ROADWAYS AND STORM DRAINS

RUTHERFORD

5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

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4	PLAN AND PROFILE OF RUTHERFORD WAY STA. 12+00 TO END
5	DRAINAGE AREA MAP
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9	PROFILE AND DETAIL SHEET
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GENERAL NOTES

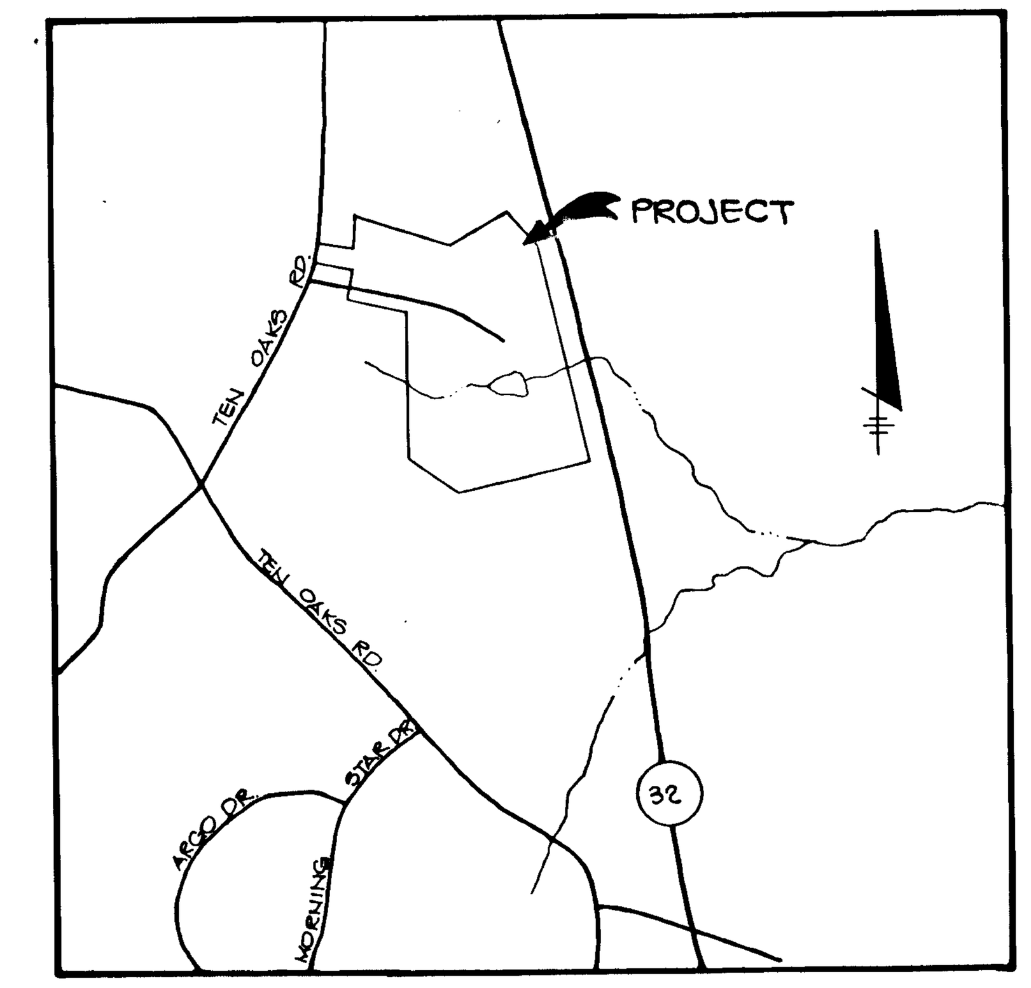
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 1989 AMENDMENTS.
2. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
4. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK ON THESE DRAWINGS:

MISS UTILITY	1-800-257-7777
BELL TELEPHONE SYSTEM	393-3649
LONG DISTANCE CABLE DIVISION	393-3553 or 3554
BALTIMORE GAS AND ELECTRIC CO.	539-8000, ext. 691
HOWARD COUNTY BUREAU OF UTILITIES	992-2366
HOWARD COUNTY CONSTRUCTION/ INSPECTION SURVEY DIVISION (24 HOURS NOTICE PRIOR TO COMMENCEMENT OF WORK)	792-7272
COLONIAL PIPELINE	795-1390

5. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
6. ALL STREET CURB RETURNS SHALL HAVE 35.0' RADII UNLESS OTHERWISE NOTES.
7. STORM DRAIN TRENCHES WITHIN ROAD RIGHT-OF-WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOLUME IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 1989 AMENDMENTS.
8. INSTALLATION OF TRAFFIC CONTROL DEVICES, MARKING, AND SIGNING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 1984 REVISED EDITION.
9. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
10. DESIGNED TRAFFIC SPEED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIAL STANDARDS:

ALL 80' RIGHT-OF-WAYS	30	M.P.H.
ALL 50' RIGHT-OF-WAYS	30	M.P.H.

11. ALL ELEVATIONS SHOWN ARE BASED ON U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
12. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION.
13. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
14. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
15. SUBJECT PROPERTY ZONED R PER 8-2-85 COMPREHENSIVE ZONING PLAN.
16. TOPO TAKEN FROM FIELD RUN SURVEY DATED JULY, 1988 BY RIEMER MUEGGE & ASSOC., INC.
17. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
18. ALL STORM DRAIN PIPE BEDDING SHALL BE CLASS 'C' AS SHOWN IN FIG. 11.4, VOLUME 1 OF HOWARD COUNTY DESIGN MANUAL UNLESS OTHERWISE NOTED.
19. SEE DEPT. OF PLANNING AND ZONING FILE Nos. S-88-82, P-89-59, WP-88-11
20. WP-88-11 IS A WAIVER FOR EXCEEDING THE ALLOWABLE 1200 FEET LENGTH FOR A CUL-DE-SAC STREET.

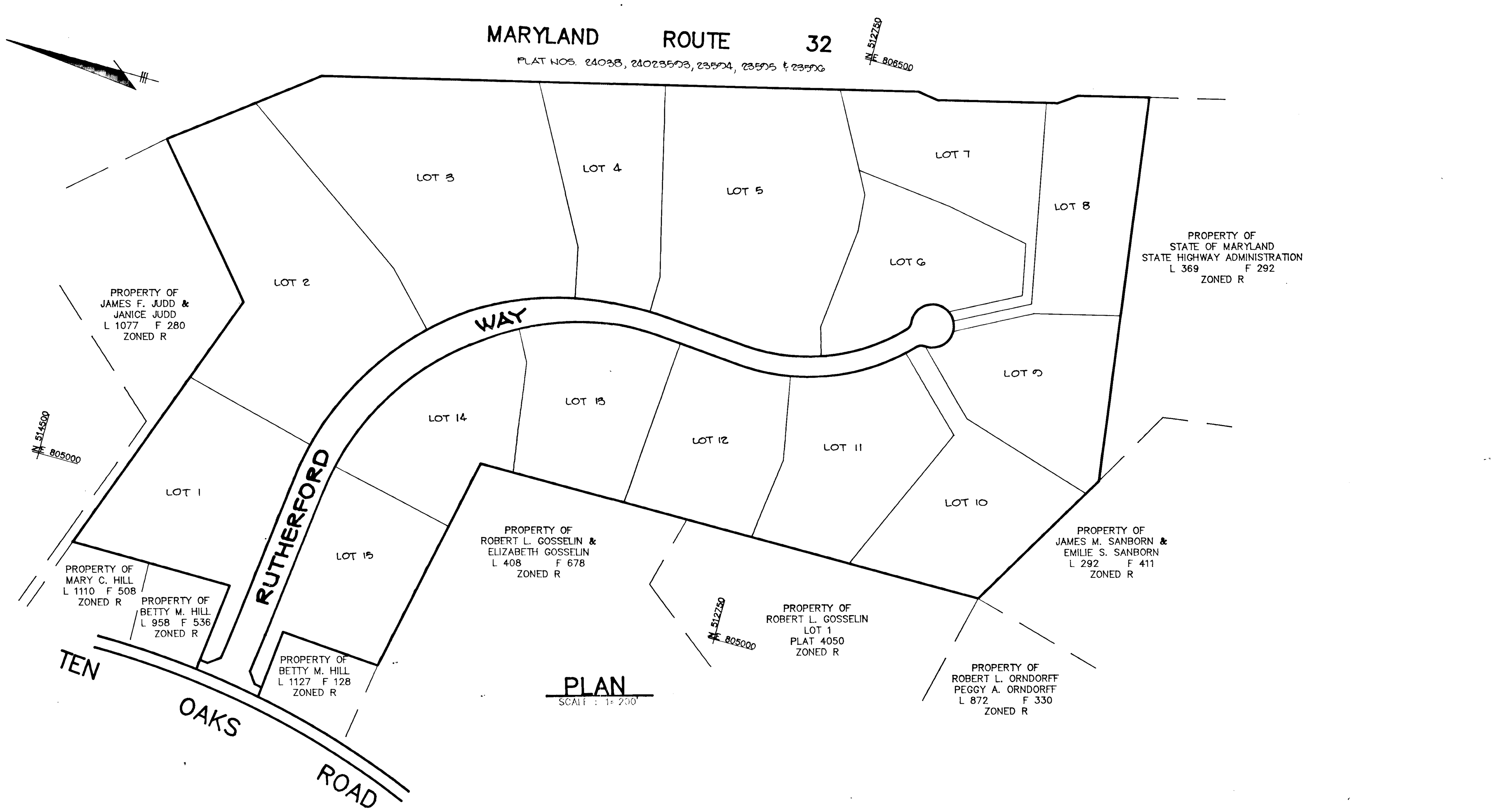


VICINITY MAP
SCALE 1"=2000'

BENCH MARKS

B.M.#1 ELEV 597.90
N511,513.029 E803,919.861
REINFORCING ROD, 3/4" INCH 0.5' BELOW SURFACE
WEST SIDE OF PAVING ON TEN OAKS ROAD
0.15' MILE SOUTH OF GREEN BRIDGE ROAD

B.M.#2 ELEV. 573.46
N512,020.605 E803,635.135
CONCRETE MONUMENT 0.9' BELOW SURFACE
AT INTERSECTION OF TEN OAKS ROAD, GREEN
BRIDGE ROAD AND LINTHICUM ROAD



PLAN
SCALE: 1"=200'

AS BUILT CERTIFICATION

ENGINEER ______
PE # ______ DATE ______

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/7/90

CHIEF, BUREAU OF HIGHWAYS — DATE 2/16/90

CHIEF, BUREAU OF ENGINEERING — DATE 3-9-90

DATE	NO.	REVISION

OWNER/DEVELOPER
MARY C. HILL ET AL
6642 SENECA DRIVE
COLUMBIA, MARYLAND 21044

PROJECT: RUTHERFORD

AREA: TAX MAP 28 ZONED R PARCEL 75
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: TITLE SHEET

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176

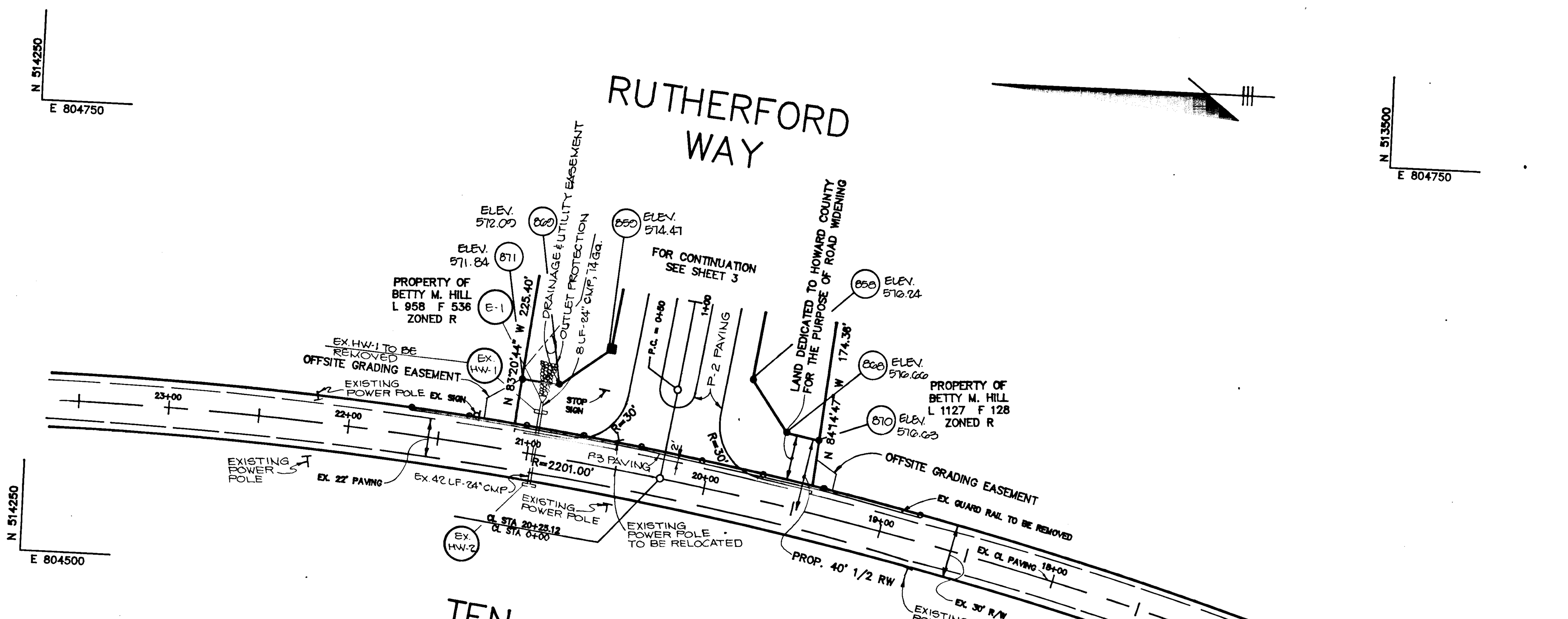
DATE

ARTHUR E. MUEGGE #8707

S-88-82 WP-88-11
P-89-59

DESIGNED BY:	D.A.M.
DRAWN BY:	C.A.D.
PROJECT NO:	51206
DATE:	JANUARY 16, 1990
SCALE:	AS SHOWN
DRAWING NO.	1 OF 10

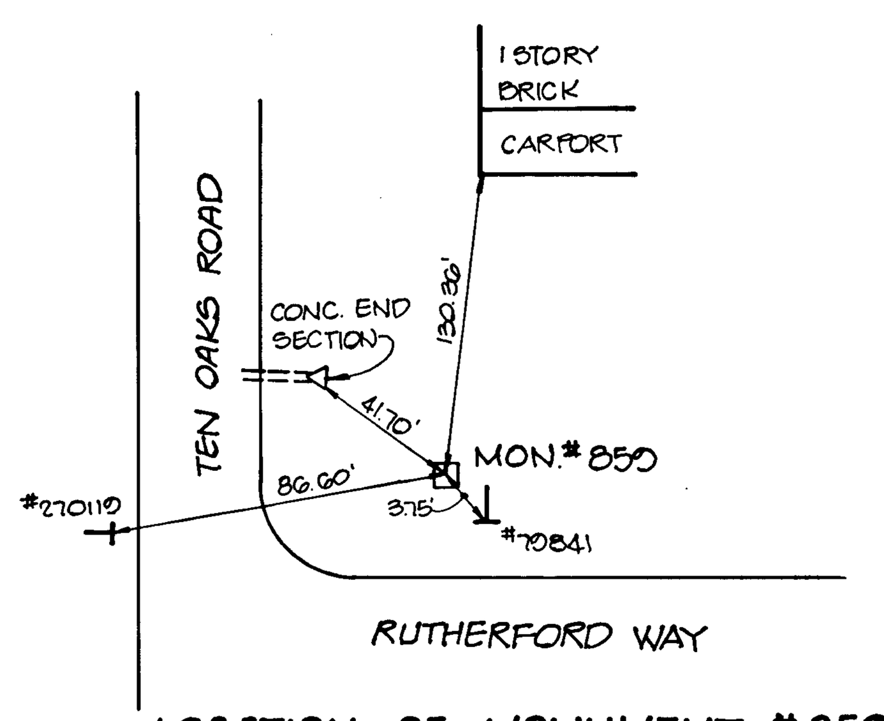
F-90-25



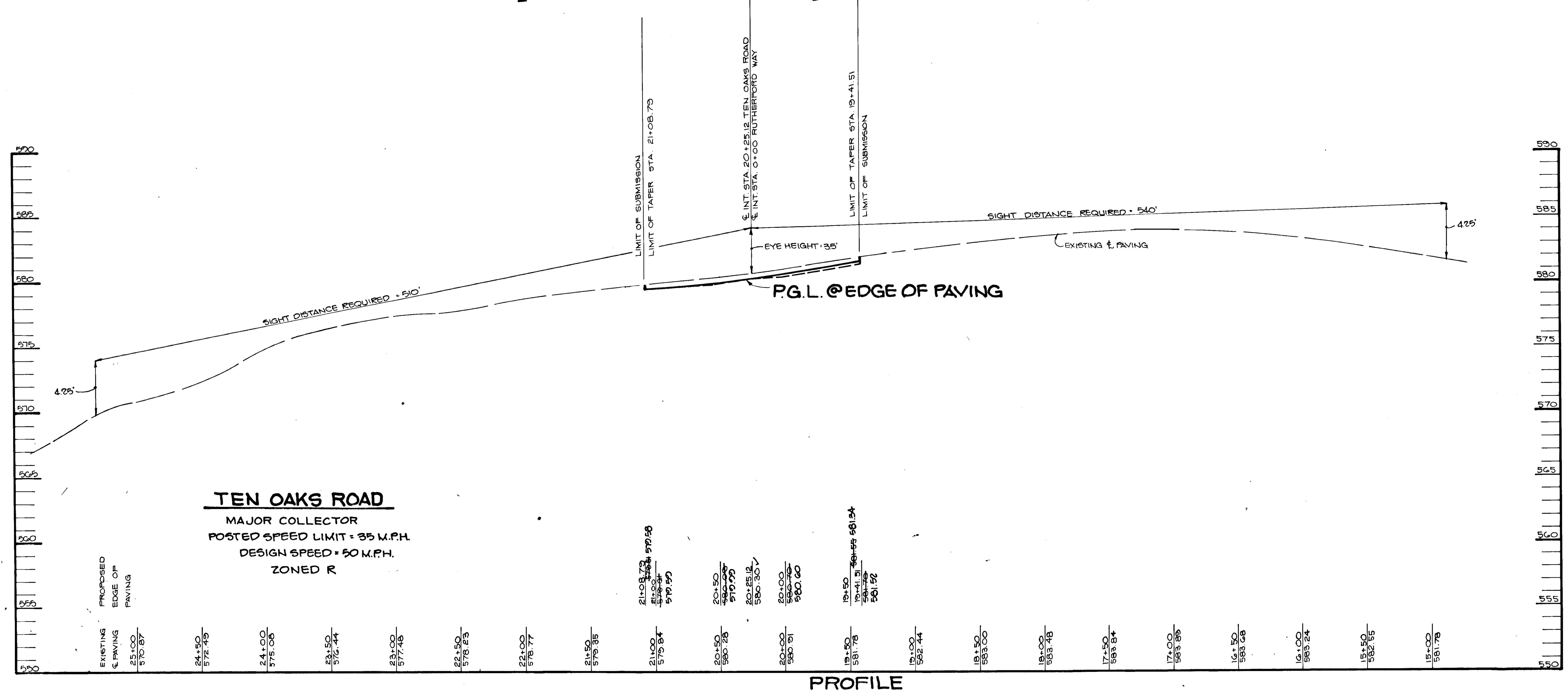
PLAN

SCALE : 1"=50'

