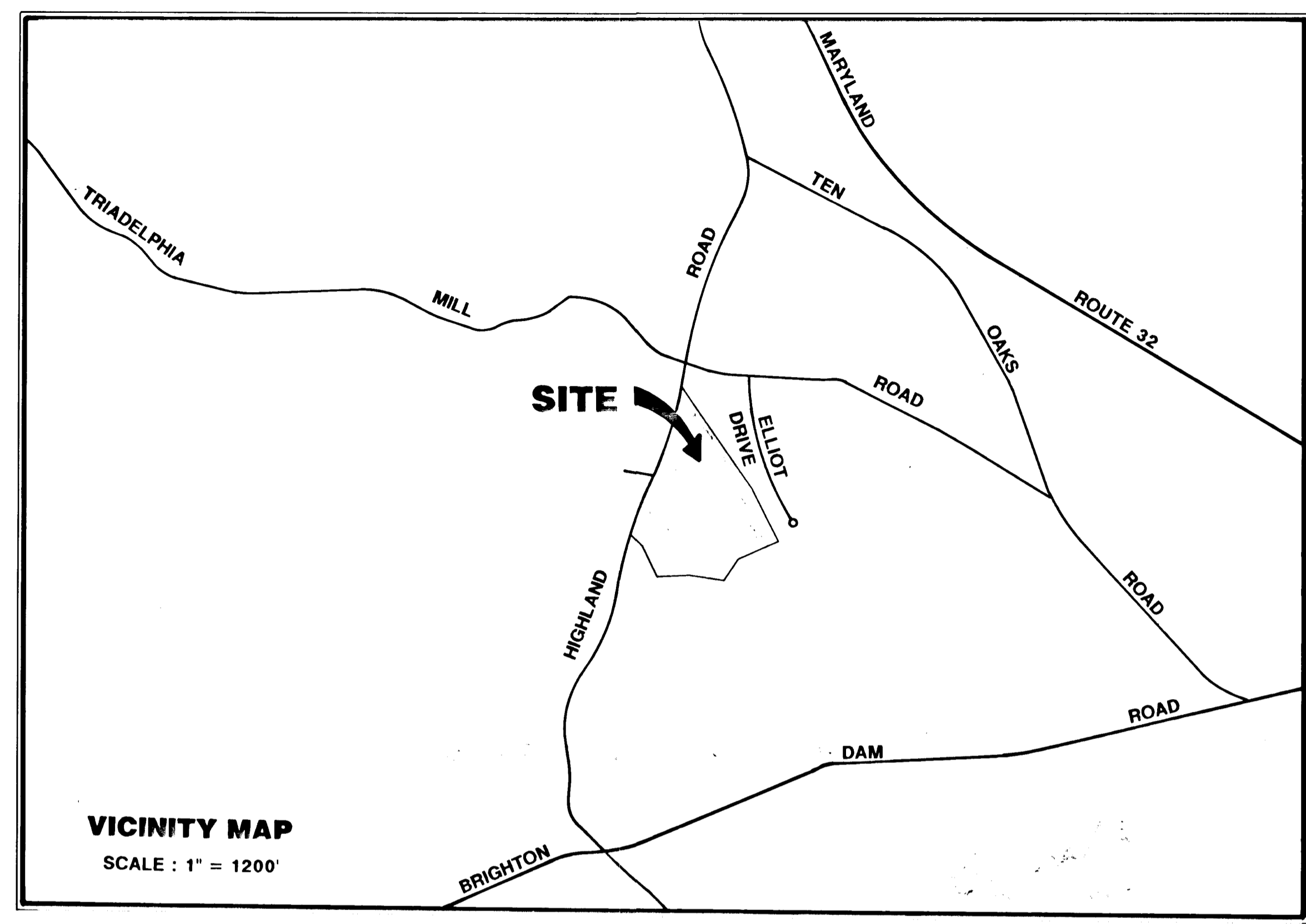


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Oliver M. Langman 3/4/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Francis W. Weisand 2/27/91
 CHIEF, BUREAU OF HIGHWAYS DATE
William B. Ray 3-4-91
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Richard Blount 3/1/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



GENERAL NOTES

- Approximate location of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
- All horizontal controls are based on Maryland State Coordinates.
- All vertical controls are based on U.S.G.S. data.
- All pipe elevations shown are invert Q elevations.
- Clear all utilities by a minimum of 6". Clear all poles by 2'-0" minimum or tunnel as required. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the contractor's work requires the bracing of additional poles or damages shall be deducted from money owed the contractor. The contractor shall coordinate with the utility companies to schedule the bracing of the poles.
- For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction. The contractor shall have a copy of Volume IV on the job.
- Where test pits have been made on existing utilities, they are by the symbol \odot at the location of the test pits. A note or notes containing the results of the test pit or pits is included on the drawings. Existing utilities in the vicinity of the proposed construction for which test pits have not been dug shall be located by the contractor two weeks in advance of construction operations at his own expense.
- Contractor shall notify the following utilities or agencies at least five working days before starting work shown on those plans:
 State Highway Administration - 531-5533
 Baltimore Gas & Electric Co. - Contractor Services - 561-2585
 Baltimore Gas & Electric Co. - Underground Damage Control - 234-5621
 Hiss Utility - 1-800-257-7777
 Colonial Pipeline Co. - 795-1390
 Bureau of Utilities, Howard County Department of Public Works - 992-2366
- Trees are to be protected from damages to maximum extent. Trees located within the construction strip are not to be removed or damaged by the contractor.
- Contractor shall remove trees, stumps, and roots along line of excavation as directed by the Engineer. Payment for such removal shall be included in the unit price bid for excavation and backfill.
- ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 1988 EDITION.
- DEPARTMENT OF THE ENVIRONMENT PERMIT No. 90-WQ-0214 CORPS OF ENGINEERS PERMIT No. CEHAB-0P-RW (BLEVINS, HENRY) 90-0507-3

ROAD IMPROVEMENT PLANS
BRIERLY
 SITUATED ON HIGHLAND ROAD
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 34, PARCEL 7

OWNER / DEVELOPER
CLARKVILLE ASSOCIATES
C/O LOWRIE B. SARGENT
13243 WEST MEATH LANE
CLARKVILLE, MARYLAND 21029
(301)854-0938

ENGINEER
VANMAR ASSOCIATES, INC.
310 SOUTH MAIN STREET
MOUNT AIRY, MARYLAND 21771
(301)829-2890
(301)549-2751

ROAD IMPROVEMENT PLANS INDEX

FOR
BRIERLY

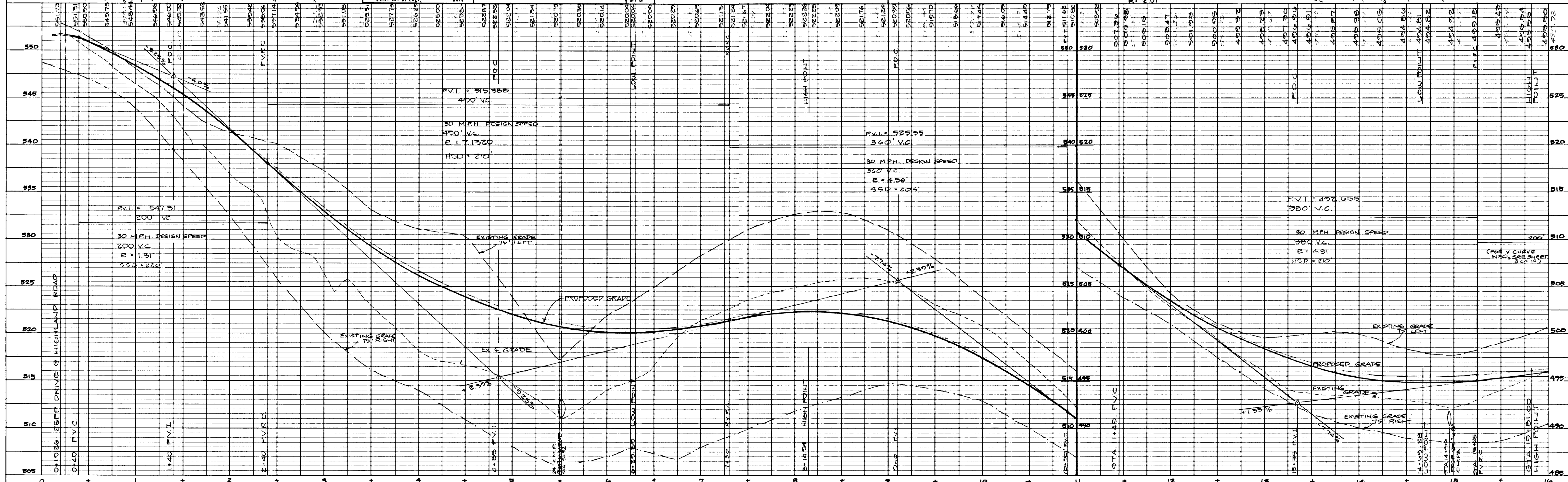
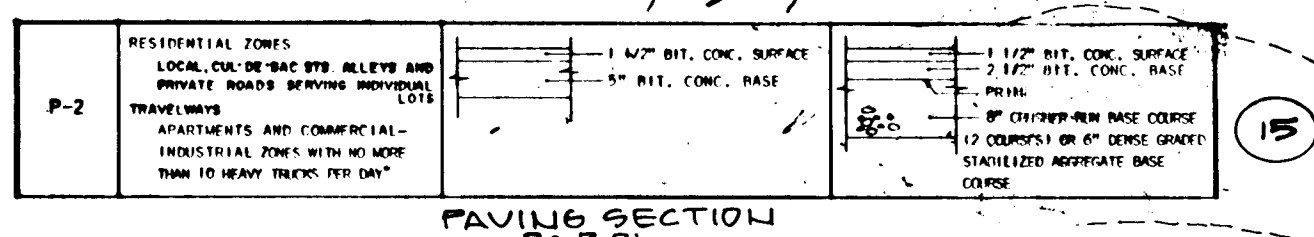
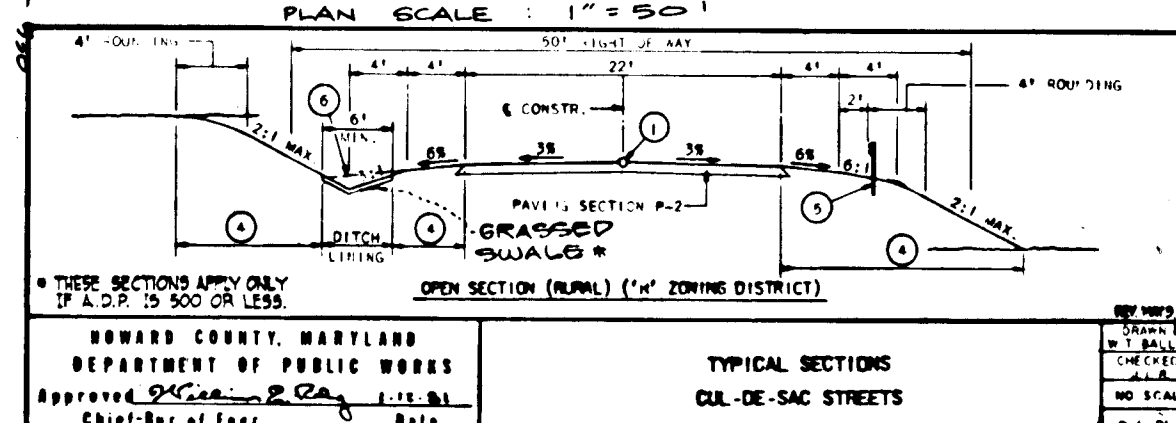
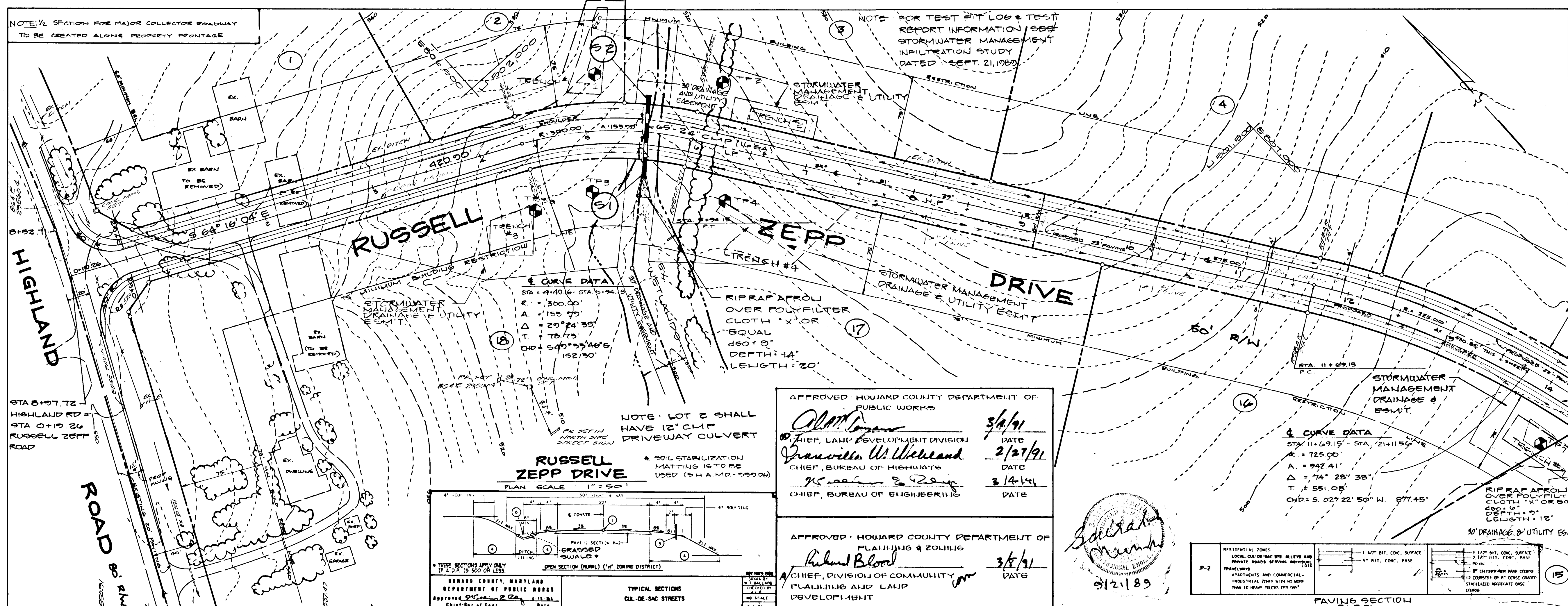
SHEET 1 OF 10	COVER SHEET
SHEET 2 OF 10	STORM DRAIN, PAVING & GRADE ESTABLISHMENT PLAN FOR RUSSELL ZEPP DRIVE
SHEET 3 OF 10	STORM DRAIN, PAVING & GRADE ESTABLISHMENT PLAN FOR RUSSELL ZEPP DRIVE
SHEET 4 OF 10	ROAD IMPROVEMENT PLAN FOR HIGHLAND ROAD
SHEET 5 OF 10	ROAD IMPROVEMENT PLAN FOR HIGHLAND ROAD
SHEET 6 OF 10	SITE GRADING, SOIL EROSION & SEDIMENT CONTROL FOR HIGHLAND ROAD
SHEET 7 OF 10	SITE GRADING PLAN AND STORM WATER MANAGEMENT PLAN
SHEET 8 OF 10	SOIL EROSION AND SEDIMENT CONTROL PLAN
SHEET 9 OF 10	SOIL EROSION AND SEDIMENT CONTROL DETAILS
SHEET 10 OF 10	DRAINAGE AREA MAP

