SHEET INDEX	
SHEET No.	DESCRIPTION
1	TITLE SHEET
2	MARYLAND ROUTE 97 PLAN AND PROFILE
3	ROLLING HILLS DRIVE PLAN AND PROFILE
4	COUNTRY CLUB DRIVE PLAN AND PROFILE
5	CLEAR DRIVE COURT PLAN AND PROFILE
6	WINDING PATH COURT PLAN AND PROFILE
7 - 9	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
10	S.W.M. GRADING AND SEDIMENT CONTROL PLAN
11	TRAFFIC CONTROL AND STRIPING PLAN
12 - 13	CROSS-SECTIONS (MD ROUTE 97)
14 - 16	STORM DRAIN PROFILES
17	DRAINAGE AREA MAP
18	LANDSCAPE PLAN
19	DETAIL SHEET
20 - 21	SEDIMENT CONTROL NOTES AND DETAILS
22 - 23	S.W.M. NOTES AND DETAILS
24	FOREST CONSERVATION PLAN
25	FOREST CONSERVATION NOTES AND DETAILS
26	S.W.M. ACCESS ROAD PROFILE
27	S.W.M. SOIL BORINGS

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	12-1-99 DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	12/17/99 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	12/3/99 DATE

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

CATTAIL RIDGE

LOTS 4 THRU 37
AND
PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626, AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONING "RC-DEO"

TAX MAP No. 21, PARCEL NO. 228, GRID NO. 3

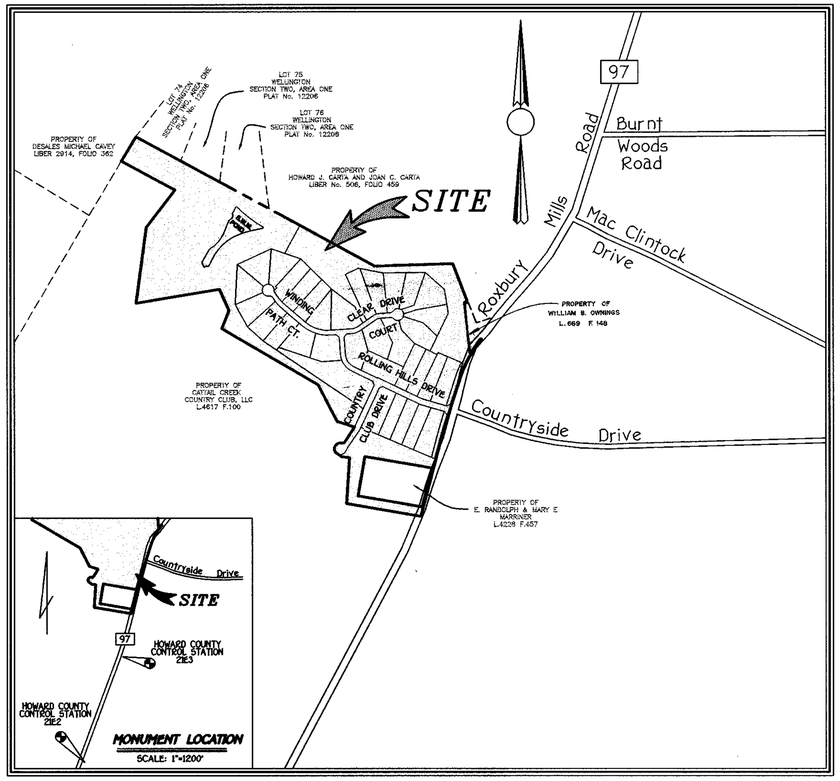
FOURTH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

MINIMUM LOT SIZE CHART				
LOT No.	GROSS AREA	PIPESTEM AREA	REMAINING AREA	MINIMUM LOT SIZE
13	55,521 SQ.FT.±	4,211 SQ.FT.±	51,310 SQ.FT.±	51,310 SQ.FT.±

ROAD CLASSIFICATION		
ROAD NAME	CLASSIFICATION	R/W
ROLLING HILLS DRIVE	MINOR COLLECTOR / ACCESS STREET	50' / 40'
COUNTRY CLUB DRIVE	ACCESS STREET	40'
CLEAR DRIVE COURT	ACCESS PLACE	40'
WINDING PATH COURT	ACCESS PLACE	40'

TRAFFIC CONTROL SIGNS				
STREET NAME	C.L. STATION	OFFSET	POSTED SIGN	SIGN CODE
ROLLING HILLS DRIVE	7+95	13'R	ROAD NARROWS	W5-1
ROLLING HILLS DRIVE	8+65	13'L	ROAD NARROWS	W5-1
COUNTRY CLUB DRIVE	5+15	14'R	ROAD NARROWS	W5-1
COUNTRY CLUB DRIVE	5+85	14'L	ROAD NARROWS	W5-1
CLEAR DRIVE COURT	2+45	11'R	ROAD NARROWS	W5-1
CLEAR DRIVE COURT	3+15	11'L	ROAD NARROWS	W5-1
WINDING PATH COURT	0+75	11'R	ROAD NARROWS	W5-1
WINDING PATH COURT	1+45	11'L	ROAD NARROWS	W5-1
WINDING PATH COURT	3+85	11'R	ROAD NARROWS	W5-1
WINDING PATH COURT	4+55	11'L	ROAD NARROWS	W5-1
ROLLING HILLS DRIVE	0+72	32'L	STOP	R1-1
ROLLING HILLS DRIVE	12+26	20'R	STOP	R1-1
COUNTRY CLUB DRIVE	0+32	24'L	STOP	R1-1
ROLLING HILLS DRIVE	2+00	14'R	SPEED LIMIT 25	R2-1
ROLLING HILLS DRIVE	7+00	13'R	SPEED LIMIT 25	R2-1
COUNTRY CLUB DRIVE	2+00	13'R	SPEED LIMIT 25	R2-1
CLEAR DRIVE COURT	2+00	11'R	SPEED LIMIT 25	R2-1
WINDING PATH COURT	2+00	11'R	SPEED LIMIT 25	R2-1
ROLLING HILLS DRIVE	0+45	@ ℄	KEEP RIGHT	R4-7
ROLLING HILLS DRIVE	2+00	14'L	STOP AHEAD	W3-1Q



VICINITY MAP
SCALE: 1"=600'

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 AERIAL TOPOGRAPHIC SURVEY PREPARED BY AERIAL MAPPING CO., INC. , FLOWN IN 1998.
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. 21E2 AND 21E3 WERE USED FOR THIS PROJECT.

21E2	N 583,065.3000 E 1,300,868.4336	21E3	N 584,559.4765 E 1,302,074.5340

7. WATER IS PRIVATE.
8. SEWER IS PRIVATE.
9. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC. (APPROVED UNDER S98-09).
10. BACKGROUND INFORMATION:
    A. SUBDIVISION NAME: CATTAIL RIDGE
    B. TAX MAP NO.: 21
    C. PARCEL NO.: 228
    D. ZONING: RC-DEO
    E. ELECTION DISTRICT: FOURTH
    F. TOTAL TRACT AREA: 88.359 AC. ±
    G. NO. OF BUILDABLE LOTS: 32
    H. NO. OF PRESERVATION PARCELS: 3
    I. NO. OF OPEN SPACE LOTS: 2
    J. PRELIMINARY PLAN APPROVAL DATE: FEBRUARY 8, 1999
    K. PREVIOUS FILE Nos. : S98-09 AND P99-02
    L. TOTAL AREA OF OPEN SPACE REQUIRED: (88.359 AC. x 5%) = 4.419 AC.±
    M. TOTAL AREA OF OPEN SPACE PROVIDED: 4.419 AC.±
11. 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.
12. NO CEMETERIES EXIST ON THE PROPERTY.
13. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF ASTM T-180.
14. THE WETLAND AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. AND APPROVED UNDER S98-09.
15. NOISE STUDY WAS PREPARED BY WILDMAN ENVIRONMENTAL SERVICES AND APPROVED UNDER P99-02.
16. 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.
17. STORMWATER MANAGEMENT FACILITY:
    TYPE - WET POOL DETENTION FACILITY
    OWNER - HOMEOWNER'S ASSOCIATION (PRIVATE)
    MAINTENANCE - HOMEOWNER'S ASSOCIATION (PRIVATE)
18. **PROPERTY SUBJECT TO MDE DAM SAFTY FILE NO. 99-PO-2096.**
19. FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT ARE BEING PROVIDED BY 11.057 ACRES OF REFORESTATION AS SHOWN ON SHEETS 24 AND 25. IN ADDITION TO THIS REFORESTATION REQUIREMENT THERE IS 20.603 ACRES OF FOREST RETENTION AREAS WHICH INCLUDE FLOODPLAIN AREAS AND THE EXISTING 1.344 ACRES OF RETENTION AREA PLATED UNDER F-99-21.

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LURDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

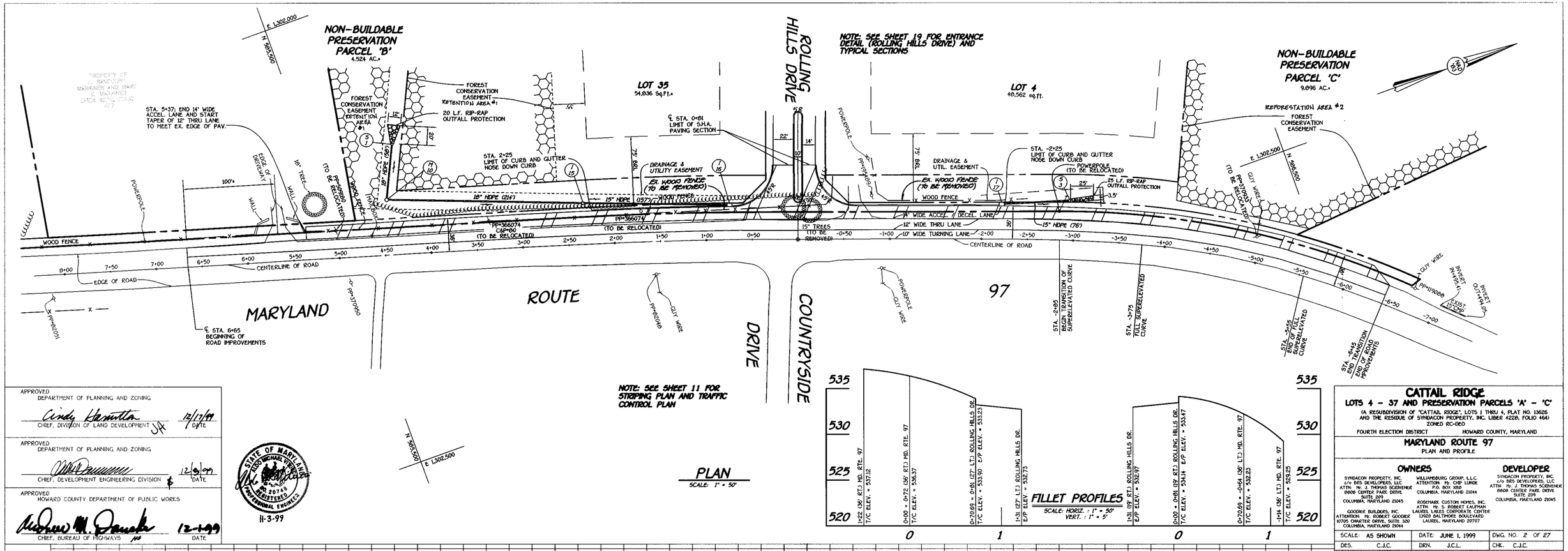
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.: 30997TITLESHEET

STATE OF MARYLAND LICENSED PROFESSIONAL ENGINEER No. 20748 REGISTERED
6-14-99

CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626, AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 1 OF 27

F 99-145



APPROVED
DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton — CHIEF, DIVISION OF LAND DEVELOPMENT — 12/7/99 DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/6/99 DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 12-1-99 DATE

STATE OF MARYLAND — LUDO MICHAEL VIERSEN — No. 20779 — REGISTERED PROFESSIONAL ENGINEER
11-3-99

CATTAIL RIDGE

LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 4, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC. LIBER 4228, FOLIO 464)
ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

MARYLAND ROUTE 97

PLAN AND PROFILE

OWNERS

SYNDACON PROPERTY, INC.
c/o B&S DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8908 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1010
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTN: Mr. S. ROBERT LAUFMAN
LAUREL LAKES CORPORATE CENTER
17920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

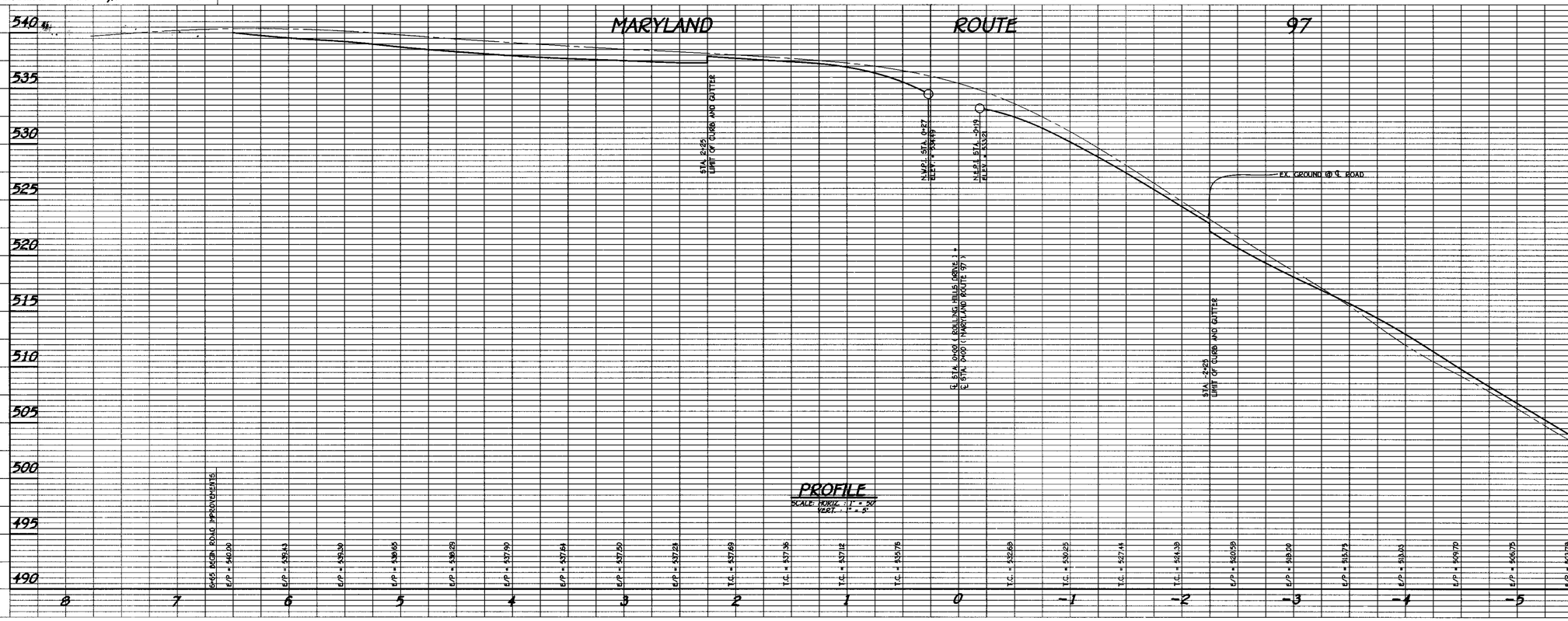
DEVELOPER

SYNDACON PROPERTY, INC.
c/o B&S DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8908 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 2 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

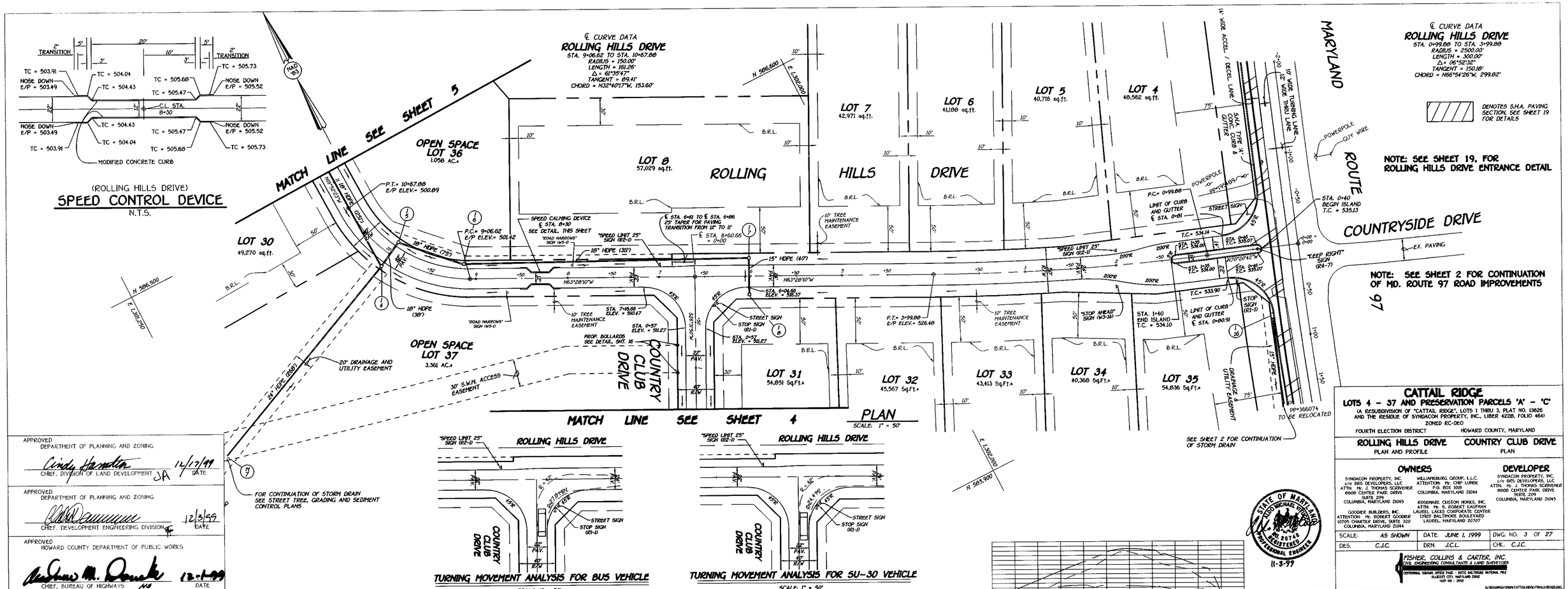
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

G:\DRAWINGS\2000\CATTAILRIDGE\TRAILS\ROADWAY.DWG



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

F 99-145



APPROVED
DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton JA — 12/17/99
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING

12/3/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Druck — 12-1-99
CHIEF, BUREAU OF HIGHWAYS — DATE

TURNING MOVEMENT ANALYSIS FOR BUS VEHICLE
SCALE: 1" = 50'

TURNING MOVEMENT ANALYSIS FOR SU-30 VEHICLE
SCALE: 1" = 50'

CATTAIL RIDGE

LOTS 4 – 37 AND PRESERVATION PARCELS 'A' – 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROLLING HILLS DRIVE — PLAN AND PROFILE
COUNTRY CLUB DRIVE — PLAN

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARIE CUSTOM HOMES, INC.
ATTN: Mr. S. ROBERT LAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

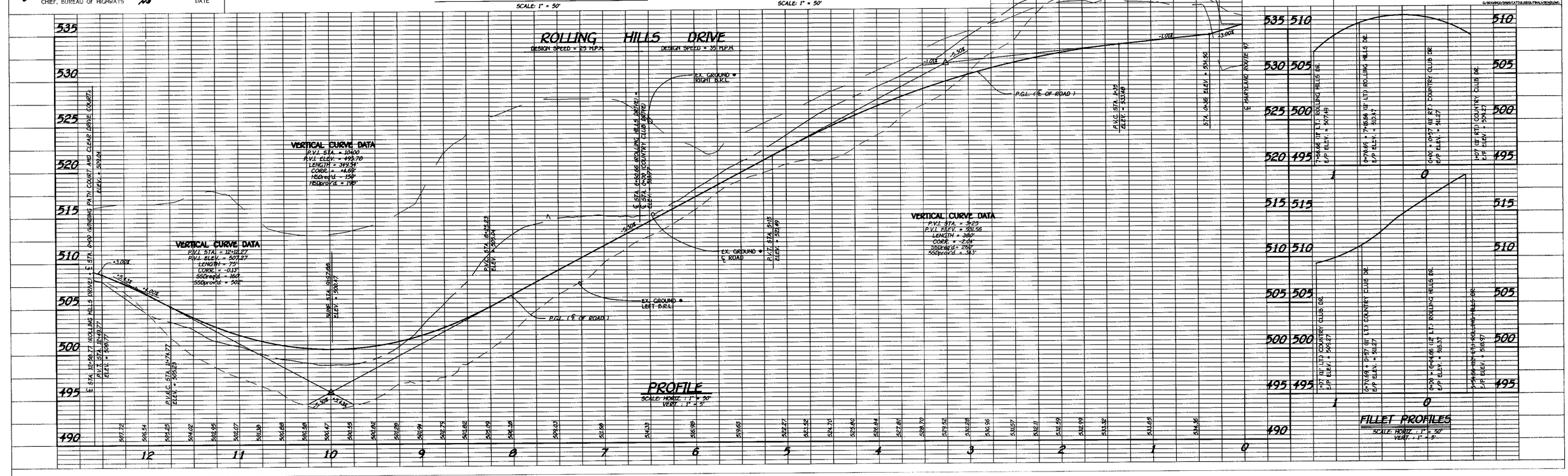
DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 3 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

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

G:\DEVAVG\2000\CATTAIL\DEC\TRAIL\ROADLONG



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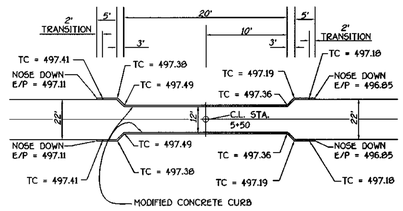
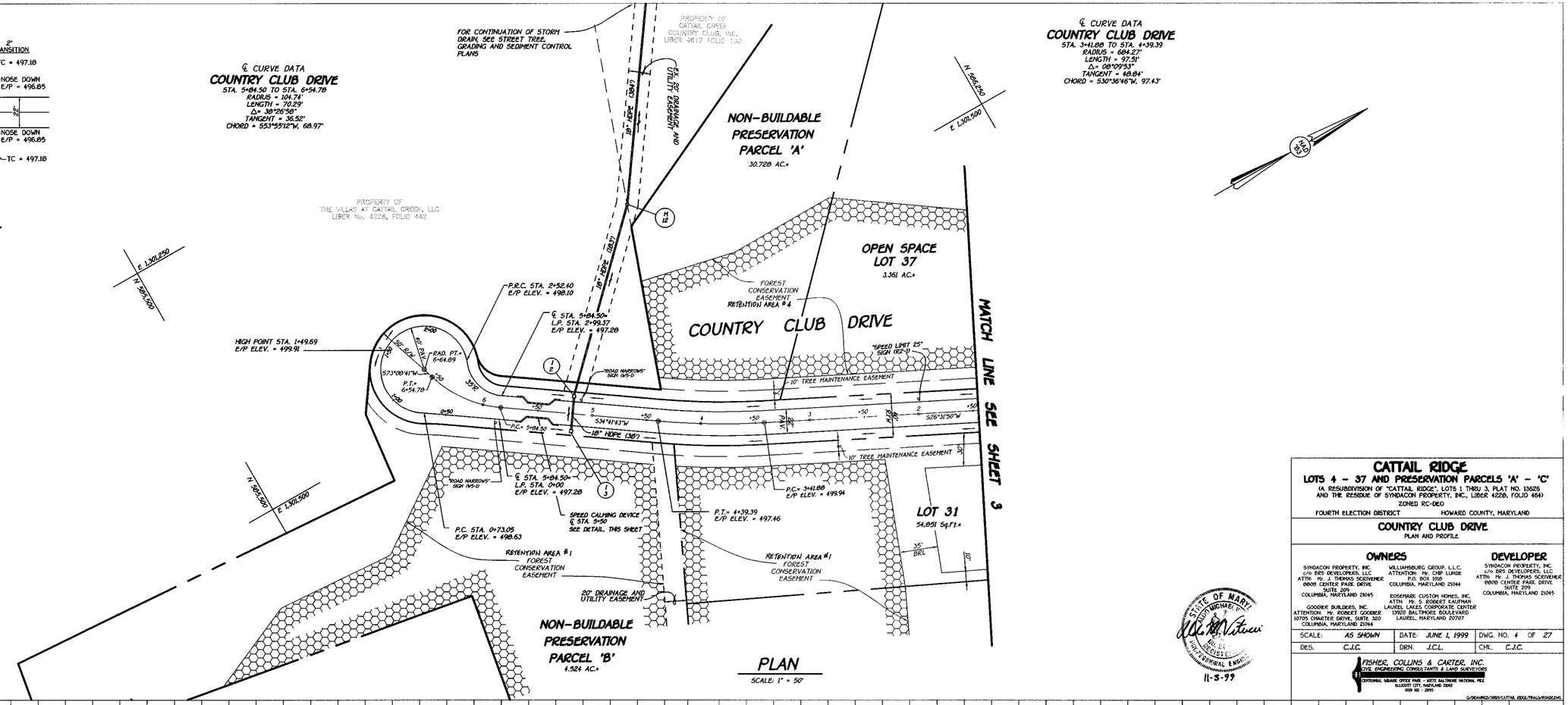


(COUNTRY CLUB DRIVE)

SPEED CONTROL DEVICE

N.T.S.



PLAN

SCALE: 1" = 50'

APPROVED
DEPARTMENT OF PLANNING AND ZONING

Cindy Hansotte — 12/1/99
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING

12/3/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

12-1-99
CHIEF, BUREAU OF HIGHWAYS — DATE

STATE OF MARYLAND — JOHN MICHAEL DUNCKE — No. 11321 — REGISTERED PROFESSIONAL ENGINEER
11-3-99

CATTAIL RIDGE

LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 454)

ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

COUNTRY CLUB DRIVE

PLAN AND PROFILE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8800 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODNER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODNER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
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ROSEMARK CUSTOM HOMES, INC.
ATTN: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

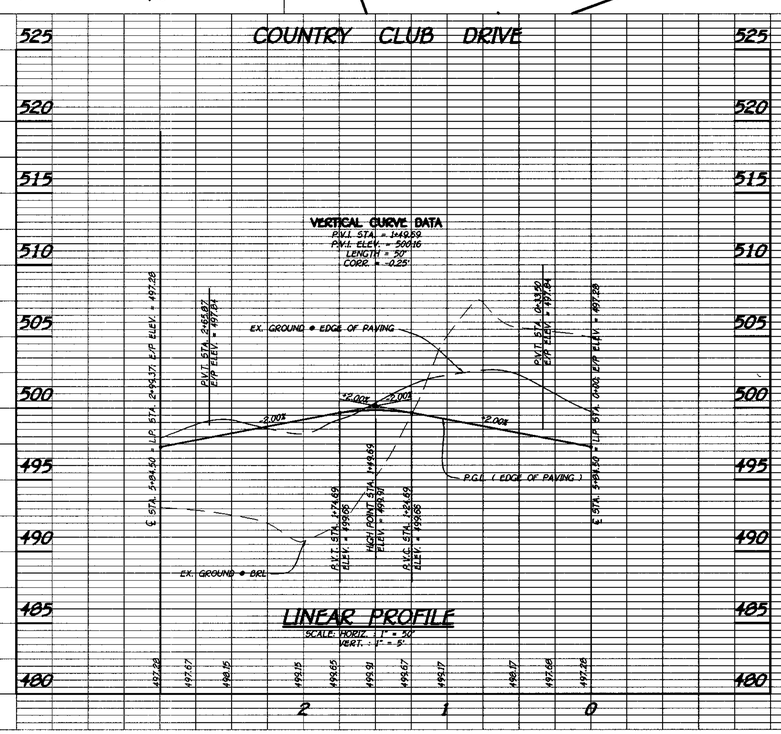
DEVELOPER

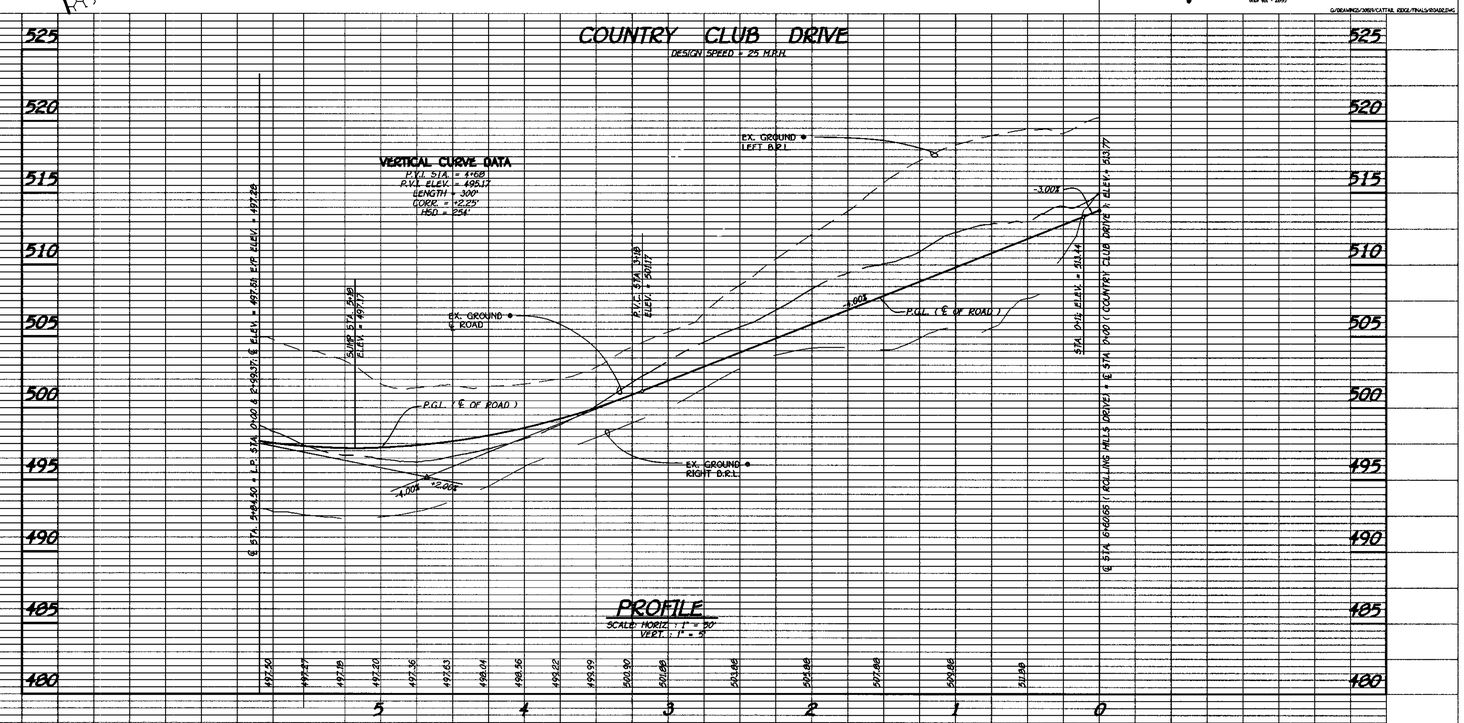
SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8800 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 4 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

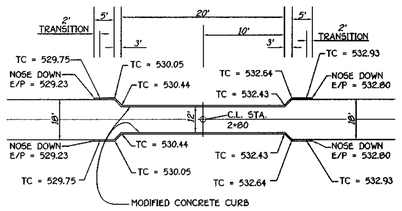
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

G:\DRAWINGS\2005\CATTAIL RIDGE\FINALS\ROADZ.DWG





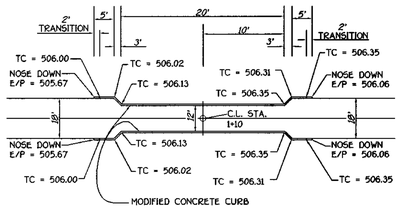
F 99-145



(CLEAR DRIVE COURT)

SPEED CONTROL DEVICE

N.T.S.



(WINDING PATH COURT)

SPEED CONTROL DEVICE

N.T.S.

APPROVED
DEPARTMENT OF PLANNING AND ZONING

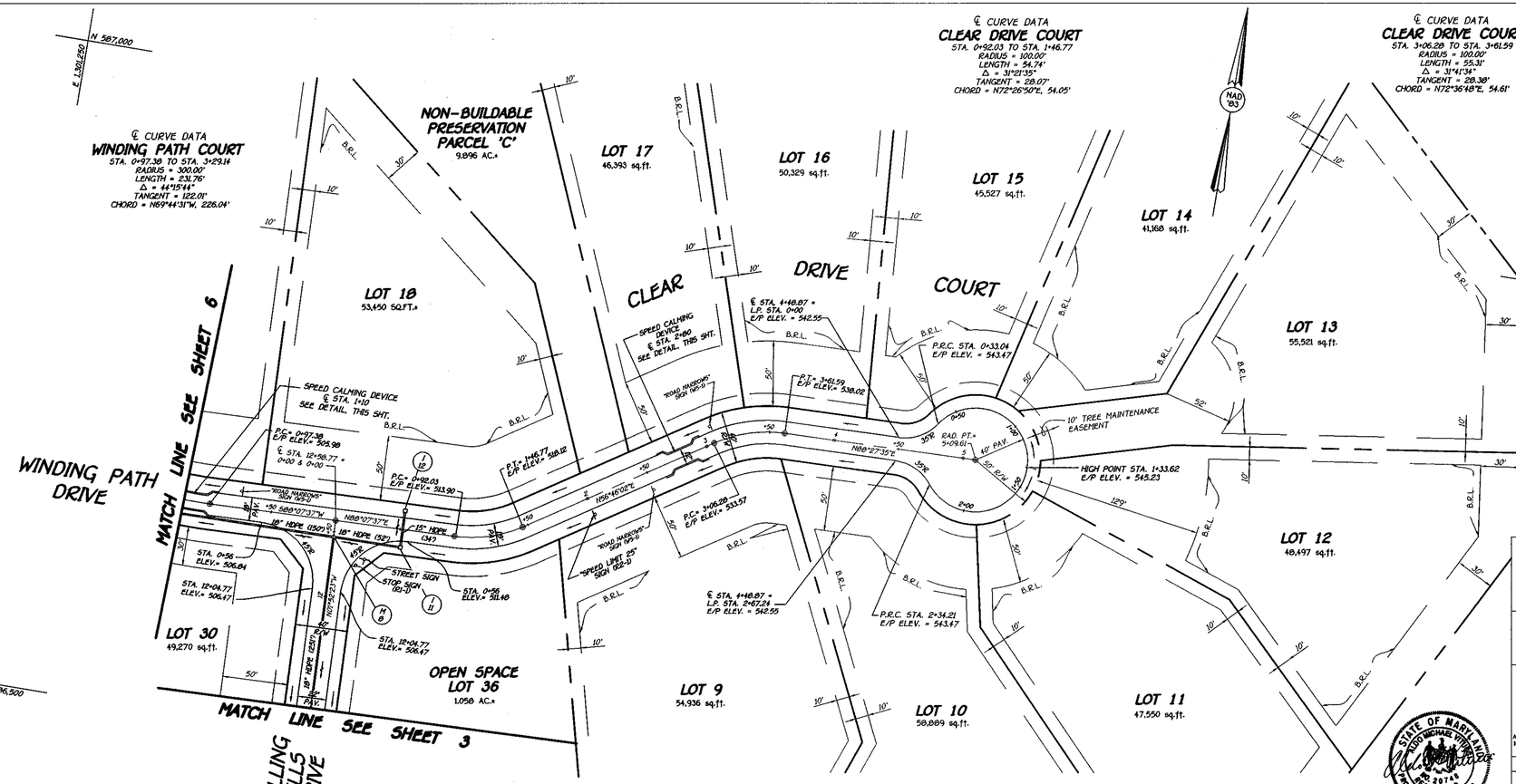
Cindy Hamilton 12/7/99
CHIEF, DIVISION OF LAND DEVELOPMENT JA DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING

12/8/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

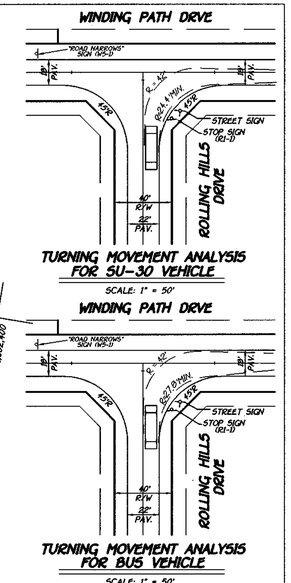
APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

12-1-99
CHIEF, BUREAU OF HIGHWAYS DATE



PLAN

SCALE: 1" = 50'



CATTAIL RIDGE

LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

CLEAR DRIVE COURT — PLAN AND PROFILE

WINDING PATH COURT — PLAN

ROLLING HILLS DRIVE — PLAN

OWNERS		DEVELOPER
SYNDACON PROPERTY, INC. c/o BRS DEVELOPERS, LLC ATTN: Mr. J. THOMAS SCRIVENER 8600 CENTER PARK DRIVE SUITE 209 COLUMBIA, MARYLAND 21045	WILLIAMSBURG GROUP, L.L.C. ATTENTION: Mr. CHIP LUNDE P.O. BOX 1088 COLUMBIA, MARYLAND 21044	SYNDACON PROPERTY, INC. c/o BRS DEVELOPERS, LLC ATTN: Mr. J. THOMAS SCRIVENER 8600 CENTER PARK DRIVE SUITE 209 COLUMBIA, MARYLAND 21045
GOODIER BUILDERS, INC. ATTENTION: Mr. ROBERT GOODIER 10705 CHARTER DRIVE, SUITE 320 COLUMBIA, MARYLAND 21044	ROSEMARK CUSTOM HOMES, INC. ATTN: Mr. S. ROBERT CAUFMAN LAUREL LAKES CORPORATE CENTER 13920 BALTIMORE BOULEVARD LAUREL, MARYLAND 20707	

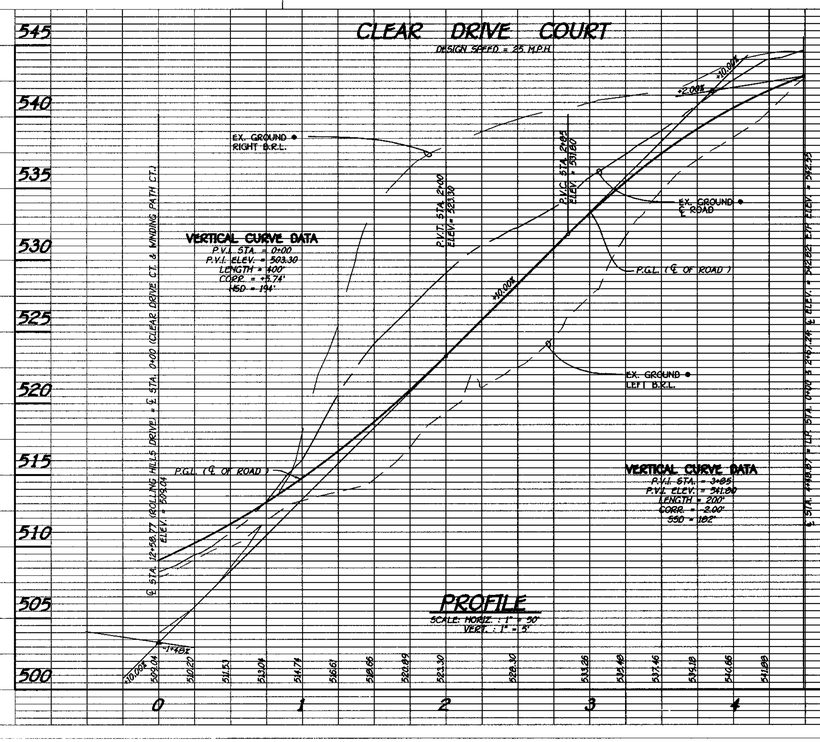
SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 5 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

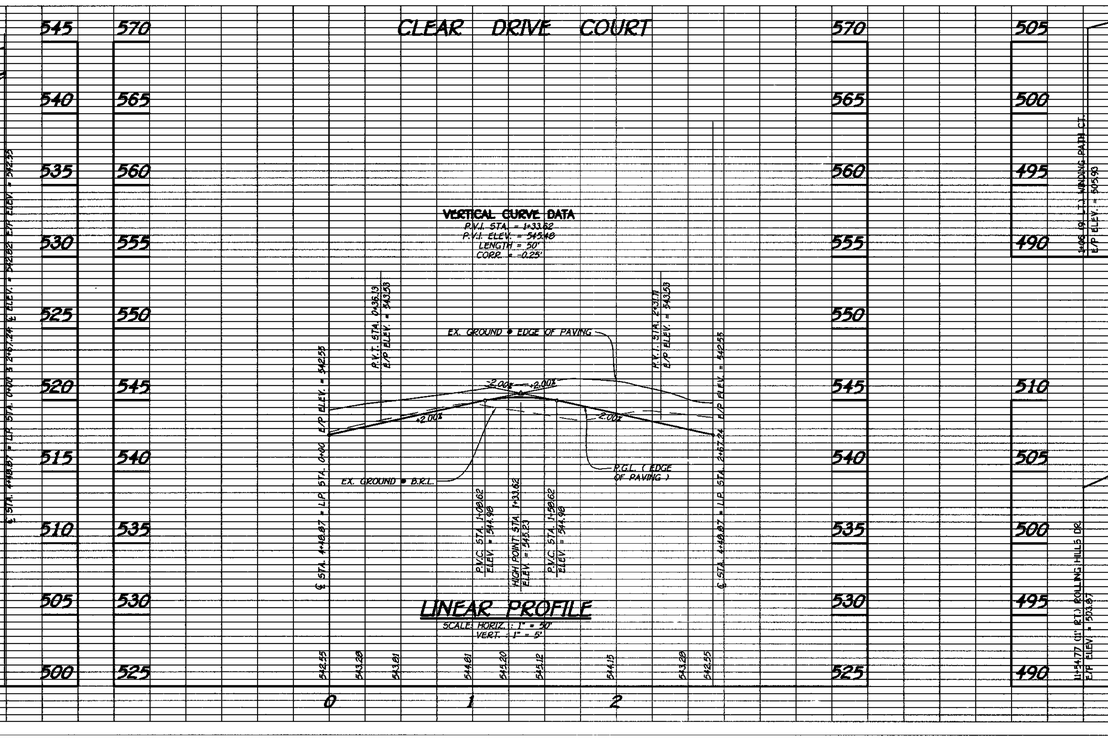
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

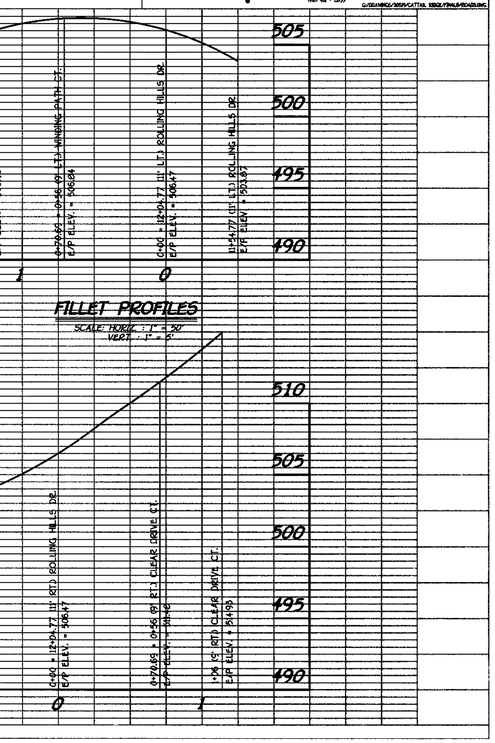
G:\DRAWINGS\DEVELOP\CATTAIL RIDGE\FINALS\ROADLINE

STATE OF MARYLAND — ALBERT MICHAEL WHITMORE — NO. 20748 — REGISTERED PROFESSIONAL ENGINEER

11-3-99



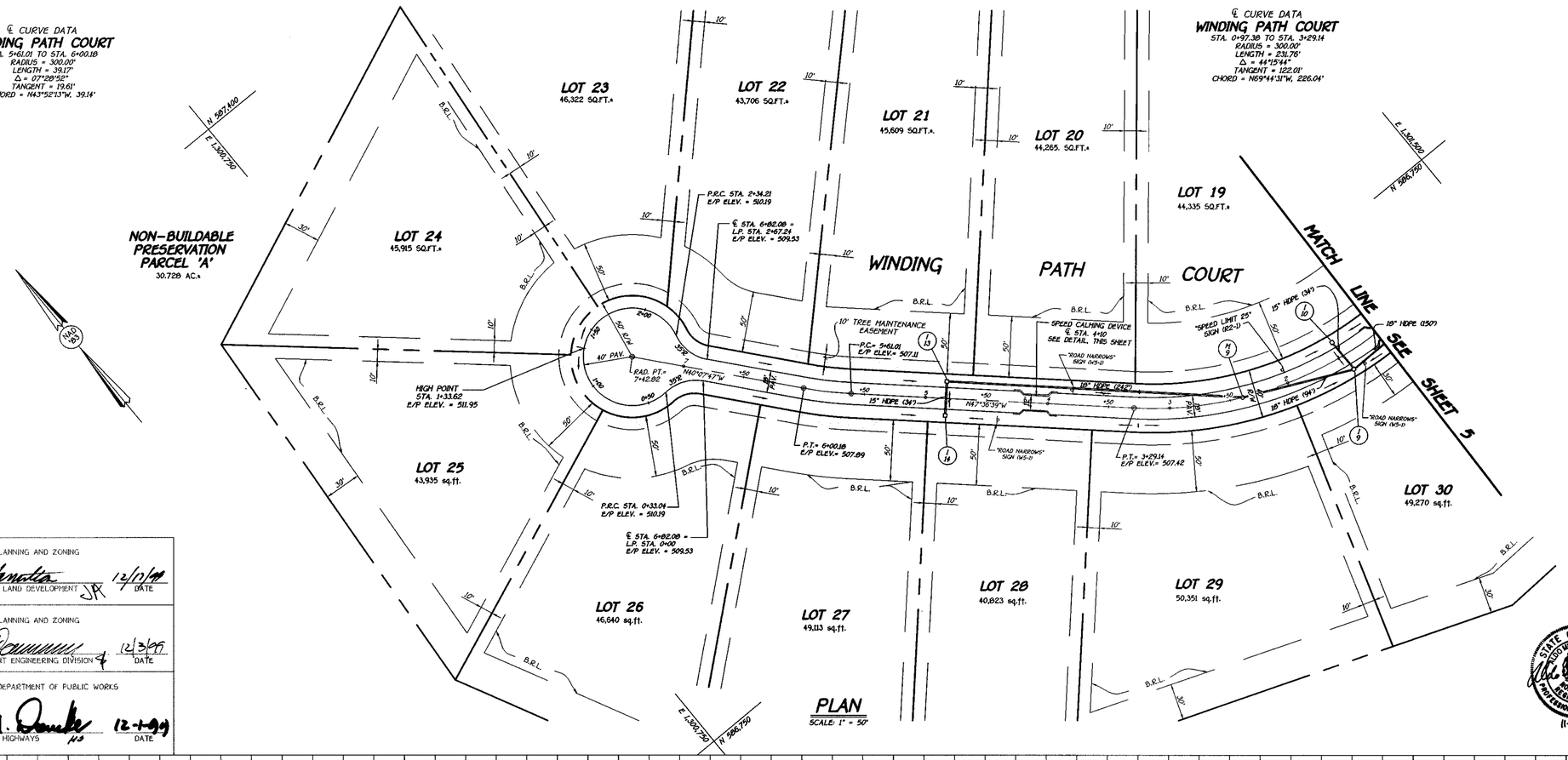




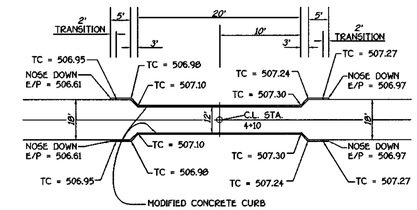
F 99-145

℄ CURVE DATA
WINDING PATH COURT
STA. 5+61.01 TO STA. 6+00.18
RADIUS = 300.00'
LENGTH = 39.17'
Δ = 07°29'52"
TANGENT = 19.61'
CHORD = N43°52'13"W, 39.14'

℄ CURVE DATA
WINDING PATH COURT
STA. 0+97.38 TO STA. 3+29.14
RADIUS = 300.00'
LENGTH = 231.76'
Δ = 44°15'44"
TANGENT = 122.01'
CHORD = N69°44'31"W, 226.04'



PLAN
SCALE: 1" = 50'



(WINDING PATH COURT)
SPEED CONTROL DEVICE
N.T.S.

APPROVED
DEPARTMENT OF PLANNING AND ZONING
Cindy Hanaka 12/17/99
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
12/3/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 12-1-99
CHIEF, BUREAU OF HIGHWAYS DATE

STATE OF MARYLAND
ROY MICHAEL VOGEL
No. 20748
REGISTERED PROFESSIONAL ENGINEER
11-3-99

CATTAIL RIDGE
LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 466)
ZONED RC-DEO
FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

WINDING PATH DRIVE
PLAN AND PROFILE

OWNERS
SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10709 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1085
COLUMBIA, MARYLAND 21044

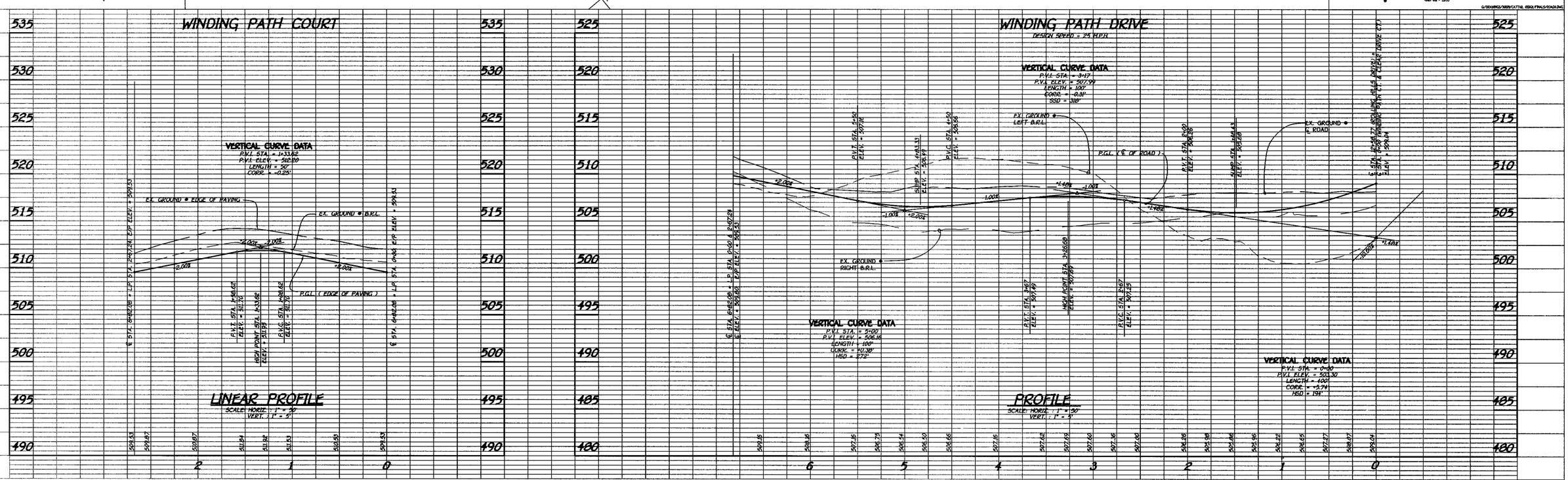
ROSEMARE CUSTOM HOMES, INC.
ATTN: Mr. S. ROBERT LAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER
SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 6 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

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

G:\DRAWINGS\1999\CATTAIL RIDGE\FINALS\10A2A.DWG



F 99-145

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
○	ACER RUBRUM 'OCTOBER GLORY' RED MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

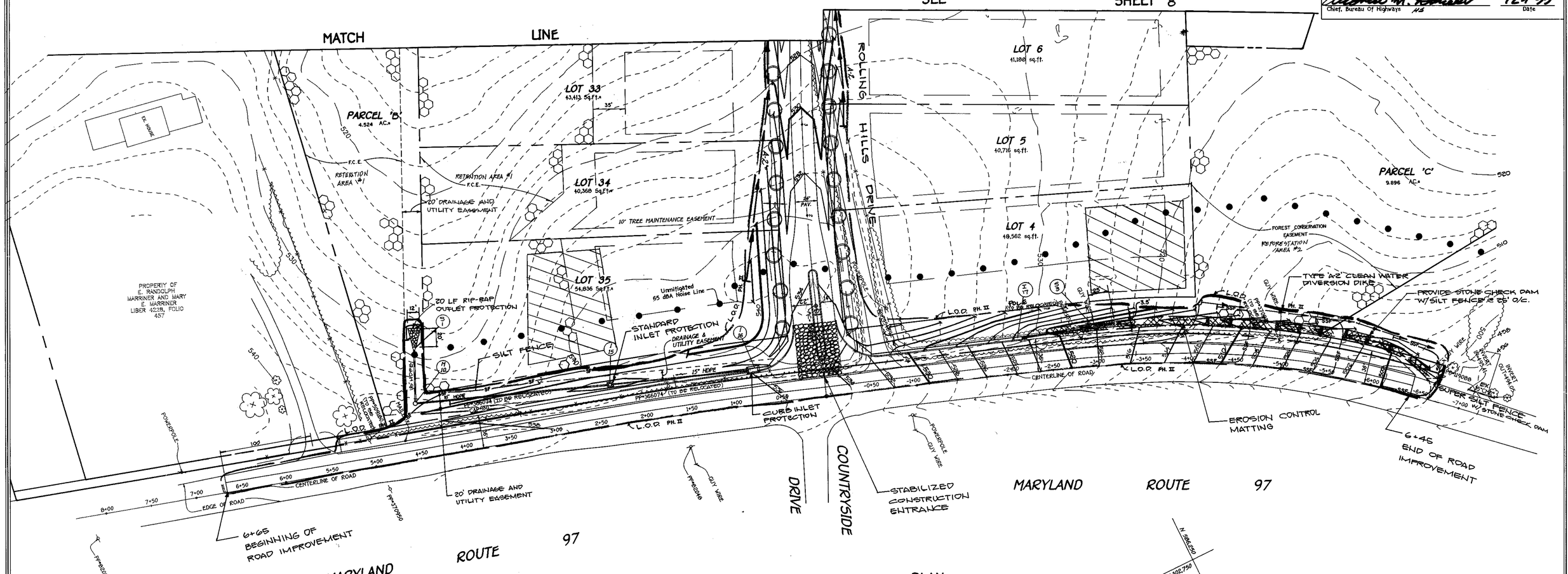
NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

○ - 17 STREET TREES (THIS SHEET)

LEGEND

- EXISTING TREES
- EXISTING WOODS LINE
- SF —— SF — SILT FENCE
- SSF —— SSF — SUPER SILT FENCE
- PROPOSED EARTH DIKE
- PROPOSED LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING



PLAN

SCALE: 1" = 50'

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.

STATE OF MARYLAND — MICHAEL W. BOWLES — No. 19975

Signature Of Engineer — Date: 3-17-99

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: 3/16/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/19/99

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

District Howard Soil Conservation Dist. — Date: 11/19/99

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development UA — Date: 12/17/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCREVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 3089
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCREVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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.* 30619 GRADING PLAN .DWG

STREET TREE, GRADING & SEDIMENT CONTROL PLAN

CATTAIL RIDGE

LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 7 OF 27

F 99-145

ENGINEER'S CERTIFICATE

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER

"I Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District."

