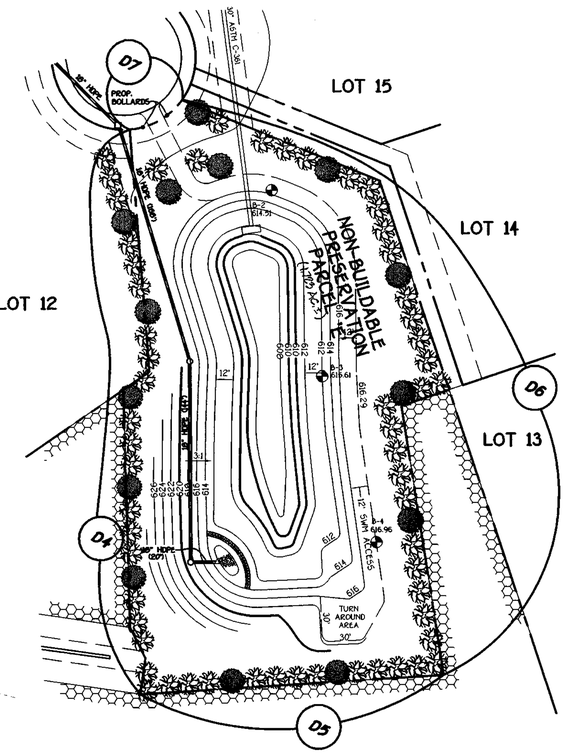
PERIMETER	CATEGORY (PROPERTIES/ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED *			NUMBER OF PLANTS PROVIDED			
						SHADE TREES	EVERGREEN TREES	SHRUBS	SHADE TREES	EVERGREEN TREES	OTHER TREES (2:1 SUBSTITUTION)	SHRUBS (10:1 SUBSTITUTION)
P-1	ADJACENT TO ROADWAY	B	273'	NO	NO	6	7	-	4	11	-	-
P-2	ADJACENT TO PERIMETER	A	502.60'	NO	NO	9	0	-	6	6	-	-
P-3	ADJACENT TO PERIMETER	A	380'	NO	NO	7	0	-	4	6	-	-
P-4	ADJACENT TO ROADWAY	B	217'	NO	NO	4	5	-	2	9	-	-
P-5	ADJACENT TO ROADWAY	B	766'	NO	NO	15	19	-	10	29	-	-
P-6	ADJACENT TO PERIMETER	A	171'	NO	NO	3	0	-	1	4	-	-
P-7	ADJACENT TO PERIMETER	A	369'	YES (369')	NO	0	0	-	0	0	-	-
P-8	ADJACENT TO PERIMETER	A	256'	YES (256')	NO	0	0	-	0	0	-	-
P-9	ADJACENT TO PERIMETER	A	430'	NO	NO	7	0	-	4	6	-	-
P-10	ADJACENT TO PERIMETER	A	322'	YES (170')	NO	3	0	-	1	4	-	-
P-11	ADJACENT TO PERIMETER	A	661'	YES (661')	NO	0	0	-	0	0	-	-
P-12	ADJACENT TO ROADWAY	B	244'	YES (217')	NO	1	1	-	1	1	-	-
P-13	ADJACENT TO PERIMETER	A	203'	NO	NO	4	0	-	2	4	-	-
P-14	ADJACENT TO PRES. PARCEL	A	125.11'	NO	NO	3	0	-	1	4	-	-
P-15	ADJACENT TO PRES. PARCEL	A	157'	NO	NO	3	0	-	1	4	-	-
P-16	ADJACENT TO PRES. PARCEL	A	129.04'	NO	NO	2	0	-	1	2	-	-
P-17	ADJACENT TO PRES. PARCEL	A	141.41'	NO	NO	2	0	-	1	2	-	-

* PER CHAPTER IV OF THE HOWARD COUNTY LANDSCAPE MANUAL, SUBSTITUTE EVERGREEN TREES 2:1 FOR SHADE TREES



PLAN

SCALE: 1" = 100'



DETAIL

SCALE: 1" = 50'

DETAIL

SCALE: 1" = 50'

LANDSCAPING PLANT LIST

QTY.	KEY	NAME	SIZE
92		PINUS STROBUS (EASTERN WHITE PINE)	6' - 8' HT.
86		CEDRUS DEODORA (DEODAR CEDAR)	6' - 8' HT.
59		ACER PLATANOIDES 'EMERALD QUEEN' EMERALD QUEEN NORWAY MAPLE	2-1/2" - 3" CAL.

"THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL". FINANCIAL SURETY FOR THE 138 REQUIRED LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $44,400.00.

STATE OF MARYLAND — ROBERT MICHAEL VOGEL — No. 20714 — REGISTERED PROFESSIONAL ENGINEER

12-20-01

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
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

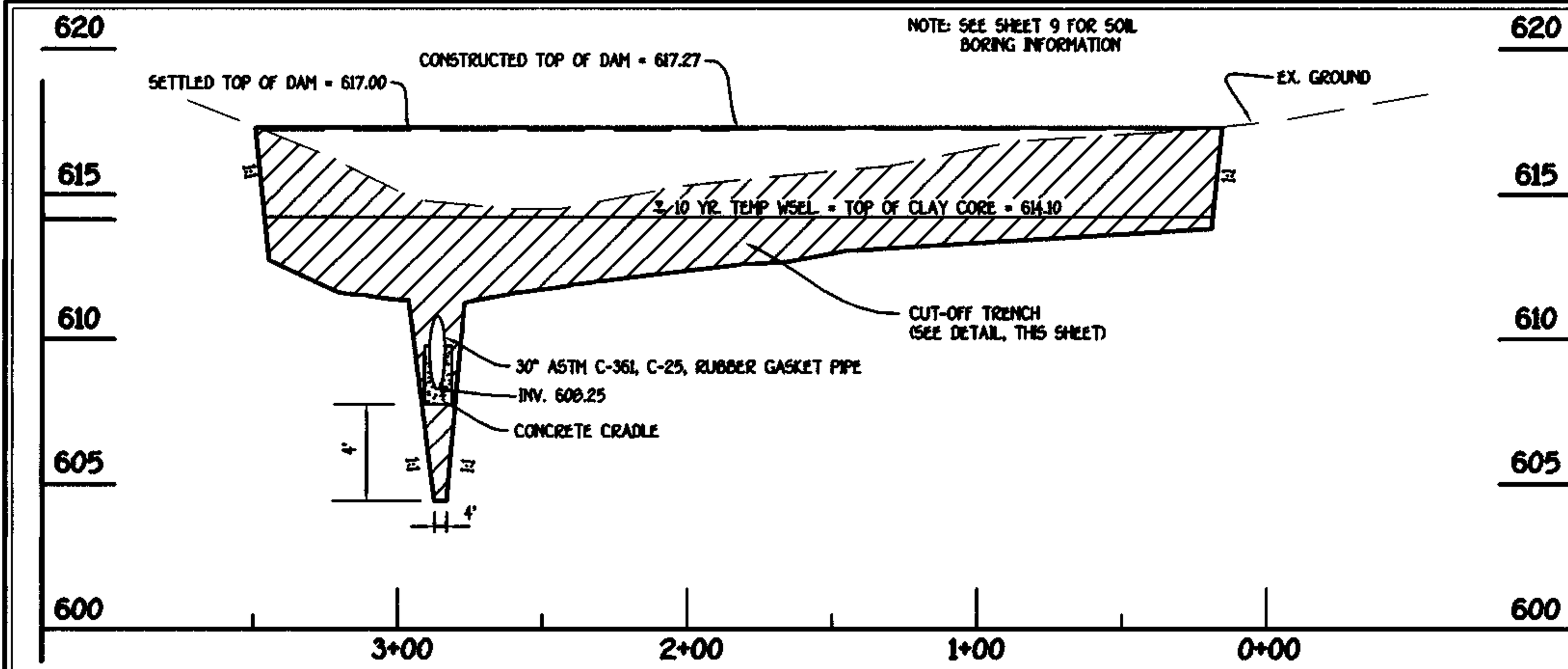
CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

NOTE: THIS PLAN IS FOR DRAINAGE AREA INFORMATION AND LANDSCAPE OBLIGATIONS ONLY.

DRAINAGE AREA MAP AND LANDSCAPE PLAN
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

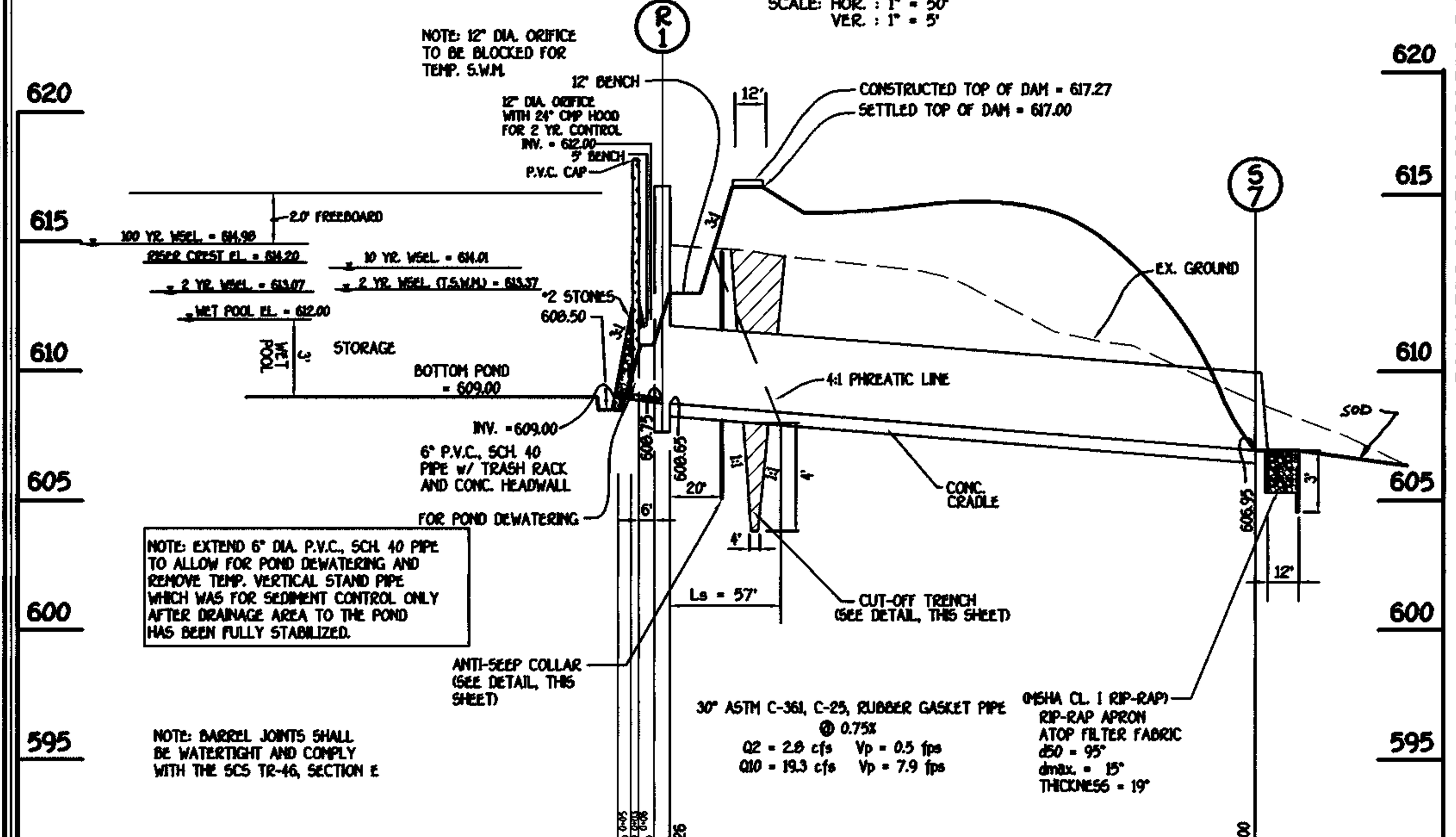
ZONING: RC-DEO
TAX MAP No. 9 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 10 OF 15

F 01-105



PROFILE ALONG ℄ OF DAM

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



PROFILE ALONG PRINCIPAL SPILLWAY

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

STORM WATER MANAGEMENT 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. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the 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 and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within +2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to the specified for the core of the embankment or other embankment materials.

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 - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Stel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling banks or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

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

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12-inches on the end of each pipe. Flanged joints with 3/8-inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock 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 C-361.

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Stucture Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (Anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe

The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirement of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

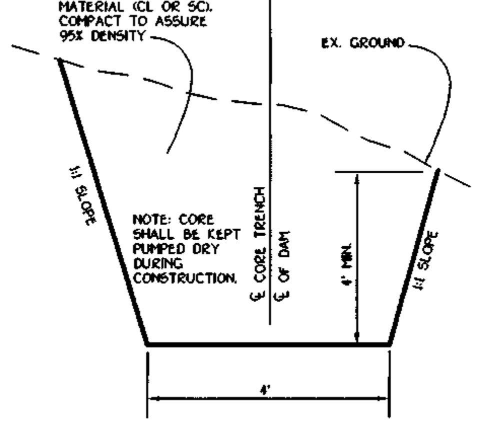
OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

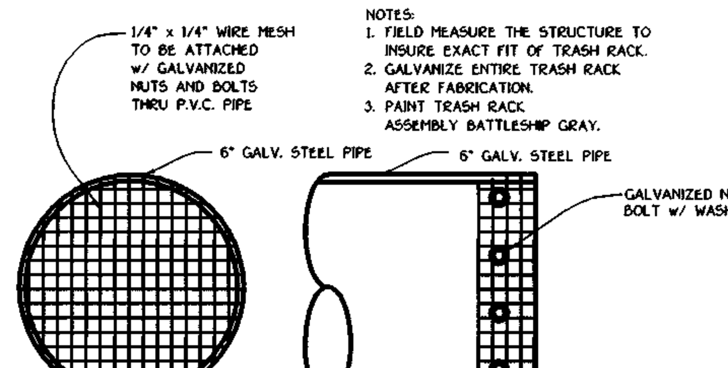
SHALLOW MARSH MAINTENANCE SCHEDULE

HOMEOWNER'S ASSOCIATION MAINTENANCE RESPONSIBILITIES FOR SHALLOW MARSH

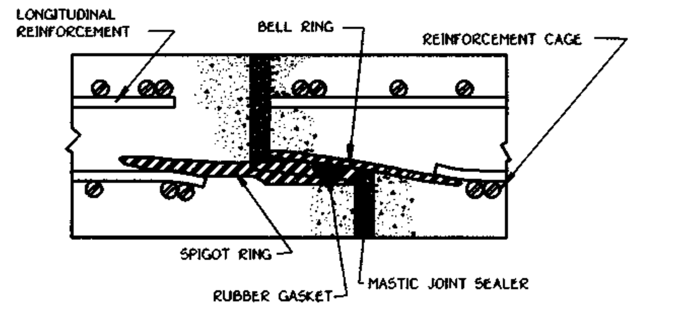
1. INSPECTION FOREBAY AFTER EACH STORM - IF SEDIMENT BUILDUP EXCEEDS FOUR (4) INCHES, NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF HIGHWAYS TO FACILITATE CLEANOUT OPERATIONS.
2. REMOVAL OF ACCUMULATED PAPER, TRASH AND DEBRIS AFTER EVERY STORM, AS NECESSARY.
3. ANNUAL INSPECTION AND REPAIR OF THE GABION STRUCTURES, AS NEEDED.
4. VEGETATION GROWING ON THE EMBANKMENT TOP OR FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANYTIME.
5. CORRECTIVE MAINTENANCE IS REQUIRED ANYTIME THE FOREBAY DOES NOT DRAIN DOWN TO THE DESIGNED SURFACE ELEVATION WITHIN 60 HOURS.



CORE TRENCH DETAIL
NOT TO SCALE



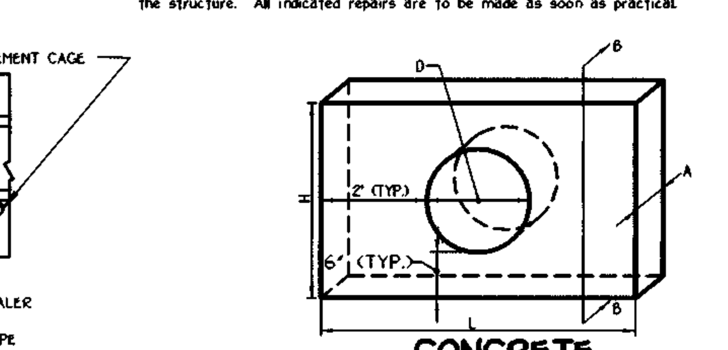
TRASH RACK 'B' DETAIL
NOT TO SCALE



NOTE: PROVIDE MASTIC JOINT SEALER FROM OUTSIDE OF PIPE JOINTS PRIOR TO INSTALLING BARREL UNDERGROUND

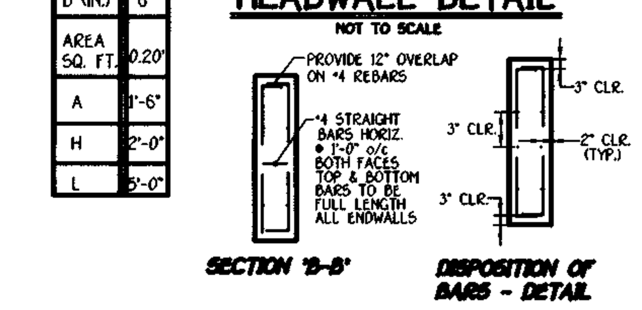
ASTM DESIGNATION C361
DIAMETERS 12 THRU 168 INCH
PRESSURES TO 125 FEET OF HEAD

CONCRETE PIPE JOINT DETAIL
(NO SCALE)



CONCRETE HEADWALL DETAIL
NOT TO SCALE

D (IN.)	6"
AREA SQ. FT.	0.20'
A	1'-6"
H	2'-0"
L	5'-0"



NOTES:
1. REINFORCING: DEFORMED STEEL BARS (1/2" DIA.).
2. CONC. SHALL BE S.H.A. MIX NO.2.

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

[signature]
Signature Of Developer — Date

Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

[signature] 12-20-01
Signature Of Engineer — Date

ALDO M...
Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

[signature] 1/9/02
USDA-Natural Resources Conservation Service — Date

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

[signature] 1/9/02
Howard Soil Conservation District — Date

Approved: Department Of Public Works
[signature] 3-21-02
Chief, Bureau Of Highways — Date

Approved: Department Of Planning And Zoning
[signature] 3/28/02
Chief, Division Of Land Development — Date

[signature] 3/25/02
Chief, Development Engineering Division MK — Date

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The " As-Built" Plans And Meets The Approved Plans And Specifications.

Signature — P.E. No.

Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

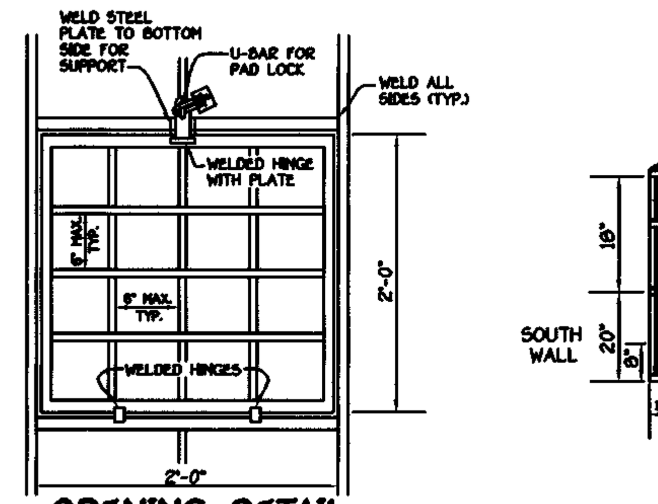
OPERATION, MAINTENANCE AND INSPECTION

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 slumping.

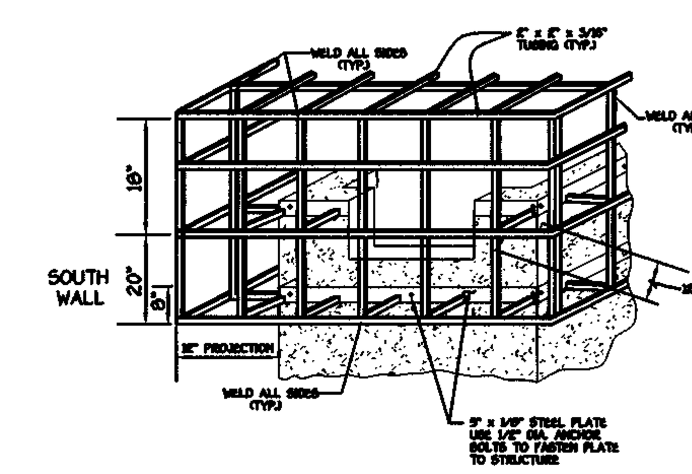
STORMWATER MANAGEMENT POND MAINTENANCE SCHEDULE

A. ROUTINE MAINTENANCE
1. Facility shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if the pond is functioning properly.
2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes, the bottom of the pond, and maintenance access should be mowed as needed.
3. Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.
4. Visible signs of erosion in the pond as well as rip-rap outlet area shall be repaired as soon as it is noticed.

B. NON-ROUTINE MAINTENANCE
1. Structural components of the pond such as the dam, riser structure and the pipes shall be repaired upon the detection of any damage. The components should be inspected during maintenance operations.
2. Sediment should be removed when its accumulation significantly reduces the design storage, interferes with the function of the riser, when deemed necessary for aesthetic reasons, or when deemed necessary by the Howard County's Department of Public Works.



OPENING DETAIL
NO SCALE



FASTENING DETAIL
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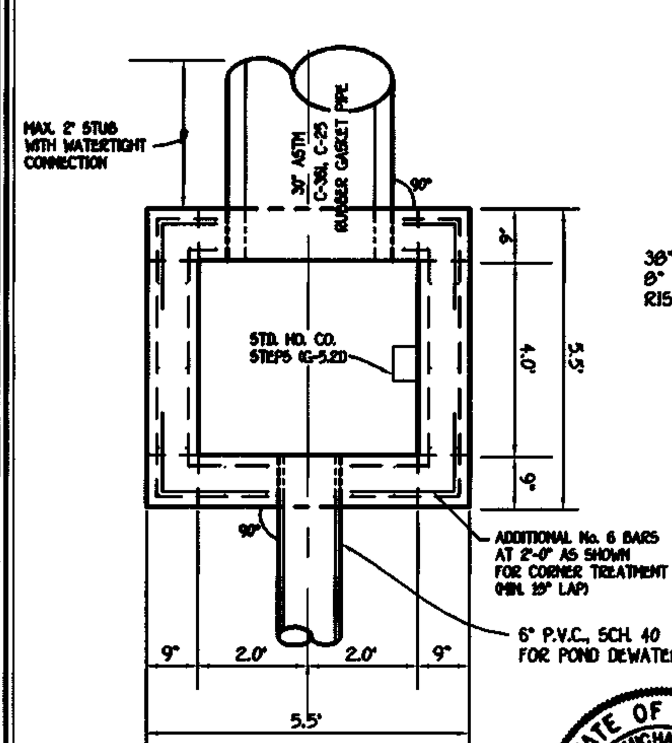
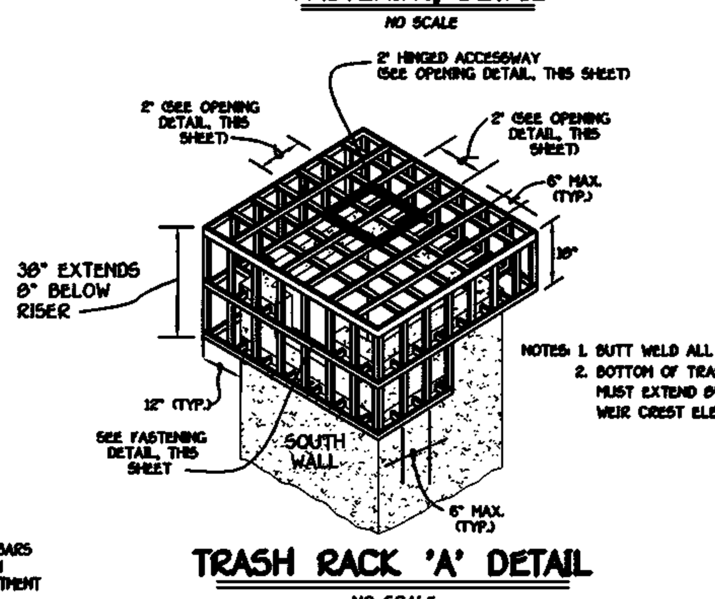
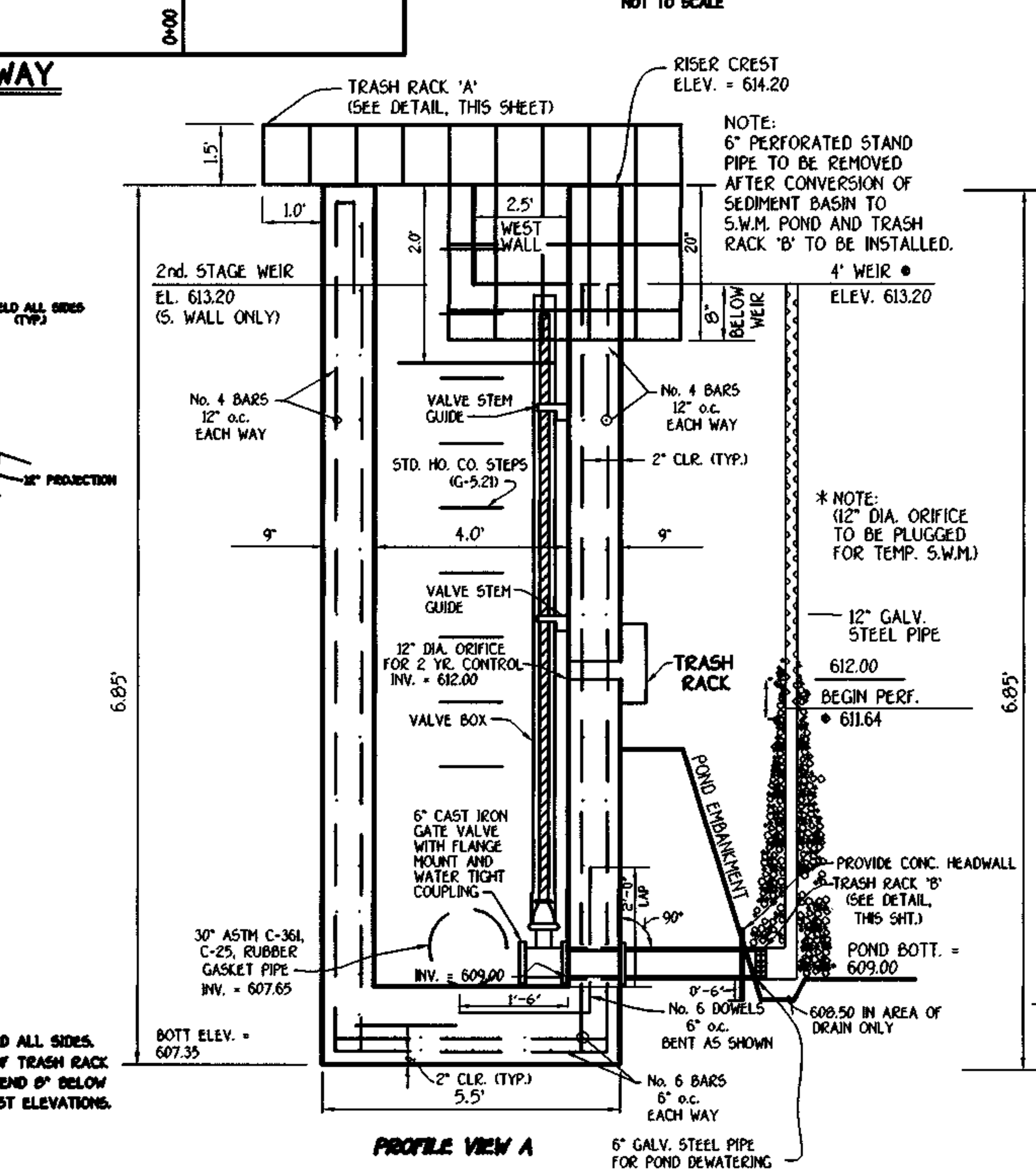


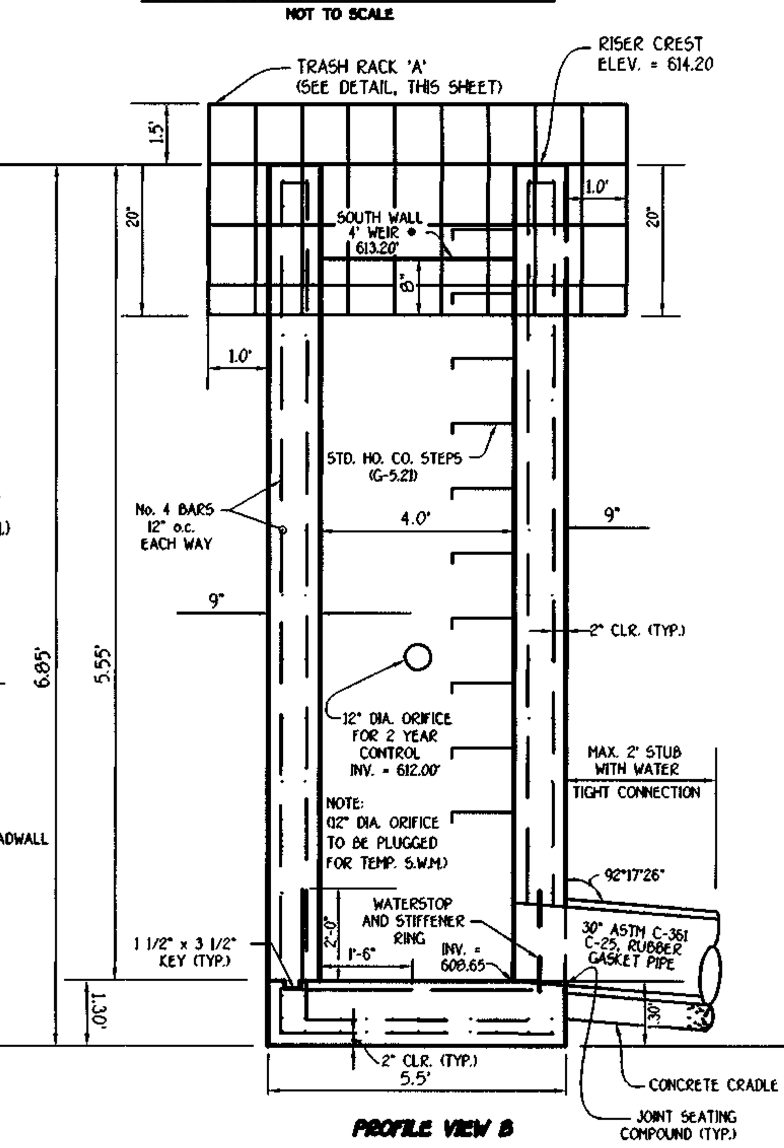
PLAN VIEW
NO SCALE



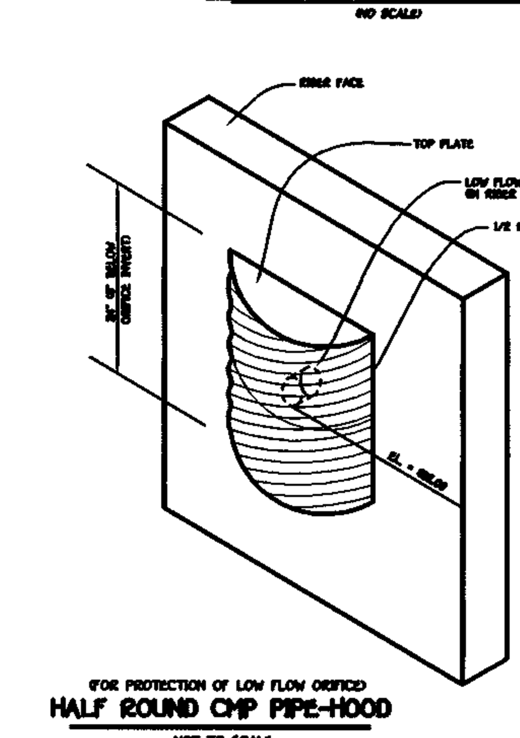
NOTES: 1. BUTT WELD ALL SIDES.
2. BOTTOM OF TRASH RACK MUST EXTEND 8" BELOW WEIR CREST ELEVATIONS.

TRASH RACK 'A' DETAIL
NO SCALE

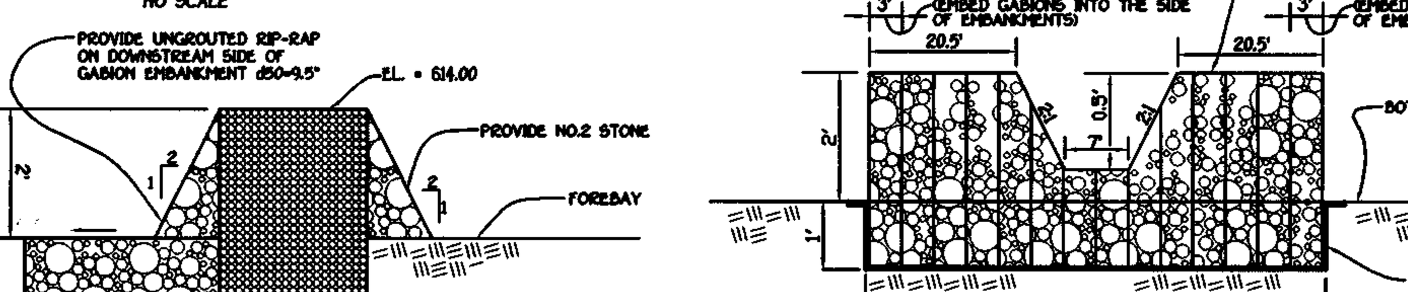




CONCRETE RISER DETAIL
(NO SCALE)

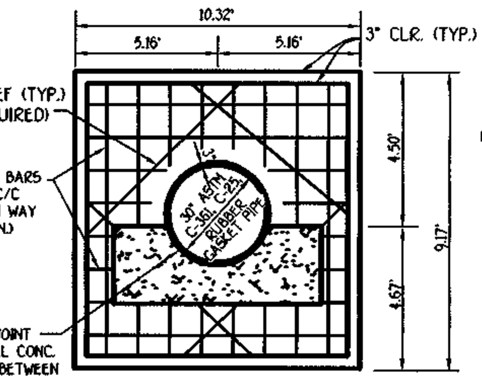


(FOR PROTECTION OF LOW FLOW ORIFICE)
HALF ROUND CMP PIPE-HOOD
NOT TO SCALE

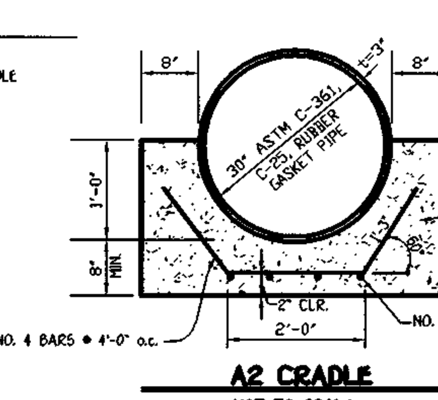


$Q = 3.1 \times 7 \times .05^{3/2} = 7.67$ cfs
(Q10 = 5.37 cfs)

GABION FILTER AT FOREBAY
(NO SCALE)

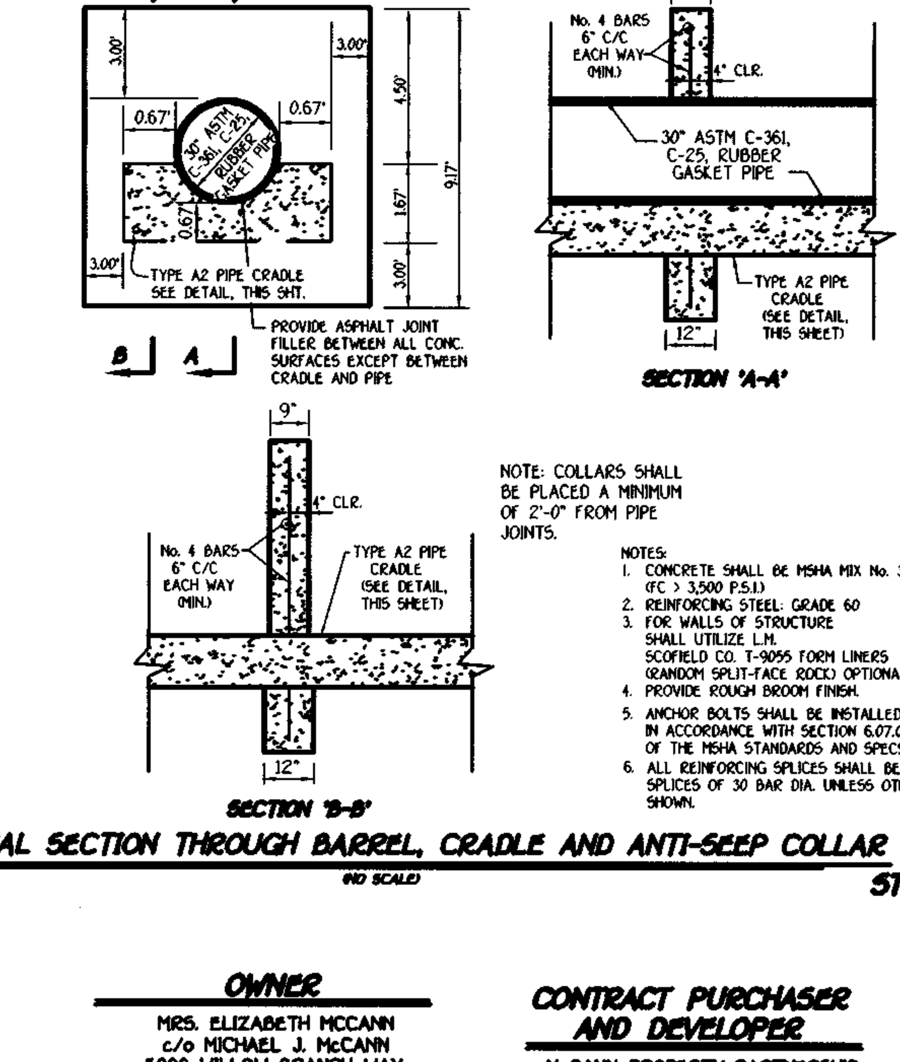


ANTI-SEEP COLLAR
NOT TO SCALE



A2 CRADLE
NOT TO SCALE

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



NOTES:
1. CONCRETE SHALL BE MSHA MIX No. 3 (FC > 3,500 P.S.I.)
2. REINFORCING STEEL: GRADE 60
3. FOR WALLS OF STRUCTURE SHALL UTILIZE L.M. SCOFIELD CO. T-9055 FORM LINERS (RANDOM SPLIT-FACE ROCK) OPTIONAL.
4. PROVIDE ROUGH BROOM FINISH.
5. ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6.07.03.59 OF THE MSHA STANDARDS AND SPECS.
6. ALL REINFORCING SPLICES SHALL BE LAP SPLICES OF 30 BAR DIA. UNLESS OTHERWISE SHOWN.

TYPICAL SECTION THROUGH BARREL, CRADLE AND ANTI-SEEP COLLAR
(NO SCALE)

GEOTECHNICAL RECOMMENDATIONS FOR EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

THE SITE SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH OR CL. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 378 SPECIFICATIONS.

STORMWATER MANAGEMENT DISCHARGE SUMMARY AT STUDY POINT

DESIGN STORM	EXISTING CONDITIONS Q (c.f.s.)	PROPOSED CONDITIONS Q (c.f.s.)
* 2 YEAR	5.6	2.8 @ 613.07
* 10 YEAR	24.0	19.3 @ 614.01
100 YEAR	50.5	48.6 @ 614.98

* - 2 AND 10 YEAR MANAGEMENT IS REQUIRED

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

STATE OF MARYLAND ALDO MICHAEL VITUCCI No. 20748 REGISTERED PROFESSIONAL ENGINEER
12-20-01

F.C.C.*306105WMDETAILS REVISED.DWG

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

STORMWATER MANAGEMENT NOTES AND DETAILS
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 11 OF 15

F 01-105

PLYWALL SOUND BARRIER SPECIFICATIONS

1. DESCRIPTION: This work shall consist of the construction of sound barrier consisting of Plywall panels as manufactured by Hoover Treated Wood Products, Inc., supported by Parallam PSL posts as manufactured by Trus Joist MacMillan. Sound Barrier shall be designed to withstand a wind load of 25 psf, as specified by the Maryland State Highway Administration for noise barriers.

2. MATERIALS: Materials shall conform to the following:

2.1 SOUND BARRIER PANELS - Panels shall be fabricated as two-piece "Plywall" panels for the 8 ft. high barrier and three-piece "Plywall" panels for the 10 ft. and 12 ft. high barriers by 8ft. wide, as manufactured by Hoover Treated Wood Products, Inc. Panels design shall have been tested in accordance with ASTM E-90 and ASTM E-413 and shall resulted in a sound transmission class of 38 or better. Panels shall consist of a structurally sound frame of 2" by 4" (nominal) Southern Yellow Pine lumber, surfaced four sides, covered on both panel faces by shiplap-jointed, APA-303 specialty siding, Southern Pine, exposure durability classification Exterior, Texture 1-11, 5-ply, 19/32" thick, grooves 8" o.c., wood patches. All wood used in panel construction shall be pressure preservatively treated with CCA preservative to a minimum net retention of 0.60 pcf in accordance with American Wood Preservers Association C-2 and C-9. All plywood siding and 2" (nominal) lumber shall be kiln dried after treatment to a moisture content of 19 percent or less. All panel sections shall be fabricated prior to shipment. All panels shall have two nylon lifting webs, securely attached along the top.