■ DENOTES 4"×4"×30" CONCRETE MONUMENT
● DENOTES 1/2" Ø PIPE OR IRON PIN SET



LOCATION OF MONUMENT #850
NO SCALE



TEN OAKS ROAD
MAJOR COLLECTOR
POSTED SPEED LIMIT = 35 M.P.H.
DESIGN SPEED = 50 M.P.H.
ZONED R

PROFILE

SCALE = HOR. 1"=50' VERT. 1"=5'

AS BUILT CERTIFICATION
ENGINEER JAYKANT PAREKH
PE # 1??? DATE 9.1.92

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 9/23/92

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/7/90
CHIEF, BUREAU OF HIGHWAYS — DATE 2/16/90
CHIEF, BUREAU OF ENGINEERING — DATE 3.9.90

DATE	NO.	REVISION

OWNER/DEVELOPER
MARY C. HILL ET AL
6642 SENECA DRIVE
COLUMBIA, MARYLAND, 21044

PROJECT: RUTHERFORD

AREA: TAX MAP 28 ZONED R PARCEL 75
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

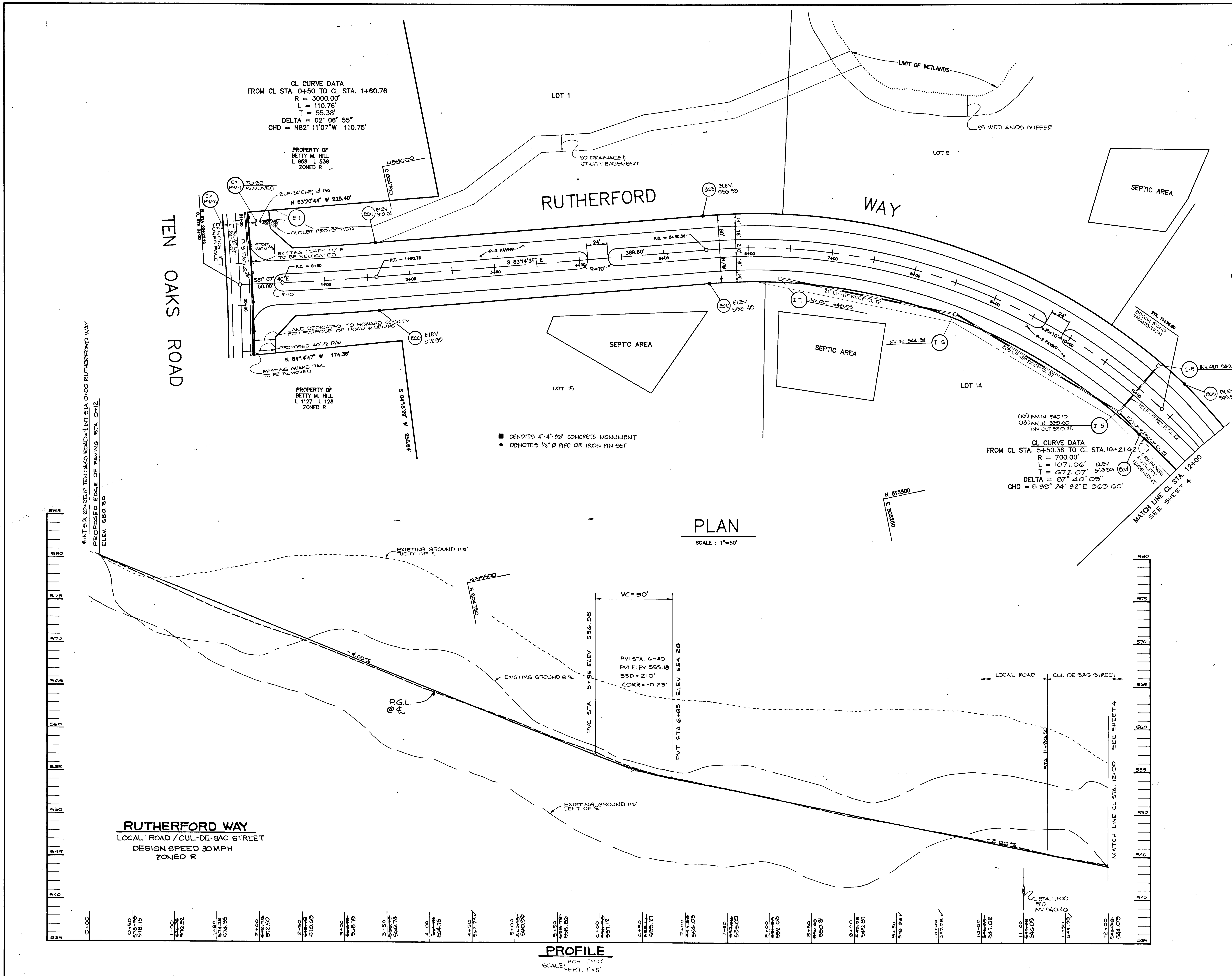
TITLE: PLAN AND PROFILE OF TEN OAKS ROAD

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176

1-15-90 DATE
ARTHUR E. MUEGGE #8707

S-88-82 WP-88-11
P-89-59
DESIGNED BY: D.A.M.
DRAWN BY: G.D.H.
PROJECT NO: 51206
DATE: JANUARY 16, 1990
SCALE: AS SHOWN
DRAWING NO. 2 OF 10

F-90-25
1-5-20-92



AS BUILT CERTIFICATION

ENGINEER JAYKANT PAREKH
PE # 19148 DATE 9.1.92

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/7/90

CHIEF, BUREAU OF HIGHWAYS — DATE 2/16/90

CHIEF, BUREAU OF ENGINEERING — DATE 3.9.90

DATE	NO.	REVISION

OWNER/DEVELOPER

MARY C. HILL ET AL
6642 SENECA DRIVE
COLUMBIA, MARYLAND, 21044

PROJECT: **RUTHERFORD**

AREA: TAX MAP 28 ZONED R PARCEL 75
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PLAN AND PROFILE OF RUTHERFORD WAY FROM STA. 0+00 TO STA. 12+00

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176

1.15.90
DATE

ARTHUR E. MUEGGE #8707

S-88-82 WP-88-11
P-89-59

DESIGNED BY: D.A.M.

DRAWN BY: G.D.H.

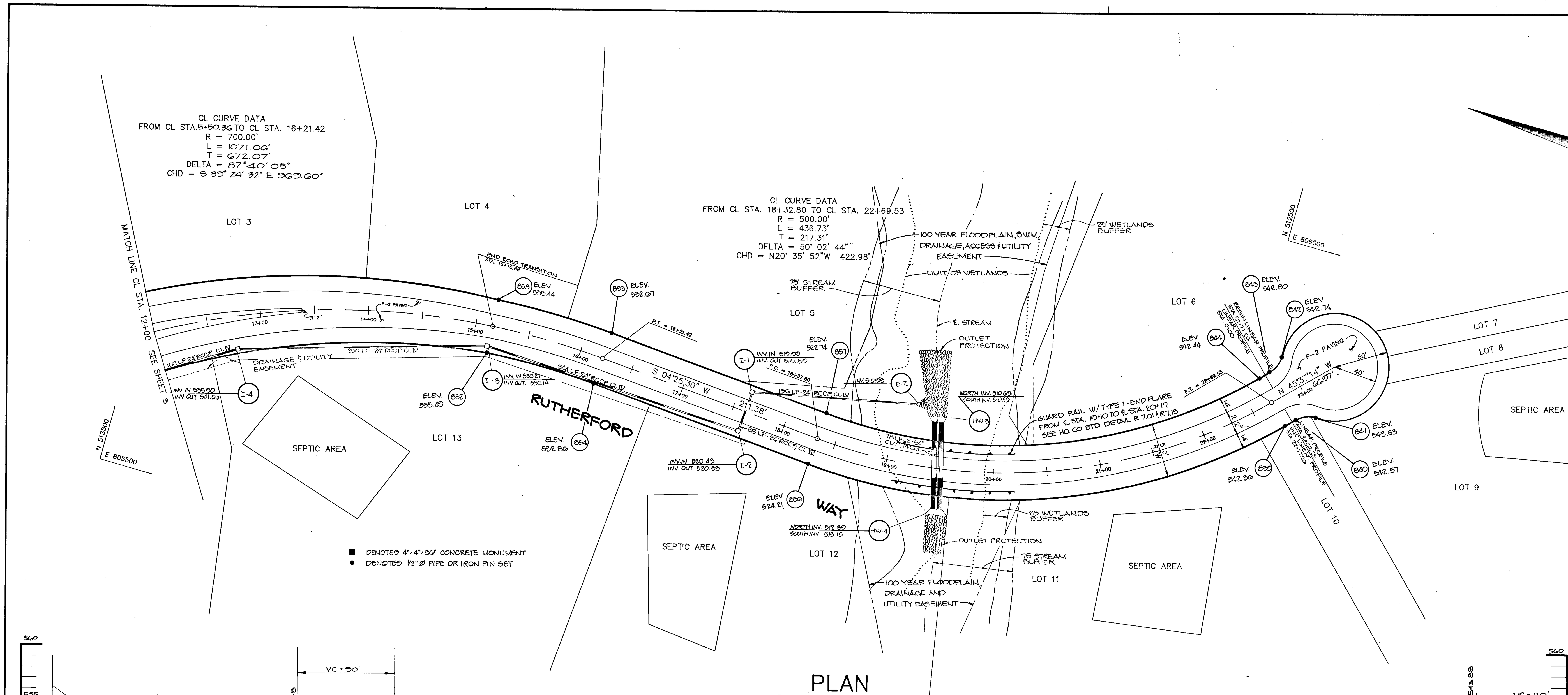
PROJECT NO: 51206

DATE: JANUARY 16, 1990

SCALE: AS SHOWN

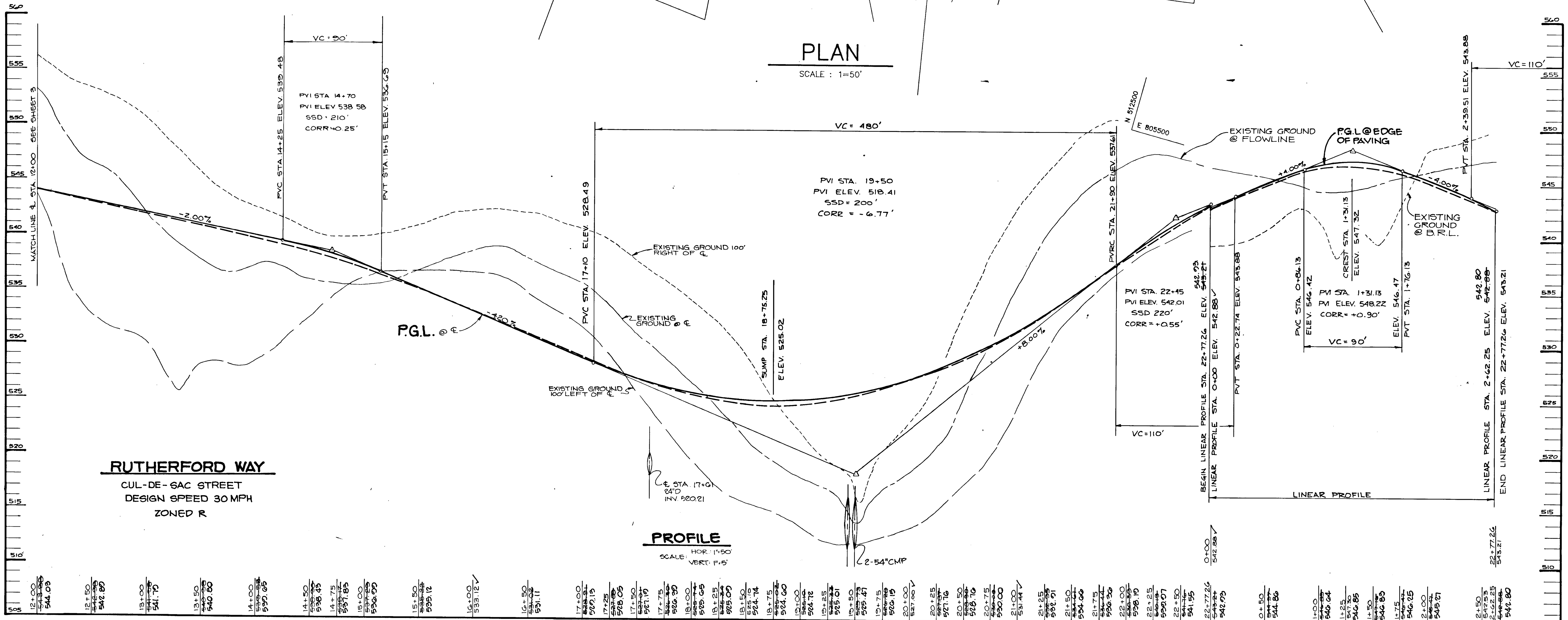
DRAWING NO. 3 OF 10

F-90-25



PLAN

SCALE : 1=50'



RUTHERFORD WAY

CUL-DE-SAC STREET
DESIGN SPEED 30 MPH
ZONED R

PROFILE

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

AS BUILT CERTIFICATION

ENGINEER J.

PE # 11449 DATE 9.1.92

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 3/23/90 LS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/7/90

CHIEF, BUREAU OF HIGHWAYS — DATE 2/16/90

CHIEF, BUREAU OF ENGINEERING — DATE 3.9.90

DATE	NO.	REVISION

OWNER/DEVELOPER

MARY C. HILL ET AL
6642 SENECA DRIVE
COLUMBIA, MARYLAND, 21044

PROJECT: RUTHERFORD

AREA: TAX MAP 28 ZONED R PARCEL 75
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PLAN AND PROFILE OF RUTHERFORD WAY FROM STA. 12+00 TO THE END

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176

1-15-90
DATE

ARTHUR E. MUEGGE #8707

S-88-82 WP-88-11
P-89-59

DESIGNED BY: D.A.M.

DRAWN BY: G.D.H.