DATE	REVISIONS	REMARKS
12-21-90	AS PER COMMENTS	
2-2-91	AS PER COMMENTS	
7-15-90	AS PER COMMENTS	
9-11-90	AS PER COMMENTS	

Bohrath
Mund
 9/2/89

STORM DRAIN, PAVING & GRADE ESTABLISHMENT PLAN
RUSSELL ZEPP DRIVE
 STA. 0+00.00 TO STA. 16+00.00
BRIERLY
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN SEPT. 1989

VANMAR ASSOCIATES INC.
 Engineers - Surveyors - Planners
 30 South Main Street, Mount Airy, Maryland 20771
 (301) 628-2800 - (301) 631-5051



RUSSELL ZEPP DRIVE 50' R/W
 PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE
 SCALE: HORIZ. - 1" = 50' VERT. - 1" = 5'
 JOB NO.: 88-1850 SHEET 2 OF 2

11/18

F 90-69

NOTE: FOR TEST PIT LOG & TEST REPORT INFORMATION SEE STORMWATER MANAGEMENT INFILTRATION STUDY DATED: SEPT. 21, 1989

CUL-DE-SAC CURVE DATA

STA 2+19.46 - STA 0+36.20 + 0+00	STA 0+36.20 - STA 3+22.76	STA 3+22.76 - STA 3+58.06 = 35.30
R = 35.00'	R = 95.00'	R = 35.00'
A = 36.20'	A = 286.56'	A = 36.20'
Δ = 50°15'44"	Δ = 208°31'27"	Δ = 50°15'44"
T = 17.91'	T = 0'	T = 17.91'
CHORD = 41.00°50'17"E	CHORD = 5.50°22'51"E	CHORD = 5.60°15'01"W
CHD. LENGTH = 34.61'	CHD. LENGTH = 56.22'	CHD. LENGTH = 34.61'

CURVE DATA

STA 11+69.15 - STA 21+11.56

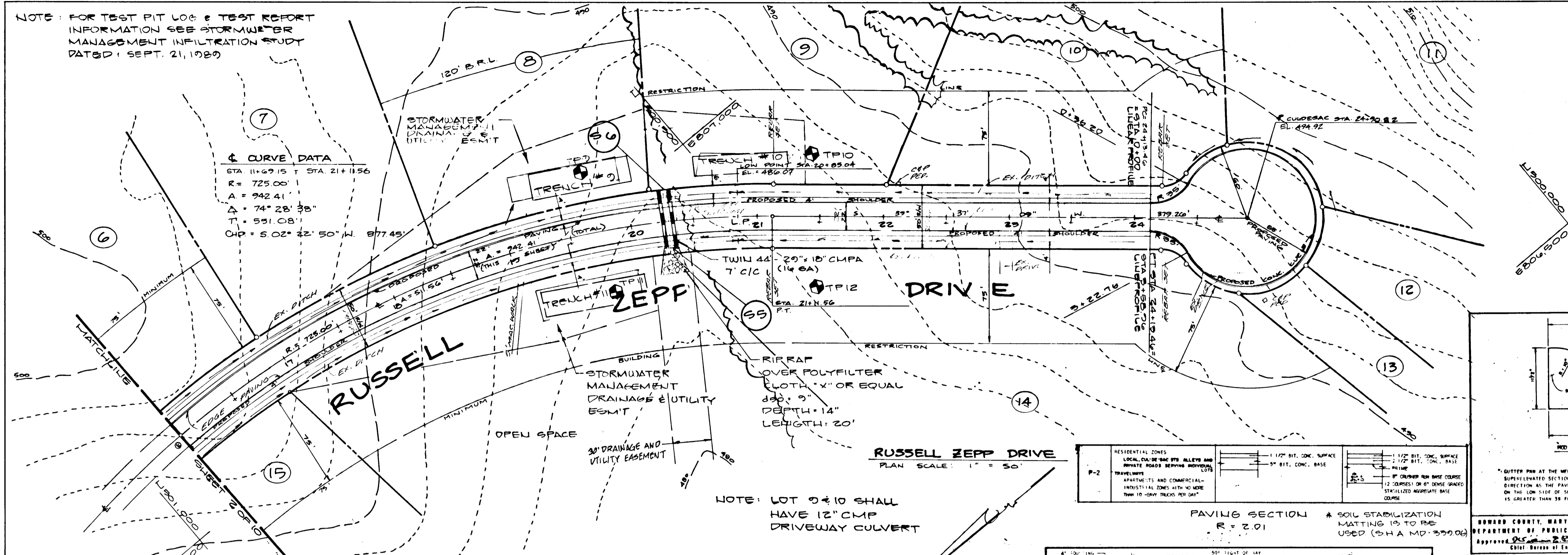
R = 725.00'

A = 942.41'

Δ = 74°28'38"

T = 591.08'

CHD = S 02°42'50" W 877.45'



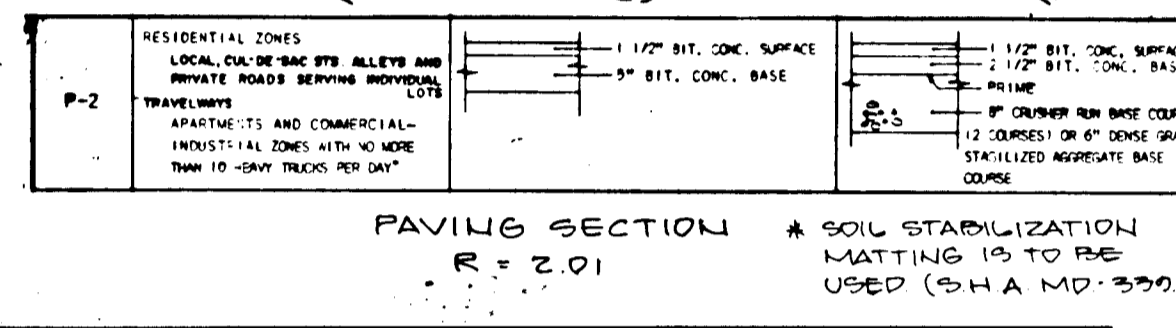
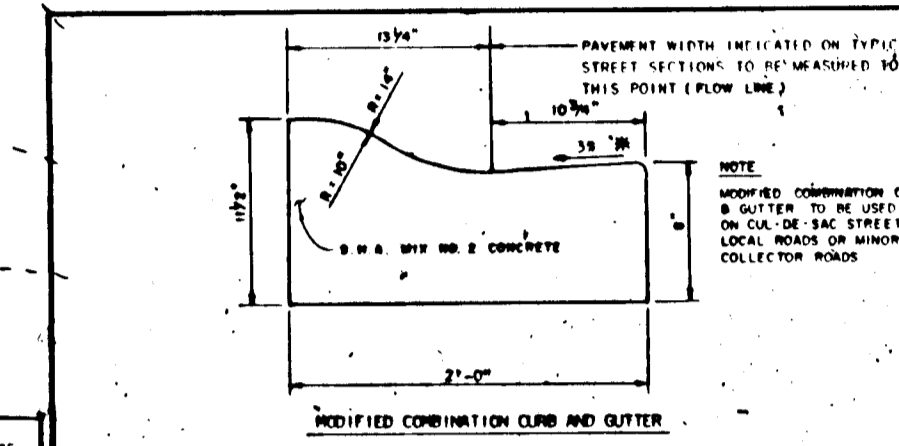
PLAN

DATE: _____

BY: _____

REVISIONS:

NO.	DATE	DESCRIPTION



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Alvin Taylor 3/4/91 DATE

CHIEF, LAND DEVELOPMENT DIVISION

Donaville W. Neeland 2/27/91 DATE

CHIEF, BUREAU OF HIGHWAYS

William R. Rao 3.4.91 DATE

CHIEF, BUREAU OF ENGINEERING

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Richard Blood 3/4/91 DATE

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

STORM DRAIN, PAVING & GRADE ESTABLISHMENT PLAN

RUSSELL ZEPP DRIVE

STA. 16+00.00 TO STA. 24+96.82

BRIERLY

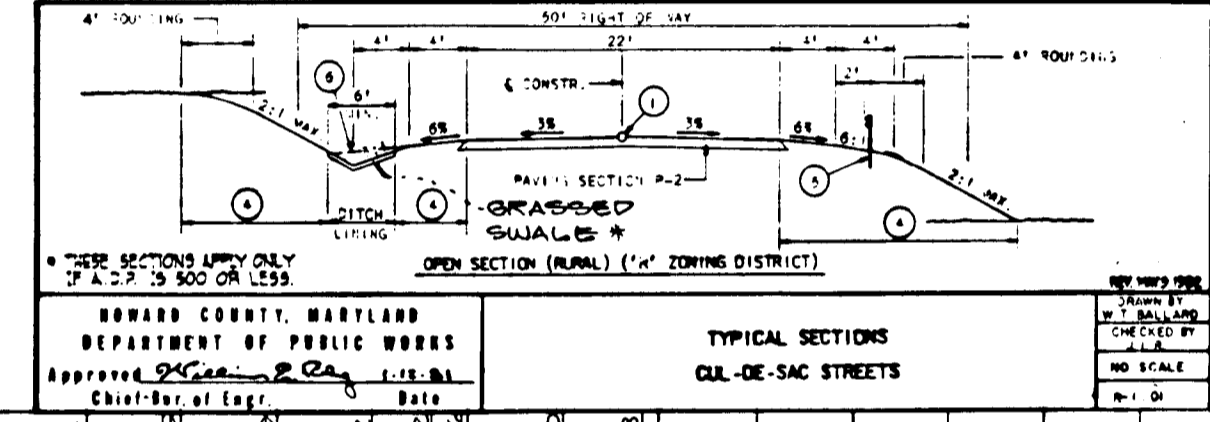
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN SEPT., 1989

STRUCTURE SCHEDULE

No.	TYPE	INV. ELEVATION	OUT	REMARKS	LOCATION
01	STD 24" END SECT.	509.01	507.561		STA 5+52-35 RIGHT
02	"	512.76			" " " " " " LEFT
03	STD 20" x 18" END SEC.	490.61	507.563		STA 14+96-23 RIGHT
04	"	490.61			" " " " " " LEFT
05	TWIN STD 20" x 18" END	481.94			STA 20+30-22 RIGHT
06	"	482.56			" " " " " " LEFT

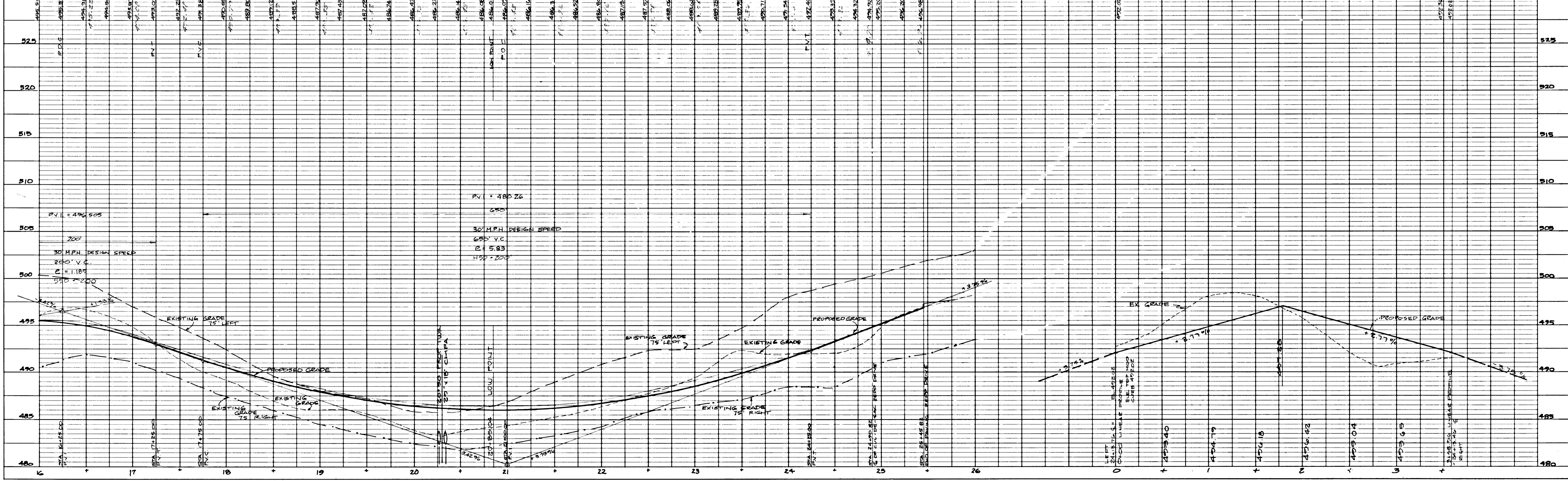
PIPE SCHEDULE

TYPE	SIZE	LENGTH
CMP	24"	65'
CMFA	20" x 18"	130'



