

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 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 NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."
James A. Fryer 5/26/89
 DATE

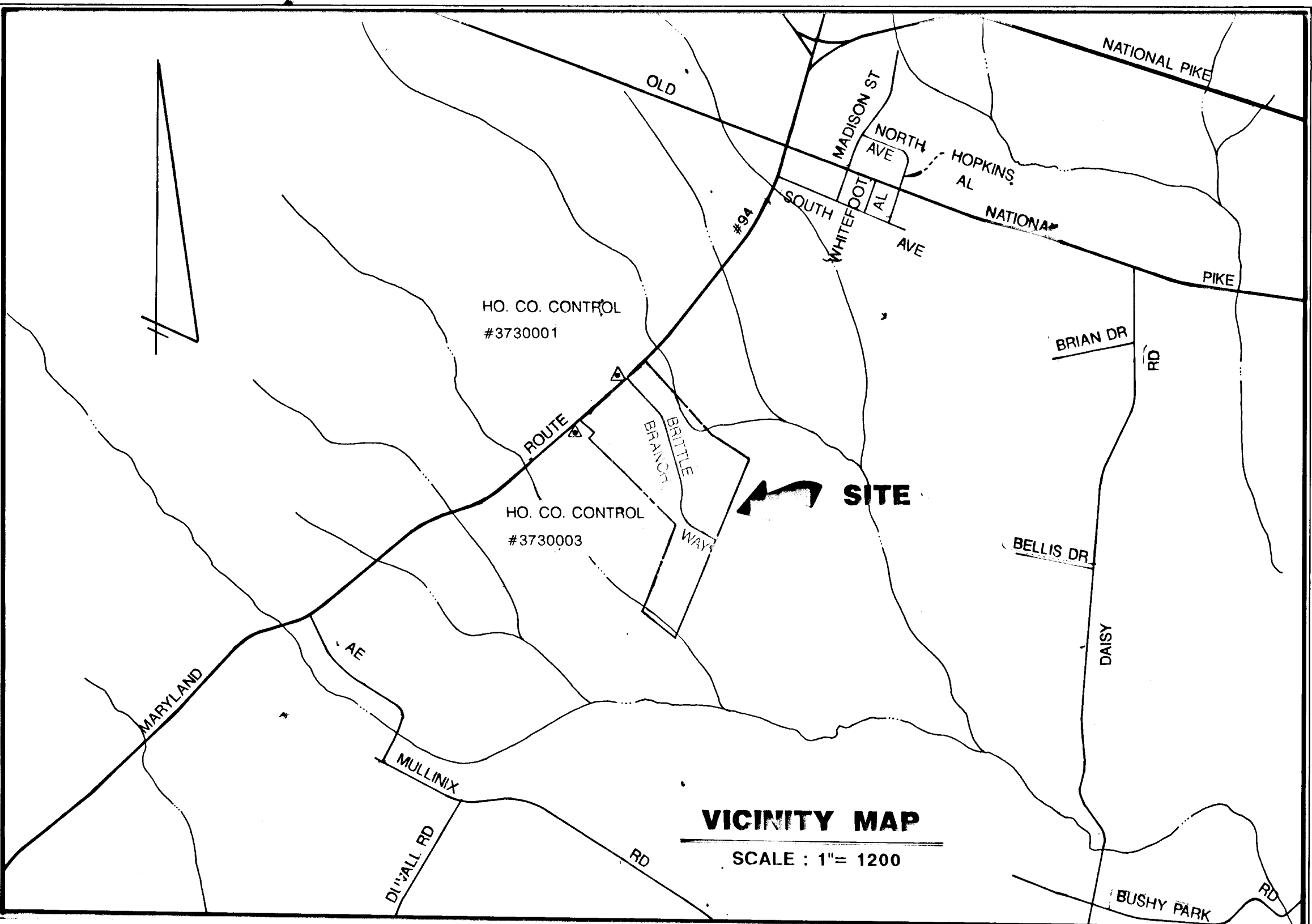
ENGINEER'S CERTIFICATE
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
Donald H. Munn 5/26/89
 DATE

REVIEW FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS
James A. Fryer 5/26/89
 U.S. SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
James A. Fryer 5/26/89
 HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Samuel J. Spon 3/2/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Drummond W. Williams 2/28/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William S. Ray 3-5-90
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
David J. Taylor 3/2/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



AS-BUILT

ROAD IMPROVEMENT PLANS

LISBON ESTATES

SITUATED ON MARYLAND ROUTE #94
 FORTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 7, PARCEL 134