PROJECT NO: 51206

DATE: JANUARY 16, 1990

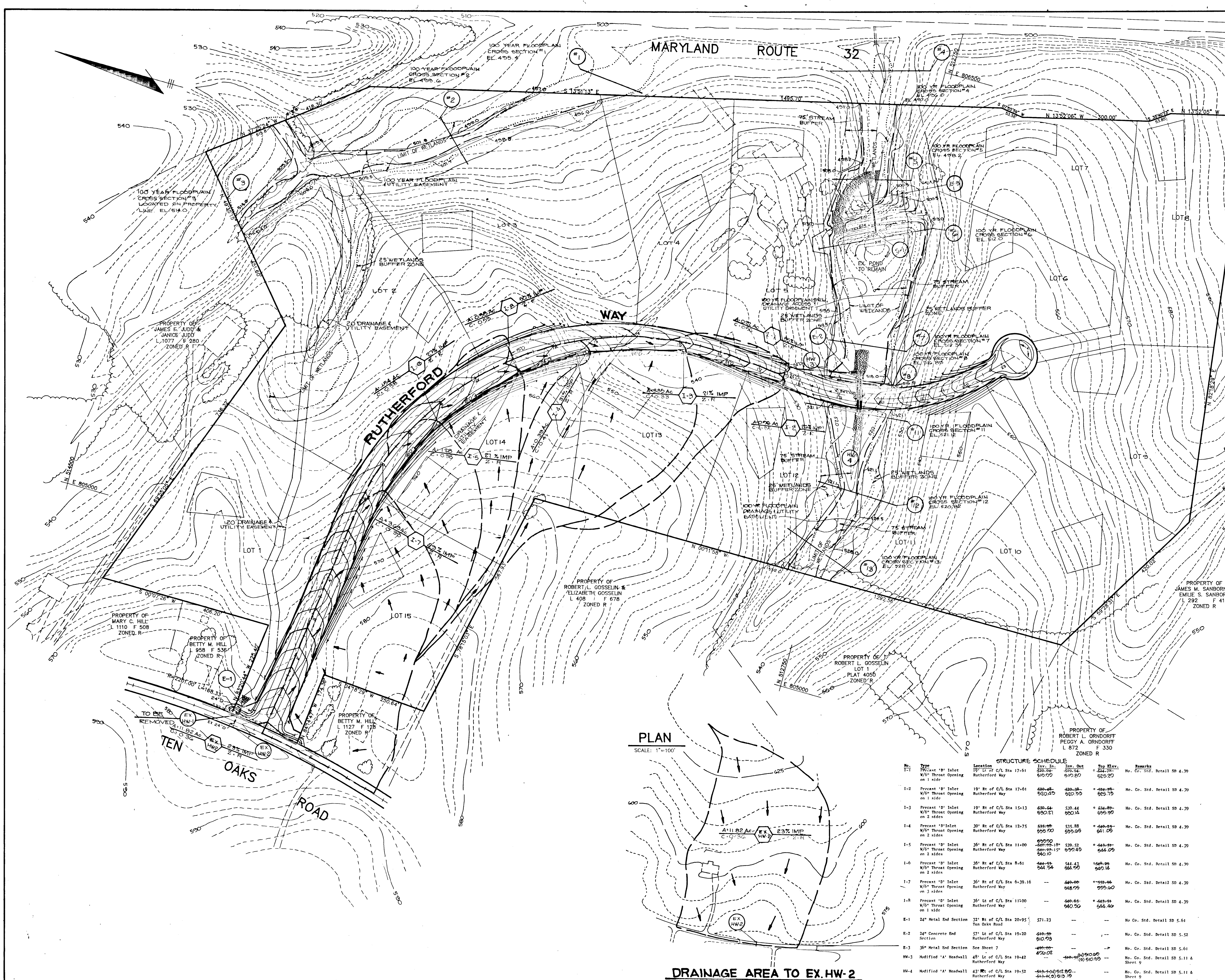
SCALE: AS SHOWN

DRAWING NO. 4 OF 10

F-90-25

-5-20-92

1551



STRUCTURE SCHEDULE

No.	Type	Location	Inv. In.	Inv. Out	Top Elev.	Remarks
I-1	Precast 'D' Inlet W/6" Throat Opening on 1 side	19' Lt of C/L Sta 17+61 Rutherford Way	~~520.04~~ 519.99	~~519.94~~ 519.89	* ~~524.78~~ 525.29	Ho. Co. Std. Detail SD 4.39
I-2	Precast 'D' Inlet W/6" Throat Opening on 1 side	19' Rt of C/L Sta 17+61 Rutherford Way	~~520.48~~ 520.43	~~520.38~~ 520.33	* ~~524.78~~ 525.73	Ho. Co. Std. Detail SD 4.39
I-3	Precast 'D' Inlet W/6" Throat Opening on 2 sides	19' Rt of C/L Sta 15+13 Rutherford Way	~~530.54~~ 530.27	530.44 530.14	* ~~534.87~~ 535.39	Ho. Co. Std. Detail SD 4.39
I-4	Precast 'D' Inlet W/6" Throat Opening on 2 sides	30' Rt of C/L Sta 12+75 Rutherford Way	~~535.98~~ 535.99	535.88 535.05	* ~~540.25~~ 541.05	Ho. Co. Std. Detail SD 4.39
I-5	Precast 'D' Inlet W/6" Throat Opening on 2 sides	36' Rt of C/L Sta 11+00 Rutherford Way	539.90 ~~540.02~~ 18" ~~540.27~~ 15" 540.10	539.52 539.45	* ~~543.51~~ 544.05	Ho. Co. Std. Detail SD 4.39
I-6	Precast 'D' Inlet W/6" Throat Opening on 2 sides	36' Rt of C/L Sta 8+61 Rutherford Way	~~544.53~~ 544.54	544.43 544.39	* ~~548.29~~ 549.14	Ho. Co. Std. Detail SD 4.39
I-7	Precast 'D' Inlet W/6" Throat Opening on 3 sides	36' Rt of C/L Sta 6+39.16 Rutherford Way	--	~~549.00~~ 548.95	* ~~552.96~~ 553.60	Ho. Co. Std. Detail SD 4.39
I-8	Precast 'D' Inlet W/6" Throat Opening on 1 side	36' Lt of C/L Sta 11+00 Rutherford Way	--	~~540.65~~ 540.56	* ~~543.51~~ 544.46	Ho. Co. Std. Detail SD 4.39
E-1	24" Metal End Section	32' Rt of C/L Sta 20+95 Ten Oaks Road	571.23	--	--	Ho Co. Std. Detail SD 5.61
E-2	24" Concrete End Section	57' Lt of C/L Sta 19+20 Rutherford Way	~~510.50~~ 510.93	--	--	Ho. Co. Std. Detail SD 5.52
E-3	36" Metal End Section	See Sheet 7	~~496.00~~ 496.02	--	--	Ho. Co. Std. Detail SD 5.61
HW-3	Modified 'A' Headwall	48' Lt of C/L Sta 19+42 Rutherford Way	--	~~510.50~~ (N) 510.69 (S) 510.53	--	Ho. Co. Std. Detail SD 5.11 & Sheet 9
HW-4	Modified 'A' Headwall	43' Rt of C/L Sta 19+52 Rutherford Way	~~513.5~~ (N) 512.89 ~~513.0~~ (S) 513.15	--	--	Ho. Co. Std. Detail SD 5.11 & Sheet 9

* Throat Opening

AS BUILT CERTIFICATION

ENGINEER JAYANT PAREKH

PE # 191

DATE 9.1.92

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 3/23/90

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/7/90

CHIEF, BUREAU OF HIGHWAYS — DATE 2/16/90

CHIEF, BUREAU OF ENGINEERING — DATE 3.9.90

DATE	NO.	REVISION

OWNER/DEVELOPER

MARY C. HILL ET AL
6642 SENECA DRIVE
COLUMBIA, MARYLAND 21044

PROJECT: **RUTHERFORD**

AREA: TAX MAP 28 ZONED R PARCEL 75
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

TITLE: **DRAINAGE AREA MAP**

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176

1.15.90
DATE

ARTHUR E. MUEGGE #8707

S-88-82 WP-88-11
P-89-59

DESIGNED BY: D.A.M.

DRAWN BY: G.D.H.

PROJECT NO: 51206

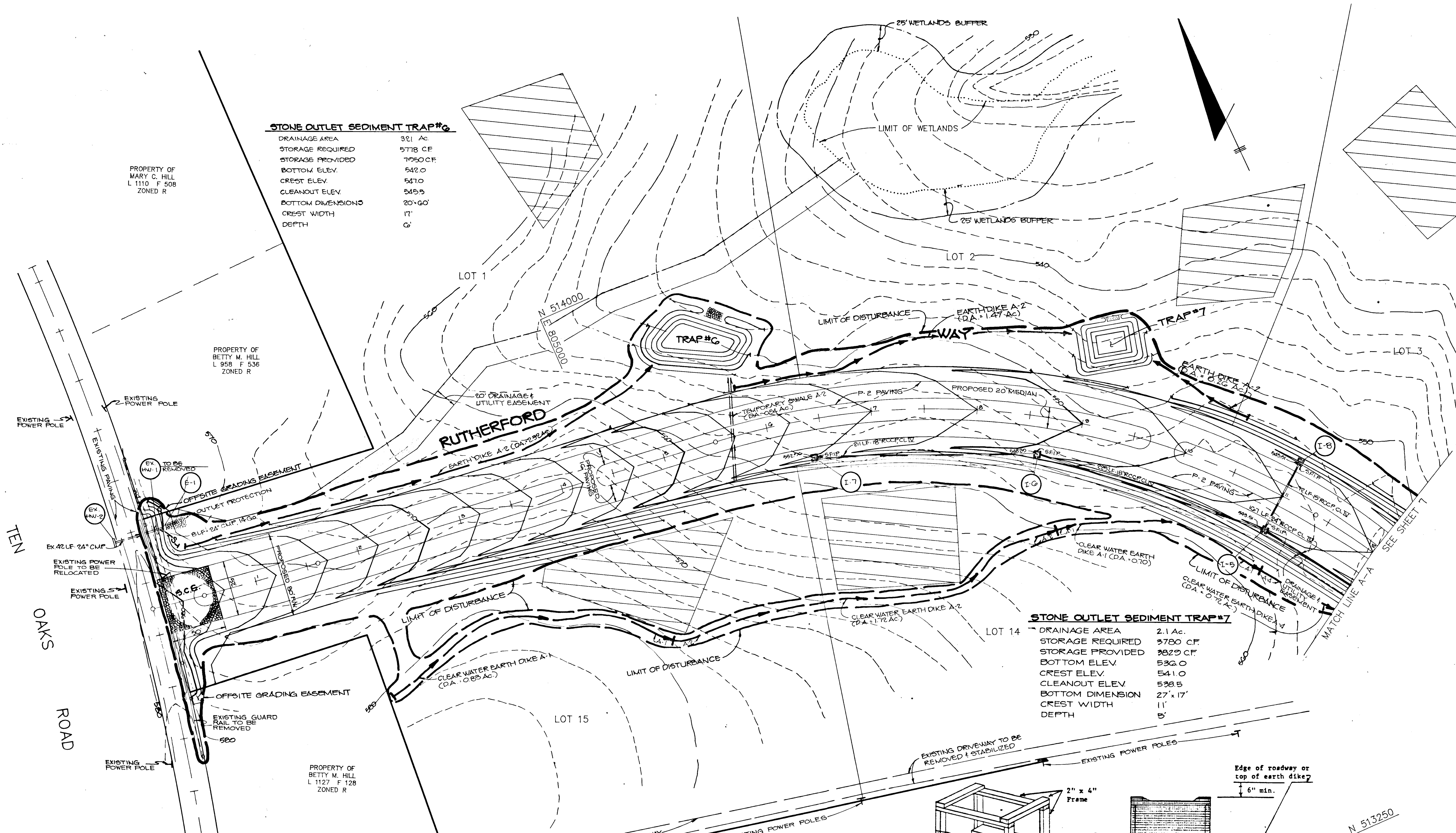
DATE: JANUARY 10, 1990

SCALE: AS SHOWN

DRAWING NO. 5 OF 10

F-90-25

AS BUILT -5-29-92



STONE OUTLET SEDIMENT TRAP #6

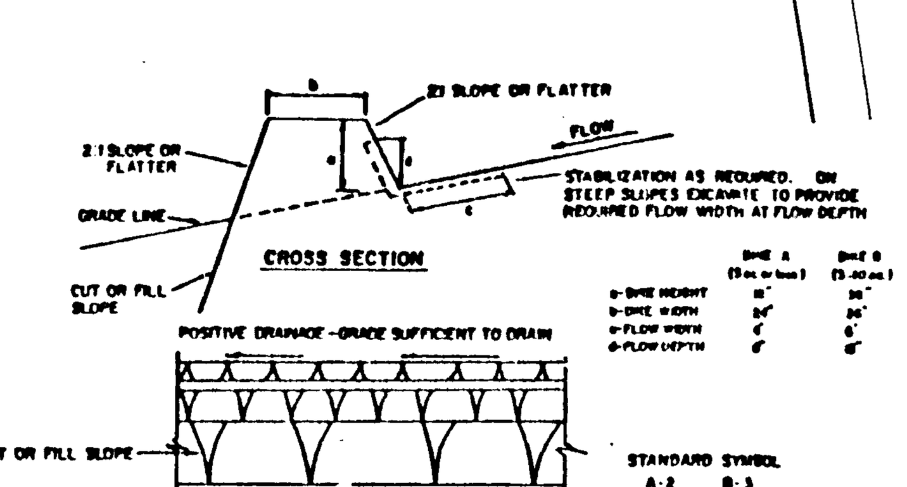
DRAINAGE AREA	3.21 Ac
STORAGE REQUIRED	5778 CF
STORAGE PROVIDED	7050 CF
BOTTOM ELEV.	542.0
CREST ELEV.	547.0
CLEANOUT ELEV.	545.5
BOTTOM DIMENSIONS	20'x60'
CREST WIDTH	17'
DEPTH	6'

STONE OUTLET SEDIMENT TRAP #7

DRAINAGE AREA	2.1 Ac.
STORAGE REQUIRED	3780 CF.
STORAGE PROVIDED	3829 CF.
BOTTOM ELEV.	536.0
CREST ELEV.	541.0
CLEANOUT ELEV.	538.5
BOTTOM DIMENSION	27'x17'
CREST WIDTH	11'
DEPTH	5'

PLAN

SCALE : 1=50'



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	8"	18"

CONSTRUCTION SPECIFICATIONS

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

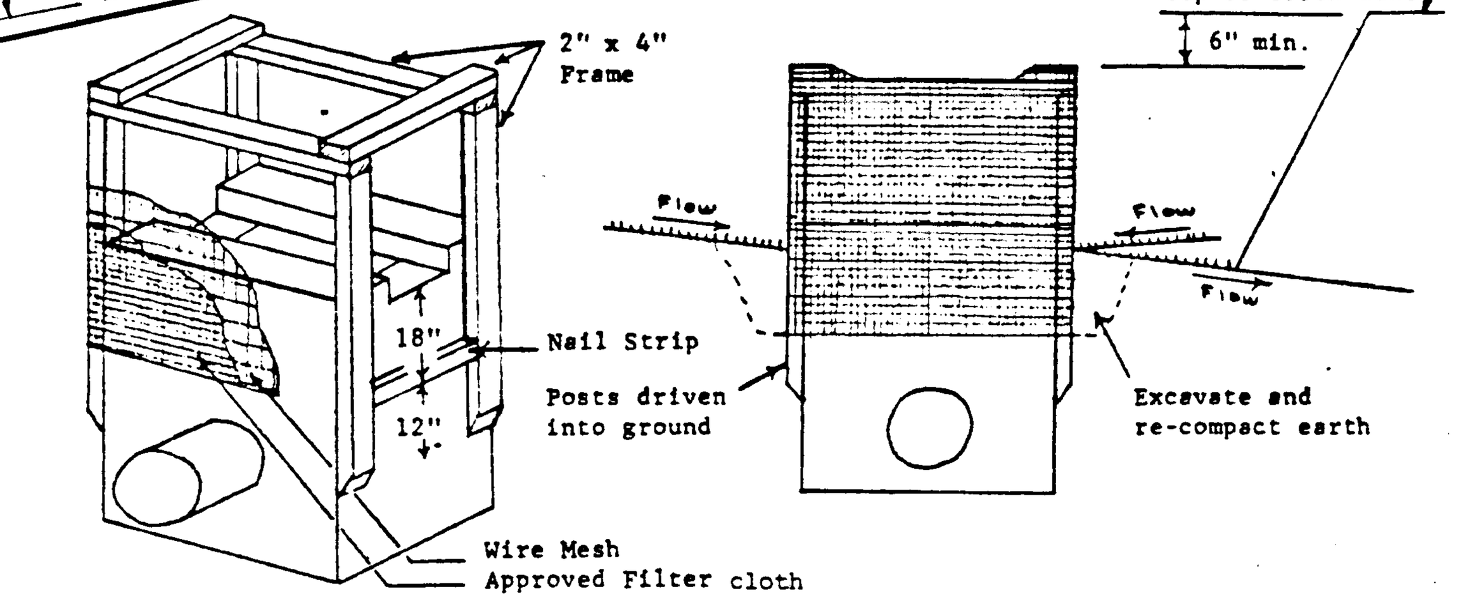
FLOW CHANNEL STABILIZATION

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

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

EARTH DIKE

NO SCALE



Construction Specifications

I. Materials

A. Wooden frame is to be constructed of 2" x 4" construction grade lumber.

B. Wire mesh must be of sufficient strength to support filter fabric, and stone for curb inlets, with water fully impounded against it.

C. Filter cloth must be of a type approved for this purpose; resistant to sunlight with sieve size, EOS, 40-85, to allow sufficient passage of water and removal of sediment.

4. Stone is to be 2" in size and clean, since fines would clog the cloth.

II. Procedure

A. A swale, ditchline or yard inlet protection.

1. Excavate completely around inlet to a depth of 18" below notch elevation.
2. Drive 2 x 4 post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2 x 4 frame using overlap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent to inlet.
3. Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
4. Stretch filter cloth tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet notch elev. Fasten securely to frame. Ends must meet at post, be overlapped and folded, then fastened down.
5. Backfill around inlet in compacted 6" layers until layer of earth is even with notch elevation on ends and top elevation on sides.
6. If the inlet is not in a low point, construct a compacted earth dike in the ditchline below it. The top of this dike is to be at least 6" higher than the top of frame (weir).
7. This structure must be inspected frequently and the filter fabric replaced when clogged.

STONE FILTER INLET PROTECTION

NO SCALE

AS BUILT CERTIFICATION

ENGINEER ______

PE # ______ DATE ______

BY THE DEVELOPER:

"I 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 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 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."

DEVELOPER ______ DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Arthur E. Muegge 1-15-90
ENGINEER 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.

U.S. SOIL CONSERVATION SERVICE 1-31-90
DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED Robert W. Ziehm 1-31-90
HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

4/4/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

3/7/90
CHIEF, LAND DEVELOPMENT DIVISION DATE

Granville W. Wehland 2/16/90
CHIEF, BUREAU OF HIGHWAYS DATE

3-9-90
CHIEF, BUREAU OF ENGINEERING DATE

DATE	NO	REVISION

OWNER/DEVELOPER

MARY C. HILL ET AL
6642 SENECA DRIVE
COLUMBIA, MARYLAND, 21044

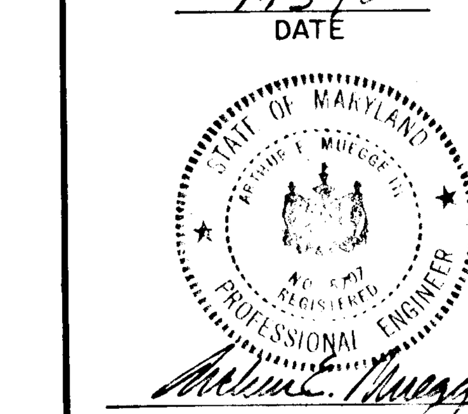
PROJECT: RUTHERFORD

AREA: TAX MAP 28 ZONED R PARCEL 75
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING AND SEDIMENT CONTROL PLAN

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176

1-15-90
DATE



ARTHUR E. MUEGGE #8707

S-88-82 WP-88-11
P-89-59

DESIGNED BY: C.J.R. & DAK

DRAWN BY: M.A.D.