Sealed

9/21/89



PROFILE

DATE: _____

BY: _____

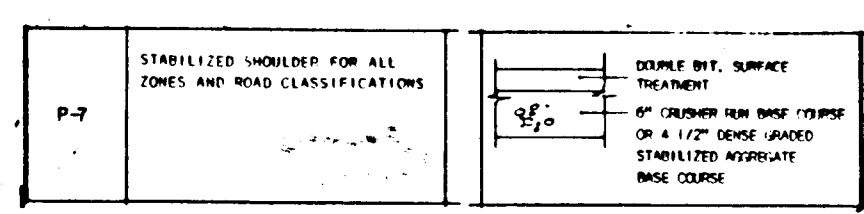
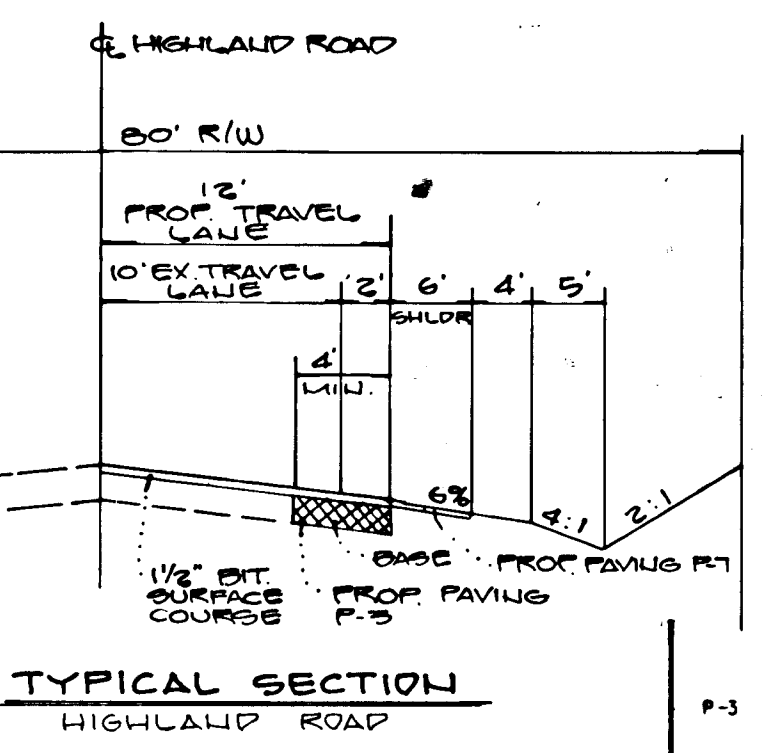
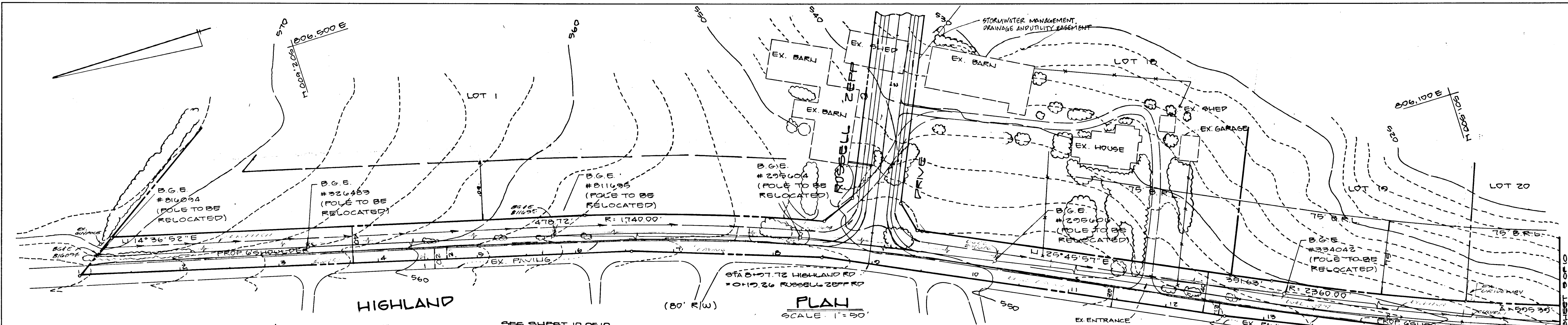
REVISIONS:

NO.	DATE	DESCRIPTION

16/18

F90-69

DATE: _____ BY: _____
 SURVEYED: _____
 NOTE BOOK: _____
 No. _____
 ALIGNMENT CHECKED: _____
 BT. OF WAY CHECKED: _____



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John M. Tomson 2/6/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE

Frankie W. Weiland 2/27/91
 CHIEF, BUREAU OF HIGHWAYS DATE

William E. Rye 3-4-91
 CHIEF, BUREAU OF ENGINEERING DATE

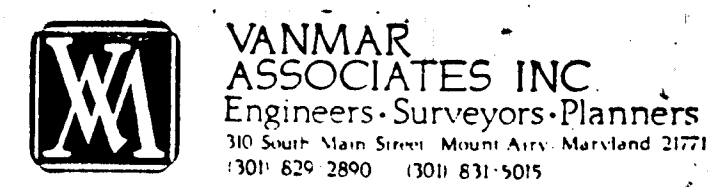
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Richard Blood 3/8/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



ROAD IMPROVEMENTS TO HIGHLAND ROAD
 BRIERLY
 5TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 34, PARCEL 7
 SCALE: AS SHOWN, SEPT. 1989

OWNER/DEVELOPER:
 CLARKSVILLE ASSOCIATES
 C/O LOWRIE E. SARGENT
 13243 WEST MEATH LANE
 CLARKSVILLE, MARYLAND 21029
 (301) 854-0988



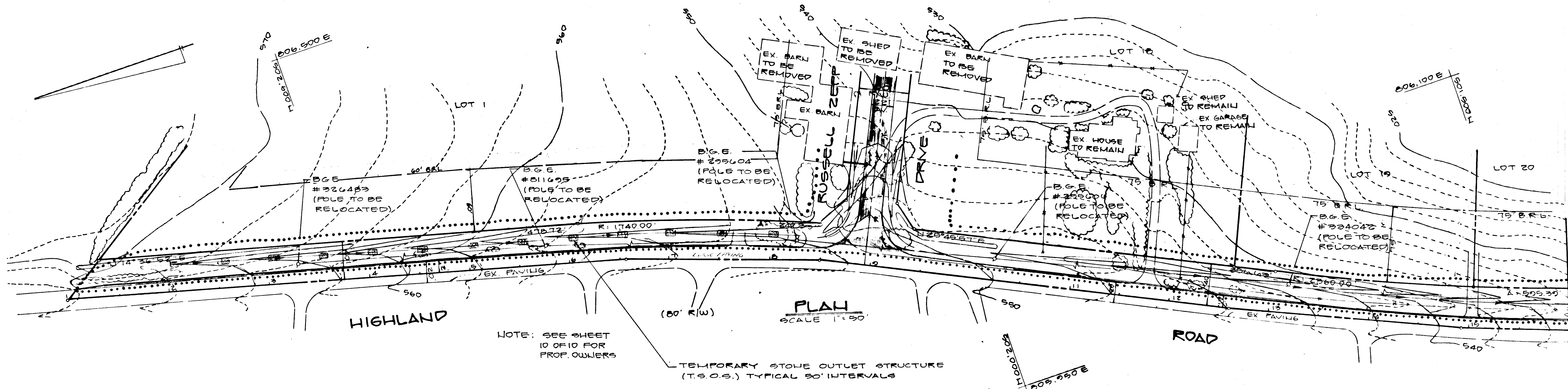
DATE: _____ BY: _____
 SURVEYED: _____
 NOTE BOOK: _____
 No. _____
 GRADES CHECKED: _____
 STRUCTURE NOTATIONS CHECKED: _____



HIGHWAY FEDERAL AID SHEET
 PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE
 TELETYPE
 PRINTED IN U.S.A.

11618

F.9069

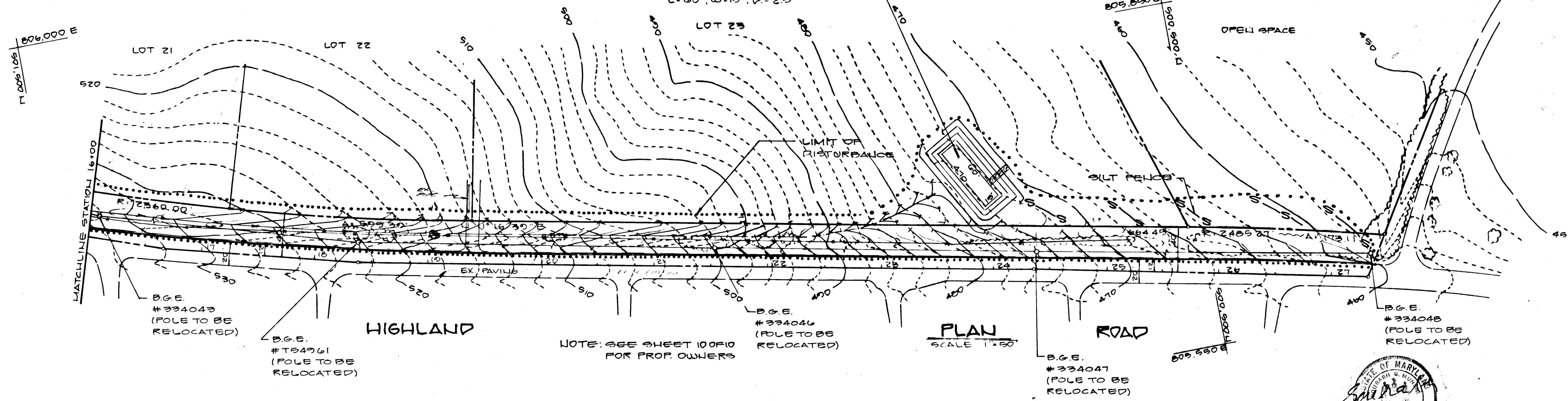


NOTE: SEE SHEET 10 OF 10 FOR PROP. OWNERS

TEMPORARY STONE OUTLET STRUCTURE (T.S.O.S.) TYPICAL 50' INTERVALS

STONE OUTLET SEDIMENT TRAP # 7 STV.
 D.A. TO TRAP = 1.24 ACFT
 STORAGE REQUIRED = 2332 CFT
 STORAGE PROVIDED = 2750 CFT
 BOTTOM ELEV. = 467.5
 TOP OF EMBANKMENT = 472.00
 CLEAN OUT ELEV. = 468.75
 WEIR ELEV. = 471.00
 WEIR LENGTH = 5.0'
 L = 60', W = 15', P = 2.5'

NOTE: EXISTING UTILITY POLES ALONG HIGHLAND ROAD TO BE RELOCATED BY OTHERS.



NOTE: SEE SHEET 10 OF 10 FOR PROP. OWNERS

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN (1) SEVEN (7) CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, (2) FOURTEEN (14) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON PROJECT SITE.