2.2 SUPPORT POSTS - Posts shall be ___" x ___" x ___ ft long (from wind load/height chart), Parallam PSL Southern Pine Parallel Strand Lumber, 2.0 E, as manufactured by Trus Joist MacMillan. Minimum net retention of preservation shall be 0.60 pcf of CCA. Posts shall be bundled so that each layer is separated by wood spacers to allow air drying after treatment.
Note: See wind load/height chart below for the appropriate post dimensions. The design wind load is 35 psf. Post heights are 8 ft., 10 ft., and 12ft.

2.3 CLEATS - Vertical cleats for attaching panels to posts shall be 4" x 4" (nominal) Southern Pine timbers, surfaced four sides. Minimum net retension shall be 0.60 pcf of CCA preservative.

2.4 FASTENERS - All nails or spikes shall be hot dip galvanized zinc coated per ASTM A-153.

2.5 SOURCING - All Wood Sound Barrier System Materials, including posts, panels and cleats shall be treated and fabricated at one location. The following is a list of known suppliers:

Hoover Treated Wood Products, Inc., 1-800-531-5558.

3 CONSTRUCTION:

3.1 MATERIAL UNLOADING AND STORAGE - Contractor shall provide suitable unloading equipment and storage space for Sound Barrier Materials. Sound Barrier Materials shall be kept off the ground and shall be protected from mud, splattering, staining, vandalism or physical damage.

3.2 POST HOLES - Post holes shall be augered to the required diameter and depth, which shall be determined by the owner's engineer. Spacing shall allow clear spans equal to the panel width plus one inch tolerance. Posts may shrink slightly after erection. The contractor shall take all measures and precautions necessary to prevent collapse of the hole sides. Actual post width shall be checked at delivery because treatment may cause some swelling. Actual panel width shall also be verified at delivery.

3.3 POST SETTING - Posts shall be set plumb and in precise position to accept panels and shall be braced in such a manner as to remain plumb and in the required lateral position during backfilling. Post spacing shall allow clear spans between posts equal to the panel width plus a maximum one-inch tolerance. In no case shall the erection tolerance between posts exceed 1 inch.

3.4 BACKFILLING - Posts shall be set in concrete footings.

3.5 ATTACHMENT OF REAR CLEATS - Prior to setting panels, the rear cleats shall be fully attached to each post to support the Sound Barrier panels during placement. Cleats shall be placed at an elevation that will insure support of the panel over the entire height. The rear edge of the cleat shall be flush with the rear face of the post. The cleats shall be attached with hot dip galvanized zinc coated spikes as shown.
Note: Contractor may attach rear cleats prior to setting posts.

3.6 SETTING PANELS - Sound Barrier panels shall be lifted by the provided lift straps and seated firmly against the prefixed rear cleats in a manner which maintains panel plumb and level while providing a maximum one inch tolerance between the posts. The panel will then be secured by attaching the front cleats to the posts along the unsecured panel face. Nails shall not be driven into the panel.
Note: Front cleats shall be firmly and securely fixed to the post at both ends before releasing lifting straps.

3.7 PANEL BOTTOM EMBEDMENT - Bottom of panels shall be backfilled with crushed stone to prevent the passage of sound and to provide drainage.

3.8 FIELD TRIMMING OF POST TOPS - After panels have been set, the post tops shall be rough trimmed with a square cut 3" above the top of the panel.

3.9 DISPOSAL OF TREATED WOOD SCRAPS - Do not burn scraps. Dispose of scraps as ordinary trash. Landfilling is acceptable for CCA treated wood.

3.10 WOOD FINISH - No finish is required.

Height	Wind Load (PSF) 20	25	28	30	33	35	40
6'	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75
8'	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75
10'	3.5 x 9.75	3.5 x 9.75	5.25 x 9.75	5.25 x 9.75	5.25 x 9.75	5.25 x 9.75	5.25 x 9.75
12'	5.25 x 9.75	5.25 x 9.75	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12
14'	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 14
16'	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	7 x 14
18'	7 x 14	7 x 14	7 x 14	7 x 14	7 x 14	7 x 14	7 x 14
20'	7 x 14	7 x 14	7 x 14	7 x 14	7 x 14	7 x 16	7 x 16
22'	7 x 16	7 x 16	7 x 16	7 x 16	7 x 16	7 x 16	11 x 14
24'	11 x 12	11 x 12	11 x 14	11 x 14	11 x 14	11 x 14	11 x 16
26'	11 x 16	11 x 16	11 x 16	11 x 16	11 x 16	11 x 16	11 x 19
28'	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19
30'	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19

The design for post heights 6' through 12' assumes embedment in soil or gravel. Posts 14' or greater in height are assumed to be embedded in concrete. Post embedment depth to be determined by local engineer. Post width 5".

Note: At this site, posts shall be set in concrete footings.

STATE OF MARYLAND
JOHN MICHAEL WISNER
No. 20714
REGISTERED
PROFESSIONAL ENGINEER
12-20-01

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

INSTALLATION INSTRUCTIONS FOR PLYWALL BARRIERS

PLYWALL is a panelized post and panel barrier system that is very simple to install. All components are made of pressure treated wood and can be installed by non-specialized crews without heavy equipment.

SHIPPING: PLYWALL is panelized and ready to install when shipped. Shipment is by truck to the job site. Unloading requires a large forklift or a crane and slings. Bundles can weigh as much as 8,000 pounds. Panels are stacked flat in bundles 8 feet across, requiring long forks if a forklift is used. Posts are bundled in standard lumber bundles, about 3.5 feet across, which can be handled with standard 4-foot forks.

Shipping usually consists of posts on the first loads. Loads can be mixed with both posts and panels if desired. Staging of materials may be a problem on tight sites. Materials can be staged nearby at a lumberyard or other storage area and shuttled to the site as needed. This is helpful when space is limited at the site. It is important to store the bundles off the ground and to keep them clean.

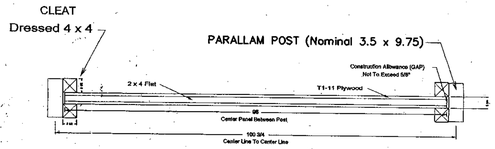
INSTALLATION - POSTS: Installation begins with laying out and boring the post holes. The Panel size will determine the depth and diameter of the footings. Recommendations are based on a minimum allowable soil load bearing capacity of 1500 psf and 1/2" to 3/4" clean and well graded stone backfill. Posts must be set accurately and plumb so that the panels will fit neatly between the posts with a construction allowance determined by the panel size (see drawing). Posts are supplied with one foot extra length so that they can be set without having to have the top at a precise elevation. They can be easily trimmed to the proper elevation later. Additional length can be supplied on request. **At this site, posts shall be set in concrete footings.**

INSTALLATION - PANELS: Panels are fabricated in modules that are a maximum of either 8 feet high or 8 feet wide. Two built-in nylon web lifting loops are provided at the top of each panel for lifting by crane with two hooks. Before lifting and positioning the panel between posts, attach the rear, pre-drilled, long 4x4 cleats vertically to each post, then swing the panel into position. When the panel is in position against the rear 4x4 cleats, spike or lag the front 4x4 cleats to the post through the pre-drilled holes in the 4x4's, "squeezing" the panel between the rear and front 4x4 attachment members. The panels are not nailed to the 4x4 attachment members or the posts, and they bear directly on earth at the bottom. After securing the panels, the lifting loops may be cut off with a sharp utility knife or folded and tacked to the top framing member for possible future use if the wall might need to be relocated.

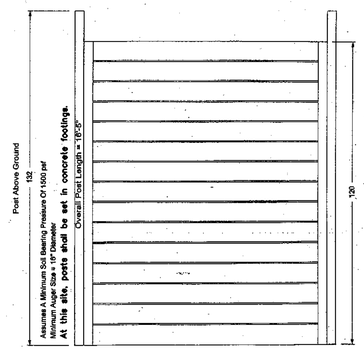
INSTALLATION- STACKABLE PANELS:
Stacking panels between posts is accomplished by lowering the top panel down onto the lower panel, guiding the plywood edges over the protruding, beveled "tongue" formed by the lower panel's topmost framing member. It is not necessary to slide the panels all the way down from the top of the posts as would be the case with steel or concrete h-beams. After setting the panels, the lifting loops may be cut off with a sharp utility knife or folded and tacked to the top framing member for possible future use if the wall might need to be relocated. The horizontal panel joint is not designed for the plywood edges to meet due to the difficulty of assuring a perfect joint. A gap of about 1/4" is normal between the plywood butts.

Smaller panels are stacked on top to achieve the desired top elevation. The size and number of panels are determined in advance by the panel size.

To finish off the wall, trim the posts to the desired height, bevel, or slope with a chain saw after setting panels. Be sure to order extra post length if the normal one foot is determined inadequate for your desired post finishing method. No finishing or maintenance of the panels or posts is necessary.

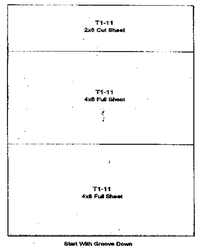


STANDARD 8' Wide X 10' High Detail
rev: 04-02-01

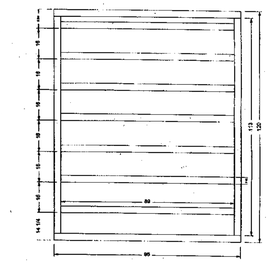


STANDARD 8' Wide X 10' High rev: 04-02-01

8' Wide X 10' High
STANDARD DRAWING rev: 12-03-98
PANEL DETAILS



Plywood Scheme



8 Wide by 10 High 2x4 Frame

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Maryland Dept. of The Environment With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Maryland Dept. of the Environment."

Signature Of Developer — Date

Printed Name Of Developer

By The Engineer:

"I Certify That This Stormwater Management And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Appropriate Reviewing Agency That I Must Engage A Registered Professional Engineer To Supervise Construction."

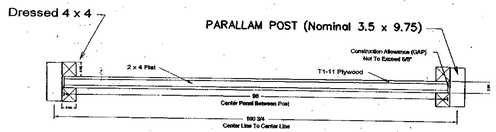
Signature Of Engineer — Date 12-20-01

Printed Name Of Engineer

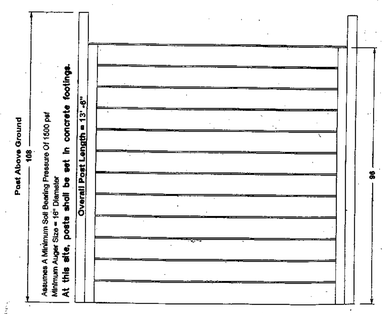
Approved Department Of Public Works
Chief, Bureau Of Highways — Date 3-21-02

Approved Department Of Planning And Zoning
Chief, Division Of Land Development — Date 3/28/02

Chief, Development Engineering Division MK — Date 3/25/02

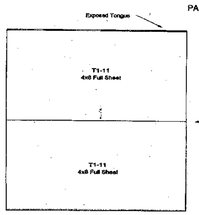


STANDARD 8' Wide X 8' High Detail
rev: 03-30-01

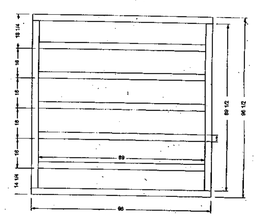


STANDARD 8' Wide X 8' High rev: 03-30-01

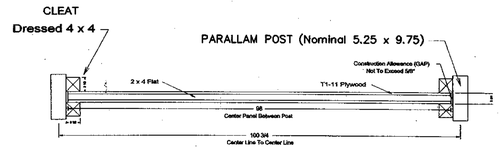
8' Wide X 8' High
STANDARD DRAWING rev: 12-03-98
PANEL DETAILS



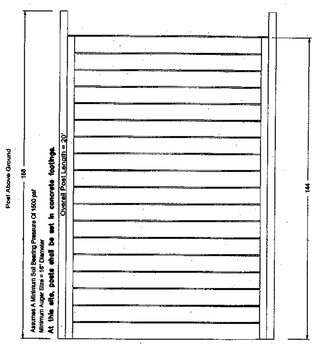
Plywood Scheme



8 Wide by 8 High 2x4 Frame

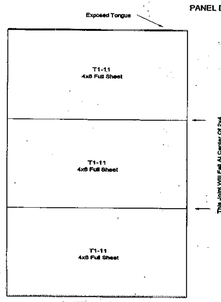


STANDARD 8' Wide X 12' High Detail
rev: 04-02-01

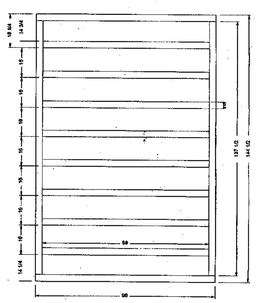


STANDARD 8' Wide X 12' High rev: 04-02-01

8' Wide X 12' High
STANDARD DRAWING rev: 12-03-98
PANEL DETAILS



Plywood Scheme



8 Wide by 12 High 2x4 Frame

LOG OF BORING NO. B-1

PROJECT: McCann Property
PROJECT NO: 99531
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: November 10, 1999
DATE COMPLETED: November 10, 1999
DRILLING CONTRACTOR: Geo-Technology Associates
DRILLER: J.P./T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: E. Dry T. Dry
DATE: 11/10/99 11/11/99
CAVED IN: 13.0' 13.0'
GROUND SURFACE ELEVATION: 595.3
DATUM: Topo
WEATHER: Partly Sunny
GEOLOGIST:
CHECKED BY: S. Rowe
BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (FT.)	BLOWS PER 6 IN.	N VALUE (BPF)	ELEVATION (FT.)	DEPTH (FT.)	USCS	GRAPHIC LOG	DESCRIPTION	REMARKS
S-1	15.0	0.5	1-2-2	4	595.3	0	ML		Red, brown, orange, moist, loose, Clayey SILT, roots to some fine sand, (MU)	Topsoil 4 in.
S-2	1.5	1.3	3-4-3	7	592.8	2.5	ML		Red, brown, mottle, moist, loose, Fine SAND and SILT, trace clay, (ML)	Water not encountered while drilling.
S-3	1.5	1.2	4-4-6	10		5				
S-4	1.5	1.0	3-3-3	6		10				
S-5	1.5	1.3	3-4-6	9	580.3	15			Bottom of Hole at 15.0 ft.	

NOTES:
Coordinates: N: 606800.0 E: 1300936.0
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 9080 JUNCTION DRIVE, SUITE 9 ANNAPOLIS JUNCTION, MARYLAND 20701
LOG OF BORING B-1 — Sheet 1 of 1

LOG OF BORING NO. B-2

PROJECT: McCann Property
PROJECT NO: 99531
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: November 10, 1999
DATE COMPLETED: November 10, 1999
DRILLING CONTRACTOR: Geo-Technology Associates
DRILLER: J.P./T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: E. Dry T. Dry
DATE: 11/10/99 11/11/99
CAVED IN: 13.0' 13.0'
GROUND SURFACE ELEVATION: 614.5
DATUM: Topo
WEATHER: Partly Sunny
GEOLOGIST:
CHECKED BY: S. Rowe
BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (FT.)	BLOWS PER 6 IN.	N VALUE (BPF)	ELEVATION (FT.)	DEPTH (FT.)	USCS	GRAPHIC LOG	DESCRIPTION	REMARKS
S-1	16.0	1.3	2-2-3	5	614.5	0	ML		Red, brown, mottle, loose to medium dense, Clayey SILT, trace fine sand, (ML)	Topsoil 3 in.
S-2	1.5	1.3	3-3-2	5		2.5				
S-3	1.5	1.3	5-6-4	11	607.5	5				Water not encountered while drilling.
S-4	1.5	1.2	8-7-9	16		10				
S-5	1.5	1.2	3-5-7	12	599.5	15			Bottom of Hole at 15.0 ft.	

NOTES:
Coordinates: N: 606189.0 E: 1300750.0
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 9080 JUNCTION DRIVE, SUITE 9 ANNAPOLIS JUNCTION, MARYLAND 20701
LOG OF BORING B-2 — Sheet 1 of 1

LOG OF BORING NO. B-3

PROJECT: McCann Property
PROJECT NO: 99531
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: November 10, 1999
DATE COMPLETED: November 10, 1999
DRILLING CONTRACTOR: Geo-Technology Associates
DRILLER: J.P./T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: E. Dry T. Dry
DATE: 11/10/99 11/11/99
CAVED IN: 13.0' 13.0'
GROUND SURFACE ELEVATION: 615.6
DATUM: Topo
WEATHER: Partly Sunny
GEOLOGIST:
CHECKED BY: S. Rowe
BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (FT.)	BLOWS PER 6 IN.	N VALUE (BPF)	ELEVATION (FT.)	DEPTH (FT.)	USCS	GRAPHIC LOG	DESCRIPTION	REMARKS
S-1	15.0	1.0	1-3-3	6	615.6	0	ML		Red, brown, mottle, loose, Clayey SILT, with fine sand, (ML)	Topsoil 4 in.
S-2	1.0	1.1	1-2-3	5	611.1	4.5	ML		Red, brown, mottle, loose to medium dense, Silt, f and fine SAND, trace clay, (ML)	Water not encountered while drilling.
S-3	1.5	1.3	2-4-3	7		5				
S-4	1.5	1.0	3-3-3	6		10				
S-5	1.5	1.3	4-5-6	11	600.6	15			Bottom of Hole at 15.0 ft.	

NOTES:
Coordinates: N: 606858.0 E: 1300739.0
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 9080 JUNCTION DRIVE, SUITE 9 ANNAPOLIS JUNCTION, MARYLAND 20701
LOG OF BORING B-3 — Sheet 1 of 1

LOG OF BORING NO. B-4

PROJECT: McCann Property
PROJECT NO: 99531
PROJECT LOCATION: Howard County, Maryland
DATE STARTED: November 10, 1999
DATE COMPLETED: November 10, 1999
DRILLING CONTRACTOR: Geo-Technology Associates
DRILLER: J.P./T.C.
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon
WATER LEVEL: E. Dry T. Dry
DATE: 11/10/99 11/11/99
CAVED IN: 13.0' 13.0'
GROUND SURFACE ELEVATION: 617.0
DATUM: Topo
WEATHER: Partly Sunny
GEOLOGIST:
CHECKED BY: S. Rowe
BACKGROUND OVA (PPM):

SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (FT.)	BLOWS PER 6 IN.	N VALUE (BPF)	ELEVATION (FT.)	DEPTH (FT.)	USCS	GRAPHIC LOG	DESCRIPTION	REMARKS
S-1	16.0	1.3	2-3-3	6	617.0	0	ML		Red, brown, tan, Clayey SILT, trace to some fine sand, (ML)	Topsoil 4 in.
S-2	1.5	1.3	3-7-3	10	613.0	4	ML		Red, brown, mottle, medium dense to loose, SAND and SILT, trace fine gravel, trace clay, (ML)	Water not encountered while drilling.
S-3	1.5	1.4	3-7-9	16		5				
S-4	1.5	1.4	3-3-1	6		10				
S-5	1.5	1.3	5-5-7	12	602.0	15			Bottom of Hole at 15.0 ft.	

Borehole Permeability Test @ 9 ft.

No.	Incremental Head Drop (in)	Total Head Drop (in)
1	2.5	2.5
2	3.9	6.4
3	2.4	7.8
4	3.5	10.3

Avg. = 2.58/hr

NOTES:
Coordinates: N: 606884.0 E: 1300777.0
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 9080 JUNCTION DRIVE, SUITE 9 ANNAPOLIS JUNCTION, MARYLAND 20701
LOG OF BORING B-4 — Sheet 1 of 1

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1571
ELLICOTT CITY, MARYLAND 21041

STORMWATER MANAGEMENT NOTES AND DETAILS
McCANN PROPERTY
LOTS 1 THRU 16 AND
PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 6 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 12 OF 15

F 01-105

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 11/2" in diameter.

ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

II. For sites having, disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

III For sites having disturbed areas over 5 acres:

i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

b. Organic content of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. When top soiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

ii. Grades on the areas to be top soiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from top soiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding,. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

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. GRADING NECESSARY TO INSTALL STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES TO BE PERFORMED FIRST. REMAINDER OF THE GRADING TO BE PERFORMED AFTER STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES ARE INSTALLED.
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	34.32	ACRES
AREA DISTURBED	9.11	ACRES
AREA TO BE ROOFED OR PAVED	0.36	ACRES
AREA TO BE VEGETATIVELY STABILIZED	8.75	ACRES
TOTAL CUT	2,400	CU.YDS.
TOTAL FILL	2,400	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.

STATE OF MARYLAND ALDO MICHAEL VITUCCI NO. 20748 REGISTERED PROFESSIONAL ENGINEER

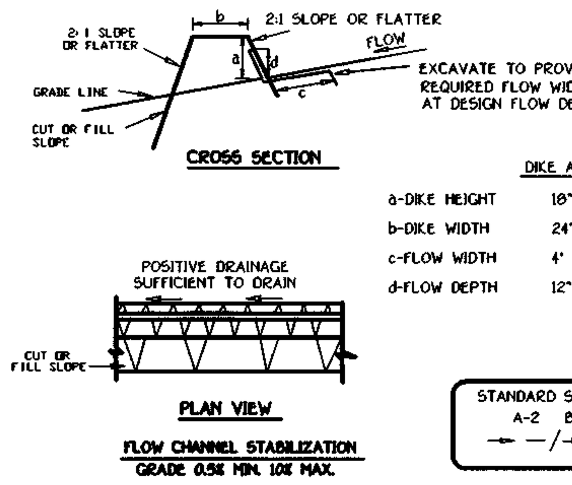
12-20-01

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

F.C.C.# 30646/FINALS/SED CON DETAILS.DWG

OWNER
MRS. ELIZABETH McCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041



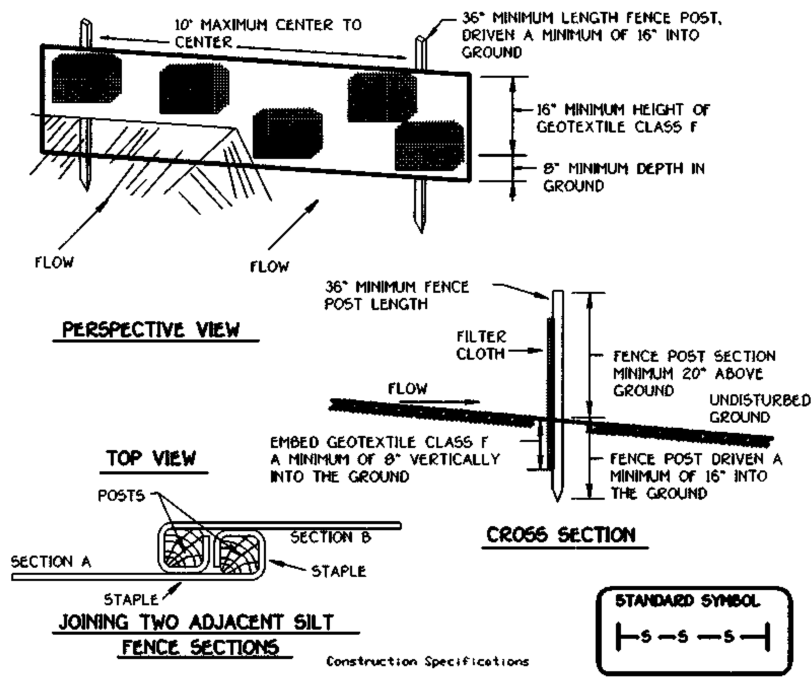
1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1 %.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

EARTH DIKE

NOT TO SCALE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

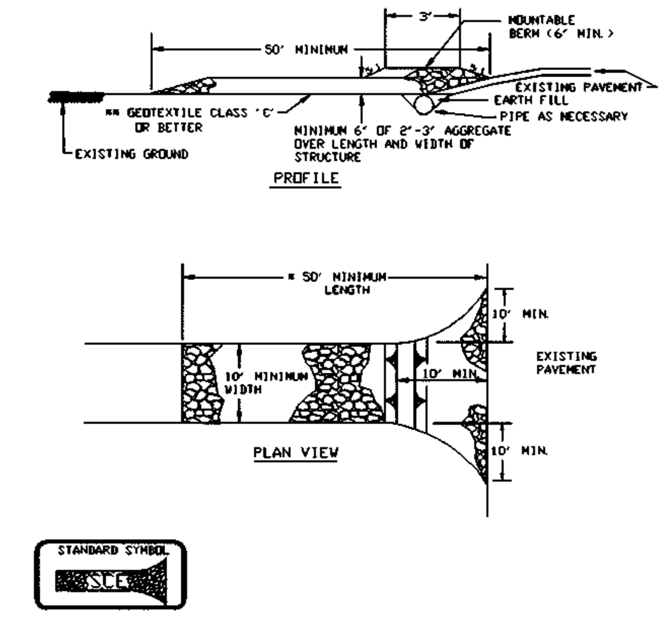
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.) 2	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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.

DETAIL 22 - SILT FENCE

NOT TO SCALE



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.

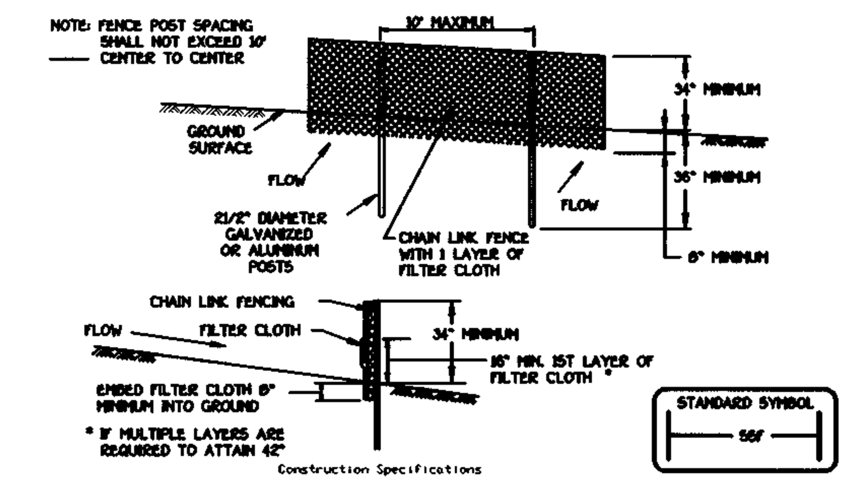
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

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

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

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

6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.

7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute 2 (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE

NOT TO SCALE

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

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 CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — 12-20-01 DATE

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — 1/9/02 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 1/9/02 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT HB — 3/28/02 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 3/25/02 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS HS — 3-21-02 DATE

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 I - 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; P205 (phosphorous): 200 lbs/ac; K20 (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

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.

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.

SECTION 2 - TEMPORARY SEEDING

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed mixtures - Temporary Seeding

i. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary seeding summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.

ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

Seed Mixture (Hardiness Zone 6b) From Table 26					Fertilizer Rate (10-10-10)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
1	BARLEY OATS RYE	122 96 140	3/1 - 5/15, 8/15 - 10/15	1" - 2" 1" - 2" 1" - 2"	600 lb/ac (15 lb/1000sf)	2 tons/ac (100 lb/1000sf)

SECTION 3 - PERMANENT SEEDING

Seeding grass and legumes to establish ground cover for a minimum of one year on disturbed areas generally receiving low maintenance.

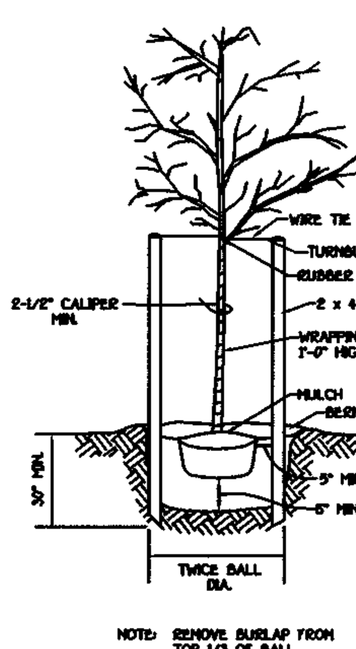
A. Seed mixtures - Permanent Seeding

i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Techinical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.

ii. For sites having disturbed area over 5 areas, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.

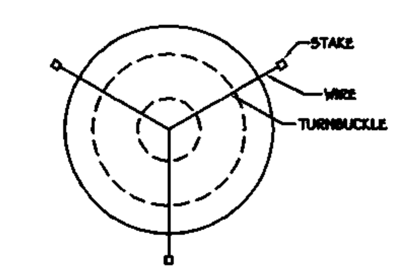
iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Seed Mixture (Hardiness Zone 6b) From Table 25					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	
3	TALL FESCUE (85%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1" - 2"	90 lb/ac (2.0 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	2 tons/ac (100 lb/ 1000sf)
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15, 8/15 - 10/15	1" - 2"				

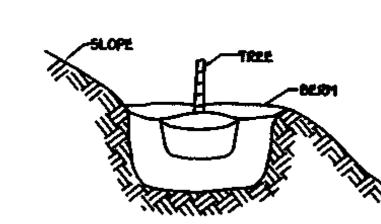


NOTE: REMOVE BURLAP FROM TOP 1/3 OF BALL

TREE PLANTING



STAKING DETAIL

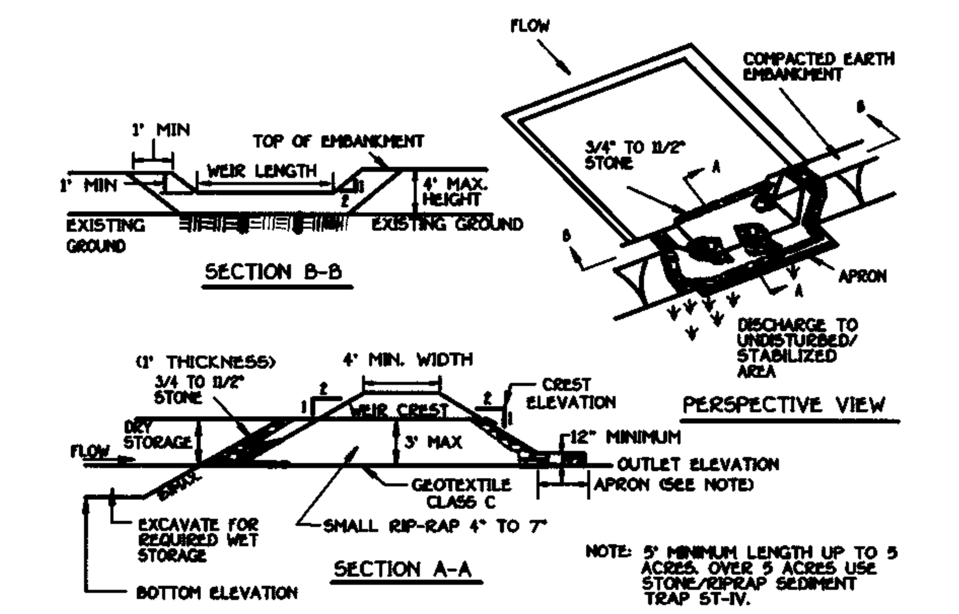


GRADING FOR PLANTING ON SLOPES

STREET TREE PLANTING DETAIL

NOT TO SCALE

STONE OUTLET SEDIMENT TRAP - ST II



Construction Specifications

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

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

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

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

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

6. The structure shall be inspected periodically and after each rain and repairs made as needed.

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

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

9. Refer to Section D for specifications concerning trap dewatering.

10. Minimum trap depth shall be measured from the weir elevation.

11. The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.

12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.

13. Outlet - An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

SEQUENCE OF CONSTRUCTION

1. OBTAIN THE REQUIRED GRADING PERMIT. (1 DAY)

2. NOTIFY 'MISS UTILITY' AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK (1-800-257-7777). NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION 24 HOURS BEFORE STARTING ANY WORK (410-313-1870). (1 DAY)

3. A 5 DAY CLEAR WEATHER FORECAST IS REQUIRED BEFORE BEGINNING THE PHASE 1 GRADING. REMOVE THE EXISTING CONCRETE CHANNELS AT THE PROPOSED ROAD ENTRANCES. INSTALL CULVERTS AND STABILIZED CONSTRUCTION ENTRANCES AT THE PROPOSED ROAD ENTRANCES. REMOVE THE EXISTING CONRETE CHANNEL FROM STA 1+13 TO STA 2+55. GRADE AND INSTALL NEW CHANNEL ACCORDING TO THE ROAD IMPROVEMENT PLANS. COMPLETELY STABILIZE THE EXISTING ROADSIDE DITCHES WITH RIP-RAP AND SOLID SODDING. INSTALL THE EARTH DIKES DIRECTLY ABOVE S-7. GRADE FROM S-7 TO THE EXISTING CULVERT AND COMPLETELY STABILIZE WITH RIP-RAP AND AND SOLID SODDING. FOR THE SEDIMENT BASIN ONLY, INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AS INDICATED ON THE PLAN SHEETS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE PROPOSED BASIN. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF THE BASIN. (5 DAYS)

4. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING.

5. INSTALL TREE PROTECTION FENCE AND FOREST RETENTION SIGNAGE. CLEAR AND GRUB FOR THE REMAINING SEDIMENT CONTROL MEASURES ONLY - PHASE II GRADING. (1 WEEK)

6. INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AS INDICATED ON THE PLAN SHEETS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE PROPOSED TRAP. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF EACH FACILITY. (2 WEEKS)

7. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING.

8. CLEAR AND GRUB FOR THE REMAINDER OF THE SITE. (1 WEEK)

9. GRADE SITE TO THE PROPOSED SUBGRADE. INSTALL THE STORM DRAIN SYSTEM EXCEPT FOR THE PIPE RUN FROM M-4 TO THE SHALLOW MARSH AND ITS BY-PASS. INSTALL INLET PROTECTION AS INDICATED ON THE PLAN SHEETS. (4 WEEKS)

10. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENTS FROM ALL TRAPS WHEN CLEANOUT ELEVATIONS ARE REACHED. ALL SEDIMENTS MUST BE PLACED UPSTREAM OF AN APPROVED TRAP DEVICE.

11. INSTALL ROAD BASE COURSE. (1 WEEK)

12. STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED. (2 DAYS)

13. APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 WEEK)

14. FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES, AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, ALL EROSION AND SEDIMENT CONTROL DEVICES MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE AFTER THE STORM DRAIN SYSTEM HAS BEEN FLUSHED TO REMOVE TRAPPED SEDIMENT. THIS WOULD ALSO INCLUDE THE REMOVAL OF TEMPORARY STORM DRAIN FLEX PIPES AT THE STORM DRAIN RUN CONNECTIONS. (2 WEEKS)

15. INSTALL THE SHALLOW MARSH AND ASSOCIATED SEDIMENT CONTROL MEASURES - PHASE III GRADING. INSTALL THE STORM DRAIN RUN FROM M-4 TO THE SHALLOW MARSH IN CONJUNCTION WITH THE REMOVAL OF THE TEMP FLEX PIPE TO THE SEDIMENT TRAP. (1 WEEK)

16. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT.

SEDIMENT CONTROL NOTES AND DETAILS
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 13 OF 15 **F 01-105**

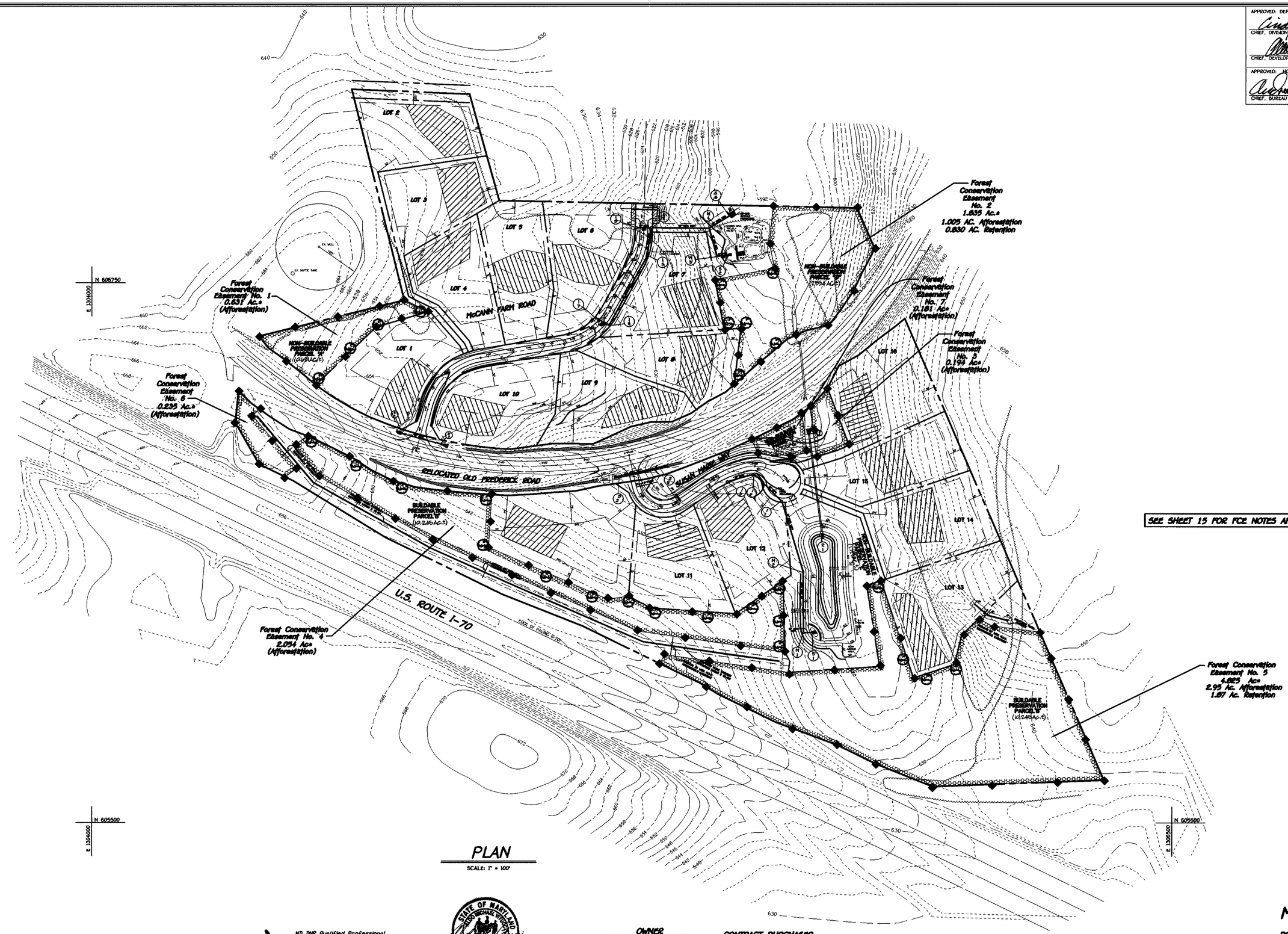
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hanuska — 3/28/02
CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE

[signature] — 3/25/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Doucke — 3-21-02
CHIEF, BUREAU OF HIGHWAYS MB — DATE



SEE SHEET 15 FOR FCE NOTES AND DETAILS

PLAN

SCALE: 1" = 100'

- DENOTES LOCATION OF PROPOSED 1" CALIPER TREES TO BE PLANTED WITHIN FOREST CONSERVATION EASEMENTS

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

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93ND0610044B
JOHN P. CANDLES

STATE OF MARYLAND
ALDO MICHAEL VITUCCI
NO. 20748
REGISTERED PROFESSIONAL ENGINEER
12-20-01

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

FOREST CONSERVATION PLAN
McCANN PROPERTY
LOTS 1 THRU 16 AND
PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 14 OF 15

F-01-105

Planting Schedule

Forest Conservation Easement #1 – 0.63 acres

Qty.	Species	Size	Spacing
4	Acer rubrum – Red maple	1" CAL.	##
30	Acer rubrum – Red maple	2-3' WHIP	**
25	Cornus florida – Flowering dogwood	2-3' WHIP	**
40	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
20	Juniperus virginiana – Red cedar	2-3' WHIP	**
30	Liriodendron tulipifera – Poplar	2-3' WHIP	**
25	Prunus serotina – Black cherry	2-3' WHIP	**
25	Quercus rubra – Red Oak	2-3' WHIP	**
15	Sassafras albidum – Sassafras	2-3' WHIP	**
23	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #2 – 1.00 acres

Qty.	Species	Size	Spacing
6	Pinus strobus – White pine	6'-8'	##
40	Acer rubrum – Red maple	2-3' WHIP	**
35	Cornus florida – Flowering dogwood	2-3' WHIP	**
50	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
30	Juniperus virginiana – Red cedar	2-3' WHIP	**
50	Liriodendron tulipifera – Poplar	2-3' WHIP	**
35	Prunus serotina – Black cherry	2-3' WHIP	**
35	Quercus rubra – Red Oak	2-3' WHIP	**
35	Sassafras albidum – Sassafras	2-3' WHIP	**
30	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #3 – 0.19 acres

Qty.	Species	Size	Spacing
10	Acer rubrum – Red maple	2-3' WHIP	**
10	Cornus florida – Flowering dogwood	2-3' WHIP	**
15	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
15	Liriodendron tulipifera – Poplar	2-3' WHIP	**
15	Quercus rubra – Red Oak	2-3' WHIP	**
5	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #4 – 2.05 acres

Qty.	Species	Size	Spacing
14	Pinus strobus – White pine	6'-8'	##
90	Acer rubrum – Red maple	2-3' WHIP	**
75	Cornus florida – Flowering dogwood	2-3' WHIP	**
110	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
60	Juniperus virginiana – Red cedar	2-3' WHIP	**
110	Liriodendron tulipifera – Poplar	2-3' WHIP	**
60	Prunus serotina – Black cherry	2-3' WHIP	**
75	Quercus rubra – Red Oak	2-3' WHIP	**
60	Sassafras albidum – Sassafras	2-3' WHIP	**
60	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #5 – 2.95 acres

Qty.	Species	Size	Spacing
4	Pinus strobus – White pine	6'-8'	##
130	Acer rubrum – Red maple	2-3' WHIP	**
95	Cornus florida – Flowering dogwood	2-3' WHIP	**
145	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
90	Juniperus virginiana – Red cedar	2-3' WHIP	**
145	Liriodendron tulipifera – Poplar	2-3' WHIP	**
95	Prunus serotina – Black cherry	2-3' WHIP	**
135	Quercus rubra – Red Oak	2-3' WHIP	**
95	Sassafras albidum – Sassafras	2-3' WHIP	**
95	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #6 – 0.23 acres

Qty.	Species	Size	Spacing
14	Acer rubrum – Red maple	2-3' WHIP	**
20	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
10	Juniperus virginiana – Red cedar	2-3' WHIP	**
15	Liriodendron tulipifera – Poplar	2-3' WHIP	**
15	Prunus serotina – Black cherry	2-3' WHIP	**
10	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #7 – 0.18 acres

Qty.	Species	Size	Spacing
15	Acer rubrum – Red maple	2-3' WHIP	**
15	Cornus florida – Flowering dogwood	2-3' WHIP	**
15	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
10	Juniperus virginiana – Red cedar	2-3' WHIP	**
15	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

KEY:
cal. – caliper whip – may be container grown or bareroot
b.t. branched transplant

– one inch caliper trees shall be planted within FCE in locations shown by (symbol)

Species may be randomly mixed in planting locations shown

** – whips and shrubs shall be planted, on average, at a spacing of 11 feet on center. Grid pattern or row planting may be used to facilitate maintenance. Limited clumping of shrubs is permitted.