Signature Of Engineer — Date: 3-17-99

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: 3/10/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/19/99

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

District, Howard Soil Conservation Dist. — Date: 11/19/99

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/17/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	ACER RUBRUM 'OCTOBER GLORY' RED MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	PLATANUS X ACERIFOLIA 'BLOODGOOD' BLOODGOOD LONDON PLANE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	FRAXINUS AMERICANA "ROSEHILL" ROSEHILL WHITE ASH	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

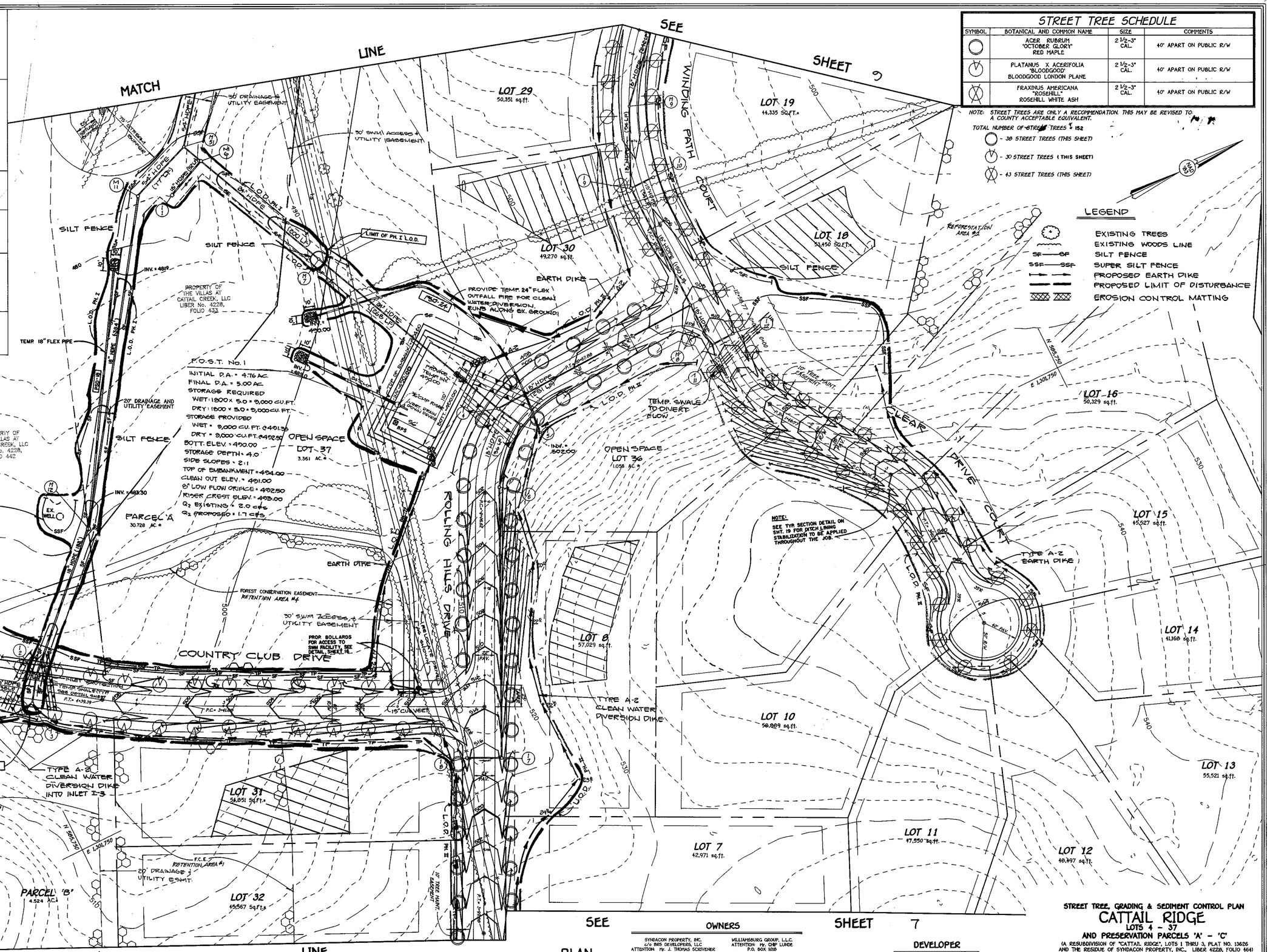
NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

- 38 STREET TREES (THIS SHEET)
- 30 STREET TREES (THIS SHEET)
- 43 STREET TREES (THIS SHEET)

LEGEND

- EXISTING TREES
- EXISTING WOODS LINE
- SF — SF: SILT FENCE
- SSF — SSF: SUPER SILT FENCE
- PROPOSED EARTH DIKE
- PROPOSED LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING



PLAN

SCALE: 1" = 50'

OWNERS

SYNDACON PROPERTY, INC.
c/o BGS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8909 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODNER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODNER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BGS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8909 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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. 30885 GRADING PLAN 22.DWG

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 8 OF 27

F 99-145

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
⊗	FRAXINUS AMERICANA "ROSEHILL" ROSEHILL WHITE ASH	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

⊗ - 24 STREET TREES (THIS SHEET)

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 Professional Engineer — Date: 3-17-99

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: 3/16/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/19/99

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

District Howard Soil Conservation Dist. — Date: 11/19/99

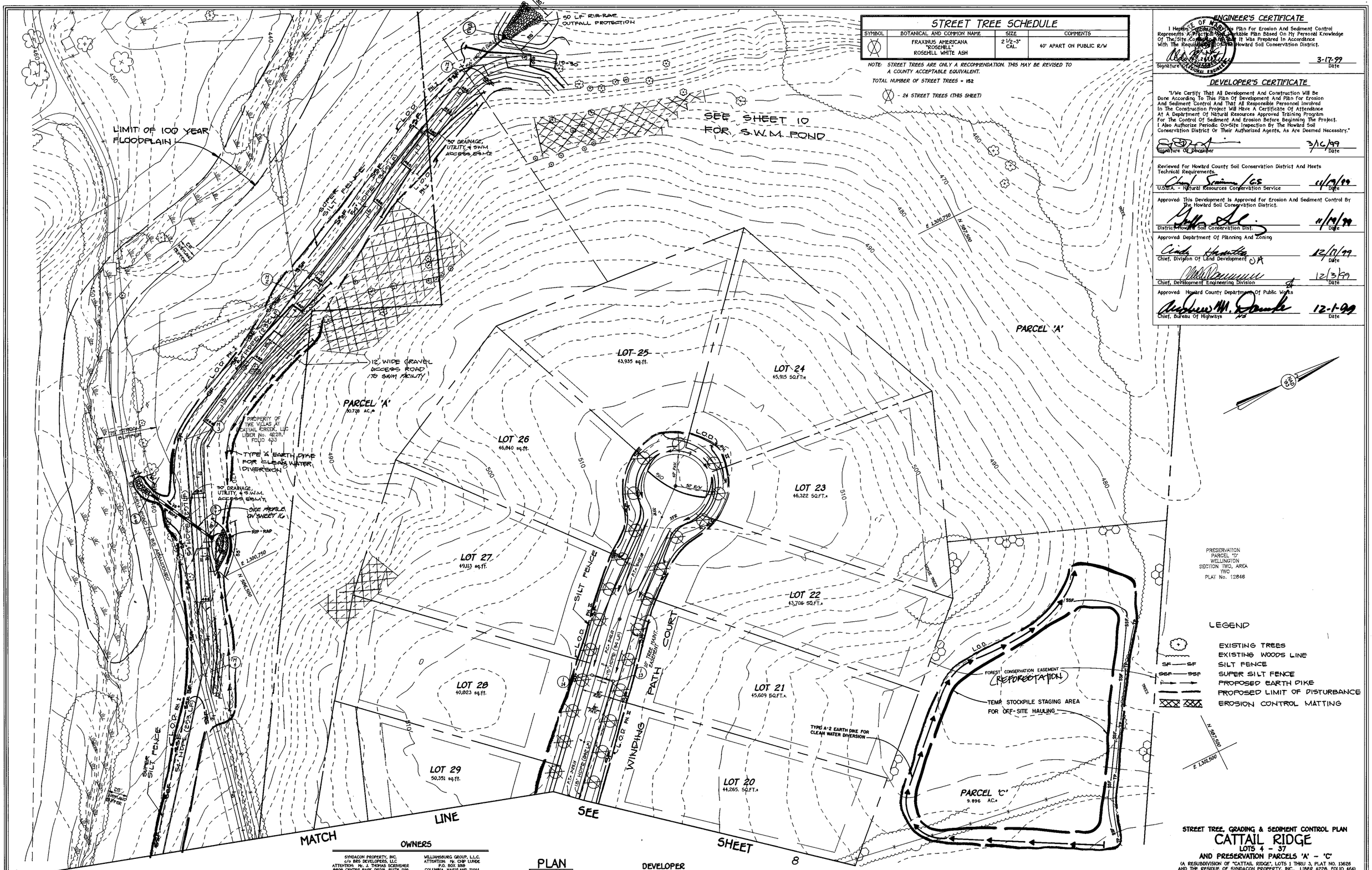
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/1/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99



OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1888
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

PLAN
SCALE: 1" = 50'

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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.- 3069 GRADING PLAN 3.DWG

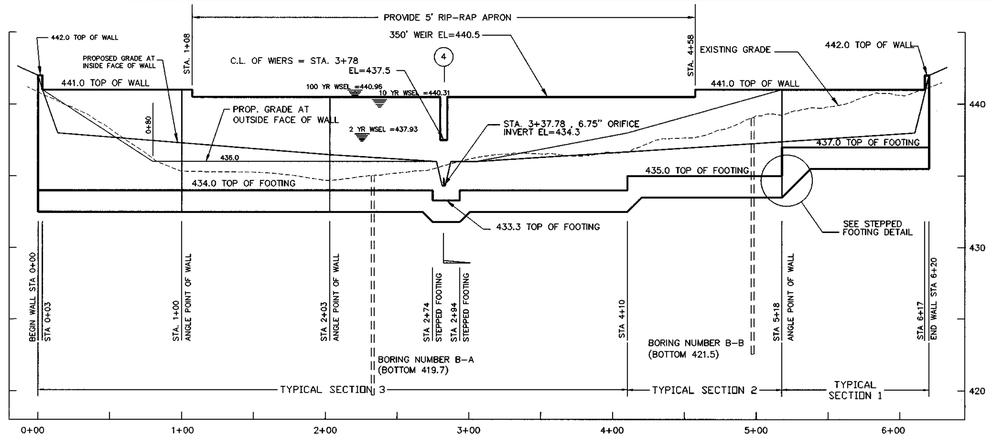
STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

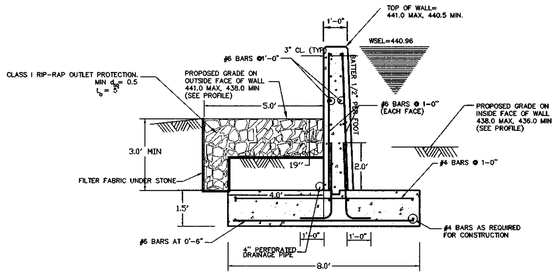
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 9 OF 27

F 99-145



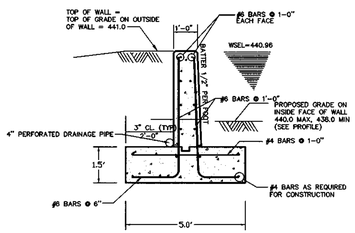
PROPOSED RETAINING WALL PROFILE

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



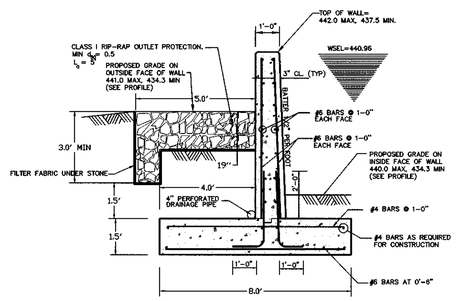
TYPICAL SECTION 2

SCALE 1":3'



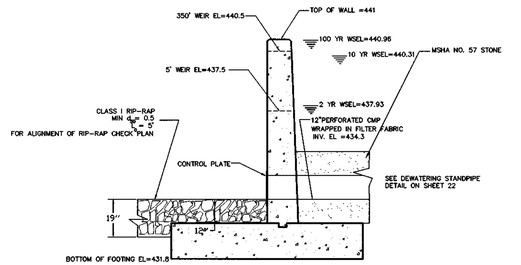
TYPICAL SECTION 1

SCALE 1":3'



TYPICAL SECTION 3

SCALE 1":3'



SECTION 4

SCALE 1":3'

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

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 6/27/00

SUNDERLAND PROPERTY, INC.
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 6/26/00

PRINTED NAME OF ENGINEER

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/10/00

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 7/10/00

APPROVED: DEPARTMENT OF PUBLIC WORKS

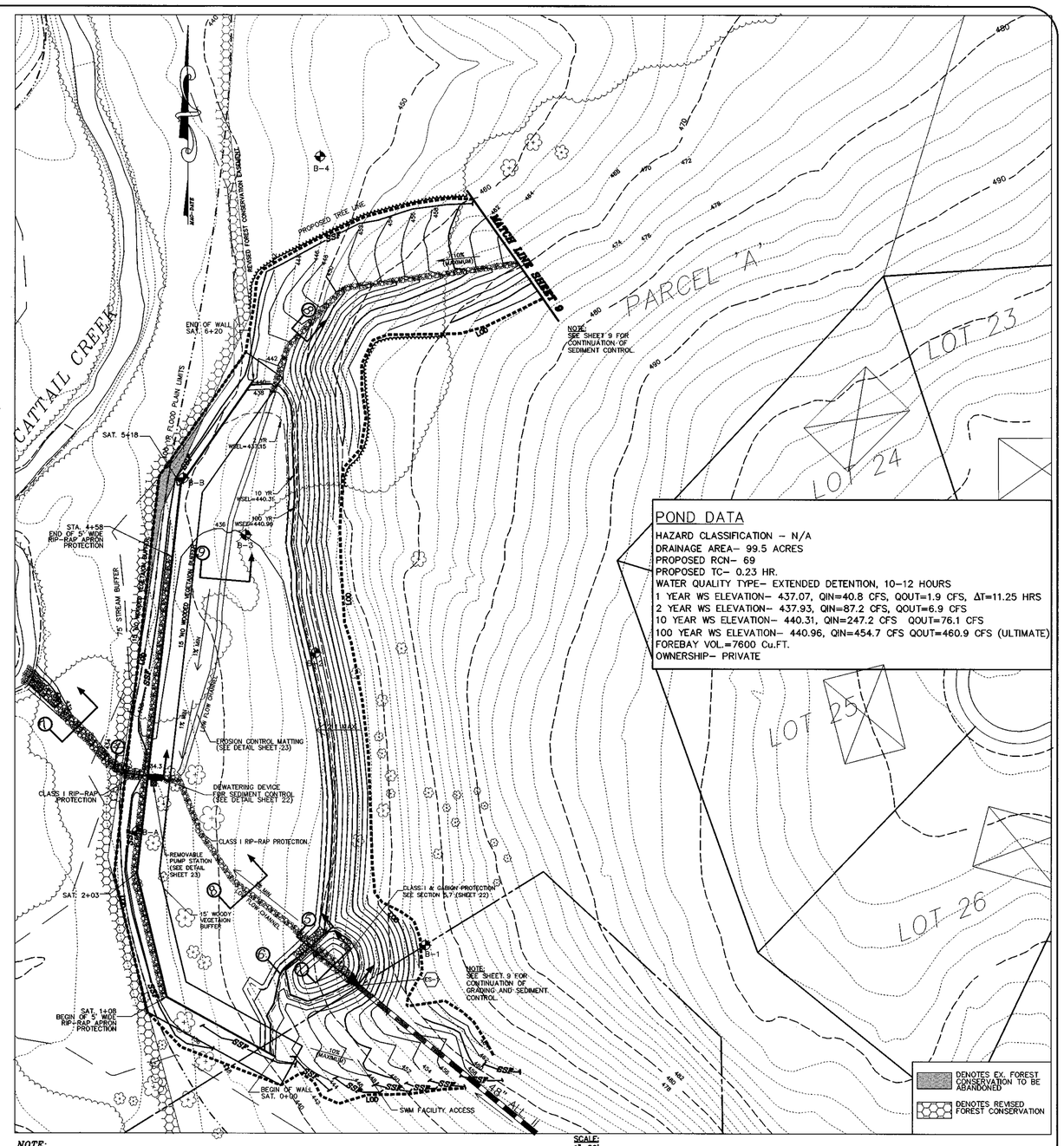
CHIEF BUREAU OF HIGHWAYS — DATE 7-10-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/12/00

F:\98110\DWG\R2\110-SWMDETAILS3_R2



POND DATA

HAZARD CLASSIFICATION – N/A
DRAINAGE AREA– 99.5 ACRES
PROPOSED RCN– 69
PROPOSED TC– 0.23 HR.
WATER QUALITY TYPE– EXTENDED DETENTION, 10–12 HOURS
1 YEAR WS ELEVATION– 437.07, QIN=40.8 CFS, QOUT=1.9 CFS, ΔT=11.25 HRS
2 YEAR WS ELEVATION– 437.93, QIN=87.2 CFS, QOUT=6.9 CFS
10 YEAR WS ELEVATION– 440.31, QIN=247.2 CFS QOUT=76.1 CFS
100 YEAR WS ELEVATION– 440.96, QIN=454.7 CFS QOUT=460.9 CFS (ULTIMATE)
FOREBAY VOL.=7600 Cu.FT.
OWNERSHIP– PRIVATE

NOTE:
FOR SECTIONS AND DETAILS SEE SHEETS 22 AND 23
FOR SOIL BORINGS SEE SHEET 27

GENERAL NOTES:

1. ALL CONCRETE SHALL BE MSHA MIX NO.2 FC=3,000 PSI, FY=60,000 PSI
2. ALLOWABLE BEARING ON SUBGRADE SHALL NOT EXCEED 2,000 PSF. SUBGRADE TO BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACING FOOTINGS.
4. ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED (3/4 IN X 3/4 IN)
5. CONSTRUCTION KEYS SHALL BE A MINIMUM OF 2"X 4" NOMINAL.
6. CONCRETE COVER TO BE 3" TYPICAL
7. SEE PROFILE FOR ELEVATIONS OF FOOTINGS.
8. 4" PERFORATED DRAINAGE PIPE SHALL FACE DAYLIGHT @ EL=434
9. NO STONE IS ALLOWED TO BE PLACED UNDER WALL FOOTINGS.
10. FILTER FABRIC TO BE PROVIDED UNDER ALL GABION BASKETS AND RIP-RAP PROTECTIONS.
11. PROVIDE 4" PERFORATED UNDER DRAIN AT BASE OF STEM ON DOWNSTREAM FACE OF WALL FROM 0+00 TO 2+74 AND 2+94 TO 6+20, OUTLET UNDER DRAIN TO DAYLIGHT (ELEV. 434.0 ±)
12. THE PROPOSED CONSTRUCTION SHALL BE PERFORMED UNDER THE OBSERVATION OF A MARYLAND REGISTERED PROFESSIONAL ENGINEER.
13. ALLOWABLE BEARING PRESSURE GREATER THAN OR EQUAL TO 3,750 PSF (BEARING CAPACITY TO BE TESTED IN THE FIELD PRIOR TO CONSTRUCTION.
14. EXISTING WOODY VEGETATION WITHIN 15' WOODED VEGETATION BUFFER IS TO BE REMOVED. AREA ON DOWN STREAM SIDE OF PROPOSED WALL IS TO BE CLEARED ONLY, NO GRUBBING IS PERMITTED WITHIN THIS AREA.

THE PURPOSE OF THIS PLAN OF REVISION SHEET IS TO REVISE THE SWM FACILITY AND ASSOCIATED CHANGES.

project	date
98110	MAY 2000
illustration	engineering
SAA	SAA
scale	approval
AS SHWN	JBM

no.	description	date
1	SHEET 10 REPLACED (NEW SWM POND DESIGN) WALL PROFILES AND SECTIONS ADDED	

revisions

REVISED FINAL CONSTRUCTION PLAN
CATTAIL RIDGE
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'
TAX MAP 21, PARCEL 228
FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT PLAN AND DETAILS

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

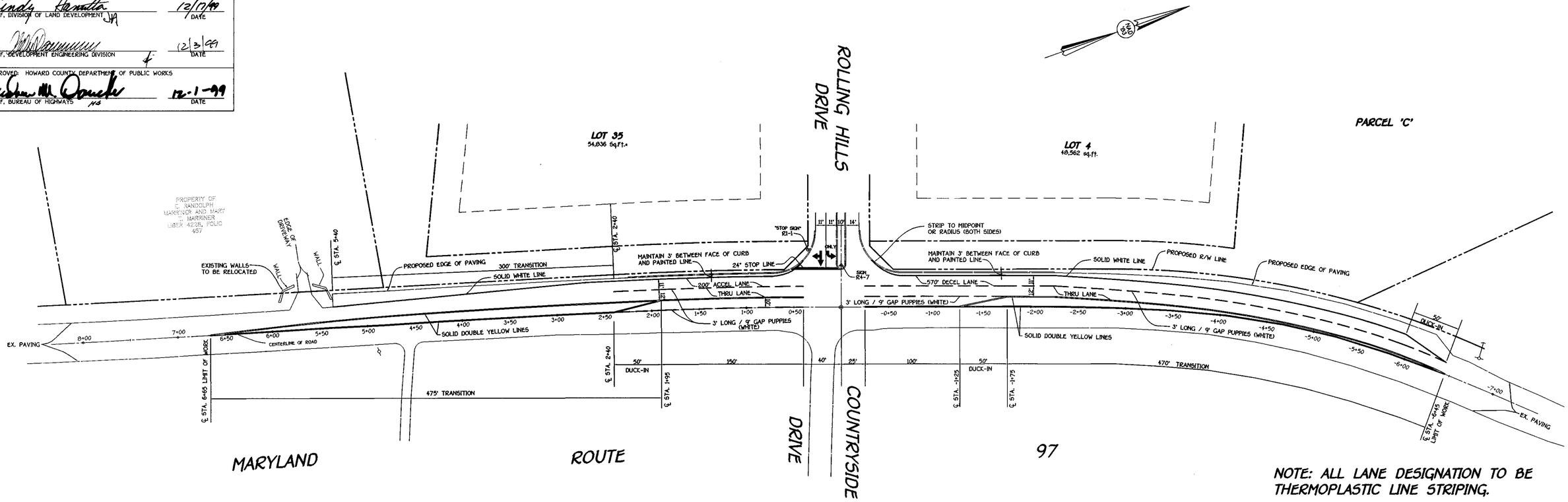
(substitute sheet 10 of 7) F.99.145

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamatta CHIEF, DIVISION OF LAND DEVELOPMENT	12/17/99 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	12/3/99 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	12-1-99 DATE



NOTE: ALL LANE DESIGNATION TO BE THERMOPLASTIC LINE STRIPING.

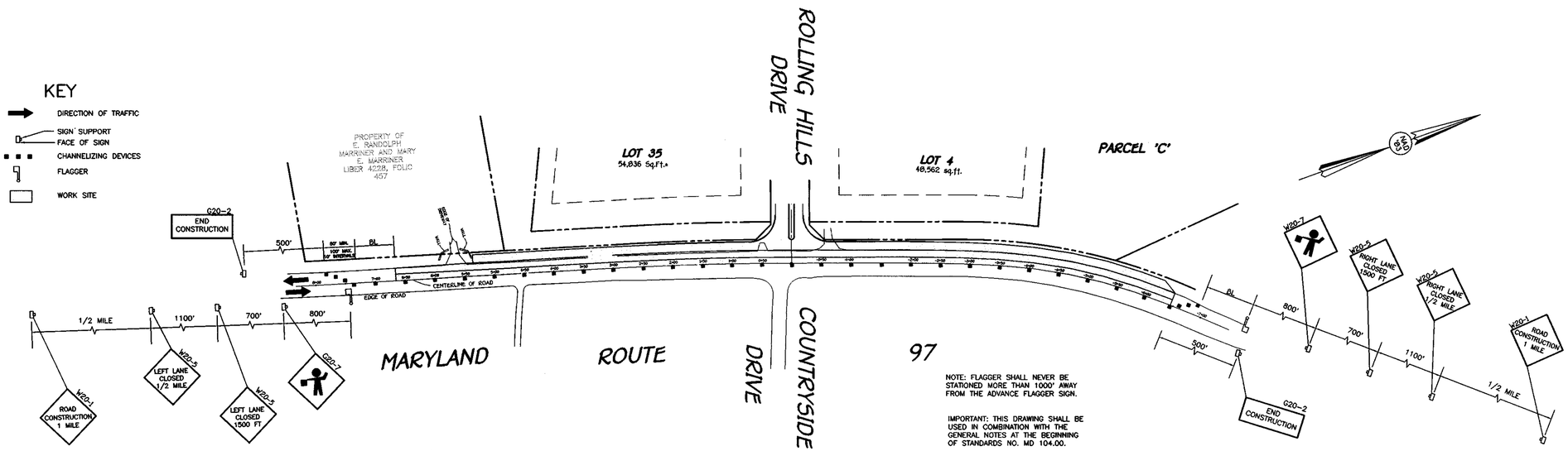
STRIPING PLAN

SCALE: 1" = 50'

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. PROPERLY 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 104 OF THE MARYLAND DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JANUARY, 1982) INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.
5. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FOR IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE MINOR CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THIRTEEN 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 SHOULD 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 104 OF THE SPECIFICATIONS. FOR REFLECTIVE DEVICES, A PARTICULAR DEVICE IS ASSUMED TO HAVE FAILED TO MEET MINIMUM OPERATIONAL STANDARDS WHEN THE DEVICE NO LONGER HAS RETRO-REFLECTANCE CAPABILITY OF AT LEAST 60% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST 90% OF THE VISIBLE REFLECTIVE SURFACE.
10. ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC, OR OTHERWISE TAKEN OUT OF SERVICE. IT IS INTENDED THAT NO TRAFFIC CONTROL DEVICE IS TO BE IN SERVICE WHEN THERE IS NO CLEAR CUT REASON FOR THE DEVICE.
11. THROUGHOUT THE PERIOD(S) OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP. IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS, THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OF 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.



NOTE: FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

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

(STANDARD NO. MD 104.02-01)

TEMPORARY TRAFFIC CONTROL PLAN

NO SCALE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

STATE OF MARYLAND
CHRISTOPHER M. SCHUCK
NO. 30748
REGISTERED PROFESSIONAL ENGINEER
6-14-99

TRAFFIC CONTROL AND STRIPING PLAN

CATTAIL RIDGE

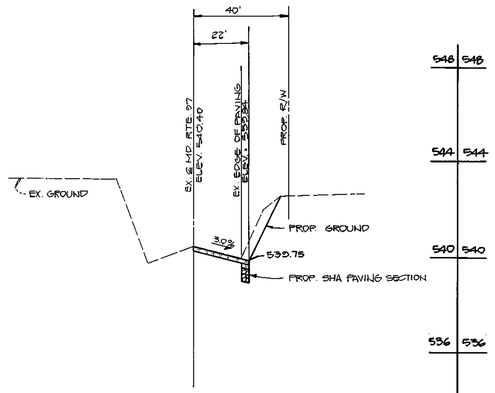
LOTS 4 THRU 37
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626, AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 11 OF 27

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.-1999\TRAFFICCONTROL.DWG

F99-145



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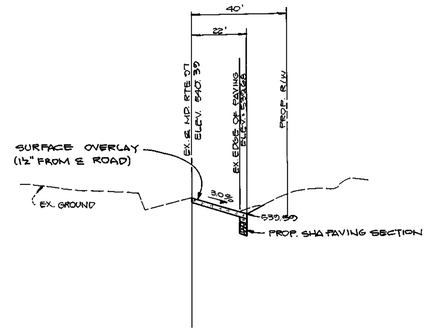

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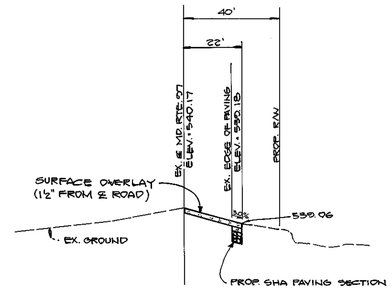

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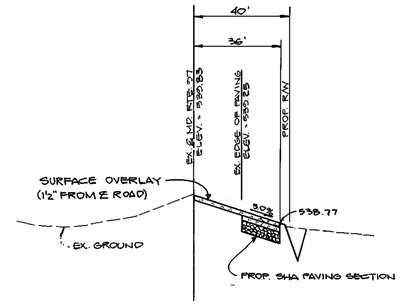

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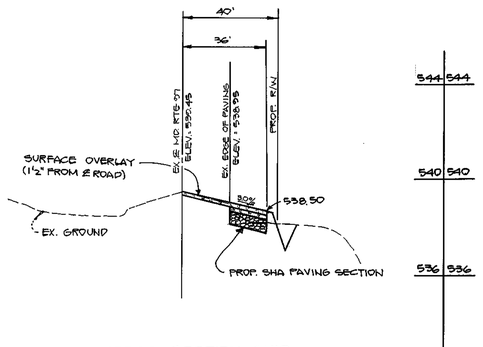

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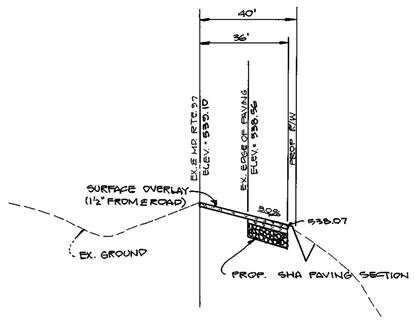

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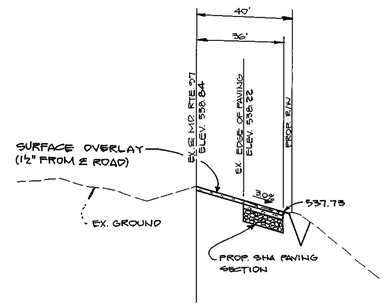

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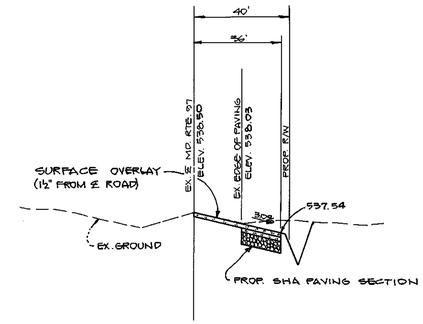

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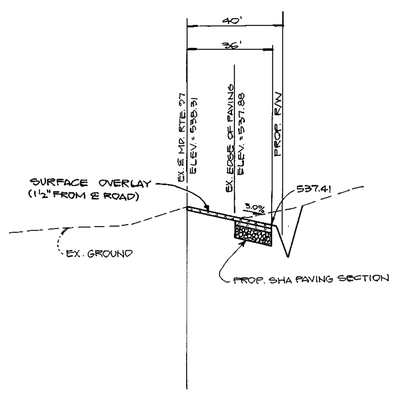

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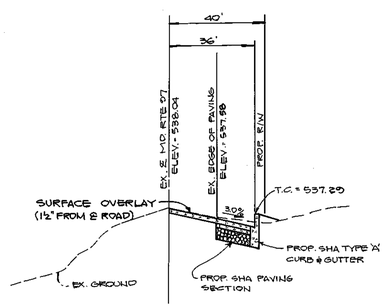

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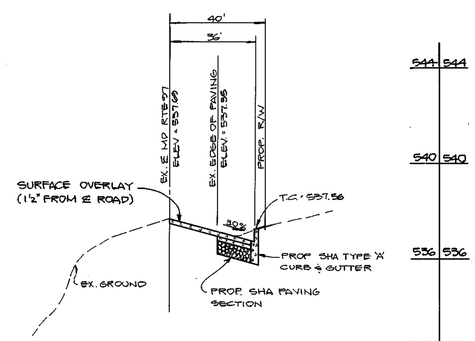

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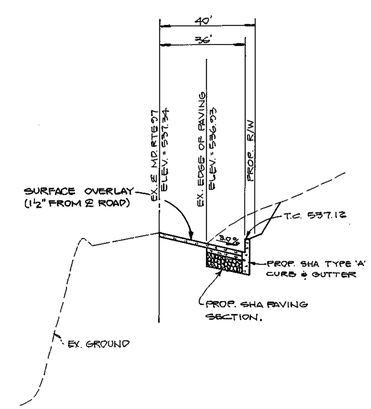

CROSS SECTION 1+00

NOTE: FOR PAVING SECTION DETAIL
SEE SHEET 19.

PROFILES

SCALE: HORIZONTAL: 1" = 30'
VERTICAL: 1" = 3'

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8800 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODRIDGE BUILDERS, INC.
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DEVELOPER

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c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
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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 VITALE
NO. 20749
REGISTERED
PROFESSIONAL ENGINEER
3-17-99

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/17/99

Chief, Development Engineering Division — Date 12/8/99

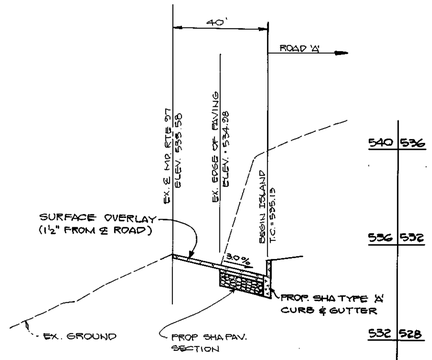
Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99

CROSS-SECTIONS (MD. ROUTE 97)
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 459)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 12 OF 27

F 99 - 145



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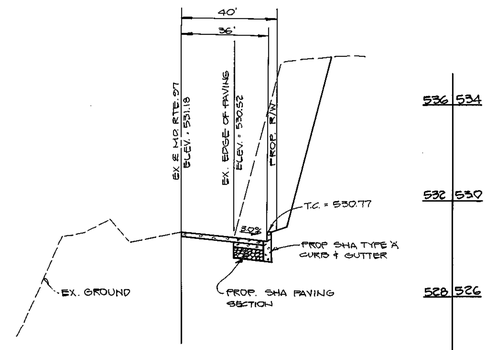

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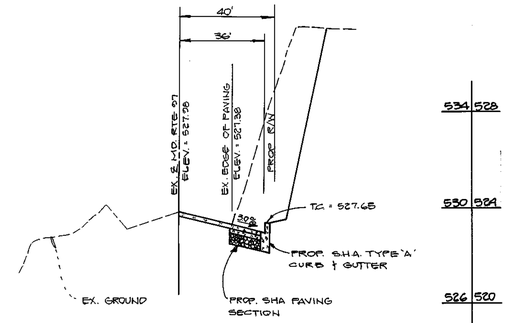

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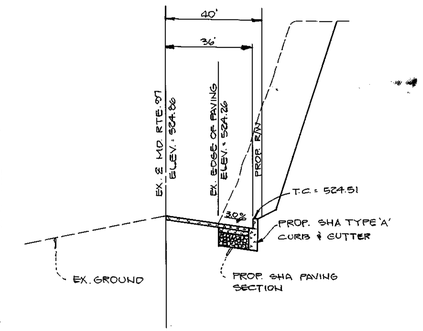

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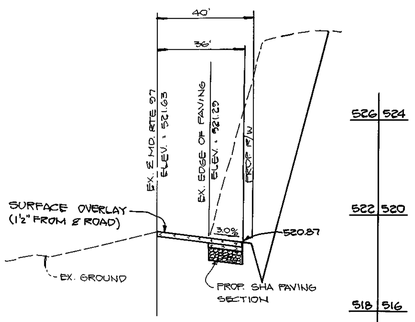

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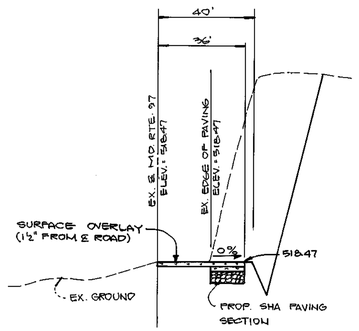

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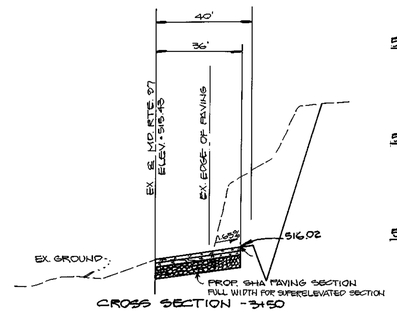

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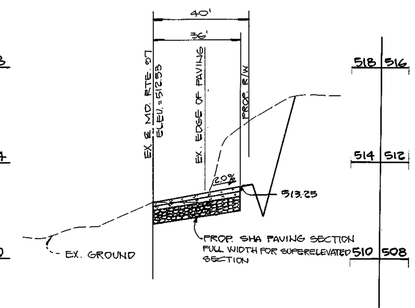

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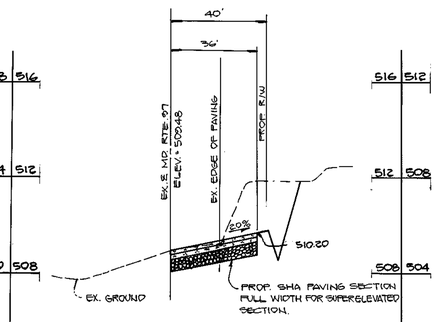

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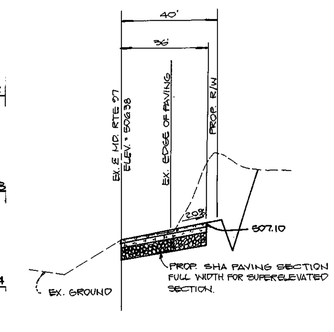

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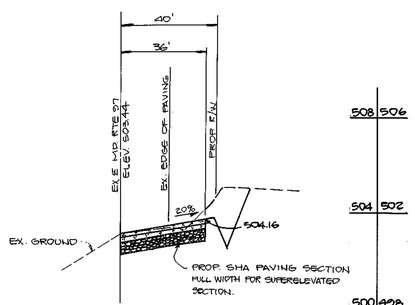

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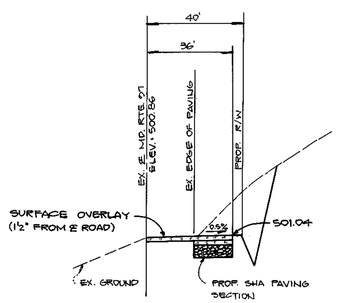
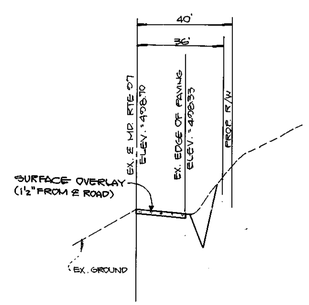


CROSS SECTION -6+00



CROSS SECTION -6+45
LIMIT OF WORK

NOTE: FOR PAVING SECTION DETAIL
SEE SHEET 15

PROFILES

SCALE: HORIZONTAL: 1" = 30'
VERTICAL: 1" = 3'

OWNERS

SYNDACON PROPERTY, INC.
c/o B&S DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8809 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHASTER DRIVE, SUITE 320
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WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o B&S DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8809 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

STATE OF MARYLAND
ANDREW MICHAEL WITMER
No. 20748
REGISTERED
PROFESSIONAL ENGINEER
3-17-99

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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 12/7/99
Chief, Development Engineering Division — Date 12/3/99
Approved: Howard County Department Of Public Works
Chief, Bureau Of Highways — Date 12-1-99

CROSS-SECTIONS (MD. ROUTE 97)
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 13 OF 27

F 99-145

Approved: Department Of Planning And Zoning

Linda Hematta — Chief, Division of Land Development — 12/7/99 Date

Chief, Development Engineering Division — 12/3/99 Date

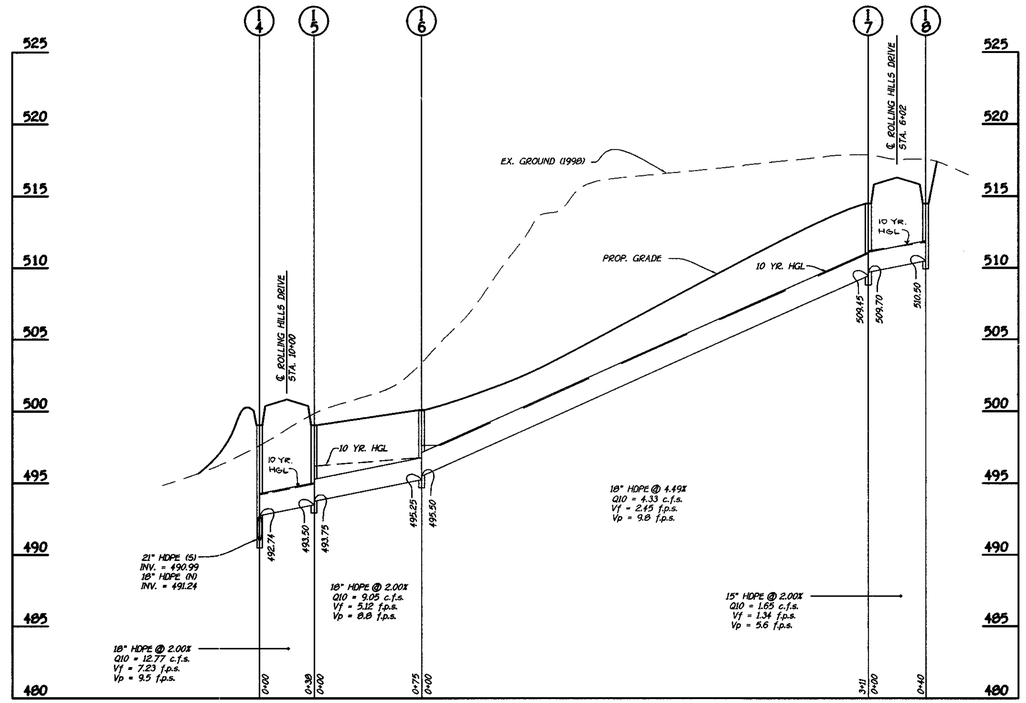
Approved: Howard County Department Of Public Works

Andrew M. Doub — Chief, Bureau Of Highways — 12-1-99 Date

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	478.00	—	471.52	-----	N 585,176.50 E 1,301,121.80	-----	'S' INLET	S.D. 4.22
I-2	495.39	489.86	489.61	COUNTRY CLUB DRIVE	C.L. STA. 5+18	19'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-3	495.39	------	491.00	COUNTRY CLUB DRIVE	C.L. STA. 5+18	19'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-4	499.04	492.74, 491.24	490.99	ROLLING HILLS DRIVE	C.L. STA. 10+00	19'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-5	499.04	493.75	493.50	ROLLING HILLS DRIVE	C.L. STA. 10+00	19'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-6	500.09	495.50	495.25	ROLLING HILLS DRIVE	C.L. STA. 9+13	19'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-7	514.48	509.70	509.45	ROLLING HILLS DRIVE	C.L. STA. 6+02	20'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-8	514.48	------	510.50	ROLLING HILLS DRIVE	C.L. STA. 6+02	20'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-9	504.16	497.80, 496.30	496.05	WINDING PATH COURT	C.L. STA. 1+48.43	17'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-10	504.16	------	498.48	WINDING PATH COURT	C.L. STA. 1+52.43	17'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-11	509.92	505.32	503.82	CLEAR DRIVE COURT	C.L. STA. 0+52	17'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-12	509.92	------	506.00	CLEAR DRIVE COURT	C.L. STA. 0+52	17'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-13	504.77	500.16	499.91	WINDING PATH COURT	C.L. STA. 4+83.33	17'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-14	504.77	------	500.50	WINDING PATH COURT	C.L. STA. 4+83.33	17'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-15	535.75	531.05	530.80	MD. ROUTE 97	C.L. STA. 2+33	43'R	S.H.A. TYPE 'K'	MD. 378.11
I-16	536.64	------	532.62	MD. ROUTE 97	C.L. STA. 0+77.50	36'R	10' C.O.G.	MD. 374.51
I-17	523.38	------	517.13	MD. ROUTE 97	C.L. STA. -2+15.00	36'L	10' C.O.G.	MD. 374.51
M11	477.00	465.00, 455.12*	454.37	—	1'556,142.50 E 1,301,104.08	—	BRICK MANHOLE	G - 5.03
M12	488.50	483.96	483.30	—	N 585,922.70 E 1,301,418.10	—	STD MANHOLE	G - 5.01
M-1	455.00	445.00	444.85	---	N 585,700.32 E 1,300,357.44	---	BRICK MANHOLE	G - 5.03
M-2	457.30	447.77	447.62	---	N 586,716.71 E 1,300,668.78	---	BRICK MANHOLE	G - 5.03
M-3	462.00	449.66	449.51	---	N 586,529.39 E 1,300,573.53	---	BRICK MANHOLE	G - 5.03
M-4	468.00	452.04	451.89	---	N 586,306.01 E 1,300,848.70	---	BRICK MANHOLE	G - 5.03
M-5	477.00	454.00, 454.39	454.24	---	N 586,211.88 E 1,301,072.52	---	BRICK MANHOLE	G - 5.03
M-6	480.50	472.20, 471.00	460.00	---	N 586,223.76 E 1,301,190.79	---	STD. MANHOLE	G - 5.01
M-7	490.50	483.50	481.75	---	N 586,295.07 E 1,301,282.24	---	STD. MANHOLE	G - 5.01
M-8	508.61	501.00, 494.55	494.30	ROLLING HILLS DRIVE	C.L. STA. 12+46	@ C.L.	STD. MANHOLE	G - 5.01
M-9	506.84	497.49	497.24	WINDING PATH COURT	C.L. STA. 2+39	@ C.L.	STD. MANHOLE	G - 5.01
M-10	530.00	528.66	528.41	---	N 585,561.96 E 1,302,218.21	---	STD. MANHOLE	G - 5.01
S-1	529.33	—	527.83	---	N 585,587.76 E 1,302,163.44	---	HDPE END SECTION	
S-2	447.71	—	443.21	---	N 587,093 E 1,300,300	---	HDPE END SECTION	
S-3	517.35	—	516.10	MD. ROUTE 97	C.L. STA. -2+55	44'L	HDPE END SECTION	

* DENOTES FUTURE INVERT

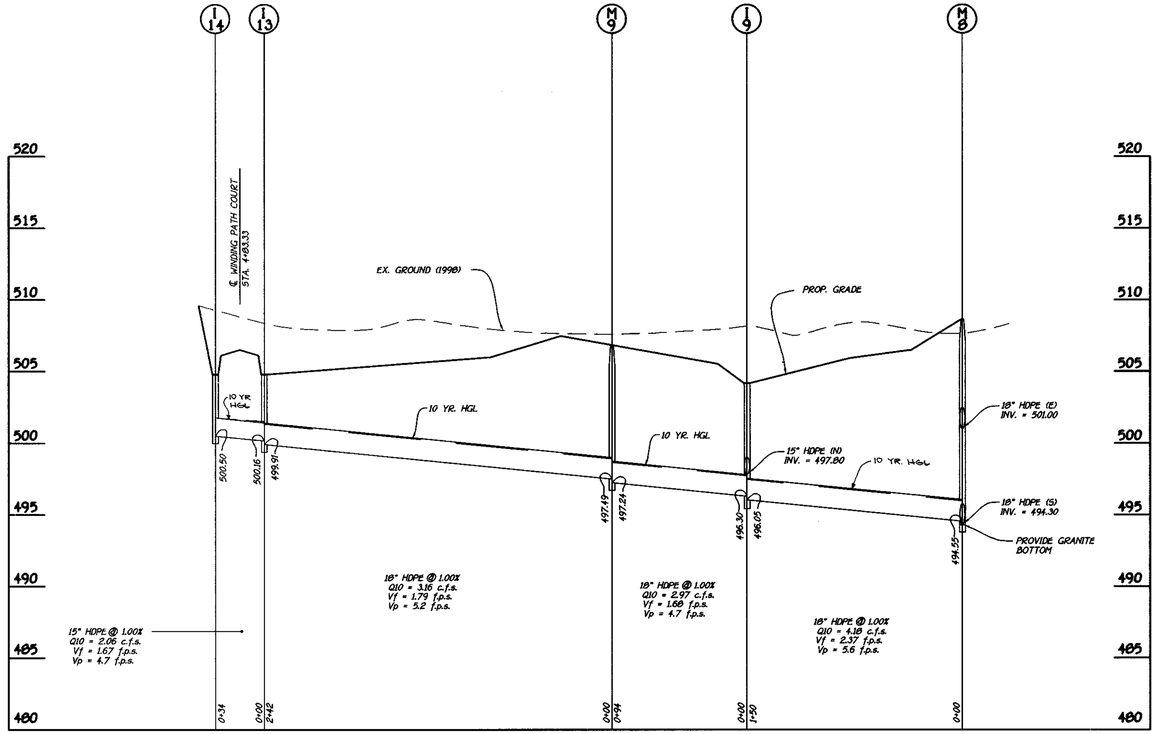


PROFILE

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

PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	HDPE	375'
18"	HDPE	2136'
24"	HDPE	468'
54"	HDPE	1310'



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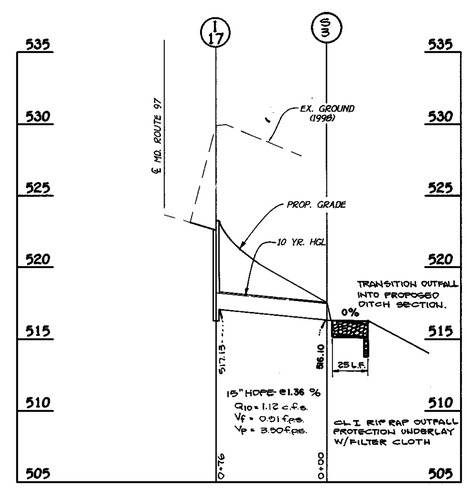
VERT. : 1" = 5'



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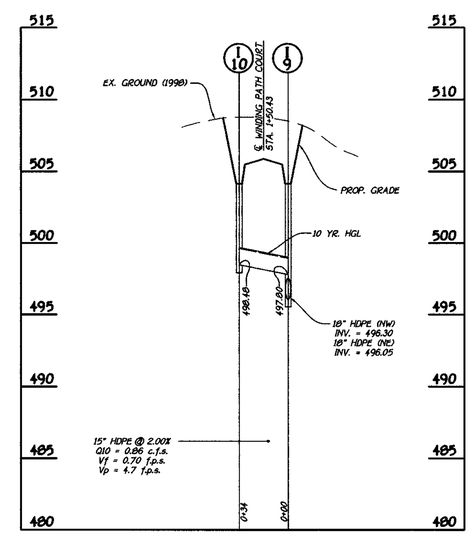
VERT. : 1" = 5'



PROFILE

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

OWNERS

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c/o BRS DEVELOPERS, LLC
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8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

STATE OF MARYLAND — ROBERT WILLIAM MCALEER — No. 20748 — REGISTERED PROFESSIONAL ENGINEER

6-14-99

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.- 30183 STORMDRAINS 1.DWG

STORM DRAIN PROFILES

CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 14 OF 27

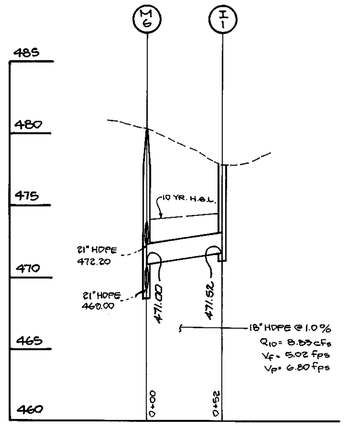
F 99-145

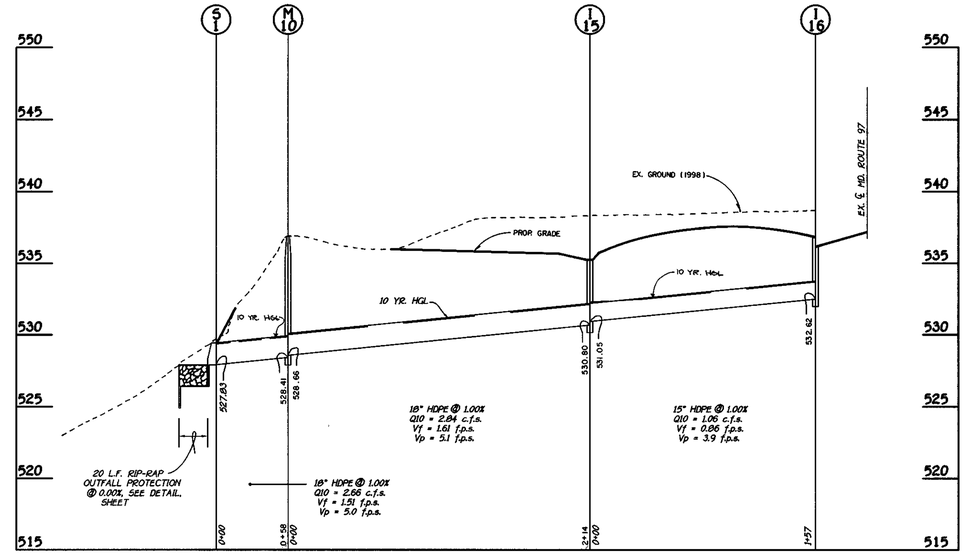
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development	Date 12/17/99
Chief, Development Engineering Division	Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways	Date 12-1-99





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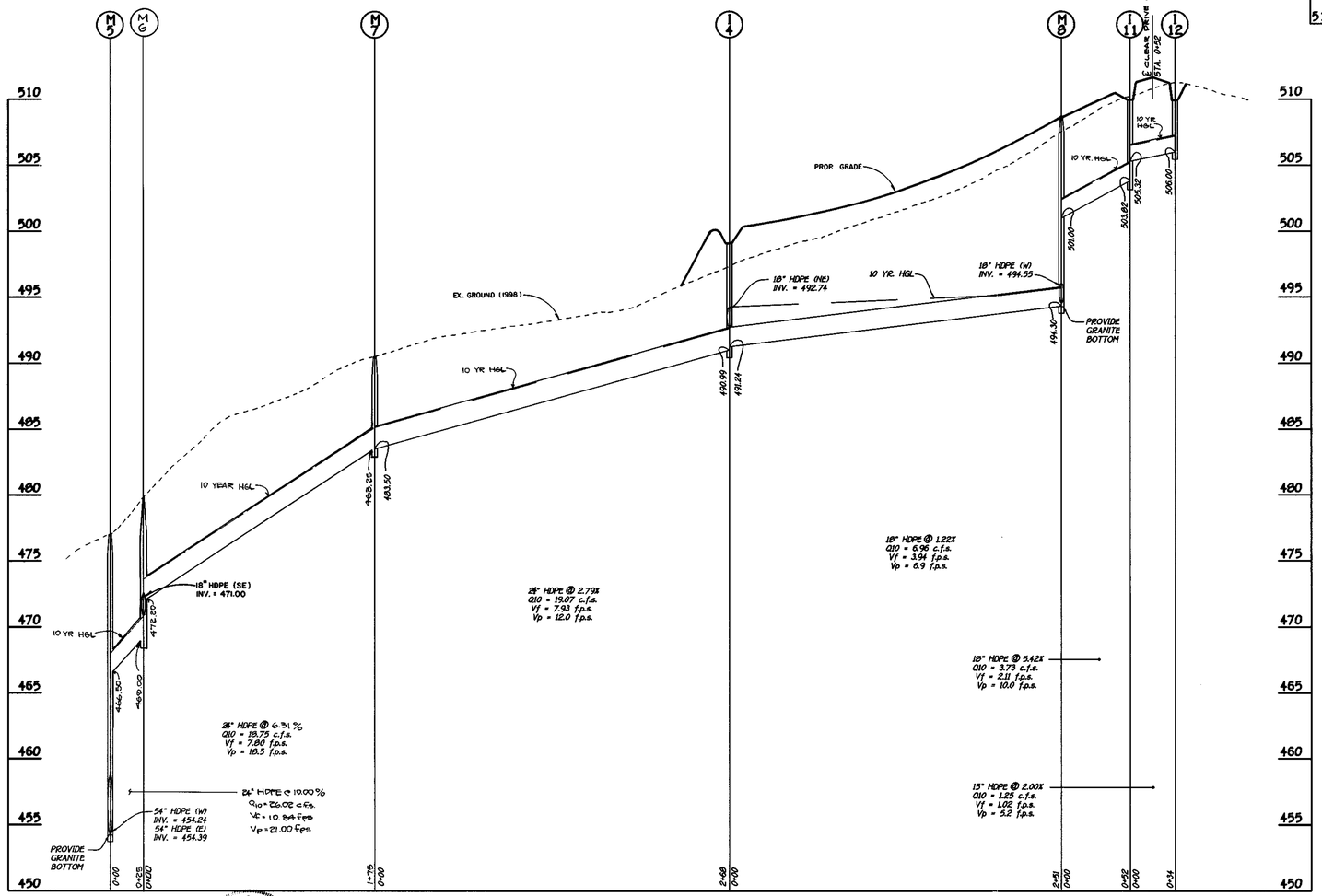

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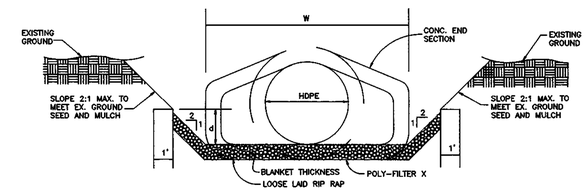

RIP-RAP CHANNEL DETAIL

NO SCALE

RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA (SQ. FT)	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	Q_{10}	DIA.
S-1	1.6550	3.4583	0.4786	0.6117	0.005	0.0707	9.5	1.19	0.04	5.0	2.66	9.5"	15"	19"	2.66	18"
S-2	28.0697	14.8412	1.8913	1.5326	0.005	0.0707	24.5	3.72	0.04	18.5	112.77	23"	34"	48"	112.77	54"
S-3	2.25	5.736	0.392	0.534	0.010	0.10	3.5	0.5	0.04	1.98	1.12	9.5"	15"	19"	1.12	15"

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.

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 — ADAM MARCUS BEAVEN — No. 30519 — PROFESSIONAL ENGINEER — 11-3-99

F.C.C.- 30519 STORMDRAINS.2DWG

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
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COLUMBIA, MARYLAND 21045

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STORM DRAIN PROFILES

CATTAIL RIDGE

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(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626
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ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 15 OF 27

F99-145

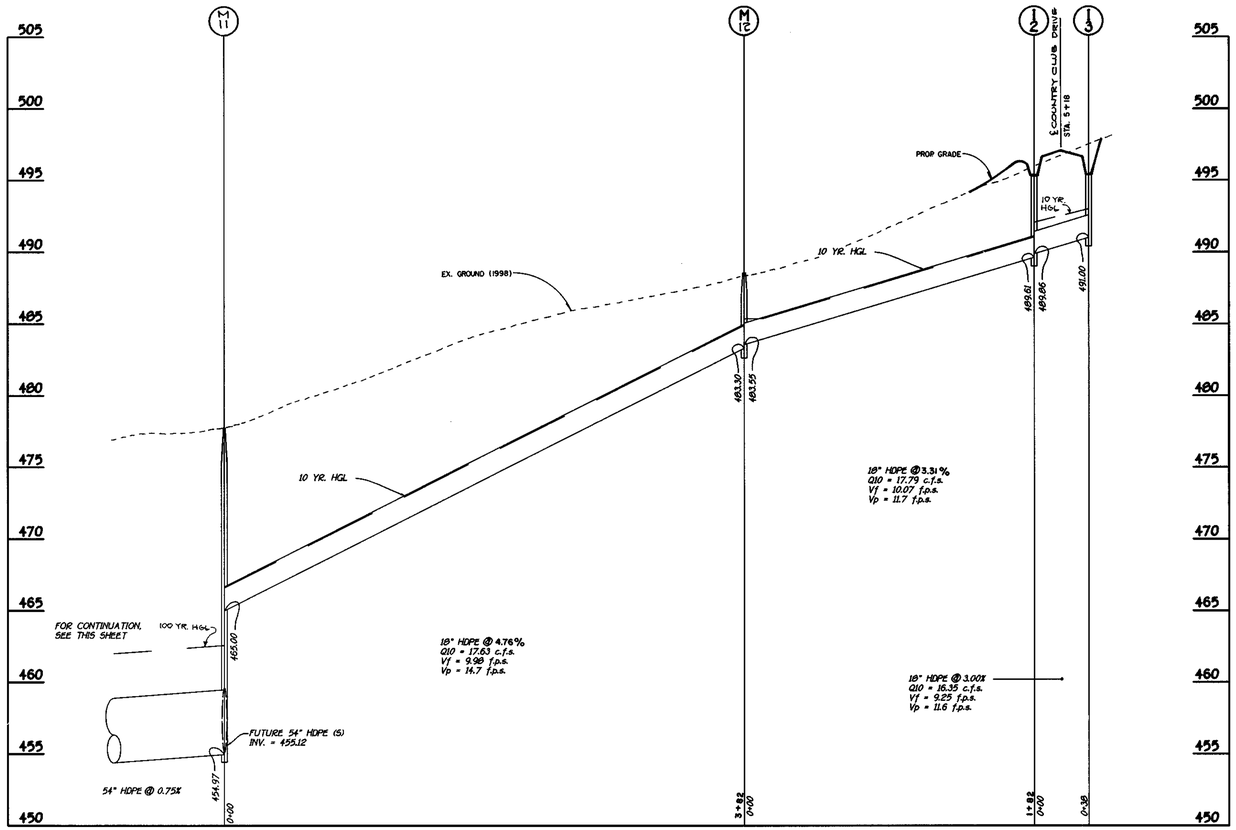
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/7/99

Chief, Development Engineering Division — Date 12/3/99

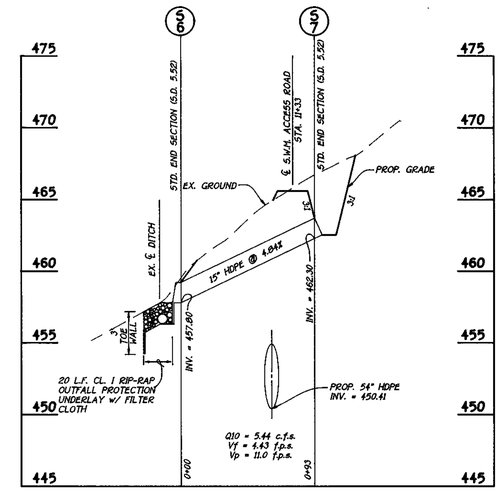
Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



PROFILE

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



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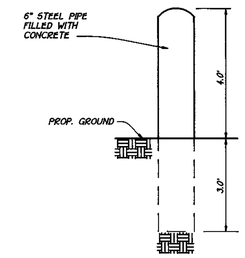
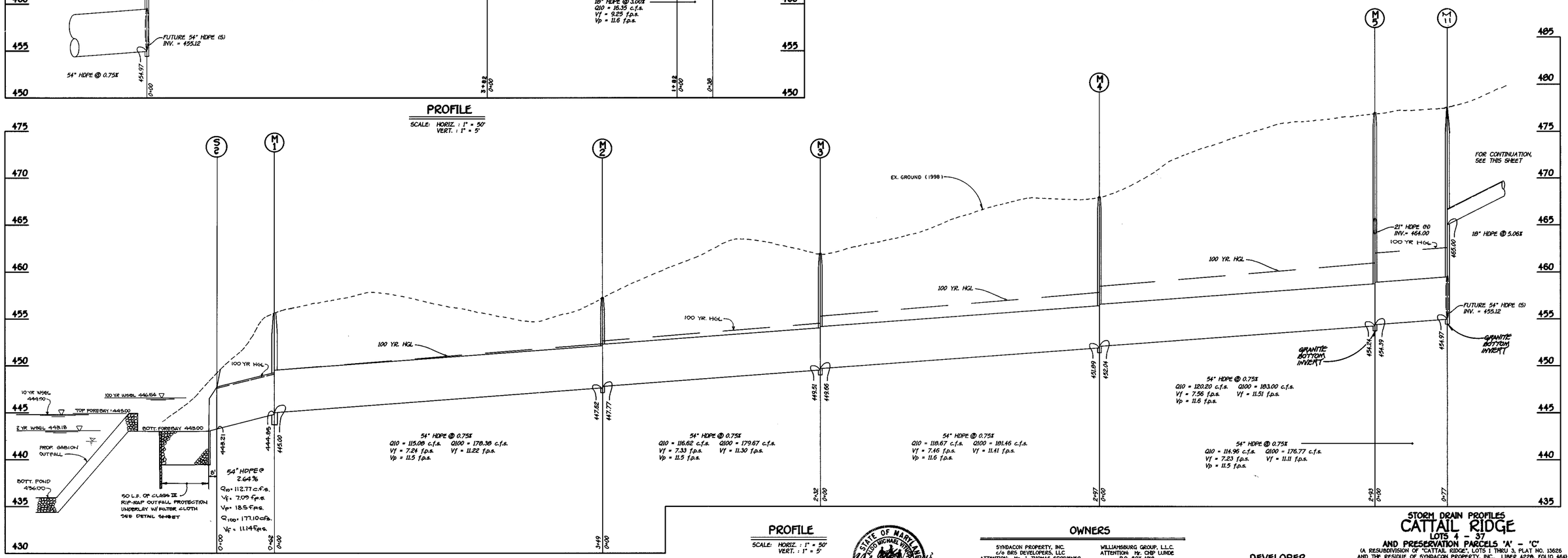


TYPICAL BOLLARD DETAIL

NOT TO SCALE



PROFILE

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

STATE OF MARYLAND — ALLOD MICHAEL VIRGIL — No. 30748 — REGISTERED PROFESSIONAL ENGINEER

3-17-99

OWNERS

SYNDACON PROPERTY, INC.
c/o B&S DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8609 CENTER PARK DRIVE, SUITE 209
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STORM DRAIN PROFILES

CATTAIL RIDGE

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ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 16 OF 27

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.* 30619 STORMDRAINS.3.DWG

F 99-145

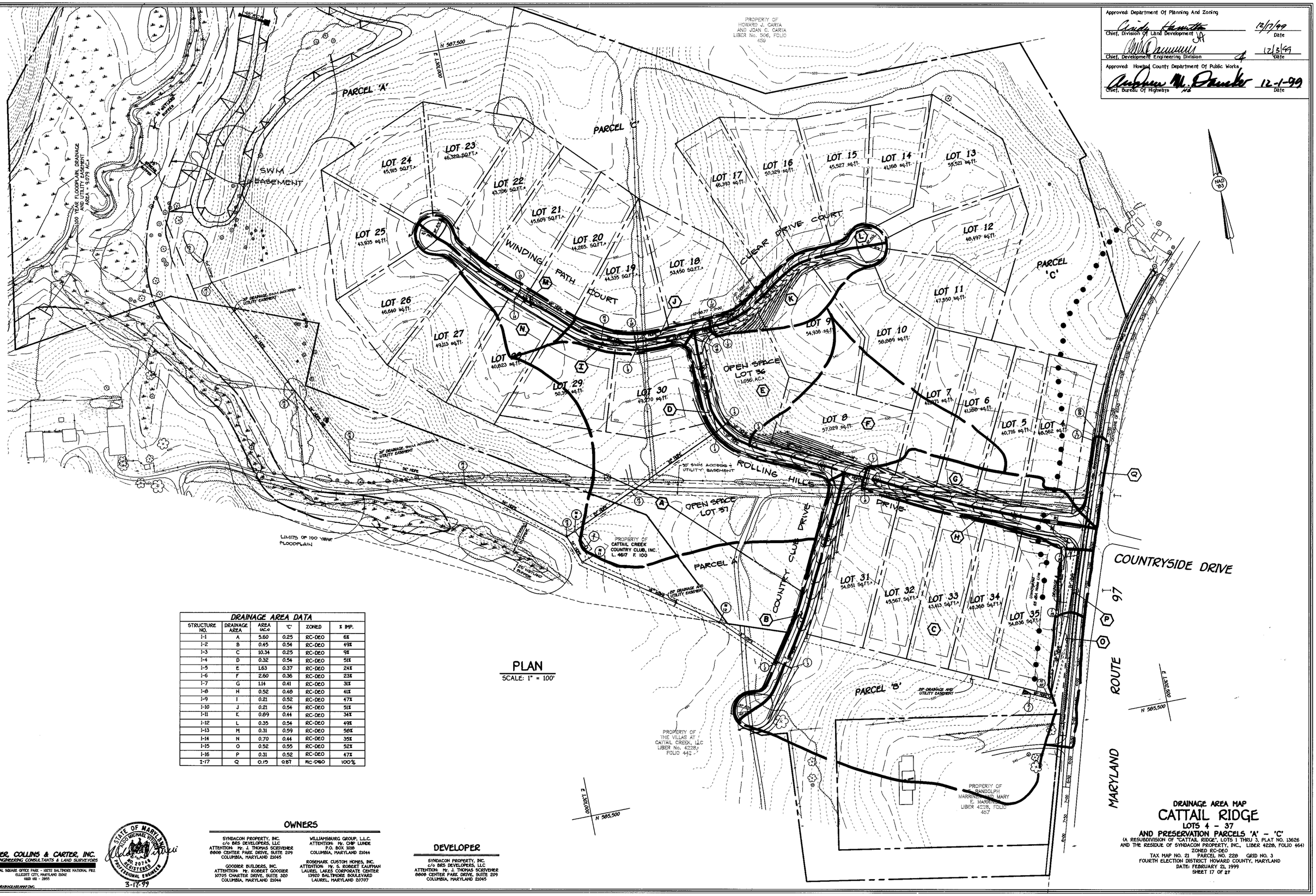
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/17/99

Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



PLAN

SCALE: 1" = 100'

DRAINAGE AREA DATA					
STRUCTURE NO.	DRAINAGE AREA	AREA (AC.±)	'C'	ZONED	% IMP.
I-1	A	5.60	0.25	RC-DEO	6%
I-2	B	0.45	0.54	RC-DEO	49%
I-3	C	10.34	0.25	RC-DEO	9%
I-4	D	0.32	0.54	RC-DEO	51%
I-5	E	1.63	0.37	RC-DEO	24%
I-6	F	2.60	0.36	RC-DEO	23%
I-7	G	1.14	0.41	RC-DEO	31%
I-8	H	0.52	0.48	RC-DEO	41%
I-9	I	0.21	0.52	RC-DEO	47%
I-10	J	0.21	0.54	RC-DEO	51%
I-11	K	0.89	0.44	RC-DEO	34%
I-12	L	0.35	0.54	RC-DEO	49%
I-13	M	0.31	0.59	RC-DEO	58%
I-14	N	0.70	0.44	RC-DEO	35%
I-15	O	0.52	0.55	RC-DEO	52%
I-16	P	0.31	0.52	RC-DEO	47%
I-17	Q	0.19	0.87	RC-DEO	100%

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT LAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
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COLUMBIA, MARYLAND 21045

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 — JOHN MICHAEL VITRANO — No. 20768 — REGISTERED PROFESSIONAL ENGINEER

3-17-99

F.C.C.- 3083 DRAINAGEAREAMAP.DWG

DRAINAGE AREA MAP
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 17 OF 27

F 99-145

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING					
LINEAR FEET OF PERIMETER	D1: (4187)	D2: (4697)	D3: (1022')	D4: (6657)	D5: (3147)
NUMBER OF TREES REQUIRED: SHADE TREES / EVERGREEN TREES	10 / 12	10 / 12	20 / 26	14 / 17	7 / 9
CREDIT FOR EXISTING VEGETATION (NO, YES AND ID	NO	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND ID	NO	NO	NO	NO	NO
NUMBER OF TREES PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTION)	10 / 12	10 / 12	20 / 26	14 / 17	7 / 9

LANDSCAPE SCHEDULE				
QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
165		ACER RUBRUM 'RED SUNSET	RED SUNSET RED MAPLE	2 1/2"-3"
110		PINUS STROBUS	WHITE PINE	6'-8' HT.

NOTE: THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 275 LANDSCAPING TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $66,000.00.

