

VICINITY MAP
Scale: 1" = 2000'

APPROVED: FOR Private WATER AND Private SEWERAGE SYSTEMS,
HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER *[Signature]* DATE 8/19/91
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 DIRECTOR *[Signature]* DATE 8/19/91
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR *[Signature]* DATE 8/27/91
 CHIEF BUREAU OF ENGINEERING, MKK DATE 8-28-91



CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.		
DESIGNED DGT. DRAWN KIWM CHECKED DGT. DATE APRIL 1991	GRADING, SEDIMENT & EROSION CONTROL PLAN INDEX PLAN CATTAIL CREEK COUNTRY CLUB FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD COUNTY COUNTRY CLUB, INC. c/o REESE and CARNLEY 10715 Charter Drive Suite 200 Columbia, Maryland 21044	SCALE 1" = 400' DRAWING 10F 26 JOB NO. 89-007 FILE NO. 89-0078E

SDP-91-106

TRAP NO 2 (S.O.S.T.) ST-V

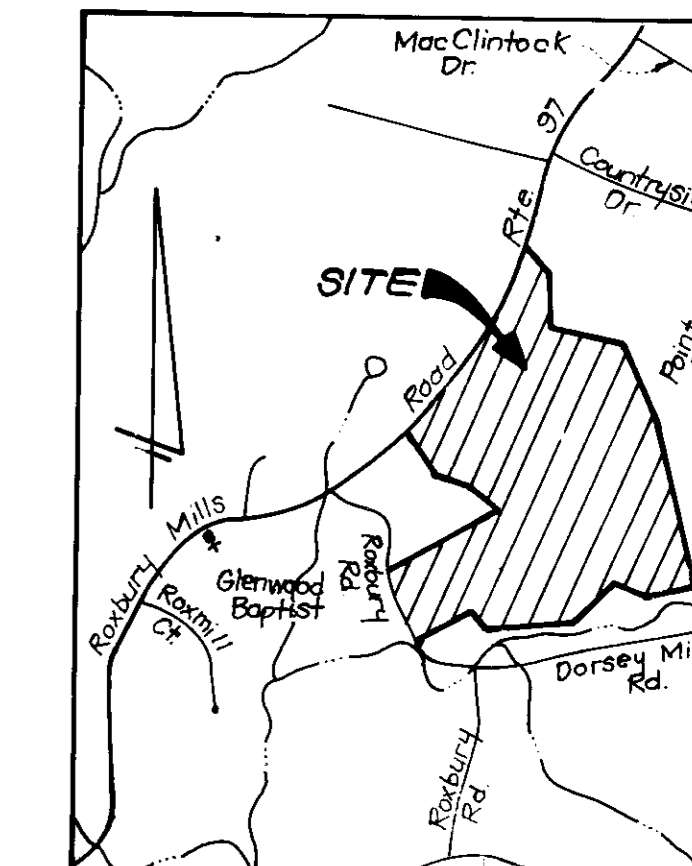
Drainage Area = 4.0 Ac.
 Storage Required = 7200 cf
 Storage Provided = 14,550 cf
 Weir Crest EL = 476.0
 Cleanout EL = 473.0
 Bottom EL = 471.0
 Depth = 4'
 Side Slopes 2:1
 Bottom Dimensions 27' x 70'
 Weir Length 16'
 Top of Embankment 478.0

TRAP NO 3 (S.O.S.T.) ST-V

Drainage Area = 1.30 Ac.
 Storage Required = 2340 cf
 Storage Provided = 3100 cf
 Weir Crest EL = 483.00
 Cleanout EL = 481.00
 Bottom EL = 480.00
 Depth = 2'
 Side Slopes 2:1
 Bottom Dimensions 21' x 52'
 Weir Length L = 6'

LEGEND

- Contour Interval 2 Ft.
- Existing Contour
- Proposed Contour
- Spot Elevation +102
- Direction of Drainage
- Existing Trees to be Saved
- Cart Path
- Earth Dike
- Silt Fence
- Ex. Drainage Divide
- Stabilized Construction Entrance
- Proposed Drainage Divide



VICINITY MAP
Scale 1" = 2000'

GENERAL NOTES

1. All materials and construction to be in accordance with Howard County Road Construction Code and Specs.
2. Any damage to county owned right-of-way to be corrected at the Developer's expense.
3. Installation of traffic control devices shall be in accordance with the latest edition of the "Manual of Uniform Traffic Control Devices".
4. Topographic information was provided by Fisher, Collins & Carter, Inc.
5. Subject property is located on Tax Map No. 21 and zoned R.
6. All driveways and parking to be privately owned and maintained.
7. All easements are based on the Maryland State Plane Coordinate System.
8. Class C Trench Bedding shall be used under all storm drainage, unless otherwise shown.
9. Information concerning underground utilities was obtained from available records, but the contractor must determine actual location by digging test pits, by hand, at all utility crossings, well in advance of construction.
10. The developer or contractor shall contact the Construction Inspection/Survey Division 24 hours in advance of commencement of work at 313-2417 or 792-7272.
11. Reference file numbers E-90-54, WF-91-03, 5-89-61 and P-89-72.

CARL R. KLITZKE & ELEANORE R. KLITZKE
427/77

JAMES R. ABE & MARILYN S. ABE
1006/452

TRAP NO 4 (R.O.S.T.) ST-VI

Drainage Area = 8.80 Ac.
 Storage Required = 13,840 cf
 Storage Provided = 16,200 cf
 Weir Crest EL = 480.0
 Cleanout EL = 477.5
 Bottom EL = 475.0
 Weir Length L = 10'
 Side Slope 1:1
 Depth = 5'
 Bottom Dimensions 15' x 157'
 Depth Channel = 2.0'
 Top Embankment 484.0

APPROVED: FOR Private WATER AND Private SEWERAGE SYSTEMS
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER *[Signature]* DATE 8/19/91

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 COUNTY DIRECTOR *[Signature]* DATE 9/14/91

APPROVED: CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT *[Signature]* DATE 9/15/91

APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR *[Signature]* DATE 8/27/91

APPROVED: CHIEF BUREAU OF ENGINEERING
 CHIEF BUREAU OF ENGINEERING *[Signature]* DATE 8-26-91

Reviewed for HOWARD COUNTY S.C.D.
 Name *[Signature]* Date 9/13/91
 U.S. Soil Conservation Service

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

[Signature] APPROVED DATE 7/3/91

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 erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of 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 4-12-01
 Signature of Developer/Builder

ENGINEER'S CERTIFICATE

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

[Signature] Date 4/12/01

NOTE: Golf course grading and layout by WILLARD C. BYRD & ASSOCIATES, Landscape Architects, Planners and Golf Course Architects, Atlanta Georgia.

Subdivision Name CATTAIL CREEK COUNTRY CLUB	Section/Area N/A	Lot N/A
Plot No. 9519-9519	Block No. N/A	Zoned R
Water Code Private Well	Tax Map No. 21	Elec. Dist. 4-TH
	Sewer Code Private Septic System	Census Tr.

CLARK • FINEPROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 391-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED: D.G.T.
 DRAWN: V.L.M.
 CHECKED: D.G.T.
 DATE: APRIL 1991

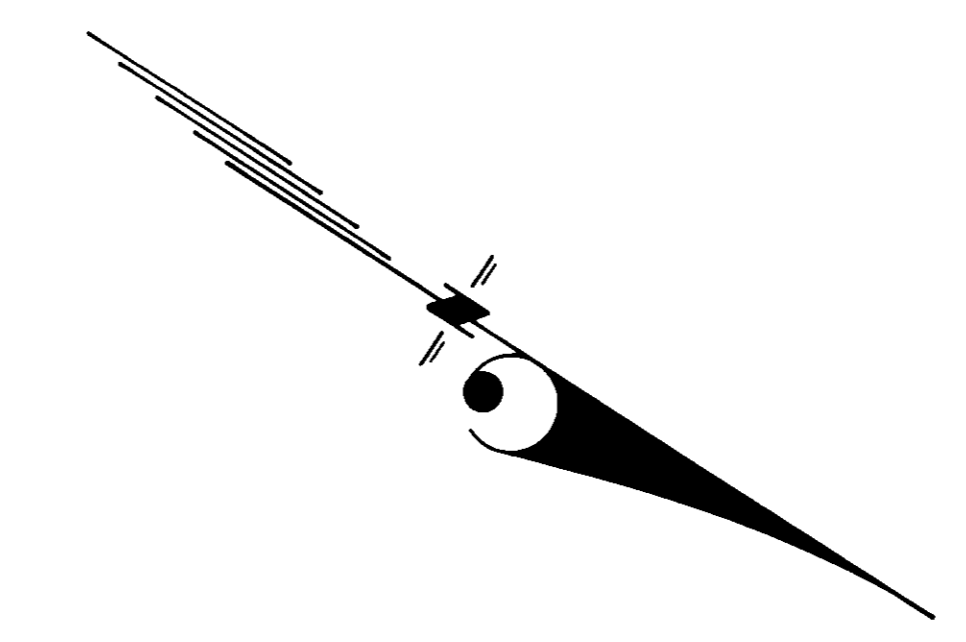
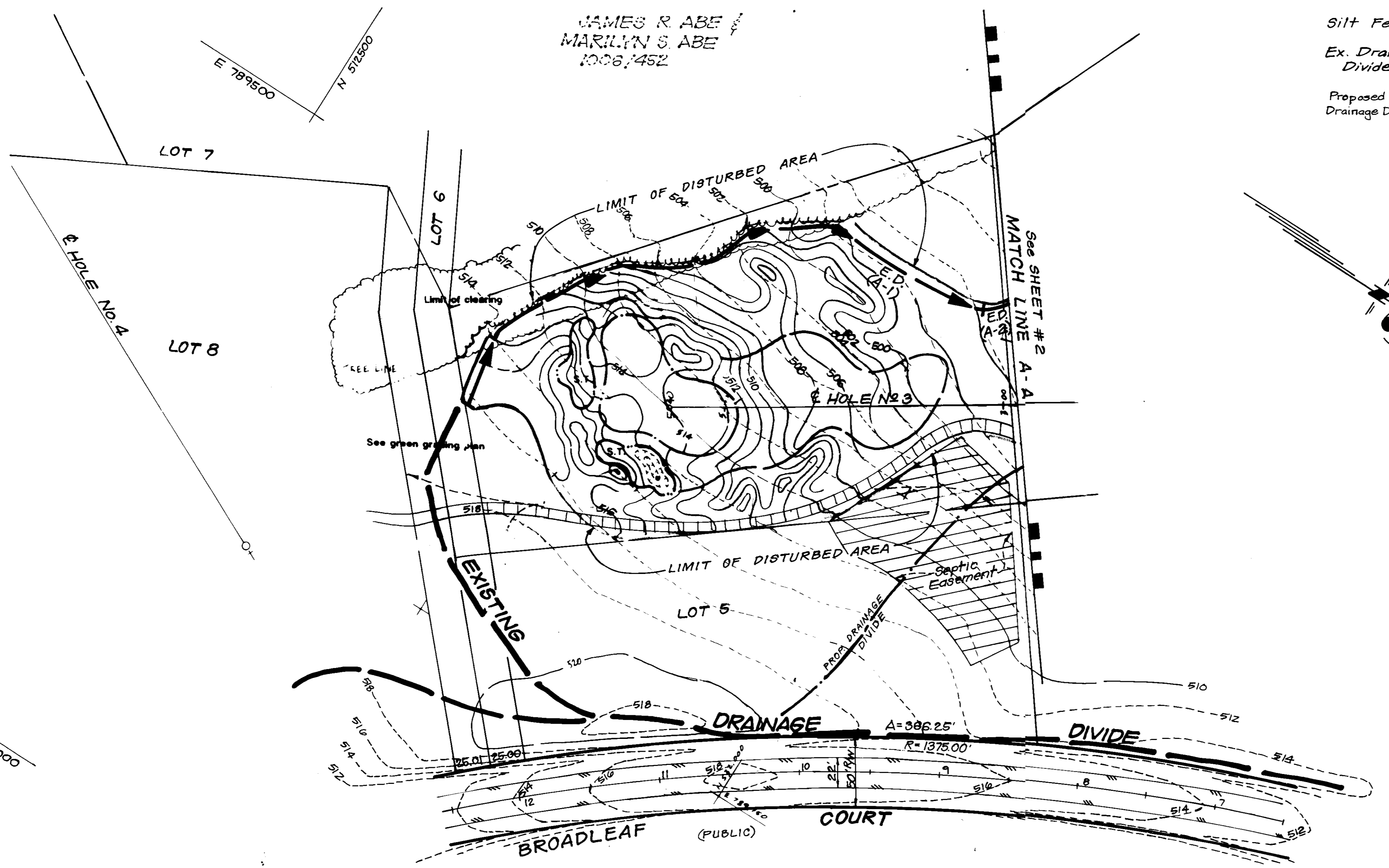
GRADING, SEDIMENT/EROSION CONTROL PLAN
 HOLE NO 2
CATTAIL CREEK COUNTRY CLUB
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

FOR: HOWARD COUNTY COUNTRY CLUB, INC.
 c/o REESE AND CARMY
 10715 Charter Drive, Suite 200
 Columbia, Maryland 21044

SCALE: 1" = 50'
 DRAWING: 2 OF 26
 JOB NO.: 89-007
 FILE NO.: 89-0075E

LEGEND

- Contour Interval 2 Ft.
- Existing Contour
- Proposed Contour
- Spot Elevation + 102
- Direction of Drainage
- Existing Trees to be Saved
- Cart Path
- Earth Dike
- Silt Fence
- Ex. Drainage Divide
- Proposed Drainage Divide



APPROVED: FOR Private WATER AND Private SEWERAGE SYSTEMS.
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY, DEPT. OF PLANNING & ZONING

APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Reviewed for HOWARD S.C.D.
Name: *John P. Robertson*
Signature: *John P. Robertson* Date: *9/13/91*
U.S. Soil Conservation Service

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

APPROVED: *John P. Robertson* 9/13/91

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 erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of 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 of Developer/Builder: *Richard A. Carney, Pres.* Date: *4/12/91*
Cattail Creek Country Club, Inc.

ENGINEER'S CERTIFICATE

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

Signature: *E. H. G. G. G.* Date: *4/12/91*

NOTE: Golfcourse grading and layout by WILLARD C. BYRD & ASSOCIATES, Landscape Architects, Planners & Golf Course Architects, Atlanta, Georgia.

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

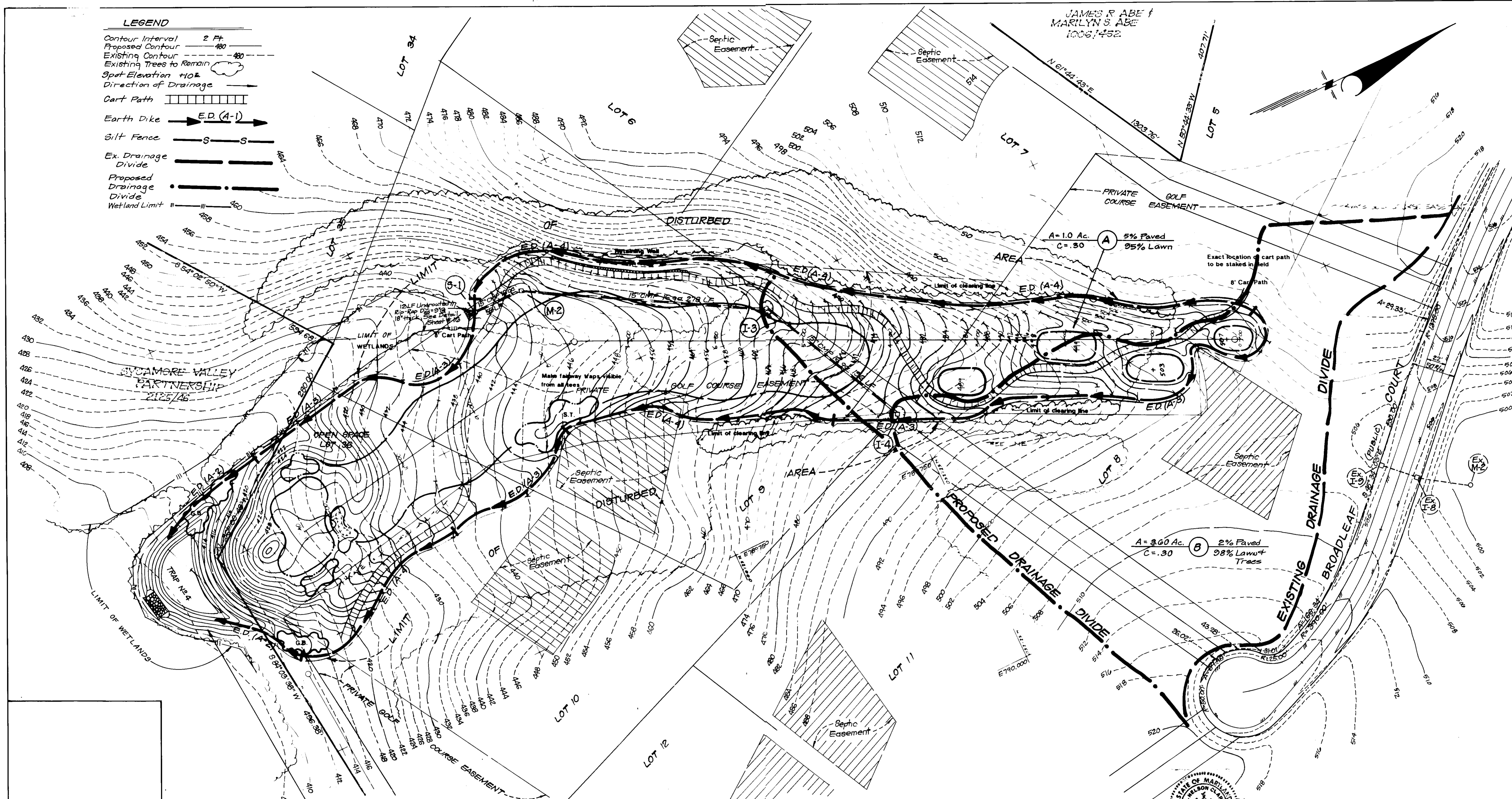
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED	GRADING, SEDIMENT & EROSION CONTROL PLAN	SCALE
D.G.T.	HOLE N° 3	1" = 50'
DRAWN	CATTAIL CREEK COUNTRY CLUB	DRAWING
V.L.M.	FOURTH ELECTION DISTRICT	3 OF 26
CHECKED	HOWARD COUNTY, MARYLAND	JOB NO.
D.G.T.		89-007
DATE	FOR: HOWARD COUNTY COUNTRY CLUB, INC.	FILE NO.
APRIL 1991	c/o REESE and CARNEY 10715 Charter Drive Suite 200 Columbia, Maryland 21044	89-00756

SDP 91-106

LEGEND

- Contour Interval 2 Ft
- Proposed Contour
- Existing Contour
- Existing Trees to Remain
- Spot Elevation +10%
- Direction of Drainage
- Cart Path
- Earth Dike ED (A-1)
- Silt Fence
- Ex. Drainage Divide
- Proposed Drainage Divide
- Wetland Limit



TRAP N#4 60ST (STV)
 Drainage Area 4.8 Acre
 Storage Required 8640 of
 Storage Provided 17,200 of
 Weir Crest Elev. 408.0
 Cleanout Elev. 405.5
 Bottom Elev. 403.0
 Depth 4'
 Bottom Dimensions 40' x 80' Approx.
 Side Slopes 2:1
 Weir Length L = 20'

Reviewed for Howard County, S.C.D.
 and State of Maryland Requirements
 Signature: *[Signature]* Date: 11/3/91
 U.S. Soil Conservation Service

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

Approved: *[Signature]* 9/3/91
 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 erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of 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 submittal agents, as are deemed necessary."

Signature of Developer/Builder: *[Signature]* Date: 4/12/91
 Cattail Creek Country Club, Inc.

ENGINEER'S CERTIFICATE

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

Signature: *[Signature]* Date: 4/12/91
 G. Nelson Clark



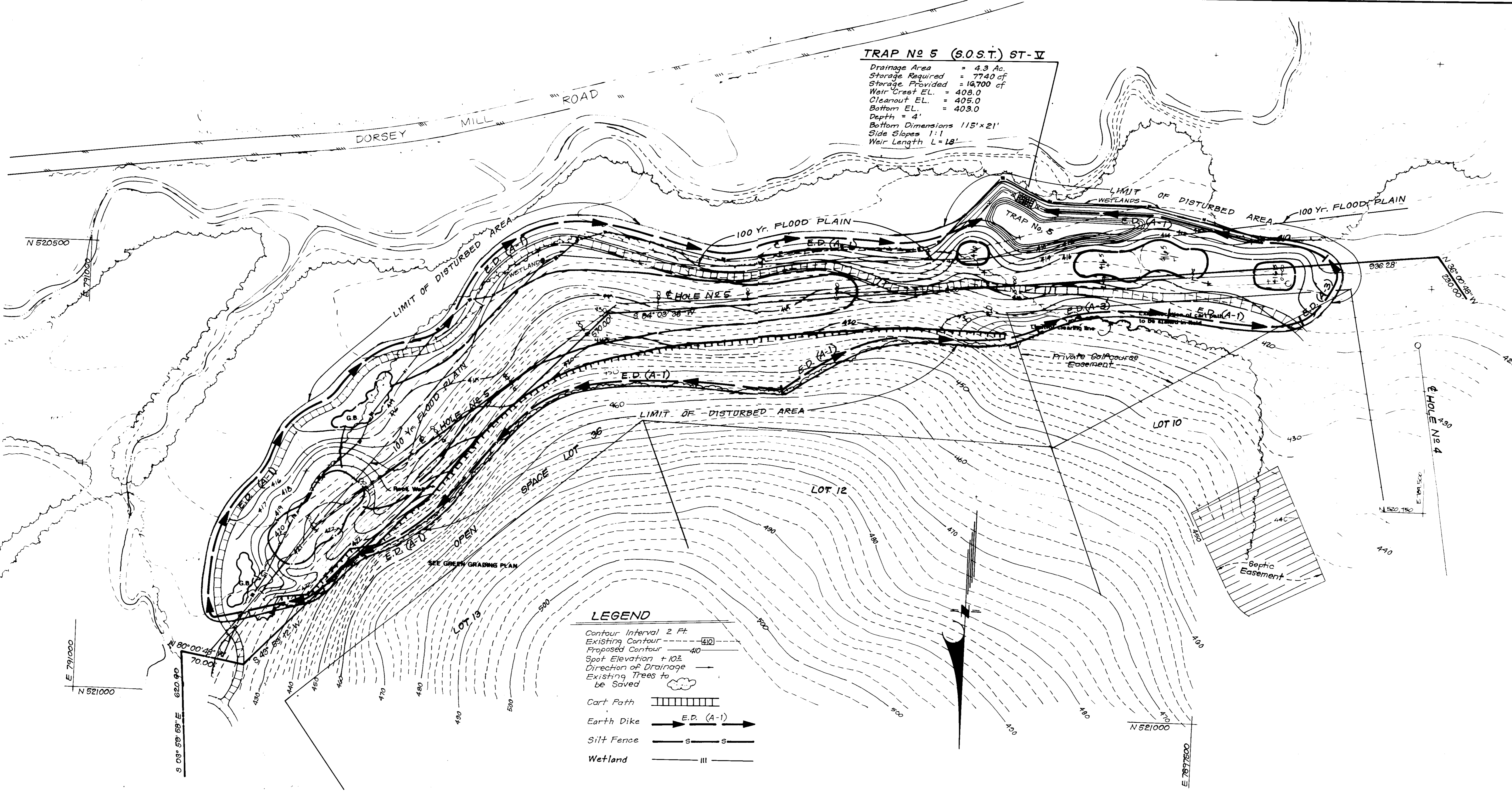
NOTE: Golfcourse grading and layout by WILLARD C. BYRD & ASSOCIATES Landscape Architects, Planners & Golf Course Architects, Atlanta, Georgia.

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: *[Signature]* DATE: 8/19/91
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 DIRECTOR: *[Signature]* DATE: 9/14/91
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: *[Signature]* DATE: 8/27/91
 CHIEF BUREAU OF ENGINEERING: *[Signature]* DATE: 8-26-91

CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS		SCALE 1" = 50'
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.		DRAWING 4 OF 26
DESIGNED DGT	GRADING, SEDIMENT & EROSION CONTROL PLAN HOLE N# 4	
DRAWN BAL	CATTAIL CREEK COUNTRY CLUB	JOB NO. 89-007
CHECKED DGT	FOURTH ELECTION DISTRICT HOWARD COUNTY MARYLAND	FILE NO. 89-007BE
DATE APRIL 1991	FOR: HOWARD COUNTY COUNTRY CLUB, INC. c/o REESE AND CARMY 12718 Charter Drive, Suite 200 Columbia, Maryland 21044	

TRAP No 5 (S.O.S.T.) ST-V

Drainage Area = 4.3 Ac.
 Storage Required = 7740 cf
 Storage Provided = 16700 cf
 Weir Crest EL. = 408.0
 Cleanout EL. = 405.0
 Bottom EL. = 403.0
 Depth = 4'
 Bottom Dimensions 115'x21'
 Side Slopes 1:1
 Weir Length L=18'



LEGEND

- Contour Interval 2 Ft.
- Existing Contour
- Proposed Contour
- Spot Elevation + 10%
- Direction of Drainage
- Existing Trees to be Saved
- Cart Path
- Earth Dike E.D. (A-1)
- Silt Fence
- Wetland



NOTE: Golfcourse grading and layout by WILLARD C. BYRD & ASSOCIATES, Landscape Architects, Planners and Golfcourse Architects, Atlanta, Georgia.

APPROVED: FOR Private WATER AND Private SEWERAGE SYSTEMS,
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER *[Signature]* DATE 8/19/91

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 DIRECTOR *[Signature]* DATE 9/14/91

APPROVED: CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 DIRECTOR *[Signature]* DATE 9/13/91

APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR *[Signature]* DATE 8/27/91

CHIEF BUREAU OF ENGINEERING *[Signature]* DATE 8-24-91

Reviewed for HOWARD COUNTY S.C.D.
 Name *[Signature]* Date 9/13/91
 Signature *[Signature]* Date
 U.S. Soil Conservation Service

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

[Signature] 9/3/91
 APPROVED 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 erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of 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] 4/12/91
 Signature of Developer/Builder Date
 Cattail Creek Country Club, Inc.


ENGINEER'S CERTIFICATE

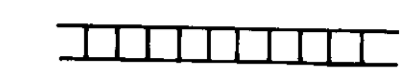
I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

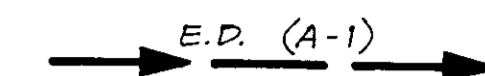
[Signature] 4/12/91
 Date


CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.		
DESIGNED	GRADING, SEDIMENT & EROSION CONTROL PLAN	SCALE
D.G.T.	HOLE No 5	1" = 50'
DRAWN	CATTAIL CREEK COUNTRY CLUB	DRAWING
LAI	FOURTH ELECTION DISTRICT	5 OF 20
CHECKED	HOWARD COUNTY, MARYLAND	JOB NO.
D.G.T.		89-007
DATE	FOR: HOWARD COUNTY COUNTRY CLUB, INC.	FILE NO.
APRIL 1991	10715 Charter Drive Suite 200 Columbia, Maryland 21044	89-007SE

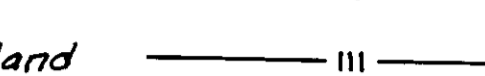
LEGEND


Contour Interval 2 Ft
 Existing Contour - - - - - 40
 Proposed Contour - - - - - 40
 Spot Elevation + 102
 Direction of Drainage - - - - -
 Existing Trees to be Saved 

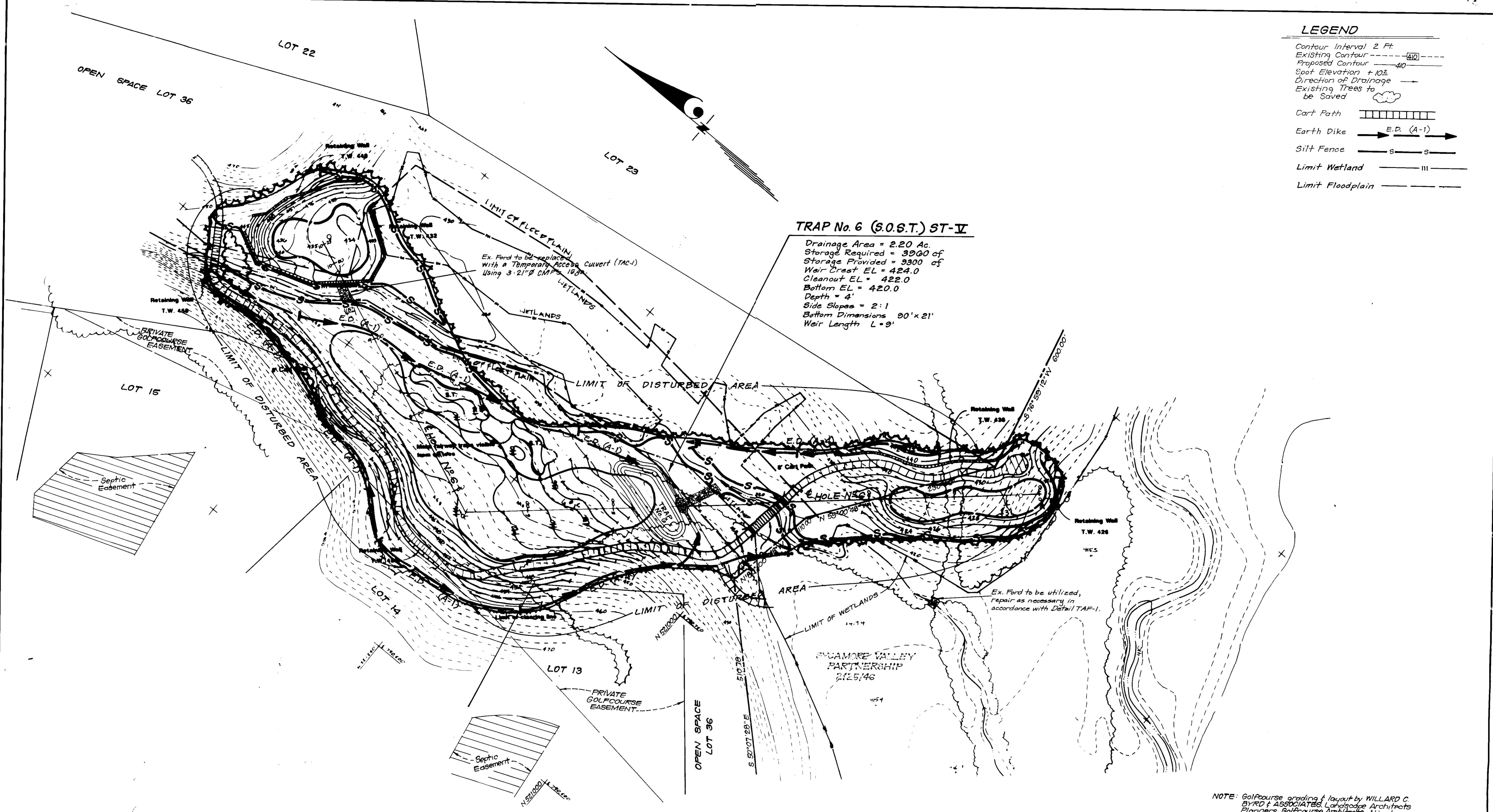
Cart Path 

Earth Dike  E.D. (A-1)

Silt Fence 

Limit Wetland 

Limit Floodplain 



NOTE: Golf Course grading & layout by WILLARD C. BYRD & ASSOCIATES, Landscape Architects Planners, Golf Course Architects, Atlanta, Georgia.

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
 HOWARD COUNTY HEALTH DEPARTMENT

8/19/91
 COUNTY HEALTH OFFICER

APPROVED HOWARD COUNTY DEPT. OF PLANNING & ZONING

9/14/91
 DIRECTOR

APPROVED STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

8/27/91
 DIRECTOR

APPROVED CHIEF BUREAU OF ENGINEERING MK

9/26/91
 DATE

Reviewed for HOWARD COUNTY S.C.D. Name: *John P. Robertson* 9/13/91
 Signature: *John P. Robertson* Date: 9/13/91
 U.S. Soil Conservation Service

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

APPROVED *John P. Robertson* 9/13/91
 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 erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of 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 of Developer/Builder: *David P. Carney* 4/12/91
 Date: 4/12/91

ENGINEER'S CERTIFICATE

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

Signature: *David P. Carney* 4/12/91
 Date: 4/12/91

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

7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

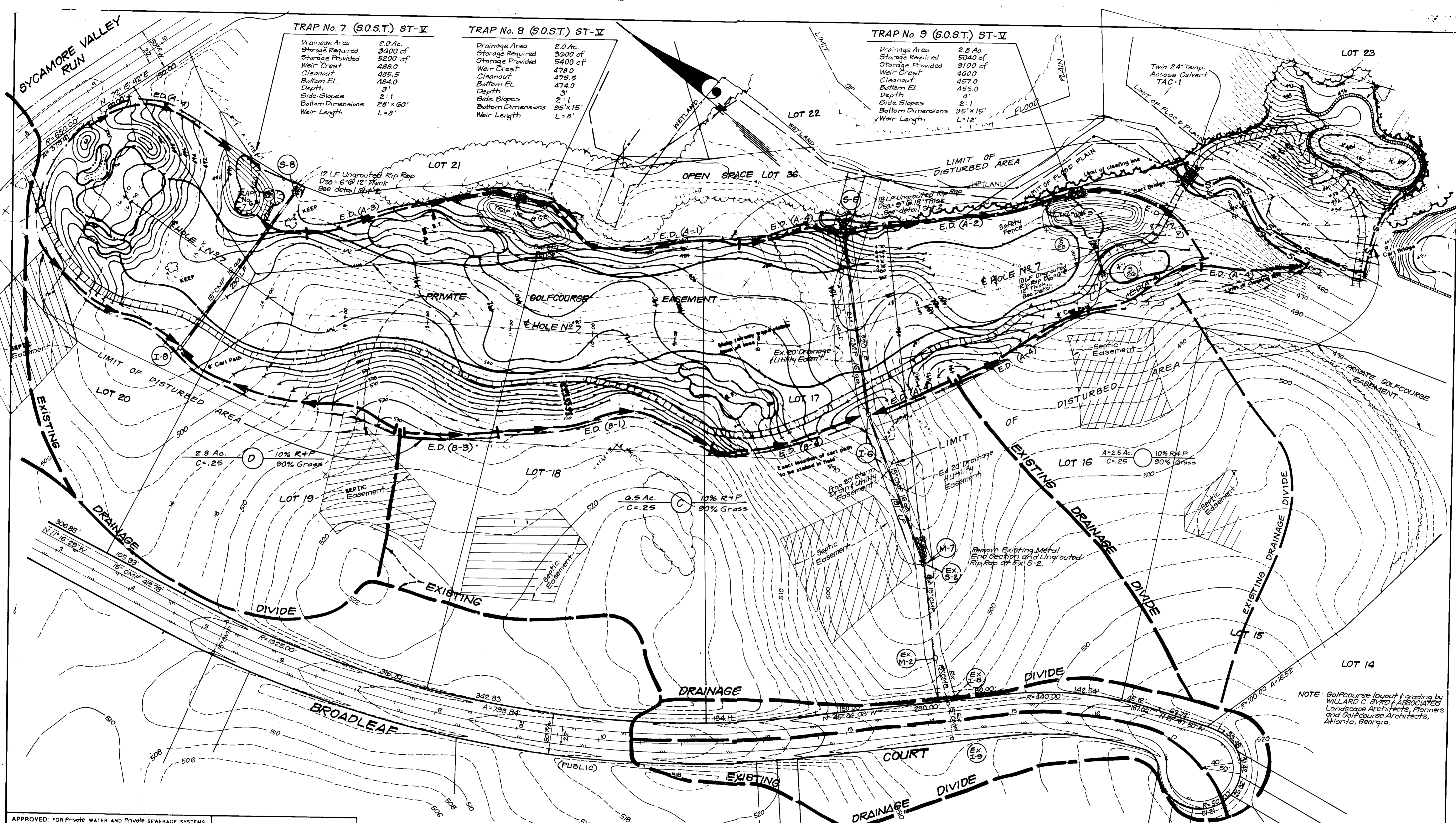
DESIGNED: GRADING, SEDIMENT & EROSION CONTROL PLAN
 DRAWN: LAI
 CHECKED: D.G.T.
 DATE: APRIL 1991

HOLE No. 6
CATTAIL CREEK COUNTRY CLUB
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

FOR: HOWARD COUNTY COUNTRY CLUB, INC.
 C/O REESE and CARNEY
 10715 Charter Drive, Suite 200
 Columbia, Maryland 21044

SCALE: 1" = 50'
 DRAWING: 6 OF 20
 JOB NO.: 89-007
 FILE NO.: 89-007 SE

SDP-91-106



TRAP No. 7 (S.O.ST.) ST-II

Drainage Area	2.0 Ac.
Storage Required	3600 of
Storage Provided	5200 of
Weir Crest	488.0
Cleanout	485.5
Bottom EL.	484.0
Depth	3'
Side Slopes	2:1
Bottom Dimensions	28' x 60'
Weir Length	L=8'

TRAP No. 8 (S.O.ST.) ST-II

Drainage Area	2.0 Ac.
Storage Required	3600 of
Storage Provided	5400 of
Weir Crest	478.0
Cleanout	475.5
Bottom EL.	474.0
Depth	3'
Side Slopes	2:1
Bottom Dimensions	95' x 15'
Weir Length	L=8'

TRAP No. 9 (S.O.ST.) ST-II

Drainage Area	2.8 Ac.
Storage Required	5040 of
Storage Provided	9100 of
Weir Crest	460.0
Cleanout	457.0
Bottom EL.	455.0
Depth	4'
Side Slopes	2:1
Bottom Dimensions	95' x 15'
Weir Length	L=12'

APPROVED: FOR Private WATER AND Private SEWERAGE SYSTEMS,
HOWARD COUNTY HEALTH DEPARTMENT

James J. Williams 8/19/91
COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

James J. Williams 9/12/91
DATE

APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James J. Williams 8/27/91
DIRECTOR DATE

CHIEF BUREAU OF ENGINEERING 8-26-91
DATE

APPROVED FOR HOWARD COUNTY, S.C.D.
Name: *John W. P. ...*
Signature: *John W. P. ...* Date: 9/13/91
U.S. Soil Conservation Service

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

John W. P. ... 9/3/91
APPROVED 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 erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of 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."

David G. ... 4/12/91
Signature of Developer/Builder Date
Cattail Creek Country Club, Inc.

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.

E. H. ... 4/12/91
Signature Date

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

7135 MINTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED D.G.T.
DRAWN L.A.I.
CHECKED D.G.T.
DATE APRIL 1991

SCALE 1" = 50'
DRAWING 7 OF 20
JOB NO. 89-007
FILE NO. 89-007SE

FOR: HOWARD COUNTY COUNTRY CLUB, INC.
C/O REESE and CARNEY
10715 Charter Drive Suite 200
Columbia, Maryland 21044

NOTE: Golfcourse layout & grading by WILLARD C. BYRD & ASSOCIATES Landscape Architects, Planners and Golfcourse Architects, Atlanta, Georgia.

SDP-91-106

TEMP. TRAP No. 10 - R.O.S.T. (ST-VI)

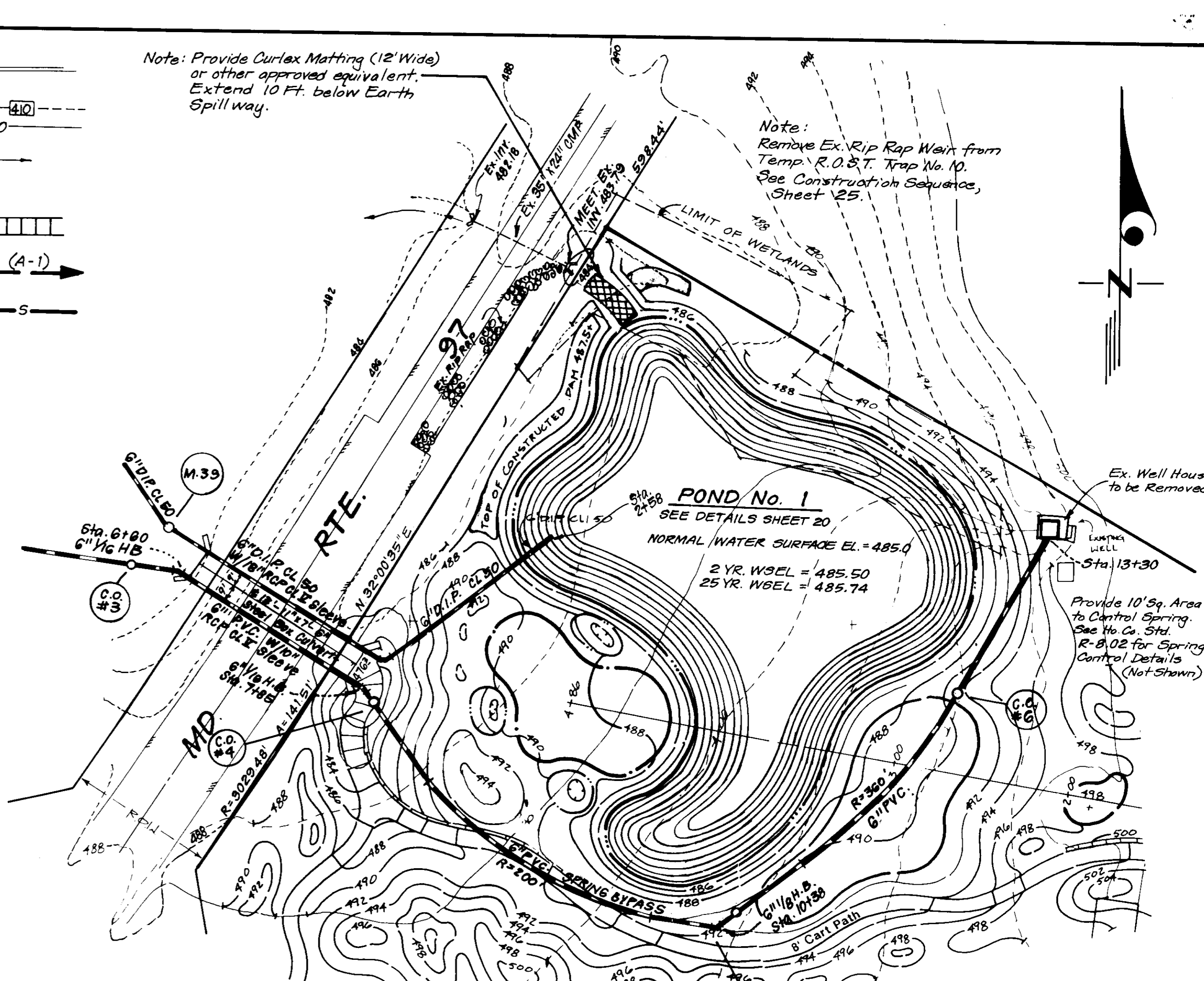
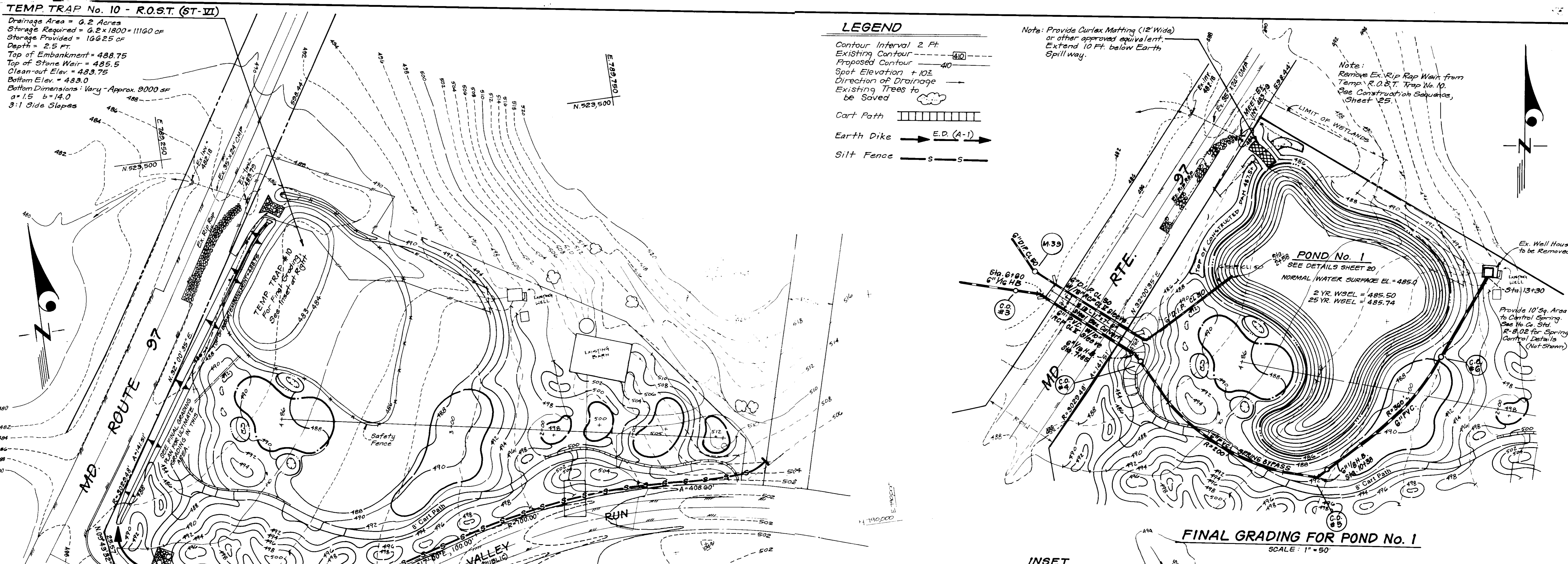
Drainage Area = 6.2 Acres
 Storage Required = 6.2 x 1800 = 11160 cf
 Storage Provided = 16625 cf
 Depth = 2.5 FT.
 Top of Embankment = 488.75
 Top of Stone Weir = 485.5
 Clean-out Elev. = 483.75
 Bottom Elev. = 483.0
 Bottom Dimensions Vary - Approx. 9000 sf
 a = 15 b = 14.0
 3:1 Side Slopes

LEGEND

- Contour Interval 2 Ft.
- Existing Contour - - - - -
- Proposed Contour - - - - -
- Spot Elevation + 10Z
- Direction of Drainage - - - - -
- Existing Trees to be Saved
- Cart Path
- Earth Dike - - - - -
- Silt Fence - - - - -

Note: Provide Curlex Matting (12' Wide) at other approved equivalent. Extend 10 Ft. below Earth Spillway.