Planting/Soil Specifications

1. Planting of nursery stock shall take place between March 15th and April 30th or September 15th – November 15th .
2. A twelve (12) inch layer of topsoil shall be spread over all forestation areas impacted by site grading to assure a suitable planting area. Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
3. All bareroot planting stock shall have their root systems dipped into an anti-desiccant gel prior to planting.
4. Plants shall be installed so that the top of root mass is level with the top of existing grade. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
5. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications.
6. A two (2) inch layer of hardwood mulch shall be placed over the root area of all plantings.
7. Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist prior to planting.
8. All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

Sequence of Construction

1. Sediment control and tree protection devices shall be installed in accordance with general construction plan for site. Site shall be graded in accordance with general construction plans.
2. Proposed forestation areas impacted by site grading shall be topsoiled and stabilized as per #2 of Planting/Soil Specifications for project.
3. Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
4. Upon completion of the planting, signage shall be installed as per the Forest Protection Devices shown on the Forest Conservation Plan.
5. Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

Maintenance of Plantings

1. Maintenance of plantings shall last for a period of 24 months.
2. All plant material shall be watered twice a month during the 1st growing season. Watering may be more or less frequent depending on weather conditions. During second growing season, once a month during May–September, if needed.
3. Invasive exotics and noxious weeds will be removed from forestation areas. Old field successional species will be retained.
4. Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
5. Dead branches will be pruned from plantings.

Guarantee Requirements

1. A 75 percent survival rate of forestation plantings will be required at the end of the 24 month maintenance period. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season.

Surety for Forestation

1. The developer shall post a surety (bond, letter of credit) to ensure that forestation plantings are completed. Upon acceptance of the plantings by the County, the bond shall be released.

Cost of Forestation Project

1. The estimated cost of installation of the proposed planting plan is $30,000.

Planting Notes:

1. It is recommended that any multiflora rose colonization be removed and controlled prior to forestation. Existing native trees may be retained.

2. The potential for deer and rodent damage on this forestation project is high. The planting contractor may utilize physical and chemical techniques to improve the success of the plantings. These techniques must be approved by the owner prior to initiation of work.

FOREST DATA

	ACRES
GROSS AREA:	34.3
NET TRACT AREA (NTA):	34.3
EXISTING FOREST ON NTA:	6.8
AFFORESTATION THRESHOLD:	6.9
REFORESTATION TRESHOLD:	8.6
AFFORESTATION REQUIRED:	0.1
FOREST TO BE RETAINED (NTA) IN FCE:	2.7
FOREST TO BE CLEARED (NTA):	4.1
REFORESTATION REQUIRED:	8.2
FORESTATION REQUIRED:	8.1
ONSITE FORESTATION AVAILABLE:	7.2
FEE-IN-LIEU PAYMENT:	0.9

The Forest Conservation Easement Has Been Established To Fulfill The Requirements Of Section 16.1200 Of The Howard County Code Forest Conservation Act. The Forest Obligation Is Fulfilled By Providing 7.251 Acres± Of Afforestation On-Site; 2.704 Acres± Of Forest Retention And A Fee-In-Lieu Payment Of $19,602 For The Balance Of 0.9 Acres Reforestation Obligation. No Clearing, Grading Or Construction Is Permitted Within The Forest Conservation Easement; However, Forest Management Practices As Defined In The Deed Of Forest Conservation Easement Are Allowed.

Surety Tabulation
7.251 Acres of On-Site Afforestation = $157,927.00
2.704 Acres of On Site Retention = $23,557.20

Total Surety = $181,484.20

FCP NOTES

1. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.

2. The forest Conservation Easements have been established to fulfill the requirements of Section 16.1200 of the Howard County Code, Forest Conservation Act. No clearing, grading, or construction is permitted within the Forest Conservation Easements; however, forest management practices as defines in the Deed of Forest Conservation Easement are allowed.

3. There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.

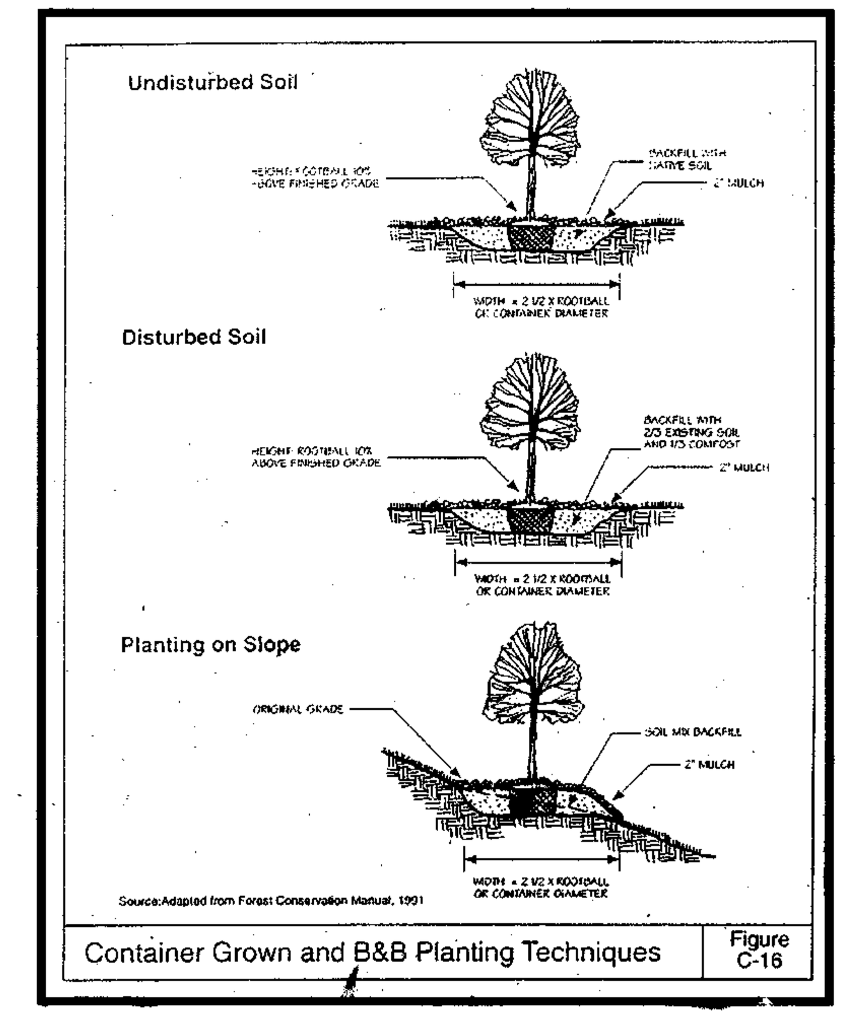
4. No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.

5. Permanent signage shall be placed 50–100' apart along the boundaries of all areas included in Forest Conservation Easements

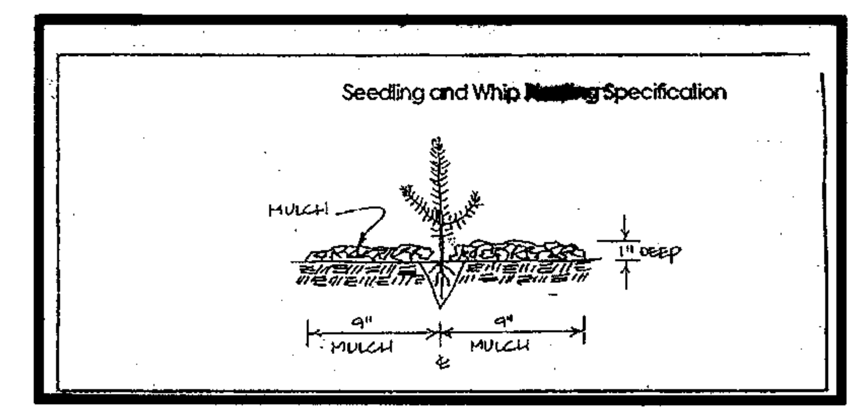
6. The outstanding FCA obligation of 0.9 acres will be met using by payment into the County Fee-in-lieu fund. The cost of this payment will be $19,602.

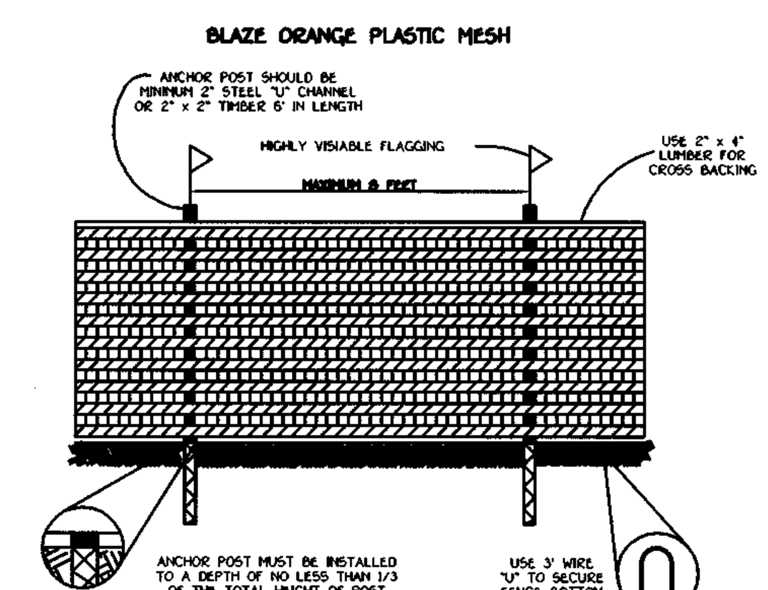
7. The estimate cost of the proposed onsite forestation, including maintenance and monitoring will be $30,000.00.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
(signature) 3/28/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
(signature) 3/25/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
(signature) 3-21-02
CHIEF, BUREAU OF HIGHWAYS — DATE



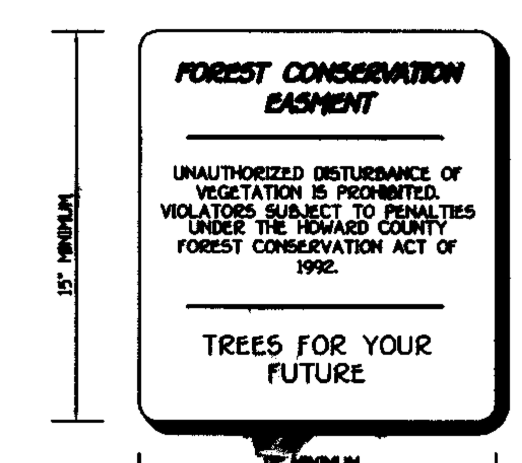
Container Grown and B&B Planting Techniques — Figure C-16





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



■ DENOTES SIGN LOCATION

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

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B
JOHN P. CANOLES

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — NO. 20748 — REGISTERED PROFESSIONAL ENGINEER
12-20-01

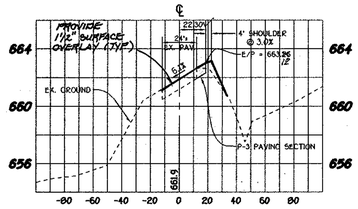
OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

FOREST CONSERVATION NOTES AND DETAILS
McCANN PROPERTY
LOTS 1 THRU 16 AND
PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 15 OF 15
F 01-105

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/25/02



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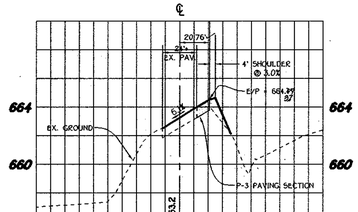

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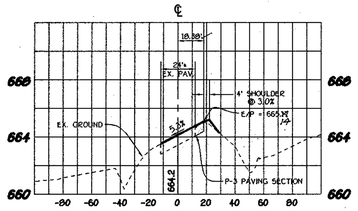

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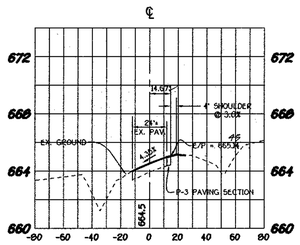

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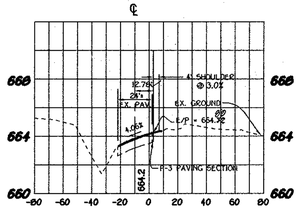

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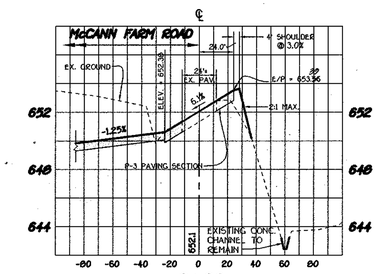

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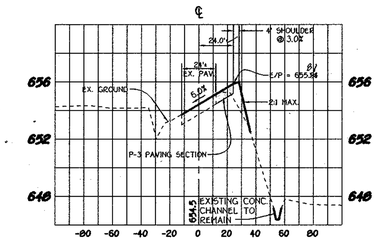

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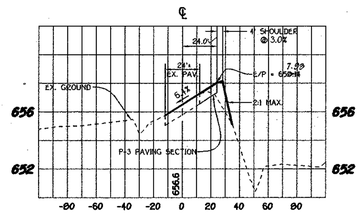

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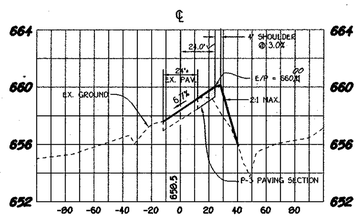

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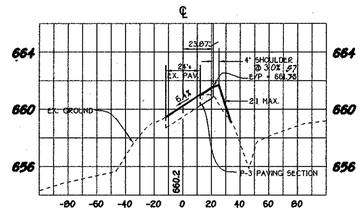

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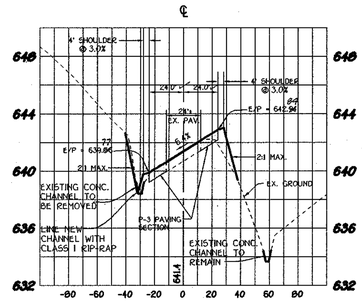

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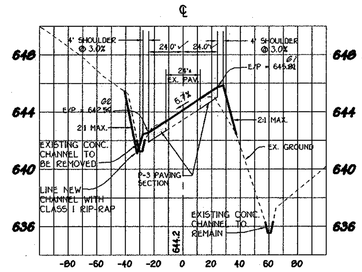

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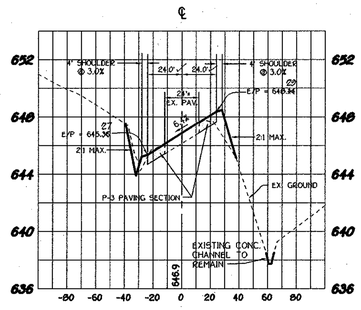

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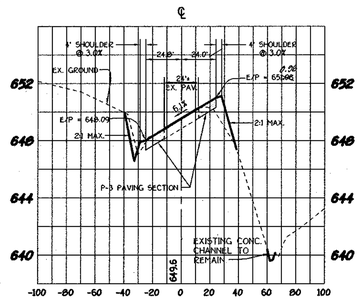

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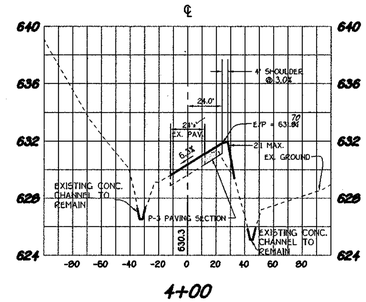

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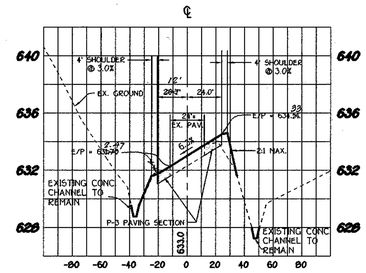

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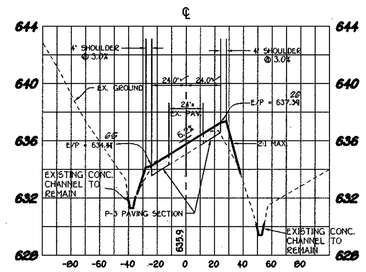

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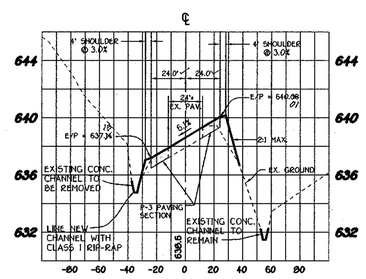

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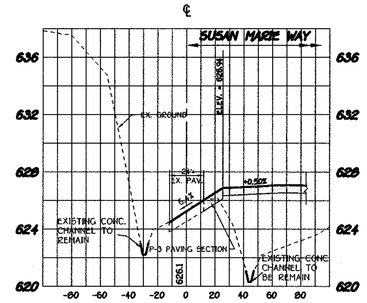

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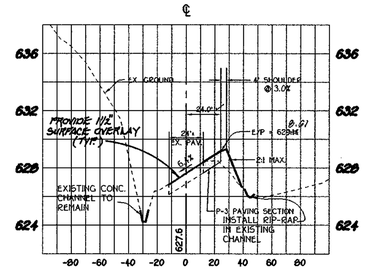

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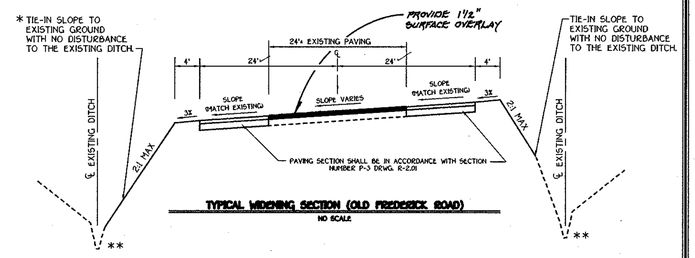


TYPICAL WIDENING SECTION (OLD FREDERICK ROAD)
NO SCALE

* NOTE: FROM STA. 0+00 TO STA. 2+00 CONSTRUCT NEW DITCH (SEE SECTIONS, THIS SHEET)

** LINE ALL DITCHES WITH EROSION CONTROL MATTING, EXCEPT AS NOTED ON PLAN.

CROSS-SECTIONS

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

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

STATE OF MARYLAND — MICHAEL J. McCANN — No. 20714 — REGISTERED PROFESSIONAL ENGINEER
12-20-01

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

STATE OF MARYLAND — MICHAEL J. McCANN — No. 20714 — REGISTERED PROFESSIONAL ENGINEER — AS BUILT 3/19/04

CROSS-SECTIONS (OLD FREDERICK ROAD)
McCANN PROPERTY
LOTS 1 THRU 16 AND
PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 17, 2001
SHEET 5 OF 15

F 01-105

AS BUILT 3-19-04

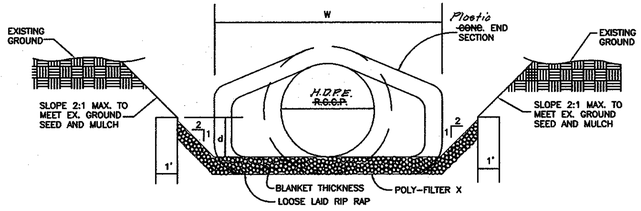
STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	* 617.96 96	615.82 3.99	615.82 3.82	SUSAN MARIE WAY	L.P. STA. 2+22.20	8'LT. ✓	OPEN END GRATE ✓	S.D. 4.36 w/ S.D. 4.13
I-2	* 620.92 72	617.08 9	615.08 9	SUSAN MARIE WAY	L.P. STA. 3+15 ✓	8'LT. ✓	OPEN END GRATE ✓	S.D. 4.36 w/ S.D. 4.13
I-3	* 622.32 81	3 4.66	619.90 8.98	SUSAN MARIE WAY	C.L. STA. 3+25 ✓	17'RT. ✓	OPEN END GRATE ✓	S.D. 4.36 w/ S.D. 4.13
I-4	* 622.65 5.09	614.73 614.06	614.32 3.9	McCANN FARM ROAD	C.L. STA. 8+23 ✓	17'RT. ✓	OPEN END GRATE ✓	S.D. 4.36 w/ S.D. 4.13
I-5	* 625.26 98	620.81 18	619.92 89	McCANN FARM ROAD	C.L. STA. 7+63 ✓	17'RT. ✓	OPEN END GRATE ✓	S.D. 4.36 w/ S.D. 4.13
I-6	* 636.46 7.04	631.98 7	631.46 92	McCANN FARM ROAD	C.L. STA. 5+86 ✓	17'RT. ✓	OPEN END GRATE ✓	S.D. 4.36 w/ S.D. 4.13
I-7	* 636.94 7.71	------	633.80 11	McCANN FARM ROAD	C.L. STA. 5+70 ✓	17'LT. ✓	OPEN END GRATE ✓	S.D. 4.36 w/ S.D. 4.13
I-8	* 622.86 3.06	------	619.80 8.98	McCANN FARM ROAD	C.L. STA. 8+23 ✓	17'LT. ✓	OPEN END GRATE ✓	S.D. 4.36 w/ S.D. 4.13
M-1	618.00 92	612.96 90	612.38 10	----------	N 609,993.38 271 E 1,309,847.48 919	---	STD. MANHOLE ✓	G - 5.01
M-2	618.50 69	613.28 15	613.18 9	----------	N 609,993.38 271 E 1,309,847.48 919	---	STD. MANHOLE ✓	G - 5.01
M-3	602.00 90	593.00 2.94	593.00 2.92	----------	N 609,993.38 271 E 1,309,847.48 919	---	STD. MANHOLE ✓	G - 5.01
M-4	600.58 69	595.18 4.69	594.08, 595.00	----------	N 609,993.38 271 E 1,309,847.48 919	---	STD. MANHOLE ✓	G - 5.01
		11.74	3.69 4.89					
R-1	614.38 04	609.00, 612.00	608.38 51	----------	N 609,993.38 271 E 1,309,847.48 919	---	CONC. RISER ✓	
S-1	613.50 40	612.00 1.90	612.00 1.90	----------	N 609,993.38 271 E 1,309,847.48 919	---	HDPE END SECTION ✓	** A.D.S. FLARED END SECT.
S-2	594.00 92	593.00 2.92	593.00 2.92	----------	N 609,993.38 271 E 1,309,847.48 919	---	HDPE END SECTION ✓	** A.D.S. FLARED END SECT.
S-3	649.98 61	646.70 56	646.70 56	McCANN FARM ROAD	C.L. STA. 0+30 ✓	40'RT.	HDPE END SECTION ✓	** A.D.S. FLARED END SECT.
S-4	647.35 08	640.00 5.61	640.00 5.61	McCANN FARM ROAD	C.L. STA. 0+30 ✓	57'RT.	HDPE END SECTION ✓	** A.D.S. FLARED END SECT.
S-5	622.58 92	621.00 0.92	621.00 0.92	SUSAN MARIE WAY	C.L. STA. 0+44 ✓	34'RT.	HDPE END SECTION ✓	** A.D.S. FLARED END SECT.
S-6	618.51 7.98	615.81 49	615.51 49	SUSAN MARIE WAY	C.L. STA. 0+44 ✓	63'LT.	HDPE END SECTION ✓	** A.D.S. FLARED END SECT.
S-7	610.38 71	606.98 0	606.98 6	----------	N 609,992.98 089 E 1,309,880.48 949	---	TYPE 'C' ENDWALL ✓	S.D. 3.41
S-8	595.98 90	594.38 30	594.18 30	----------	N 609,992.98 089 E 1,309,880.48 949	---	HDPE END SECTION ✓	** A.D.S. FLARED END SECT.

* DENOTES THROAT ELEVATION
** - A.D.S. - ADVANCED DRAINAGE SYSTEMS
LONDON, OHIO
1-800-733-9554

PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	HDPE	221'
18"	HDPE	956'
18"	PVC SCH. 40	92'
30"	ASTM C-361, C25 RUBBER GASKET PIPE	226'



RIP RAP CHANNEL DETAIL

NO SCALE

RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	N	V (F.P.S.)	Q (C.F.S.)	RIP-RAP SIZE d_{50}	RIP-RAP SIZE d_{MAX}	BLANKET THICKNESS	DIA.
S-1	3.19	6.21	0.5137	0.6414	0.005	0.0707	3.0	0.72	0.04	1.68	5.37	9.5"	14"	19"	18"
S-4	2.29	5.49	0.4171	0.5583	0.005	0.0707	3.0	0.56	0.04	1.47	3.35	9.5"	14"	19"	15"
S-6	4.46	7.12	0.6264	0.7321	0.005	0.0707	3.0	0.92	0.04	1.92	8.57	9.5"	14"	19"	18"
S-8	1.77	5.02	0.3526	0.4991	0.005	0.0707	3.0	0.45	0.04	1.31	2.31	9.5"	14"	19"	18"

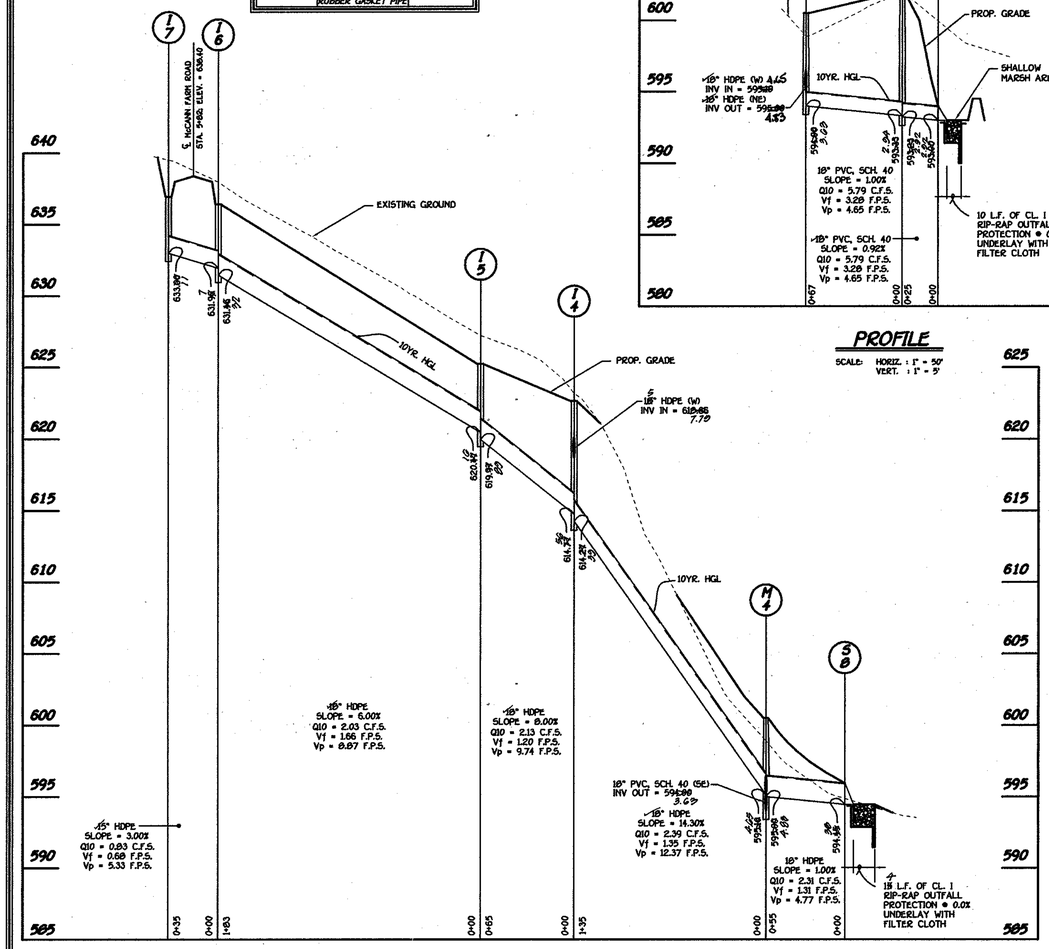
CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional shall hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-26-02

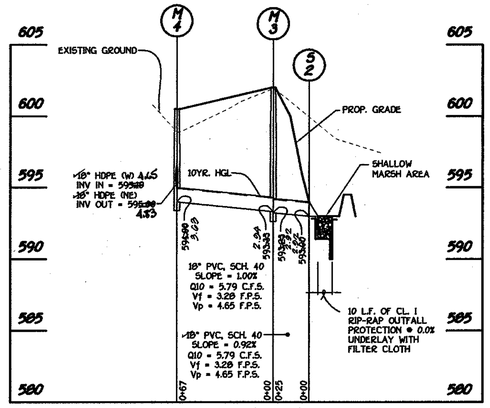
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/25/02



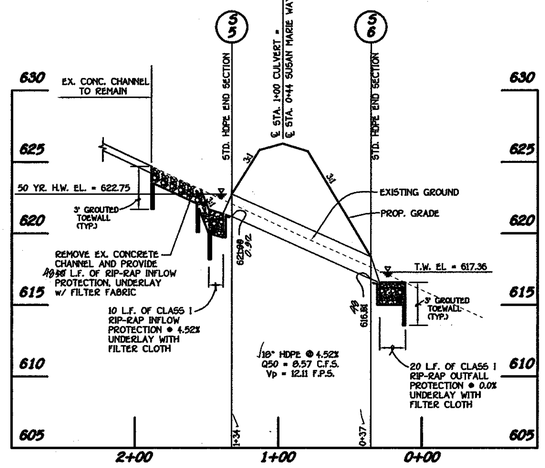
PROFILE

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



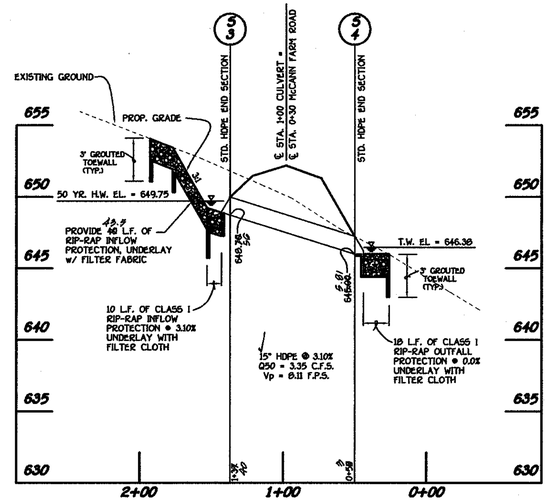
PROFILE

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



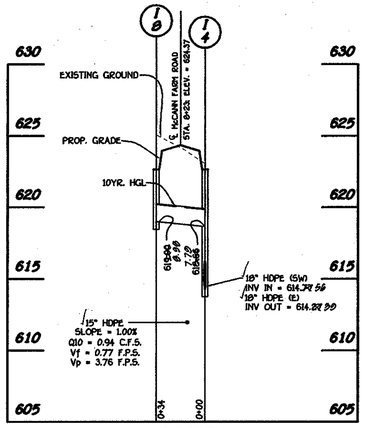
CULVERT PROFILE @ SUSAN MARIE WAY

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



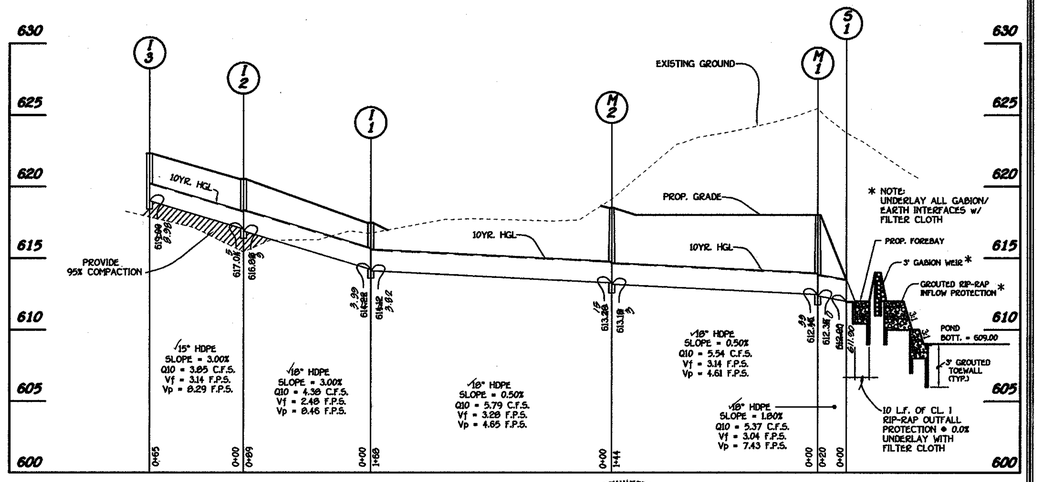
CULVERT PROFILE @ McCANN FARM ROAD

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



PROFILE

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



PROFILE

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

STATE OF MARYLAND — ANDRE MICHAEL VIERGUTZ — No. 20748 — REGISTERED PROFESSIONAL ENGINEER
12-20-01

STATE OF MARYLAND — CHARLES A. KOBLITZ — No. 8194 — REGISTERED PROFESSIONAL ENGINEER
AS-BUILT 3/19/04

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

MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER

McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

STORM DRAIN PROFILES

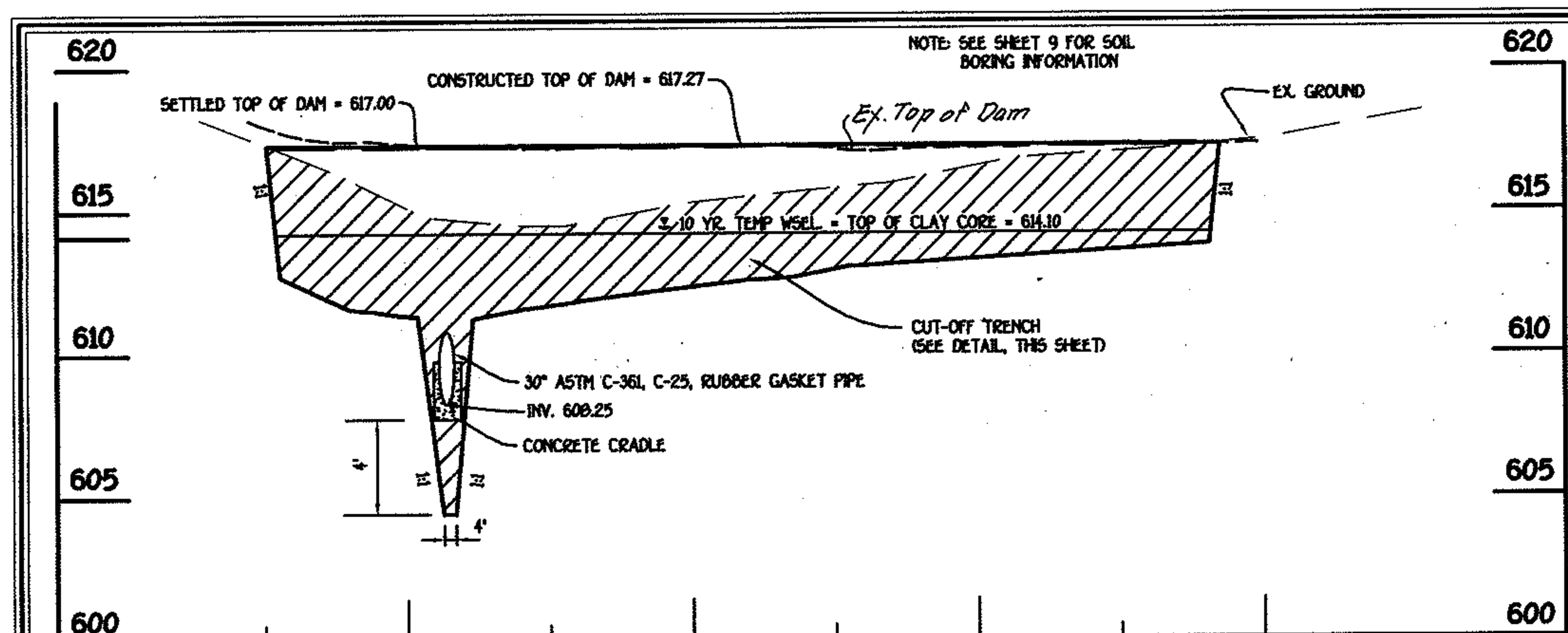
McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 9 OF 15

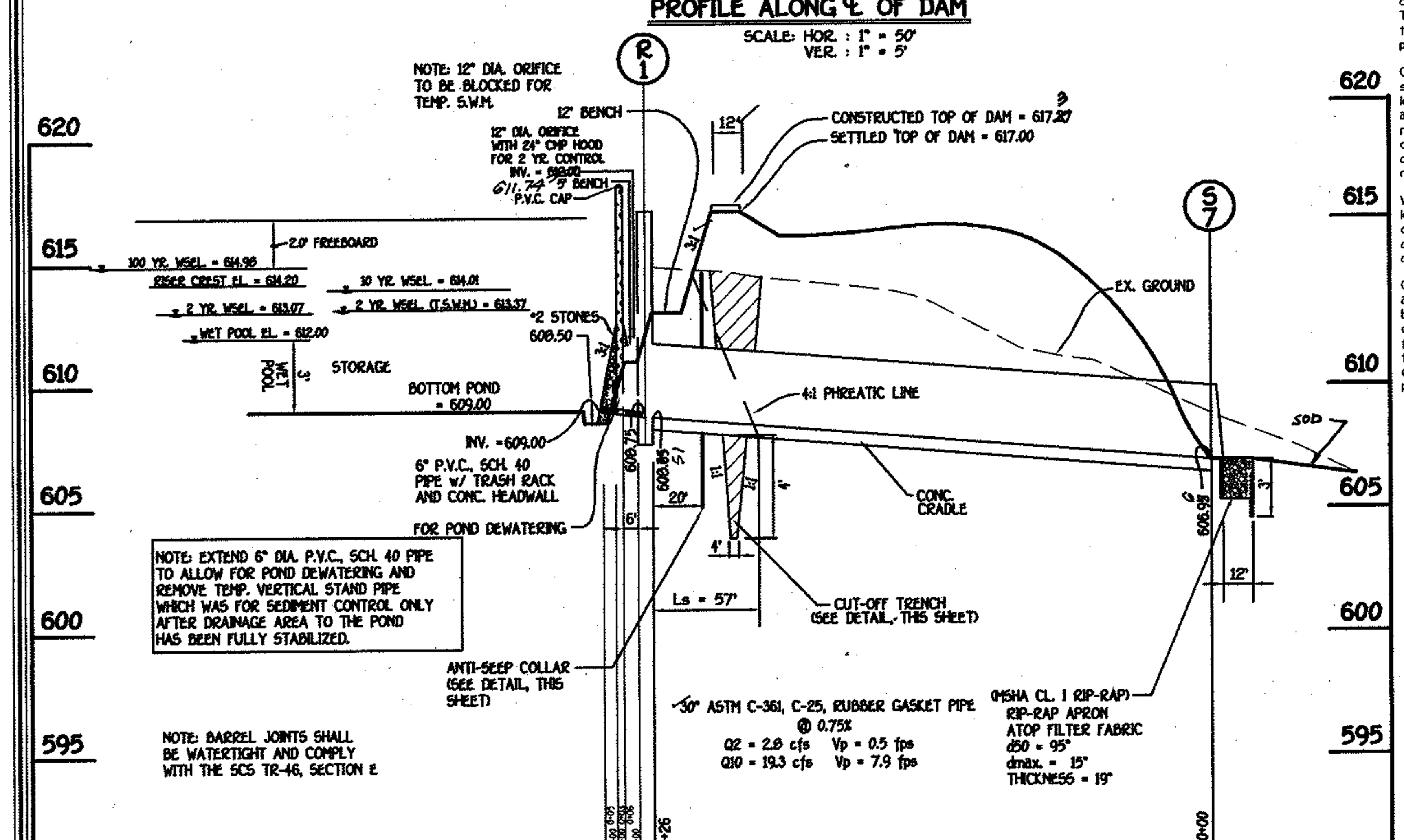
F 01-105

AS BUILT 3-19-04



PROFILE ALONG ℄ OF DAM

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



PROFILE ALONG PRINCIPAL SPILLWAY

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

STORM WATER MANAGEMENT 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. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the 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

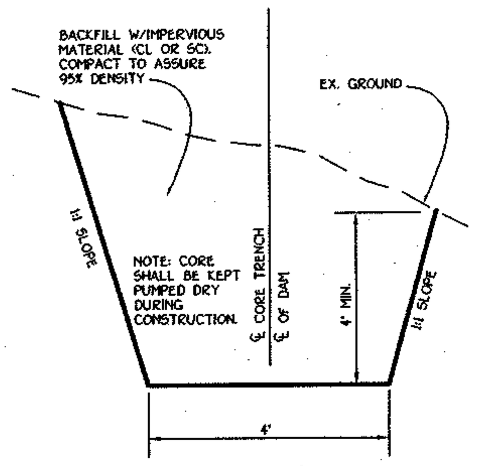
Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ±2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.



