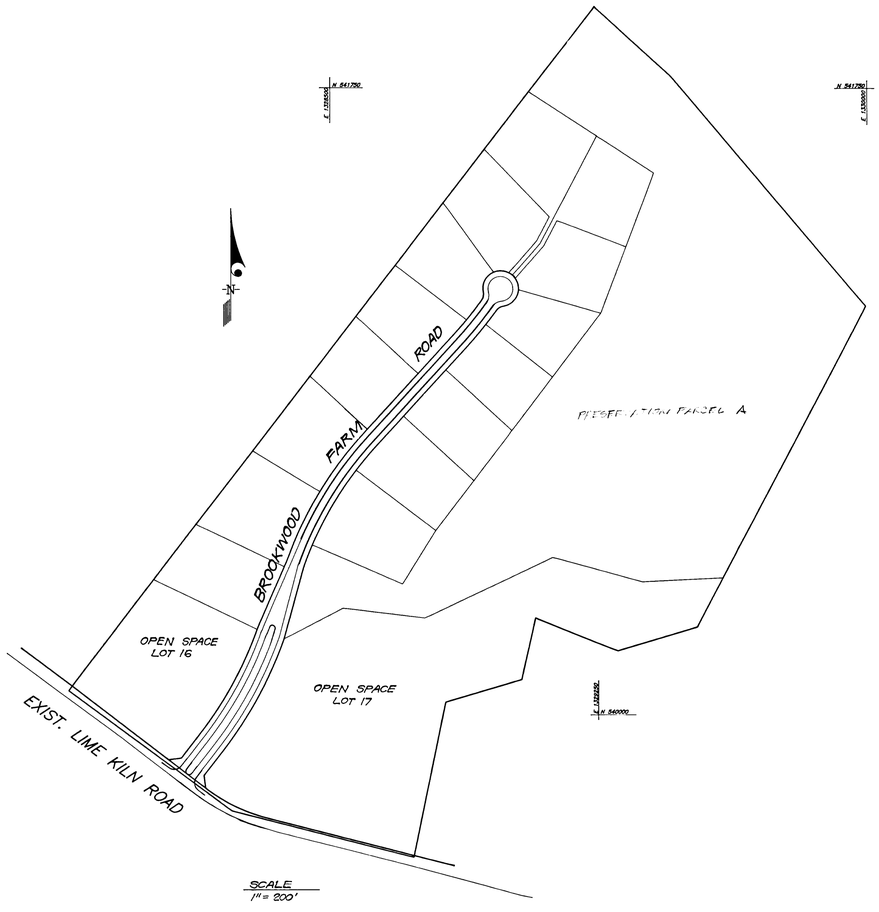
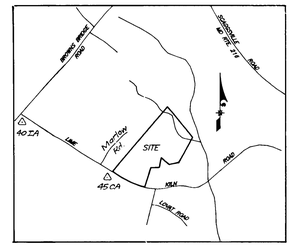


SCALE
1" = 200'

DRAWING LIST	
NO.	DESCRIPTION
1	COVER SHEET
2	GRADE ESTABLISHMENT, STORM DRAIN AND PAVING PLAN
3	GRADE ESTABLISHMENT, STORM DRAIN AND PAVING PLAN
4	GRADE ESTABLISHMENT, STORM DRAIN AND PAVING PLAN
5	STORM DRAIN PROFILES
6	DETAIL SHEET
7	SEDIMENT & EROSION CONTROL, GRADING AND D.A. MAP
8	SEDIMENT & EROSION CONTROL, GRADING AND D.A. MAP
9	SEDIMENT EROSION DETAILS
10	DETAIL SHEET
11	SOIL BORING LOGS

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 contrator shall notify the Department of Public Works/Bureau of Engineering / Construction Inspection Division at (410)313-1880 at least five (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.
4. Tax Map: 40 & 45
   Parcel: P-1
   Zoning: RR-DEO
   Election District: 5TH
   Total Tract Area: 57.16 ac.
   Number of Proposed lots: 15 Residential, 2 Open Space
   Date Preliminary Plan Approved: 12/16/94 DPZ Reference#: P-95-01
5. Traffic control divices, markings, and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
6. Field survey conducted by Clark, Finefrock, and Sackett, Inc. using 2 feet contour intervals, May 1994.
7. Boundary coordinates are based on NAD 83' Maryland Coordinates System as projected be Howard County, Maryland Geodetic Control Station Numbers 4.5 CA and 40 IA.
8. 95% compaction in fill areas shall be in accordance with AASHTO T-180.
9. Private on-site water and sewer to be utilized. (Well and Septic)
10. Lot areas are exempted from stormwater management as approved by Ho. Co. DPW 10-5-95. A fee-in-lieu of Stormwater Management Quantity Control for the roads has been approved by Ho. Co. DPW 10-5-94. Stormwater Management Quality Control for the roads will be provided by Shallow Marsh Facilities.
11. The Floodplain Study was conducted by Clark, Finefrock, and Sackett, Inc. one October 14, 1994. The Refference number is P-95.01 , and the study was approved by Ho. Co. on
12. Wetland inventory and Forest Stand Delineation was prepared by Exploration Research, Inc. as submitted with sketch plan, S-94-28. Forest Conservation Plan approved under P-95.01.
13. A.P.F.O. study by the traffic Group, Inc. approved Jan. 20,1994.
14. A noise study was not applicable to this project and therefore was not done.
15. Soils report by Hillis Carnes Engineering Assoc., Inc., Dated May 16, 1994.
16. Existing utilities were located in a field study conducted May, 1994.
17. The Developer will be respnsible for the Street Trees, Perimeter Landscape Edge and Stormwater Management Area plantings indicated on the plans.



VICINITY MAP
SCALE: 1"=2000'

3-16-99
AS-BUILT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 4/26/95
CHIEF, BUREAU OF HIGHWAYS — DATE 4-26-95
CHIEF, BUREAU OF ENGINEERING — DATE 4/28/95

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 5/2/95

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 Howard Soil Conservation District or their authorized agents, as are deemed necessary".

Phil Manalty — NAME
3-2-95 — DATE

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion 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.

G. NELSON CLARK — DATE 1-4-95

1-495

Reviewed for HOWARD S.C.D. and meets Technical Requirements
Signature — Date
US Soil Conservation Service

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

John R. Robertson 4/20/95
Approved

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 – BALTO. • (301) 621-8100 – WASH.

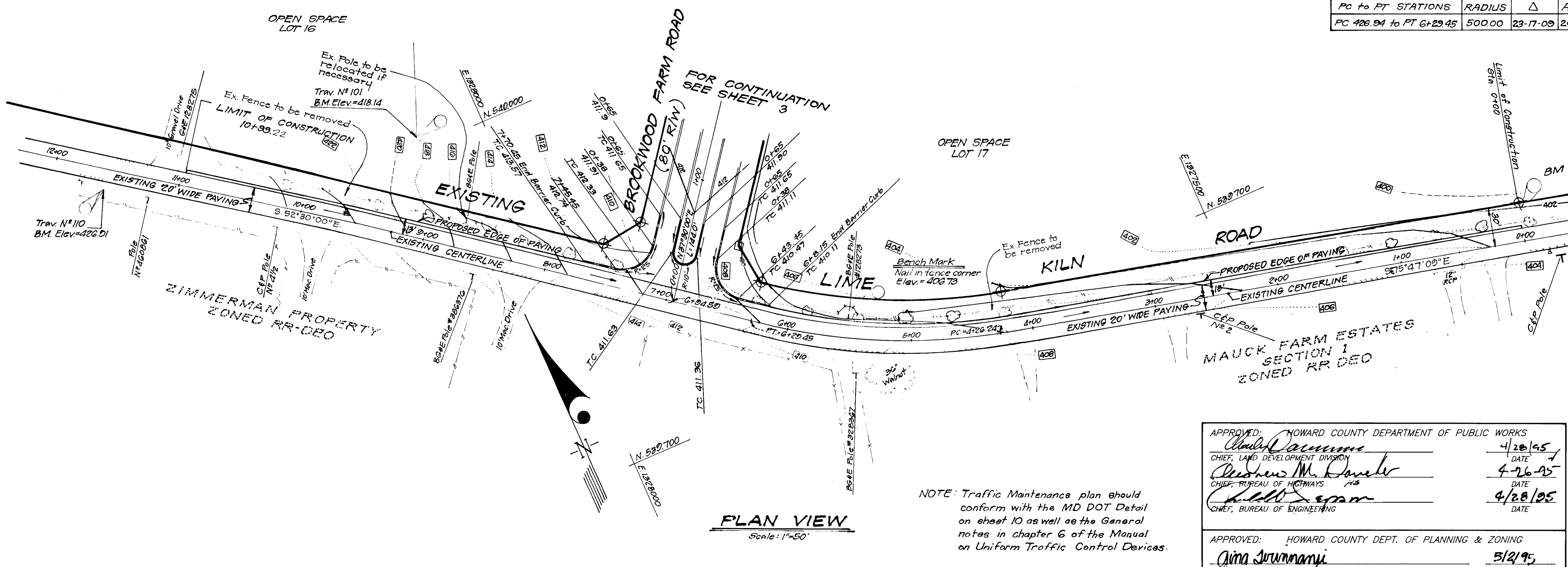
DESIGNED ZAL	COVER SHEET	SCALE As Shown
DRAWN ZAH	BROOKWOOD FARMS	DRAWING 1 of 13
CHECKED WHH	TAX MAP 40 & 45 PARCEL 1 FIFTH (5th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 94-064
DATE 3-2-95	FOR: CARMAN ASSOCIATES P.O. BOX 122 ELLICOTT CITY, MARYLAND	FILE NO. 94-064

1732

F-95-31

CENTERLINE CURVE DATA						
PC to PT STATIONS	RADIUS	Δ	ARC	TAN	CHORD	BEARING
PC 4+26.94 to PT 6+29.45	500.00	23-17-09	203.21	103.03	201.81	N 64-08-35 W

⊕ = RBC (OPS) UNLESS NOTED OTHERWISE
□ = CONCRETE MONUMENT SET



NOTE: Traffic Maintenance plan should conform with the MD DOT Detail on sheet 10 as well as the General notes in chapter 6 of the Manual on Uniform Traffic Control Devices.

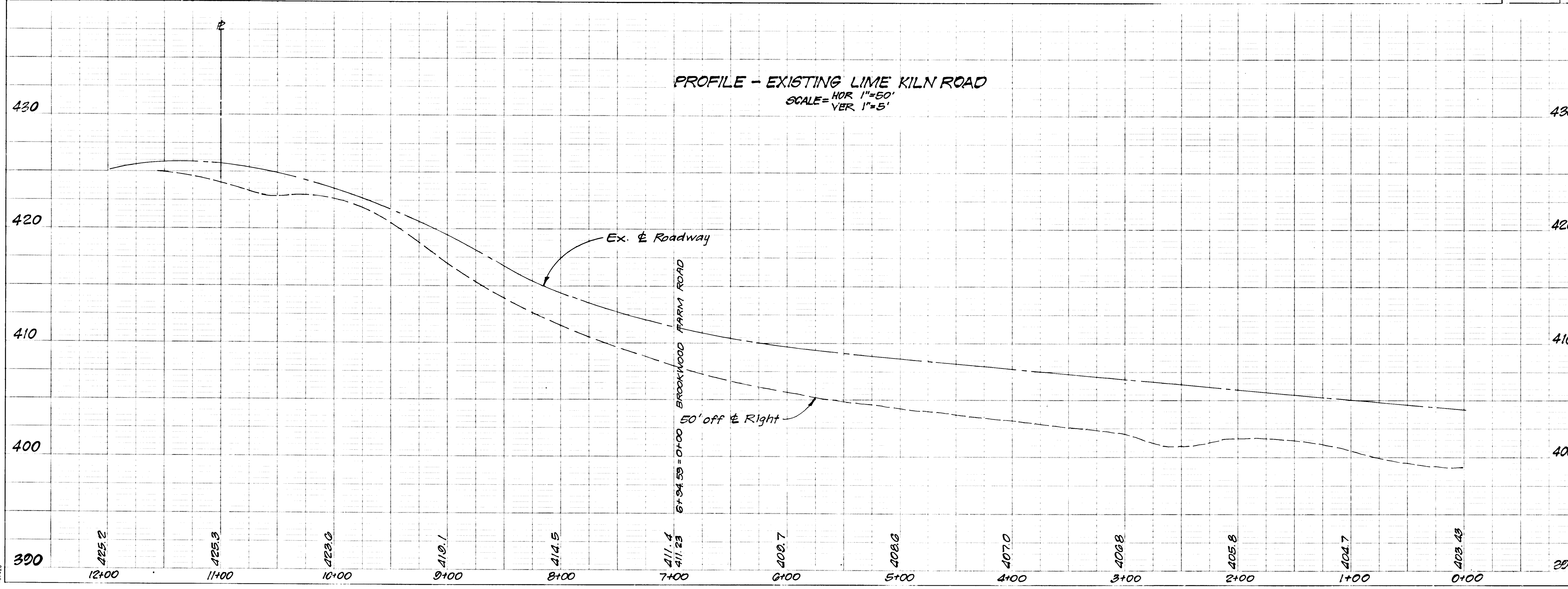
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, LAND DEVELOPMENT DIVISION	4/28/95 DATE
CHIEF, BUREAU OF HIGHWAYS	4-26-95 DATE
CHIEF, BUREAU OF ENGINEERING	4/28/95 DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH	5/2/95 DATE

1-4-95

CLARK • FINEFROCK & SACKETT INC.
ENGINEERS • PLANNERS • SURVEYORS

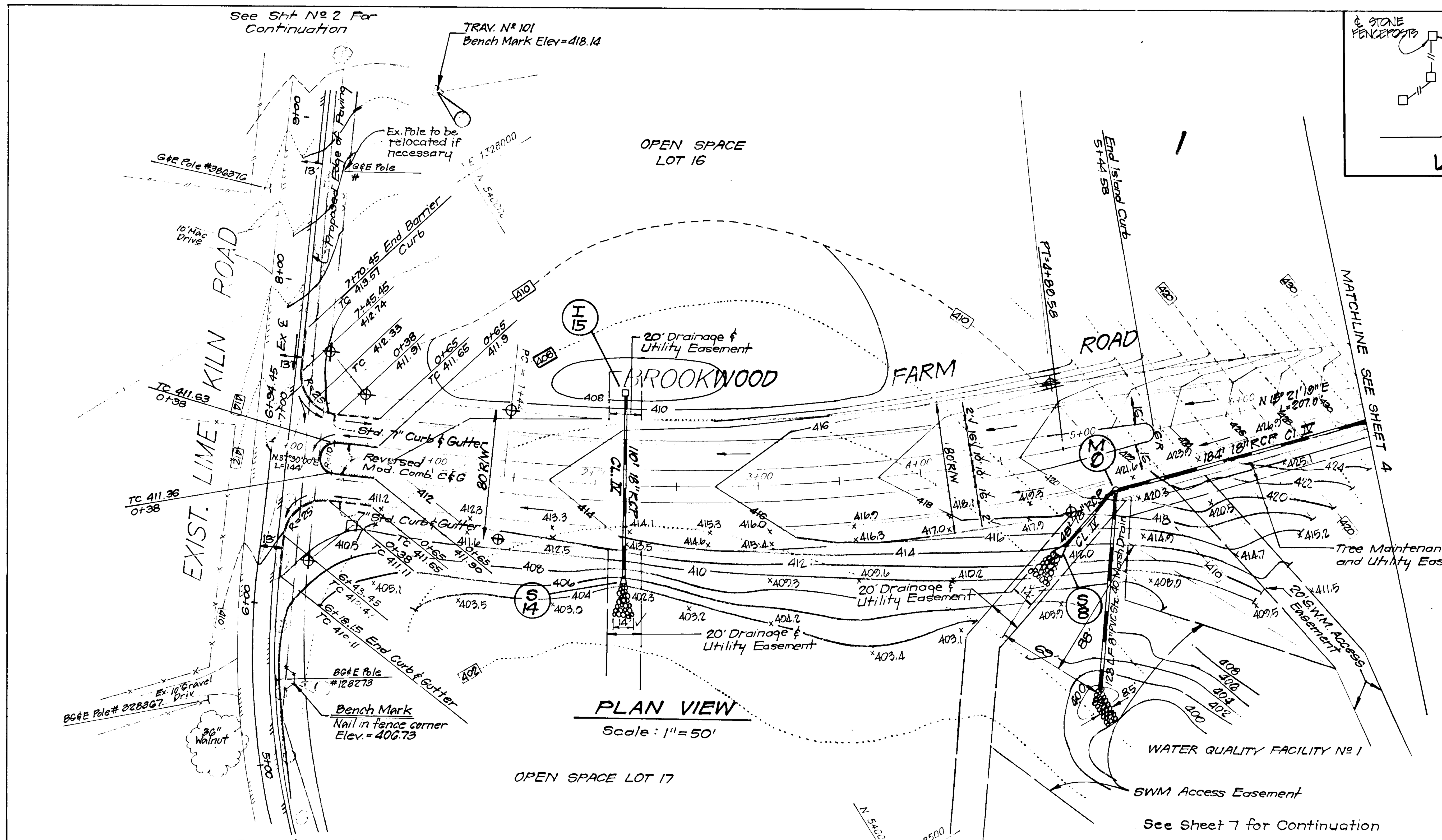
DESIGNED ZAL	GRADE ESTABLISHMENT, STORM DRAIN AND PAVING PLAN EXISTING LIME KILN ROAD	SCALE As Shown
DRAWN ZAH	BROOKWOOD FARMS	DRAWING 2 of 13
CHECKED	TAX MAP 40 & 45 PARCEL 1 FIFTH (5th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 94064
DATE 3-2-95	FOR: CARMAN ASSOCIATES P.O. BOX 122 ELLICOTT CITY, MARYLAND	FILE NO. 94064

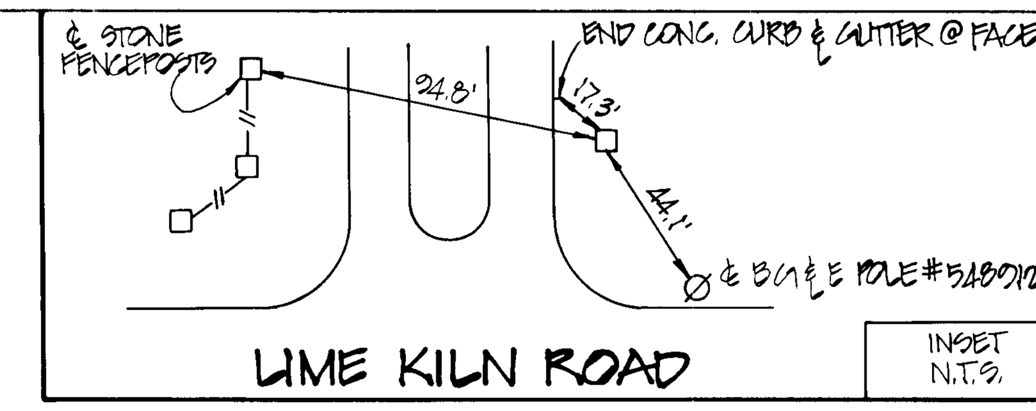
AS-BUILT
3-16-99



1732

F 53 81





1	REVISED TOPO & REMOVED GUARDRAIL PER CLIENT	5/7/99
NO.	REVISION	DATE

CENTERLINE CURVE DATA

P.C. to P.T. Stations	Radius	Δ	Arc	Tan	Chord & Bearing
P.C. 1+44 to P.T. 4+89.58	1100	18-00-00	345.58	174.22	344.16 N28-30-00E

⊕ = RBC (CFS) UNLESS NOTED OTHERWISE = CONCRETE MONUMENT SET

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion 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.

G. NELSON CLARK — 1-4-95 DATE

1-4-95

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 Howard Soil Conservation District or their authorized agents, as are deemed necessary".

NAME — 3-2-95 DATE

Reviewed for HOWARD S.C.D. and meets Technical Requirements.

Signature — Date

U.S. Soil Conservation Service

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

4/20/95

Approved

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning & Land Development — 5/2/95 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — 4/28/95 Date

Chief, Bureau of Highways — 4-26-95 Date

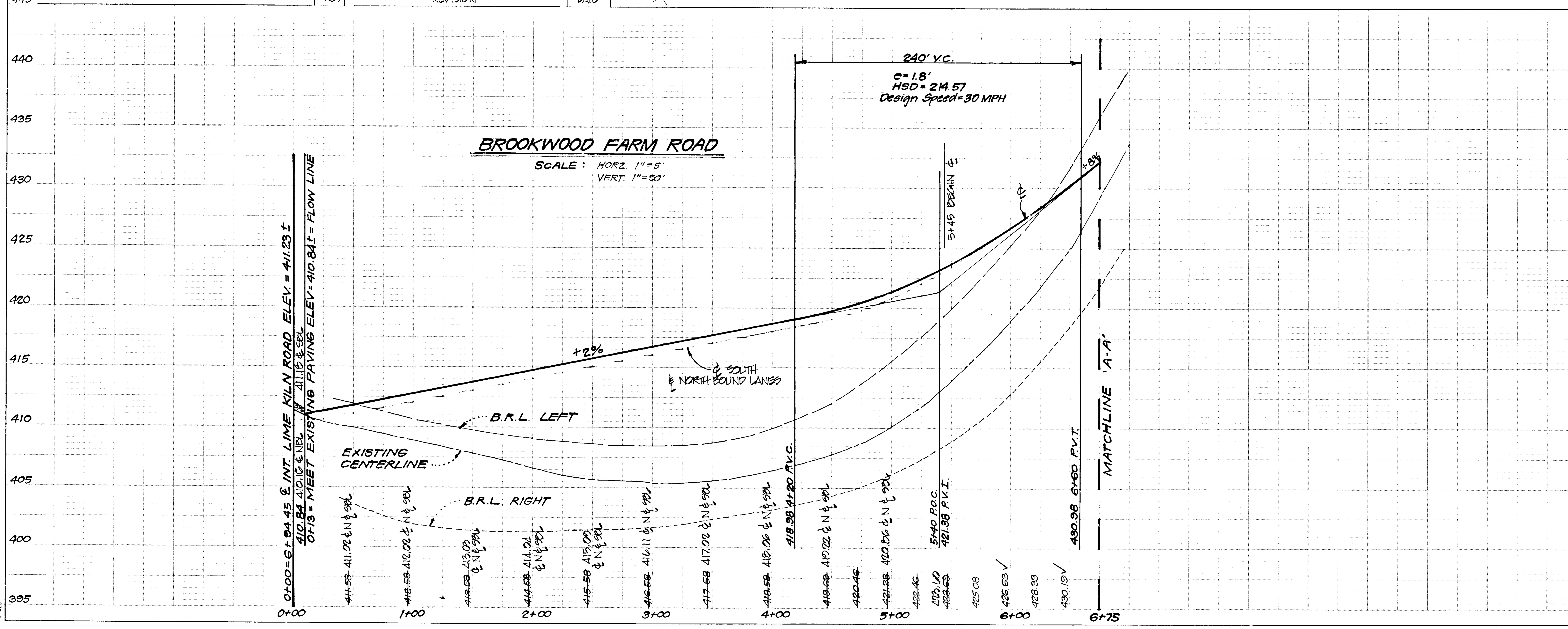
Chief, Bureau of Engineering — 4/28/95 Date

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-2500 BALT. • (301) 621-8100 WASH.