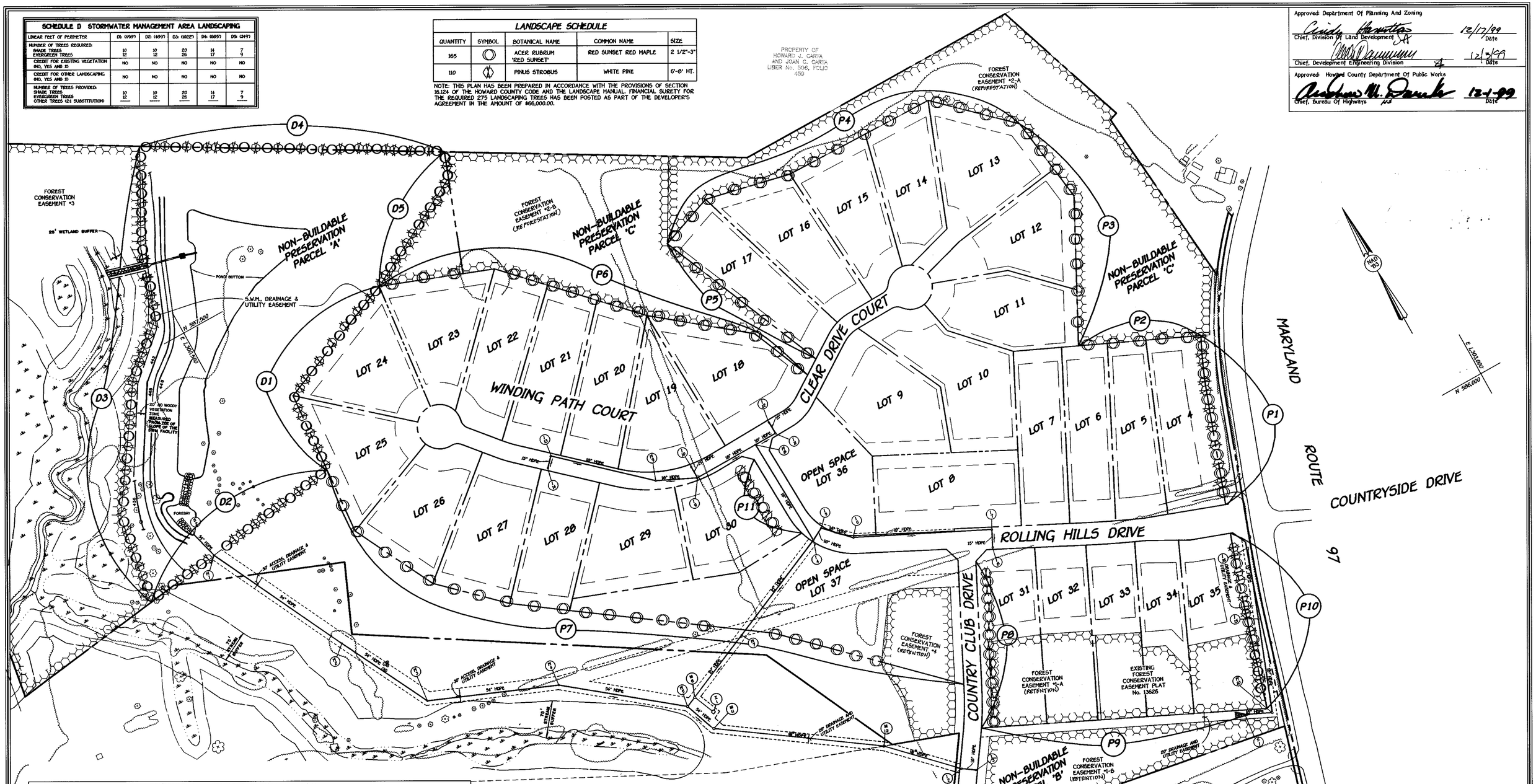
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/17/99

Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



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: SHADE TREES	EVERGREEN TREES	SHRUBS	NUMBER OF PLANTS PROVIDED: SHADE TREES	EVERGREEN TREES	SHRUBS
P-1	ADJACENT TO ROADWAY	B	385'	NO	NO	8	10	-	8	10	-
P-2	ADJACENT TO PERIMETER	A	276'	NO	NO	5	-	-	5	-	-
P-3	ADJACENT TO PERIMETER	A	541'	NO	NO	9	-	-	9	-	-
P-4	ADJACENT TO PERIMETER	A	894'	NO	NO	15	-	-	15	-	-
P-5	ADJACENT TO PERIMETER	A	423'	NO	NO	7	-	-	7	-	-
P-6	ADJACENT TO PERIMETER	A	1016'	NO	NO	17	-	-	17	-	-
P-7	ADJACENT TO PERIMETER	A	1579'	YES (174')	NO	23	-	-	23	-	-
P-8	ADJACENT TO ROADWAY	B	376'	NO	NO	8	9	-	8	9	-
P-9	ADJACENT TO PERIMETER	A	642'	YES (642')	NO	0	-	-	0	-	-
P-10	ADJACENT TO ROADWAY	B	392'	NO	NO	8	10	-	8	10	-
P-11	ADJACENT TO ROADWAY	B	198'	NO	NO	4	5	-	4	5	-

PLAN

SCALE: 1" = 100'

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.-30569 LANDSCAPE PLANDWG

STATE OF MARYLAND — JOHN CRAIG SCRIVENER — No. 20749 — REGISTERED PROFESSIONAL ENGINEER

6-14-99

OWNERS

SYNDACON PROPERTY, INC.
c/o B&S DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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ATTENTION: Mr. J. THOMAS SCRIVENER
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COLUMBIA, MARYLAND 21045

LANDSCAPE PLAN

CATTAIL RIDGE

LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

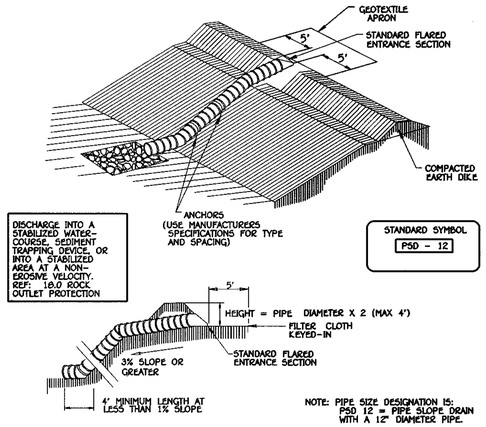
DATE: JUNE 1, 1999

SHEET 10 OF 27

F99-145

PIPE SLOPE DRAIN

NOT TO SCALE

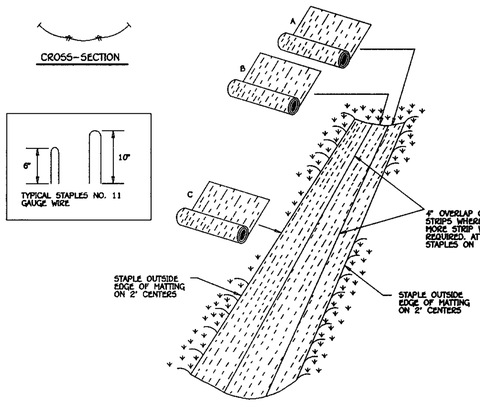


NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE DRAIN WITH A 12" DIAMETER PIPE.

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

EROSION CONTROL MATTING



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.

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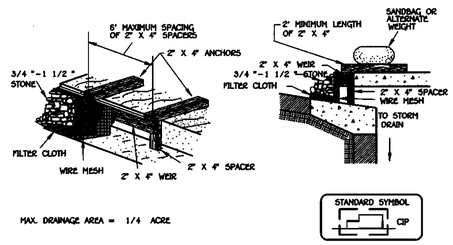
(410) 461 - 2855

F.C.C.- 30989 SED CON DETAILS.DWG

CURB INLET PROTECTION

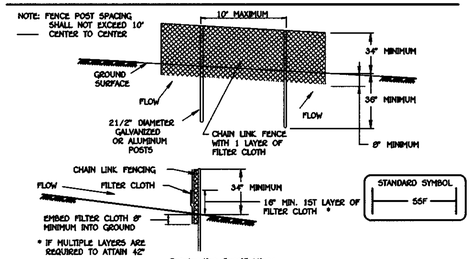


MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

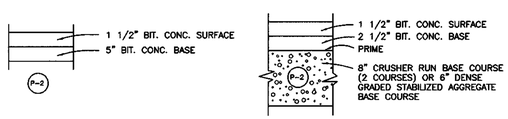
SUPER SILT FENCE



Construction Specifications

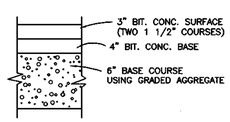
1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 2'-0" 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 (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322



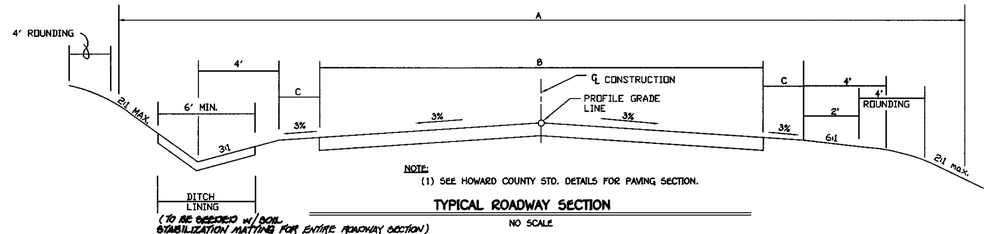
PAVING SECTION P-2

NO SCALE



S.H.A. PAVING SECTION

NO SCALE



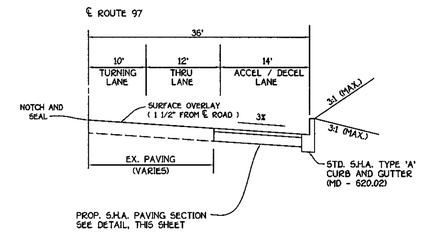
NOTE:
(1) SEE HOWARD COUNTY STD. DETAILS FOR PAVING SECTION.

TYPICAL ROADWAY SECTION

NO SCALE

ROADWAY INFORMATION CHART

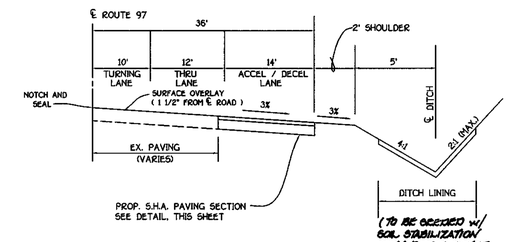
ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	A	B	C	PAVING SECTION
ROLLING HILLS DRIVE	MINOR COLLECTOR	35 M.P.H.	RC-DEO	0+00 TO 6+60.66	50'	24'	4'	P-2
ROLLING HILLS DRIVE	ACCESS STREET	25 M.P.H.	RC-DEO	6+60.66 TO 12+26.88	40'	22'	4'	P-2
COUNTRY CLUB DRIVE	ACCESS STREET	25 M.P.H.	RC-DEO	0+00 TO 6+64.89	40'	22'	4'	P-2
CLEAR DRIVE COURT	ACCESS PLACE	25 M.P.H.	RC-DEO	0+00 TO 5+09.54	40'	18'	4'	P-2
WINDING PATH COURT	ACCESS PLACE	25 M.P.H.	RC-DEO	0+00 TO 7+56.43	40'	18'	4'	P-2



S.H.A. SECTION SHALL BE 3" (NOMINAL) BITUMINOUS CONCRETE SURFACE (TWO 1 1/2" COURSES), 4" (NOMINAL) BITUMINOUS CONCRETE BASE AND EITHER ONE OF THE FOLLOWING:
6" BASE COURSE USING GRADED AGGREGATE BASE, GA BASE
OR A 7" BASE COURSE USING BANK-RUN GRAVEL BASE, BRG BASE

TYPICAL ROADWAY SECTION FOR MD. ROUTE 97 w/ CURB

NO SCALE



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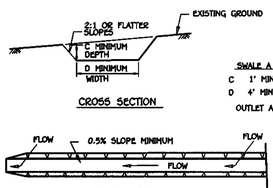
6" BASE COURSE USING GRADED AGGREGATE BASE, GA BASE
OR A 7" BASE COURSE USING BANK-RUN GRAVEL BASE, BRG BASE

TYPICAL ROADWAY SECTION FOR MD. ROUTE 97 w/ DITCH

NO SCALE

TEMPORARY SWALE

NOT TO SCALE



CROSS SECTION

	SWALE A	SWALE B
C	1' MIN.	1' MIN.
D	4' MIN.	6' MIN.

OUTLET AS REQUIRED

PLAN VIEW

DRAINAGE AREA = 10 ac (MAX)
SLOPE = 10% (MAX)

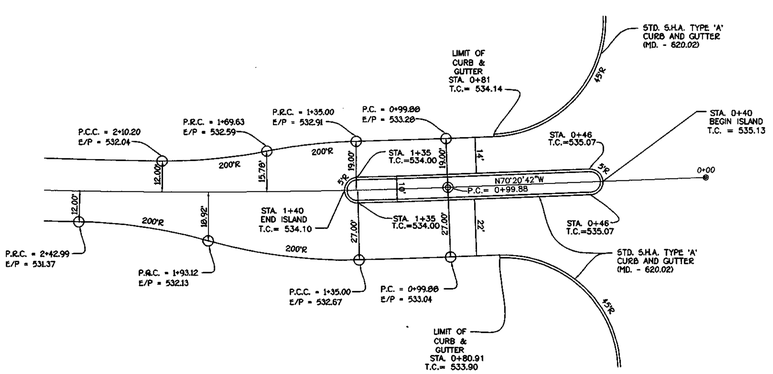
STANDARD SYMBOL
A - 2/ B - 3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

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 soil in a minimum 7" layer.

Construction Specifications

1. All temporary swales shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale 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, if necessary, 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 swale.
8. Inspection and maintenance must be provided periodically and after each rain event.



ENTRANCE DETAIL (ROLLING HILLS DRIVE)

NO SCALE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8800 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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WILLIAMSBURG GROUP, L.L.C.
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DEVELOPER

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c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8800 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 11-3-99

ENGINEER'S CERTIFICATE

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

SIGNATURE — DATE 6-14-99

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 11/19/99

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 11/19/99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/17/99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/3/99

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-1-99

DETAIL SHEET

CATTAIL RIDGE

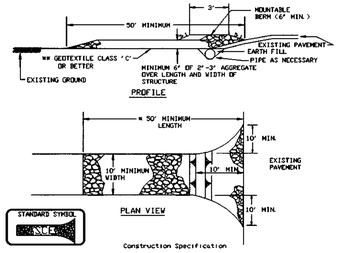
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 19 OF 27

F 99 - 145

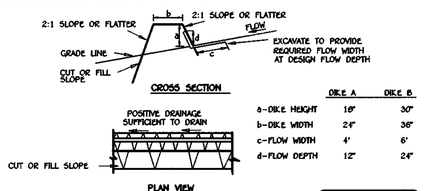


Construction Specification

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



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

STANDARD SYMBOL A-2 B-3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

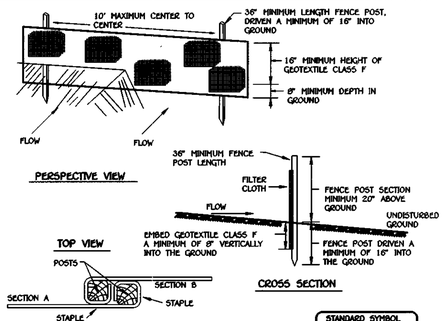
1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

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



STANDARD SYMBOL

Construction Specifications

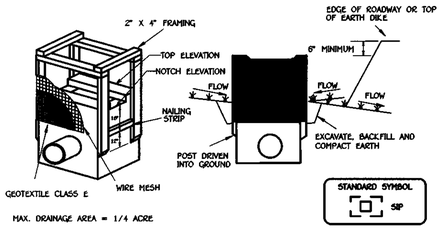
1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear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

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

STANDARD INLET PROTECTION

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 CESTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER — DATE 11-3-99

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER — DATE 6-14-99

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 11/19/99

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

APPROVED: HOWARD SOIL CONSERVATION DISTRICT — DATE 11/19/99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

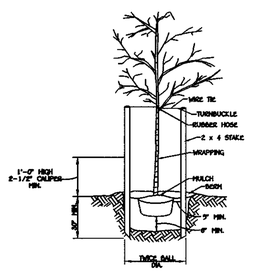
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/7/99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/3/99

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

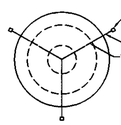
CHIEF, BUREAU OF HIGHWAYS — DATE 12-1-99



NOTE: REMOVE BURLAP FROM TOP 1/3 OF BALL

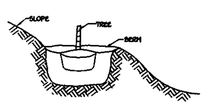
TREE PLANTING

NOT TO SCALE



STAKING DETAIL

NOT TO SCALE



GRADING FOR PLANTING ON SLOPES

NOT TO SCALE

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 eroding areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY

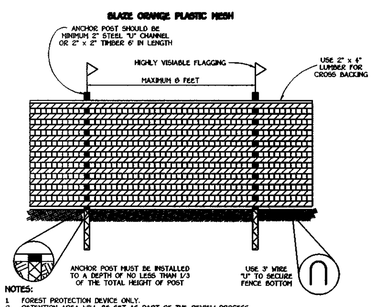
Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity 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, sediment traps, 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. Incorporate 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 lespedeza 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 chopping with a heavy chisel 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 at a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on the 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 seeder, 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 20.5 or 20. 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, caking excessively 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 applied 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 components at concentration levels that will be phytotoxic.
      f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., average fiber length 4.0 to 6.5, 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 seeding 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 driven 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, the practice should be used on the contour if possible.
   ii. Wood cellulose fiber can be used for anchoring straw. The fiber 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 minimum 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 spread uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), ECA-70 Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
   iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.
I. Incremental Stabilization - Cut Slopes
   i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
   ii. Construction sequence (refer to Figure 3 below)
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
      b. Perform Phase 1 excavation, dress, and stabilize.
      c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.
   Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil if required and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.
J. Incremental Stabilization of Embankments - Fill Slopes
   i. Embankments shall be constructed in lifts as prescribed on the plans.
   ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.
   iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
   iv. Construction sequence (refer to Figure 4 below).
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct slope silt fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.
      b. Place Phase 1 embankment, dress and stabilize.
      c. Place Phase 2 embankment, dress and stabilize.
      d. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.
   Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil if required and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.



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

SEDIMENT CONTROL NOTES

D 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 HUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. I, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5) ALL DISTURBED AREAS HUST 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. 50), 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	87.771	ACRES
AREA DISTURBED	7.713	ACRES
AREA TO BE ROOFED OR PAVED	1.623	ACRES
AREA TO BE VEGETATIVELY STABILIZED	6.090	ACRES
TOTAL CUT	20,000	CU.YDS.
TOTAL FILL	20,000	CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A	CU.YDS.

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

9) ADDITIONAL SEDIMENT CONTROLS HUST 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 HAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS HADE.

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

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCREVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCREVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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

F.C.C.: 3089 SED CON DETAILS.DWG

SEDIMENT CONTROL NOTES AND DETAILS

CATTAIL RIDGE

LOTS 4 THRU 37
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 20 OF 27

F 99-145

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 1½" in diameter.

ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, 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 perscribed to raise the pH to 6.5 or higher.

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

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

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

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

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

V. Topsoil Application

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

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, 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 seedine can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

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

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

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

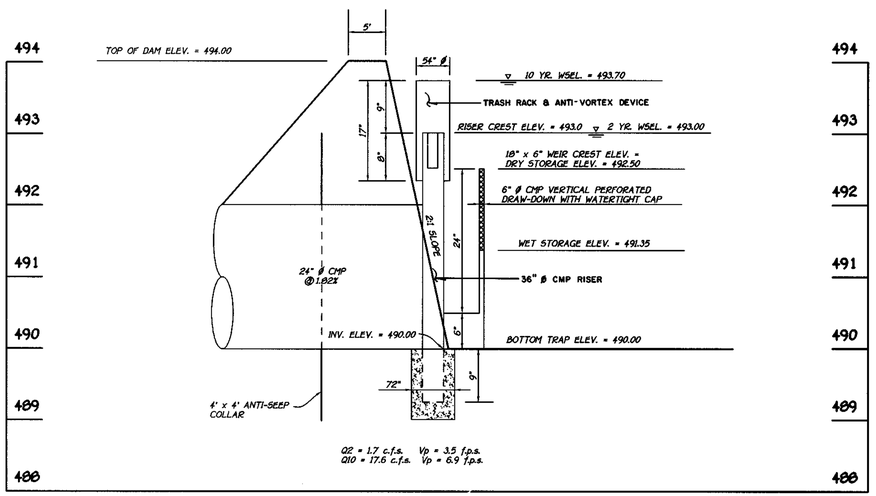
a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

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/Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.



P.O.S.T. NO. 1 DETAIL

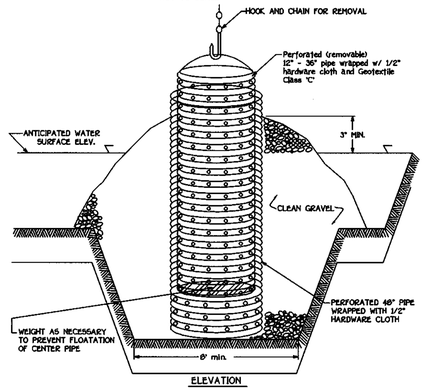
SCALE: HORIZ. : 1" = 10'
VERT. : 1" = 1'

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. - 30895WR2126

REMOVABLE PUMPING STATION

NOT TO SCALE



ELEVATION

Construction Specifications

1. The outer pipe should be 46" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.

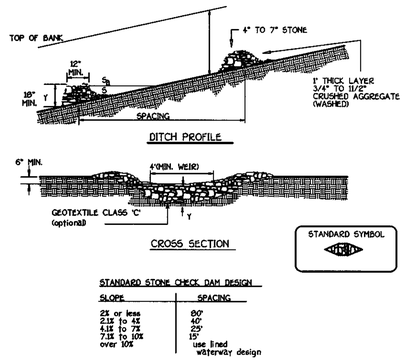
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.

3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.

4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

STONE CHECK DAM

NOT TO SCALE



STANDARD STONE CHECK DAM DESIGN

SLOPE	SPACING
2% or less	60'
2.1% to 4%	40'
4.1% to 7%	25'
7.1% to 10%	15'
over 10%	use lined waterway design

Construction Specifications

1. Swales and ditches shall be prepared in accordance with the construction specifications described in Section A-2, Standards and Specifications for Temporary Swale.

2. The check dam shall be constructed of 4"-7" stone. The stone shall be placed so that it completely covers the width of the channel and keyed into the channel banks.

3. The top of the check dam shall be constructed so the the center is approximately 6" lower than the outer edges, forming a weir that water can flow across.

4. The maximum height of the check dam at the center shall not exceed 2'.

5. The upstream sideof the check dam shall be lined with approximately 1" of 3/4" to 1 1/2" crushed aggregate.

P.O.S.T. NO. 1

Construction Specifications

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

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

3. The total trap volume as measured from the bottom to weir elevation shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be ≥ 1' above the riser crest elevation.

4. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (900cf/ac). The sediment shall be deposited in a suitable area and in such a manner that it will not erode.

5. The structure shall be inspected periodically and after each rain and repairs made as necessary.

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

7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.

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

9. All pipe connections shall be watertight.

10. Above the wet storage elevation, the draw-down pipe shall be perforated with 1/2" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally.

11. The draw-down pipe shall be wrapped with 1/2" hardware cloth (wire) then wrapped with Geotextile Class E. The filter cloth shall extend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.

12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.

13. Fill material around the pipe spillway shall be hand compacted in 4" layers. A minimum of 2' of hand-compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.

14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 9". Steel plate bases shall be at least twice the riser diameter, 1/4" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2' of stone, gravel or tamped earth on the plate.

15. Anti seep collars shall be constructed in accordance with plans (ref. table 16 and Details 13 and 14).

16. Concentric trash rack and anti-vortex device design details are on Detail 16.

17. Refer to Section D for dewatering requirements of sediment traps.

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

19. Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.

⚠2 SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT.

2. NOTIFY "MISS UTILITY" AT LEATS 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 24 HOURS BEFORE STRATING WORK.

3. CLEAR AND GRUB FOR PERIMETER SEDIMENT CONTROL MEASURES AND INSTALL STABILIZED CONSTRUCTION ENTRANCE. (2 weeks)

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

5. INSTALL REMAINING SEDIMENT CONTROL MEASURES, SEDIMENT TRAPS, EARTH DIKES, PIPE SLOPE DRAINS FOR CLEAN WATER DIVIDERSION AND SILT FENCE AS INDICATED ON THE PLANS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE PROPOSED SEDIMENT TRAPS. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF EACH FACILITY. (2 weeks)

6. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEED.

7. SITE CONSTRUCTION TO CONSIST OF THE FOLLOWING ITEMS:

A. GRADE THE REMAINDER OF THE SITE ASSOCIATED WITH THE ROAD CONSTRUCTION. THIS WORK SHALL INCLUDE GRADING SITE TO PROPOSED SUBGRADE INSTALLATION OF THE PROPOSED STORM SYSTEM UP TO AND INCLUDING THE TEMPORARY OUTFALLS ASSOCIATED WITH THE SEDIMENT TRAPS. STABILIZE ALL ROADWAY DITCH SLOPES IMMEDIATELY UPON COMPLETION OF GRADING AS SHOWN ON THESE PLANS. INSTALL BASE COURSE PAVING (6 weeks). THIS WORK CAN COINCIDE WITH THE FOLLOWING ITEM #7B DUE TO THE TEMPORARY SWM PROVIDED IN THE TRAP.

B. CONSTRUCT THE STORMWATER MANAGEMENT FACILITY. ALSO CONSTRUCT PART OF THE STORM DRAIN SYSYTEM FROM S-2 TO M-7 AND FROM M-5 TO M-12 AS SHOWN ON THE ATTACHED PLANS. (6 weeks). INSURE FULL PERMANENT STABILIZATION OF THE SWM FACILITY PRIOR TO CONNECTION OF STORM DRAIN SYSTEM FOR THIS SITE AND IF APPLICABLE, THE ADJACENT VILLAS AT CATTAIL CREEK SITE. CONTRACTOR SHALL BE AWARE OF THE STREAM CLOSURE DATES FOR CATTAIL CREEK TO BE FROM OCTOBER 1ST THROUGH APRIL 30TH FOR ALL CLASS III STREAMS.

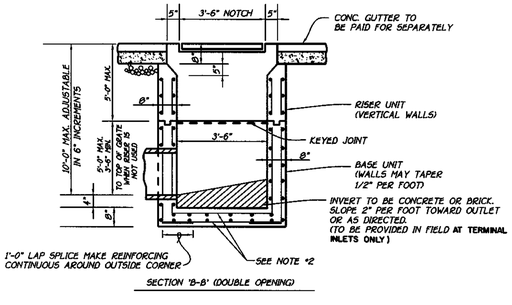
8. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENTS FROM ALL TRAPS WHEN CLEANOUT ELEVATIONS ARE REACHED. ALL SEDIMENTS MUST BE PLACED UPSTREAM OF AN APPROVED TRAP DEVICE. (1 week)

9. STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTORS TO PROCEED.

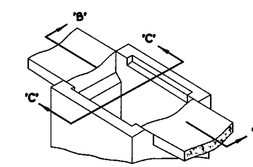
10. APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 week)

11. WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES AND TRAPS HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICE MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. THIS WOULD ALSO INCLUDE THE REMOVAL OF TEMPORARY STORM DRAIN OUTFALLS AT THE TRAPS FINAL STORM DRAIN RUN CONNECTIONS. STABILIZE ALL REMAINING AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 weeks)

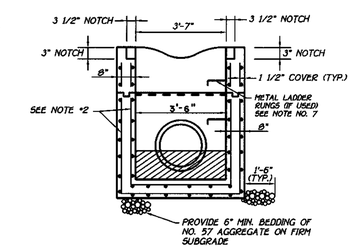
12. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT.



SECTION 'B-B' (DOUBLE OPENING)



DOUBLE OPENING
(SHOWN WITHOUT GRATE)



SECTION 'C-C'

GENERAL NOTES:

1. *CONCRETE TO BE MIX NO. 6 (4500 PSI).*
2. *REINFORCING - 2 LAYERS OF 4 x 4 - W 4.0 x W 4.0 WELDED WIRE FABRIC.*
3. *THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.*
4. *FOR GRATE DETAILS SEE STANDARD MD. - 378.05. GRATE TO BE AS SHOWN OR FURNISH APPROVED EQUIVALENT.*
5. *PIPE OPENINGS TO BE PROVIDED AS REQUIRED, FOR SIZE, LOCATION AND INVERT ELEVATIONS REFER TO CONSTRUCTION PLANS.*
6. *PLACEMENT OF SUBGRADE DRAINAGE WILL BE AS DIRECTED BY THE ENGINEER OR AS NOTED ON THE CONSTRUCTION PLANS.*
7. *LADDER RUNGS SHALL BE IN ACCORDANCE WITH STANDARD MD. - 383.91, AS SHOWN OR AS DIRECTED BY THE ENGINEER.*
8. *MINIMUM DEPTH PAYMENT PER "EACH" INLET INCLUDES DEPTHS UP TO 3'-6". VERTICAL DEPTH PAYMENT PER LINEAR FOOT INCLUDES DEPTHS IN EXCESS OF 3'-6".*
9. *A 6" PERFORATED CIRCULAR PIPE, FOR EROSION AND SEDIMENT CONTROL, SHALL BE PLACED IN THE INLET WALL AT ALL INLET SEDIMENT TRAPS AS SHOWN ON THE PLANS.*

MODIFIED OPEN END GRATE

NOT TO SCALE

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 — Date: 8-9-99

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: 11-3-99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/9/99

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

District Howard Soil Conservation Dist. — Date: 11/9/99

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/7/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99

DATE	DESCRIPTION
5-8-00	⚠2 REVISE SEQUENCE OF CONSTRUCTION

REVISIONS

OWNERS

SYNDACON PROPERTY, INC.
c/o BAS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10715 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BAS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

SEDIMENT CONTROL NOTES AND DETAILS

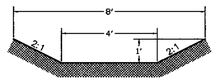
CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

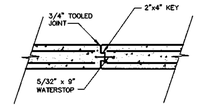
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 21 OF 27

F 99-145



SECTION 9

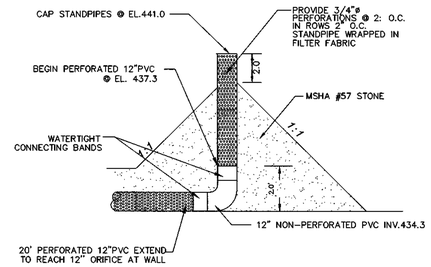
SCALE 1":3'



TYPICAL CONTRACTION JOINT

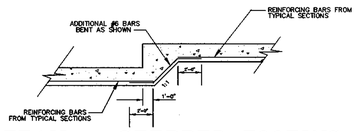
SCALE 1":3'

NOTE:
1. CONTRACTION JOINTS TO BE PLACED AT 30' INTERVALS
2. WATERSTOP IS BE ELASTOMERIC OR OTHER APPROVED MATERIAL.



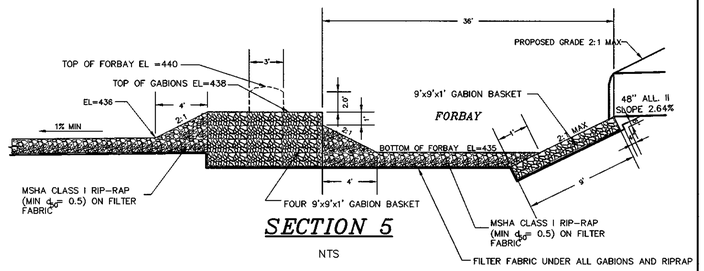
DEWATERING STANDPIPES

PROVIDE THIS DEWATERING DEVICE UPON COMPLETION OF RETAINING WALL FOR SEDIMENT CONTROL.



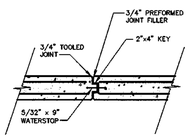
DETAIL – STEPPED FOOTING

SCALE: 1"=3'



SECTION 5

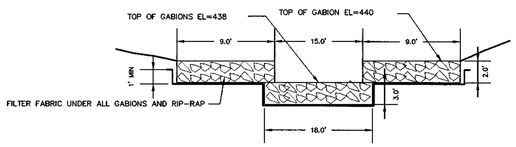
NTS



TYPICAL EXPANSION JOINT

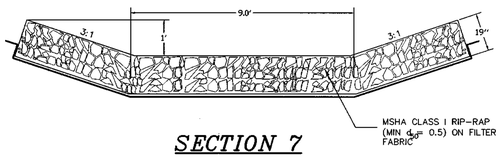
SCALE 1":3'

NOTE:
1. EXPANSION JOINTS TO BE PLACED AT 90' INTERVALS
2. WATERSTOP IS BE ELASTOMERIC OR OTHER APPROVED MATERIAL.



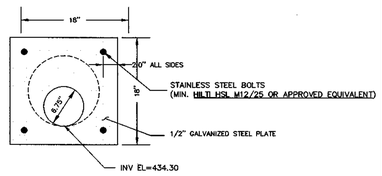
SECTION 6

NTS



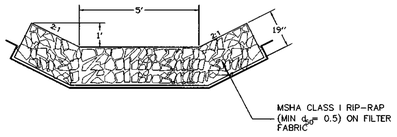
SECTION 7

SCALE 1":3'



CONTROL PLATE DETAIL

NTS



SECTION 8

SCALE 1":3'

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

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER _____ DATE 6/27/00

SYNDICON PROPERTY INC.
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 6/26/00

PRINTED NAME OF ENGINEER

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE _____ DATE 7/14/00

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 7/19/00

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS _____ DATE 7-10-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE 7/19/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 7/12/00

F:\98110\DWG\R2\110-SWMDETAILS2_R2

THE PURPOSE OF THIS PLAN OF REVISION SHEET IS TO REVISE THE SWM FACILITY AND ASSOCIATED CHANGES.

project	date	
98110	MAY 2000	
illustration	engineering	
	SAA	
scale	approval	
AS SHOWN		JBW

no.	description	date
1	SHEET 22 REPLACED (NEW SWM DETAILS) SWM DETAILS AND SECTIONS ADDED	

revisions

REVISED FINAL CONSTRUCTION PLAN
CATTAIL RIDGE
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'
TAX MAP 21, PARCEL 228 HOWARD COUNTY, MARYLAND
FOURTH ELECTION DISTRICT STORMWATER MANAGEMENT DETAILS

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

substitute 2 of 4 F.99.145

POND SPECIFICATIONS
(MD-378 WHERE APLICABLE)

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.

PIPE CONDUITS

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 Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or — 211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.
2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thick-ness.
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.

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 super-vised 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 the voids under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate loser 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 backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.
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 no needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.
3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.
4. Backfilling shall conform to "Structure Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.
Plastic Pipe – The following criteria shall apply for plastic pipe:
1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM 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 requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.
2. Joints and connections to antiseep 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 rip-rap 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 Con-tractor 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 lo-cations being refilled shall be maintained be-low 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 ediment control measures.

SWM POND MAINTENANCE SCHEDULE

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER ALL MAJOR STORMS. INSPECTIONS SHALL 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 PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.

3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AS NEEDED.

4. VISIBLE SIGNS OF EROSION ON THE POND, RIP-RAP, OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND (DAM, RISER, AND PIPES) SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.

2. SEDIMENT SHALL BE REMOVED FROM THE POND AND/OR FOREBAY, WHEN ONE HALF THE TOTAL CAPACITY OF THE POND AND/OR FOREBAY IS FULL OF SEDIMENT, OR DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

SWM POND MAINTENANCE REQUIREMENTS

a. SILT SHALL BE REMOVED WHEN ACCUMULATION EXCEEDS SIX (6) INCHES IN BASINS WITHOUT FOREBAYS. IN BASIN WITH FOREBAYS, SILT SHALL BE REMOVED WHEN THE ACCUMULATION EXCEEDS FOUR (4) INCHES IN THE FOREBAY.

b. ACCUMULATED PAPER, TRASH AND DEBRIS SHALL BE REMOVED AS NECESSARY.

c. VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANY TIME.

c. ANNUAL INSPECTION AND REPAIR, IF REQUIRED, OF THE STRUCTURE SHALL BE PERFORMED.

OPERATION, MAINTENANCE AND INSPECTION

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

SEQUENCE OF CONSTRUCTION (POND)

1. CONSTRUCTION OF THE POND SHALL COMMENCE AS PER THE OVERALL PROJECT SEQUENCE.

2. INSTALL SEDIMENT CONTROL DEVICES. (2 DAYS)

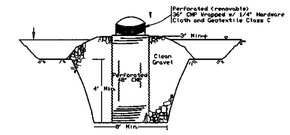
3. CLEAR AND GRADE POND AND FOREBAY. (4 WEEKS)

4. CONSTRUCT WALL (2 WEEKS).

5. STABILIZE, SEED, AND MULCH ALL DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES. (1 WEEK)

REMOVABLE PUMP STATION

TYPICAL



ELEVATION

Not to Scale

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SPECIFICATIONS FOR REMOVABLE PUMP STATION

10.0 DEWATERING SPECIFICATIONS
FOR
REMOVABLE PUMPING STATION

Description of Practice

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

Purpose

The pumping station provides a device that filters sediment laden water for pumping to a suitable discharge area.

Conditions Where Practice Applies

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

Design Criteria

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

A perforated vertical stand pipe is placed inside another pipe. The outside pipe is then enveloped by a cone of washed 4" aggregate. Water is then pumped from the center of the inside pipe to a suitable discharge area.

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

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

Construction Specifications

1. The inner pipe shall be constructed by perforating a 18" to 36" diameter pipe with 1/2" holes on the bottom end and wrapping it with 1/2" hardware cloth and Geotextile Class C. The perforations shall be 1/2"-3/4" slits or 1" diameter holes 6" on center.

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

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

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

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

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ERODSION 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 on 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.

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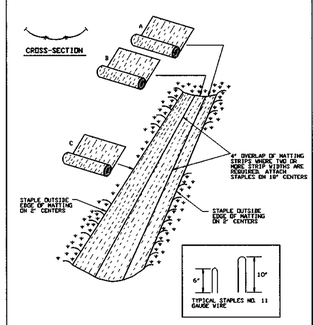
DETAIL 30 - EROSION CONTROL MATTING



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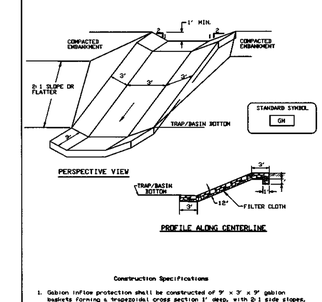
DETAIL 6 - GABION INFLOW PROTECTION



Construction Specifications

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

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

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

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

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

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ROCK OUTLET PROTECTION

Construction Specifications

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

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

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

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

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

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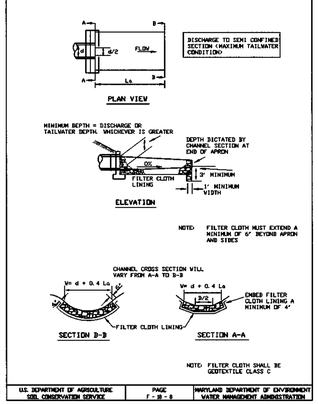
DETAIL 25 - ROCK OUTLET PROTECTION I



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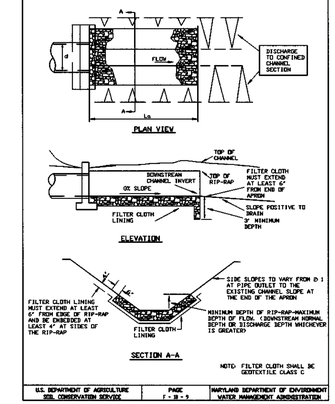
DETAIL 26 - ROCK OUTLET PROTECTION II



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THE PURPOSE OF THIS PLAN OF REVISION SHEET IS TO REVISE THE SWM FACILITY AND ASSOCIATED CHANGES.

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

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 6/22/00

SYNDICON PROPERTY, INC.
PRINTED NAME OF DEVELOPER

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER — DATE 6/26/00

PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

USDA – NATURAL RESOURCE CONSERVATION SERVICE — DATE 7/14/00

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/14/00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/12/00

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/14/00

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 7-10-00

F:\98110\DWG\R2\110-SWMDETAILS_R2

project	98110
date	MAY 2000
illustration	SAA
engineering	SAA
scale	NA
approval	JBM

No.	description	date
1	MD-378 REPLACED WITH JAN.2000 MD-378, DETAILS CHANGED.	

revisions

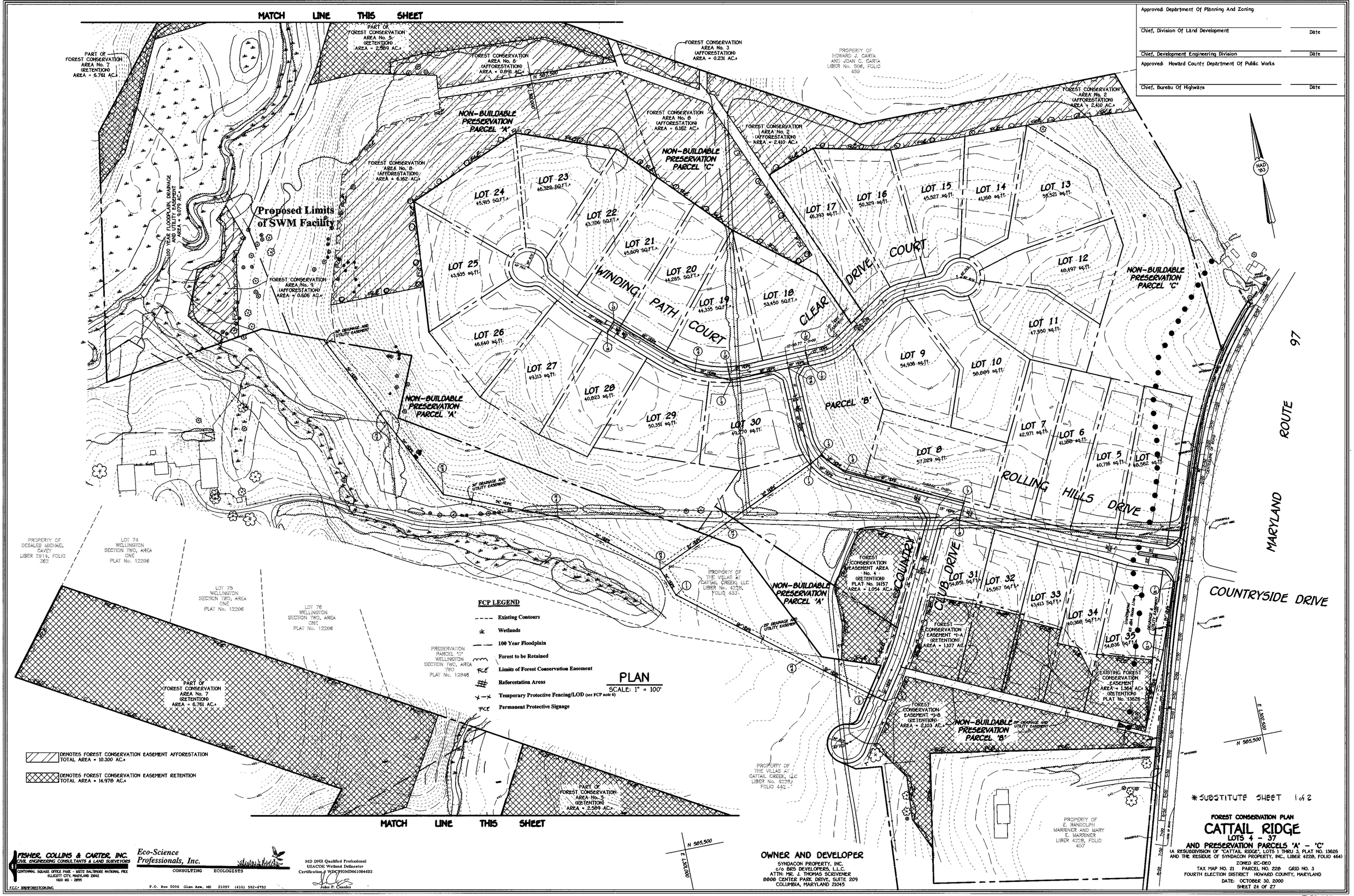
REVISED FINAL CONSTRUCTION PLAN
CATTAIL RIDGE
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'
TAX MAP 21, PARCEL 228
FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT SPECIFICATIONS

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

substitute 3 of 4

F 99.145

Approved: Department Of Planning And Zoning	
Chief, Division Of Land Development	Date
Chief, Development Engineering Division	Date
Approved: Howard County Department Of Public Works	
Chief, Bureau Of Highways	Date



*SUBSTITUTE SHEET 1 of 2

FOREST CONSERVATION PLAN

CATTAIL RIDGE

LOTS 4 - 37

AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: OCTOBER 30, 2000

SHEET 24 OF 27

OWNER AND DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, L.L.C.
ATTN: MR. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

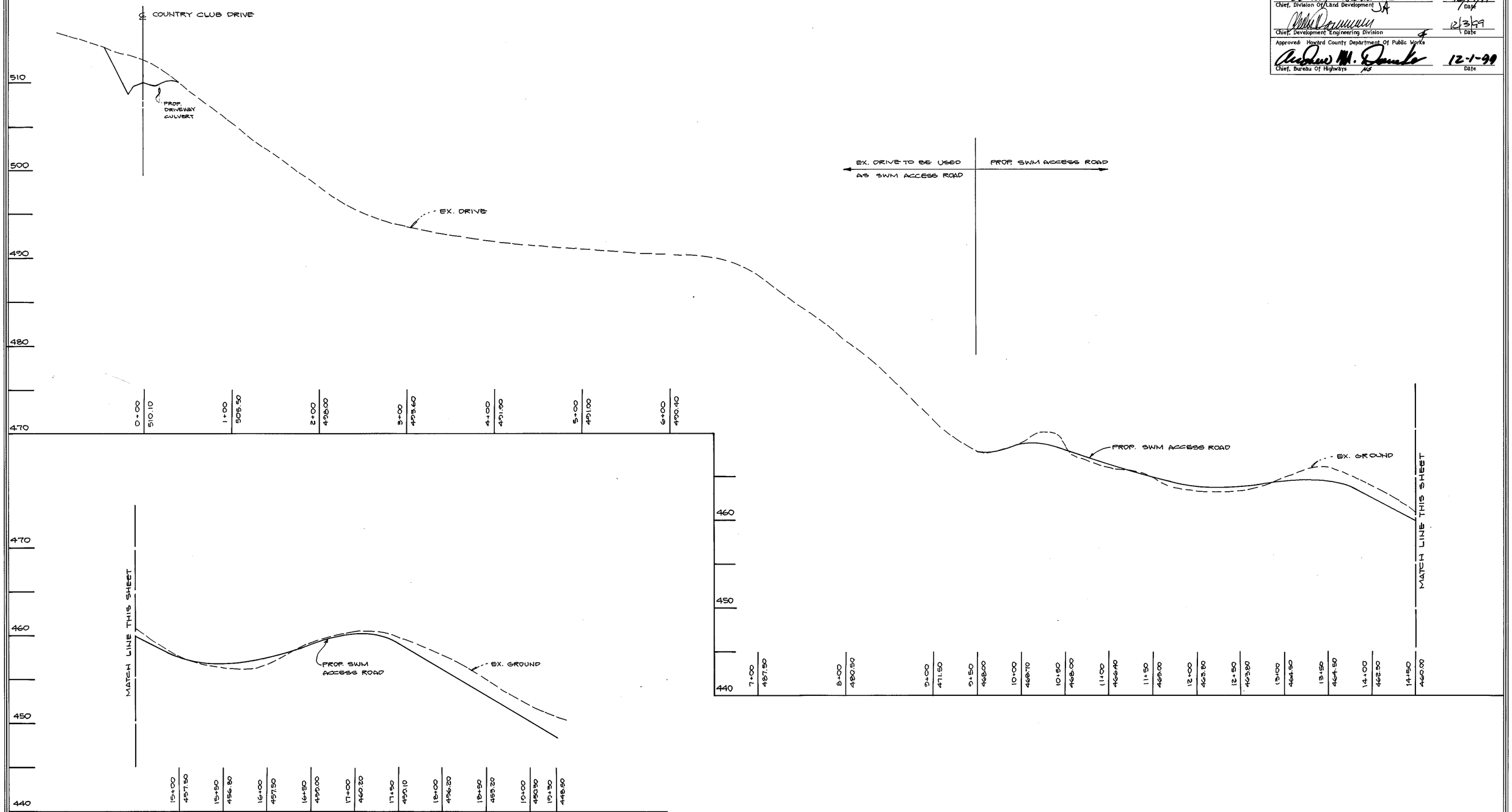
MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B2
John P. Canales

F.C.C.- 3061B\FORESTCON.DWG

K:\Drawings 3\30619 Villas At Cattail Creek [Cattail Ridge]\Cattail Ridge\FINALS\30619FORESTCON.dwg Tue Oct 31 12:08:36 2000 LandDev3

F-99-145

Approved: Department Of Planning And Zoning	
Chief, Division Of Land Development	Date 12/7/99
Chief, Development Engineering Division	Date 12/3/99
Approved: Howard County Department Of Public Works	
Chief, Bureau Of Highways	Date 12-1-99



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.- 30819 STORMDRAINS.DWG

STATE OF MARYLAND — JOHN MICHAEL RIDGELY — No. 20748 — REGISTERED PROFESSIONAL ENGINEER
6-14-99

OWNERS

SYNDACON PROPERTY, INC.
c/o 885 DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o 885 DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

S.W.M. ACCESS ROAD PROFILE

CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 26 OF 27

F 99-145

GEOTECHNICAL NOTES

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. BASED ON THE SOIL BORINGS, TOPSOIL RANGED BETWEEN 8 INCHES AND 18 INCHES THICK AT THE LOCATIONS TESTED. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOF ROLLED 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 PROOF ROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL. IT SHOULD BE NOTED THAT NO VERY LOOSE OR VERY SOFT SOILS WERE ENCOUNTERED BELOW THE TOP 2 FT AT THE LOCATIONS TESTED.

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. A REVIEW OF THE SITE BORINGS DID INDICATE SILTY CLAY (CL) MATERIALS WITHIN THE TOP 2 FT TO 4.5 FT AT THE BORING LOCATIONS. HOWEVER, THIS MAY NOT BE ENOUGH SUITABLE MATERIAL FOR THE PROPOSED CORE AND CUT-OFF TRENCH. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 378 SPECIFICATIONS.

THE EVALUATIONS CONTAINED IN THIS REPORT ARE BASED ON OUR UNDERSTANDING OF THE PROPOSED CONSTRUCTION, THE DATA OBTAINED FROM OUR FIELD EXPLORATION, AND OUR EXPERIENCE WITH THE SOILS AND SUBSURFACE CONDITIONS IN THIS AREA. IF THERE ARE ANY CHANGES TO THE PROJECT CHARACTERISTICS, THIS OFFICE SHOULD BE ADVISED SO THAT THE EVALUATIONS MADE IN THIS REPORT MAY BE RE-EVALUATED. THE READER IS REFERRED TO THE RECORDS OF SOIL EXPLORATION IN THE APPENDIX FOR DETAILS RELATED TO THE SUBSURFACE CONDITIONS ENCOUNTERED IN THE SOIL BORINGS. IT SHOULD BE NOTED THAT STRATIFICATION LINES SHOWN ON THE RECORDS OF SOIL EXPLORATION REPRESENT APPROXIMATE TRANSITIONS BETWEEN MATERIAL TYPES. IN-SITU, STRATA CHANGES COULD OCCUR GRADUALLY OR AT SLIGHTLY DIFFERENT LEVELS. ALSO, IT SHOULD BE NOTED THAT THE SOIL BORINGS DEPICT CONDITIONS AT THE PARTICULAR LOCATIONS AND AT THE PARTICULAR TIMES INDICATED. SOME CONDITIONS, PARTICULARLY GROUNDWATER CONDITIONS, COULD CHANGE WITH TIME.

VISUAL CLASSIFICATIONS OF THE SOILS WERE MADE BASED ON THE RESULTS OF THE PREVIOUS THREE BORINGS AND HYDROMETERS. THE USDA SOIL CLASSIFICATIONS IN BORINGS B-4 AND B-5 RANGED FROM LOAM TO SAND. THE SAND MATERIALS WERE ACTUALLY ROCK FRAGMENTS FROM JUST ABOVE THE AUGER REFUSAL DEPTH IN BORING B-5.

FINDINGS AND CONCLUSIONS

BASED ON THE SUBSOILS, ROCK AND GROUNDWATER ENCOUNTERED AS WELL AS THE RESULTS OF THE ORIGINAL EXPLORATION, INFILTRATION METHODS OF STORMWATER MANAGEMENT ARE NOT RECOMMENDED FOR THIS FACILITY.

AN ALLOWABLE NET BEARING CAPACITY OF 2500 PSF SHOULD BE AVAILABLE FOR THE SUPPORT OF ANY OUTFALL STRUCTURES IN THE VICINITY OF BORING BA. THE SOILS AT THE INVERT OF THE PIPE AND/OR STRUCTURES SHOULD BE EVALUATED IN THE FIELD BY THE GEOTECHNICAL ENGINEER OR ENGINEERING TECHNICIAN TO ENSURE THAT THE DESIGN BEARING IS AVAILABLE. IF SOFT OR LOOSE AREAS AREA ENCOUNTERED, THEY SHOULD BE REMOVED AND REPLACED WITH CONTROLLED FILL.

ROCK WAS ONLY ENCOUNTERED IN THE AREA OF BORING B-5. HOWEVER, DUE TO THE DIFFERENTIAL WEATHERING OF ROCK, IT SHOULD BE ANTICIPATED THAT ROCK OR VERY DENSE MATERIALS MAY BE ENCOUNTERED IN OTHER AREAS. IT SHOULD BE ANTICIPATED THAT VERY DENSE MATERIALS IN THE CORE TRENCH AND POSSIBLY THE BASIN AREA AT THE NORTHERN CORNER WILL REQUIRE SPECIAL INTENSIVE METHODS OF REMOVAL DURING GRADING OPERATIONS. IT IS OUR RECOMMENDATION THAT ANY VERY DENSE MATERIALS WITHIN THE PROPOSED CORE TRENCH BE EVALUATED IN THE FIELD TO DETERMINE IF THE MATERIALS ARE SUITABLE TO REMAIN IN PLACE. THE CONTROLLED FILL AT ANY ROCK/CLAY INTERFACE NEEDS TO BE CAREFULLY PLACED AND COMPACTED. ANY ROCK OR VERY DENSE MATERIALS ENCOUNTERED WITHIN THE BASIN AREA MAY REQUIRE INTENSIVE METHODS OF REMOVAL THAT MAY INCLUDE BUT NOT BE LIMITED TO RIPPING AND/OR BLASTING. THEREFORE, IT IS RECOMMENDED THAT A CONTINGENCY BE MADE FOR THIS TYPE OF REMOVAL.

SHOULD IT BE DETERMINED THAT ANY ROCK OR VERY DENSE MATERIALS WITHIN THE NORTHERN BASIN AREA WILL REQUIRE BLASTING, IT IS RECOMMENDED THAT THE BLASTING WITHIN 75 FT OF THE OUTFALL AND PRINCIPAL SPILLWAY STRUCTURES BE PERFORMED PRIOR TO CONSTRUCTION OF THE PRINCIPAL SPILLWAYS AND OUTFALL STRUCTURES.

AS-BUILT CERTIFICATION

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

P.E.NO. _____

SIGNATURE

DATE: _____

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

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 6/27/00

SYNDRACON PROPERTY INC.
PRINTED NAME OF DEVELOPER

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF THE NATIONAL RESOURCE CONSERVATION SERVICE.

SIGNATURE OF ENGINEER — DATE 6/26/00

PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

USDA - NATURAL RESOURCE CONSERVATION SERVICE — DATE 7/14/00

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/10/00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/12/00

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/12/00

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 7-10-00

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HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Cattail Ridge — Boring # B-1
Location Howard County, Maryland — Job # 98273C

SAMPLER: Datum; Surf. Elev. 463.1; Date Started 01-27-99; Hammer Wt. 140 Lbs.; Hammer Drop 30 Inches; Pipe Size 2.0 Inches OD; Hole Diameter 6"; Rock Core Dia. –; Boring Method HSA; Foreman Palmer Stephens; Inspector; Date Completed 01-27-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, soft to medium stiff silty clay, little sand and weathered rock fragments (CL) (Clay Loam)			D	1-3-2-3	1	16"	6" Topsoil
				D	4-4-6	2	15"	No groundwater encountered while drilling
	Red to brown, moist to very moist, medium dense silty fine sand, little mica and weathered rock fragments (SM) (Loamy Sand)	4.5	5	D	3-4-7	3	18"	Caved in at 12.0' at Completion
				D	5-6-6	4	16"	Caved in at 12' after 24 hours
			10	D	4-6-6	5	18"	
	Bottom of Test Hole at 16.5'	16.5	15	D	6-6-8	6	18"	
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hr Dry FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Cattail Ridge — Boring # B-2
Location Howard County, Maryland — Job # 98273C

SAMPLER: Datum; Surf. Elev. 448.8; Date Started 01-27-99; Hammer Wt. 140 Lbs.; Hammer Drop 30 Inches; Pipe Size 2.0 Inches OD; Hole Diameter 6"; Rock Core Dia. –; Boring Method HSA; Foreman Palmer Stephens; Inspector; Date Completed 01-27-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, wet, soft silty clay, little weathered rock fragments and roots (CL)	2.0		D	2-2-2	1	16"	18" Topsoil
	Brown, moist, medium dense silty fine sand/sandy silt, little weathered rock fragments (SM/ML) (Loam)			D	2-6-8	2	18"	No groundwater encountered while drilling
			5	D	4-6-9	3	16"	Caved in at 11.5' at Completion
	Green, dry to moist, medium dense to dense silty fine sand, little weathered rock fragments (SM) (Loamy Sand)	7.0		D	8-12-16	4	16"	Caved in at 11.5' after 24 hours
			10	D	16-20-19	5	18"	
	Green, very moist, dense silty fine sand/sandy silt, little mica (SM/ML) (Sandy Loam)	13.5	15	D	6-12-22	6	14"	
	Bottom of Test Hole at 16.5'	16.5						
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hr Dry FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Cattail Ridge Retaining Wall — Boring # B-A
Location Howard County, Maryland — Job # 00805A

SAMPLER: Datum; Surf. Elev. 435; Date Started 03-03-00; Hammer Wt. 140 Lbs.; Hammer Drop 30 Inches; Pipe Size 2.0 Inches OD; Hole Diameter 8"; Rock Core Dia. –; Boring Method HSA; Foreman Palmer Stephens; Inspector; Date Completed 03-03-00

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, loose to medium dense micaceous fine silty sand (SM)			D	1-2-3	1	12"	7" Topsoil
				D	4-7-11	2	16"	No groundwater encountered while drilling
			5	D	2-3-4	3	14"	Caved in at 11.3' at Completion
	Brown, moist, very dense micaceous silty sand with rock fragments(SM)	7.5		D	27-51/3"	4	6"	Bag sample taken from 0.5 to0.8 8.0 to 15.0
	Decomposed rock		10	D	5-4-5	5	2"	
	Bottom of Test Hole at 15'-3"	15'-4"	15	D	51/3"	6	4"	
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 9'-10" FT.; AFTER 24 hr FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Cattail Ridge — Boring # B-4
Location Howard County, Maryland — Job # 98273C

SAMPLER: Datum; Surf. Elev. 442.48; Date Started 06-14-99; Hammer Wt. 140 Lbs.; Hammer Drop 30 Inches; Pipe Size 2.0 Inches OD; Hole Diameter 4"; Rock Core Dia. –; Boring Method HSA; Foreman Lamont Smith; Inspector; Date Completed 06-14-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to greenish brown, dry to wet medium dense micaceous silty fine sand/sandy silt with weathered rock fragments (SM/ML) (Loam)			D	2-4-9	1	12"	8" Topsoil
				D	5-6-7	2	14"	Groundwater encountered at 10.0' while drilling
			5	D	3-4-6	3	11"	Caved in at 6.0' at Completion
				D	8-11-5	4	14"	
	Green, wet, medium dense silty fine sand with weathered rock (SM) (Sandy Loam)	9.5	10	D	7-13-16-19	5	12"	
	Bottom of Test Hole at 12.0'	12.0						
			15					
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 5.5 FT.; AFTER 24 hr FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Cattail Ridge — Boring # B-3
Location Howard County, Maryland — Job # 98273C

SAMPLER: Datum; Surf. Elev. 443.9; Date Started 01-27-99; Hammer Wt. 140 Lbs.; Hammer Drop 30 Inches; Pipe Size 2.0 Inches OD; Hole Diameter 6"; Rock Core Dia. –; Boring Method HSA; Foreman Palmer Stephens; Inspector; Date Completed 01-27-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to reddish brown, moist, soft to medium stiff silty clay, some sand (CL) (Clay Loam)			D	1-3-2-2	1	20"	12" Topsoil
				D	2-3-6	2	16"	No groundwater encountered while drilling
	Greenish brown, moist, medium dense silty fine sand/fine sandy silt (SM/ML) (Loam)	4.5	5	D	7-15-16	3	18"	Caved in at 15.0' at Completion
	Reddish brown, very moist to wet, medium dense to loose to very dense silt and weathered rock fragments, little sand (ML) (Loam)	7.0		D	6-10-10	4	18"	Augered hard at 12.0'
			10	D	5-4-5	5	16"	Caved in at 13.5' after 24 hours
	Bottom of Test Hole at 15'-3"	15'-3"	15	D	51/3"	6	No Rec	
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 13.5 FT.; AFTER 24 hr 9.0 FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Cattail Ridge Retaining Wall — Boring # B-B
Location Howard County, Maryland — Job # 00805A

SAMPLER: Datum; Surf. Elev. 438; Date Started 03-03-00; Hammer Wt. 140 Lbs.; Hammer Drop 30 Inches; Pipe Size 2.0 Inches OD; Hole Diameter 8"; Rock Core Dia. –; Boring Method HSA; Foreman Palmer Stephens; Inspector; Date Completed 03-03-00

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, ot very moist, loose to medium dense, micaceous silty sand with weathered rock fragmentes (SM)			D	2-2-4	1	15"	Offset 6.0' east state sitting beside large tree 3" Topsoil
				D	3-4-4	2	14"	Groundwater encountered at 10' while drilling
			5	D	8-9-11	3	14"	Caved in at 11.3' at Completion
		7.5		D	8-18-12	4	14"	
			10	D	12-7-6	5	18"	
			15	D	8-10-12	6	14"	
	Bottom of Test Hole at 16.5	16.5						
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 10.2' FT.; AFTER 24 hr FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

THE PURPOSE OF THIS PLAN OF REVISION SHEET IS TO REVISE THE SWM FACILITY AND ASSOCIATED CHANGES.

substitute 4 of 4

project	98110	date	MAY 2000
illustration	SAA	engineering	SAA
scale	NA	approval	JBM

no.	revisions	date
1	NEW SOIL BORINGS ADDED.	

REVISED FINAL CONSTRUCTION PLAN
CATTAIL RIDGE
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'
TAX MAP 21, PARCEL 228
FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

SOIL BORINGS

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

F.99.145

SHEET INDEX	
SHEET No.	DESCRIPTION
1	TITLE SHEET
2	MARYLAND ROUTE 97 PLAN AND PROFILE
3	ROLLING HILLS DRIVE PLAN AND PROFILE
4	COUNTRY CLUB DRIVE PLAN AND PROFILE
5	CLEAR DRIVE COURT PLAN AND PROFILE
6	WINDING PATH COURT PLAN AND PROFILE
7 - 9	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
10	S.W.M. GRADING AND SEDIMENT CONTROL PLAN
11	TRAFFIC CONTROL AND STRIPING PLAN
12 - 13	CROSS-SECTIONS (MD ROUTE 97)
14 - 16	STORM DRAIN PROFILES
17	DRAINAGE AREA MAP
18	LANDSCAPE PLAN
19	DETAIL SHEET
20 - 21	SEDIMENT CONTROL NOTES AND DETAILS
22 - 23	S.W.M. NOTES AND DETAILS
24	FOREST CONSERVATION PLAN
25	FOREST CONSERVATION NOTES AND DETAILS
26	S.W.M. ACCESS ROAD PROFILE
27	S.W.M. SOIL BORINGS

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-1-99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/17/99

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/3/99

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

CATTAIL RIDGE

LOTS 4 THRU 37
AND
PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626, AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONING "RC-DEO"

TAX MAP No. 21, PARCEL NO. 228, GRID NO. 3

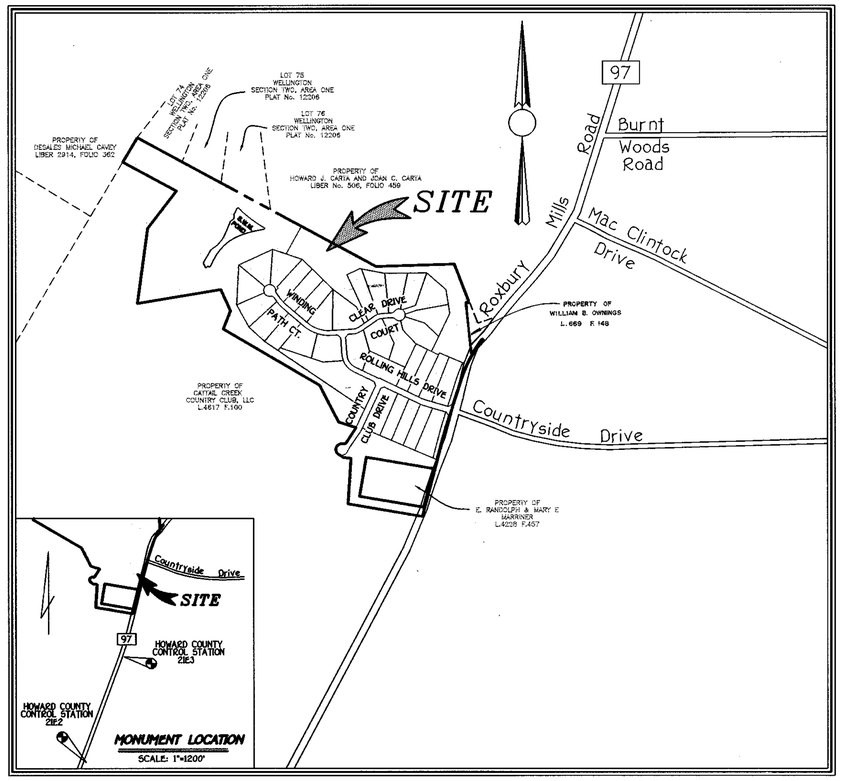
FOURTH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

MINIMUM LOT SIZE CHART				
LOT No.	GROSS AREA	PIPESTEM AREA	REMAINING AREA	MINIMUM LOT SIZE
13	55,521 SQ.FT.±	4,211 SQ.FT.±	51,310 SQ.FT.±	51,310 SQ.FT.±

ROAD CLASSIFICATION		
ROAD NAME	CLASSIFICATION	R/W
ROLLING HILLS DRIVE	MINOR COLLECTOR / ACCESS STREET	50' / 40'
COUNTRY CLUB DRIVE	ACCESS STREET	40'
CLEAR DRIVE COURT	ACCESS PLACE	40'
WINDING PATH COURT	ACCESS PLACE	40'

TRAFFIC CONTROL SIGNS				
STREET NAME	C.L. STATION	OFFSET	POSTED SIGN	SIGN CODE
ROLLING HILLS DRIVE	7+95	13'R	ROAD NARROWS	W5-1
ROLLING HILLS DRIVE	8+65	13'L	ROAD NARROWS	W5-1
COUNTRY CLUB DRIVE	5+15	14'R	ROAD NARROWS	W5-1
COUNTRY CLUB DRIVE	5+85	14'L	ROAD NARROWS	W5-1
CLEAR DRIVE COURT	2+45	11'R	ROAD NARROWS	W5-1
CLEAR DRIVE COURT	3+15	11'L	ROAD NARROWS	W5-1
WINDING PATH COURT	0+75	11'R	ROAD NARROWS	W5-1
WINDING PATH COURT	1+45	11'L	ROAD NARROWS	W5-1
WINDING PATH COURT	3+85	11'R	ROAD NARROWS	W5-1
WINDING PATH COURT	4+55	11'L	ROAD NARROWS	W5-1
ROLLING HILLS DRIVE	0+72	32'L	STOP	R1-1
ROLLING HILLS DRIVE	12+26	20'R	STOP	R1-1
COUNTRY CLUB DRIVE	0+32	24'L	STOP	R1-1
ROLLING HILLS DRIVE	2+00	14'R	SPEED LIMIT 25	R2-1
ROLLING HILLS DRIVE	7+00	13'R	SPEED LIMIT 25	R2-1
COUNTRY CLUB DRIVE	2+00	13'R	SPEED LIMIT 25	R2-1
CLEAR DRIVE COURT	2+00	11'R	SPEED LIMIT 25	R2-1
WINDING PATH COURT	2+00	11'R	SPEED LIMIT 25	R2-1
ROLLING HILLS DRIVE	0+45	⊕ ℄	KEEP RIGHT	R4-7
ROLLING HILLS DRIVE	2+00	14' L	STOP AHEAD	W3-1R



VICINITY MAP

SCALE: 1"=600'

MONUMENT LOCATION

SCALE: 1"=1200'

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 AERIAL TOPOGRAPHIC SURVEY PREPARED BY AERIAL MAPPING CO., INC. , FLOWN IN 1998.
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. 21E2 AND 21E3 WERE USED FOR THIS PROJECT.