CORE TRENCH DETAIL

NOT TO SCALE

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to the specified for the core of the embankment or other embankment materials.

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 - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Stel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling banks or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

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

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12-inches on the end of each pipe. Flanged joints with 3/8-inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock 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 C-361.

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Stucture Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (Anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe

The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirement of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer — 12/20/01 Date

EARL D. COLLINS
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — 12-20-01 Date

ALDO M. [illegible]
Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service — 1/9/02 Date

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — 1/9/02 Date

Approved: Department Of Public Works
Chief Bureau Of Highways — 3-21-02 Date

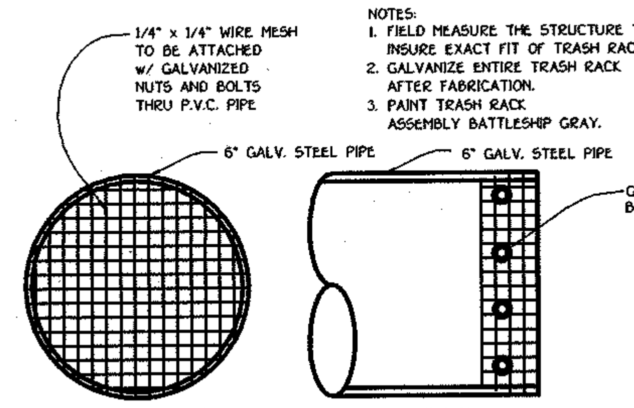
Approved: Department Of Planning And Zoning
Chief, Division Of Land Development HB — 3/28/02 Date
Chief, Development Engineering Division MK — 3/25/02 Date

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature — P.E. No. 13204 — 3/19/04 Date:

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



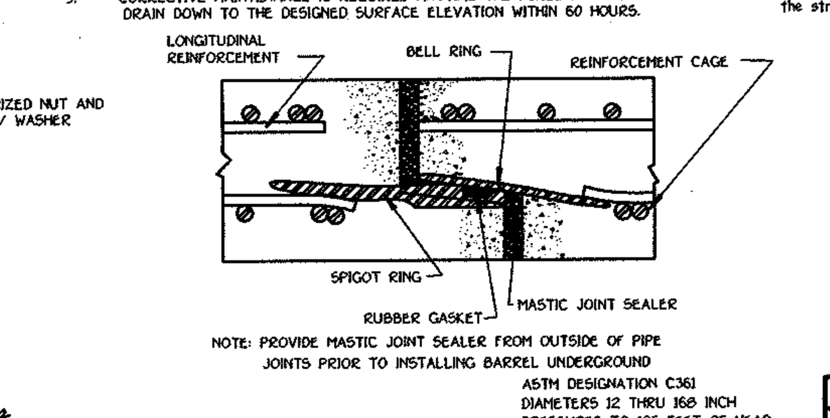
TRASH RACK 'B' DETAIL

NOT TO SCALE

SHALLOW MARSH MAINTENANCE SCHEDULE

HOMEOWNER'S ASSOCIATION MAINTENANCE RESPONSIBILITIES FOR SHALLOW MARSH

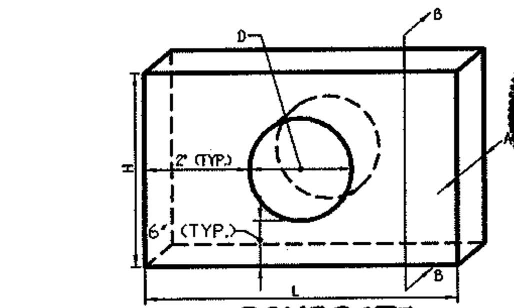
1. INSPECTION FOREBAY AFTER EACH STORM - IF SEDIMENT BUILDUP EXCEEDS FOUR (4) INCHES, NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF HIGHWAYS TO FACILITATE CLEANOUT OPERATIONS.
2. REMOVAL OF ACCUMULATED PAPER, TRASH AND DEBRIS AFTER EVERY STORM, AS NECESSARY.
3. ANNUAL INSPECTION AND REPAIR OF THE GABION STRUCTURES, AS NEEDED.
4. VEGETATION GROWING ON THE EMBANKMENT TOP OR FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANYTIME.
5. CORRECTIVE MAINTENANCE IS REQUIRED ANYTIME THE FOREBAY DOES NOT DRAIN DOWN TO THE DESIGNED SURFACE ELEVATION WITHIN 60 HOURS.



NOTE: PROVIDE MASTIC JOINT SEALER FROM OUTSIDE OF PIPE JOINTS PRIOR TO INSTALLING BARREL UNDERGROUND
ASTM DESIGNATION C361
DIAMETERS 12 THRU 168 INCH
PRESSURES TO 125 FEET OF HEAD

CONCRETE PIPE JOINT DETAIL

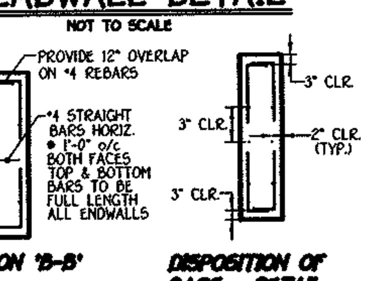
(NO SCALE)



CONCRETE HEADWALL DETAIL

NOT TO SCALE

D (IN.)	6"
AREA SQ. FT.	0.20'
A	1'-6"
H	2'-0"
L	5'-0"



SECTION 'B-B' — DISPOSITION OF BARS - DETAIL

NOTES:
1. REINFORCING: DEFORMED STEEL BARS (1/2" DIA.).
2. CONC. SHALL BE S.H.A. MIX NO.2.

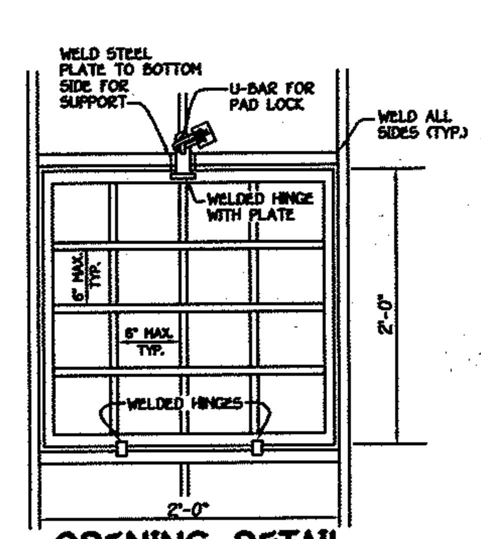
OPERATION, MAINTENANCE AND INSPECTION

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 slumping.

STORMWATER MANAGEMENT POND MAINTENANCE SCHEDULE

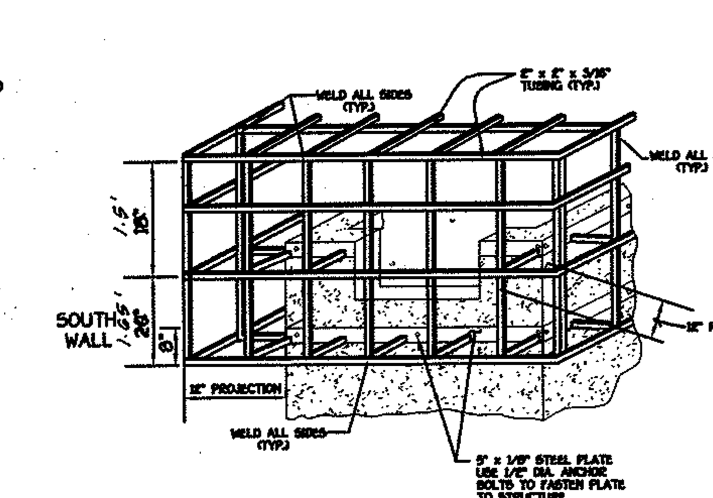
A. ROUTINE MAINTENANCE
1. Facility shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if the pond is functioning properly.
2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes, the bottom of the pond, and maintenance access should be mowed as needed.
3. Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.
4. Visible signs of erosion in the pond as well as rip-rap outlet area shall be repaired as soon as it is noticed.

B. NON-ROUTINE MAINTENANCE
1. Structural components of the pond such as the dam, riser structure and the pipes shall be repaired upon the detectionof any damage. The components should be inspected during maintenance operations.
2. Sediment should be removed when its accumulation significantly reduces the design storage, interferes with the function of the riser, when deemed necessary for aesthetic reasons, or when deemed necessary by the Howard County's Department of Public Works.



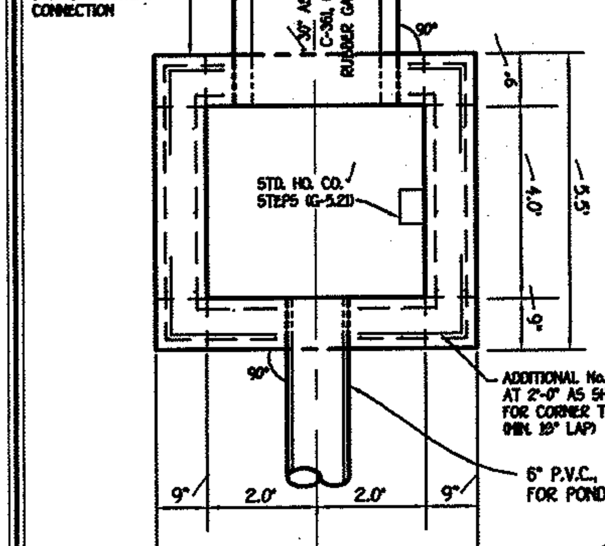
OPENING DETAIL

NO SCALE



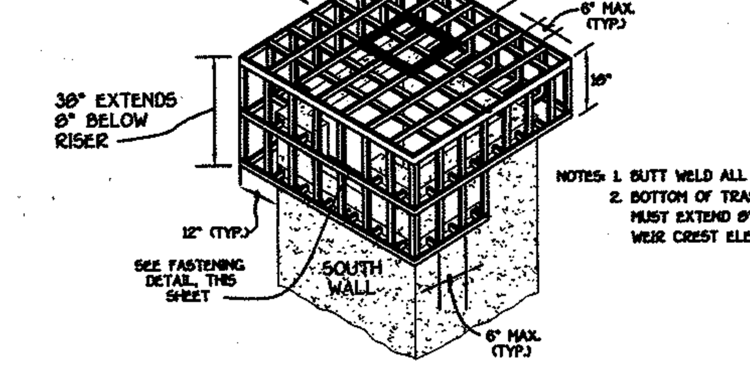
FASTENING DETAIL

NO SCALE



PLAN VIEW

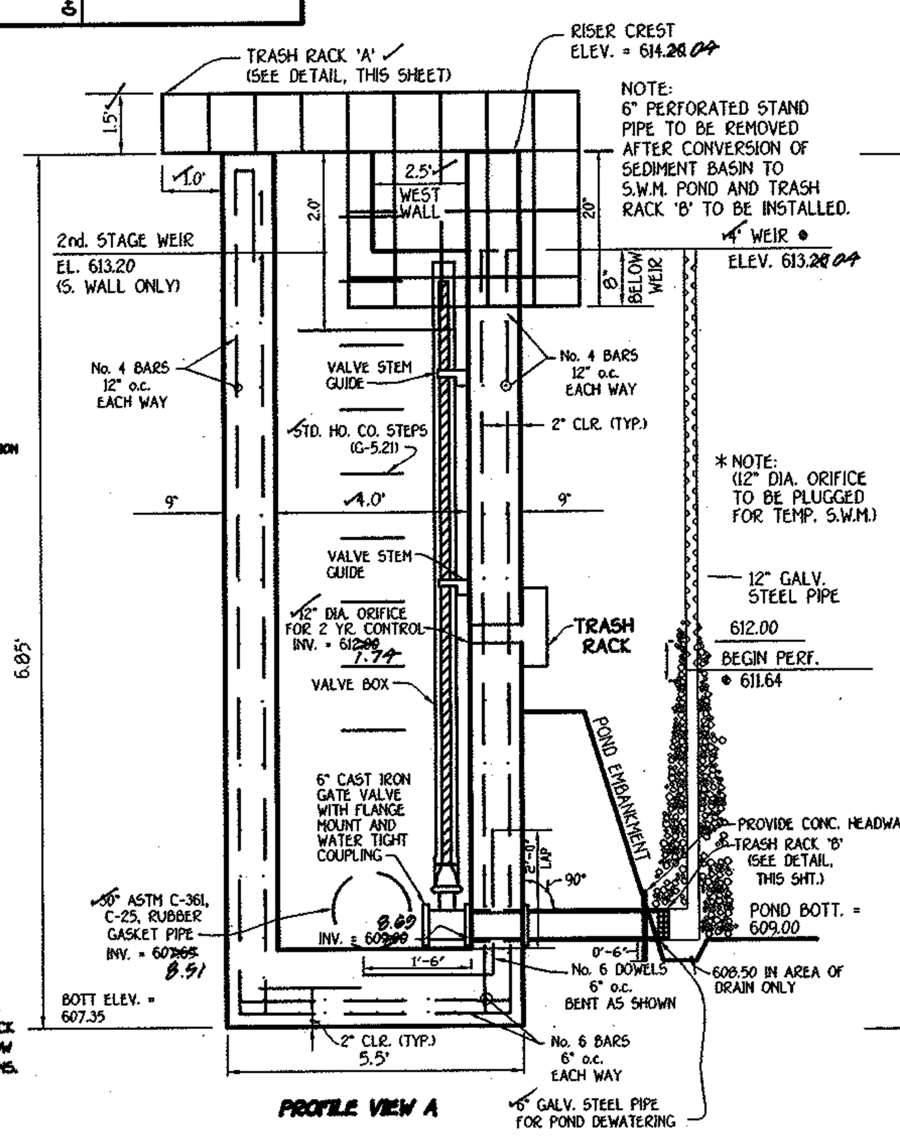
NO SCALE

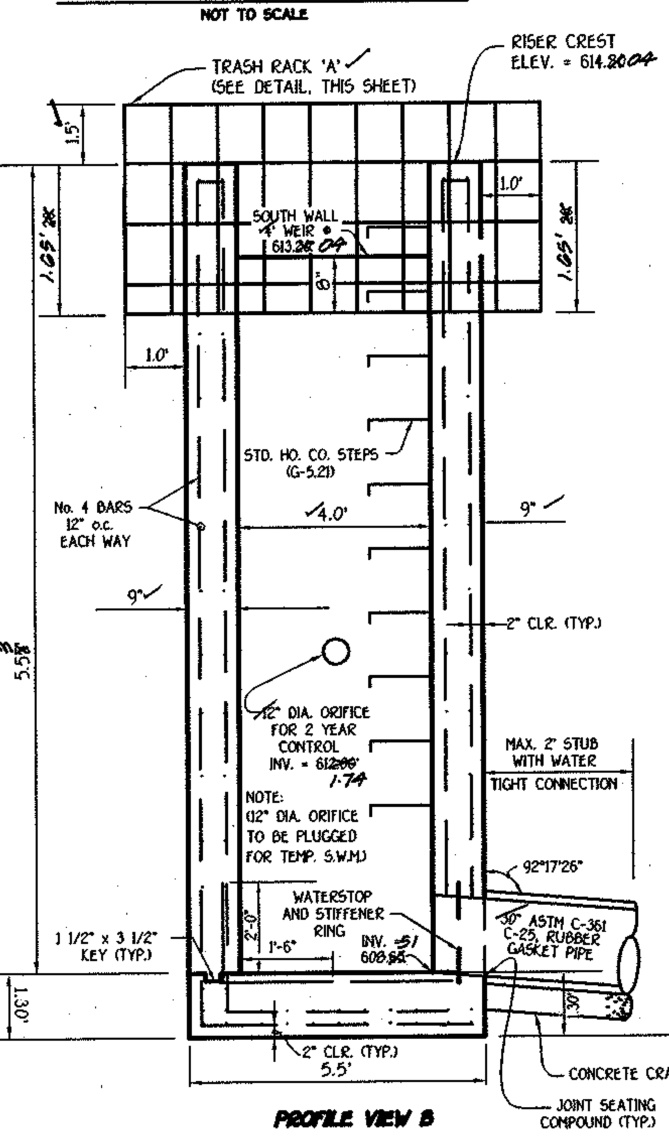


NOTES: 1. BUTT WELD ALL SIDES.
2. BOTTOM OF TRASH RACK MUST EXTEND 8" BELOW WEIR CREST ELEVATIONS.

TRASH RACK 'A' DETAIL

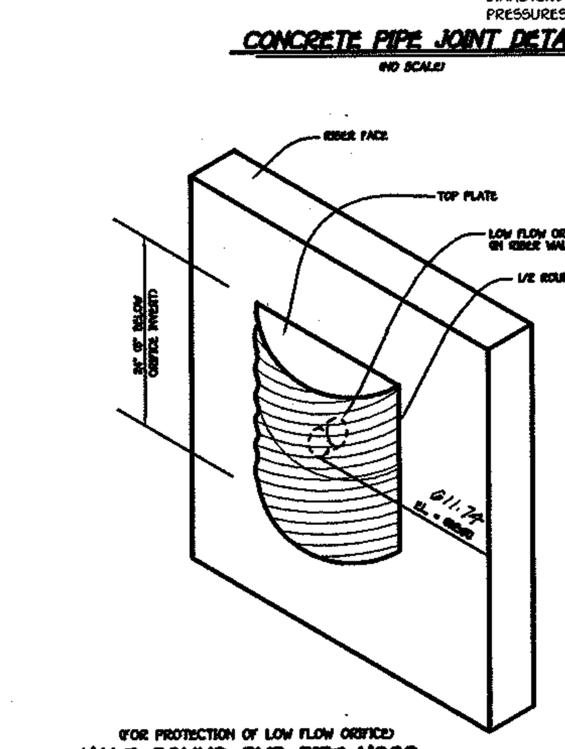
NO SCALE





CONCRETE RISER DETAIL

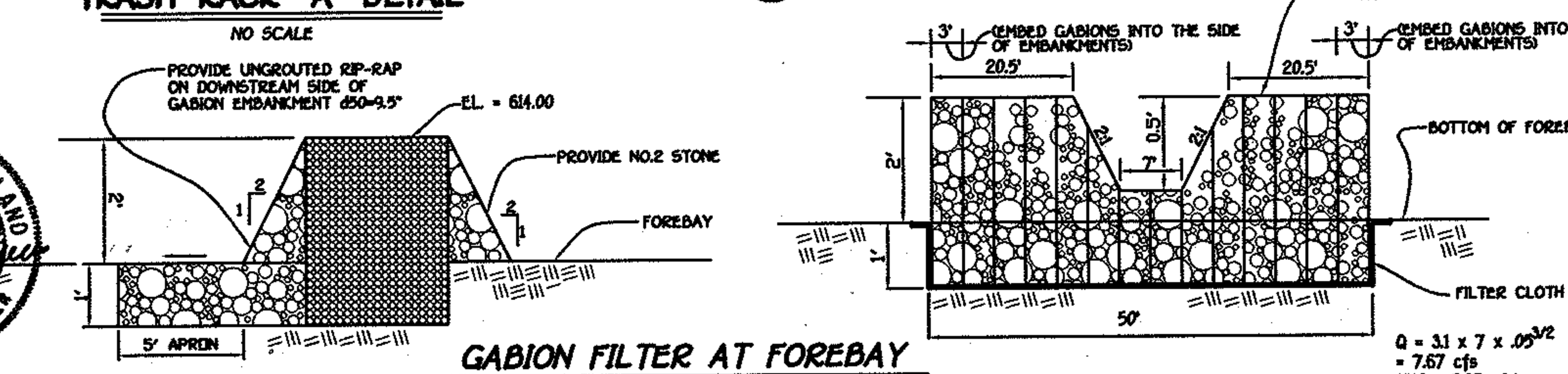
(NO SCALE)



(FOR PROTECTION OF LOW FLOW ORIFICE)

HALF ROUND CMP PIPE-HOOD

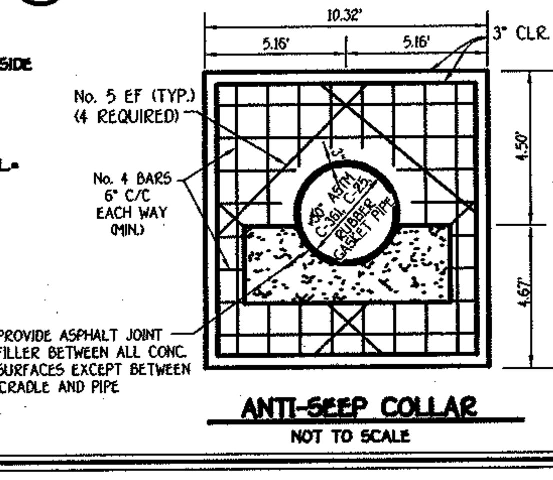
NOT TO SCALE



Q = 3.1 x 7 x .05$^{3/2}$
= 7.67 cfs
(Q10 = 5.37 cfs)

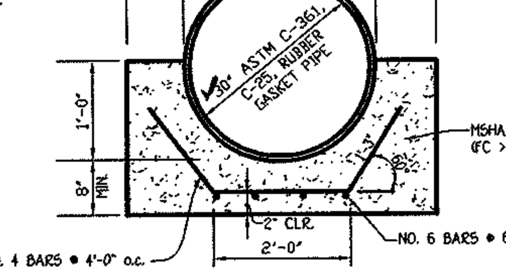
GABION FILTER AT FOREBAY

(NO SCALE)



ANTI-SEEP COLLAR

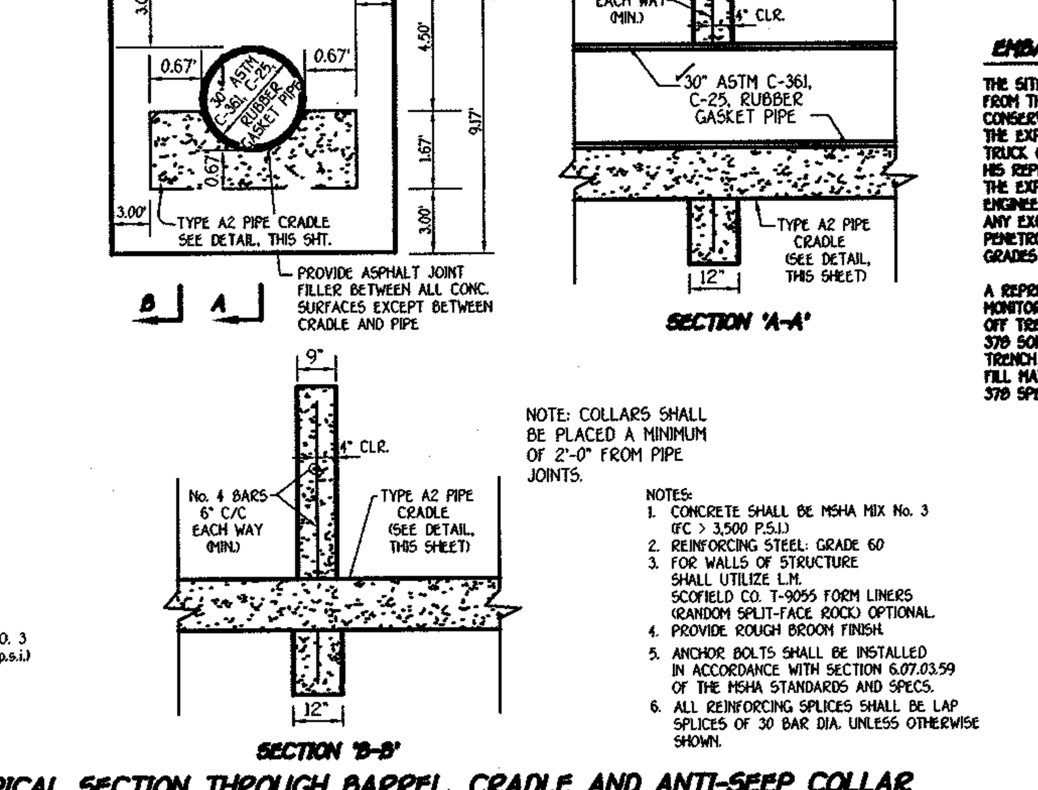
NOT TO SCALE



A2 CRADLE

NOT TO SCALE

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



NOTE: COLLARS SHALL BE PLACED A MINIMUM OF 2'-0" FROM PIPE JOINTS.

NOTES:
1. CONCRETE SHALL BE MSHA MIX No. 3 (FC > 3,500 P.S.I.)
2. REINFORCING STEEL: GRADE 60
3. FOR WALLS OF STRUCTURE SHALL UTILIZE L.M. SCOFIELD CO. T-9055 FORM LINERS (RANDOM SPLIT-FACE ROCK) OPTIONAL.
4. PROVIDE ROUGH BROOM FINISH.
5. ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6.07.03.59 OF THE MSHA STANDARDS AND SPECS.
6. ALL REINFORCING SPLICES SHALL BE LAP SPLICES OF 30 BAR DIA. UNLESS OTHERWISE SHOWN.

TYPICAL SECTION THROUGH BARREL, CRADLE AND ANTI-SEEP COLLAR

(NO SCALE)

GEOTECHNICAL RECOMMENDATIONS FOR EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

THE SITE SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH OR CL. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 378 SPECIFICATIONS.

STORMWATER MANAGEMENT DISCHARGE SUMMARY AT STUDY POINT

DESIGN STORM	EXISTING CONDITIONS Q (c.f.s.)	PROPOSED CONDITIONS Q (c.f.s.)
* 2 YEAR	5.6	2.8 @ 613.07
* 10 YEAR	24.0	19.3 @ 614.01
100 YEAR	50.5	48.6 @ 614.98

*- 2 AND 10 YEAR MANAGEMENT IS REQUIRED

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

F.C.C.#306105WMDETAILS REVISED.DWG

12-20-01

OWNER

MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER

McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

STORMWATER MANAGEMENT NOTES AND DETAILS

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 11 OF 15

F 01-105

AS BUILT 3-19-04

PLYWALL SOUND BARRIER SPECIFICATIONS

1. DESCRIPTION: This work shall consist of the construction of sound barrier consisting of Plywall panels as manufactured by Hoover Treated Wood Products, Inc., supported by Paralam PSI. posts as manufactured by Trus Joist MacMillan. Sound Barrier shall be designed to withstand a wind load of 25 psf, as specified by the Maryland State Highway Administration for noise barriers.

2. MATERIALS: Materials shall conform to the following:

2.1 SOUND BARRIER PANELS - Panels shall be fabricated as two-piece "Plywall" panels for the 8 ft. high barrier and three-piece "Plywall" panels for the 10 ft. and 12 ft. high barriers by 8ft. wide, as manufactured by Hoover Treated Wood Products, Inc. Panels design shall have been tested in accordance with ASTM E-90 and ASTM E-413 and shall resulted in a sound transmission class of 38 or better. Panels shall consist of a structurally sound frame of 2" by 4" (nominal) Southern Yellow Pine lumber, surfaced four sides, covered on both panel faces by shiplap-jointed, APA-303 specialty siding, Southern Pine, exposure durability classification Exterior, Texture 1-11, 5-ply, 19/32" thick, grooves 8" o.c., wood patches. All wood used in panel construction shall be pressure preservatively treated with CCA preservative to a minimum net retention of 0.60 pcf in accordance with American Wood Preservers Association C-2 and C-9. All plywood siding and 2" (nominal) lumber shall be kiln dried after treatment to a moisture content of 19 percent or less. All panel sections shall be fabricated prior to shipment. All panels shall have two nylon lifting webs, securely attached along the top.

2.2 SUPPORT POSTS - Posts shall be ___" x ___" x ___ ft long (from wind load/height chart), Parralam PSI. Southern Pine Parallel Strand Lumber, 2.0 E, as manufactured by Trus Joist MacMillan. Minimum net retention of preservation shall be 0.60 pcf of CCA. Posts shall be bundled so that each layer is separated by wood spacers to allow air drying after treatment.
Note: See wind load/height chart below for the appropriate post dimensions. The design wind load is 35 psf. Post heights are 8 ft., 10 ft., and 12ft.

2.3 CLEATS - Vertical cleats for attaching panels to posts shall be 4" x 4" (nominal) Southern Pine timbers, surfaced four sides. Minimum net retention shall be 0.60 pcf of CCA preservative.

2.4 FASTENERS - All nails or spikes shall be hot dip galvanized zinc coated per ASTM A-153.

2.5 SOURCING - All Wood Sound Barrier System Materials, including posts, panels and cleats shall be treated and fabricated at one location. The following is a list of known suppliers:

Hoover Treated Wood Products, Inc., 1-800-531-5558.

3 CONSTRUCTION:

3.1 MATERIAL UNLOADING AND STORAGE - Contractor shall provide suitable unloading equipment and storage space for Sound Barrier Materials. Sound Barrier Materials shall be kept off the ground and shall be protected from mud, splattering, staining, vandalism or physical damage.

3.2 POST HOLES - Post holes shall be augered to the required diameter and depth, which shall be determined by the owner's engineer. Spacing shall allow clear spans equal to the panel width plus one inch tolerance. Posts may shrink slightly after erection. The contractor shall take all measures and precautions necessary to prevent collapse of the hole sides. Actual post width shall be checked at delivery because treatment may cause some swelling. Actual panel width shall also be verified at delivery.

3.3 POST SETTING - Posts shall be set plumb and in precise position to accept panels and shall be braced in such a manner as to remain plumb and in the required lateral position during backfilling. Post spacing shall allow clear spans between posts equal to the panel width plus a maximum one-inch tolerance. In no case shall the erection tolerance between posts exceed 1 inch.

3.4 BACKFILLING - Posts shall be set in concrete footings.

3.5 ATTACHMENT OF REAR CLEATS - Prior to setting panels, the rear cleats shall be fully attached to each post to support the Sound Barrier panels during placement. Cleats shall be placed at an elevation that will insure support of the panel over the entire height. The rear edge of the cleat shall be flush with the rear face of the post. The cleats shall be attached with hot dip galvanized zinc coated spikes as shown.
Note: Contractor may attach rear cleats prior to setting posts.

3.6 SETTING PANELS - Sound Barrier panels shall be lifted by the provided lift straps and seated firmly against the prefixed rear cleats in a manner which maintains panel plumb and level while providing a maximum one inch tolerance between the posts. The panel will then be secured by attaching the front cleats to the posts along the unsecured panel face. Nails shall not be driven into the panel.
Note: Front cleats shall be firmly and securely fixed to the post at both ends before releasing lifting straps.

3.7 PANEL BOTTOM EMBEDMENT - Bottom of panels shall be backfilled with crushed stone to prevent the passage of sound and to provide drainage.

3.8 FIELD TRIMMING OF POST TOPS - After panels have been set, the post tops shall be rough trimmed with a square cut 3" above the top of the panel.

3.9 DISPOSAL OF TREATED WOOD SCRAPS - Do not burn scraps. Dispose of scraps as ordinary trash. Landfilling is acceptable for CCA treated wood.

3.10 WOOD FINISH - No finish is required

Height	Wind Load (PSF)						
	20	25	28	30	33	35	40
6'	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75
8'	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75	3.5 x 9.75
10'	3.5 x 9.75	3.5 x 9.75	5.25 x 9.75	5.25 x 9.75	5.25 x 9.75	5.25 x 9.75	5.25 x 9.75
12'	5.25 x 9.75	5.25 x 9.75	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12
14'	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 12	5.25 x 14
16'	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	7 x 14
18'	7 x 14	7 x 14	7 x 14	7 x 14	7 x 14	7 x 14	7 x 14
20'	7 x 14	7 x 14	7 x 14	7 x 14	7 x 14	7 x 16	7 x 16
22'	7 x 16	7 x 16	7 x 16	7 x 16	7 x 16	7 x 16	11 x 14
24'	11 x 12	11 x 12	11 x 14	11 x 14	11 x 14	11 x 14	11 x 16
26'	11 x 16	11 x 16	11 x 16	11 x 16	11 x 16	11 x 16	11 x 19
28'	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19
30'	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19	11 x 19

The design for post heights 6' through 12' assumes embedment in soil or gravel. Posts 14' or greater in height are assumed to be embedded in concrete. Post embedment depth to be determined by local engineer. Panel width 8'.

Note: At this site, posts shall be set in concrete footings.

STATE OF MARYLAND
LUDO GERARD VITTOZ
NO. 20742
REGISTERED PROFESSIONAL ENGINEER
12-20-01

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

INSTALLATION INSTRUCTIONS FOR PLYWALL BARRIERS

PLYWALL is a panelized post and panel barrier system that is very simple to install. All components are made of pressure treated wood and can be installed by non-specialized crews without heavy equipment.

SHIPPING: PLYWALL is panelized and ready to install when shipped. Shipment is by truck to the job site. Unloading requires a large forklift or a crane and slings. Bundles can weigh as much as 8,000 pounds. Panels are stacked flat in bundles 8 feet across, requiring long forks if a forklift is used. Posts are bundled in standard lumber bundles, about 3.5 feet across, which can be handled with standard 4-foot forks.

Shipping usually consists of posts on the first loads. Loads can be mixed with both posts and panels if desired. Staging of materials may be a problem on tight sites. Materials can be staged nearby at a lumberyard or other storage area and shuttled to the site as needed. This is helpful when space is limited at the site. It is important to store the bundles off the ground and to keep them clean.

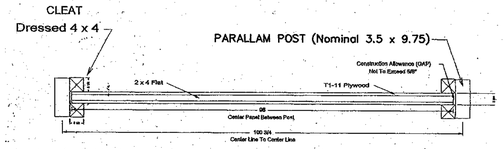
INSTALLATION - POSTS: Installation begins with laying out and boring the post holes. The Panel size will determine the depth and diameter of the footings. Recommendations are based on a minimum allowable soil load bearing capacity of 1500 psf and 1/2" to 3/4" clean and well graded stone backfill. Posts must be set accurately and plumb so that the panels will fit neatly between the posts with a construction allowance determined by the panel size (see drawing). Posts are supplied with one foot extra length so that they can be set without having to have the top at a precise elevation. They can be easily trimmed to the proper elevation later. Additional length can be supplied on request. **At this site, posts shall be set in concrete footings.**

INSTALLATION - PANELS: Panels are fabricated in modules that are a maximum of either 8 feet high or 8 feet wide. Two built-in nylon web lifting loops are provided at the top of each panel for lifting by crane with two hooks. Before lifting and positioning the panel between posts, attach the rear, pre-drilled, long 4x4 cleats vertically to each post, then swing the panel into position. When the panel is in position against the rear 4x4 cleats, spike or lag the front 4x4 cleats to the post through the pre-drilled holes in the 4x4's, "squeezing" the panel between the rear and front 4x4 attachment members. The panels are not nailed to the 4x4 attachment members or the posts, and they bear directly on earth at the bottom. After securing the panels, the lifting loops may be cut off with a sharp utility knife or folded and tacked to the top framing member for possible future use if the wall might need to be relocated.

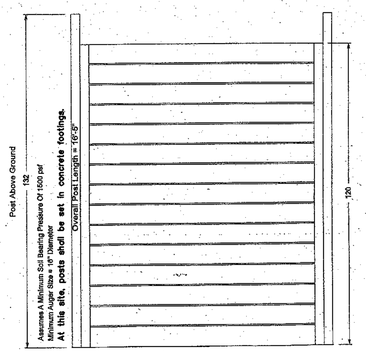
INSTALLATION- STACKABLE PANELS:
Stacking panels between posts is accomplished by lowering the top panel down onto the lower panel, guiding the plywood edges over the protruding, beveled "tongue" formed by the lower panel's topmost framing member. It is not necessary to slide the panels all the way down from the top of the posts as would be the case with steel or concrete h-beams. After setting the panels, the lifting loops may be cut off with a sharp utility knife or folded and tacked to the top framing member for possible future use if the wall might need to be relocated. The horizontal panel joint is not designed for the plywood edges to meet due to the difficulty of assuring a perfect joint. A gap of about 1/4" is normal between the plywood butts.

Smaller panels are stacked on top to achieve the desired top elevation. The size and number of panels are determined in advance by the panel size.

To finish off the wall, trim the posts to the desired height, bevel, or slope with a chain saw after setting panels. Be sure to order extra post length if the normal one foot is determined inadequate for your desired post finishing method. No finishing or maintenance of the panels or posts is necessary.

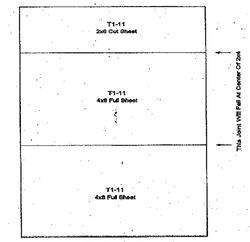


STANDARD 8' Wide X 10' High Detail
rev: 04-02-01

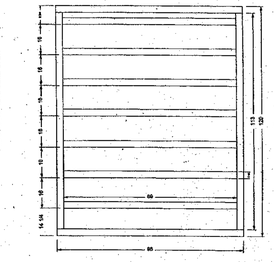


STANDARD 8' Wide X 10' High rev: 04-02-01

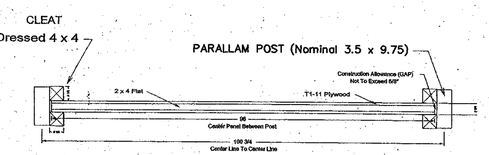
8' Wide X 10' High
STANDARD DRAWING rev: 12-03-98
PANEL DETAILS



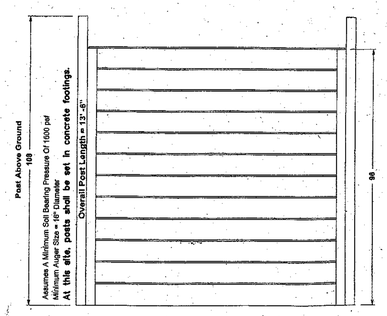
Plywood Scheme



8 Wide by 10 High 2x4 Frame

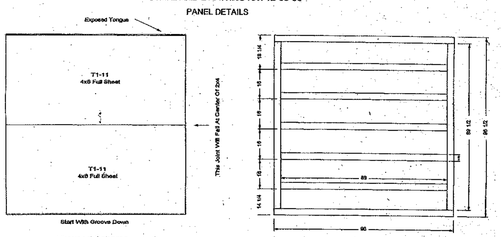


STANDARD 8' Wide X 8' High Detail
rev: 03-30-01



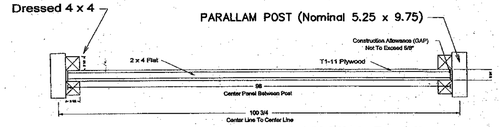
STANDARD 8' Wide X 8' High rev: 03-30-01

8' Wide X 8' High
STANDARD DRAWING rev: 12-03-98
PANEL DETAILS

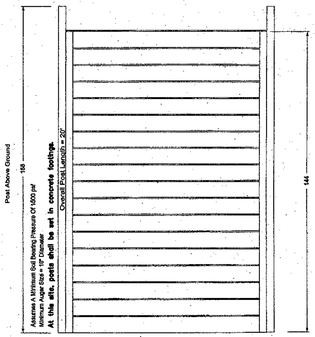


Plywood Scheme

8 Wide by 8 High 2x4 Frame

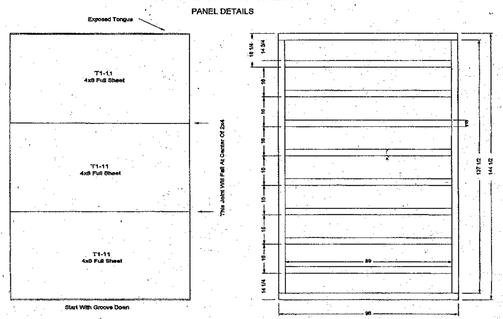


STANDARD 8' Wide X 12' High Detail
rev: 04-02-01



STANDARD 8' Wide X 12' High rev: 04-02-01

8' Wide X 12' High
STANDARD DRAWING rev: 12-03-98
PANEL DETAILS



Plywood Scheme

8 Wide by 12 High 2x4 Frame

By The Developer

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Maryland Dept. of The Environment With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Maryland Dept. of The Environment."

Signature Of Developer — Date 12/20/01
DAVID O. CARTER
Printed Name Of Developer

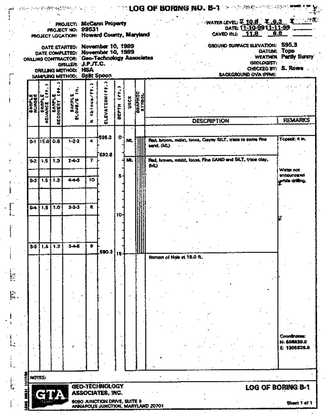
By The Engineer

"I Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Owner That He/She Must Engage A Registered Professional Engineer To Supervise Construction."