DESIGNED ZAL	GRADE ESTABLISHMENT, STORM DRAIN AND PAVING PLAN BROOK FARM ROAD	SCALE As Shown
DRAWN BAL	**BROOKWOOD FARMS**	DRAWING 3 OF 13
CHECKED WHH	TAX MAP 40 & 45 PARCEL 1 FIFTH (5th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO 94-064
DATE 3-2-95	FOR: CARMAN ASSOCIATES P.O. BOX 122 ELLICOTT CITY, MD 21043	FILE NO 94-064-D

AS-BUILT

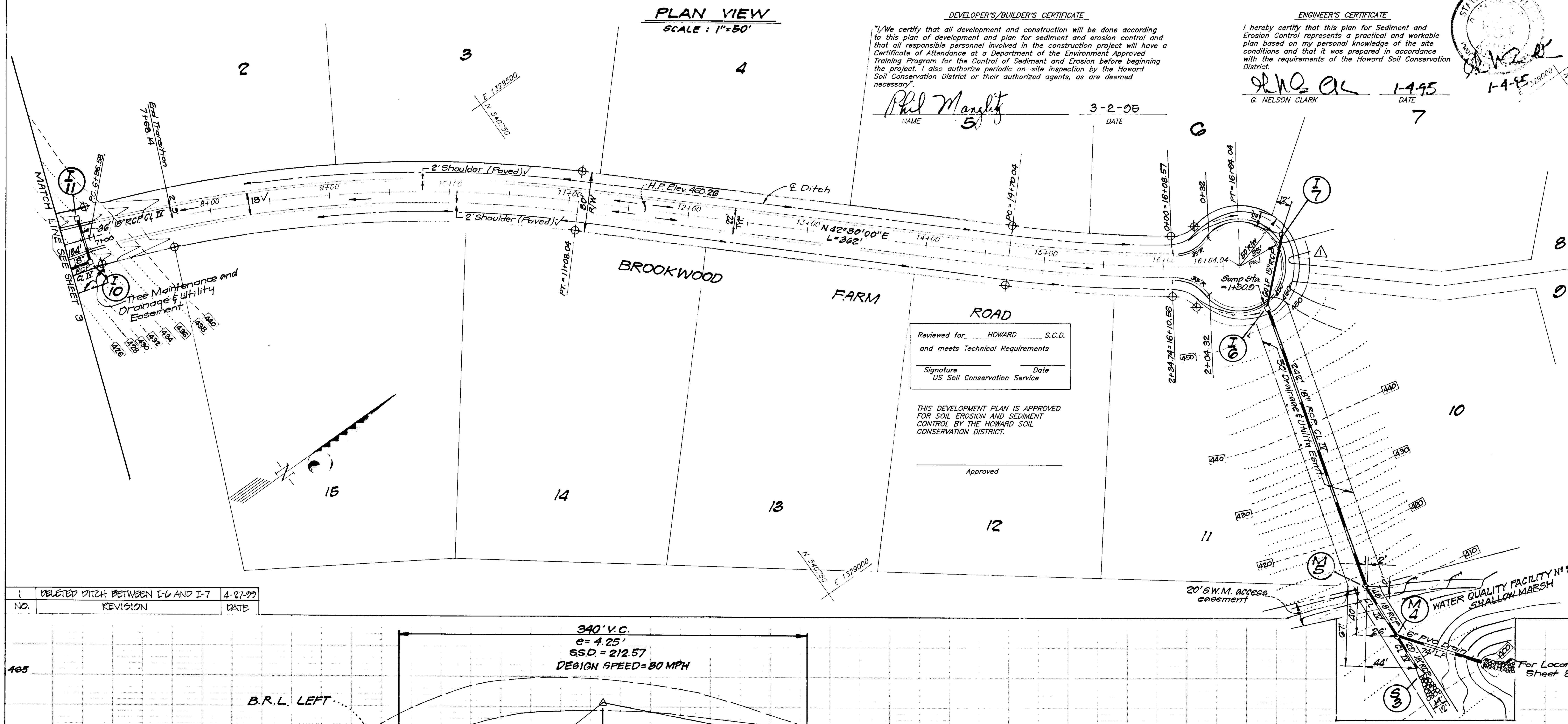
3-16-99



1732

F-93-81

PLAN VIEW
SCALE : 1"=50'



BROOKWOOD FARM ROAD
MATCH LINE SEE SHEET 3
Tree Maintenance and Drainage & Utility Easement
2' Shoulder (Paved)
H.P. Elev. 460.26
℄ Ditch
N 42°30'00"E
L=362'
Sump Sta. =1+50.0
20' S.W.M. access easement
WATER QUALITY FACILITY Nº 2 SHALLOW MARSH
For Location & Ties See Sheet 8 of 9
Reviewed for HOWARD S.C.D. and meets Technical Requirements
Signature Date
US Soil Conservation Service
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Approved

DEVELOPER'S/BUILDER'S CERTIFICATE

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Phil Manglitz — NAME 3-2-95 — DATE

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion 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.

G. NELSON CLARK 1-4-95 DATE

CUL-DE-SAC CURVE DATA

Nº	Radius	Δ	Arc	TAN	Chord & Bearing
1	35'	52-23-31	32.00	17.22	30.90 N.09°41'24"E.
2	35'	282-05-12	172.32	0.00	44.01 S.55°27'46"E.
3	35'	49-47-24	30.42	16.24	29.47 S.60°41'08"W.

CENTERLINE CURVE DATA

P.C. to P.T. STATIONS	Radius	Δ	Arc	Tan	Chord & Bearing
P.C. 6+96.58 to P.T. 11+08.04	1025	23-00-00	411.46	208.54	408.70 N 31-00-00 E
P.C. 14+70.04 to P.T. 16+65.04	1200	09-15-46	194.00	97.21	193.79 N 37-52-07 E

⊕ = RBC (CFS) UNLESS NOTED OTHERWISE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning & Land Development — 5/2/95 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — 4/28/95 Date

Chief, Bureau of Highways — 4-26-95 Date

Chief, Bureau of Engineering — 4/28/95 Date

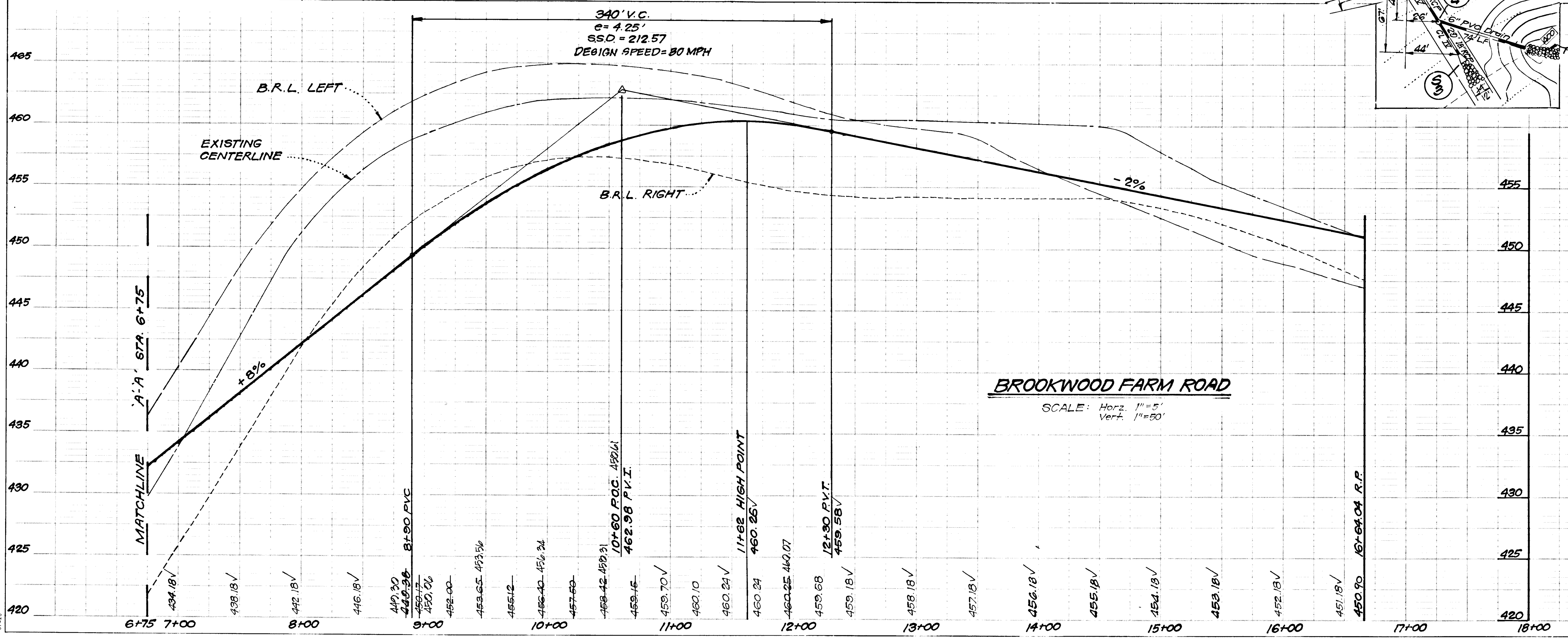
CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 BALTO • (301) 621-8100 WASH

DESIGNED ZAL	GRADE ESTABLISHMENT, STORM DRAIN AND PAVING PLAN BROOK FARM ROAD	SCALE As Shown
DRAWN BAL	**BROOKWOOD FARMS**	DRAWING 4 OF 13
CHECKED WHT	TAX MAP 40 & 45 PARCEL 1 FIFTH (5th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO 94-064
DATE 3-2-95	FOR: CARMAN ASSOCIATES P.O. BOX 122 ELLICOTT CITY, MD 21043	FILE NO 94-064-0

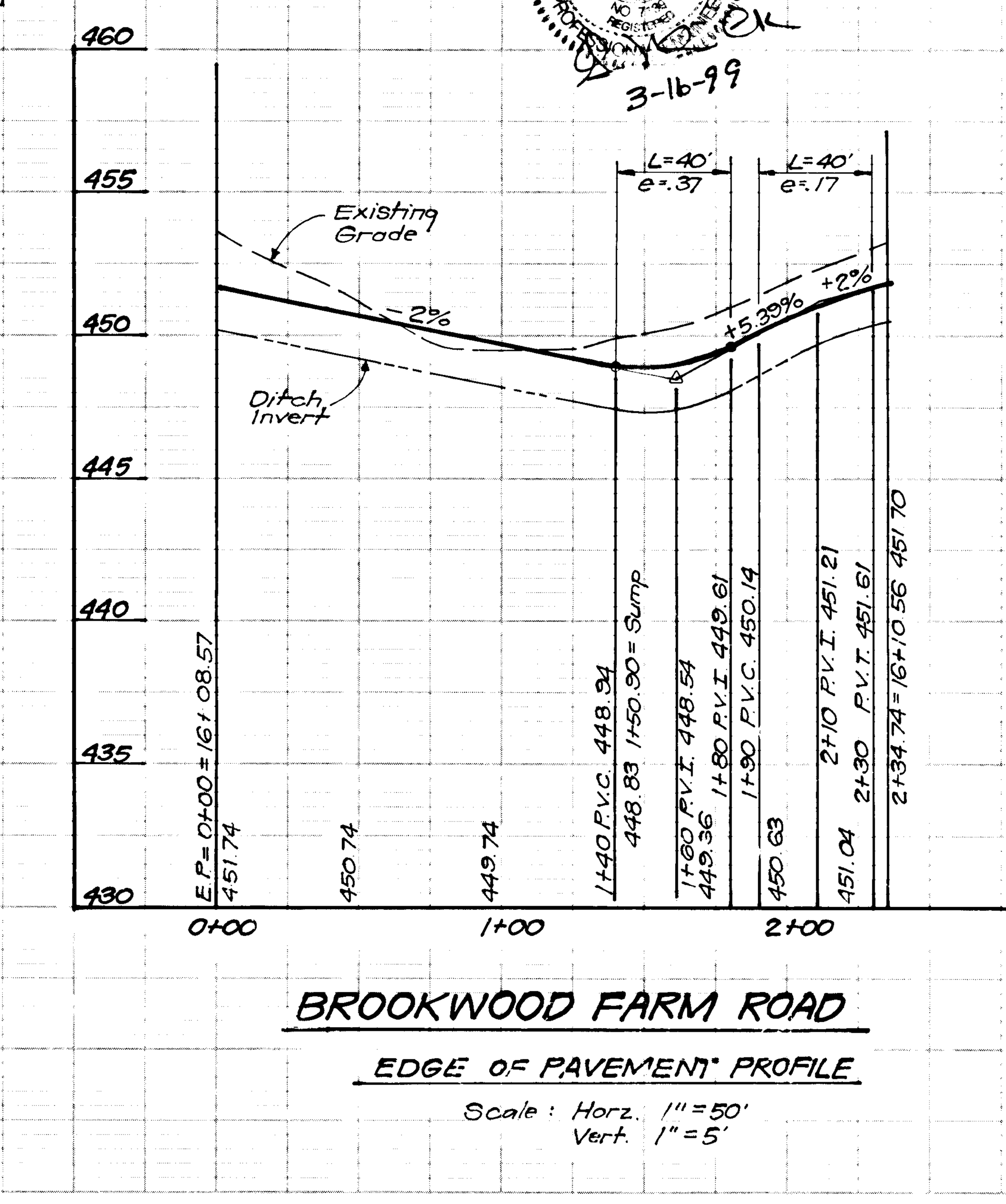
NO.	REVISION	DATE
1	DELETED DITCH BETWEEN I-6 AND I-7	4-27-99

AS-BUILT

3-16-99



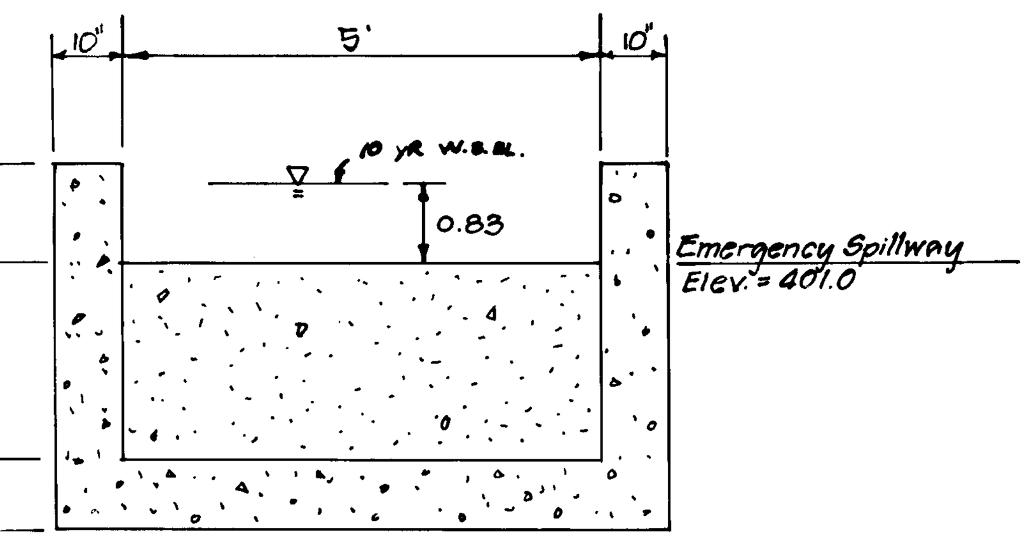
BROOKWOOD FARM ROAD
SCALE: Horz. 1"=5' Vert. 1"=50'



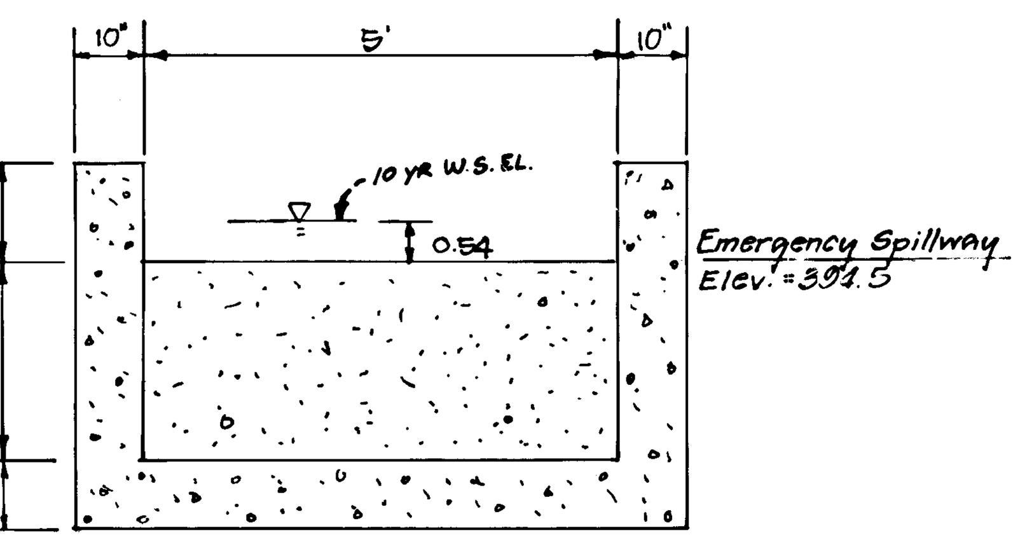
BROOKWOOD FARM ROAD
EDGE OF PAVEMENT PROFILE
Scale: Horz. 1"=50' Vert. 1"=5'

1732

F-95-81



SHALLOW MARSH Nº1
CROSS SECTION
EMERGENCY SPILLWAY



SHALLOW MARSH Nº2
CROSS SECTION
EMERGENCY SPILLWAY

Reviewed for Howard S.C.D.
and meets Technical Requirements
Signature
U.S. Soil Conservation Service

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

Approved 4/20/95 Date

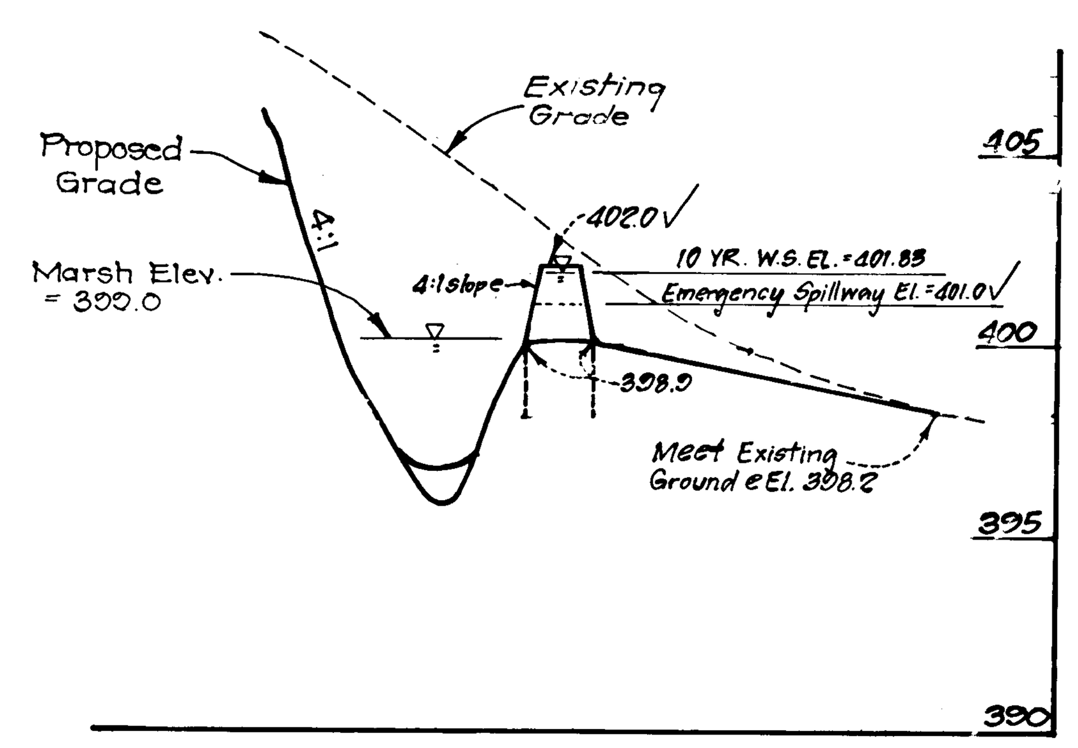
	Nº	TYPE	INVERT IN	INVERT OUT	TOP ELEVATION	REMARKS	LOCATION
	S-3	Concrete End Section	400.11	400.05		Ho. Co. Std. SD-5.51	See Plan
	M-4	Shallow Precast Manhole	400.5	400.4 399.33	~~404.0~~ 404.29	Ho. Co. Std. G-5.12	See Plan
△	M-5	Standard Precast Manhole	409.0	405.0	~~412.5~~ 411.76	Ho. Co. Std. G-5.12	See Plan
△	I-6	K-Inlet	—	444.0	~~448.36~~ 448.19	Ho. Co. Std. SD-4.12	Edge of Pavement Profile Str. 1+50.90
	S-8	Concrete End Section	406.8	405.06		Ho. Co. Std. SD-5.51	℄ Str. 4+79 Brookfarm Rd 58' Rt.
	M-9	Standard Precast Manhole		412.0 408.13	~~420.5~~ 421.13	Ho. Co. Std. G-5.12	℄ Str. 5+15 Brookfarm Rd. 31' Rt.
△	I-10	K-Inlet	428.04	428.29	~~433.85~~ 433.78	Ho. Co. Std. SD-4.12	℄ Str. 6+91 Brookfarm Rd. 19' Rt.
△	I-11	K-Inlet	—	429.0	433.63 ✓	Ho. Co. Std. SD-4.12	℄ Str. 6+91 Brookfarm Rd. 19' Rt.
	S-14	Concrete End Section	402.5	402.43		Ho. Co. Std. SD-5.51	Str. 2+20 Brookfarm Rd. 57' Rt.
	I-15	Concrete End Section	—	403.5		Ho. Co. Std. SD-5.51	℄ Str. 2+17 Brookfarm Rd 54' Lt.
△	I-7	K-Inlet	—	445.0	449.25 ✓	Ho. Co. Std. SD-4.12	See Plan

STRUCTURE SCHEDULE △ *

△ Inverts that are to be fully developed.
* SEE PROFILES FOR AS BUILT INVERTS

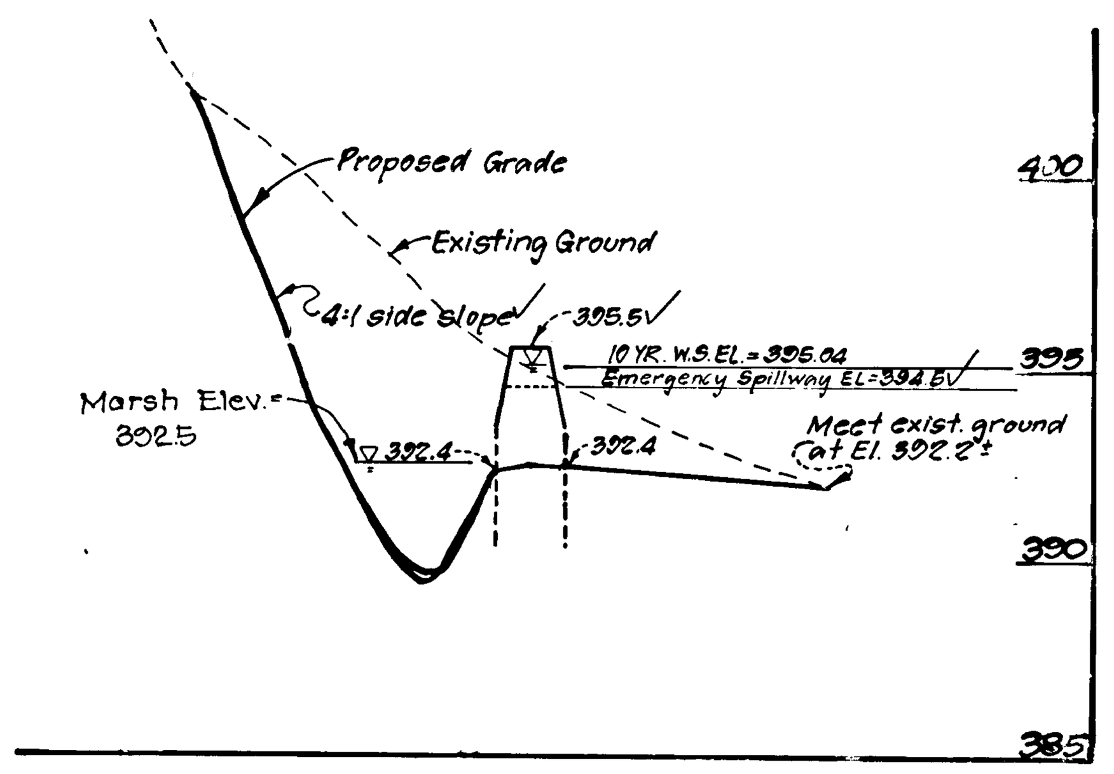
PIPE SCHEDULE

SIZE	TYPE	LENGTH
15"	RCP CL V	96 LF
18"	RCP CL IV	548 LF
8"	Schedule 40 PVC	123 LF
6"	Schedule 40 PVC	74 LF
18"	RCP CL V	110 LF



LOW RISE MARSH DRAIN STRUCTURE AND PROFILE ALONG EMERGENCY SPILLWAY SHALLOW MARSH Nº1

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



LOW RISE MARSH DRAIN STRUCTURE AND PROFILE ALONG EMERGENCY SPILLWAY SHALLOW MARSH Nº2

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

DEVELOPER'S/BUILDERS 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 Dept. 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 Howard Soil Conservation District or their authorized agencies, as are deemed necessary."