NOTE: THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTOR/SURVEY DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT 792-7272

DEVELOPER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

James S. Stuyvesant 2-1-90

ENGINEER'S CERTIFICATE

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

Emmett H. Murray 9/21/89



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Oliver Taylor 3/4/90
 CHIEF, LAND DEVELOPMENT DIVISION
Travis W. Wilstead 2/27/91
 CHIEF, BUREAU OF HIGHWAYS
William R. Reed 3-4-91
 CHIEF, BUREAU OF ENGINEERING

REVIEW FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS

James M. Nelson 1-16-91
 US SOIL CONSERVATION SERVICE DATE

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

John R. Bluntzer 4/16/91
 HOWARD S.C.D. DATE

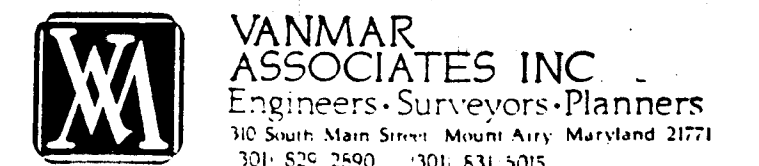
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Richard Blood 3/5/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

SITE GRADING, SOIL EROSION & SEDIMENT CONTROL FOR HIGHLAND ROAD

BRIERLY

5TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN, SEPT. 1989



9/19/91

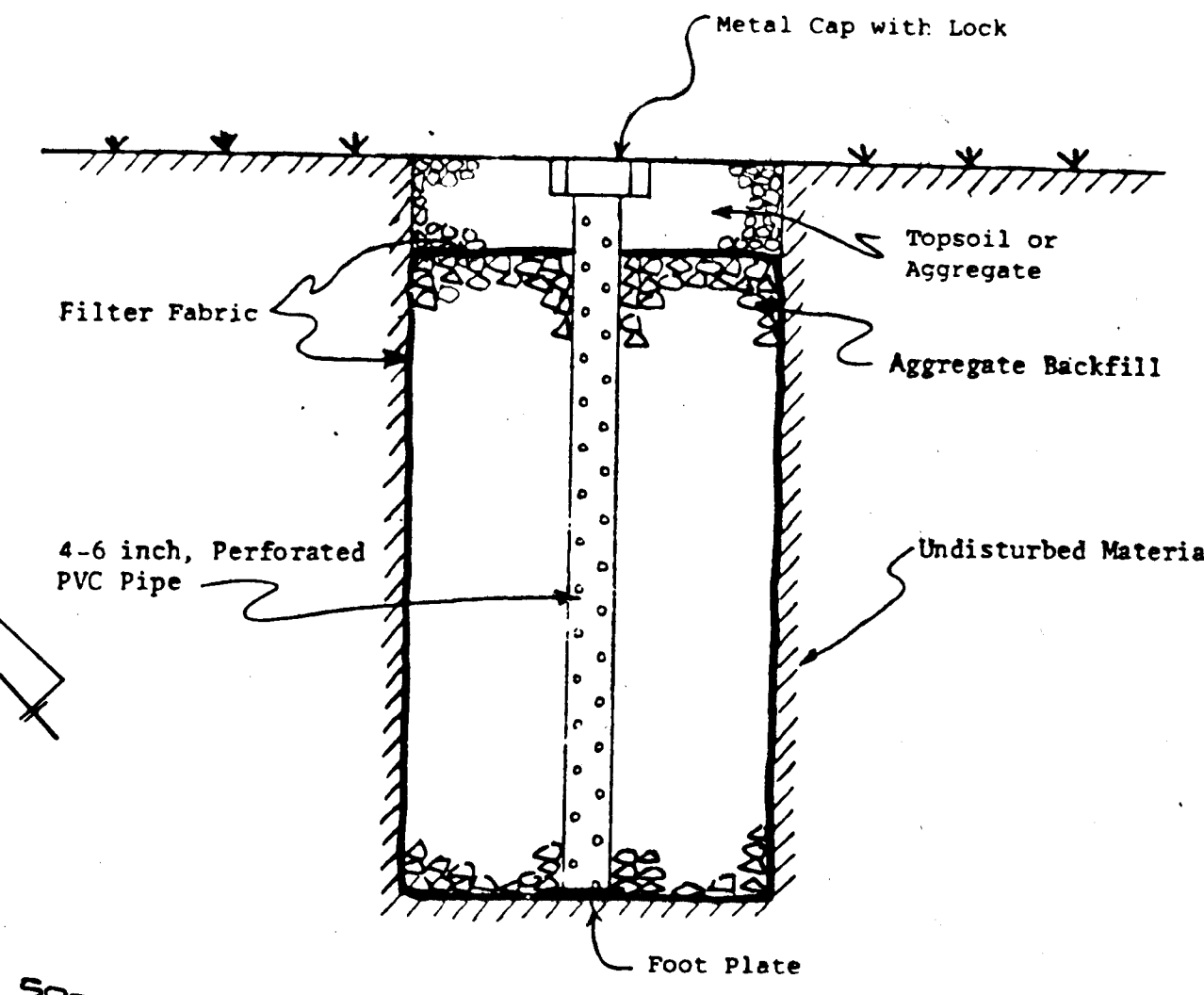
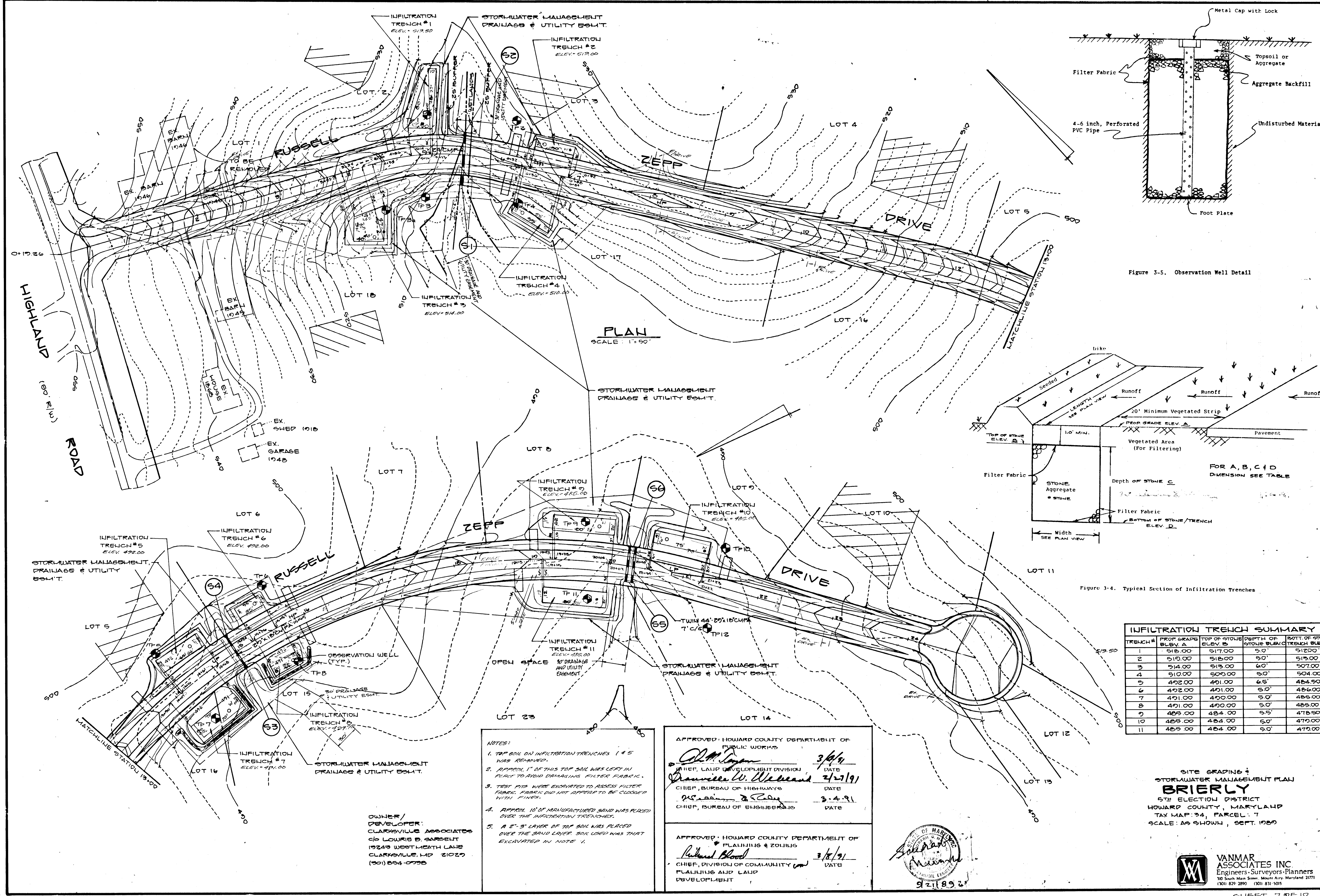


Figure 3-5. Observation Well Detail

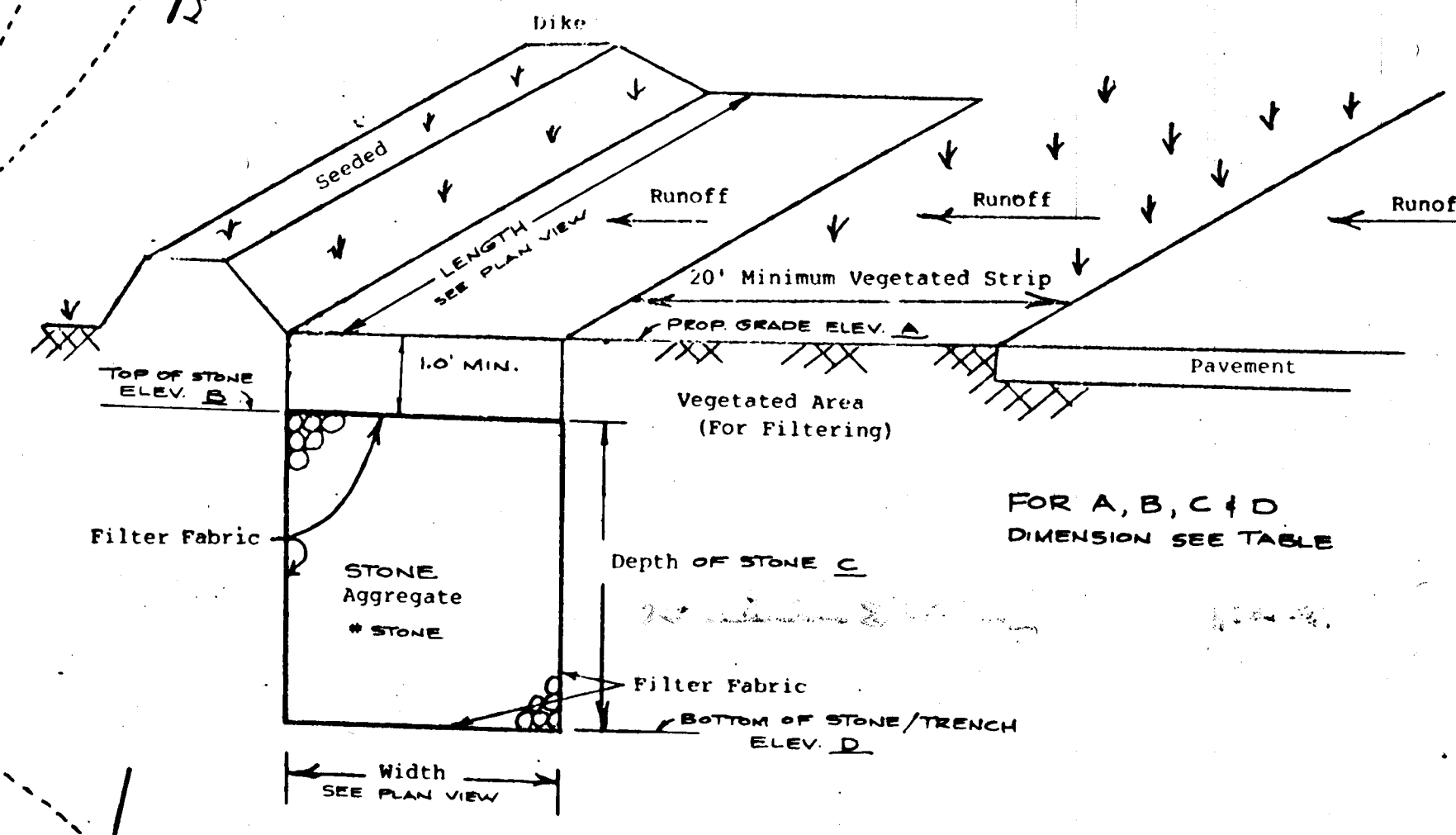


Figure 3-4. Typical Section of Infiltration Trenches

INFILTRATION TRENCH SUMMARY				
TRENCH #	PROP GRADE ELEV. A	TOP OF STONE ELEV. B	DEPTH OF STONE	BOTTOM OF STONE/TRENCH ELEV. D
1	515.00	517.00	5.0'	512.00
2	519.00	518.00	5.0'	514.00
3	514.00	513.00	6.0'	507.00
4	510.00	509.00	5.0'	504.00
5	492.00	491.00	6.5'	485.50
6	492.00	491.00	5.0'	486.00
7	491.00	490.00	5.0'	486.00
8	491.00	490.00	5.0'	486.00
9	485.00	484.00	5.5'	479.50
10	485.00	484.00	5.0'	479.00
11	485.00	484.00	5.0'	479.00

NOTES:

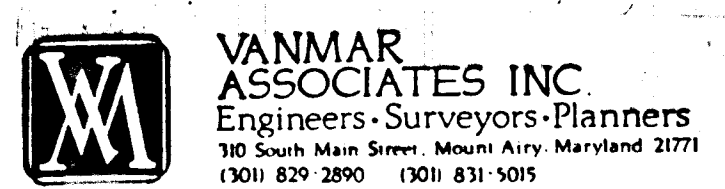
1. TOP SOIL ON INFILTRATION TRENCHES 1 & 5 WAS REMOVED.
2. APPROX. 1" OF THIS TOP SOIL WAS LEFT IN PLACE TO AVOID DAMAGING FILTER FABRIC.
3. TEST PITS WERE EXCAVATED TO ASSESS FILTER FABRIC. FABRIC DID NOT APPEAR TO BE CLOGGED WITH FINES.
4. APPROX. 15' OF MANUFACTURED SAND WAS PLACED OVER THE INFILTRATION TRENCHES.
5. A 2'-3" LAYER OF TOP SOIL WAS PLACED OVER THE SAND LAYER. SOIL USED WAS THAT EXCAVATED IN NOTE 1.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 3/4/91
 CHIEF, LAND DEVELOPMENT DIVISION
[Signature] 2/27/91
 CHIEF, BUREAU OF HIGHWAYS
[Signature] 3-4-91
 CHIEF, BUREAU OF ENGINEERING

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] 3/8/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

OWNER/DEVELOPER:
 CLARKVILLE ASSOCIATES
 c/o LOWRIE D. SARGENT
 19243 WESTMEATH LAKE
 CLARKVILLE, MD 21029
 (301) 654-0756

SITE GRADING & STORMWATER MANAGEMENT PLAN
BRIERLY
 5TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP 34, PARCEL 7
 SCALE: AS SHOWN, SEPT. 1990



8/19/91

SEDIMENT TRAP # 1 ST V
 D.A. TO TRAP = 0.80 AC
 STORAGE REQUIRED = 1,440 cft
 STORAGE PROVIDED = 3,122 cft
 BOTTOM ELEV. = 517.00
 TOP OF EMBANKMENT = 520.00
 CLEAN OUT ELEV. = 518.00
 WEIR ELEV. = 519.00
 WEIR LENGTH = 4.0
 L: 74', W: 16'
 BOTTOM AREA @ ELEV. 517 = 266' x 74' = 1964' ±
 AREA @ WEIR ELEV. 519 = 34' x 16' x 2 = 1088' ±
 VOL. PROVIDED 1104' ± 1968' x 2 = 3152 cft