Signature Of Engineer — Date 12-20-01
ALDO M. VITTOZ
Printed Name Of Engineer

Approved Department Of Public Works
Chief Bureau Of Highways — Date 3-21-02

Approved Department Of Planning And Zoning
Chief, Division Of Land Development — Date 3/28/02
Chief, Development Engineering Division — Date 3/25/02



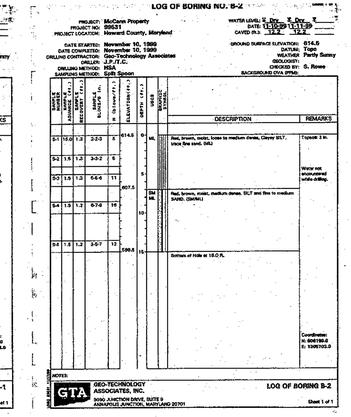
LOG OF BORING NO. B-1

PROJECT: McCann Property; PROJECT NO.: 99031; PROJECT LOCATION: Howard County, Maryland; DATE STARTED: November 10, 1999; DATE COMPLETED: November 10, 1999; DRILLING CONTRACTOR: Geo-Technology Associates; DRILLER: J.P./T.C.; DRILLING METHOD: HSA; SAMPLING METHOD: Split Spoon; WATER LEVEL: D. Dry, S. Dry, T. ___; DATE: 11/10/99 11/11/99; CAVED IN.: 13.0, 8.0; GROUND SURFACE ELEVATION: 595.3; DATUM: Topo; WEATHER: Partly Sunny; GEOLOGIST: ___; CHECKED BY: S. Rowe; BACKGROUND OVA (PPM): ___

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE LENGTH (IN.)	RECOVERY (IN.)	BLOWS (6 INCHES)	N VALUE (BLOWS/FOOT)	ELEVATION (FEET)	DEPTH (FT.)	WATER TABLE	SYMBOL	DESCRIPTION	REMARKS
S-1	18.0	0.8	1-2-2	4		595.3	0		ML	Red, brown, moist, loose, Clayey SILT, trace to some fine sand. (ML)	Topsoil: 4 in.
S-2	1.5	1.3	2-4-3	7		593.8			ML	Red, brown, moist, loose, fine SAND and SILT, trace clay. (ML)	Water not encountered while drilling.
S-3	1.5	1.3	4-4-6	10			5				
S-4	1.5	1.0	3-3-3	6			10				
S-5	1.5	1.3	3-4-5	9		590.3	15			Bottom of Hole at 16.0 ft.	

Coordinates: N: 599630.0; E: 1366876.0

NOTES:
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 8080 JUNCTION DRIVE, SUITE 8 ANNAPOLIS JUNCTION, MARYLAND 20701
LOG OF BORING B-1 — Sheet 1 of 1



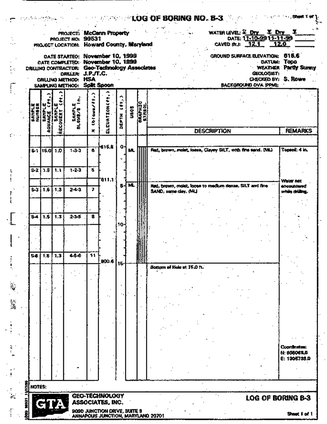
LOG OF BORING NO. B-2

PROJECT: McCann Property; PROJECT NO.: 99031; PROJECT LOCATION: Howard County, Maryland; DATE STARTED: November 10, 1999; DATE COMPLETED: November 10, 1999; DRILLING CONTRACTOR: Geo-Technology Associates; DRILLER: J.P./T.C.; DRILLING METHOD: HSA; SAMPLING METHOD: Split Spoon; WATER LEVEL: D. Dry, S. Dry, T. ___; DATE: 11/10/99 11/11/99; CAVED IN.: 13.0, 13.0; GROUND SURFACE ELEVATION: 614.5; DATUM: Topo; WEATHER: Partly Sunny; GEOLOGIST: ___; CHECKED BY: S. Rowe; BACKGROUND OVA (PPM): ___

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE LENGTH (IN.)	RECOVERY (IN.)	BLOWS (6 INCHES)	N VALUE (BLOWS/FOOT)	ELEVATION (FEET)	DEPTH (FT.)	WATER TABLE	SYMBOL	DESCRIPTION	REMARKS
S-1	18.0	1.3	2-2-3	5		614.5	0		ML	Red, brown, moist, loose to medium dense, Clayey SILT, trace fine sand. (ML)	Topsoil: 3 in.
S-2	1.5	1.2	3-3-2	6			5				Water not encountered while drilling.
S-3	1.5	1.3	6-6-5	11		607.5			SM ML	Red, brown, moist, medium dense, SILT and fine to medium SAND. (SM/ML)	
S-4	1.5	1.2	6-7-8	15			10				
S-5	1.5	1.2	3-5-7	12		599.5	15			Bottom of Hole at 15.0 ft.	

Coordinates: N: 599640.0; E: 1366703.0

NOTES:
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 8080 JUNCTION DRIVE, SUITE 8 ANNAPOLIS JUNCTION, MARYLAND 20701
LOG OF BORING B-2 — Sheet 1 of 1



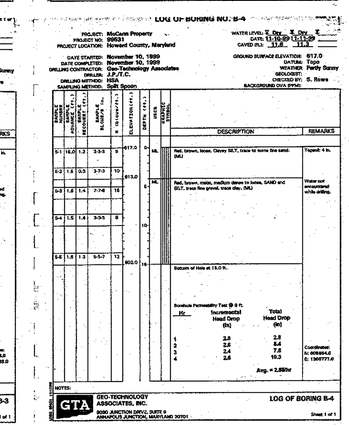
LOG OF BORING NO. B-3

PROJECT: McCann Property; PROJECT NO.: 99031; PROJECT LOCATION: Howard County, Maryland; DATE STARTED: November 10, 1999; DATE COMPLETED: November 10, 1999; DRILLING CONTRACTOR: Geo-Technology Associates; DRILLER: J.P./T.C.; DRILLING METHOD: HSA; SAMPLING METHOD: Split Spoon; WATER LEVEL: D. Dry, S. Dry, T. ___; DATE: 11/10/99 11/11/99; CAVED IN.: 14.5, 12.0; GROUND SURFACE ELEVATION: 615.6; DATUM: Topo; WEATHER: Partly Sunny; GEOLOGIST: ___; CHECKED BY: S. Rowe; BACKGROUND OVA (PPM): ___

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE LENGTH (IN.)	RECOVERY (IN.)	BLOWS (6 INCHES)	N VALUE (BLOWS/FOOT)	ELEVATION (FEET)	DEPTH (FT.)	WATER TABLE	SYMBOL	DESCRIPTION	REMARKS
S-1	18.0	1.3	3-3-3	6		615.6	0		ML	Red, brown, moist, loose, Clayey SILT, trace to some fine sand. (ML)	Topsoil: 4 in.
S-2	1.5	1.3	1-2-3	5		611.1			ML	Red, brown, moist, loose to medium dense, SILT and fine SAND, some clay. (ML)	Water not encountered while drilling.
S-3	1.5	1.3	2-4-3	7			5				
S-4	1.5	1.3	2-3-5	8			10				
S-5	1.5	1.3	4-5-6	11		600.6	15			Bottom of Hole at 15.0 ft.	

Coordinates: N: 599618.0; E: 1366738.0

NOTES:
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 8080 JUNCTION DRIVE, SUITE 8 ANNAPOLIS JUNCTION, MARYLAND 20701
LOG OF BORING B-3 — Sheet 1 of 1



LOG OF BORING NO. B-4

PROJECT: McCann Property; PROJECT NO.: 99031; PROJECT LOCATION: Howard County, Maryland; DATE STARTED: November 10, 1999; DATE COMPLETED: November 10, 1999; DRILLING CONTRACTOR: Geo-Technology Associates; DRILLER: J.P./T.C.; DRILLING METHOD: HSA; SAMPLING METHOD: Split Spoon; WATER LEVEL: D. Dry, S. Dry, T. ___; DATE: 11/10/99 11/11/99; CAVED IN.: 13.0, 11.0; GROUND SURFACE ELEVATION: 617.0; DATUM: Topo; WEATHER: Partly Sunny; GEOLOGIST: ___; CHECKED BY: S. Rowe; BACKGROUND OVA (PPM): ___

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE LENGTH (IN.)	RECOVERY (IN.)	BLOWS (6 INCHES)	N VALUE (BLOWS/FOOT)	ELEVATION (FEET)	DEPTH (FT.)	WATER TABLE	SYMBOL	DESCRIPTION	REMARKS
S-1	18.0	1.3	3-3-3	6		617.0	0		ML	Red, brown, moist, Clayey SILT, trace to some fine sand. (ML)	Topsoil: 4 in.
S-2	1.5	1.3	3-7-3	10		613.0			ML	Red, brown, moist, medium dense to loose, SAND and SILT, trace fine gravel, trace clay. (ML)	Water not encountered while drilling.
S-3	1.5	1.4	7-7-8	15			5				
S-4	1.5	1.4	3-3-5	8			10				
S-5	1.5	1.3	5-5-7	12		602.0	15			Bottom of Hole at 15.0 ft.	

Boreholes Permeability Test @ 5 ft.

Hr.	Incremental Head Drop (in)	Total Head Drop (in)
1	3.0	3.0
2	2.5	5.4
3	2.4	7.8
4	2.5	10.3
	Avg. = 2.55/hr	

Coordinates: N: 599640.0; E: 1366777.0

NOTES:
GTA GEO-TECHNOLOGY ASSOCIATES, INC. 8080 JUNCTION DRIVE, SUITE 8 ANNAPOLIS JUNCTION, MARYLAND 20701
LOG OF BORING B-4 — Sheet 1 of 1

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

STORMWATER MANAGEMENT NOTES AND DETAILS
McCANN PROPERTY
LOTS 1 THRU 16 AND
PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 9 PARCEL No. 79 GRID No. 15
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 12 OF 15

F 01-105

AS BUILT 3-19-04

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:
 a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 c. The original soil to be vegetated contains material toxic to plant growth.
 d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:
 i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 11/2" in diameter.
 ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.
 iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

II. For sites having disturbed areas under 5 acres:
 i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

III For sites having disturbed areas over 5 acres:
 i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
  a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
  b. Organic content of topsoil shall be not less than 1.5 percent by weight.
  c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
  d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

 ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application
 i. When top soiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
 ii. Grades on the areas to be top soiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
 iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from top soiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
 iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
  a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
  b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
  c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding,. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

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. GRADING NECESSARY TO INSTALL STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES TO BE PERFORMED FIRST. REMAINDER OF THE GRADING TO BE PERFORMED AFTER STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES ARE INSTALLED.
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	34.32	ACRES
AREA DISTURBED	9.11	ACRES
AREA TO BE ROOFED OR PAVED	0.36	ACRES
AREA TO BE VEGETATIVELY STABILIZED	8.75	ACRES
TOTAL CUT	2,400	CU.YDS.
TOTAL FILL	2,400	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.

12-20-01

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855
F.C.C.# 30646/FINALS/SED CON DETAILS.DWG

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
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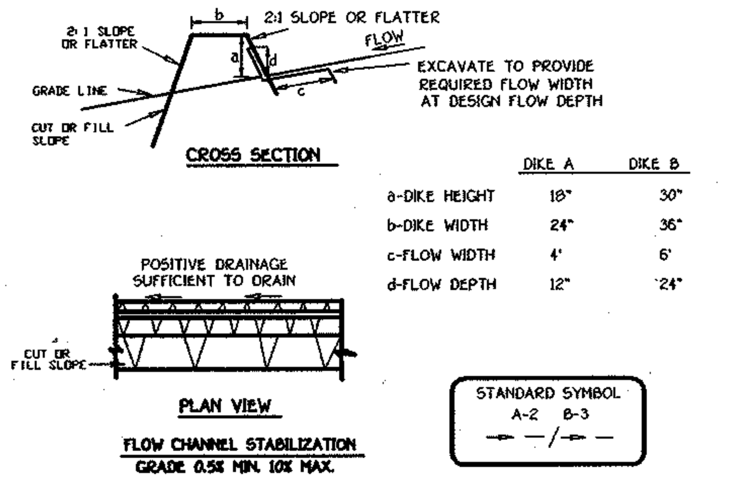


	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

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

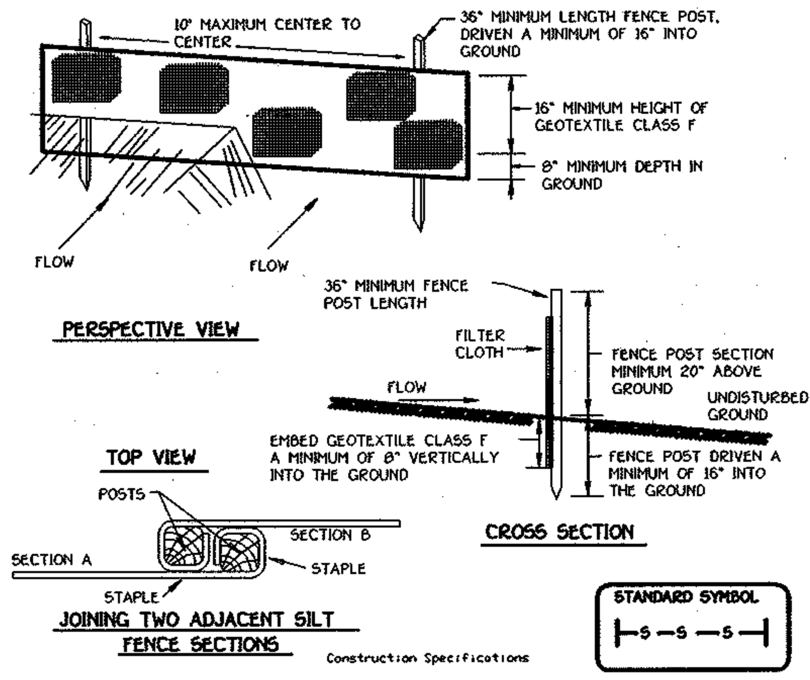
Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1 %.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be
6. free of bank projections or other irregularities which will impede normal flow.
7. Fill shall be compacted by earth moving equipment.
8. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

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

EARTH DIKE

NOT TO SCALE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

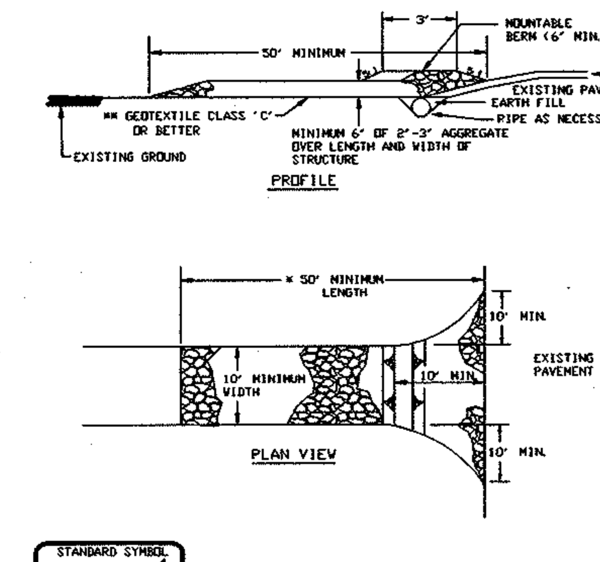
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.) 2	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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.

DETAIL 22 - SILT FENCE

NOT TO SCALE



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.

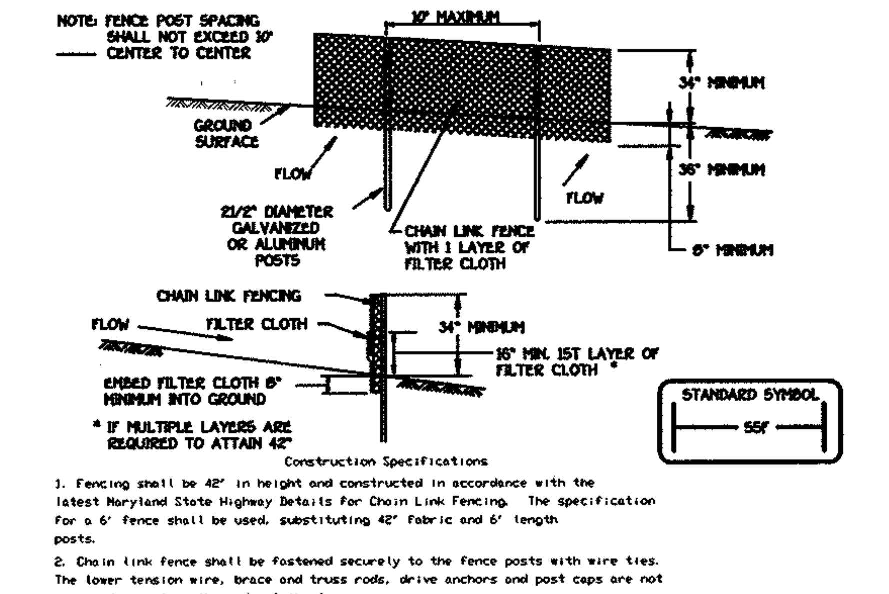
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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



Construction Specifications

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

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute^2(max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE

NOT TO SCALE

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

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 CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — 12-20-01 DATE

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — 1/9/02 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 1/9/02 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT HB — 3/28/02 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 3/25/02 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS HS — 3-21-02 DATE

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; P205 (phosphorous): 200 lbs/ac; K20 (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 barks. 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

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.

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.

SECTION 2 - TEMPORARY SEEDING

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed mixtures - Temporary Seeding
 i. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary seeding summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.
 ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

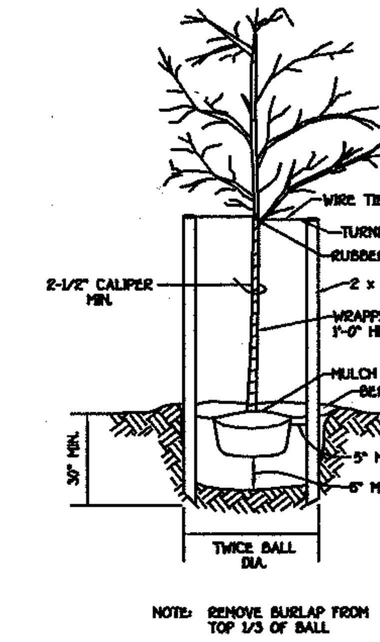
Seed Mixture (Hardiness Zone 6b) From Table 26					Fertilizer Rate (10-10-10)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
1	BARLEY OATS RYE	122 96 140	3/1 - 5/15, 8/15 - 10/15	1" - 2" 1" - 2" 1" - 2"	600 lb/ac (15 lb/1000sf)	2 tons/ac (100 lb/1000sf)

SECTION 3 - PERMANENT SEEDING

Seeding grass and legumes to establish groung cover for a minimum of one year on disturbed areas generally receiving low maintenance.

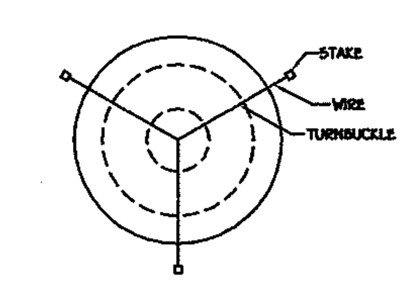
A. Seed mixtures - Permanent Seeding
 i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Techinical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
 ii. For sites having disturbed area over 5 areas, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
 iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Seed Mixture (Hardiness Zone 6b) From Table 25					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	
3	TALL FESCUE (85%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1" - 2"	90 lb/ac (2.0 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	2 tons/ac (100 lb/ 1000sf)
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15, 8/15 - 10/15	1" - 2"				

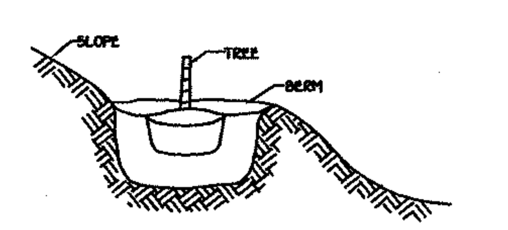


NOTE: REMOVE BURLAP FROM TOP 1/3 OF BALL

TREE PLANTING



STAKING DETAIL



GRADING FOR PLANTING ON SLOPES

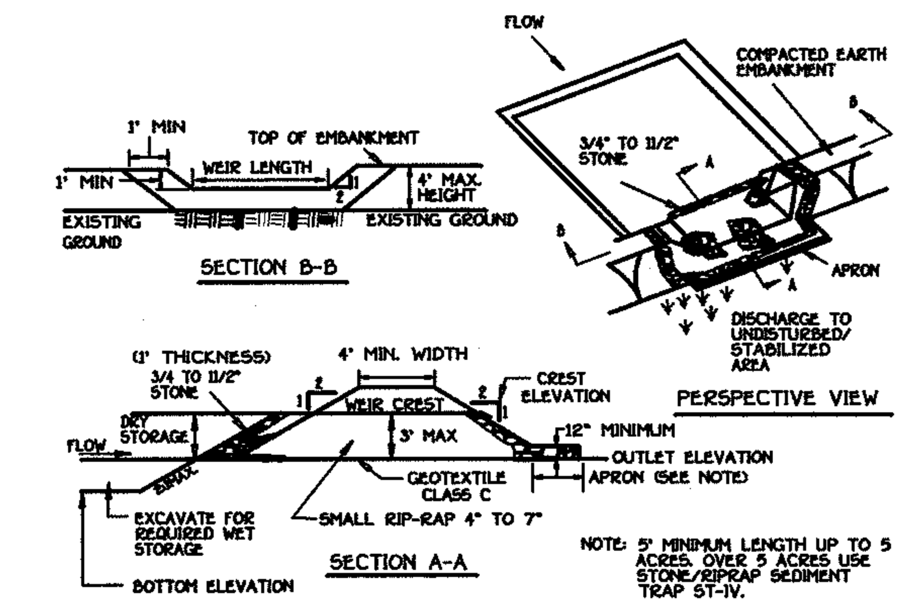
STREET TREE PLANTING DETAIL

NOT TO SCALE

SEQUENCE OF CONSTRUCTION

1. OBTAIN THE REQUIRED GRADING PERMIT. (1 DAY)
2. NOTIFY 'MISS UTILITY' AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK (1-800-257-7777). NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION 24 HOURS BEFORE STARTING ANY WORK (410-313-1870). (1 DAY)
3. A 5 DAY CLEAR WEATHER FORECAST IS REQUIRED BEFORE BEGINNING THE PHASE I GRADING. REMOVE THE EXISTING CONCRETE CHANNELS AT THE PROPOSED ROAD ENTRANCES. INSTALL CULVERTS AND STABILIZED CONSTRUCTION ENTRANCES AT THE PROPOSED ROAD ENTRANCES. REMOVE THE EXISTING CONRETE CHANNEL FROM STA 1+13 TO STA 2+55. GRADE AND INSTALL NEW CHANNEL ACCORDING TO THE ROAD IMPROVEMENT PLANS. COMPLETELY STABILIZE THE EXISTING ROADSIDE DITCHES WITH RIP-RAP AND SOLID SODDING. INSTALL THE EARTH DIKES DIRECTLY ABOVE S-7. GRADE FROM S-7 TO THE EXISTING CULVERT AND COMPLETELY STABILIZE WITH RIP-RAP AND AND SOLID SODDING. FOR THE SEDIMENT BASIN ONLY, INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AS INDICATED ON THE PLAN SHEETS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE PROPOSED BASIN. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF THE BASIN. (5 DAYS)
4. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING.
5. INSTALL TREE PROTECTION FENCE AND FOREST RETENTION SIGNAGE. CLEAR AND GRUB FOR THE REMAINING SEDIMENT CONTROL MEASURES ONLY - PHASE II GRADING. (1 WEEK)
6. INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AS INDICATED ON THE PLAN SHEETS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE PROPOSED TRAP. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF EACH FACILITY. (2 WEEKS)
7. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING.
8. CLEAR AND GRUB FOR THE REMAINDER OF THE SITE. (1 WEEK)
9. GRADE SITE TO THE PROPOSED SUBGRADE. INSTALL THE STORM DRAIN SYSTEM EXCEPT FOR THE PIPE RUN FROM M-4 TO THE SHALLOW MARSH AND ITS BY-PASS. INSTALL INLET PROTECTION AS INDICATED ON THE PLAN SHEETS. (4 WEEKS)
10. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENTS FROM ALL TRAPS WHEN CLEANOUT ELEVATIONS ARE REACHED. ALL SEDIMENTS MUST BE PLACED UPSTREAM OF AN APPROVED TRAP DEVICE.
11. INSTALL ROAD BASE COURSE. (1 WEEK)
12. STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED. (2 DAYS)
13. APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 WEEK)
14. FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES, AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, ALL EROSION AND SEDIMENT CONTROL DEVICES MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE AFTER THE STORM DRAIN SYSTEM HAS BEEN FLUSHED TO REMOVE TRAPPED SEDIMENT. THIS WOULD ALSO INCLUDE THE REMOVAL OF TEMPORARY STORM DRAIN FLEX PIPES AT THE STORM DRAIN RUN CONNECTIONS. (2 WEEKS)
15. INSTALL THE SHALLOW MARSH AND ASSOCIATED SEDIMENT CONTROL MEASURES - PHASE III GRADING. INSTALL THE STORM DRAIN RUN FROM M-4 TO THE SHALLOW MARSH IN CONJUNCTION WITH THE REMOVAL OF THE TEMP FLEX PIPE TO THE SEDIMENT TRAP. (1 WEEK)
16. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT.

STONE OUTLET SEDIMENT TRAP - ST II



Construction Specifications

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

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

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

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

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

6. The structure shall be inspected periodically and after each rain and repairs made as needed.

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

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

9. Refer to Section D for specifications concerning trap dewatering.

10. Minimum trap depth shall be measured from the weir elevation.

11. The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.

12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.

13. Outlet - An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

SEDIMENT CONTROL NOTES AND DETAILS
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 13 OF 15 F 01-105

AS BUILT 3-19-04

SHEET INDEX	
SHEET No.	DESCRIPTION
1	TITLE SHEET
2	McCANN FARM ROAD PLAN AND PROFILE
3	SUSAN MARIE WAY PLAN AND PROFILE
4	OLD FREDERICK ROAD PLAN & PROFILE
5	OLD FREDERICK ROAD CROSS SECTION
6	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
7	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
8	SEDIMENT CONTROL PLAN AND DETAIL SHEET
9	STORM DRAIN PROFILES
10	DRAINAGE AREA MAP & LANDSCAPE PLAN
11	S.W.M. NOTES AND DETAILS
12	S.W.M. NOTES AND DETAILS
13	SEDIMENT CONTROL NOTES AND DETAILS
14	FOREST CONSERVATION PLAN
15	FOREST CONSERVATION NOTES AND DETAILS

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/25/02

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

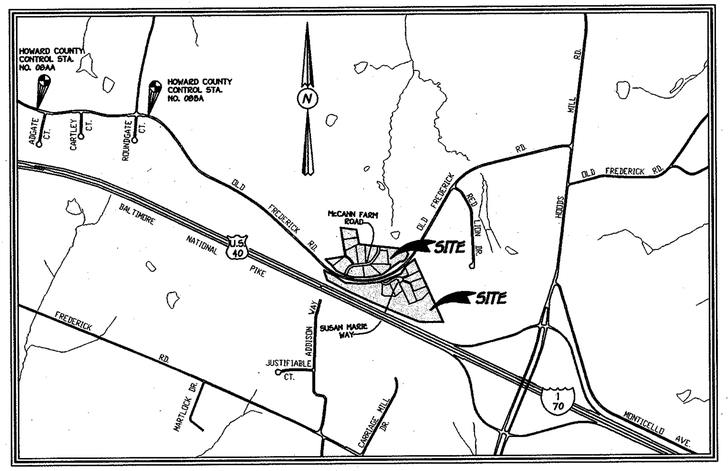
McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO

TAX MAP No. 8 PARCEL No. 78 GRID No. 16

ROAD CLASSIFICATION CHART		
ROAD NAME	CLASSIFICATION	R/W WIDTH
McCANN FARM ROAD	PUBLIC ACCESS PLACE	40'
SUSAN MARIE WAY	PUBLIC ACCESS PLACE	40'



VICINITY MAP

SCALE: 1" = 1200'

TRAFFIC CONTROL SIGNS				
STREET NAME	C.L. STATION	OFFSET	POSTED SIGN	SIGN CODE
McCANN FARM ROAD	0+34	18'L	STOP	R1-1
McCANN FARM ROAD	2+00	11'R	SPEED LIMIT 25	R2-1
McCANN FARM ROAD	3+75	11'R	ROAD NARROWS	W5-1
McCANN FARM ROAD	4+55	11'L	ROAD NARROWS	W5-1
McCANN FARM ROAD	6+25	11'R	ROAD NARROWS	W5-1
McCANN FARM ROAD	7+05	11'L	ROAD NARROWS	W5-1
SUSAN MARIE WAY	0+34	18'L	STOP	R1-1
SUSAN MARIE WAY	1+05	11'R	SPEED LIMIT 25	R2-1

STREET LIGHT TABLE			
Street Name	Station	Off-Set	Fixture/ Pole Type
McCann Farm Rd.	0+35	Rt. 35'	☼
Susan Marie Way	0+33	Rt. 37'	☼

☼ = 250 Watt High Pressure Sodium (HPS) Vapor Pendant (SAP) Mounted on a 30' Bronze Fiberglass Pole Using a 12' Arm.

FOURTH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. 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.
5. 2 FOOT CONTOUR TOPOGRAPHY AND EXISTING CONDITIONS BASED ON FIELD SURVEY PREPARED BY FISHER, COLLINS & CARTER, INC. ON OR ABOUT JULY 1999 TOGETHER WITH HOWARD COUNTY AERIAL TOPOGRAPHY.
6. THE COORDINATES SHOWN HEREON ARE BASED UPON HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT Nos. 08AA AND 08BA WERE USED FOR THIS PROJECT.
   08AA N 609,214.9869 E 1,299,547.5360 — 08BA N 609,098.5311 E 1,301,409.1070
7. WATER IS PRIVATE.
8. SEWER IS PRIVATE.
9. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC. DATED SEPT. 1998 AND APPROVED BY HOWARD COUNTY ON 7/29/99 UNDER S 99-03.
10. UNMITIGATED 65 dBA NOISE LINE DETERMINED BY WILDMAN ENVIRONMENTAL SERVICES DATED SEPT., 1998 AND APPROVED BY HOWARD COUNTY ON 7/29/99 UNDER S 99-03.
11. NOISE MITIGATION MEASURES AND THE MITIGATED 65 dBA NOISE LINE SHOWN ON THIS PLAN WERE PREPARED BY WILDMAN ENVIRONMENTAL SERVICES AND WERE REVIEWED AND APPROVED BY HOWARD COUNTY ON 7/29/99 UNDER S 99-03.
12. BACKGROUND INFORMATION:
    A. SUBDIVISION NAME: McCANN PROPERTY
    B. TAX MAP NO.: 8
    C. PARCEL NO.: 78
    D. ZONING: RC-DEO
    E. ELECTION DISTRICT: FOURTH
    F. TOTAL TRACT AREA: 34.32 AC. ±
    G. NO. OF BUILDABLE LOTS: 16
    H. NO. OF PARCELS: 5
    I. NO. OF OPEN SPACE LOTS: 0
    J. THE SKETCH PLAN WAS APPROVED ON 7/29/99.
    K. PRELIMINARY PLAN APPROVAL DATE: 9/1/00
    L. PREVIOUS FILE Nos.: S 99-03, P 00-12
    M. NUMBER OF DWELLING UNITS ALLOWED WITHOUT IMPORTING DEVELOPMENT RIGHTS: 34.32 / 4.25 = 8 UNITS
    N. NUMBER OF DWELLING UNITS ALLOWED WITH IMPORTING DEVELOPMENT RIGHTS: 34.32 / 2 = 17 UNITS
    O. NUMBER OF DWELLING UNITS PROPOSED: 17
    P. NUMBER OF D.E.O. UNITS TO BE IMPORTED: 17 - 8 = 9 UNITS
13. REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE TO BE PROVIDED AT THE JUNCTION OF THE PIPE / FLAG STEM AND THE ROAD R/W AND NOT ONTO THE PIPE / FLAG STEM DRIVEWAY.
14. NO CEMETERIES EXIST ON THE PROPERTY.
15. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF ASTM T-180.
16. THE WETLAND AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED SEPT. 1998 AND APPROVED BY HOWARD COUNTY ON 7/29/99 UNDER S 99-03.
17. THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
18. STORMWATER MANAGEMENT FACILITY:
    STORMWATER MANAGEMENT IS PROVIDED BY A PUBLIC RETENTION POND AND A SHALLOW MARSH FACILITY. THE SHALLOW MARSH WAS APPROVED AS A DESIGN MANUAL WAIVER ON 3/7/2000.
19. THIS FINAL PLAN IS PREPARED IN ACCORDANCE WITH THE APPROVED ZONING, SUBDIVISION AND DESIGN MANUAL GUIDELINES AS EXISTED AT THE TIME OF THE PRELIMINARY EQUIVALENT SKETCH PLAN SIGNATURE ON APRIL 4, 1996, UNLESS A WAIVER PETITION OR DESIGN MANUAL WAIVER HAS BEEN APPROVED BY THE DEPARTMENT OF PLANNING & ZONING. A WAIVER OF DESIGN MANUAL, VOLUME I, SECTION 5.27 C (1) WAS APPROVED ON MARCH 7, 2000. THIS WAIVER ALLOWS FOR A CONTRIBUTING DRAINAGE AREA OF LESS THAN 5.0 ACRES FOR CONSTRUCTION UTILIZING A SHALLOW MARSH DESIGN BASED ON THE EXISTING HIGH GROUNDWATER TABLE AT THE PROPOSED FACILITY.
20. MINIMUM AREA OF OPEN SPACE REQUIRED: 34.32 x 5% = 1.72 AC±. REQUIRED OPEN SPACE IS SUBSTITUTED BY H.O.A. OWNED AND MAINTAINED NON-BUILDABLE PRESERVATION PARCELS 'A', 'C', 'D', AND 'E' WHICH CONSISTS OF 5.613 ACRES±.
21. A LANDSCAPE SURETY IN THE AMOUNT OF $44,440.00 FOR PERIMETER LANDSCAPE REQUIREMENTS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AAND LANDSCAPE MANUAL IS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.
22. THE USE-IN-COMMON DRIVEWAY FOR LOTS 2 AND 3 MUST BE CONSTRUCTED AS FAR AWAY FROM THE PROJECT BOUNDARY LINE AS POSSIBLE IN ORDER TO PROTECT THE EXISTING TREES ALONG THAT PROPERTY LINE.

STATE OF MARYLAND — CHRISTOPHER J. TOMSIC — No. 27504 — PROFESSIONAL ENGINEER — AS-BUILT 3/19/04

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — No. 20746 — REGISTERED PROFESSIONAL ENGINEER

Aldo M. Vitucci 12-20-01

OWNER

MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER

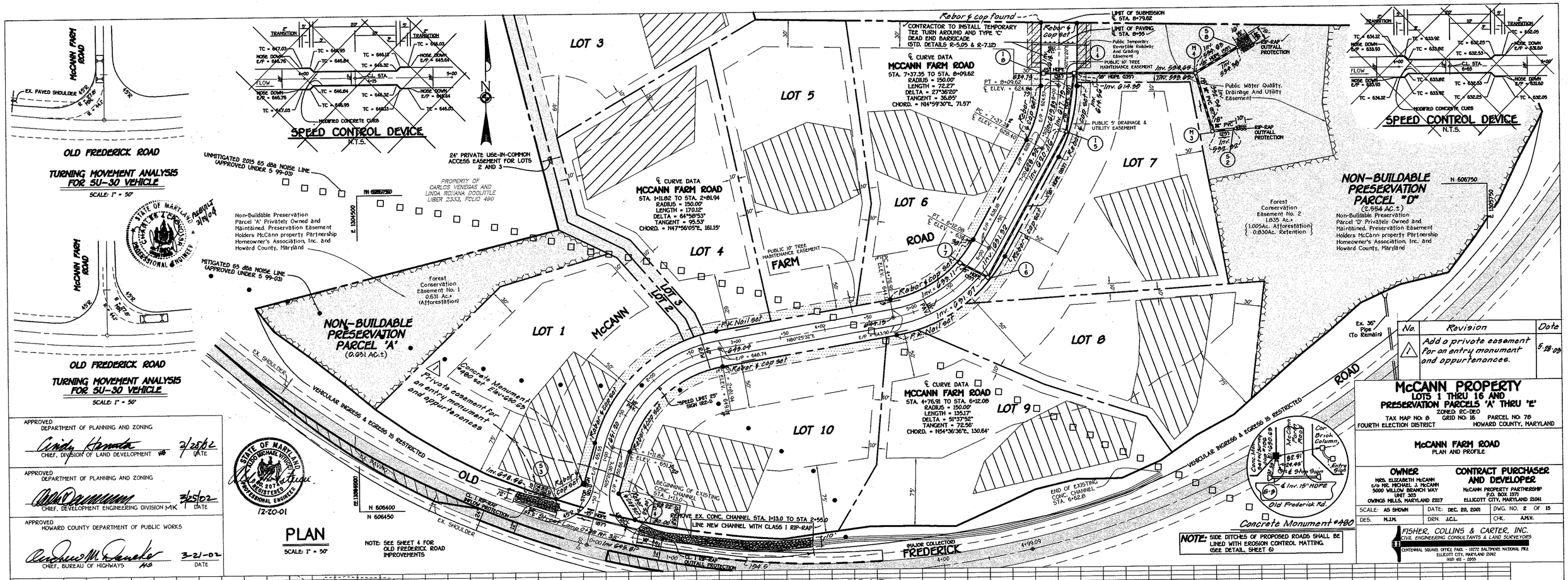
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

No	Revision	Date
1	Add a private easement for an entry monument & appurtenances	5-28-03

McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 1 OF 15
F 01-105

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

AS BUILT 3-19-04



No.	Revision	Date
1	Add a private easement for an entry monument and appurtenances.	5-28-08

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/25/02

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/25/02

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02

STATE OF MARYLAND — MICHAEL J. MCCANN — No. 20778 — REGISTERED PROFESSIONAL ENGINEER
12-20-01

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONED: RC-DEO
TAX MAP NO: 8 — GRID NO: 16 — PARCEL NO: 78
FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

McCANN FARM ROAD
PLAN AND PROFILE

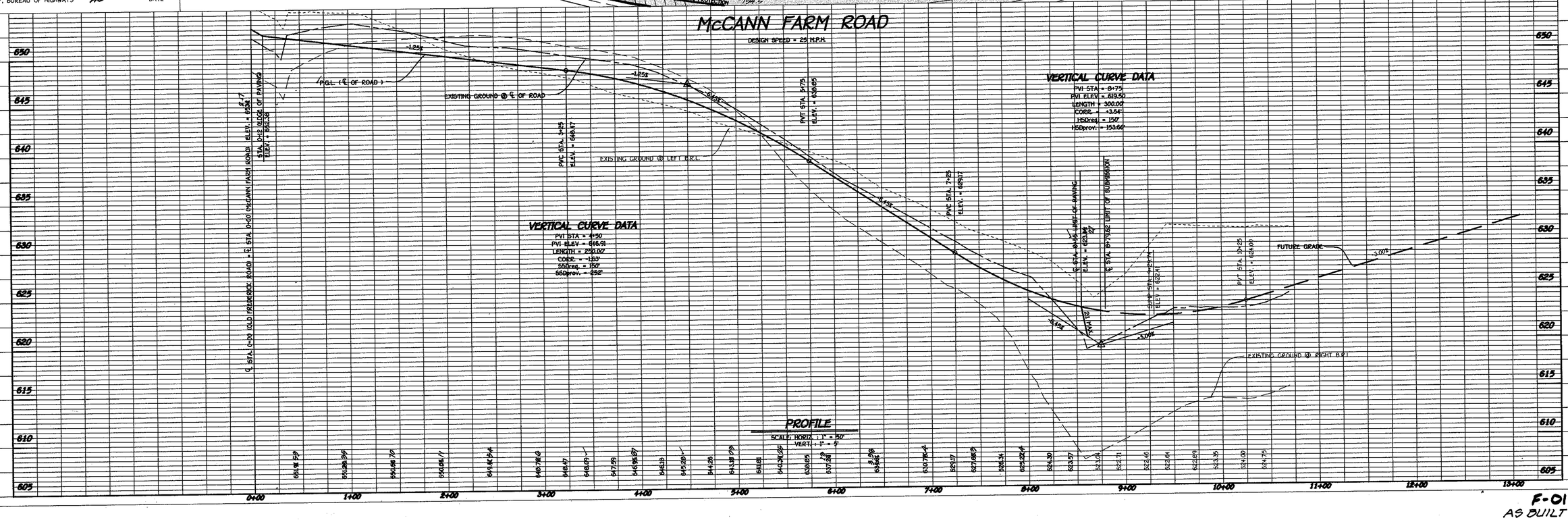
OWNER
MRS. ELIZABETH McCANN
c/o MR. MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

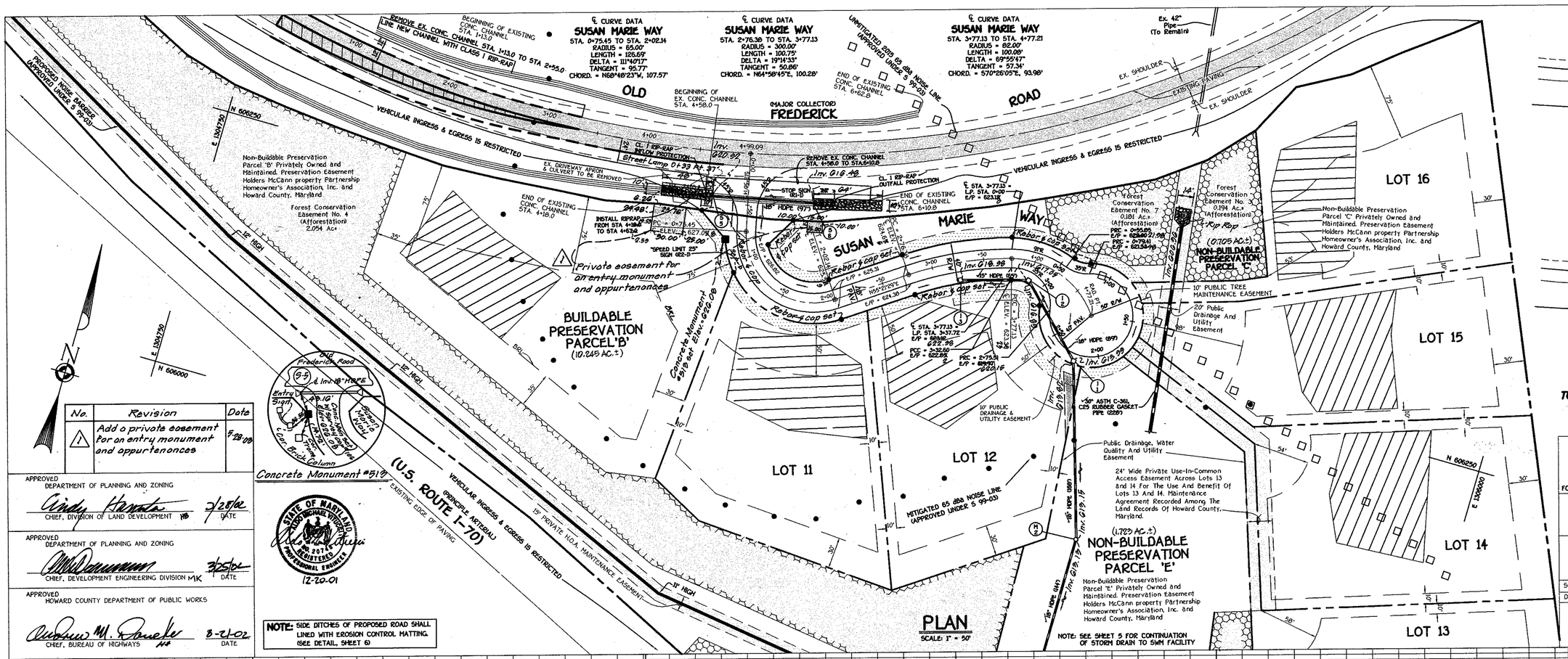
SCALE: AS SHOWN	DATE: DEC. 20, 2001	DWG. NO. 2 OF 15
DES. M.J.M.	DRN. J.C.L.	CHK. A.M.V.