Signature of Developer — 3-2-95 Date

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

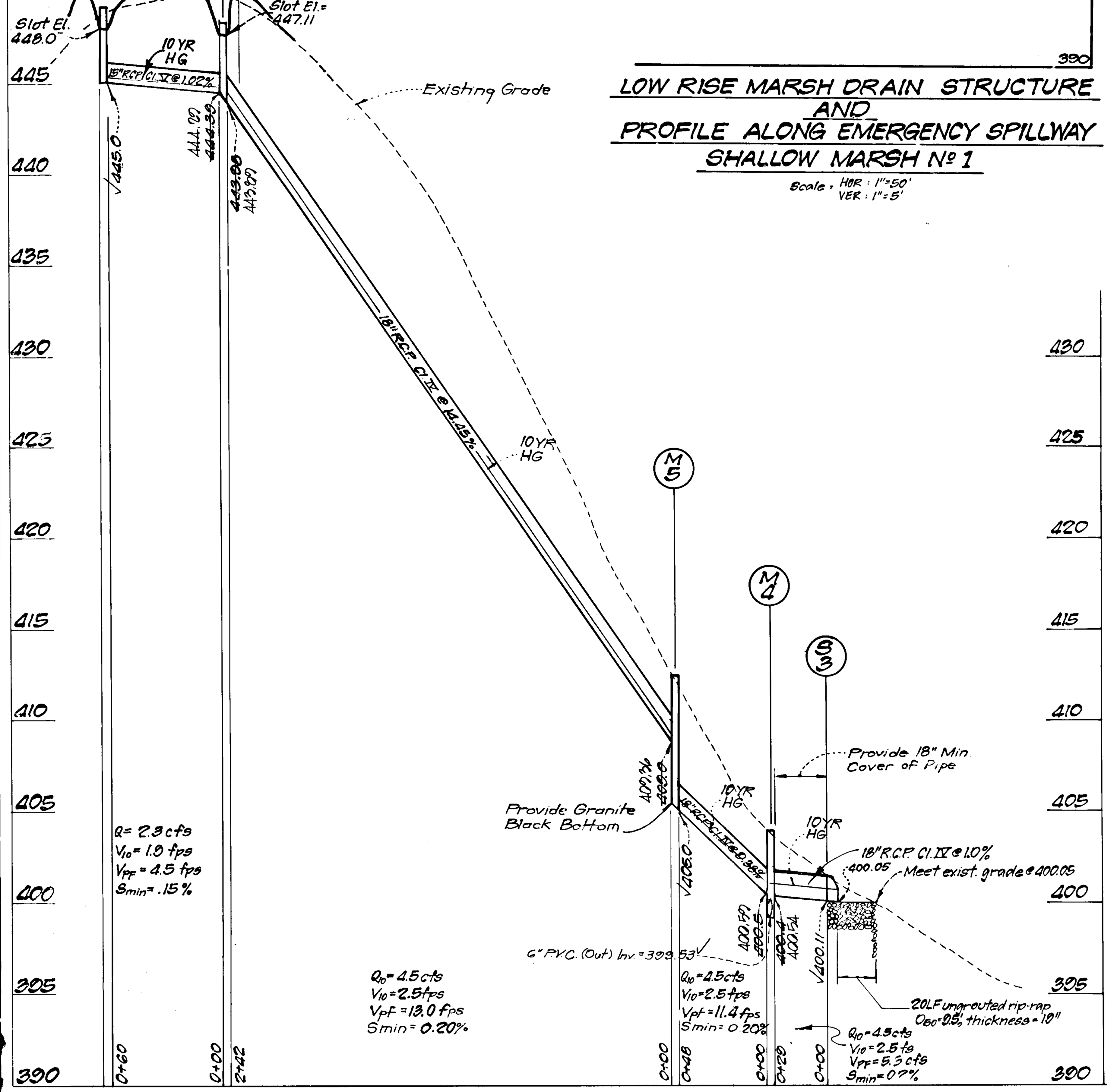
G. Nelson Clark — 1-4-95 Date

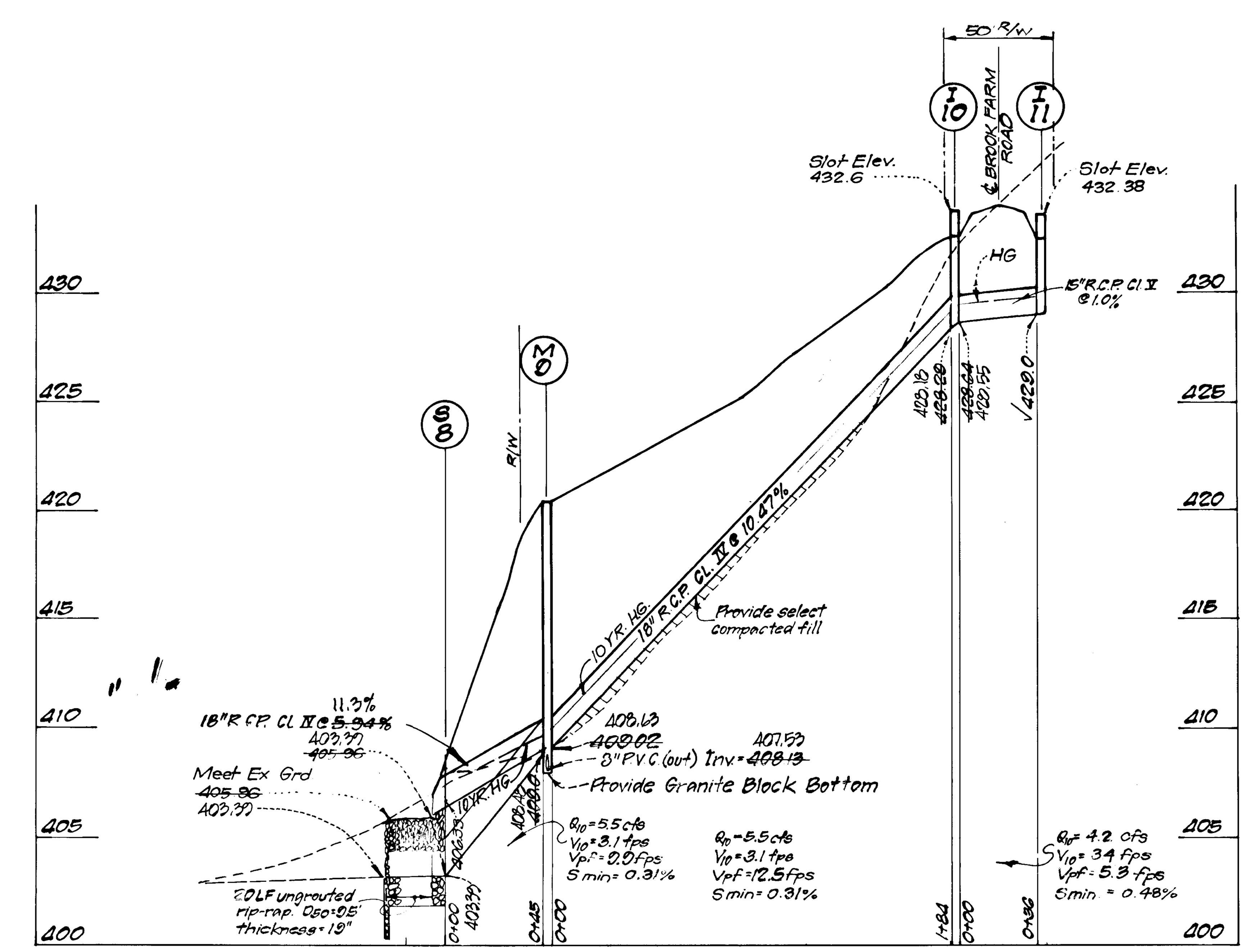
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — 4/28/95 Date
Chief, Bureau of Highways — 4-26-95 Date
Chief, Bureau of Engineering — 4/28/95 Date

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

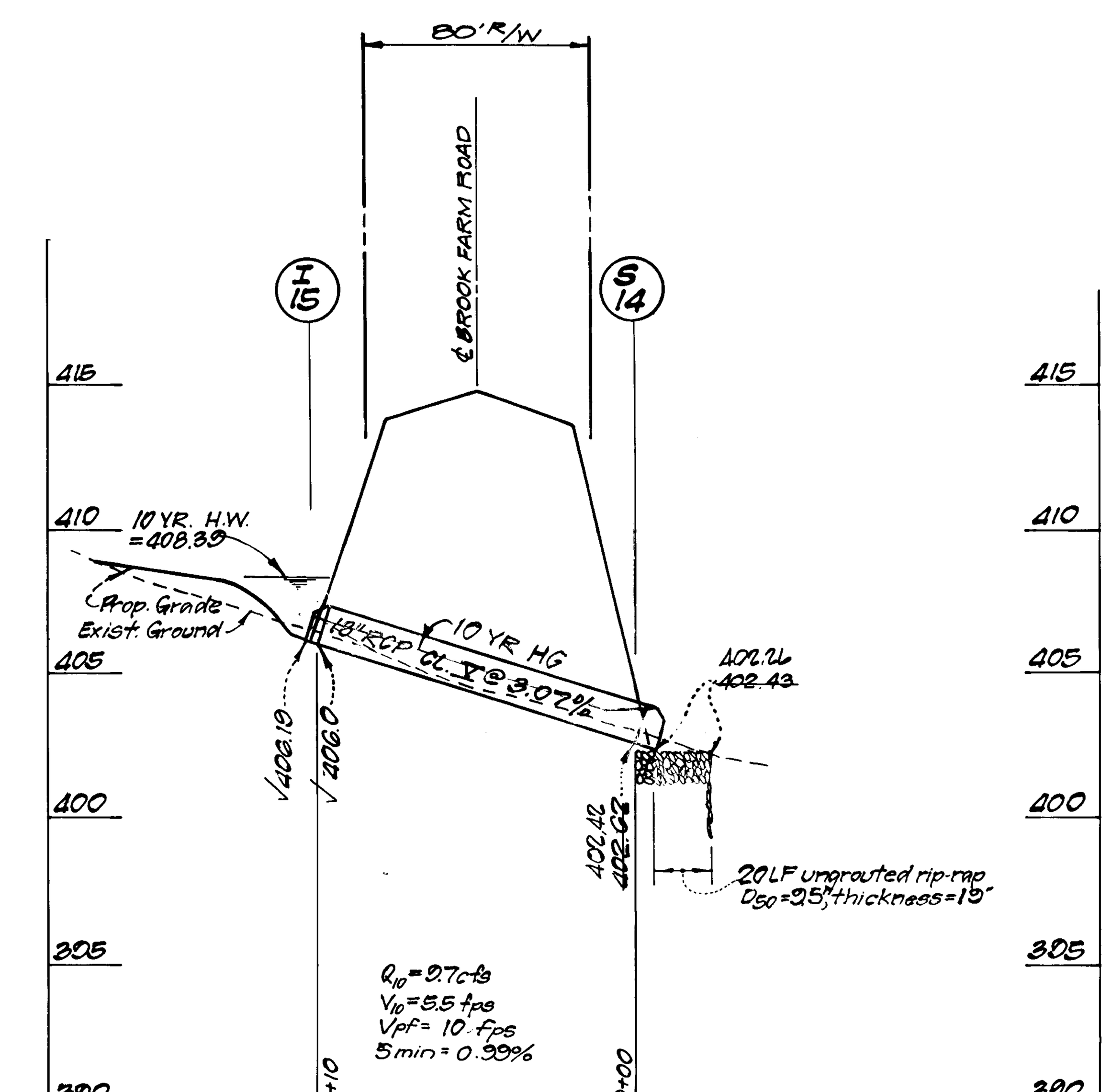
Chief, Division of Community Planning & Land Development — 5/2/95 Date





STORM DRAINAGE PROFILES

Scale: Horz 1"=50' Vert 1"=5'

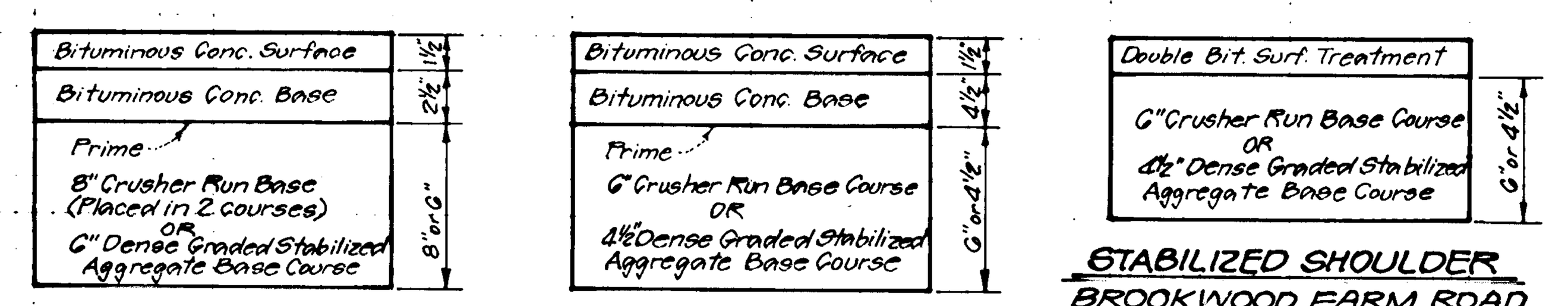


AS-BUILT 3-16-99

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 — BALTO. • (301) 621-8100 — WASH.

DESIGNED	ZAL	STORM DRAIN PROFILES	SCALE	As Shown
DRAWN	BAL	BROOKWOOD FARMS	DRAWING	5 OF 13
CHECKED		TAX MAP 40 & 45 PARCEL 1, FIFTH (5th) ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	JOB NO.	94-061
DATE	3-2-95	FOR: GARMAN ASSOCIATES, P.O. BOX 122, ELLICOTT CITY, MARYLAND	FILE NO.	91-0610

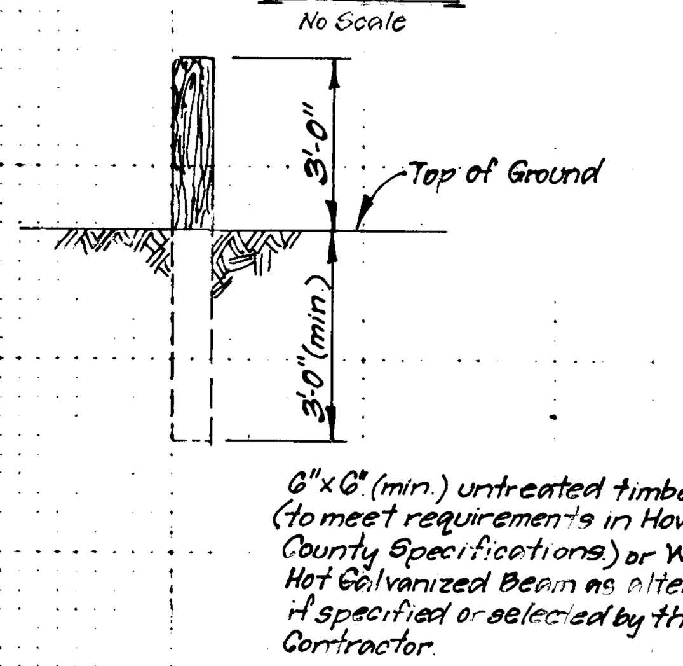
F-95-81



ALTERNATE PAVING SECTION
BROOKWOOD FARM ROAD
SEC. P-2
No Scale

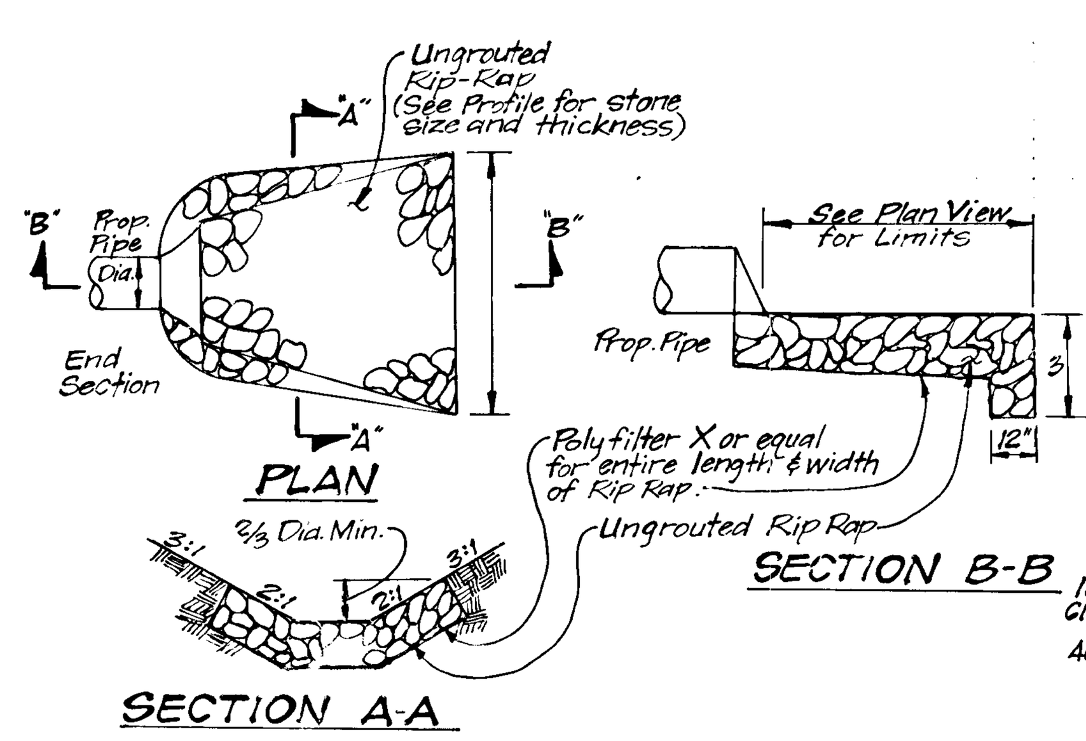
ALTERNATE PAVING SECTION
LIME KILN ROAD
SEC. P-3
No Scale

STABILIZED SHOULDER
BROOKWOOD FARM ROAD
SEC. P-1
No Scale

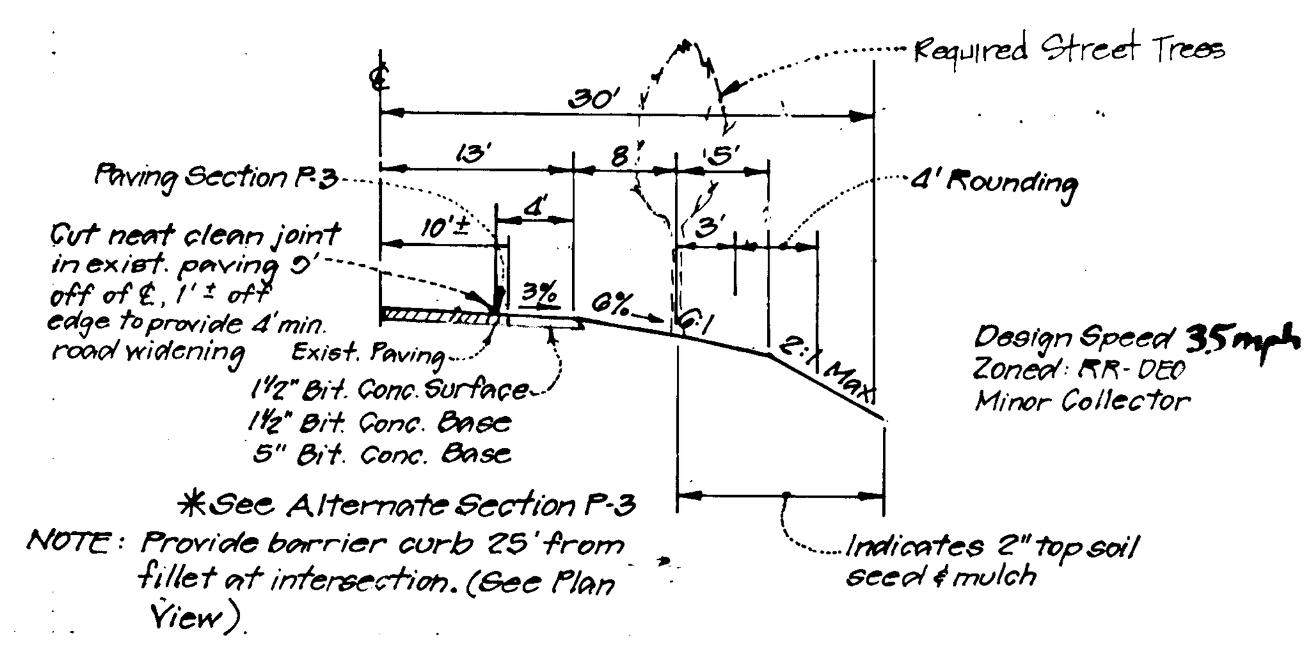


6"x6" (min.) untreated timber post (to meet requirements in Howard County Specifications) or W6x8 Hot Galvanized Beam as alternate if specified or selected by the Contractor.

TYPICAL TIMBER BOLLARD
No Scale

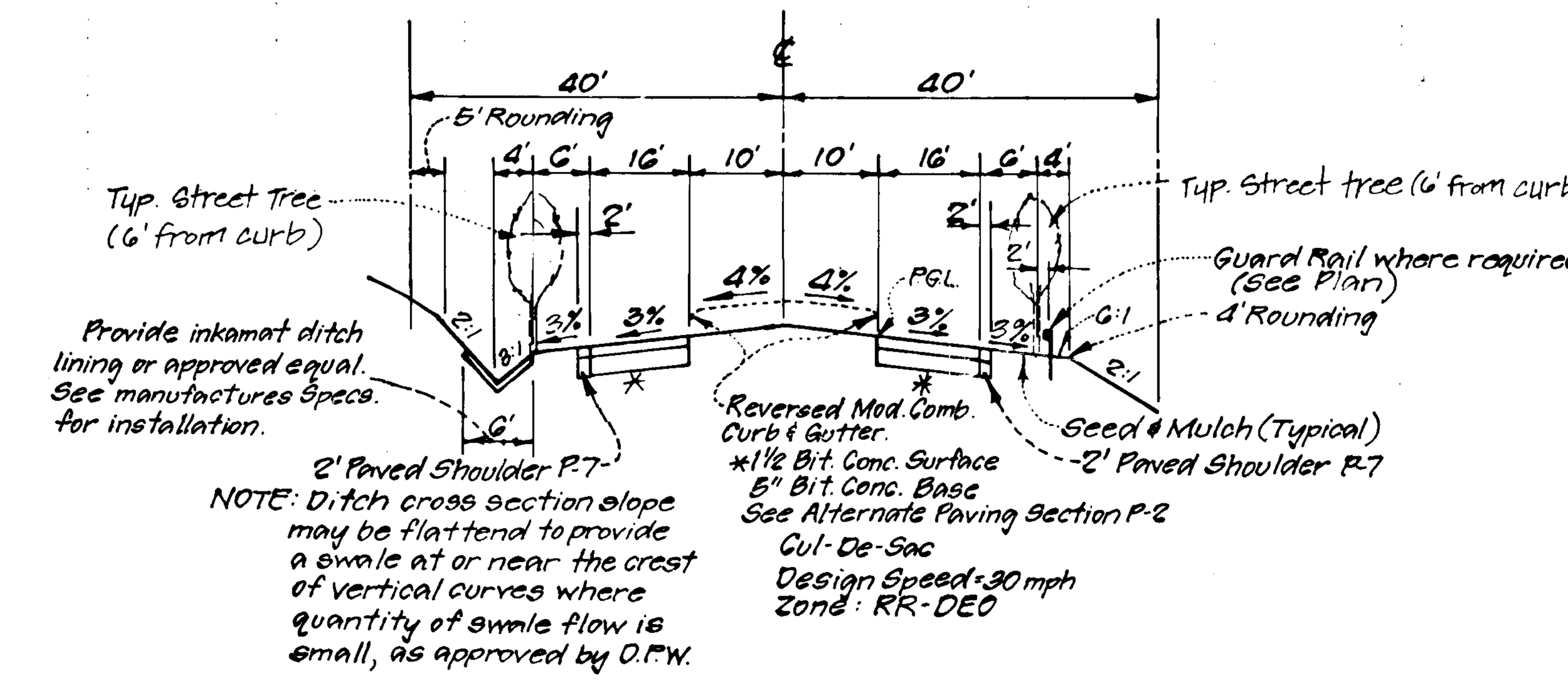


UNGROUTED RIP RAP PAVING DETAILS
(No Scale)



NOTE: Provide barrier curb 25' from fillet at intersection. (See Plan View)

TYPICAL HALF SECTION - LIME KILN ROAD
Not to Scale



NOTE: Ditch cross section slope may be flattened to provide a swale at or near the crest of vertical curves where quantity of swale flow is small, as approved by D.P.W.