SEDIMENT TRAP # 2 ST V
 D.A. TO TRAP = 0.33 AC
 STORAGE REQUIRED = 372 cft
 STORAGE PROVIDED = 832 cft
 BOTTOM ELEV. = 517.50
 TOP OF EMBANKMENT = 520.00
 CLEAN OUT ELEV. = 518.00
 WEIR ELEV. = 519.00
 WEIR LENGTH = 2.0
 L: 44', W: 6'

BOTTOM AREA @ ELEV. 517 = 42' x 32' = 126' ±
 AREA @ WEIR ELEV. 519 = 50' x 11' = 550' ±
 STORAGE PROVIDED = 126' ± 550' x 2 = 676' ±

SEDIMENT TRAP # 3 ST V
 D.A. TO TRAP = 0.42 AC
 STORAGE REQUIRED = 462 cft
 STORAGE PROVIDED = 1,012 cft
 BOTTOM ELEV. = 513.00
 TOP OF EMBANKMENT = 516.00
 CLEAN OUT ELEV. = 514.00
 WEIR ELEV. = 515.00
 WEIR LENGTH = 4.0
 L: 35', W: 36'
 BOTTOM AREA @ ELEV. 513 = 274' x 36' = 986' ±
 AREA @ WEIR ELEV. 515 = 35' x 51' x 2 = 1872' ±
 VOL. PROVIDED 1260' ± 1872' x 2 = 3132 cft

SEDIMENT TRAP # 4 ST V
 D.A. TO TRAP = 0.45 AC
 STORAGE REQUIRED = 495 cft
 STORAGE PROVIDED = 1,132 cft
 BOTTOM ELEV. = 509.00
 TOP OF EMBANKMENT = 512.00
 CLEAN OUT ELEV. = 510.00
 WEIR ELEV. = 511.00
 WEIR LENGTH = 2
 L: 51', W: 6'
 BOTTOM AREA @ ELEV. 509 = 514' x 30' ±
 AREA @ WEIR ELEV. 511 = 50' x 14' = 826' ±
 STORAGE PROVIDED = 306' ± 826' x 2 = 1132' ±

SEDIMENT TRAP # 5 ST V
 D.A. TO TRAP = 0.31 AC
 STORAGE REQUIRED = 341 cft
 STORAGE PROVIDED = 772 cft
 BOTTOM ELEV. = 483.00
 TOP OF EMBANKMENT = 486.00
 CLEAN OUT ELEV. = 484.00
 WEIR ELEV. = 485.00
 WEIR LENGTH = 4'
 L: 72', W: 12'
 BOTTOM AREA @ ELEV. 483 = 72' x 12' = 864' ±
 AREA @ WEIR @ ELEV. 485 = 80' x 20' = 1600' ±
 STORAGE PROVIDED 864' ± 1600' x 2 = 2464 cft

BOTTOM AREA @ ELEV. 483 = 67' x 8' = 536' ±
 AREA @ WEIR ELEV. 485 = 75' x 16' = 1200' ±
 STORAGE PROVIDED 536' ± 1200' x 2 = 1736 cft

SEDIMENT TRAP # 6 ST V
 D.A. TO TRAP = 0.16 AC
 STORAGE REQUIRED = 176 cft
 STORAGE PROVIDED = 422 cft
 BOTTOM ELEV. = 471.00
 TOP OF EMBANKMENT = 476.00
 CLEAN OUT ELEV. = 472.00
 WEIR ELEV. = 473.00
 WEIR LENGTH = 2'
 L: 31', W: 10'
 BOTTOM AREA @ ELEV. 471 = 311' x 310' ±
 AREA @ WEIR ELEV. 473 = 33' x 10' = 702' ±
 STORAGE PROVIDED 310' ± 702' x 2 = 1012 cft

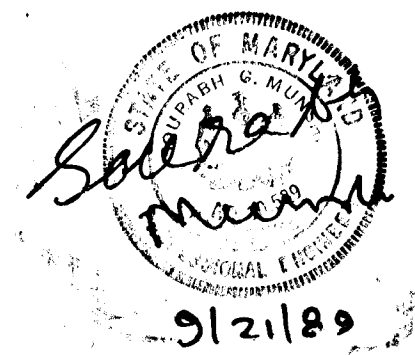
SEDIMENT TRAP # 5 ST V
 D.A. TO TRAP = 0.76 AC
 STORAGE REQUIRED = 836 cft
 STORAGE PROVIDED = 2,032 cft
 BOTTOM ELEV. = 471.00
 TOP OF EMBANKMENT = 476.00
 CLEAN OUT ELEV. = 472.00
 WEIR ELEV. = 473.00
 WEIR LENGTH = 4'
 L: 61', W: 16'
 BOTTOM AREA @ ELEV. 471 = 61' x 16' = 976' ±
 AREA @ WEIR ELEV. 473 = 69' x 24' = 1656' ±
 STORAGE PROVIDED 976' ± 1656' x 2 = 2632 cft

SEDIMENT TRAP # 7 ST V
 D.A. TO TRAP = 1.43 AC
 STORAGE REQUIRED = 1572 cft
 STORAGE PROVIDED = 3,804 cft
 BOTTOM ELEV. = 482.00
 TOP OF EMBANKMENT = 485.00
 CLEAN OUT ELEV. = 483.00
 WEIR ELEV. = 484.00
 WEIR LENGTH = 4.0
 L: 27', W: 17'
 BOTTOM AREA @ ELEV. 482 = 62' x 17' = 1054' ±
 AREA @ WEIR ELEV. 484 = 70' x 25' = 1750' ±
 STORAGE PROVIDED 1054' ± 1750' x 2 = 2804 cft

SEDIMENT TRAP # 8 ST V
 D.A. TO TRAP = 0.27 AC
 STORAGE REQUIRED = 297 cft
 STORAGE PROVIDED = 622 cft
 BOTTOM ELEV. = 485.00
 TOP OF EMBANKMENT = 488.00
 CLEAN OUT ELEV. = 486.00
 WEIR ELEV. = 487.00
 WEIR LENGTH = 2'
 L: 27', W: 6'
 BOTTOM AREA @ ELEV. 485 = 27' x 6' = 162' ±
 AREA @ WEIR ELEV. 487 = 33' x 14' = 462' ±
 STORAGE PROVIDED 162' ± 462' x 2 = 624 cft

TOTAL AREA OF DISTURBANCE = 409,375' ± OR 7.37 AC ±
 TOTAL CUT = 7,820 cu yds
 TOTAL FILL = 11,350 cu yds

- CONSTRUCTION SEQUENCE
1. Obtain necessary permits.
 2. Notify county 24 hours prior to commencement of construction.
 3. Clear and grub for S.C.E., earth dike and traps.
 4. Install S.C.E., and all other sediment control devices.
 5. Install and stabilize all cross culverts and associated grading.
 6. Grade and stabilize off road ditches for the sediment traps prior to construction of the road, and road side ditches.
 7. Clear and grub for grading of road, and ditches.
 8. During construction of Highland Road, maintain one lane at all times and use flagmen to control traffic.
 9. Install bituminous paving and stabilize disturbed area.
 10. Remove all sediment control devices when approved by sediment control inspector.
 11. Stabilize all disturbed area.
 12. Install infiltration trenches when all other construction is complete and upland areas are permanently stabilized.



FOLLOWING INITIAL SOIL DISTURBANCE OR RESTORATION, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 1) SEVEN (7) CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, 2) FOURTEEN (14) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON PROJECT SITE.
 NOTE: THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTOR / SURVEY DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT 702-7272

DEVELOPER'S CERTIFICATE
 "I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."
James B. Sneyd 2-1-90
 DATE

ENGINEER'S CERTIFICATE
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
Saurabh Munshi 9/21/89
 DATE

REVIEW FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS
John W. Ketch 1-16-91
 US SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
John L. Robertson 1/19/91
 HOWARD S.C.D. DATE