21E2	N 583,065.3000 E 1,300,868.4336	21E3	N 584,559.4765 E 1,302,074.5340

7. WATER IS PRIVATE.
8. SEWER IS PRIVATE.
9. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC. (APPROVED UNDER S98-09).
10. BACKGROUND INFORMATION:
    - A. SUBDIVISION NAME: CATTAIL RIDGE
    - B. TAX MAP NO.: 21
    - C. PARCEL NO.: 228
    - D. ZONING: RC-DEO
    - E. ELECTION DISTRICT: FOURTH
    - F. TOTAL TRACT AREA: 88.359 AC. ±
    - G. NO. OF BUILDABLE LOTS: 32
    - H. NO. OF PRESERVATION PARCELS: 3
    - I. NO. OF OPEN SPACE LOTS: 2
    - J. PRELIMINARY PLAN APPROVAL DATE: FEBRUARY 8, 1999
    - K. PREVIOUS FILE Nos. : S98-09 AND P99-02
    - L. TOTAL AREA OF OPEN SPACE REQUIRED: (88.359 AC. x 5%) = 4.419 AC.±
    - M. TOTAL AREA OF OPEN SPACE PROVIDED: 4.419 AC.±
11. 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.
12. NO CEMETERIES EXIST ON THE PROPERTY.
13. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF ASTM T-180.
14. THE WETLAND AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. AND APPROVED UNDER S98-09.
15. NOISE STUDY WAS PREPARED BY WILDMAN ENVIRONMENTAL SERVICES AND APPROVED UNDER P99-02.
16. 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.
17. STORMWATER MANAGEMENT FACILITY:
    - (2) TYPE - EXTENDED DETENTION FACILITY
    - OWNER - HOMEOWNER'S ASSOCIATION (PRIVATE)
    - MAINTENANCE - HOMEOWNER'S ASSOCIATION (PRIVATE)
18. **PROPERTY SUBJECT TO MDE DAM SAFTY FILE NO. 99-PO-2096.**
19. FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT ARE BEING PROVIDED BY 11.057 ACRES OF REFORESTATION AS SHOWN ON SHEETS 24 AND 25. IN ADDITION TO THIS REFORESTATION REQUIREMENT THERE IS 20.603 ACRES OF FOREST RETENTION AREAS WHICH INCLUDE FLOODPLAIN AREAS AND THE EXISTING 1.344 ACRES OF RETENTION AREA PLATED UNDER F-99-21.

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8809 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1010
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPESTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8809 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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

F.C.C.- 30989TITLESHEET

STATE OF MARYLAND — ALDO SCHIAVONE — NO. 20748 — REGISTERED PROFESSIONAL ENGINEER

6-14-99

Date	Description
5-8-00	Revise General Note no. 17 (2)

Revisions

CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626, AND THE RESIDUE OF SYNDACON PROPESTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

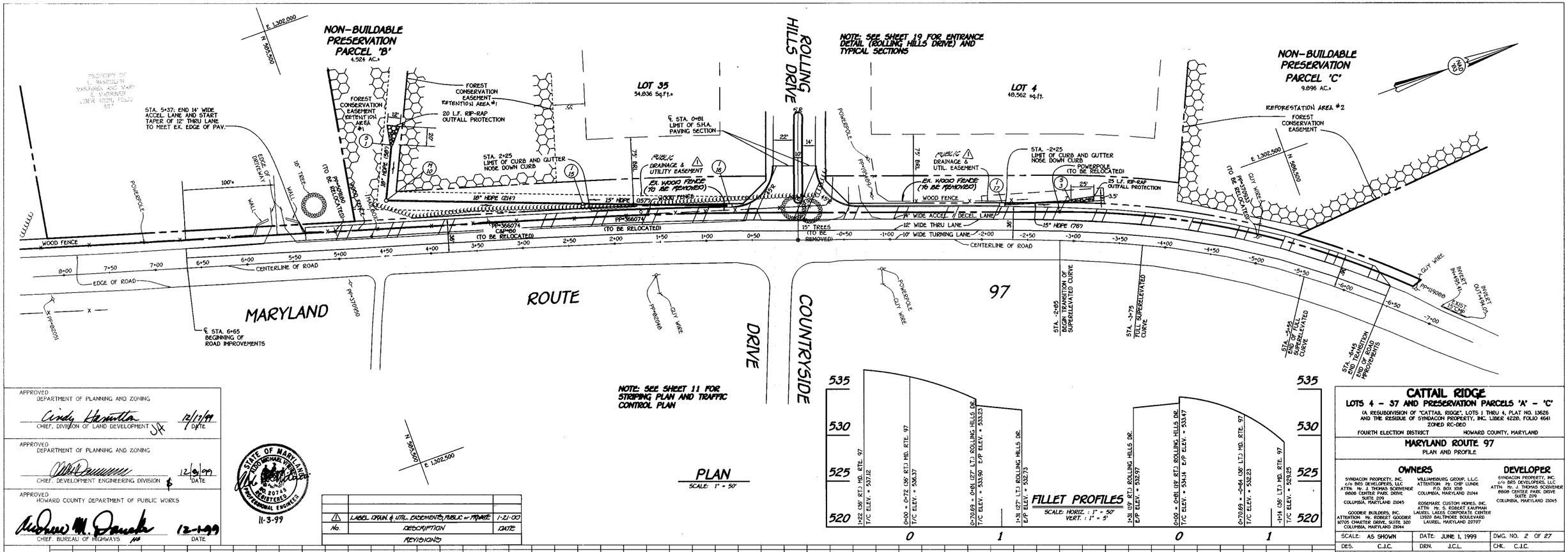
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: JUNE 1, 1999

SHEET 1 OF 27

F 99-145



APPROVED
DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton SK — CHIEF, DIVISION OF LAND DEVELOPMENT — 12/7/99 DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/6/99 DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels — CHIEF, BUREAU OF HIGHWAYS — 12-1-99 DATE

STATE OF MARYLAND — ROD MICHAEL VOGT — No. 20748 — REGISTERED PROFESSIONAL ENGINEER
11-3-99

No.	DESCRIPTION	DATE
1	LABEL DRAIN & UTIL. EASEMENTS, PUBLIC vs. PRIVATE	1-21-00

REVISIONS

CATTAIL RIDGE

LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 4, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC. LIBER 4228, FOLIO 464)
ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

MARYLAND ROUTE 97

PLAN AND PROFILE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRD DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODER
10705 CHASTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1010
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTN: Mr. S. ROBERT LAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRD DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 2 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

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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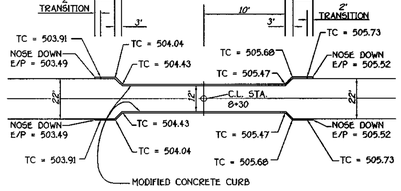
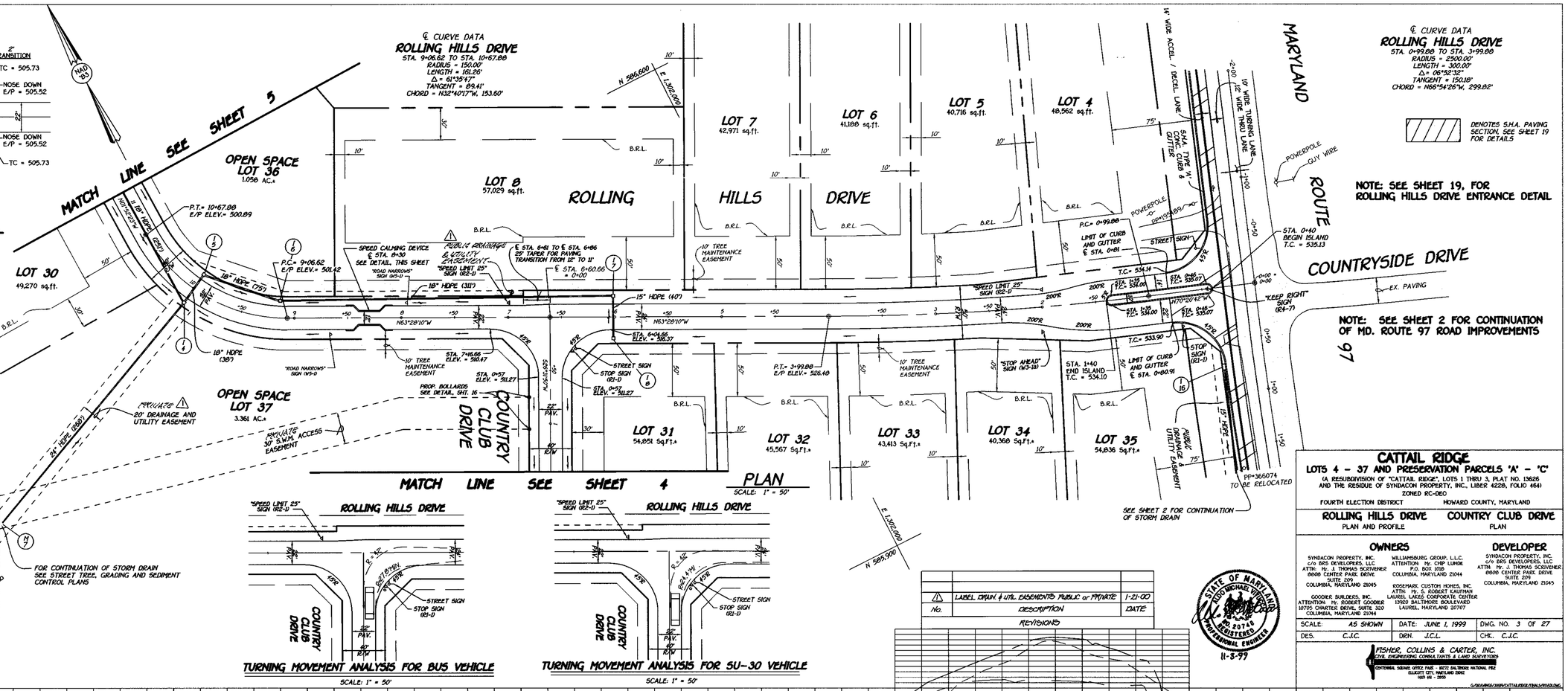
F 99-145

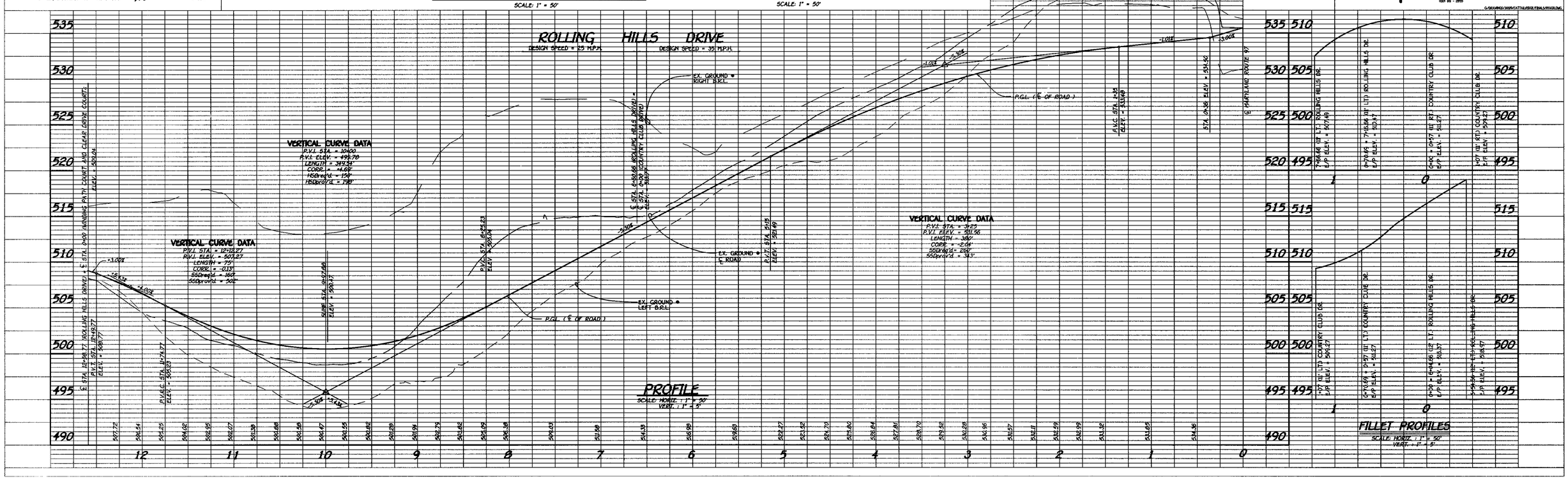


(ROLLING HILLS DRIVE)
SPEED CONTROL DEVICE
N.T.S.



TURNING MOVEMENT ANALYSIS FOR BUS VEHICLE
SCALE: 1" = 50'

TURNING MOVEMENT ANALYSIS FOR SU-30 VEHICLE
SCALE: 1" = 50'



APPROVED
DEPARTMENT OF PLANNING AND ZONING
Cindy Hampton — CHIEF, DIVISION OF LAND DEVELOPMENT — 12/7/99 DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/3/99 DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 12-1-99 DATE

No.	DESCRIPTION	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

STATE OF MARYLAND — RICHARD MICHAEL VITELLI — No. 20748 — REGISTERED PROFESSIONAL ENGINEER — 11-3-99

CATTAIL RIDGE
LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROLLING HILLS DRIVE — PLAN AND PROFILE
COUNTRY CLUB DRIVE — PLAN

OWNERS
SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
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ATTN: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER
SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 3 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

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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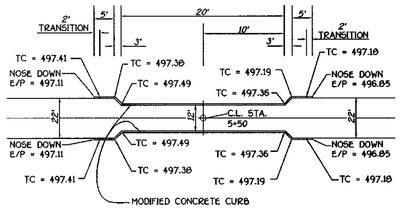
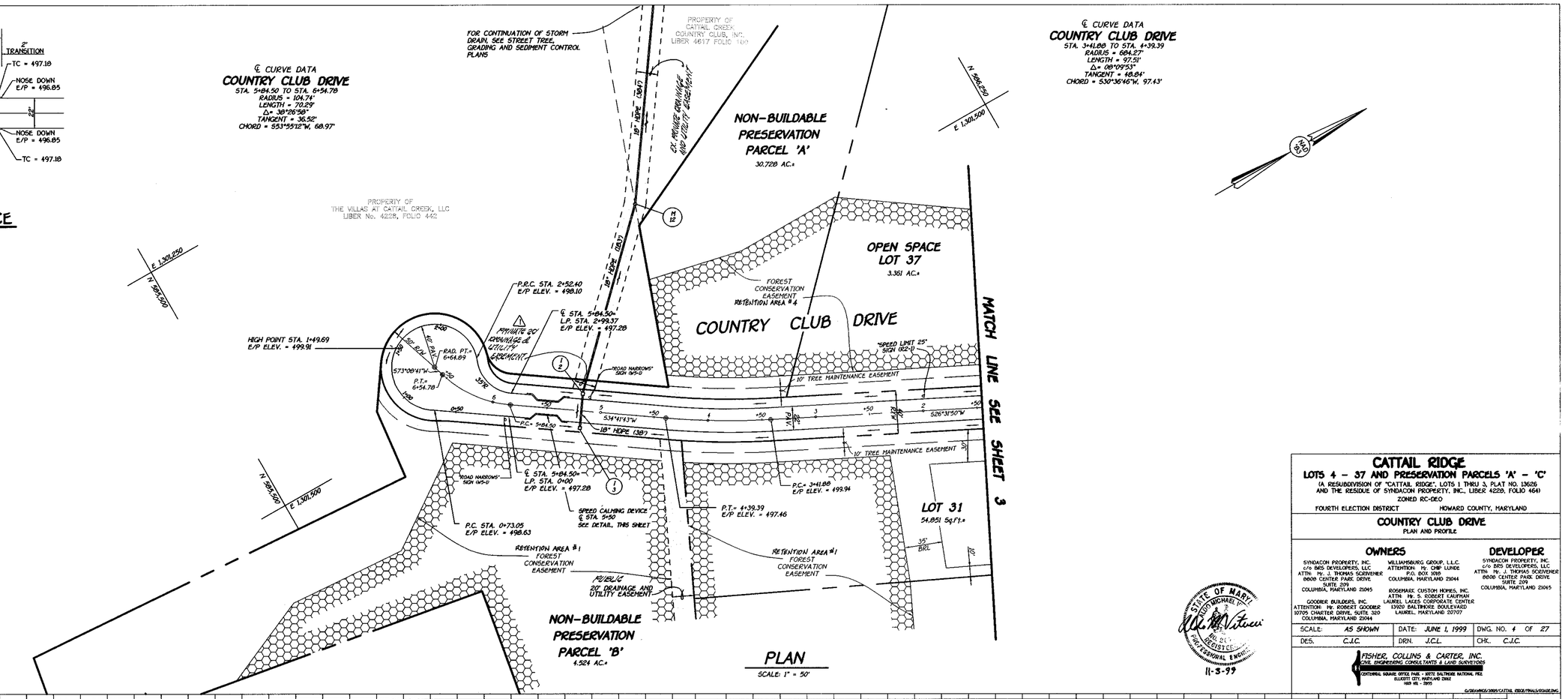
F 99- 145



(COUNTRY CLUB DRIVE)
SPEED CONTROL DEVICE
N.T.S.



No.	DESCRIPTION	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

APPROVED
DEPARTMENT OF PLANNING AND ZONING
Cindy Hansotte — 12/17/99
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
— 12/3/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
— 12-1-99
CHIEF, BUREAU OF HIGHWAYS — DATE

CATTAIL RIDGE
LOTS 4 – 37 AND PRESERVATION PARCELS 'A' – 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

COUNTRY CLUB DRIVE
PLAN AND PROFILE

OWNERS

SYNDACON PROPERTY, INC.
c/o BES DEVELOPERS, LLC
ATTN. Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODBER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODBER
10705 CHARTER DRIVE, SUITE 320
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ATTENTION: Mr. CHIP LUNDE
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ATTN. Mr. S. ROBERT LAUFMAN
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13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BES DEVELOPERS, LLC
ATTN. Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

STATE OF MARYLAND — RUDD MICHAEL VITUCCI — No. 21... REGISTERED PROFESSIONAL ENGINEER
11-3-99

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 4 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

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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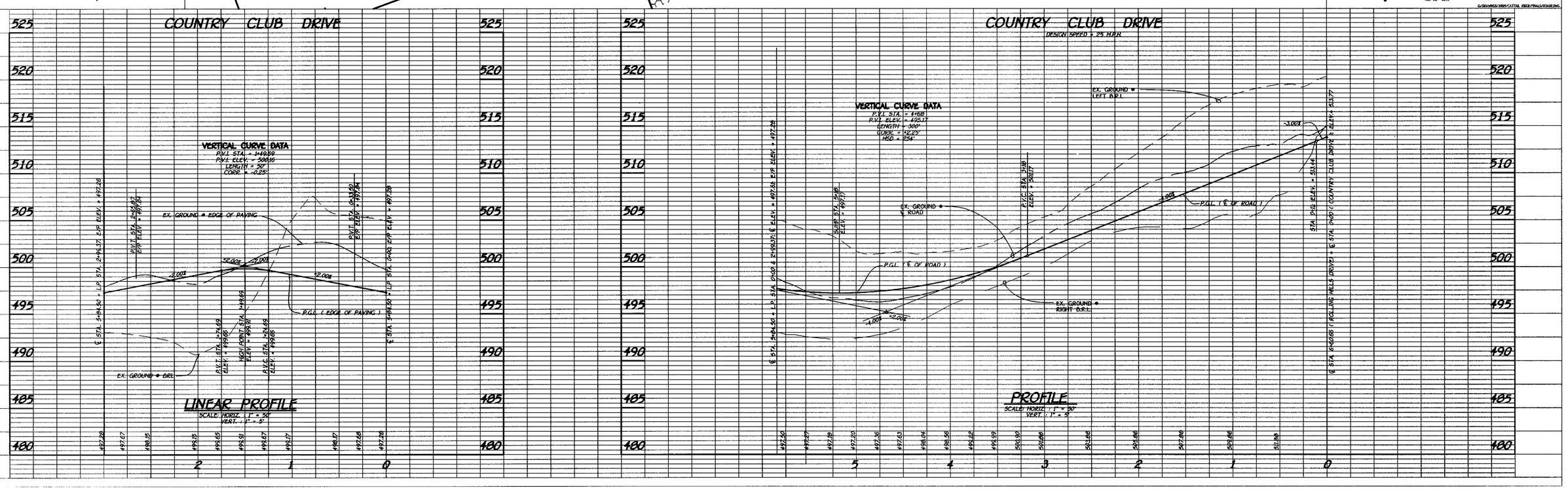


F 99-145

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
○	ACER RUBRUM 'OCTOBER GLORY' RED MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

○ - 17 STREET TREES (THIS SHEET)

LEGEND

- EXISTING TREES
- EXISTING WOODS LINE
- SF —— SF — SILT FENCE
- SSF —— SSF — SUPER SILT FENCE
- PROPOSED EARTH DIKE
- PROPOSED LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING

ENGINEER'S CERTIFICATE

"I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District."

Signature Of Engineer — Date: 3-17-99

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: 3/16/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/9/99

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

District Howard Soil Conservation Dist. — Date: 11/9/99

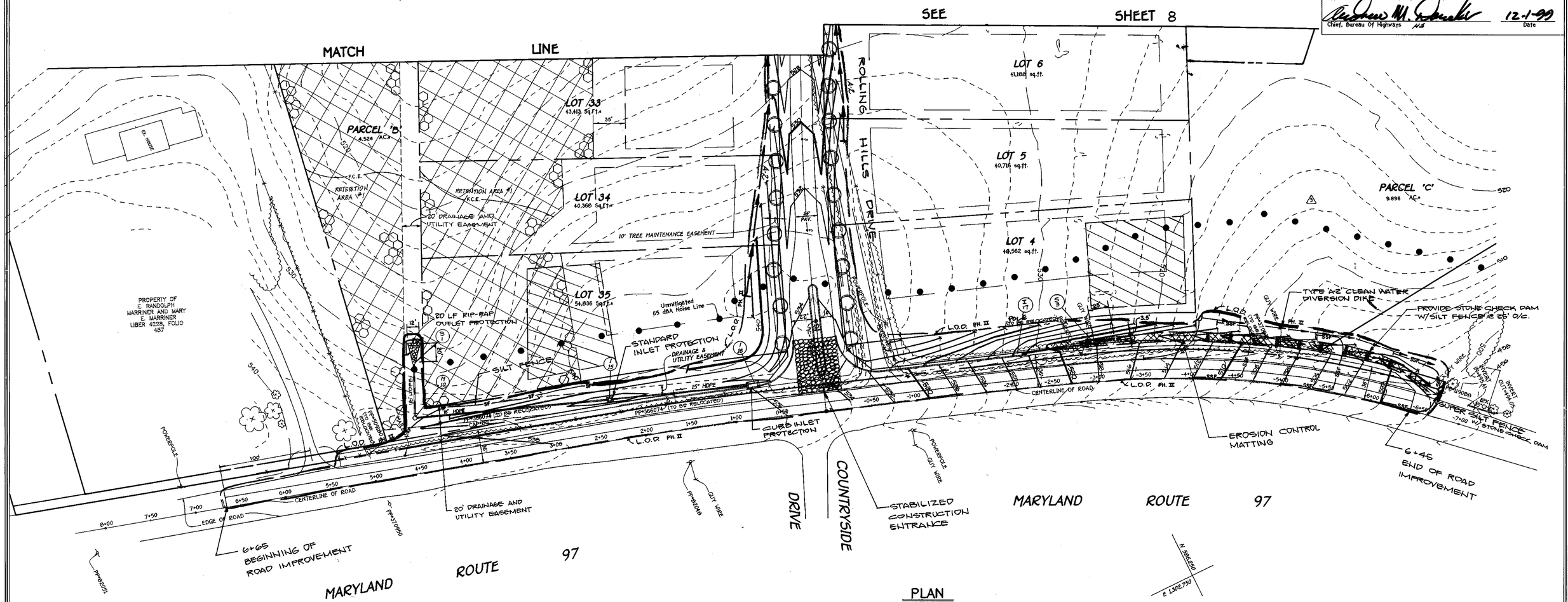
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/17/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99



PLAN

SCALE: 1" = 50'

OWNERS

SYNDACON PROPERTY, INC.
c/o B&S DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o B&S DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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.- 30819 GRADING PLAN .DWG

Date	Description	Revisions
11-28-00	Revise Forest Conservation Easements	3

STREET TREE, GRADING & SEDIMENT CONTROL PLAN

CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 7 OF 27

F 99-145

ENGINEER'S CERTIFICATE

STATE OF MARYLAND — JOHN MICHAEL PARK — No. 17157 — PROFESSIONAL ENGINEER

"I Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District."

Signature Of Engineer — Date: 3-17-99

DEVELOPER'S CERTIFICATE

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Signature Of Developer — Date: 3/16/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/19/99

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

District Howard Soil Conservation Dist. — Date: 11/19/99

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/17/99

Chief, Development Engineering Division — Date: 12/23/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99

No.	DESCRIPTION	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	ACER RUBRUM "OCTOBER GLORY" RED MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	PLATANUS X ACERIFOLIA "BLOODGOOD" BLOODGOOD LONDON PLANE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	FRAXINUS AMERICANA "ROSEHILL" ROSEHILL WHITE ASH	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

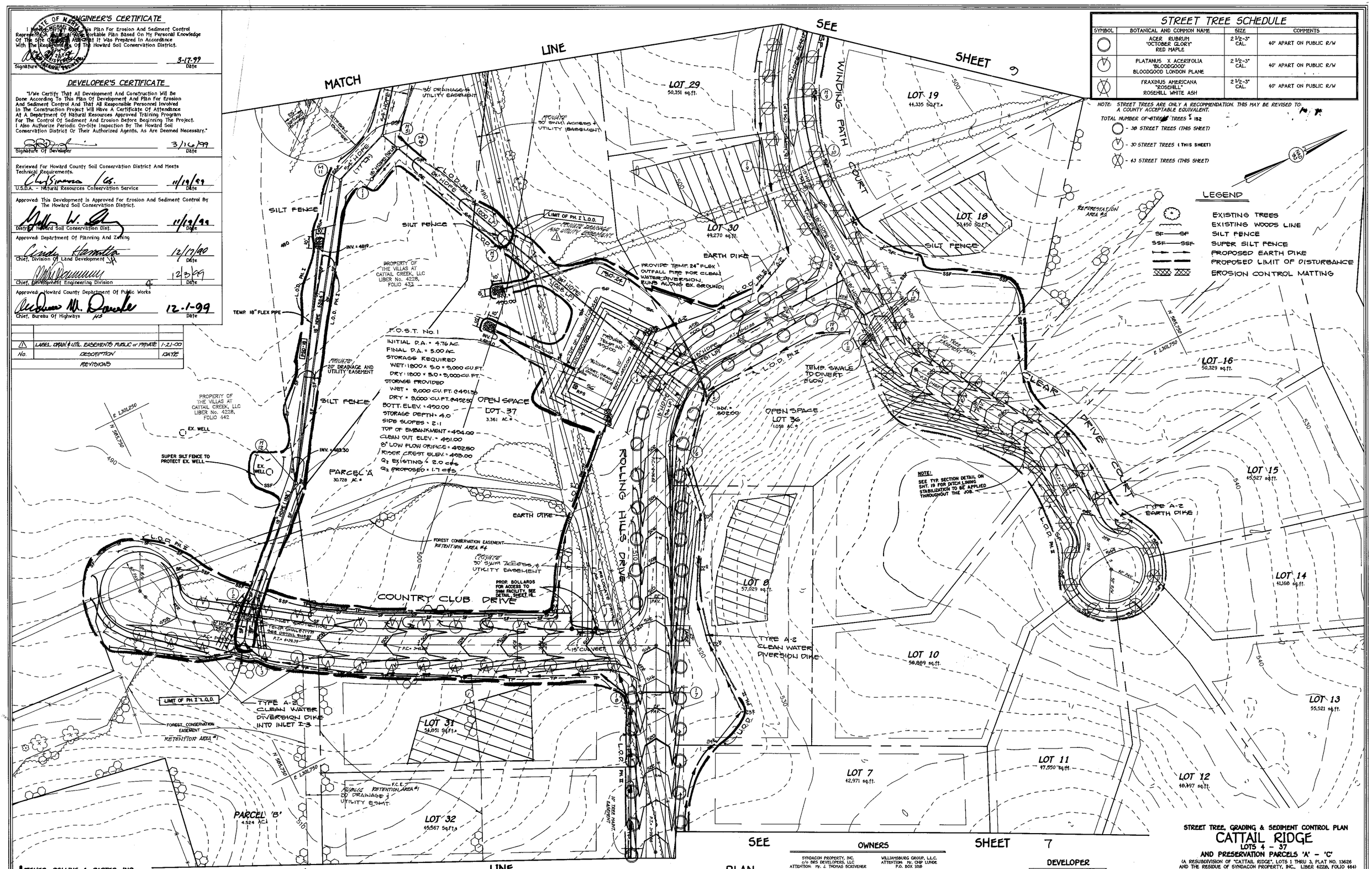
NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

- 38 STREET TREES (THIS SHEET)
- 30 STREET TREES (THIS SHEET)
- 43 STREET TREES (THIS SHEET)

LEGEND

- EXISTING TREES
- EXISTING WOODS LINE
- SF — SF SILT FENCE
- SSF — SSF SUPER SILT FENCE
- PROPOSED EARTH DIKE
- PROPOSED LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING



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.* 30891 GRADING PLAN 2.DWG

PLAN
SCALE: 1" = 50'

OWNERS

SYNDACON PROPERTY, INC.
c/o BES DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8909 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIES BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIES
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
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ATTENTION: Mr. S. ROBERT KAUFMAN
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13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

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c/o BES DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8909 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT-HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 8 OF 27

F 99-145

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
⊗	FRAXINUS AMERICANA "ROSEHILL" ROSEHILL WHITE ASH	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

⊗ - 24 STREET TREES (THIS SHEET)

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 — Date: 3-17-99

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: 3/16/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/19/99

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

District Howard Soil Conservation Dist. — Date: 11/19/99

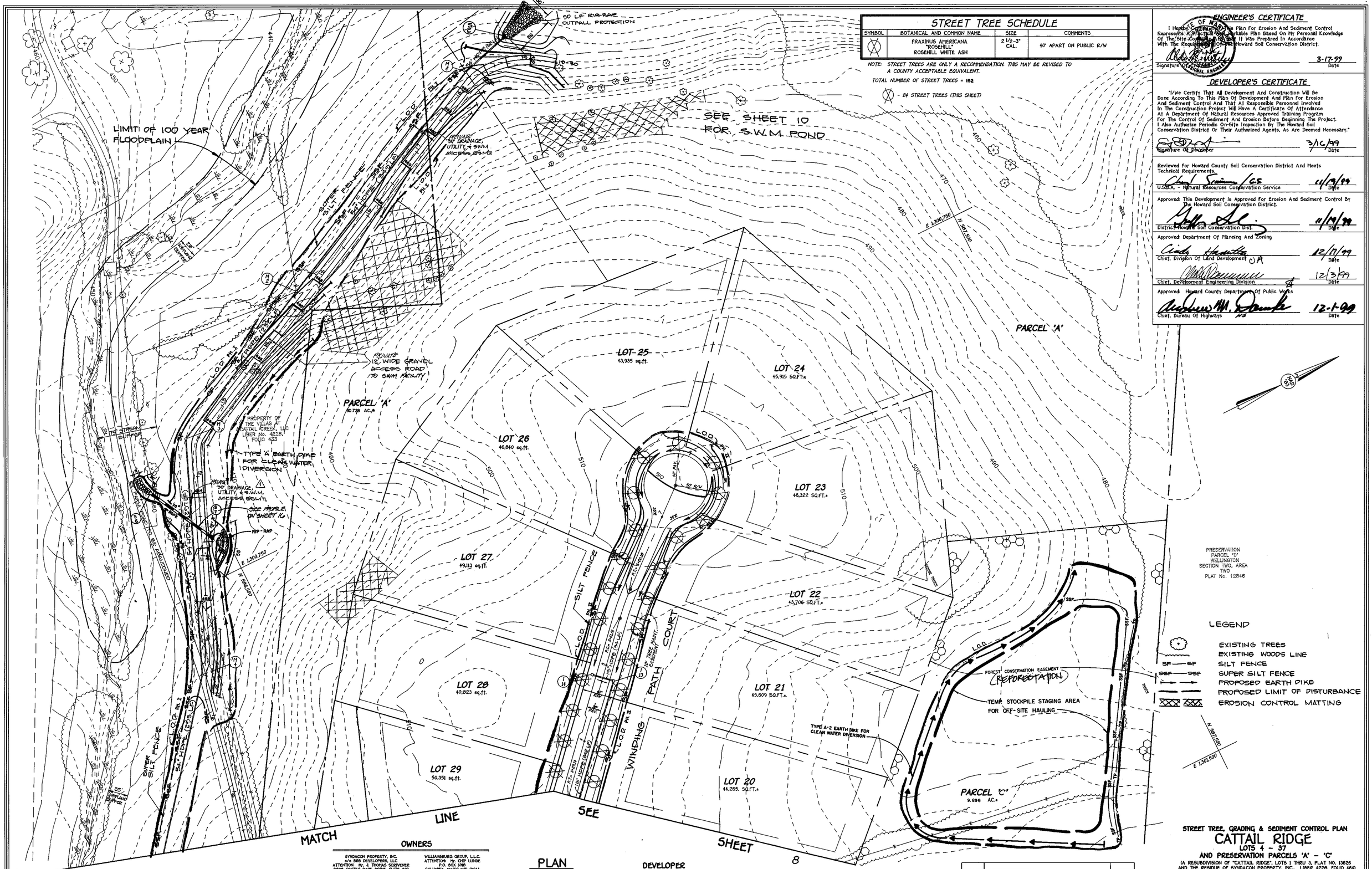
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/17/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99



LEGEND

- EXISTING TREES
- EXISTING WOODS LINE
- SF — SF SILT FENCE
- SSF — SSF SUPER SILT FENCE
- PROPOSED EARTH DIKE
- PROPOSED LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING

OWNERS

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c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
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LAUREL, MARYLAND 20707

PLAN

SCALE: 1" = 50'

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

No.	REVISIONS	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

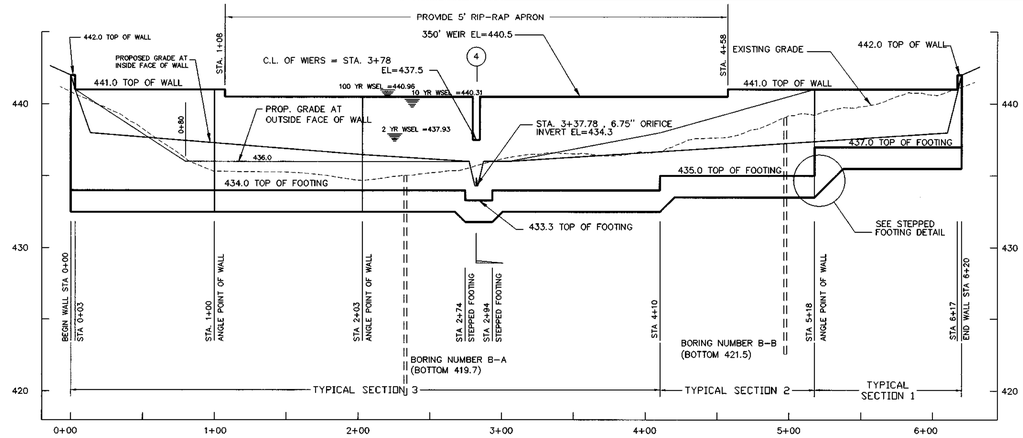
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 220 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 9 OF 27

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

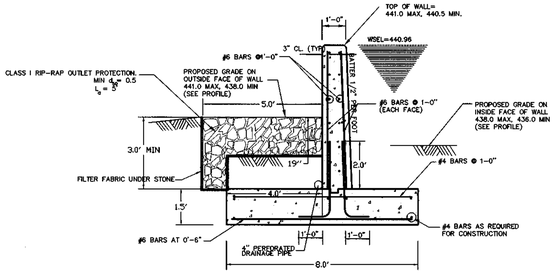
F.C.C.* 30519 GRADING PLAN 3.DWG

F 99-145



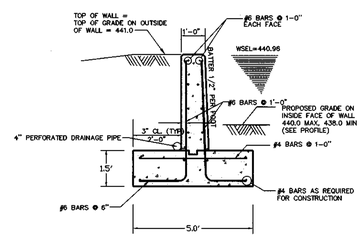
PROPOSED RETAINING WALL PROFILE

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



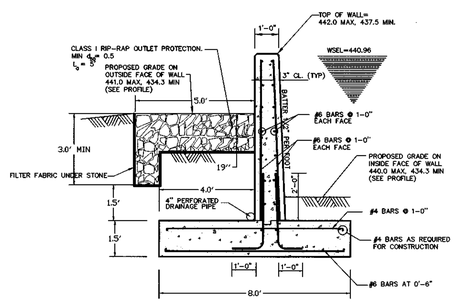
TYPICAL SECTION 2

SCALE 1":3'



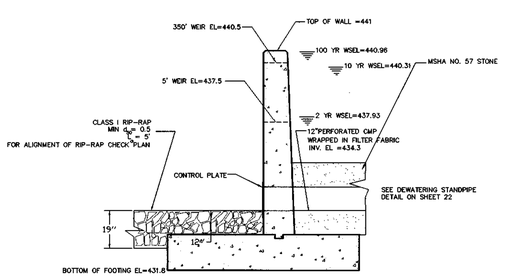
TYPICAL SECTION 1

SCALE 1":3'



TYPICAL SECTION 3

SCALE 1":3'



SECTION 4

SCALE 1":3'

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

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 6/27/00

SUNDOON PROPERTY, INC.
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 6/26/00

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 7/14/00

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 7/14/00

APPROVED: DEPARTMENT OF PUBLIC WORKS

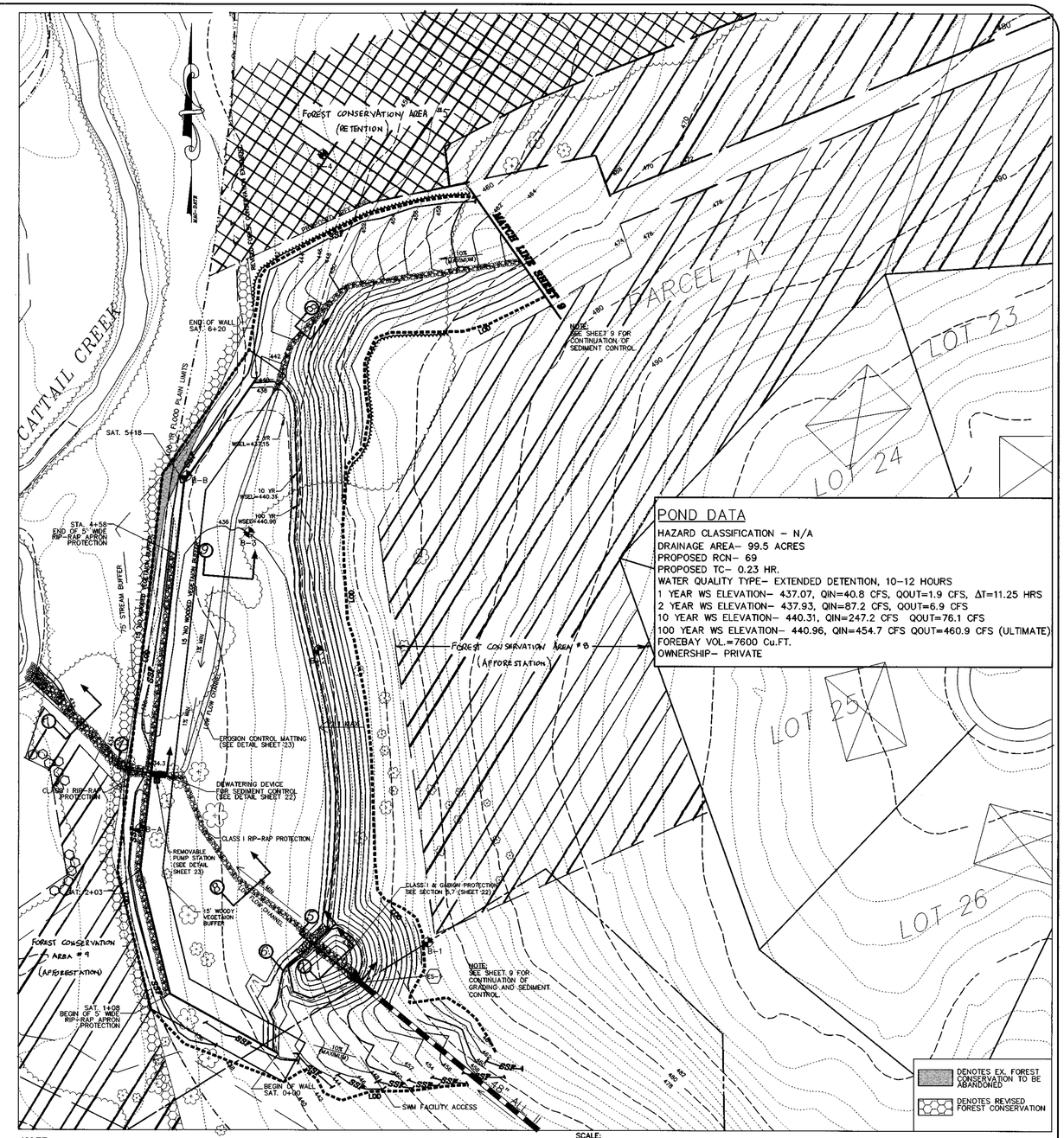
CHIEF BUREAU OF HIGHWAYS — DATE 7-10-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/9/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/12/00

F:\98110\DWG\R2\110-SWMDETAILS3_R2



SCALE: 1"=50'

POND DATA

HAZARD CLASSIFICATION – N/A
DRAINAGE AREA– 99.5 ACRES
PROPOSED RCN– 69
PROPOSED TC– 0.23 HR.
WATER QUALITY TYPE– EXTENDED DETENTION, 10–12 HOURS
1 YEAR WS ELEVATION– 437.07, QIN=40.8 CFS, QOUT=1.9 CFS, ΔT=11.25 HRS
2 YEAR WS ELEVATION– 437.93, QIN=87.2 CFS, QOUT=6.9 CFS
10 YEAR WS ELEVATION– 440.31, QIN=247.2 CFS QOUT=76.1 CFS
100 YEAR WS ELEVATION– 440.96, QIN=454.7 CFS QOUT=460.9 CFS (ULTIMATE)
FOREBAY VOL.=7600 Cu.FT.
OWNERSHIP– PRIVATE

NOTE:
FOR SECTIONS AND DETAILS SEE SHEETS 22 AND 23
FOR SOIL BORINGS SEE SHEET 27

GENERAL NOTES:

1. ALL CONCRETE SHALL BE MSHA MIX NO.2 FC=3,000 PSI, FY=60,000 PSI
2. ALLOWABLE BEARING ON SUBGRADE SHALL NOT EXCEED 2,000 PSF. SUBGRADE TO BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACING FOOTINGS.
4. ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED (3/4 IN X 3/4 IN)
5. CONSTRUCTION KEYS SHALL BE A MINIMUM OF 2"X 4" NOMINAL.
6. CONCRETE COVER TO BE 3" TYPICAL
7. SEE PROFILE FOR ELEVATIONS OF FOOTINGS.
8. 4" PERFORATED DRAINAGE PIPE SHALL FACE DAYLIGHT @ EL=434
9. NO STONE IS ALLOWED TO BE PLACED UNDER WALL FOOTINGS.
10. FILTER FABRIC TO BE PROVIDED UNDER ALL GABION BASKETS AND RIP-RAP PROTECTIONS.
11. PROVIDE 4" PERFORATED UNDER DRAIN AT BASE OF STEM ON DOWNSTREAM FACE OF WALL FROM 0+00 TO 2+74 AND 2+94 TO 6+20, OUTLET UNDER DRAIN TO DAYLIGHT (ELEV. 434.0 ±)
12. THE PROPOSED CONSTRUCTION SHALL BE PERFORMED UNDER THE OBSERVATION OF A MARYLAND REGISTERED PROFESSIONAL ENGINEER.
13. ALLOWABLE BEARING PRESSURE GREATER THAN OR EQUAL TO 3,750 PSF (BEARING CAPACITY TO BE TESTED IN THE FIELD PRIOR TO CONSTRUCTION.
14. EXISTING WOODY VEGETATION WITHIN 15' WOODED VEGETATION BUFFER IS TO BE REMOVED. AREA ON DOWN STREAM SIDE OF PROPOSED WALL IS TO BE CLEARED ONLY, NO GRUBBING IS PERMITTED WITHIN THIS AREA.

THE PURPOSE OF THIS PLAN OF REVISION SHEET IS TO REVISE THE SWM FACILITY AND ASSOCIATED CHANGES.

project	date
98110	MAY 2000
illustration	engineering
SAA	SAA
scale	approval
AS SHWN	JBM

no.	description / revisions	date
1	SHEET 10 REPLACED (NEW SWM POND DESIGN) WALL PROFILES AND SECTIONS ADDED	11-28-00
2	Revise Forest Conservation Easements	

REVISED FINAL CONSTRUCTION PLAN
CATTAIL RIDGE
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'
TAX MAP 21, PARCEL 226 — HOWARD COUNTY, MARYLAND
FOURTH ELECTION DISTRICT
STORMWATER MANAGEMENT PLAN AND DETAILS

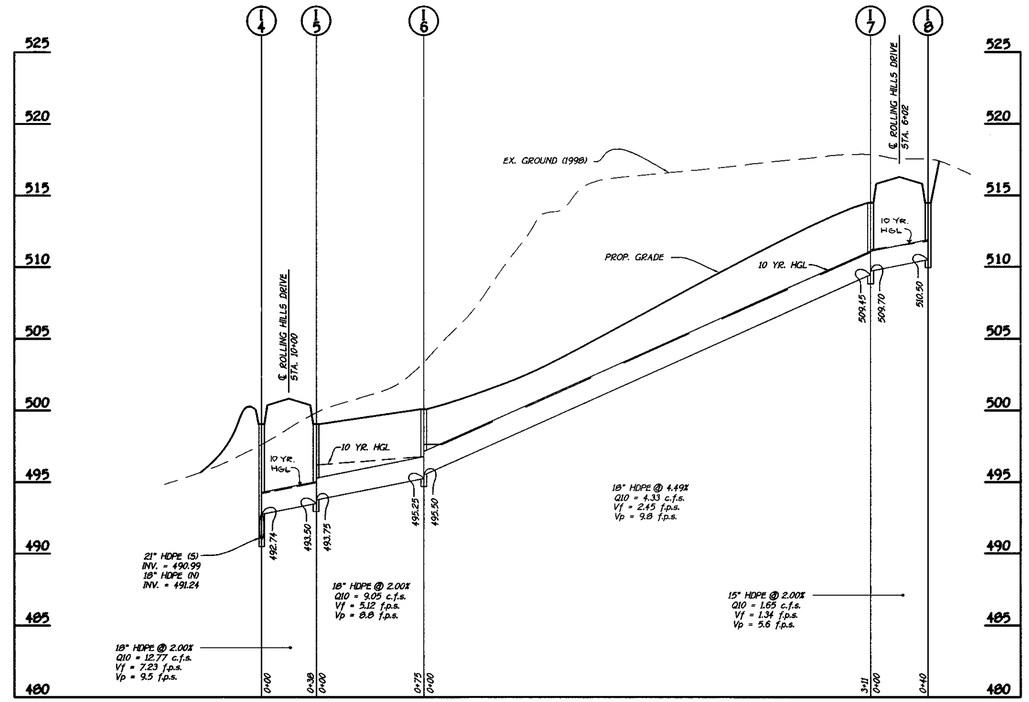
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Bult. (301) 621-5521 Wash. (410) 997-0298 Fax.

(substitute sheet left) F.99.145

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	478.00	—	471.52	-----	N 585,176.20 E 1,301,121.80	-----	'S' INLET	S.D. 4.22
I-2	495.39	489.86	489.61	COUNTRY CLUB DRIVE	C.L. STA. 5+18	19'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-3	495.39	------	491.00	COUNTRY CLUB DRIVE	C.L. STA. 5+18	19'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-4	499.04	492.74, 491.24	490.99	ROLLING HILLS DRIVE	C.L. STA. 10+00	19'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-5	499.04	493.75	493.50	ROLLING HILLS DRIVE	C.L. STA. 10+00	19'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-6	500.09	495.50	495.25	ROLLING HILLS DRIVE	C.L. STA. 9+13	19'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-7	514.48	509.70	509.45	ROLLING HILLS DRIVE	C.L. STA. 6+02	20'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-8	514.48	------	510.50	ROLLING HILLS DRIVE	C.L. STA. 6+02	20'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-9	504.16	497.80, 496.30	496.05	WINDING PATH COURT	C.L. STA. 1+40.43	17'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-10	504.16	------	498.48	WINDING PATH COURT	C.L. STA. 1+52.43	17'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-11	509.92	505.32	503.82	CLEAR DRIVE COURT	C.L. STA. 0+52	17'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-12	509.92	------	506.00	CLEAR DRIVE COURT	C.L. STA. 0+52	17'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-13	504.77	500.16	499.91	WINDING PATH COURT	C.L. STA. 4+83.33	17'R	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-14	504.77	------	500.50	WINDING PATH COURT	C.L. STA. 4+83.33	17'L	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-15	535.75	531.05	530.80	MD. ROUTE 97	C.L. STA. 2+33	43'R	S.H.A. TYPE 'K'	MD. 378.11
I-16	536.64	------	532.62	MD. ROUTE 97	C.L. STA. 0+77.50	36'R	10' C.O.G.	MD. 374.51
I-17	528.38	------	517.15	MD. ROUTE 97	C.L. STA. -2+15.00	36'L	10' C.O.G.	MD. 374.51
M11	477.00	465.00, 465.07	455.82	—	N 585,142.50 E 1,301,104.05	—	BRICK MANHOLE	G - 5.03
M12	458.50	453.55	453.30	—	N 585,922.70 E 1,301,418.10	—	STD. MANHOLE	G - 5.01
M-2	457.30	442.73	442.58 △1	---	N 586,716.71 E 1,301,188.78	---	BRICK MANHOLE	G - 5.03
M-3	462.00	444.73	444.58	---	N 586,501.85 E 1,301,573.63	---	BRICK MANHOLE	G - 5.03
M-4	468.00	449.88	449.73	---	N 586,396.61 E 1,301,848.70	---	BRICK MANHOLE	G - 5.03
M-5	477.00	464.00, 465.05	464.80	---	N 586,311.66 E 1,301,077.92	---	BRICK MANHOLE	G - 5.03
M-6	480.50	472.20, 471.00	460.00	---	N 586,223.75 E 1,301,190.79	---	STD. MANHOLE	G - 5.01
M-7	490.50	483.50	481.75	---	N 586,295.07 E 1,301,262.24	---	STD. MANHOLE	G - 5.01
M-8	508.61	501.00, 494.55	494.30	ROLLING HILLS DRIVE	C.L. STA. 12+46	@ C.L.	STD. MANHOLE	G - 5.01
M-9	506.84	497.49	497.24	WINDING PATH COURT	C.L. STA. 2+39	@ C.L.	STD. MANHOLE	G - 5.01
M-10	538.00	528.66	528.41	---	N 585,361.96 E 1,302,218.21	---	STD. MANHOLE	G - 5.01
S-1	529.33	—	527.83	---	N 585,587.78 E 1,302,163.44	---	HDPE END SECTION	
S-2	440.00	—	436.00	---	N 587,033 E 1,301,300	---	HDPE END SECTION	
S-3	517.35	—	516.10	MD. ROUTE 97	C.L. STA. -2+05	44'L	HDPE END SECTION	

* DENOTES FUTURE INVERT



PROFILE

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

Approved: Department Of Planning And Zoning

Cindy Hematta — Chief, Division Of Land Development — 12/7/99 Date

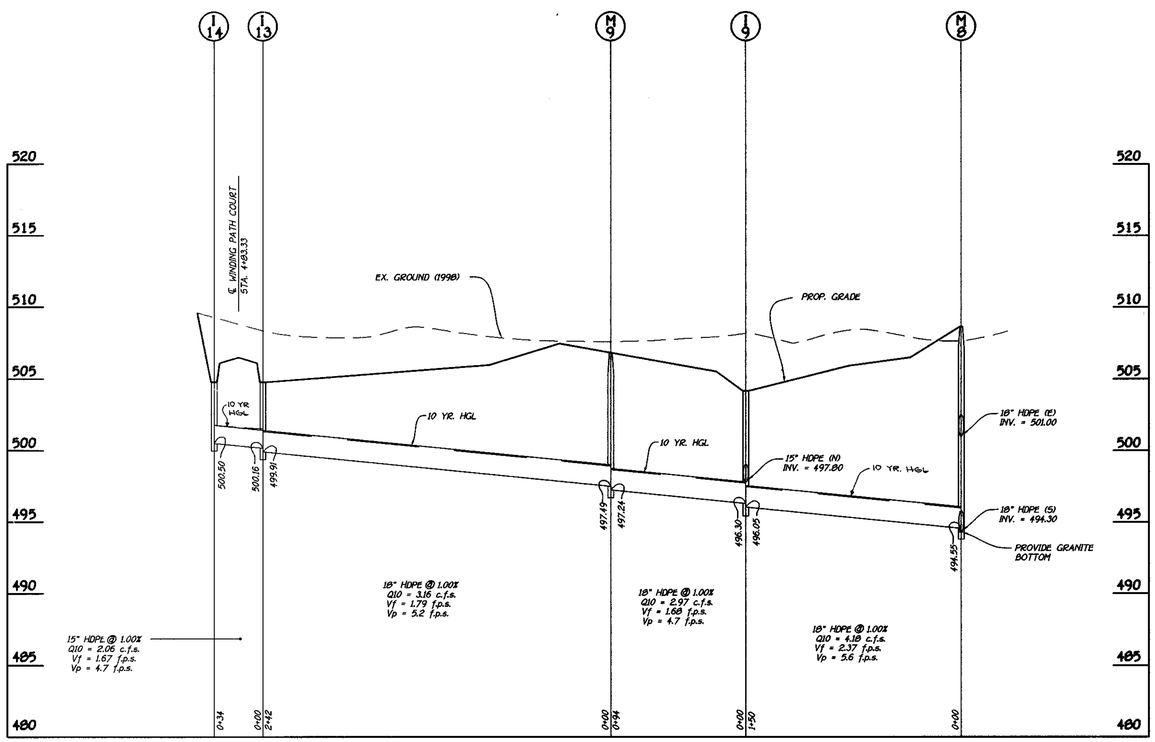
Chief, Development Engineering Division — 12/3/99 Date

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 12-1-99 Date

PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	HDPE	375'
18"	HDPE	2136'
24"	HDPE	468'
48"	AL-PIPE II - 14 ga.	1256'



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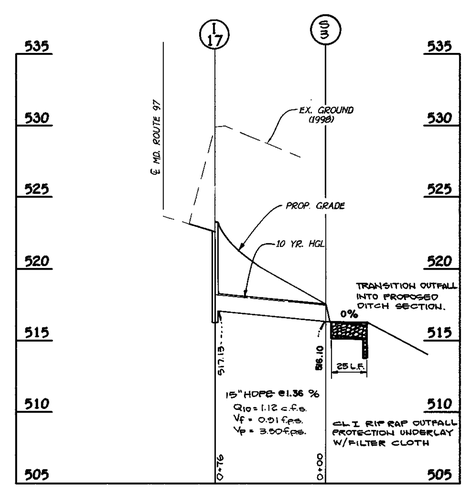

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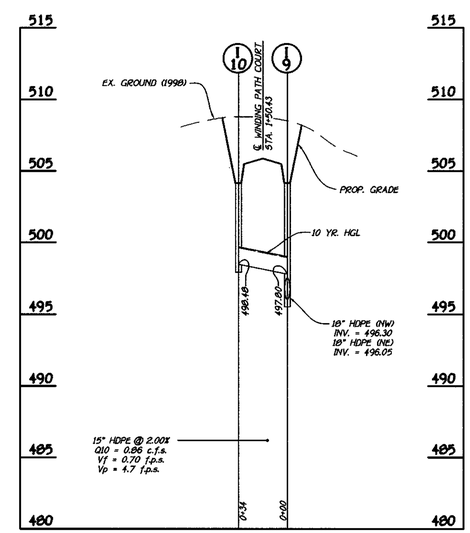

PROFILE

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

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8800 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
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LAUREL, MARYLAND 20707

DEVELOPER

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c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8800 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

STATE OF MARYLAND — MICHAEL W. MATRAW — No. 20748 — REGISTERED PROFESSIONAL ENGINEER

6-14-99

STORM DRAIN PROFILES

CATTAIL RIDGE

LOTS 4 - 37

AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: JUNE 1, 1999

SHEET 14 OF 27

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. * 30619 STORMDRAINS LDWG

No.	REVISIONS	DATE
1	REVISE STRUCTURE SCHEDULE FOR 48" AL-II CHANGE	5-8-00

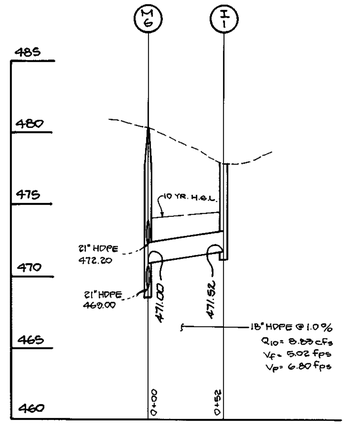
F99-145

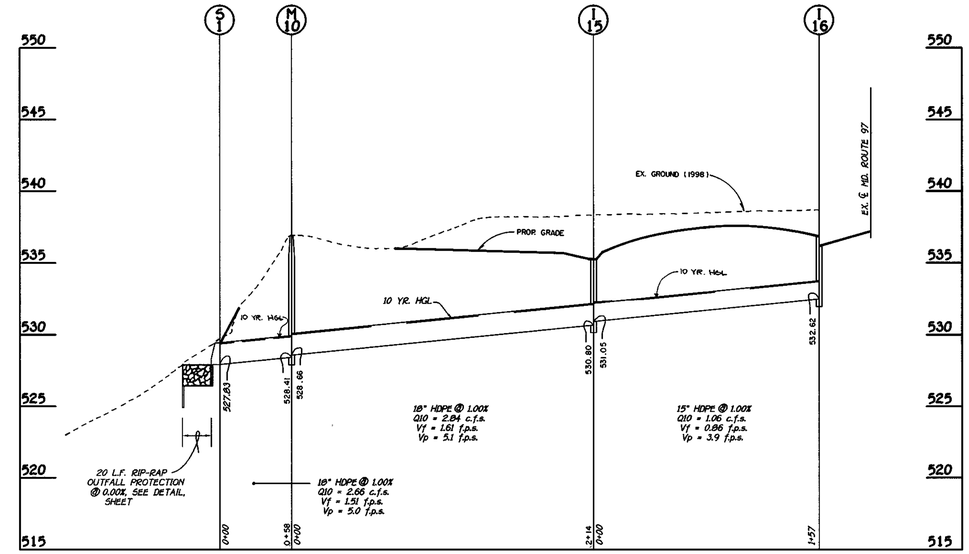
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development	Date 12/17/99
Chief, Development Engineering Division	Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways	Date 12-1-99





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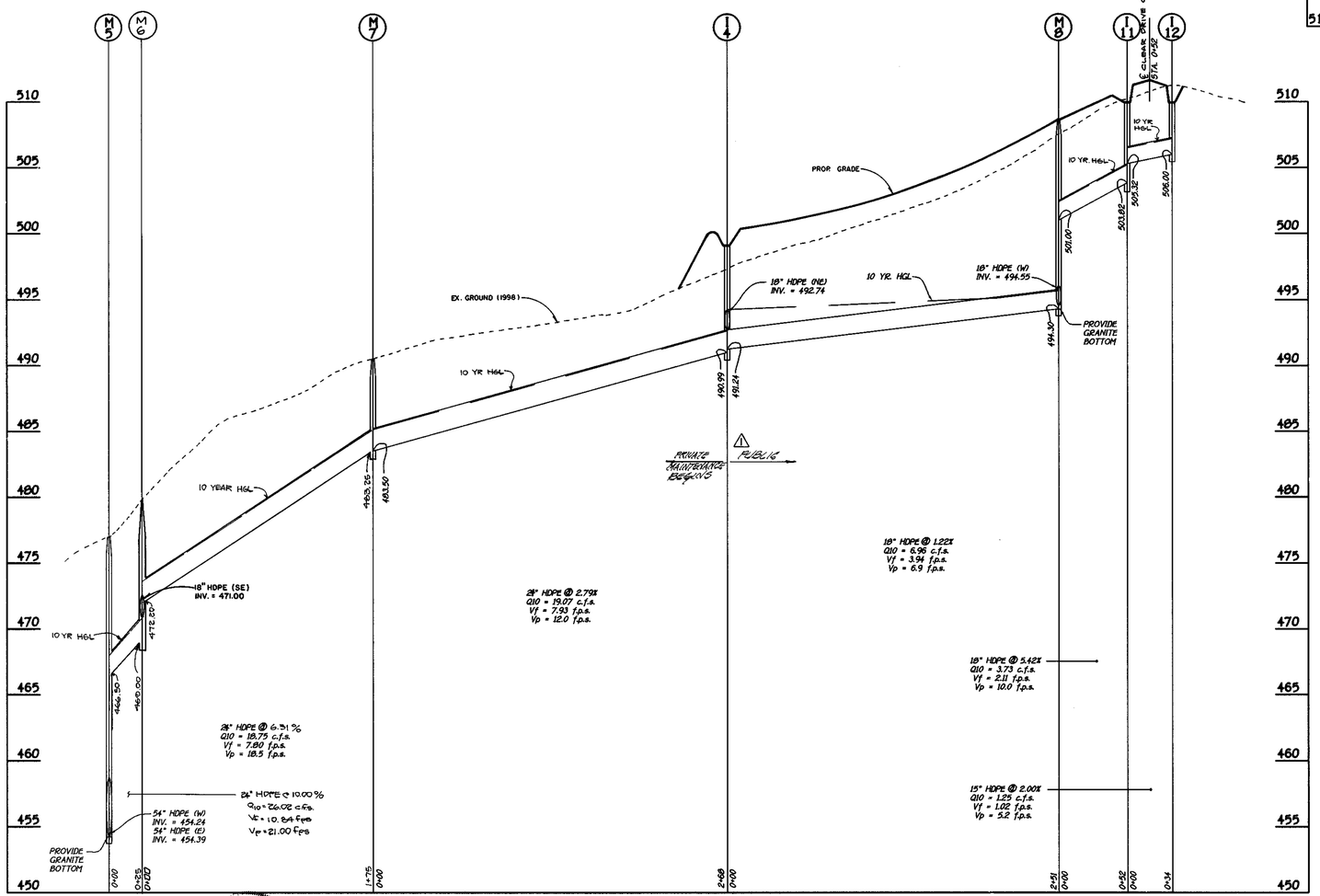

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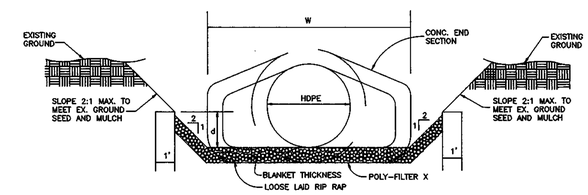

RIP-RAP CHANNEL DETAIL

NO SCALE

RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA (SQ. FT.)	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	Q_{10}	DIA.
S-1	1.6550	3.4583	0.4786	0.6117	0.005	0.0707	9.5	1.19	0.04	5.0	2.66	9.5"	15"	19"	2.66	18"
S-2	28.0697	14.8412	1.8943	1.5326	0.005	0.0707	24.5	3.72	0.04	18.5	112.77	23"	34"	46"	112.77	54"
S-3	2.25	5.736	0.392	0.534	0.010	0.10	3.5	0.5	0.04	1.98	1.12	9.5"	15"	19"	1.12	15"

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.