OWNER/DEVELOPER
FRALL DEVELOPERS, INC.
 P.O. BOX 659
 MOUNT AIRY, MARYLAND 21771
 (301)795-1866

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

ROAD IMPROVEMENT PLANS INDEX

FOR

LISBON ESTATES

- SHEET 1 OF 9 COVER SHEET
- SHEET 2 OF 9 STORM DRAIN, PAVING, & GRADE ESTABLISHMENT PLAN FOR BRITTLE BRANCH WAY
- SHEET 3 OF 9 STORM DRAIN, PAVING, & GRADE ESTABLISHMENT PLAN FOR BRITTLE BRANCH WAY
- SHEET 4 OF 9 ROAD IMPROVEMENT PLAN FOR ROUTE #94
- SHEET 5 OF 9 GRADE ESTABLISHMENT PLAN FOR FUTURE ROAD
- SHEET 6 OF 9 SITE GRADING PLAN & STORM WATER MANAGEMENT PLAN
- SHEET 7 OF 9 SOIL EROSION & SEDIMENT CONTROL PLAN
- SHEET 8 OF 9 SOIL EROSION & SEDIMENT CONTROL DETAILS
- SHEET 9 OF 9 DRAINAGE AREA MAP

GENERAL NOTES

1. 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.
2. All horizontal controls are based on Maryland State Coordinates.
3. All vertical controls are based on U.S.C.S. data.
4. All pipe elevations shown are invert 0 elevations.
5. 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, any cost incurred by the owner for 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.
6. 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.
7. 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.
8. 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
 Hies Utility - 1-800-257-7777
 Colonial Pipeline Co. - 795-1390
 Bureau of Utilities, Howard County Department of Public Works - 992-2366
9. 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.
10. 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.
11. Place regulation "Men Working" and warning signs as required to comply with Maryland State Highway Administration Manual of Traffic Control for Highway Construction and Maintenance Operations.
12. ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 1988 EDITION.