Note: Remove Ex. Rip Rap Weir from Temp. R.O.S.T. Trap No. 10. See Construction Sequence, Sheet 125.



TEMPORARY SEDIMENT CONTROL FOR HOLE No. 1
 SCALE: 1" = 50'

FINAL GRADING FOR POND No. 1
 SCALE: 1" = 50'

TRAP No. 22 ST-V (S.O.S.T.)
 D.A.: 3.0 Ac. Trap: 4.9 Ac. Ex.
 Storage Required: 8820 cf
 Storage Provided: 8425 cf
 Weir Crest Elev. 485.0
 Clean Out Elev. 480.5
 Bottom Elev. 479.0
 Depth 5'
 Side Slopes 2:1
 Top Embankment 484.0
 Bottom Dimensions 79' x 29'

NOTE: Golf course grading and layout by WILLARD O. BYRD & ASSOCIATES Landscape Architects, Planners & Golf Course Architects, Atlanta, Georgia.

REVIEWED: No Private Water and Sewerage Systems Proposed HOWARD COUNTY HEALTH DEPARTMENT	<i>[Signature]</i> 10/15/92 DATE
COUNTY HEALTH OFFICER	
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	<i>[Signature]</i> 10/28/92 DATE
PLANNING DIRECTOR	
CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	<i>[Signature]</i> 10/26/92 DATE
APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	<i>[Signature]</i> 10/19/92 DATE
CHIEF OF BUREAU OF ENGINEERING M.K.	

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

[Signature] 9/24/92
 U.S. SOIL CONSERVATION SERVICE

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved *[Signature]* 9/24/92
 Howard S.C.D.

SDP-91-106
 Plan Number

Developers Certification:
 "We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approval Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

[Signature] 4-27-92
 SIGNATURE OF DEVELOPER
 DAVID A. CARNEY, PRES.
 CATTAIL CREEK COUNTRY CLUB, INC.

ENGINEER'S CERTIFICATE
 "I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

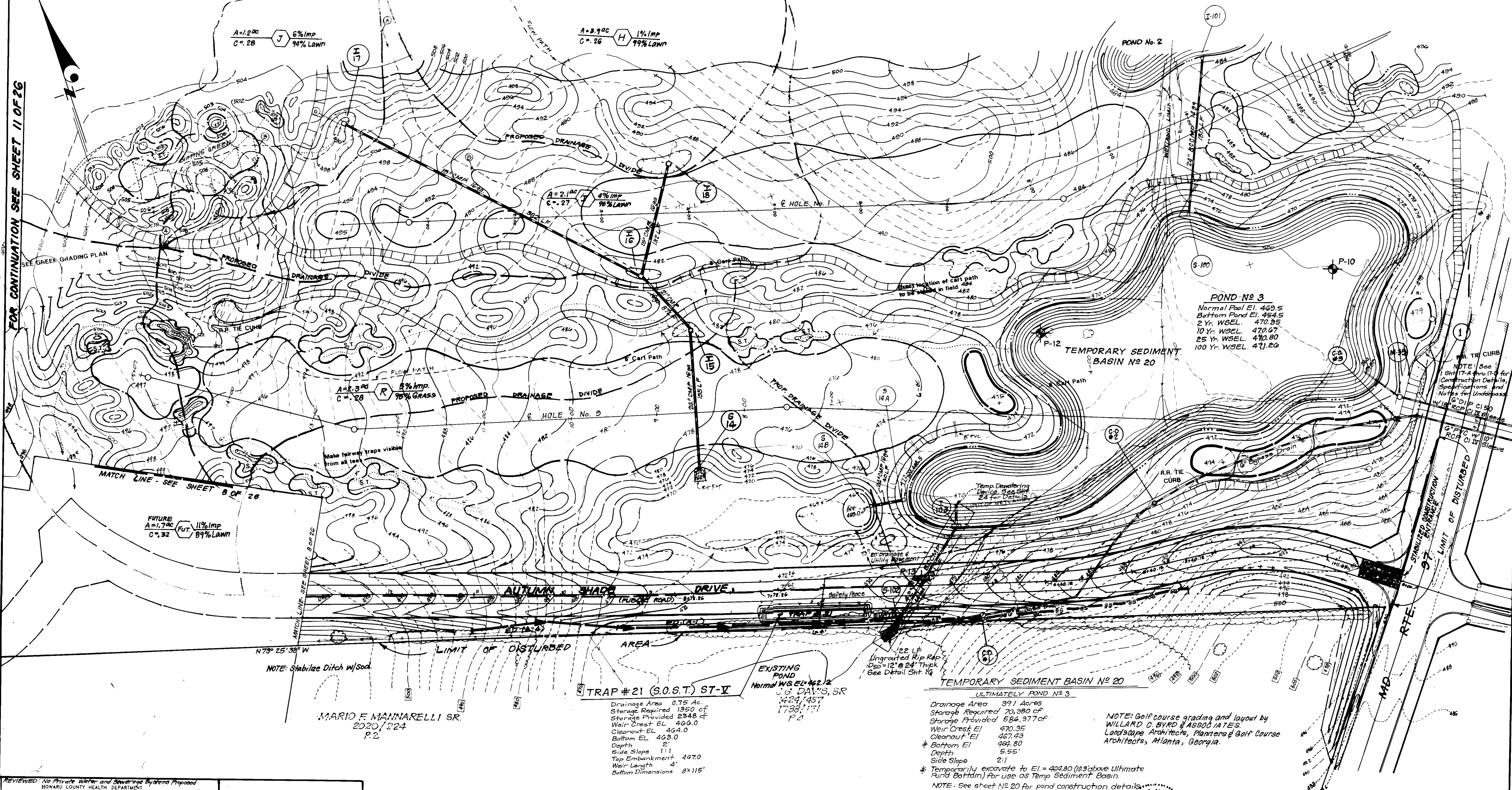
[Signature] 4-27-92
 Signature of Engineer



CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS		7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.
DESIGNED	REVISED GRADING, SEDIMENT & EROSION CONTROL PLAN	SCALE: As Shown
DRAWN	HOLE No. 8	DRAWING: 8 OF 26
CHECKED	CATTAIL CREEK COUNTRY CLUB	JOB NO.: 89-007
DATE	FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	FILE NO.: 89-007SE
MAY 1992	FOR: HOWARD COUNTY COUNTRY CLUB, INC. 210 REESE AND CARNEY 10715 Charter Drive, Suite 200 Columbia, Maryland 21044	

FOR CONTINUATION SEE SHEET 10 OF 26

FOR CONTINUATION SEE SHEET 11 OF 26



REVIEWED: No Private Water and Sewerage Systems Proposed
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: [Signature] 10/15/92
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 PLANNING DIRECTOR: [Signature] 10/28/92
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT: [Signature] 10/20/92
 APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: [Signature] 10/9/92
 CHIEF BUREAU OF ENGINEERING: [Signature] 10/9/92

MARIO F. MANNARELLI SR.
 2020/324
 P.2

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

Developers Certification:
 "We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Approved: [Signature] 7/24/92
 U.S. SOIL CONSERVATION SERVICE

Approved: [Signature] 7/24/92
 HOWARD S.C.D.
 SDP-91-106
 Plan Number

EXISTING POND
 Normal WSEL: 462.2
 J.G. DAVIS, SR.
 1424/457
 1738/171
 P.2

Drainage Area 0.75 Ac.
 Storage Required 1350 cf
 Storage Provided 2348 cf
 Weir Crest EL 464.0
 Cleanout EL 464.0
 Bottom EL 463.0
 Depth 2'
 Side Slope 1:1
 Top Embankment 467.0
 Weir Length 4'
 Bottom Dimensions 8x115'

TEMPORARY SEDIMENT BASIN No. 20
 ULTIMATELY POND No. 3
 Drainage Area 39.1 Acres
 Storage Required 70,380 cf
 Storage Provided 584,377 cf
 Weir Crest EL 470.35
 Cleanout EL 467.43
 Bottom EL 464.80
 Depth 5.55'
 Side Slope 2:1
 * Temporarily excavate to EL = 464.80 (0.3 above Ultimate Pond Bottom) for use as Temp Sediment Basin.
 NOTE: See sheet No. 20 for pond construction details.

NOTE: Golf course grading and layout by WILLARD C. BYRD & ASSOC I/ATES. Landscape Architects, Planners & Golf Course Architects, Atlanta, Georgia.

ENGINEER'S CERTIFICATE
 "I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."
 [Signature] 4-27-92
 Signature of Engineer Date

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

DESIGNED: K/W/M
 DRAWN: DGT
 LAI
 CHECKED: JLS
 DATE: MAY 1992

REVISED GRADING, SEDIMENT & EROSION CONTROL PLAN
 HOLES No. 1 & 3
CATTAIL CREEK COUNTRY CLUB
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: As Shown
 DRAWING: 9 OF 26
 JOB NO.: 89-007
 FILE NO.: 89-007-3E

FOR: HOWARD COUNTY COUNTRY CLUB, INC.
 C/O REESE AND CARNEY
 10715 Quarter Drive, Suite 200
 Columbia, Maryland 21044

SDP 91-106

FOREST CONSERVATION WORKSHEET
VERSION 1.0

LEGEND

STRUCTURE SCHEDULE					
STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	TYPE	REMARKS
I-1	510.00	506.00 (F)	506.00 (F)	12" CIRCULAR INLET W/ GRATE	ADD NYLOPLAST 12" CIRCULAR GRATE
I-2	509.00	504.00 (F)	503.75 (F)	12" CIRCULAR INLET W/ GRATE	ADD NYLOPLAST 12" CIRCULAR GRATE
I-3	514.00	510.00 (F)	509.75 (F)	12" CIRCULAR INLET W/ GRATE	ADD NYLOPLAST 12" CIRCULAR GRATE
I-4	520.10	514.00 (F)	513.75 (F)	12" CIRCULAR INLET W/ GRATE	ADD NYLOPLAST 12" CIRCULAR GRATE
M-1	510.00	507.00 (F)	501.75 (F)	STANDARD MANHOLE	G-5.12
CO-1	510.00	505.00 (F)	505.00 (F)	CLEANOUT	5-3.21
CO-2	510.00	507.00 (F)	507.25 (F)	CLEANOUT	5-3.21
CO-3	515.00	513.00 (F)	514.75 (F)	CLEANOUT	5-3.21
CO-4	515.00	511.00 (F)	511.25 (F)	CLEANOUT	5-3.21

NET TRACT AREA:

A. TOTAL TRACT AREA (LIMIT OF DISTURBANCE)	1.64
B. AREA WITHIN 100 YARD FLOODPLAIN	0.00
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION	0.00
D. NET TRACT AREA	1.64

LAND USE CATEGORIES: (from Table 3.2.1, page 40, Manual)

AREA	MDR	IDA	HRD	MPD	CIA

INFORMATION FOR CALCULATIONS:

E. AFFORESTATION THRESHOLD	0.15% x 0.0 =	0.25
F. FOREST CONSERVATION THRESHOLD	0.20% x 0.0 =	0.33
G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)		0.00
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD		0.00
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD		0.00
J. BREAK-EVEN POINT:		0.00
K. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION		0.00
L. FOREST RETENTION ABOVE THRESHOLD WITH MITIGATION		0.00
M. TOTAL AREA OF FOREST TO BE CLEARED		0.00
N. TOTAL AREA OF FOREST TO BE RETAINED		0.00

PLANTING REQUIREMENTS:

P. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD	0.00
Q. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	0.00
R. TOTAL REFORESTATION REQUIRED	0.00
S. TOTAL AFFORESTATION REQUIRED	0.25
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED	0.25

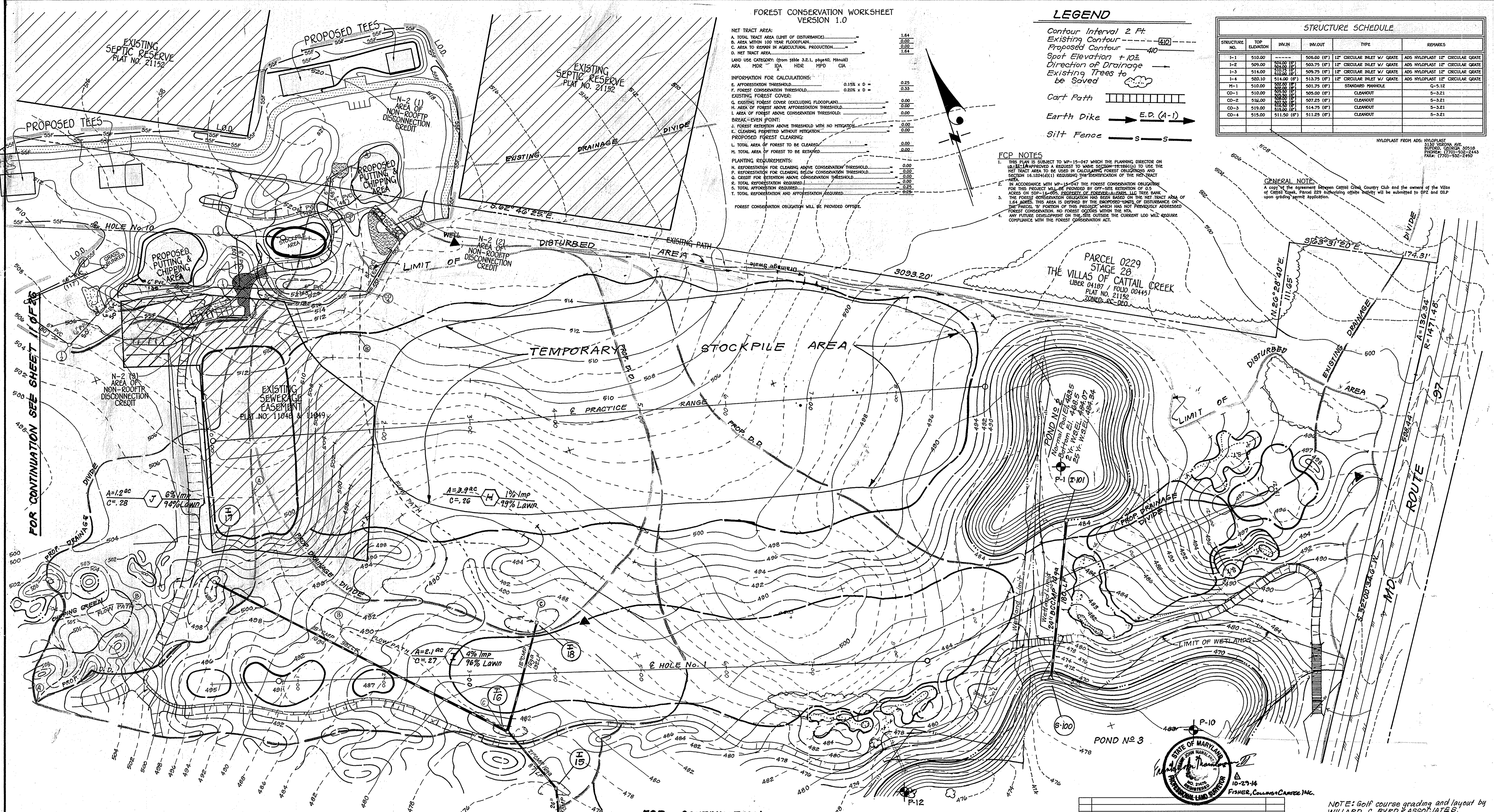
FOREST CONSERVATION OBLIGATION WILL BE PROVIDED OFFSITE.

FCP NOTES

- THIS PLAN IS SUBJECT TO WF-15-047 WHICH THE PLANNING DIRECTOR ON 02-21-92 APPROVED TO WAIVE SECTION 16.120(a)(1) TO USE THE NET TRACT AREA TO BE USED IN CALCULATING FOREST CONSERVATION AND SECTION 16.120(a)(1) REGARDING THE IDENTIFICATION OF THE NET TRACT AREA.
- IN ACCORDANCE WITH WF-15-047 THE FOREST CONSERVATION OBLIGATION FOR THIS PROJECT WILL BE PROVIDED BY OFF-SITE RETENTION OF 0.25 ACRES ON SDR-91-106, PROPERTY OF FOREVER-A-FARM, LLC TREE BANK. THE FOREST CONSERVATION OBLIGATION HAS BEEN BASED ON THE NET TRACT AREA OF THE PARCEL. THIS AREA IS DEFINED BY THE PROPOSED LIMIT OF DISTURBANCE ON THE PARCEL. ANY PORTION OF THIS PROJECT WHICH HAS NOT PREVIOUSLY ADDRESSED FOREST CONSERVATION, NO FOREST OCCURS WITHIN THE NTA.
- ANY FUTURE DEVELOPMENT ON THE SITE OUTSIDE THE CURRENT LOD WILL REQUIRE COMPLIANCE WITH THE FOREST CONSERVATION ACT.

GENERAL NOTE

A copy of the agreement between Cattail Creek Country Club and the owners of the Villas of Cattail Creek, Parcel 229 adjusting office liability will be submitted to DPZ and DLP upon grading permit application.



FOR CONTINUATION SEE SHEET 9 OF 26

REVIEWED: No Private Water and Sewerage Systems Proposed
HOWARD COUNTY HEALTH DEPARTMENT

Joselyn Bodu 10/15/92
COUNTY HEALTH OFFICER DATE

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

James A. Kinn 10/28/92
PLANNING DIRECTOR DATE

Amelia Hornall 10/26/92
CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James P. Kinn 10/19/92
DIRECTOR DATE

David A. Carney 10/29/92
CHIEF BUREAU OF ENGINEERING DATE

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

Joselyn M. Nelson 9/24/92
U.S. SOIL CONSERVATION SERVICE DATE

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved *John R. Blanton* 9/24/92
Howard S.C.D. DATE

SDP-91-106
Plan Number

Developers Certification:

"We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

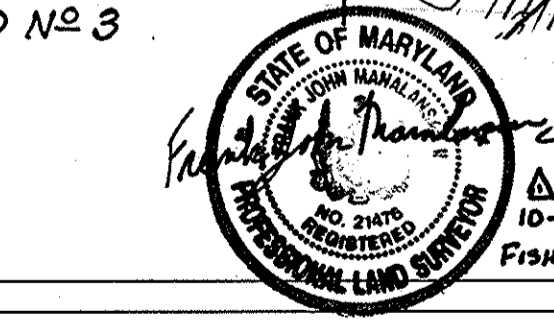
David A. Carney, Pres. 4-27-92
SIGNATURE OF DEVELOPER DATE
DAVID A. CARNEY, PRES.
CATTAIL CREEK COUNTRY CLUB, INC.

ENGINEER'S CERTIFICATE

"I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

J. M. Eck 4-27-92
Signature of Engineer DATE

NO.	REVISIONS	DATE
1	RELOCATE GOLF CART PATH & TEES	9/5/14



NOTE: Golf course grading and layout by WILLARD C. BYRD & ASSOCIATES, Landscape Architects, Planners & Golf Course Architects, Atlanta, Georgia.

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

7135 MINTSEL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED *KIWM*
DRAWN *LAI*
CHECKED *JLS*
DATE **MAY 1991**

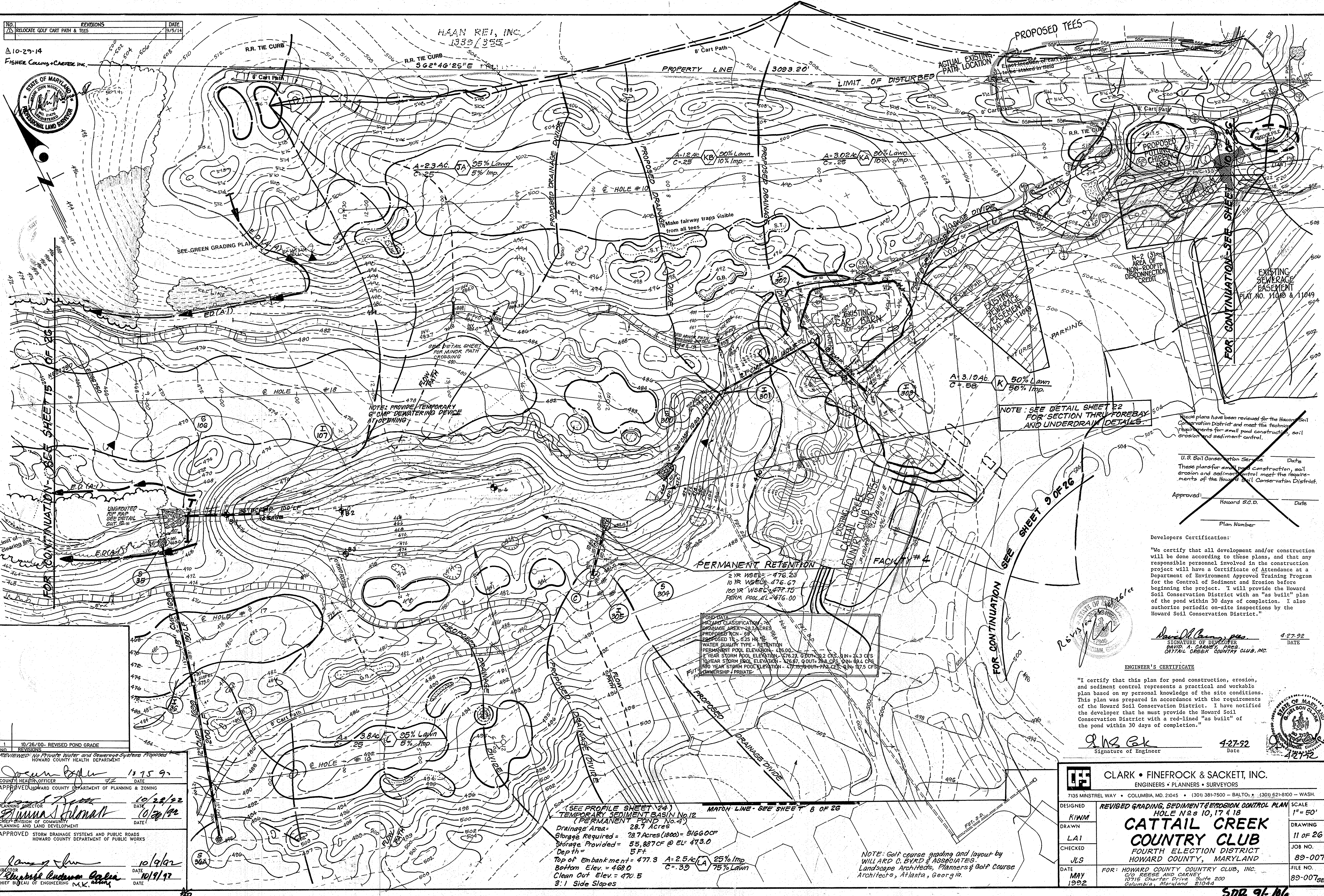
SCALE **As Shown**
DRAWING **10 OF 26**
JOB NO. **89-007**
FILE NO. **89-007**

FOR: HOWARD COUNTY COUNTRY CLUB, INC.
10715 Charter Drive, Suite 200
Columbia, Maryland 21044

SDP 91-106

NO.	REVISIONS	DATE
1	RELOCATE GOLF CART PATH & TEES	9/2/14

10-29-14
 FISHER COLLINS & CAERTEL, INC.



1	10/26/00-REVISED POND GRADE	
NO.	REVISIONS	DATE
REVIEWED: No Private Water and Sewerage Systems Proposed HOWARD COUNTY HEALTH DEPARTMENT		
Joseph B. Kelly 10/25/09		DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING		
James J. Brown 10/22/12		DATE
PLANNING DIRECTOR		
Thomas J. Tolman 10/20/12		DATE
CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT		
APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		
James J. Kelly 10/19/12		DATE
DIRECTOR		
M.K. Kelly 10/19/12		DATE
CHIEF BUREAU OF ENGINEERING		

(SEE PROFILE SHEET 24)
 TEMPORARY SEDIMENT BASIN No. 12
 (PERMANENT POND No. 4)
 Drainage Area = 28.7 Acres
 Storage Required = 28.7 Acres (1800) = 516600 CF
 Storage Provided = 55,877 CF @ EL. 473.0
 Depth = 5 FT
 Top of Embankment = 477.3 A=2.5Ac LA 25% Imp
 Bottom Elev. = 468.0 C=35 75% Lawn
 Clean Out Elev. = 470.5
 3:1 Side Slopes

POND DATA
 HAZARD CLASSIFICATION - 2A
 DRAINAGE AREA - 28.7 ACRES
 PROPOSED RCN - 68
 PROPOSED TS - 0.25 HR
 WATER QUALITY TYPE - RETENTION
 PERMANENT POOL ELEVATION - 476.00
 2-YEAR STORM POOL ELEVATION - 476.23, Q OUT = 0.2 CFS, Q IN = 24.3 CFS
 10-YEAR STORM POOL ELEVATION - 476.67, Q OUT = 38.8 CFS, Q IN = 69.4 CFS
 100-YEAR STORM POOL ELEVATION - 477.15, Q OUT = 742.0 CFS, Q IN = 127.5 CFS
 OWNERSHIP - PRIVATE

NOTE: Golf course grading and layout by
 WILLARD C. BYRD & ASSOCIATES,
 Landscape Architects, Planners & Golf Course
 Architects, Atlanta, Georgia.

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

U.S. Soil Conservation Service Date
 These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved: Howard S.C.D. Date
 Plan Number

Developers Certification:
 "We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Signature of Developer
 DAVID A. CARNEY, PRES.
 CATTAIL CREEK COUNTRY CLUB, INC.
 4-27-92
 DATE



ENGINEER'S CERTIFICATE
 "I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

Signature of Engineer
 4-27-92
 Date

CLARK • FINEROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 - BALTO. • (301) 624-8000 - WASH.		SCALE 1" = 50' DRAWING 11 OF 26 JOB NO. 89-007 FILE NO. 89-007SE
DESIGNED KIWM DRAWN LAI CHECKED JLS DATE MAY 1992	REVISED GRADING, SEDIMENT & EROSION CONTROL PLAN HOLE NOS 10, 17 & 18 CATTAIL CREEK COUNTRY CLUB FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD COUNTY COUNTRY CLUB, INC. C/O REESE AND CARNEY 10715 Charter Drive, Suite 200 Columbia, Maryland 21044	SDR 91-106

TRAP No. 14 (S.O.S.T.) ST-V

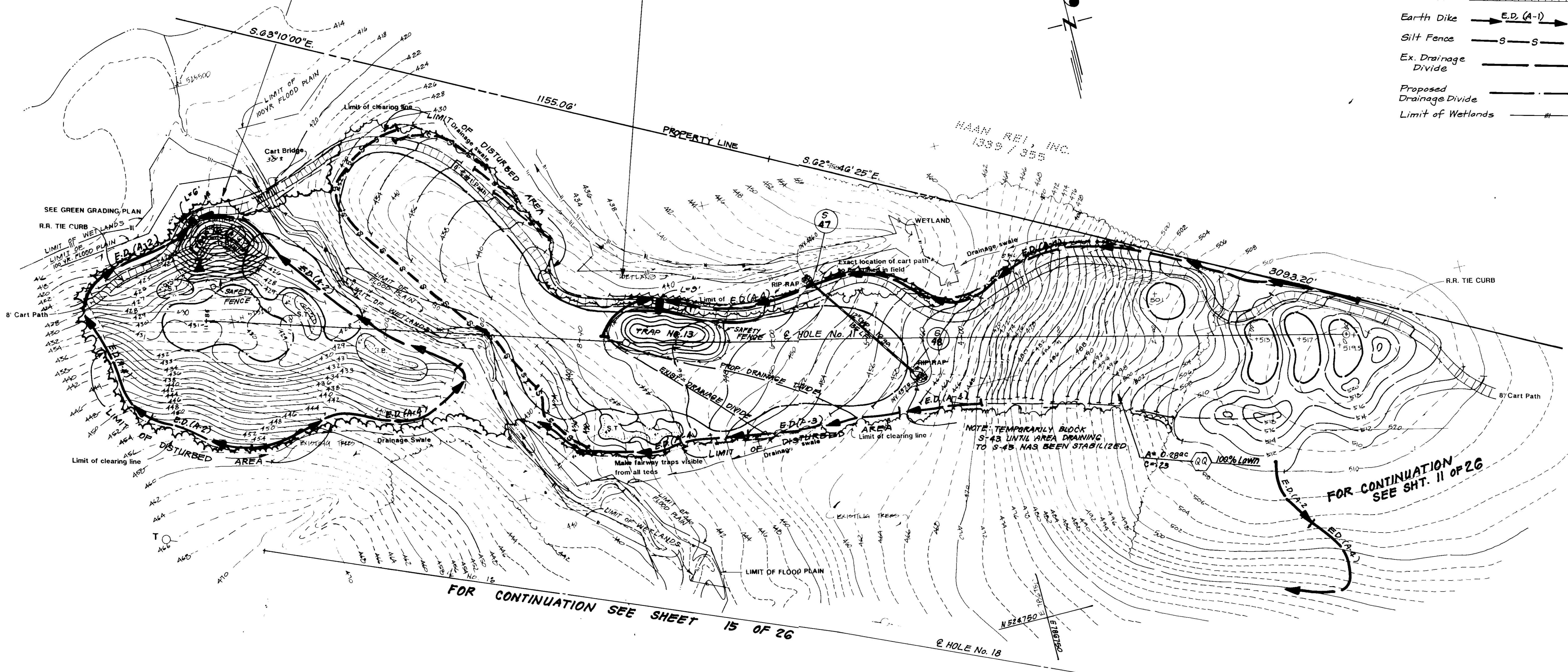
Drainage Area 1.4 Ac.
 Storage Required 2520 CF
 Storage Provided 6011 CF
 Weir Crest EL. 418.0
 Cleanout EL. 416.5
 Bottom EL. 413.0
 Depth 4'
 Side Slopes 2:1
 Bottom Dimensions Approx. 63' x 9'
 Weir Length L = 6'

TRAP No. 13 (S.O.S.T.) ST-V

Drainage Area 2.2 Ac.
 Storage Required 3960 CF
 Storage Provided 5009 CF
 Weir Crest EL. 442.0
 Cleanout EL. 439.5
 Bottom EL. 438.0
 Depth 3'
 Side Slopes 2:1
 Bottom Dimensions Approx. 75' x 16'
 Weir Length L = 9'

LEGEND

- Contour Interval 2 Ft.
- Existing Contour
- Proposed Contour
- Spot Elevation +10.2
- Direction of Drainage
- Existing Trees to be Saved
- Cart Path
- Earth Dike E.D. (A-1)
- Silt Fence S-S
- Ex. Drainage Divide
- Proposed Drainage Divide
- Limit of Wetlands



FOR CONTINUATION SEE SHEET 11 OF 26

FOR CONTINUATION SEE SHEET 15 OF 26

NOTE: Golf course grading and layout by WILLARD C. BYRD & ASSOCIATES, Landscape Architects, Planners & Golf Course Architects, Atlanta, Georgia.

REVIEWED: No Private Water and Sewerage Systems Proposed
 HOWARD COUNTY HEALTH DEPARTMENT

County Health Officer: *[Signature]* 10/15/92
 DATE

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Planning Director: *[Signature]* 10/20/92
 DATE

APPROVED STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Director: *[Signature]* 10/19/92
 DATE

Reviewed for HOWARD S.C.D.
 and meets Technical Requirements
 Name: *[Signature]* 9/24/92
 Signature Date
 U.S. Soil Conservation Service

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

[Signature] 9/24/92
 APPROVED 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 erosion and sediment 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] 4-27-92
 Signature of Developer/Builder Date
 Cattail Creek Country Club, Inc.
 SAUL A. CARNEY, PRES.

ENGINEER'S CERTIFICATE

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

[Signature] 4-27-92
 G. Nelson Clark Date



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

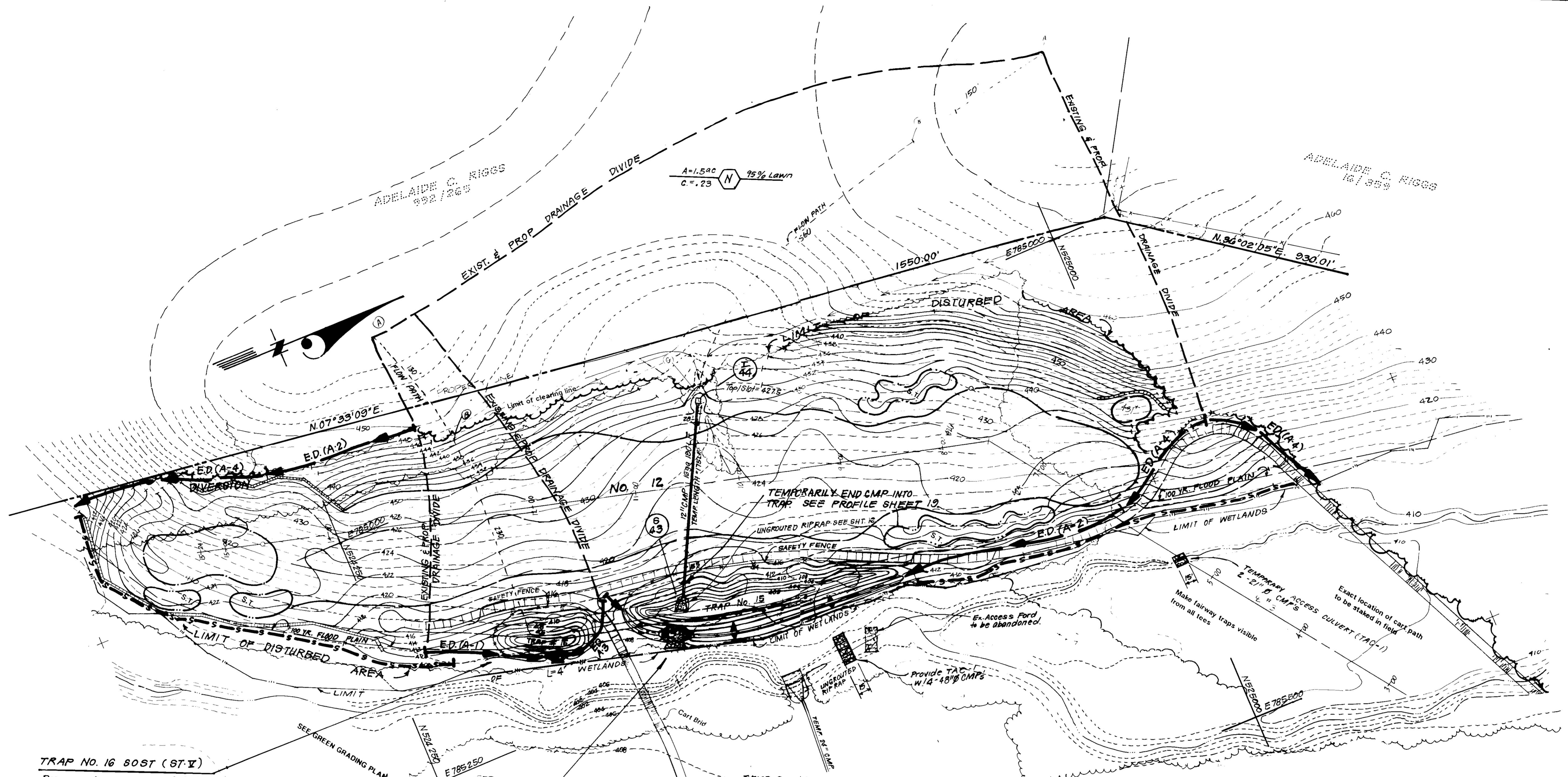
DESIGNED: *[Signature]* 11/11/92
 DRAWN: LA1
 CHECKED: JLS
 DATE: MAY 1992

REVISD GRADING, SEDIMENT & EROSION CONTROL PLAN
 HOLE No. 11
CATTAIL CREEK COUNTRY CLUB
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: 1" = 50'
 DRAWING: 12 OF 26
 JOB NO.: 89-007
 FILE NO.: 89-007-3E

FOR: HOWARD COUNTY COUNTRY CLUB, INC.
 C/O REESE AND CARNEY
 10715 Charter Drive Suite 200
 Columbia, Maryland 21044

SDP 91-106



TRAP NO. 16 SOST (ST.V)

Drainage Area : 0.3025
 Storage Required : 0.9 (1800) = 1625 CF
 Storage Provided : 1999 CF
 Depth : 3 Ft.
 Top of Stone Weir : 407.5
 Bottom Elevation : 403.5
 Clean Out Elevation : 405.0
 Bottom Dimensions : Vary (Approx 500 SF)
 L = 4'

TRAP No. 15 R.O.S.T. (ST.VI)

Drainage Area : 6.5 Acres
 Storage Required : 6.5(1800) = 11700 CF
 Storage Provided : 12980 CF
 Depth :
 Top of Embankment : 411.25
 Top of Stone Weir : 408.0
 Bottom Elevation : 403.0
 Clean Out Elevation : 405.5
 Bottom Dimensions : Vary (Approx. 2125 SF)
 a = 1.5' b = 16.0'

TEMP SEDIMENT BASIN No. 17
 SEE SHEET 14

NOTE: Golf course grading and layout by WILLARD C. BYRD & ASSOCIATES, Landscap Architects, Planners & Golf Course Architects, Atlanta, Georgia.

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: *James Boyd* 8/17/91
 DATE: 8/17/91

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
William H. ... 9/1/91
 DATE: 9/1/91

APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS,
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: *...* 8/27/91
 DATE: 8/27/91

CHIEF BUREAU OF ENGINEERING: *...* 8/26/91
 DATE: 8/26/91

Reviewed for HOWARD COUNTY S.C.D.
 Name: *John P. ...*
 Signature: *John P. ...* 9/3/91
 U.S. Soil Conservation Service

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

John P. ... 9/3/91
 APPROVED 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 erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of 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."

David A. ... 4/12/91
 Signature of Developer/Builder Date
 Cattail Creek Country Club, Inc.

ENGINEER'S CERTIFICATE

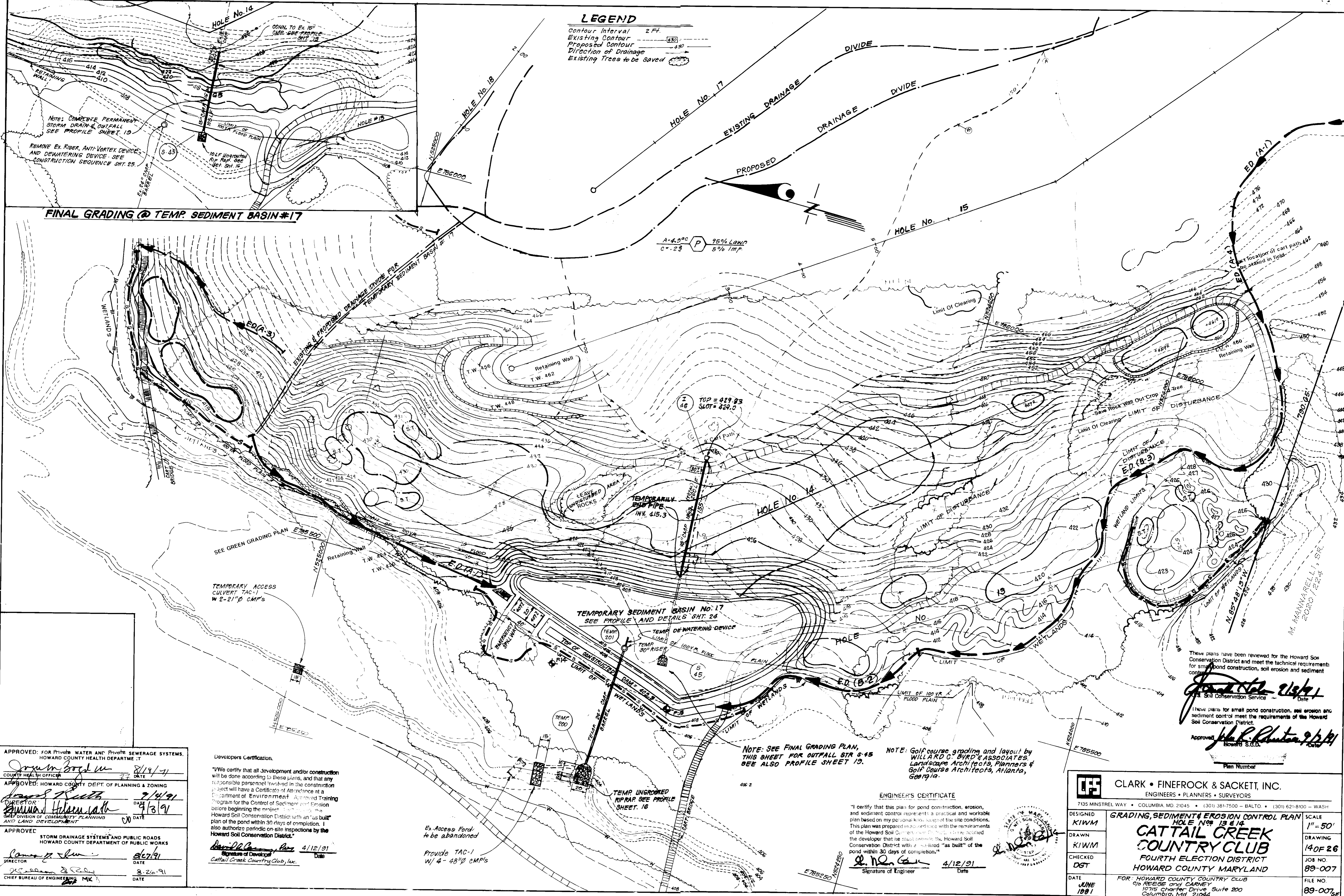
I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

E. ... 4/12/91
 Date



CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7600 - BALTO. • (301) 621-8100 - WASH.		
DESIGNED KIWM	GRADING, SEDIMENT & EROSION CONTROL PLAN HOLE No. 12 CATTAIL CREEK COUNTRY CLUB FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE 1" = 50'
DRAWN KIWM		DRAWING 13 OF 26
CHECKED DGT		JOB NO. 89-007
DATE JUNE 1991	FOR: HOWARD COUNTY COUNTRY CLUB, INC. 210 REESE AND CARNEY 10715 Charter Drive Suite 200 Columbia, Maryland 21044	FILE NO. 89-007 SE

LEGEND
 Contour Interval 2 FT.
 Existing Contour 430
 Proposed Contour 430
 Direction of Drainage
 Existing Trees to be Saved



NOTE: CONCRETE PERMANENT STORM DRAIN & OUTFALL SEE PROFILE SHEET 19
 REMOVE EX. RIBER, ANTI-VORTEX DEVICE AND DEWATERING DEVICE SEE CONSTRUCTION SEQUENCE SHT. 25.
 10LF Ungrooved Rip Rap See Ref. Sht. 16
 12" x 12" SANDPILE

FINAL GRADING @ TEMP. SEDIMENT BASIN #17

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: *[Signature]* DATE: 8/19/91
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 DIRECTOR: *[Signature]* DATE: 9/14/91
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT: *[Signature]* DATE: 9/3/91
 APPROVE: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: *[Signature]* DATE: 8/27/91
 CHIEF BUREAU OF ENGINEERING: *[Signature]* DATE: 8/26/91

Developers Certification.
 "We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will notify the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on site inspections by the Howard Soil Conservation District."
 Signature of Developer: *[Signature]* Date: 4/12/91
 Cattail Creek Country Club, Inc.