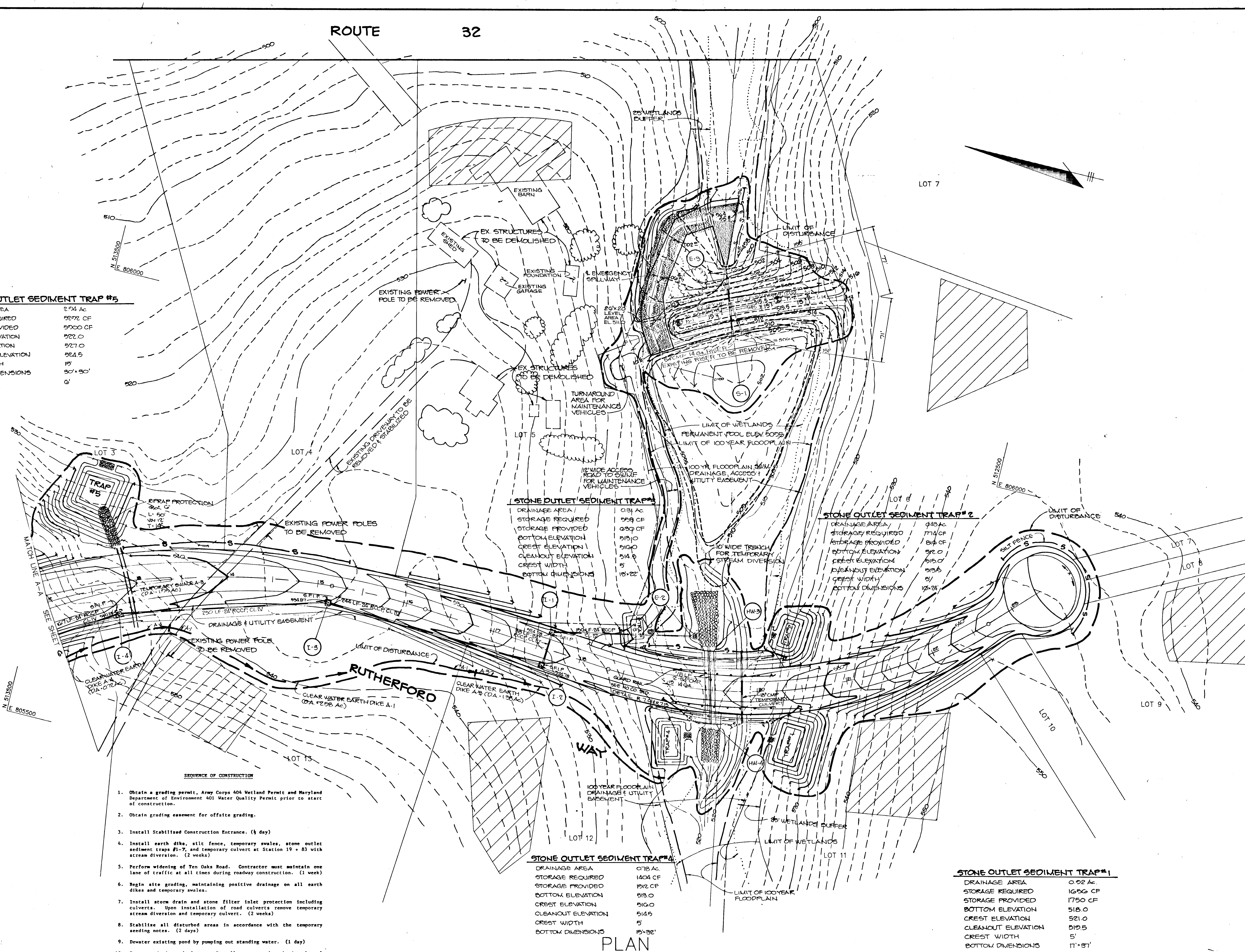
PROJECT NO: 51206

DATE: JANUARY 10, 1990

SCALE: AS SHOWN

DRAWING NO. 6 OF 10

F-90-25



STONE OUTLET SEDIMENT TRAP #5

DRAINAGE AREA	2.94 Ac.
VOLUME REQUIRED	5292 CF
VOLUME PROVIDED	5900 CF
BOTTOM ELEVATION	522.0
CREST ELEVATION	527.0
CLEANOUT ELEVATION	524.5
CREST WIDTH	15'
BOTTOM DIMENSIONS	30'×30'
DEPTH	6'

STONE OUTLET SEDIMENT TRAP #3

DRAINAGE AREA	0.31 Ac.
STORAGE REQUIRED	558 CF
STORAGE PROVIDED	630 CF
BOTTOM ELEVATION	513.0
CREST ELEVATION	516.0
CLEANOUT ELEVATION	514.5
CREST WIDTH	5'
BOTTOM DIMENSIONS	13'×22'

STONE OUTLET SEDIMENT TRAP #2

DRAINAGE AREA	0.43 Ac.
STORAGE REQUIRED	774 CF
STORAGE PROVIDED	816 CF
BOTTOM ELEVATION	512.0
CREST ELEVATION	515.0
CLEANOUT ELEVATION	513.5
CREST WIDTH	5'
BOTTOM DIMENSIONS	10'×24'

STONE OUTLET SEDIMENT TRAP #4

DRAINAGE AREA	0.78 Ac.
STORAGE REQUIRED	1404 CF
STORAGE PROVIDED	1512 CF
BOTTOM ELEVATION	513.0
CREST ELEVATION	516.0
CLEANOUT ELEVATION	514.5
CREST WIDTH	5'
BOTTOM DIMENSIONS	15'×32'

STONE OUTLET SEDIMENT TRAP #1

DRAINAGE AREA	0.92 Ac.
STORAGE REQUIRED	1656 CF
STORAGE PROVIDED	1750 CF
BOTTOM ELEVATION	518.0
CREST ELEVATION	521.0
CLEANOUT ELEVATION	519.5
CREST WIDTH	5'
BOTTOM DIMENSIONS	17'×37'

PLAN
SCALE : 1=50'

SEQUENCE OF CONSTRUCTION

1. Obtain a grading permit, Army Corps 404 Wetland Permit and Maryland Department of Environment 401 Water Quality Permit prior to start of construction.
2. Obtain grading easement for offsite grading.
3. Install Stabilized Construction Entrance. (½ day)
4. Install earth dike, silt fence, temporary swales, stone outlet sediment traps #1-7, and temporary culvert at Station 19 + 83 with stream diversion. (2 weeks)
5. Perform widening of Ten Oaks Road. Contractor must maintain one lane of traffic at all times during roadway construction. (1 week)
6. Begin site grading, maintaining positive drainage on all earth dikes and temporary swales.
7. Install storm drain and stone filter inlet protection including culverts. Upon installation of road culverts remove temporary stream diversion and temporary culvert. (2 weeks)
8. Stabilize all disturbed areas in accordance with the temporary seeding notes. (2 days)
9. Dewater existing pond by pumping out standing water. (1 day)
10. Remove existing embankment. Install core trench and riser-barrel structure, including installation of permanent dewatering pipe and valve. (2 weeks)
11. Begin grading for new embankment.
12. Complete pond grading and stabilize area in accordance with the permanent seeding notes.
13. Within 30 days of pond completion, an 'as-built' survey of the pond will have to be completed.
14. Complete construction including paving and stabilize all areas in accordance with the permanent seeding notes.
15. Upon approval of the Howard County Department of Public Works Sediment Control Inspector, remove all sediment controls and stabilize areas in accordance with the permanent seeding notes.

AS BUILT CERTIFICATION

ENGINEER JAYKANT PAREKH
PE # 19148 DATE 9-1-92

BY THE DEVELOPER:

"I 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 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 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."

DEVELOPER — DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER — DATE 1-15-90

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 1-31-90

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED Robert W. Ziehm — HOWARD S.C.D. — DATE 1-31-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/7/90

CHIEF, BUREAU OF HIGHWAYS — DATE 2/16/90

CHIEF, BUREAU OF ENGINEERING — DATE 3-9-90

DATE	NO.	REVISION

OWNER/DEVELOPER

MARY C. HILL ET AL
6642 SENECA DRIVE
COLUMBIA, MARYLAND 21044

PROJECT: **RUTHERFORD**

AREA: TAX MAP 28 ZONED R PARCEL 75
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING AND SEDIMENT CONTROL PLAN

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176

DATE 1-15-90

STATE OF MARYLAND — ARTHUR E. MUEGGE III — REGISTERED PROFESSIONAL ENGINEER

ARTHUR E. MUEGGE #8707

S-88-82 WP-88-11
P-89-59

DESIGNED BY: CJR

DRAWN BY: DJE

PROJECT NO: 51206

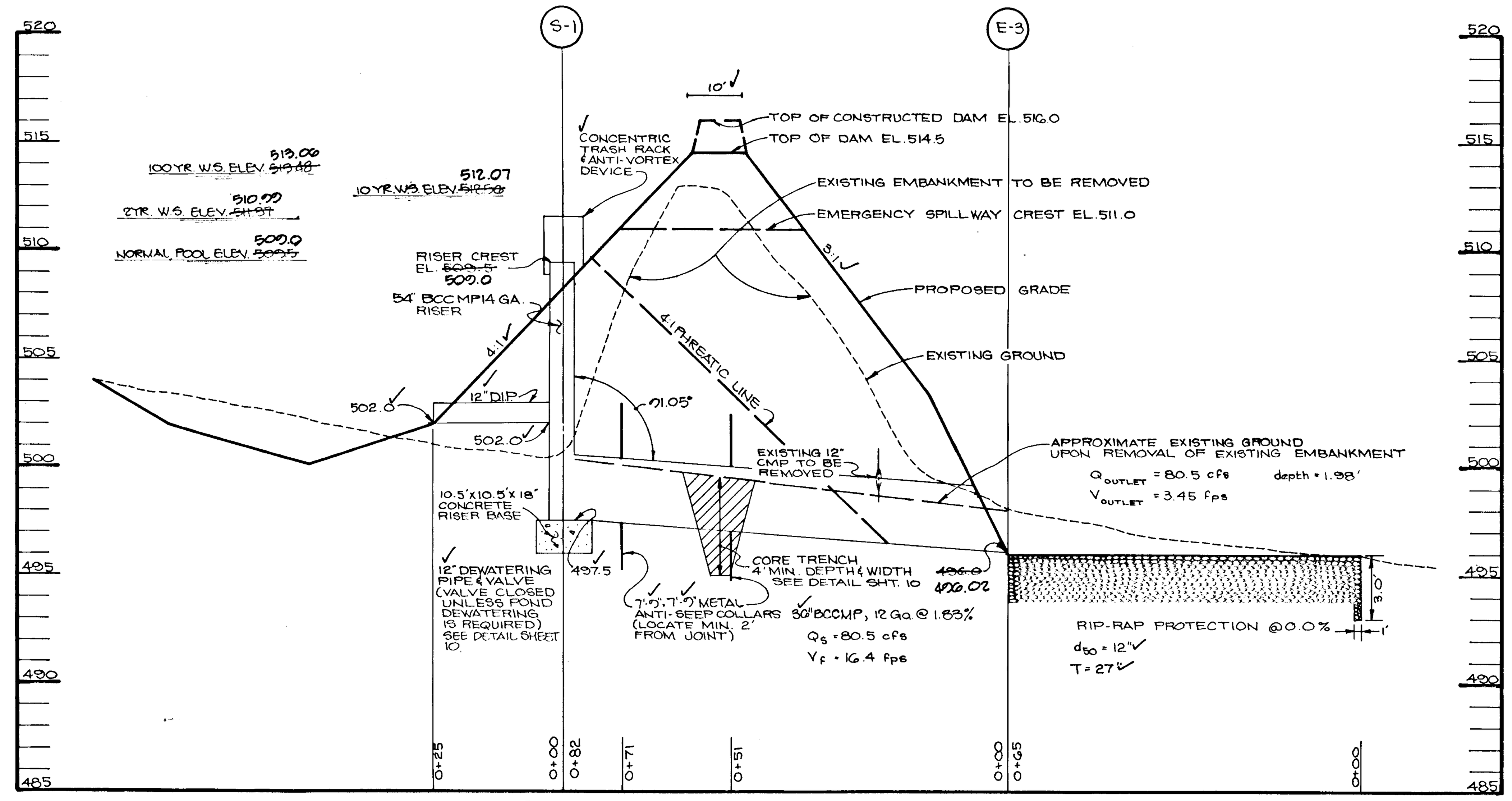
DATE: JANUARY 16, 1990

SCALE: AS SHOWN

DRAWING NO. 7 OF 10

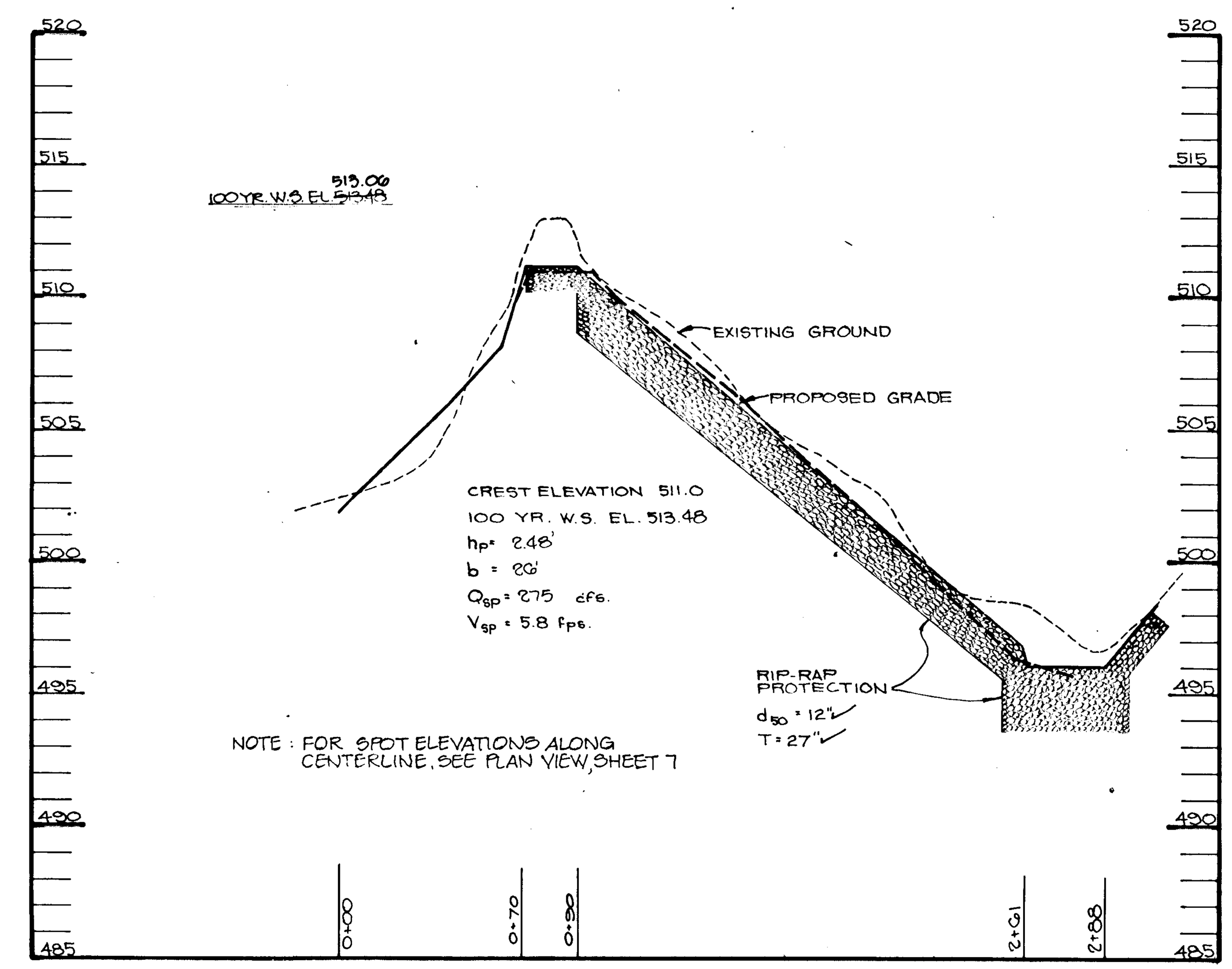
F-90-25

5-29-92



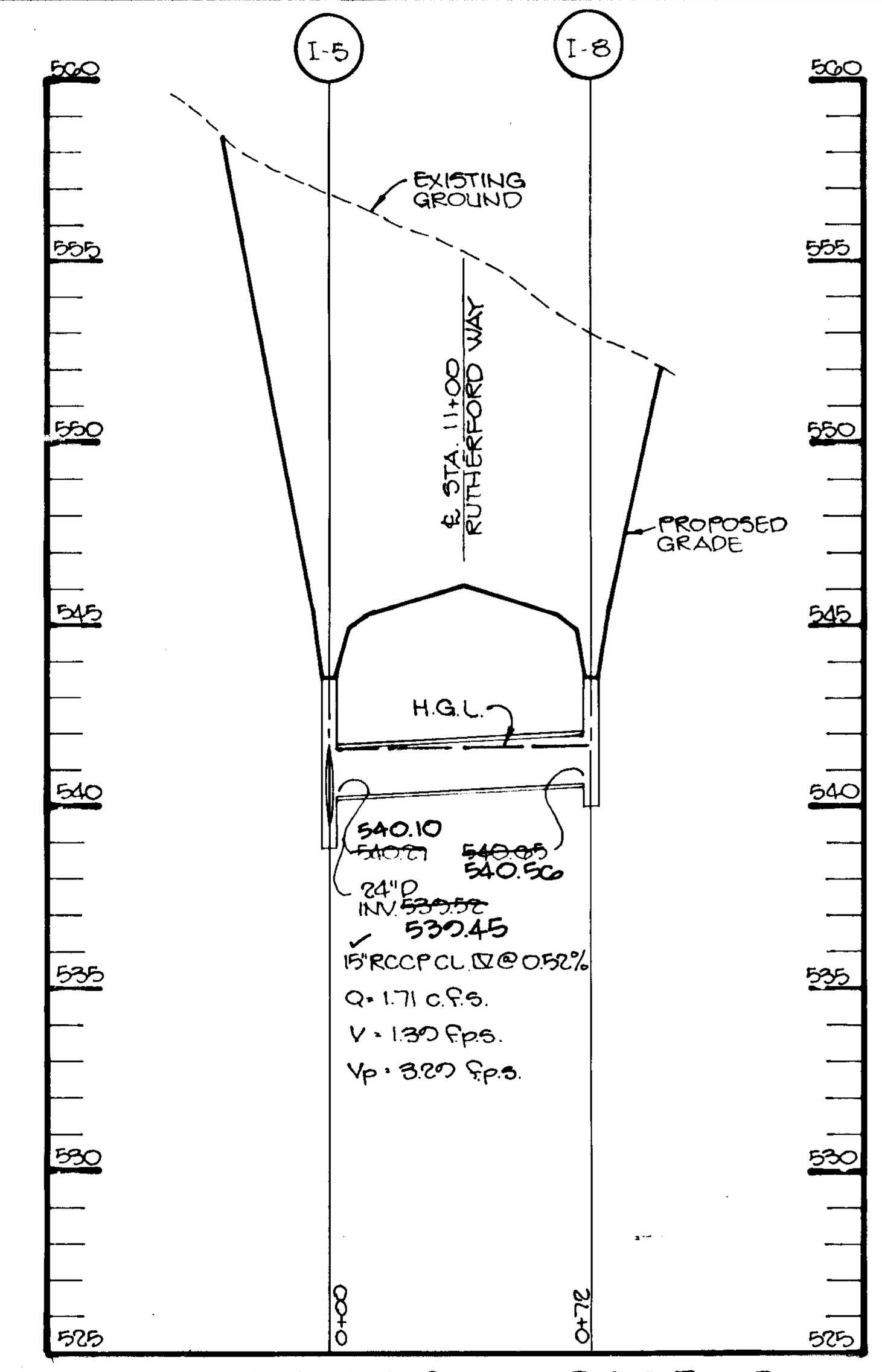
PROFILE THROUGH PRINCIPAL SPILLWAY

SCALE: HOR. 1"=20' VERT. 1"=5'