DATE	REVISION
8/1/89	AS PER COMMENTS
9/27/89	AS PER COMMENTS
11/27/89	AS PER COMMENTS

Donald H. Munn
 5/26/89

AS-BUILT

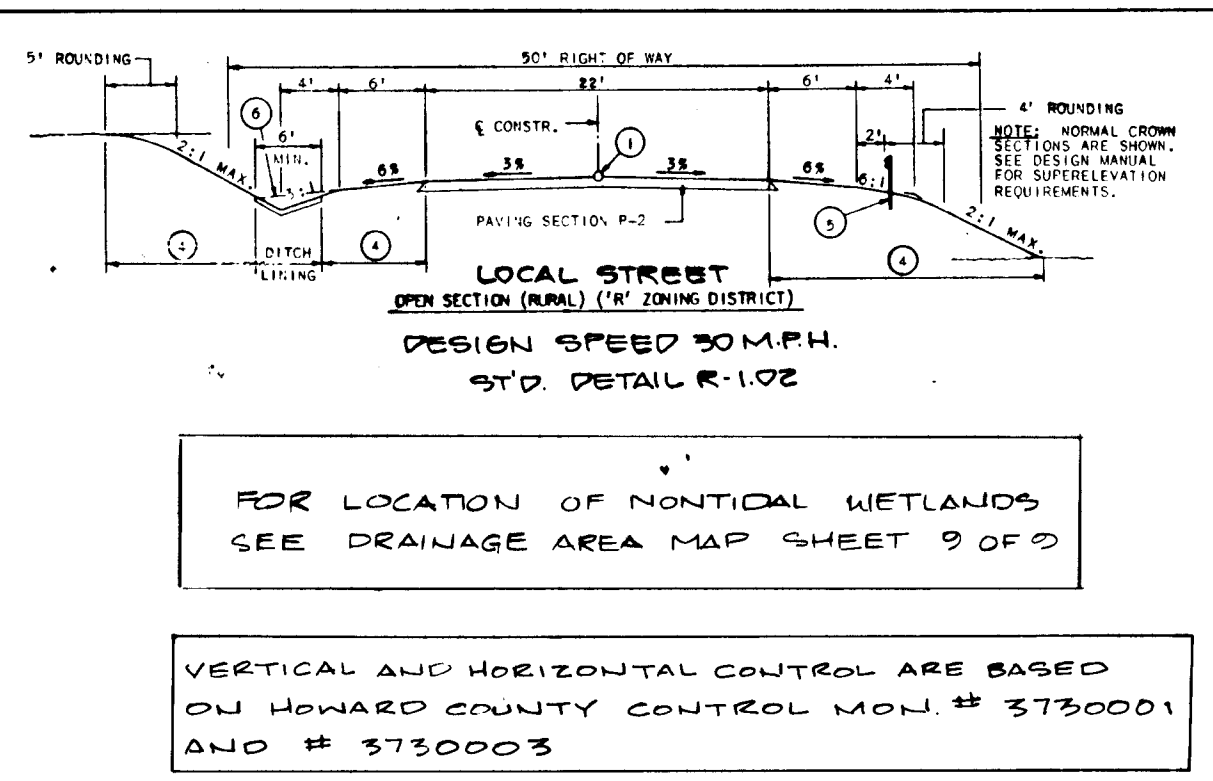
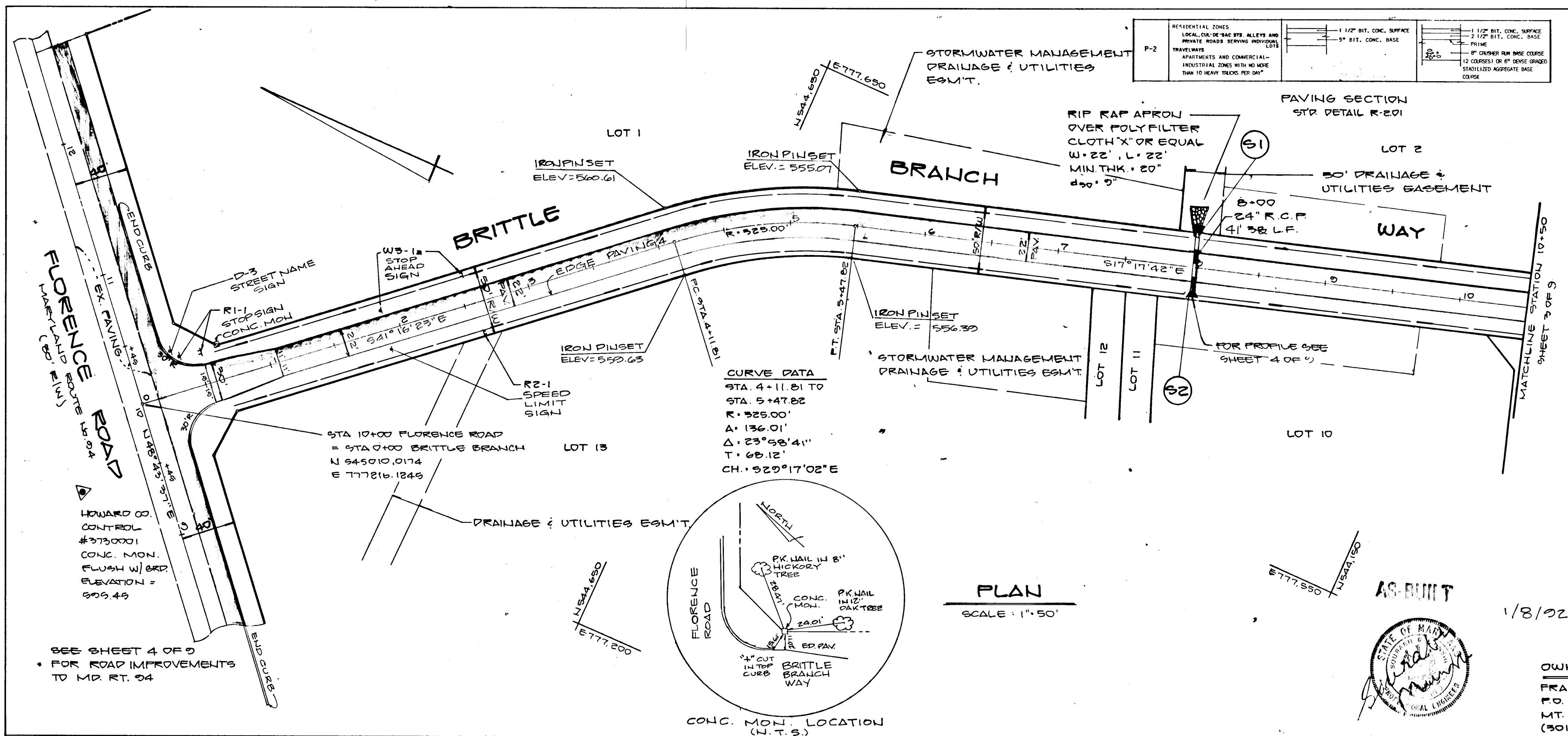
1/8/92

AS-BUILT
 1/8/92
F-89-236

1548

DATE	
BY	
REVISION	
NO.	
PLAN	
NOTE BOOK	
NO.	

DATE	
BY	
REVISION	
NO.	
PROFILE	
NOTE BOOK	
NO.	



FOR LOCATION OF NONTICAL WETLANDS SEE DRAINAGE AREA MAP SHEET 9 OF 9

VERTICAL AND HORIZONTAL CONTROL ARE BASED ON HOWARD COUNTY CONTROL MON. # 3730001 AND # 3730003

FOLLOWING INITIAL SOIL DISTURBANCE OR RESTORATION, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 1) SEVEN (7) CALENDAR DAYS FOR ALL PERMETER, SEDIMENT CONTROL, STRUCTURES, DITCHES, SWALES, DITCHES, PERMETER 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 702-1872.