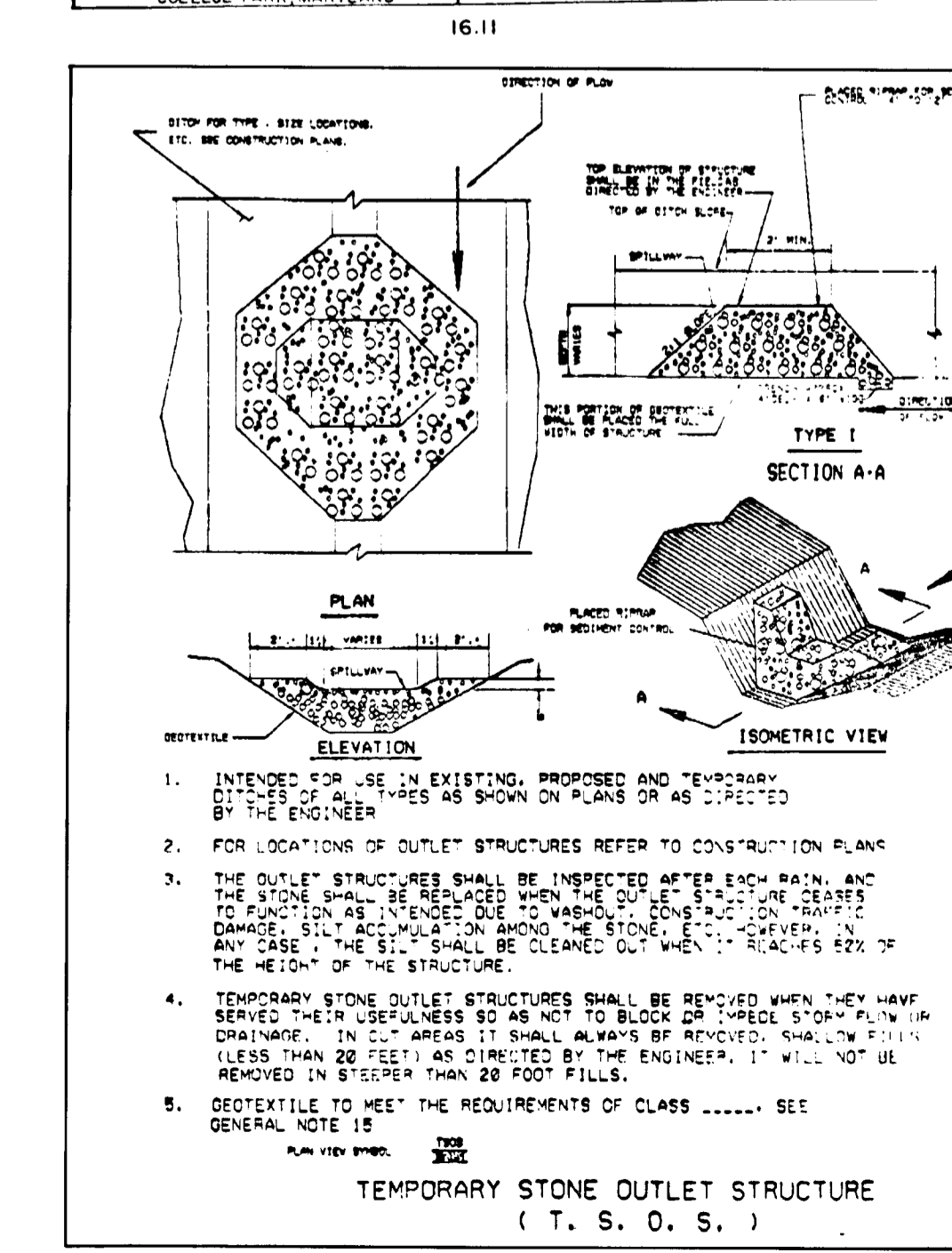
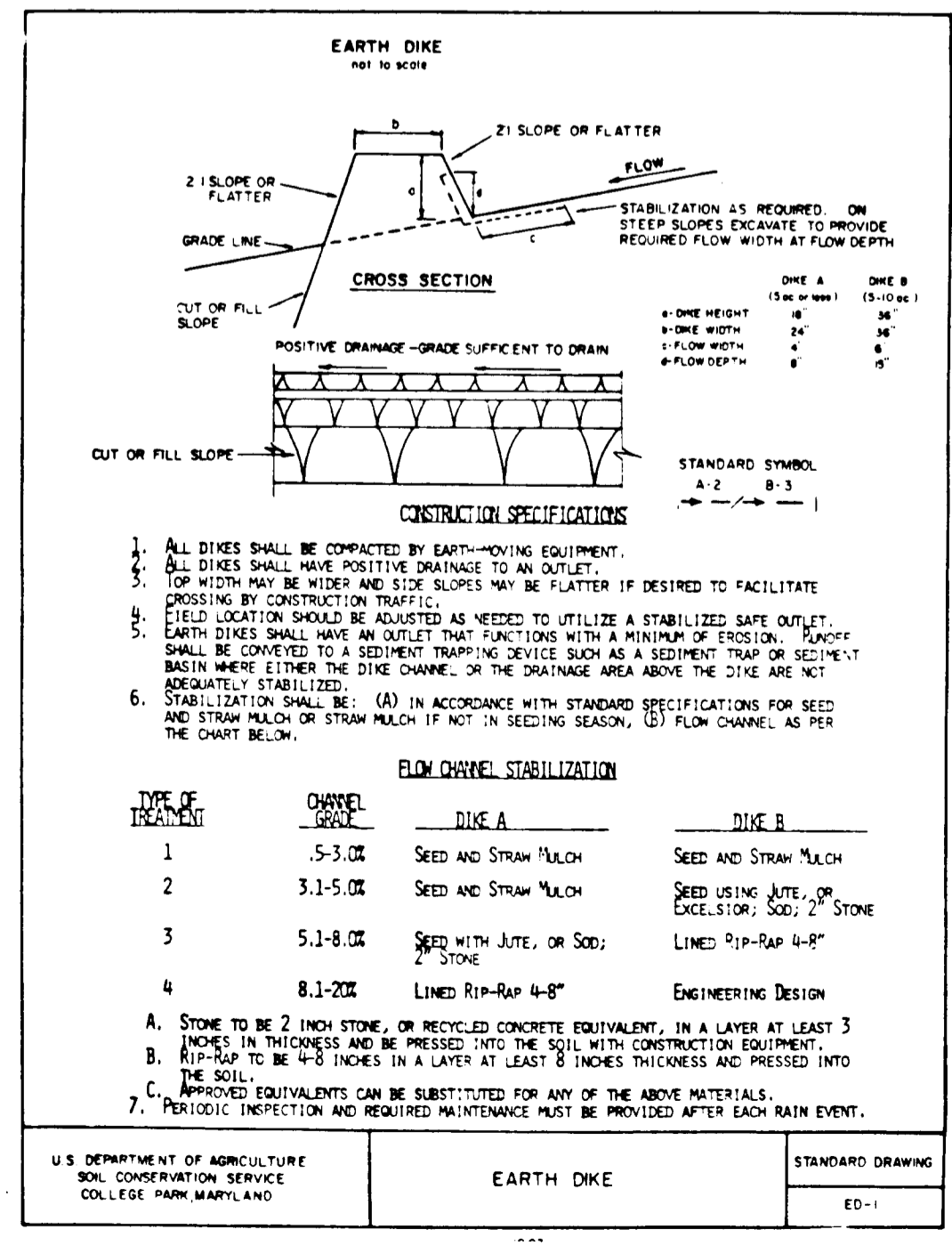
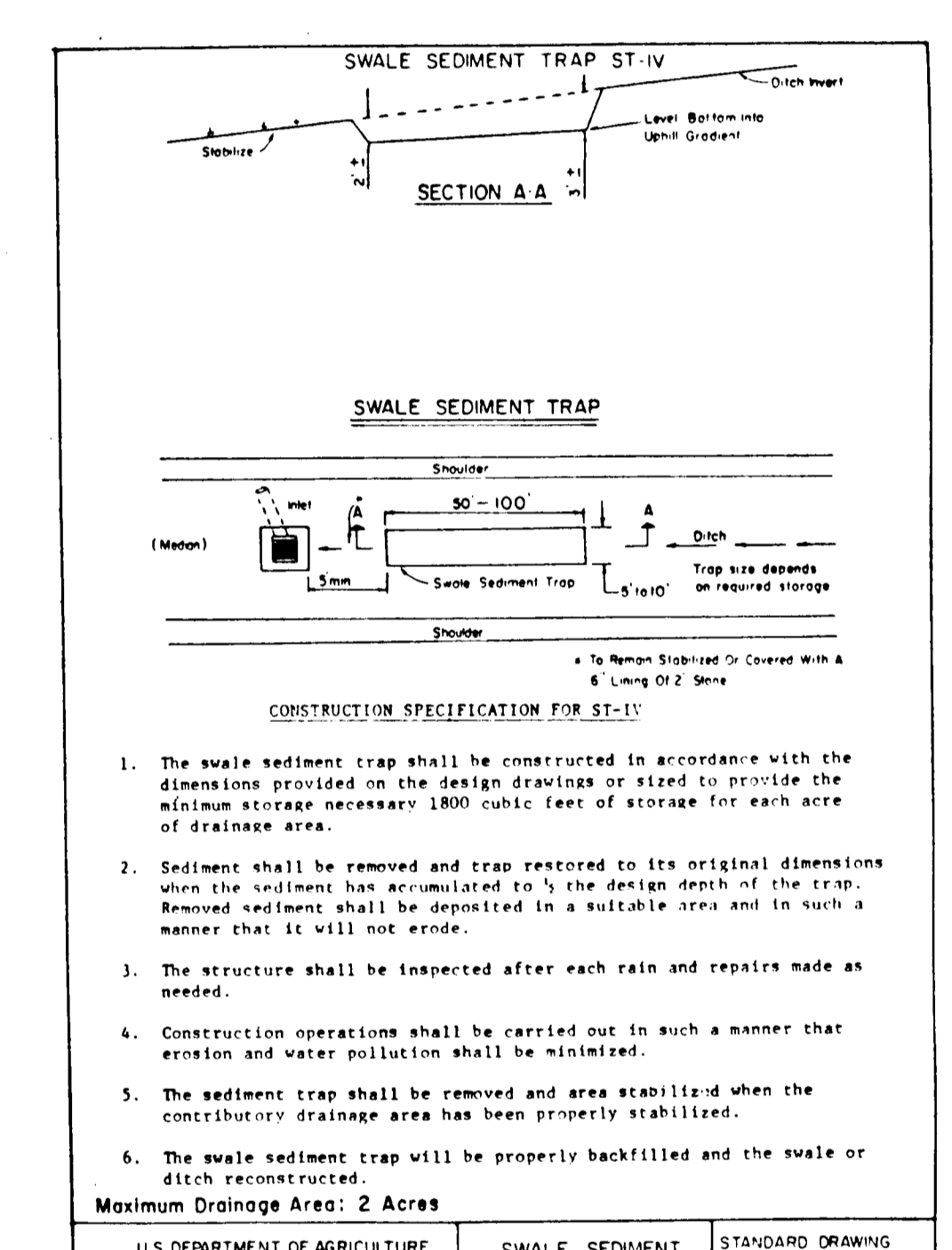
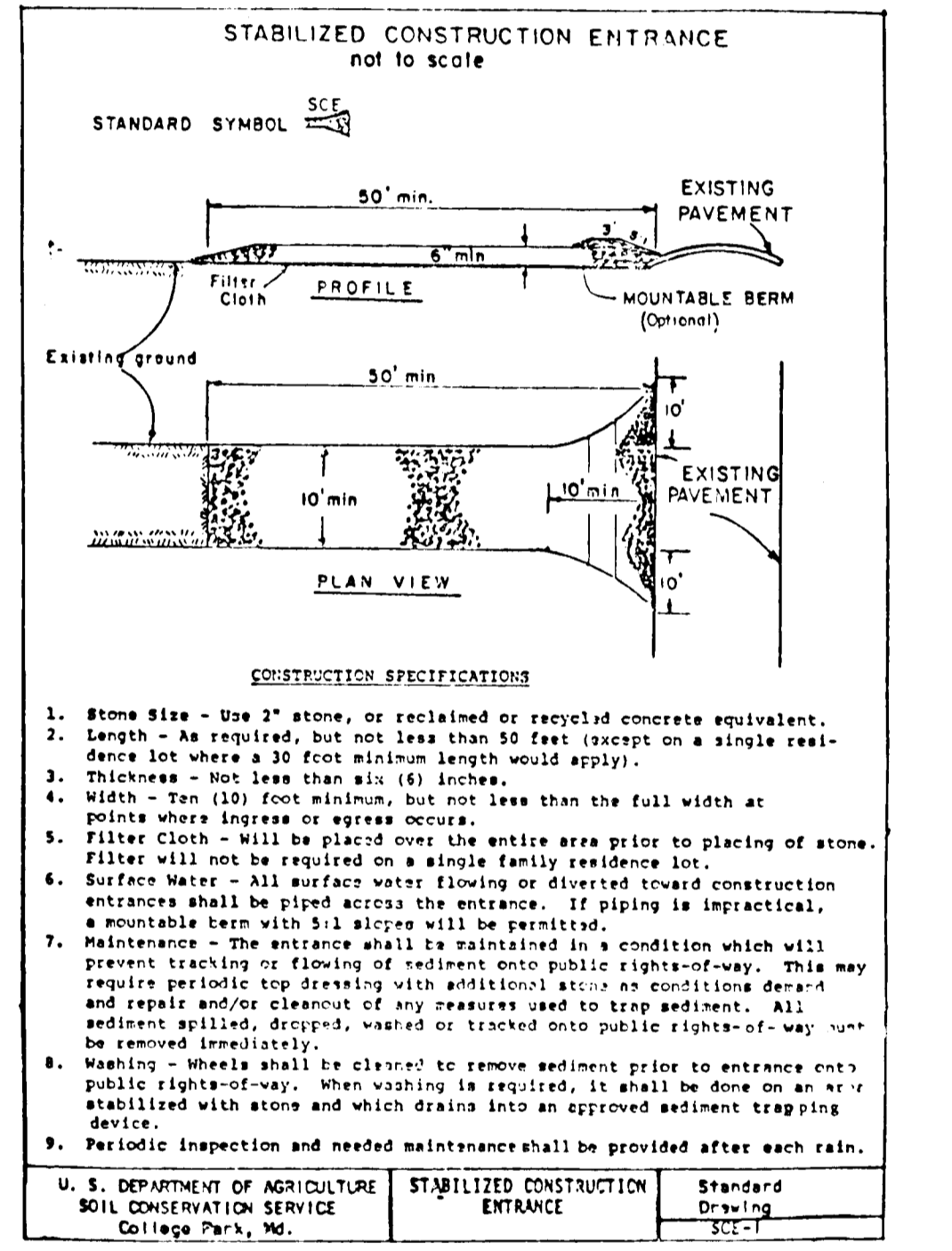
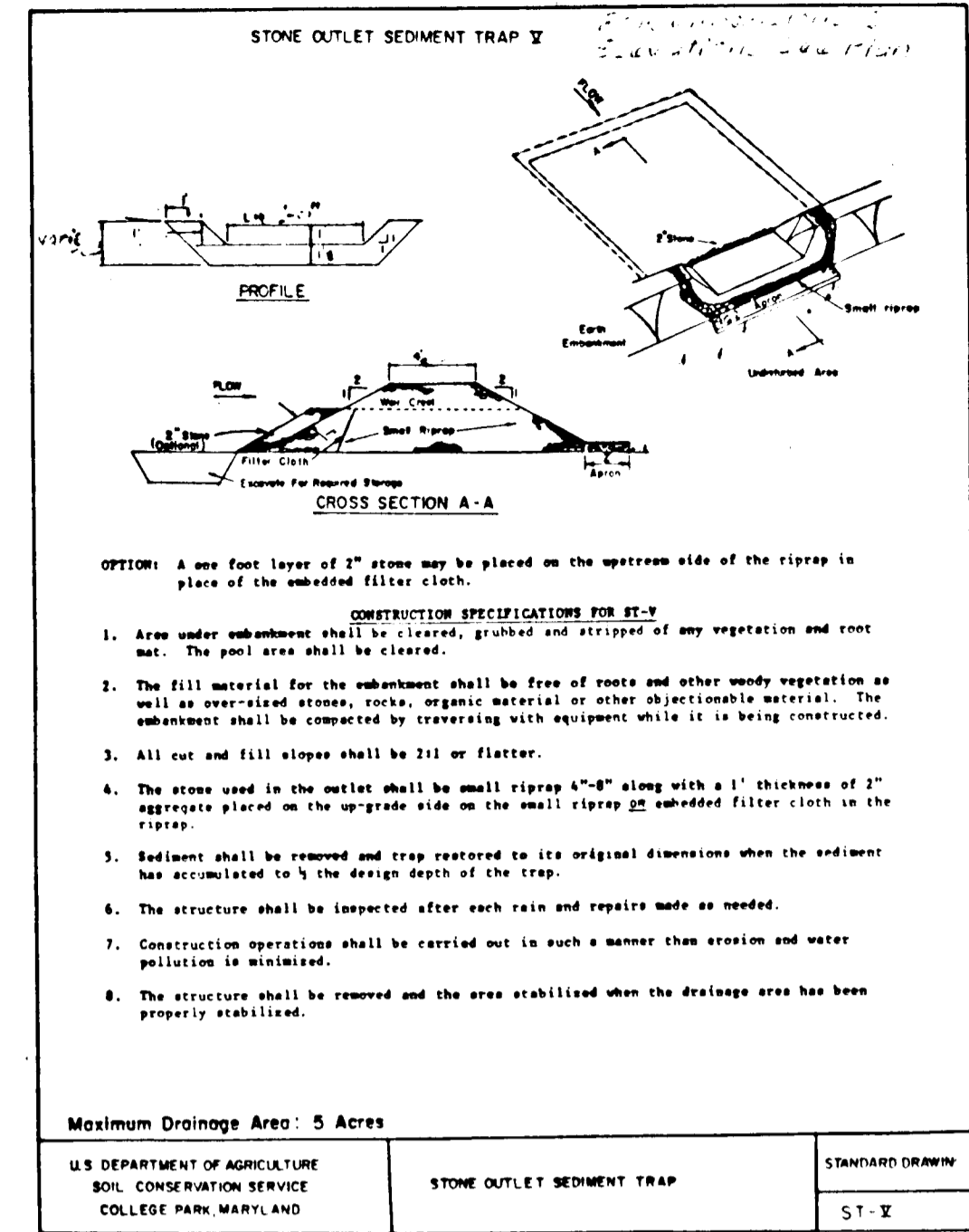
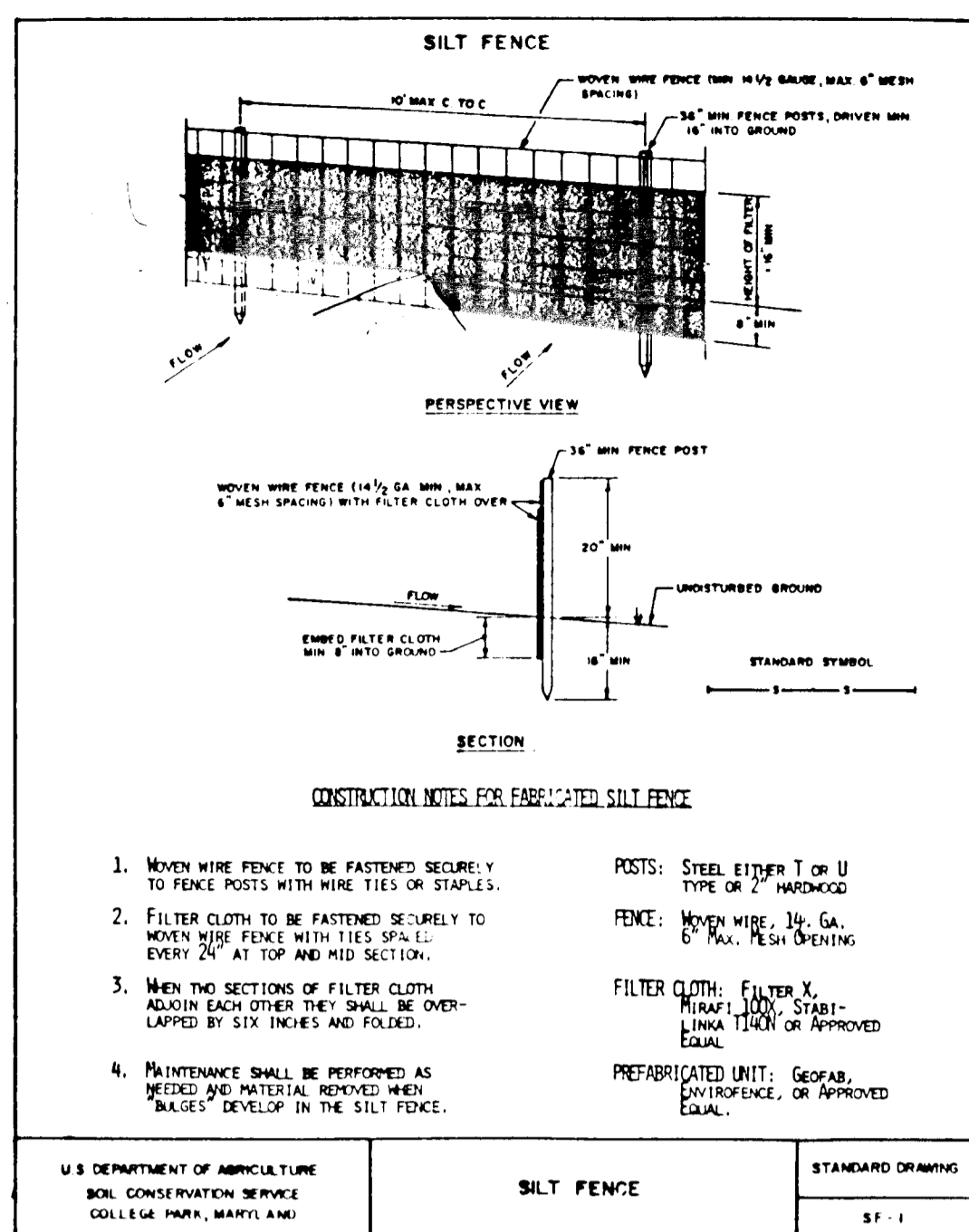
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Alan Tamm 3/4/91
 CHIEF, LAID DEVELOPMENT DIVISION DATE
Douglas W. Wilstead 2/27/91
 CHIEF, BUREAU OF HIGHWAYS DATE
Richard B. Reilly 2-4-91
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Richard Brad 3/8/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAID DEVELOPMENT DATE