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 REGISTERED PROFESSIONAL ENGINEER 26710

11-3-99

F.C.C.# 3069 STORMDRAINS 2.DWG

No.	DESCRIPTION	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8809 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
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LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

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STORM DRAIN PROFILES

CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 15 OF 27

F99-145

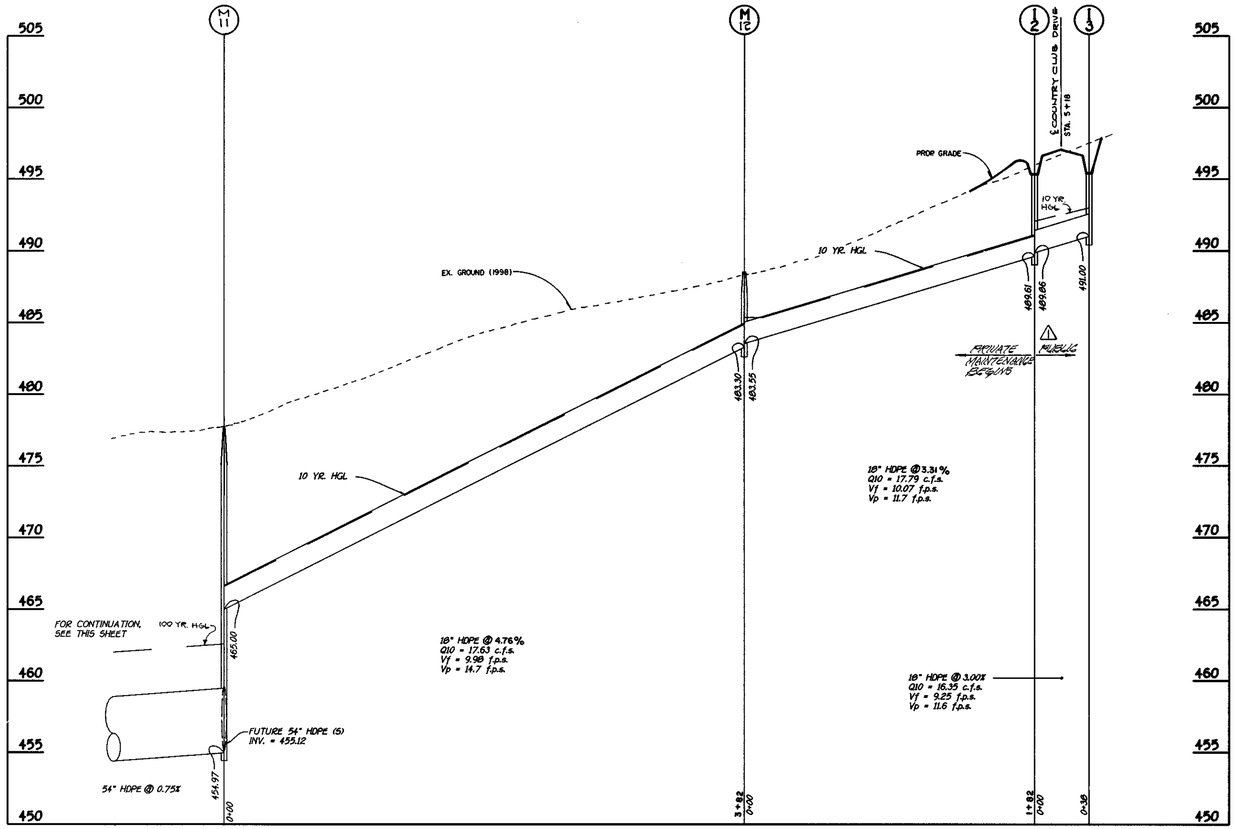
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/7/99

Chief, Development Engineering Division — Date 12/7/99

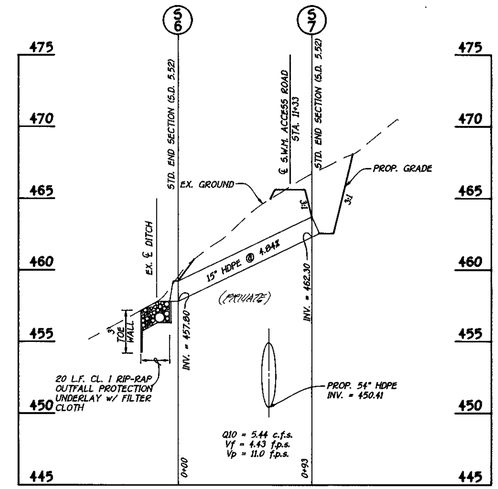
Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



PROFILE

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



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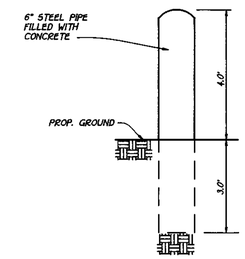
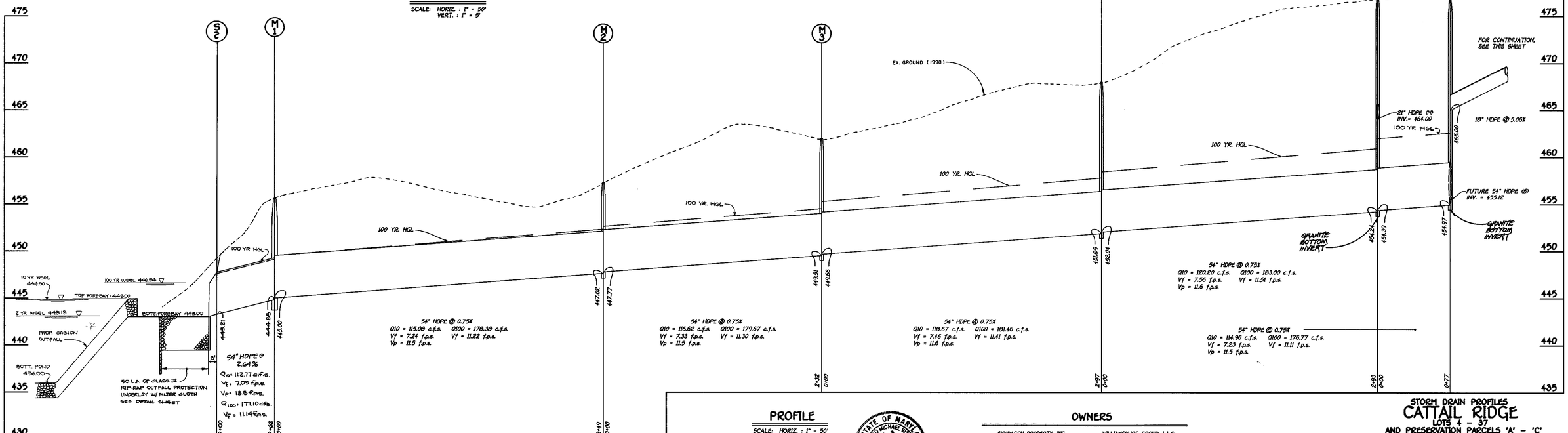


TYPICAL BOLLARD DETAIL

NOT TO SCALE



PROFILE

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

STATE OF MARYLAND — MICHAEL J. TORELLI — REG. 20748 — REGISTERED PROFESSIONAL ENGINEER

3-17-99

OWNERS

SYNDACON PROPERTY, INC.
c/o B&S DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCREVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
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ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
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LAUREL, MARYLAND 20707

DEVELOPER

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c/o B&S DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCREVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

NO.	DESCRIPTION	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

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.* 3089 STORMDRAINS.3.DWG

STORM DRAIN PROFILES
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 16 OF 27

F 99-145

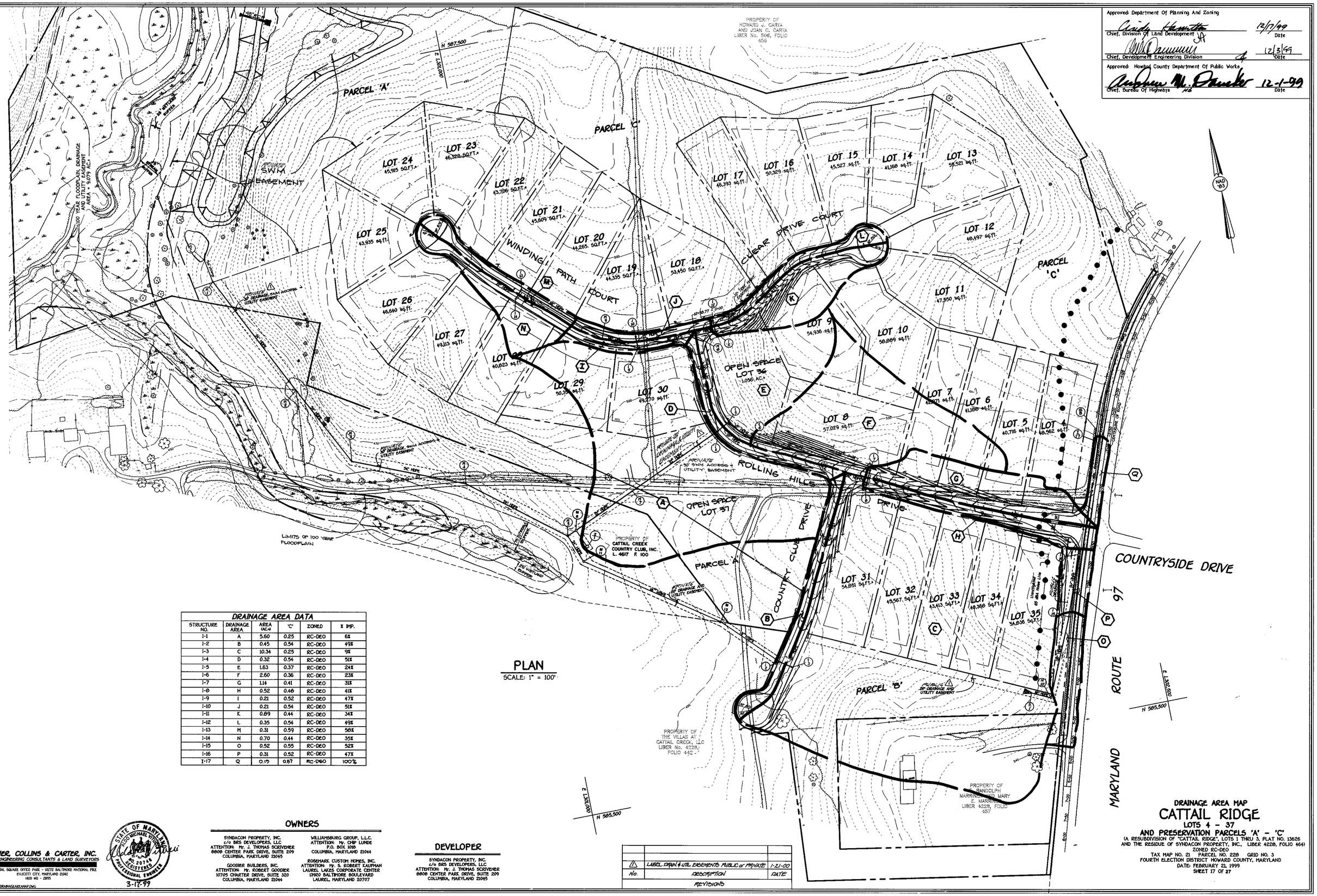
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/7/99

Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



PLAN

SCALE: 1" = 100'

DRAINAGE AREA DATA					
STRUCTURE NO.	DRAINAGE AREA	AREA (AC.±)	'C'	ZONED	% IMP.
I-1	A	5.60	0.25	RC-DEO	6%
I-2	B	0.45	0.54	RC-DEO	49%
I-3	C	10.34	0.25	RC-DEO	9%
I-4	D	0.32	0.54	RC-DEO	51%
I-5	E	1.63	0.37	RC-DEO	24%
I-6	F	2.60	0.36	RC-DEO	23%
I-7	G	1.14	0.41	RC-DEO	31%
I-8	H	0.52	0.48	RC-DEO	41%
I-9	I	0.21	0.52	RC-DEO	47%
I-10	J	0.21	0.54	RC-DEO	51%
I-11	K	0.89	0.44	RC-DEO	34%
I-12	L	0.35	0.54	RC-DEO	49%
I-13	M	0.31	0.59	RC-DEO	58%
I-14	N	0.70	0.44	RC-DEO	35%
I-15	O	0.52	0.55	RC-DEO	52%
I-16	P	0.31	0.52	RC-DEO	47%
I-17	Q	0.19	0.87	RC-DEO	100%

FISHER, COLLINS & CARTER, INC.
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ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.- 3089 DRAINAGEAREAMAP.DWG

STATE OF MARYLAND — GLENN MICHAEL TOTH — No. 20746 — REGISTERED PROFESSIONAL ENGINEER

3-17-99

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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ATTENTION: Mr. J. THOMAS SCRIVENER
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No.	REVISIONS	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

DRAINAGE AREA MAP

CATTAIL RIDGE

LOTS 1 - 37

AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: FEBRUARY 21, 1999

SHEET 17 OF 27

F 99-145

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING					
LINEAR FEET OF PERIMETER	D1: (490')	D2: (490')	D3: (0227)	D4: (690')	D5: (349')
NUMBER OF TREES REQUIRED: SHADE TREES / EVERGREEN TREES	10 / 12	10 / 12	20 / 25	14 / 17	7 / 9
CREDIT FOR EXISTING VEGETATION (NO, YES AND X)	NO	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND X)	NO	NO	NO	NO	NO
NUMBER OF TREES PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2X SUBSTITUTION)	10 / 12	10 / 12	20 / 25	14 / 17	7 / 9

LANDSCAPE SCHEDULE				
QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
165		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2"-3"
110		PINUS STROBUS	WHITE PINE	6'-8' HT.

NOTE: THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 275 LANDSCAPING TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $66,000.00.

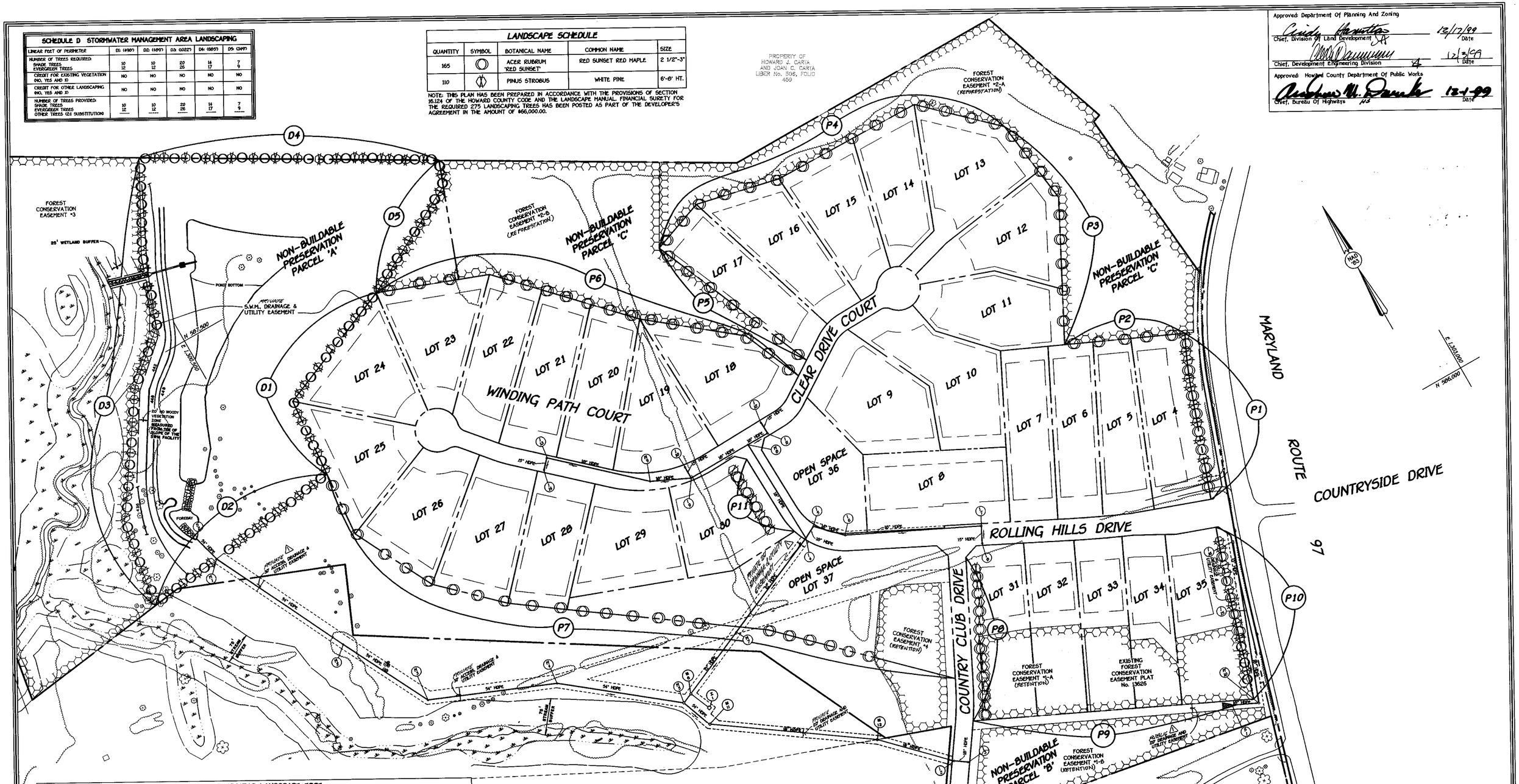
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/17/99

Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



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	SHRUBS
P-1	ADJACENT TO ROADWAY	B	385'	NO	NO	8	10	-	8	10	-
P-2	ADJACENT TO PERIMETER	A	276'	NO	NO	5	-	-	5	-	-
P-3	ADJACENT TO PERIMETER	A	541'	NO	NO	9	-	-	9	-	-
P-4	ADJACENT TO PERIMETER	A	894'	NO	NO	15	-	-	15	-	-
P-5	ADJACENT TO PERIMETER	A	423'	NO	NO	7	-	-	7	-	-
P-6	ADJACENT TO PERIMETER	A	1016'	NO	NO	17	-	-	17	-	-
P-7	ADJACENT TO PERIMETER	A	1579'	YES (174')	NO	23	-	-	23	-	-
P-8	ADJACENT TO ROADWAY	B	376'	NO	NO	8	9	-	8	9	-
P-9	ADJACENT TO PERIMETER	A	642'	YES (642')	NO	0	-	-	0	-	-
P-10	ADJACENT TO ROADWAY	B	392'	NO	NO	8	10	-	8	10	-
P-11	ADJACENT TO ROADWAY	B	198'	NO	NO	4	5	-	4	5	-

PLAN

SCALE: 1" = 100'

STATE OF MARYLAND — BRIAN W. FISHER — No. 20746 — REGISTERED PROFESSIONAL ENGINEER

6-14-99

OWNERS

SYNDACON PROPERTY, INC.
c/o BES DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BES DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

LANDSCAPE PLAN
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 10 OF 27

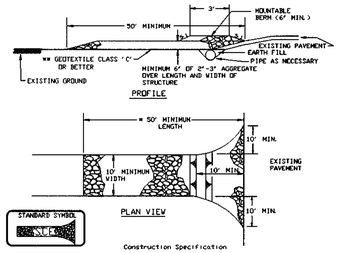
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

NO.	DESCRIPTION	DATE
1	LABEL DRAIN/UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

F.C.C.-30659 LANDSCAPE PLANING

F 99-145

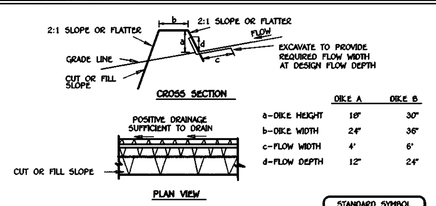


Construction Specification

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



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

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

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

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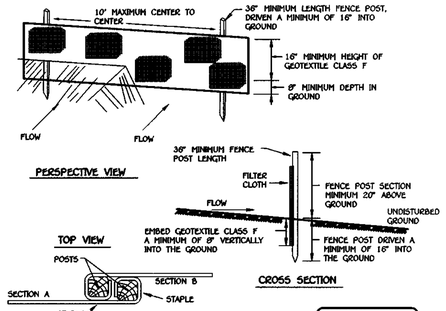

Construction Specifications

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)	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

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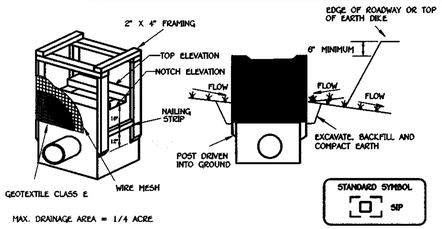


MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

STANDARD INLET PROTECTION

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 11-3-99

ENGINEER'S CERTIFICATE

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

SIGNATURE — DATE 6-14-99

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 11/19/99

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 11/19/99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

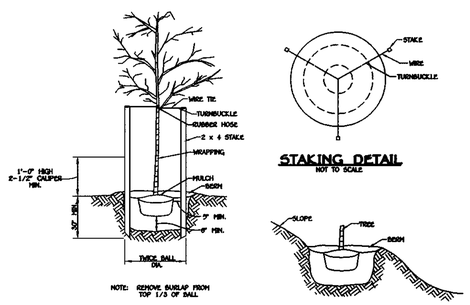
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/7/99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/3/99

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-1-99



TREE PLANTING
NOT TO SCALE

STAKING DETAIL
NOT TO SCALE

GRADING FOR PLANTING ON SLOPES
NOT TO SCALE

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

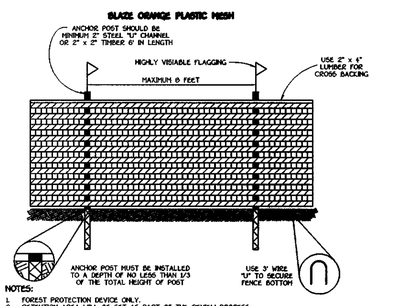
This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term 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 berms, 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 or permanent) such as diversions, grade stabilization structures, berms, sediment traps, 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 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 3:0) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. Incorporate lime and fertilizer into the 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 zoysia impedimenta 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 3:0) 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 20.5 or 20. 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 - Mechanical 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 free of weeds, molds, or other deleterious 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 applied 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 blanket and bind 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 seedling.
      e. WCFM material shall contain no elements or compounds at concentration levels that will be phytotoxic.
      f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 2 mm, pH range of 4.0 to 8.5, ash content of 1.6 maximum and water holding capacity of 90% minimum.
   Note: Only virgin 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 seeding 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 in a mulch slurry 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, the practice should be used on the contour if possible.
   ii. Wood cellulose fiber (WCF) - Apply uniformly on mulched areas. 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 spread uniform after binder application. Use binders in accordance with manufacturer's recommendations. 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 cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
   ii. Construction sequence (refer to Figure 3 below)
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
      b. Perform Phase 1 excavation, dress, and stabilize.
      c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.
   Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil if required and permanent seed and mulch. Any interruption in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.
J. Incremental Stabilization of Embankments - Fill Slopes
   i. Embankments shall be constructed in lifts as prescribed on the plans.
   ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed on the plans.
   iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
   iv. Construction sequence (refer to Figure 4 below).
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct slope silt fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.
      b. Place Phase 1 embankment, dress and stabilize.
      c. Place Phase 2 embankment, dress and stabilize.
      d. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.
   Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil if required and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.



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

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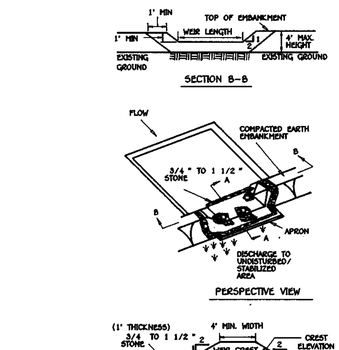

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STONE RIP-RAP OUTLET SEDIMENT TRAP - ST IV

NOT TO SCALE

1. Excavate the pond area to the dimensions shown on the plan. Place the excavated material in a manner that will not be washed into the stream.
2. Place the stone riprap and gravel in the pond area to the dimensions shown on the plan.
3. Place the remaining stone riprap and gravel in the outlet channel to the dimensions shown on the plan.
4. Install the outlet pipe and construct the embankment in accordance with the pond cross section.
5. Stabilize the embankment and all other disturbed areas in accordance with the specifications for permanent seeding.

Construction Specifications

1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable materials. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be 4', measured at centerline of embankment.
3. All cut and fill slopes shall be 2:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed the height of trap embankment.
5. Storage area provided shall be figured by computing the volume measured from top of embankment. (For storage requirements see Table 9).
6. Geotextile Class C shall be placed over the bottom and sides of the outlet channelprior to placement of stone. Section of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 6" into existing ground for anchorage.
7. 4" - 7" stone shall be used to construct the weir and 4" - 12" or Class I rip-rap shall be used to construct the outlet channel.
8. Outlet - An outlet shall include a means of conveying the discharge in an erosion free manner to an existing stable channel. Protection against scour at the discharge point shall be provided as necessary.
9. Outlet channel must have positive drainage from the trap.
10. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 of the wet storage depth of the trap (900 cf/ac). Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
11. The structure shall be inspected periodically after each rain and repaired as needed.
12. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
13. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF 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 HUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. I, 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. 50), 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	87.771	ACRES
AREA DISTURBED	7.713	ACRES
AREA TO BE ROOFTOP OR PAVED	1.623	ACRES
AREA TO BE VEGETATIVELY STABILIZED	6.090	ACRES
TOTAL CUT	20,000	CU.YDS.
TOTAL FILL	20,000	CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A	CU.YDS.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODRIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODRIER
10705 CHARTER DRIVE, SUITE 320
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WILLIAMSBURG GROUP, L.L.C.
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13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
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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.- 3089 SED CON DETAILS.DWG

5-8-00	△2 ADD STONE/RIP-RAP OUTLET SEDIMENT TRAP DETAIL
DATE	DESCRIPTION
	REVISIONS

SEDIMENT CONTROL NOTES AND DETAILS

CATTAIL RIDGE

LOTS 4 THRU 37
AND PRESERVATION PARCELS 'A' THRU 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 20 OF 27

F 99-145

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, Johnsongrass, 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 perscribed to raise the pH to 6.5 or higher.

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

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

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

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

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

V. Topsoil Application

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

II. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, 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 topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

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

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

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

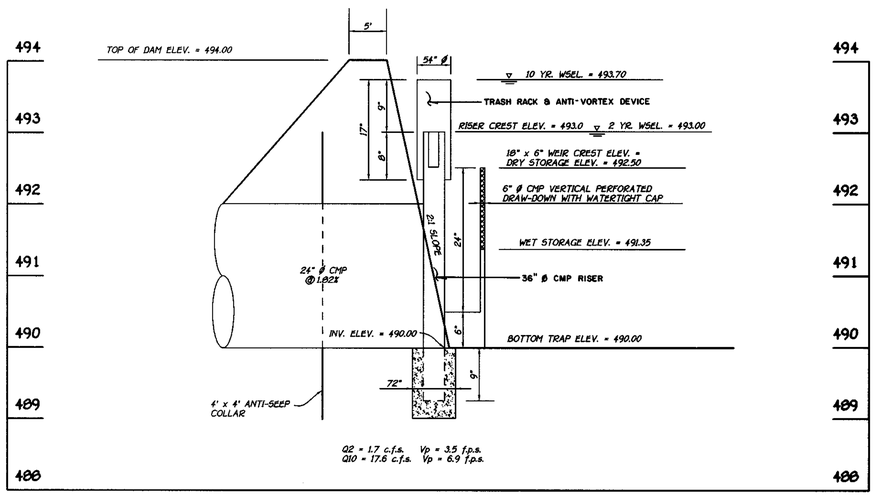
a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

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.

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



P.O.S.T. NO. 1 DETAIL

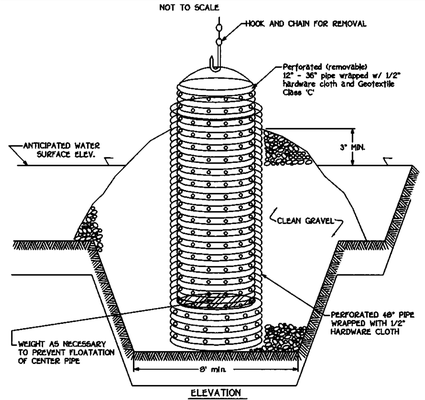
SCALE: HORIZ. : 1" = 10'
VERT. : 1" = 1'

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.: 30939REV.126

REMOVABLE PUMPING STATION

NOT TO SCALE



ELEVATION

Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.

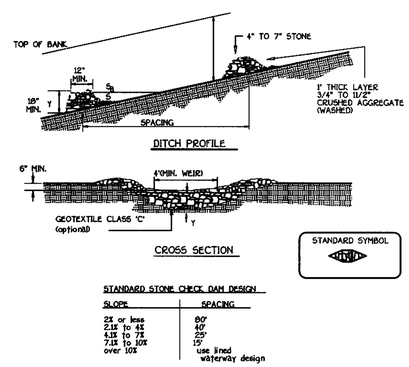
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.

3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slots or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.

4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

STONE CHECK DAM

NOT TO SCALE



STANDARD STONE CHECK DAM DESIGN

SLOPE	SPACING
2% or less	80'
2.1% to 4%	40'
4.1% to 7%	25'
7.1% to 10%	15'
over 10%	use lined waterway design

Construction Specifications

1. Swales and ditches shall be prepared in accordance with the construction specifications described in Section A-2, Standards and Specifications for Temporary Swale.

2. The check dam shall be constructed of 4"-7" stone. The stone shall be placed so that it completely covers the width of the channel and keyed into the channel banks.

3. The top of the check dam shall be constructed so the the center is approximately 6" lower than the outer edges, forming a weir that water can flow across.

4. The maximum height of the check dam at the center shall not exced 2'.

5. The upstream sideof the check dam shall be lined with approximately 1" of 3/4" to 11/2" crushed aggregate.

P.O.S.T. NO. 1

Construction Specifications

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

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

3. The total trap volume as measured from the bottom to weir elevation shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be ≥ 1' above the riser crest elevation.

4. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (900cf/ac). The sediment shall be deposited in a suitable area and in such a manner that it will not erode.

5. The structure shall be inspected periodically and after each rain and repairs made as necessary.

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

7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.

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

9. All pipe connections shall be watertight.

10. Above the wet storage elevation, the draw-down pipe shall be perforated with 1/2" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally.

11. The draw-down pipe shall be wrapped with 1/2" hardware cloth (wire) then wrapped with Geotextile Class E. The filter cloth shall extend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.

12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.

13. Fill material around the pipe spillway shall be hand compacted in 4" layers. A minimum of 2' of hand-compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.

14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 9". Steel plate bases shall be at least twice the riser diameter, 1/4" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2' of stone, gravel or tamped earth on the plate.

15. Anti seep collars shall be constructed in accordance with plans (ref. table 16 and Details 13 and 14).

16. Concentric trash rack and anti-vortex device design details are on Detail 15.

17. Refer to Section D for dewatering requirements of sediment traps.

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

19. Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.

⚠ SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT.

2. NOTIFY "MISS UTILITY" AT LEATS 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 24 HOURS BEFORE STRATING WORK.

3. CLEAR AND GRUB FOR PERIMETER SEDIMENT CONTROL MEASURES AND INSTALL STABILIZED CONSTRUCTION ENTRANCE. (2 weeks)

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

5. INSTALL REMAINING SEDIMENT CONTROL MEASURES, SEDIMENT TRAPS, EARTH DIKES, PIPE SLOPE DRAINS FOR CLEAN WATER DIVERSION AND SILT FENCE AS INDICATED ON THE PLANS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE PROPOSED SEDIMENT TRAPS. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF EACH FACILITY. (2 weeks)

6. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEED.

7. SITE CONSTRUCTION TO CONSIST OF THE FOLLOWING ITEMS:

A. GRADE THE REMAINDER OF THE SITE ASSOCIATED WITH THE ROAD CONSTRUCTION. THIS WORK SHALL INCLUDE GRADING SITE TO PROPOSED SUBGRADE INSTALLATION OF THE PROPOSED STORM SYSTEM UP TO AND INCLUDING THE TEMPORARY OUTFALLS ASSOCIATED WITH THE SEDIMENT TRAPS. STABILIZE ALL ROADWAY DITCH SLOPES IMMEDIATELY UPON COMPLETION OF GRADING AS SHOWN ON THESE PLANS. INSTALL BASE COURSE PAVING (6 weeks). THIS WORK CAN COINCIDE WITH THE FOLLOWING ITEM #7B DUE TO THE TEMPORARY SWM PROVIDED IN THE TRAP.

B. CONSTRUCT THE STORMWATER MANAGEMENT FACILITY. ALSO CONSTRUCT PART OF THE STORM DRAIN SYSYTEM FROM S-2 TO M-7 AND FROM M-5 TO M-12 AS SHOWN ON THE ATTACHED PLANS. (6 weeks). INSURE FULL PERMANENT STABILIZATION OF THE SWM FACILITY PRIOR TO CONNECTION OF STORM DRAIN SYSTEM FOR THIS SITE AND IF APPLICABLE, THE ADJACENT VILLAS AT CATTAIL CREEK SITE. CONTRACTOR SHALL BE AWARE OF THE STREAM CLOSURE DATES FOR CATTAIL CREEK TO BE FROM OCTOBER 1ST THROUGH APRIL 30TH FOR ALL CLASS III STREAMS.

8. 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. (1 week)

9. STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTORS TO PROCEED.

10. APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 week)

11. WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES AND TRAPS HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICE MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. THIS WOULD ALSO INCLUDE THE REMOVAL OF TEMPORARY STORM DRAIN OUTFALLS AT THE TRAPS FINAL STORM DRAIN RUN CONNECTIONS. STABILIZE ALL REMAINING AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 weeks)

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

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

Signature — Date: 8-9-99

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: 11-3-99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/18/99

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

District Howard Soil Conservation Dist. — Date: 11/19/99

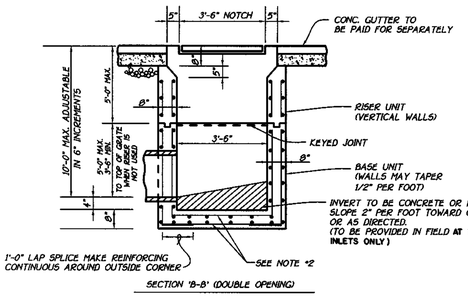
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/7/99

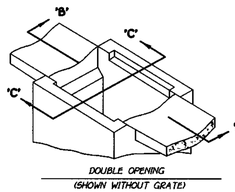
Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

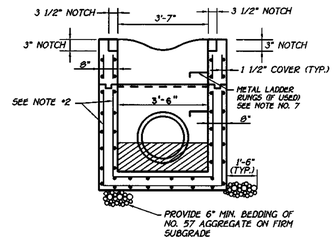
Chief, Bureau Of Highways — Date: 12-1-99



SECTION 'B-B' (DOUBLE OPENING)



DOUBLE OPENING
(SHOWN WITHOUT GRATE)



SECTION 'C-C'

GENERAL NOTES:

1. CONCRETE TO BE MIX NO. 6 (4500 PSI).
2. REINFORCING - 2 LAYERS OF 4 x 4 - W 4.0 x W 4.0 WELDED WIRE FABRIC.
3. THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
4. FOR GRATE DETAILS SEE STANDARD MD. - 378.05. GRATE TO BE AS SHOWN OR FURNISH APPROVED EQUIVALENT.
5. PIPE OPENINGS TO BE PROVIDED AS REQUIRED, FOR SIZE, LOCATION AND INVERT ELEVATIONS REFER TO CONSTRUCTION PLANS.
6. PLACEMENT OF SUBGRADE DRAINAGE WILL BE AS DIRECTED BY THE ENGINEER OR AS NOTED ON THE CONSTRUCTION PLANS.
7. LADDER RUNGS SHALL BE IN ACCORDANCE WITH STANDARD MD. - 383.91, AS SHOWN OR AS DIRECTED BY THE ENGINEER.
8. MINIMUM DEPTH PAYMENT PER "EACH" INLET INCLUDES DEPTHS UP TO 3'-6". VERTICAL DEPTH PAYMENT PER LINEAR FOOT INCLUDES DEPTHS IN EXCESS OF 3'-6".
9. A 6" PERFORATED CIRCULAR PIPE, FOR EROSION AND SEDIMENT CONTROL, SHALL BE PLACED IN THE INLET WALL AT ALL INLET SEDIMENT TRAPS AS SHOWN ON THE PLANS.

MODIFIED OPEN END GRATE

NOT TO SCALE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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ATTENTION: Mr. ROBERT GOODNER
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13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

DATE		DESCRIPTION
5-8-00	⚠	REVISE SEQUENCE OF CONSTRUCTION

REVISIONS

SEDIMENT CONTROL NOTES AND DETAILS

CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 21 OF 27

F 99-145

No.	REVISIONS	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

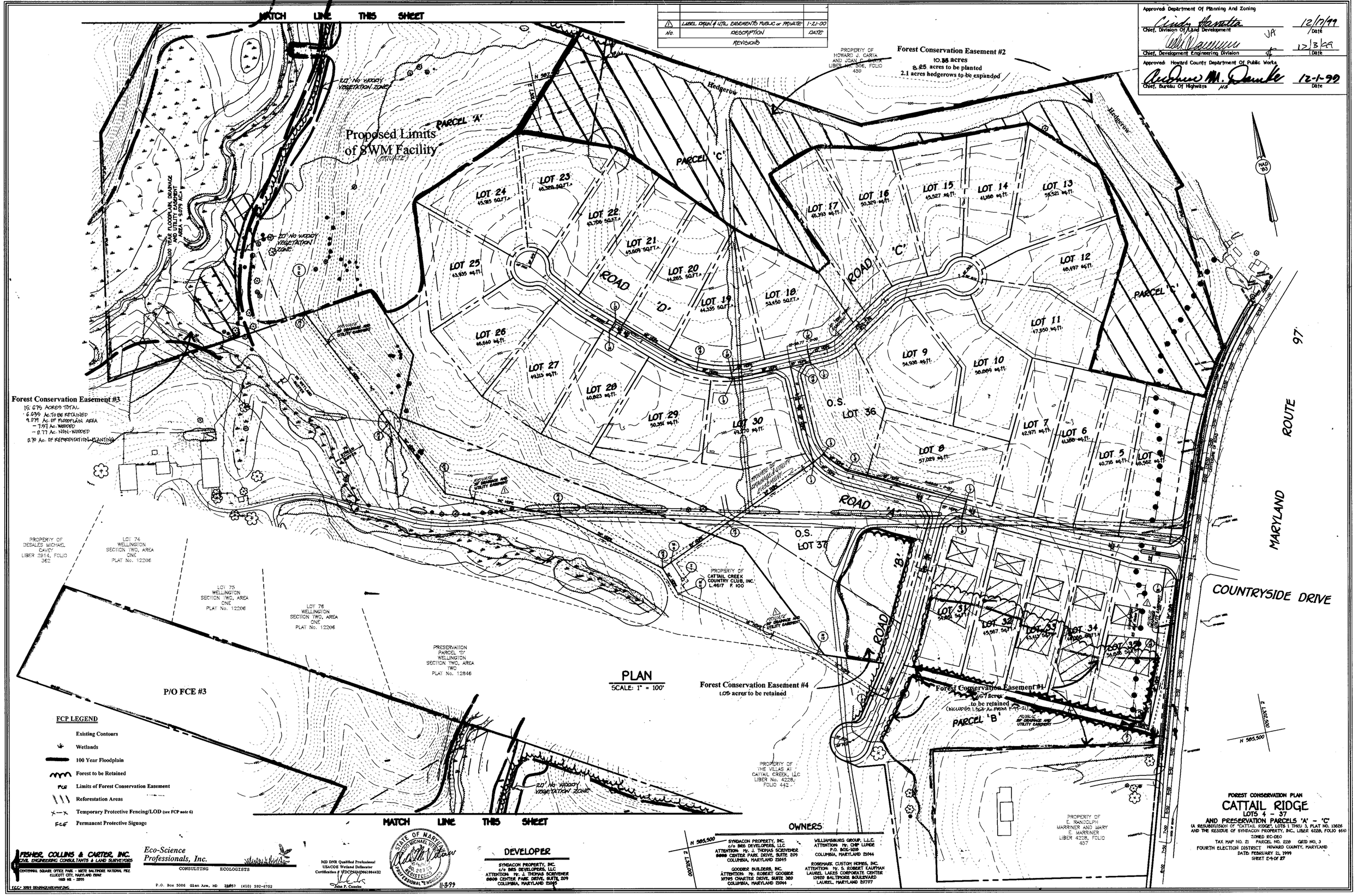
Approved Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/7/99

Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



PLAN

SCALE: 1" = 100'

FCP LEGEND

- Existing Contours
- Wetlands
- 100 Year Floodplain
- Forest to be Retained
- FCE Limits of Forest Conservation Easement
- Reforestation Areas
- Temporary Protective Fencing/LOD (see FCP note 6)
- FCE Permanent Protective Signage

OWNERS

SYNDACON PROPERTY, INC.
c/o BGS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 300
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX-1019
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
12920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BGS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

FOREST CONSERVATION PLAN

CATTAIL RIDGE

LOTS 4 - 37

AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: FEBRUARY 21, 1999

SHEET 2-4 OF 27

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

F.C.C. 3093 DRAINAGE/REPAIRING

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP3MD061004132
John P. Cassles

STATE OF MARYLAND
RICHARD MICHAEL VITALE
No. 28713
REGISTERED PROFESSIONAL ENGINEER
11-3-99

F99-145

SHEET INDEX	
SHEET No.	DESCRIPTION
1	TITLE SHEET
2	MARYLAND ROUTE 97 PLAN AND PROFILE
3	ROLLING HILLS DRIVE PLAN AND PROFILE
4	COUNTRY CLUB DRIVE PLAN AND PROFILE
5	CLEAR DRIVE COURT PLAN AND PROFILE
6	WINDING PATH COURT PLAN AND PROFILE
7 - 9	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
10	S.W.M. GRADING AND SEDIMENT CONTROL PLAN
11	TRAFFIC CONTROL AND STRIPING PLAN
12 - 13	CROSS-SECTIONS (MD ROUTE 97)
14 - 16	STORM DRAIN PROFILES
17	DRAINAGE AREA MAP
18	LANDSCAPE PLAN
19	DETAIL SHEET
20 - 21	SEDIMENT CONTROL NOTES AND DETAILS
22 - 23	S.W.M. NOTES AND DETAILS
24	FOREST CONSERVATION PLAN
25	FOREST CONSERVATION NOTES AND DETAILS
26	S.W.M. ACCESS ROAD PROFILE
27	S.W.M. SOIL BORINGS

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-1-99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/17/99

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/3/99

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

CATTAIL RIDGE

LOTS 4 THRU 37
AND
PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626, AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONING "RC-DEO"

TAX MAP No. 21, PARCEL NO. 228, GRID NO. 3

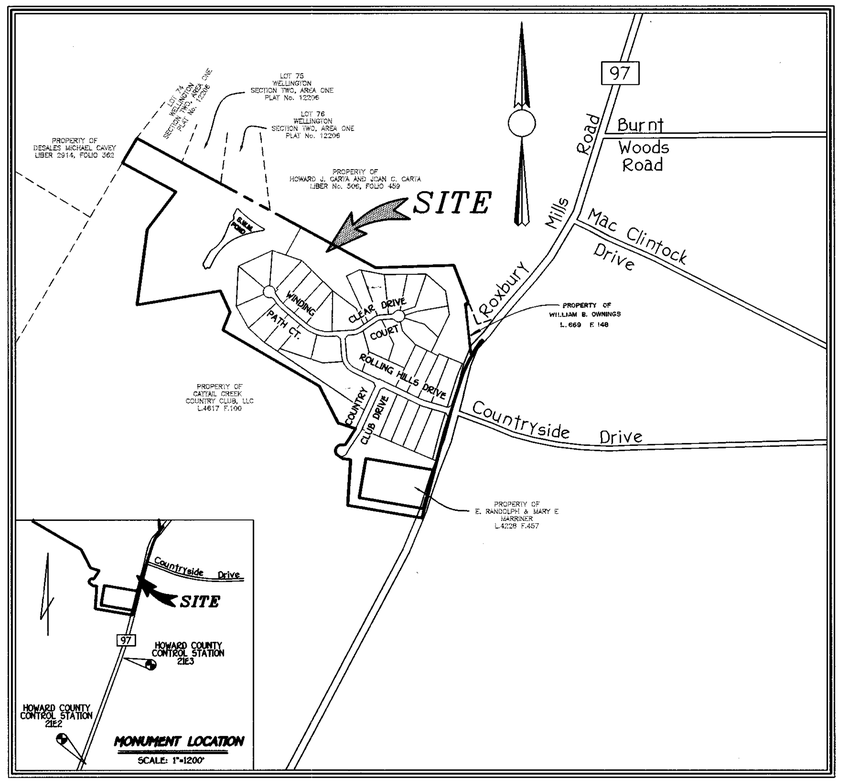
FOURTH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

MINIMUM LOT SIZE CHART				
LOT No.	GROSS AREA	PIPESTEM AREA	REMAINING AREA	MINIMUM LOT SIZE
13	55,521 SQ.FT.±	4,211 SQ.FT.±	51,310 SQ.FT.±	51,310 SQ.FT.±

ROAD CLASSIFICATION		
ROAD NAME	CLASSIFICATION	R/W
ROLLING HILLS DRIVE	MINOR COLLECTOR / ACCESS STREET	50' / 40'
COUNTRY CLUB DRIVE	ACCESS STREET	40'
CLEAR DRIVE COURT	ACCESS PLACE	40'
WINDING PATH COURT	ACCESS PLACE	40'

TRAFFIC CONTROL SIGNS				
STREET NAME	C.L. STATION	OFFSET	POSTED SIGN	SIGN CODE
ROLLING HILLS DRIVE	7+95	13'R	ROAD NARROWS	W5-1
ROLLING HILLS DRIVE	8+65	13'L	ROAD NARROWS	W5-1
COUNTRY CLUB DRIVE	5+15	14'R	ROAD NARROWS	W5-1
COUNTRY CLUB DRIVE	5+85	14'L	ROAD NARROWS	W5-1
CLEAR DRIVE COURT	2+45	11'R	ROAD NARROWS	W5-1
CLEAR DRIVE COURT	3+15	11'L	ROAD NARROWS	W5-1
WINDING PATH COURT	0+75	11'R	ROAD NARROWS	W5-1
WINDING PATH COURT	1+45	11'L	ROAD NARROWS	W5-1
WINDING PATH COURT	3+85	11'R	ROAD NARROWS	W5-1
WINDING PATH COURT	4+55	11'L	ROAD NARROWS	W5-1
ROLLING HILLS DRIVE	0+72	32'L	STOP	R1-1
ROLLING HILLS DRIVE	12+26	20'R	STOP	R1-1
COUNTRY CLUB DRIVE	0+32	24'L	STOP	R1-1
ROLLING HILLS DRIVE	2+00	14'R	SPEED LIMIT 25	R2-1
ROLLING HILLS DRIVE	7+00	13'R	SPEED LIMIT 25	R2-1
COUNTRY CLUB DRIVE	2+00	13'R	SPEED LIMIT 25	R2-1
CLEAR DRIVE COURT	2+00	11'R	SPEED LIMIT 25	R2-1
WINDING PATH COURT	2+00	11'R	SPEED LIMIT 25	R2-1
ROLLING HILLS DRIVE	0+45	⊕ ℄	KEEP RIGHT	R4-7
ROLLING HILLS DRIVE	2+00	14' L	STOP AHEAD	W3-1Q



VICINITY MAP
SCALE: 1"=600'

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 AERIAL TOPOGRAPHIC SURVEY PREPARED BY AERIAL MAPPING CO., INC. , FLOWN IN 1998.
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. 21E2 AND 21E3 WERE USED FOR THIS PROJECT.

21E2	N 583,065.3000	21E3	N 584,559.4785
	E 1,300,868.4336		E 1,302,074.5340

7. WATER IS PRIVATE.
8. SEWER IS PRIVATE.
9. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC. (APPROVED UNDER S98-09).
10. BACKGROUND INFORMATION:
    - A. SUBDIVISION NAME: CATTAIL RIDGE
    - B. TAX MAP NO.: 21
    - C. PARCEL NO.: 228
    - D. ZONING: RC-DEO
    - E. ELECTION DISTRICT: FOURTH
    - F. TOTAL TRACT AREA: 88.359 AC. ±
    - G. NO. OF BUILDABLE LOTS: 32
    - H. NO. OF PRESERVATION PARCELS: 3
    - I. NO. OF OPEN SPACE LOTS: 2
    - J. PRELIMINARY PLAN APPROVAL DATE: FEBRUARY 8, 1999
    - K. PREVIOUS FILE Nos. : S98-09 AND P99-02
    - L. TOTAL AREA OF OPEN SPACE REQUIRED: (88.359 AC. x 5%) = 4.419 AC.±
    - M. TOTAL AREA OF OPEN SPACE PROVIDED: 4.419 AC.±
11. 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.
12. NO CEMETERIES EXIST ON THE PROPERTY.
13. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF ASTM T-180.
14. THE WETLAND AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. AND APPROVED UNDER S98-09.
15. NOISE STUDY WAS PREPARED BY WILDMAN ENVIRONMENTAL SERVICES AND APPROVED UNDER P99-02.
16. 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.
17. STORMWATER MANAGEMENT FACILITY:
    - (5) TYPE - EXTENDED DETENTION FACILITY
    - OWNER - HOMEOWNER'S ASSOCIATION (PRIVATE)
    - MAINTENANCE - HOMEOWNER'S ASSOCIATION (PRIVATE)
18. **PROPERTY SUBECT TO MDE DAM SAFTY FILE NO. 99-PO-2096.**
19. (5) FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT ARE BEING PROVIDED BY 10.3 ACRES OF REFORESTATION AS SHOWN ON SHEETS 24 AND 28. IN ADDITION TO THIS REFORESTATION REQUIREMENT THERE IS 14.9 ACRES OF FOREST RETENTION AREAS WHICH INCLUDES THE EXISTING 1.546 ACRES OF RETENTION AREA FLAGED UNDER F-99-21.

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.- 30697TITLESHEET

STATE OF MARYLAND — NO. 20742 — REGISTERED PROFESSIONAL ENGINEER

6-14-99

Date	Description	
11-28-00	Revise Forest ConservationNote no. 19	(5)
5-8-00	Revise General Note no. 17	(5)

Revisions

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

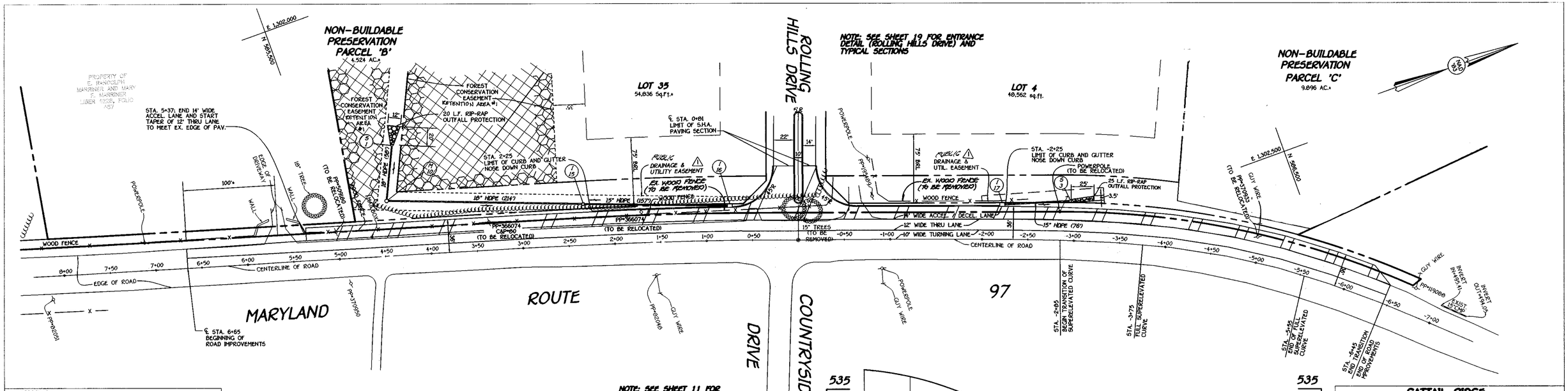
ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

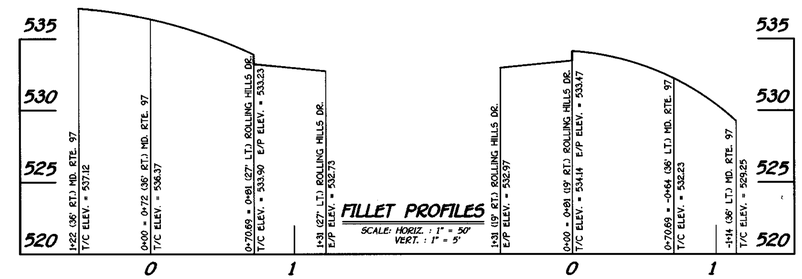
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626, AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 1 OF 27

F 99-145



PLAN

SCALE: 1" = 50'



FILLET PROFILES

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

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/7/99

APPROVED
DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/8/99

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 12-1-99

STATE OF MARYLAND — JOHN MICHAEL VERCHICK — No. 20745 — REGISTERED PROFESSIONAL ENGINEER
11-3-99

No.	DESCRIPTION	DATE
3	Revise Forest Conservation Easement	11-28-00
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

CATTAIL RIDGE

LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 4, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC. LIBER 4228, FOLIO 464)
ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

MARYLAND ROUTE 97

PLAN AND PROFILE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTN: Mr. S. ROBERT LAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

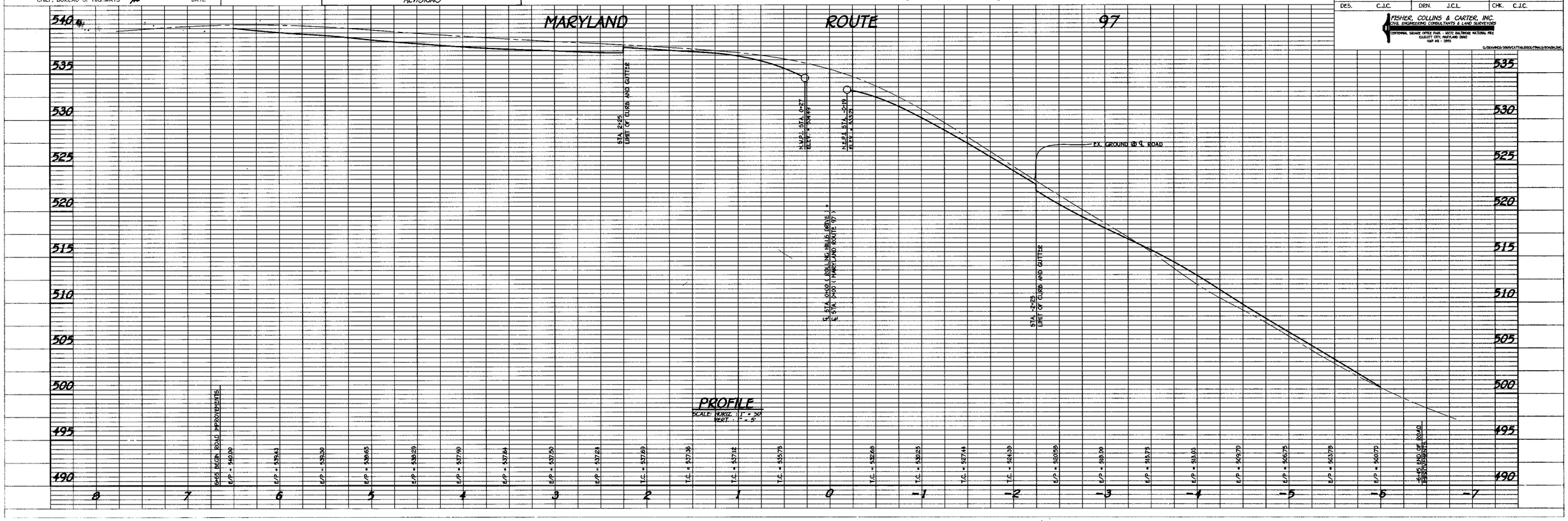
DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 2 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

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

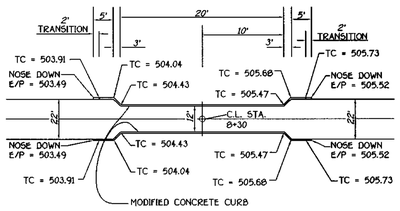
G:\DRAWINGS\2000\CATTAIL\DOC\TRAILS\ROAD.DWG



PROFILE

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

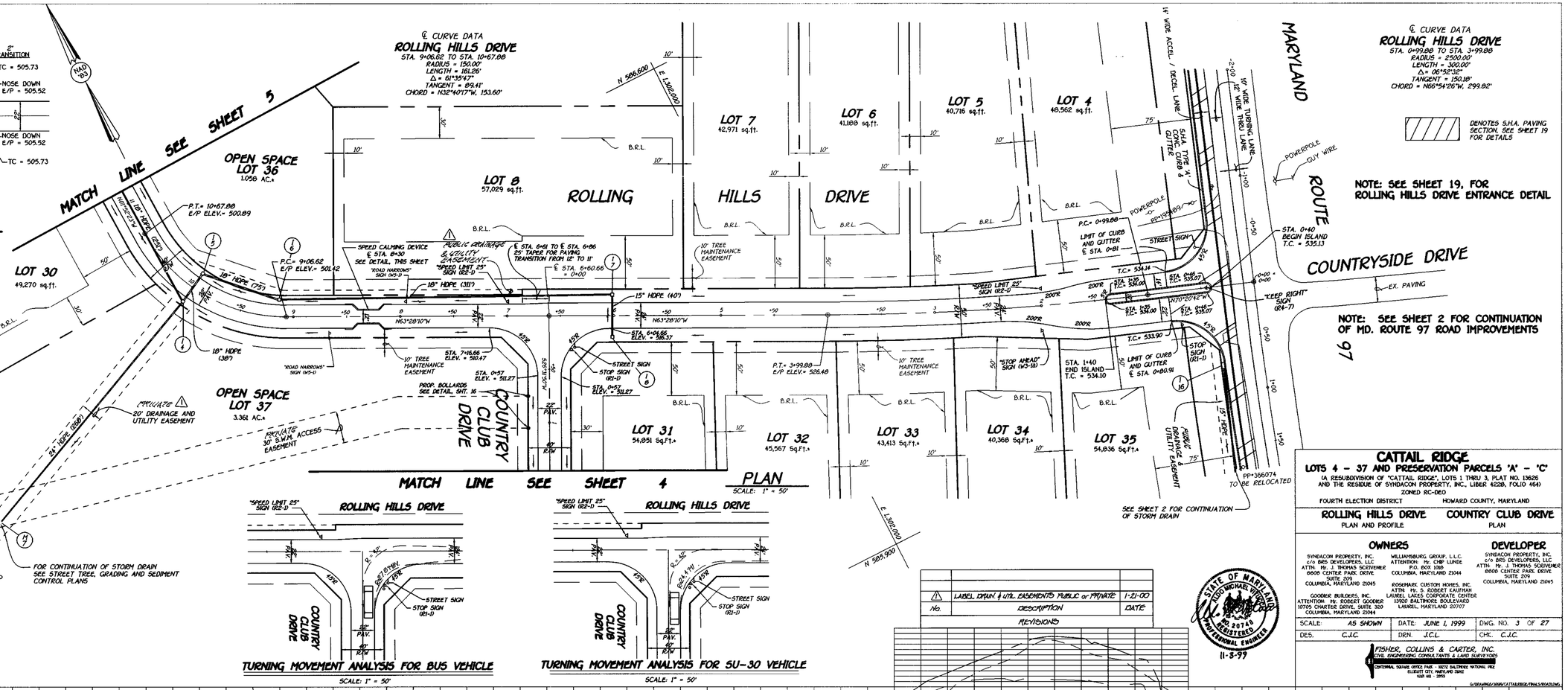
F 99-145

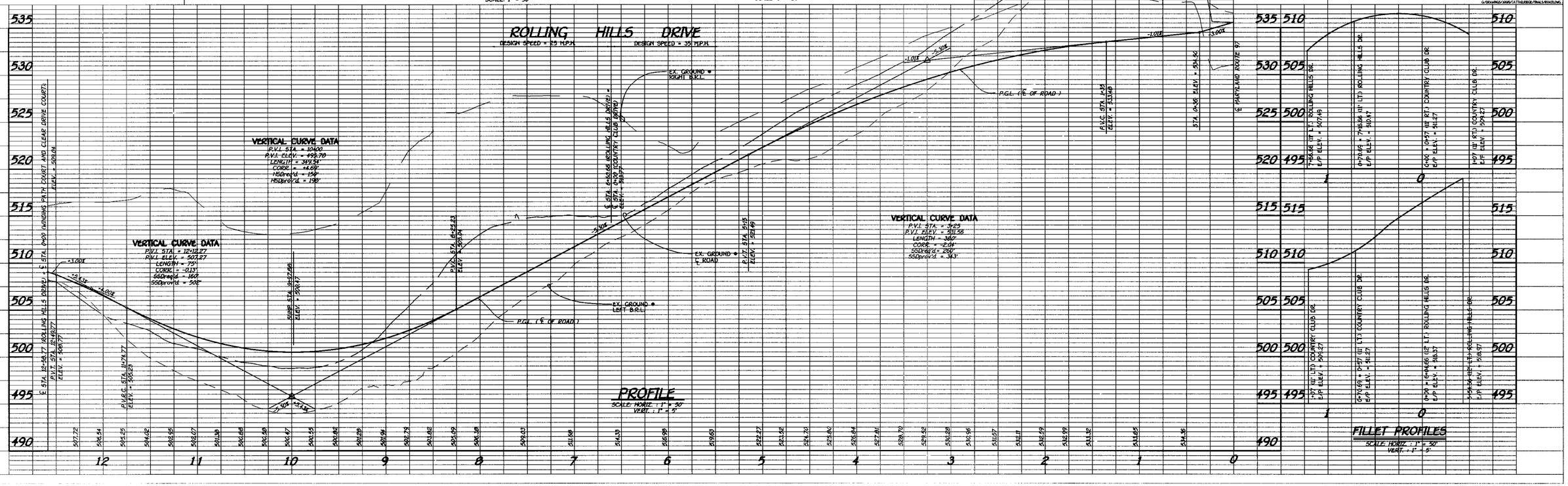


(ROLLING HILLS DRIVE)

SPEED CONTROL DEVICE

N.T.S.





APPROVED
DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton JA — 12/7/99
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING

12/3/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

12-1-99
CHIEF, BUREAU OF HIGHWAYS — DATE

No.	DESCRIPTION	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

STATE OF MARYLAND — RUDD MICHAEL WILSON — No. 20748 — REGISTERED PROFESSIONAL ENGINEER
11-3-99

CATTAIL RIDGE

LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 454)
ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROLLING HILLS DRIVE — PLAN AND PROFILE
COUNTRY CLUB DRIVE — PLAN

OWNERS

SYNDACON PROPERTY, INC.
c/o BRD DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODNER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODNER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1080
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTN: Mr. S. ROBERT LAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRD DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 3 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

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

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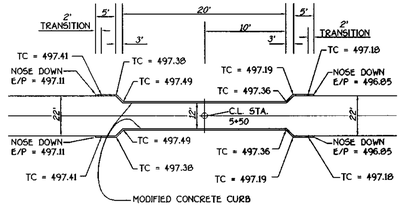
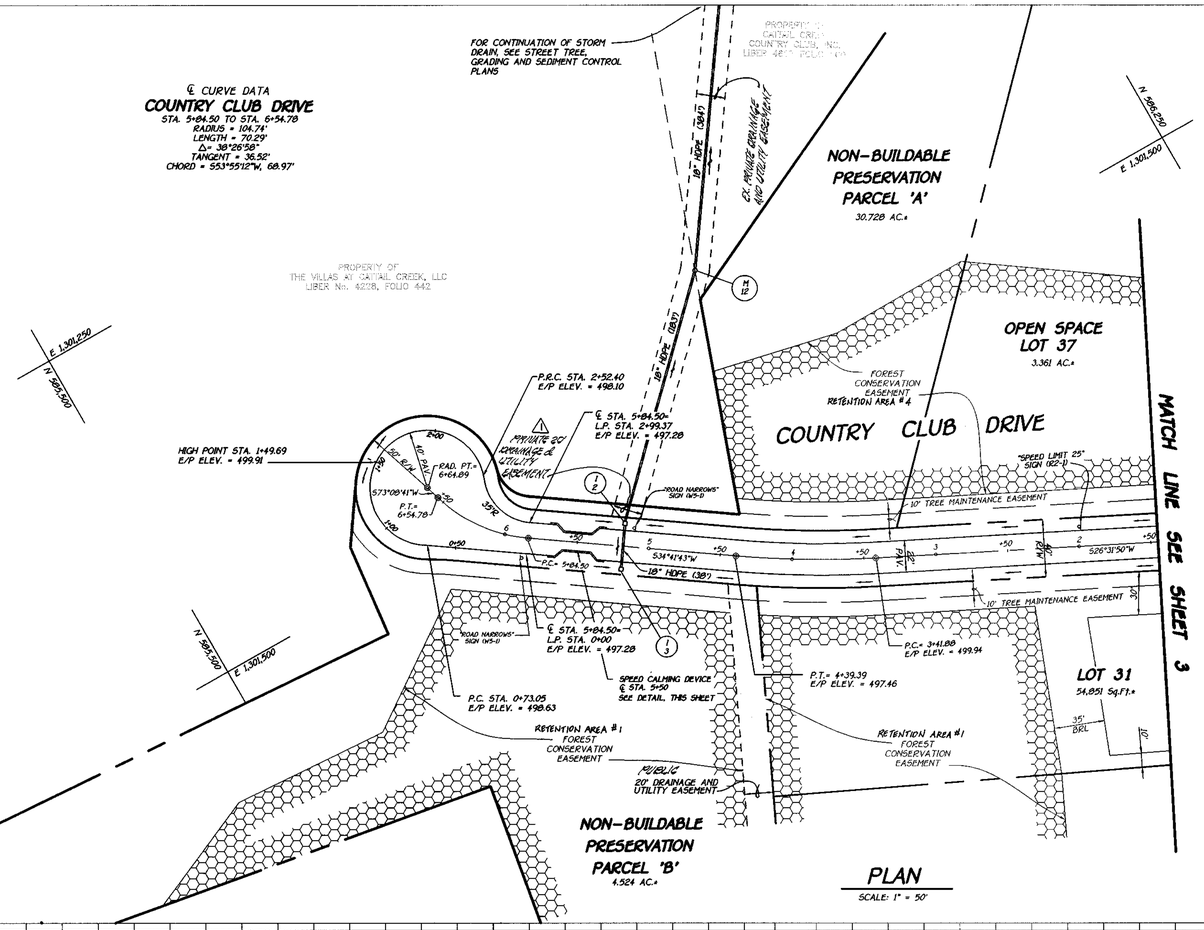
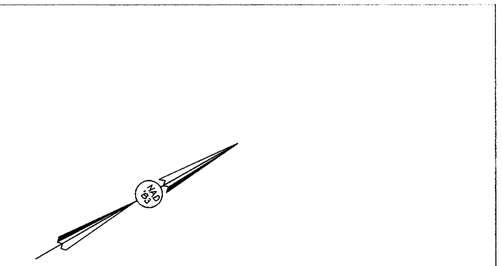
F 99-145



(COUNTRY CLUB DRIVE)
SPEED CONTROL DEVICE
N.T.S.