Ex. Access Road to be abandoned
 Provide TAC-1 W/ 4" - 48" CMP's

NOTE: SEE FINAL GRADING PLAN, THIS SHEET FOR OUTFALL STR 3-45 SEE ALSO PROFILE SHEET 13.

NOTE: Golf course grading and layout by WILLARD C. BYRD & ASSOCIATES, Landscape Architects, Planners & Golf Course Architects, Atlanta, Georgia.

ENGINEER'S CERTIFICATE
 "I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I warrant to the developer that he must provide the Howard Soil Conservation District with a "as built" plan of the pond within 30 days of completion."
 Signature of Engineer: *[Signature]* Date: 4/12/91

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
 Approved: *[Signature]* Date: 9/16/91
 Howard S.C.D.

CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 • BALTO • (301) 621-8100 - WASH		
DESIGNED KIWM	GRADING, SEDIMENT & EROSION CONTROL PLAN HOLE NO. 13 & 14	SCALE 1" = 50'
DRAWN KIWM	CATTAIL CREEK COUNTRY CLUB	DRAWING 140F 26
CHECKED DGT	FOURTH ELECTION DISTRICT HOWARD COUNTY MARYLAND	JOB NO. 89-007
DATE JUNE 1991	FOR: HOWARD COUNTY COUNTRY CLUB c/o REESE and CARNEY 10715 Charter Drive, Suite 200 Columbia, Md. 21044	FILE NO. 89-007

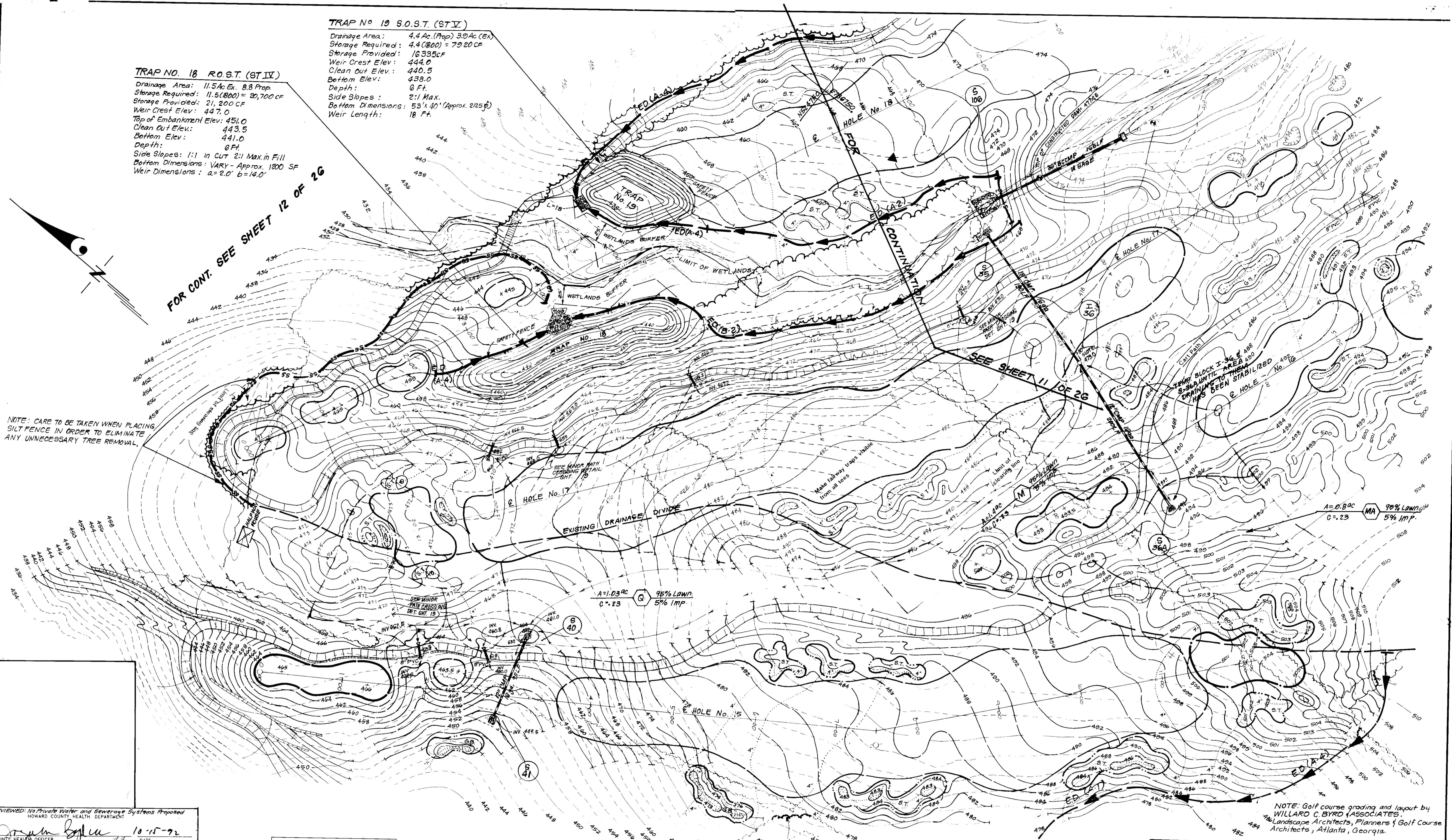
SDP-91-106

TRAP NO. 18 R.O.S.T. (ST.V)
 Drainage Area: 11.5 Ac. Ex. 8.8 Prop.
 Storage Required: 11.5(800) = 20,700 CF
 Storage Provided: 21,200 CF
 Weir Crest Elev: 447.0
 Top of Embankment Elev: 451.0
 Clean Out Elev: 443.5
 Bottom Elev: 441.0
 Depth: 6 Ft.
 Side Slopes: 1:1 in CUT 2:1 Max. in Fill
 Bottom Dimensions: VARY - Approx. 1200 SF
 Weir Dimensions: a=2.0' b=14.0'

TRAP NO. 19 S.O.S.T. (ST.V)
 Drainage Area: 4.4 Ac. (Prop) 3.9 Ac. (EX)
 Storage Required: 4.4(800) = 7920 CF
 Storage Provided: 16335 CF
 Weir Crest Elev: 444.0
 Clean Out Elev: 440.5
 Bottom Elev: 438.0
 Depth: 6 Ft.
 Side Slopes: 2:1 Max.
 Bottom Dimensions: 53' x 40' (Approx. 2125 SF)
 Weir Length: 18 Ft.

FOR CONT. SEE SHEET 12 OF 26

NOTE: CARE TO BE TAKEN WHEN PLACING SILT FENCE IN ORDER TO ELIMINATE ANY UNNECESSARY TREE REMOVAL.



REVIEWED: No Private Water and Sewerage Systems Proposed
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: [Signature] 10-15-92
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 PLANNING DIRECTOR: [Signature] 10/22/92
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 APPROVED STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: [Signature] 10/9/92
 CHIEF BUREAU OF ENGINEERING: [Signature] 10/9/92

Reviewed for: HOWARD S.C.D.
 Name: [Signature]
 and meets Technical Requirements
 Signature: [Signature] 7/24/92
 US Soil Conservation Service

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."

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 [Signature] 7/24/92
 Approved

[Signature] 4-27-92
 Signature: DAVID A. CARNEY, PRES.
 CATTAIL CREEK COUNTRY CLUB, INC.
 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] 4-27-92
 Signature Date



CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH
 DESIGNED: KIMM
 DRAWN: LAI
 CHECKED: JLS
 DATE: APRIL 1992
 SCALE: 1" = 50'
 DRAWING: 15 OF 26
 JOB NO: 89-007
 FILE NO: 89-007SE
CATTAIL CREEK COUNTRY CLUB
 FOURTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 FOR: HOWARD COUNTY COUNTRY CLUB, INC.
 C/O REESE AND CARNEY
 10715 Charter Drive, Suite 200
 Columbia, Maryland 21044

SDP-91-06

STRUCTURE SCHEDULE Δ*						
No.	TYPE	INV. IN	INV. OUT	TOP STRUCTURE	REMARKS	LOCATION
S-1	Metal End Section 15" Dia.	438.82	438.75		Ho. Co. Std. Det. S.D. 5.61	See Plan
M-2	Shallow Manhole	440.75	440.50	445.00	"	"
I-3	D-Inlet	455.75	455.50	461.33 / Slot El. 480.50	"	"
I-4	D-Inlet	475.50	475.00	481.33 / Slot El. 480.50	"	"
S-5	Metal End Section 21" Dia.	466.64	466.50		"	"
I-6	D-Inlet	477.50	476.70	481.83 / Slot El. 481.00	"	"
M-7	Shallow Manhole	Ex. 488.0	487.00	491.30	"	"
S-8	Metal End Section 15" Dia.	485.06	485.00		"	"
I-9	D-Inlet		491.25	494.83 / Slot El. 494.00	"	"
S-14	Metal End Section	470.08	470.00		"	"
I-15	D-Inlet	474.00	473.58	479.33 / Slot El. 478.50	"	"
I-16	D-Inlet	476.50	476.00	480.83 / Slot El. 480.0	"	"
I-17	D-Inlet		493.00	496.83 / Slot El. 496.00	"	"
I-18	D-Inlet		481.50	485.83 / Slot El. 485.00	"	"
S-31	Metal End Section 18" Dia.	468.73	468.70		"	"
I-32	D-Inlet		471.50	475.60 / Slot El. 474.77	"	"
S-35	Metal End Section 15" Dia.	463.13	463.0		"	"
I-36	Yard Inlet	475.00	474.50	Top/Slot = 479.00	"	"
M-39	Shallow Manhole	472.0	471.50	475.6	"	"
S-36A	Metal End Section 12" Dia.	491.64	491.50		"	"
S-40	Metal End Section 12" Dia.	449.70	449.50		"	"
S-41	Metal End Section 12" Dia.	461.00	460.80		"	"
S-47	Metal End Section 12" Dia.	446.14	446.00		"	"
S-48	Metal End Section 12" Dia.	457.00	456.86		"	"
S-23	Metal End Section 15" Dia.	489.5	489.4		"	"
I-24	Yard Inlet		489.0	Top/Slot = El. 492.5	"	"
S-25	Metal End Section 15" Dia.	469.8	469.5		"	"
S-26	Metal End Section 15" Dia.	466.0	465.7		"	"
S-45	Metal End Section 15" Dia.	408.14	408.0		"	"
I-46	D-Inlet		426.0	429.83 / Slot = 429.00	"	"
S-43	Metal End Section 12" Dia.	460.52	460.5		"	"
I-44	Yard Inlet		473.5	Top/Slot = 427.5	"	"
S-100	Metal End Section 24" Dia.	464.77	464.50		"	"
I-101	Special Structure		479.00	485.40	See Detail Sht. N° 21	"
I-102	Metal End Section 42" Dia.	463.36	463.30		Ho. Co. Std. Det. S.D. 5.61	"
I-103	Special Structure		464.55	471.68	See Detail Sheet N° 20	"
S-106	Metal End Section 36" Dia.	461.35	461.25		Ho. Co. Std. Det. S.D. 5.61	"
I-107	Modified A-5 Inlet	473.10	464.50	475.33	See Detail Sht. N° 22	"
S-108	Metal End Section 24" Dia.	402.08	402.00		Ho. Co. Std. Det. S.D. 5.61	"
S-109	30" Riser	406.50	403.50		See Detail Sht. N° 24	"
S-300	Metal End Section 24" Dia.	472.19	472.00		Ho. Co. Std. Det. S.D. 5.61	"
I-301	Yard Inlet	479.50	479.00	Top/Slot = 483.70	"	"
I-302	D-Inlet	483.50	483.00	487.83 / Slot 487.00	"	"
I-303	D-Inlet		488.00	492.33 / Slot 491.50	"	"
S-304	Metal End Section 15" Dia.	472.63	472.50		"	"
I-305	Yard Inlet		476.23	Top/Slot 481.0	"	"
S-306	Metal End Section 12" Dia.	468.80	468.76		"	"
S-307	Metal End Section 12" Dia.	471.04	471.00		"	"

Δ All Inverts on main line to be fully developed.
 ○ Slots on all sides.
 * Equivalent Ho. Co. Std. Precast Structures may be substituted as follows:
 D-Inlet Ho. Co. Std. Detail S.D. 4.39
 Standard and Shallow MH's Ho. Co. Std. Detail S.D. 12.

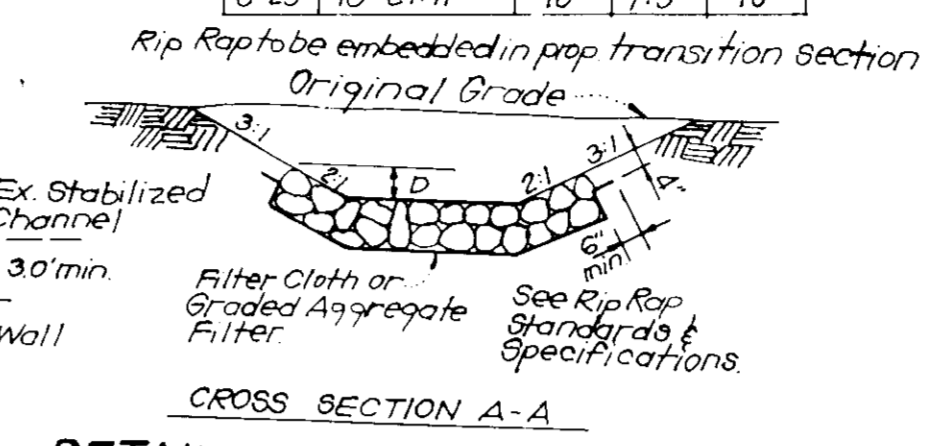
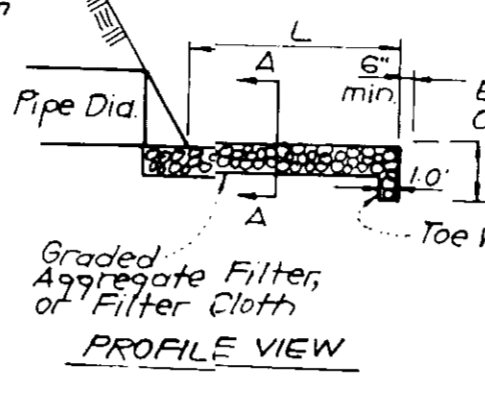
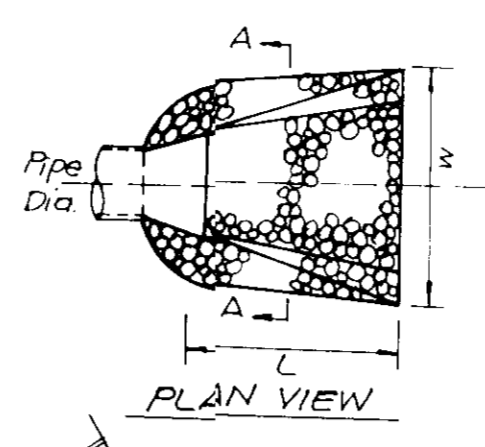
NOTE: See sheet #17-B for Structure Schedule of Underpass Construction Only. (MD. Rte 97)

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
6"	Perf CMP 16 ga.	10
6"	CMP 16 ga.	60
12"	CMP 16 ga.	667
12"	CMP 16 ga.	2238
21"	CMP 16 ga.	437
24"	CMP 16 ga.	310
18"	CMP	100
36"	BCCMP 14 ga.	165
42"	BCCMP 14 ga.	122
4"	PVC Perforated	270
4"	PVC	165
6"	PVC (Pond Drain)	1390
6"	DIP CI 50 (Pond Drain)	253

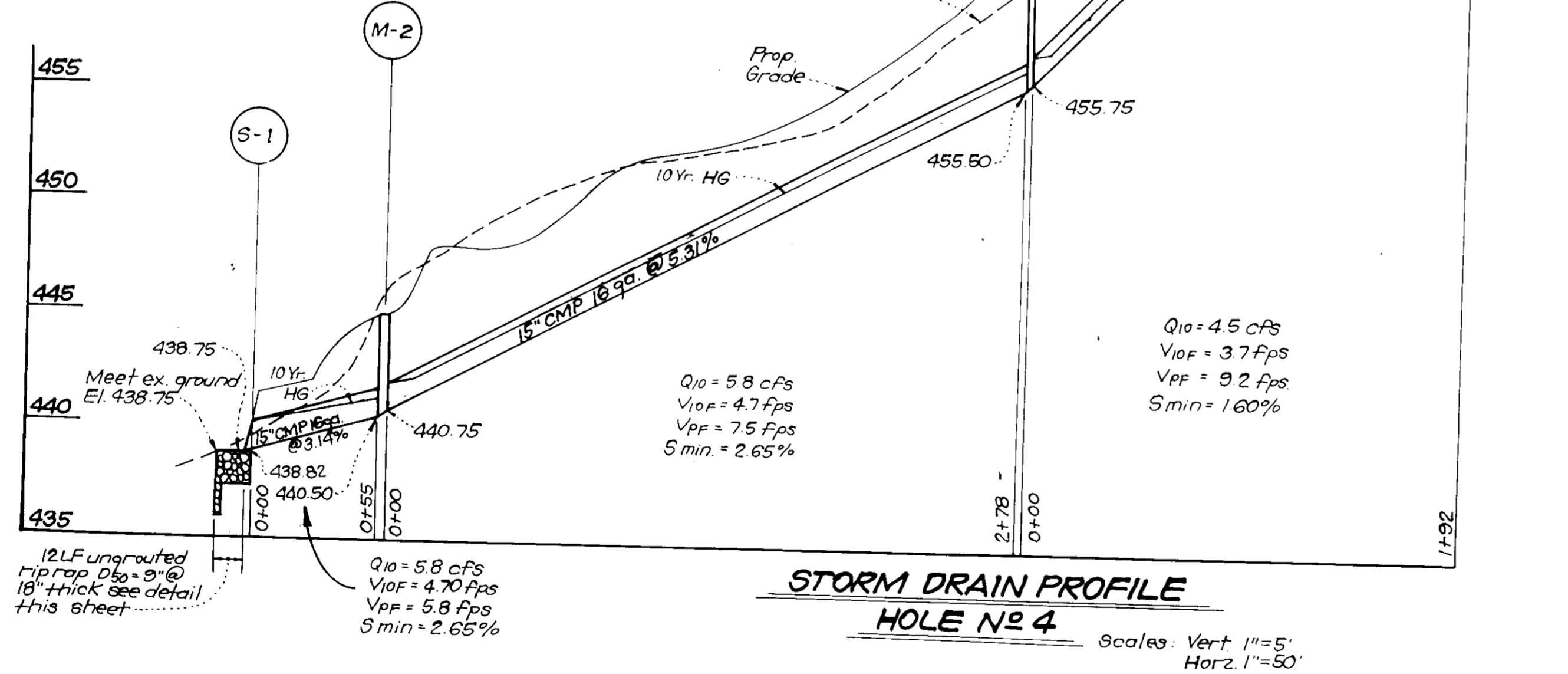
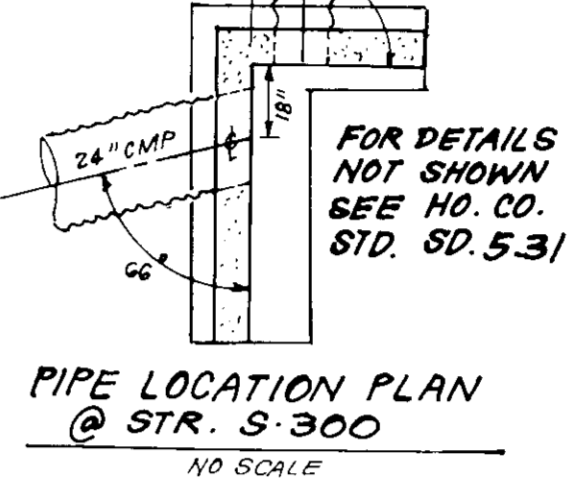
Δ 2 1/2" x 1/2" Corrugations
 * 3" x 1" Corrugations

TEMPORARY ACCESS CULVERT PIPES		
48"	CMP 16 ga.	60LF
21"	CMP 16 ga.	75LF

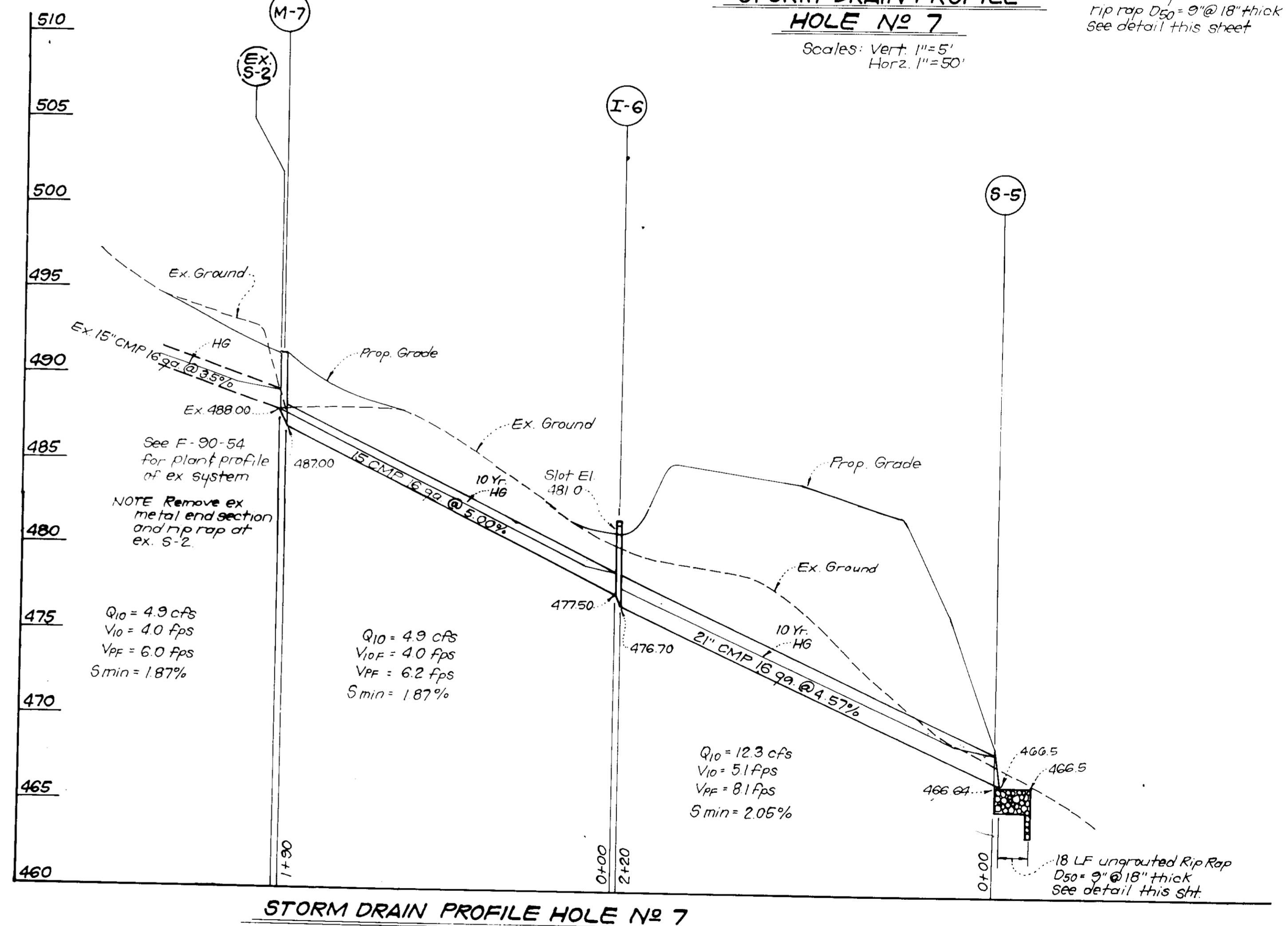
NOTE: See sheet 17-B for Pipe Schedule of Underpass sleeves and underdrains. (Md. Rte 97)



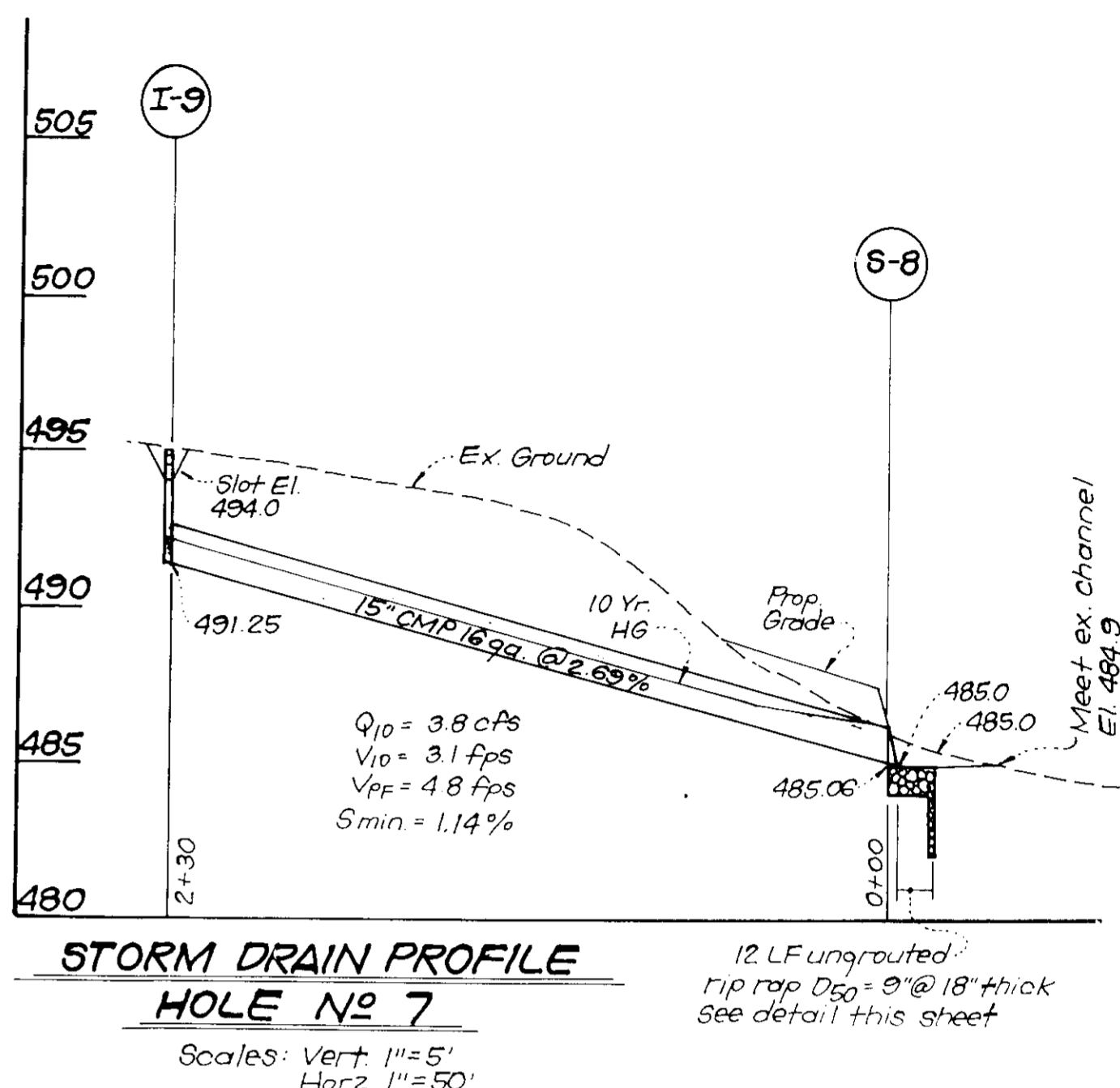
DETAIL-UNGRADED RIP-RAP
 OUTFALL STR. N° S-1, S-5, S-8,
 No Scale.



STORM DRAIN PROFILE
 HOLE NO 4
 Scales: Vert 1"=5',
 Horiz 1"=50'



STORM DRAIN PROFILE HOLE NO 7
 Scales: Horiz 1"=50',
 Vert 1"=5'



STORM DRAIN PROFILE
 HOLE NO 7
 Scales: Vert 1"=5',
 Horiz 1"=50'

REVIEWED: No Private Water and Sewerage Systems Proposed
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: [Signature] 12-15-92
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 [Signature] 10/25/92
 [Signature] 10/26/92
 APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 10/19/92
 CHIEF BUREAU OF ENGINEERING M.K.

Reviewed for: HOWARD COUNTY S.C.D.
 and meets Technical Requirements
 [Signature] 9/24/92
 U.S. Soil Conservation Service

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 erosion and sediment 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."

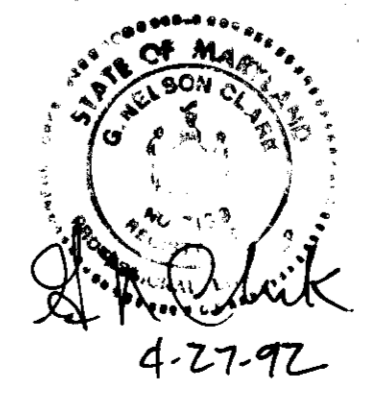
THIS DEVELOPMENT PLAN IS APPROVED
 FOR SOIL EROSION AND SEDIMENT
 CONTROL BY THE HOWARD SOIL
 CONSERVATION DISTRICT
 [Signature] 9/24/92
 Approved

[Signature] 4-27-92
 DAVID A. DAVEN, PRES.
 CATTAIL CREEK COUNTRY CLUB, INC.

ENGINEER'S CERTIFICATE

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

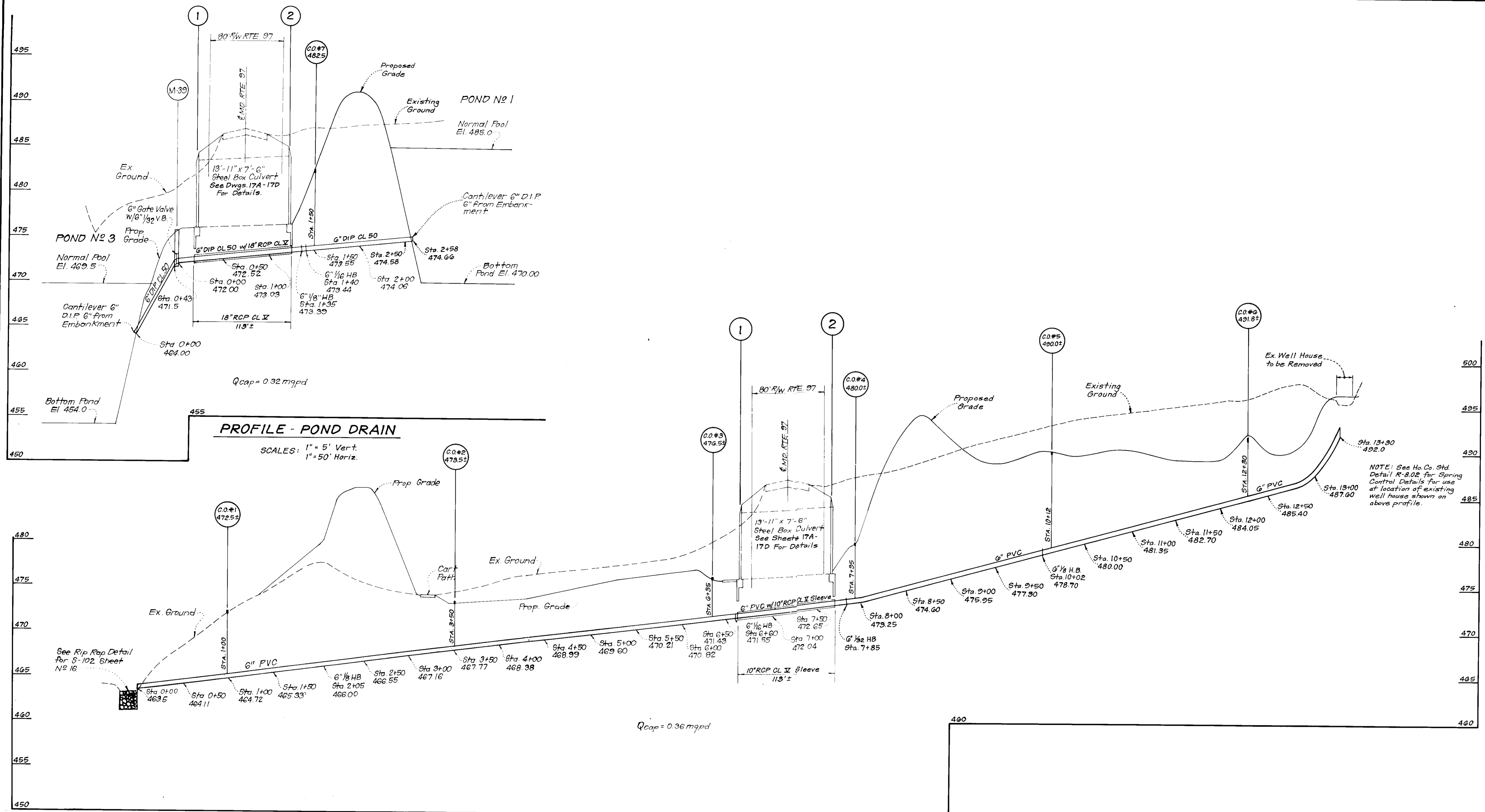
[Signature] 4-27-92
 G. Nelson Clark Date



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

DESIGNED	KIWM	REVISOR	REVISED STORM DRAINAGE PROFILES & DETAILS	SCALE	As Shown
DRAWN	BAL			DRAWING	1G OF 2G
CHECKED	JS			JOB NO.	89-007
DATE	May, 1992			FILE NO.	89-007

FOR: HOWARD COUNTY COUNTRY CLUB, INC.
 90 REESE and CORNEY
 10715 Charter Drive Suite 200
 Columbia, Maryland 21044



PROFILE - POND DRAIN

SCALES: 1" = 5' Vert.
1" = 50' Horiz.

PROFILE - SPRING BYPASS

Scale: 1" = 5' Vert.
1" = 50' Horiz.

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

James M. Helm / JMH 9/24/92
U.S. Soil Conservation Service Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

John P. Robertson 7/24/92
Approved Howard S.C.D. Date

SDP-91-106
Plan Number

DEVELOPER'S CERTIFICATION

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have Certificate of Attendance at a Department of Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with 'As Built' plan of the pond within 30 days of completion. I will also authorize periodic on-site inspections by the Howard Soil Conservation District."

David A. Carney, Pres. 4-27-92
DAVID A. CARNEY, PRES.
CATTAIL CREEK COUNTY CLUB, INC.
Date

ENGINEER'S CERTIFICATE

"I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the district engineer and must provide the Howard Soil Conservation District with a red line plan within 30 days of completion."

G. Nelson Clark 4-27-92
G. Nelson Clark Date

REVIEWED: No Private Water and Sewerage Systems Proposed HOWARD COUNTY HEALTH DEPARTMENT	
County Health Officer: <i>James Boyer</i> 10-15-92 DATE	
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	
Planning Director: <i>Joseph Hertz</i> 10/28/92 DATE	
CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	
APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
Director: <i>James P. ...</i> 10/9/92 DATE	
Chief Bureau of Engineering: <i>M.K. ...</i> 10/9/92 DATE	

CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH		
DESIGNED JLS	REVISED SPRING BYPASS AND POND DRAIN PROFILES CATTAIL CREEK COUNTRY CLUB FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE As Shown
DRAWN LAI		DRAWING 17 OF 26
CHECKED JLS		JOB NO. 89-007
DATE MAY 1992		FILE NO. 89-007 SE
FOR: HOWARD COUNTY COUNTRY CLUB, INC. C/O REESE AND CARNEY 10715 Charter Drive Suite 200 Columbia, Maryland 21044		

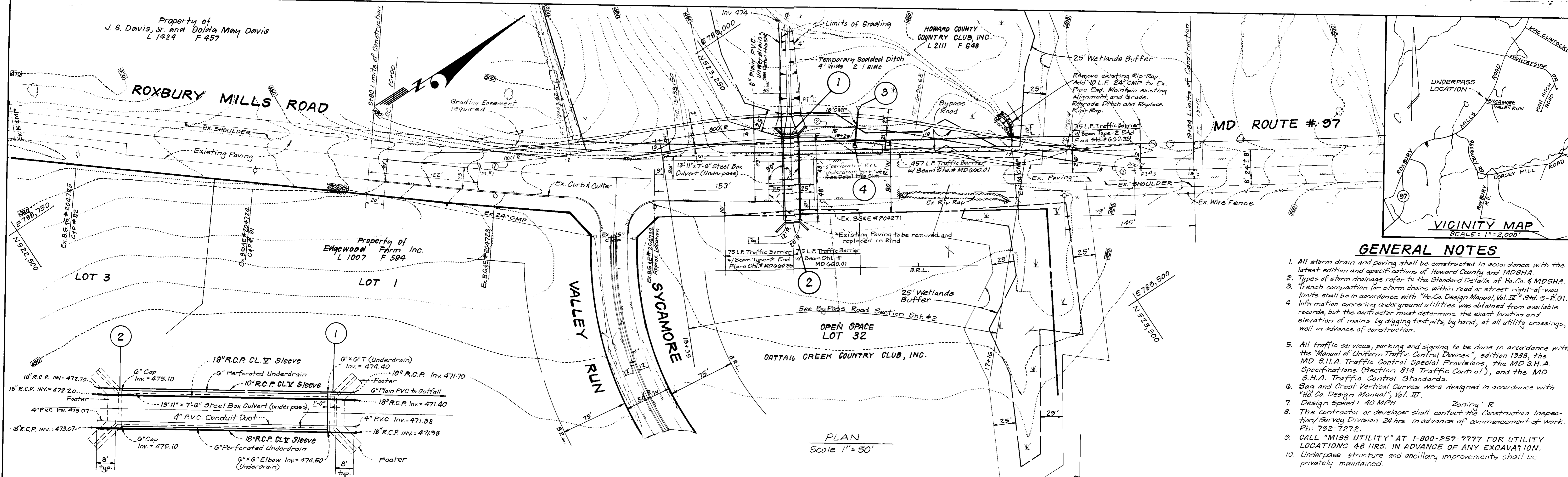
SDP-91-106

Property of
J. G. Davis, Sr. and Golden May Davis
L 1424 F 457

Property of
Edgewood Farm Inc.
L 1007 F 584

HOWARD COUNTY
COUNTRY CLUB, INC.
L 2111 F 648

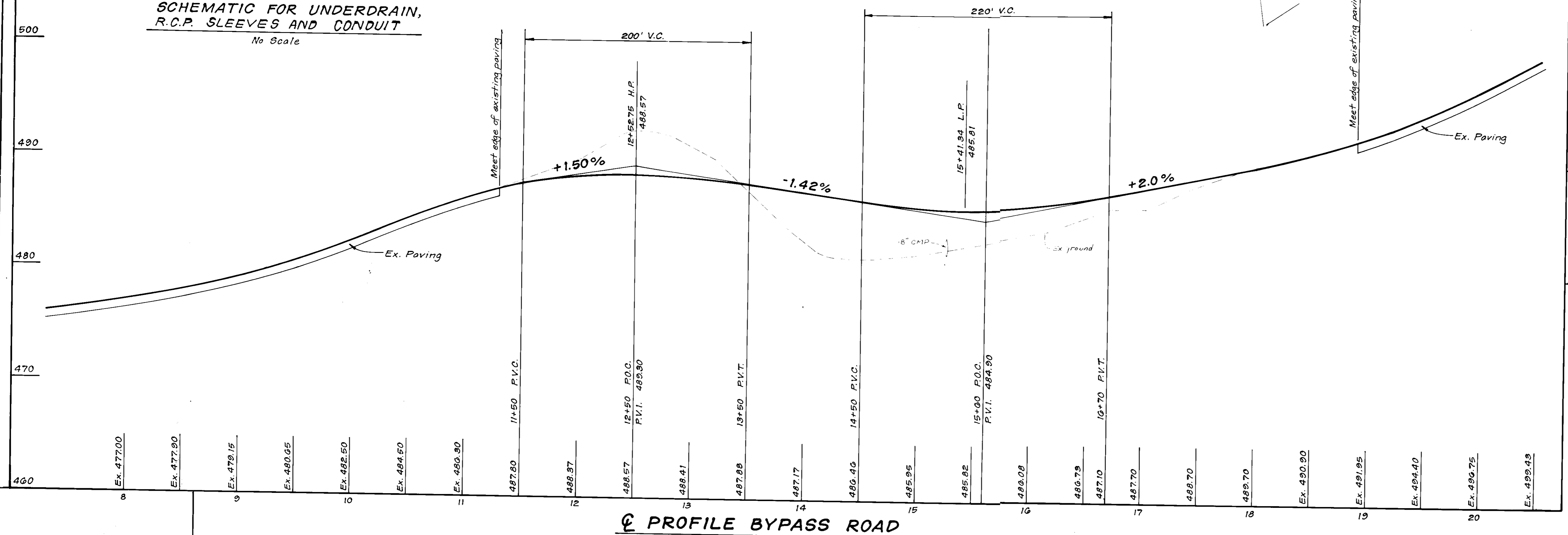
VICINITY MAP
SCALE: 1" = 2,000'



- GENERAL NOTES**
- All storm drain and paving shall be constructed in accordance with the latest edition and specifications of Howard County and MDSHA.
 - Types of storm drainage refer to the Standard Details of Ho. Co. & MDSHA.
 - Trench compaction for storm drains within road or street right-of-way limits shall be in accordance with "Ho. Co. Design Manual, Vol. II" Std. G-2.01.
 - Information concerning underground utilities was obtained from available records, but the contractor must determine the exact location and elevation of mains by digging test pits, by hand, at all utility crossings, well in advance of construction.
 - All traffic services, parking and signing to be done in accordance with the "Manual of Uniform Traffic Control Devices", edition 1988, the MD S.H.A. Traffic Control Special Provisions, the MD S.H.A. Specifications (Section 814 Traffic Control), and the MD S.H.A. Traffic Control Standards.
 - Sign and Crest Vertical Curves were designed in accordance with "Ho. Co. Design Manual", Vol. III.
 - Design Speed: 40 MPH Zoning: R
 - The contractor or developer shall contact the Construction Inspection/Survey Division 24 hrs. in advance of commencement of work. Ph: 792-7272.
 - CALL "MISS UTILITY" AT 1-800-257-7777 FOR UTILITY LOCATIONS 48 HRS. IN ADVANCE OF ANY EXCAVATION.
 - Underpass structure and ancillary improvements shall be privately maintained.

PLAN
Scale 1" = 50'

SCHEMATIC FOR UNDERDRAIN, R.C.P. SLEEVES AND CONDUIT
No Scale



CURVE DATA					
No.	RAD.	DELTA	T.D.	CHORD	L.C.
1	800'	14° 35'	102.36'	203.07'	203.62'
2	800'	18° 25'	129.69'	250.04'	257.15'
3	800'	11° 00'	77.03'	153.35'	153.50'

PROFILE BYPASS ROAD

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

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT
Joseph Bogdan 12-10-91
COUNTY HEALTH OFFICER DATE

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
James Neeth 12/14/91
PLANNING DIRECTOR DATE

APPROVED STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
James G. Helm 12/13/91
DIRECTOR DATE

James G. Helm 12/27/91
CHIEF BUREAU OF ENGINEERING DATE

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

DESIGNED: J.L.S. SCALE: 1" = 50'

DRAWN: V.L.M. DRAWING: 17A OF 26

CHECKED: J.L.S. JOB NO.: 89-007

DATE: 12-13-90 FOR: HOWARD COUNTY COUNTRY CLUB LTD. PTNS. FILE NO.: 89-007-D
10715 Charter Drive, Suite 200
Columbia, Maryland 21044



STRUCTURE SCHEDULE

STR. NO.	TYPE	INV. IN	INV. OUT	TOP ELEV.	REMARKS
* 1	Headwall Modified				S.H.A. Std. No. MD-352.02
* 2	Headwall Modified				S.H.A. Std. No. MD-352.02
3	Metal End Section 18"Ø	480.00	480.50		S.H.A. Std. No. MD-370.01
4	Metal End Section 18"Ø	483.00	482.90		S.H.A. Std. No. MD-370.01

* Revised Dimensions D=13'-11", B=3'-6", C=1'-9", E=6'-3", F=4'-0", G=14'-4 1/4", H=8'-7", J=14'-9", K=12'-9 1/2", L=13'-2 1/2", M=11'-3 1/2", N=4'-9", O=17'-6 3/4", P=2'-6" for all other details and reinforcing information, see S.H.A. Detail MD-352.02 for D=84".