OWNER / DEVELOPER:
 CLARKVILLE ASSOCIATES
 c/o LOURIE B. BARRETT
 1323 WEST MEATH LAKE
 CLARKVILLE, MD 21022
 (301) 854-0938

SOIL EROSION & SEDIMENT CONTROL PLAN
BRIERLY
 5TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP 34, PARCEL: 7
 SCALE: AS SHOWN, SEPT. 1989





PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

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

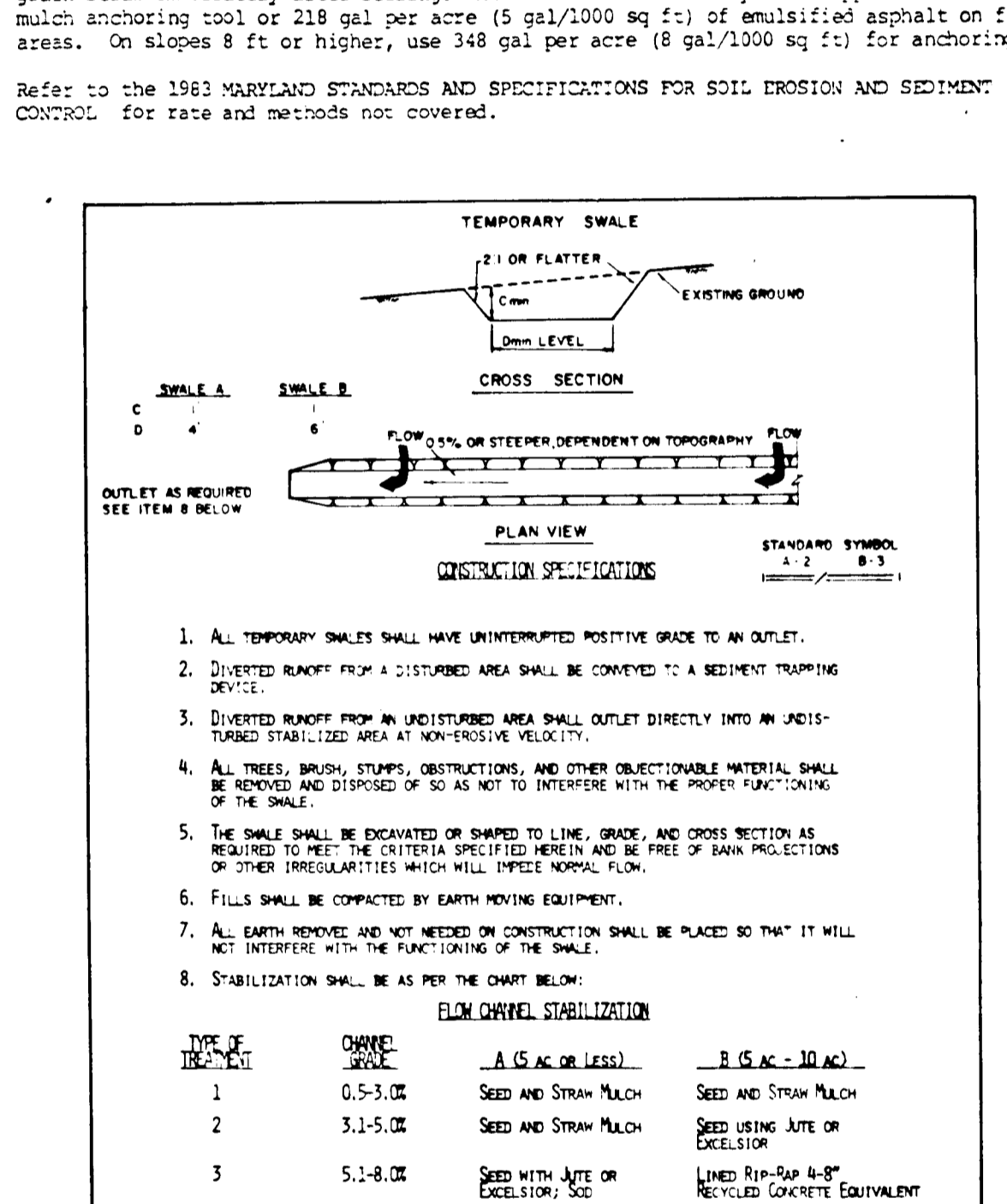
Soil Amendments: In lieu of soil test recommendations, use one of the following:

- 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 disk 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).
- 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 disk 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 seeding lovegrass. During the period of October 15 thru February 28, present 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 28 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.



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. (892-2437)
- 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: 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.
- All sediment traps/basins above 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 established 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 such 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.
- Site Analysis: Total Area of Site: Acres 1.4560 Area Disturbed: Acres 1.4560 Area to be paved: Acres 0.7400 Area to be vegetatively stabilized: Cu Yds. 110566 Total Cut: Cu Yds. 92664 Total Fill: 0
- Offsite waste/borrow area location - 0
- 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 controls must be provided, if deemed necessary by the Howard County DPW Sediment Control Inspector.
- On all sites with disturbed areas in excess of 3 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 approval may not be authorized until this initial approval by the inspection agency is made.

INFILTRATION TRENCH

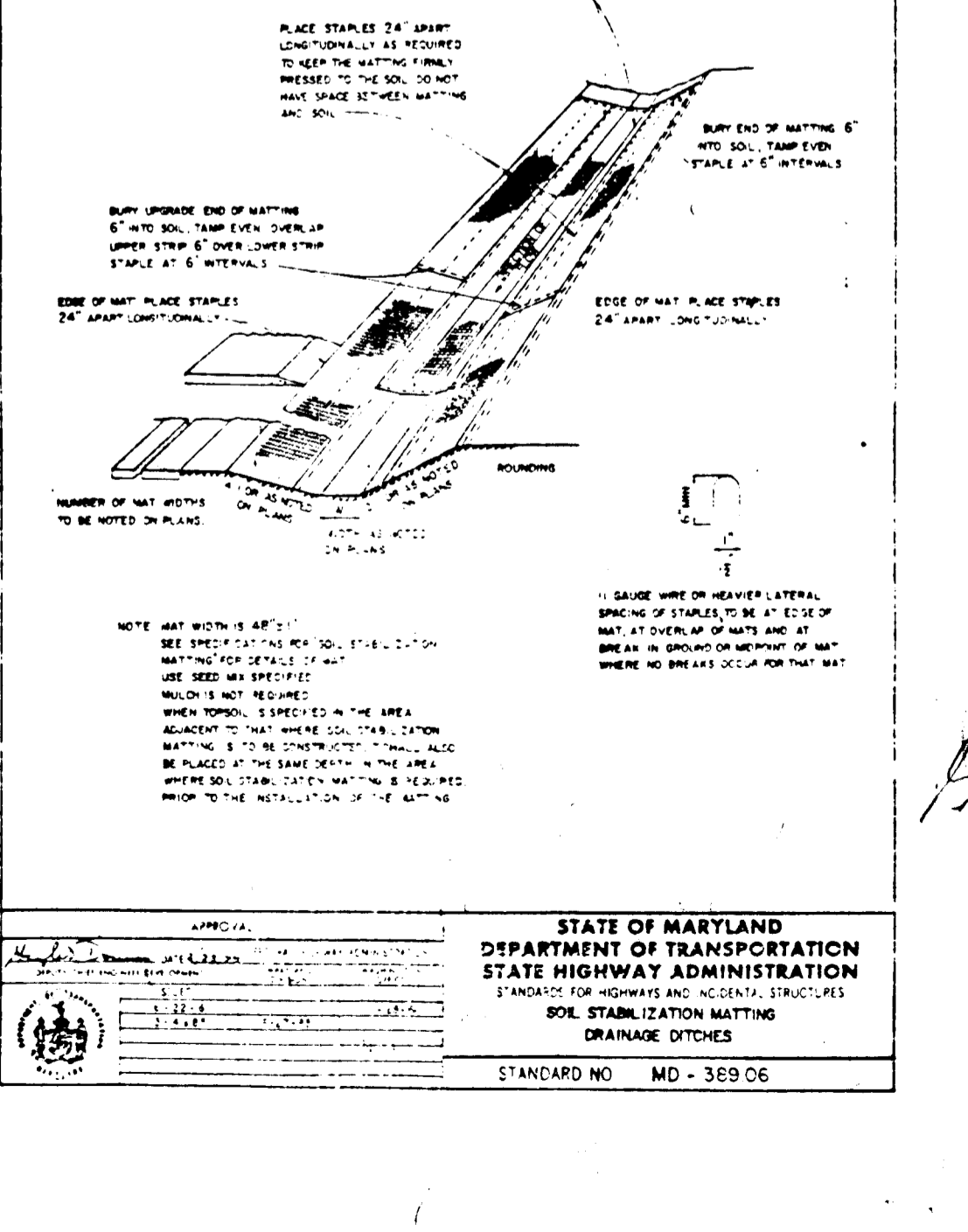
Construction Specifications

- Timing** - An infiltration trench shall not be constructed or placed in service until all of the contributing drainage area has been stabilized and approved by the responsible inspector.
- Trench Preparation** - Excavate the trench to the design dimensions. Excavated materials shall be placed away from the trench sides to enhance trench wall stability. Large tree roots must be trimmed flush with the trench sides in order to prevent fabric puncturing or tearing during subsequent installation procedures. The side walls of the trench shall be equipped with steel and sealed by heavy equipment.
- Fabric Laydown** - The filter fabric roll must be cut to the proper width prior to installation. The cut width must include sufficient material to conform to the trench perimeter irregularities and for a 6-inch minimum top overlap. The trench perimeter irregularities and for a 6-inch minimum top overlap. The trench perimeter irregularities and for a 6-inch minimum top overlap. The trench perimeter irregularities and for a 6-inch minimum top overlap.
- Stone Aggregate Placement and Connection** - The stone aggregate should be placed in lifts and compacted using plate compactors. As a rule of thumb, a maximum loose lift thickness of 12 inches is recommended. The compaction process ensures fabric conformity to the excavation sides, thereby reducing the potential for soil piping, fabric clogging, and settlement problems.
- Overlapping and Covering** - Following the stone aggregate placement, the filter fabric shall be folded over the stone aggregate to form a 6" minimum longitudinal lap. The desired fill soil or stone aggregate shall be placed over the lap at sufficient intervals to maintain the lap during subsequent backfilling.
- Contamination** - Care shall be exercised to prevent natural or fill soils from intermingling with the stone aggregate. All contaminated stone aggregate shall be removed and replaced with uncontaminated stone aggregate.
- Voils Behind Fabric** - Voids can be created between the fabric and excavation sides and shall be avoided. Removing boulders or other obstacles from the trench wall is the most convenient time during construction to ensure fabric conformity to the excavation sides. Soil piping, fabric clogging, and possible surface subsidence will be avoided by this remedial process.
- Unstable Excavation Sides** - Vertically excavated walls may be difficult to maintain in areas where the soil moisture is high or where soft cohesive or cohesionless soils predominate. These conditions may require laying back of the side slopes to maintain stability; trapezoidal rather than rectangular cross sections may result.
- Vegetative Buffer** - A vegetative buffer of at least 20 feet (wider, if possible) shall be used to intercept surface runoff from all impervious areas.
- Traffic Control** - Heavy equipment and traffic shall be restricted from traveling over the infiltration areas to minimize compaction of the soil.
- Observation Well** - An observation well, as shown on construction plans, shall be clearly marked on the well cap.