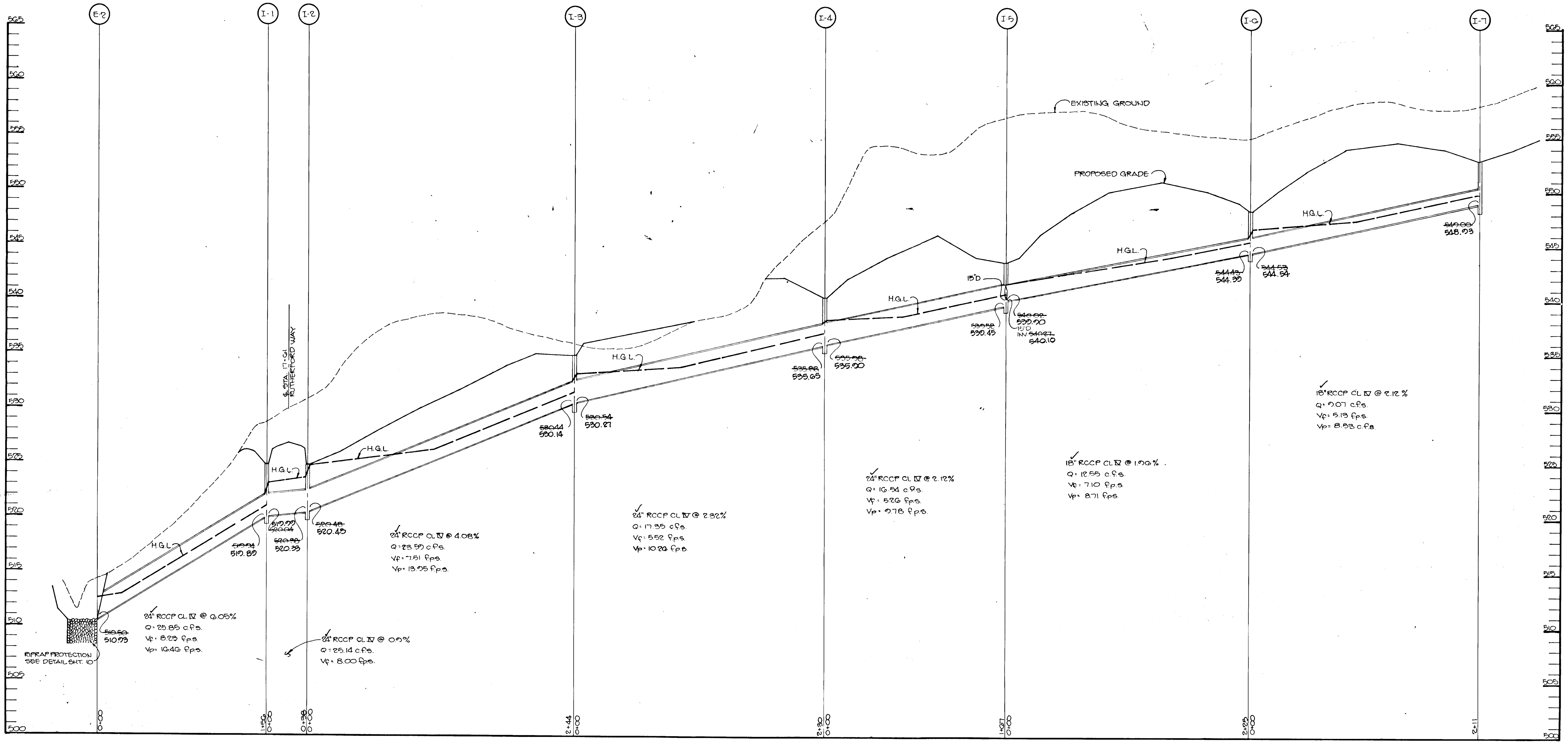
PROFILE THROUGH EMERGENCY SPILLWAY

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



STORM DRAIN PROFILE

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



STORM DRAIN PROFILE

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

AS BUILT CERTIFICATION

ENGINEER ____ PE # ____ DATE ____

BY THE DEVELOPER:

"I 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 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 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."

DEVELOPER DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Arthur E. Muegge 1-15-90
ENGINEER 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.

1-31-90
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 1-31-90
HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

2/20/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

3/7/90
CHIEF, LAND DEVELOPMENT DIVISION DATE

Granville W. Wehland 2/16/90
CHIEF, BUREAU OF HIGHWAYS DATE

3-9-90
CHIEF, BUREAU OF ENGINEERING DATE

DATE	NO.	REVISION

OWNER/DEVELOPER
MARY C. HILL ET AL
6642 SENECA DRIVE
COLUMBIA, MARYLAND 21044

PROJECT
RUTHERFORD

AREA TAX MAP 28 ZONE R PARCEL 75
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
STORMDRAIN AND POND PROFILES

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176

1-15-90
DATE

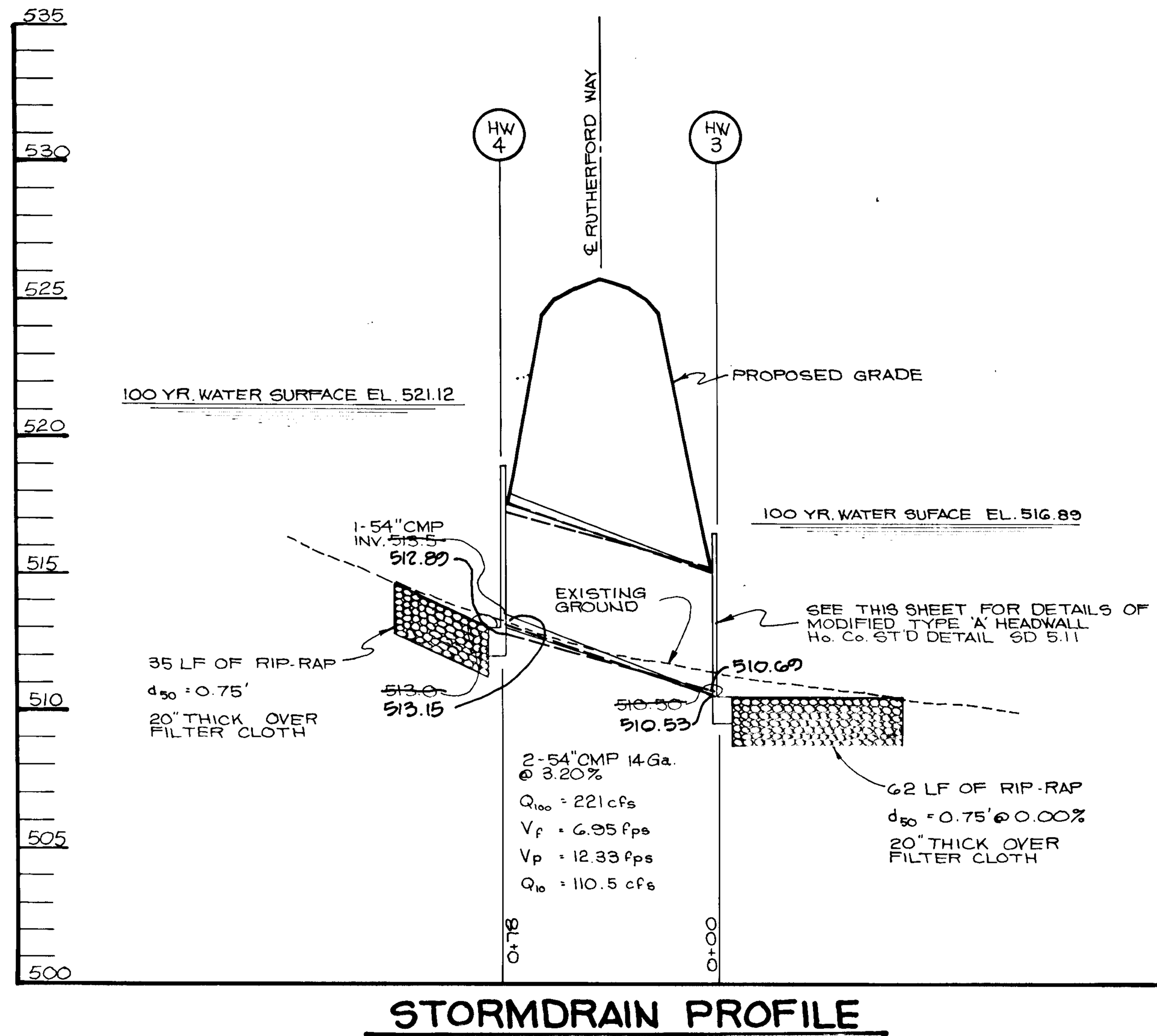
S-88-85 WP-88-11
P-89-59
DESIGNED BY: DAM & CJR
DRAWN BY: G.D.H.
PROJECT NO: 51206
DATE: JANUARY 16, 1990
SCALE: AS SHOWN
DRAWING NO. 8 OF 10

ARTHUR E. MUEGGE #8707

F-90-25

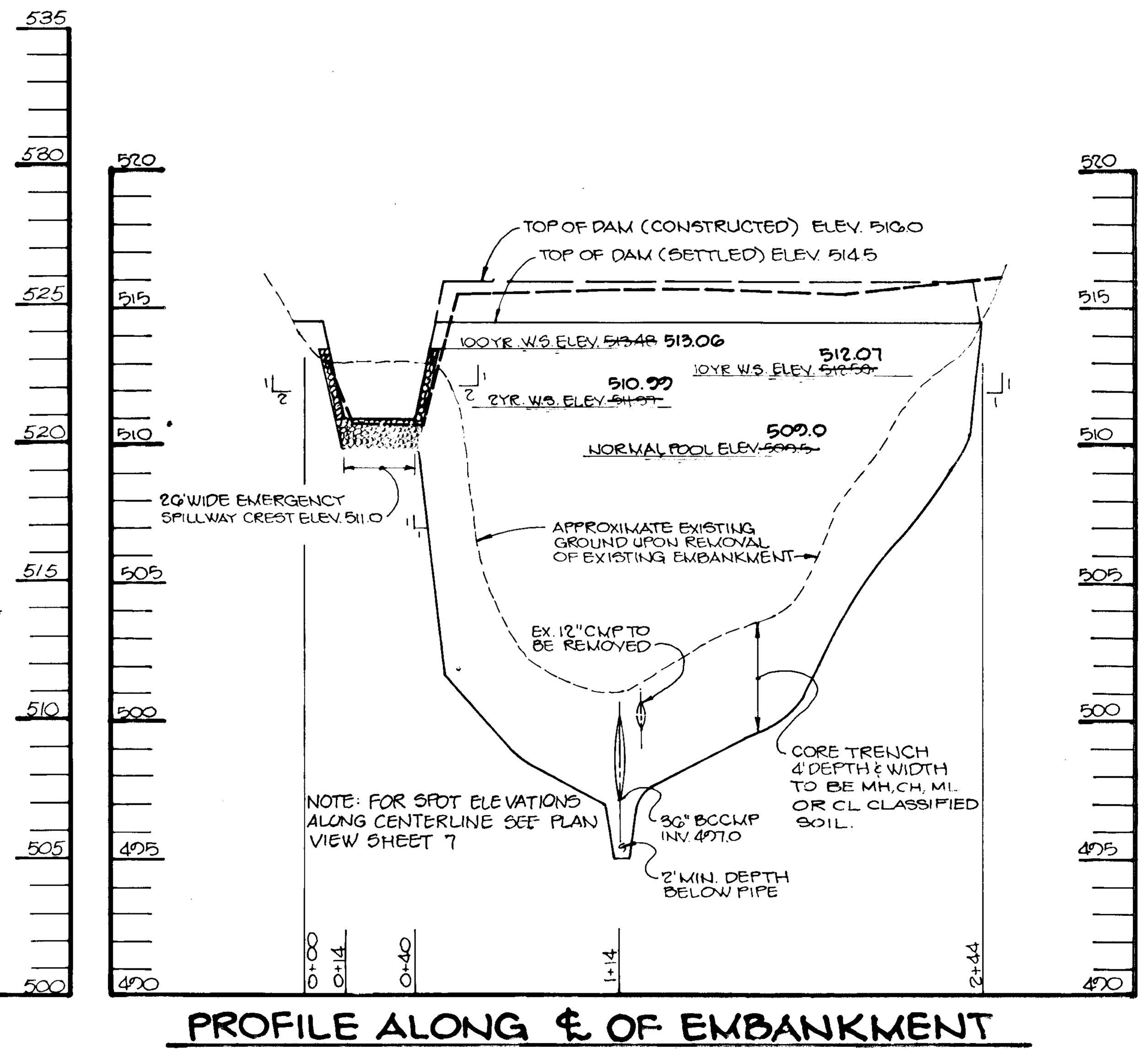
5-29-92

1551



STORMDRAIN PROFILE

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



PROFILE ALONG ℄ OF EMBANKMENT

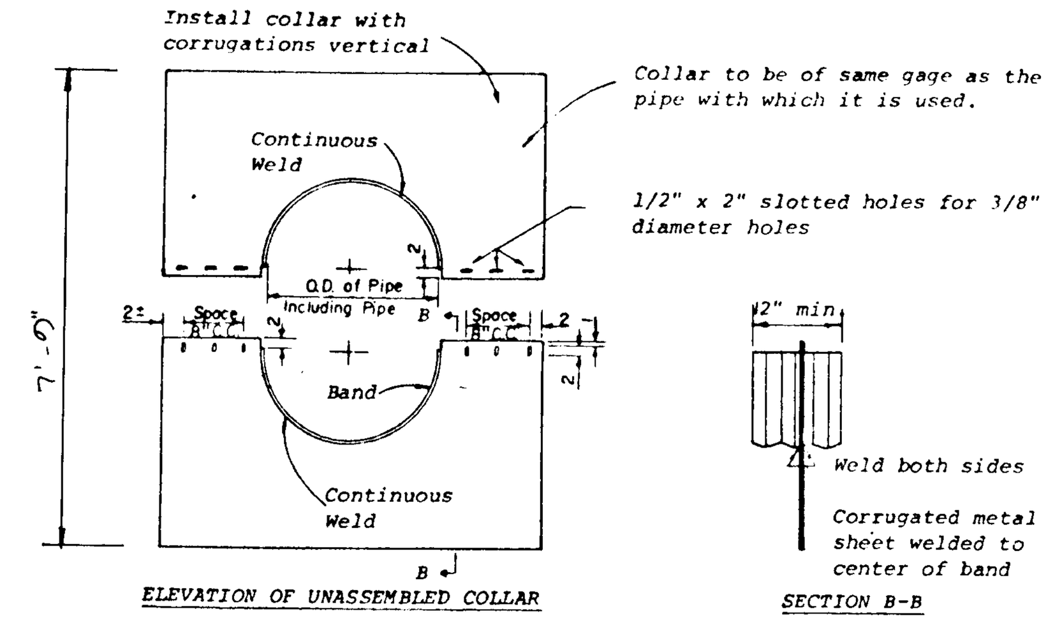
SCALE: HOR. 1"=50' VERT. 1"=5'

SEDIMENT CONTROL NOTES

1. A minimum of 24 hours notice must be given to the Howard County Office of Inspections and Permits prior to the start of any construction (992-2437).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedsings (Sec. 51) sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabiization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

Total Area of Site	63.93	acres
Area Disturbed	9.62	acres
Area to be roofed or paved	1.49	acres
Area to be vegetatively stabilized	8.13	acres
Total Cut	22,639	Cu. yds.
Total Fill	9691	Cu. yds.
TOPSOIL	4052	Cu. yds.

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment controls must be provided, if deemed necessary by the Howard County Department of Public Works Sediment Control Inspector.
10. Site grading will begin only after all perimeter sediment control measures have been installed and are in a functioning condition.
11. Sediment will be removed from traps when its depth reaches the clean out elevation shown on the plans.
12. Cut and fill quantities provided under site analysis do not represent bid quantities. These quantities do not distinguish between topsoil, structural fill or embankment material, nor do they reflect consideration of undercutting or removal of unsuitable material. The contractor shall familiarize himself with site conditions which may affect the work.

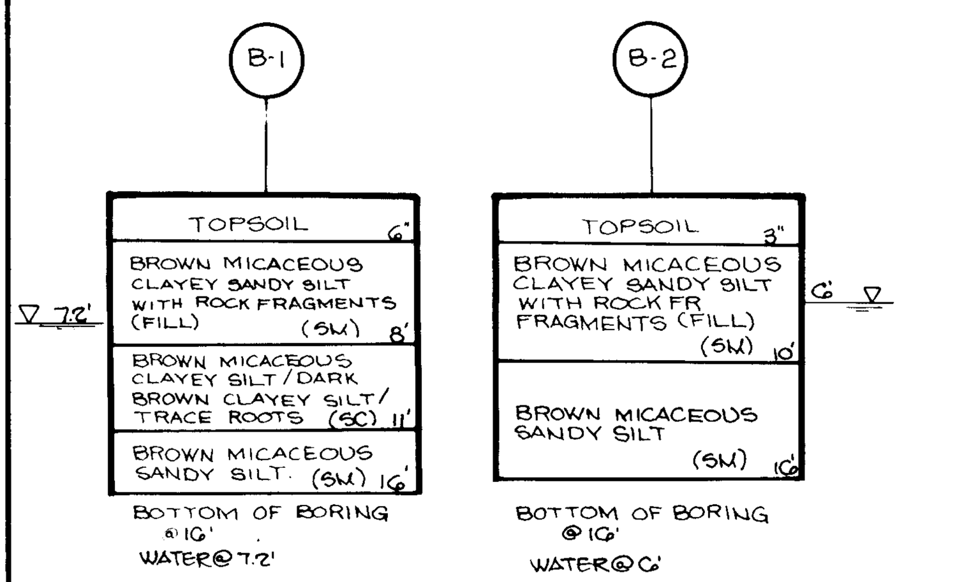


NOTES FOR COLLARS:

1. All materials to be in accordance with construction and construction material specifications.
2. When specified on the plans, coating of collars shall be in accordance with construction and construction material specifications.
3. Unassembled collars shall be marked by painting or tagging to identify matching pairs.
4. The lap between the two half sections and between the pipe and connecting band shall be caulked with asphalt mastic at time of installation.
5. Each collar shall be furnished with two 1/2" diameter rods with standard tank lugs for connecting collars to pipe.