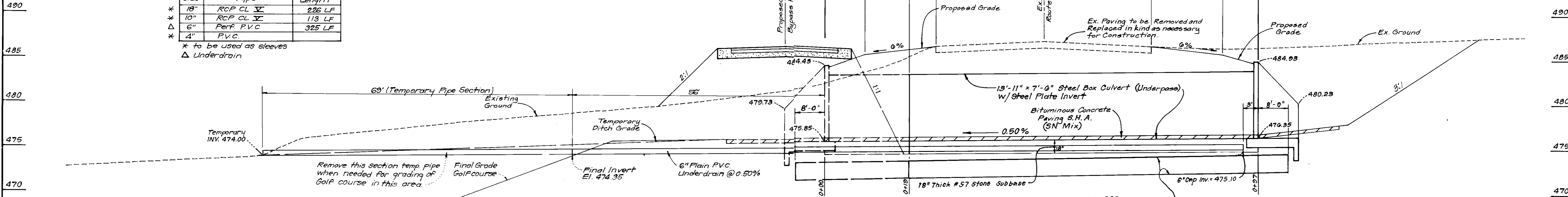
PIPE SCHEDULE

Size	Type	Length
* 18"	RCP CL V	226 LF
* 10"	RCP CL V	113 LF
* 6"	Perf. P.V.C.	325 LF
* 4"	P.V.C.	

* to be used as sleeves
 Δ Underdrain

PHASE I - CONSTRUCTION SEQUENCE

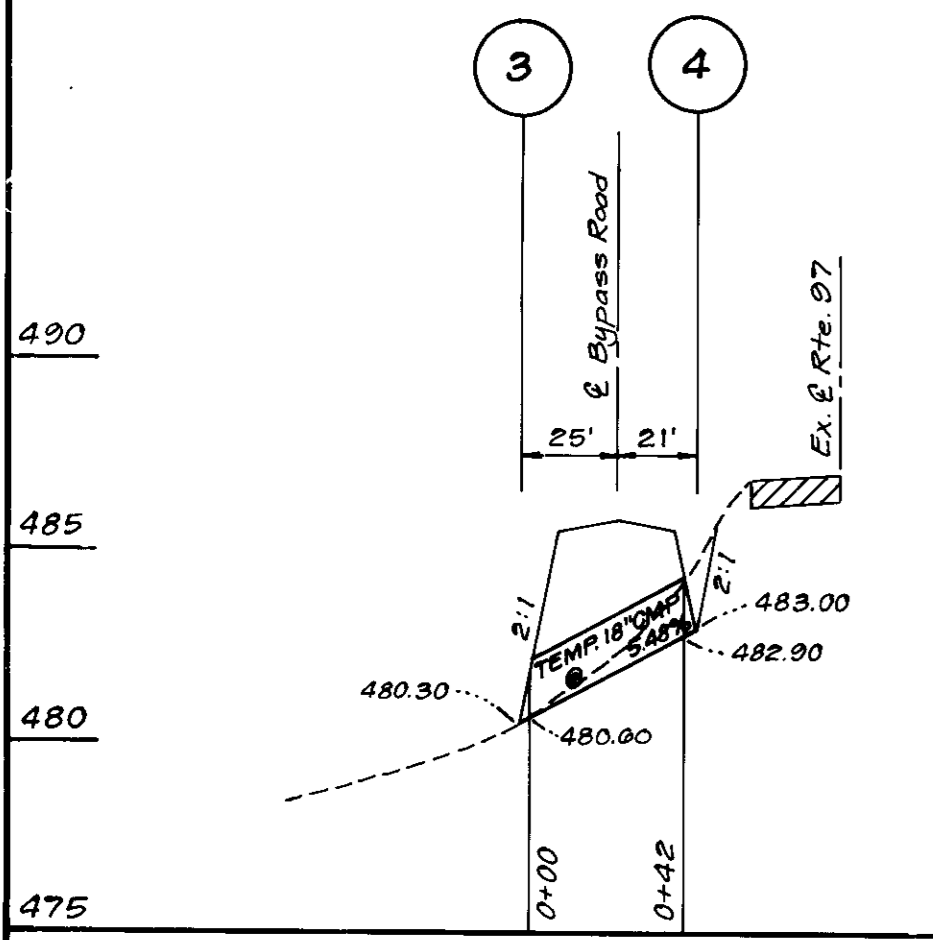
1. Install Traffic Control Devices per Traffic Control Plan Phase I.
2. Install Sediment & Erosion Controls per plan.
3. Install 6" Plain P.V.C. Underdrain from outfall to Box Culvert Station 0+19.
4. Construct Bypass Road.
5. Remove Traffic Control Devices Phase I and install Traffic Control Devices per Traffic Control Plan Phase II.
6. Excavate and Install remainder 6" Perforated Underdrain and Install All Concrete Sleeves and Conduits to limits shown.
7. Excavate, Fabricate and Install Steel Box Culvert and backfill from Sta. 0+19 to Sta. 0+97.
8. Construct Structure No. 2.



PROFILE

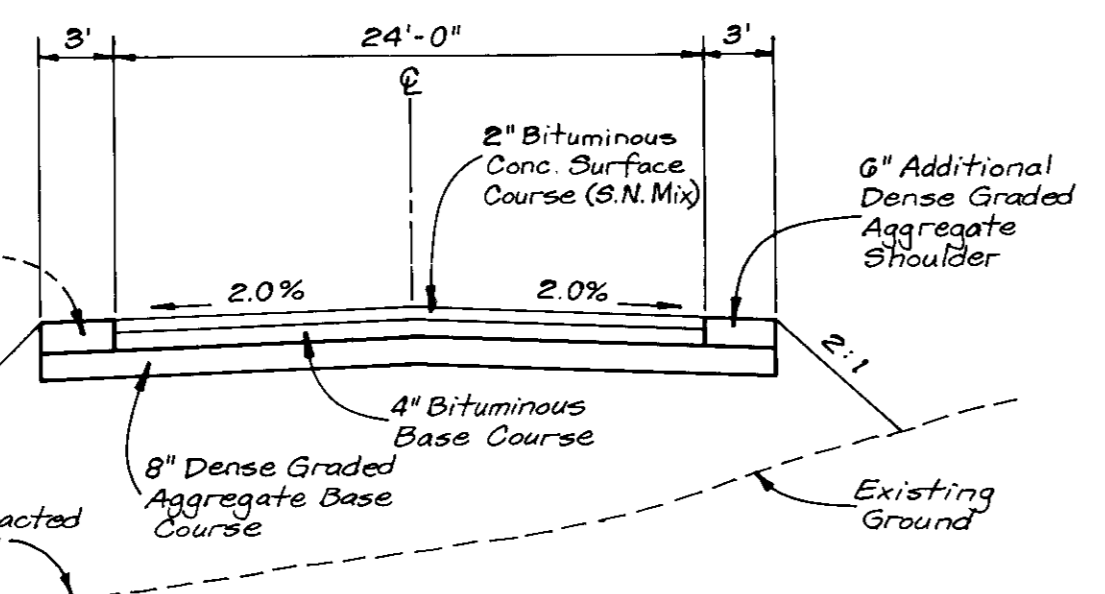
FOR LOCATION & ELEVATION OF RCP SLEEVES AND PVC CONDUITS, SEE SHEET N° 1
 FOR PROFILES OF SPRING BYPASS AND POND DRAIN (FOR WHICH SLEEVES ARE CONSTRUCTED) SEE SHEET NUMBER 17.
 SCALES: HORIZ. 1"=10'
 VERT. 1"=5'

PHASE I CONSTRUCTION



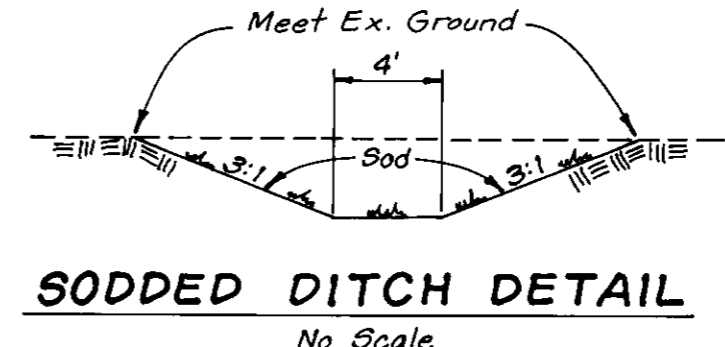
PHASE I PROFILE

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



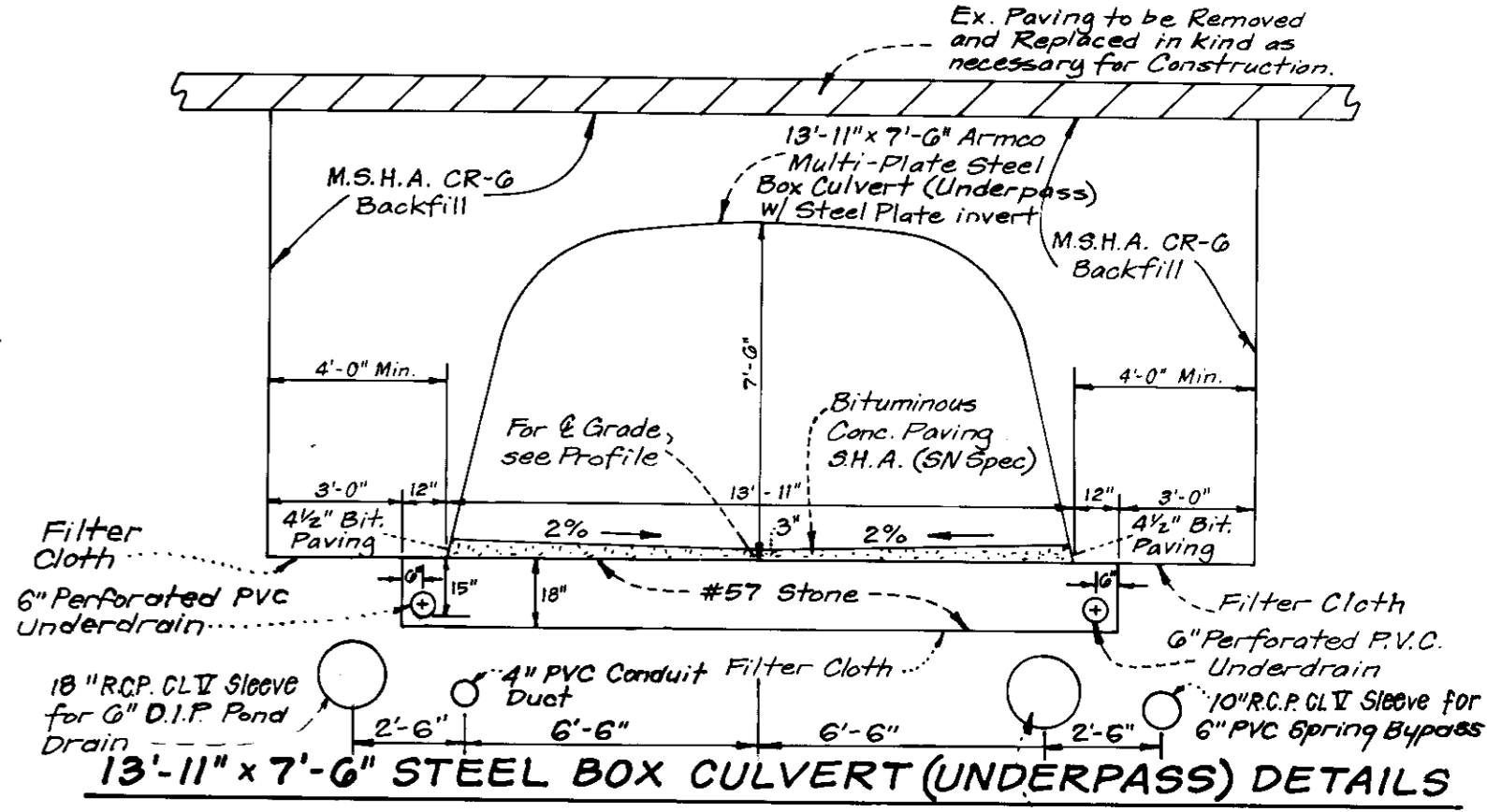
PHASE I BYPASS ROAD SECTION

NO SCALE



SODDED DITCH DETAIL

No Scale



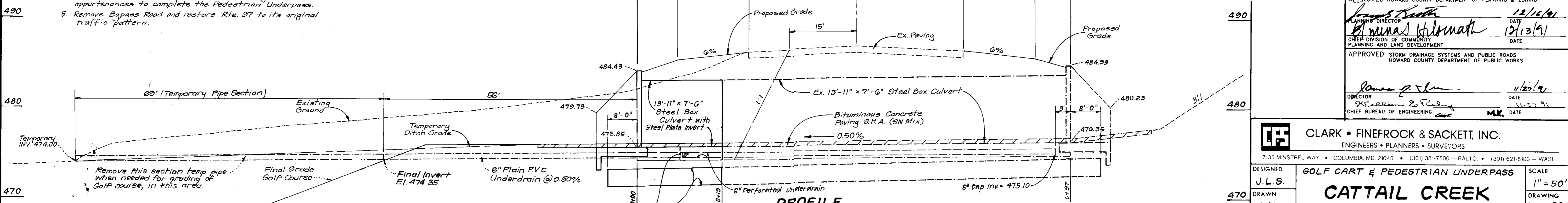
13'-11" x 7'-6" STEEL BOX CULVERT (UNDERPASS) DETAILS (LOOKING EAST)

SCALE: 1/4" = 1'

NOTE: For details not shown, see Manufacture Shop Drawings.

PHASE II - CONSTRUCTION SEQUENCE

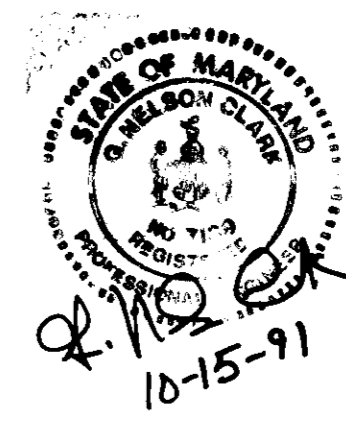
1. Complete Steel Box Culvert Sta. 0+00 to Sta. 0+19.
2. Complete 6" Perforated Underdrains and All Concrete Sleeves & Conduit.
3. Construct Structure No. 1
4. Construct Outfall Ditch, Bituminous Paving and all other appurtenances to complete the Pedestrian Underpass.
5. Remove Bypass Road and restore Rte. 97 to its original traffic pattern.



PROFILE

FOR LOCATION & ELEVATIONS OF R.C.P. SLEEVES AND PVC CONDUITS, SEE SCHEMATIC PLAN SHEET N° 17A
 FOR PROFILES OF SPRING BYPASS AND POND DRAIN (FOR WHICH SLEEVES ARE CONSTRUCTED) SEE SHEET N° 17.
 SCALES: HORIZ. 1"=10'
 VERT. 1"=5'

PHASE II CONSTRUCTION



APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS HOWARD COUNTY HEALTH DEPARTMENT	
James P. Hill	12/70-91
COUNTY HEALTH OFFICER	DATE
APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	
James P. Hill	12/16/91
PLANNING DIRECTOR	DATE
James P. Hill	12/13/91
CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE
APPROVED STORM DRAINAGE SYSTEMS AND PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
James P. Hill	11/21/91
DIRECTOR	DATE
James P. Hill	11/27/91
CHIEF BUREAU OF ENGINEERING	DATE

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

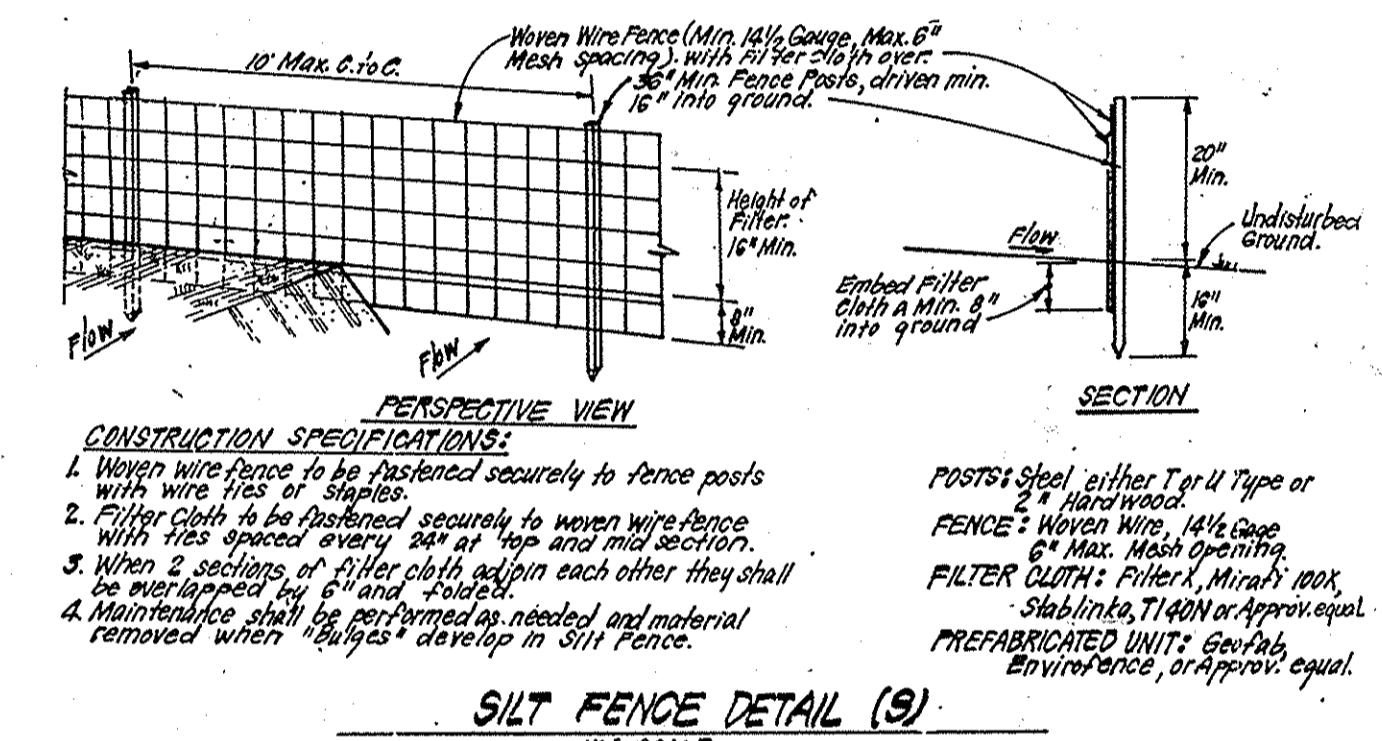
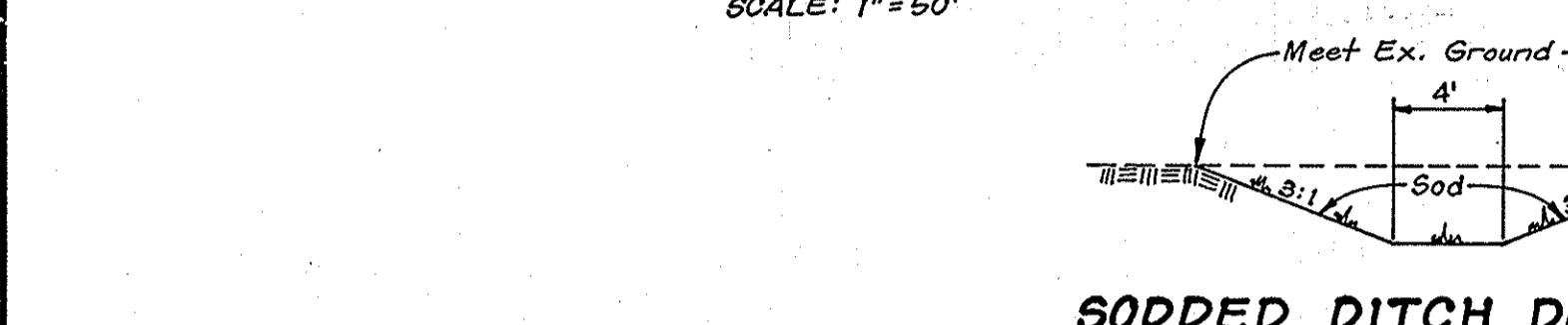
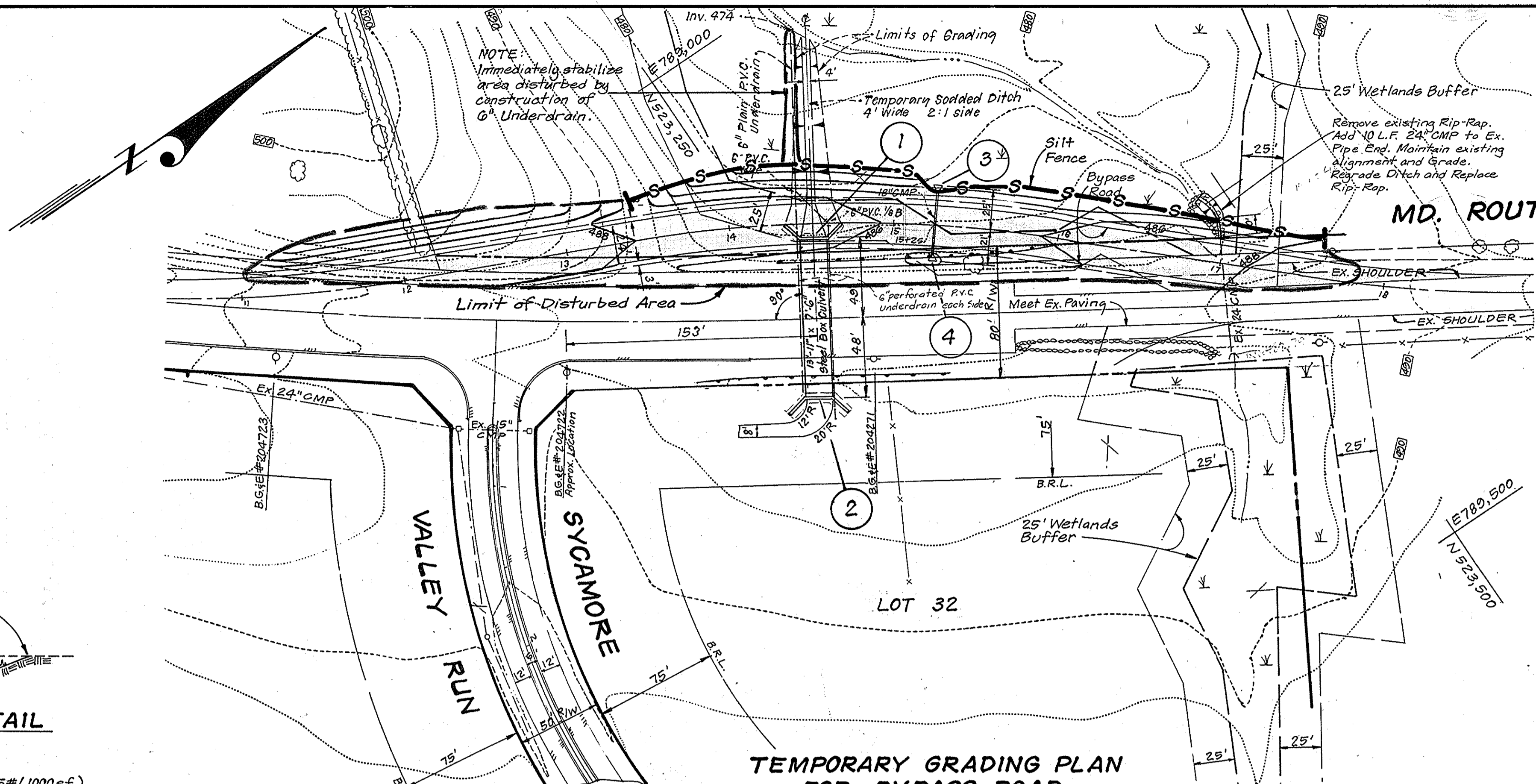
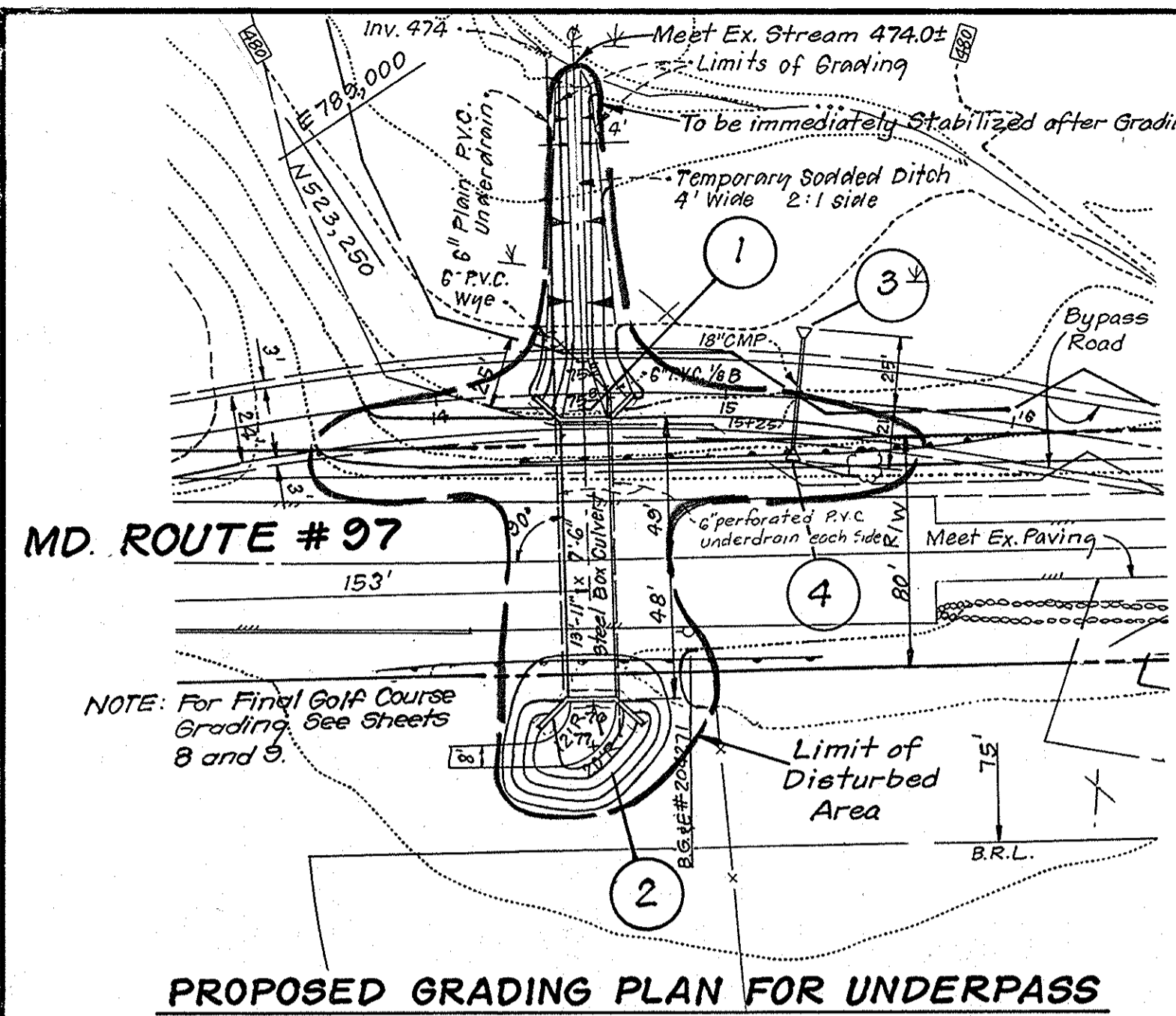
DESIGNED: J.L.S.
 DRAWN: LAI
 CHECKED: J.L.S.
 DATE: 4-12-91

GOLF CART & PEDESTRIAN UNDERPASS

CATTAIL CREEK COUNTRY CLUB
 4TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

FOR: HOWARD COUNTY COUNTRY CLUB LTD. PTNS.
 10715 Charter Drive, Suite 200
 Columbia, Maryland 21044

SCALE: 1" = 50'
 DRAWING: 176 of 26
 JOB NO.: 89-007
 FILE NO.: 89-007-0



- SEDDIMENT CONTROL NOTES: 1. A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits... 2. All vegetative and structural practices are to be installed according to the provisions of this plan...

- GENERAL SODDING NOTES: 1. Apply 10-10-10 Fertilizer @ 1000#/acre... 2. Apply Ground Agricultural Limestone @ 2000#/acre... 3. Incorporate both Lime and Fertilizer into soil by disking...

- SEEDING AND MULCHING: The application of seed and mulch to establish vegetative cover. PURPOSE: To protect disturbed soils from erosion during and at the end of construction.

- SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2): A. Soil Preparation 1. Temporary Stabilization 2. Permanent Stabilization 3. Soil Amendments (Fertilizer and Lime Specifications)

LEGEND table with 2 columns: Item, Description. Includes Contour Interval (2 Ft), Existing Contour (480), Proposed Contour (420), Silt Fence (6-9-9-9).

- STANDARD STABILIZATION NOTE: FOLLOWS THE SOIL, DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION PLAN BE COMPLETED WITHIN: 1. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL EXPOSED EARTH, SANDS, SILTS, AND GRAVELS...

- HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES: 1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSING AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION...

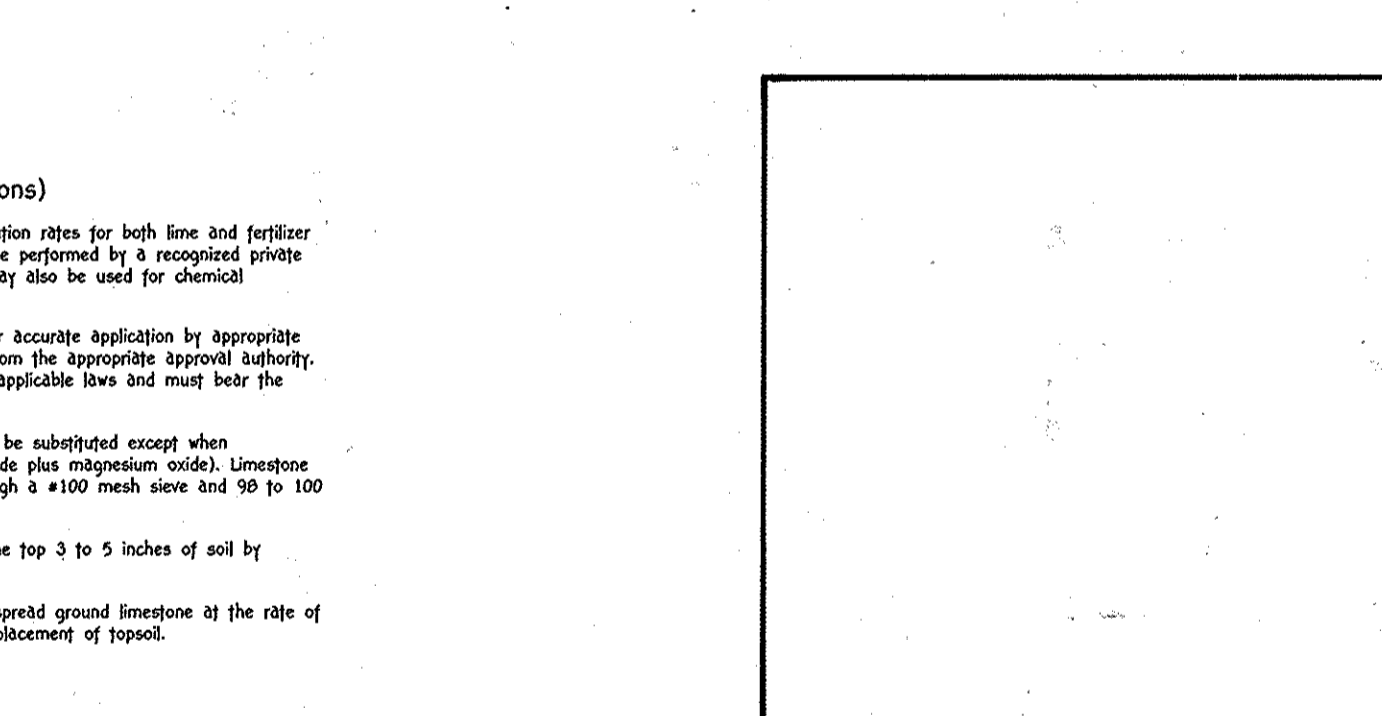
- DUST CONTROL: DEFINITION: DUST-BINDING AND PREVENTION ON CONSTRUCTION SITES AND ROADS. PURPOSE: TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS AND IMPROVE TRAFFIC SAFETY.

- CONSTRUCTION SEQUENCE: 1. Obtain Grading Permit and Access Permit. PHASE I: 1. Install Silt Fence and temporarily extend ex. 33'x24' CMPA. 2. Construct G" PVC Under-drain and immediately stabilize area disturbed.

Reviewed for HOWARD COUNTY S.C.D. Name and meets Technical Requirements. Signature: John R. Robertson, U.S. Soil Conservation Service. Date: 4/1/91.

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 erosion and sediment control...

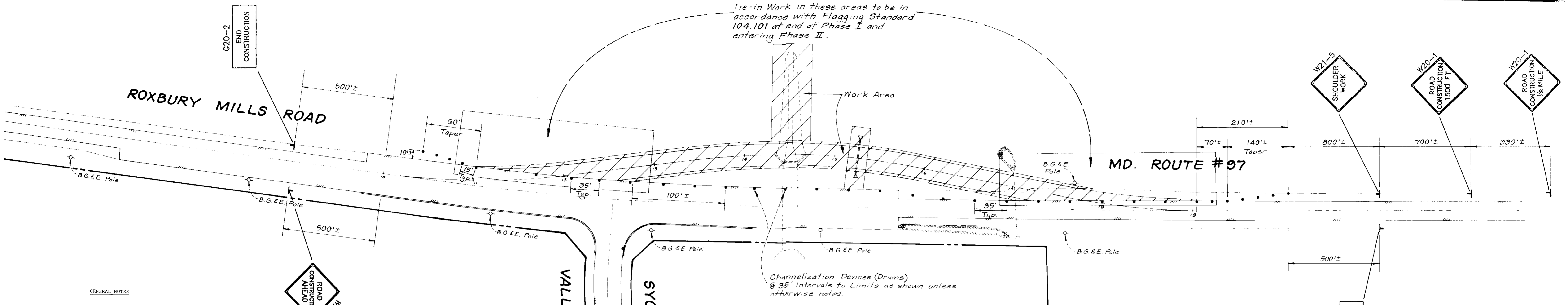
PROFESSOR'S CERTIFICATE: I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions...



APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS. HOWARD COUNTY HEALTH DEPARTMENT. Signature: Joseph M. Bogdan, Date: 12-10-91.

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

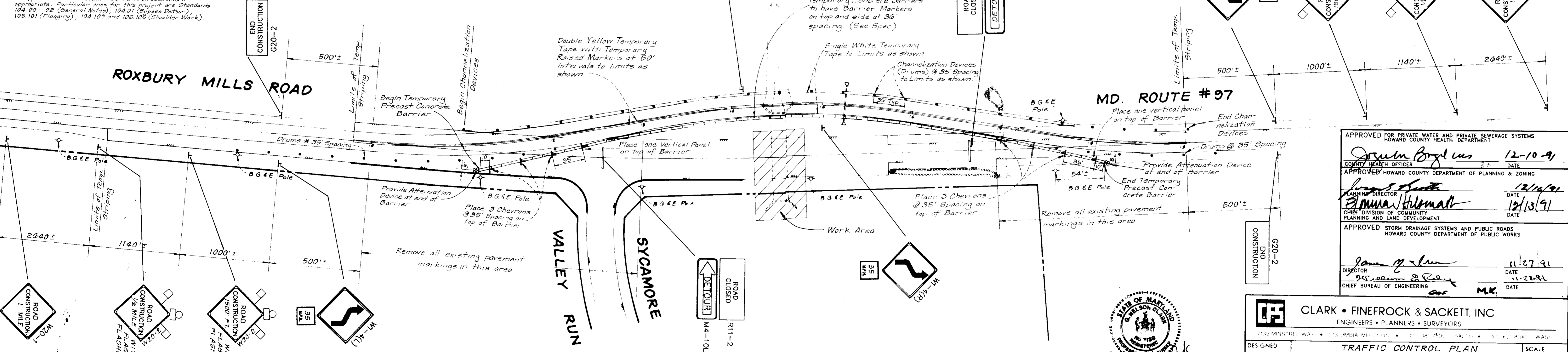
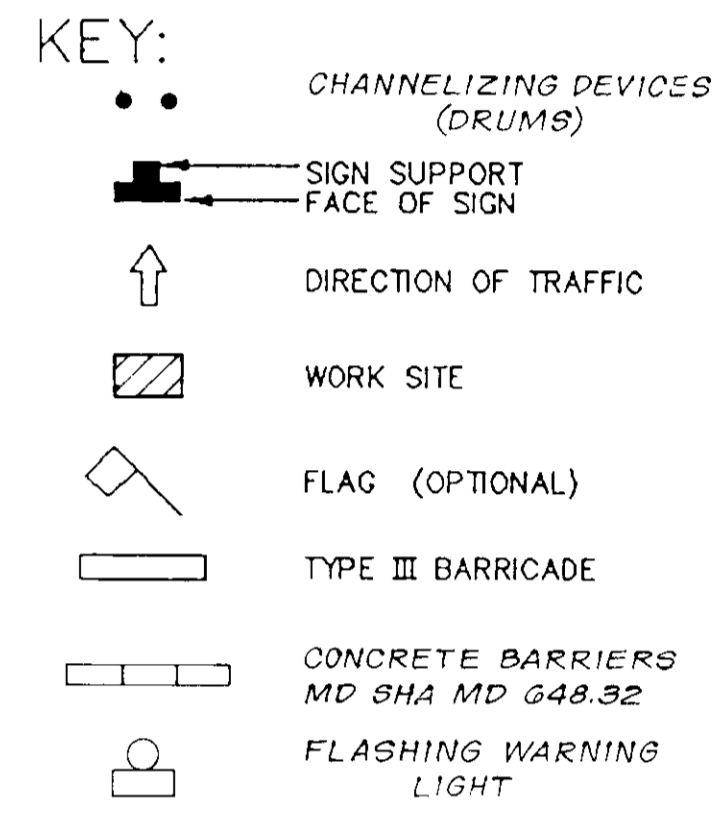
Table with columns: DESIGNED (J.L.S.), DRAWN (LAI), CHECKED (J.L.S.), DATE (APRIL 1991), SCALE (As Shown), DRAWING (CATTAIL CREEK COUNTRY CLUB), JOB NO. (17COF26), FILE NO. (89-007).



- GENERAL NOTES**
- Flashing warning lights and/or flags may be used to call attention to early warning signs.
 - Warning lights may be used to mark channelizing devices as needed.
 - Channelizing devices are to be extended to a point where they are visible to approaching traffic.
 - Maximum spacing between channelizing devices:
 - Taper - approximately equal in feet to the speed limit.
 - Tangent - twice the above taper value.
 - Flood lights should be provided to mark flagger stations at night.
 - If flaggers are not able to see each other, two-way radio communications shall be used.
 - If entire work area is visible from one station, a single flagger may be used.
 - Pavement markings no longer applicable shall be removed or obliterated as soon as practicable. Temporary markings shall be used as necessary or as directed by S.H.A. Inspector.
 - For emergency repair operations, a minimum number of traffic control devices (TCD's) may be used. This generally will consist of one sign per direction, flashing lights on the vehicle, a minimum number of channelizing devices, and flags or high level devices. Additional TCD's such as arrow panels, more signing, etc., will be placed as soon as possible to present an array of devices which are consistent with the standard work zone traffic control typicals.
 - An arrow panel in the flashing arrow mode shall be used anytime there is a lane closure on a multi-lane highway. Arrow panels shall not be used along two lane two-way roadways unless they display MSMA's "four corner" lamp array.
 - Vehicles should not occupy or be stopped in a lane beyond a horizontal curve or a vertical curve (hill). Instead vehicles stopping are to be pulled as far off the road as possible or be otherwise parked in a manner as to inhibit the movement of traffic as little as possible. If stopping is necessary and no backup vehicle is available place channelizing devices in accordance with general note #3 along with the appropriate signing.
 - Warning signs mounted on wood post(s) for the over 24 hour operations shall be installed as shown in Figure 6-1, Part VI of the MUTCD. The bottom of the signs mounted on portable supports shall be not less than one foot above the pavement elevation. All signs shall be installed in such a manner as to provide adequate visibility of these signs and all other existing signs on the highway to the driver.
 - No work operations which interferes with the flow of traffic may take place during the peak hours 6AM-9AM and 3PM-7PM Monday - Friday unless written approval is received from the S&A District Engineer.
 - All signs, channelizing devices, etc. shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).
 - All Applicable MD TOP Standards are to be used where appropriate. Particular ones for this project are Standards 104.09 - .02 (General Notice), 104.01 (Bypass Detour), 105.101 (Flagging), 104.107 and 105.105 (Shoulder Work).