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

PLAN
SCALE: 1" = 50'



F-01-105
AS BUILT 3-10-04



PLAN
SCALE: 1" = 50'

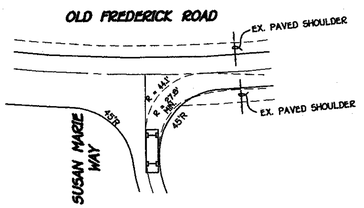
No.	Revision	Date
1	Add a private easement for an entry monument and appurtenances	5-28-09

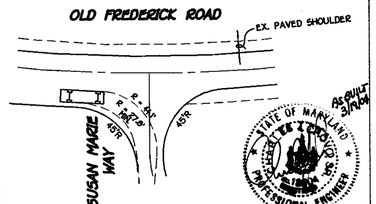
APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/25/02

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/25/02

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02

NOTE: SIDE DITCHES OF PROPOSED ROAD SHALL LINED WITH EROSION CONTROL MATTING. (SEE DETAIL, SHEET 6)





McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

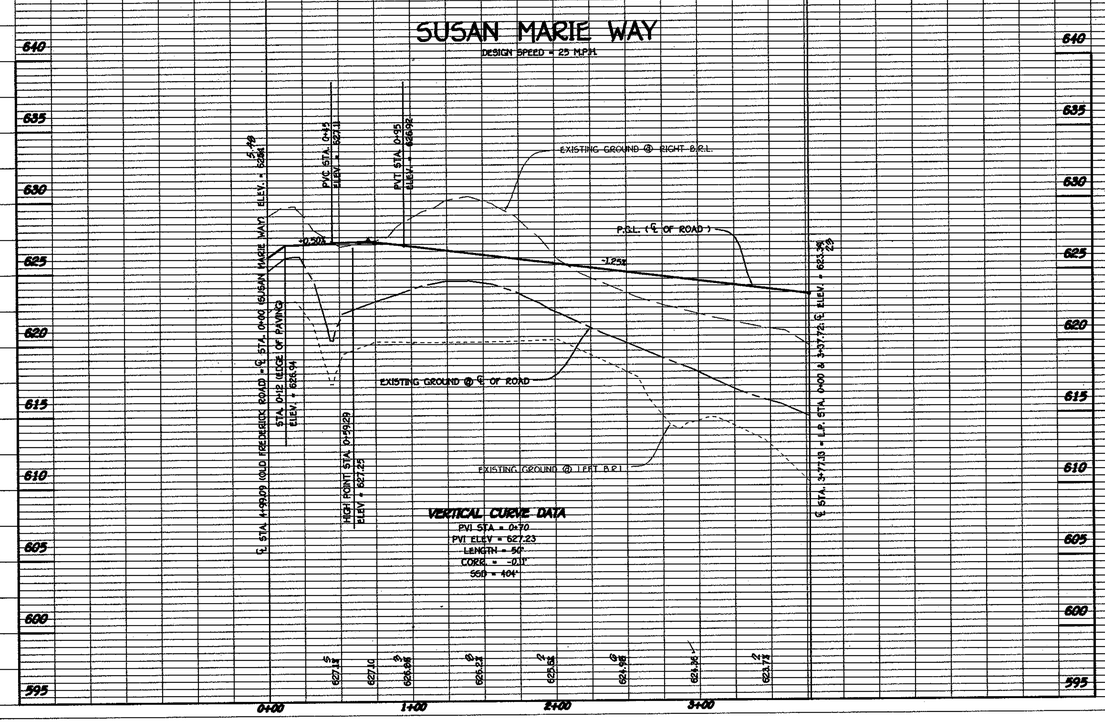
ZONED: RC-DEO
TAX MAP NO: 8 — GRID NO: 16 — PARCEL NO: 78
FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

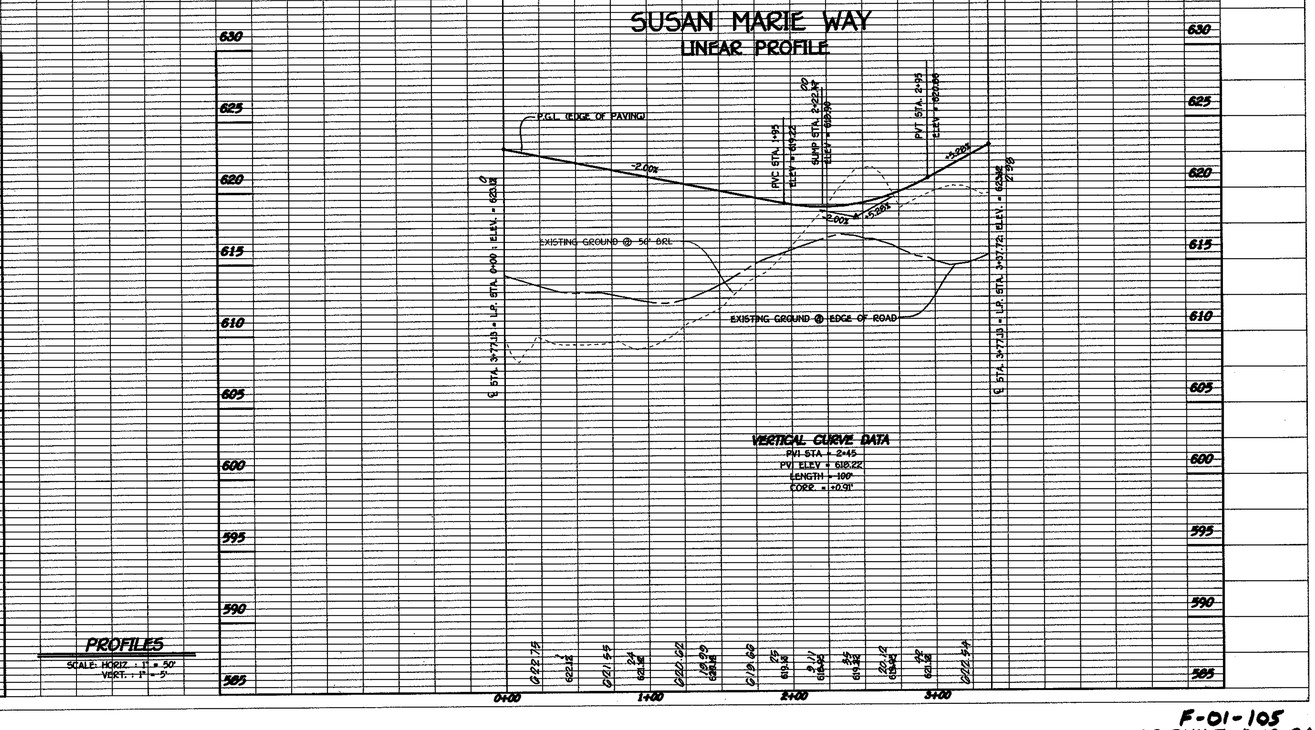
SUSAN MARIE WAY
PLAN AND PROFILE

OWNER	CONTRACT PURCHASER AND DEVELOPER
MRS. ELIZABETH McCANN c/o MR. MICHAEL J. McCANN 5000 WILLOW BRANCH WAY UNIT 305 OWINGS MILLS, MARYLAND 21117	McCANN PROPERTY PARTNERSHIP P.O. BOX 1371 ELLICOTT CITY, MARYLAND 21041

SCALE: AS SHOWN	DATE: DEC. 20, 2001	DWG. NO. 3 OF 15
DES. M.J.M.	DRN. J.C.L.	CHK. A.M.V.

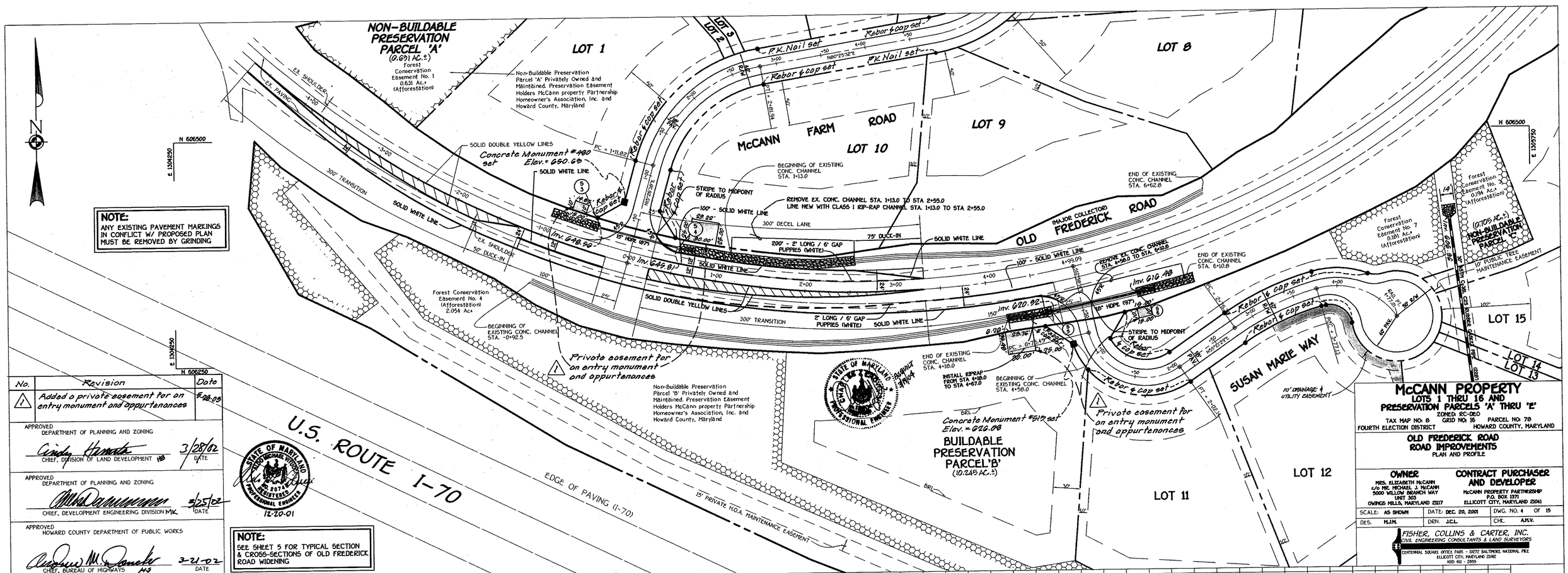
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855





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

F-01-105
AS BUILT 3-19-04



No.	Revision	Date
1	Added a private easement for an entry monument and appurtenances	4-08-03

APPROVED
DEPARTMENT OF PLANNING AND ZONING

Cindy Hancock — 3/28/02
CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING

3/25/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

3-21-02
CHIEF, BUREAU OF HIGHWAYS HJS — DATE

NOTE:
SEE SHEET 5 FOR TYPICAL SECTION & CROSS-SECTIONS OF OLD FREDERICK ROAD WIDENING

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONED: RC-DEO
TAX MAP NO: 8 — GRID NO: 15 — PARCEL NO: 78
FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

OLD FREDERICK ROAD ROAD IMPROVEMENTS

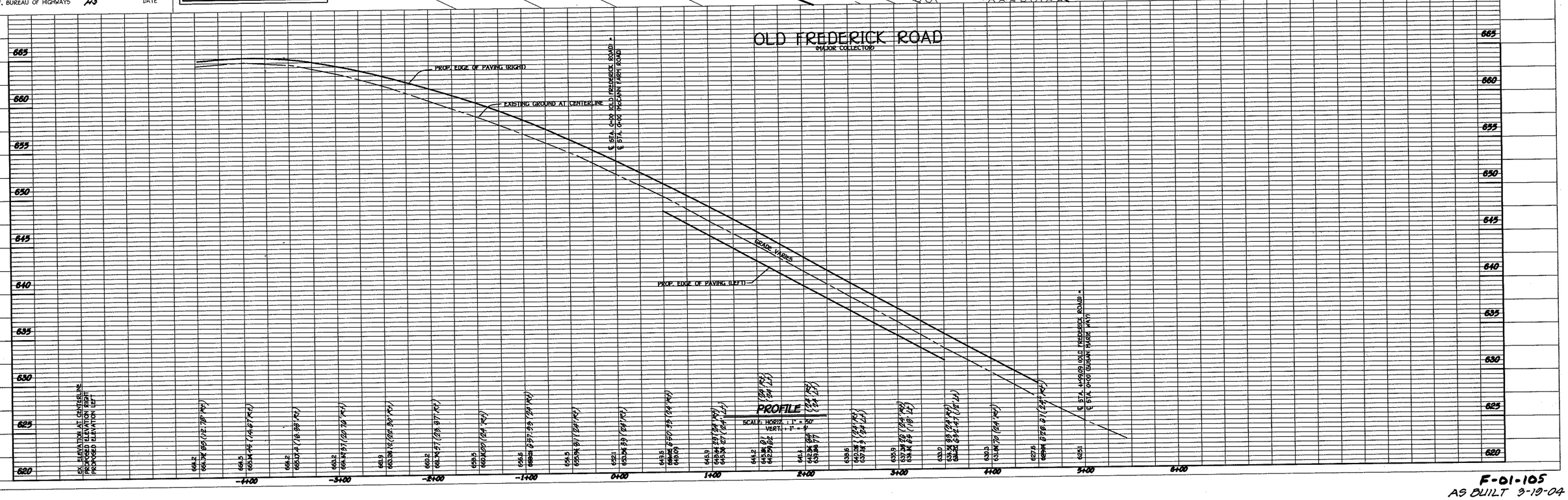
PLAN AND PROFILE

OWNER
MRS. ELIZABETH McCANN
c/o MR. MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

SCALE: AS SHOWN	DATE: DEC. 20, 2001	DWG. NO. 4 OF 15
DES. M.J.M.	DRN. J.C.L.	CHK. A.M.V.

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



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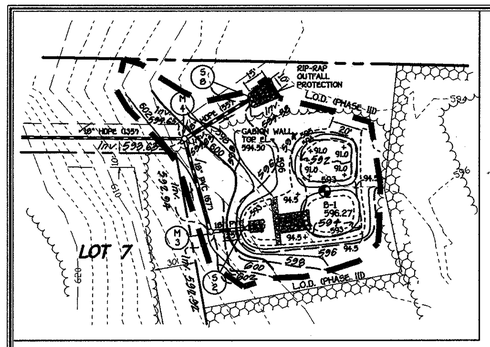
AS BUILT 3-19-04



SHALLOW MARSH GRADING PLAN

SCALE: 1" = 50'

NOTE: RECORDATION OF THE MCCANN PROPERTY PLAT WILL FORFEIT ANY RIGHT/ USE TO THE EXISTING PRIVATE 40' R/W BY THE MCCANN PROPERTY.

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	ACER PLATANOIDES 'EMERALD QUEEN' NORWAY MAPLE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W
	PLATANUS X ACERIFOLIA 'BLOODGOOD' LONDON PLANETREE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W

NOTES:
1. STREET TREE TYPES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT FROM THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE 62 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $18,600.00.

- 39 TREES (McCANN FARM ROAD)
- 23 TREES (SUSAN MARIE WAY)

AS-BUILT 3/19/04

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On This "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature — P.E. No. — 3/19/04 Date

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee Or 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.

STONE OUTLET SEDIMENT TRAP No. 1

INITIAL DRAINAGE AREA = 1.40 AC.±
FINAL DRAINAGE AREA = 2.00 AC.±
WET STORAGE REQUIRED = 3,600 CU.FT.
WET STORAGE PROVIDED = 5,400 CU.FT.
WET STORAGE ELEVATION = 595.00
DRY STORAGE REQUIRED = 3,600 CU.FT.
DRY STORAGE PROVIDED = 7,500 CU.FT.
DRY STORAGE ELEVATION = 597.00
BOTTOM ELEV. = 593.00
SIDE SLOPES: 3:1
STORAGE DEPTH = 2.0'
WEIR LENGTH = 10'
TOP OF EMBANKMENT ELEV. = 598.00
SINCE D.A. ≤ 2.0 AC., NO TEMP. SWM REQUIRED

NOTE: SEE FINAL GRADING OF SHALLOW MARSH AND STORM DRAIN OUTFALLS, THIS SHEET

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer — 12/20/01 Date

ONAL D. COLLINS
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Instructed My Client That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Within 30 Days Of Completion."

Signature — 12-20-01 Date

A. [illegible]
Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA Natural Resources Conservation Service — 1/9/02 Date

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — 1/9/02 Date

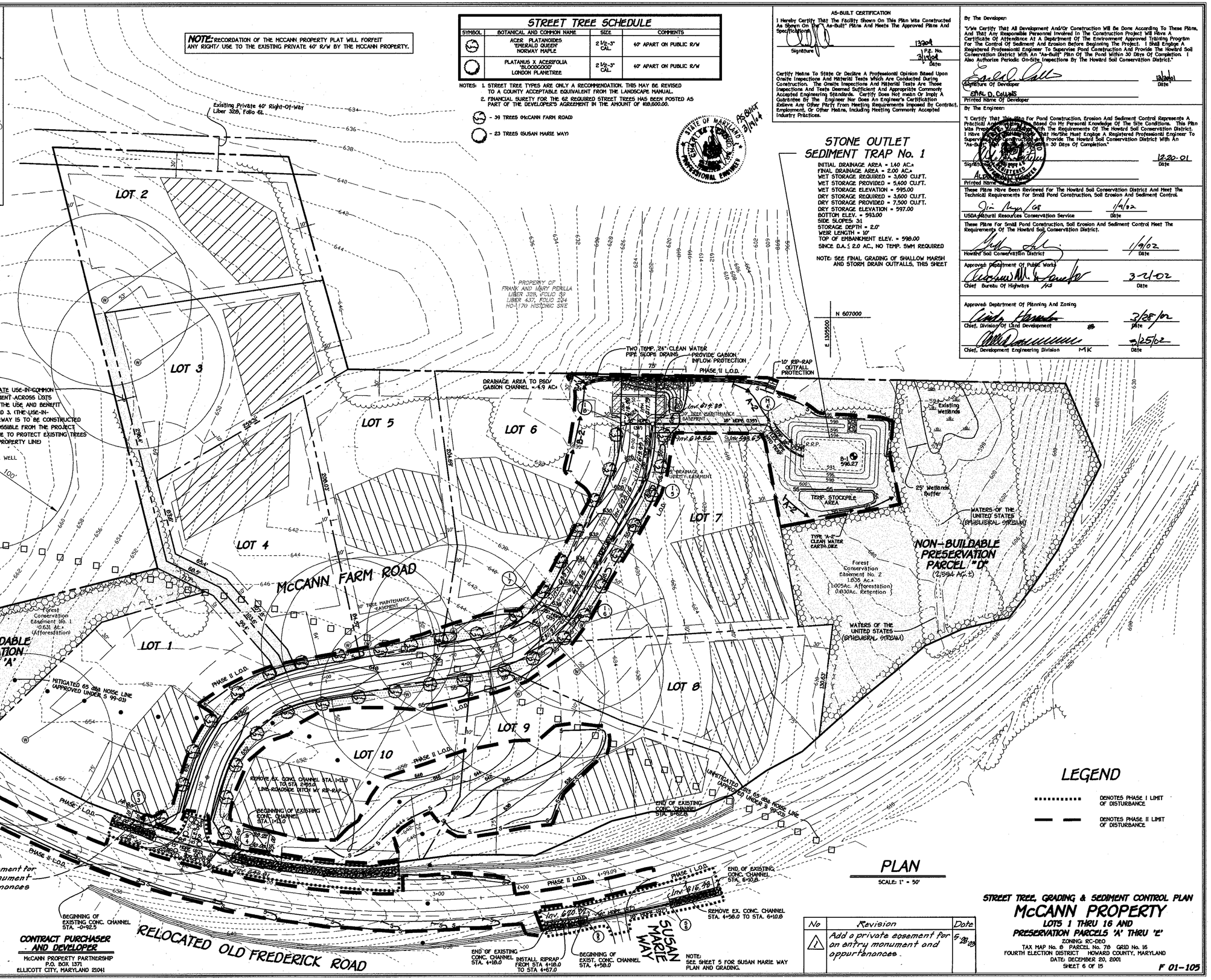
Approved Department Of Public Works

Chief, Bureau Of Highways — 3-4-02 Date

Approved Department Of Planning And Zoning

Chief, Division Of Land Development — 3/25/02 Date

Chief, Development Engineering Division MK — 3/25/02 Date


Existing Private 40' Right-Of-Way Liber 328, Folio 61
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 1
PROPERTY OF FRANK AND MARY PERILLA LIBER 328, FOLIO 59 LIBER 437, FOLIO 224 HO-170 HISTORIC SITE
24' WIDE PRIVATE USE-IN-COMMON ACCESS EASEMENT ACROSS LOTS 2 AND 3 FOR THE USE AND BENEFIT OF LOTS 2 AND 3. (THE USE-IN-COMMON DRIVEWAY IS TO BE CONSTRUCTED AS FAR AS POSSIBLE FROM THE PROJECT BOUNDARY LINE TO PROTECT EXISTING TREES ALONG THAT PROPERTY LINE)
EX. WELL
PROPERTY OF CARLOS VENEGAS AND LINDA ROXANA DOOLITTLE LIBER 2333, FOLIO 490
EX. SEPTIC TANK
UNMITIGATED 2015 65 dBA NOISE LINE (APPROVED UNDER S 99-03)
MITIGATED 65 dBA NOISE LINE (APPROVED UNDER S 99-03)
Forest Conservation Easement No. 1 (0.631 AC.± (Afforestation)
NON-BUILDABLE PRESERVATION PARCEL 'A' (0.631 AC.±)
McCANN FARM ROAD
10' TREE MAINTENANCE EASEMENT
DRAINAGE AREA TO PSDV GABION CHANNEL =4.9 AC.±
TWO TEMP. 24" CLEAN WATER PIPE SLOPE DRAINS
PROVIDE GABION INFLOW PROTECTION
PHASE II L.O.D.
10' RIP-RAP OUTFALL PROTECTION
Existing wetlands
25' Wetland Buffer
WATERS OF THE UNITED STATES (EPHEMERAL STREAM)
TYPE 'A-2' CLEAN WATER GABION DIKE
Forest Conservation Easement No. 2 1.836 Ac.± {1.005Ac. Afforestation} {0.830Ac. Retention}
NON-BUILDABLE PRESERVATION PARCEL "D" (2.594 AC.±)
TEMP. STOCKPILE AREA
R.P.P.
B-2 596.27
Inv. 614.58
Inv. 593.63
Inv. 616.98
Inv. 618.95
Inv. 622.18
Inv. 624.57
Inv. 625.81
Inv. 626.92
Inv. 628.05
Inv. 629.17
Inv. 630.29
Inv. 631.41
Inv. 632.53
Inv. 633.65
Inv. 634.77
Inv. 635.89
Inv. 637.01
Inv. 638.13
Inv. 639.25
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Inv. 648.09
Inv. 649.21
Inv. 650.33
Inv. 651.45
Inv. 652.57
Inv. 653.69
Inv. 654.81
Inv. 655.93
Inv. 657.05
Inv. 658.17
Inv. 659.29
Inv. 660.41
Inv. 661.53
Inv. 662.65
Inv. 663.77
Inv. 664.89
Inv. 666.01
Inv. 667.13
Inv. 668.25
Inv.

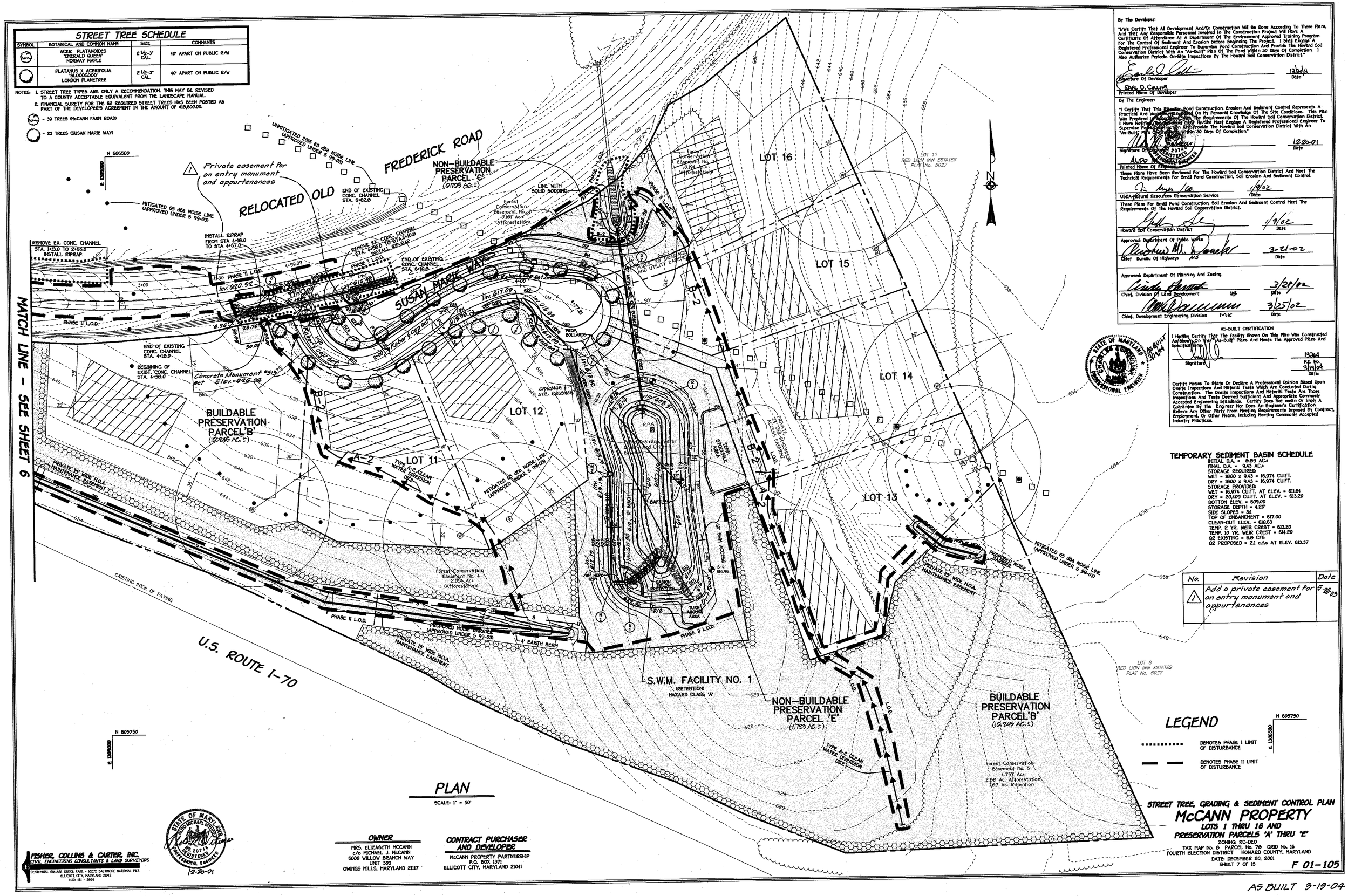
STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
(39)	ACER PLATANOIDES "EMERALD QUEEN" NORWAY MAPLE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W
(23)	PLATANUS X ACERIFOLIA "BLOODGOOD" LONDON PLANETREE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W

NOTES:
1. STREET TREE TYPES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT FROM THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE 62 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $18,600.00.

(39) - 39 TREES (McCANN FARM ROAD)

(23) - 23 TREES (SUSAN MARIE WAY)



PLAN

SCALE: 1" = 50'

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer — Date: 12/20/01

EARL D. CULLINS
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — Date: 12-20-01

ALDO M. VITIELLO, No. 20748, STATE OF MARYLAND, REGISTERED PROFESSIONAL ENGINEER
Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service — Date: 1/9/02

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — Date: 1/9/02

Approved: Department Of Public Works

Chief, Bureau Of Highways — Date: 3-21-02

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 3/28/02

Chief, Development Engineering Division — Date: 3/25/02

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.

STATE OF MARYLAND — ALDO M. VITIELLO — No. 20748 — PROFESSIONAL ENGINEER — AS BUILT 3/19/04

Signature — P.E. No. 13264 — Date: 3/19/04

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee Or Warranty. 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.

No.	Revision	Date
1	Add a private easement for on entry monument and appurtenances	5-20-03

STATE OF MARYLAND — ALDO MICHAEL VITIELLO — No. 20748 — REGISTERED PROFESSIONAL ENGINEER — 12-20-01

OWNER
MRS. ELIZABETH McCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

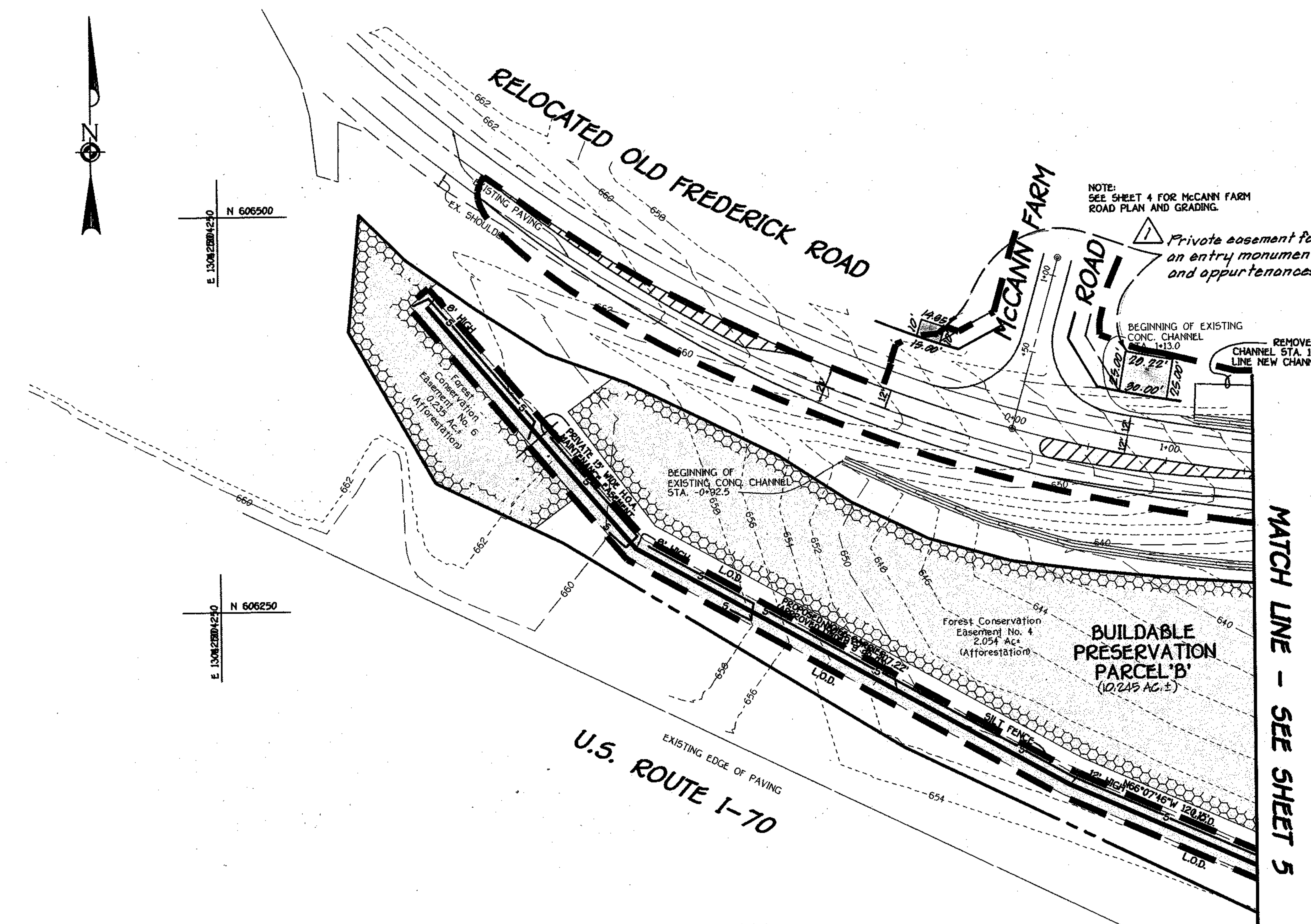
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO
TAX MAP No. 9 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 7 OF 15

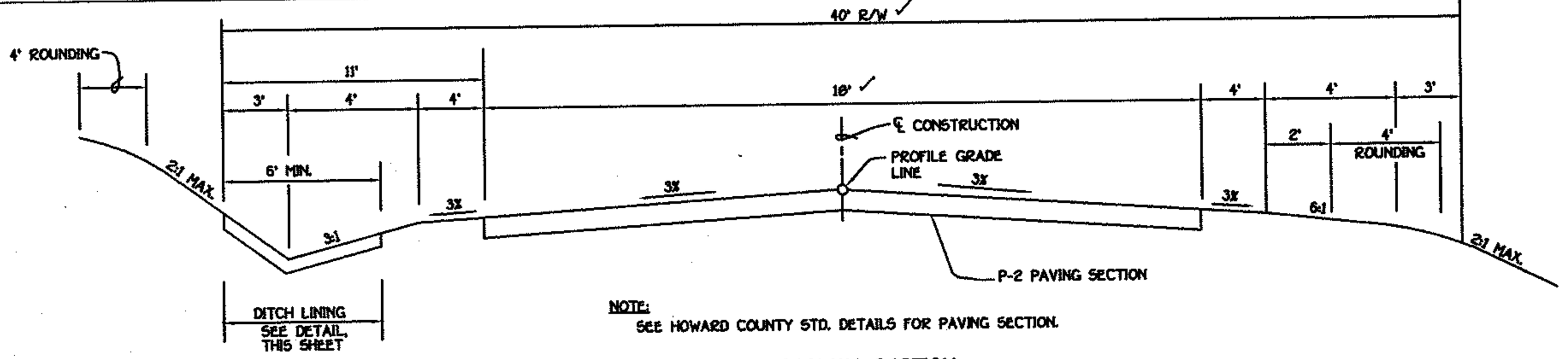
F 01-105

AS BUILT 3-19-04



PLAN

SCALE: 1" = 50'



NOTE:
SEE HOWARD COUNTY STD. DETAILS FOR PAVING SECTION.

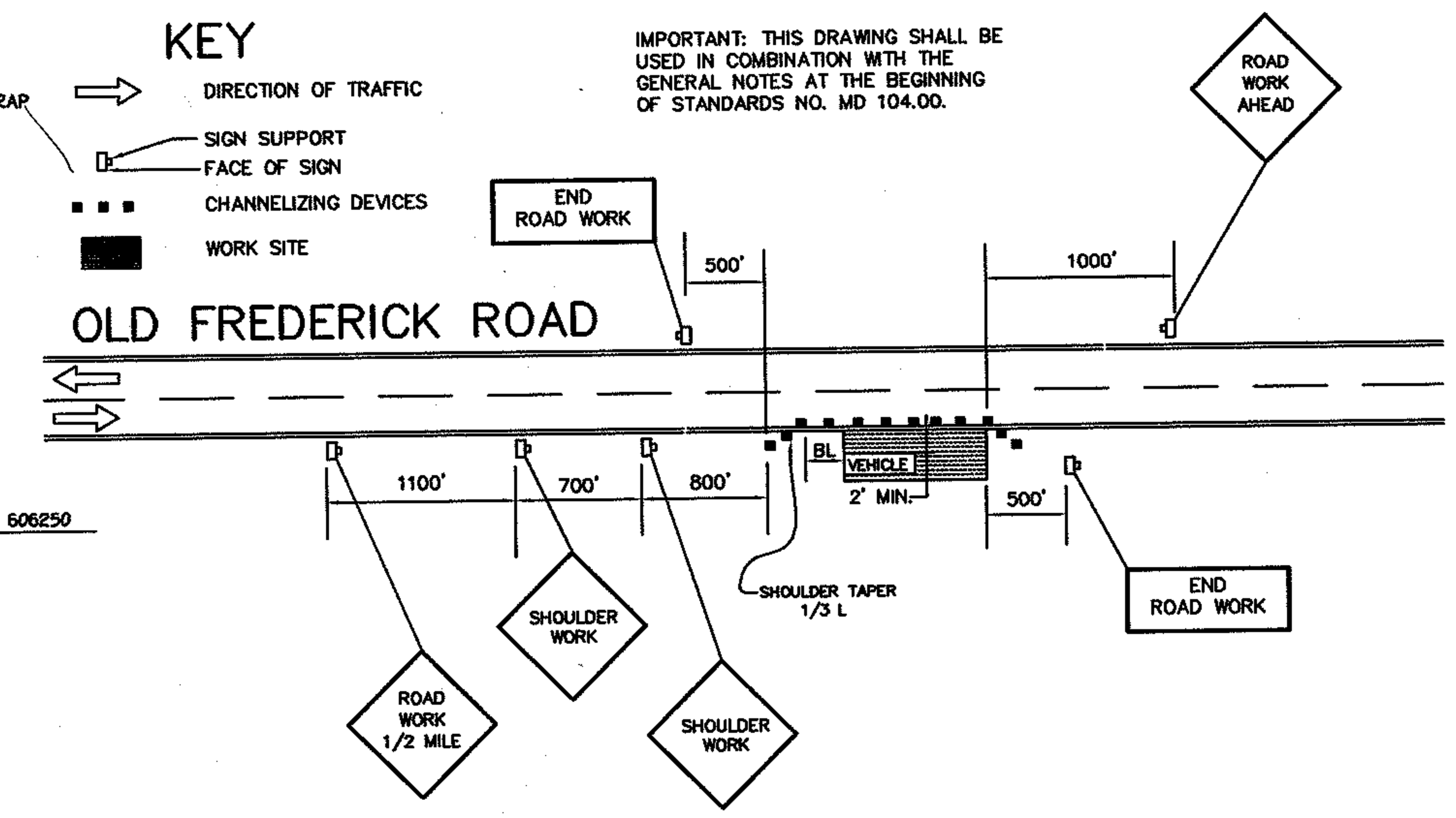
TYPICAL ROADWAY SECTION

NO SCALE

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	PAVING SECTION
McCANN FARM ROAD	PUBLIC ACCESS PLACE	25 M.P.H.	RC-DEO	0+00 TO 8+85.59	P-2
SUSAN MARIE WAY	PUBLIC ACCESS PLACE	25 M.P.H.	RC-DEO	0+00 TO X+77.X/8	P-2

IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES AT THE BEGINNING OF STANDARDS NO. MD 104.00.