TYPICAL PAVING SECTION - BROOKWOOD FARM ROAD
STA. 0+00 - 4+89.58
No Scale

CURB & GUTTER LEGEND
Standard 7" curb and gutter
Reverse modified curb and gutter

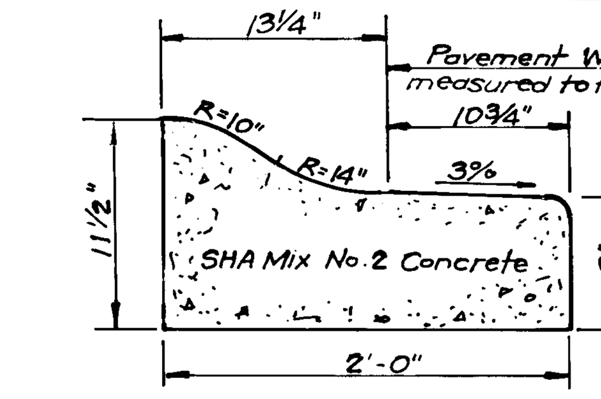
SCHEDULE A
PERIMETER LANDSCAPE EDGE

Category	Adjacent to Roadways	Adjacent to Perimeter Properties
Landscape Type		A
Linear Feet of Project Perimeter		3300 L.F.
Credit for Existing Vegetation		No
Credit for Wall, Fence or Berm		No
Number of Plants Required Shade Trees Evergreen Trees		55
Number of Plants Provided Shade Trees Evergreen Trees		55

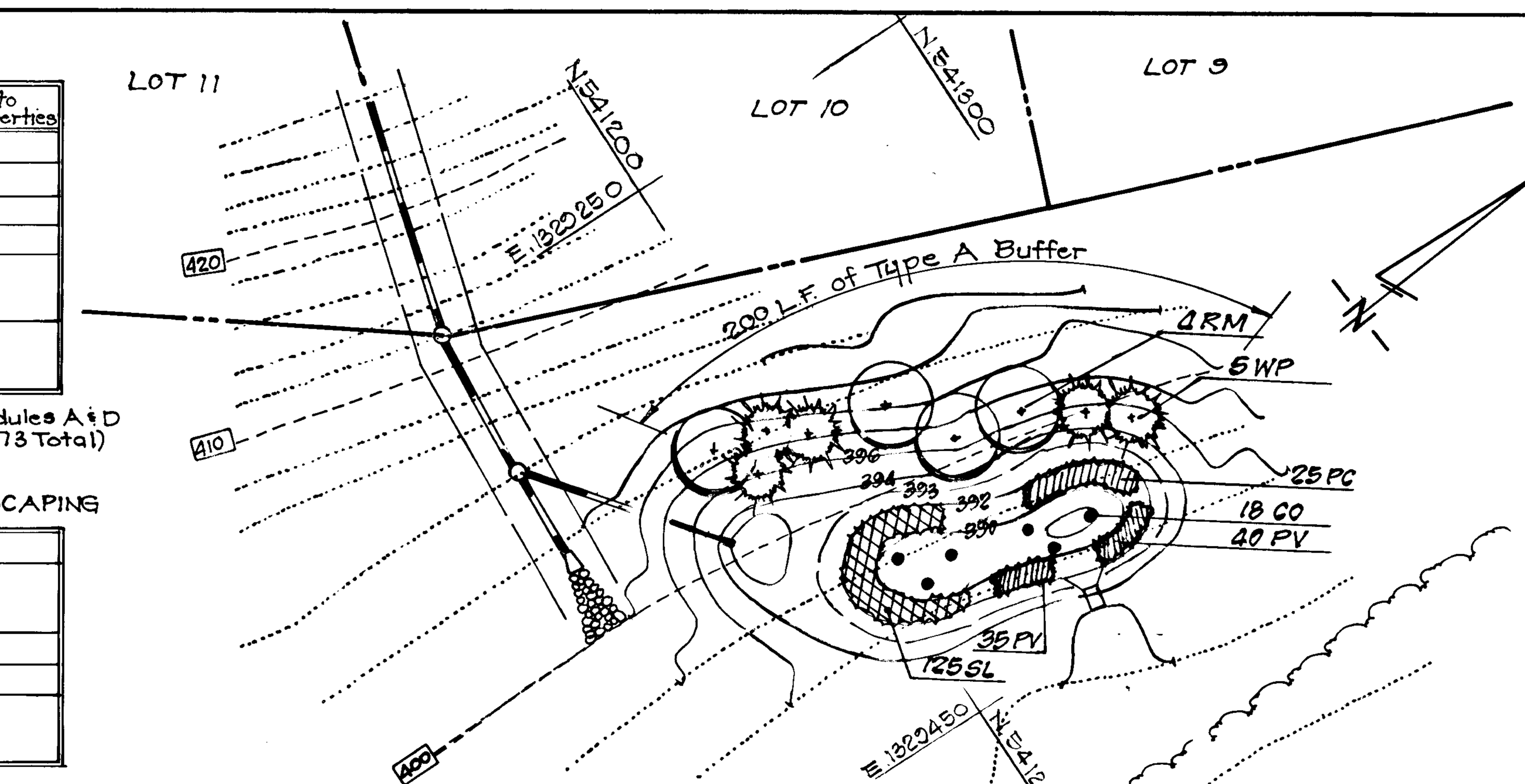
Comments: Required Number of Trees as per Schedules A & D = 63 Shade Trees and 10 Evergreen Trees (73 Total)

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

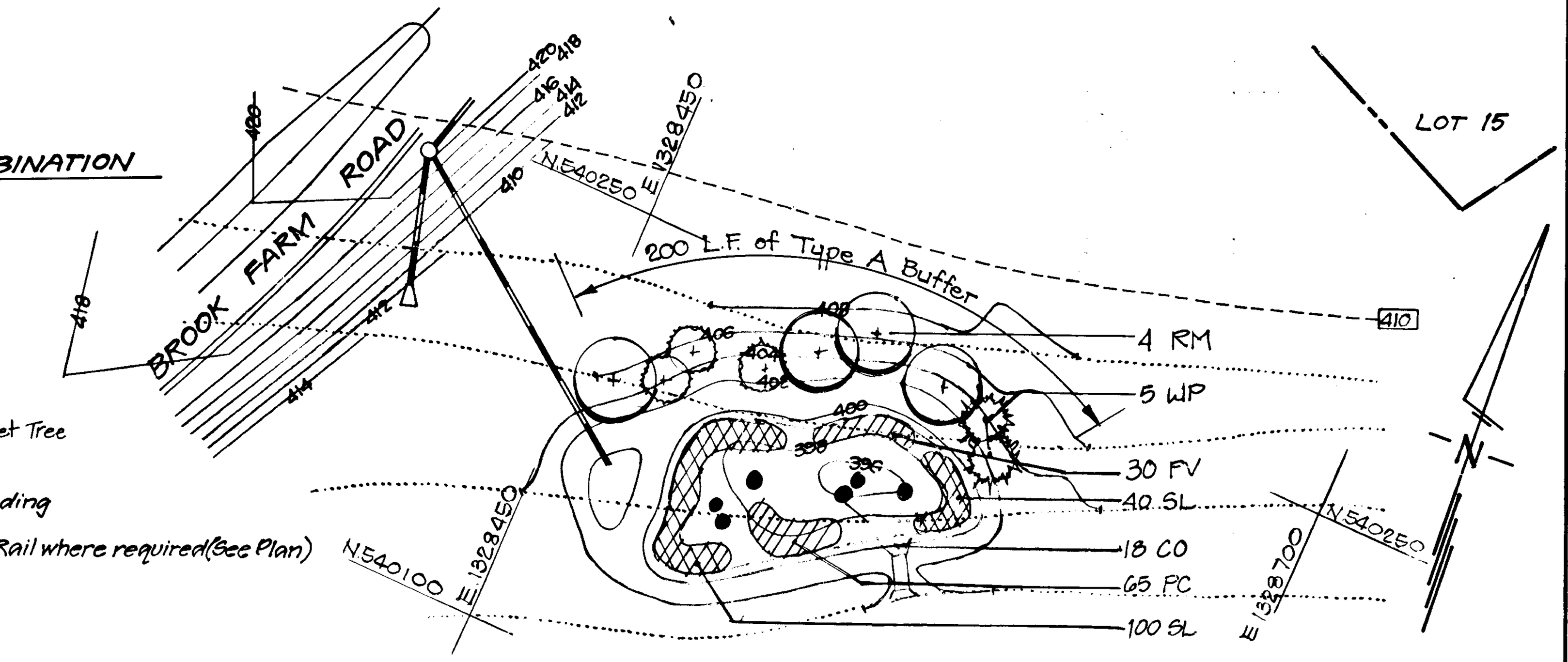
Linear Feet of Perimeter	400 L.F. of Type B
Number of Trees Required Shade Trees Evergreen Trees	 8 10
Credit for Existing Vegetation	No
Credit for Other Landscaping	No
Number of Trees Provided Shade Trees Evergreen Trees	 8 10



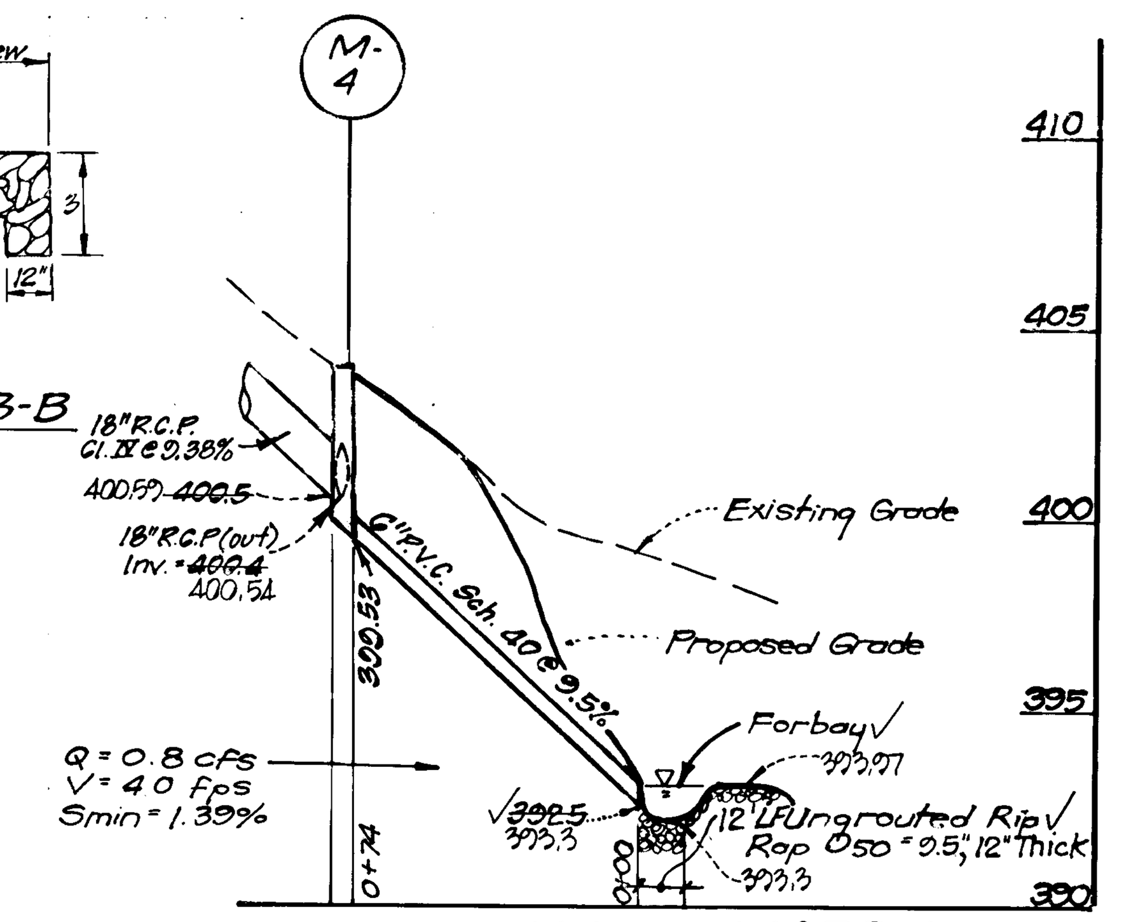
REVERSED MODIFIED COMBINATION
CURB & GUTTER
No Scale



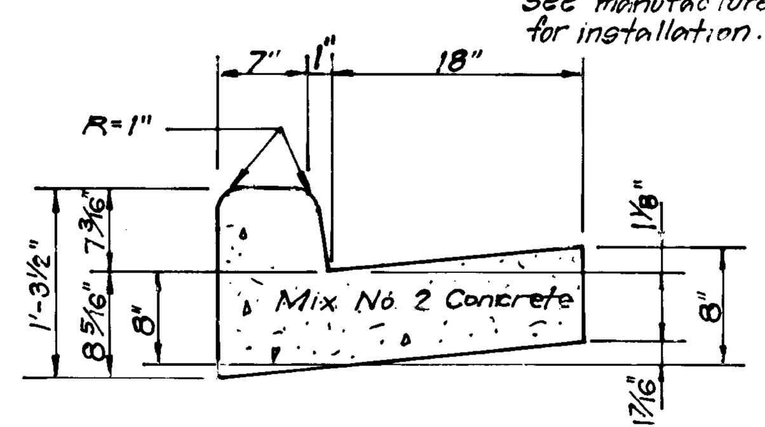
TREE PLANTING DETAILS FOR
WATER QUALITY FACILITY № 2
(SHALLOW MARSH)
1" = 50'



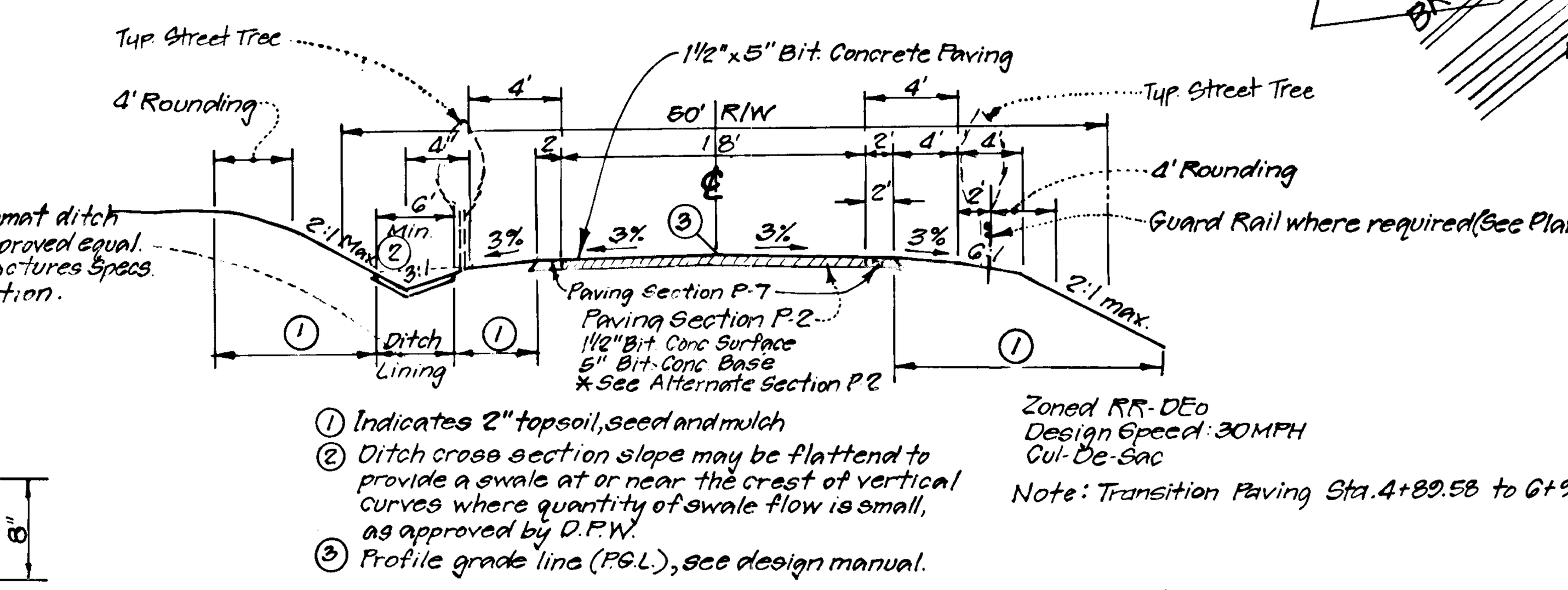
TREE PLANTING DETAIL FOR
WATER QUALITY FACILITY № 1
(SHALLOW MARSH)
1" = 50'



SHALLOW MARSH № 2
"PVC MARSH DRAIN
Scale: Horz. 1" = 50'
Vert. 1" = 5'



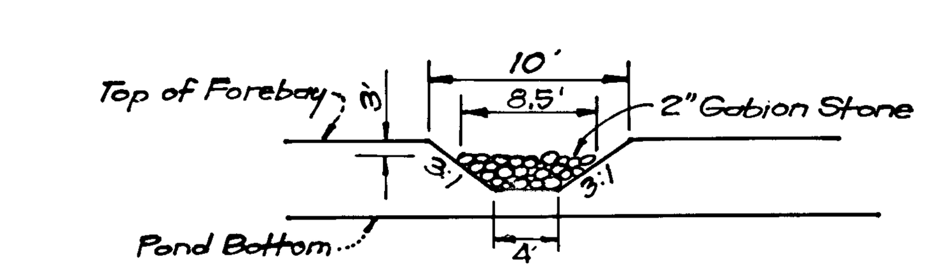
STANDARD 7" COMBINATION
CURB AND GUTTER
No Scale



① Indicates 2" topsoil, seed and mulch
② Ditch cross section slope may be flattened to provide a swale at or near the crest of vertical curves where quantity of swale flow is small, as approved by D.P.W.
③ Profile grade line (PGL), see design manual.

Note: Transition Paving Sta. 4+89.58 to 6+96.58

OPEN SECTION (RURAL) - BROOKWOOD FARM ROAD
STA. 4+89.58 to 16+64.04
No Scale



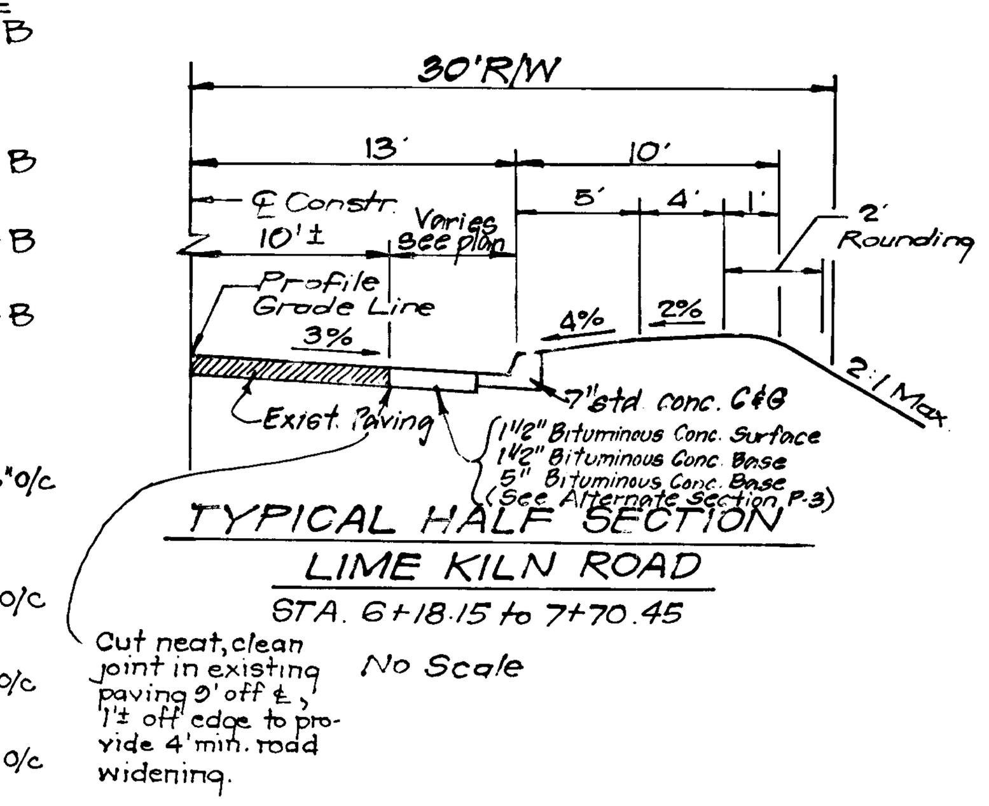
FOREBAY CONVEYANCE WINDOW
NO SCALE

PLANT SCHEDULE

KEY	QNTY	PLANT SPECIES	SIZE	REMARKS
		STREET TREES (Sheets 7 & 8)		
⊙	97	ZELKOVA SERR. VILL. GREEN Village Green Zelkova	2½"-3" Cal. 12'-14' Ht.	B & B
		BUFFER PLANTING (This Sheet)		
RM	43	ACER RUBRUM Red Maple	2½"-3" Cal. 12'-14' Ht.	B & B
QP	20	QUERCUS PALUSTRIS Pin Oak	2½"-3" Cal. 12'-14' Ht.	B & B
WP	10	PINUS STROBUS White Pine	6'-8' Ht.	B & B
		WATER QUALITY FACILITIES PLANTINGS		
		PRIMARY WETLAND VEGETATION		
SL	265	SAGITTARIA LATIFOLIA Duck Potato	Bare Roots	36" o/c
		SECONDARY WETLAND VEGETATION		
CO	36	CEPHALATHUS OCCIDENTALIS Button Bush	Bare Roots	36" o/c
PV	105	PELTANDRA VIRGINIA Arrow Arum	Bare Roots	36" o/c
PC	90	PONTEDERIA CORDATA Pickerel Weed	Bare Roots	36" o/c

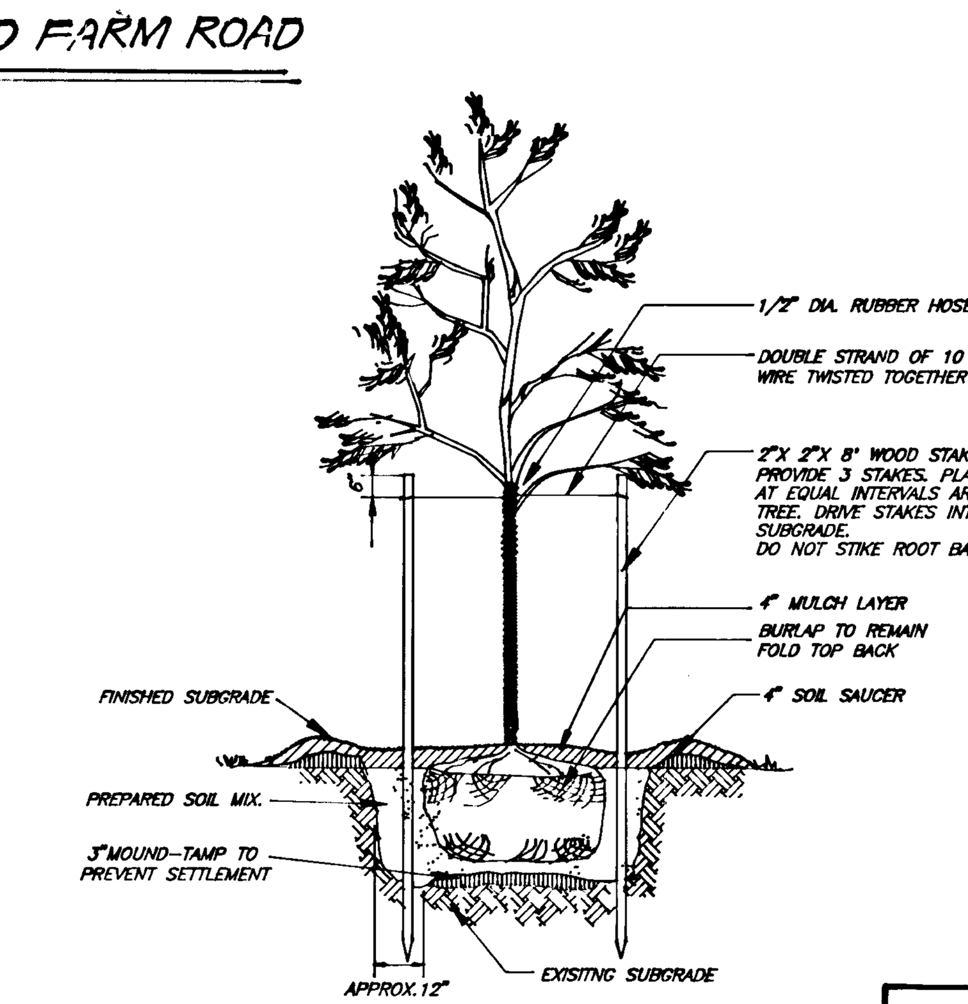
PLANT SCHEDULE NOTES

1. Water quality facilities plant material to be wet grown or adapted to wetland conditions.
2. Alterations to the proposed grading shown may affect the success of the plant materials.
3. Contractor shall verify location of all underground utilities prior to digging.
4. STREET TREE TABULATION
   - A. Linear Feet of R.O.W. 4400 L.F.
   - B. Required № of Trees 110 (1 per 40 L.F.) (Per L.S. Manual)
   - C. Credit for Ex. Street Trees 18
   - D. Min. Street Trees Required 92
   - E. № of Street Trees Provided 97