TRAFFIC CONTROL PLAN PHASE I

Refer to T.C.P. Standard MD-104.107



TRAFFIC CONTROL PLAN PHASE II

Refer to T.C.P. Standard MD-104.101

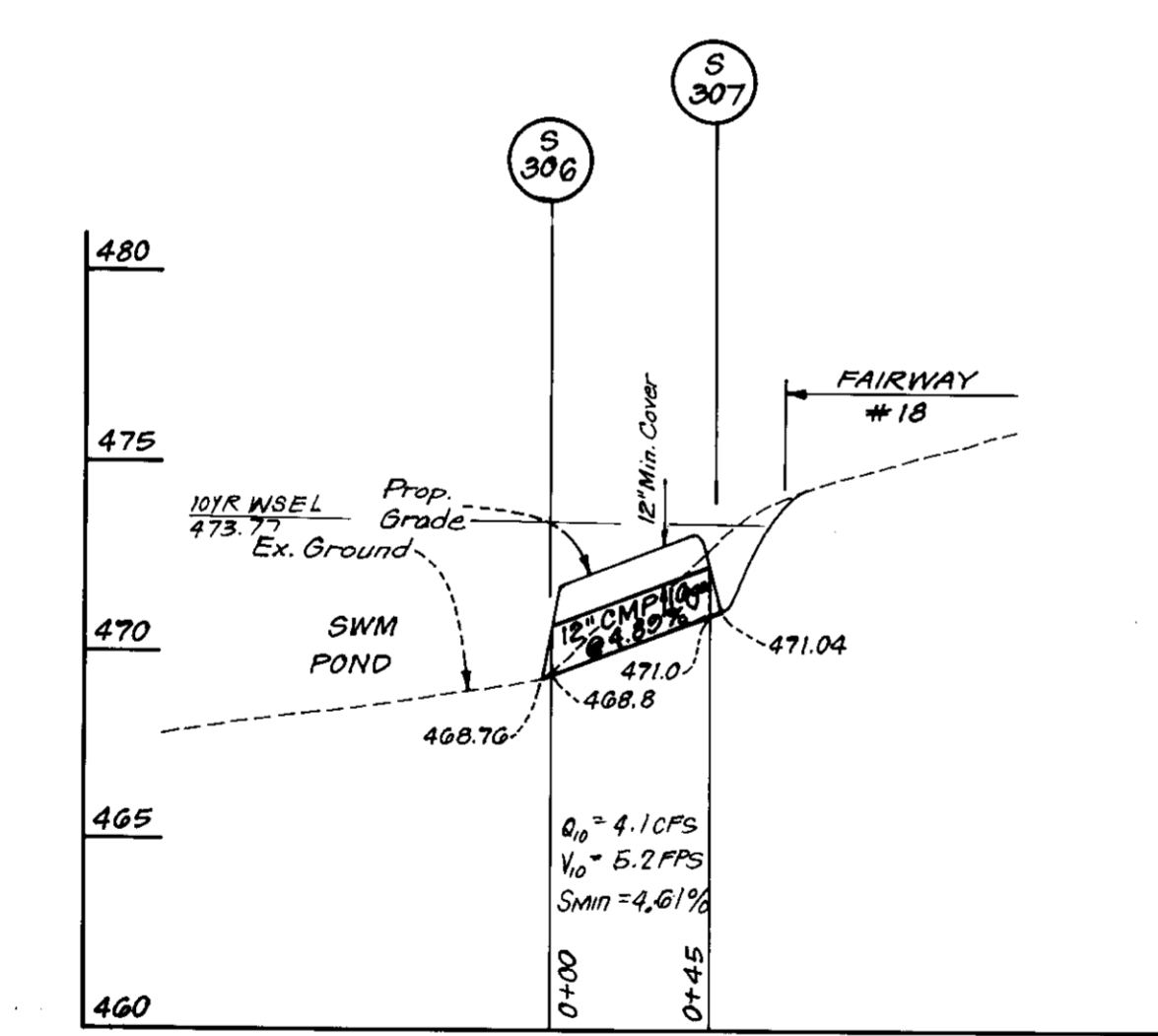
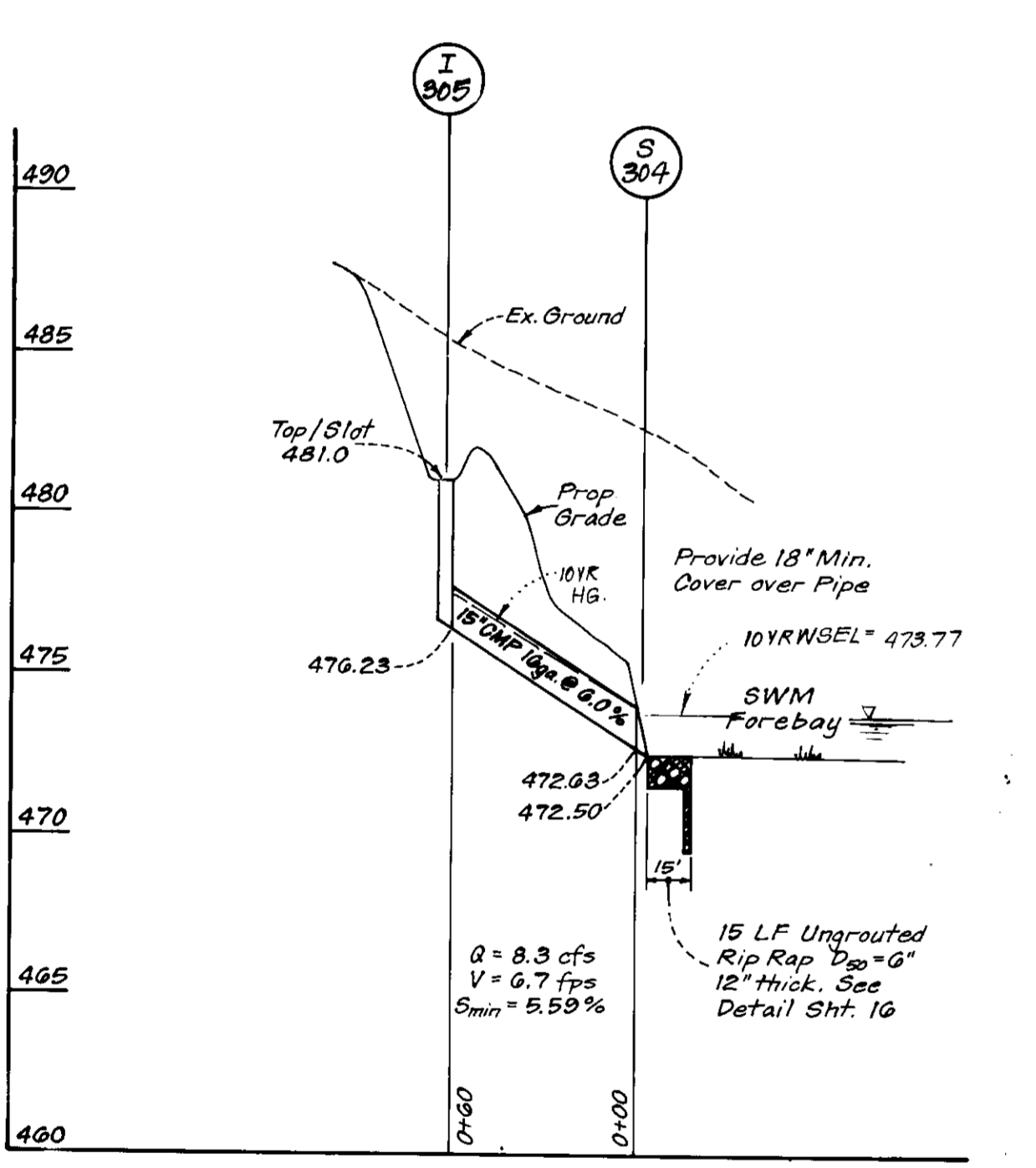
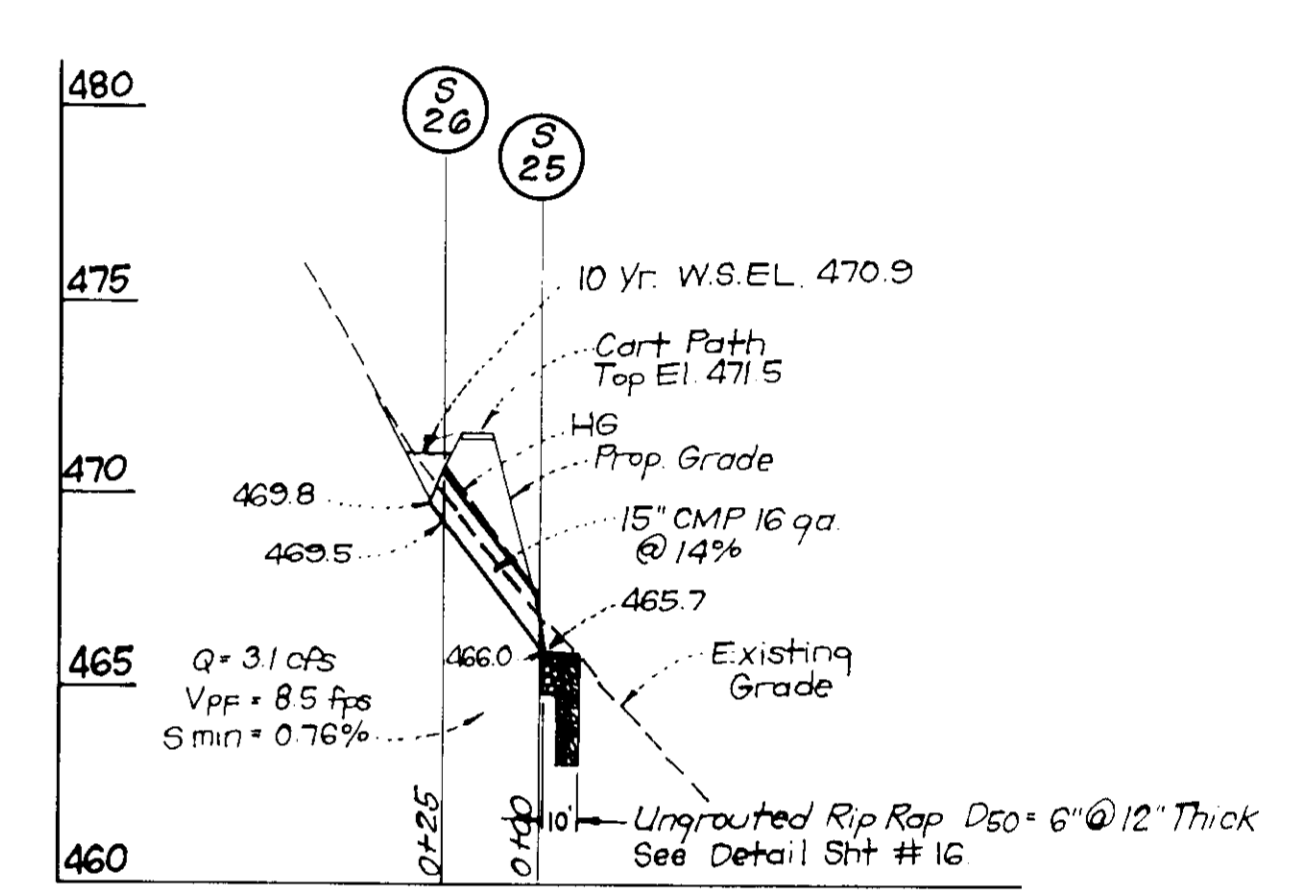
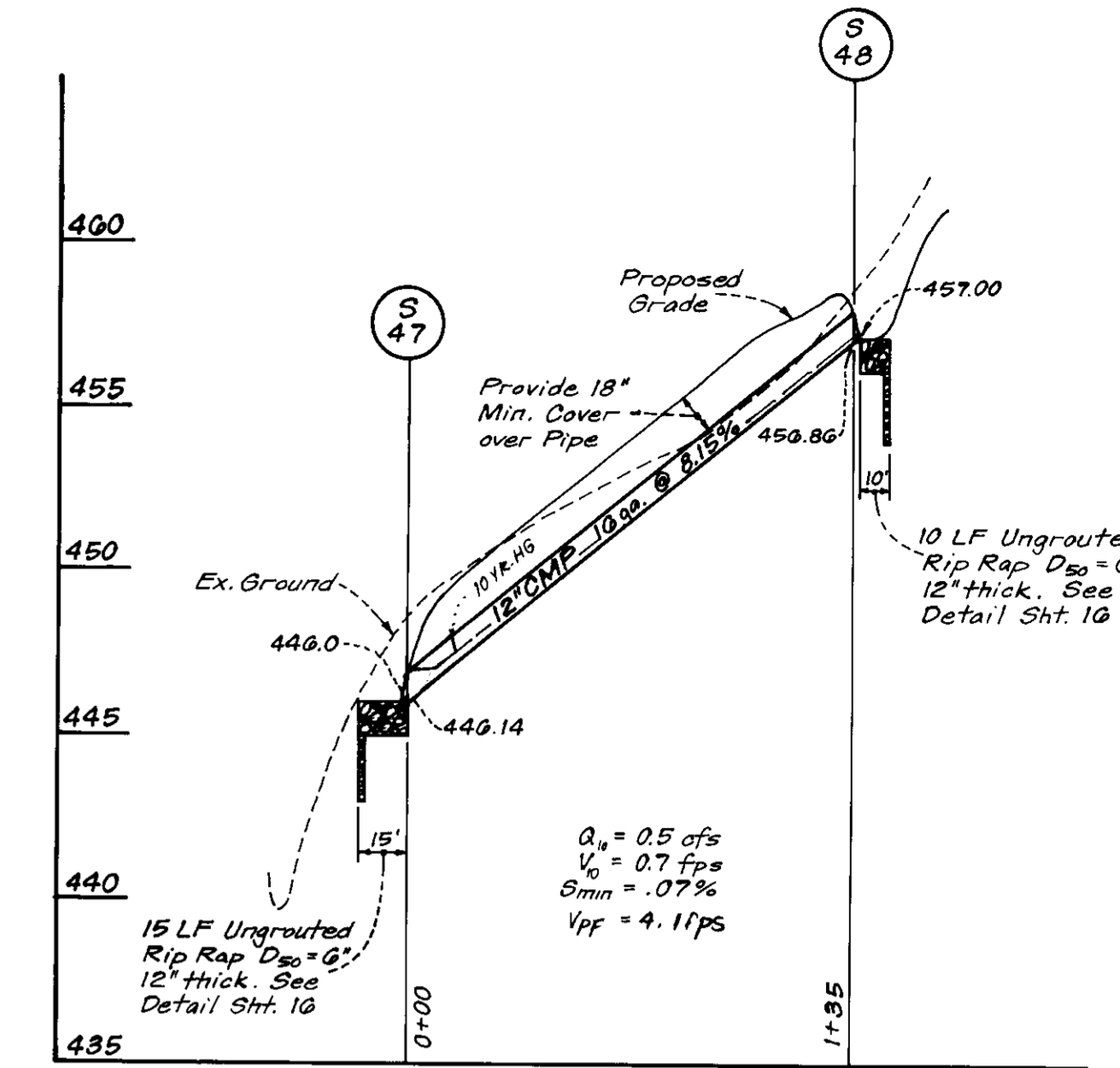
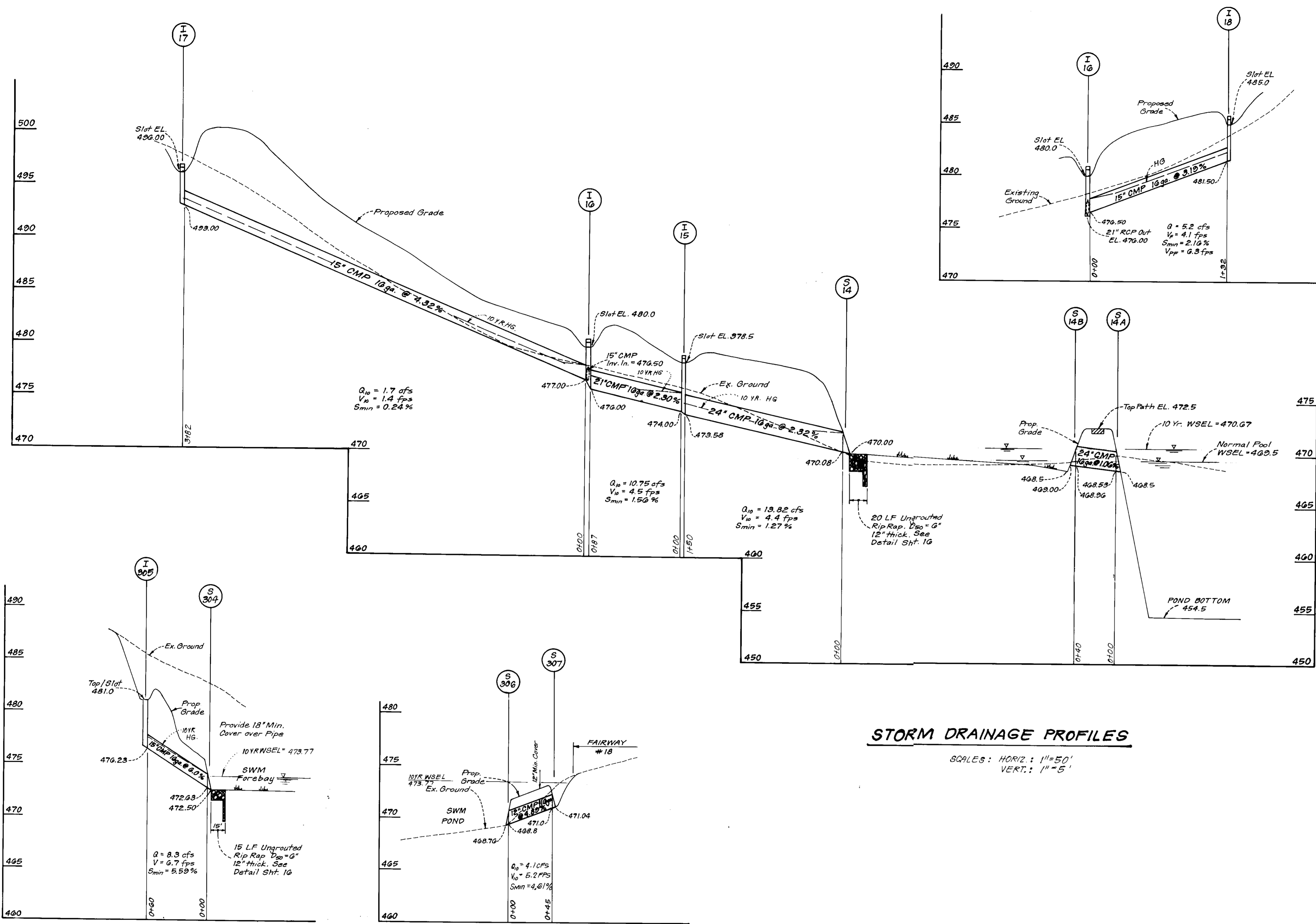
APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS HOWARD COUNTY HEALTH DEPARTMENT	
<i>James Boyd</i>	12-10-91
COUNTY HEALTH OFFICER	DATE
APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	
<i>James Boyd</i>	12/16/91
PLANNING DIRECTOR	DATE
<i>Anna Holm</i>	12/13/91
CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE
APPROVED STORM DRAINAGE SYSTEMS AND PUBLIC ROADS HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>James Boyd</i>	11-27-91
DIRECTOR	DATE
<i>James Boyd</i>	11-27-91
CHIEF BUREAU OF ENGINEERING	DATE



CLARK • FINEROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7110 MINISTERS WAY • COLUMBIA, MD 21046 • (410) 981-7200 • FAX (410) 981-7200

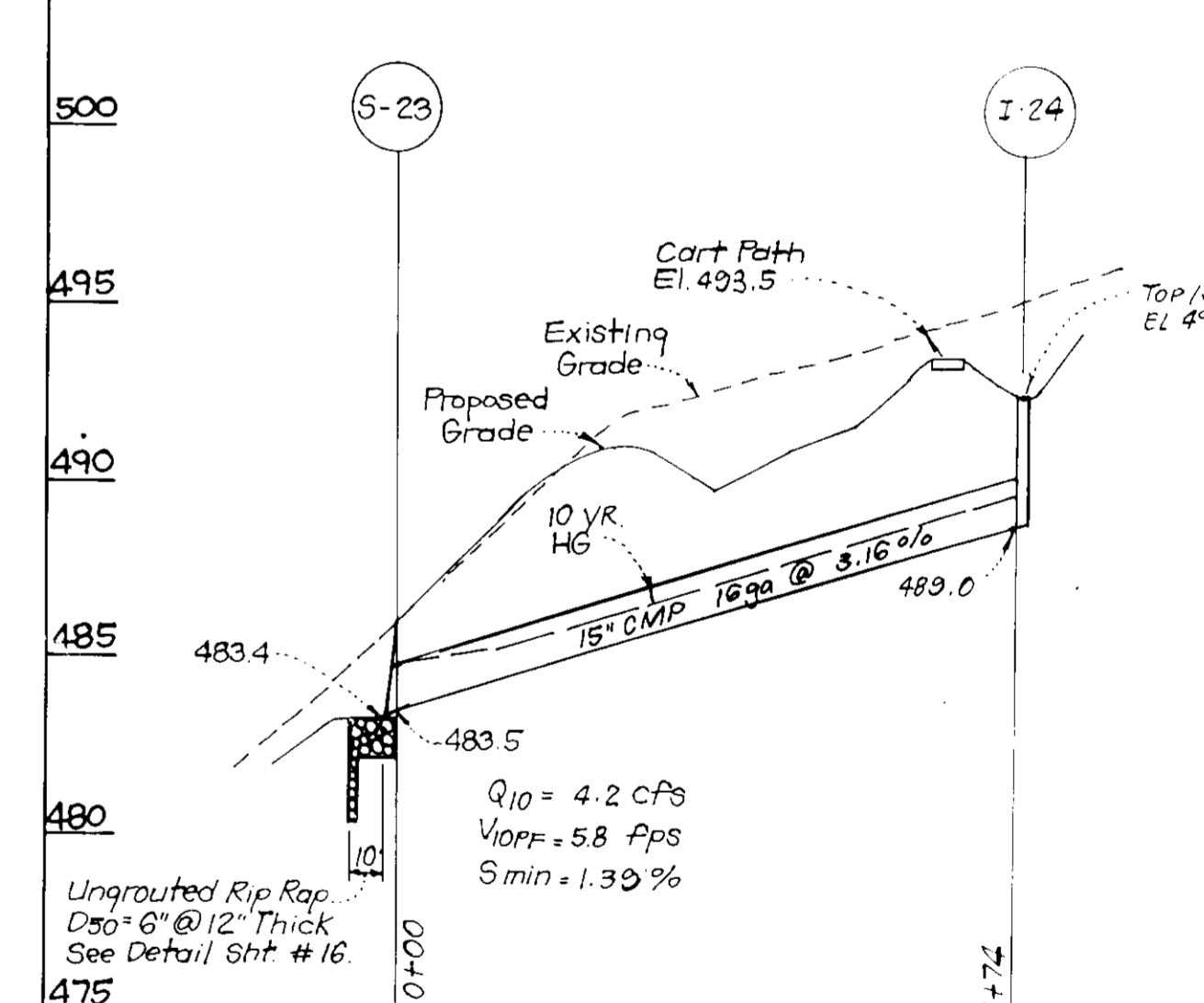
DESIGNED DAB	TRAFFIC CONTROL PLAN	SCALE No Scale
DRAWN LAI	CATTAIL CREEK COUNTRY CLUB	DRAWING 17-007-26
CHECKED DAB	FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO 89-007
DATE 8/29/91	FOR: HOWARD COUNTY COUNTRY CLUB, INC. C/O REESE AND CARNEY 10715 Charter Drive, Suite 200 Columbia, Maryland 21044	FILE NO 89-007-D

SDA 91-106



STORM DRAINAGE PROFILES

SCALES: HORIZ: 1" = 50'
 VERT: 1" = 5'

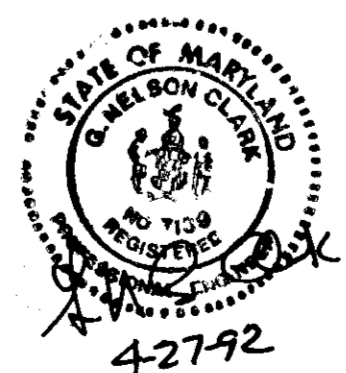


REVIEWED: No Private Water and Sewerage Systems Proposed
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: [Signature] DATE: 10-15-92
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 PLANNING DIRECTOR: [Signature] DATE: 10/28/92
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: [Signature] DATE: 10/9/92
 CHIEF BUREAU OF ENGINEERING: [Signature] DATE: 10/29/92

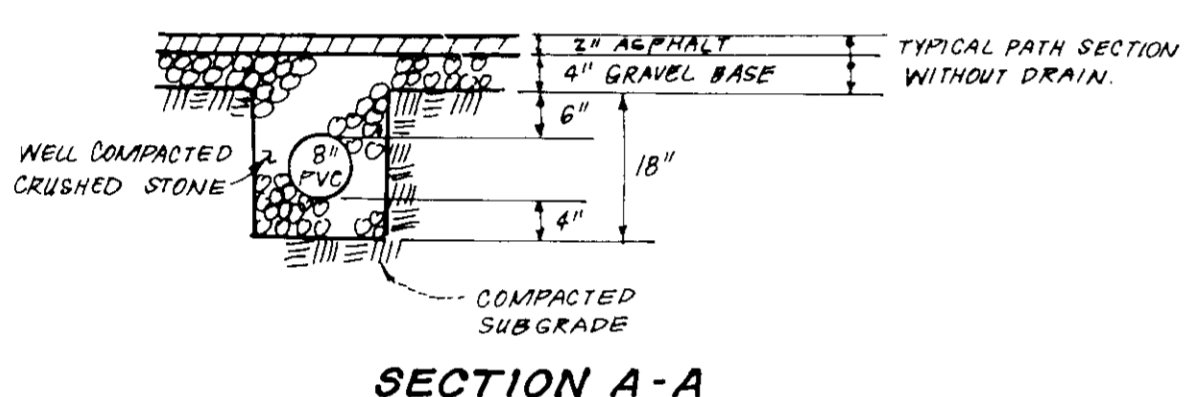
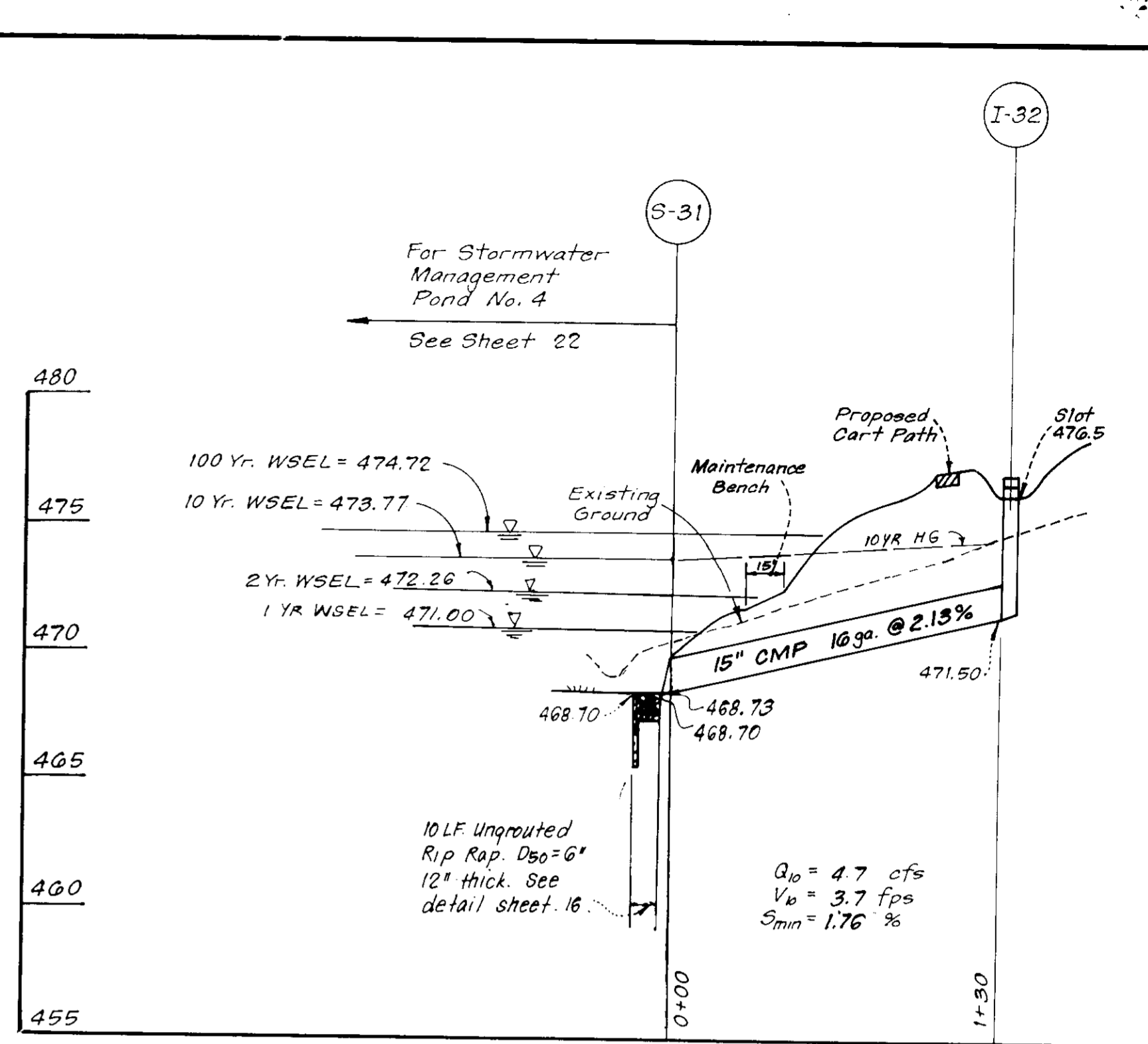
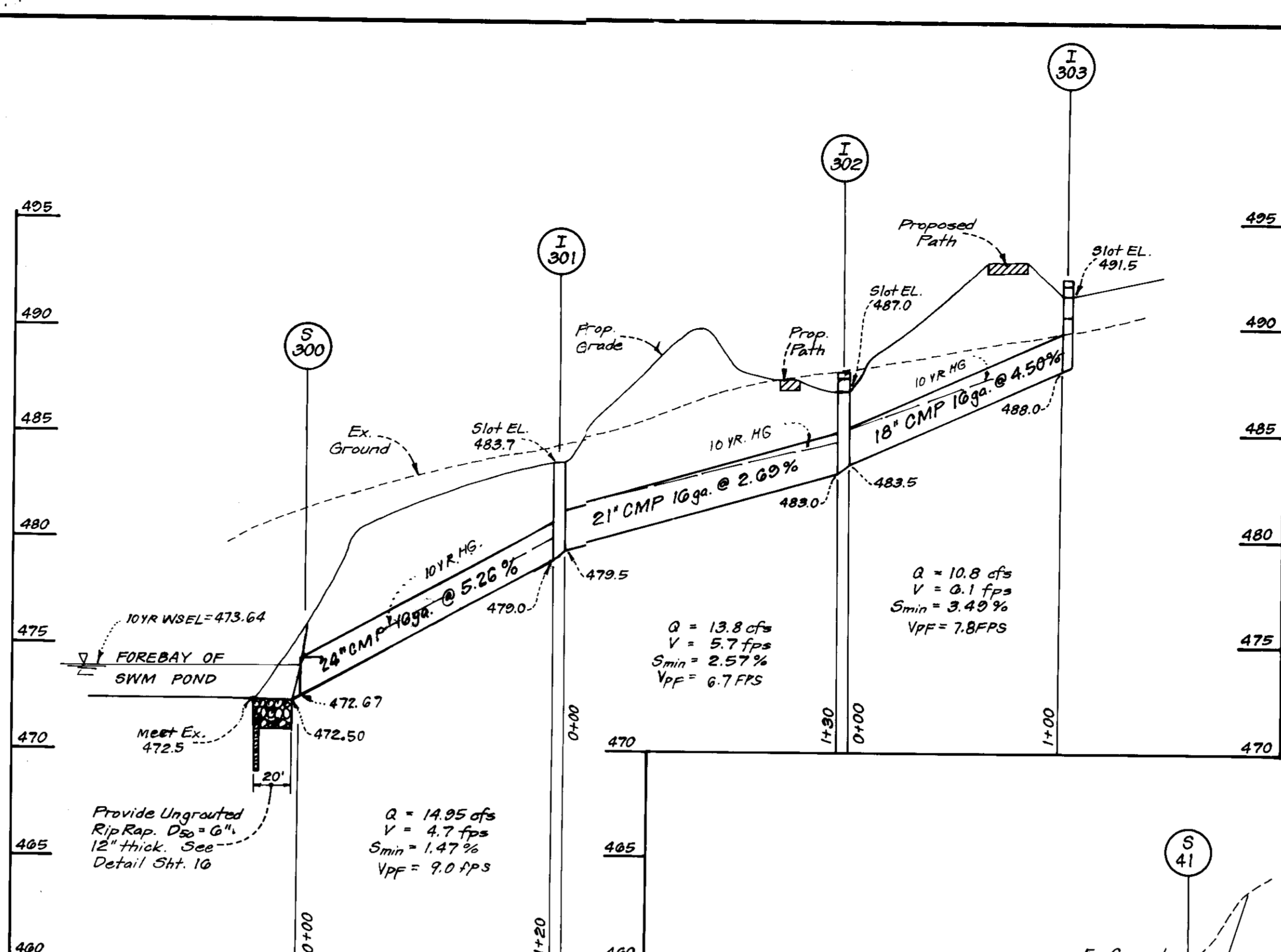
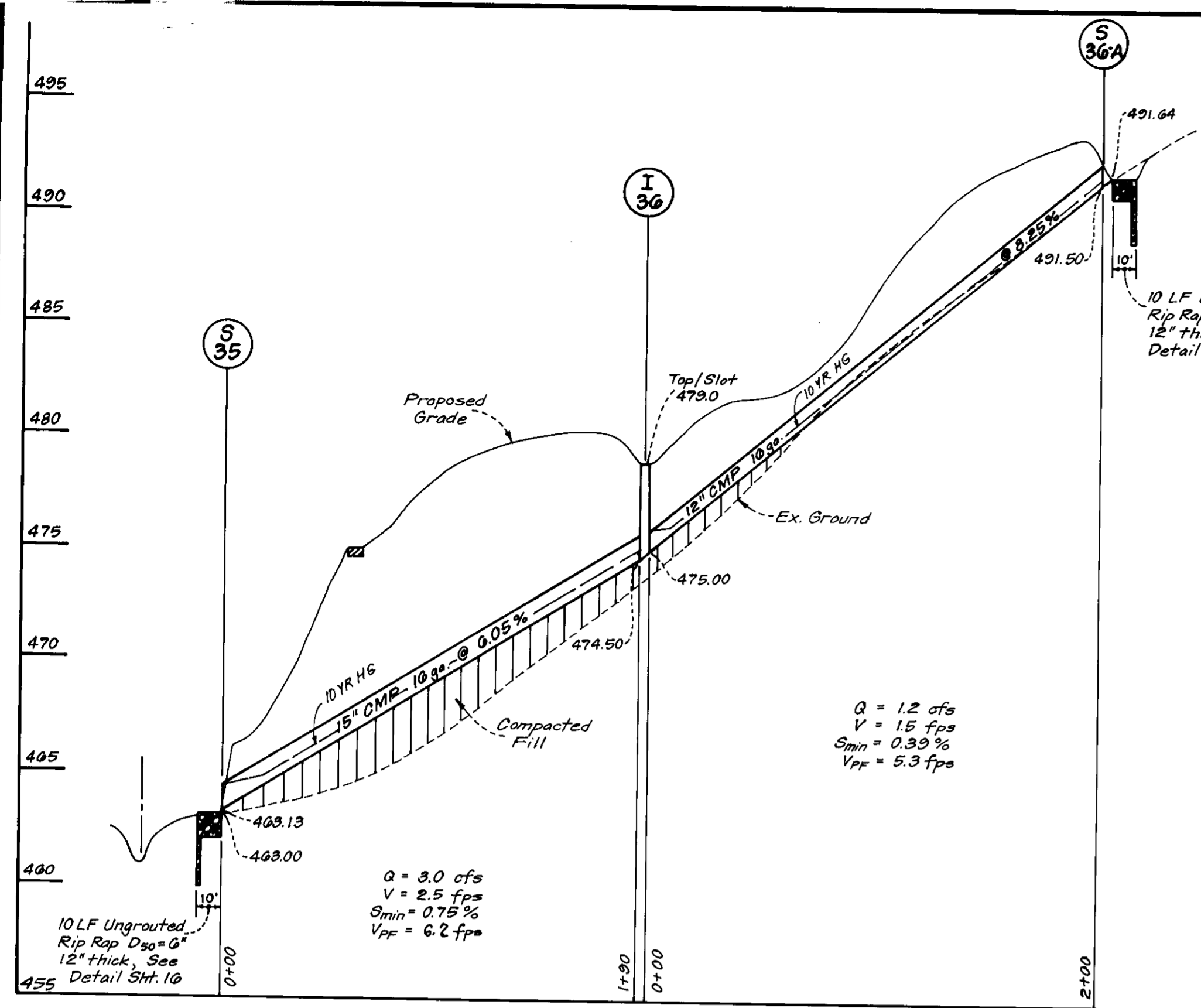
Reviewed for: HOWARD S.C.D.
 and meets Technical Requirements
 Signature: [Signature] DATE: 9/24/92
 U.S. Soil Conservation Service
 THIS DEVELOPMENT PLAN IS FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 Signature: [Signature] DATE: 9/24/92
 APPROVED

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 erosion and sediment 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 of Developer/Builder: [Signature] DATE: 4-27-92
 DAVID A. CARNEY, PRES.

ENGINEER'S CERTIFICATE
 I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Signature: [Signature] DATE: 4-27-92
 G. NELSON CLARK



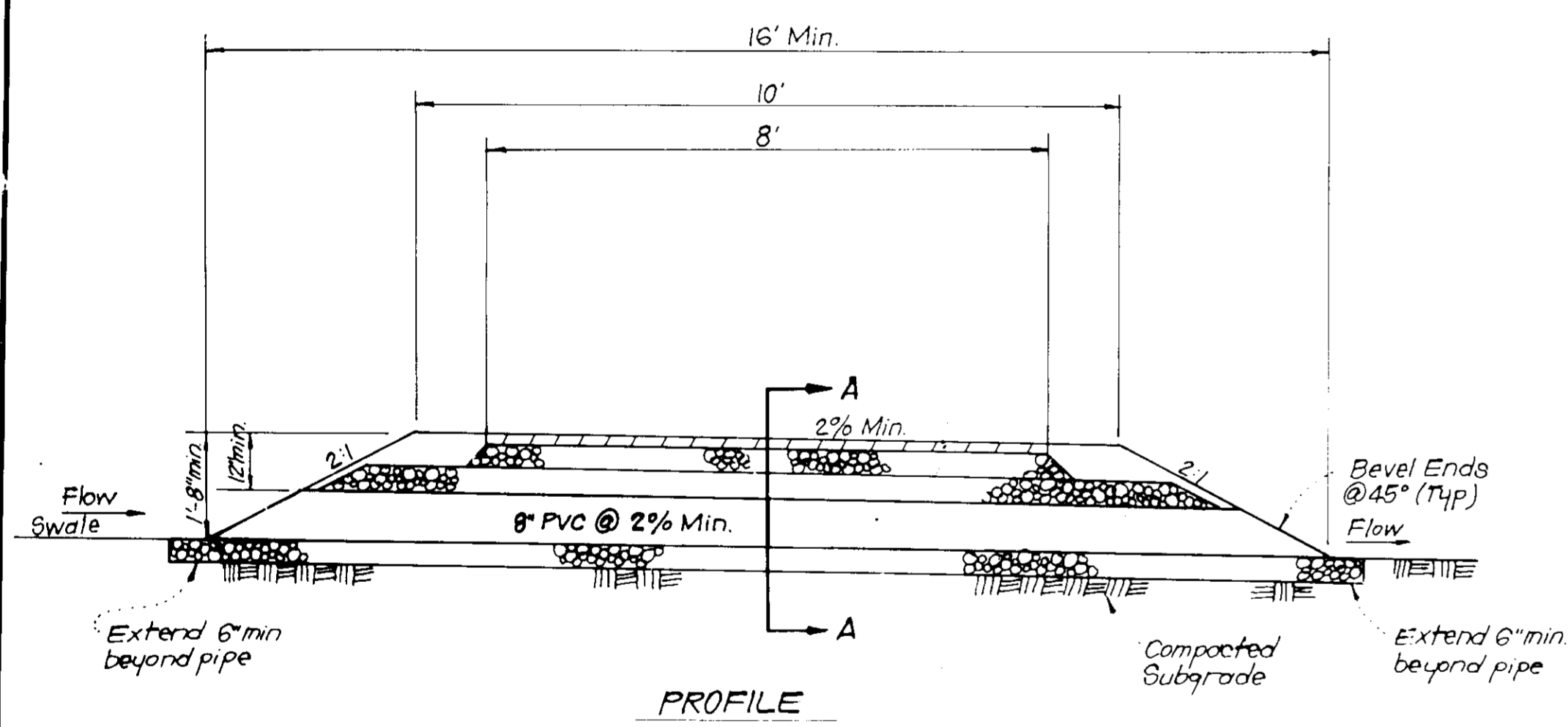
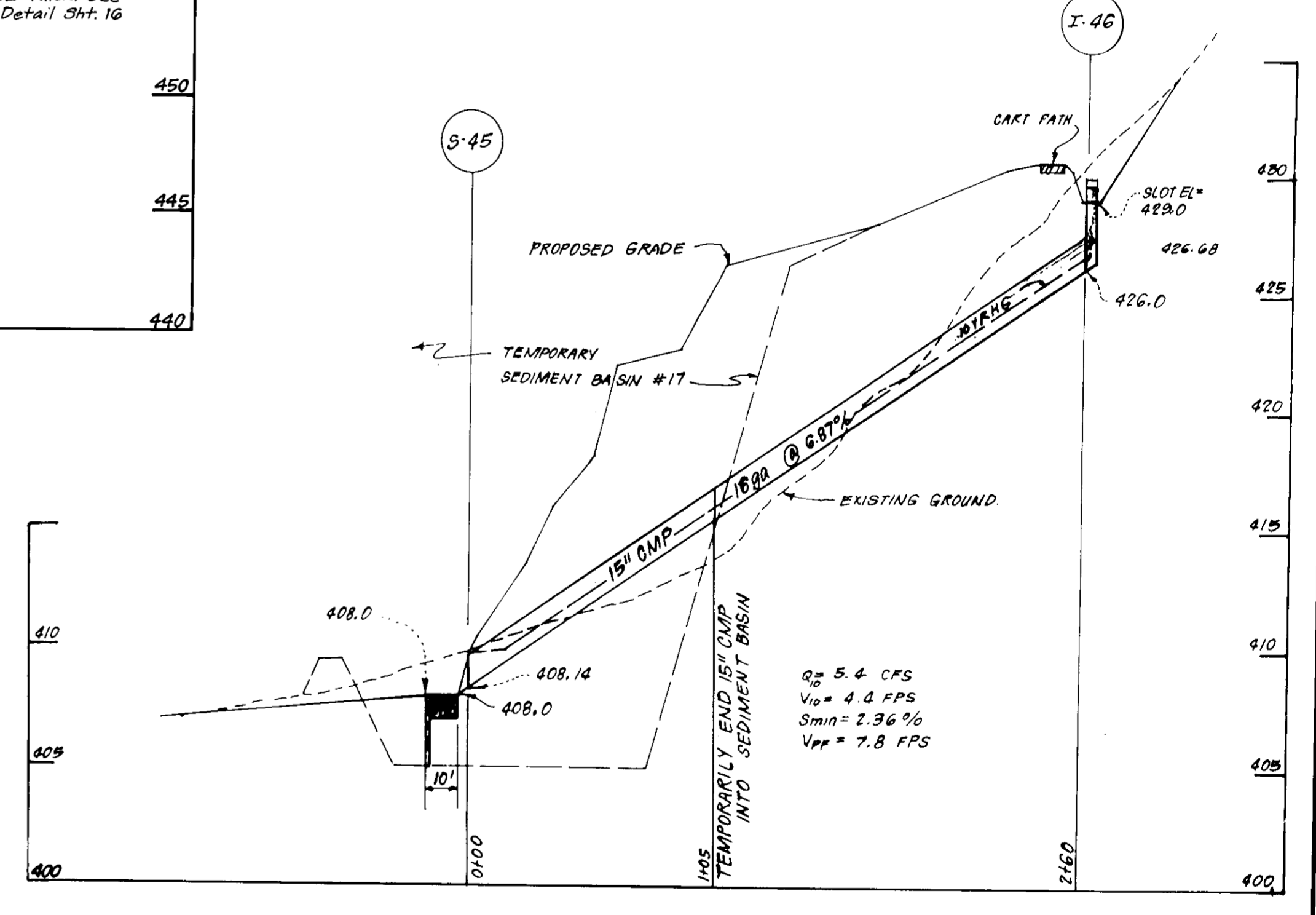
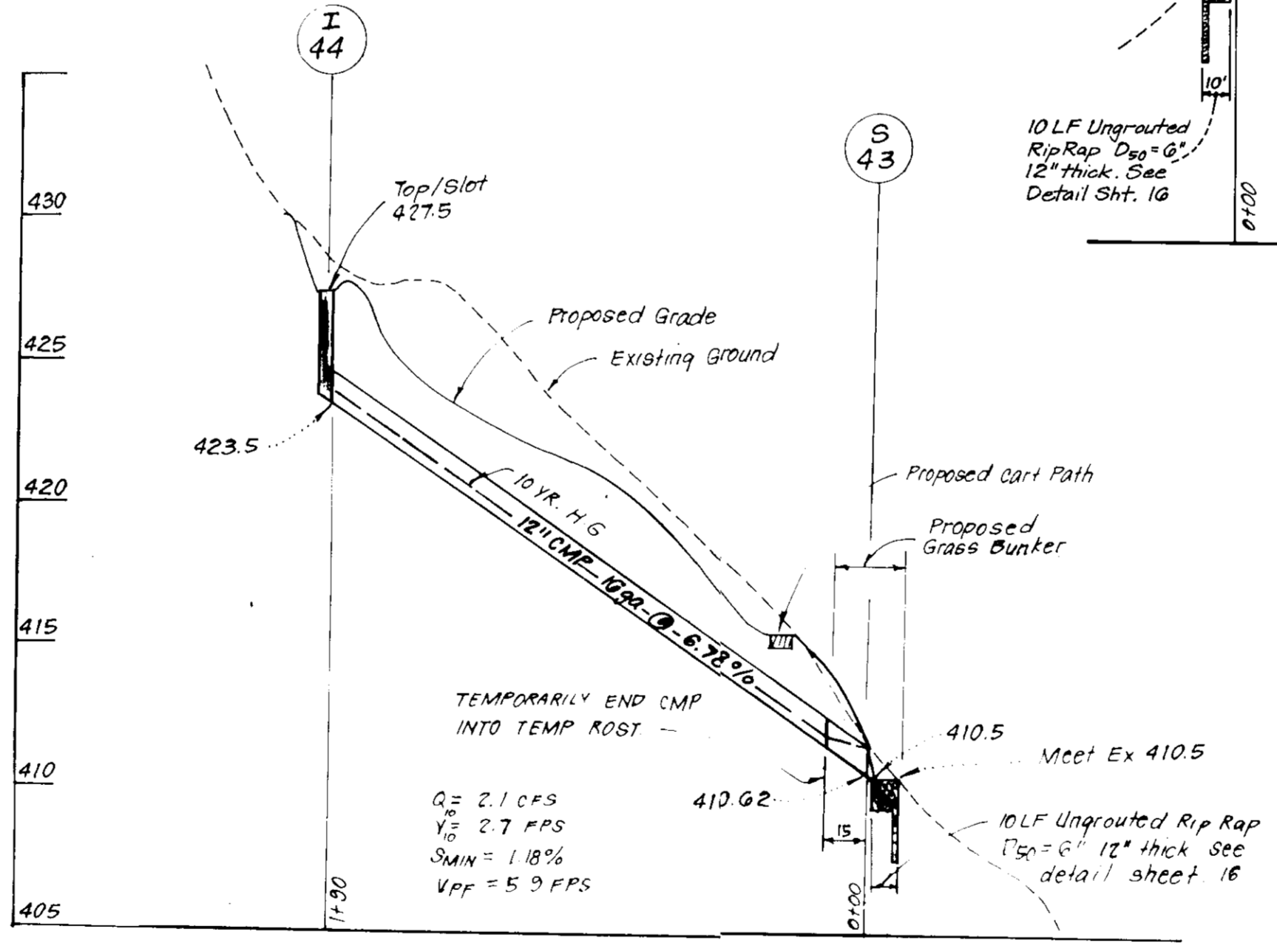
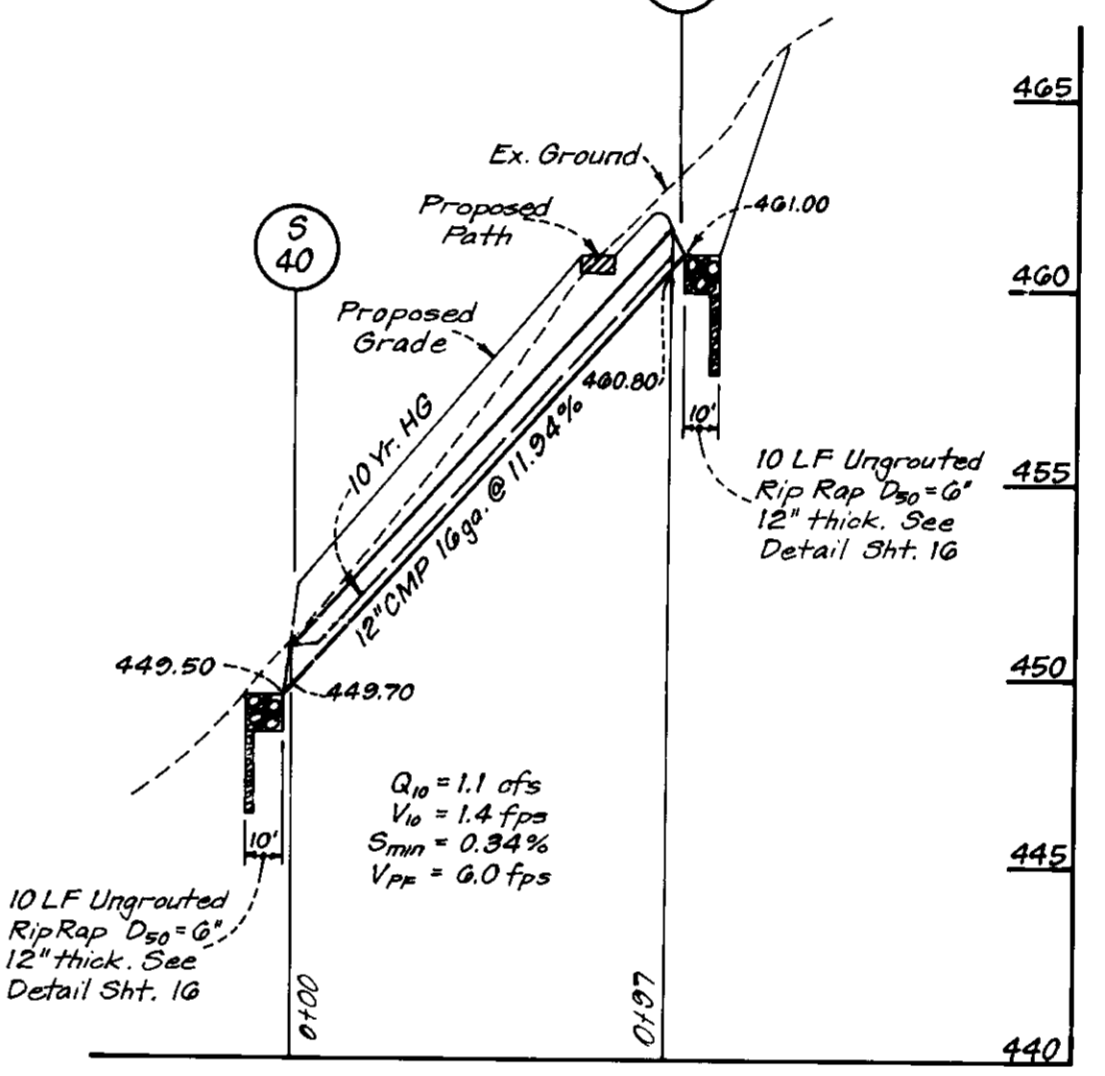
CLARK • FINEPROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.
 DESIGNED: [Signature] DATE: 10/15/92
 DRAWN: [Signature]
 CHECKED: [Signature]
 DATE: MAY 1992
 SCALE: As Shown
 DRAWING: 18 OF 20
 JOB NO.: 89-007
 FILE NO.: 89-007SE
 FOR: HOWARD COUNTY COUNTRY CLUB, INC.
 C/O REESE AND CARNEY
 10715 Shorter Drive, Suite 200
 Columbia, Maryland 21044