(STANDARD NO. MD 104.04-01)

TEMPORARY TRAFFIC CONTROL PLAN

NO SCALE

MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS

GENERAL

1. THE PURPOSE OF THIS PORTION OF THE SPECIAL PROVISION IS TO SET FOR THE TRAFFIC CONTROL REQUIREMENTS NECESSARY FOR THE SAFE AND EFFICIENT MAINTENANCE TO TRAFFIC WITHIN WORK AREAS, AND TO MINIMIZE ANY INCONVENIENCES TO THE TRAVELING PUBLIC AND THE CONTRACTOR AND/OR PERMITTEE.
2. PROPERTY TRAFFIC CONTROL THROUGH WORK AREAS IS ESSENTIAL FOR INSURING THE SAFETY AND THAT OF HIGHWAY WORKERS HAS THE HIGHEST PRIORITY OF ALL TASKS WITHIN THIS PROJECT. THE PROPERTY 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 SHA 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 814 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 TO 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 SHA 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 814 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.

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 And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — 12-20-01 Date

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved 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

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements.

U.S.D.A. Natural Resources Conservation Service — 1/9/02 Date

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — 1/9/02 Date

Approved: Department Of Planning And Zoning

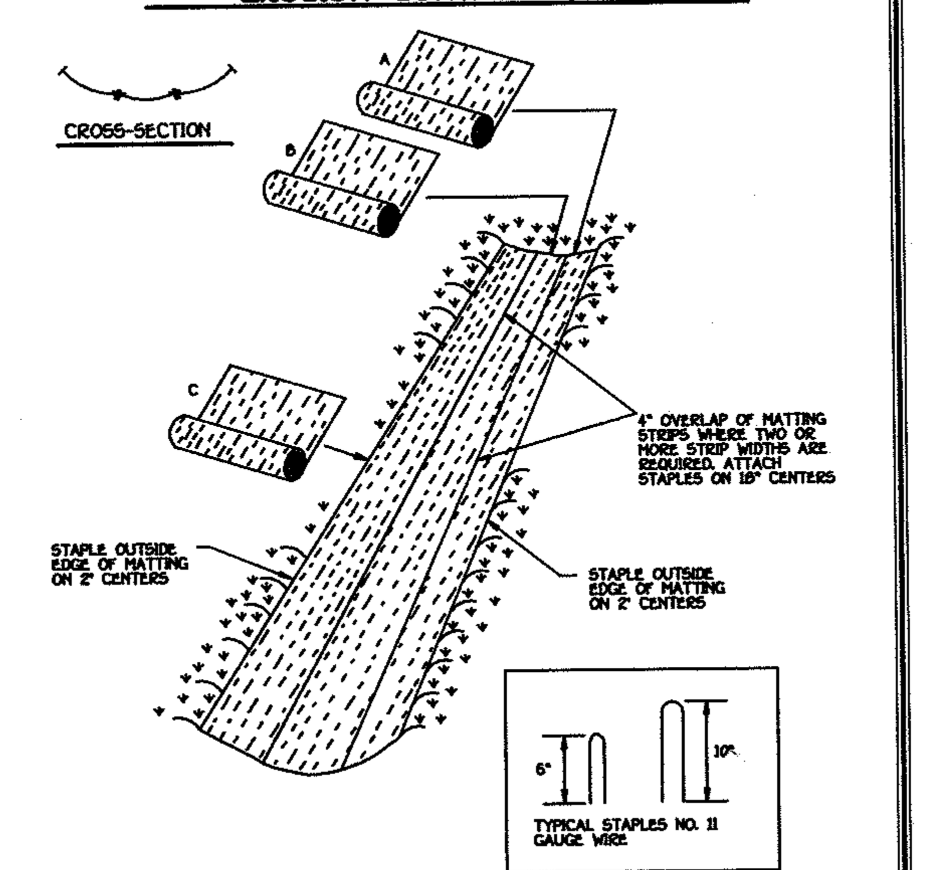
Chief, Division Of Land Development HB — 3/28/02 Date

Chief, Development Engineering Division MK — 3/25/02 Date

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways HS — 3-21-02 Date

EROSION CONTROL MATTING



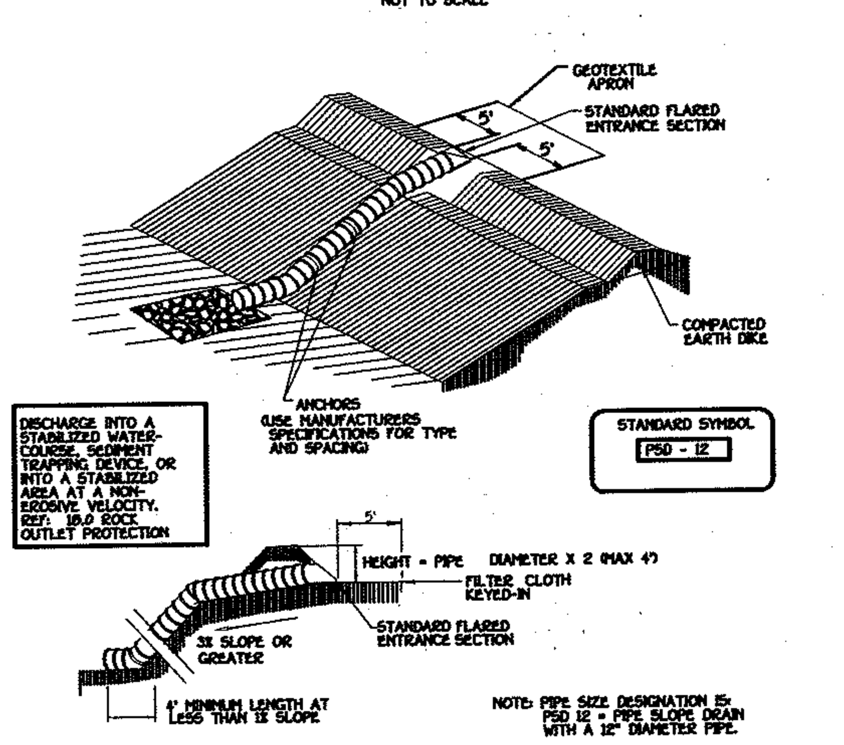
Construction Specifications

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.

PIPE SLOPE DRAIN

NOT TO SCALE



STANDARD SYMBOL: PSD - 12

NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE DRAIN WITH A 12" DIAMETER PIPE.

Table 6 Design Criteria for Pipe Slope Drain

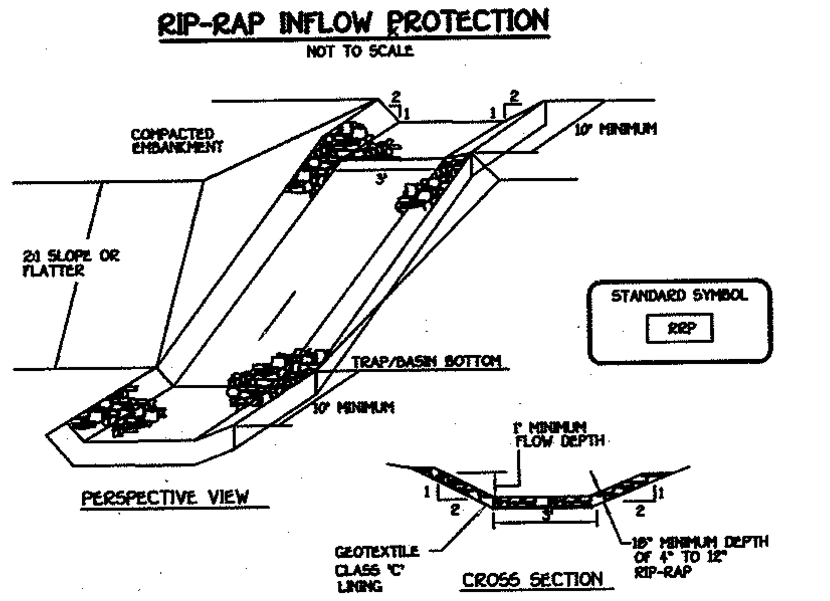
Size	Pipe/Tubing Diameter (D) In	Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (2)	24	5.0

Construction Specifications - Pipe Slope Drain

1. The Pipe Slope Drain (PSD) shall have a slope of 3 percent or steeper.
2. The top of the earth dike over the inlet pipe shall be at least 2 times the pipe diameter measured at the invert of the pipe.
3. Flexible tubing is preferred. However, corrugated metal pipe or equivalent PVC pipe can be used. All connections shall be watertight.
4. A flared end section shall be attached to the inlet end of pipe with a watertight connection. Filter cloth shall be placed under the inlet of the pipe slope drain and shall extend out 5' from the inlet. The filter cloth shall be "keyed in" on all sides.
5. The Pipe Slope Drain shall be securely anchored to the slope by staking at the grommets provided. Spacing for anchors shall be as provided by manufacturer's specification. In no case shall less than two (2) anchors be provided, equally spaced along the length of pipe. These details should be provided by pipe suppliers.
6. The soil around and under the pipe and end section shall be hand tamped in 4 inch lifts to the top of the earth dike.
7. All pipe connections shall be watertight.
8. Whenever possible where a PSD drains an unstabilized area, it shall outlet into a sediment trap or basin. If this is not possible then the slope drain will discharge into a stable conveyence that leads to a sediment trap or basin. When discharging into a trap or basin the PSD shall discharge at the same elevation as the wet pool elevation. The discharge from the PSD must be as far away from the sediment control outlet as possible.
9. When the drainage area is stabilized, the PSD shall discharge onto a stabilized area at a non-erosive velocity.
10. Inspection and any required maintenance shall be performed periodically and after each rain event.
11. The inlet must be kept open at all times.

RIP-RAP INFLOW PROTECTION

NOT TO SCALE

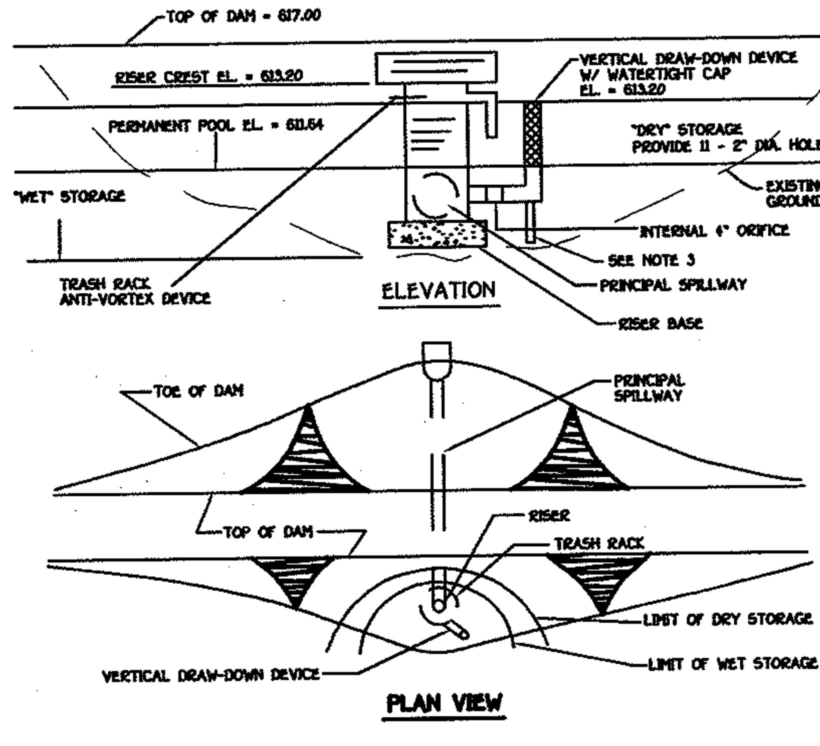


STANDARD SYMBOL: RRP

Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
6. Rip-rap should blend into existing ground.
7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

VERTICAL DRAW-DOWN DEVICE



CONSTRUCTION SPECIFICATIONS

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

No.	Revisions	Date
1	Add a private easement for an entry monument and oppurtenances	5.20.03

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — NO. 20748 — REGISTERED PROFESSIONAL ENGINEER — 12-20-01

STATE OF MARYLAND — CHARLES ... — PROFESSIONAL ENGINEER — AS BUILT 3/19/04

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
MRS. ELIZABETH McCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

SEDIMENT CONTROL PLAN AND DETAIL SHEET
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 8 OF 15

F-01-105

AS BUILT 3-19-04

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/02

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/25/02

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-21-02

DRAINAGE AREA DATA

STRUCTURE NO.	DRAINAGE AREA	AREA	"C"	ZONED	% IMP.
I-1	A	0.58 AC.	0.44	RC-DEO	35%
I-2	B	0.36 AC.	0.24	RC-DEO	67%
I-3	C	2.57 AC.	0.23	RC-DEO	3%
I-4	D	0.03 AC.	0.53	RC-DEO	48%
I-5	E	0.11 AC.	0.37	RC-DEO	24%
I-6	F	0.56 AC.	0.35	RC-DEO	21%
I-7	G	0.24 AC.	0.53	RC-DEO	48%
I-8	H	0.55 AC.	0.26	RC-DEO	8%
S-3	I	0.69 AC.	0.56	RC-DEO	53%
S-5	J	4.72 AC.	0.21	RC-DEO	0%

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

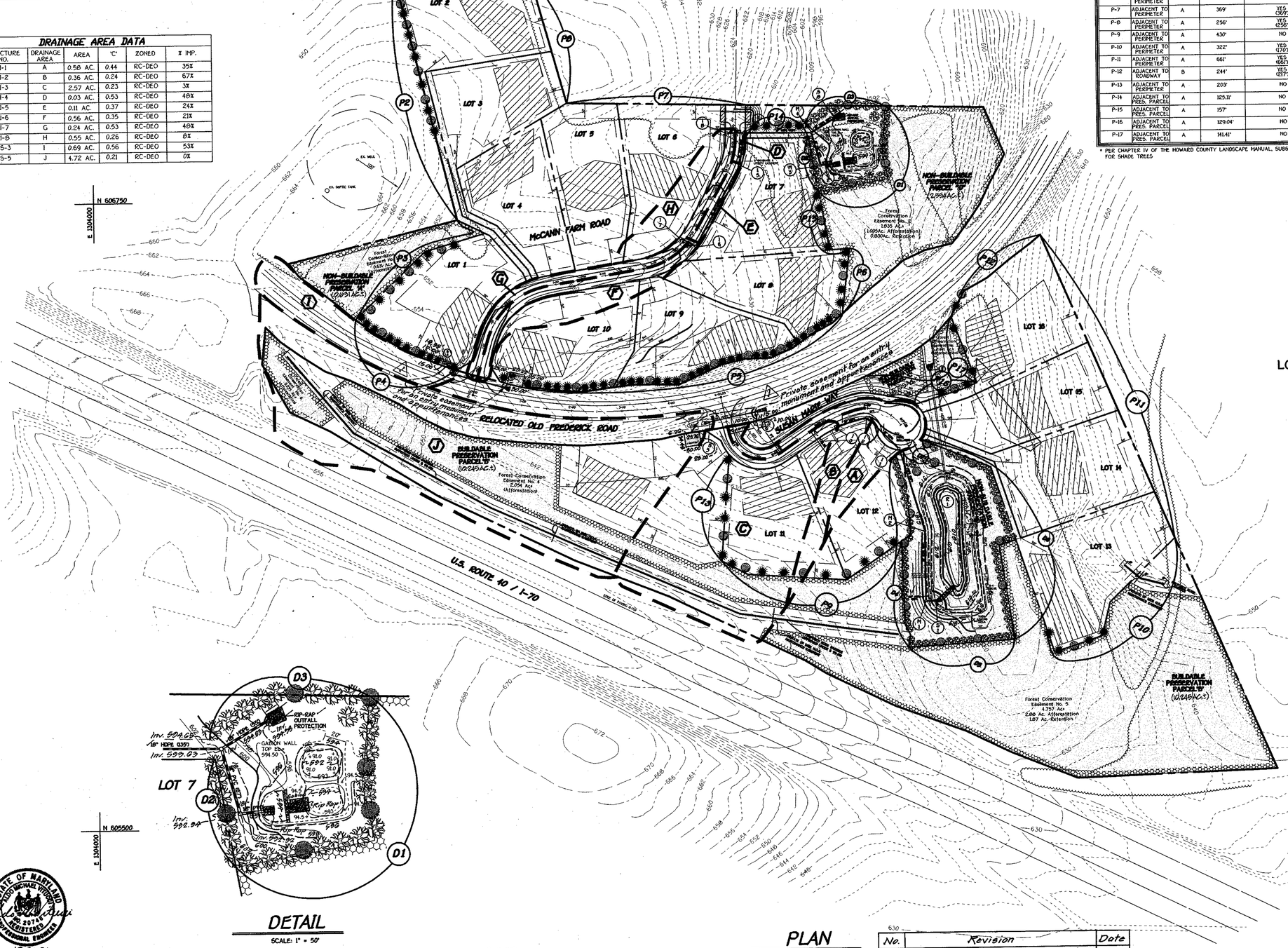
LINEAR FEET OF PERIMETER	SHALLOW MARSH AREA (D1, D2 & D3) 568'	D4: 409'	D5: 211'	D6: 527'	D7: 58'
NUMBER OF TREES REQUIRED: SHADE TREES / EVERGREEN TREES	12 / 15	9 / 11	5 / 6	11 / 14	2 / 2
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	YES 90%	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	NO	NO	NO	NO
NUMBER OF TREES PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTION)	6 / 27 / ----	5 / 19 / ----	2 / 12 / ----	5 / 26 / ----	2 / 2 / ----

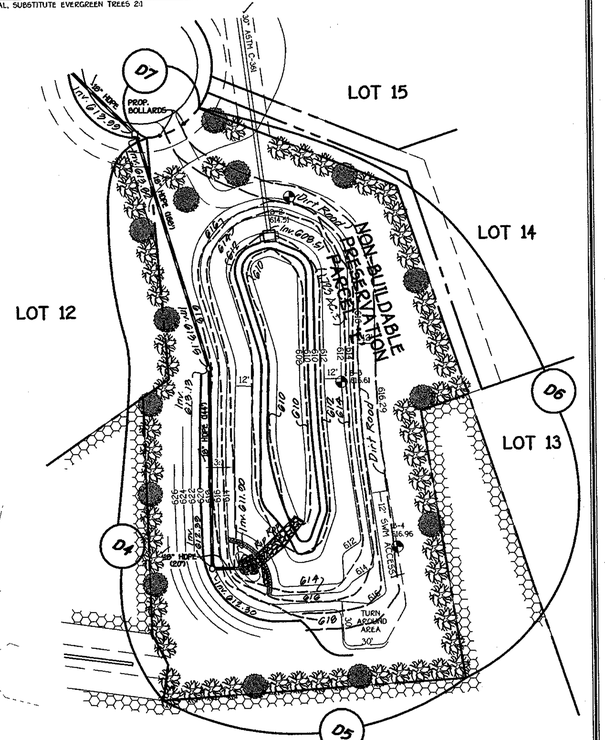
* PER CHAPTER IV OF THE HOWARD COUNTY LANDSCAPE MANUAL, SUBSTITUTE EVERGREEN TREES 2:1 FOR SHADE TREES

SCHEDULE A PERIMETER LANDSCAPE EDGE

PERIMETER	CATEGORY (PROPERTIES/ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED * SHADE TREES	EVERGREEN TREES	SHRUBS	NUMBER OF PLANTS PROVIDED SHADE TREES	EVERGREEN TREES	OTHER TREES (2:1 SUBSTITUTION)	SHRUBS (10:1 SUBSTITUTION)
P-1	ADJACENT TO ROADWAY	B	273'	NO	NO	6	7	-	4	11	-	-
P-2	ADJACENT TO PERIMETER	A	502.60'	NO	NO	9	0	-	6	6	-	-
P-3	ADJACENT TO PERIMETER	A	380'	NO	NO	7	0	-	4	6	-	-
P-4	ADJACENT TO ROADWAY	B	217'	NO	NO	4	5	-	2	9	-	-
P-5	ADJACENT TO ROADWAY	B	766'	NO	NO	15	19	-	10	29	-	-
P-6	ADJACENT TO PERIMETER	A	171'	NO	NO	3	0	-	1	4	-	-
P-7	ADJACENT TO PERIMETER	A	369'	YES (369')	NO	0	0	-	0	0	-	-
P-8	ADJACENT TO PERIMETER	A	256'	YES (256')	NO	0	0	-	0	0	-	-
P-9	ADJACENT TO PERIMETER	A	430'	NO	NO	7	0	-	4	6	-	-
P-10	ADJACENT TO PERIMETER	A	322'	YES (170')	NO	3	0	-	1	4	-	-
P-11	ADJACENT TO PERIMETER	A	661'	YES (661')	NO	0	0	-	0	0	-	-
P-12	ADJACENT TO ROADWAY	B	244'	YES (217')	NO	1	1	-	1	1	-	-
P-13	ADJACENT TO PERIMETER	A	203'	NO	NO	4	0	-	2	4	-	-
P-14	ADJACENT TO PRES. PARCEL	A	125.11'	NO	NO	3	0	-	1	4	-	-
P-15	ADJACENT TO PRES. PARCEL	A	157'	NO	NO	3	0	-	1	4	-	-
P-16	ADJACENT TO PRES. PARCEL	A	129.04'	NO	NO	2	0	-	1	2	-	-
P-17	ADJACENT TO PRES. PARCEL	A	141.41'	NO	NO	2	0	-	1	2	-	-

* PER CHAPTER IV OF THE HOWARD COUNTY LANDSCAPE MANUAL, SUBSTITUTE EVERGREEN TREES 2:1 FOR SHADE TREES





DETAIL

SCALE: 1" = 50'

DETAIL

SCALE: 1" = 50'

PLAN

SCALE: 1" = 100'

No.	Revision	Date
1	Add a private easement for an entry monument and appurtenances; also repositioned several perimeter landscape trees as necessary to avoid easement areas.	5.28.03

NOTE: THIS PLAN IS FOR DRAINAGE AREA INFORMATION AND LANDSCAPE OBLIGATIONS ONLY.

LANDSCAPING PLANT LIST

QTY.	KEY	NAME	SIZE
92		PINUS STROBUS (EASTERN WHITE PINE)	6' - 8' HT.
86		CEDRUS DEODORA (DEODAR CEDAR)	6' - 8' HT.
59		ACER PLATANOIDES 'EMERALD QUEEN' EMERALD QUEEN NORWAY MAPLE	2-1/2" - 3" CAL.

*THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE 188 REQUIRED LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $44,400.00.

STATE OF MARYLAND — LEO MICHAEL MCCANN — No. 20741 — REGISTERED PROFESSIONAL ENGINEER — 12-20-01

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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STATE OF MARYLAND — LEO MICHAEL MCCANN — No. 20741 — PROFESSIONAL ENGINEER — AS-BUILT 3/19/04

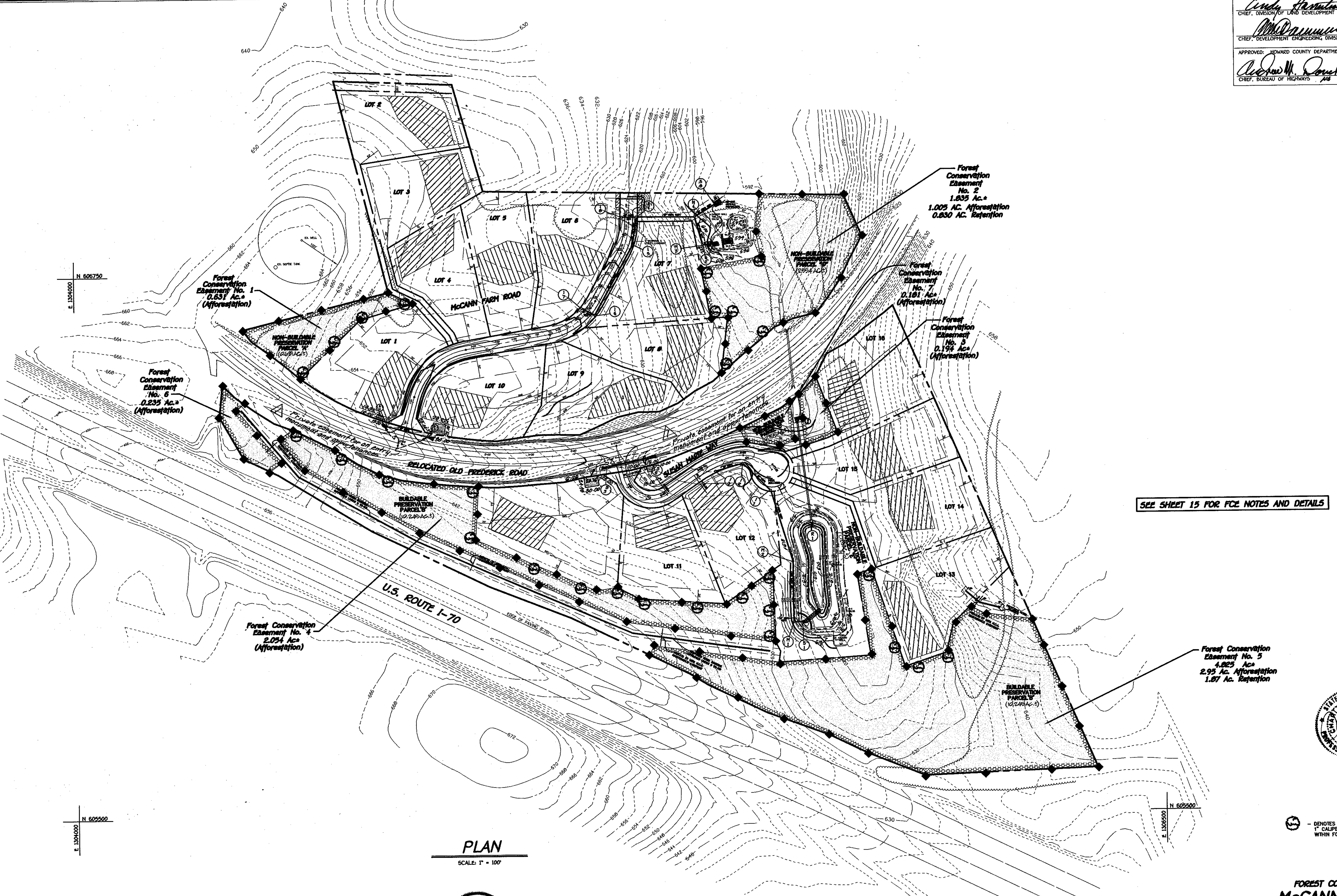
DRAINAGE AREA MAP AND LANDSCAPE PLAN
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 10 OF 15

F 01-105

AS BUILT 3-19-04

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
Cindy Hamilton — CHIEF, DIVISION OF LAND DEVELOPMENT HB	3/28/02 DATE
[signature] — CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	3/25/02 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
[signature] — CHIEF, BUREAU OF HIGHWAYS MS	3-21-02 DATE



SEE SHEET 15 FOR FCE NOTES AND DETAILS

– DENOTES LOCATION OF PROPOSED 1" CALIPER TREES TO BE PLANTED WITHIN FOREST CONSERVATION EASEMENTS

PLAN

SCALE: 1" = 100'

FISHER, COLLINS & CARTER, INC.
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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B
JOHN P. CANOLES

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — NO. 20748 REGISTERED PROFESSIONAL ENGINEER
12-20-01

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

No.	Revision	Date
1	Add a private easement for an entry monument and appurtenances	5-28-03

STATE OF MARYLAND — CHARLES ... — PROFESSIONAL ENGINEER
AS BUILT 3/19/04

FOREST CONSERVATION PLAN

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 14 OF 15

F-01-105

AS BUILT 3-19-04

Planting Schedule

Forest Conservation Easement #1 – 0.63 acres

Qty.	Species	Size	Spacing
4	Acer rubrum – Red maple	1" CAL.	##
30	Acer rubrum – Red maple	2-3' WHIP	**
25	Cornus florida – Flowering dogwood	2-3' WHIP	**
40	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
20	Juniperus virginiana – Red cedar	2-3' WHIP	**
30	Liriodendron tulipifera – Poplar	2-3' WHIP	**
25	Prunus serotina – Black cherry	2-3' WHIP	**
25	Quercus rubra – Red Oak	2-3' WHIP	**
15	Sassafras albidum – Sassafras	2-3' WHIP	**
23	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #2 – 1.00 acres

Qty.	Species	Size	Spacing
6	Pinus strobus – White pine	6'-8'	##
40	Acer rubrum – Red maple	2-3' WHIP	**
35	Cornus florida – Flowering dogwood	2-3' WHIP	**
50	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
30	Juniperus virginiana – Red cedar	2-3' WHIP	**
50	Liriodendron tulipifera – Poplar	2-3' WHIP	**
35	Prunus serotina – Black cherry	2-3' WHIP	**
35	Quercus rubra – Red Oak	2-3' WHIP	**
35	Sassafras albidum – Sassafras	2-3' WHIP	**
30	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #3 – 0.19 acres

Qty.	Species	Size	Spacing
10	Acer rubrum – Red maple	2-3' WHIP	**
10	Cornus florida – Flowering dogwood	2-3' WHIP	**
15	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
15	Liriodendron tulipifera – Poplar	2-3' WHIP	**
15	Quercus rubra – Red Oak	2-3' WHIP	**
5	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #4 – 2.05 acres

Qty.	Species	Size	Spacing
14	Pinus strobus – White pine	6'-8'	##
90	Acer rubrum – Red maple	2-3' WHIP	**
75	Cornus florida – Flowering dogwood	2-3' WHIP	**
110	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
60	Juniperus virginiana – Red cedar	2-3' WHIP	**
110	Liriodendron tulipifera – Poplar	2-3' WHIP	**
60	Prunus serotina – Black cherry	2-3' WHIP	**
75	Quercus rubra – Red Oak	2-3' WHIP	**
60	Sassafras albidum – Sassafras	2-3' WHIP	**
60	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #5 – 2.95 acres

Qty.	Species	Size	Spacing
4	Pinus strobus – White pine	6'-8'	##
130	Acer rubrum – Red maple	2-3' WHIP	**
95	Cornus florida – Flowering dogwood	2-3' WHIP	**
145	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
90	Juniperus virginiana – Red cedar	2-3' WHIP	**
145	Liriodendron tulipifera – Poplar	2-3' WHIP	**
95	Prunus serotina – Black cherry	2-3' WHIP	**
135	Quercus rubra – Red Oak	2-3' WHIP	**
95	Sassafras albidum – Sassafras	2-3' WHIP	**
95	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #6 – 0.23 acres

Qty.	Species	Size	Spacing
14	Acer rubrum – Red maple	2-3' WHIP	**
20	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
10	Juniperus virginiana – Red cedar	2-3' WHIP	**
15	Liriodendron tulipifera – Poplar	2-3' WHIP	**
15	Prunus serotina – Black cherry	2-3' WHIP	**
10	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

Forest Conservation Easement #7 – 0.18 acres

Qty.	Species	Size	Spacing
15	Acer rubrum – Red maple	2-3' WHIP	**
15	Cornus florida – Flowering dogwood	2-3' WHIP	**
15	Fraxinus pennsylvanica – Green ash	2-3' WHIP	**
10	Juniperus virginiana – Red cedar	2-3' WHIP	**
15	Viburnum prunifolium – Blackhaw	18-24" B.T.	**

KEY:
cal. – caliper   whip – may be container grown or bareroot
b.t. branched transplant

– one inch caliper trees shall be planted within FCE in locations shown by

Species may be randomly mixed in planting locations shown

** – whips and shrubs shall be planted, on average, at a spacing of 11 feet on center. Grid pattern or row planting may be used to facilitate maintenance. Limited clumping of shrubs is permitted.

Planting/Soil Specifications

1. Planting of nursery stock shall take place between March 15th and April 30th or September 15th – November 15th .
2. A twelve (12) inch layer of topsoil shall be spread over all forestation areas impacted by site grading to assure a suitable planting area. Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
3. All bareroot planting stock shall have their root systems dipped into an anti-desiccant gel prior to planting.
4. Plants shall be installed so that the top of root mass is level with the top of existing grade. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
5. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications.
6. A two (2) inch layer of hardwood mulch shall be placed over the root area of all plantings.
7. Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist prior to planting.
8. All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

Sequence of Construction

1. Sediment control and tree protection devices shall be installed in accordance with general construction plan for site. Site shall be graded in accordance with general construction plans.
2. Proposed forestation areas impacted by site grading shall be topsoiled and stabilized as per #2 of Planting/Soil Specifications for project.
3. Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
4. Upon completion of the planting, signage shall be installed as per the Forest Protection Devices shown on the Forest Conservation Plan.
5. Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

Maintenance of Plantings

1. Maintenance of plantings shall last for a period of 24 months.
2. All plant material shall be watered twice a month during the 1st growing season. Watering may be more or less frequent depending on weather conditions. During second growing season, once a month during May-September, if needed.
3. Invasive exotics and noxious weeds will be removed from forestation areas. Old field successional species will be retained.
4. Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
5. Dead branches will be pruned from plantings.

Guarantee Requirements

1. A 75 percent survival rate of forestation plantings will be required at the end of the 24 month maintenance period. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season.

Surety for Forestation

1. The developer shall post a surety (bond, letter of credit) to ensure that forestation plantings are completed. Upon acceptance of the plantings by the County, the bond shall be released.

Cost of Forestation Project

1. The estimated cost of installation of the proposed planting plan is $30,000.

Planting Notes:

1. It is recommended that any multiflora rose colonization be removed and controlled prior to forestation. Existing native trees may be retained.

2. The potential for deer and rodent damage on this forestation project is high. The planting contractor may utilize physical and chemical techniques to improve the success of the plantings. These techniques must be approved by the owner prior to initiation of work.

FOREST DATA

	ACRES
GROSS AREA:	34.3
NET TRACT AREA (NTA):	34.3
EXISTING FOREST ON NTA:	6.8
AFFORESTATION THRESHOLD:	6.9
REFORESTATION TRESHOLD:	8.6
AFFORESTATION REQUIRED:	0.1
FOREST TO BE RETAINED (NTA) IN FCE:	2.7
FOREST TO BE CLEARED (NTA):	4.1
REFORESTATION REQUIRED:	8.2
FORESTATION REQUIRED:	8.1
ONSITE FORESTATION AVAILABLE:	7.2
FEE-IN-LIEU PAYMENT:	0.9

The Forest Conservation Easement Has Been Established To Fulfill The Requirements Of Section 16.1200 Of The Howard County Code Forest Conservation Act. The Forest Obligation Is Fulfilled By Providing 7.251 Acres* Of Afforestation On-Site; 2.704 Acres* Of Forest Retention And A Fee-In-Lieu Payment Of $19,602 For The Balance Of 0.9 Acres Reforestation Obligation. No Clearing, Grading Or Construction Is Permitted Within The Forest Conservation Easement; However, Forest Management Practices As Defined In The Deed Of Forest Conservation Easement Are Allowed.

Surety Tabulation
7.251 Acres of On-Site Afforestation = $157,927.00
2.704 Acres of On Site Retention = $23,557.20

Total Surety = $181,484.20

FCP NOTES

1. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.

2. The forest Conservation Easements have been established to fulfill the requirements of Section 16.1200 of the Howard County Code, Forest Conservation Act. No clearing, grading, or construction is permitted within the Forest Conservation Easements; however, forest management practices as defines in the Deed of Forest Conservation Easement are allowed.

3. There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.

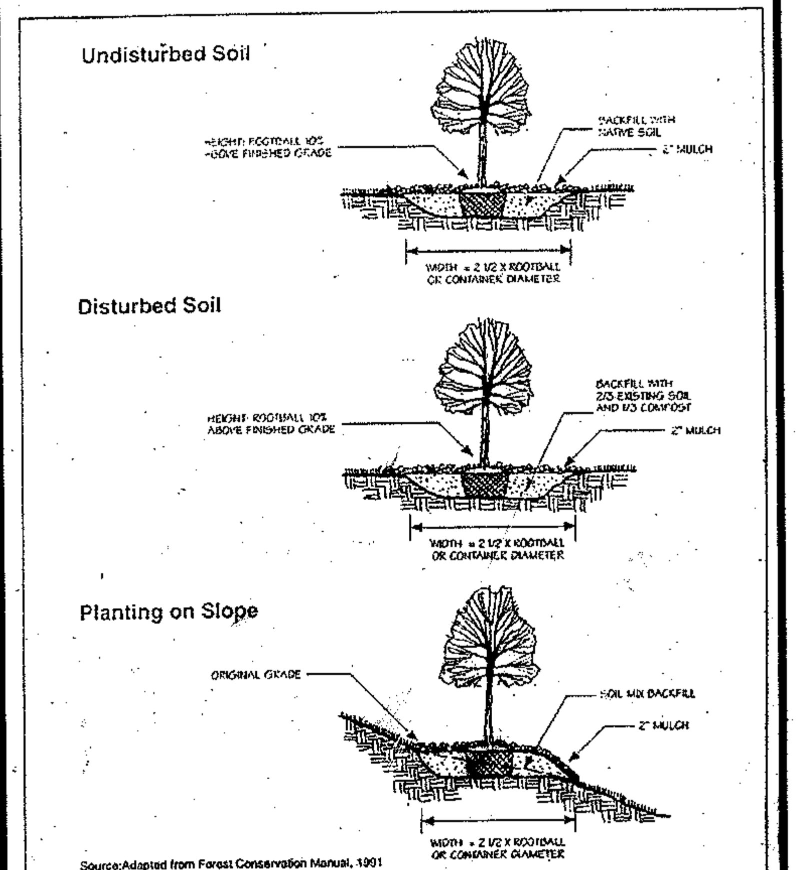
4. No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.

5. Permanent signage shall be placed 50-100' apart along the boundaries of all areas included in Forest Conservation Easements

6. The outstanding FCA obligation of 0.9 acres will be met using by payment into the County Fee-in-lieu fund. The cost of this payment will be $19,602.

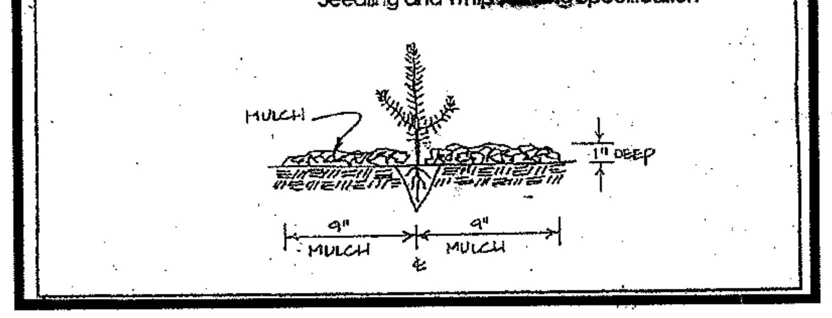
7. The estimate cost of the proposed onsite forestation, including maintenance and monitoring will be $30,000.00.