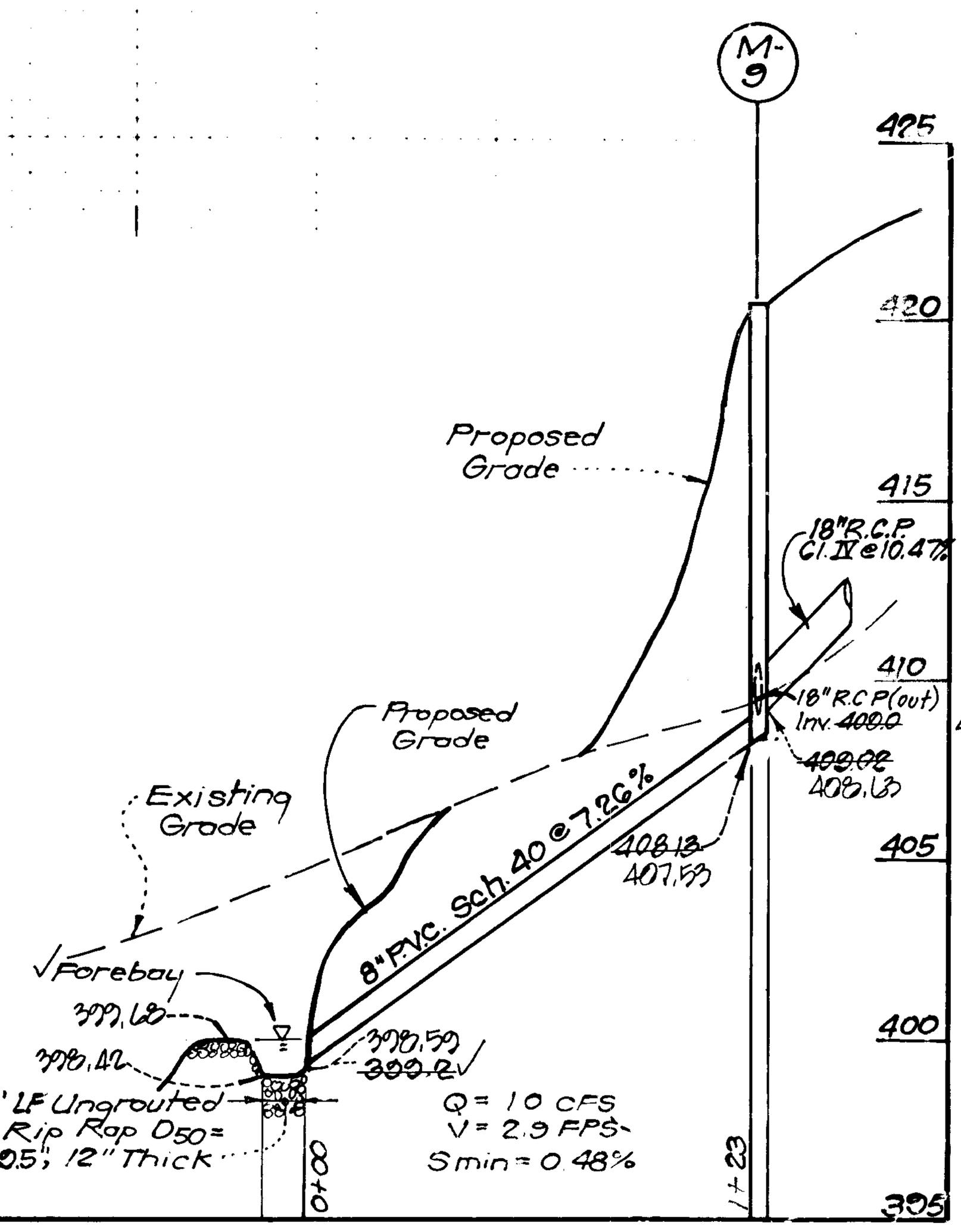


TYPICAL HALF SECTION
LIME KILN ROAD
STA. 6+18.15 to 7+70.45
No Scale

Cut neat, clean joint in existing paving 9' off ℄, 1' ± off edge to provide 4' min. road widening.



PLANTING DETAIL
NO SCALE



SHALLOW MARSH № 1
"PVC MARSH DRAIN
Scale: Horz. 1" = 50'
Vert. 1" = 5'

LANDSCAPE BONDING NOTE:

This plan has been prepared in accordance with Provision of Sec. 16.124 of the Howard Co. Code and the Landscape Manual. Financial Surety for the required 73 trees in the amount of $7300.00 is part of the developers agreement. The street trees are bonded under the road construction.

AS-BUILT
3-16-99

Reviewed for HOWARD S.C.D.
and meets Technical Requirements
Signature Date
U.S. Soil Conservation Service

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

Approved 4/20/95 Date

DEVELOPER'S/BUILDERS 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 Dept. 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 Howard Soil Conservation District or their authorized agents, as are deemed necessary."

Signature of Developer 3-2-95 Date

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

G. Nelson Clark 1-4-95 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	4/28/95 DATE
CHIEF, BUREAU OF HIGHWAYS	4-26-95 DATE
CHIEF, BUREAU OF ENGINEERING	4/28/95 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

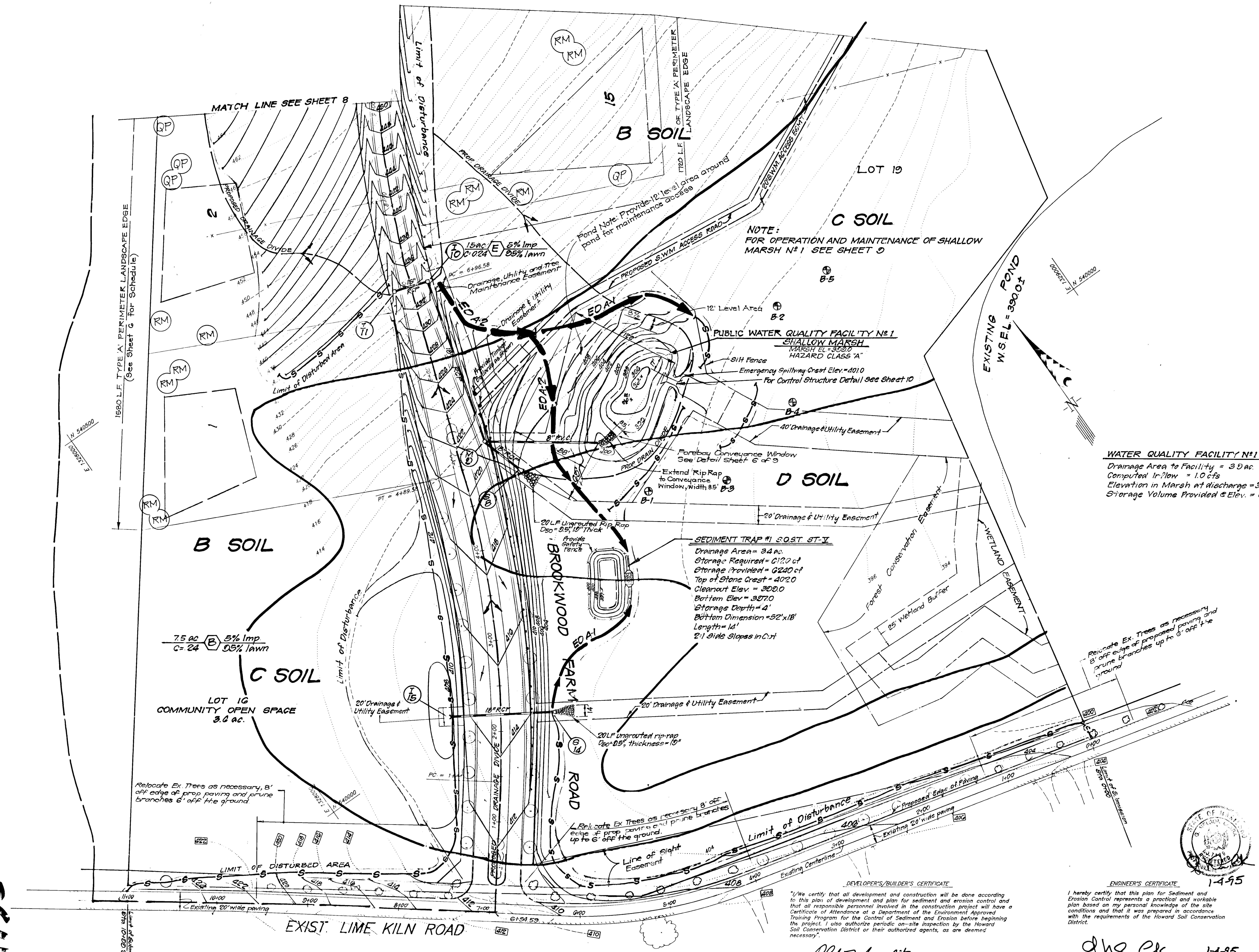
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH	5/2/95 DATE

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA MD 21045 • (410) 381-7500 BALTO • (301) 621-8100 WASH

DESIGNED ZAL	PAVING, SHALLOW MARSH AND LANDSCAPE PLAN	SCALE As Shown
DRAWN ZAH	**BROOKWOOD FARMS**	DRAWING 6 OF 13
CHECKED	TAX MAP 40 & 45 PARCEL P-1 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO 94-064
DATE 3-2-95	Owner/Developer: Carman Associates P.O. Box 122 Ellicott City, MD 21043	FILE NO 94-064P

F-95-81

1733


MATCH LINE SEE SHEET 8
Limit of Disturbance
B SOIL
15
LOT 19
C SOIL
NOTE:
FOR OPERATION AND MAINTENANCE OF SHALLOW MARSH Nº 1 SEE SHEET 9
Pond Note: Provide 12' level area around pond for maintenance access
PROPOSED SWM ACCESS ROAD
PROP DRAINAGE DIVIDE
Drainage, Utility and Tree Maintenance Easement
Drainage & Utility Easement
EDA2
EDA1
12' Level Area
B-2
B-5
B-4
B-3
B-1
PUBLIC WATER QUALITY FACILITY Nº 1
SHALLOW MARSH
MARSH EL = 399.0
HAZARD CLASS "A"
Silt Fence
Emergency Spillway Crest Elev. = 401.0
For Control Structure Detail See Sheet 10
40' Drainage & Utility Easement
Forebay Conveyance Window See Detail Sheet 6 of 9
Extend Rip Rap to Conveyance Window, Width 8.5'
D SOIL
20' Drainage & Utility Easement
EXISTING POND W.S.EL = 390.0±
WATER QUALITY FACILITY Nº 1 SUMMARY
Drainage Area to Facility = 3.9 ac.
Computed Inflow = 1.0 cfs
Elevation in Marsh at discharge = 399.0
Storage Volume Provided @ Elev. = 0.52 ac.-ft
SEDIMENT TRAP #1 S.O.S.T. ST-V
Drainage Area = 3.4 ac.
Storage Required = 6120 cf
Storage Provided = 6240 cf
Top of Stone Crest = 402.0
Cleanout Elev. = 399.0
Bottom Elev = 397.0
Storage Depth = 4'
Bottom Dimension = 52'x18'
Length = 14'
2:1 Side Slopes in Cut
20 LF Ungrouted Rip Rap D50 = 9.5", 10" Thick
Provide Safety Fence
Forest Conservation Easement
25' Wetland Buffer
WETLAND EASEMENT
BROOKWOOD FARM ROAD
B SOIL
1580 L.F. TYPE 'A' PERIMETER LANDSCAPE EDGE (See Sheet 6 for Schedule)
Limit of Disturbed Area
7.5 ac C = 24 B 5% Imp 95% lawn
1.5 ac C = 0.24 E 5% Imp 95% lawn
C SOIL
LOT 16
COMMUNITY OPEN SPACE
3.6 ac.
20' Drainage & Utility Easement
20 LF Ungrouted rip-rap D50 = 9.5", thickness = 19"
Relocate Ex. Trees as necessary, 8' off edge of prop paving and prune branches 6' off the ground
Relocate Ex. Trees as necessary 8' off edge of proposed paving and prune branches up to 6' off the ground
Line of Sight Easement
Limit of Disturbance
LIMIT OF DISTURBED AREA
Existing Centerline
Existing 20' wide paving
Proposed Edge of Paving
EXIST. LIME KILN ROAD

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 Howard Soil Conservation District or their authorized agents, as are deemed necessary".

[signature] Phil Marglitz — Signature — 3-2-95 Date

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion 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] G. Nelson Clark — 1-4-95 Date

STATE OF MARYLAND — G. NELSON CLARK — NO. 7139 — REGISTERED PROFESSIONAL ENGINEER — 3-16-99

AS-BUILT

Reviewed for HOWARD S.C.D. and meets Technical Requirements
[signature] 4/20/95 — Signature — Date
US Soil Conservation Service

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

[signature] 4/20/95 — Approved

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] — CHIEF, LAND DEVELOPMENT DIVISION	4/28/95 DATE
[signature] — CHIEF, BUREAU OF HIGHWAYS	4-26-95 DATE
[signature] — CHIEF, BUREAU OF ENGINEERING	4/28/95 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

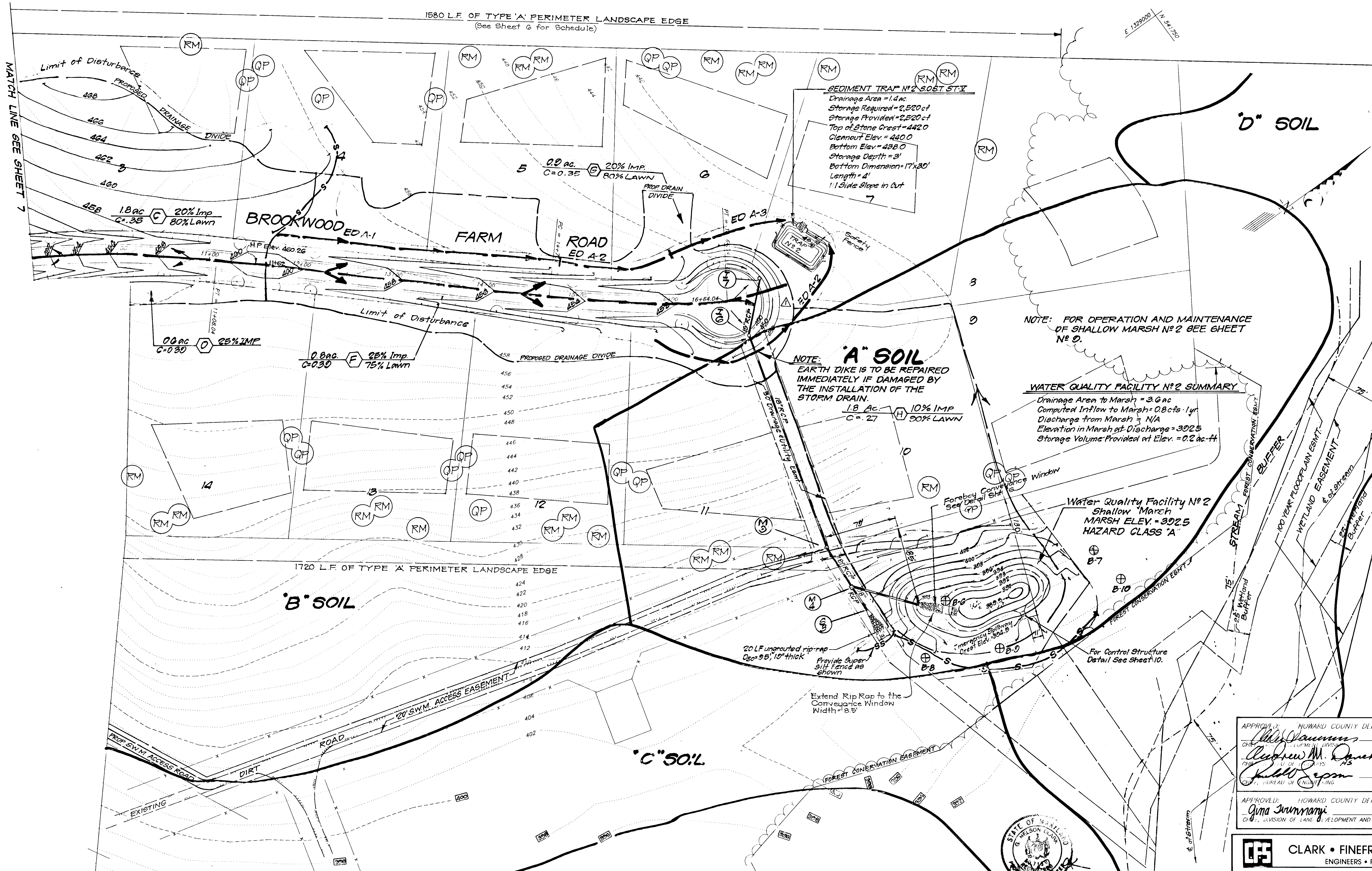
[signature] — CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH	5/2/95 DATE

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 — BALTO. • (301) 621-8100 — WASH.

DESIGNED ZAL	SEDIMENT & EROSION CONTROL, GRADING, SOILS AND DRAINAGE AREA MAP	SCALE 1" = 50'
DRAWN ZAH	**BROOKWOOD FARMS**	DRAWING 7 OF 13
CHECKED WHH	TAX MAP 40 & 45, PARCEL 1 FIFTH (5th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 94-064
DATE 3-2-95	FOR: CARMAN ASSOCIATES P.O. BOX 122 ELLICOTT CITY, MARYLAND	FILE NO. 94-064-D

F-95-81

NO.	REVISION	DATE
1	DELETED DITCH BETWEEN I-6 AND I-7	4-27-99



1580 L.F. OF TYPE 'A' PERIMETER LANDSCAPE EDGE
(See Sheet 6 for Schedule)
MATCH LINE SEE SHEET 7
Limit of Disturbance
PROPOSED DRAINAGE DIVIDE
1.8 ac C=.35 C 20% Imp 80% Lawn
0.9 ac. C=0.35 G 20% IMP. 80% LAWN
PROP DRAIN DIVIDE
BROOKWOOD FARM ROAD
ED A-1
ED A-2
ED A-3
TRAP Nº 2
Safety Fence
SEDIMENT TRAP Nº 2 S.O.S.T. ST-V
Drainage Area = 1.4 ac.
Storage Required = 2,520 cf
Storage Provided = 2,520 cf
Top of Stone Crest = 442.0
Cleanout Elev. = 440.0
Bottom Elev. = 438.0
Storage Depth = 3'
Bottom Dimension = 17'x30'
Length = 4'
1:1 Side Slope in Cut
"D" SOIL
"B" SOIL
0.6 ac C=0.30 D 25% IMP
0.8 ac. C=0.39 F 25% Imp 75% Lawn
PROPOSED DRAINAGE DIVIDE
NOTE: EARTH DIKE IS TO BE REPAIRED IMMEDIATELY IF DAMAGED BY THE INSTALLATION OF THE STORM DRAIN.
"A" SOIL
1.8 Ac. C=.27 H 10% IMP 90% LAWN
30' Drainage & Utility Esmt.
18" R.C.P.
NOTE: FOR OPERATION AND MAINTENANCE OF SHALLOW MARSH Nº 2 SEE SHEET Nº 9.
WATER QUALITY FACILITY Nº 2 SUMMARY
Drainage Area to Marsh = 3.6 ac
Computed Inflow to Marsh = 0.8 cfs · 1 yr.
Discharge from Marsh = N/A
Elevation in Marsh at Discharge = 392.5
Storage Volume Provided at Elev. = 0.2 ac.-ft.
Forebay Conveyance Window
Water Quality Facility Nº 2 Shallow "Marsh" MARSH ELEV. = 392.5 HAZARD CLASS "A"
STREAM BUFFER
FOREST CONSERVATION ESMT.
100 YEAR FLOODPLAIN ESMT.
WETLAND EASEMENT
25' Wetland Buffer
1720 L.F. OF TYPE 'A' PERIMETER LANDSCAPE EDGE
"B" SOIL
"C" SOIL
20 LF ungrouted rip-rap D50=9.5", 19" thick
Provide Super Silt Fence as shown
Emergency Spillway Crest Elev. 394.5
For Control Structure Detail See Sheet 10.
Extend Rip Rap to the Conveyance Window Width = 8.5'
20' S.W.M. ACCESS EASEMENT
PROP. S.W.M. ACCESS ROAD
EXISTING DIRT ROAD
FOREST CONSERVATION EASEMENT
AS-BUILT
3-16-99

Reviewed for HOWARD S.C.D. and meets Technical Requirements
Signature US Soil Conservation Service — Date 4/20/95

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

Approved 4/20/95

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, DIVISION OF ... — 4/28/95 DATE
CHIEF, BUREAU OF HIGHWAYS — 4-26-95 DATE
CHIEF, BUREAU OF ENGINEERING — 4/28/95 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — 5/2/95 DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 Howard Soil Conservation District or their authorized agents, as are deemed necessary.

Signature — 3-2-95 Date

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion 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.

G. Nelson Clark — 1-4-95 Date

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 — BALTO. • (301) 621-8100 — WASH.

DESIGNED ZAL	SEDIMENT & EROSION CONTROL, GRADING, SOILS, AND DRAINAGE AREA MAP	SCALE 1" = 50'
DRAWN ZAH	BROOKWOOD FARMS	DRAWING 8 OF 13
CHECKED WHT	TAX MAP 40 & 45 PARCEL 1, FIFTH (5th) ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	JOB NO. 94-064
DATE 3-2-95	FOR: CARMAN ASSOCIATES, P.O. BOX 122, ELLICOTT CITY, MARYLAND	FILE NO. 94-064-D

1-95-81

1732

SEDIMENT AND EROSION CONTROL NOTES

1. A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (313-2437).
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 1983 MARYLAND STANDARDS AND SPECS. FOR SOIL EROSION AND SEDIMENT CONTROL.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control stuctures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeters 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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (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:	57.16 ac.
Area Disturbed:	6.82 ac.
Area to be roofed or paved:	1.15 ac.
Area to be vegetatively stabilized.:	5.67 ac.
Total Cut:	23,080 CY
Total Fill:	23,350 CY
Offsite Waste/Borrow Area Location:	*

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County DPW 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. If houses are to be constructed on an "as sold" basis, at random, Single Family Sediment Control, as shown below shall be implemented.
12. The total amount of silt fence= 2330 LF

* It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.

HOMEOWNERS ASSOCIATION RESPONSIBLE FOR OPERATION, MAINTENANCE & INSPECTION

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, SCS "Standards and Specifications for Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continued operation, surveillance, inspection and maintenance thereof. The pond owner(s) shall promptly notify the Ho. Co. Dept. of Public Works of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.

HOMEOWNERS ASSOCIATION MAINTENANCE RESPONSIBILITIES FOR WATER QUALITY FACILITIES № 1 AND 2

1. Removal of accumulated paper, trash and debris after every storm as necessary.
2. Mow embankment faces and top once a month during the growing season.
3. Inspect forebay after each storm. If sediment buildup exceeds four (4) inches, notify the Department of Public Works, Bureau of Highways to facilitate cleanout operations.
4. Inspect diversion structures and trash racks within M-4 and M-9 monthly and remove any accumulation of trash or debris as neccessary.

PERMANENT SEEDING NOTES

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

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

SOIL AMENDMENTS: In lieu of soil test recommendations, use one of the following schedules:
1) Preferred– Apply 2 tons per acre dolomitic limestone (92 lbs/100 sqft.) and 600 lbs per acre 10–10–10 fertilizer (14 lbs./1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At the time of seeding, apply 400 lbs. per acre 30–0–0 ureaform fertilizer (9 lbs/1000 sq.ft.)

2) Acceptable– Apply 2 tons per acre dolomatic limestone (92 lbs/1000 sg ft.) and 1000 lbs. per acre 10-10–10– fertilizer (23 lbs./1000 sg ft.) before seeding. Harrow or disc into upper three inches of soil.

SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

MAINTENANCE: Inspect all seeded areas and make needed repairs, repalcements and reseedings.