SECTION A-A

STORM DRAINAGE PROFILES

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



DETAIL - TYPICAL CART PATH SECTION WITH MINOR DRAIN PIPE CROSSING
NO SCALE

REVIEWED: No Private Water and Sewerage Systems Proposed
HOWARD COUNTY HEALTH DEPARTMENT

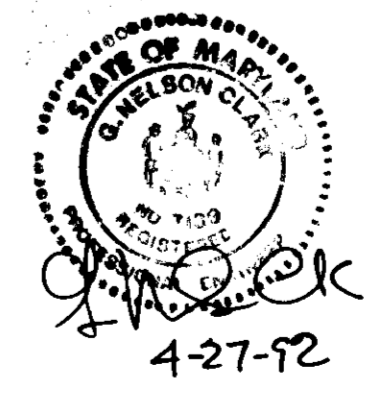
County Health Officer: [Signature] 11-15-92
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Planning Director: [Signature] 10/26/92
Chief Division of Community Planning and Land Development: [Signature] 10/26/92
APPROVED STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Director: [Signature] 10/26/92
Chief Bureau of Engineering M.K. [Signature] 10/19/92

Reviewed for: HOWARD S.C.D.
Name: [Signature]
and meets Technical Requirements
Signature: [Signature] Date: 9/16/92
U.S. Soil Conservation Service

THIS DEVELOPMENT PLAN IS FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
APPROVED: [Signature] DATE: 9/16/92

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 erosion and sediment 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 of Developer/Builder: [Signature] DATE: 4-27-92
Signature of David A. Carney, P.E.S. DATE: 4-27-92

ENGINEER'S CERTIFICATE
I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Signature: [Signature] DATE: 4-27-92

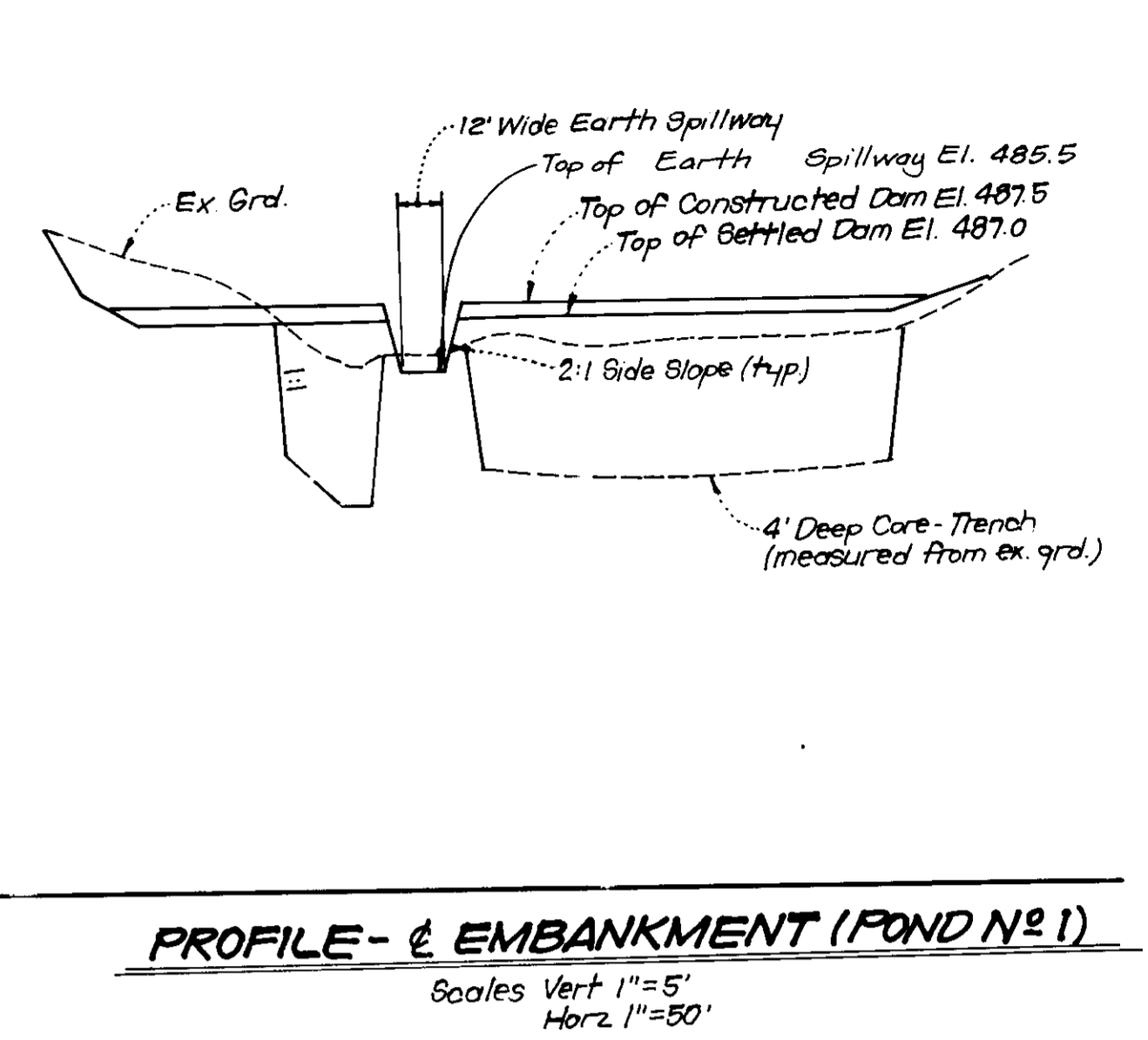
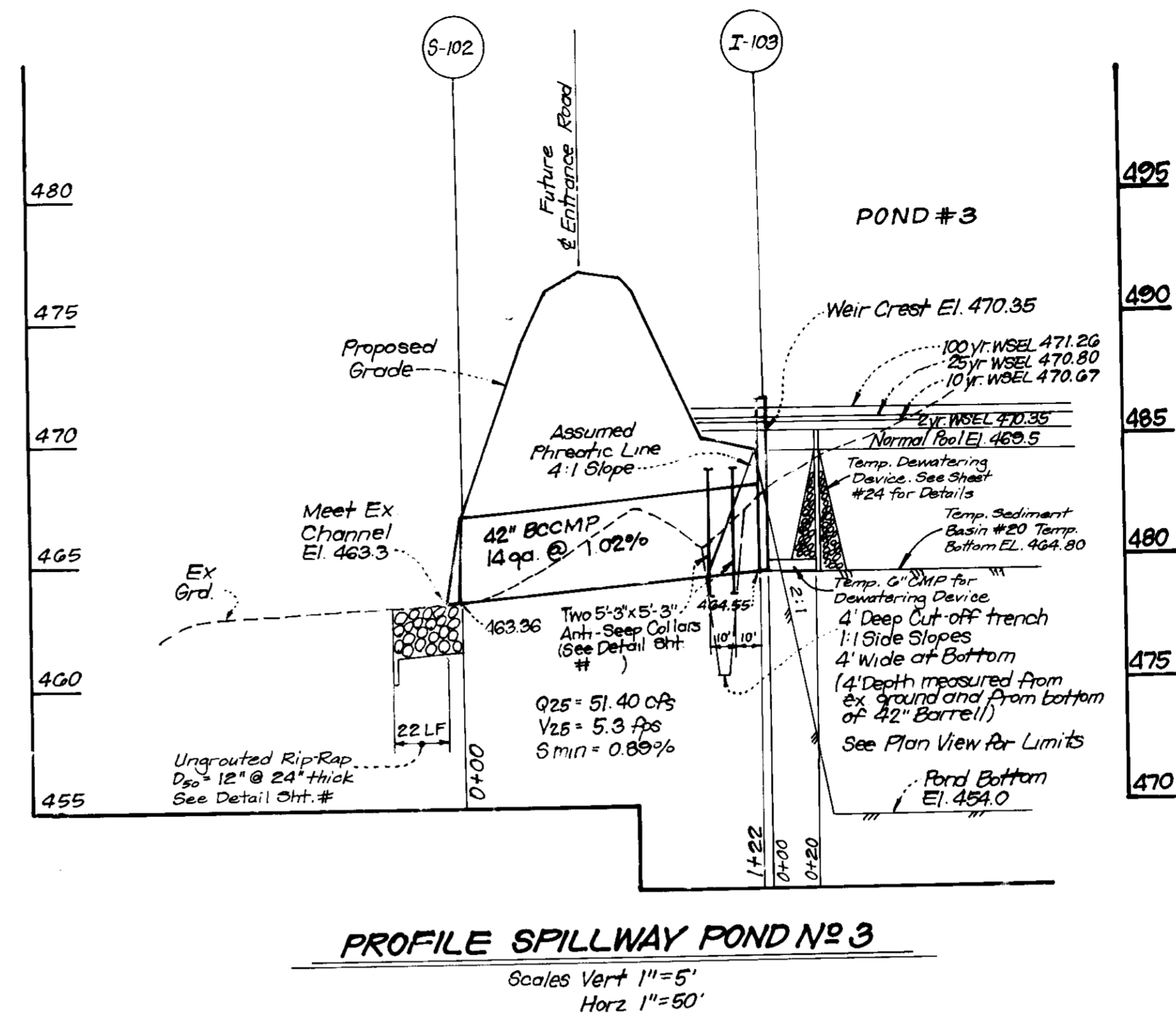
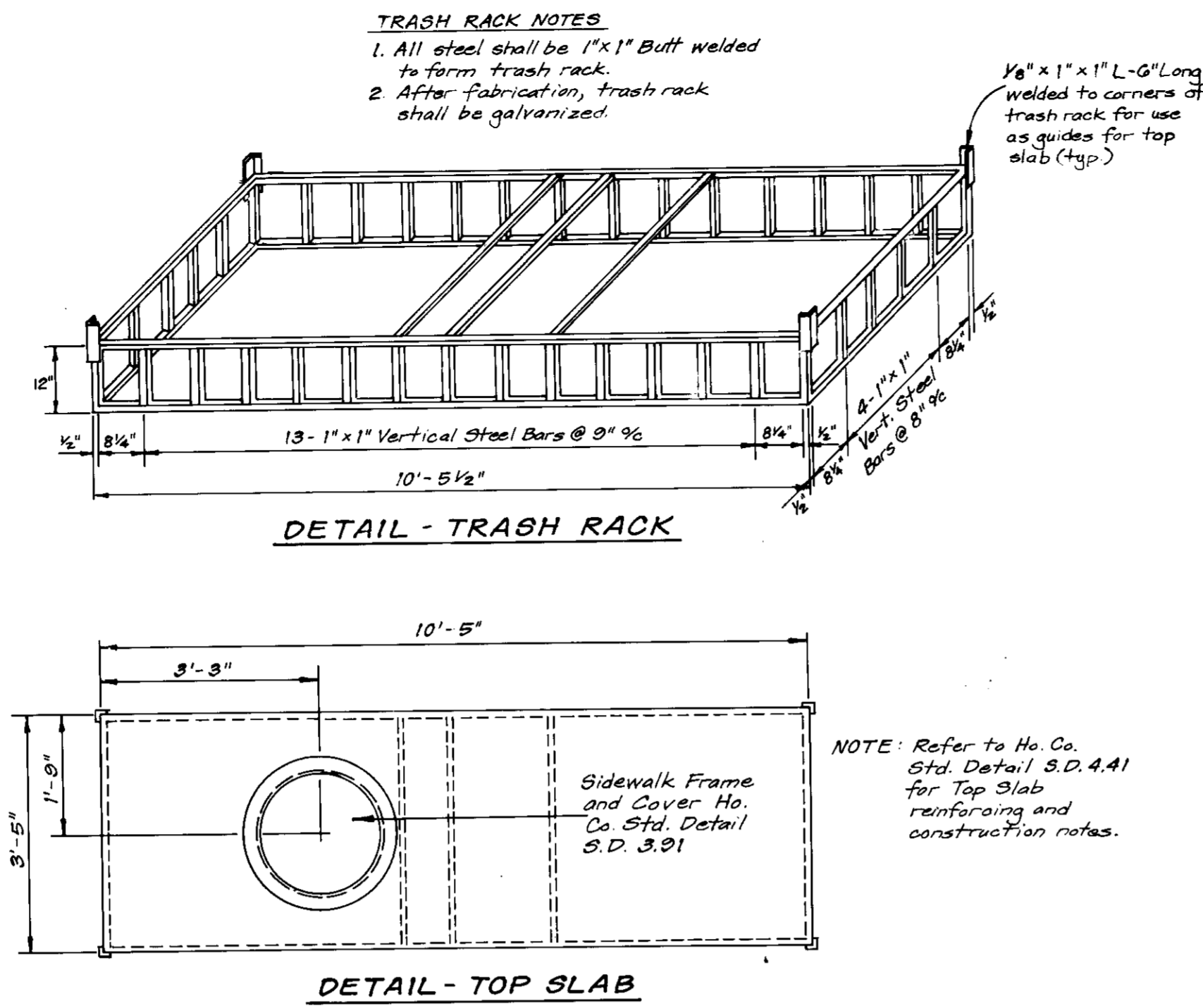
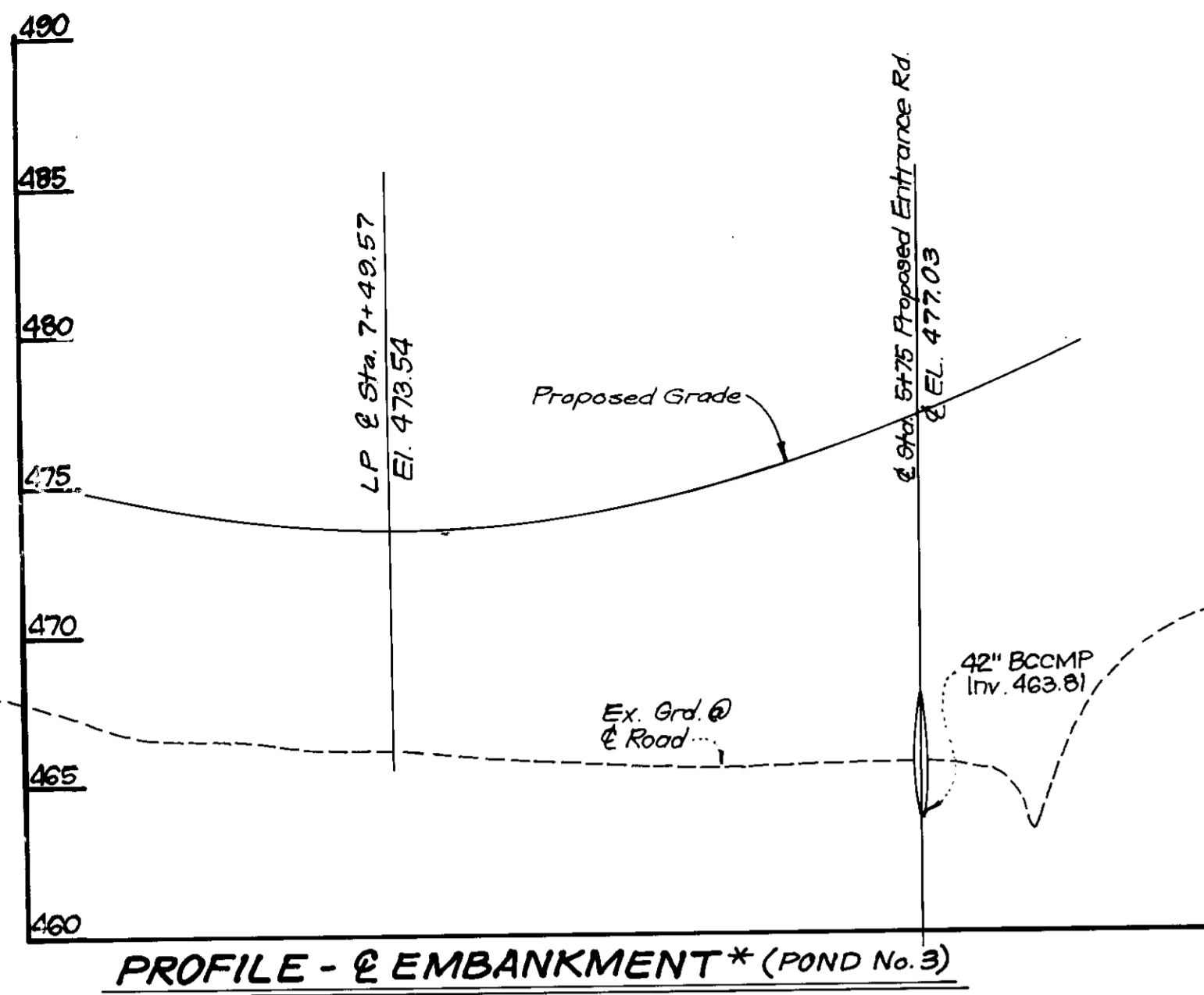


CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 • BALTO. • (301) 621-8100 - WASH.

DESIGNED: K/WM
DRAWN: L/A1
CHECKED: J/LS
DATE: APRIL 1992

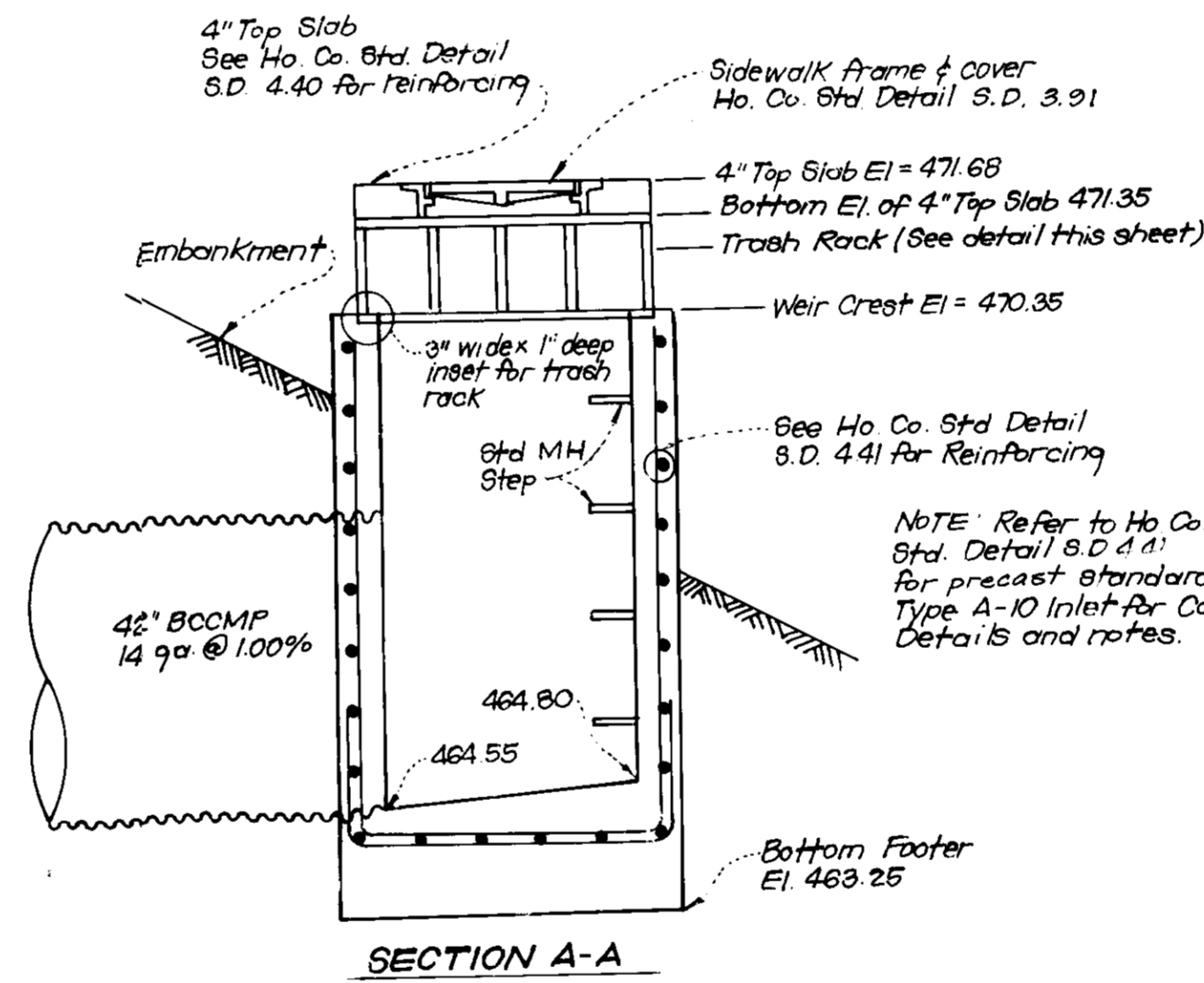
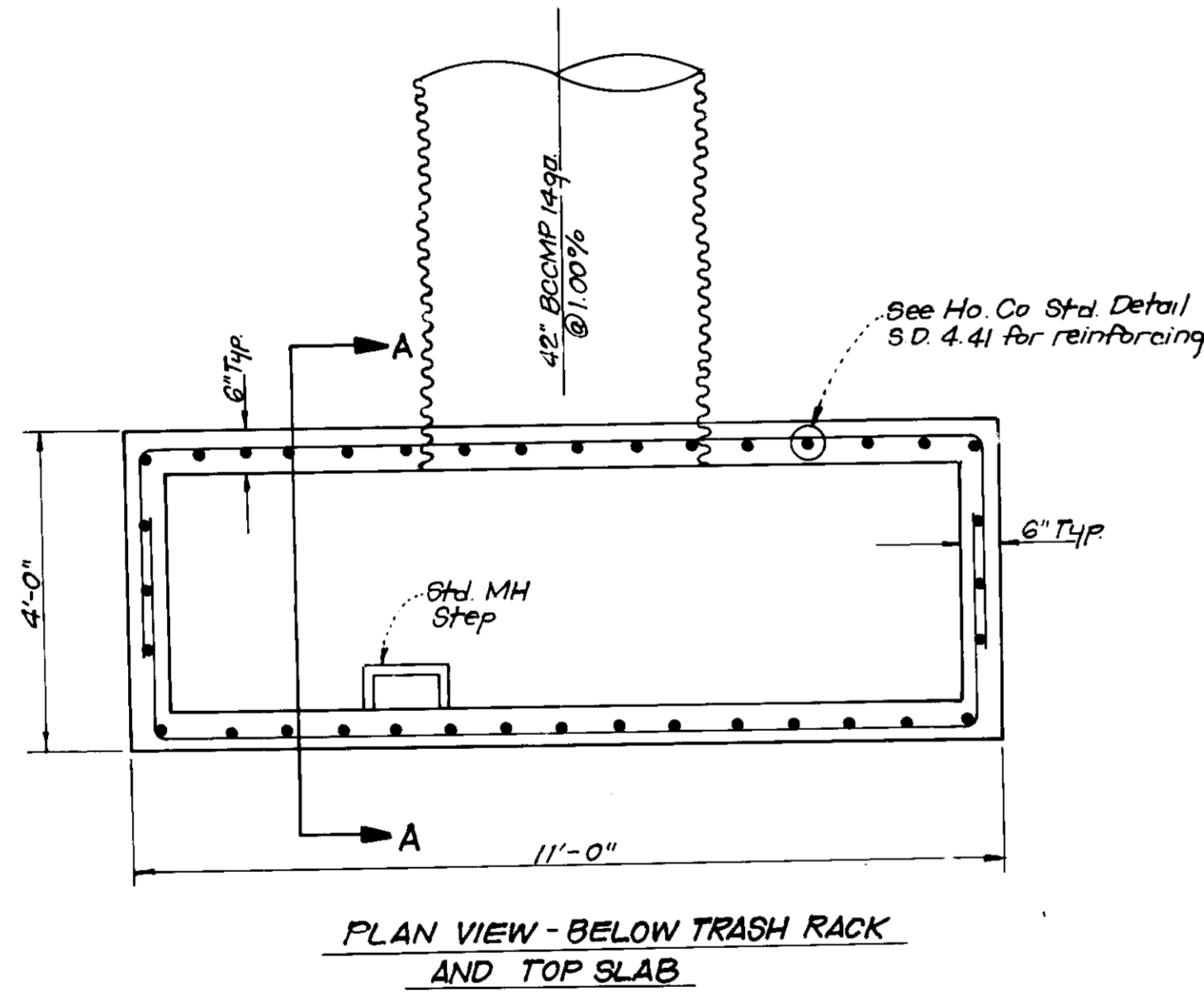
REVISED STORM DRAINAGE PROFILES & DETAILS
SCALE: As Shown
DRAWING: 13 of 26
JOB NO.: 89-007
FILE NO.: 89-007SE

FOR: HOWARD COUNTY COUNTRY CLUB, INC.
C/O REESE AND CARNEY
10715 Charter Drive Suite 200
Columbia, Maryland 21044

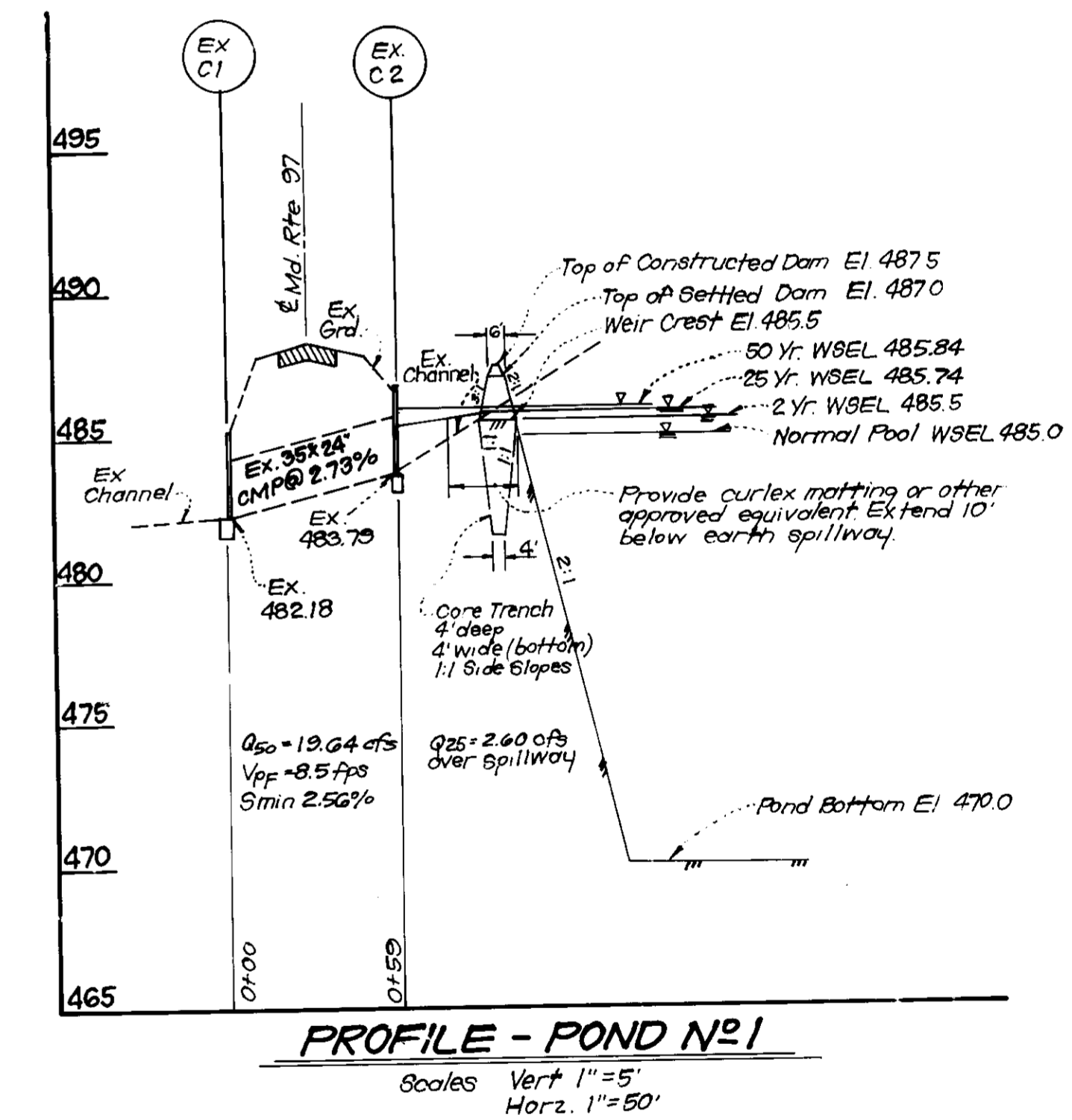


MAINTENANCE FOR PONDS

- Inspect Regularly and Repair
 - plugged and deteriorating trash rack, riser, and water control gauges.
 - damage to water pipe, valve, and watering facilities unstable wet areas below earthfills.
- Vegetation
 - do not permit trees to grow on the dam
 - vegetation should be kept healthy and trim on the dam and earth spillway by liming, fertilizing, and mowing periodically.
- Pollution Control
 - stabilize sediment sources in the area draining to the pond.
 - divert drainage from septic drain fields, and other sources of pollution.
- Maintain Shoreline
 - control aquatic growth with mechanical equipment, chemical treatment, or deepening water at edge of pond.
 - protect shoreline from wave action by use of rip-rap if necessary.
- Control Growth of Algae
 - regulating flow of water through the pond.
 - periodic fertilization.
 - chemical treatment (use of chemicals requires a permit by some state agencies.)



STRUCTURE I-103 DETAILS (POND No. 3)
Scale 1"=2'



APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.
HOWARD COUNTY HEALTH DEPARTMENT
Joselyn Godwin 8/19/91
COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
James H. Smith 9/14/91
DIRECTOR DATE

APPROVED: CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
Anna H. Hahn 9/13/91
DATE

APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Ronald P. Lewis 8/27/91
DIRECTOR DATE

M.K. 8-26-91
CHIEF BUREAU OF ENGINEERING DATE

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for all pond construction, soil erosion and sediment control.

John R. Benton 9/13/91
U.S. SOIL CONSERVATION SERVICE DATE

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved: *John R. Benton* 9/13/91
Howard S.C.D. DATE

Plan Number

Developers Certification:
"We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

David G. Camp, Pres. 4/12/91
SIGNATURE OF DEVELOPER DATE
CATTAIL CREEK COUNTRY CLUB, INC.

ENGINEER'S CERTIFICATE
"I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site condition. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

E. H. G. K. 4/12/91
Signature of Engineer Date



CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH		
DESIGNED	DGT	POND DETAILS AND PROFILES CATTAIL CREEK COUNTRY CLUB FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: HOWARD COUNTY COUNTRY CLUB, INC. C/O REESE AND CARNEY 10715 Charter Drive, Suite 200 Columbia, Maryland 21044
DRAWN	BAL LAI	
CHECKED	DGT	
DATE	APRIL 1991	
FILE NO.	89-007	
SCALE	As Shown	20 OF 26
JOB NO.	89-007	
FILE NO.	89-007	

SDP-91-106

II. SITE PREPARATION

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

Areas to be covered by the pond or 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.

III. EARTH FILL

Material

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.

Placement

Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of the embankment.

Compaction

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traveled by not less than one tread track of the equipment or compaction shall be achieved by minimum of four complete passes of a sheepfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction can be obtained with the equipment used.

Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by the Engineer.

Cutoff Trench

Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be as shown on the drawings, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The slope of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

IV. STRUCTURAL BACKFILL

Backfill material 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 tamper or other 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 twenty-four inches or greater over the structure or pipe.

V. PIPE CONDUITS

All pipes shall be circular in cross section.

A. Corrugated Metal Pipe

- Materials** - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Hexon, Plasticoat, Plasticoat, and Bost-Parkley. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.
- Materials** - (Aluminum Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274-791 with watertight coupling bands or flanges.
- Materials** - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Coupling bands, anti-seep collars, and sections, etc. must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness. Aluminum surfaces that are in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be less than 9 and greater than 4.

VI. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications or as shown on the accompanying drawings.

VII. EROSION AND SEDIMENT CONTROL

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

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

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

Laying pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.

Backfilling shall conform to structural backfill as shown above.

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

Reinforced Concrete Pipe

- Materials** - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. An approved equivalent is AWWA Specification C-301.
- Bedding** - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3", or as shown on the drawings.
- Laying pipe** - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with the recommendations of the manufacturer of the material. After the joints are sealed for the manufacturer of the material, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.
- Backfilling** shall conform to structural backfill as shown above.
- Other details** (anti-seep collars, valves, etc.) shall be as shown on the drawings.

C. For pipes of other materials, specific specifications shall be shown on the drawings.

VIII. CONCRETE

1. Materials

- Cement** - Normal Portland cement shall conform to the latest ASTM Specification C-150.
- Water** - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.
- Sand** - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.
- Coarse Aggregate** - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.
- Reinforcing Steel** - The reinforcing steel shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.

2. Design Mix - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. Gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.

3. Mixing - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

4. Forms - The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tapping, and vibration without deflection from the prescribed lines. They shall be water-tight and constructed so that they can be removed without hammering or prying against the concrete.

The inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.

Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.

5. Reinforcing Steel - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.

6. Consolidating - Concrete shall be consolidated with internal type mechanical vibrators. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.

7. Finishing - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be reamed and completely filled with dry-patching mortar.

8. Protection and Curing - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.

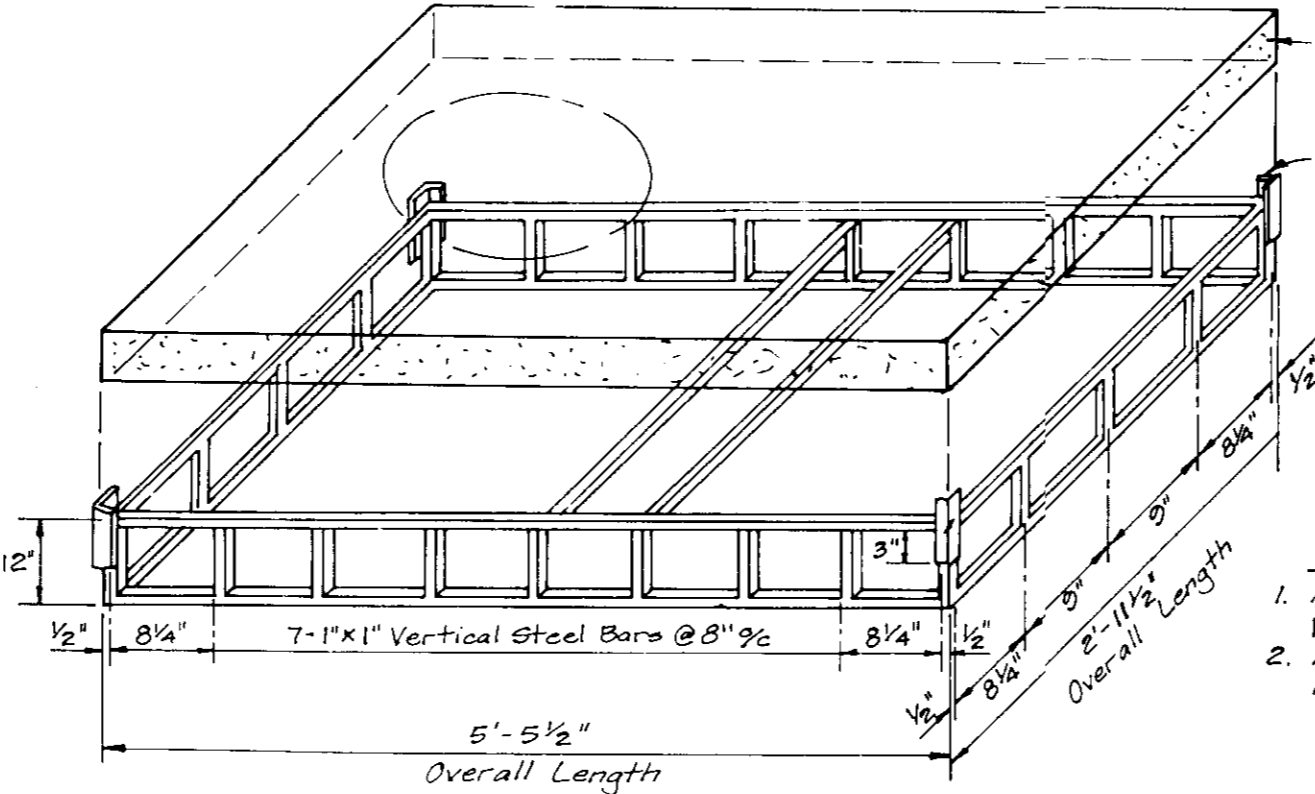
9. Placing Temperature - Concrete may not be placed at temperatures below 32° F with the temperature falling, or 34° with the temperature rising.

IX. STABILIZATION

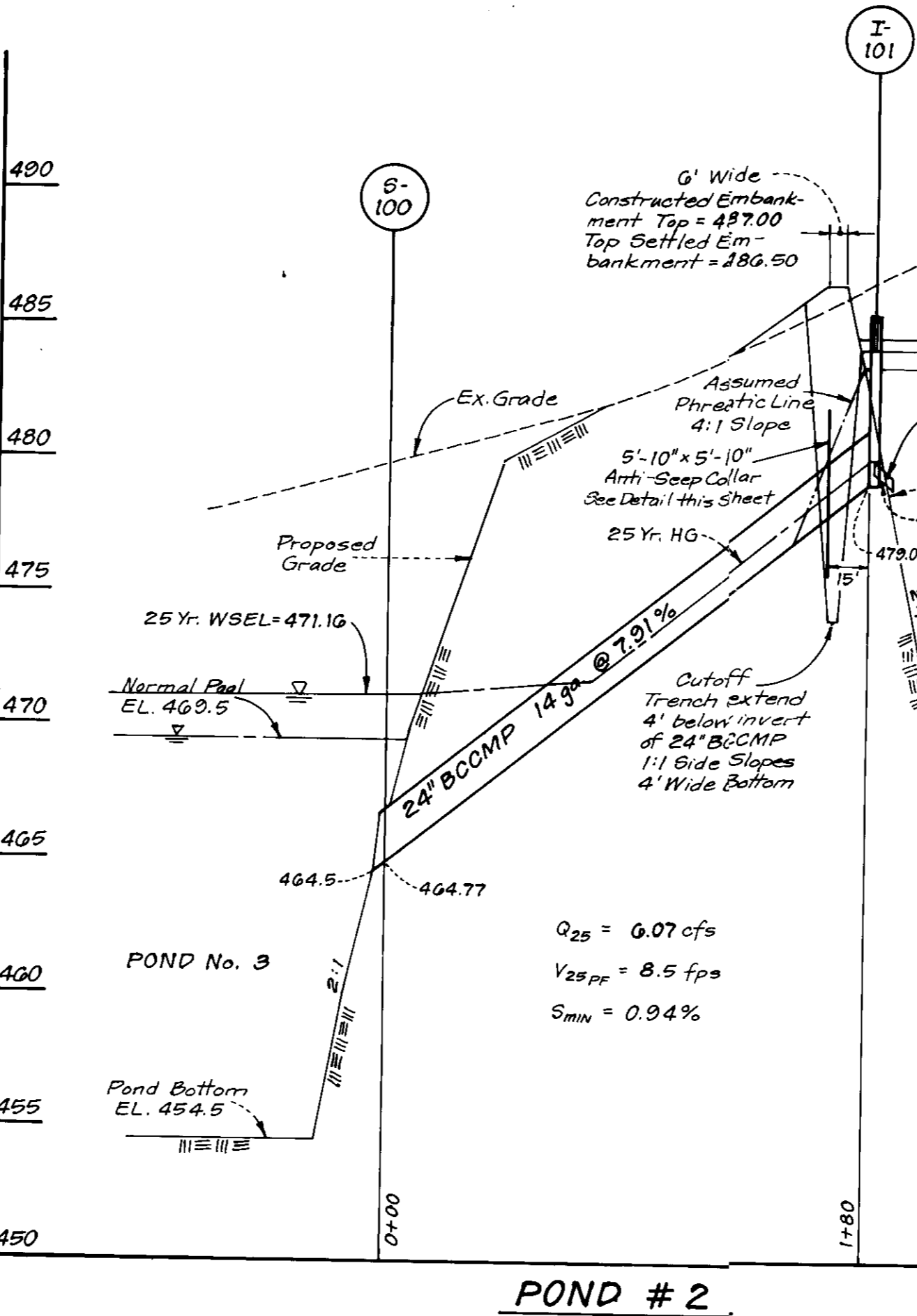
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications or as shown on the accompanying drawings.