No.	DESCRIPTION	DATE
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

APPROVED
DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton — CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/17/99

APPROVED
DEPARTMENT OF PLANNING AND ZONING
— CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/3/99

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels — CHIEF, BUREAU OF HIGHWAYS — DATE 12-1-99

CATTAIL RIDGE
LOTS 4 – 37 AND PRESERVATION PARCELS 'A' – 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13625 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

COUNTRY CLUB DRIVE
PLAN AND PROFILE

OWNERS

SYNDACON PROPERTY, INC.
c/o BKS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
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ATTENTION: Mr. CHIP LUNDE
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ATTN: Mr. S. ROBERT KAUFMAN
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LAUREL, MARYLAND 20707

DEVELOPER

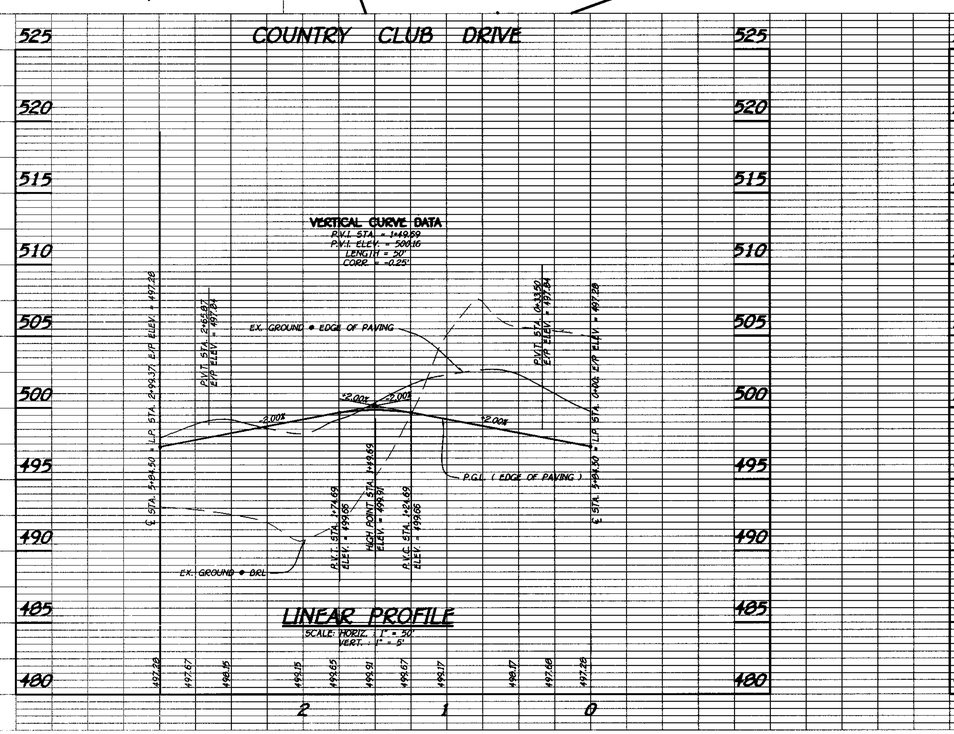
SYNDACON PROPERTY, INC.
c/o BKS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

STATE OF MARYLAND — ROBERT MICHAEL VITUCCI — No. 11451 — REGISTERED PROFESSIONAL ENGINEER
11-3-99

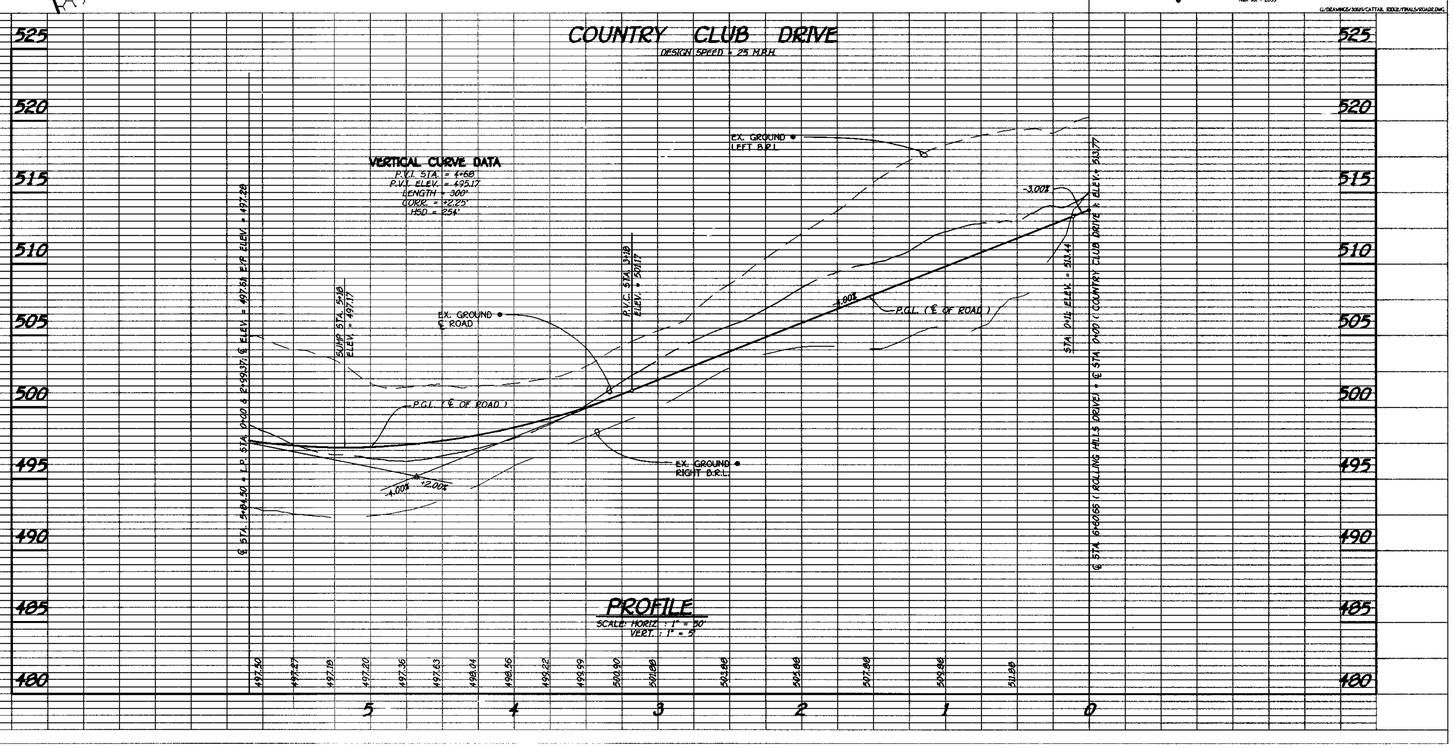
SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 4 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

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

J:\DRAWINGS\1999\CATTAIL RIDGE\TRAILS\ROADE.DWG

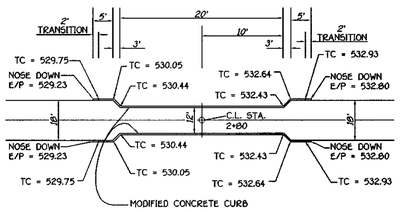


LINEAR PROFILE
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'



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

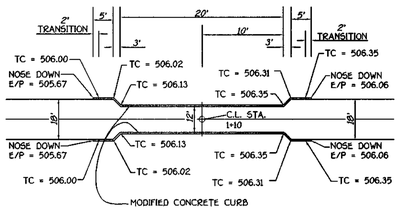
F 99-145



(CLEAR DRIVE COURT)

SPEED CONTROL DEVICE

N.T.S.



(WINDING PATH COURT)

SPEED CONTROL DEVICE

N.T.S.

APPROVED
DEPARTMENT OF PLANNING AND ZONING

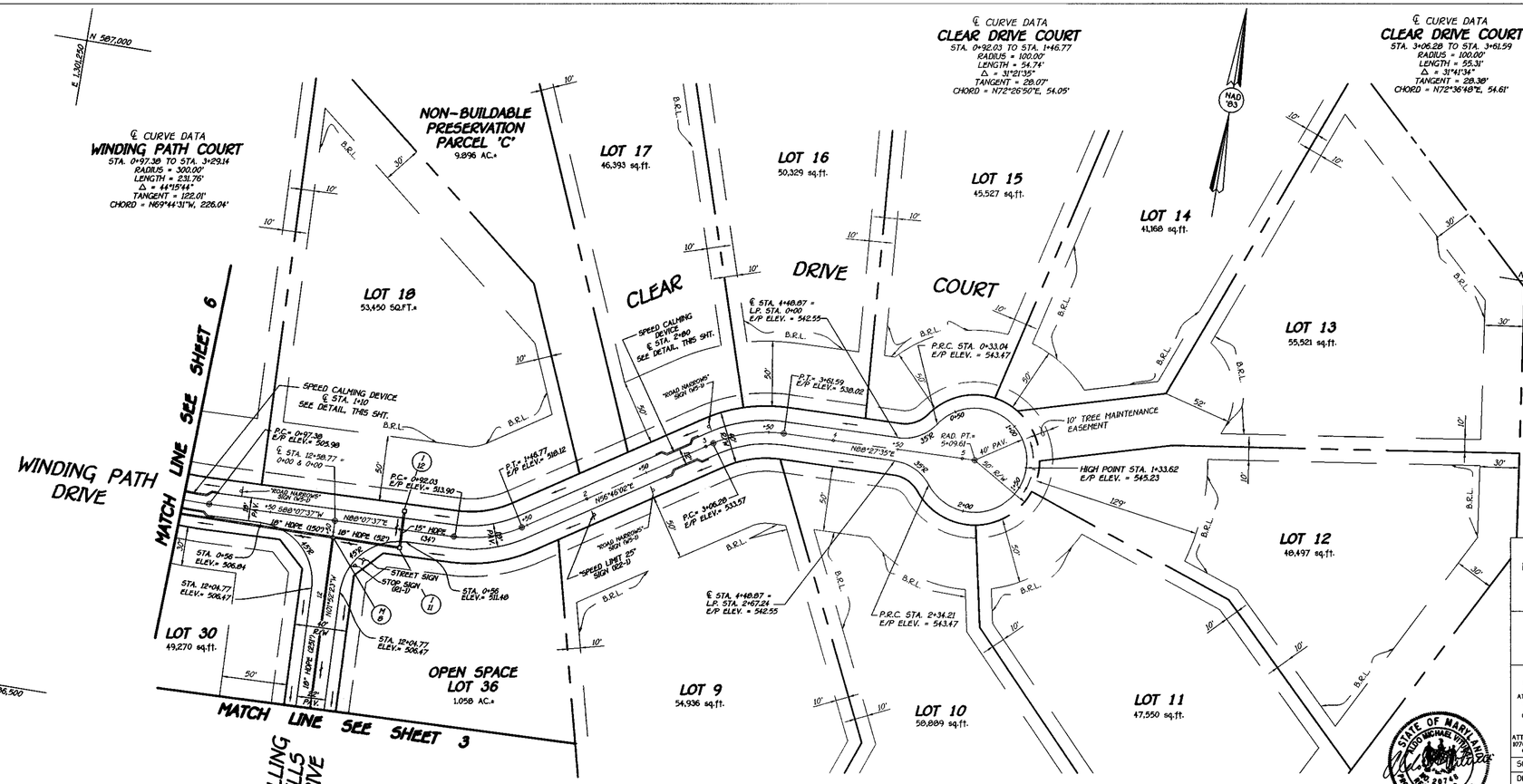
Cindy Hansotte — CHIEF, DIVISION OF LAND DEVELOPMENT — 12/3/99 DATE

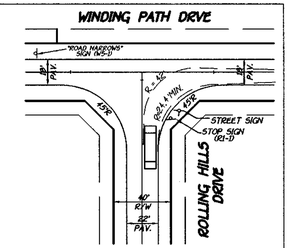
APPROVED
DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/3/99 DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

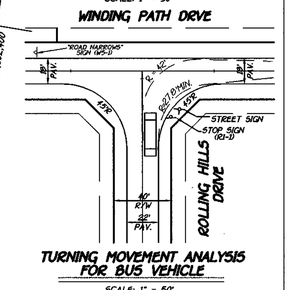
CHIEF, BUREAU OF HIGHWAYS — 12-1-99 DATE





TURNING MOVEMENT ANALYSIS FOR SU-30 VEHICLE

SCALE: 1" = 50'



TURNING MOVEMENT ANALYSIS FOR BUS VEHICLE

SCALE: 1" = 50'

CATTAIL RIDGE

LOTS 4 – 37 AND PRESERVATION PARCELS 'A' – 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

CLEAR DRIVE COURT — PLAN AND PROFILE

WINDING PATH COURT — PLAN

ROLLING HILLS DRIVE — PLAN

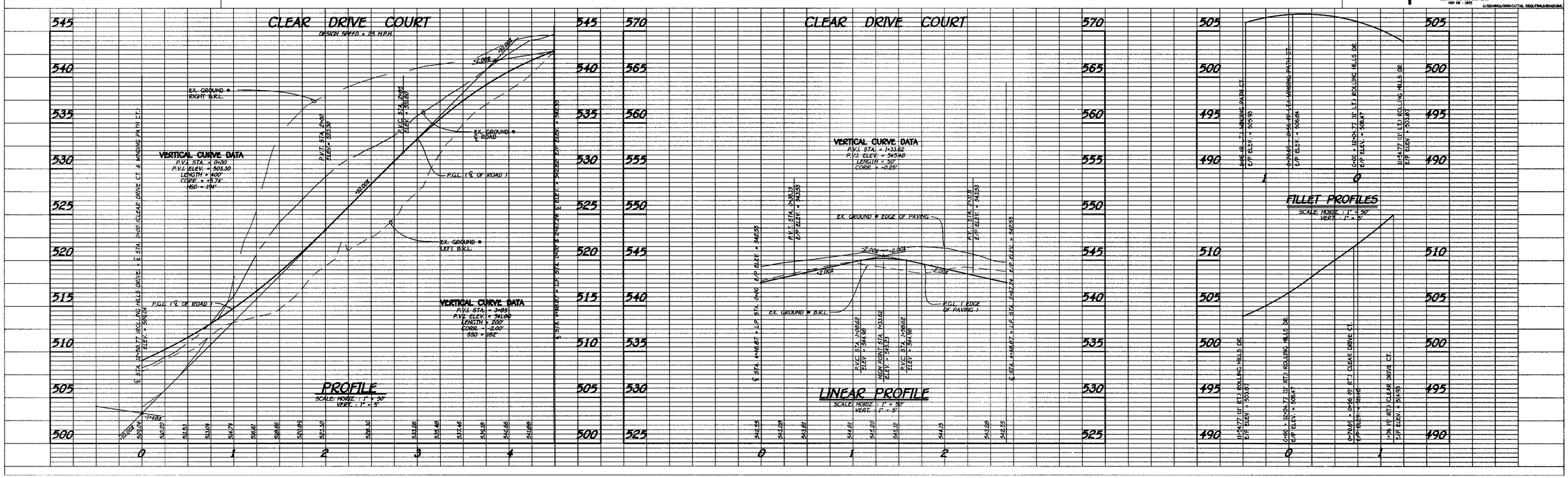
OWNERS		DEVELOPER
SYNDACON PROPERTY, INC. c/o BRS DEVELOPERS, LLC ATTN: Mr. J. THOMAS SCRIVENER 8808 CENTER PARK DRIVE SUITE 205 COLUMBIA, MARYLAND 21045	WILLIAMSBURG GROUP, L.L.C. ATTENTION: Mr. CHIP LUNDE P.O. BOX 1018 COLUMBIA, MARYLAND 21044 ROSEMARE CUSTOM HOMES, INC. ATTN: Mr. G. ROBERT KAUFMAN LAUREL LAKES CORPORATE CENTER 13920 BALTIMORE BOULEVARD LAUREL, MARYLAND 20707	SYNDACON PROPERTY, INC. c/o BRS DEVELOPERS, LLC ATTN: Mr. J. THOMAS SCRIVENER 8808 CENTER PARK DRIVE SUITE 205 COLUMBIA, MARYLAND 21045
GOODRICH BUILDERS, INC. ATTENTION: Mr. ROBERT GOODRIC 10735 CHARTER DRIVE, SUITE 320 COLUMBIA, MARYLAND 21044		

STATE OF MARYLAND — JOHN MICHAEL VOLLMER — No. 20746 — REGISTERED PROFESSIONAL ENGINEER — 11-3-99

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 5 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

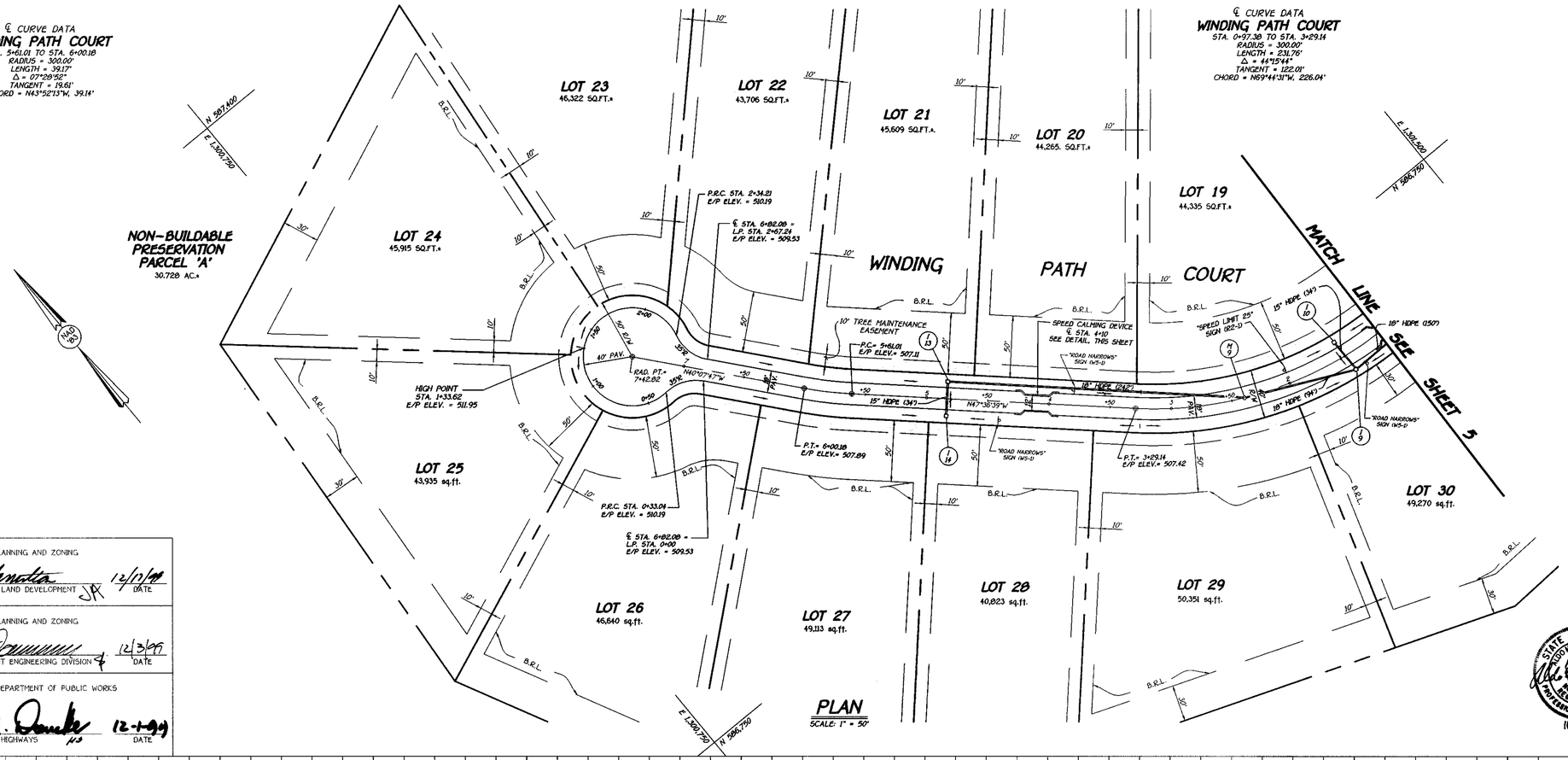
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CONTINENTAL SQUARE OFFICE PARK – 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

G:\SHARED\JOBS\CATTAIL RIDGE\FINAL\R5\R5-01.DWG



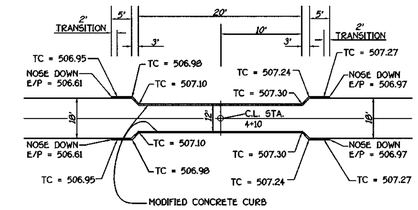
F 99-145

℄ CURVE DATA
WINDING PATH COURT
STA. 5+61.01 TO STA. 6+00.18
RADIUS = 300.00'
LENGTH = 39.17'
Δ = 07°28'52"
TANGENT = 19.61'
CHORD = N43°52'13"W, 39.14'



PLAN
SCALE: 1" = 50'

℄ CURVE DATA
WINDING PATH COURT
STA. 0+97.38 TO STA. 3+29.14
RADIUS = 300.00'
LENGTH = 231.76'
Δ = 44°15'44"
TANGENT = 122.01'
CHORD = N69°44'31"W, 226.04'



(WINDING PATH COURT)
SPEED CONTROL DEVICE
N.T.S.

APPROVED
DEPARTMENT OF PLANNING AND ZONING
Cindy Hendricks 12/17/99
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
12/3/99
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
12-1-99
CHIEF, BUREAU OF HIGHWAYS DATE

STATE OF MARYLAND
RUDD MICHAEL VERNON
No. 20749
REGISTERED
PROFESSIONAL ENGINEER
11-3-99

CATTAIL RIDGE
LOTS 4 - 37 AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 469)
ZONED RC-DEO
FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

WINDING PATH DRIVE
PLAN AND PROFILE

OWNERS
SYNDACON PROPERTY, INC.
c/o BIDS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

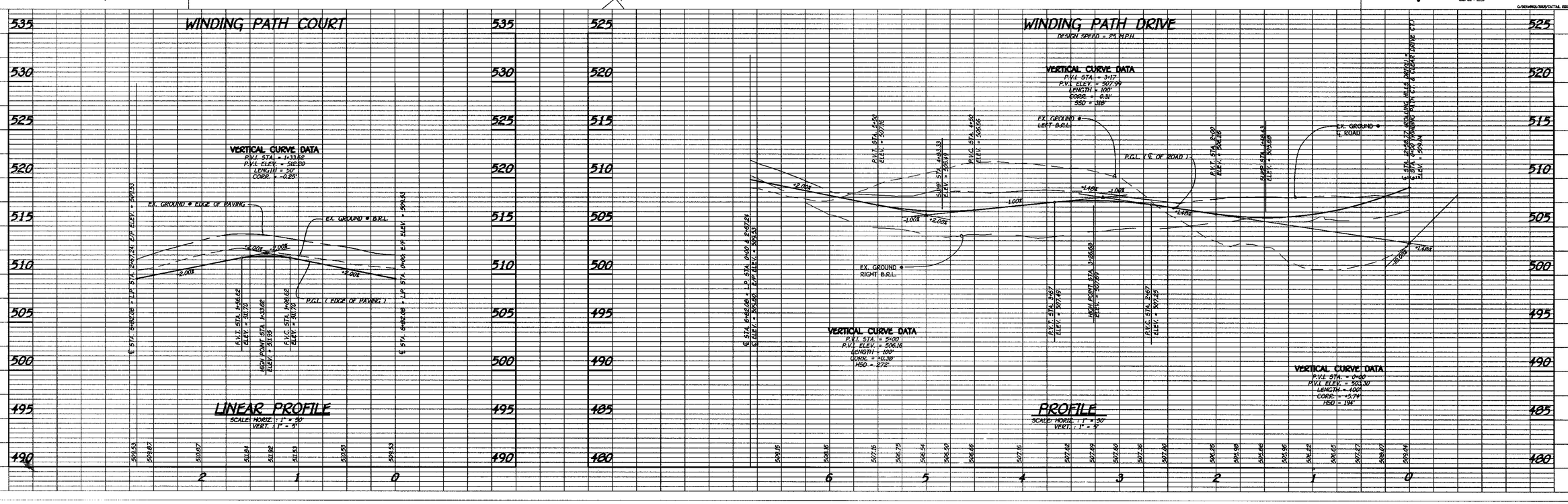
ROSEMARC CUSTOM HOMES, INC.
ATTN: Mr. S. ROBERT LAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER
SYNDACON PROPERTY, INC.
c/o BIDS DEVELOPERS, LLC
ATTN: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: JUNE 1, 1999	DWG. NO. 6 OF 27
DES. C.J.C.	DRN. J.C.L.	CHK. C.J.C.

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

G:\SDCAD\PROJ\2000\CATTAIL RIDGE\FINAL\4DCAD4.DWG



F 99-145

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
○	ACER RUBRUM 'OCTOBER GLORY' RED MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

○ - 17 STREET TREES (THIS SHEET)

LEGEND

- EXISTING TREES
- EXISTING WOODS LINE
- SF —— SF SILT FENCE
- SSF —— SSF SUPER SILT FENCE
- PROPOSED EARTH DIKE
- PROPOSED LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING

ENGINEER'S CERTIFICATE

STATE OF MARYLAND MICHAEL FISHER No. 25255

"I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District."

Signature Of Engineer — Date: 3-17-99

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: 3/16/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/9/99

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

District Howard Soil Conservation Dist. — Date: 11/9/99

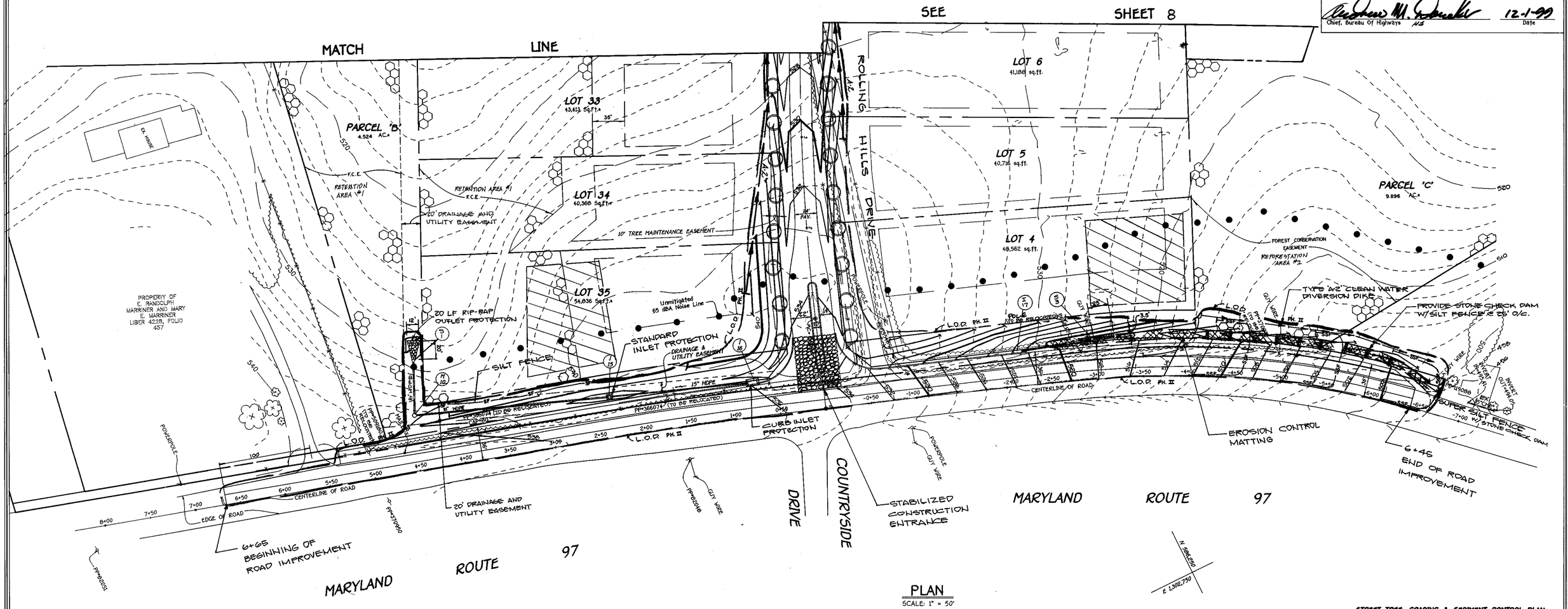
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/17/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99



PLAN

SCALE: 1" = 50'

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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.* 30819 GRADING PLAN .DWG

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 7 OF 27

F 99-145

ENGINEER'S CERTIFICATE

I Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — Date: 3-17-99

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: 3/16/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/19/99

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

District Howard Soil Conservation Dist. — Date: 11/19/99

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/13/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99

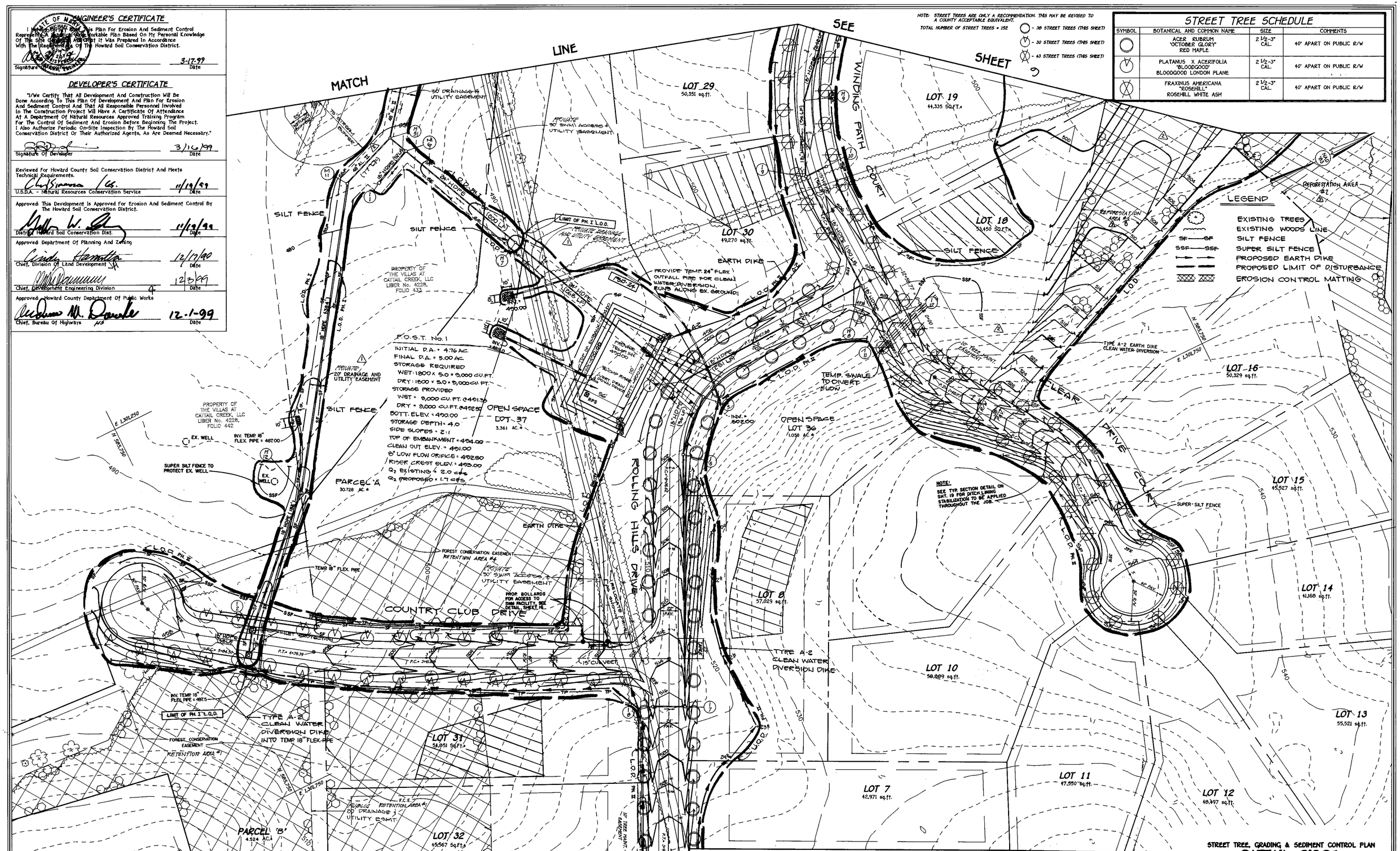
NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

- 38 STREET TREES (THIS SHEET)
- 30 STREET TREES (THIS SHEET)
- 43 STREET TREES (THIS SHEET)

STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	ACER RUBRUM "OCTOBER GLORY" RED MAPLE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	PLATANUS X ACERIFOLIA "BLOODGOOD" BLOODGOOD LONDON PLANE	2 1/2-3" CAL.	40' APART ON PUBLIC R/W
	FRAXINUS AMERICANA "ROSEHILL" ROSEHILL WHITE ASH	2 1/2-3" CAL.	40' APART ON PUBLIC R/W



DATE	DESCRIPTION
5-8-00	EXPAND GRADING BEHIND LOTS 16-19 AND CHANGE 54" HDPE TO 48" AL. II
5-8-00	LABEL DRAINAGE EASEMENTS

REVISIONS

DATE	DESCRIPTION
11-28-00	REVISE FOREST CONSERVATION EASEMENTS

REVISIONS

PLAN
SCALE: 1" = 50'

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODDER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODDER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 8 OF 27

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.* 20989 GRADING PLAN 2.DWG

F 99-145

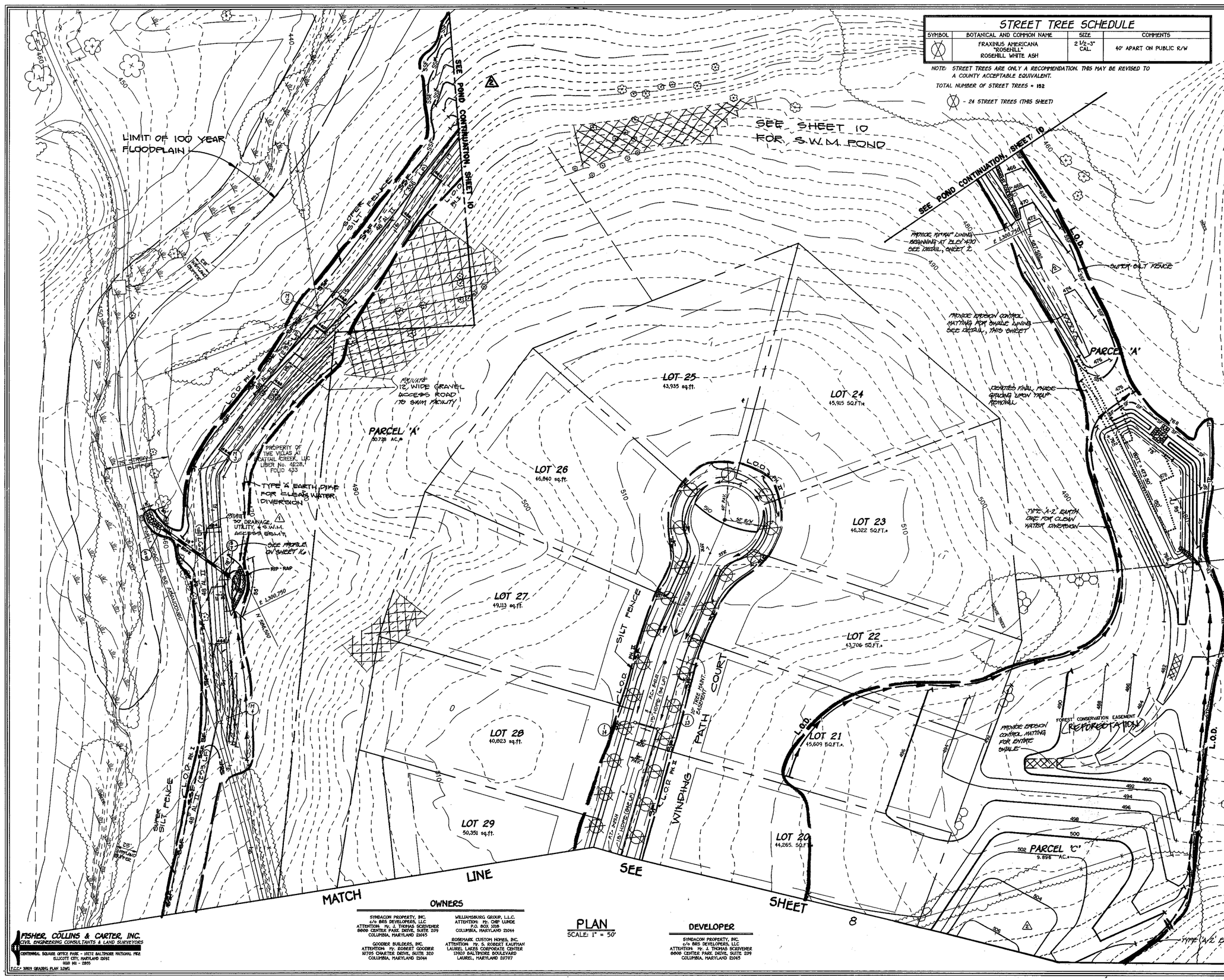
STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
⊗	FRAXINUS AMERICANA "ROSEHILL" ROSEHILL WHITE ASH	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

⊗ - 24 STREET TREES (THIS SHEET)



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 Professional Engineer — Date: 3-17-99

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: 3/16/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/19/99

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

District Howard Soil Conservation Dist. — Date: 11/19/99

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/1/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

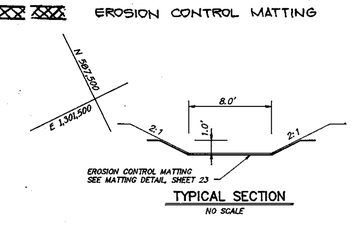
Chief, Bureau Of Highways — Date: 12-1-99

DATE	DESCRIPTION
5-8-00	2 S.W.M. POND REVISIONS, EXPAND L.O.D. FOR EARTHWORK
1-21-00	1 LABEL DRAINAGE & UTILITY EASEMENTS PUBLIC OR PRIVATE

REVISIONS

LEGEND

- EXISTING TREES
- EXISTING WOODS LINE
- SF — SF SILT FENCE
- SSF — SSF SUPER SILT FENCE
- PROPOSED EARTH DIKE
- PROPOSED LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING



TYPICAL SECTION
NO SCALE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
6606 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

PLAN
SCALE: 1" = 50'

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
6606 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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.# 30819 GRADING PLAN 32.DWG

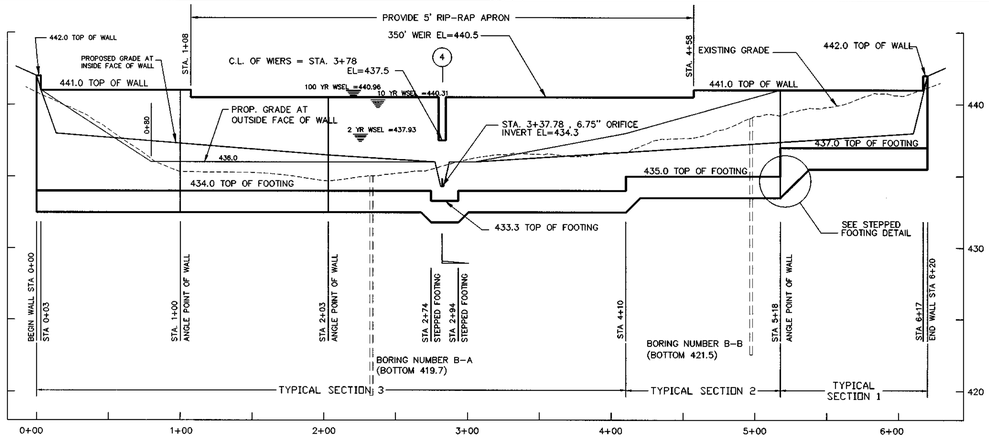
STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

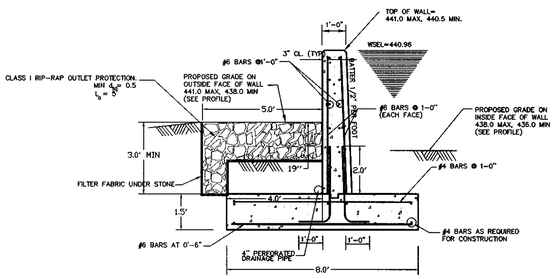
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 9 OF 27

F 99-145



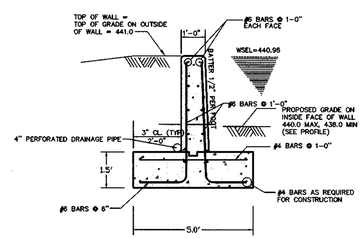
PROPOSED RETAINING WALL PROFILE

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



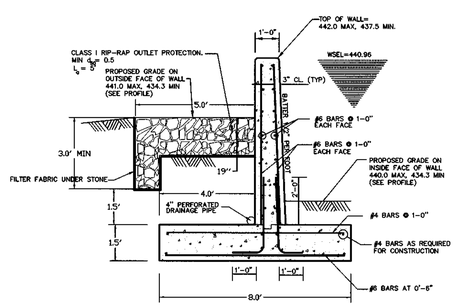
TYPICAL SECTION 2

SCALE 1": 3'



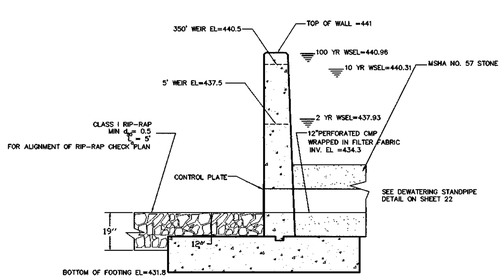
TYPICAL SECTION 1

SCALE 1": 3'



TYPICAL SECTION 3

SCALE 1": 3'



SECTION 4

SCALE 1": 3'

AS-BUILT CERTIFICATION

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

P.E.NO. _____
SIGNATURE
DATE: _____

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

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 6/27/00
SUNDOON PROPERTY, INC.
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 6/26/00
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 7/14/00

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 7/14/00

APPROVED: DEPARTMENT OF PUBLIC WORKS

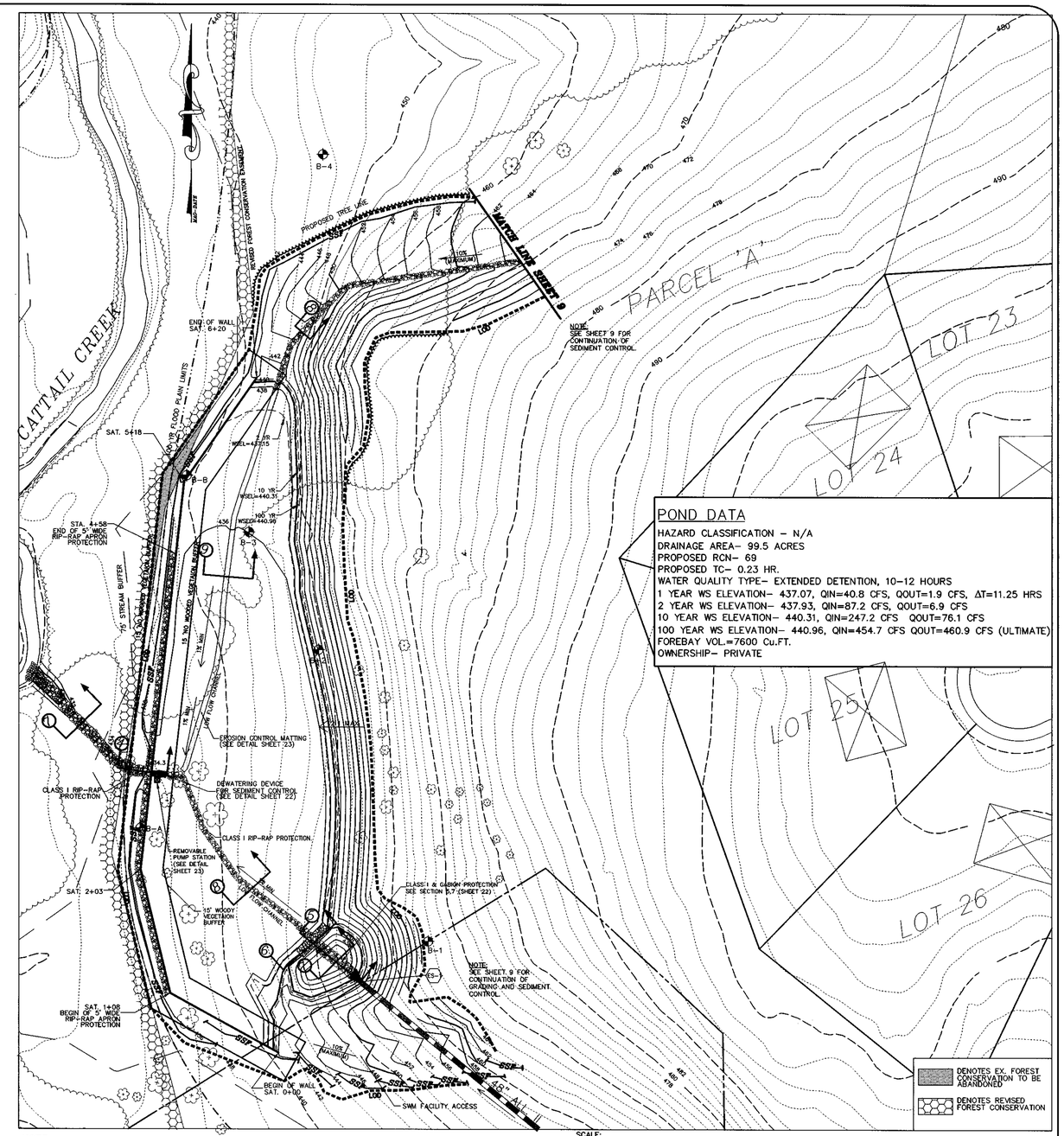
CHIEF BUREAU OF HIGHWAYS — DATE 7-10-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/12/00

F:\98110\DWG\R2\110-SWMDETAILS3_R2



SCALE: 1"=50'

POND DATA

HAZARD CLASSIFICATION – N/A
DRAINAGE AREA– 99.5 ACRES
PROPOSED RCN– 69
PROPOSED TC– 0.23 HR.
WATER QUALITY TYPE– EXTENDED DETENTION, 10–12 HOURS
1 YEAR WS ELEVATION– 437.07, QIN=40.8 CFS, QOUT=1.9 CFS, ΔT=11.25 HRS
2 YEAR WS ELEVATION– 437.93, QIN=87.2 CFS, QOUT=6.9 CFS
10 YEAR WS ELEVATION– 440.31, QIN=247.2 CFS QOUT=76.1 CFS
100 YEAR WS ELEVATION– 440.96, QIN=454.7 CFS QOUT=460.9 CFS (ULTIMATE)
FOREBAY VOL.=7600 Cu.FT.
OWNERSHIP– PRIVATE

NOTE:
FOR SECTIONS AND DETAILS SEE SHEETS 22 AND 23
FOR SOIL BORINGS SEE SHEET 27

GENERAL NOTES:

1. ALL CONCRETE SHALL BE MSHA MIX NO.2 FC=3,000 PSI, FY=60,000 PSI
2. ALLOWABLE BEARING ON SUBGRADE SHALL NOT EXCEED 2,000 PSF. SUBGRADE TO BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACING FOOTINGS.
4. ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED (3/4 IN X 3/4 IN)
5. CONSTRUCTION KEYS SHALL BE A MINIMUM OF 2"X 4" NOMINAL.
6. CONCRETE COVER TO BE 3" TYPICAL
7. SEE PROFILE FOR ELEVATIONS OF FOOTINGS.
8. 4" PERFORATED DRAINAGE PIPE SHALL FACE DAYLIGHT @ EL=434
9. NO STONE IS ALLOWED TO BE PLACED UNDER WALL FOOTINGS.
10. FILTER FABRIC TO BE PROVIDED UNDER ALL GABION BASKETS AND RIP-RAP PROTECTIONS.
11. PROVIDE 4" PERFORATED UNDER DRAIN AT BASE OF STEM ON DOWNSTREAM FACE OF WALL FROM 0+00 TO 2+74 AND 2+94 TO 6+20, OUTLET UNDER DRAIN TO DAYLIGHT (ELEV. 434.0 ±)
12. THE PROPOSED CONSTRUCTION SHALL BE PERFORMED UNDER THE OBSERVATION OF A MARYLAND REGISTERED PROFESSIONAL ENGINEER.
13. ALLOWABLE BEARING PRESSURE GREATER THAN OR EQUAL TO 3,750 PSF (BEARING CAPACITY TO BE TESTED IN THE FIELD PRIOR TO CONSTRUCTION.
14. EXISTING WOODY VEGETATION WITHIN 15' WOODED VEGETATION BUFFER IS TO BE REMOVED. AREA ON DOWN STREAM SIDE OF PROPOSED WALL IS TO BE CLEARED ONLY, NO GRUBBING IS PERMITTED WITHIN THIS AREA.

THE PURPOSE OF THIS PLAN OF REVISION SHEET IS TO REVISE THE SWM FACILITY AND ASSOCIATED CHANGES.

project	date
98110	MAY 2000
illustration	engineering
SAA	SAA
scale	approval
AS SHWN	JBM

no.	description	date
1	SHEET 10 REPLACED (NEW SWM POND DESIGN) WALL PROFILES AND SECTIONS ADDED	

REVISED FINAL CONSTRUCTION PLAN
CATTAIL RIDGE
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'
TAX MAP 21, PARCEL 228 — HOWARD COUNTY, MARYLAND
FOURTH ELECTION DISTRICT
STORMWATER MANAGEMENT PLAN AND DETAILS

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

(substitute sheet 10 of 27) F.99.145

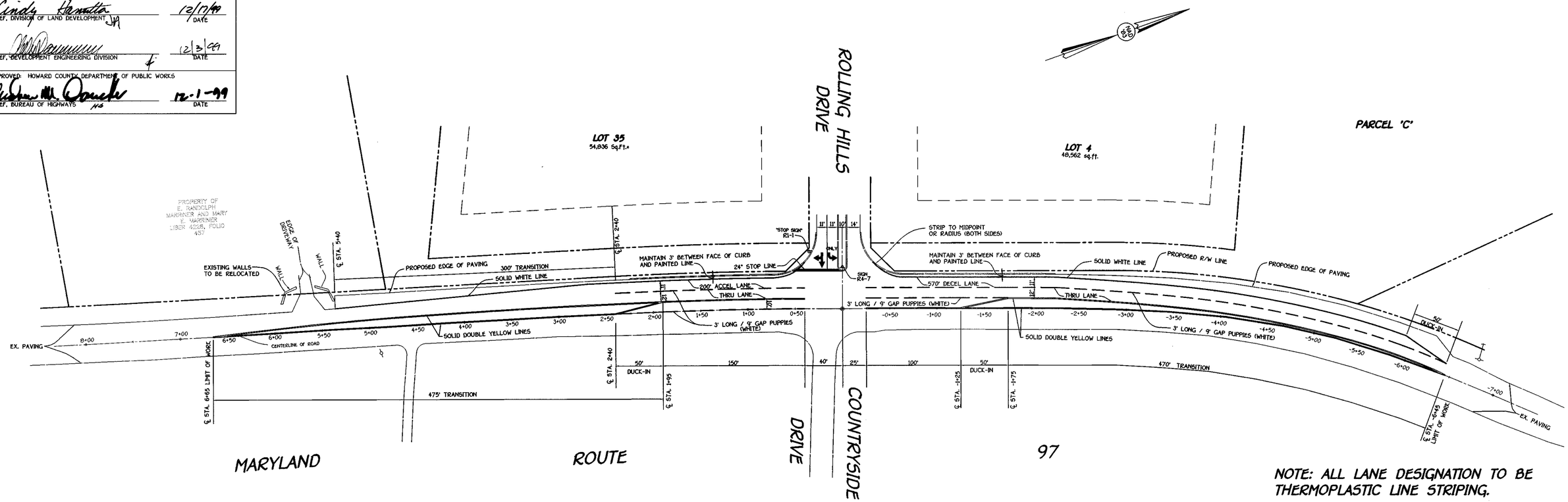
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton — CHIEF, DIVISION OF LAND DEVELOPMENT — 12/17/99 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/3/99 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 12-1-99 DATE



NOTE: ALL LANE DESIGNATION TO BE THERMOPLASTIC LINE STRIPING.

STRIPING PLAN

SCALE: 1" = 50'

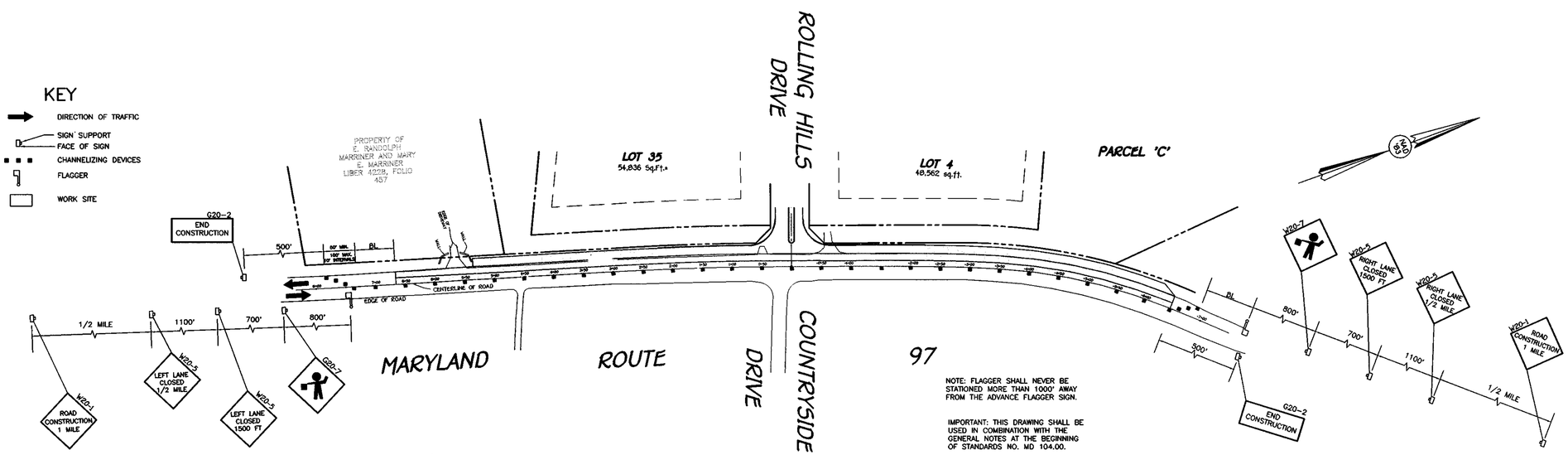
MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS

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 104 OF THE MARYLAND DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JANUARY, 1982) INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.
5. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FOR IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE MINOR CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THREE(3) WORKING DAYS PRIOR TO THE PROPOSED SCHEDULING CHANGE. THE CONTRACTOR AND/OR PERMITTEE SHALL HAVE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO THE IMPLEMENTATION OF ANY CHANGE.
6. NO WORK SHALL BEGIN ON ANY WORK ACTIVITY OR WORK PHASE UNTIL ALL REQUIRED TRAFFIC CONTROL PATTERNS AND DEVICES INDICATED ON THE TCP FOR THAT ACTIVITY OR PHASE ARE COMPLETELY AND CORRECTLY IN PLACE 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 104 OF THE SPECIFICATIONS. FOR REFLECTIVE DEVICES, A PARTICULAR DEVICE IS ASSUMED TO HAVE FAILED TO MEET MINIMUM OPERATIONAL STANDARDS WHEN THE DEVICE NO LONGER HAS RETRO-REFLECTANCE CAPABILITY OF AT LEAST 60% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST 90% OF THE VISIBLE REFLECTIVE SURFACE.
10. ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC, OR OTHERWISE TAKEN OUT OF SERVICE. IT IS INTENDED THAT NO TRAFFIC CONTROL DEVICE IS TO BE IN SERVICE WHEN THERE IS NO CLEAR CUT REASON FOR THE DEVICE.
11. THROUGHOUT THE PERIOD(S) OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP. IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS, THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OF 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. TCPS MAY BE IMPLEMENTED WITHIN A SINGLE PROJECT OR JOINTLY BETWEEN TWO OR MORE PROJECTS. IN SITUATIONS WHERE TCPS 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.

KEY

- DIRECTION OF TRAFFIC
- SIGN SUPPORT
- FACE OF SIGN
- CHANNELIZING DEVICES
- FLAGGER
- WORK SITE



NOTE: FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

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

(STANDARD NO. MD 104.02-01)

TEMPORARY TRAFFIC CONTROL PLAN

NO SCALE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

STATE OF MARYLAND — JOHN MICHAEL WILLIAMS — NO. 20740 — REGISTERED PROFESSIONAL ENGINEER — 6-14-99

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.-30RNTRAFFICCONTROL.DWG

TRAFFIC CONTROL AND STRIPING PLAN

CATTAIL RIDGE

LOTS 4 THRU 37

AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626, AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

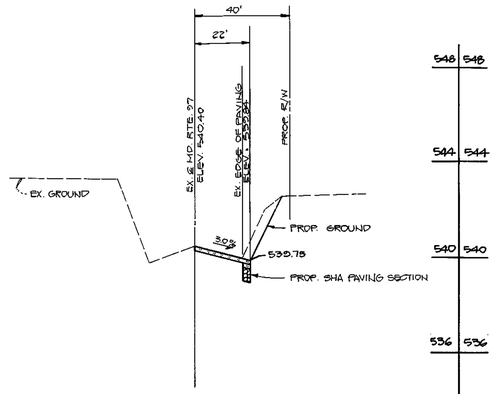
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

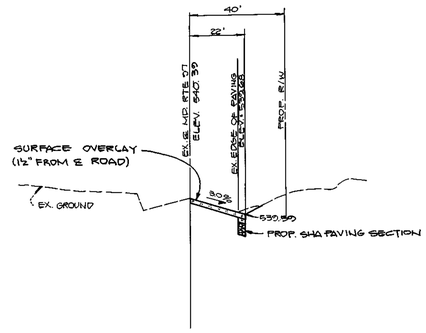
DATE: JUNE 1, 1999

SHEET 11 OF 27

F99-145



CROSS SECTION 6+50



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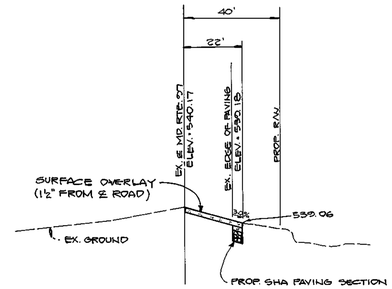

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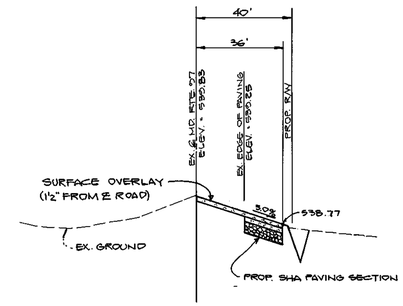

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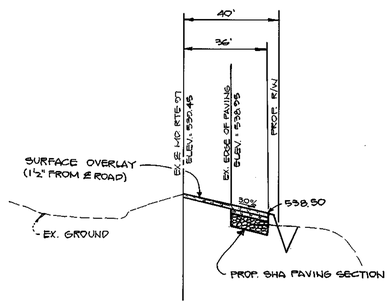

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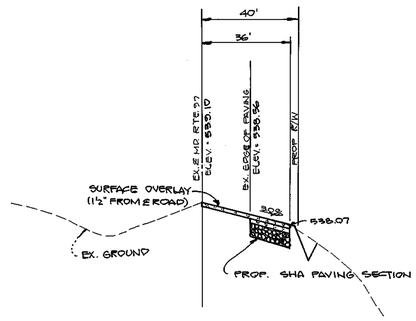

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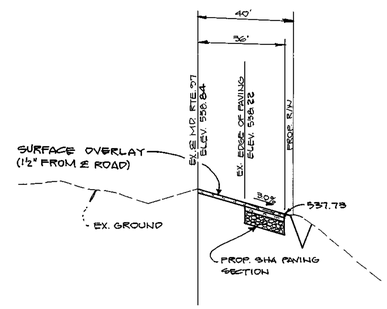

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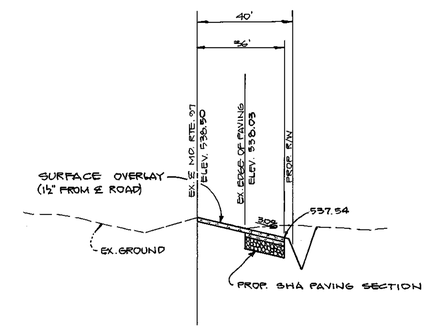

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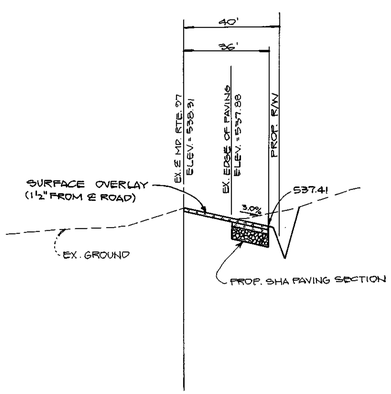

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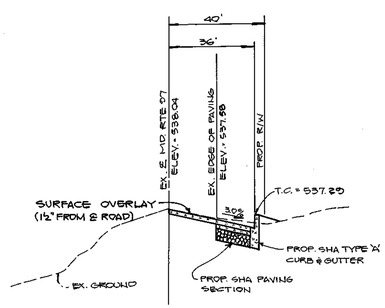

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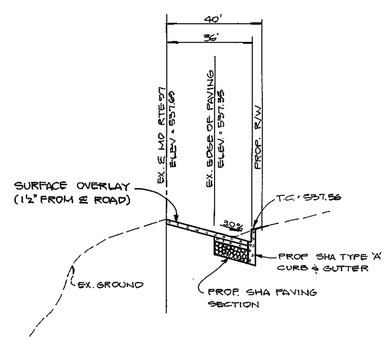
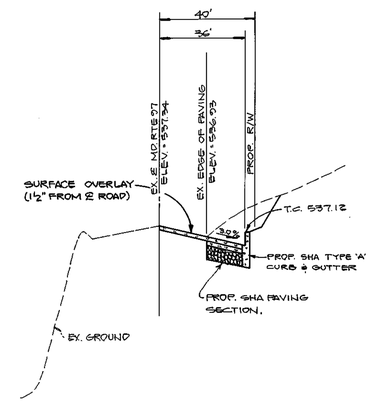


CROSS SECTION 1+50



CROSS SECTION 1+00

NOTE: FOR PAVING SECTION DETAIL
SEE SHEET 10.