TEMPORARY SEEDING NOTES

SEEDBED PREPARARTION: Loosen upper three inches of soil by raking, discing, or other acceptable means before seeding, if not previously loosened.

SOIL AMENDMENTS: Apply 600 lbs per acre 10–10–10 fertilizer (14lbs/1000 sq ft).

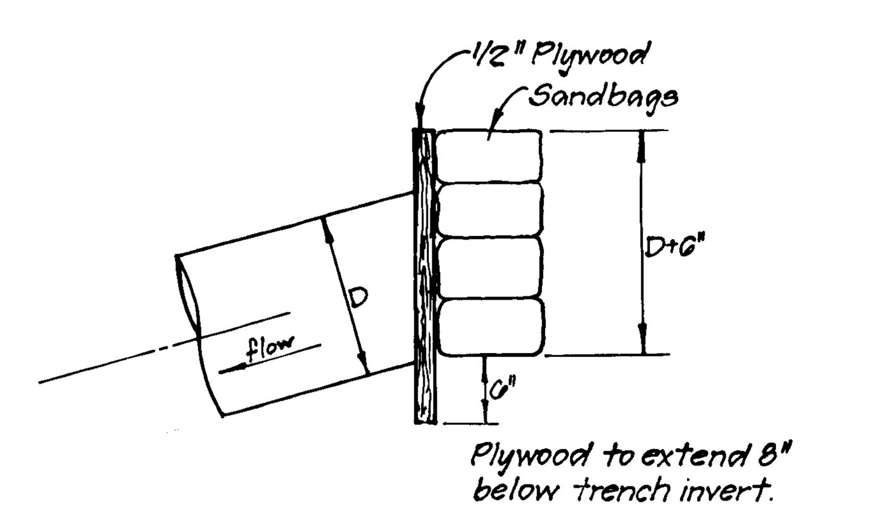
SEEDING: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs./1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

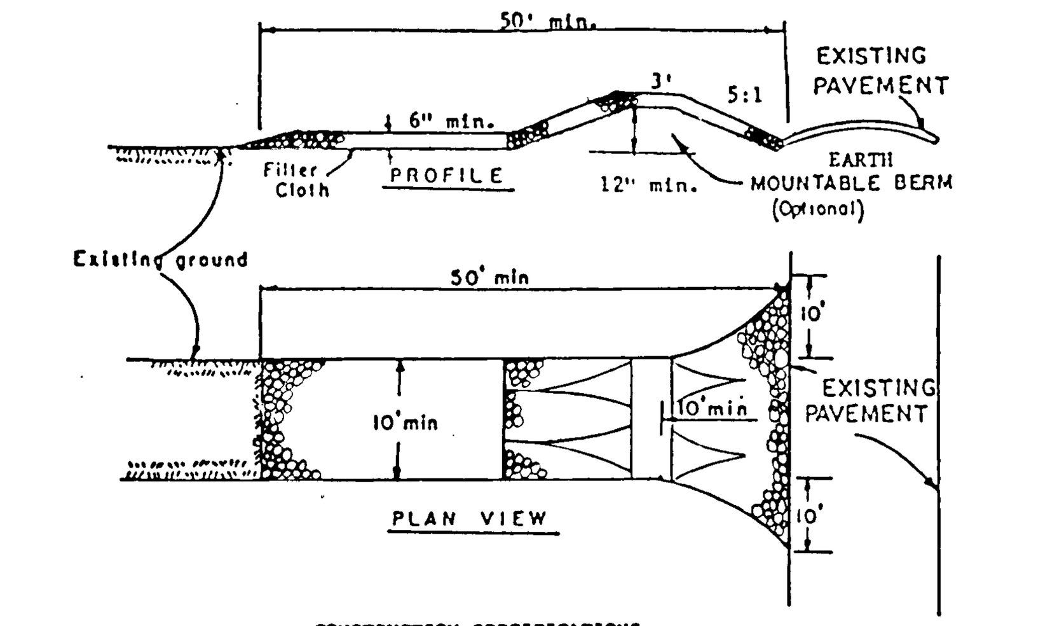
REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

CONSTRUCTION SEQUENCE

1.	Obtain a grading permit.	7 days
2.	Construct additional paving on Lime Kiln Road.	7 days
3.	Construct storm drainage structures I-15 thru I-14, stabilize and brick shut 8" P.V.C in M-9.	14 days
4.	Install all sediment and erosion control structures, sediment traps 1 and 2, earthdikes and silt fence.	14 days
5.	Clear and rough grade roads.	30 days
6.	Clear and grade water quality facilities 1 and 2.	30 days
7.	Construct remaining storm drainage and stabilize.	30 days
8.	Fine grade and construct paving.	60 days
9.	Stabilize all disturbed areas on site in accordance with standards and specs.	14 days
10.	Upon approval of the sediment control inspector remove sediment and erosion control measures and stabilize.	14 days



PIPE BLOCKING DETAIL



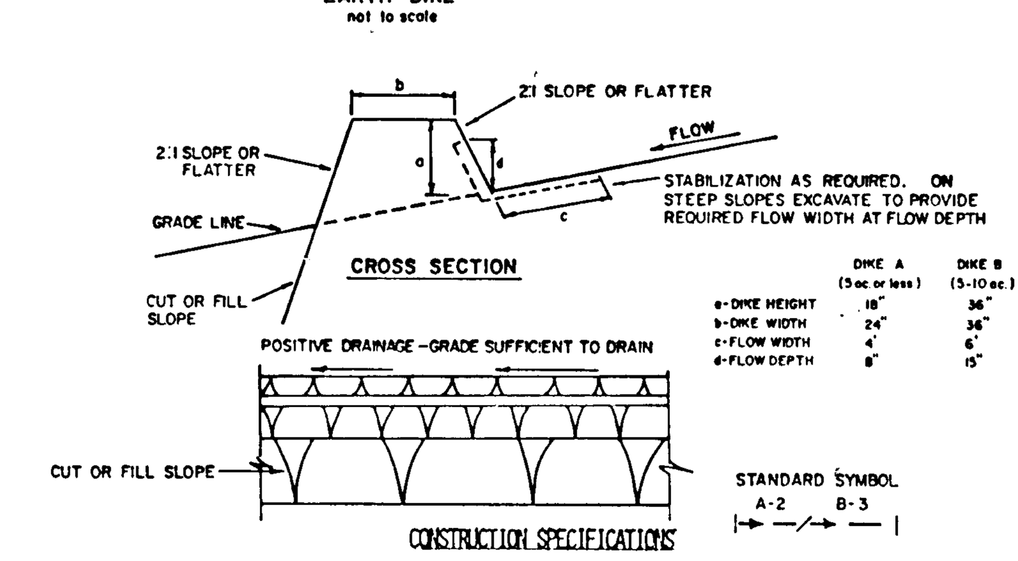
CONSTRUCTION SPECIFICATIONS

1. Stone Size – Use 2" stone, or reclaimed or recycled concrete equivalent.
2. Length – As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness – Not less than six (6) inches.
4. Width – Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Filter Cloth – Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
6. Surface Water – All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance – The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing – Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE (SCE)

No Scale

EARTH DIKE
not to scale



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

CONSTRUCTION SPECIFICATIONS

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

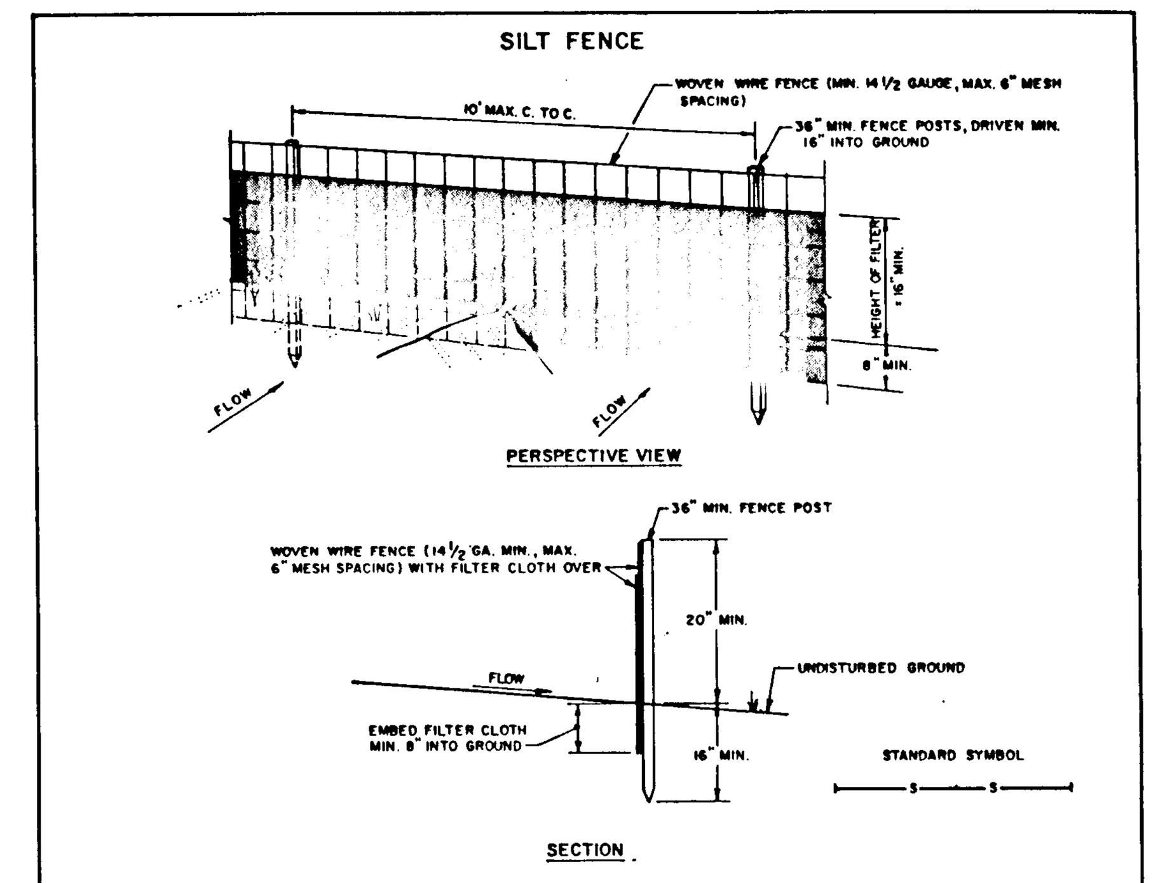
FLOW CHANNEL STABILIZATION

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

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

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

SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD

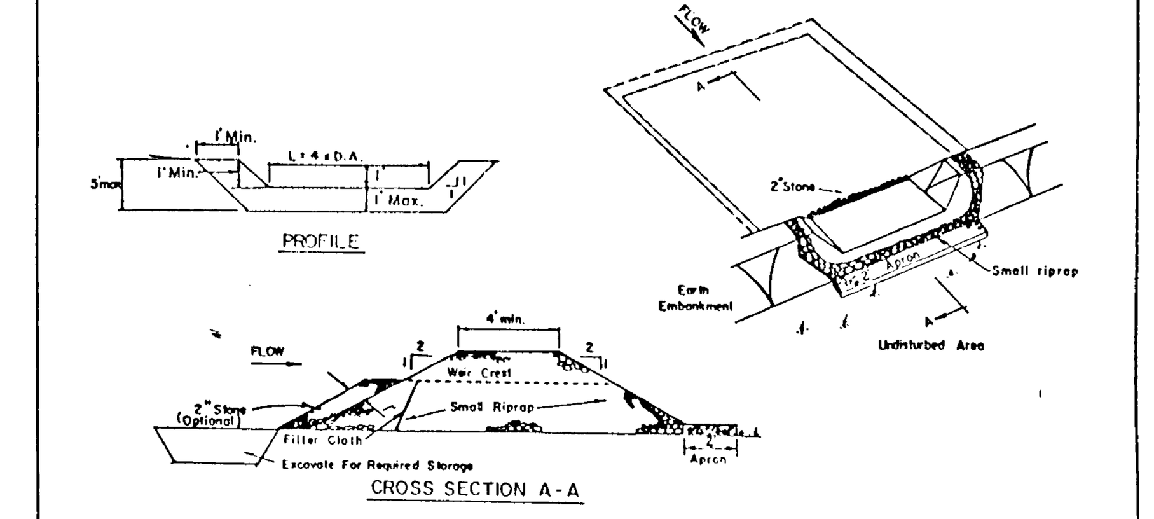
FENCE: WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	SILT FENCE	STANDARD DRAWING SF-1

STONE OUTLET SEDIMENT TRAP V



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

CONSTRUCTION SPECIFICATIONS FOR ST-V

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small riprap 4"-8" along with a 1' thickness of 2" aggregate placed on the up-grade side on the small riprap or embedded filter cloth in the riprap.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to ½ the design depth of the trap.
6. The structure shall be inspected after each rain and repairs made as needed.
7. Construction operations shall be carried out in such a manner than erosion and water pollution is minimized.
8. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

Maximum Drainage Area: 5 Acres

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	STONE OUTLET SEDIMENT TRAP	STANDARD DRAWING ST-V

LEGEND

Contour Interval 2 feet
Existing Contour ------------212
Proposed Contour ——212——
Direction of Drainage
Spot Elevation +24²
Silt Fence s——s——s——s
Earth Dike
Limit of Disturbance
Proposed Drainage Divide
Stabilized Construction Entrance
Exist trees

STATE OF MARYLAND G. NELSON CLARK REGISTERED PROFESSIONAL ENGINEER 3-16-95

AS-BUILT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	4/20/95 DATE
CHIEF, BUREAU OF HIGHWAYS	4-26-95 DATE
CHIEF, BUREAU OF ENGINEERING	4/28/95 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF COMMUNITY PLANNING AND KAND DEVELOPMENT	5/2/95 DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 Howard Soil Conservation District or their authorized agents, as are deemed necessary".

Signature ______ Date 3-2-95

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion 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.

G. Nelson Clark ______ Date 1-4-95

1-4-95

Reviewed for HOWARD S.C.D. and meets Technical Requirements
Signature ______ Date 4/20/95
US Soil Conservation Service

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

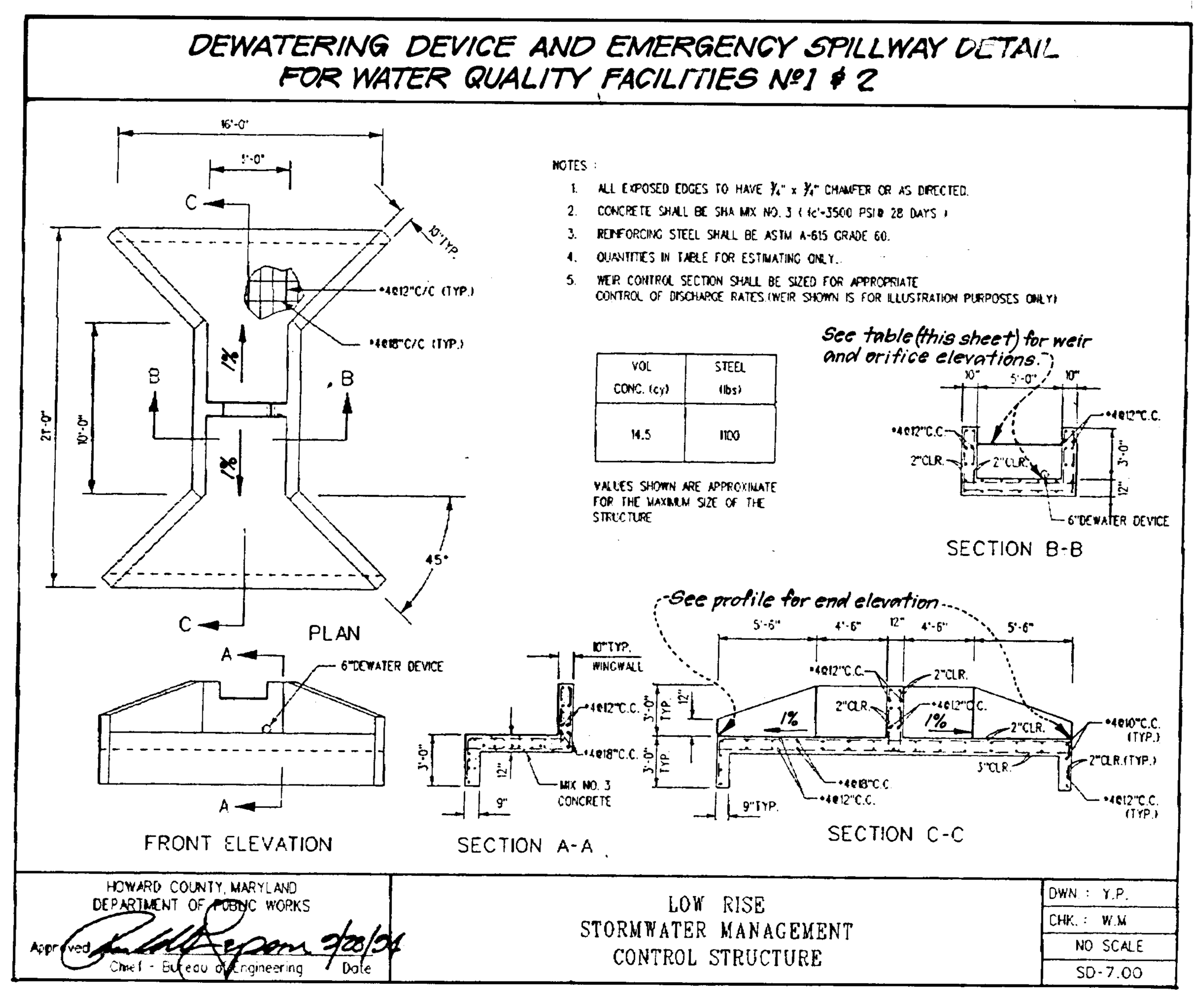
4/20/95
Approved

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALTO • (301) 621-8100 WASH.

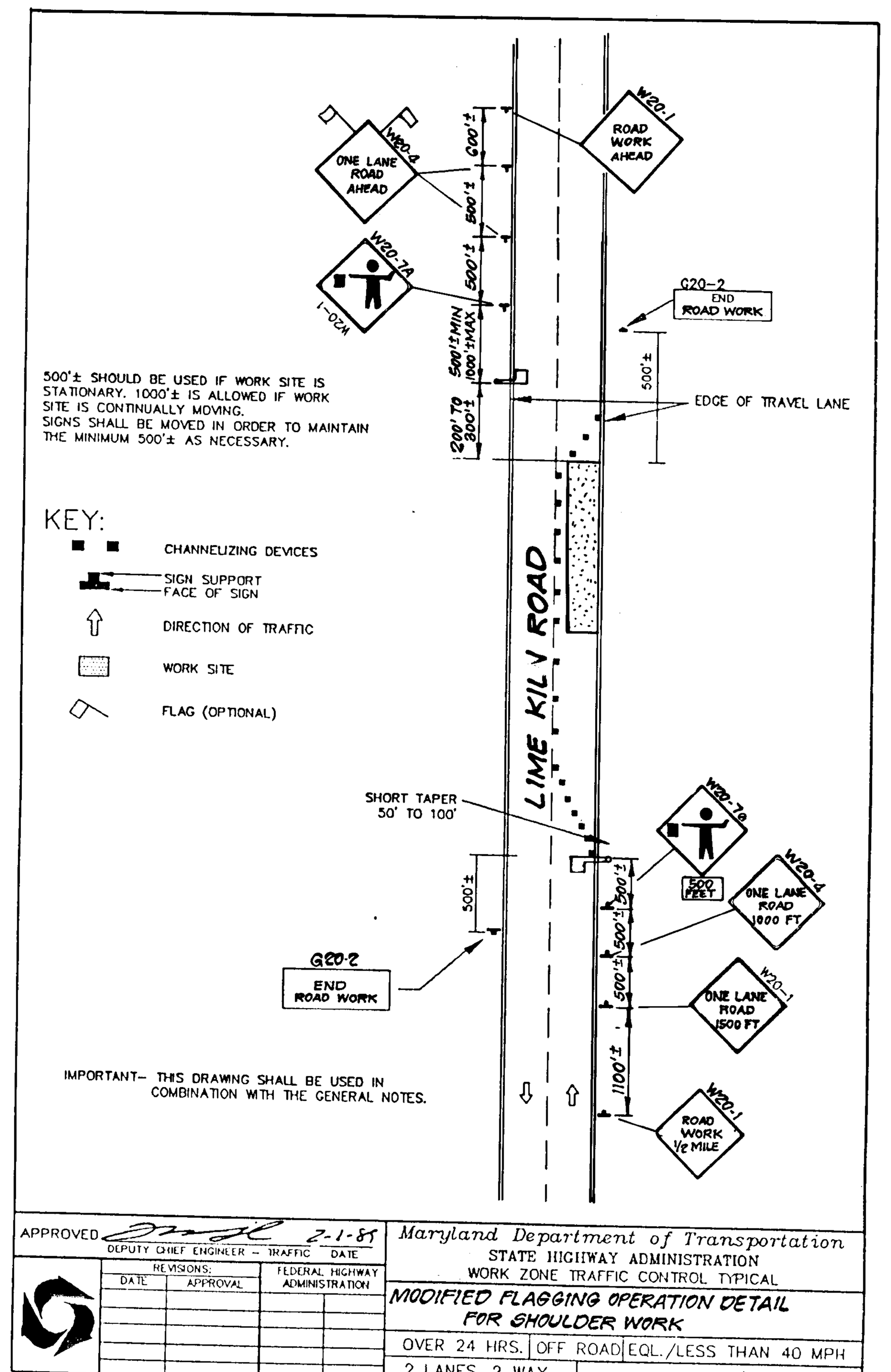
DESIGNED ZAL	SEDIMENT AND EROSION CONTROL PLAN DETAIL SHEET	SCALE No Scale
DRAWN ZAH	BROOKWOOD FARMS	DRAWING 9 OF 13
CHECKED WHT	TAX MAP 40 & 45 PARCEL 1 FIFTH (5th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 94064
DATE 3-2-95	FOR: CARMAN ASSOCIATES P.O. BOX 122 ELLICOTT CITY, MARYLAND	FILE NO. 94064

F-95-81

1733



DEWATERING DEVICE AND EMERGENCY SPILLWAY DETAIL FOR WATER QUALITY FACILITIES Nº1 & 2
NOTES :
1. ALL EXPOSED EDGES TO HAVE 3/4" x 3/4" CHAMFER OR AS DIRECTED.
2. CONCRETE SHALL BE SHA MIX NO. 3 (fc'=3500 PSI @ 28 DAYS)
3. REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60.
4. QUANTITIES IN TABLE FOR ESTIMATING ONLY.
5. WEIR CONTROL SECTION SHALL BE SIZED FOR APPROPRIATE CONTROL OF DISCHARGE RATES.(WEIR SHOWN IS FOR ILLUSTRATION PURPOSES ONLY)
VOL CONC. (cy)
STEEL (lbs)
14.5
1100
VALUES SHOWN ARE APPROXIMATE FOR THE MAXIMUM SIZE OF THE STRUCTURE
See table (this sheet) for weir and orifice elevations.
See profile for end elevation
PLAN
FRONT ELEVATION
SECTION A-A
SECTION B-B
SECTION C-C
HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
LOW RISE STORMWATER MANAGEMENT CONTROL STRUCTURE
NO SCALE
SD-7.00



ONE LANE ROAD AHEAD
ROAD WORK AHEAD
END ROAD WORK
EDGE OF TRAVEL LANE
LIME KILN ROAD
500'± SHOULD BE USED IF WORK SITE IS STATIONARY. 1000'± IS ALLOWED IF WORK SITE IS CONTINUALLY MOVING. SIGNS SHALL BE MOVED IN ORDER TO MAINTAIN THE MINIMUM 500'± AS NECESSARY.
KEY:
CHANNELIZING DEVICES
SIGN SUPPORT FACE OF SIGN
DIRECTION OF TRAFFIC
WORK SITE
FLAG (OPTIONAL)
SHORT TAPER 50' TO 100'
IMPORTANT- THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES.
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
WORK ZONE TRAFFIC CONTROL TYPICAL
MODIFIED FLAGGING OPERATION DETAIL FOR SHOULDER WORK
OVER 24 HRS. | OFF ROAD | EQL./LESS THAN 40 MPH
2 LANES, 2 WAY

TRAFFIC MAINTENANCE PLAN DETAIL

WATER QUALITY CONSTRUCTION SPECIFICATIONS

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

1. 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.

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.

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.

2. Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

3. Compaction -

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

4. Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, Mix No. 3

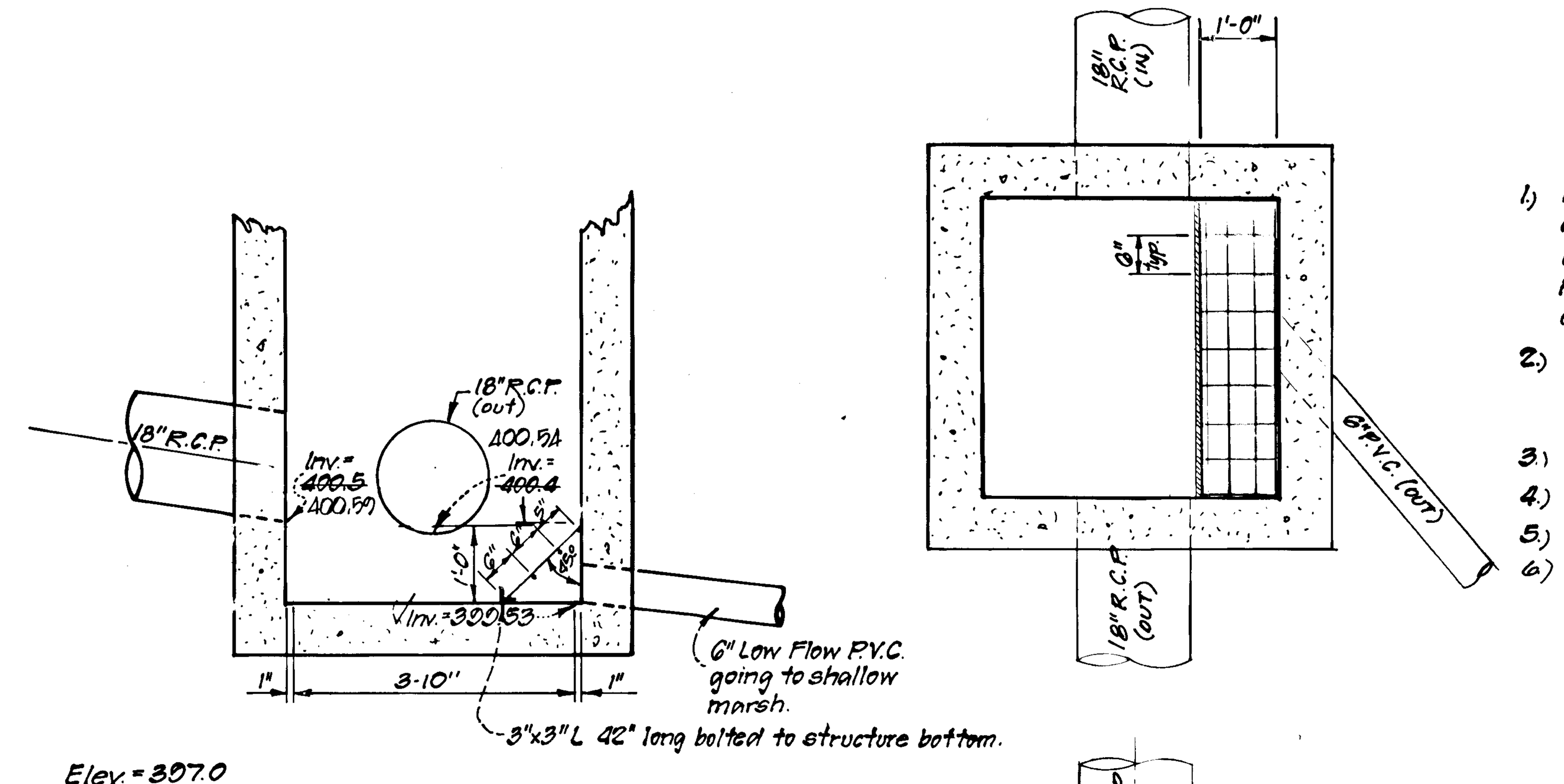
5. Rock Riprap

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

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

6. Stabilization

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



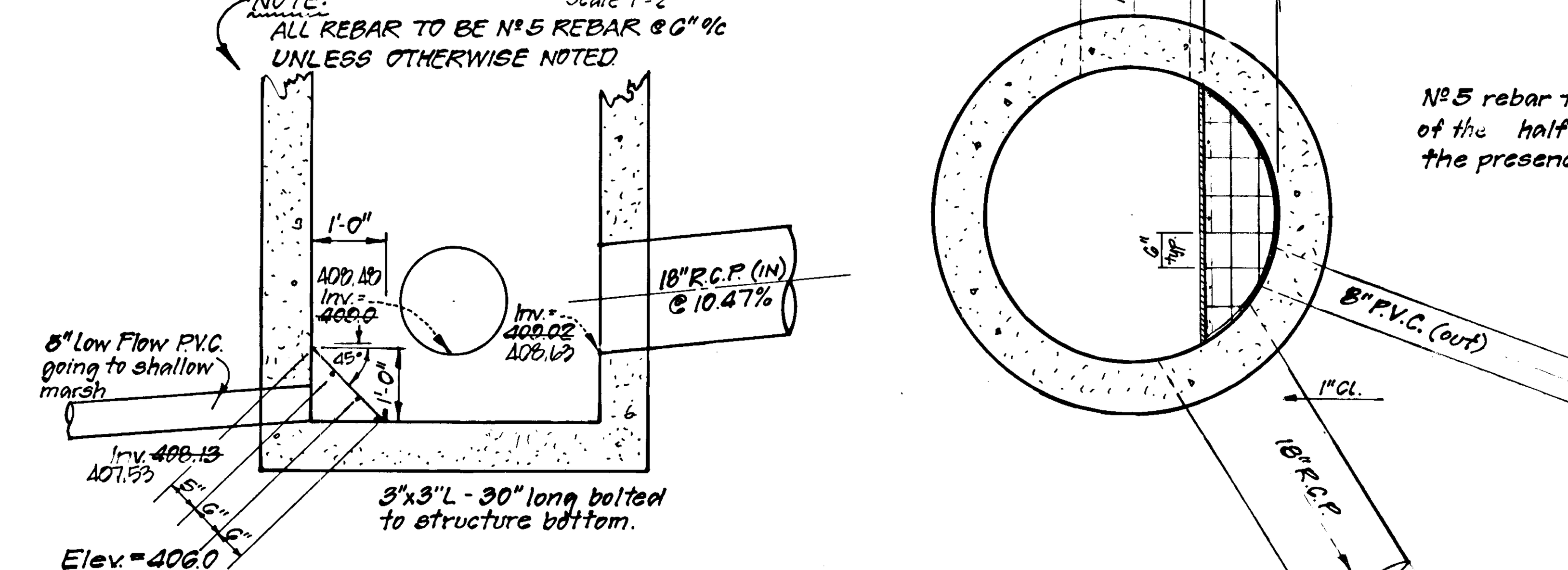
STRUCTURE Nº M-4 TRASH RACK DETAIL

Scale 1"=2'

NOTE:
ALL REBAR TO BE Nº5 REBAR @ 6" o/c UNLESS OTHERWISE NOTED

TRASH RACK NOTES

1.) Removable trash rack is to be placed on the bolted angle and is to rest against the side of the structure at a 45° angle as shown. Removal of the trash rack will allow access to the bottom of the structure for maintenance.
2.) Trash racks are to lay angled as shown to prevent accumulation of debris in front of the outgoing shallow marsh pipe.
3.) 3"x3" L's to be placed 1 ft. back from the structure side wall.
4.) All rebar to be Nº5 at 6" o/c unless otherwise noted.
5.) All rebar to be painted Battleship Gray.
6.) All trash racks and their components shall be galvinized after fabrication.



Nº5 rebar to be welded to the perimeter of the half circle grate as to prevent the presence of jagged edges.

STRUCTURE Nº M-9 TRASH RACK DETAIL

Scale 1"=2'

ELEVATION TABLE FOR THE 6" DEWATERING ORIFICE AND THE EMERGENCY SPILLWAY WEIR		
	WATER QUALITY FACILITY Nº1	WATER QUALITY FACILITY Nº2
Emergency Spillway Weir Elevation	401.0✓	394.5✓
6" Oriface Elev. (Dewatering Device)	~~399.0~~ 398.9	392.5✓

NOTE: The control structure dimensions for Water Quality Facility Nºs 1 & 2 are the same and are to be built in accordance with detail SD. 7.00 (this sheet).

3-16-99

AS-BUILT

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all 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 Howard Soil Conservation District or their authorized agents, as are deemed necessary".

NAME: [signature] DATE: 3-2-95

3-2-95

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 4/28/95
CHIEF, BUREAU OF HIGHWAYS — DATE 4-26-95
CHIEF, BUREAU OF ENGINEERING — DATE 4/28/95

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 5/2/95

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 – BALTO. • (301) 621-8100 – WASH.

DESIGNED Z.A.L.	DETAIL SHEET	SCALE As Shown
DRAWN Z.A.H.	BROOKWOOD FARMS	DRAWING 10 of 13
CHECKED	TAX MAP 40 & 45 PARCEL 1 / FIFTH (5th) ELECTION DISTRICT / HOWARD COUNTY, MARYLAND	JOB NO. 94-064
DATE 3-2-95	FOR: CARMAN ASSOCIATES P.O. BOX 122 ELLICOTT CITY, MARYLAND	FILE NO. 94-064D

F-95-51

1723

HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Brookwood Farms SWM Ponds — Boring # B-1
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 401.2 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 5-7-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 5-7-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Dark brown, moist, loose, silt (ML) trace roots	3.0		I	2-2-3	1	10"	
	Orange-brown, moist to wet, medium stiff, silt-clayey silt (ML) (USDA: Silt Loam)	7.0	5	I	2-4-5	2	18"	Water Encountered at 5.0' on Rods
	Brown, moist to wet, loose to medium dense, micaceous sandy silt (ML)			D	4-4-6	3	18"	
			10	I	5-5-5	4	16"	
		16.5	15	I	3-6-6	5	18"	
	Boring Terminated at 16.5'		20					* Caved at 6.5'

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 14.0 FT; AFTER 24 Hrs. 1.0' 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

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ENGINEERING ASSOCIATES, INC.

Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name Brookwood Farms SWM Ponds — Boring # B-2
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 399.7 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-9-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-9-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					12" Topsoil
	Brown, moist, loose, slightly organic sandy silt (ML)	2.0		I	2-2-3	1	14"	
	Orange-brown and gray, wet, stiff, silt-clayey silt (ML) (USDA: Silt Loam)	7.0	5	I	4-9-11	2	14"	
	Orange-brown, saturated, hard, silt-clayey silt (ML) trace coarse gravel	9.5		I	21-17-15	3	6"	Water Encountered at 7.5' on Rods
	Gray, moist to wet, medium dense, clayey sand - sandy clay (SC-CL)	13.0	10	D	5-8-6	4	10"	
	Orange-brown, wet, medium dense, silty fine to medium sand (SM)	16.5	15	D	7-7-8	5	14"	
	Boring Terminated at 16.5'		20					* Caved at 13.0'

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 10.0 * FT.; AFTER ____ 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 2

RECORD OF SOIL EXPLORATION

Project Name Brookwood Farms SWM Ponds — Boring # B-3
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 398.8 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-7-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-7-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Dark brown, moist, loose, slightly organic silt (ML)	3.0		D	2-4-3	1	10"	
	Orange-brown, wet, medium stiff, silt-clayey silt (ML) (USDA : Silt Loam)	7.0	5	I	4-6-4	2	18"	Water Encountered at 5.0' on Rods
	Orange-brown, brown, and tan, wet, loose to very loose, sandy silt (ML)			I	2-3-5	3	18"	
			10	I	2-2-3	4	18"	
			15	I	2-2-3	5	18"	
			20					* Caved at 10.5'

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 Hrs. 1.0' 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 2 of 2

RECORD OF SOIL EXPLORATION

Project Name Brookwood Farms SWM Ponds — Boring # B-3
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 398.8 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-7-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-7-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		20.0					
	Orange-brown, brown, and tan, wet, loost to very loose, sandy silt (ML)	21.5		I	2-4-5	6	18"	
	Boring Terminated at 21.5'		25					
			30					
			35					
			40					Caved at 10.5'

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 Hrs. 1.0' 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.

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RECORD OF SOIL EXPLORATION

Project Name Brookwood Farms SWM Ponds — Boring # B-4
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. ____ Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-7-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-7-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					9" Topsoil
	Dark brown, moist, loose, slightly organic silt (ML)	2.0		I	3-4-6	1	10"	
	Reddish-brown and orange brown, moist, medium dense, sandy silt (ML) trace to little clay (USDA: Sandy Clay Loam)		5	I	7-11-14	2	18"	
		9.5		I	6-7-10	3	18"	
	Orange-brown, wet, stiff, silt-clayey silt (ML)		10	I	7-7-11	4	18"	
		17.0	15	I	7-10-9	5	18"	
	Brown and tan, wet, medium dense, sandy silt (ML)		20					* Caved at 8.5'

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 Hrs. 2.0' 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 2 of 2

RECORD OF SOIL EXPLORATION

Project Name Brookwood Farms SWM Ponds — Boring # B-4
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. ____ Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-7-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-7-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		20.0					
	Brown and tan, wet, medium dense, sandy silt (ML)	21.5		I	6-4-7	6	18"	
	Boring Terminated at 21.5'		25					
			30					
			35					
			40					* Caved at 8.5'

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 Hrs. 2.0' 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.

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RECORD OF SOIL EXPLORATION

Project Name Brookwood Farms SWM Ponds — Boring # B-5
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 398.4 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-7-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-7-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					12" Topsoil
	Brown, moist, loose, sandy silt (ML) trace roots	2.0		I	3-3-3	1	14"	
	Orange-brown, very moist to wet, stiff to medium stiff, silt-clayey silt (ML) (USDA: Silt Loam)		5	I	4-6-9	2	18"	
				I	4-3-4	3	18"	
		13.0	10	I	5-5-7	4	18"	
	Orange-brown, wet, loose to medium dense, fine sandy silt (ML)		15	I	2-4-5	5	18"	Water Encountered at 15.0' on Rods
			20					Caved at 19.0'

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 18.8 FT.; AFTER ____ 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 Brookwood Farms SWM Ponds — Boring # B-5
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 398.4 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-7-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-7-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		20.0					
	Orange-brown, wet, loose to medium dense, fine sandy silt (ML)	21.5		I	7-7-9	6	18"	
	Boring Terminated at 21.5'		25					
			30					
			35					
			40					Caved at 19.0'

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 18.5 FT; AFTER ____ 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 Brookwood Farms SWM Ponds — Boring # B-6
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 397.7 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-9-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-9-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					12" Topsoil
	Brown, moist, loose to medium dense, fine sandy silt (ML) (USDA: Sandy Loam/Loam)			I	2-2-3	1	14"	
		7.0	5	I	7-13-15	2	16"	
	Light brown, moist, medium dense, sandy silt (ML)	10.0		I	6-8-5	3	18"	Water Encountered at 7.5' on Rods
	Gray, moist, loose, micaceous sandy silt (ML)	13.0	10	I	3-3-4	4	16"	
	Orange-brown, moist, medium dense, fine sandy silt (ML)	16.5	15	D	8-11-14	5	16"	
	Boring Terminated at 16.5'		20					* Caved at 14.0'

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 ____ 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 Brookwood Farms SWM Ponds — Boring # B-7
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 397.6 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-9-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-9-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					12" Topsoil
	Brown, moist, loose, slightly organic silt (ML) trace roots	2.0		D	3-2-3	1	14"	
	Brown, saturated, dense, silty fine to coarse sand (SM) little to some fine gravel (USDA: Sandy Loam)	7.0	5	D	23-23-12	2	10"	Water Encountered at 5.0' on Rods
	Orange-brown, saturated, loose silty fine to coarse sand (SM) little to some fine gravel	10.0		D	2-3-5	3	12"	
	Orange-brown and reddish brown, wet, loost to medium dense, sandy silt (ML) trace to little clay		10	I	3-3-7	4	16"	
		16.5	15	I	6-11-10	5	16"	
	Boring Terminated at 16.5'		20					* Caved at 14.0'

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 13.0 * FT.; AFTER ____ 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 Brookwood Farms SWM Ponds — Boring # B-8
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 395.6 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-9-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-9-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Orange-brown, moist, medium stiff, silt-clayey silt (ML) (USDA: Silt Loam)	3.0		D	3-3-6	1	12"	
	Orange-brown, moist, dense, fine sandy silt (ML) trace gravel (USDA: Sandy Loam/Loam)	7.0	5	I	15-17-23	2	18"	
	Brown, wet to saturated, medium dense, sandy silt (ML)	10.0		D	16-8-9	3	6"	Water Encountered at 7.5' on Rods
	Orange-brown and reddish brown, very moist to wet, medium dense to loose, fine sandy silt (ML)		10	I	3-5-9	4	16"	
			15	I	3-4-5	5	16"	
			20					* Caved at 19.0'

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 18.5 * FT.; AFTER ____ 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 Brookwood Farms SWM Ponds — Boring # B-8
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 395.6 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-9-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-9-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		20.0					
	Orange-brown and reddish brown, very moist to wet, medium dense to loose, fine sandy silt (ML)	21.5		I	4-4-6	6	18"	
	Boring Terminated at 21.5'		25					
			30					
			35					
			40					* Caved at 19.0'

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 18.5 * FT.; AFTER ____ 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 Brookwood Farms SWM Ponds — Boring # B-9
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 393.5 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-9-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-9-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					14" Topsoil
	Brown, wet, loose, slightly organic silt (ML)	1.0		D	3-3-4	1	16"	
	Orange-brown, wet, very stiff, silt-clayey silt (ML) (USDA: Silt Loam)	3.0						
	Orange-brown, moist to wet, medium dense, sandy silt (ML) little quartz gravel USDA: Sandy Loam/Loam)	7.0	5	D	6-13-12	2	16"	Water Encountered at 5.0' on Rods
	Gray and orange-brown, wet, medium stiff, silt-clayey silt (ML)			I	5-4-6	3	16"	
		12.0	10	I	4-5-6	4	16"	
	Brown, wet to saturated, loose, fine sandy silt (ML)		15	D	4-4-6	5	16"	
			20					* Caved at 18.0'

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 12.0 * FT.; AFTER ____ 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 Brookwood Farms SWM Ponds — Boring # B-9
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum 393.5 Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 4-9-94 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started ____ Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-9-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		20.0					
	Brown, wet to saturated, loose, fine sandy silt (ML)	21.5		I	2-4-4	6	16"	
	Boring Terminated at 21.5'		25					
			30					
			35					
			40					Caved at 18.0'

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 12.0 FT.; AFTER ____ 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 Brookwood Farms SWM Ponds — Boring # B-10
Location Howard County, Maryland — Job # 94126A

SAMPLER
Datum ____ Hammer Wt. 140 Lbs. Hole Diameter 8" Foreman W. Stephens
Surf. Elev. 394.6 Hammer Drop 30 Inches Rock Core Dia. ____ Inspector ____
Date Started 4-9-94 Pipe Size 2.0 Inches OD Boring Method HSA Date Completed 4-9-94

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Orange-brown, moist to wet, medium stiff, silt-clayey silt (ML) (USDA: Silt LOam)			I	2-3-3	1	12"	
		8.0	5	I	4-4-6	2	18"	
	Brown, saturated, loose to medium dense, fine sandy silt (ML)			D	7-12-12	3	16"	Water Encountered at 7.5' on Rods
		13.0	10	D	6-14-14	4	8"	
	Brown, wet, medium dense, micaceous sandy silt (ML)	16.5	15	D	6-6-7	5	15"	
	Boring Terminated at 16.5'		20					* Caved at 11.0'

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 5.0 * FT; AFTER ____ 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

STATE OF MARYLAND — G. NELSON CLARK — NO. 7139 REGISTERED — PROFESSIONAL ENGINEER
3-16-99
AS-BUILT

STATE OF MARYLAND — G. NELSON CLARK — NO. 7139 REGISTERED — PROFESSIONAL ENGINEER
OK
3-2-95

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION — DATE 4/28/95
CHIEF, BUREAU OF HIGHWAYS HS — DATE 4-26-95
CHIEF, BUREAU OF ENGINEERING — DATE 4/28/95

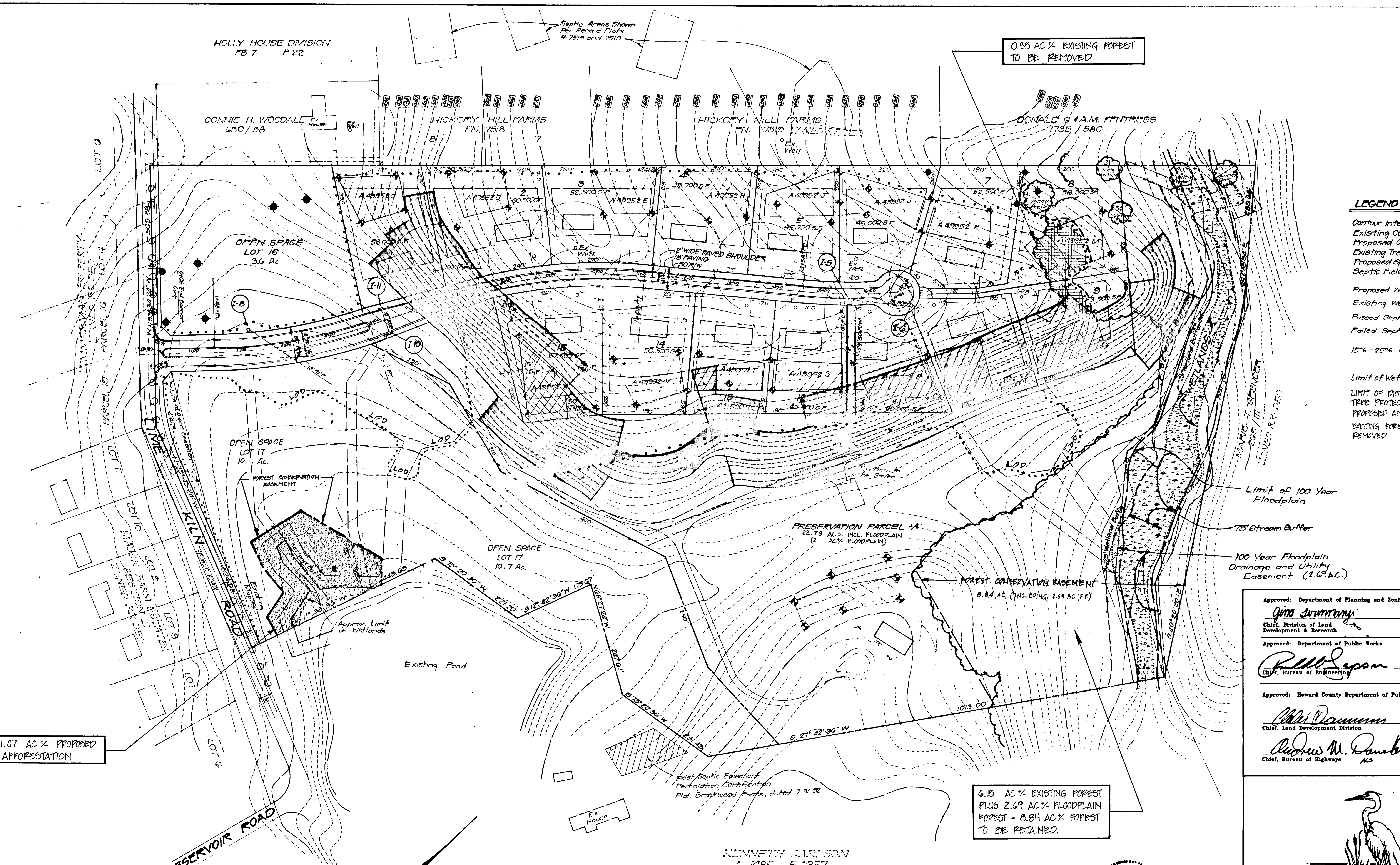
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 5/2/95

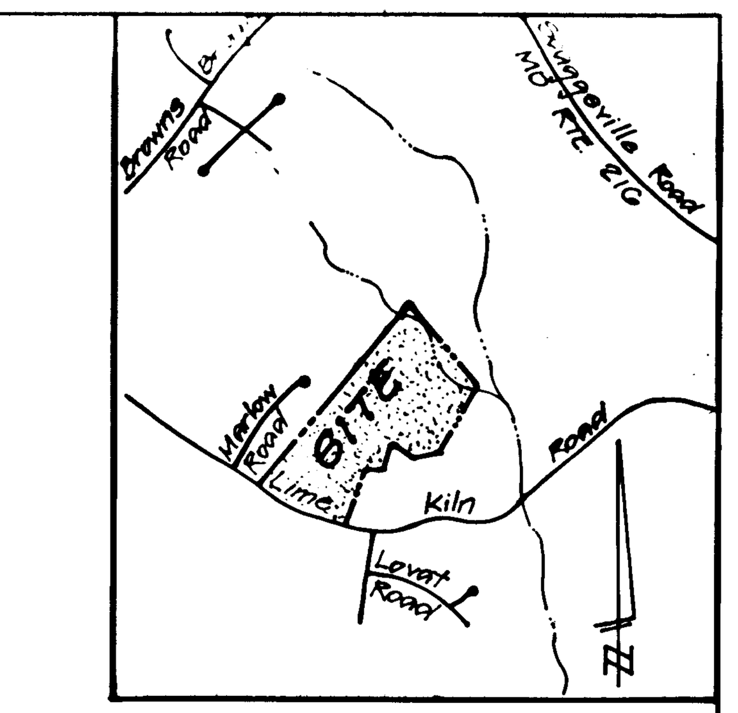
CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED Z.A.L	SOIL BORING LOGS	SCALE —
DRAWN Z.A.H	BROOKWOOD FARMS	DRAWING 11 of 13
CHECKED	FIFTH (5th) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 94-064
DATE 3-2-95	FOR: CARMAN ASSOCIATES P.O. BOX 122 ELLICOTT CITY, MARYLAND 21043	FILE NO. 94-064-D

F-95-81

576776





VICINITY MAP
Scale 1"=2000'

LEGEND

Contour Interval 2 feet
Existing Contour 262
Proposed Contour 262
Existing Trees to be Saved
Proposed Spot Elev. +26²
Septic Fields
Proposed Well Site
Existing Well Site
Passed Septic Test Sites
Failed Septic Test Sites
15% - 25% Slopes
Limit of Wetlands
LIMIT OF DISTURBANCE (L.O.D.)
TREE PROTECTION DEVICE
PROPOSED AFFORESTATION
EXISTING FOREST TO BE REMOVED

OK
3-16-99
AS-BUILT

NOTE: This symbol designates a proposed private sewage easement of 10,000 sq ft minimum as required by the Maryland State Department of the Environment for individual Sewage Disposal. Improvements of any nature in these areas are restricted until public sewerage is available and serving any residential structure constructed on these building sites. These easements shall become null and void upon connection to a public sewerage system. The final lot configuration shall comply with the minimum ownership width and lot areas, as required by the Maryland State Department of the Environment.