X. EROSION AND SEDIMENT CONTROL

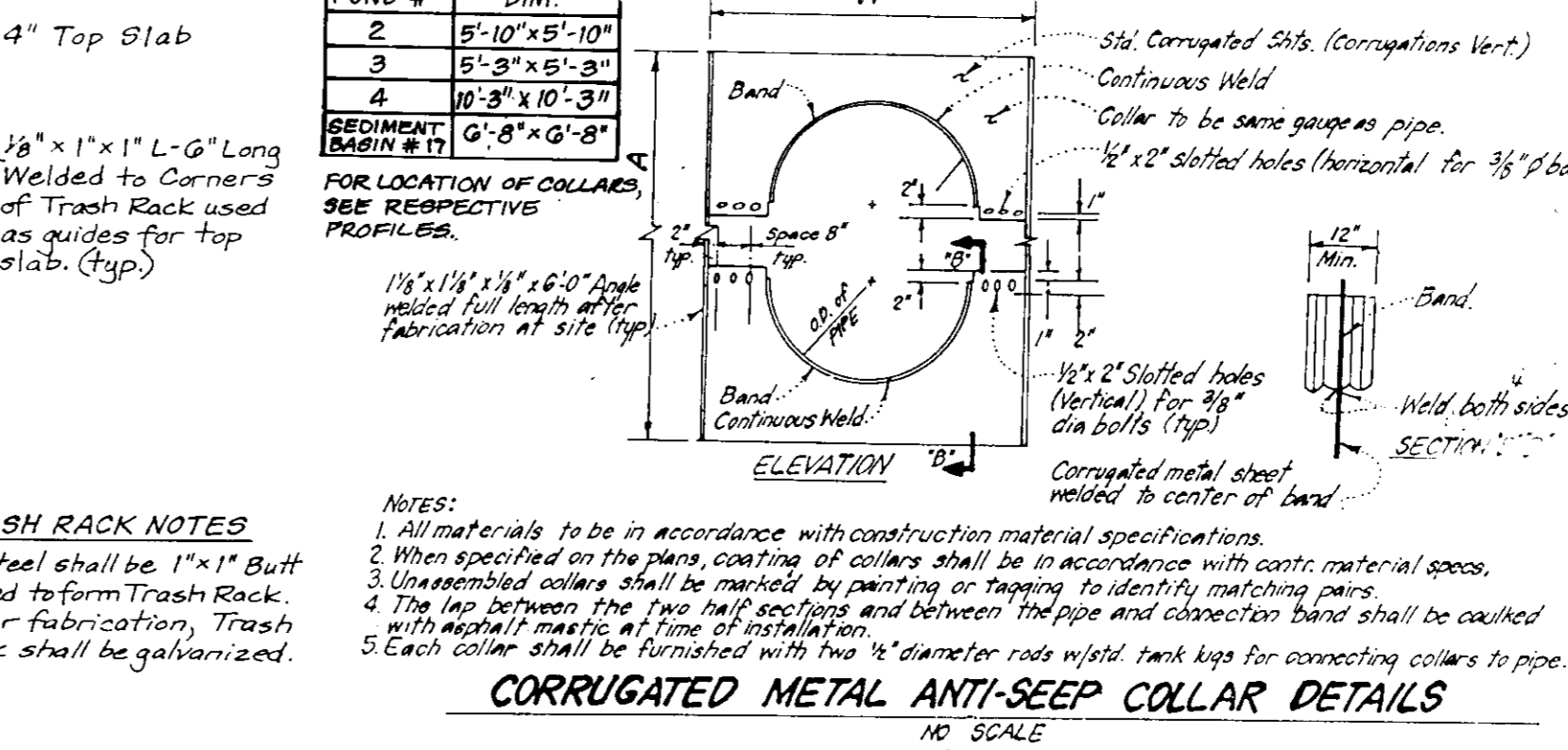
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction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



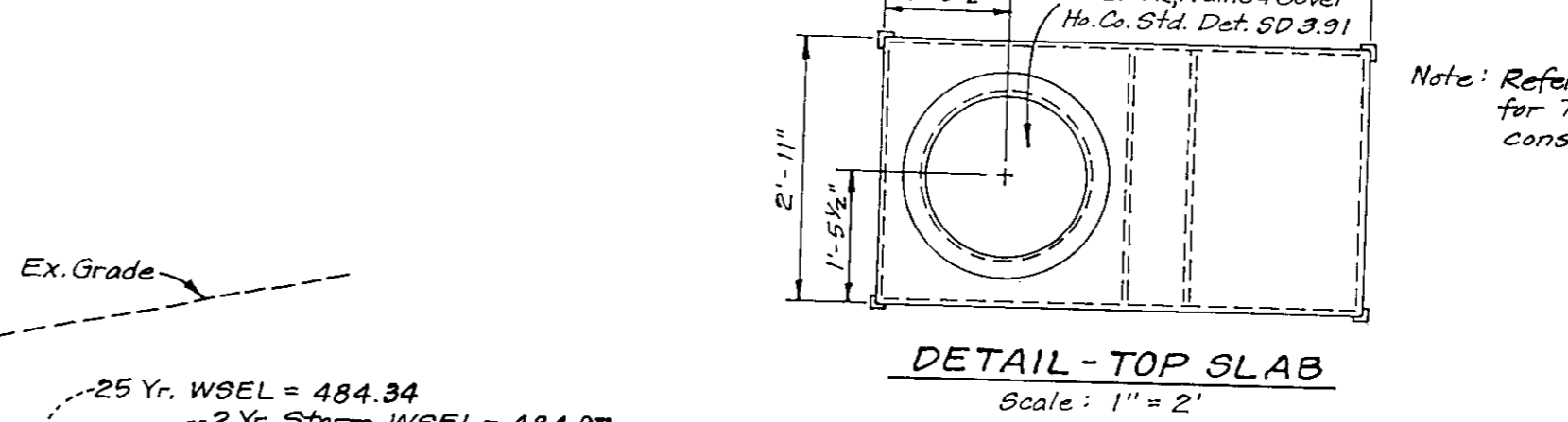
TRASH RACK DETAIL
STR. #I-101 (POND #2)
NO SCALE



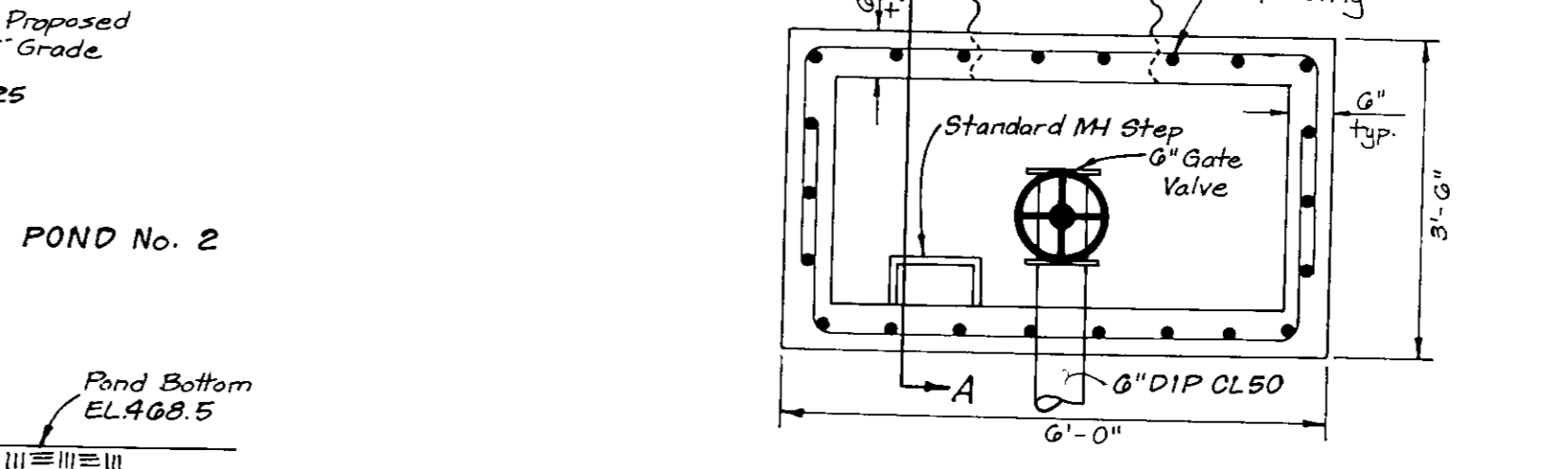
POND #2
SCALE: Hor. 1"=50'
Vert. 1"=5'



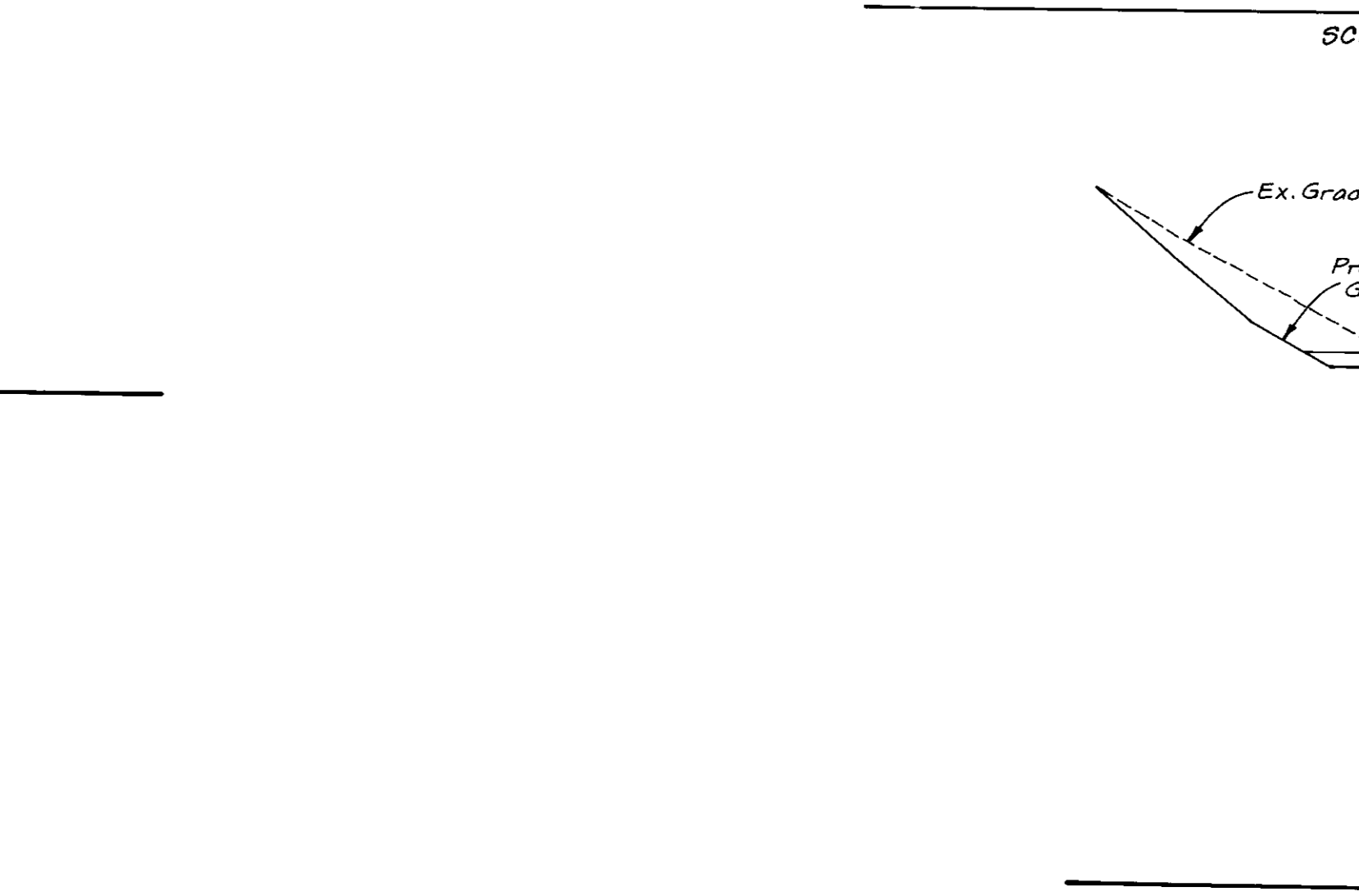
CORRUGATED METAL ANTI-SEEP COLLAR DETAILS
NO SCALE



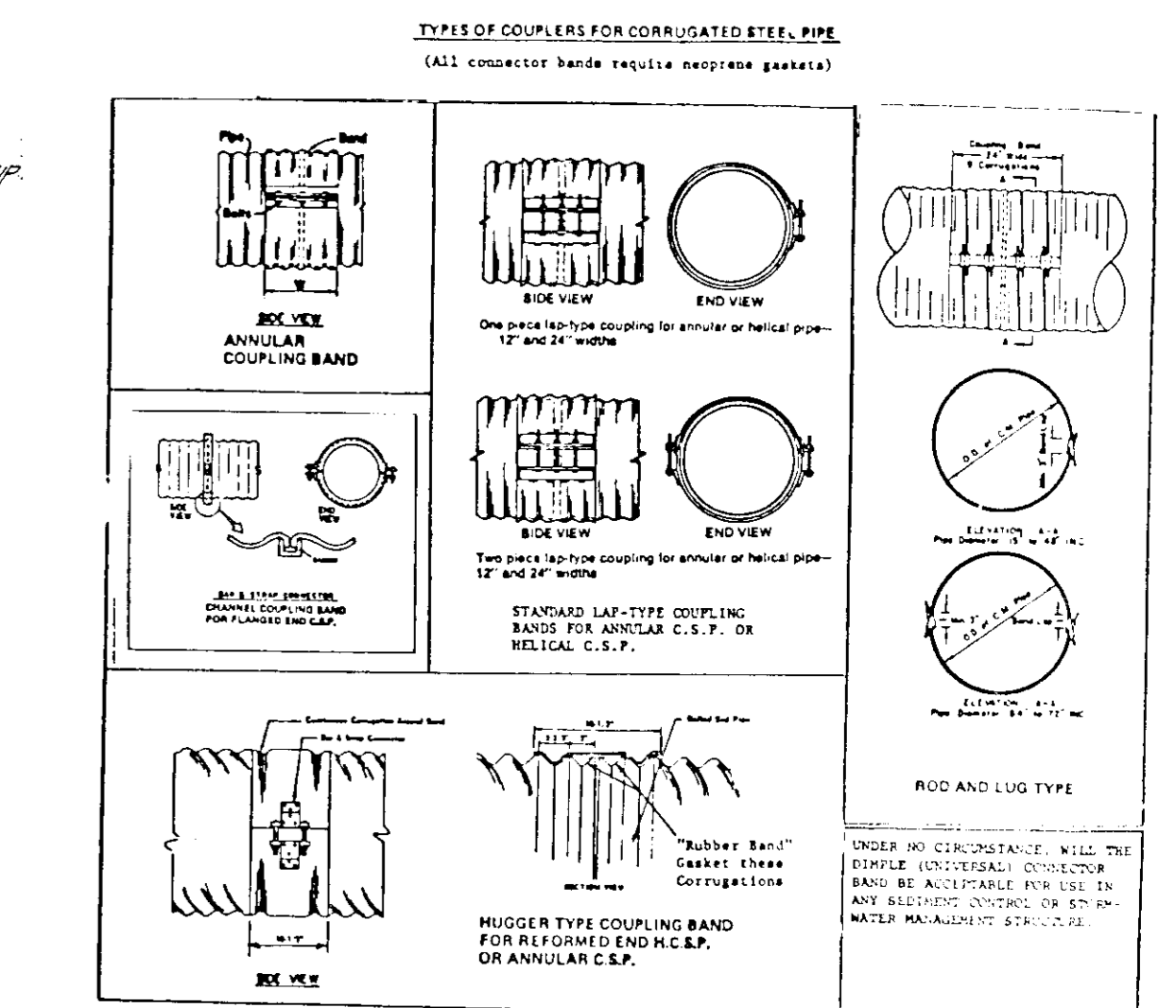
DETAIL - TOP SLAB
SCALE: 1"=2'



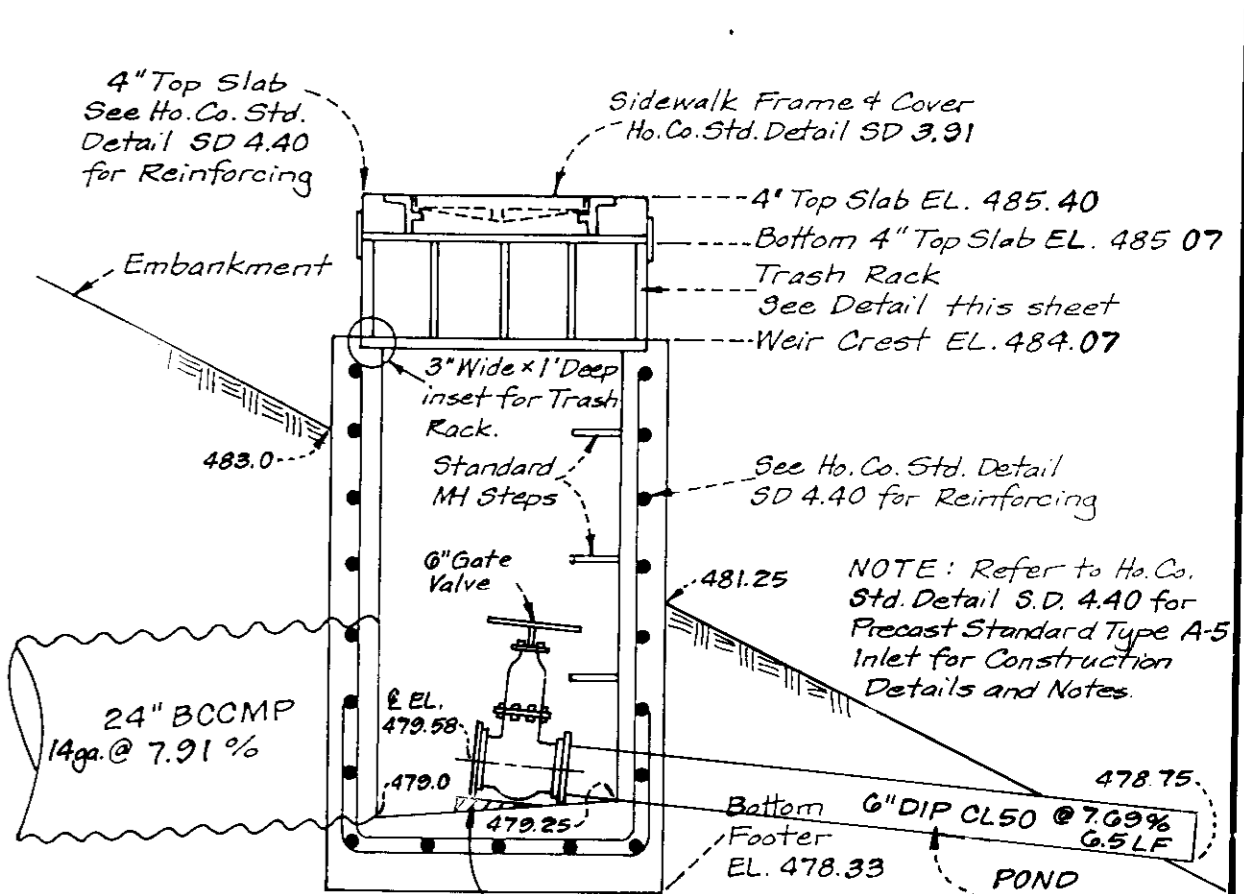
PLAN VIEW - BELOW TOP SLAB AND TRASH RACK
SCALE: 1"=2'



SECTION A-A
SCALE: 1"=2'



TYPES OF COUPLERS FOR CORRUGATED METAL PIPE
(All couplers made require separate gaskets)



PROFILE & EMBANKMENT (POND #2)
SCALE: Hor. 1"=50'
Vert. 1"=5'

APPROVED: For Private Water and Private Sewerage Systems, HOWARD COUNTY HEALTH DEPARTMENT. Date: 8/19/91.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING. Date: 8/14/91.

APPROVED: CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT. Date: 8/13/91.

APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS. Date: 8/21/91.

APPROVED: CHIEF BUREAU OF ENGINEERING. Date: 8-29-91.

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for all pond construction, soil erosion and sediment control.

U.S. SOIL CONSERVATION SERVICE. Date: 9/3/91.

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved: Howard S.C.D. Date: 9/3/91.

Developers Certification:

"We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Signature of Developer: Date: 4/12/91.

ENGINEER'S CERTIFICATE

"I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

Signature of Engineer: Date: 4/12/91.

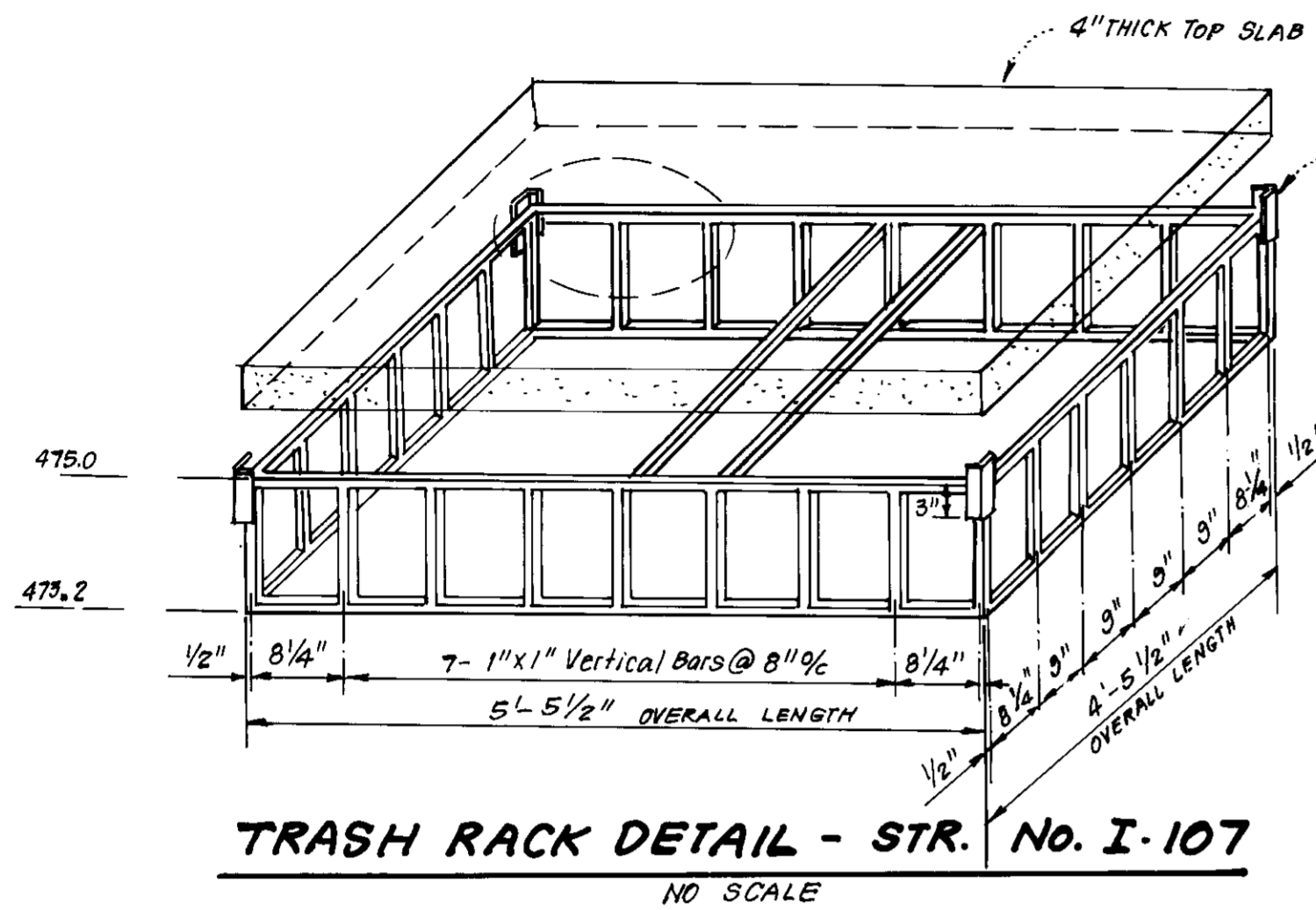
CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH

DESIGNED: DGT
DRAWN: LAI
CHECKED: DGT
DATE: APRIL 1991

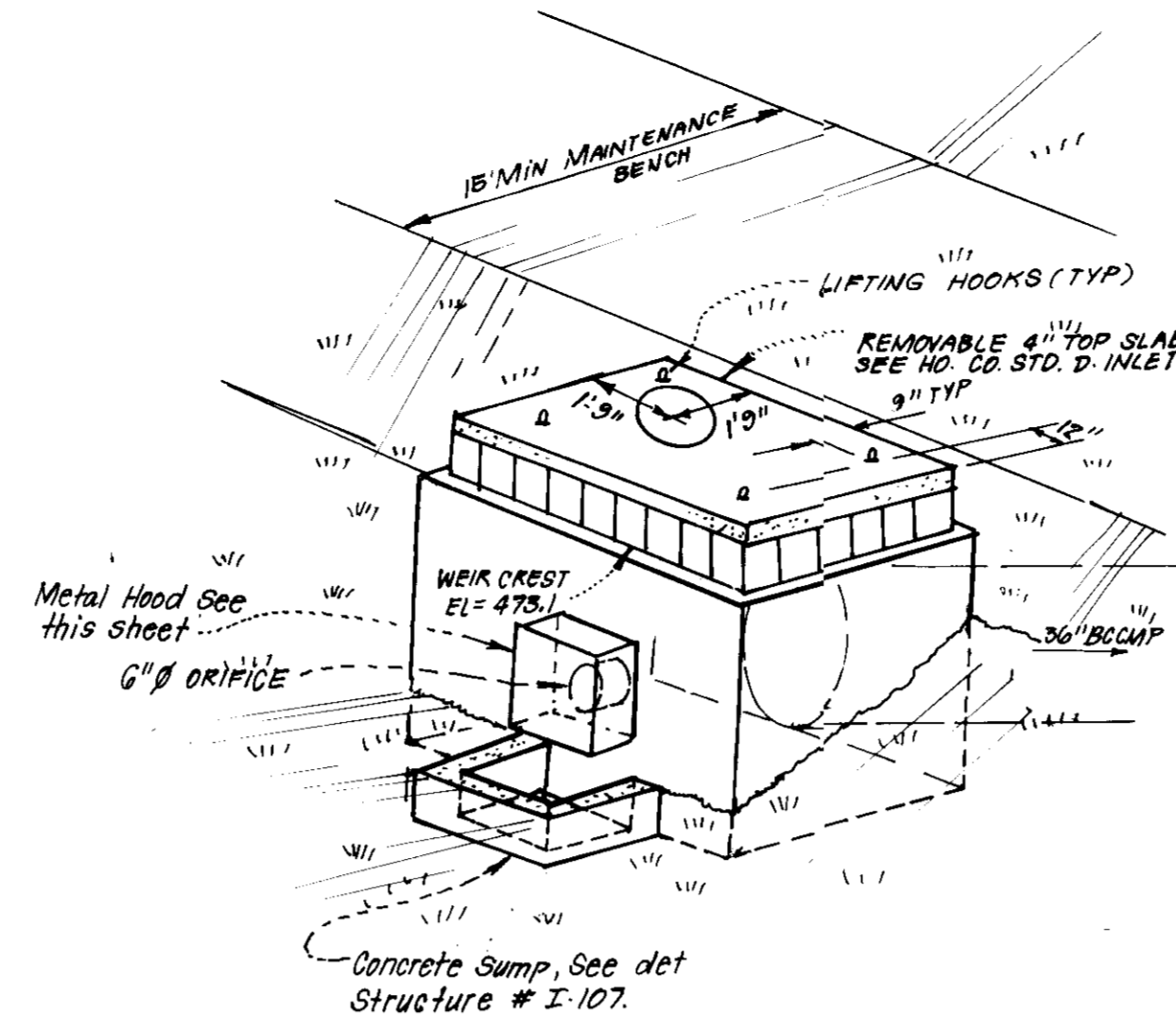
POND DETAILS AND PROFILES
CATTAIL CREEK COUNTRY CLUB
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: As Shown
DRAWING: 21 OF 20
JOB NO.: 89-007
FILE NO.: 89-007

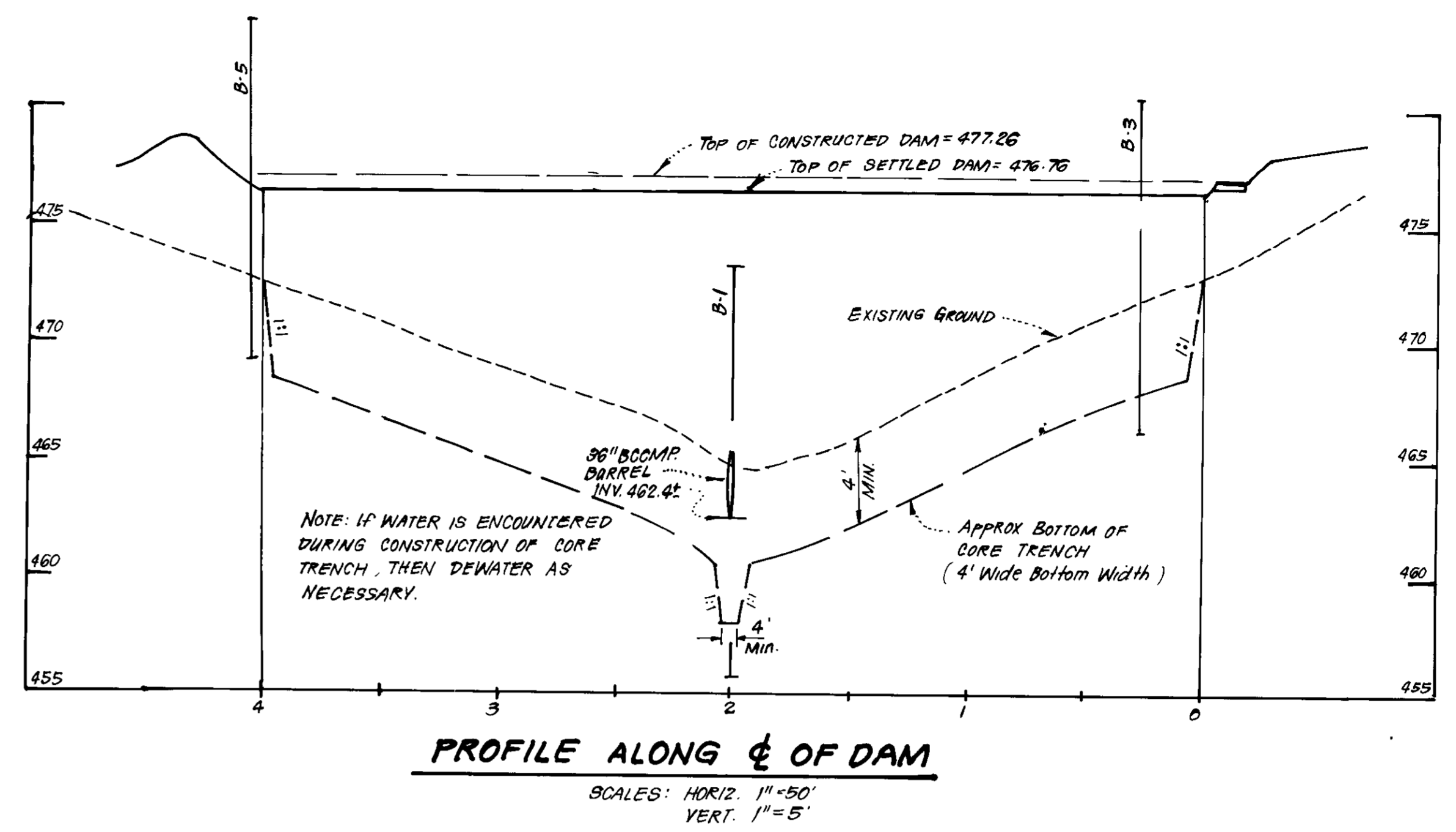
FOR: HOWARD COUNTY COUNTRY CLUB, INC.
C/O REESE AND CARNEY
10715 Charter Drive Suite 200
Columbia, Maryland 21044



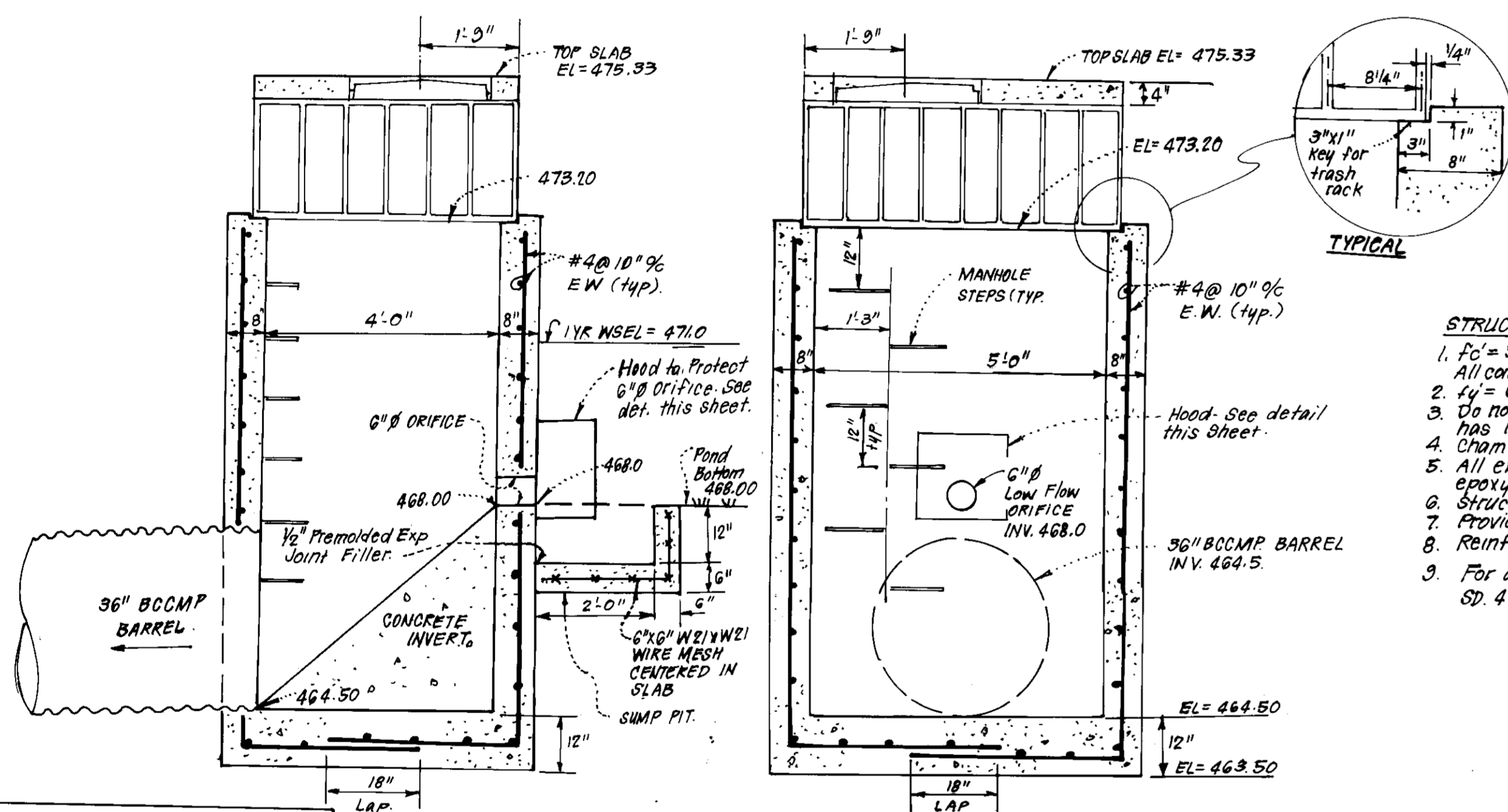
TRASH RACK NOTES:
 1. All steel shall be 1"x1" Butt Welded to form trash rack.
 2. After fabrication, trash rack shall be galvanized.



ISOMETRIC OF STRUCTURE
STR. No. I-107
 NO SCALE

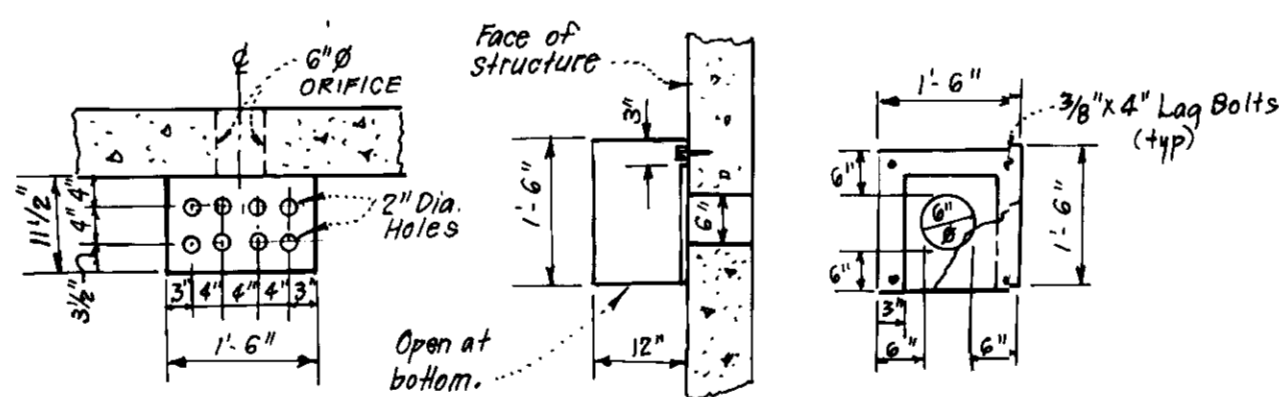


PROFILE ALONG C OF DAM
 SCALES: HORIZ. 1"=50'
 VERT. 1"=5'

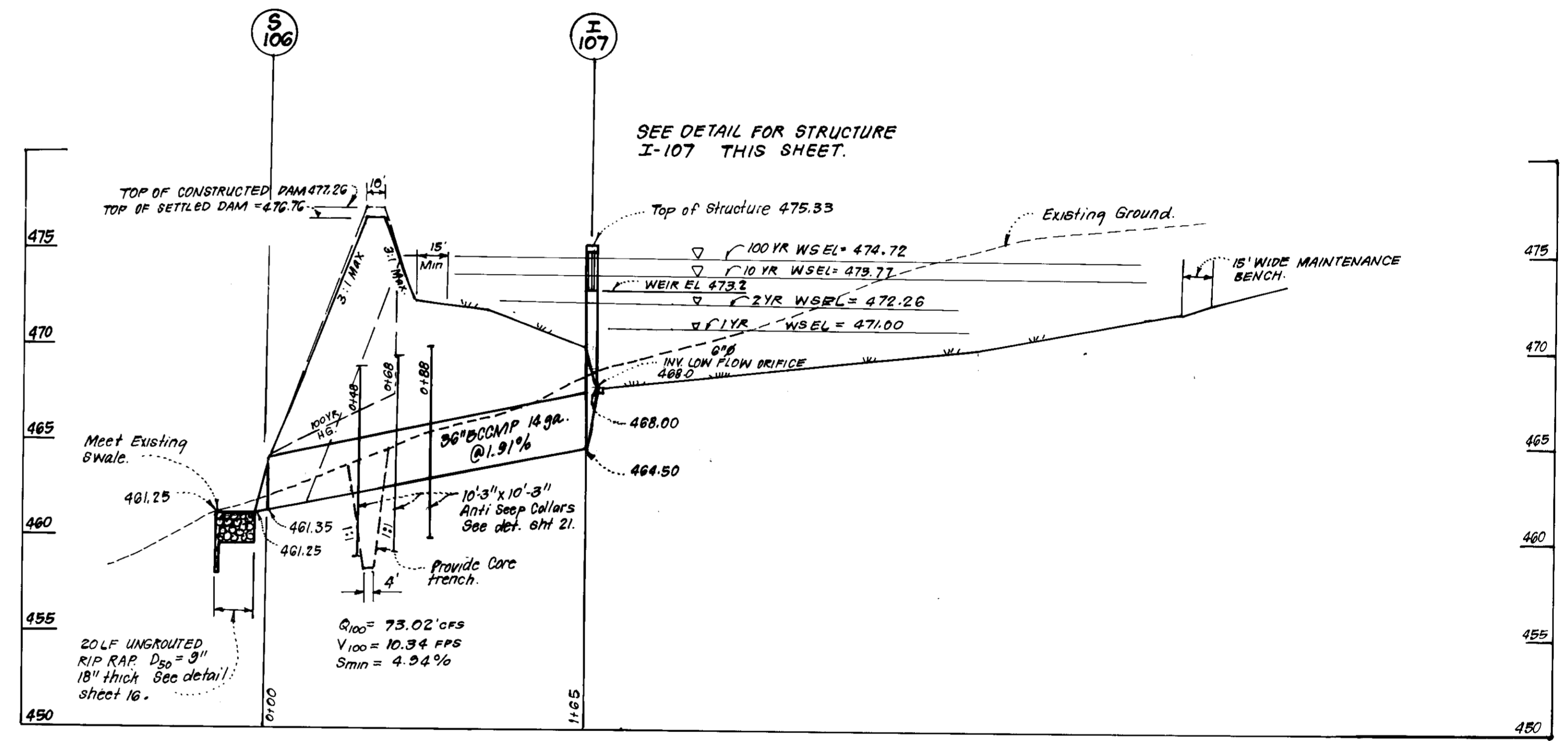


DETAIL- STRUCTURE NO. I-107 (EXT. DET. FACILITY #4)
 SCALE: 1/2" = 1'-0"

STRUCTURE NOTES:
 1. $f_c = 3000$ psi @ 28 days SHA Mix Concrete. All conc. for drainage structures to be air-entrained.
 2. $f_y = 60$ ksi.
 3. Do not backfill against structure until it has reached design strength.
 4. Chamfer (1"x1") all exposed edges.
 5. All exposed steel to be coated with black epoxy coating in accordance w/SHA Specs.
 6. Structure to be embedded in 6" crushed gravel.
 7. Provide Manhole Steps (epoxy coated) as shown.
 8. Reinforcing bars to conform to ASTM A-615 specs.
 9. For any details not shown see Ho. Co. Std. SD. 4.01.



HOOD DETAIL - STR. I-107
 NO SCALE



PROFILE THRU SPILLWAY-EXTENDED DETENTION FACILITY #4
 SCALES: HORIZ. 1"=50'
 VERT. 1"=5'

APPROVED: FOR Private WATER AND Private SEWERAGE SYSTEMS.
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: [Signature] 8/17/91
 APPROVED: HOWARD COUNTY Dept. OF PLANNING & ZONING
 DIRECTOR: [Signature] 9/18/91
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT: [Signature] 9/3/91
 APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: [Signature] 8/27/91
 CHIEF BUREAU OF ENGINEERING: [Signature] 8-26-91

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
 U.S. SOIL CONSERVATION SERVICE
 [Signature] 9/3/91

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Approved: [Signature] 9/3/91
 HOWARD S.C.D. DATE

Developers Certification:
 "We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."
 [Signature] 4/2/91
 CATTAIL CREEK COUNTRY CLUB, INC.