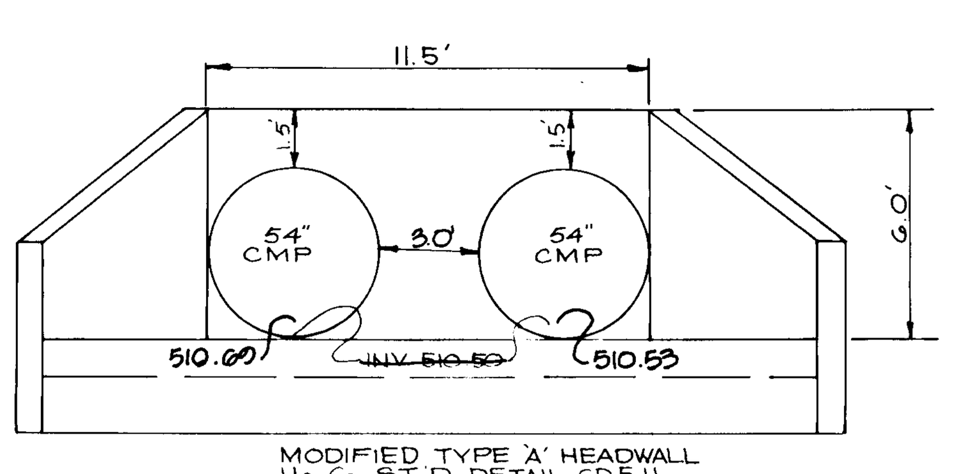
ANTI-SEEP COLLAR DETAIL

NO SCALE



BORING LOGS

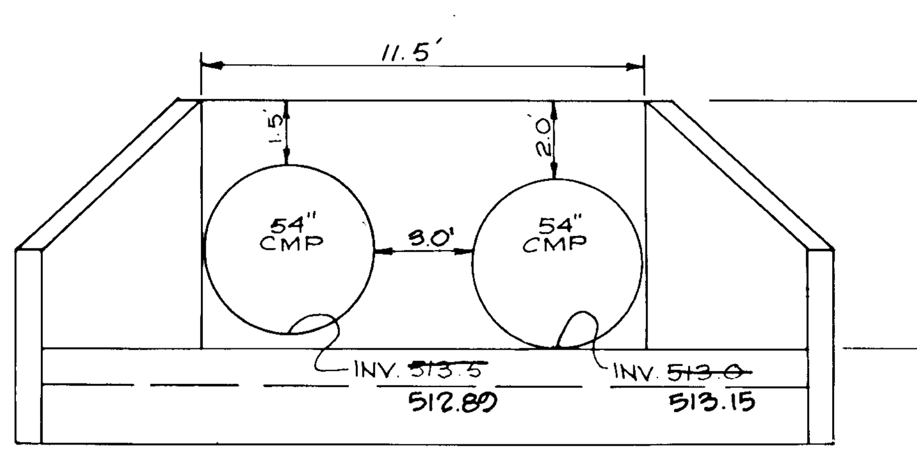
NO SCALE



MODIFIED TYPE 'A' HEADWALL
Ho. Co. STD DETAIL SD 5.11

HEADWALL 3 (HW-3)

NO SCALE



MODIFIED TYPE 'A' HEADWALL
Ho. Co. STD. DETAIL SD 5.11

HEADWALL 4 (HW-4)

NO SCALE

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 (14 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 (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre 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 1½ 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 redisturbed where a short-term vegetative cover is needed.

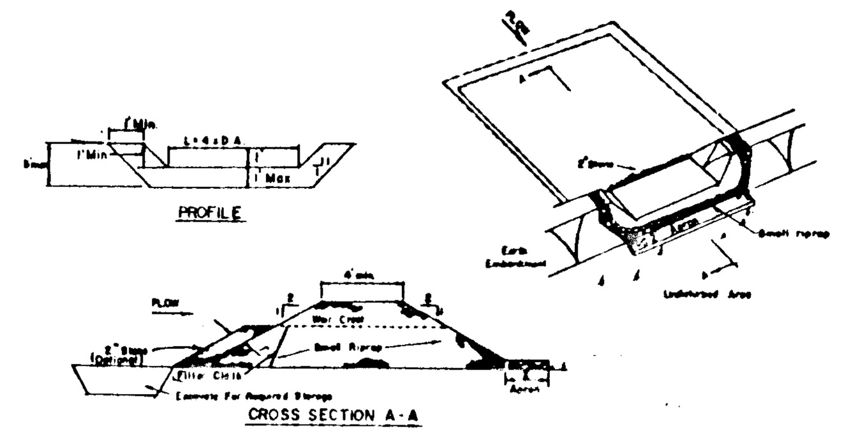
Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

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

Mulching: Apply 1½ 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.



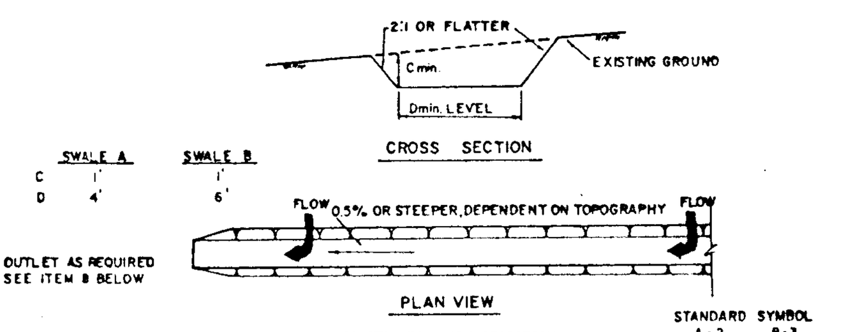
OPTION: A one foot layer of 2" stone may be placed on the upstream side of the riprap in place of the embedded filter cloth.

CONSTRUCTION SPECIFICATIONS FOR ST-V

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

STONE OUTLET SEDIMENT TRAP

NO SCALE



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE CHART BELOW:

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	A (5 AC OR LESS)	B (5 AC - 10 AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSIOR; SOD	LINED RIP-RAP 4-8" RECYCLED CONCRETE EQUIVALENT
4	8.1-20%	LINED 4-8" RIP-RAP	ENGINEERED DESIGN

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

TEMPORARY SWALE

NO SCALE

SOIL CONSERVATION SERVICE
MARYLAND
CONSTRUCTION SPECIFICATIONS
FOR
PONDS

These specifications are appropriate to ponds within the scope of the Standard for practice 378.

I. 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.

II. 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 traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction 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 side slopes 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.

III. 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 tampers 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.

IV. PIPE CONDUITS

All pipes shall be circular in cross section.

A. Corrugated Metal Pipe

1. Materials – (Steel Pipe) – This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.
2. 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 the completely watertignt. Dimple bands are not considered to be watertight.
3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Laying pipe – The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.
5. Backfilling shall conform to structural backfill as shown above.
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

B. Reinforced Concrete Pipe

1. 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.
2. Bedding – All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3", or as shown on the drawings.
3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.
4. Backfilling shall conform to structural backfill as shown above.
5. 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.

V. CONCRETE

1. Materials

a. Cement – Normal Portland cement shall conform to the latest ASTM Specification C-150.

b. Water – The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.

c. 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.

d. 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.

e. 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, tamping, and vibration without deflection from the prescribed lines. They shall be mortar-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 suplemented 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 compunds may also be used.
9. Placing Temperature – Concrete may not be placed at temperatures below 37° F with the temperature falling, or 34° with the temperature rising.

VI. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (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.

AS BUILT CERTIFICATION

ENGINEER Jayant Parekh
PE# [illegible] DATE [illegible]

BY THE DEVELOPER:

"I 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 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 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."

DEVELOPER — DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER — 1-15-90 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.

U.S. SOIL CONSERVATION SERVICE — 1-31-90 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. — 1-31-90 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — [illegible] DATE LS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 3/7/90 DATE

CHIEF, BUREAU OF HIGHWAYS — 2/16/90 DATE

CHIEF, BUREAU OF ENGINEERING — 3-9-90 DATE

DATE	NO.	REVISION

OWNER/DEVELOPER
MARY C. HILL ET AL
6642 SENECA DRIVE
COLUMBIA, MD. 21044

PROJECT: RUTHERFORD

AREA: TAX MAP 28 ZONED-R PARCEL 75
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PROFILE AND DETAIL SHEET

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176

1-15-90 DATE

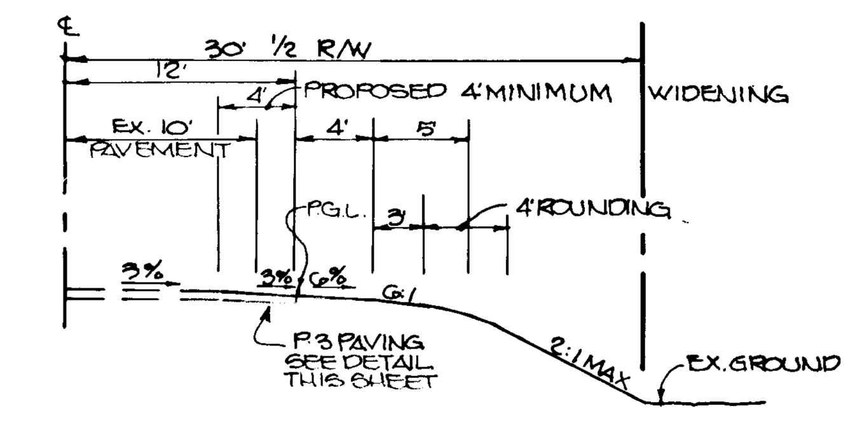
ARTHUR E. MUEGGE 8707

S-88-82 WP-88-11
P-89-59

DESIGNED BY:	D.A.M.
DRAWN BY:	G.D.H.
PROJECT NO:	51206
DATE:	JANUARY 16, 1990
SCALE:	AS SHOWN
DRAWING NO.	9 OF 10

F-90-25

-5-20-92



ZONED R

TYPICAL HALFSECTION TEN OAKS ROAD

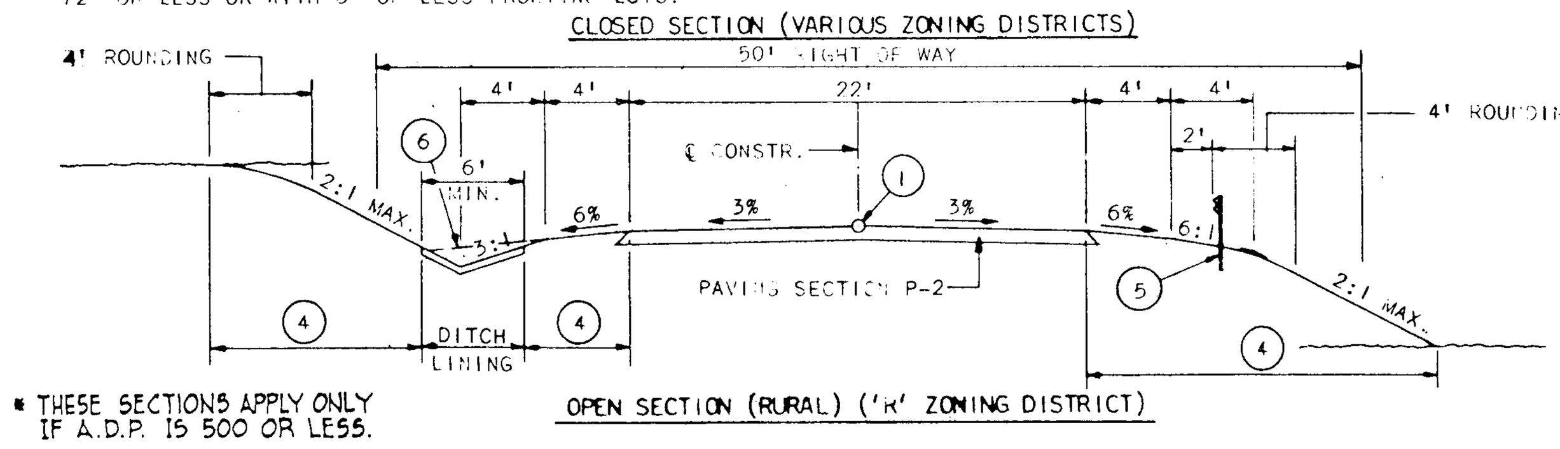
NO SCALE
MAJOR COLLECTOR
FROM ℄ STA. 19+41.51 TO ℄ STA. 21+08.79

ZONING DISTRICTS	A	B	C	D	R/W	PAVING SECTION
R-SC, R-SA, R-A1, R-MH, NT-APARTMENT AREA R 12, R-20, NT-SINGLE FAMILY AREA	28'*	4'	4'	9'	50'	P-2
R	24'	–		10'	50'	P-2

*24' MAY BE USED FOR CUL DE SAC WITH AN ADT OF 72 OR LESS OR WITH 3 OR LESS FRONTING LOTS.

1. PROFILE GRADE LINE (PGL), SEE DESIGN MANUAL.
2. TYPE OF CURB VARIES (BITUMINOUS CURB OR MOD. COMB. CURB & GUTTER OR ST'D. COMB. CURB & GUTTER-SEE DESIGN MANUAL).
3. 4" CONCRETE SIDEWALK AS REQUIRED BY SUB-DIVISION REGULATIONS.
4. INDICATES 2" TOPSOIL, SEED AND MULCH.
5. GUARDRAIL HERE REQUIRED BY THE DESIGN MANUAL.
6. DITCH CROSS SECTION SLOPE MAY BE FLATTENED TO PROVIDE A SWALE AT OR NEAR THE CREST OF VERTICAL CURVES WHERE QUANTITY OF SWALE FLOW IS SMALL, AS APPROVED BY DPW.

CLOSED SECTION (VARIOUS ZONING DISTRICTS)

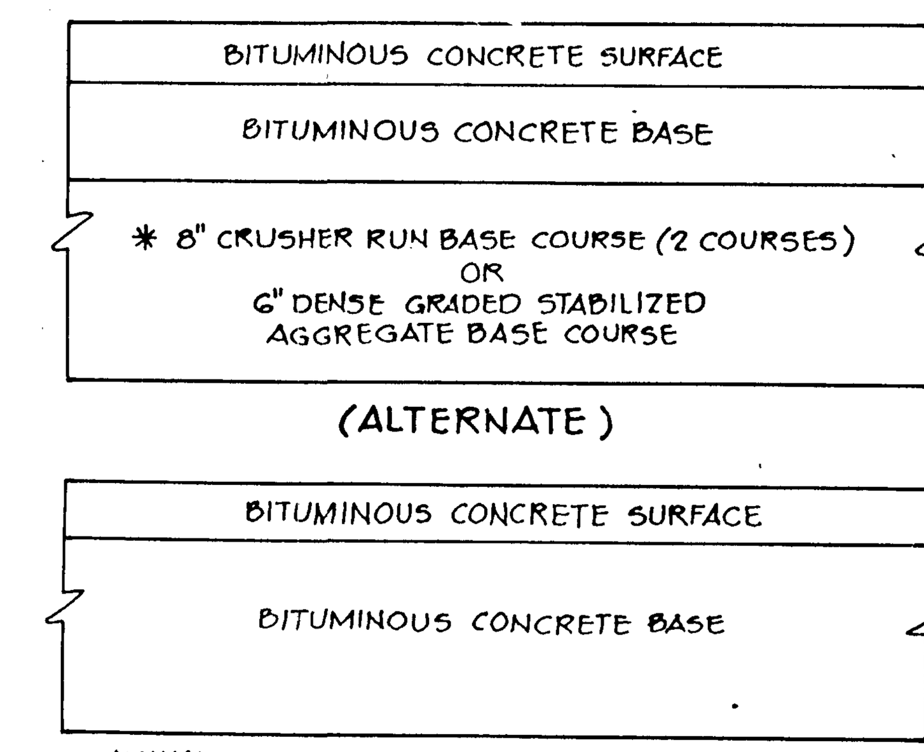


* THESE SECTIONS APPLY ONLY IF A.D.P. IS 500 OR LESS.