Maintenance

The observation well shall be monitored periodically. For the first year after completion of construction, the well should be monitored on a quarterly basis and after every large storm. It is recommended that a log book be maintained indicating the rate at which the facility discharges after large storms and the condition of the well for each observation. Once the performance characteristics of the structure have been verified, the monitoring schedule can be reduced to an annual basis, unless the performance data indicate that a more frequent schedule is required.

Sediment build-up in the top foot of stone aggregate on the surface shall be monitored on the same schedule as the observation well. A monitoring well in the top foot of stone aggregate will be required when the trench has a stone surface. Sediment deposited shall not be allowed to build up to the point where it will reduce the rate of infiltration into the trench.



FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTRIBUTION, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: 1) SEVEN (7) CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, 2) FORTY-FOUR (44) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON PROJECT SITE.

NOTE: THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTOR / SURVEY DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT 702-7272

DEVELOPER'S CERTIFICATE

"I do certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

James B. Syrett 2/1/90
DATE

ENGINEER'S CERTIFICATE

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

Burrabill Munn 2/21/89
DATE

REVIEW FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS

James M. Kline 1-16-91
DATE

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

John R. Robertson 1/16/91
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James M. Kline 3/6/91
DATE

Francis W. Weaver 2/27/91
DATE

CHIEF, BUREAU OF HIGHWAYS

William E. Day 3-4-91
DATE

CHIEF, BUREAU OF ENGINEERING

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Richard Blood 2/8/91
DATE

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

SOIL EROSION & SEDIMENT CONTROL DETAILS

BRIERLY

5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP: 34, PARCEL: 7
SCALE: NONE SEPT, 1989

Burrabill Munn 9/21/89

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND NECESSARY STRUCTURES
SOIL STABILIZATION MATTERS
DRAINAGE DITCHES

STANDARD NO. MD - 369 CG

1618

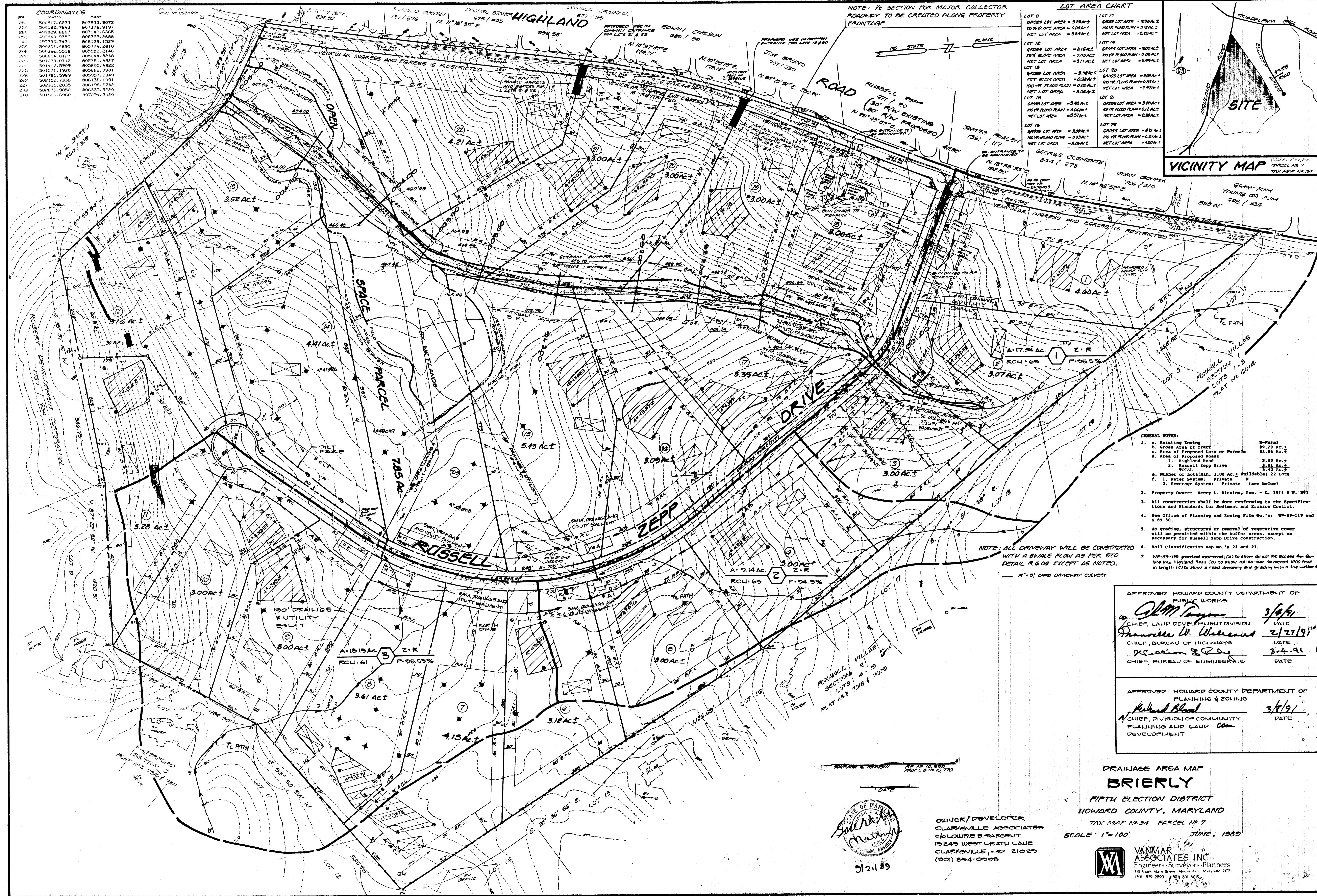
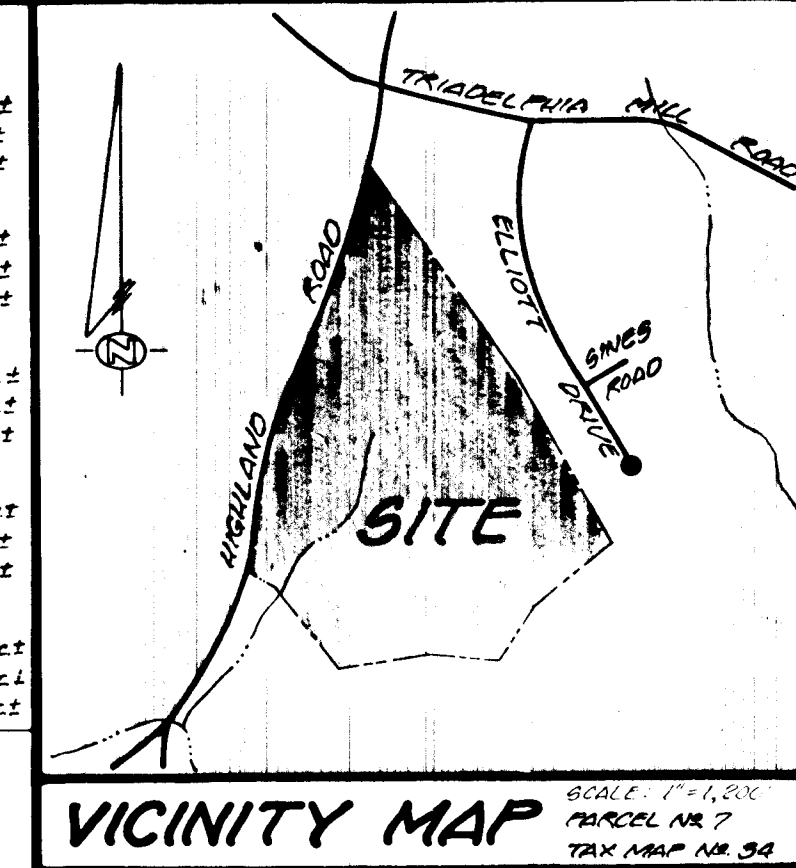
COORDINATES

STA	EAST	NORTH
251	500517.6233	807833.9072
250	500183.7643	807376.9197
249	499859.6467	807192.6352
253	499448.9352	806752.2688
41	499782.7430	806139.1529
246	500252.4439	805774.2810
248	500366.5518	805582.2146
247	500654.0127	805344.8048
245	501239.0712	805161.4927
244	501407.5909	805005.4822
243	501571.1930	805182.0981
242	501781.5969	805257.2349
241	502152.7336	806136.1091
237	502335.2035	806198.6742
233	502876.9050	806339.9280
310	501506.6960	807394.3020

NOTE: 1/2 SECTION FOR MAJOR COLLECTOR ROADWAY TO BE CREATED ALONG PROPERTY FRONTAGE

LOT AREA CHART

LOT #	GROSS LOT AREA	25% SLOPE AREA	NET LOT AREA
LOT 11	3.28 AC ±	0.04 AC ±	3.24 AC ±
LOT 12	3.18 AC ±	0.05 AC ±	3.13 AC ±
LOT 13	3.11 AC ±	0.04 AC ±	3.07 AC ±
LOT 14	3.08 AC ±	0.04 AC ±	3.04 AC ±
LOT 15	3.00 AC ±	0.04 AC ±	2.96 AC ±
LOT 16	3.00 AC ±	0.04 AC ±	2.96 AC ±
LOT 17	3.00 AC ±	0.04 AC ±	2.96 AC ±
LOT 18	3.00 AC ±	0.04 AC ±	2.96 AC ±
LOT 19	3.00 AC ±	0.04 AC ±	2.96 AC ±
LOT 20	3.00 AC ±	0.04 AC ±	2.96 AC ±
LOT 21	3.00 AC ±	0.04 AC ±	2.96 AC ±
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LOT 31	3.00 AC ±	0.04 AC ±	2.96 AC ±
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LOT 91	3.00 AC ±	0.04 AC ±	2.96 AC ±
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LOT 95	3.00 AC ±	0.04 AC ±	2.96 AC ±
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LOT 97	3.00 AC ±	0.04 AC ±	2.96 AC ±
LOT 98	3.00 AC ±	0.04 AC ±	2.96 AC ±
LOT 99	3.00 AC ±	0.04 AC ±	2.96 AC ±
LOT 100	3.00 AC ±	0.04 AC ±	2.96 AC ±



- GENERAL NOTES:**
- Existing zoning: R-Rural
 - Gross Area of Tract: 89.29 AC ±
 - Area of Proposed Lots or Parcels: 83.48 AC ±
 - Area of Proposed Roads: 2.42 AC ±
 - Highland Road: 1.91 AC ±
 - Russell Sepp Drive: 1.91 AC ±
 - TOTAL: 83.48 AC ±
 - Number of Lots (Min. 3.00 AC ± Building): 22 Lots
 - Water System: Private
 - Sewerage System: Private (see below)
- Property Owner: Henry L. Stevens, Inc. - L. 1911 & P. 293
 - All construction shall be done conforming to the Specifications and Standards for Sediment and Erosion Control.
 - See Office of Planning and Zoning File No.'s: WP-89-119 and S-89-30.
 - No grading, structures or removal of vegetative cover will be permitted within the buffer areas, except as necessary for Russell Sepp Drive construction.
 - Soil Classification Map No.'s 22 and 23.
 - WP-89-119 granted approval (a) to allow direct lot access for future into Highland Road (b) to allow cut-a-lot to exceed 1500 feet in length (c) to allow a road crossing and grading within the wetlands.
- NOTE: ALL DRIVEWAY WILL BE CONSTRUCTED WITH A SHALE FLOW AS PER STD. DETAIL R-608 EXCEPT AS NOTED.
- M=3' CURB DRIVEWAY CURVE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Alvin Tappan 3/6/91
CHIEF, LAND DEVELOPMENT DIVISION DATE

Francis W. Walsworth 2/27/91
CHIEF, BUREAU OF HIGHWAYS DATE

William R. Rely 3-4-91
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

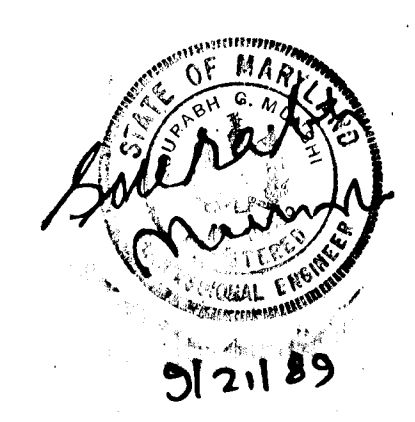
Kathleen Blood 3/8/91
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

DRAINAGE AREA MAP

BRIERLY

FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP NO. 54 PARCEL NO. 7

SCALE: 1"=100' JUNE, 1990



OWNER/DEVELOPER
CLARKVILLE ASSOCIATES
CLOUWRE B. BARSBUT
19243 WEST MEATH LAKE
CLARKVILLE, MD 21029
(301) 694-0988

VANMAR ASSOCIATES INC.
Engineers-Surveyors-Planners
1301 South Main Street Mount Airy, Maryland 21771
(301) 829-2800 (301) 831-5075

1618