ENGINEER'S CERTIFICATE
 "I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."
 [Signature] 4/12/91
 Signature of Engineer Date



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

DESIGNED	STORM WATER MANAGEMENT DETAILS POND No. 4	SCALE	As Shown
DRAWN	KIWM	DRAWING	22 OF 26
CHECKED	KIWM	JOB NO.	89 007
DATE	DGT	FILE NO.	
APRIL 1991	FOR: HOWARD COUNTY COUNTRY CLUB, INC. C/O REESE and CARNEY 10715 Charter Drive Suite 200 Columbia, Maryland 21044		89-007-SE



APPROVED: FOR Private WATER AND Private SEWERAGE SYSTEMS.
 HOWARD COUNTY HEALTH DEPARTMENT
[Signature] 8/19/91
 COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
[Signature] 9/14/91
 DIRECTOR DATE

[Signature] 9/13/91
 CHIEF DIVISION OF COMMUNITY PLANNING
 AND LAND DEVELOPMENT DATE

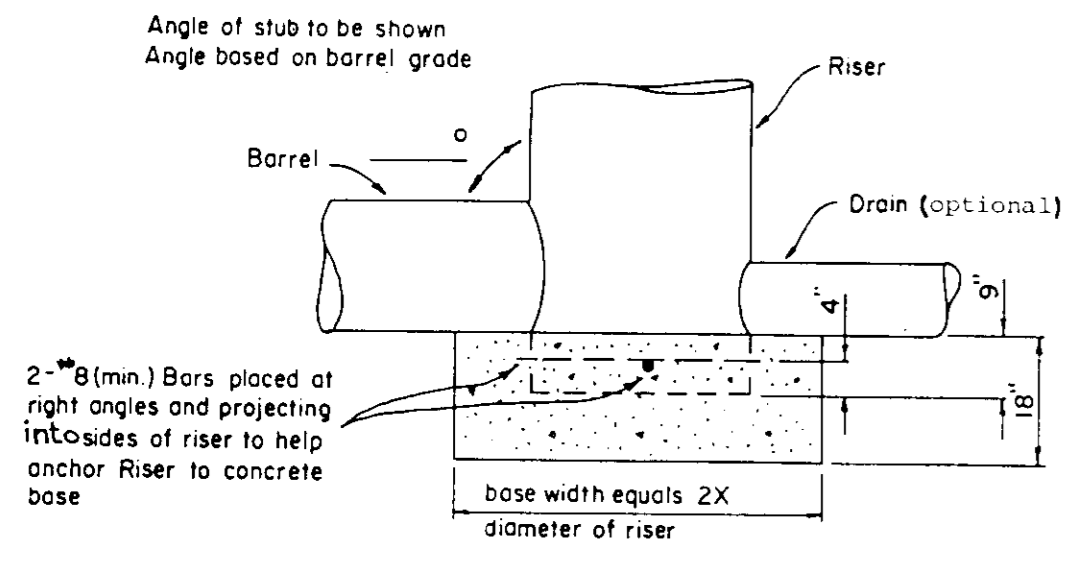
APPROVED:
 STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 8/27/91
 DIRECTOR DATE

[Signature] 8-20-91
 CHIEF BUREAU OF ENGINEERING DATE



CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH		SCALE 1"=200' DRAWING 23 OF 20 JOB NO. 89-007 FILE NO. 89-007 SE
DESIGNED KIWM DRAWN KIWM CHECKED DGT DATE APRIL 1991	DRAINAGE AREA MAP FOR PONDS 1 THRU 4 CATTAIL CREEK COUNTRY CLUB FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	FOR: HOWARD COUNTY COUNTRY CLUB, INC. 225 REESE AND CARNEY 10915 Quarter Drive Suite 200 Columbia, Maryland 21044

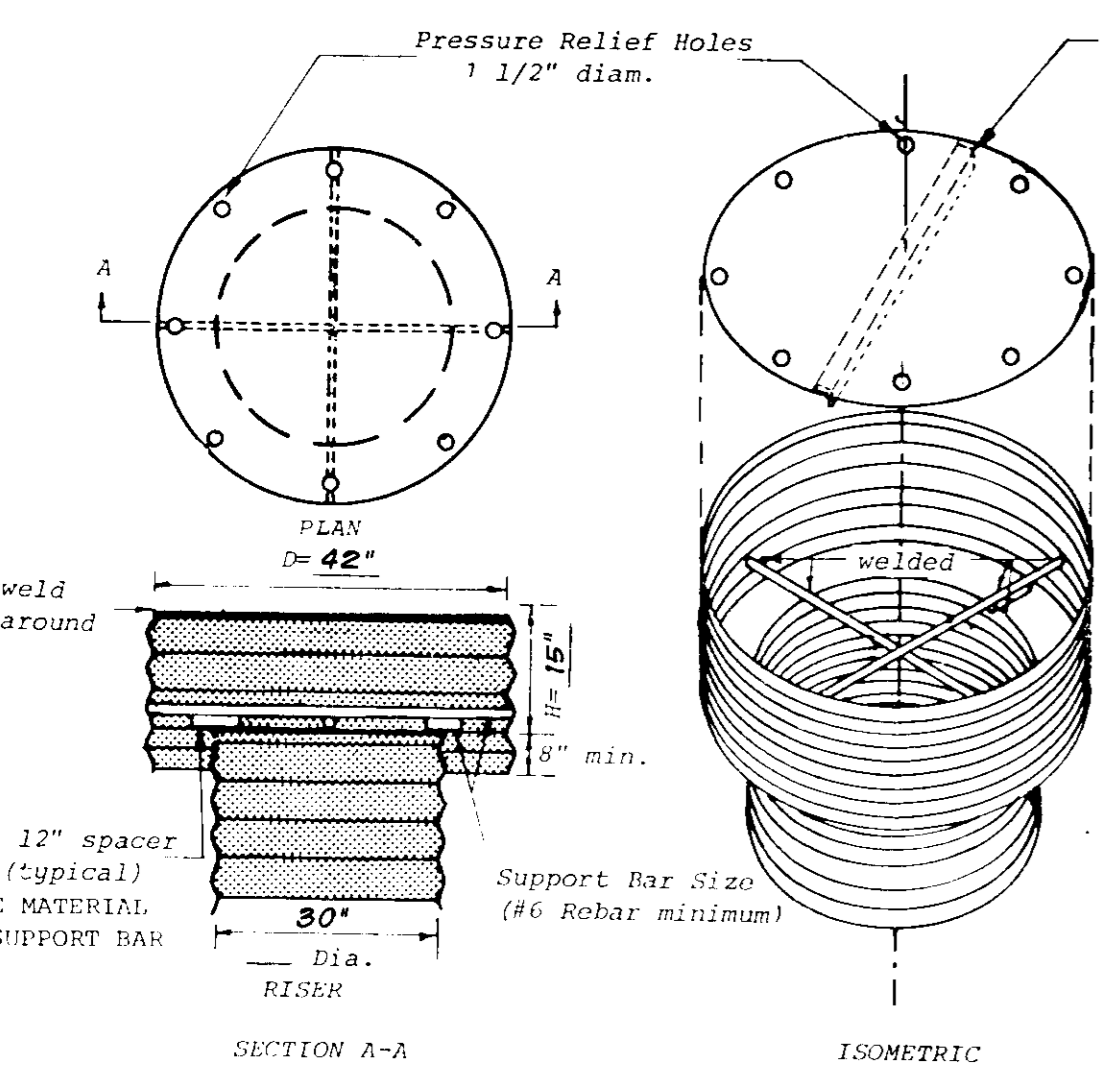
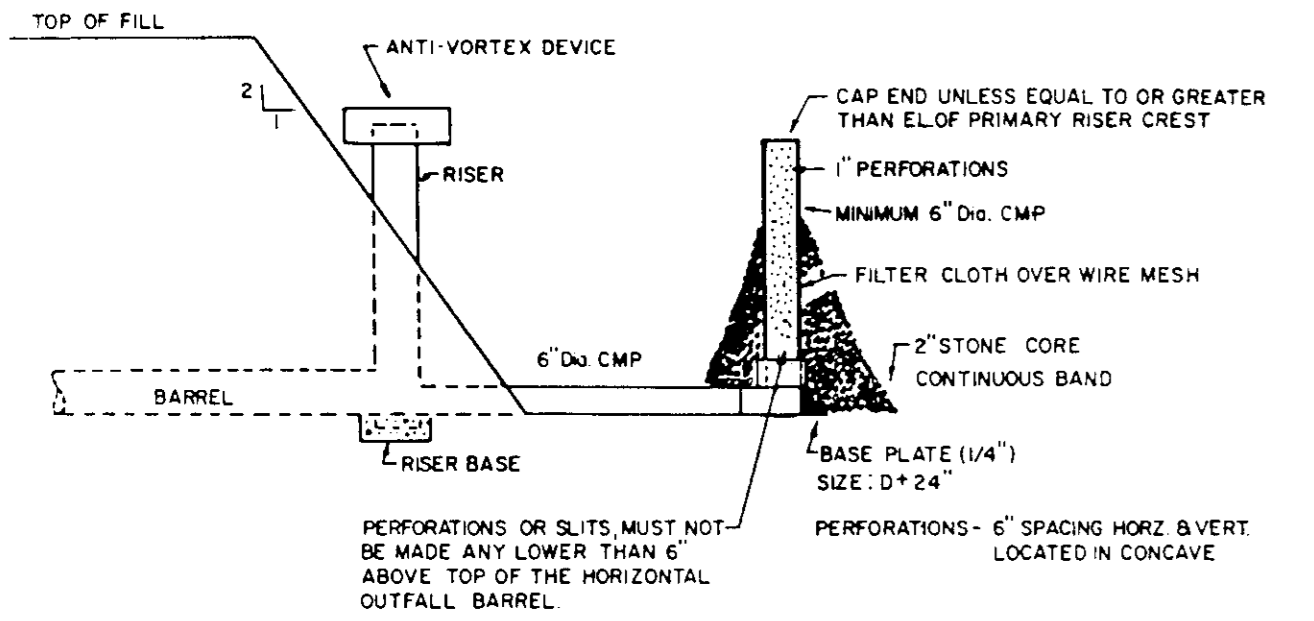
SDP-91-106



RISER BASE DETAIL

- NOTES**
- 1 The concrete base shall be poured in such a manner to insure that the concrete fills the bottom of the riser to the invert of the outlet pipe to prevent the riser from breaking away from the base.
 - 2 With aluminum or aluminized pipe, the embedded section must be painted with zinc chromate or equivalent.
 - 3 Riser base may be sized as computed using floatation with a factor of safety of 1.2.

OPTIONAL SEDIMENT BASIN DEWATERING DEVICE I WITH 6" PERFORATED RISER

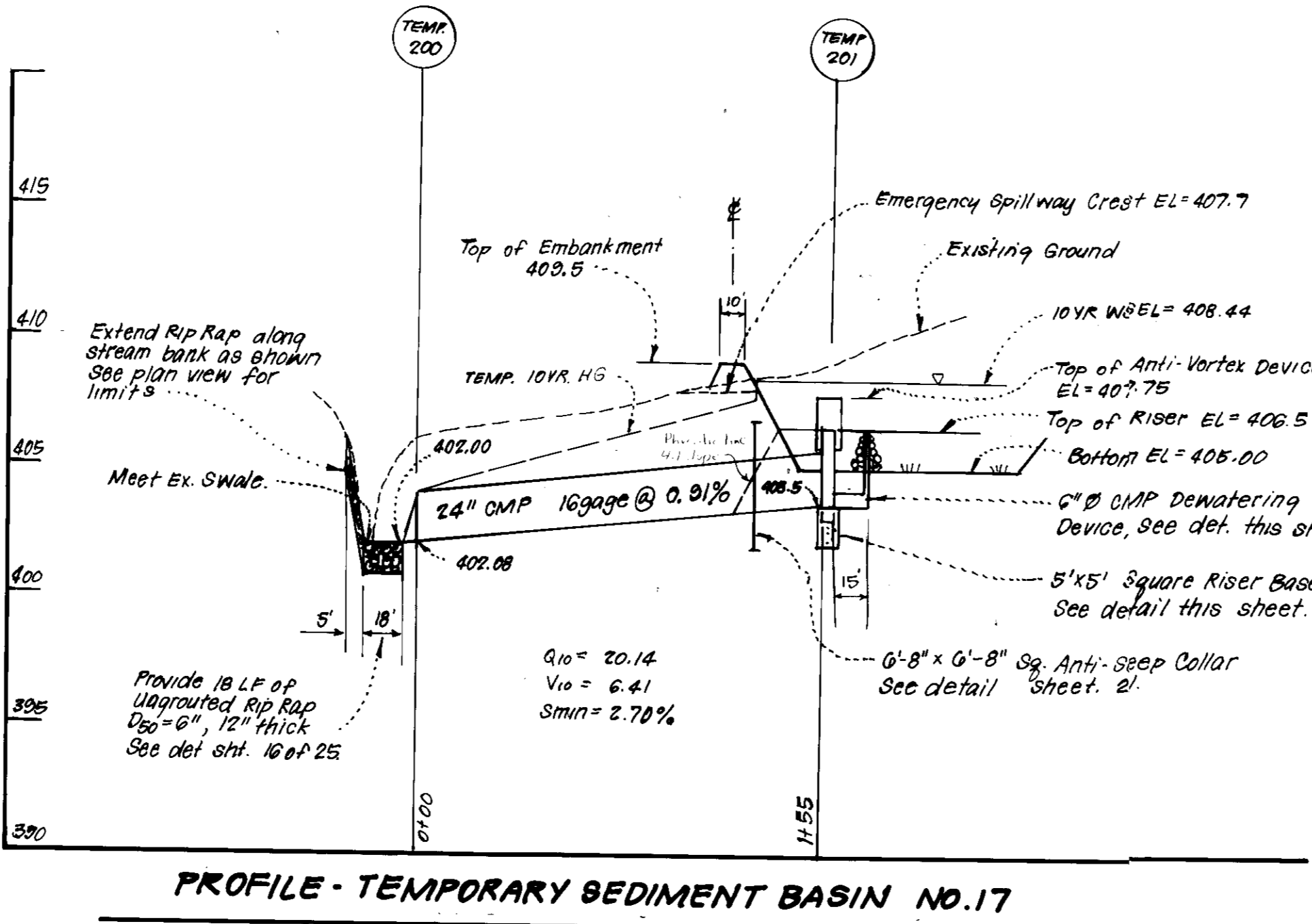


NOT REQUIRED
Top stiffener (if required) is angle welded to top and oriented perpendicular to corrugations.

Top is 10 gage corrugated metal or 1/8" steel plate. Pressure relief holes may be omitted, if ends of corrugations are left fully open when corrugated top is welded to cylinder.

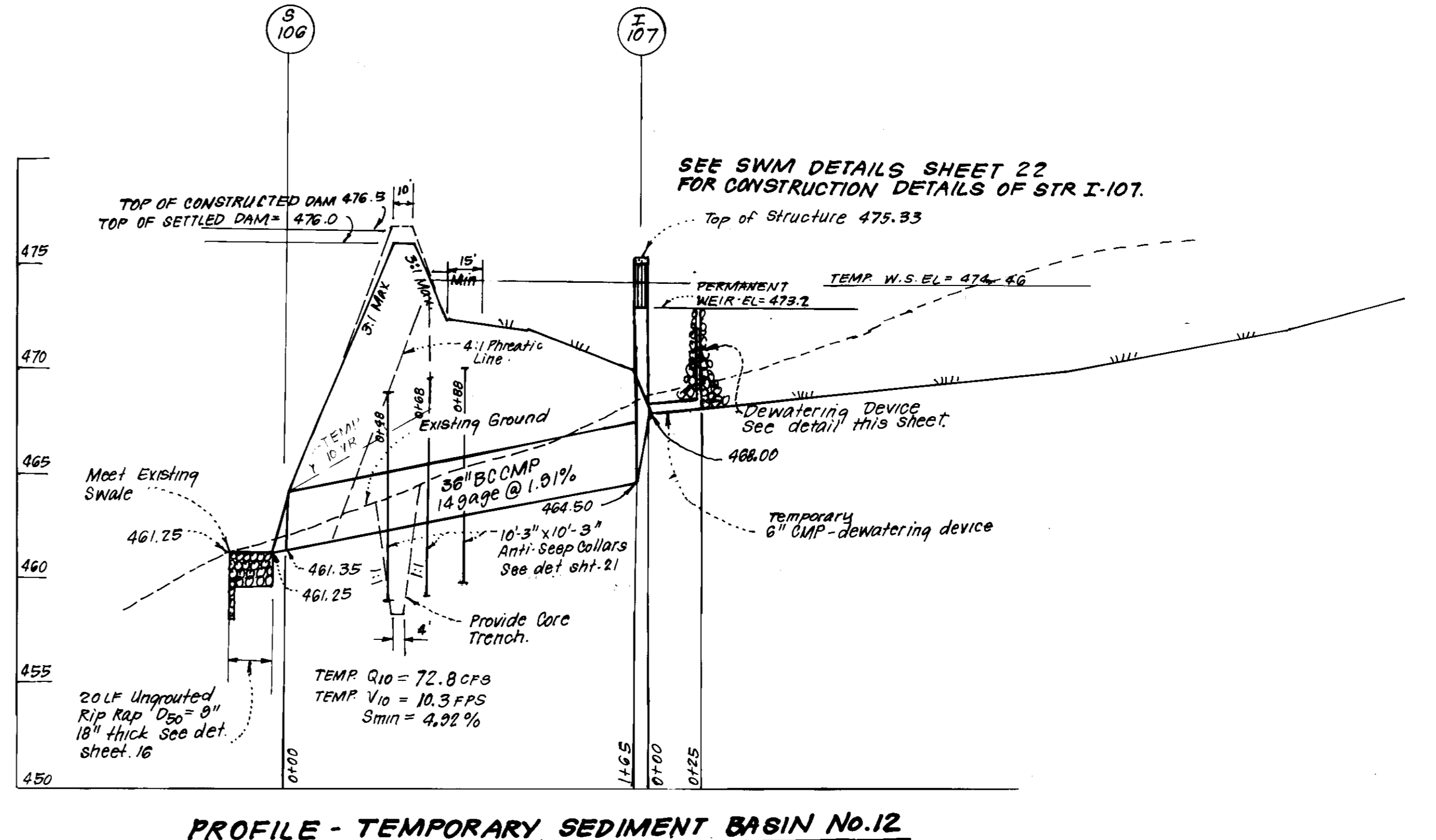
Cylinder is 10 gage corrugated metal pipe or fabricated from 1/8" steel plate.

Notes:
1) The cylinder must be firmly fastened to the top of the riser.
2) Support bars are welded to the top of the riser or attached by straps bolted to top of riser.



PROFILE - TEMPORARY SEDIMENT BASIN No.17

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



PROFILE - TEMPORARY SEDIMENT BASIN No.12

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

APPROVED: FOR Private WATER AND Private SEWERAGE SYSTEMS.
HOWARD COUNTY HEALTH DEPARTMENT

Joseph M. Boyd 8/19/91
COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Anna H. Hester 9/13/91
CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James P. Khan 8/27/91
DIRECTOR DATE

Michael S. Reilly 8-29-91
CHIEF BUREAU OF ENGINEERING M.K. DATE

Reviewed for HOWARD COUNTY S.C.D.

John P. Rhoads 9/13/91
Signature Date
U.S. Soil Conservation Service

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

John P. Rhoads 9/13/91
APPROVED 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 erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of 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."

David G. Carney, Pres. 4/12/91
Signature of Developer/Builder Date
CATTAL CREEK COUNTRY CLUB, INC.

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 4/12/91
Date



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

7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH

DESIGNED: *KIWM*
DRAWN: *LA1*
CHECKED: *DGT*
DATE: *JUNE 1991*

SEDIMENT & EROSION CONTROL DETAILS AND PROFILES
CATTAL CREEK COUNTRY CLUB
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: As Shown
DRAWING: 24 OF 26
JOB NO.: 89-007
FILE NO.: 89-007SE

FOR: HOWARD COUNTY COUNTRY CLUB, INC.
C/O REESE AND CARNEY
10715 Charter Drive, Suite 200
Columbia, Maryland 21044

SEDIMENT CONTROL NOTES

- 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. (800-946520)
- 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 SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within 7 calendar days for all permanent sediment control structures, dikes, perimeter slopes and all slopes greater than 2:1, 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 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) and (Sec. 52), temporary seedings (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.
- 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	Acres
Area Disturbed	182.0
Area to be roofed or paved	Acres
Area to be vegetated/stabilized	Acres
Total Cut	400,058 Cu. yds.
Total Fill	235,066 Cu. yds.
Offsite waste/borrow area location	*

- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the Howard County DEP sediment control inspector.
- 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.
- The total amount of straw bale dikes/silt fence equals 7000 L.F.

* Offsite waste/borrow area location

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/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (16 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
- 2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.09 lbs/1000 sq ft) of sweeping legumecress. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 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, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be reseeded through a short-term vegetative cover is needed.

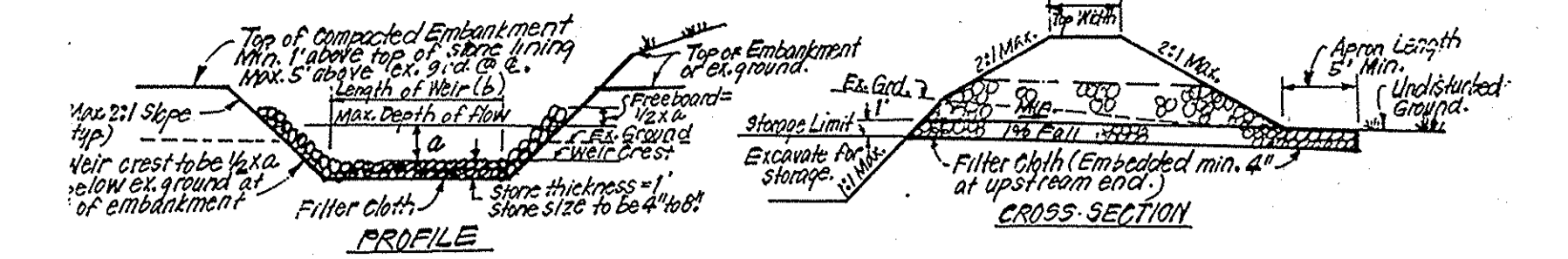
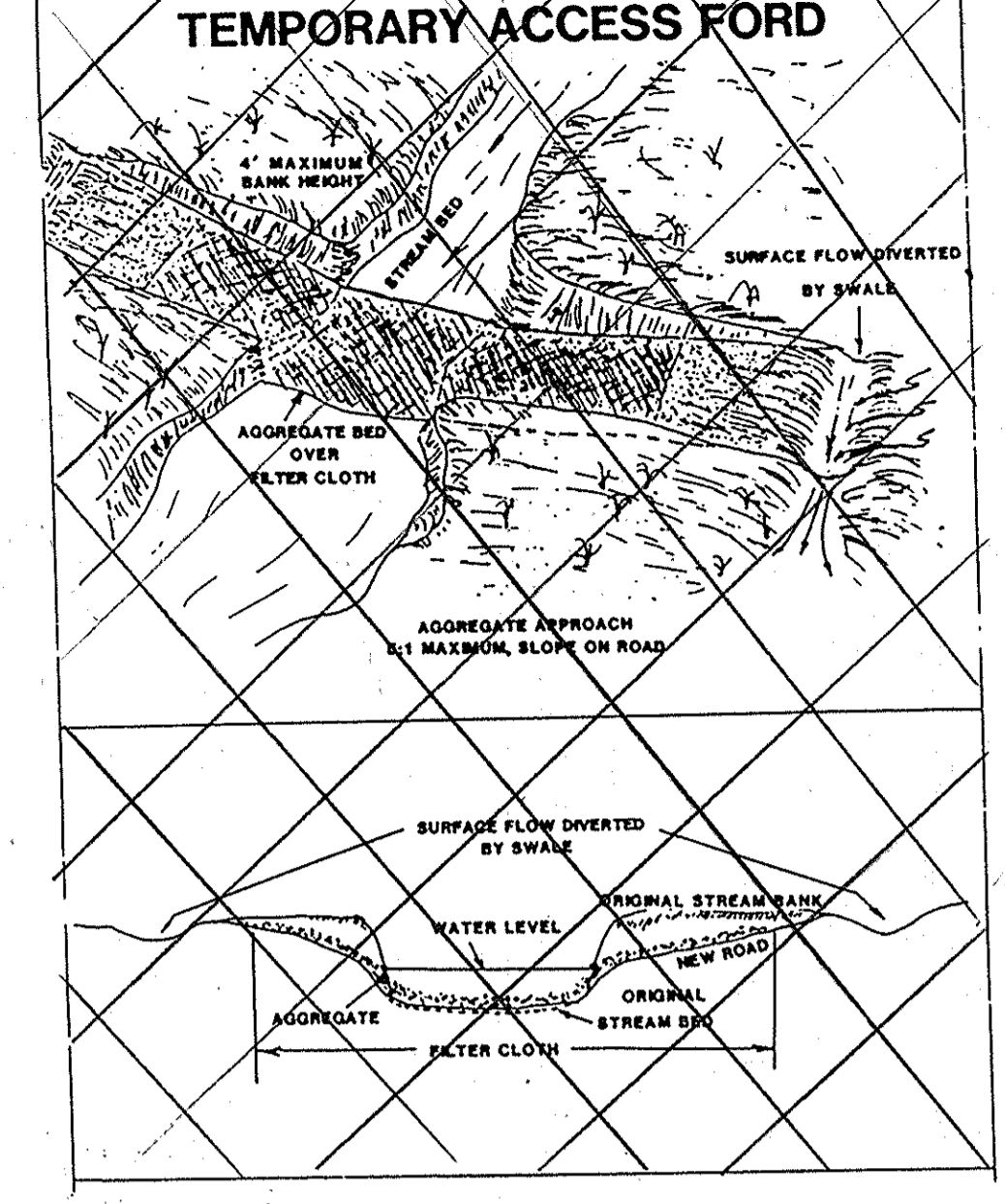
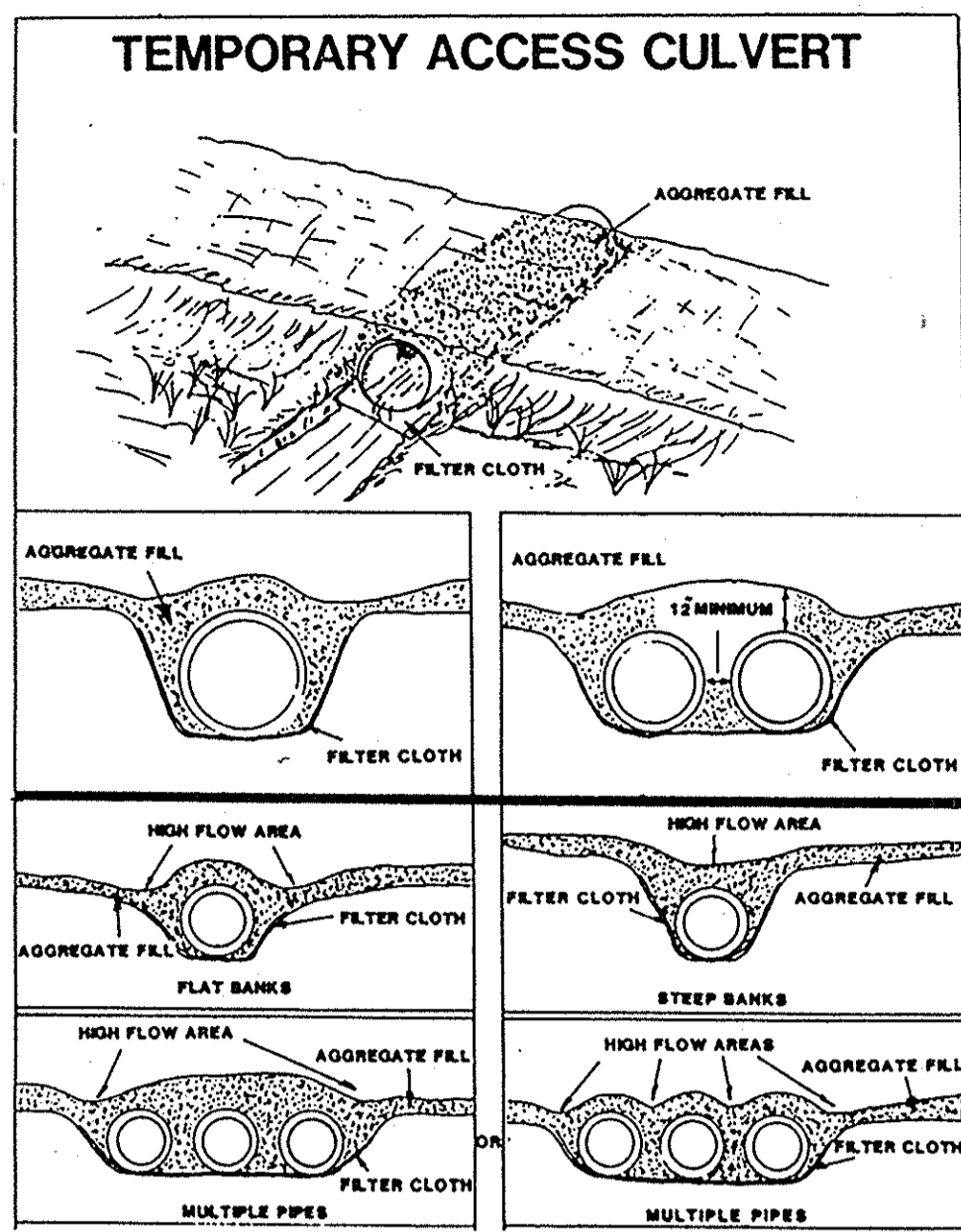
Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft)

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushels per acre of annual ryegrass (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of sweeping legumecress (.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.

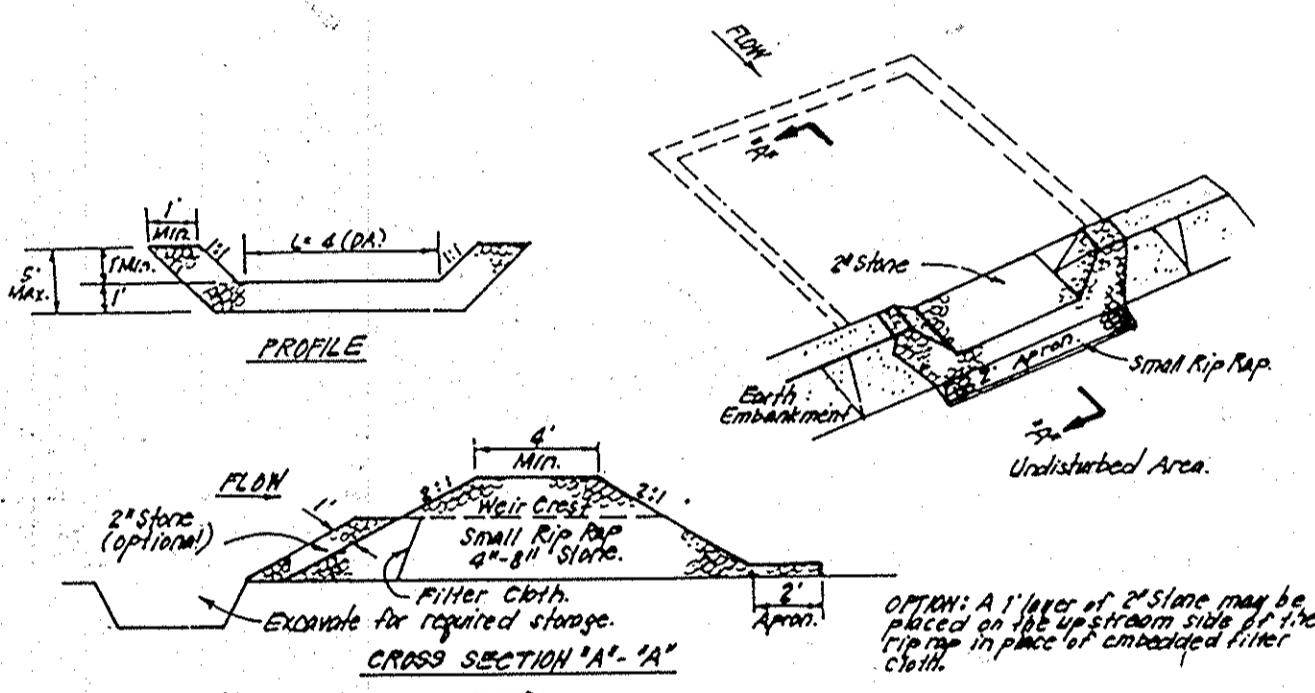
Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use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

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.



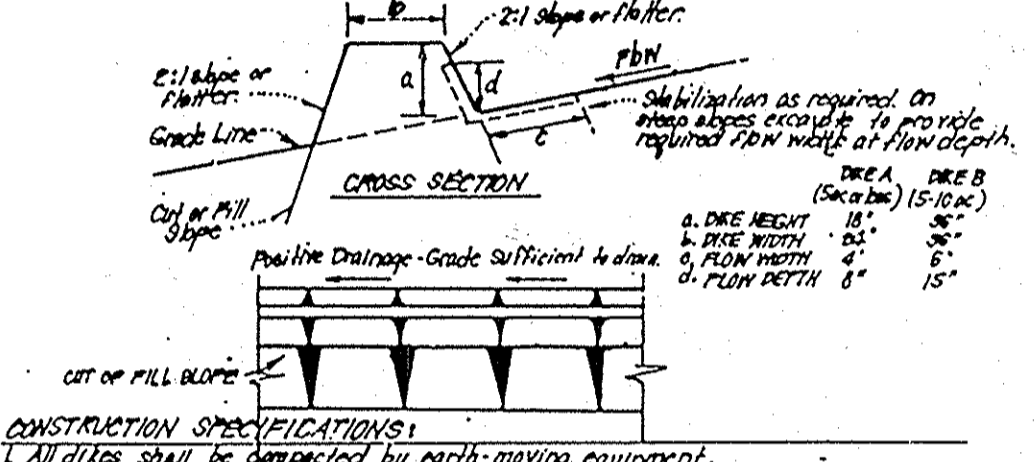
- CONSTRUCTION SPECIFICATIONS:**
- The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The soil area shall be cleared.
 - The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equip. while it is being constructed. Max. height of embankment shall be 5' measured at 6' of embankment.
 - All fill slopes shall be 2:1 or flatter's cut slopes 1:1 or flatter.
 - Elevation of the top of any ditch draining water into trap must equal or exceed height of embankment.
 - Storage area provided shall be formed by compacting the volume available behind the outlet channel up to an elevation of 1' below the well crest.
 - Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 6" into existing ground at entrance of outlet channel.
 - Stone used in the outlet channel shall be 4" to 6" rip rap, to provide a filtering effect, a layer of filter cloth shall be embedded 1' back into the upstream face of the rip rap or a 1" thick layer of 2" or finer aggregate shall be placed on the upstream face of the outlet.
 - Structure shall be removed and trap replaced to its original dimensions when the sediment has accumulated to the elevation of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
 - The structure shall be inspected after each rain and repaired as needed.
 - Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
 - The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.
 - Drainage area for this practice is limited to 15 acres or less.

RIPRAP OUTLET SEDIMENT TRAP - ST-VI
NO SCALE



- CONSTRUCTION SPECIFICATIONS:**
- Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The soil area shall be cleared.
 - 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.
 - All cut and fill slopes shall be 2:1 or flatter.
 - The stone used in the outlet shall be small rip rap of 4" size with 1" thickness of 2" aggregate placed on the upstream side of the outlet channel. Filter cloth shall be placed on the upstream side of the outlet channel and repaired as needed.
 - The structure shall be inspected after each rain and repaired as needed.
 - Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
 - The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

STONE OUTLET SEDIMENT TRAP (S.O.S.T) ST-VI
NO SCALE



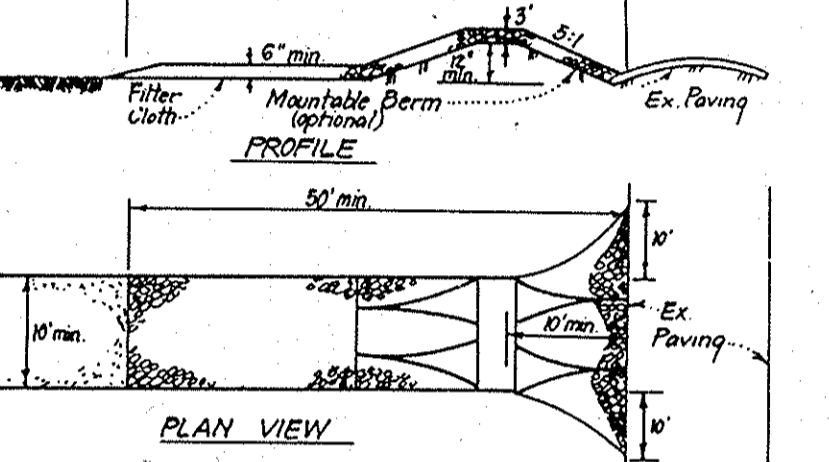
- CONSTRUCTION SPECIFICATIONS:**
- All dikes shall be constructed by earth-moving equipment.
 - All dikes shall have positive drainage to an outlet.
 - Top width may be wider and side slopes may be flatter if desired, to facilitate clearing by chain-traction tractors.
 - Final location should be adjusted as needed to utilize a stabilized safe outlet.
 - Earth dikes shall have an outlet that functions with a minimum of erosion. Riprap shall be placed on the downstream side of the dike channel. The drainage area above the dike are not adequately stabilized.
 - 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 chart below.

TYPE OF TREATMENT	CHANNEL GRADE	DIKE B	
		Seed or Straw Mulch	Seed or Straw Mulch
1	0.5 - 3.0%	Seed or Straw Mulch	Seed or Straw Mulch
2	3.1 - 5.0%	Seed or Straw Mulch	Seed or Straw Mulch
3	5.1 - 8.0%	Seed or Straw Mulch or Sod	Seed or Straw Mulch or Sod
4	8.1 - 12.0%	Seed or Straw Mulch or Sod	Seed or Straw Mulch or Sod

CONSTRUCTION SPECIFICATIONS:

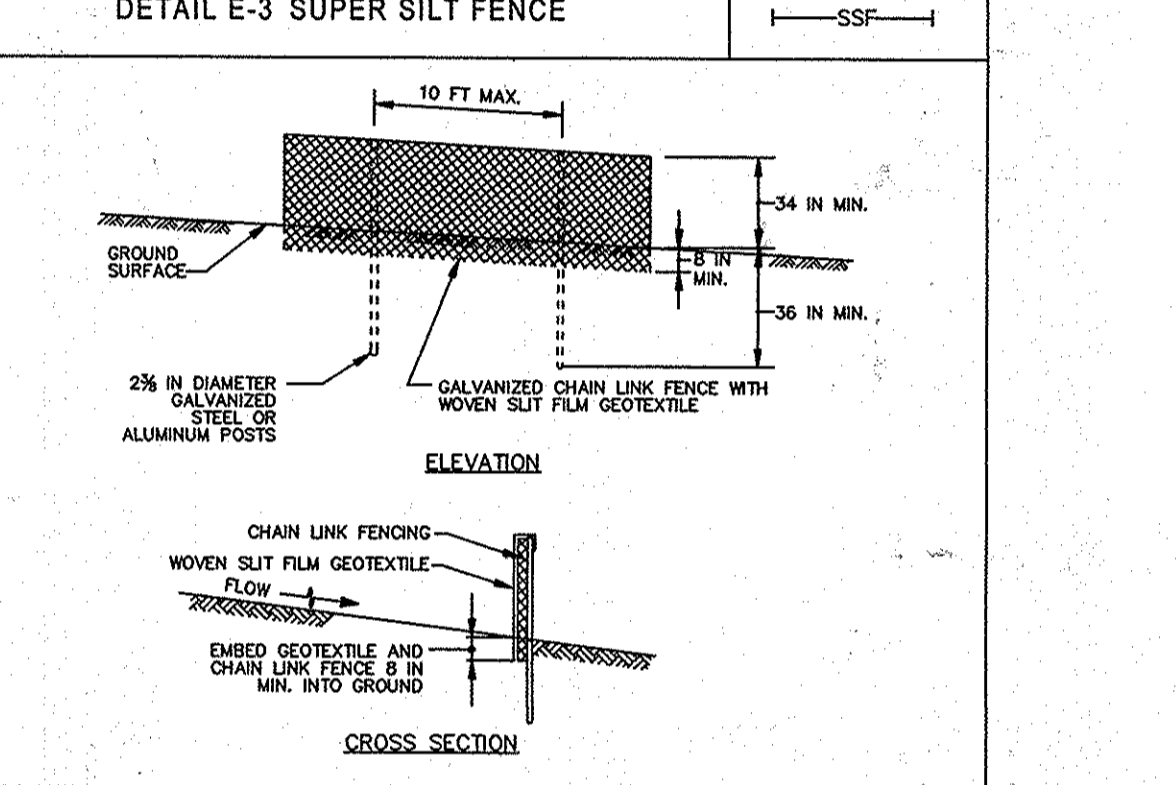
- Stones to be 1 1/2 stone or recycled concrete equivalent, in a layer at least 3" thick and be pressed into soil with construction equipment.
- Rip rap to be 4" in a layer at least 4" thick pressed into soil.
- Approved equivalents can be substituted for any of the above materials.
- Periodic inspection and required. Maintenance must be provided after each rain.

EARTH DIKE DETAIL (E.D.)
NO SCALE



- CONSTRUCTION SPECIFICATIONS:**
- Stone size - Use 2" stone, or reclaimed or recycled concrete equivalent.
 - Length - As required, but not less than 50 feet (exception a single residence lot where a 30 foot minimum length would apply).
 - Thickness - Not less than 8" inches.
 - Width - Ten (10) feet minimum, but not less than the full width of points where ingress or egress occurs.
 - 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.
 - Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mound of earth with 5:1 slopes will be permitted.
 - Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment into public right-of-way. This may require periodic top dressing, with additional stone as conditions demand and repair and/or clearing of any areas used to trap sediment. All sediment applied, dropped, washed or tracked onto public right-of-way must be removed immediately.
 - Warning - Warning shall be placed to remove sediment prior to entrance onto public right-of-way. When warning is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
 - Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE (SCE)
NO SCALE



- CONSTRUCTION SPECIFICATIONS:**
- INSTALL 2 1/2" IN DIAMETER GALVANIZED STEEL POSTS OF 0.05 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACES NO FURTHER THAN TEN FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
 - FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% MINIMUM OPENING) 42 INCHES IN HEIGHT SECURED TO THE FENCE POSTS WITH WIRE TIES TO THE TOP AND MID SECTION ENDED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
 - FASTEN WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. SECURE TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH THIS SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION ENDED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
 - WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
 - EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
 - PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
 - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BUILDS UP IN FENCE OR WHEN SEDIMENT EXCEEDS 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.
- MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
- U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011
- MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION

- SEQUENCE OF CONSTRUCTION FOR GOLF CART AND TEE BOX RELOCATION**
- OBTAIN GRADING PERMIT. (1 DAY)
 - NOTIFY "MISS UTILITY" AT 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 48 HOURS BEFORE STARTING WORK.
 - INSTALL STABILIZED CONSTRUCTION ENTRANCE. (1 DAY)
 - INSTALL SEDIMENT CONTROL MEASURES SHOWN ON SHEETS 10 AND 11. (3 DAYS)
 - WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR BEGIN SITE GRADING. (4 WEEKS)
 - INSTALL STORM DRAIN SYSTEM. (1 WEEK)
 - FINE GRADE THE AREA AND STABILIZE WITH PERMANENT SEEDING. (1 WEEK)
 - OBTAIN PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR TO REMOVE ALL REMAINING SEDIMENT AND EROSION CONTROL DEVICES. THEN STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS WITH PERMANENT SEEDING. (1 WEEK)
 - NOTIFY HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.
 - SEQUENCE NOTE: THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PERIOD AFTER EACH RAINFALL EVENT AND ON A DAILY BASIS. REMOVE SEDIMENT FROM THE SUPER SILT FENCE WHEN SEDIMENT REACHES 25% OF THE FENCE HEIGHT.

- CONSTRUCTION SEQUENCE**
- Obtain grading permit.
 - Prior to any grading within holes #1, 9, FR and #8, install spring bypass from existing spring holes at holes #8 under MD Route 97, through holes #1 and #9 to ex. pond located off site on adjacent Davis Property as shown on plan. Use silt fence as needed and as directed by sediment control inspector for this operation.
 - Prior to any grading within hole #7, install storm drainage (bypass) from S-3 to S-7. Use silt fence as needed and as directed by sediment control inspector for this operation.
 - Install sediment and erosion controls for those areas/holes where grading will be performed. See utility inspector prior to initial disturbance to each respective area/holes to ensure that the appropriate sediment controls are installed as per plan.
 - Mass grade areas/holes. See Sediment Control Note #3 regarding stabilization. Contractor shall make every effort to work with sediment control inspector and to recognize where sensitive areas are being disturbed. Sensitive areas (defined as steep slopes (3:1), flood plains, wetlands, perimeter sediment control structures and dikes) shall be stabilized in accordance with Sediment Control Note #3a.
 - Install storm drainage, pathways and retaining walls where not in conflict with sediment controls. Block pipes at S-36 (hole #17) and Inlets #1-4 and I-3 (Hole #4) upon their construction. Temporarily and pipe at S-43 at Trap #15 (Hole #12). Delay installation of rip-rap at S-23 at Trap #1 (Hole #2).
 - Fine grade and permanently stabilize.
 - Upon completion of all work and permanent stabilization of respective drainage areas and with the approval of the sediment control inspector, remove sediment and erosion controls and stabilize. Convert temporary sediment basins #12 and 20 to permanent ponds 4, and 3 respectively by the following procedure:
 - Pump out impounded water.
 - Remove dewatering devices and repair riser as necessary.
 - Remove muck and dispose of in locations approved by sediment control inspector.
 - Excavate and grade ponds to ultimate depths and dimensions and permanently stabilize.
 - Install permanent pond drains and/or low flow pipes to riser (pond 3). Flush out riser/barrel combination.

- Upon removal of trap #10 on hole #8 construct pond#1 according to plan. Install 6" D.I.P. pond drain from pond #1 under MD Route 97 to pond #3. Complete all remaining cart paths, retaining walls and permanently stabilize.
- Complete Storm Drainage at S-23 (Hole #2) and S-43 (Hole #12) upon removal of Trap #1 and #3, respectively.

NOTE: See sheet T-7-C for construction sequence for construction of underpass. (Md. Route 97)

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT

Joseph Boyle 8/19/91
COUNTY HEALTH OFFICER DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

9/4/91
DIRECTOR DATE

APPROVED: STORM DRAINAGE SYSTEMS AND PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

9/27/91
DIRECTOR DATE

CHIEF BUREAU OF ENGINEERING
M.R. OMP DATE

Reviewed for HOWARD COUNTY S.C.D.

Signature: [Signature] Date: 9/18/91

U.S. Soil Conservation Service

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

Signature: [Signature] DATE: 9/18/91

DEVELOPER'S/BUILDER'S CERTIFICATE

I hereby certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of 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: [Signature] Date: 4/21/91

CATTAIL CREEK COUNTRY CLUB, INC.
Signature of Developer/Builder

ENGINEER'S CERTIFICATE

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

Signature: [Signature] Date: 6-18-91

G. Nelson Clark Date

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GREENE AND CHARLES
10715 Charter Drive, Suite 200
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SDP 91-106