OPEN SECTION (RURAL) ('R' ZONING DISTRICT)

TYPICAL SECTION RUTHERFORD WAY

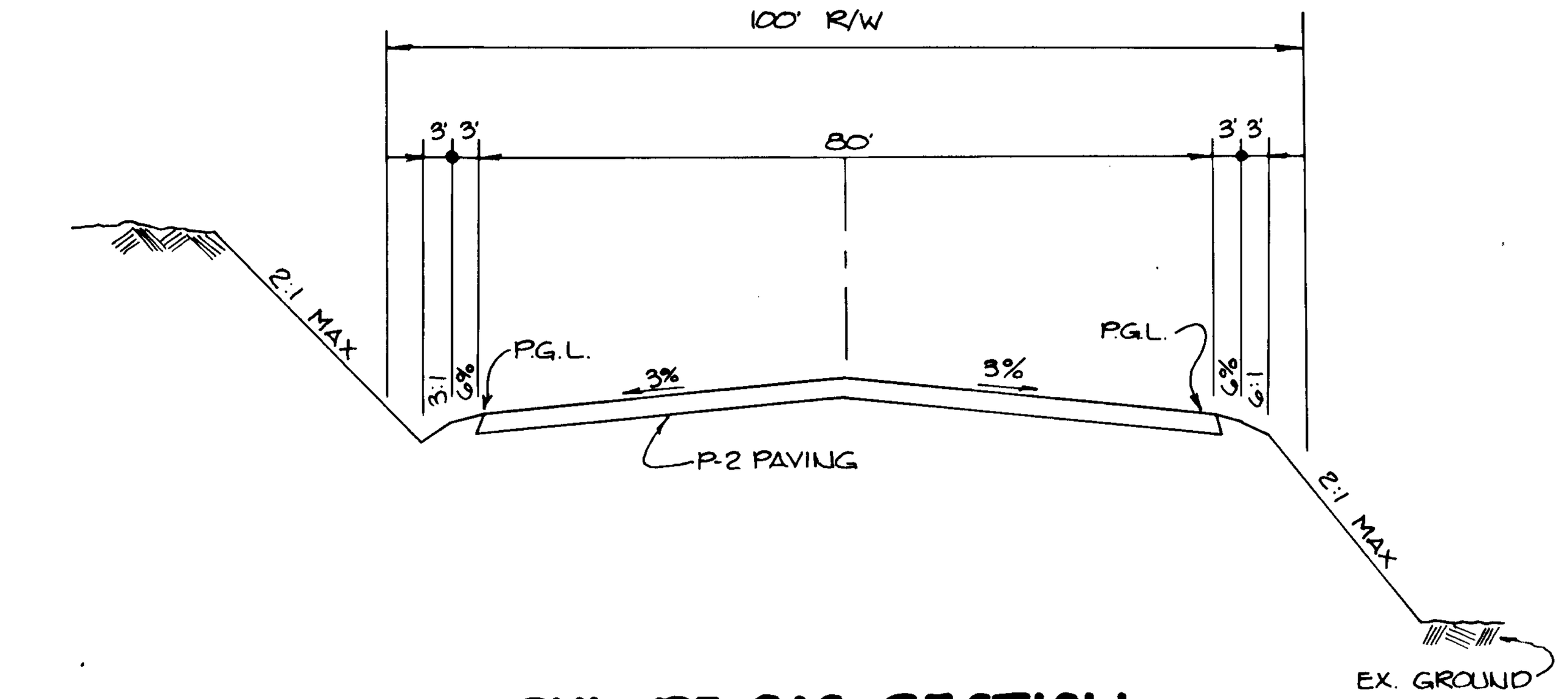
NO SCALE
FROM ℄ STA. 15+15.69 TO ℄ STA 22+77.86



HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-2.01)

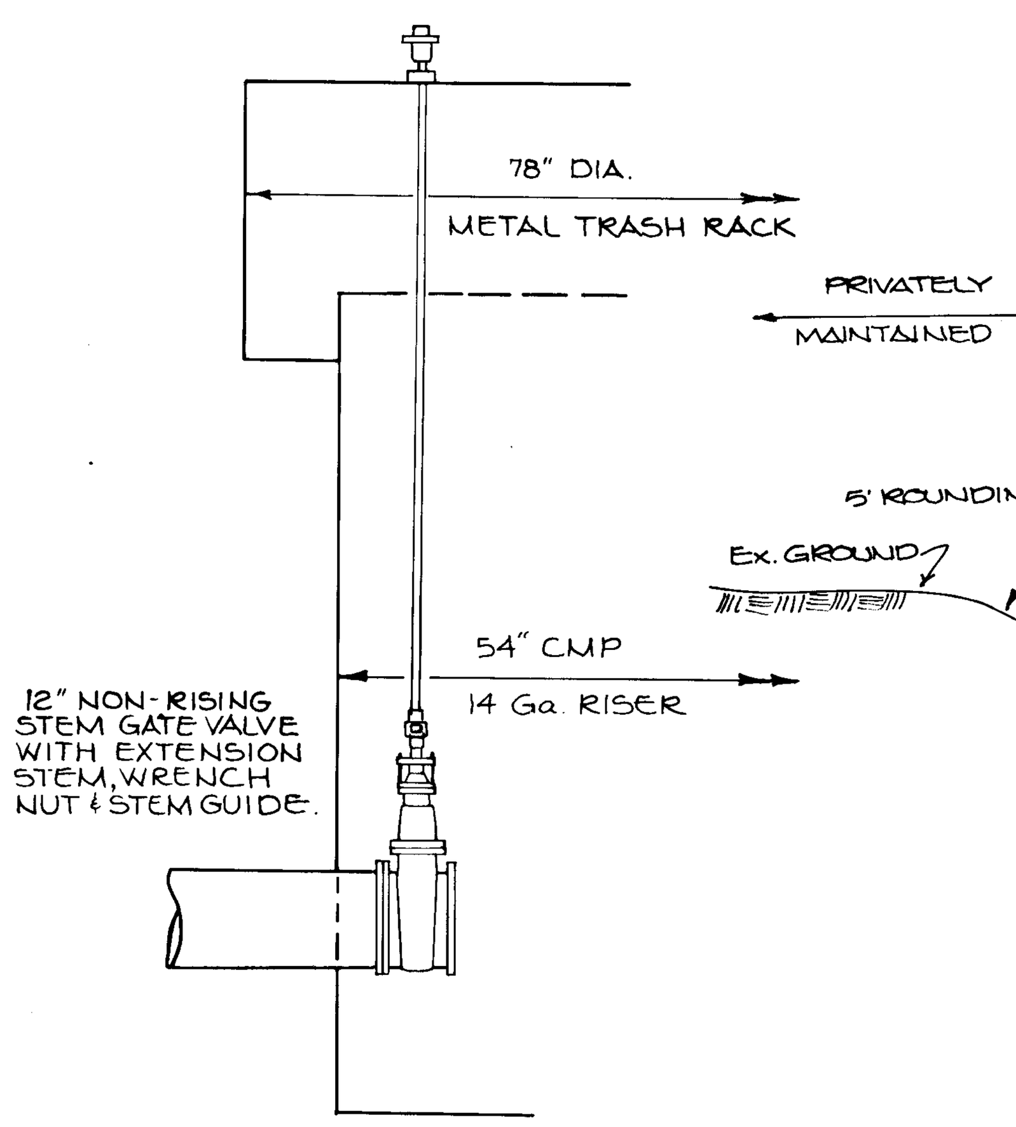
P-2 PAVING DETAIL

NO SCALE
(RUTHERFORD WAY)



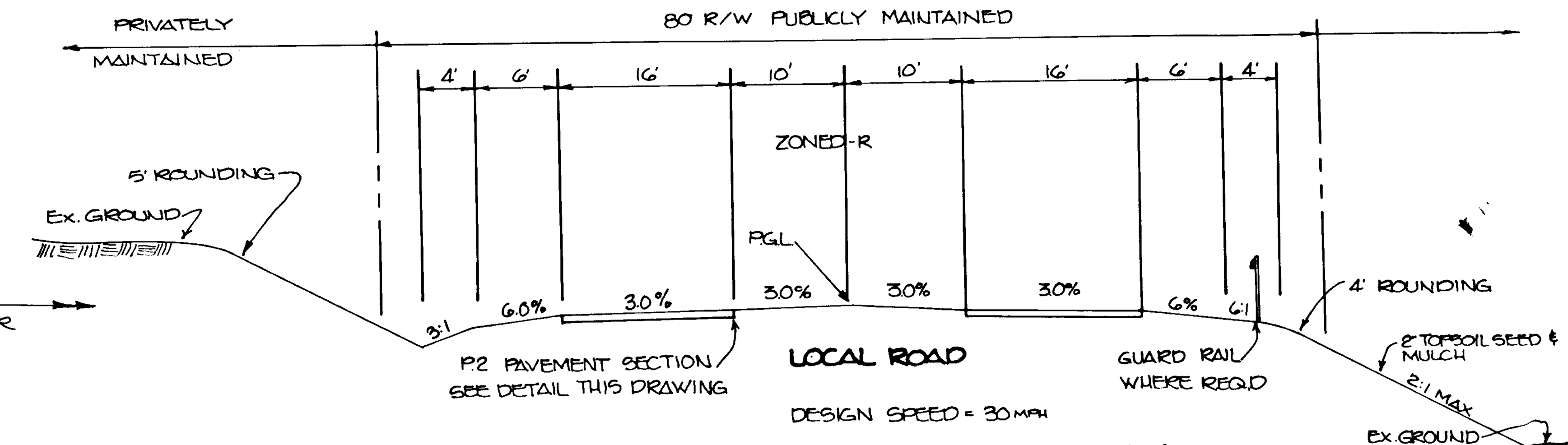
CUL-DE-SAC SECTION

NO SCALE



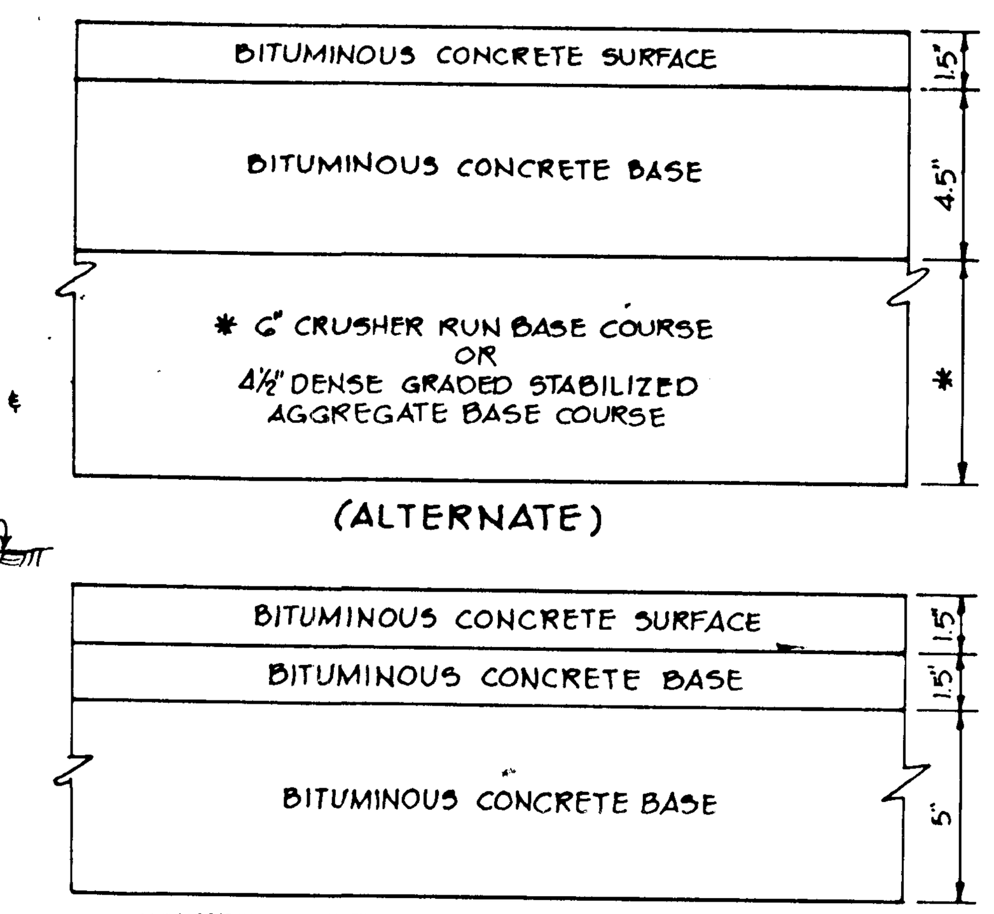
POND DEWATERING VALVE DETAIL

NO SCALE



TYPICAL SECTION RUTHERFORD WAY

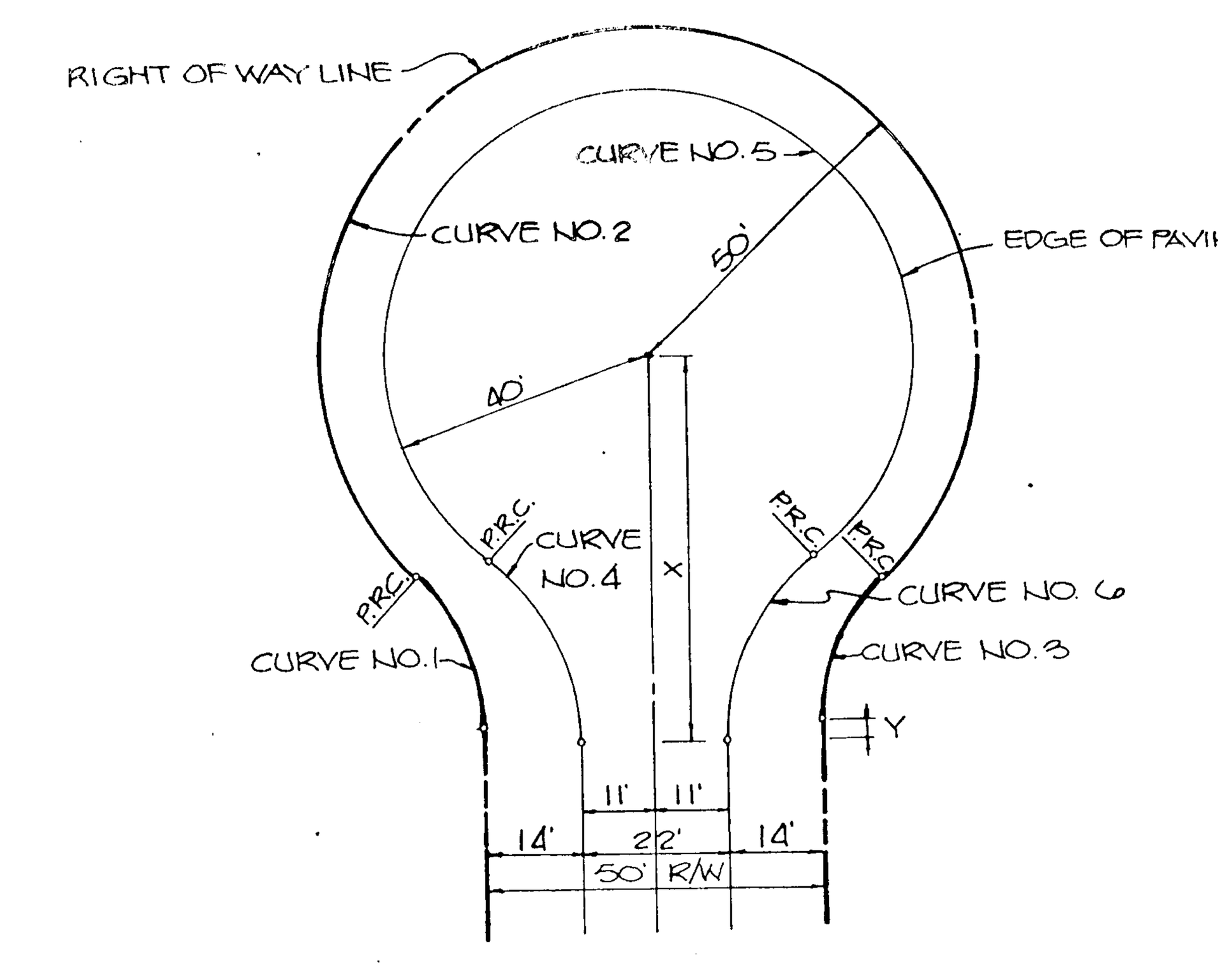
NO SCALE
FROM ℄ STA 0+00 TO ℄ STA 11+36.50



HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-2.01)

P-3 PAVING DETAIL

NO SCALE
(TEN OAKS ROAD)



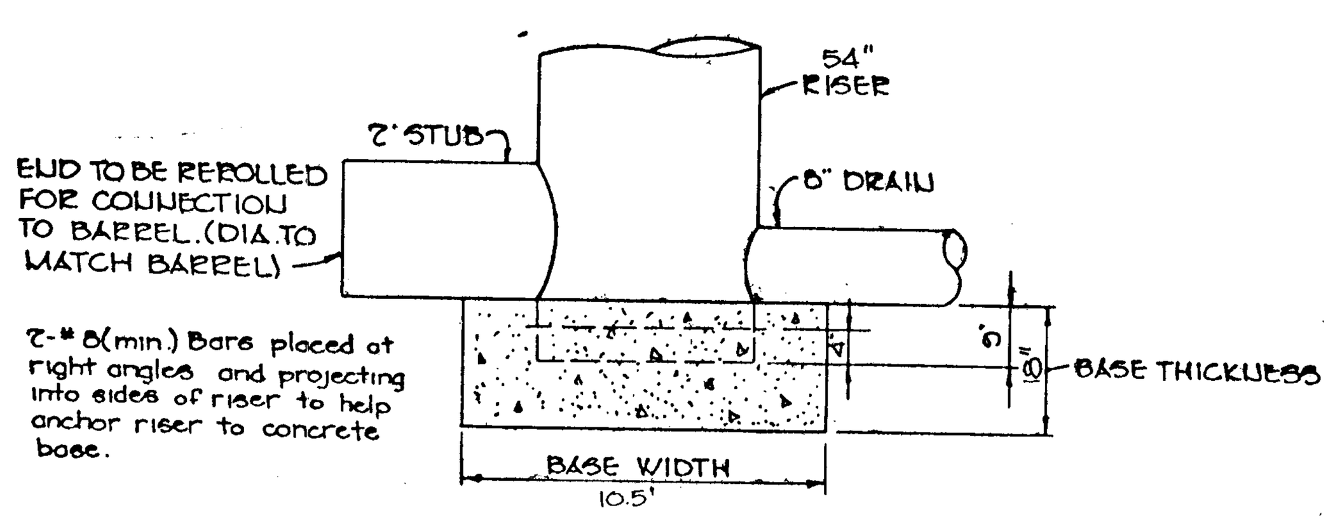
CURVE DATA

X = 59.24' Y = 2.5' L.P. = 262.25'

	CURVE 1&3	CURVE 2	CURVE 4&6	CURVE 5
Δ	48° 11' 23"	276° 22' 46"	52° 10' 05"	284° 20' 18"
R	25.00'	50.00'	35.00'	40.00'
L	21.03'	241.19'	31.87'	198.51
T	11.18'	—	17.13'	—
LC	20.41'	—	31.55'	—

CUL-DE-SAC DETAIL

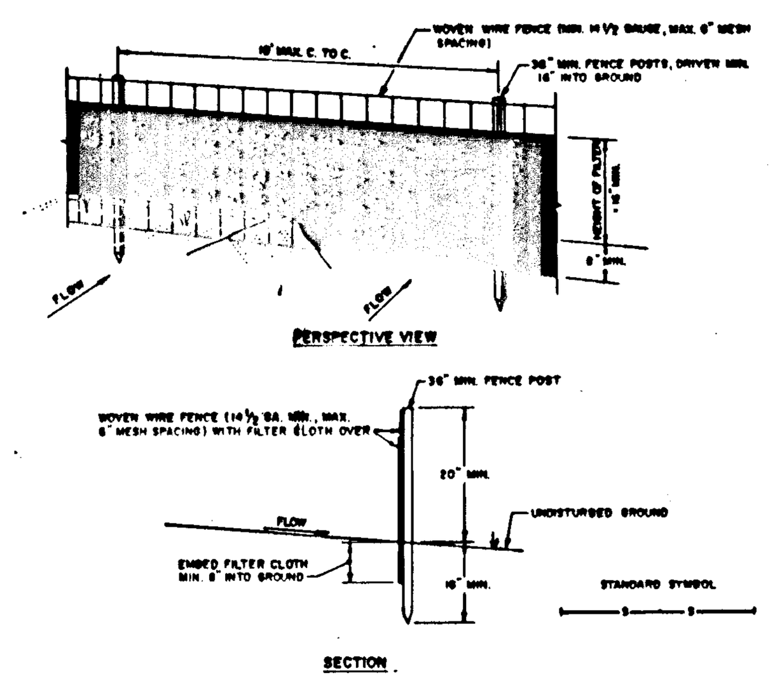
NO SCALE



NOTE:
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.