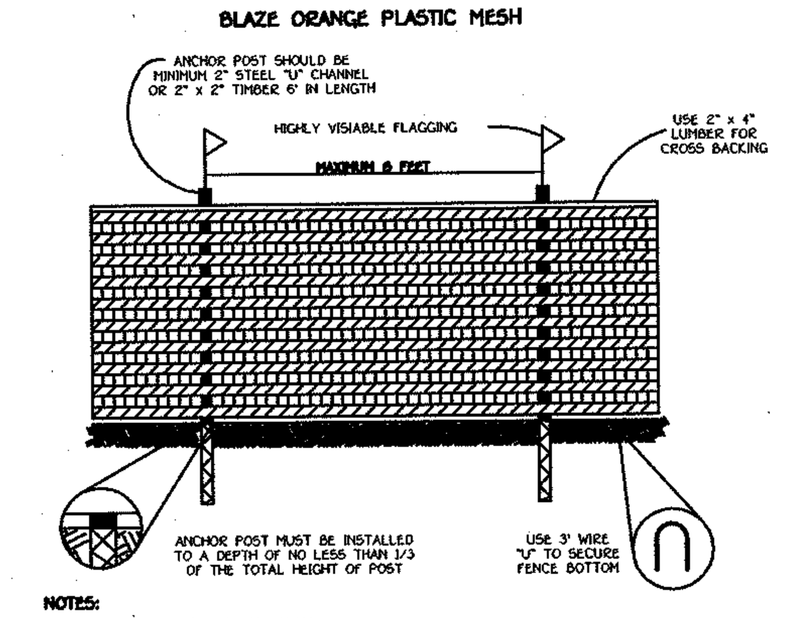
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton HB — 3/28/02
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] MK — 3/25/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] HS — 3-21-02
CHIEF, BUREAU OF HIGHWAYS — DATE



Container Grown and B&B Planting Techniques — Figure C-16

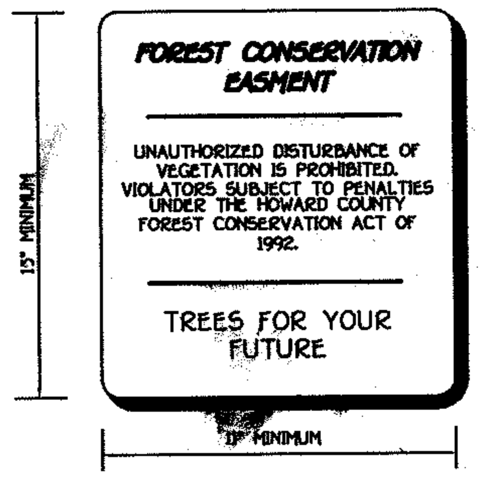
Seedling and Whip Specification





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



■ DENOTES SIGN LOCATION

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

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B
JOHN P. CANOLES

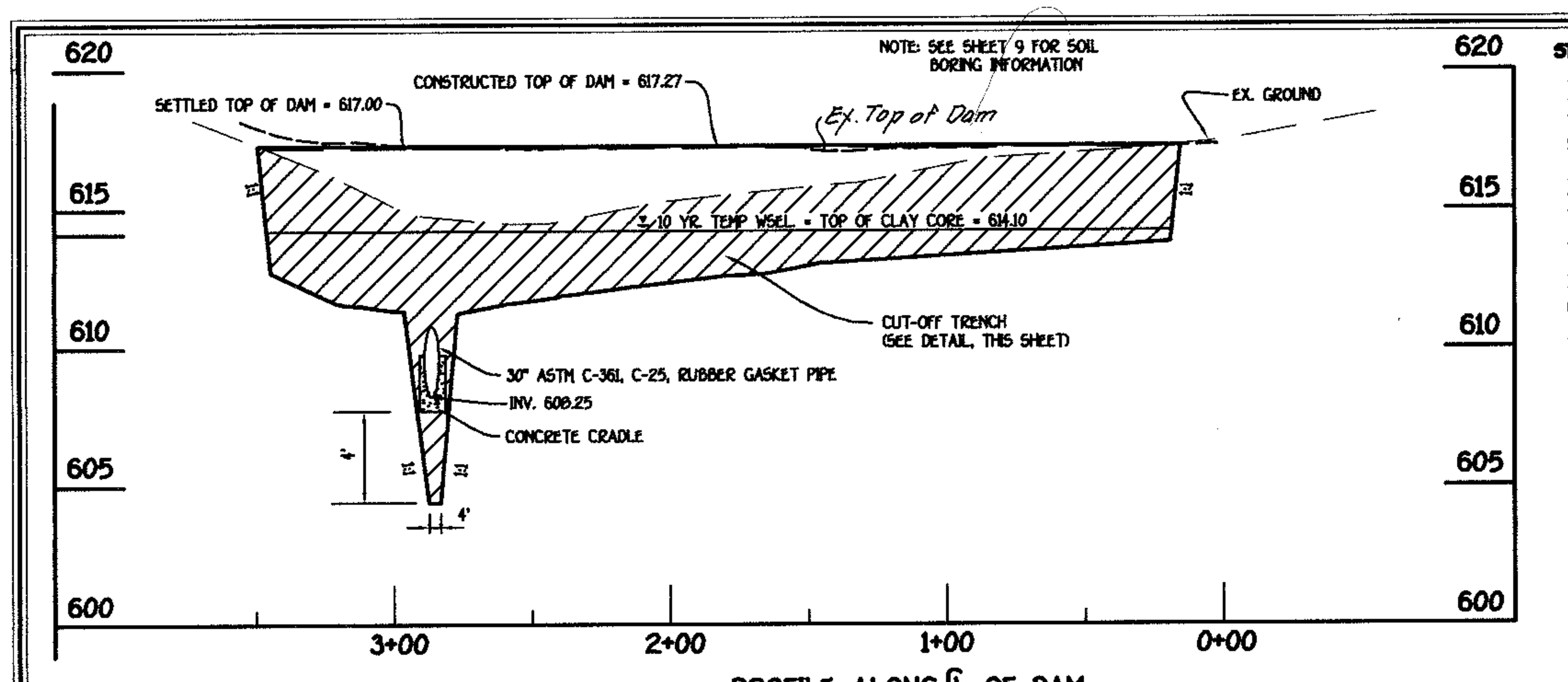
STATE OF MARYLAND — ALDO MICHAEL VITUCCI — No. 20748 — REGISTERED PROFESSIONAL ENGINEER
12-20-01

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

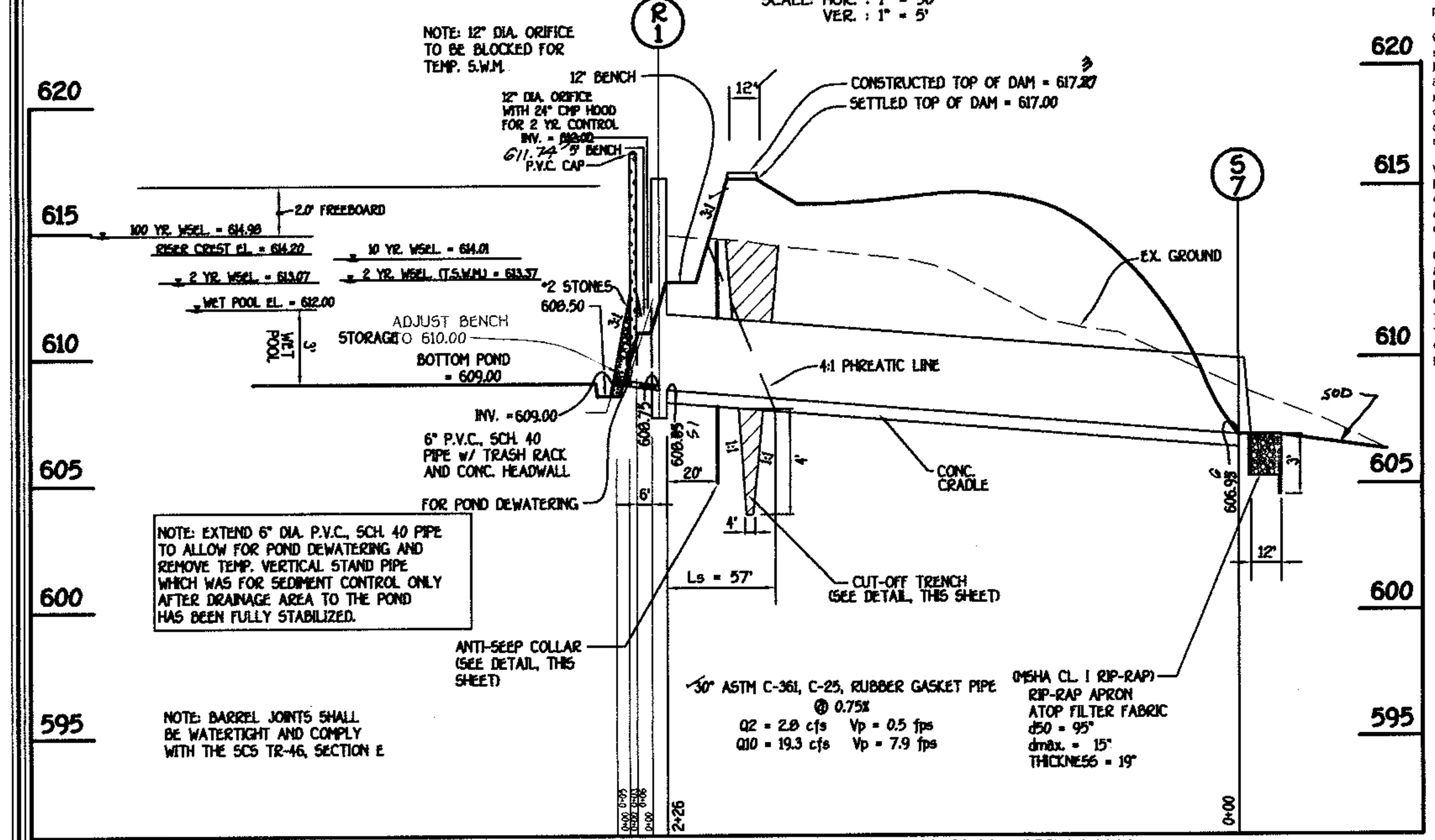
FOREST CONSERVATION NOTES AND DETAILS
McCANN PROPERTY
LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'
ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 15 OF 15
F 01-105

AS BUILT 3-19-04



PROFILE ALONG ℄ OF DAM

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



PROFILE ALONG PRINCIPAL SPILLWAY

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

STORM WATER MANAGEMENT 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. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the 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 and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ±2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to the specified for the core of the embankment or other embankment materials.

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 - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Stel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling banks or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

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

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12-inches on the end of each pipe. Flanged joints with 3/8-inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock 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 C-361.

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Stucture Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (Anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe

The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirement of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

SHALLOW MARSH MAINTENANCE SCHEDULE

HOMEOWNER'S ASSOCIATION MAINTENANCE RESPONSIBILITIES FOR SHALLOW MARSH

1. INSPECTION FOREBAY AFTER EACH STORM - IF SEDIMENT BUILDUP EXCEEDS FOUR (4) INCHES, NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF HIGHWAYS TO FACILITATE CLEANOUT OPERATIONS.
2. REMOVAL OF ACCUMULATED PAPER, TRASH AND DEBRIS AFTER EVERY STORM, AS NECESSARY.
3. ANNUAL INSPECTION AND REPAIR OF THE GABION STRUCTURES, AS NEEDED.
4. VEGETATION GROWING ON THE EMBANKMENT TOP OR FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANYTIME.
5. CORRECTIVE MAINTENANCE IS REQUIRED ANYTIME THE FOREBAY DOES NOT DRAIN DOWN TO THE DESIGNED SURFACE ELEVATION WITHIN 60 HOURS.

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer — Date 12/20/01

EARL D. COLLINS
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature Of Engineer — Date 12-20-01

ALDO M. VITUSZ
Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service — Date 1/9/02

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — Date 1/9/02

Approved: Department Of Public Works
Chief Bureau Of Highways — Date 3-21-02

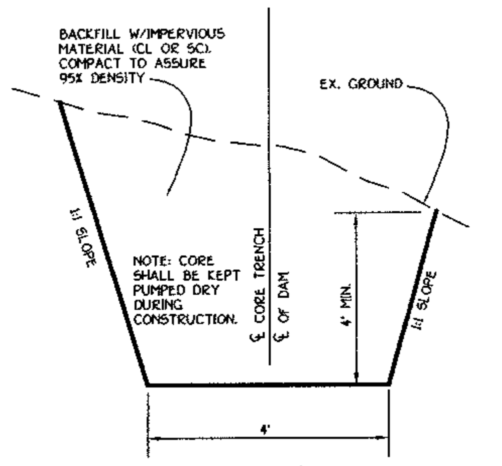
Approved: Department Of Planning And Zoning
Chief, Division Of Land Development — Date 3/28/02
Chief, Development Engineering Division — Date 3/25/02

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

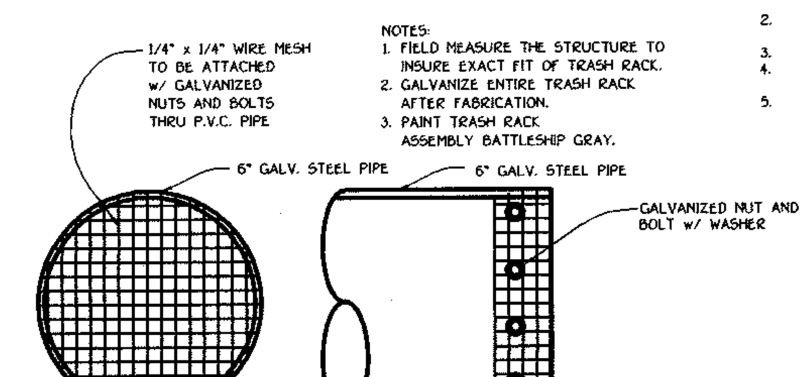
Signature — P.E. No. 13204 — Date: 3/19/04

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



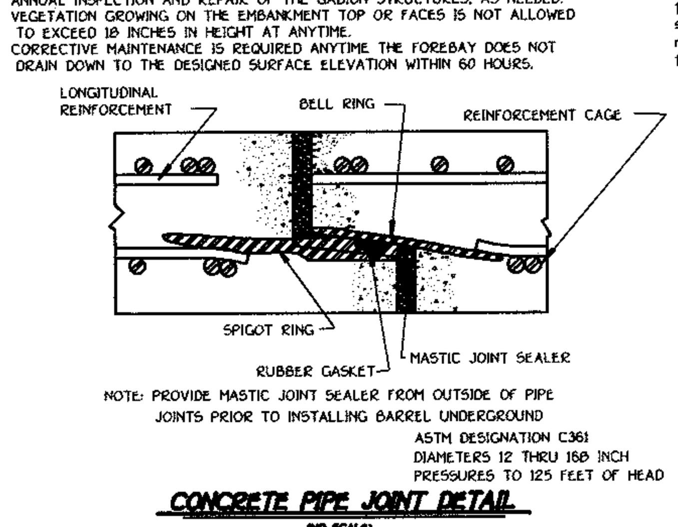
CORE TRENCH DETAIL

NOT TO SCALE



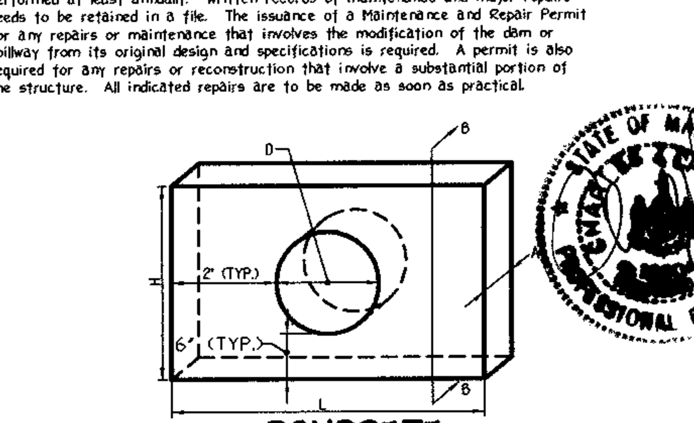
TRASH RACK 'B' DETAIL

NOT TO SCALE



CONCRETE PIPE JOINT DETAIL

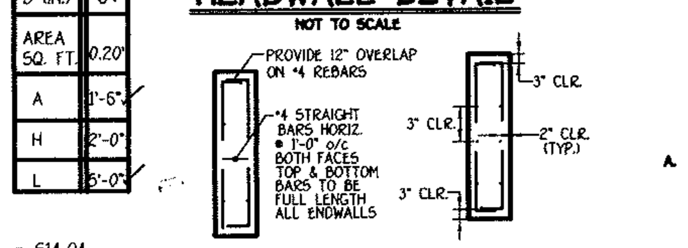
(NO SCALE)



CONCRETE HEADWALL DETAIL

NOT TO SCALE

D (IN.)	6"
AREA SQ. FT.	0.20'
A	1'-6"
H	2'-0"
L	5'-0"



SECTION 'B-B' — DISPOSITION OF BARS - DETAIL

NOTES:
1. REINFORCING: DEFORMED STEEL BARS (1/2" DIA.).
2. CONC. SHALL BE S.H.A. MIX NO.2.

REVISIONS

NO.	DESCRIPTION	DATE
1	REMOVE HALF ROUND CMP PIPE HOOD AND EXTEND TRASH RACK TO COVER 12" LOW FLOW PIPE. MADE RISER DETAILS 1" = 2' SCALE.	12/15/04

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 slumping.

STORMWATER MANAGEMENT POND MAINTENANCE SCHEDULE

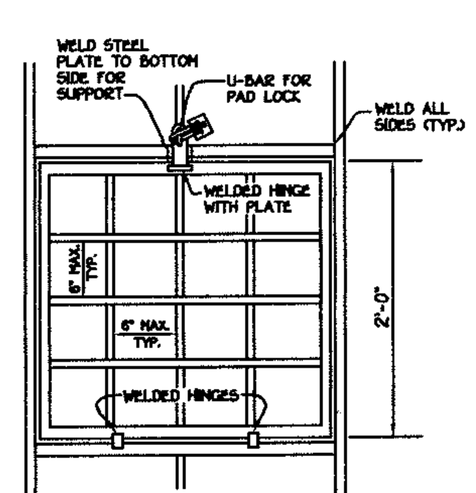
A. ROUTINE MAINTENANCE
1. Facility shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if the pond is functioning properly.
2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes, the bottom of the pond, and maintenance access should be mowed as needed.
3. Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.
4. Visible signs of erosion in the pond as well as rip-rap outlet area shall be repaired as soon as it is noticed.

B. NON-ROUTINE MAINTENANCE
1. Structural components of the pond such as the dam, riser structure and the pipes shall be repaired upon the detectionof any damage. The components should be inspected during maintenance operations.
2. Sediment should be removed when its accumulation significantly reduces the design storage, interferes with the function of the riser, when deemed necessary for aesthetic reasons, or when deemed necessary by the Howard County's Department of Public Works.

GEOTECHNICAL RECOMMENDATIONS FOR EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

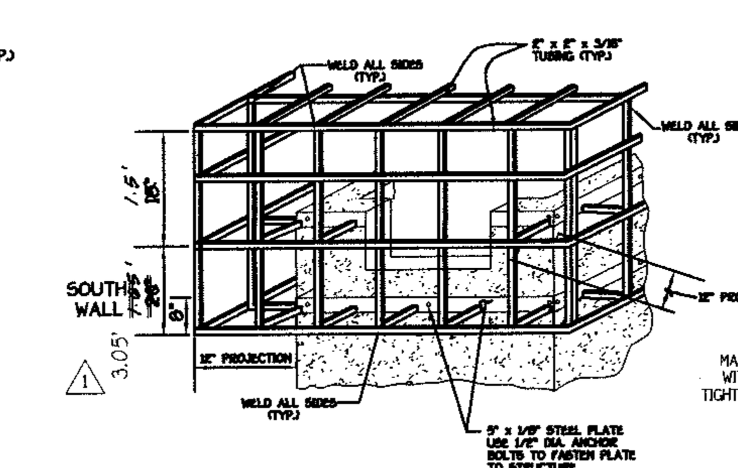
THE SITE SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH OR CL. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 378 SPECIFICATIONS.



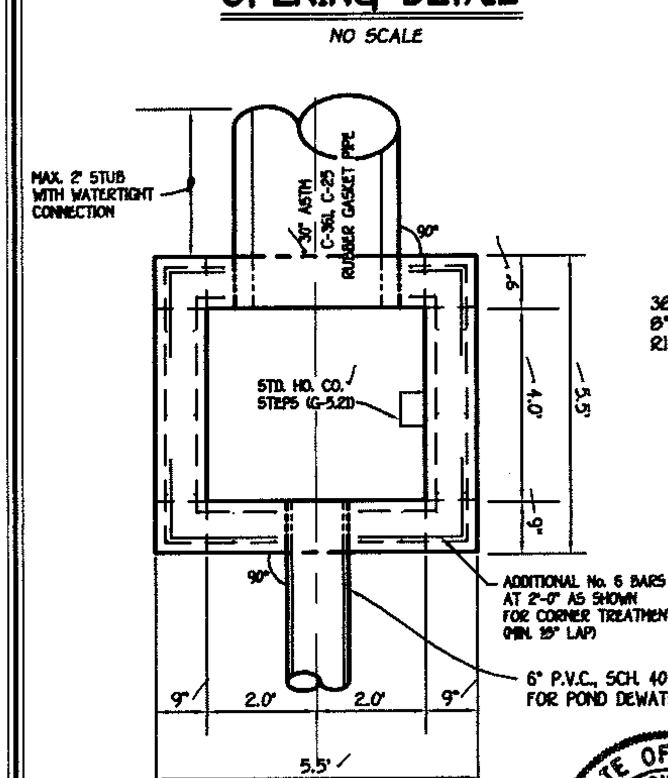
OPENING DETAIL

NO SCALE



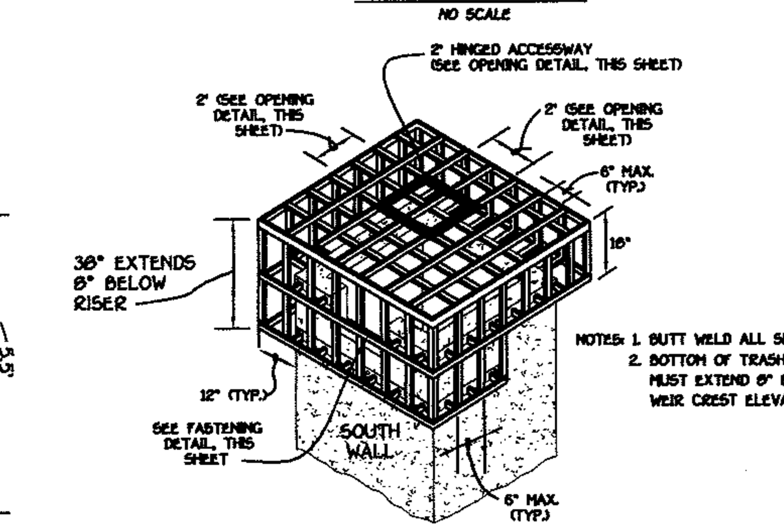
FASTENING DETAIL

NO SCALE



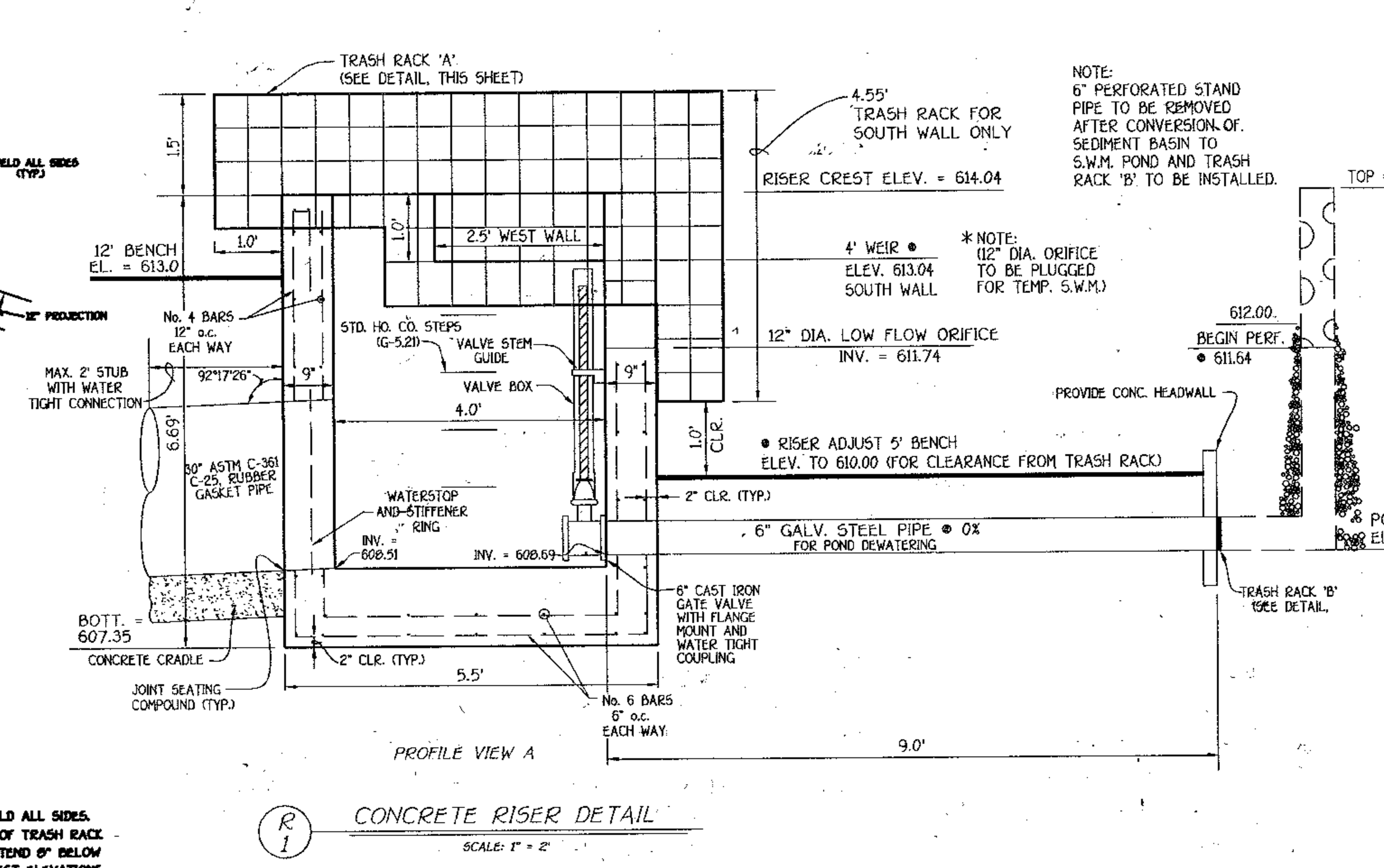
PLAN VIEW

NO SCALE



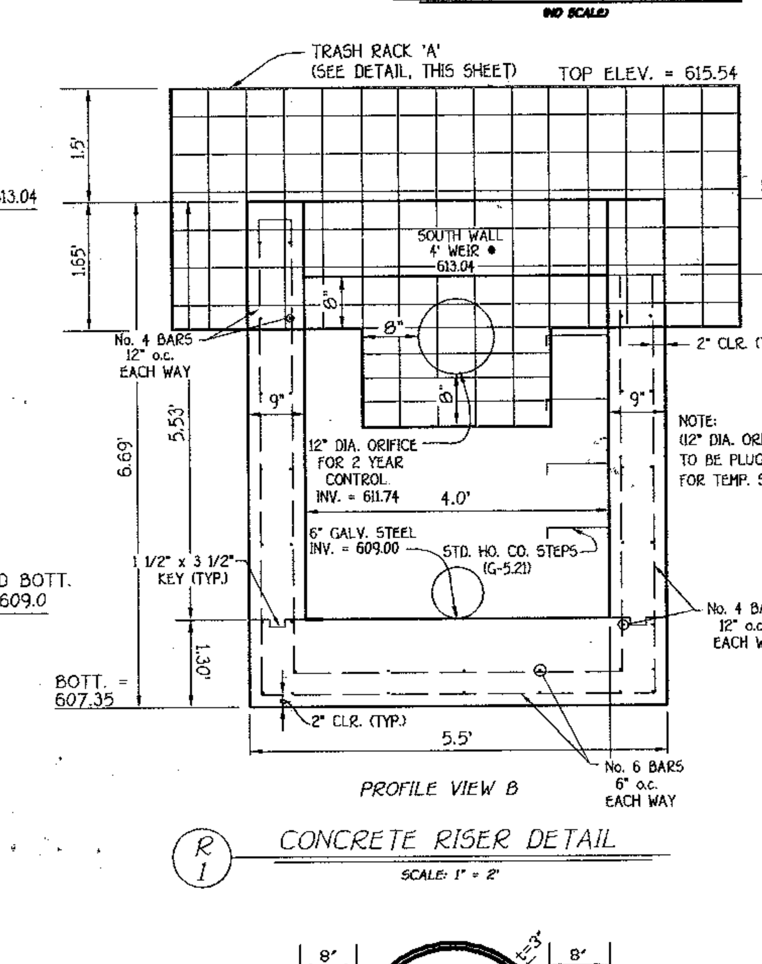
TRASH RACK 'A' DETAIL

NO SCALE



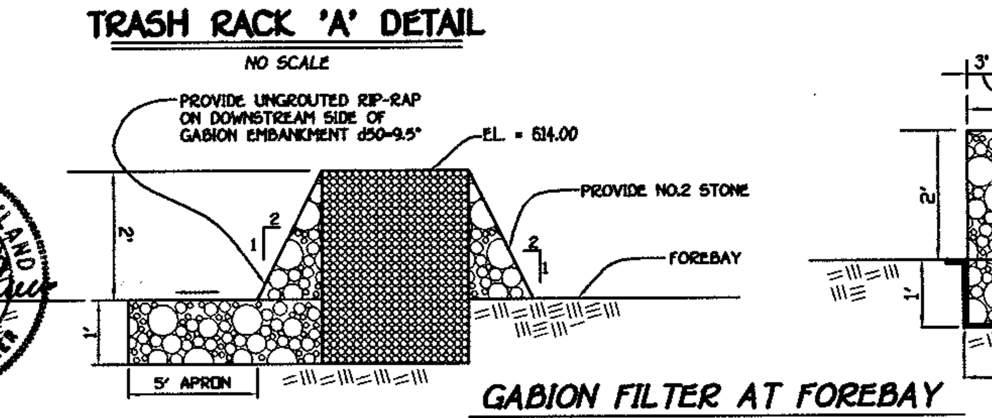
R/1 CONCRETE RISER DETAIL

SCALE: 1" = 2'



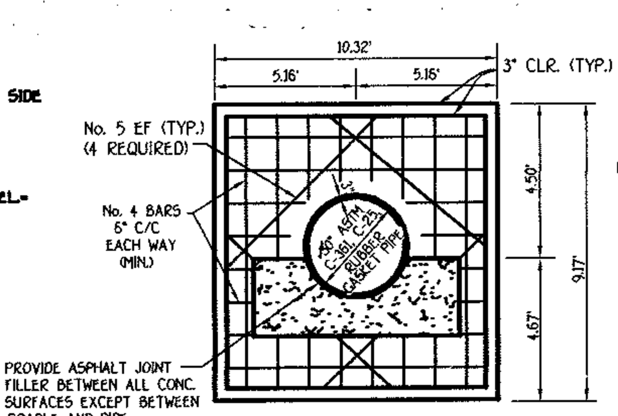
R/1 CONCRETE RISER DETAIL

SCALE: 1" = 2'



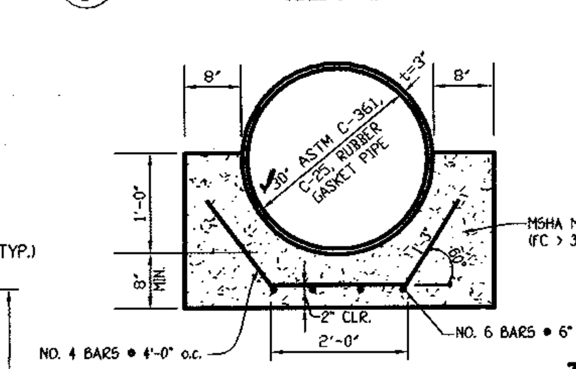
GABION FILTER AT FOREBAY

(NO SCALE)



ANTI-SEEP COLLAR

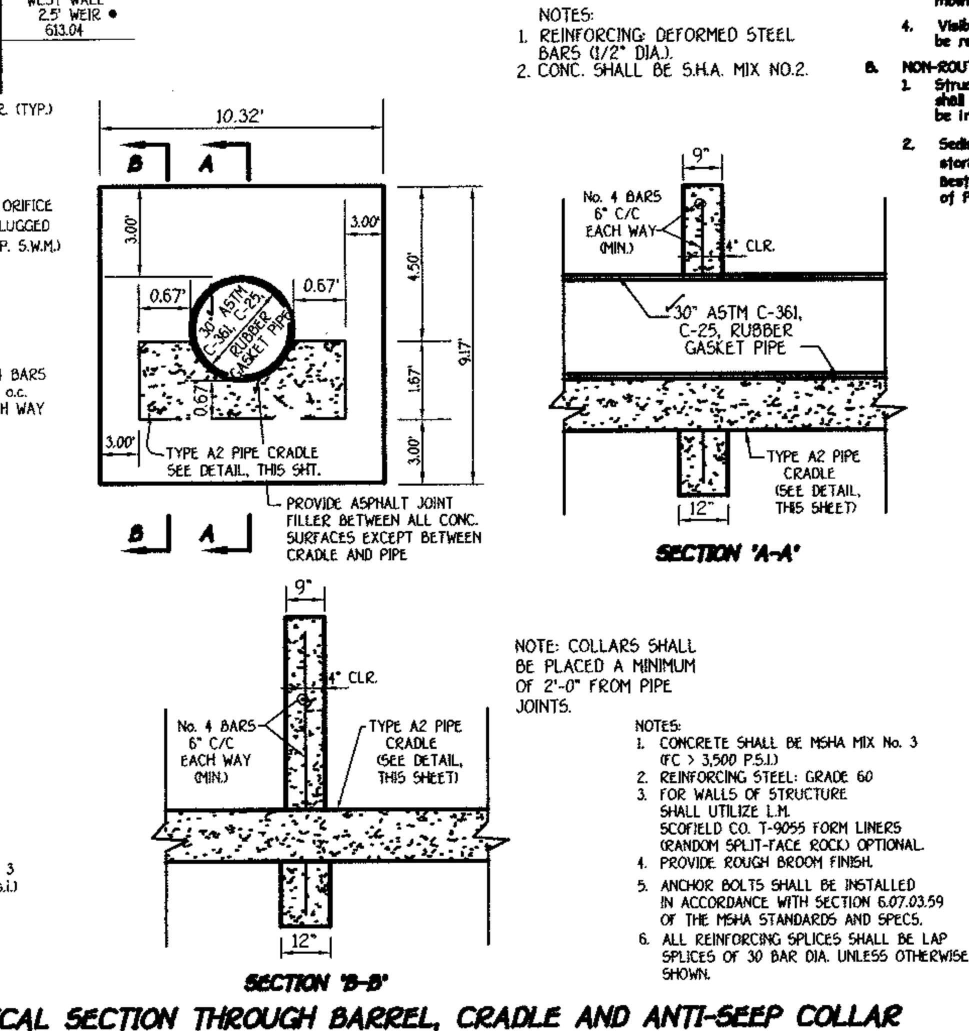
NOT TO SCALE



A2 CRADLE

NOT TO SCALE

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



NOTES:
1. CONCRETE SHALL BE MSHA MIX No. 3 (FC > 3,500 P.S.I.)
2. REINFORCING STEEL: GRADE 60
3. FOR WALLS OF STRUCTURE SHALL UTILIZE L.M. SCOFIELD CO. T-9055 FORM LINERS (RANDOM SPLIT-FACE ROCK) OPTIONAL.
4. PROVIDE ROUGH BROOM FINISH.
5. ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6.07.03.59 OF THE MSHA STANDARDS AND SPECS.
6. ALL REINFORCING SPLICES SHALL BE LAP SPLICES OF 30 BAR DIA. UNLESS OTHERWISE SHOWN.

TYPICAL SECTION THROUGH BARREL, CRADLE AND ANTI-SEEP COLLAR

(NO SCALE)

STORMWATER MANAGEMENT DISCHARGE SUMMARY AT STUDY POINT

DESIGN STORM	EXISTING CONDITIONS Q (c.f.s.)	PROPOSED CONDITIONS Q (c.f.s.)
* 2 YEAR	5.6	2.8 @ 613.07
* 10 YEAR	24.0	19.3 @ 614.01
100 YEAR	50.5	48.6 @ 614.98

* - 2 AND 10 YEAR MANAGEMENT IS REQUIRED

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

12-20-01

F.C.C.#306105WMDETAILS REVISED.DWG

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
McCANN PROPERTY PARTNERSHIP
P.O. BOX 1371
ELLICOTT CITY, MARYLAND 21041

STORMWATER MANAGEMENT NOTES AND DETAILS

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO
TAX MAP No. 8 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 11 OF 15

F 01-105

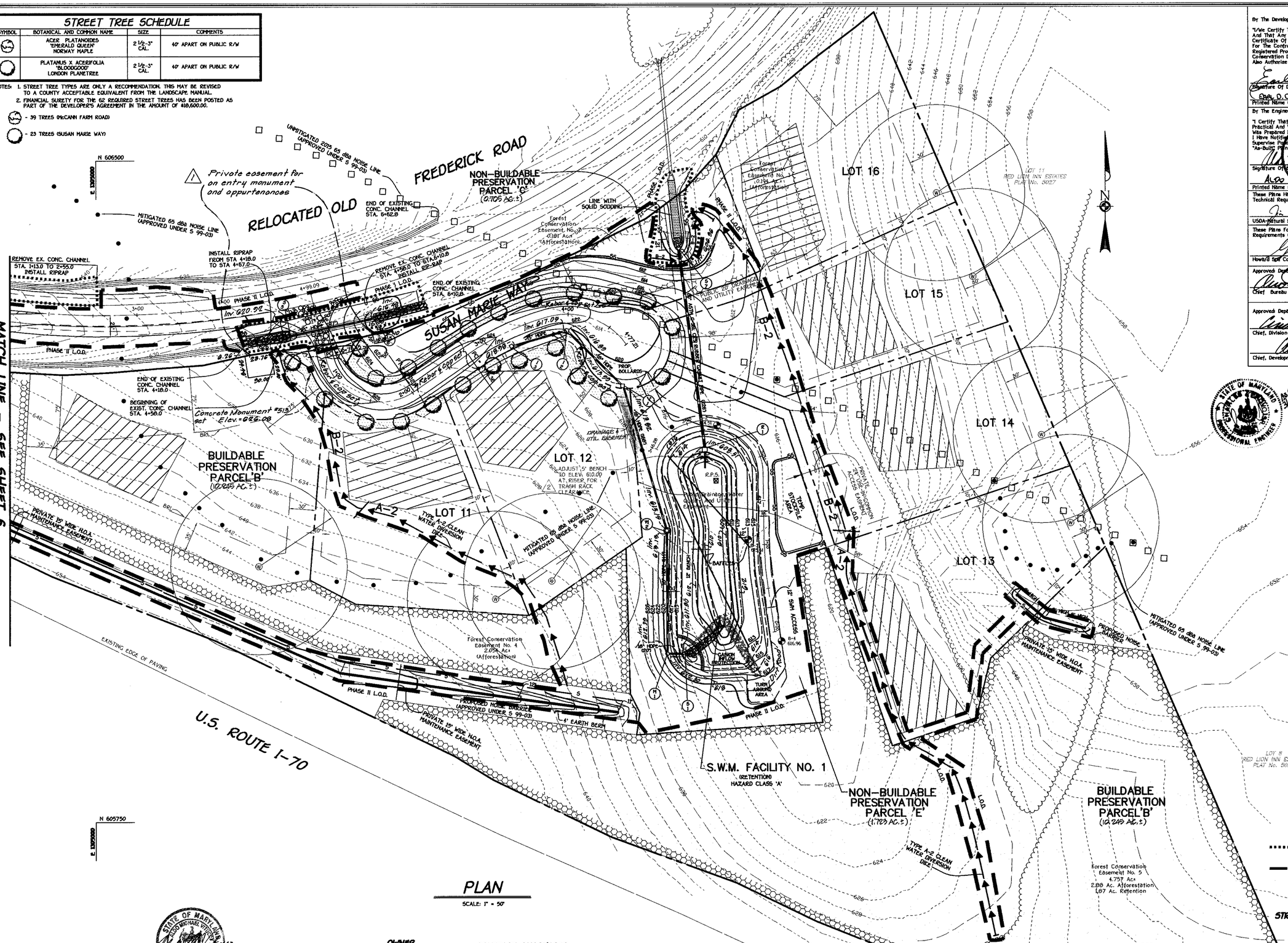
AS BUILT 3-19-04

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	ACER PLATANOIDES "EMERALD QUEEN" NORWAY MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	PLATANUS X ACERIFOLIA "BLOODGOOD" LONDON PLANETREE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTES: 1. STREET TREE TYPES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT FROM THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE 62 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $18,600.00.

- 39 TREES (McCANN FARM ROAD)
- 23 TREES (SUSAN MARIE WAY)



PLAN

SCALE: 1" = 50'

OWNER
MRS. ELIZABETH MCCANN
c/o MICHAEL J. McCANN
5000 WILLOW BRANCH WAY
UNIT 303
OWINGS MILLS, MARYLAND 21117

CONTRACT PURCHASER AND DEVELOPER
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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND — LOU MICHAEL VITALI — No. 20740 — REGISTERED PROFESSIONAL ENGINEER
12-20-01

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer — Date 12/20/01
EDAL D. COLLINS
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Within 30 Days Of Completion."

Signature Of Engineer — Date 12-20-01
LOU MICHAEL VITALI — No. 20740 — REGISTERED PROFESSIONAL ENGINEER
ALSO
Printed Name Of Engineer

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service — Date 1/9/02

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — Date 1/9/02

Approved Department Of Public Works
Chief Bureau Of Highways — Date 3-21-02

Approved Department Of Planning And Zoning
Chief, Division Of Land Development — Date 3/20/02
Chief, Development Engineering Division MK — Date 3/25/02

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature — P.E. No. 13264 — Date 3/19/04

STATE OF MARYLAND — LOU MICHAEL VITALI — No. 13264 — PROFESSIONAL ENGINEER — AS-BUILT 3/19/04

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

TEMPORARY SEDIMENT BASIN SCHEDULE

INITIAL D.A. = 8.89 AC.±
FINAL D.A. = 9.43 AC.±
STORAGE REQUIRED:
WET = 1800 x 9.43 = 16,974 CU.FT.
DRY = 1800 x 9.43 = 16,974 CU.FT.
STORAGE PROVIDED:
WET = 16,974 CU.FT. AT ELEV. = 611.64
DRY = 20,409 CU.FT. AT ELEV. = 613.20
BOTTOM ELEV. = 609.00
STORAGE DEPTH = 4.20'
SIDE SLOPES = 3:1
TOP OF EMBANKMENT = 617.00
CLEAN-OUT ELEV. = 610.63
TEMP. 2 YR. WEIR CREST = 613.20
TEMP. 10 YR. WEIR CREST = 614.20
Q2 EXISTING = 6.8 CFS
Q2 PROPOSED = 2.1 c.f.s AT ELEV. 613.37

No.	Revision	Date
1	Add a private easement for on entry monument and appurtenances	5-28-03
2	REMOVE HALF ROUND CMP PIPE HOOD AND EXTEND TRASH RACK TO COVER 12" LOW FLOW PIPE. ADJUST BENCH ELEV. AT RISER.	12/15/04

LEGEND

- DENOTES PHASE I LIMIT OF DISTURBANCE
- DENOTES PHASE II LIMIT OF DISTURBANCE

STREET TREE, GRADING & SEDIMENT CONTROL PLAN

McCANN PROPERTY

LOTS 1 THRU 16 AND PRESERVATION PARCELS 'A' THRU 'E'

ZONING: RC-DEO
TAX MAP No. 9 PARCEL No. 78 GRID No. 16
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: DECEMBER 20, 2001
SHEET 7 OF 15

F 01-105

AS BUILT 3-19-04