PROFILES

SCALE: HORIZONTAL: 1" = 30'
VERTICAL: 1" = 3'

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND
ROD MICHAEL NUNN
NO. 20748
REGISTERED
PROFESSIONAL ENGINEER
3-17-99

Approved: Department Of Planning And Zoning

Cindy Hamilton — 12/10/99
Chief, Division Of Land Development — Date

12/3/99
Chief, Development Engineering Division — Date

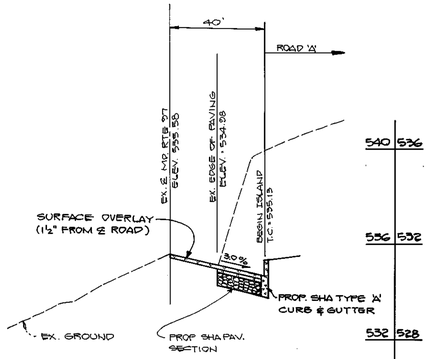
Approved: Howard County Department Of Public Works

12-1-99
Chief, Bureau Of Highways — Date

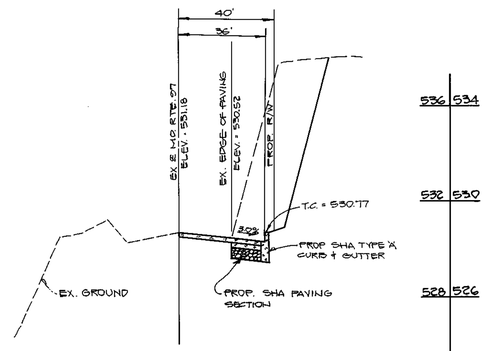
CROSS-SECTIONS (MD. ROUTE 97)
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 469)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 12 OF 27

F 99 - 145



CROSS SECTION 0+00



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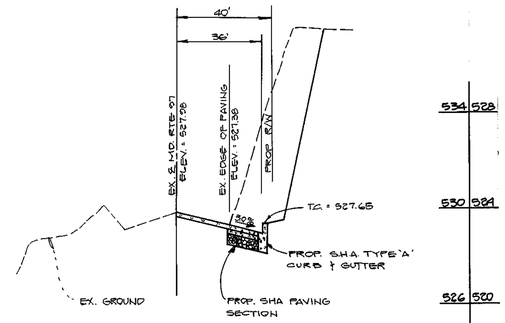

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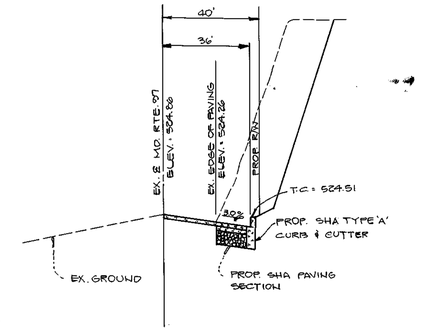

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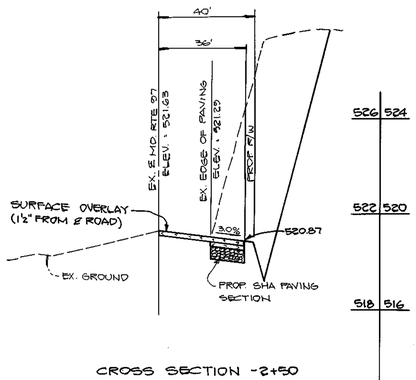

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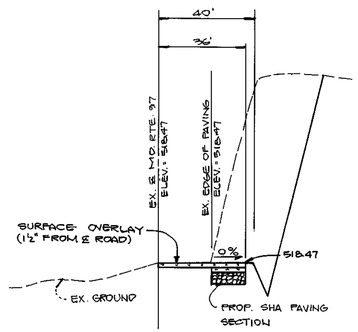

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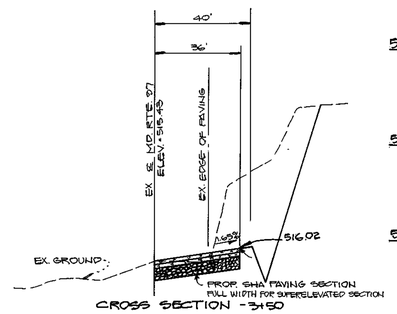

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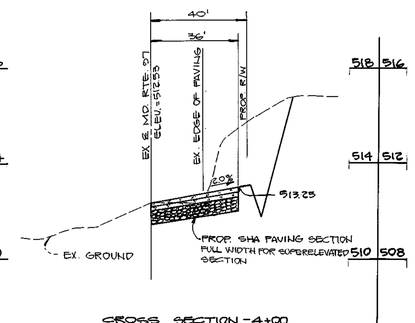

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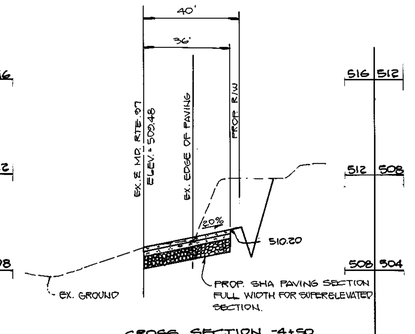

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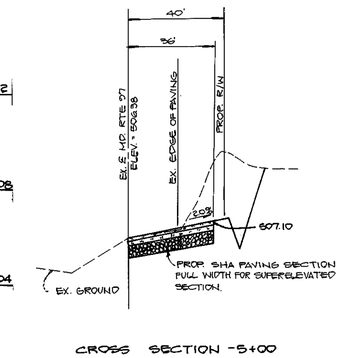

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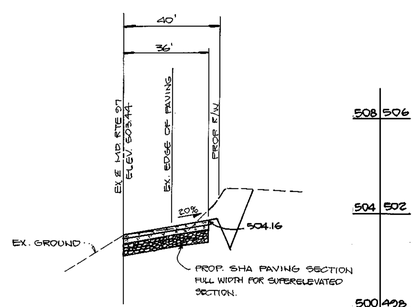

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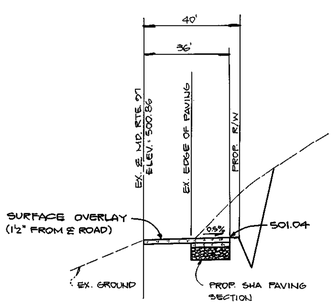
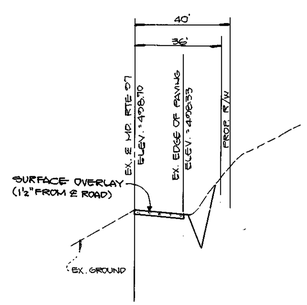


CROSS SECTION -6+00



CROSS SECTION -6+45
LIMIT OF WORK

NOTE : FOR PAVING SECTION DETAIL
SEE SHEET 10

PROFILES

SCALE: HORIZONTAL: 1" = 30'
VERTICAL: 1" = 3'

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND
LEO MICHAEL KIMMEL
No. 20774
REGISTERED
PROFESSIONAL ENGINEER
3-17-99

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/17/99

Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99

CROSS-SECTIONS (MD. ROUTE 97)
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

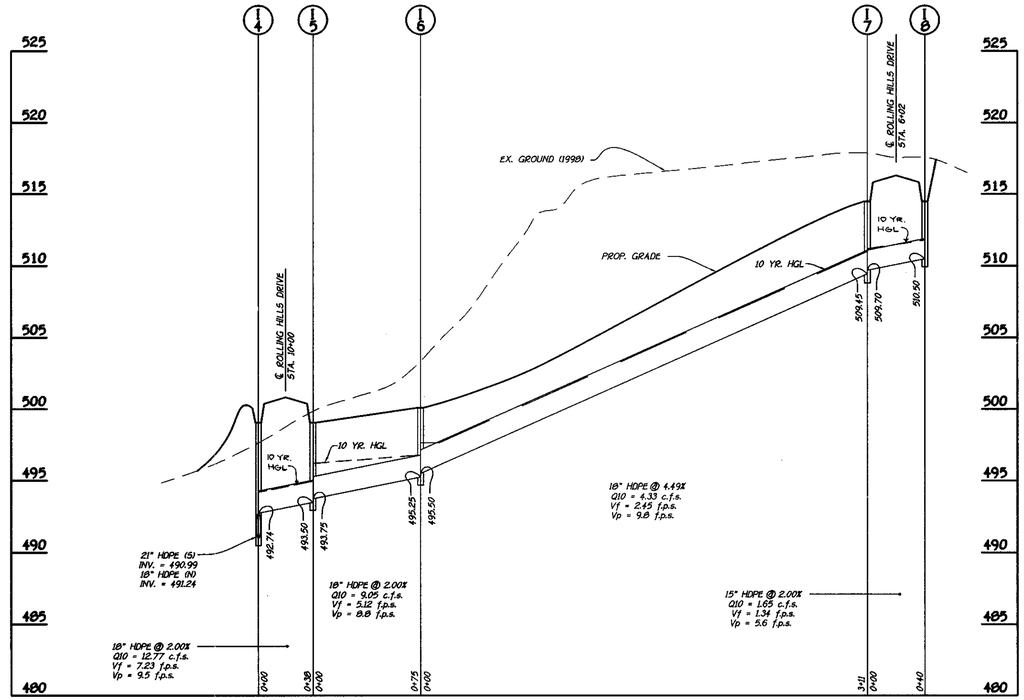
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 13 OF 27

F 99-145

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	478.00	—	471.52	-----	N 586,178.20 E 1,301,121.80	-----	'S' INLET	S.D. 4.22
I-2	495.39	489.86	489.61	COUNTRY CLUB DRIVE	C.L. STA. 5+18	19'R	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-3	495.39	------	491.00	COUNTRY CLUB DRIVE	C.L. STA. 5+18	19'L	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-4	499.04	492.74, 491.24	490.99	ROLLING HILLS DRIVE	C.L. STA. 10+00	19'L	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-5	499.04	493.75	493.50	ROLLING HILLS DRIVE	C.L. STA. 10+00	19'R	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-6	500.09	495.50	495.25	ROLLING HILLS DRIVE	C.L. STA. 9+13	19'R	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-7	514.48	509.70	509.45	ROLLING HILLS DRIVE	C.L. STA. 6+02	20'R	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-8	514.48	------	510.50	ROLLING HILLS DRIVE	C.L. STA. 6+02	20'L	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-9	504.16	497.80, 498.30	496.05	WINDING PATH COURT	C.L. STA. 1+48.43	17'L	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-10	504.16	------	498.48	WINDING PATH COURT	C.L. STA. 1+52.43	17'R	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-11	509.92	505.32	503.82	CLEAR DRIVE COURT	C.L. STA. 0+52	17'R	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-12	509.92	------	506.00	CLEAR DRIVE COURT	C.L. STA. 0+52	17'L	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-13	504.77	500.16	499.91	WINDING PATH COURT	C.L. STA. 1+83.33	17'R	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-14	504.77	------	500.50	WINDING PATH COURT	C.L. STA. 1+83.33	17'L	OPEN END GREATE	S.D. 4.36 w/ S.D. 4.13
I-15	535.75	531.05	530.80	MD. ROUTE 97	C.L. STA. 2+33	43'R	S.H.A. TYPE 'K'	MD. 378.11
I-16	536.64	------	532.62	MD. ROUTE 97	C.L. STA. 0+77.50	36'R	10' C.O.G.	MD. 374.51
I-17	529.88	------	517.13	MD. ROUTE 97	C.L. STA. -2+15.00	36'L	10' C.O.G.	MD. 374.51
M11	477.00	465.00, 465.07	455.88	—	N 586,143.50 E 1,301,104.05	—	BRICK MANHOLE	G - 5.03
M12	468.50	463.55	463.30	—	N 585,922.70 E 1,301,414.10	—	STD. MANHOLE	G - 5.01
M-2	457.30	440.73	440.58 (2)	---	N 586,716.71 E 1,300,468.78	---	BRICK MANHOLE	G - 5.03
M-3	462.00	444.73	444.28	---	N 586,509.85 E 1,300,573.63	---	BRICK MANHOLE	G - 5.03
M-4	468.00	449.88	449.73	---	N 586,396.81 E 1,300,848.70	---	BRICK MANHOLE	G - 5.03
M-5	477.00	464.00, 463.05	454.80	---	N 586,211.66 E 1,301,077.92	---	BRICK MANHOLE	G - 5.03
M-6	460.50	472.20, 471.00	460.00	---	N 586,223.78 E 1,301,105.78	---	STD. MANHOLE	G - 5.01
M-7	490.50	483.50	481.75	---	N 586,295.07 E 1,301,062.24	---	STD. MANHOLE	G - 5.01
M-8	508.61	501.00, 494.55	494.30	ROLLING HILLS DRIVE	C.L. STA. 12+46	@ C.L.	STD. MANHOLE	G - 5.01
M-9	506.84	497.49	497.24	WINDING PATH COURT	C.L. STA. 2+39	@ C.L.	STD. MANHOLE	G - 5.01
M-10	538.00	528.66	528.41	---	N 585,561.96 E 1,302,218.21	---	STD. MANHOLE	G - 5.01
S-1	529.33	—	527.83	---	N 585,587.76 E 1,302,163.44	---	HDPE END SECTION	
S-2	440.00	—	435.00	---	N 587,293 E 1,300,320	---	HDPE END SECTION	
S-3	517.35	—	516.10	MD. ROUTE 97	C.L. STA. -2+05	44'L	HDPE END SECTION	

* DENOTES FUTURE INVERT



PROFILE

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

Approved: Department Of Planning And Zoning

Cindy Hazelette — Chief, Division Of Land Development — 12/7/99 Date

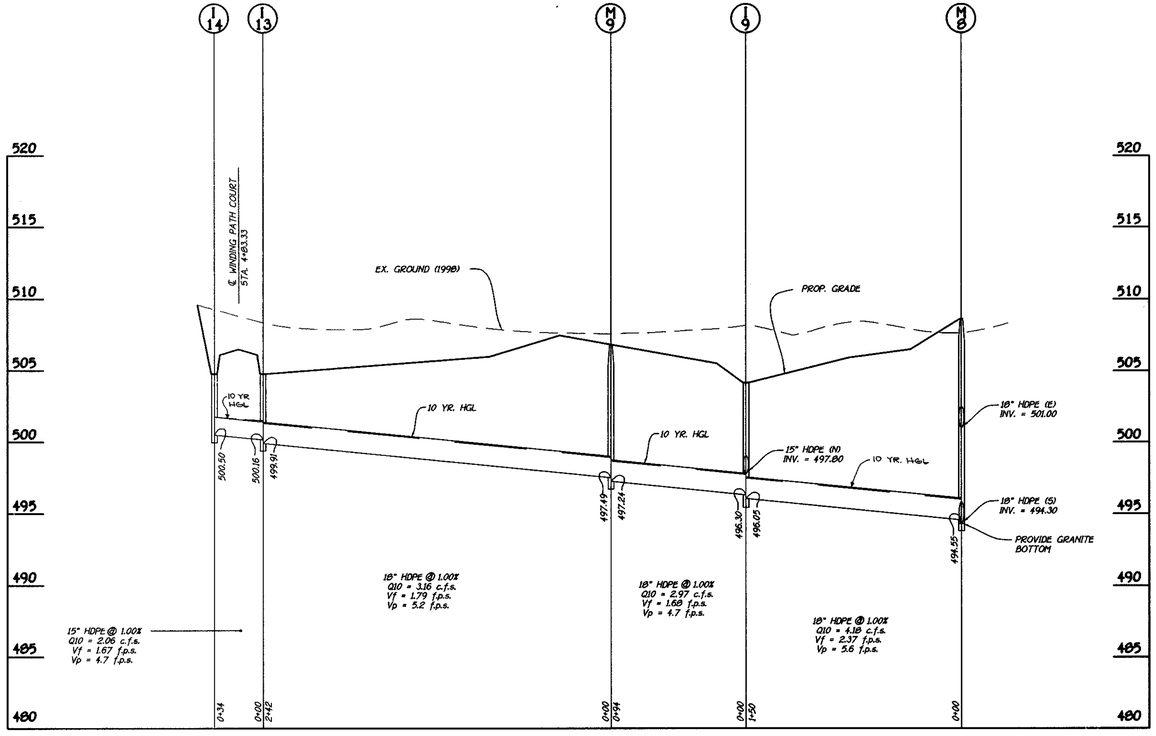
Chief, Development Engineering Division — 12/3/99 Date

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 12-1-99 Date

PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	HDPE	375'
18"	HDPE	2136'
24"	HDPE	468'
48"	AL-T/PZ II-14GA.	1255'



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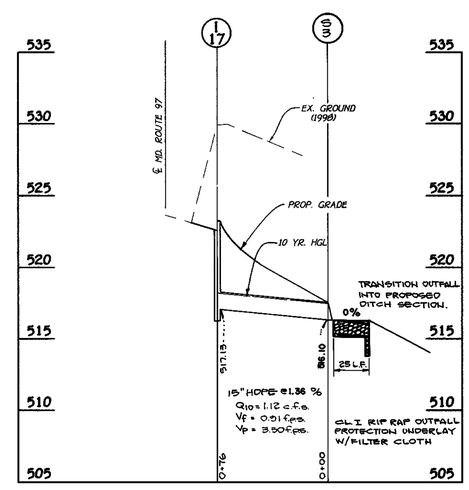

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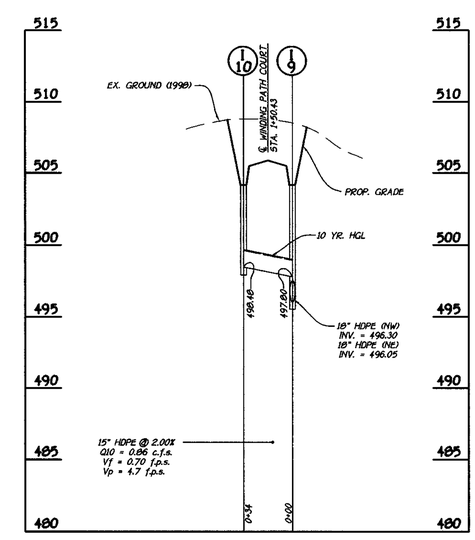

PROFILE

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OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
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10705 CHARTER DRIVE, SUITE 320
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LAUREL, MARYLAND 20707

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ATTENTION: Mr. J. THOMAS SCRIVENER
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COLUMBIA, MARYLAND 21045

STATE OF MARYLAND — ROBERT WILLIAM WILSON — No. 20740 — REGISTERED PROFESSIONAL ENGINEER

6-1-99

DATE	REVISIONS	NO.
5-5-00	REVISE STRUCTURE SCHEDULE FOR 48" AL-T2 CHANGE	1

REGISTRATION

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.# 30819 STORMDRAINS 10.MG

STORM DRAIN PROFILES

CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4229, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 229 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 14 OF 27

F 99-145

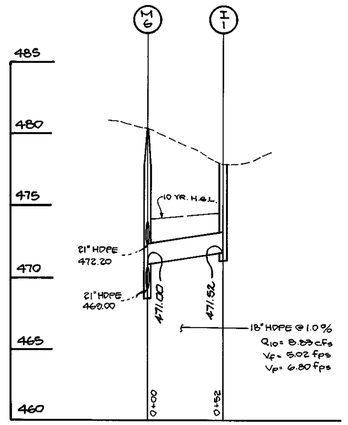
Approved: Department Of Planning And Zoning

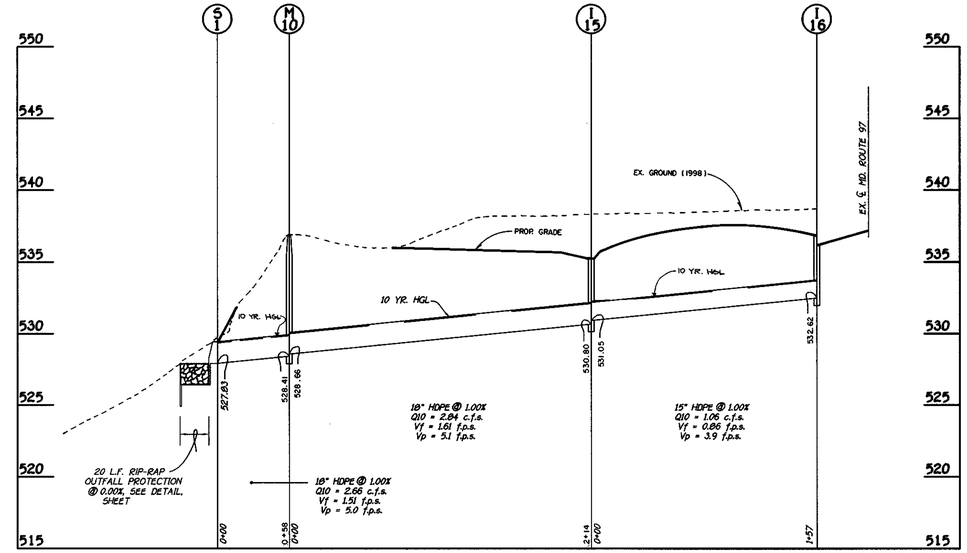
Chief, Division Of Land Development — Date 12/17/99

Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99





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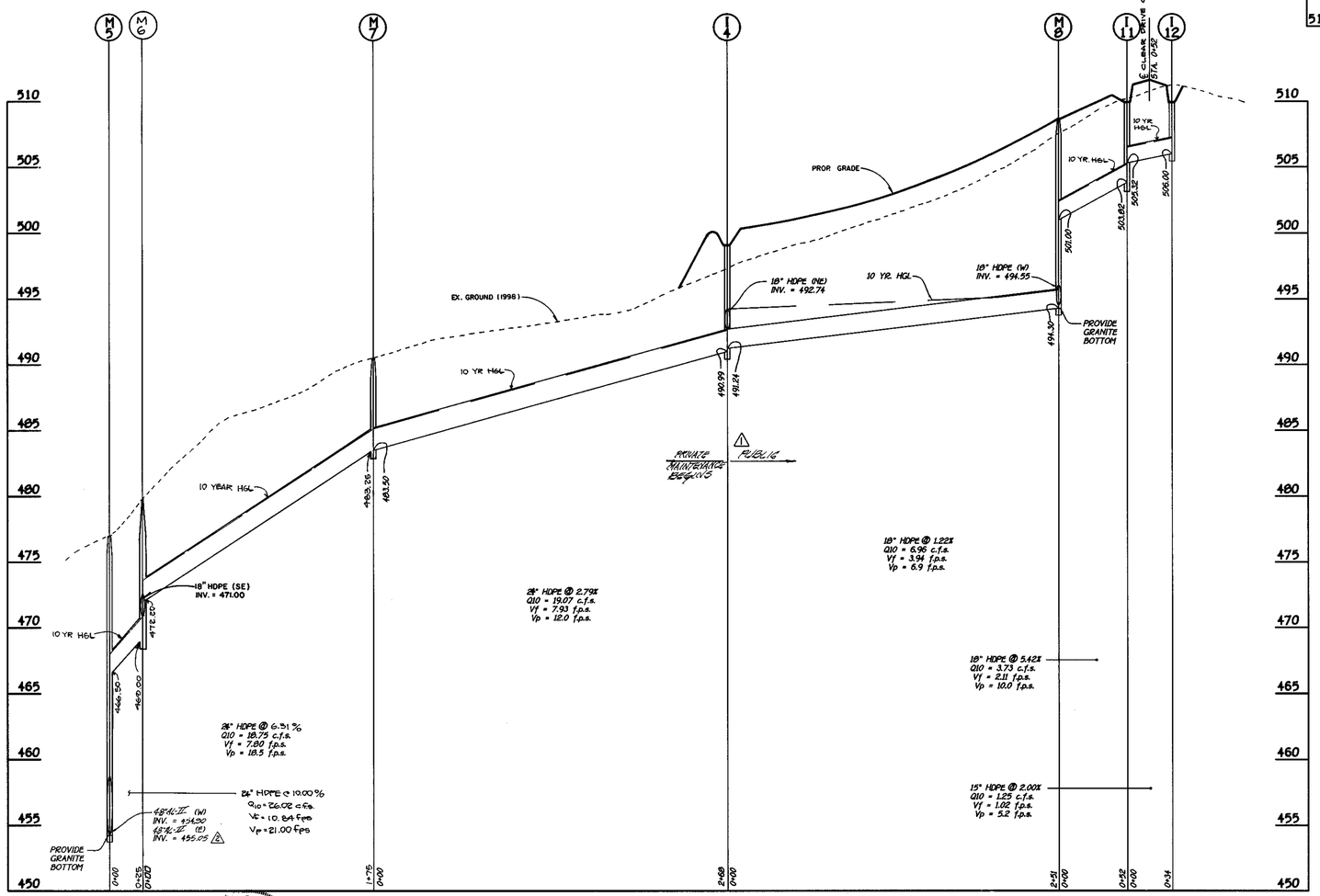

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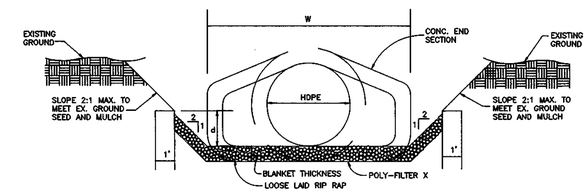

RIP-RAP CHANNEL DETAIL

NO SCALE

RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA (SQ. FT.)	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	Q_{10}	DIA.
S-1	1.6550	3.4583	0.4786	0.6817	0.005	0.0707	9.5	1.19	0.04	5.0	2.66	9.5"	15"	19"	2.66	18"
S-2	2.20	19.5	1.3946	1.2484	0.005	0.0707	7.5	2.0	0.04	1.60	116.64	23"	34"	46"	116.64	48" ⚠2
S-3	2.25	5.736	0.392	0.534	0.010	0.10	3.5	0.5	0.04	1.98	1.12	9.5"	15"	19"	1.12	15"

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.

No.	DESCRIPTION	DATE
2	CHANGE 24" RIP-RAP AND OUTFALL @ S-2	6-8-00
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

OWNERS

SYNDACON PROPERTY, INC.
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STATE OF MARYLAND — RICHARD L. DEWBERRY — No. 8013 — PROFESSIONAL ENGINEER — 11-3-99

F.C.C.- 30819 STORMDRAINS 2.DWG

STORM DRAIN PROFILES
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(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626
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ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 15 OF 27

F99-145

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/7/99

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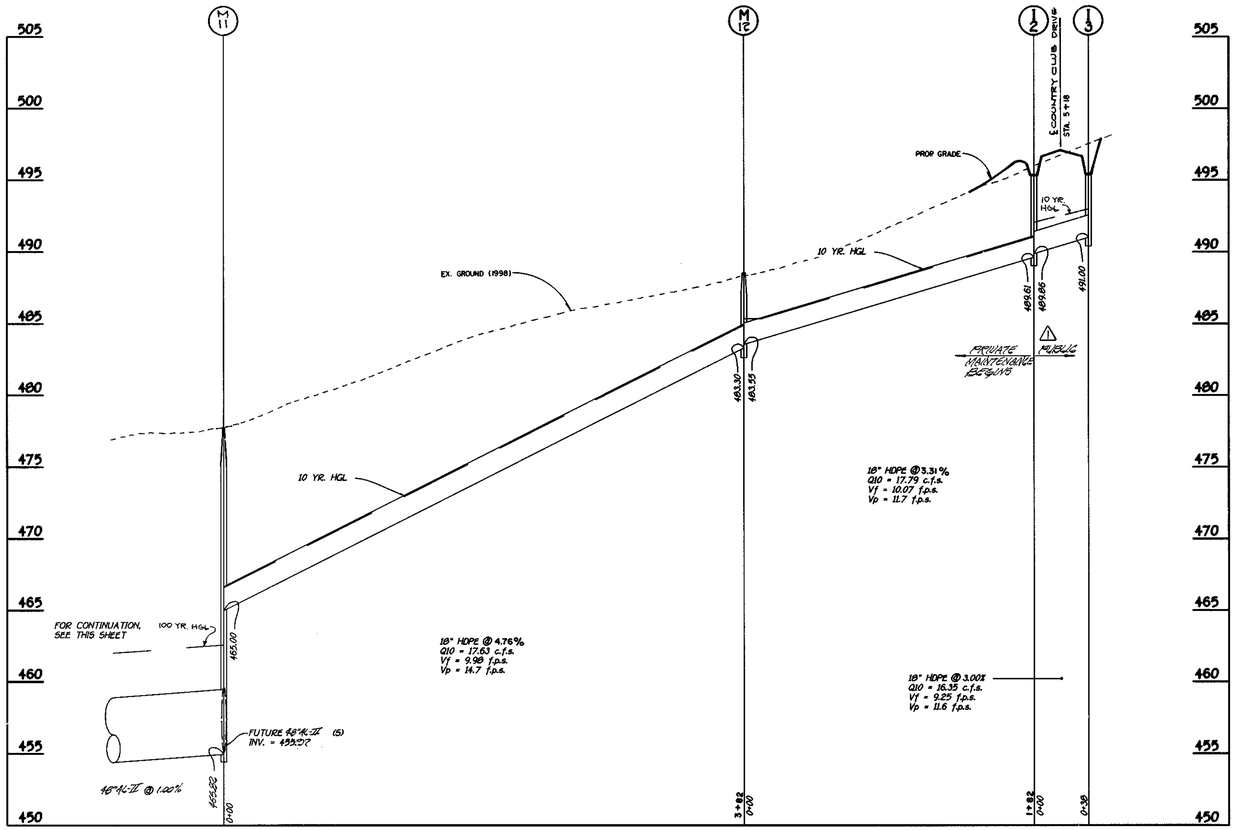
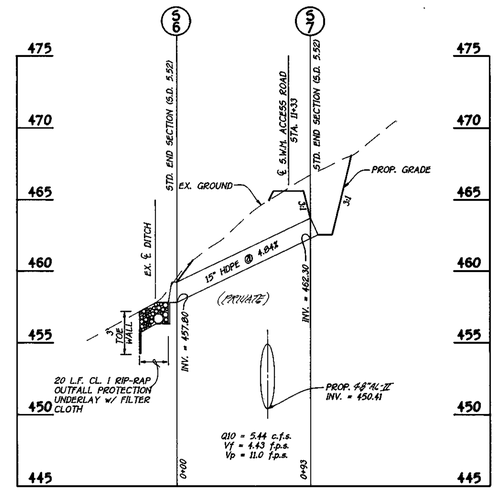


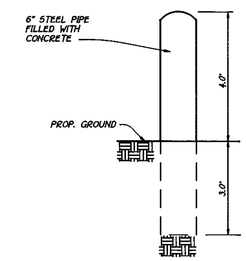
PROFILE

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



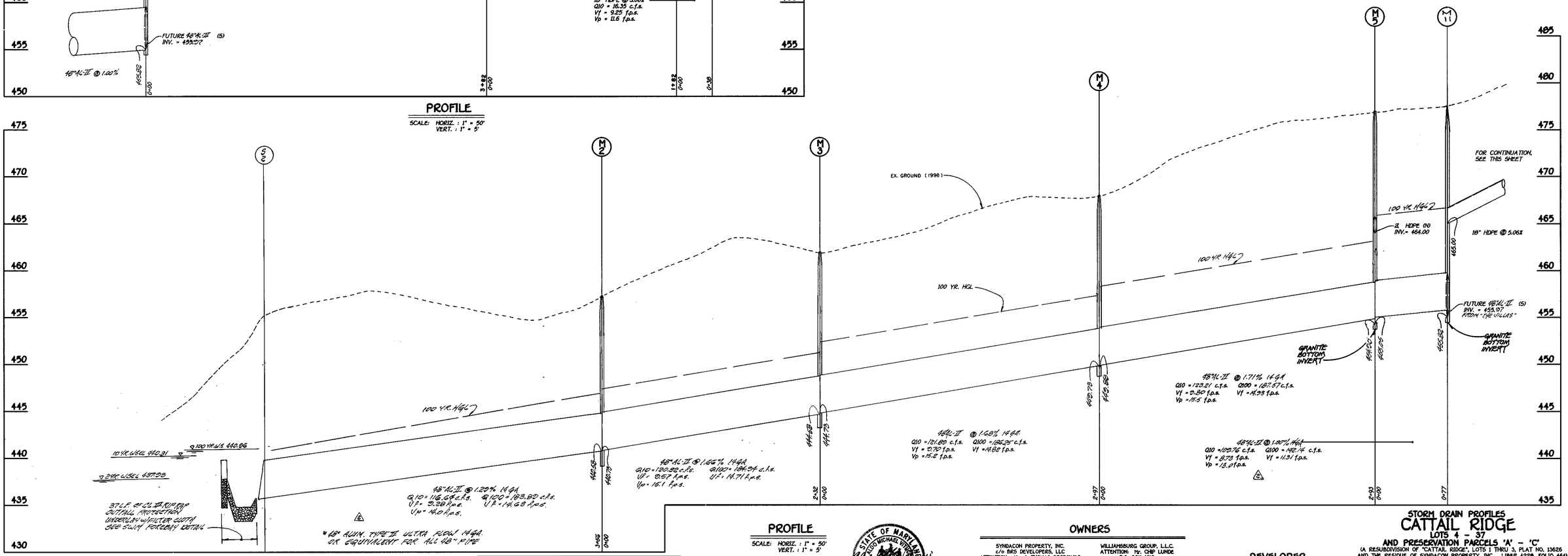
PROFILE

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



TYPICAL BOLLARD DETAIL

NOT TO SCALE



PROFILE

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

STATE OF MARYLAND — LLOYD MICHAEL VIRGILIO — No. 20748 — REGISTERED PROFESSIONAL ENGINEER

5-17-99

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8608 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

No.	DESCRIPTION	DATE
2	REVISE 54" HDPE TO 48"AL-II, 14GA. & ELIMINATE M-1	5-8-00
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

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.- 30919 STORMDRAINS.DWG

STORM DRAIN PROFILES
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 16 OF 27

F 99-145

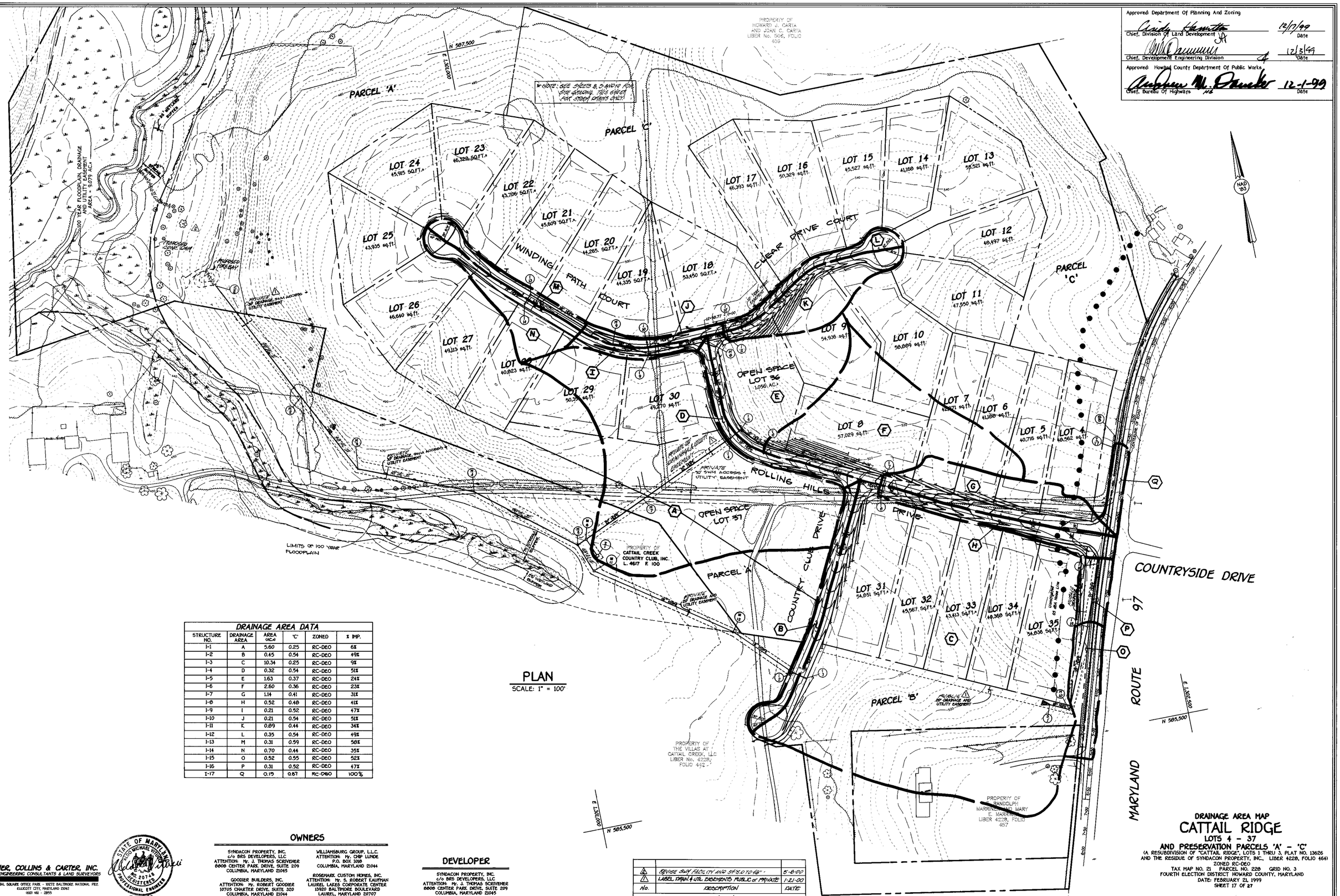
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/7/99

Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



DRAINAGE AREA DATA

STRUCTURE NO.	DRAINAGE AREA	AREA (AC.±)	'C'	ZONED	% IMP.
I-1	A	5.60	0.25	RC-DEO	6%
I-2	B	0.45	0.54	RC-DEO	49%
I-3	C	10.34	0.25	RC-DEO	9%
I-4	D	0.32	0.54	RC-DEO	51%
I-5	E	1.63	0.37	RC-DEO	24%
I-6	F	2.60	0.36	RC-DEO	23%
I-7	G	1.14	0.41	RC-DEO	31%
I-8	H	0.52	0.48	RC-DEO	41%
I-9	I	0.21	0.52	RC-DEO	47%
I-10	J	0.21	0.54	RC-DEO	51%
I-11	K	0.89	0.44	RC-DEO	34%
I-12	L	0.35	0.54	RC-DEO	49%
I-13	M	0.31	0.59	RC-DEO	58%
I-14	N	0.70	0.44	RC-DEO	35%
I-15	O	0.52	0.55	RC-DEO	52%
I-16	P	0.31	0.52	RC-DEO	47%
I-17	Q	0.19	0.87	RC-DEO	100%

PLAN

SCALE: 1" = 100'

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
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LAUREL LAKES CORPORATE CENTER
15920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

No.	DESCRIPTION	DATE
2	REVISE SWM FACILITY AND SAFETY PLATE	5-8-00
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

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 VIDUCH — No. 21749 — REGISTERED PROFESSIONAL ENGINEER — 3-12-99

F.C.C.- 30613 DRAINAGEAREAMAP.DWG

DRAINAGE AREA MAP
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: FEBRUARY 21, 1999

SHEET 17 OF 27

F 99-145

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING					
LINEAR FEET OF PERIMETER	D1 (350')	D2 (250')	D3 (330')	D4 (300')	D5 (75')
NUMBER OF TREES REQUIRED: SHADE TREES / EVERGREEN TREES	16 / 19	5 / 7	16 / 17	6 / 8	3 / 3
CREDIT FOR EXISTING VEGETATION (NO, YES AND X)	NO	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND X)	NO	NO	NO	NO	NO
NUMBER OF TREES PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2X SUBSTITUTION)	16 / 19 / ____	5 / 7 / ____	16 / 17 / ____	6 / 8 / ____	3 / 3 / ____

LANDSCAPE SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
155		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2"-3"
87		PINUS STROBUS	WHITE PINE	6'-8' HT.

NOTE: THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 292 LANDSCAPING TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $103,950.00.

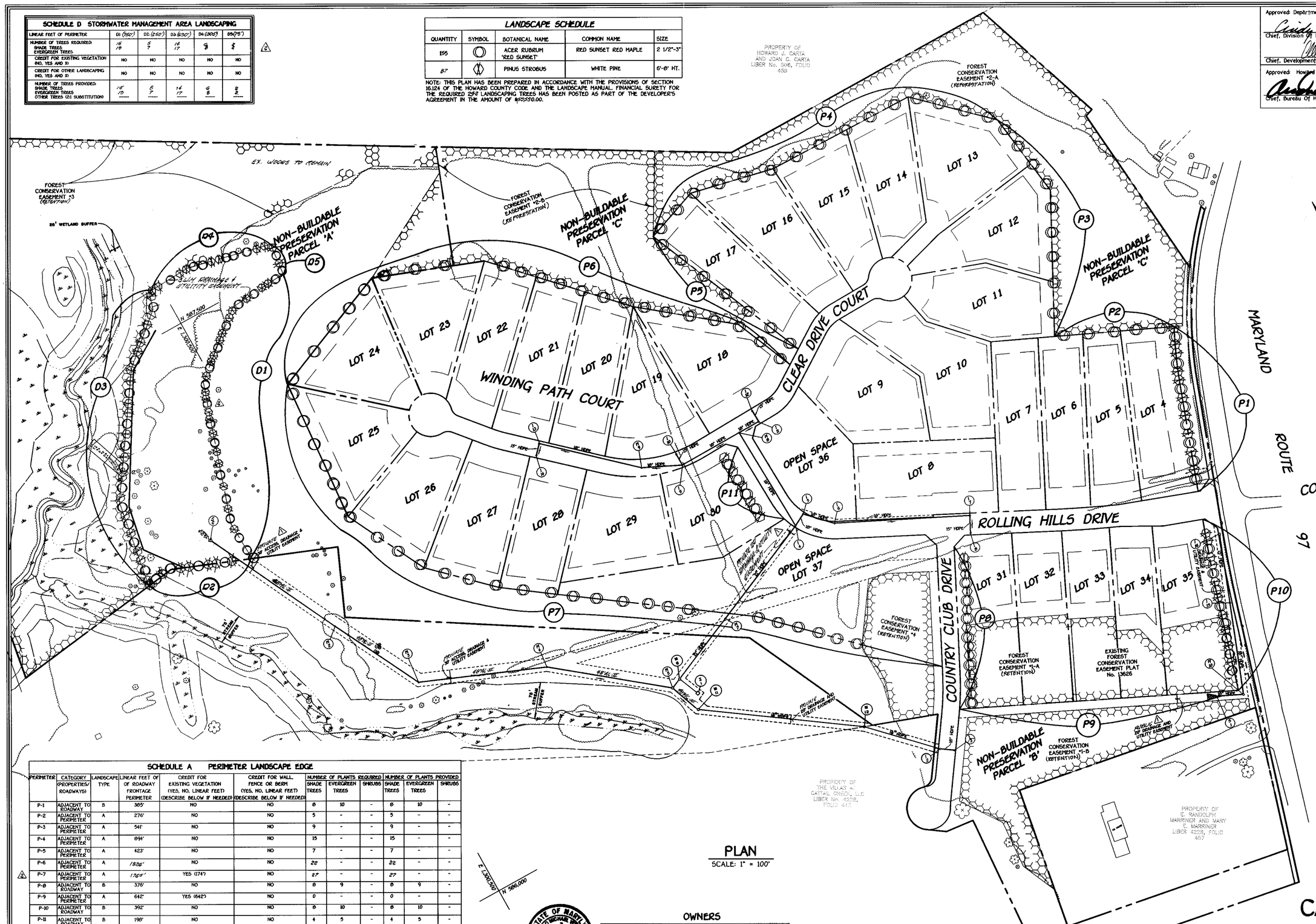
Approved: Department Of Planning And Zoning

Cindy Horvitz — Chief, Division Of Land Development — 12/17/99 Date

Chief, Development Engineering Division — 12/3/99 Date

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 12-1-99 Date



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: SHADE TREES	EVERGREEN TREES	SHRUBS	NUMBER OF PLANTS PROVIDED: SHADE TREES	EVERGREEN TREES	SHRUBS
P-1	ADJACENT TO ROADWAY	B	305'	NO	NO	8	10	-	8	10	-
P-2	ADJACENT TO PERIMETER	A	276'	NO	NO	5	-	-	5	-	-
P-3	ADJACENT TO PERIMETER	A	541'	NO	NO	9	-	-	9	-	-
P-4	ADJACENT TO PERIMETER	A	894'	NO	NO	15	-	-	15	-	-
P-5	ADJACENT TO PERIMETER	A	423'	NO	NO	7	-	-	7	-	-
P-6	ADJACENT TO PERIMETER	A	1326'	NO	NO	22	-	-	22	-	-
P-7	ADJACENT TO PERIMETER	A	1765'	YES (174')	NO	27	-	-	27	-	-
P-8	ADJACENT TO ROADWAY	B	376'	NO	NO	8	9	-	8	9	-
P-9	ADJACENT TO PERIMETER	A	642'	YES (642')	NO	0	-	-	0	-	-
P-10	ADJACENT TO ROADWAY	B	392'	NO	NO	8	10	-	8	10	-
P-11	ADJACENT TO ROADWAY	B	198'	NO	NO	4	5	-	4	5	-

PLAN

SCALE: 1" = 100'

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.-10049 LANDSCAPE PLANING

NO.	DESCRIPTION	DATE
2	REVISE SWM EASEMENT & LANDSCAPING PLANTS	5-8-00
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

STATE OF MARYLAND — RICHARD C. FISHER — No. 9974 — REGISTERED PROFESSIONAL ENGINEER

6-14-99

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIES BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIES
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1818
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

LANDSCAPE PLAN

CATTAIL RIDGE

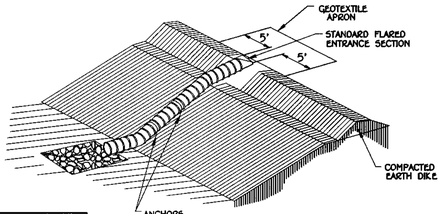
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 18 OF 27

F 99-145

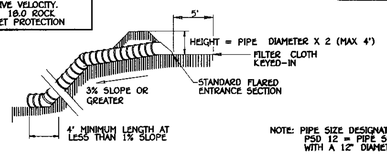
PIPE SLOPE DRAIN

NOT TO SCALE



DISCHARGE INTO A STABILIZED WATER-COURSE, SEDIMENT TRAPPING DEVICE, OR INTO A STABILIZED AREA AT A NON-EROSIVE VELOCITY. REF: 18.0 ROCK OUTLET PROTECTION

STANDARD SYMBOL
PSD - 12

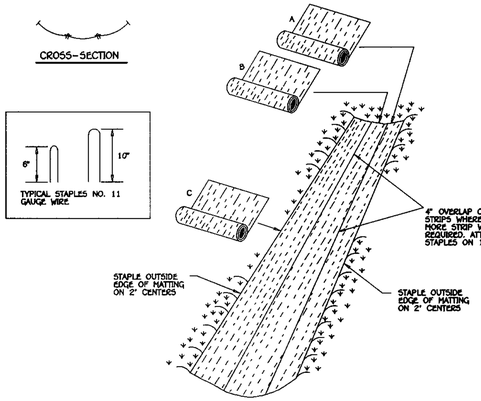


NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE DRAIN WITH A 12" DIAMETER PIPE.

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

EROSION CONTROL MATTING



EROSION CONTROL MATTING

Construction Specifications

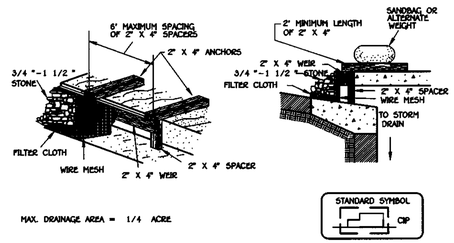
1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
2. Staple the 4" overlap in the channel 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.

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.- 30893 SED CON DETAILS.DWG

CURB INLET PROTECTION



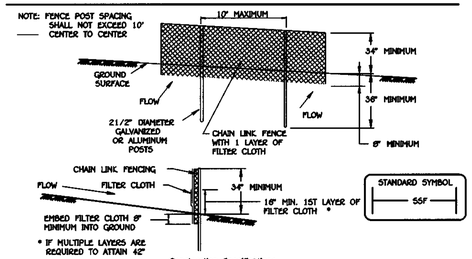
MAX. DRAINAGE AREA = 1/4 ACRE

STANDARD SYMBOL
CIP

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

SUPER SILT FENCE

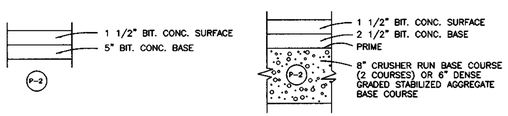


STANDARD SYMBOL
SSF

Construction Specifications

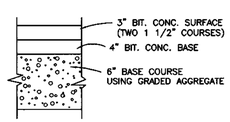
1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire 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 (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322



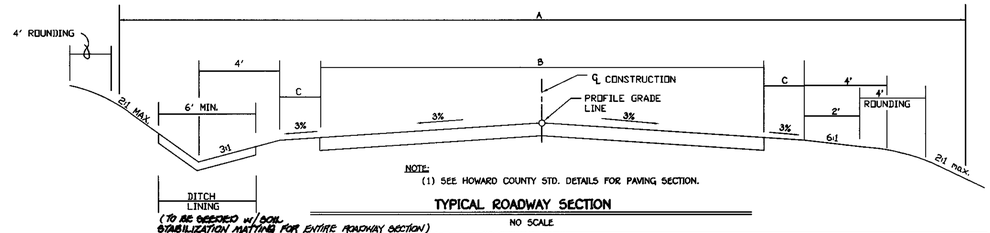
PAVING SECTION P-2

NO SCALE



S.H.A. PAVING SECTION

NO SCALE



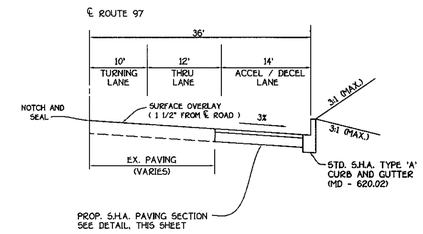
NOTE:
(1) SEE HOWARD COUNTY STD. DETAILS FOR PAVING SECTION.

TYPICAL ROADWAY SECTION

NO SCALE

ROADWAY INFORMATION CHART

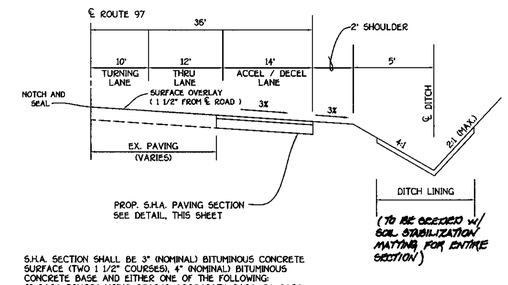
ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	A	B	C	PAVING SECTION
ROLLING HILLS DRIVE	MINOR COLLECTOR	35 M.P.H.	RC-DEO	0+00 TO 6+60.66	50'	24'	4'	P-2
ROLLING HILLS DRIVE	ACCESS STREET	25 M.P.H.	RC-DEO	6+60.66 TO 12+26.88	40'	22'	4'	P-2
COUNTRY CLUB DRIVE	ACCESS STREET	25 M.P.H.	RC-DEO	0+00 TO 6+64.89	40'	22'	4'	P-2
CLEAR DRIVE COURT	ACCESS PLACE	25 M.P.H.	RC-DEO	0+00 TO 5+09.54	40'	18'	4'	P-2
WINDING PATH COURT	ACCESS PLACE	25 M.P.H.	RC-DEO	0+00 TO 7+56.43	40'	18'	4'	P-2



S.H.A. SECTION SHALL BE 3" (NOMINAL) BITUMINOUS CONCRETE SURFACE (TWO 1 1/2" COURSES), 4" (NOMINAL) BITUMINOUS CONCRETE BASE AND EITHER ONE OF THE FOLLOWING: 6" BASE COURSE USING GRADED AGGREGATE BASE, GA BASE OR A 7" BASE COURSE USING BANK-RUN GRAVEL BASE, BRG BASE

TYPICAL ROADWAY SECTION FOR MD. ROUTE 97 w/ CURB

NO SCALE



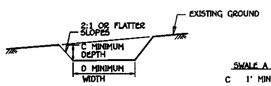
S.H.A. SECTION SHALL BE 3" (NOMINAL) BITUMINOUS CONCRETE SURFACE (TWO 1 1/2" COURSES), 4" (NOMINAL) BITUMINOUS CONCRETE BASE AND EITHER ONE OF THE FOLLOWING: 6" BASE COURSE USING GRADED AGGREGATE BASE, GA BASE OR A 7" BASE COURSE USING BANK-RUN GRAVEL BASE, BRG BASE

TYPICAL ROADWAY SECTION FOR MD. ROUTE 97 w/ DITCH

NO SCALE

TEMPORARY SWALE

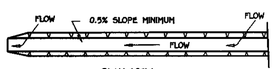
NOT TO SCALE



	SWALE A	SWALE B
C	1' MIN.	1' MIN.
D	4' MIN.	6' MIN.

OUTLET AS REQUIRED

CROSS SECTION



PLAN VIEW

DRAINAGE AREA = 10 ac (MAX)
SLOPE = 10% (MAX)

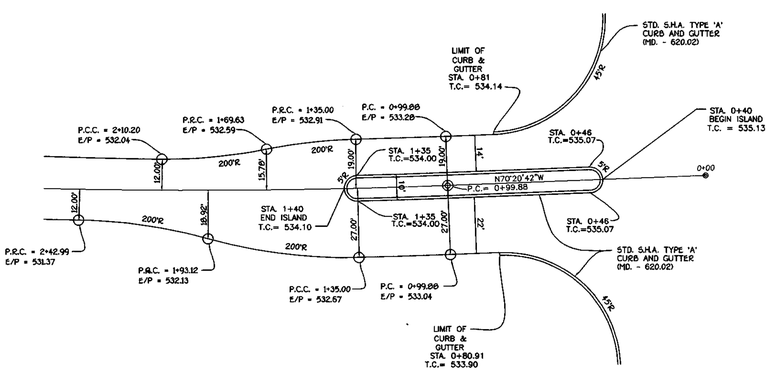
FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

STANDARD SYMBOL
A - 2/B - 3

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 soil in a minimum 7" layer.

Construction Specifications

1. All temporary swales shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale 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, if necessary, 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 swale.
8. Inspection and maintenance must be provided periodically and after each rain event.



ENTRANCE DETAIL (ROLLING HILLS DRIVE)

NO SCALE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 11-3-99

ENGINEER'S CERTIFICATE

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

SIGNATURE — DATE 6-14-99

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 11/19/99

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 11/19/99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/17/99

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/3/99

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 12-1-99

DETAIL SHEET

CATTAIL RIDGE

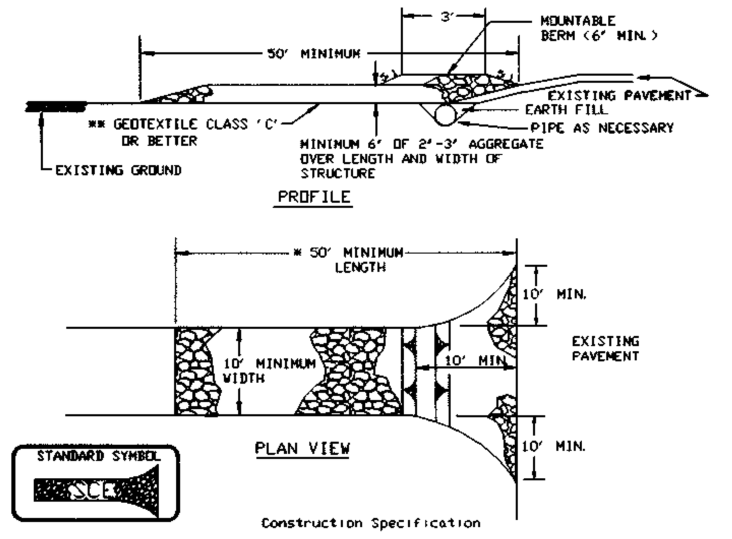
LOTS 4 THRU 37
AND PRESERVATION PARCELS 'A' THRU 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 19 OF 27

F 99 - 145



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.

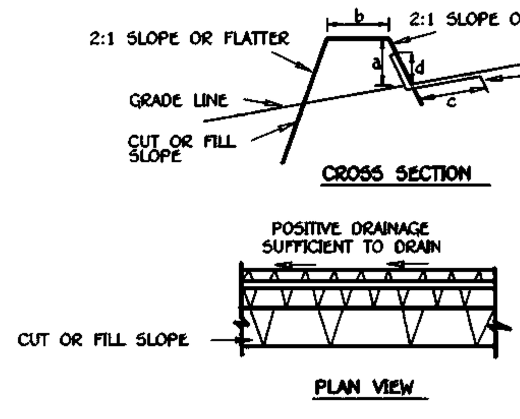
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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



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

STANDARD SYMBOL A-2 B-3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

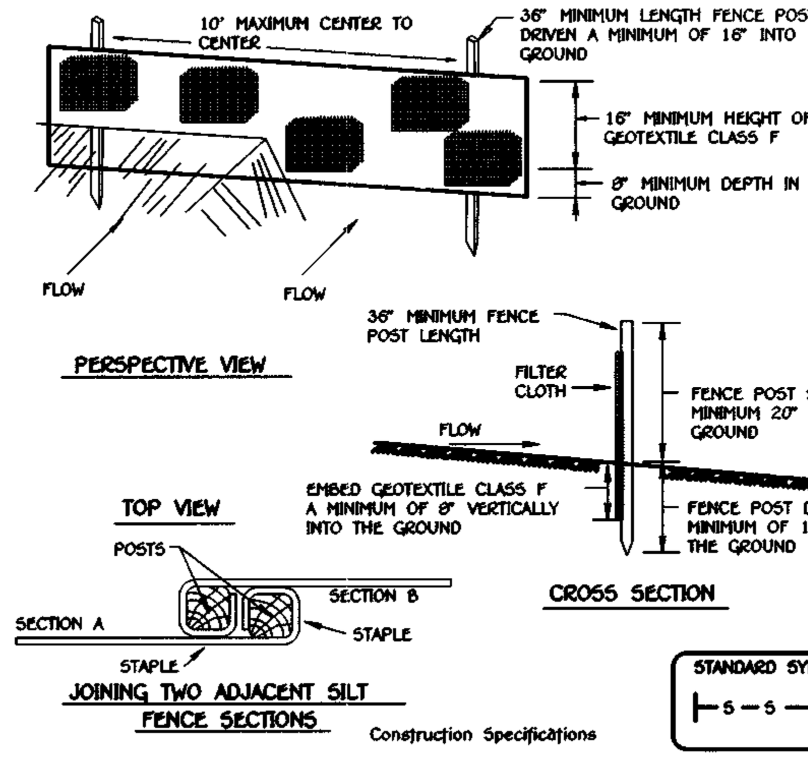
1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

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



STANDARD SYMBOL
|—S—S—S—|

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:

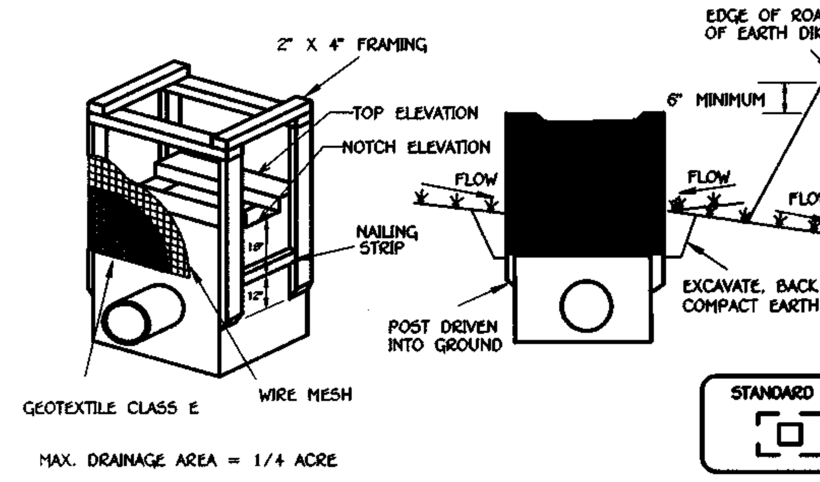
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max²)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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



STANDARD SYMBOL SIP

MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

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

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

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

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

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

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

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

STANDARD INLET PROTECTION

NOT TO SCALE

DEVELOPER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — 11-3-99 DATE

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER — 6-14-99 DATE

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — 11/19/99 DATE

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APPROVED:

HOWARD SOIL CONSERVATION DISTRICT — 11/19/99 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

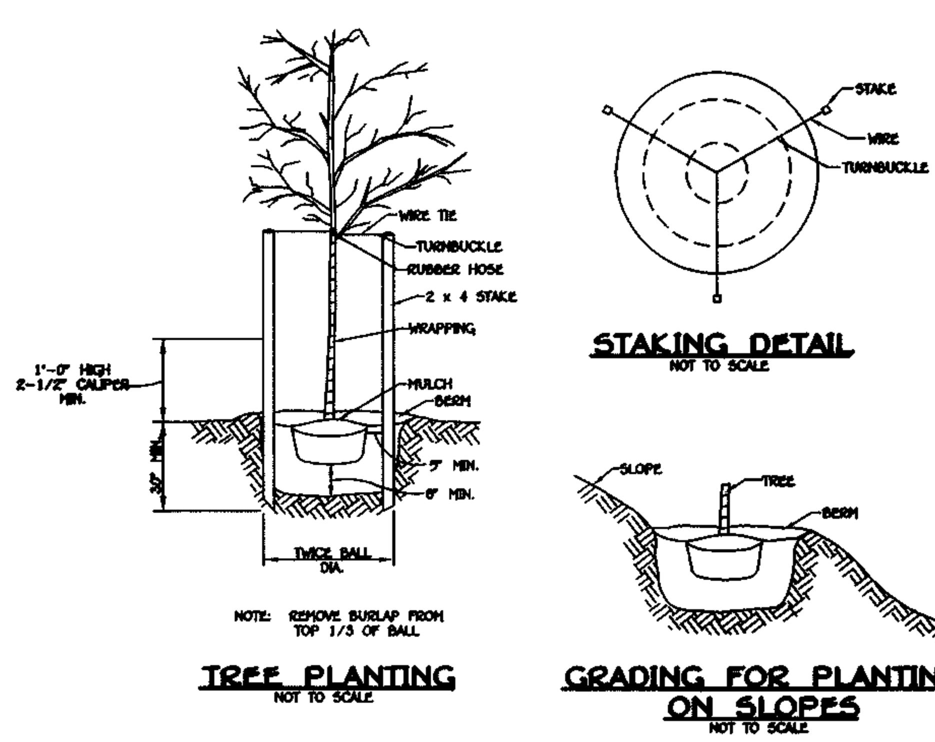
CHIEF, DIVISION OF LAND DEVELOPMENT — 12/17/99 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/3/99 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 12-1-99 DATE



NOTE: REMOVE BURLAP FROM TOP 1/3 OF BALL

STAKING DETAIL
NOT TO SCALE

TREE PLANTING
NOT TO SCALE

GRADING FOR PLANTING ON SLOPES
NOT TO SCALE

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.

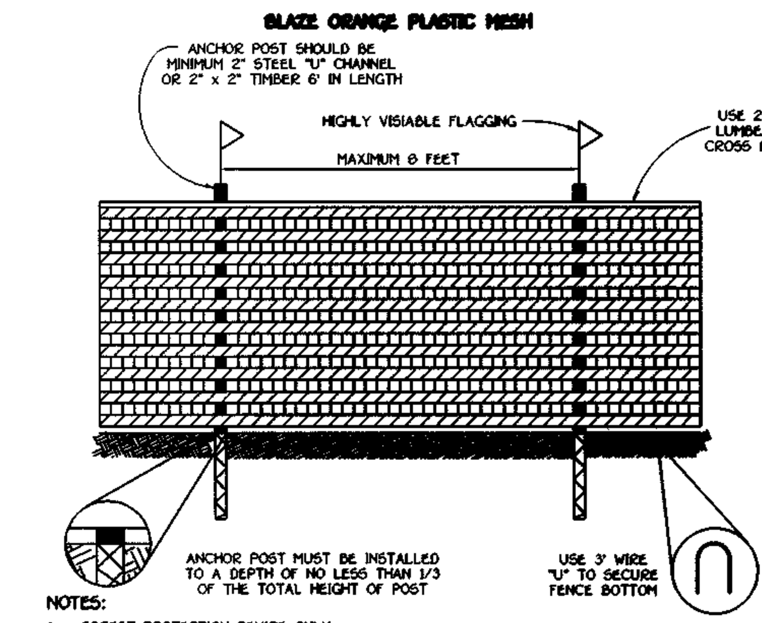
SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

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 banks. The remainder of area should be appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
   iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.
I. Incremental Stabilization - Cut Slopes
   i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
   ii. Construction sequence (Refer to Figure 3 below):
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
      b. Perform Phase 1 excavation, dress, and stabilize.
      c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.

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

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

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



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

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	87.771	ACRES
AREA DISTURBED	7.713	ACRES
AREA TO BE ROOFED OR PAVED	1.623	ACRES
AREA TO BE VEGETATIVELY STABILIZED	6.090	ACRES
TOTAL CUT	20,000	CU.YDS.
TOTAL FILL	20,000	CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A	CU.YDS.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGHTS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

Constuction Specifications

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

2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be 4', measured at centerline of embankment.

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

4. Elevation of the top of any dike directing water into trap must equal or exceed the height of trap embankment.

5. Storage area provided shall be figured by computing the volume measured from top of excavation. (For storage requirements see Table 9).

6. Geotextile Class C shall be placed over the bottom and sides of the outlet channelprior to placement of stone. Section of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 6" into existing ground at entrance of outlet channel.

7. 4" - 7" stone shall be used to construct the weir and 4" - 12" or Class I rip-rap shall be used to construct the outlet channel.

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

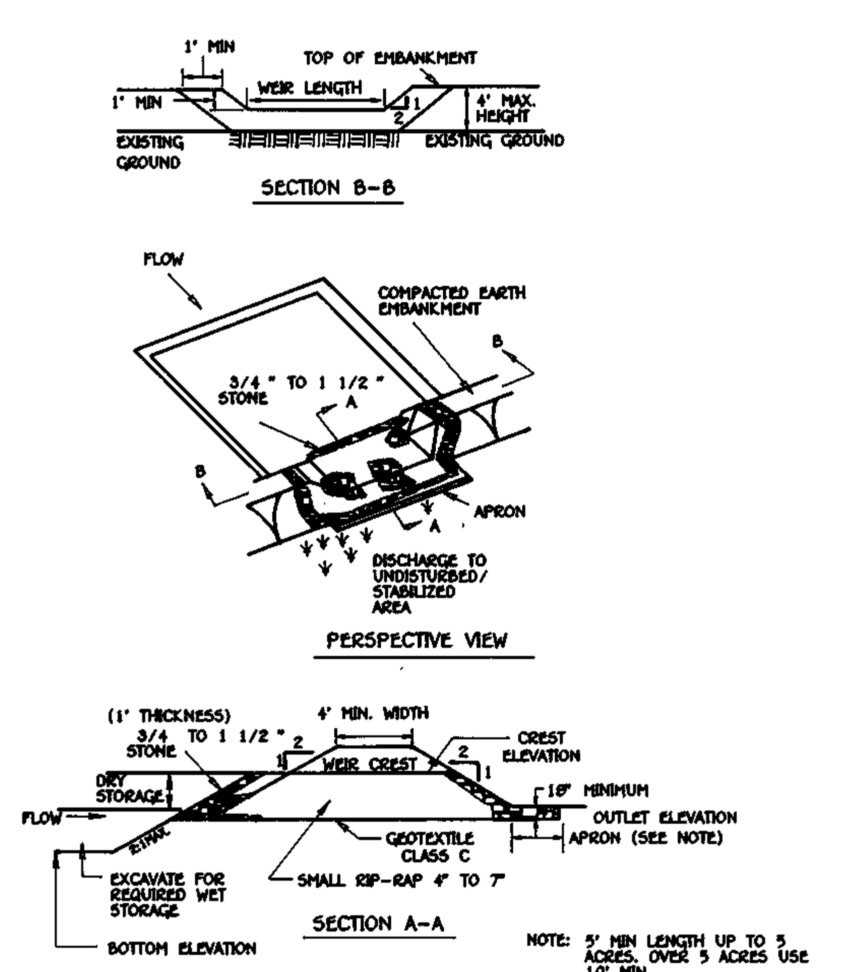
9. Outlet channel must have positive drainage from the trap.

10. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 of the wet storage depth of the trap (900 cf/ac). Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

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

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

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



NOTE: 5' MIN LENGTH UP TO 5 ACRES. OVER 5 ACRES USE 10' MIN

STONE RIP-RAP OUTLET SEDIMENT TRAP - ST IV

NOT TO SCALE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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.# 30619 SED CON DETAILS.DWG

5-8-00	2 ADD STONE/RIP-RAP OUTLET SEDIMENT TRAP DETAIL	
DATE	DESCRIPTION	
	REVISIONS	

SEDIMENT CONTROL NOTES AND DETAILS

CATTAIL RIDGE

LOTS 4 THRU 37
AND PRESERVATION PARCELS 'A' THRU 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 20 OF 27

F 99-145

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 1 1/2" in diameter.

ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, 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 perscribed to raise the pH to 6.5 or higher.

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

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

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

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

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

V. Topsoil Application

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

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, 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 seedbed can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

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

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

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

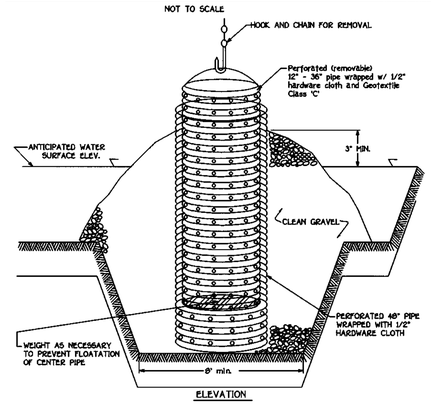
c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

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 & Grading, ND-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

REMOVABLE PUMPING STATION

NOT TO SCALE



ELEVATION

Construction Specifications

1. The outer pipe should be 40" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.

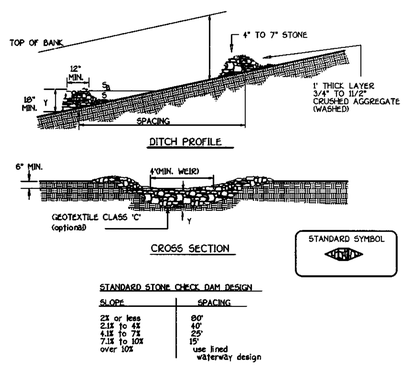
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.

3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.

4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

STONE CHECK DAM

NOT TO SCALE



STANDARD STONE CHECK DAM DESIGN

SLOPE	SPACING
2% or less	80'
2.1% to 4%	40'
4.1% to 7%	25'
7.1% to 10%	15'
over 10%	use lined waterway design

Construction Specifications

1. Swales and ditches shall be prepared in accordance with the construction specifications described in Section A-2, Standards and Specifications for Temporary Swale.

2. The check dam shall be constructed of 4"-7" stone. The stone shall be placed so that it completely covers the width of the channel and keyed into the channel banks.

3. The top of the check dam shall be constructed so the the center is approximately 6" lower than the outer edges, forming a weir that water can flow across.

4. The maximum height of the check dam at the center shall not exced 2".

5. The upstream sideof the check dam shall be lined with approximately 1" of 3/4" to 11/2" crushed aggregate.

P.O.S.T. NO. 1

Construction Specifications

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

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

3. The total trap volume as measured from the bottom to weir elevation shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be ≥1' above the riser crest elevation.

4. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (900cf/ac). The sediment shall be deposited in a suitable area and in such a manner that it will not erode.

5. The structure shall be inspected periodically and after each rain and repairs made as necessary.

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

7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.

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

9. All pipe connections shall be watertight.

10. Above the wet storage elevation, the draw-down pipe shall be perforated with 1/2" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally.

11. The draw-down pipe shall be wrapped with 1/2" hardware cloth (wire) then wrapped with Geotextile Class E. The filter cloth shall extend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.

12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.

13. Fill material around the pipe spillway shall be hand compacted in 4" layers. A minimum of 2' of hand-compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.

14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 9". Steel plate bases shall be at least twice the riser diameter, 1/4" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2' of stone, gravel or tamped earth on the plate.

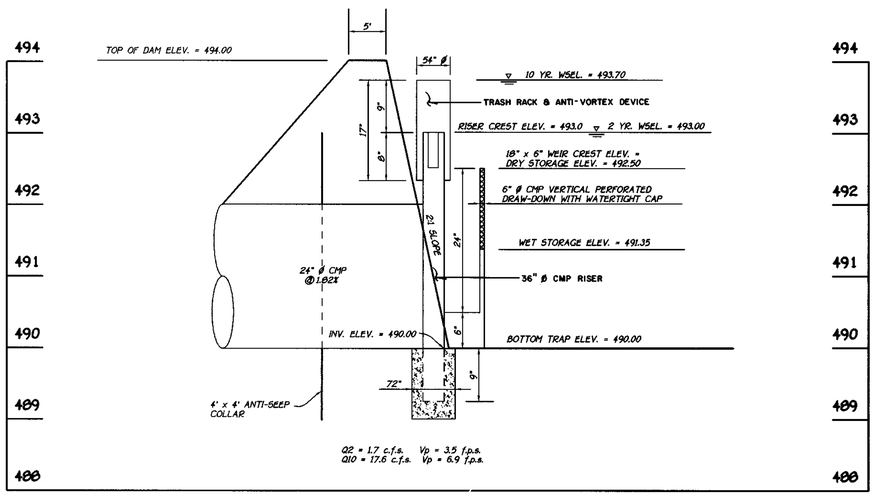
15. Anti seep collars shall be constructed in accordance with plans (ref. table 16 and Details 13 and 14).

16. Concentric trash rack and anti-vortex device design details are on Detail 16.

17. Refer to Section D for dewatering requirements of sediment traps.

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

19. Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.



P.O.S.T. NO. 1 DETAIL

SCALE: HORIZ. : 1" = 10'
VERT. : 1" = 1'

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. 30599HER126

⚠2 SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT.
2. NOTIFY "MISS UTILITY" AT LEAT5 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 24 HOURS BEFORE STRATING WORK.
3. CLEAR AND GRUB FOR PERIMETER SEDIMENT CONTROL MEASURES AND INSTALL STABILIZED CONSTRUCTION ENTRANCE. (2 weeks)
4. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEED.
5. INSTALL REMAINING SEDIMENT CONTROL MEASURES, SEDIMENT TRAPS, EARTH DIKES, PIPE SLOPE DRAINS FOR CLEAN WATER DIVERSION AND SILT FENCE AS INDICATED ON THE PLANS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE PROPOSED SEDIMENT TRAPS. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF EACH FACILITY. (2 weeks)
6. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEED.
7. SITE CONSTRUCTION TO CONSIST OF THE FOLLOWING ITEMS:

A. GRADE THE REMAINDER OF THE SITE ASSOCIATED WITH THE ROAD CONSTRUCTION. THIS WORK SHALL INCLUDE GRADING SITE TO PROPOSED SUBGRADE INSTALLATION OF THE PROPOSED STORM SYSTEM UP TO AND INCLUDING THE TEMPORARY OUTFALLS ASSOCIATED WITH THE SEDIMENT TRAPS. STABILIZE ALL ROADWAY DITCH SLOPES IMMEDIATELY UPON COMPLETION OF GRADING AS SHOWN ON THESE PLANS. INSTALL BASE COURSE PAVING (6 weeks). THIS WORK CAN COINCIDE WITH THE FOLLOWING ITEM #7B DUE TO THE TEMPORARY SWM PROVIDED IN THE TRAP.

B. CONSTRUCT THE STORMWATER MANAGEMENT FACILITY. ALSO CONSTRUCT PART OF THE STORM DRAIN SYSYTEM FROM S-2 TO M-7 AND FROM M-5 TO M-12 AS SHOWN ON THE ATTACHED PLANS. (6 weeks). INSURE FULL, PERMANENT STABILIZATION OF THE SWM FACILITY PRIOR TO CONNECTION OF STORM DRAIN SYSTEM FOR THIS SITE AND IF APPLICABLE, THE ADJACENT VILLAS AT CATTAIL CREEK SITE. CONTRACTOR SHALL BE AWARE OF THE STREAM CLOSURE DATES FOR CATTAIL CREEK TO BE FROM OCTOBER 1ST THROUGH APRIL 30TH FOR ALL CLASS III STREAMS.

8. 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. (1 week)

9. STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTORS TO PROCEED.

10. APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 week)

11. WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES AND TRAPS HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICE MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. THIS WOULD ALSO INCLUDE THE REMOVAL OF TEMPORARY STORM DRAIN OUTFALLS AT THE TRAP. FINAL STORM DRAIN RUN CONNECTIONS. STABILIZE ALL REMAINING AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 weeks)

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

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 — Date 8-9-99

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 11-3-99

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

U.S.D.A. - Natural Resources Conservation Service — Date 11/19/99

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

District Howard Soil Conservation Dist. — Date 11/19/99

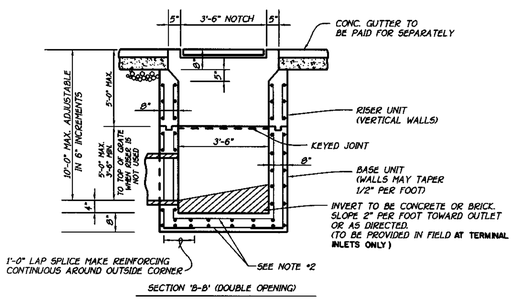
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/7/99

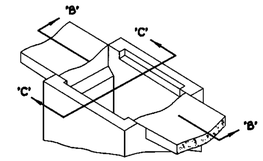
Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

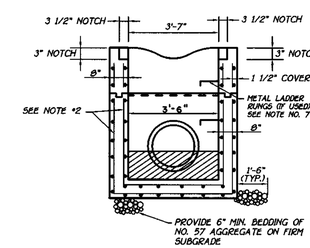
Chief, Bureau Of Highways — Date 12-1-99



SECTION 'B-B' (DOUBLE OPENING)



DOUBLE OPENING
(SHOWN WITHOUT GRATE)



SECTION 'C-C'

GENERAL NOTES:

1. CONCRETE TO BE MIX NO. 6 (4500 PSI).
2. REINFORCING - 2 LAYERS OF 4 x 4 - W 4.0 x W 4.0 WELDED WIRE FABRIC.
3. THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
4. FOR GRATE DETAILS SEE STANDARD MD. - 378.05. GRATE TO BE AS SHOWN OR FURNISH APPROVED EQUIVALENT.
5. PIPE OPENINGS TO BE PROVIDED AS REQUIRED. FOR SIZE, LOCATION AND INVERT ELEVATIONS REFER TO CONSTRUCTION PLANS.
6. PLACEMENT OF SUBGRADE DRAINAGE WILL BE AS DIRECTED BY THE ENGINEER OR AS NOTED ON THE CONSTRUCTION PLANS.
7. LADDER RUNGS SHALL BE IN ACCORDANCE WITH STANDARD MD. - 383.91, AS SHOWN OR AS DIRECTED BY THE ENGINEER.
8. MINIMUM DEPTH PAYMENT PER "EACH" INLET INCLUDES DEPTHS UP TO 3'-6". VERTICAL DEPTH PAYMENT PER LINEAR FOOT INCLUDES DEPTHS IN EXCESS OF 3'-6".
9. A 6" PERFORATED CIRCULAR PIPE, FOR EROSION AND SEDIMENT CONTROL, SHALL BE PLACED IN THE INLET WALL AT ALL INLET SEDIMENT TRAPS AS SHOWN ON THE PLANS.

MODIFIED OPEN END GRATE

NOT TO SCALE

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8800 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8800 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

DATE	DESCRIPTION
5-8-00	⚠2 REVISE SEQUENCE OF CONSTRUCTION

REVISIONS

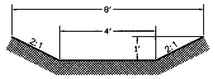
SEDIMENT CONTROL NOTES AND DETAILS

CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4220, FOLIO 464)
ZONED RC-DEO

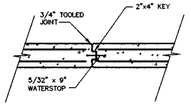
TAX MAP NO. 21 PARCEL NO. 220 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 21 OF 27

F 99-145



SECTION 9

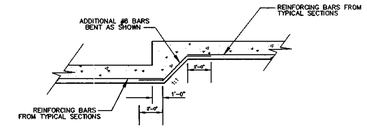
SCALE 1":3'



TYPICAL CONTRACTION JOINT

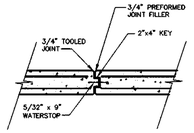
SCALE 1":3'

NOTE:
1. CONTRACTION JOINTS TO BE PLACED AT 30' INTERVALS
2. WATERSTOP IS BE ELASTOMERIC OR OTHER APPROVED MATERIAL.



DETAIL – STEPPED FOOTING

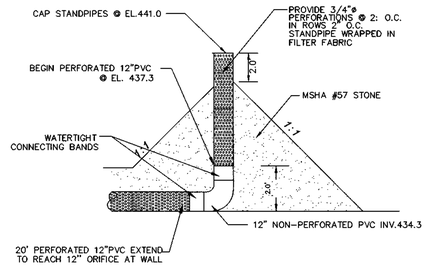
SCALE: 1"=3'



TYPICAL EXPANSION JOINT

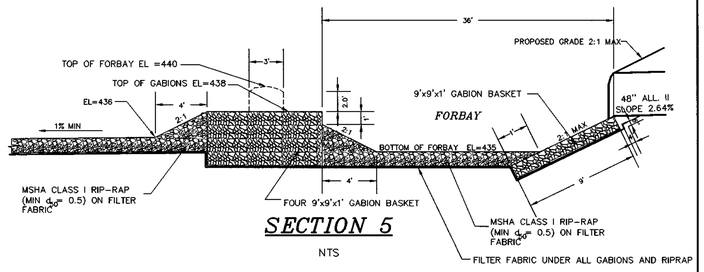
SCALE 1":3'

NOTE:
1. EXPANSION JOINTS TO BE PLACED AT 90' INTERVALS
2. WATERSTOP IS BE ELASTOMERIC OR OTHER APPROVED MATERIAL.



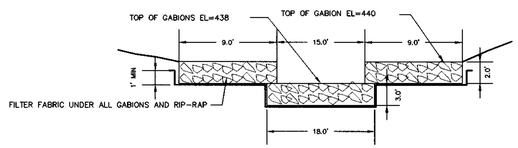
DEWATERING STANDPIPES

PROVIDE THIS DEWATERING DEVICE UPON COMPLETION OF RETAINING WALL FOR SEDIMENT CONTROL.



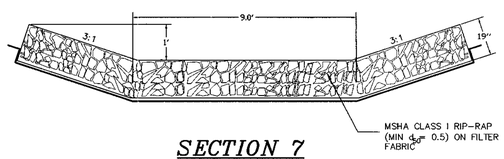
SECTION 5

NTS



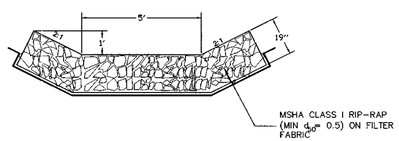
SECTION 6

NTS



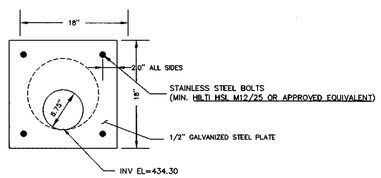
SECTION 7

SCALE 1":3'



SECTION 8

SCALE 1":3'



CONTROL PLATE DETAIL

NTS

THE PURPOSE OF THIS PLAN OF REVISION SHEET IS TO REVISE THE SWM FACILITY AND ASSOCIATED CHANGES.

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

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER _____ DATE 6/27/00

SYNDICON PROPERTY INC.
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 OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER _____ DATE 6/26/00

PRINTED NAME OF ENGINEER

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE _____ DATE 7/14/00

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 7/14/00

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS _____ DATE 7-10-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE 7/9/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 7/12/00

F:\98110\DWG\R21\10-SWMDETAILS2_R2

project	date
98110	MAY 2000
illustration	engineering
SAA	SAA
scale	approval
AS SHWN	JBM

No.	description	date
1	SHEET 22 REPLACED (NEW SWM DETAILS) SWM DETAILS AND SECTIONS ADDED	

revisions

REVISED FINAL CONSTRUCTION PLAN
CATTAIL RIDGE
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'
TAX MAP 21, PARCEL 228
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT DETAILS

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

substitute 2 of 7 F.99.145

POND SPECIFICATIONS
(MD-378 WHERE APLICABLE)

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.

PIPE CONDUITS

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 Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or -- 211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.
2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thick-ness.
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. Simple 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.

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 super-vised 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 voids under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate loser 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 backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.
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 no needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.
3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.
4. Backfilling shall conform to "Structure Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.
Plastic Pipe – The following criteria shall apply for plastic pipe:
1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM 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 requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.
2. Joints and connections to antiseep 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 rip-rap 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 Con-tractor 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 lo-cations being refilled shall be maintained be-low 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 ontrolled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and ediment control measures.

SWM POND MAINTENANCE SCHEDULE

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER ALL MAJOR STORMS. INSPECTIONS SHALL 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 PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.

3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AS NEEDED.

4. VISIBLE SIGNS OF EROSION ON THE POND, RIP-RAP, OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND (DAM, RISER, AND PIPES) SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.

2. SEDIMENT SHALL BE REMOVED FROM THE POND AND/OR FOREBAY, WHEN ONE HALF THE TOTAL CAPACITY OF THE POND AND/OR FOREBAY IS FULL OF SEDIMENT, OR DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

SWM POND MAINTENANCE REQUIREMENTS

a. SILT SHALL BE REMOVED WHEN ACCUMULATION EXCEEDS SIX (6) INCHES IN BASINS WITHOUT FOREBAYS. IN BASIN WITH FOREBAYS, SILT SHALL BE REMOVED WHEN THE ACCUMULATION EXCEEDS FOUR (4) INCHES IN THE FOREBAY.

b. ACCUMULATED PAPER, TRASH AND DEBRIS SHALL BE REMOVED AS NECESSARY.

c. VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANY TIME.

c. ANNUAL INSPECTION AND REPAIR, IF REQUIRED, OF THE STRUCTURE SHALL BE PERFORMED.

OPERATION, MAINTENANCE AND INSPECTION

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

SEQUENCE OF CONSTRUCTION (POND)

1. CONSTRUCTION OF THE POND SHALL COMMENCE AS PER THE OVERALL PROJECT SEQUENCE.
2. INSTALL SEDIMENT CONTROL DEVICES. (2 DAYS)
3. CLEAR AND GRADE POND AND FOREBAY. (4 WEEKS)
4. CONSTRUCT WALL (2 WEEKS).
5. STABILIZE, SEED, AND MULCH ALL DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES. (1 WEEK)

AS-BUILT CERTIFICATION

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

P.E.NO. _____

SIGNATURE DATE: _____

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

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER 4/27/00 DATE

SYNDICON PROPERTY, INC.
PRINTED NAME OF DEVELOPER

ENGINEER'S CERTIFICATE

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

6/26/00
DATE

PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

7/14/00
USDA – NATURAL RESOURCE CONSERVATION SERVICE DATE

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

7/14/00
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

7/12/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

7/14/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

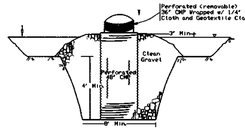
APPROVED: DEPARTMENT OF PUBLIC WORKS

7-10-00
CHIEF BUREAU OF HIGHWAYS DATE

F:\98110\DWG\R21\10-SWMDETAILS3_R2

REMOVABLE PUMP STATION

TYPICAL



ELEVATION

Not to Scale

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

SPECIFICATIONS FOR REMOVABLE PUMP STATION

I.P.O DEWATERING SPECIFICATIONS
FOR
REMOVABLE PUMPING STATION

Description of Practice

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

Purpose

The pumping station provides a device that filters sediment laden water for pumping to a suitable discharge area.

Conditions Where Practice Applies

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

Design Criteria

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

A perforated vertical stand pipe is placed inside another pipe. The outside pipe is sealed except for a 1" minimum diameter hole at the top. Water is then pumped from the center of the inside pipe to a suitable discharge area.

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

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

Construction Specifications

1. The inner pipe shall be constructed by perforating a 12" to 36" diameter pipe with a watertight cap on the bottom end and wrapping it with 1/2" hardware cloth and Geotextile Class C. The perforations shall be 1/2"Ø holes or 1" diameter holes 6" on center.

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

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

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

5. Maintenance- The inner pipe can easily be removed to facilitate changing the geotextile when it clogs. No maintenance must be performed when the pump runs dry ad backed up water remains.

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

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.

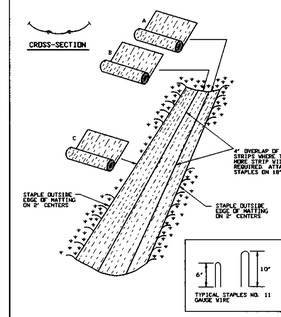
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4', shiplap fashion. Reinforce the overlap with a double row of staples spaced 6' apart in a staggered pattern on either side.

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.

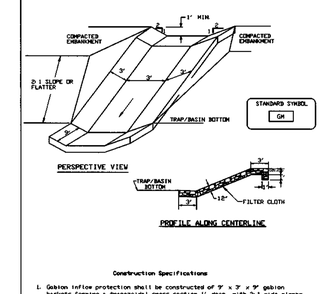
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE G-22-2A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE G-22-2 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 6 - GABION INFLOW PROTECTION



Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9' gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" - 7".
4. Gabions shall be installed in accordance with manufactures recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE B-7-2 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION

Construction Specifications

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

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

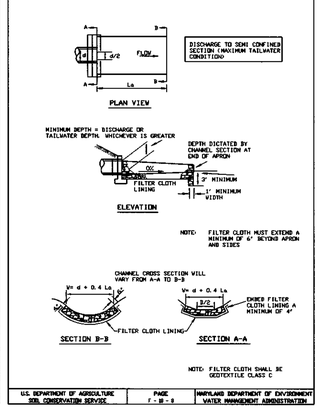
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile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

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be placed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

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

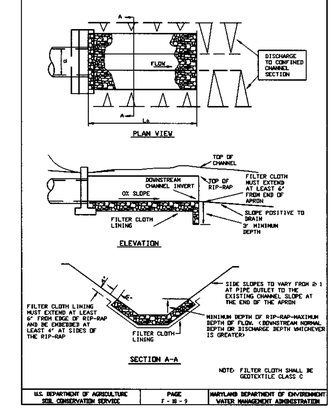
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE F-18-6A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 25 - ROCK OUTLET PROTECTION I



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE F-18-8 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 26 - ROCK OUTLET PROTECTION II



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE F-18-9 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

THE PURPOSE OF THIS PLAN OF REVISION SHEET IS TO REVISE THE SWM FACILITY AND ASSOCIATED CHANGES.

project	date
98110	MAY 2000
illustration	engineering
SAA	SAA
scale	approval
NA	JBM

No.	description revisions	date
1	MD-378 REPLACED WITH JAN.2000 MD-378, DETAILS CHANGED.	

REVISED FINAL CONSTRUCTION PLAN
CATTAIL RIDGE
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'
TAX MAP 21, PARCEL 228
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT SPECIFICATIONS

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

Substitute 3 of 4

F 99-145

No.	DESCRIPTION	DATE
2	REVISE S.W.M. POND, L.O.D. & F.C.E.'S	6-8-00
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

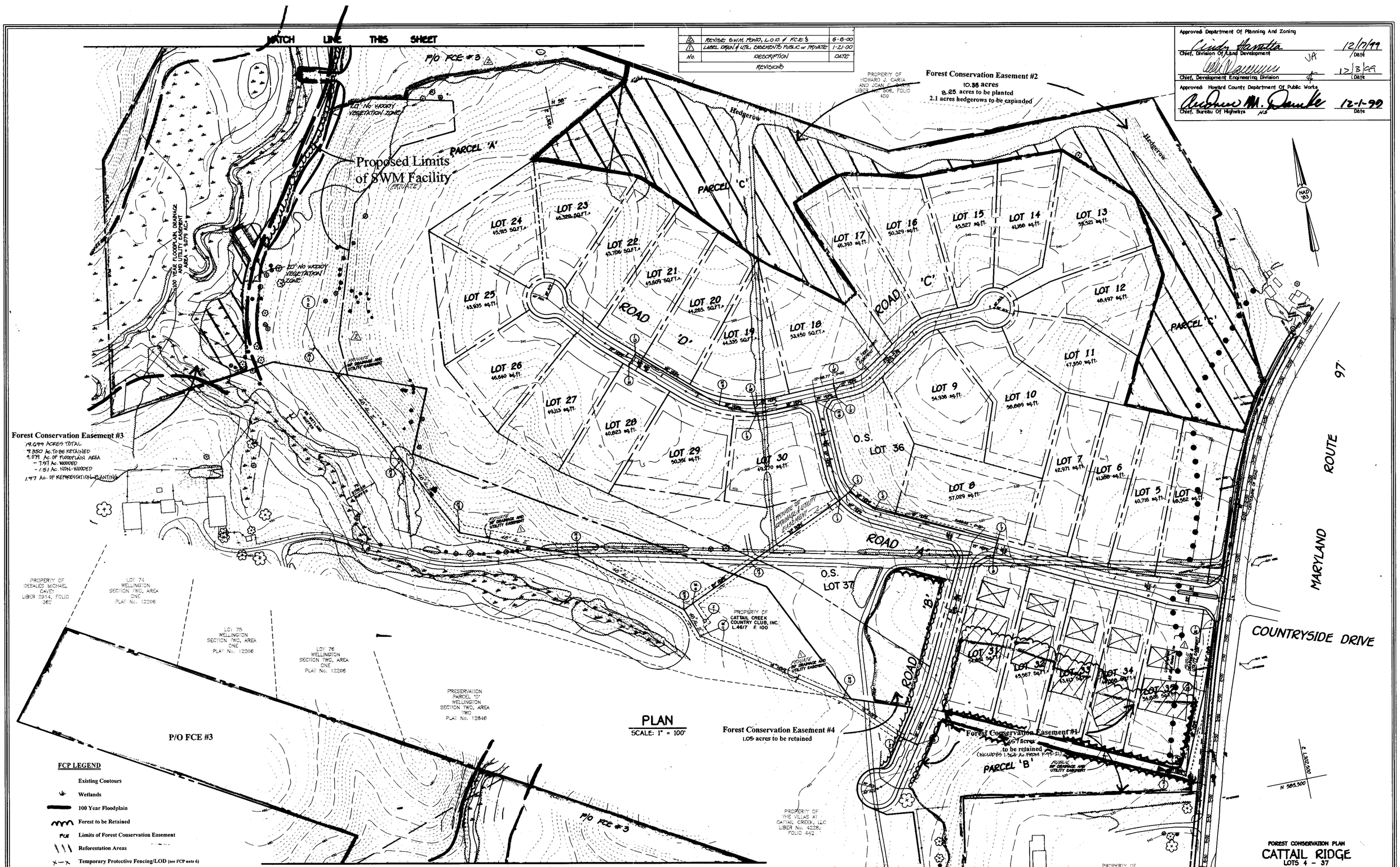
Approved Department Of Planning And Zoning

Chief, Division Of Land Development — Date 12/1/99

Chief, Development Engineering Division — Date 12/3/99

Approved Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



FCP LEGEND

- Existing Contours
- Wetlands
- 100 Year Floodplain
- Forest to be Retained
- FCE Limits of Forest Conservation Easement
- Reforestation Areas
- Temporary Protective Fencing/LOD (see FCP note 6)
- FCE Permanent Protective Signage

OWNERS

SYNDACON PROPERTY, INC.
c/o BES DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
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COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13980 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BES DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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.* 30931 DRAINAGEAREAMAP.DWG

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # VDCP531MD061004432
John P. Canales

STATE OF MARYLAND — RONALD MICHAEL VITALIANO — No. 21677 — REGISTERED PROFESSIONAL ENGINEER
11-2-99

FOREST CONSERVATION PLAN

CATTAIL RIDGE

LOTS 4 - 37

AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 229 GRID NO. 3

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: FEBRUARY 21, 1999

SHEET 2-3 OF 27

F99-145

Planting Schedule

Forest Conservation Easement #2 (7.4 acres)

Qty.	Species	Size	Spacing
12	Acer rubrum - Red maple	2½" cal.	##
11	Liriodendron tulipifera - Tulip poplar	2½" cal.	##
325	Acer rubrum - Red maple	2-3' whip	**
250	Cornus florida - Flowering dogwood	2-3' whip	**
250	Fraxinus pennsylvanica - Green ash	2-3' whip	**
200	Juniperus virginiana - Red cedar	2-3' whip	**
350	Liriodendron tulipifera - Poplar	2-3' whip	**
350	Prunus serotina - Black cherry	2-3' whip	**
250	Quercus rubra - Red Oak	2-3' whip	**
400	Robinia pseudo-acacia - Black locust	2-3' whip	**
350	Sassafras albidum - Sassafras	2-3' whip	**
180	Viburnum prunifolium - Blackhaw	18-24"b.t.	**

Forest Conservation Easement #3 (0.7 acres)

Qty.	Species	Size	Spacing
95	Acer rubrum - Red maple	2-3' whip	**
70	Fraxinus pennsylvanica - Green ash	2-3' whip	**
45	Juglans nigra - Black walnut	2-3' whip	**
60	Liriodendron tulipifera - Poplar	2-3' whip	**
65	Platanus occidentalis - Sycamore	2-3' whip	**
40	Prunus serotina - Black cherry	2-3' whip	**
30	Quercus rubra - Red Oak	2-3' whip	**
35	Sambucus canadensis - Elderberry	18-24"b.t.	**
50	Viburnum dentatum - Arrowwood	18-24"b.t.	**

KEY:

cal. - caliper whip - may be container grown or bareroot b.t. branched transplant

** - whips and shrubs shall be planted, on average, at a spacing of 11 feet on center, not in a grid pattern. Limited clumping of shrubs is permitted.

Planting Notes:

1. It is recommended that any multiflora rose colonization be removed and controlled prior to forestation. If the rose is not removed it will be a chronic maintenance problem for the site. Existing native trees may be retained.

2. No planting shall occur within the emergent wetlands present in FCE #3. Planting within the buffer is permitted by disturbance of existing vegetation within the buffer shall be minimized.

3. 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.

Planting/Soil Specifications

1. Planting of nursery stock shall take place between March 15th and April 30th.
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-desicant 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

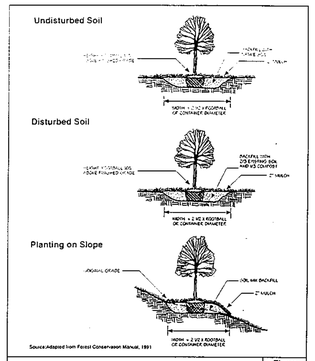
1. Maintenance of plantings shall last for a period of 24 months.
2. All plant material shall be watered twice a month during the 1st growing season. Watering may be more or less frequent depending on weather conditions. During second growing season, once a month during May-September, if needed.
3. Invasive 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. After one growing season, plant material shall be maintained at 90% survival threshold.
2. The contractor will not be liable for plant loss due to theft or vandalism.

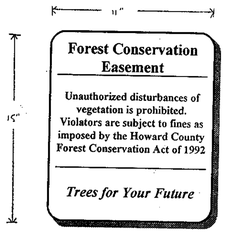
Surety for Reforestation

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

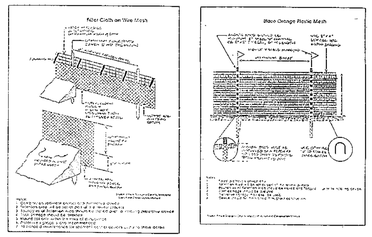


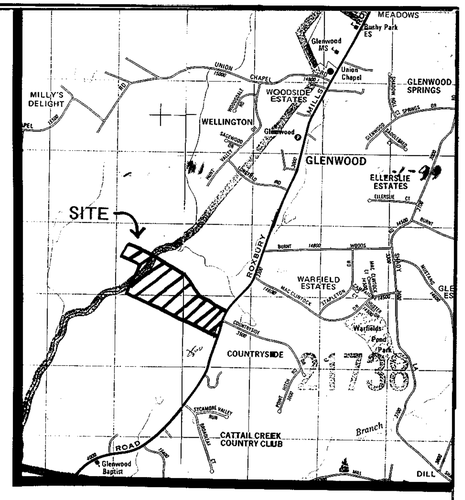
Container Grown and B&B Planting Techniques — Figure C-16

Permanent Protective Signage



Temporary Protective Fencing





Site Vicinity Map
Scale 1=2,000'

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. Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.

3. Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.

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

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

6. Temporary fencing shall be used to protect forest resources during construction. The fencing shall be placed along all FCE boundaries which occur within 15 feet of the proposed limits of disturbance.

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

8. Activity within stormwater management drainage easements occurring within the limits of the FCE shall not be restricted. These areas shall not be planted and have not been considered part of the FCE acreage requirements.

9. Heavy brush (multiflora rose) shall be removed or controlled prior to forestation of FCE #4.

FOREST DATA

	Acres
Gross Area:	88.36
Net Tract Area (NTA):	79.28
Existing Forest (NTA):	21.8
Afforestation Threshold:	15.86
Reforestation Threshold:	15.86
Forest to be Cleared (NTA):	7.2
Forest to be Retained in FCE:	14.6
Reforestation Required:	10.934
Reforestation Proposed:	11.057
Total FCE Proposed: (INCLUDES PREVIOUS 1.364 Ac.± FROM F99-21)	31.66

Approved: Department Of Planning And Zoning

Cindy Hermelin — 12/17/99
Chief, Division Of Land Development — Date

JA

Mark Davenport — 12/3/99
Chief, Development Engineering Division — Date

Approved: Howard County Department Of Public Works

Arthur M. Tomlin — 12-1-99
Chief, Bureau Of Highways — Date

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

STATE OF MARYLAND — JOHN MICHAEL PARKER — No. 11398 — PROFESSIONAL ENGINEER
11-3-99

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8906 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

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LAUREL LAKES CORPORATE CENTER
13820 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8906 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

FOREST CONSERVATION NOTES & DETAILS

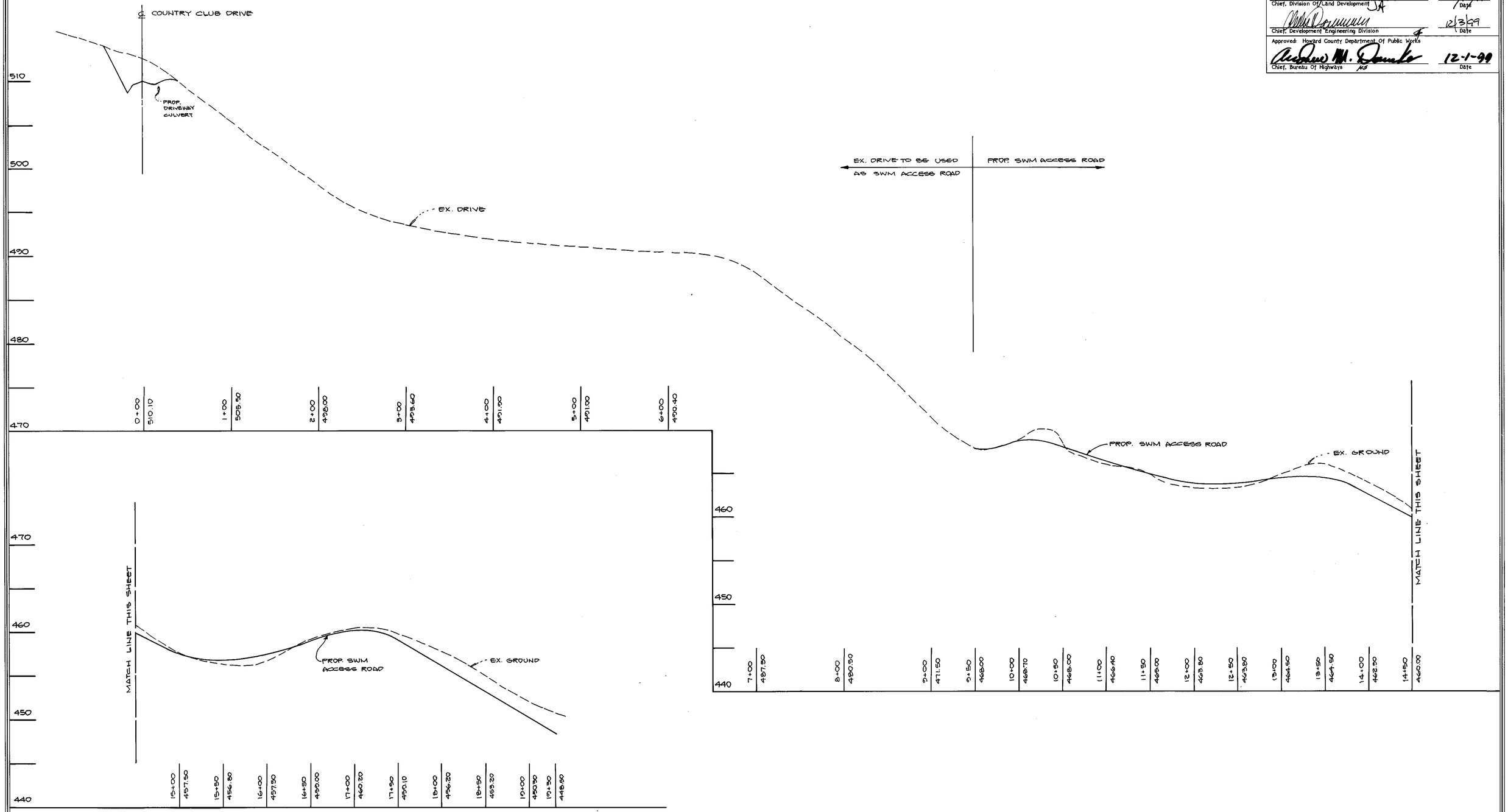
CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'
(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 25 OF 27

F 99-145

Approved: Department Of Planning And Zoning	
Chief, Division Of Land Development	12/17/99 Date
Chief, Development Engineering Division	12/3/99 Date
Approved: Howard County Department Of Public Works	
Chief, Bureau Of Highways	12-1-99 Date



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ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

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10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8808 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

S.W.M. ACCESS ROAD PROFILE

CATTAIL RIDGE

LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13625
AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)
ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 26 OF 27

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.- 30825 STORM\BKARN\ 30MS

STATE OF MARYLAND
ROD MICHAEL WITTE
No. 20748
REGISTERED PROFESSIONAL ENGINEER
6-14-99

F99-145

GEOTECHNICAL NOTES

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. BASED ON THE SOIL BORINGS, TOPSOIL RANGED BETWEEN 8 INCHES AND 18 INCHES THICK AT THE LOCATIONS TESTED. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOF ROLLED 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 PROOF ROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL. IT SHOULD BE NOTED THAT NO VERY LOOSE OR VERY SOFT SOILS WERE ENCOUNTERED BELOW THE TOP 2 FT AT THE LOCATIONS TESTED.

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. A REVIEW OF THE SITE BORINGS DID INDICATE SILTY CLAY (CL) MATERIALS WITHIN THE TOP 2 FT TO 4.5 FT AT THE BORING LOCATIONS. HOWEVER, THIS MAY NOT BE ENOUGH SUITABLE MATERIAL FOR THE PROPOSED CORE AND CUT-OFF TRENCH. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 378 SPECIFICATIONS.

THE EVALUATIONS CONTAINED IN THIS REPORT ARE BASED ON OUR UNDERSTANDING OF THE PROPOSED CONSTRUCTION, THE DATA OBTAINED FROM OUR FIELD EXPLORATION, AND OUR EXPERIENCE WITH THE SOILS AND SUBSURFACE CONDITIONS IN THIS AREA. IF THERE ARE ANY CHANGES TO THE PROJECT CHARACTERISTICS, THIS OFFICE SHOULD BE ADVISED SO THAT THE EVALUATIONS MADE IN THIS REPORT MAY BE RE-EVALUATED. THE READER IS REFERRED TO THE RECORDS OF SOIL EXPLORATION IN THE APPENDIX FOR DETAILS RELATED TO THE SUBSURFACE CONDITIONS ENCOUNTERED IN THE SOIL BORINGS. IT SHOULD BE NOTED THAT STRATIFICATION LINES SHOWN ON THE RECORDS OF SOIL EXPLORATION REPRESENT APPROXIMATE TRANSITIONS BETWEEN MATERIAL TYPES. IN-SITU, STRATA CHANGES COULD OCCUR GRADUALLY OR AT SLIGHTLY DIFFERENT LEVELS. ALSO, IT SHOULD BE NOTED THAT THE SOIL BORINGS DEPICT CONDITIONS AT THE PARTICULAR LOCATIONS AND AT THE PARTICULAR TIMES INDICATED. SOME CONDITIONS, PARTICULARLY GROUNDWATER CONDITIONS, COULD CHANGE WITH TIME.

VISUAL CLASSIFICATIONS OF THE SOILS WERE MADE BASED ON THE RESULTS OF THE PREVIOUS THREE BORINGS AND HYDROMETERS. THE USDA SOIL CLASSIFICATIONS IN BORINGS B-4 AND B-5 RANGED FROM LOAM TO SAND. THE SAND MATERIALS WERE ACTUALLY ROCK FRAGMENTS FROM JUST ABOVE THE AUGER REFUSAL DEPTH IN BORING B-5.

FINDINGS AND CONCLUSIONS

BASED ON THE SUBSOILS, ROCK AND GROUNDWATER ENCOUNTERED AS WELL AS THE RESULTS OF THE ORIGINAL EXPLORATION, INFILTRATION METHODS OF STORMWATER MANAGEMENT ARE NOT RECOMMENDED FOR THIS FACILITY.

AN ALLOWABLE NET BEARING CAPACITY OF 2500 PSF SHOULD BE AVAILABLE FOR THE SUPPORT OF ANY OUTFALL STRUCTURES IN THE VICINITY OF BORING B4. THE SOILS AT THE INVERT OF THE PIPE AND/OR STRUCTURES SHOULD BE EVALUATED IN THE FIELD BY THE GEOTECHNICAL ENGINEER OR ENGINEERING TECHNICIAN TO ENSURE THAT THE DESIGN BEARING IS AVAILABLE. IF SOFT OR LOOSE AREAS AREA ENCOUNTERED, THEY SHOULD BE REMOVED AND REPLACED WITH CONTROLLED FILL.

ROCK WAS ONLY ENCOUNTERED IN THE AREA OF BORING B-5. HOWEVER, DUE TO THE DIFFERENTIAL WEATHERING OF ROCK, IT SHOULD BE ANTICIPATED THAT ROCK OR VERY DENSE MATERIALS MAY BE ENCOUNTERED IN OTHER AREAS. IT SHOULD BE ANTICIPATED THAT VERY DENSE MATERIALS IN THE CORE TRENCH AND POSSIBLY THE BASIN AREA AT THE NORTHERN CORNER WILL REQUIRE SPECIAL INTENSIVE METHODS OF REMOVAL DURING GRADING OPERATIONS. IT IS OUR RECOMMENDATION THAT ANY VERY DENSE MATERIALS WITHIN THE PROPOSED CORE TRENCH BE EVALUATED IN THE FIELD TO DETERMINE IF THE MATERIALS ARE SUITABLE TO REMAIN IN PLACE. THE CONTROLLED FILL AT ANY ROCK/CLAY INTERFACE NEEDS TO BE CAREFULLY PLACED AND COMPACTED. ANY ROCK OR VERY DENSE MATERIALS ENCOUNTERED WITHIN THE BASIN AREA MAY REQUIRE INTENSIVE METHODS OF REMOVAL THAT MAY INCLUDE BUT NOT BE LIMITED TO RIPPING AND/OR BLASTING. THEREFORE, IT IS RECOMMENDED THAT A CONTINGENCY BE MADE FOR THIS TYPE OF REMOVAL.

SHOULD IT BE DETERMINED THAT ANY ROCK OR VERY DENSE MATERIALS WITHIN THE NORTHERN BASIN AREA WILL REQUIRE BLASTING, IT IS RECOMMENDED THAT THE BLASTING WITHIN 75 FT OF THE OUTFALL AND PRINCIPAL SPILLWAY STRUCTURES BE PERFORMED PRIOR TO CONSTRUCTION OF THE PRINCIPAL SPILLWAYS AND OUTFALL STRUCTURES.

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Cattail Ridge — Boring # B-1
Location Howard County, Maryland — Job # 98273C

SAMPLER: Datum — Hammer Wt. 140 Lbs. — Hole Diameter 6" — Foreman Palmer Stephens; Surf. Elev. 463.1 — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector; Date Started 01-27-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed 01-27-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, soft to medium stiff silty clay, little sand and weathered rock fragments (CL) (Clay Loam)			D	1-3-2-3	1	16"	8" Topsoil
		4.5		D	4-4-6	2	15"	No groundwater encountered while drilling
	Red to brown, moist to very moist, medium dense silty fine sand, little mica and weathered rock fragments (SM) (Loamy Sand)		5	D	3-4-7	3	18"	Caved in at 12.0' at Completion
				D	5-6-6	4	16"	Caved in at 12' after 24 hours
			10	D	4-6-6	5	18"	
	Bottom of Test Hole at 16.5'	16.5						
			15	D	6-8-8	6	16"	
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hr Dry FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

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

Project Name Cattail Ridge — Boring # B-2
Location Howard County, Maryland — Job # 98273C

SAMPLER: Datum — Hammer Wt. 140 Lbs. — Hole Diameter 6" — Foreman Palmer Stephens; Surf. Elev. 448.8 — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector; Date Started 01-27-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed 01-27-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, wet, soft silty clay, little weathered rock fragments and roots (CL)	2.0		D	2-2-2	1	16"	18" Topsoil
	Brown, moist, medium dense silty fine sand/sandy silt, little weathered rock fragments (SM/ML) (Loam)			D	2-6-8	2	18"	No groundwater encountered while drilling
			5	D	4-6-9	3	16"	Caved in at 11.5' at Completion
	Green, dry to moist, medium dense to dense silty fine sand, little weathered rock fragments (SM) (Loamy Sand)	7.0						
				D	8-12-16	4	16"	Caved in at 11.5' after 24 hours
			10	D	16-20-19	5	18"	
	Green, very moist, dense silty fine sand/sandy silt, little mica (SM/ML) (Sandy Loam)	13.5						
			15	D	6-12-22	6	14"	
	Bottom of Test Hole at 16.5'	16.5						
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hr Dry FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Cattail Ridge Retaining Wall — Boring # B-A
Location Howard County, Maryland — Job # 00105A

SAMPLER: Datum — Hammer Wt. 140 Lbs. — Hole Diameter 8" — Foreman Palmer Stephens; Surf. Elev. 435 — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector; Date Started 03-03-00 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed 03-03-00

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, loose to medium dense micaceous fine silty sand (SM)			D	1-2-3	1	12"	7" Topsoil
				D	4-7-11	2	16"	No groundwater encountered while drilling
			5	D	2-3-4	3	14"	Caved in at 11.3' at Completion
		7.5						
	Brown, moist, very dense micaceous silty sand with rock fragmenens(SM)			D	27-51/3"	4	6"	Bag sample taken from 0.5 to0.8 8.0 to 13.0
	Decomposed rock		10	D	5-4-5	5	2"	
		15'-4"	15	D	51/3"	6	4"	
	Bottom of Test Hole at 15'-3"							
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 9'-10" FT.; AFTER 24 hr FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

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

Project Name Cattail Ridge — Boring # B-4
Location Howard County, Maryland — Job # 98273C

SAMPLER: Datum — Hammer Wt. 140 Lbs. — Hole Diameter 4" — Foreman Lamont Smith; Surf. Elev. 442.48 — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector; Date Started 06-14-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed 06-14-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to greenish brown, dry to wet medium dense micaceous silty fine sand/sandy silt with weathered rock fragments (SM/ML) (Loam)			D	2-4-9	1	12"	8" Topsoil
				D	5-6-7	2	14"	Groundwater encountered at 10.0' while drilling
			5	D	3-4-6	3	11"	Caved in at 6.0' at Completion
				D	8-11-5	4	14"	
		9.5						
	Green, wet, medium dense silty fine sand with weathered rock (SM) (Sandy Loam)		10	D	7-13-16-19	5	12"	
	Bottom of Test Hole at 12.0'	12.0						
			15					
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 5.5 FT.; AFTER 24 hr FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

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

Project Name Cattail Ridge — Boring # B-3
Location Howard County, Maryland — Job # 98273C

SAMPLER: Datum — Hammer Wt. 140 Lbs. — Hole Diameter 6" — Foreman Palmer Stephens; Surf. Elev. 443.9 — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector; Date Started 01-27-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed 01-27-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to reddish brown, moist, soft to medium stiff silty clay, some sand (CL) (Clay Loam)			D	1-3-2-2	1	20"	12" Topsoil
				D	2-3-6	2	16"	No groundwater encountered while drilling
	Greenish brown, moist, medium dense silty fine sand/fine sandy silt (SM/ML) (Loam)	4.5	5	D	7-15-16	3	18"	Caved in at 15.0' at Completion
	Reddish brown, very moist to wet, medium dense to loose to very dense silt and weathered rock fragments, little sand (ML) (Loam)	7.0						
				D	6-10-10	4	18"	Augered hard at 12.0'
			10	D	5-4-5	5	16"	Caved in at 13.5' after 24 hours
			15					
	Bottom of Test Hole at 15'-3"	15'-3"		D	51/3"	6	No Rec	
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 13.5 FT.; AFTER 24 hr 9.0 FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Cattail Ridge Retaining Wall — Boring # B-B
Location Howard County, Maryland — Job # 00105A

SAMPLER: Datum — Hammer Wt. 140 Lbs. — Hole Diameter 8" — Foreman Palmer Stephens; Surf. Elev. 438 — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector; Date Started 03-03-00 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed 03-03-00

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, at very moist, loose to medium dense, micaceous silty sand with weathered rock fragments (SM)			D	2-2-4	1	15"	Offset 6.0' east stake sitting beside large tree
								3" Topsoil
				D	3-4-4	2	14"	Groundwater encountered at 10' while drilling
			5					
				D	8-9-11	3	14"	Caved in at 11.3' at Completion
		7.5						
				D	8-18-12	4	14"	
			10					
				D	12-7-6	5	18"	
			15					
				D	8-10-12	6	14"	
		16.5						
	Bottom of Test Hole at 16.5							
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 10.2' FT.; AFTER 24 hr FT.; AFTER FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

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

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER _____ DATE 6/27/00

SYNDRON PROPERTY INC.
PRINTED NAME OF DEVELOPER

ENGINEER'S CERTIFICATE

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

TITLE _____ DATE 6/26/00

PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

USDA - NATURAL RESOURCE CONSERVATION SERVICE _____ DATE 7/19/00

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

HOWARD SOIL CONSERVATION DISTRICT _____ DATE 7/19/00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 7/12/00

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE 7/19/00

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS _____ DATE 7-10-00

F:\98110\DWG\R2\110-SWMDETAILS3_R2

THE PURPOSE OF THIS PLAN OF REVISION SHEET IS TO REVISE THE SWM FACILITY AND ASSOCIATED CHANGES.

substitute 4 of 4

project	date
98110	MAY 2000
illustration	engineering
SAA	SAA
scale	approval
NA	JBM

no.	description	date
1	NEW SOIL BORINGS ADDED.	

revisions

REVISED FINAL CONSTRUCTION PLAN
CATTAIL RIDGE
LOTS 4 THRU 37 AND PRESERVATION PARCELS 'A' THRU 'C'
TAX MAP 21, PARCEL 228
FOURTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
SOIL BORINGS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 987-0296 Balt. (301) 621-5581 Wash. (410) 987-0298 Fax.

F.99.145

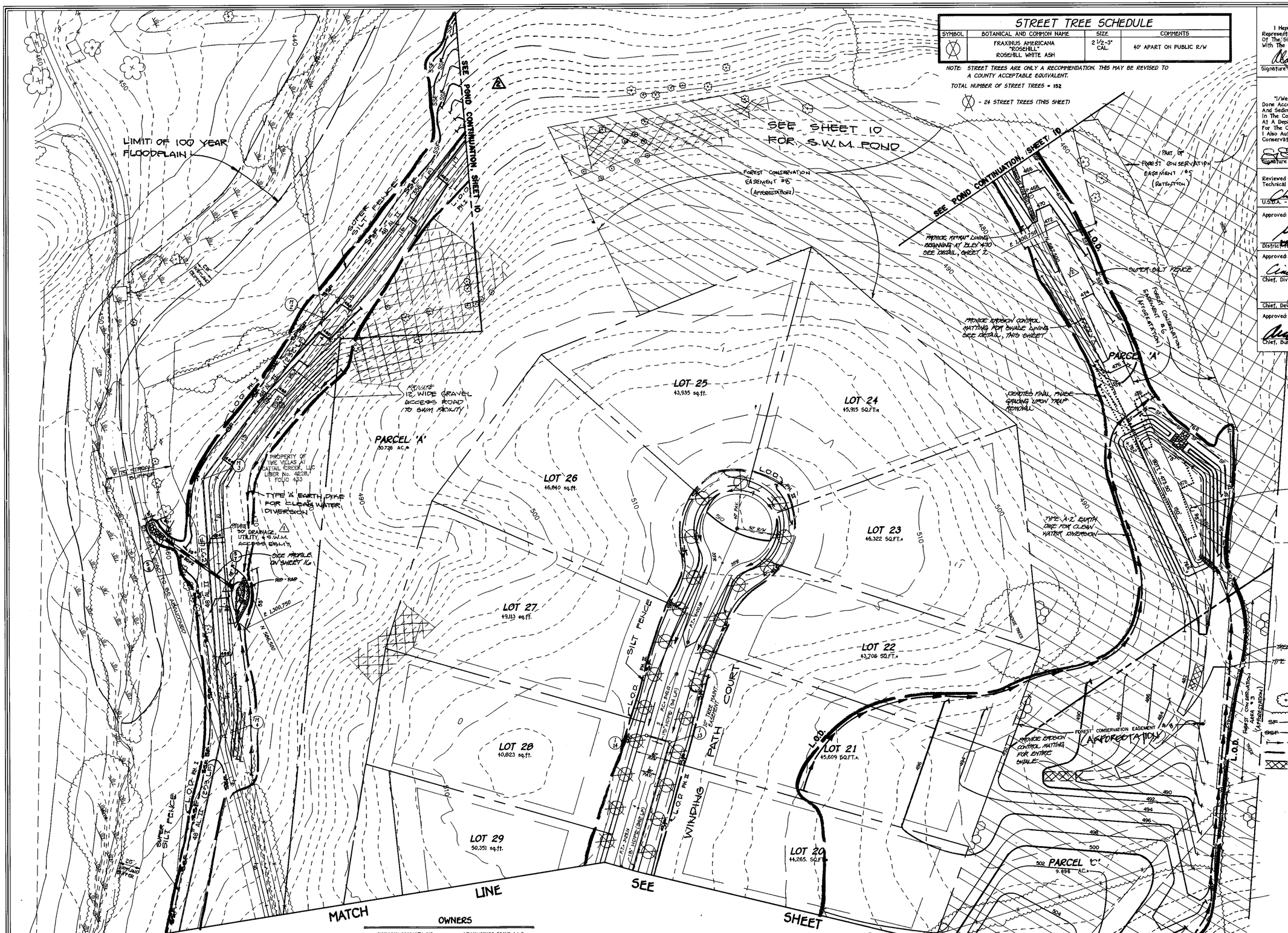
STREET TREE SCHEDULE

SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
⊗	FRAXINUS AMERICANA "ROSEHILL" ROSEHILL WHITE ASH	2 1/2-3" CAL.	40' APART ON PUBLIC R/W

NOTE: STREET TREES ARE ONLY A RECOMMENDATION. THIS MAY BE REVISED TO A COUNTY ACCEPTABLE EQUIVALENT.

TOTAL NUMBER OF STREET TREES = 152

⊗ - 24 STREET TREES (THIS SHEET)



ENGINEER'S CERTIFICATE

I Hereby Certify That The 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 — Date: 3-17-99

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: 3/6/99

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

U.S.D.A. - Natural Resources Conservation Service — Date: 11/19/99

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

District Howard Soil Conservation Dist. — Date: 11/19/99

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 12/7/99

Chief, Development Engineering Division — Date: 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date: 12-1-99

DATE	DESCRIPTION
11-28-00	REVISE FOREST CONSERVATION EASEMENTS
5-8-00	S.W.M. POND REVISIONS, EXPAND L.O.D. FOR EARTHWORK
1-21-00	LABEL DRAINAGE & UTILITY EASEMENTS PUBLIC OR PRIVATE

REVISIONS

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.- 30961 GRADING PLAN 30965

OWNERS

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODNER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODNER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
LAUREL LAKES CORPORATE CENTER
13920 BALTIMORE BOULEVARD
LAUREL, MARYLAND 20707

PLAN

SCALE: 1" = 50'

DEVELOPER

SYNDACON PROPERTY, INC.
c/o BRS DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
CATTAIL RIDGE
LOTS 4 - 37
AND PRESERVATION PARCELS 'A' - 'C'

(A RESUBDIVISION OF "CATTAIL RIDGE", LOTS 1 THRU 3, PLAT NO. 13626 AND THE RESIDUE OF SYNDACON PROPERTY, INC., LIBER 4228, FOLIO 464)

ZONED RC-DEO

TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY 21, 1999
SHEET 9 OF 27

F 99-145

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING					
LINEAR FEET OF PERIMETER	D1 (250')	D2 (250')	D3 (630')	D4 (305')	D5 (75')
NUMBER OF TREES REQUIRED: SHADE TREES / EVERGREEN TREES	16 / 13	6 / 7	16 / 17	8 / 8	2 / 2
CREDIT FOR EXISTING VEGETATION (NO, YES AND ID)	NO	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND ID)	NO	NO	NO	NO	NO
NUMBER OF TREES PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (SI SUBSTITUTION)	16 / 13	6 / 7	16 / 17	6 / 8	2 / 2

LANDSCAPE SCHEDULE				
QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
155		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2"-3"
87		PINUS STROBUS	WHITE PINE	6'-8' HT.

NOTE: THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 258 LANDSCAPING TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $53,550.00.

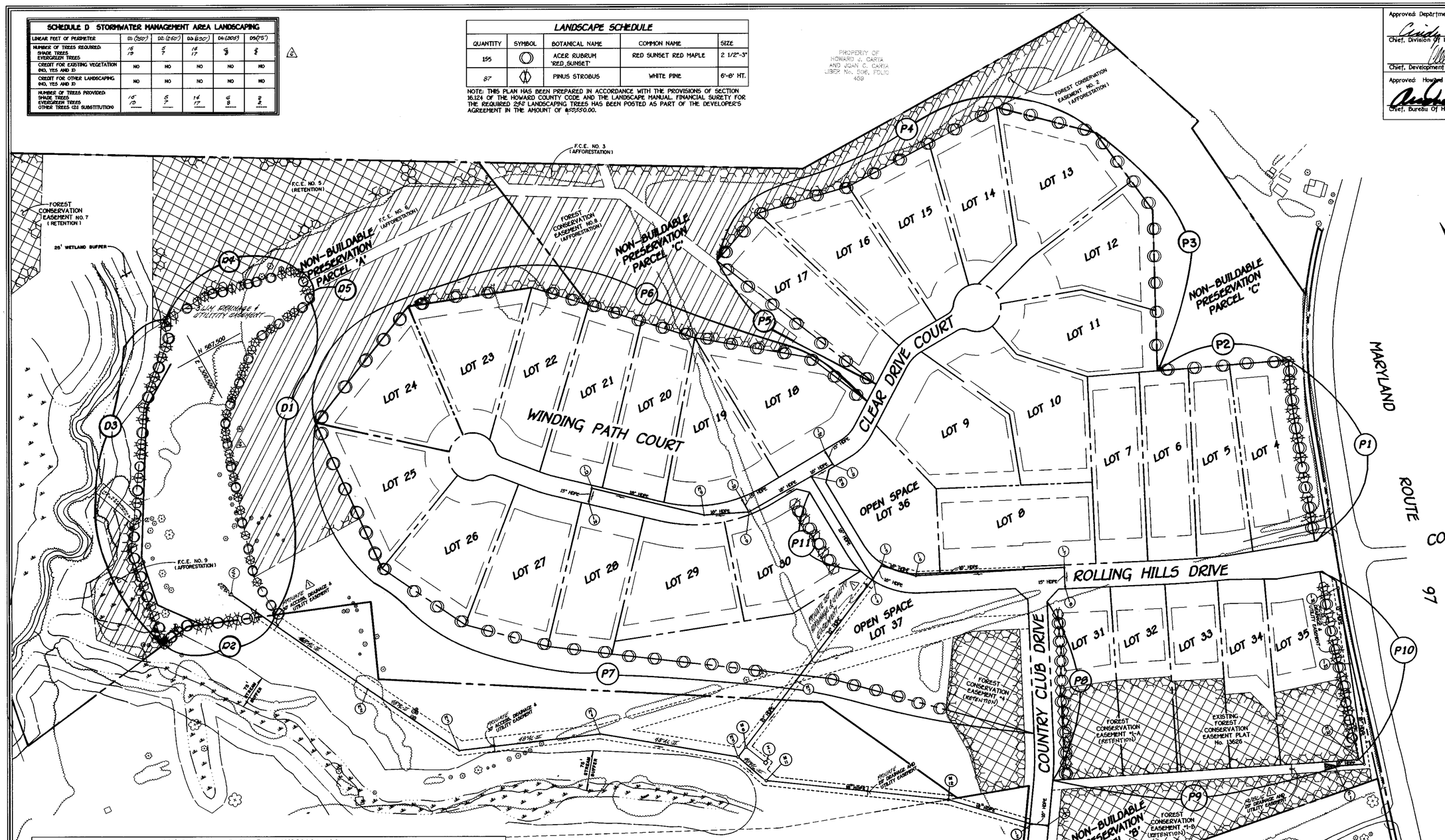
Approved: Department Of Planning And Zoning

Cindy Horvitz — Chief, Division Of Land Development — Date 12/7/99

Chief, Development Engineering Division — Date 12/3/99

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 12-1-99



PLAN
SCALE: 1" = 100'

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	SHRUBS
P-1	ADJACENT TO ROADWAY	B	305'	NO	NO	8	10	-	8	10	-
P-2	ADJACENT TO PERIMETER	A	276'	NO	NO	5	-	-	5	-	-
P-3	ADJACENT TO PERIMETER	A	541'	NO	NO	9	-	-	9	-	-
P-4	ADJACENT TO PERIMETER	A	894'	NO	NO	15	-	-	15	-	-
P-5	ADJACENT TO PERIMETER	A	423'	NO	NO	7	-	-	7	-	-
P-6	ADJACENT TO PERIMETER	A	1826'	NO	NO	22	-	-	22	-	-
P-7	ADJACENT TO PERIMETER	A	1765'	YES (174')	NO	27	-	-	27	-	-
P-8	ADJACENT TO ROADWAY	B	376'	NO	NO	8	9	-	8	9	-
P-9	ADJACENT TO PERIMETER	A	642'	YES (642')	NO	0	-	-	0	-	-
P-10	ADJACENT TO ROADWAY	B	392'	NO	NO	8	10	-	8	10	-
P-11	ADJACENT TO ROADWAY	B	198'	NO	NO	4	5	-	4	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

F.C.C.-30613 LANDSCAPE PLANING

No.	DESCRIPTION	DATE
3	REVISE FOREST CONSERVATION EASEMENTS	11-28-00
2	REVISE SLIM EASEMENT & LANDSCAPING CHARTS	3-8-00
1	LABEL DRAIN & UTIL. EASEMENTS PUBLIC or PRIVATE	1-21-00

REVISIONS

STATE OF MARYLAND — ROOD MICHAEL WEBER — No. 10749 — REGISTERED PROFESSIONAL ENGINEER

6-14-99

OWNERS

SYNDACON PROPERTY, INC.
c/o BES DEVELOPERS, LLC
ATTENTION: Mr. J. THOMAS SCRIVENER
8600 CENTER PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045

GOODIER BUILDERS, INC.
ATTENTION: Mr. ROBERT GOODIER
10705 CHARTER DRIVE, SUITE 320
COLUMBIA, MARYLAND 21044

WILLIAMSBURG GROUP, L.L.C.
ATTENTION: Mr. CHIP LUNDE
P.O. BOX 1018
COLUMBIA, MARYLAND 21044

ROSEMARK CUSTOM HOMES, INC.
ATTENTION: Mr. S. ROBERT KAUFMAN
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LANDSCAPE PLAN

CATTAIL RIDGE

LOTS 4 - 37
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ZONED RC-DEO
TAX MAP NO. 21 PARCEL NO. 228 GRID NO. 3
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JUNE 1, 1999
SHEET 10 OF 27

F 99-145