RISER BASE DETAIL

NO SCALE



SECTION

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

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

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

FENCE: WOVEN WIRE, 14½ GA. 6" MAX. MESH OPENING

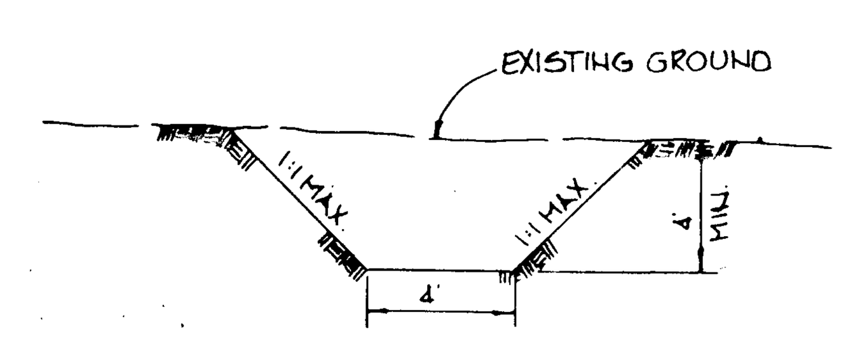
FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

SILT FENCE

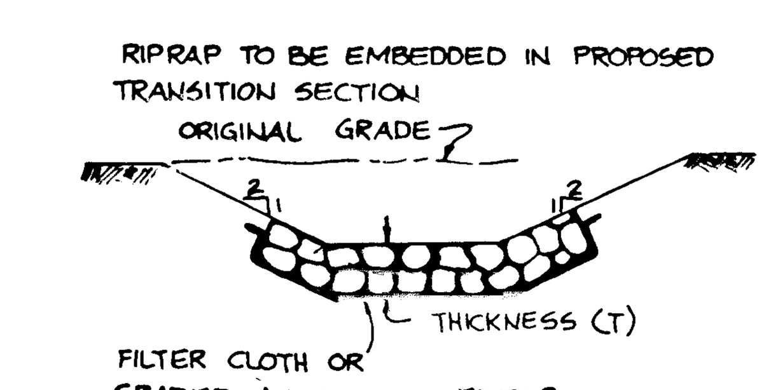
NO SCALE

MATERIAL FOR CORE TRENCH SHALL MEET UNIFIED SOIL CLASSIFICATION TYPE: ML, CL, CH & MH

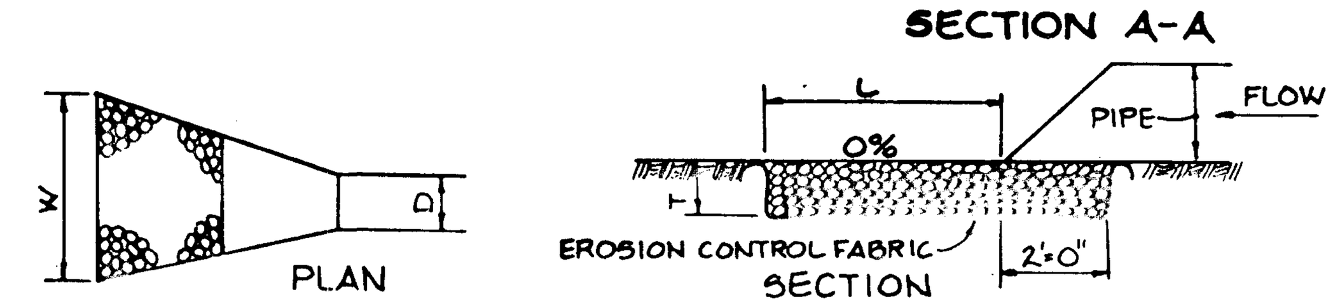


CORE TRENCH

NO SCALE



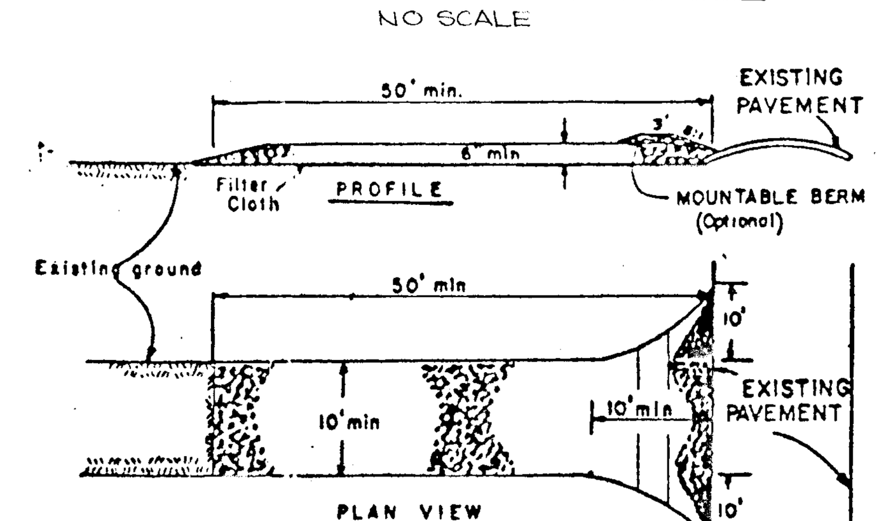
SECTION A-A



STRUCTURE	MEDIUM STONE DIA.	LENGTH (L)	WIDTH (W)	THICKNESS (T)
E-1	0.5'✓	20'✓	10'✓	1.16'✓
E-2	1.0'✓	25'✓	10'✓	2.25'✓
E-3	1.0'✓	65'✓	32'✓	2.25'✓
HW-3	0.75'✓	62'✓	30'✓	1.67'✓
HW-4	0.75'✓	35'✓	20'✓	1.67'✓

OUTLET PROTECTION DETAIL

NO SCALE

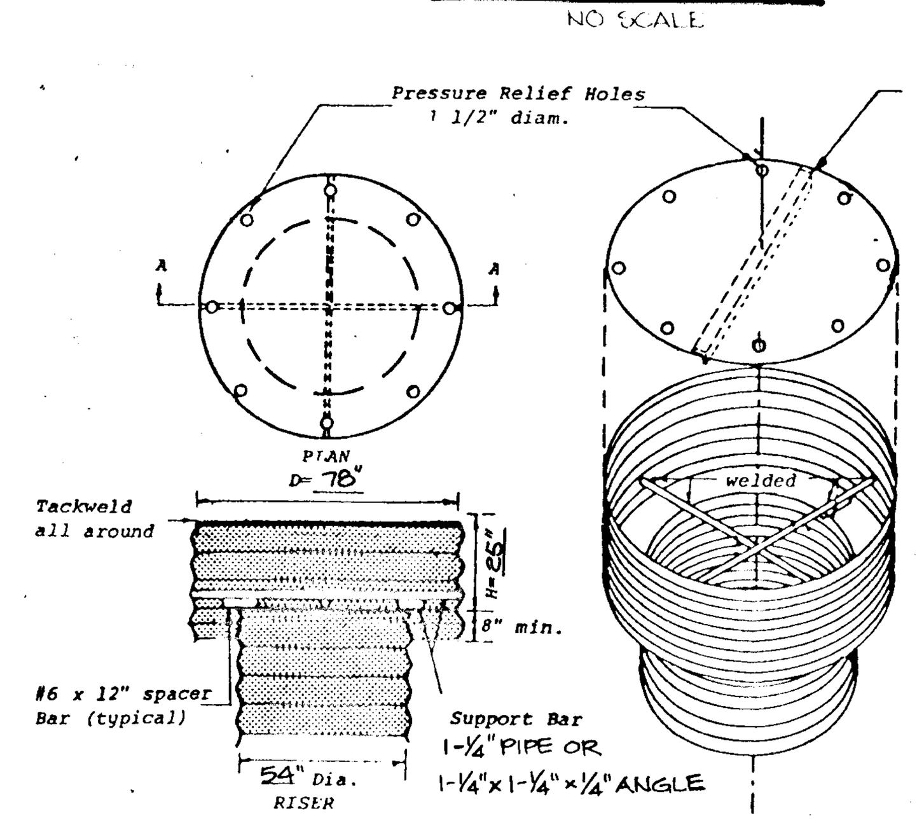


CONSTRUCTION SPECIFICATIONS

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

STABILIZED CONSTRUCTION ENTRANCE

NO SCALE



Top stiffener (if required), is N/A x ___ x ___ angle welded to top and oriented perpendicular to corrugations.

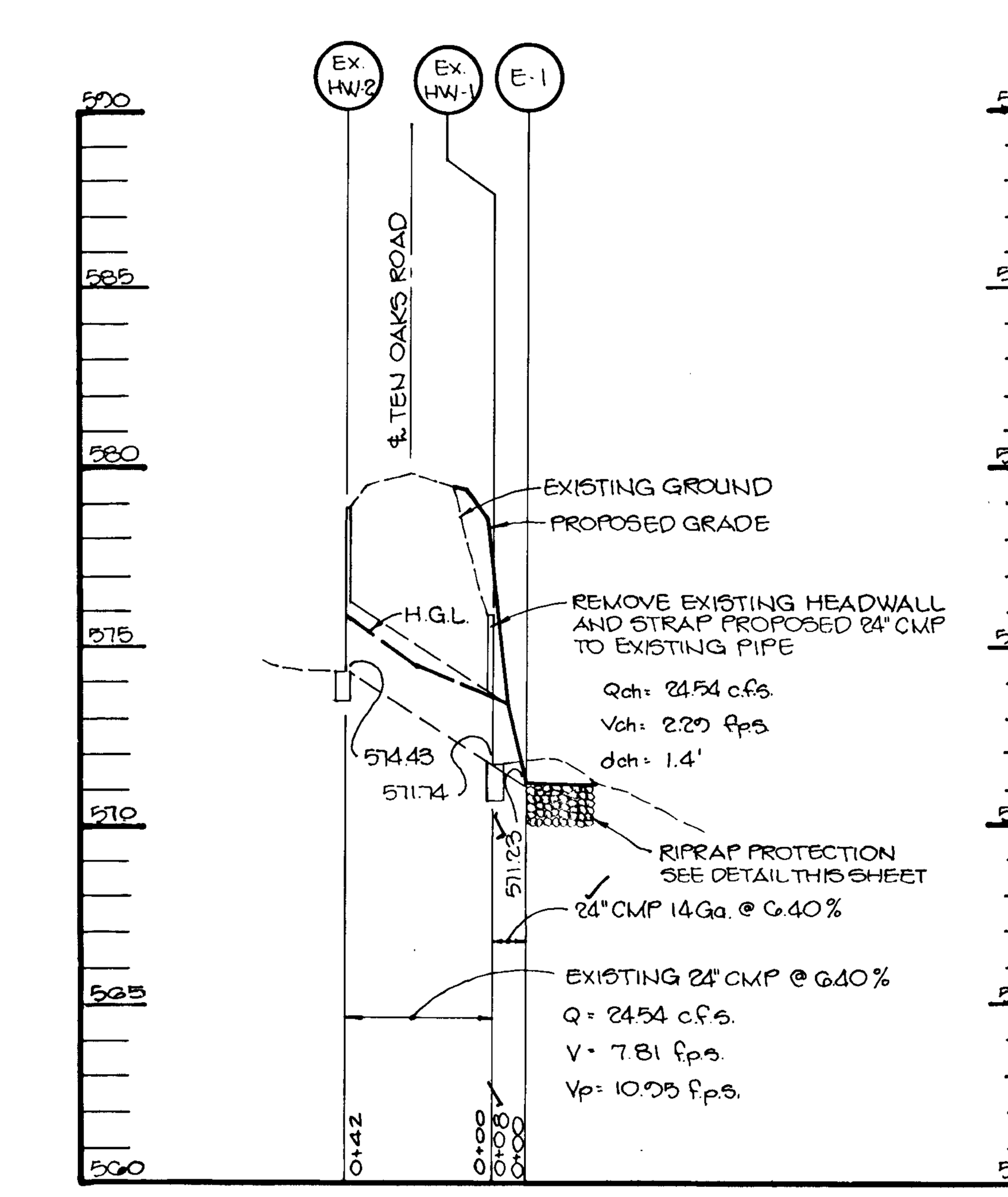
Top is 10 gage corrugated metal or 1/8" steel plate. Pressure relief holes may be ommitted, if ends of corrugations are left fully open when corrugated top is welded to cylinder.

Cylinder is 12 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.

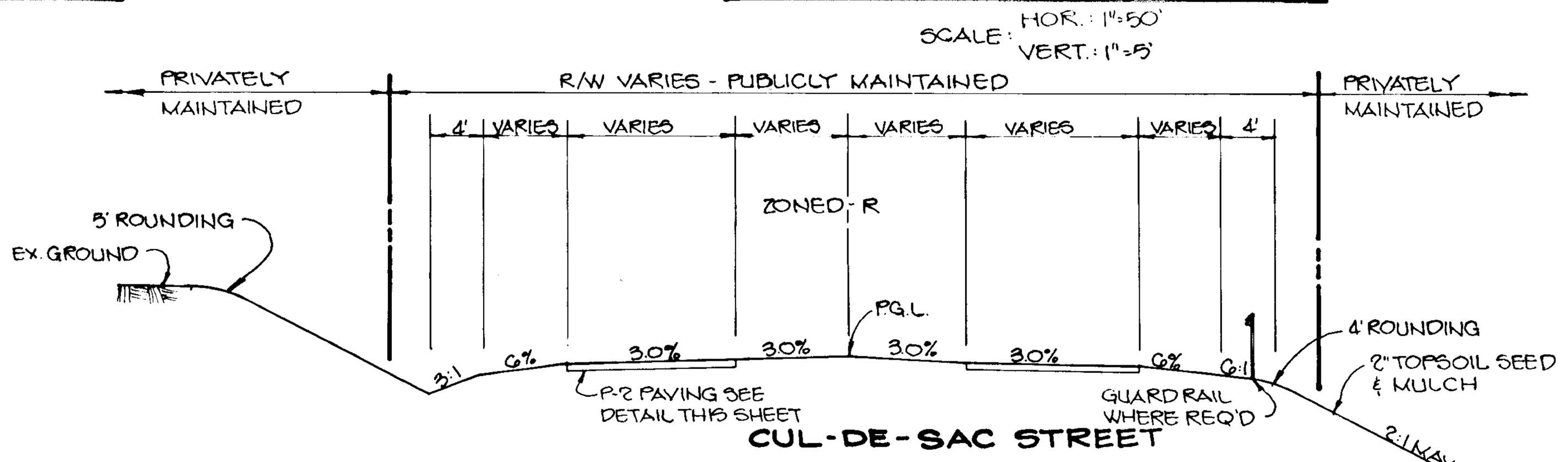
CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

NO SCALE



STORM DRAIN PROFILE

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

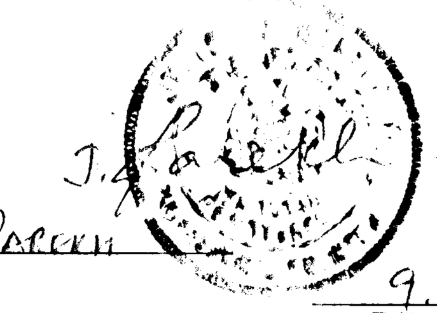


CUL-DE-SAC STREET
DESIGN SPEED = 30 MPH

TYPICAL SECTION RUTHERFORD WAY

FROM ℄ STA. 11+36.50 TO ℄ STA. 15+15.69 NO SCALE

AS BUILT CERTIFICATION



ENGINEER [signature] DATE 9.1.92
PE # [illegible]

BY THE DEVELOPER:

"I 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 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 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."

DEVELOPER DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

[signature] 1-15-90
ENGINEER 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.

[signature] 1-31-90
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 [signature] 1-31-90
HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

[signature] 3/23/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 3/7/90
CHIEF, LAND DEVELOPMENT DIVISION DATE

[signature] 2/16/90
CHIEF, BUREAU OF HIGHWAYS DATE

[signature] 3-9-90
CHIEF, BUREAU OF ENGINEERING DATE

DATE	NO.	REVISION

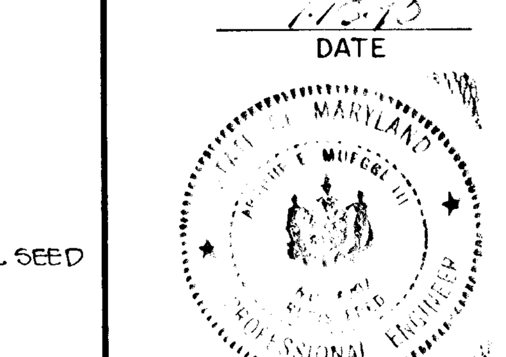
OWNER/DEVELOPER
MARY C. HILL ETAL
6642 SENECA DRIVE
COLUMBIA, MARYLAND

PROJECT: RUTHERFORD

AREA: TAX MAP 28 ZONED R PARCEL 75
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: DETAIL SHEET

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
3105 North Ridge Road Ellicott City, Maryland 21043
301-461-2690 FAX: 301-750-3176



DATE [illegible]
ARTHUR E. MUEGGE #8107

S-88-52 WP-88-11
P-89-50
DESIGNED BY: DAM
DRAWN BY: G.D.H.
PROJECT NO: 51206
DATE: JANUARY 10, 1990
SCALE: AS SHOWN
DRAWING NO. 10 OF 10

F-90-25 - 5-29-92

1551