PERCOLATION TEST DATA

PRESENT LOT NUMBER	AVERAGE PERC TIME IN MIN	MINIMUM INLET DEPTH IN FEET	PERC AREA IDENTIFICATION 'A' NUMBERS
PRES. PAR. A	21	4.0	49952 A
1	8	4.0	49952 C
2	26	4.0	49952 D
3	3	4.5	49952 E
4	28	4.5	49952 H
5	12	4.5	49952 I
6	12	4.5	49952 J
7	5	4.0	49952 K
8	5	4.0	49952 M
9	5	4.0	49952 O
10	20	5.0	49952 P
11	18	4.5	49952 R
12	29	4.0	49952 S
13	29	5.0	49952 T
14	10	5.0	49952 V
15	29	4.0	49952 X

MINIMUM LOT SIZE CHART

LOT №	Gross Area	Pipestem Area	Net Area	Min. Lot Size
8	58,900 sq ft	1900 sq ft	57,000 sq ft	40,000 sq ft
9	53,500 sq ft	2000 sq ft	51,500 sq ft	40,000 sq ft

REVISED 4/10/95 AS PER ENGINEER COMMENTS

Approved: Department of Planning and Zoning
Chief, Division of Land Development & Research — Date 5/2/95

Approved: Department of Public Works
Chief, Bureau of Engineering — Date 4/28/95

Approved: Howard County Department of Public Works
Chief, Land Development Division — Date 4/28/95
Chief, Bureau of Highways — Date 4-26-95

EXPLORATION RESEARCH, INC
ENVIRONMENTAL CONSULTANTS
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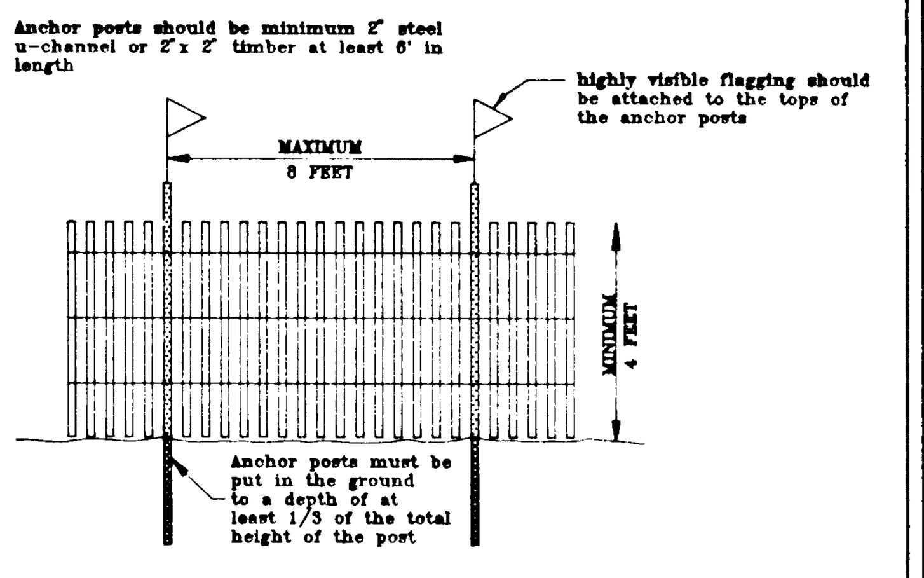
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 – BALTO. • (301) 621-8100 – WASH.

DESIGNED	FOREST CONSERVATION PLAN LOTS 1 THRU 17 & PRESERVATION PARCEL A	SCALE 1"=100'
DRAWN SJR	**BROOKWOOD FARMS**	DRAWING 12 of 13
CHECKED MJF / SLH	TAX MAP 40 & 45 PARCEL P-1 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 94-064
DATE 6/22/94	OWNER/DEVELOPER: CARMAN ASSOCIATES, P.O. Box 122, Ellicott City, Md. 21043	FILE NO. 94-064 P

F-95-81

1732

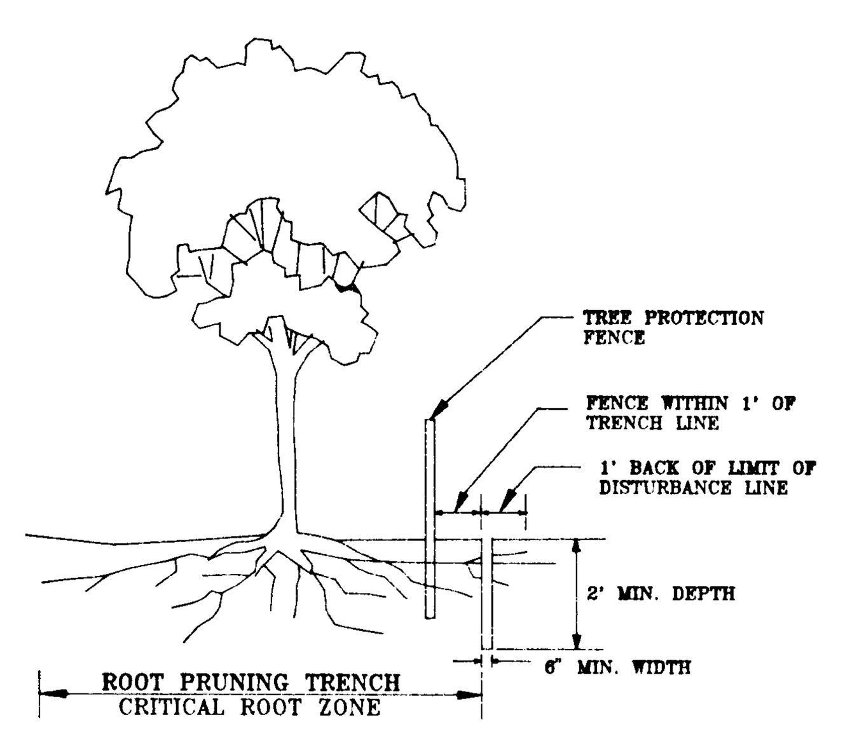
DETAIL 1: TREE PROTECTIVE DEVICE
SOURCE: M-NCPPC, 1989



GENERAL NOTES

1. Limits of disturbance will be set as part of the review process for an approved TCP
2. The boundaries of the limits of disturbance should be staked and flagged prior to erecting the protective measures.
3. Anchor posts should be placed to avoid severing or damaging large tree roots
4. Fencing material should be fastened securely to the anchor posts

DETAIL 2: ROOT PRUNING



NOTES:
1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS
2. BOUNDARIES OF RETENTION AREAS SHOULD BE STAKED FLAGGED PRIOR TO TRENCHING
3. EXACT LOCATION OF TRENCH SHOULD BE INDENTIFIED.
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR OTHER HIGH ORGANIC SOIL.
5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

SOURCE: CITY OF GAITHERSBURG, MARYLAND

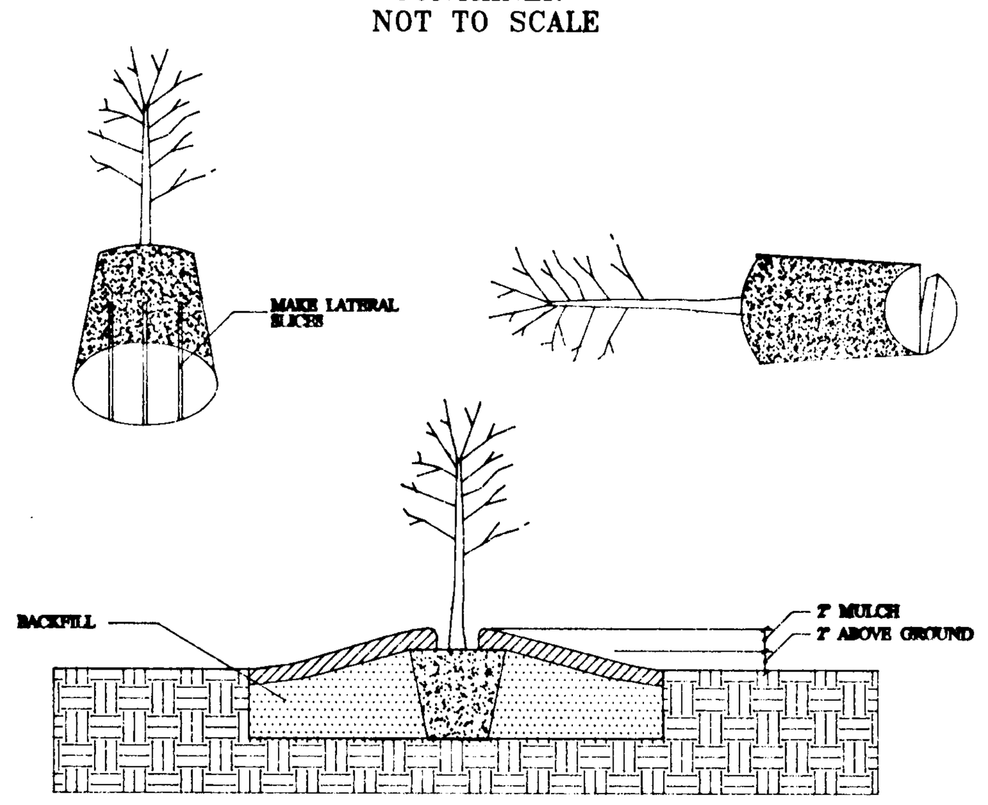
DETAIL 3: TYPICAL RANDOMIZED PLANTING PLAN

ROW												
1	M	G	T	O	G	M	G	T	O	T	M	T
2	T	D	O	G	G	T	M	O	D	O	T	G
3	O	G	D	G	M	T	G	T	O	D	G	G
4	T	M	M	G	O	D	D	O	T	G	M	M
5	O	G	O	O	T	O	D	M	O	G	G	T
6	M	O	D	G	M	T	G	M	O	O	M	G
7	T	D	M	M	G	M	O	O	T	T	D	M
8	T	M	M	T	O	T	G	M	T	O	M	T

22.5%	PIN OAK	O
22.5%	GREEN ASH	G
22.5%	TULIP POPLAR	T
22.5%	RED MAPLE	M
10.0%	FLOWERING DOGWOOD	D

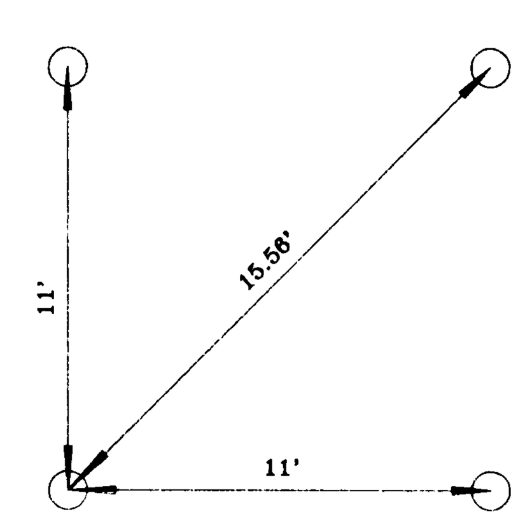
ALL TREES TO BE CONTAINERIZED WHIPS 3–4 FEET HEIGHT

DETAIL 4: WHIP PLANTING DETAIL
CONTAINER
NOT TO SCALE



PLANTING PROCEDURES FOR POT BOUND CONTAINER GROWN PLANTS

1. REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER.
2. USE A KNIFE TO CUT THROUGH BOTTOM HALF OF THE ROOT BALL.
3. PLANT ABOVE THE EXISTING GRADE WHEN HIGH WATER TABLE CONDITIONS EXIST, OTHERWISE PLANT FLUSH WITH EXISTING GRADE
4. PLANTING HOLE TO BE THREE TIMES THE DIAMETER OF THE CONTAINER



DETAIL 5: TYPICAL 11' X 11' PLAN VIEW

FOREST MANAGEMENT NOTES

PRECONSTRUCTION

CONDUCT A PRECONSTRUCTION MEETING WITH CONTRACTOR TO ENSURE FOREST PROTECTION MEASURES ARE FOLLOWED

DURING CONSTRUCTION

PROVIDE MAINTENANCE TO TREE PROTECTION DEVICES.

WATER TREES HAVING CRITICAL ROOT ZONE IMPACTS ON A BI-WEEKLY BASIS OR AS NEEDED

MONITOR CONDITIONS OF REMAINING TREES, I.E. INSECT INFESTATIONS, LEAF DISCOLORATION, EARLY LEAFDROP ETC. *

POST CONSTRUCTION TWO (2) YEAR MINIMUM

INSPECT EXISTING TREES AROUND THE PERIMETER OF DISTURBED LIMITS FOR SIGNS OF ROOT OR TRUNK DAMAGE AND SOIL COMPACTION. *

EVALUATE REMAINING TREES FOR SIGNS OF STRESS AND CONDUCT APPROPRIATE CULTURAL MANAGEMENT: CROWN REDUCTION, PRUNING, WATERING, SOIL AERATION, FERTILIZING, ETC. REMOVE DEAD OR DYING TREES AND EVALUATE FOR HAZARD TREES. *

* A LICENSED ARBORIST OR FORESTER SHOULD BE RETAINED FOR THESE SERVICES.

PRESERVATION AREA NOTES

1. ALL PROPOSED ACTIVITIES SHALL CONFORM TO THE TERMS, CONDITIONS AND SCHEDULES OF AN APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN.

2. SNOW FENCING, [TYPICAL SECTION SHOWN IN PLAN DETAIL 1] SHALL BE INSTALLED ALONG ALL TREE SAVE AREAS THAT ARE WITHIN FIFTY FEET [50'] OF PROPOSED CONSTRUCTION ACTIVITIES. THE TREE PROTECTIVE DEVICES SHALL BE IN PLACE AT THE TIME CONSTRUCTION ACTIVITIES COMMENCE. NO PROTECTIVE DEVICES SHALL BE INSTALLED ALONG TREE SAVE AREAS THAT ARE GREATER THAN FIFTY (50') FEET FROM CONSTRUCTION ACTIVITY. THE LOCATION OF ALL TREE PROTECTION DEVICES ARE SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN DRAWINGS WHICH WILL BE INCORPORATED INTO THIS TREE CONSERVATION PLAN BY REFERENCE.

FENCING AND SIGNAGE NOTES

1. WOODLAND CONSERVATION/TREE SAVE AREAS AND LIMITS OF CLEARING WILL BE CLEARLY MARKED PRIOR TO THE BEGINNING OF ANY ACTIVITIES.

2. IF DETERMINED TO BE NECESSARY, THE AFFORESTATION AREA WILL BE ENCLOSED BY A POST AND SMOOTH WIRE FENCE, SUITABLY MARKED TO IDENTIFY THE AREA. THE FENCE SHALL BE OF SUFFICIENT CONSTRUCTION TO IMPEDE ENTRY AND MARKED AT SUITABLE FREQUENCY WITH CONSPICUOUS MARKERS AND SIGNAGE.

CONSTRUCTION TIMETABLE

1. OBTAIN GRADING/BUILDING PERMIT
2. INSTALL TREE PROTECTION FENCE ALONG DISTURBED LIMITS
3. EXCAVATE & CONSTRUCT ROADS UNDER AN APPROVED FINAL PLAN.
4. COMPLETE HOUSE CONSTRUCTION
5. REMOVE TEMPORARY TREE PROTECTION DEVICES
6. INSTALL AFFORESTATION PLANTINGS
7. INSPECT AND MAINTAIN AFFORESTATION PLANTINGS FOR A 2 YEAR PERIOD.
8. PROVIDE FINAL REPORT AND CERTIFICATION OF PLANTING.

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. ALL ACTIVITIES SHALL CONFORM TO THE TERMS, CONDITIONS, AND SCHEDULES OF A SOIL EROSION AND SEDIMENT CONTROL PLAN APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.

2. ALL FEASIBLE & PRACTICAL EROSION AND SEDIMENT CONTROL DEVICES WILL BE INTEGRATED INTO THE TREE CONSERVATION PLAN

3. ALL ACTIVITIES SHALL BE DESIGNED TO MINIMIZE SEDIMENTATION AND EROSION INTO AND ADJACENT TO TREE PRESERVATION AREAS.

PLANTING SCHEDULE NOTES

1. AREAS WILL BE PLANTED IN LATE WINTER AND EARLY SPRING. PLANTING MAY BEGIN AS SOON AS THE GROUND IS NO LONGER FROZEN AND THE DANGER OF KILLING FROSTS IS MINIMAL. EARLIEST PLANTING DATES WILL VARY FROM YEAR TO YEAR.

2. SOIL AMENDMENT AND FERTILIZATION RECOMMENDATIONS WILL BE MADE BASED UPON THE RESULTS OF SOIL ANALYSES FOR NITROGEN, PHOSPHORUS, POTASSIUM, ORGANIC MATTER CONTENT, AND PH. IF REQUIRED LIME AND FERTILIZER WILL BE APPLIED AS A SIDEBAND SIX TO TEN INCHES [6–10"] FROM THE CENTERLINE OF THE PLANTING ROWS. THESE MATERIALS WILL BE WORKED INTO THE SOIL USING A DISC OR CHISEL HARROW OR OTHER MORE SPECIALIZED EQUIPMENT. APPLY WOOD CHIPS OR HARDWOOD BARK MULCH IN A 2 FOOT MIN. RADIUS AROUND EACH TREE AS SHOWN IN THE DETAIL PROVIDED.

3. PLANTING MATERIALS WILL CONSIST OF WHIPSTOCK PLANTED ON 11 X 11 FOOT SPACING. AVERAGE DENSITY OVER THE AFFORESTATION AREA WILL BE 350 TREES/ACRE. HARDWOOD PLANTINGS WILL CONSIST OF A RANDOMIZED MIX OF FOUR MAJOR SPECIES (TULIP POPLAR, GREEN ASH, PIN OAK, AND RED MAPLE). AND ONE MINOR SPECIES (FLOWERING DOGWOOD). A TYPICAL PLANTING PLAN IS SHOWN IN PLANT DETAIL 3.

PROPOSED SIGNAGE

FOREST RETENTION AREA

MACHINERY, DUMPING OR STORAGE OF ANY MATERIAL IS

PROHIBITED

VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

FOREST CONSERVATION AREA

AFFORESTATION PROJECT

TREES FOR YOUR FUTURE

FORESTRY DESIGN BY:
EXPLORATION RESEARCH, INC.
8318 FORREST STREET
ELLICOTT CITY, MARYLAND 21043
(410) 750-1150

15" MINIMUM

11" MINIMUM — 11" MINIMUM

PLANTING MATERIALS & HANDLING NOTES

1. PLANTING MATERIALS WILL CONSIST OF CONTAINERIZED WHIP STOCK WITH MINIMUM HEIGHTS AS SHOWN IN PLAN DETAIL 4. ALL STOCK WILL BE PLANTED AS RECIEVED; NO ROOT OR TOP PRUNING WILL BE DONE AT THE SITE. STOCK NOT MEETING SPECIFICATIONS SHALL BE RETURNED TO THE SUPPLIER.

2. ALL PLANTING STOCK SHALL BE PROTECTED FROM SUNSCALD, DESICCATION, AND STRUCTURAL DAMAGE DURING SHIPMENT TO THE SITE. DELIVERY OF MATERIALS WILL BE NO SOONER THAN ONE WEEK PRIOR TO PLANTING. MATERIALS HELD FOR PLANTING WILL BE MOISTENED AND PLACED IN COOL, SHADED AREAS UNTIL READY FOR PLACEMENT. DURING PLANTING ALL MATERIALS WILL BE KEPT MOIST WITH THE ROOTS PROTECTED FROM DESICCATION.

PLANTING METHODOLOGY NOTES

1. STOCK WILL BE HAND-PLANTED. HOLES SHOULD BE EXCAVATED BY MECHANICAL AUGER. TYPICAL PLANTING DETAILS FOR PLANTING IS SHOWN IN PLANTING DETAIL 4.
2. MULCH MAY BE APPLIED BY HAND OR BY SUITABLE EQUIPMENT.

STATE OF MARYLAND — G. NELSON CLARK — NO 7139 REGISTERED PROFESSIONAL ENGINEER

3-16-99

AS-BUILT

STATE OF MARYLAND — NO. 434 REGISTERED LANDSCAPE ARCHITECT

MONITORING PLAN NOTES

1. MONTHLY VISITS DURING THE FIRST GROWING SEASON [YEAR 1] ARE TO ASSESS THE SUCCESS OF THE PLANTINGS AND TO DETERMINE IF SUPPLEMENTAL WATERING OR OTHER ACTIONS ARE NECESSARY. EARLY SPRING VISITS WILL DETERMINE WINTER KILL AND AUTUMN VISITS WILL DETERMINE SUMMER KILL.

2. STOCK SURVIVAL IS ESTIMATED TO BE 75 PERCENT AFTER TWO YEARS. IF SURVIVAL FALLS BELOW 350 TREES PER ACRE, AREAS WILL BE REPLANTED TO MEET AN AVERAGE DENSITY OF 263 TREES PER ACRE OVER THE ENTIRE AFFORESTATION AREA.

3. SURVIVAL WILL BE DETERMINED BY A STRATIFIED RANDOM SAMPLING OF THE PLANTINGS. SAMPLE LOCATIONS WILL BE CHOSEN PRIOR TO PLANTING. THE SPECIES COMPOSITION OF THE SAMPLE POPULATION SHOULD BE PROPORTIONATE TO THE AMOUNT OF EACH SPECIES IN THE ENTIRE PLANTING TO BE SAMPLED.

REVISED 4/10/95 AS PER ENGINEER COMMENTS

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FOREST CONSERVATION NOTES
BROOKWOOD FARMS

LOTS 1-17 & PRESERVATION PARCEL 'A'
FIFTH ELECTION DISTRICT
TAX MAP NUMBER 40 & 45, PARCEL P-1
HOWARD COUNTY, MARYLAND

Approved: Department of Planning and Zoning
5/2/95
Cheif, Division of Land Development & Research — Date

Approved: Department of Public Works
4/28/95
Cheif, Bureau of Engineering — Date

Approved: Howard County Department of Public Works
4/28/95
Cheif, Land Development Division — Date

4-26-95
Cheif, Bureau of Highways — Date

OWNER AND DEVELOPER

CARMAN ASSOCIATES
P.O. BOX 122
ELLICOTT CITY, MARYLAND 21043

DRAWN BY: SJR — SCALE: N.T.S
DESIGNED BY: SJR — DATE: JUNE 1994
CHECKED BY: S.L.H. / M.J.F. — SHEET 13 OF 13

F-95-81

1732