DEVELOPER'S CERTIFICATE
 I, JAMES E. RAY, certify that all development and construction will be done according to this plan, and that all responsible personnel involved in the construction project will have a certificate of attendance at a department of natural resources approved training program for the control of sediment and erosion before beginning the project.
 James E. Ray 5/26/89
 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.
 Sarah Munn 5/26/89
 DATE

REVIEW FOR HOWARD S.C.D. AND ASSETS TECHNICAL REQUIREMENTS
 James E. Ray 5/26/89
 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Sarah Munn 5/26/89
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 4TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP 7, PARCEL 134
 SCALE AS SHOWN MAY, 1989

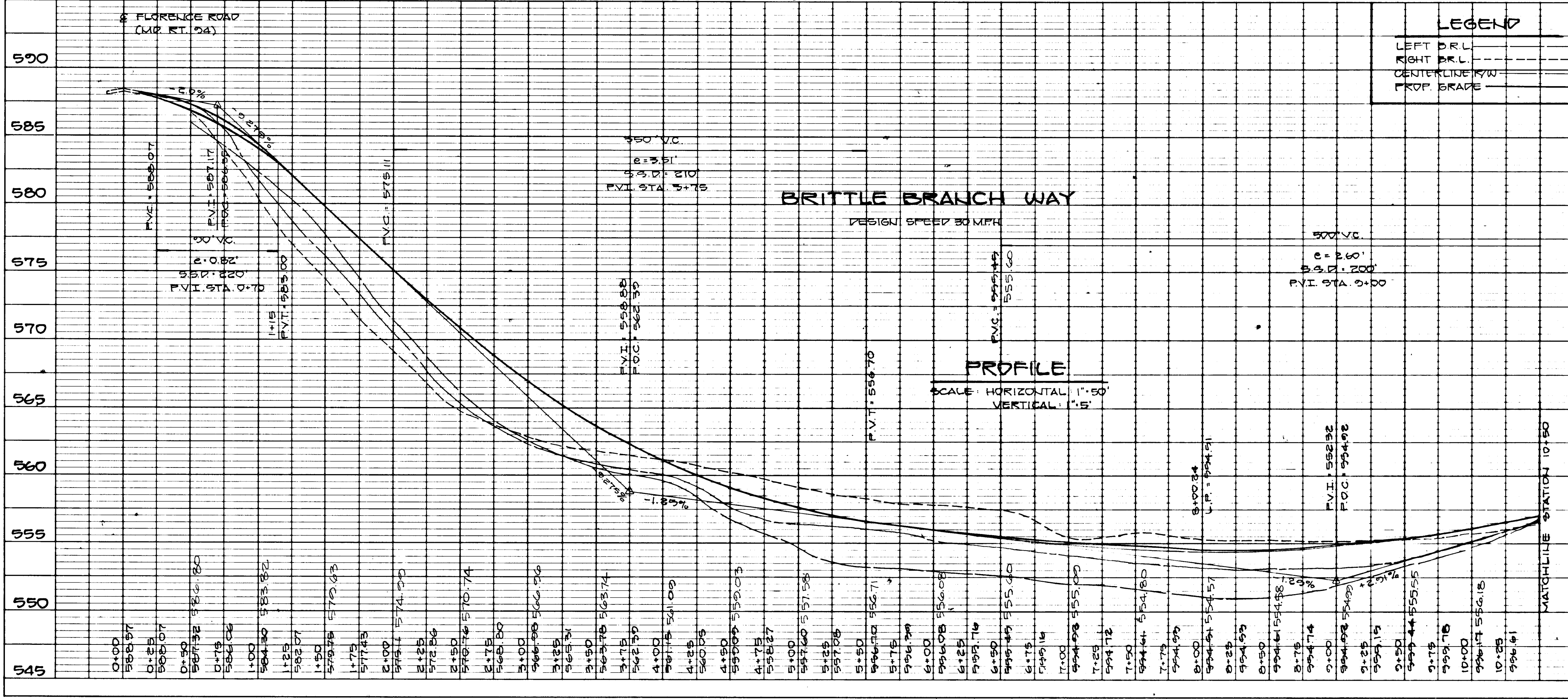
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 Sarah Munn 5/26/89
 DATE

PLAN
SCALE: 1"=50'

AS-BUILT
1/8/02

OWNER / DEVELOPER
FRALL DEVELOPERS, INC.
 P.O. BOX 650
 MT. AIRY, MD. 21771
 (301) 795-1866

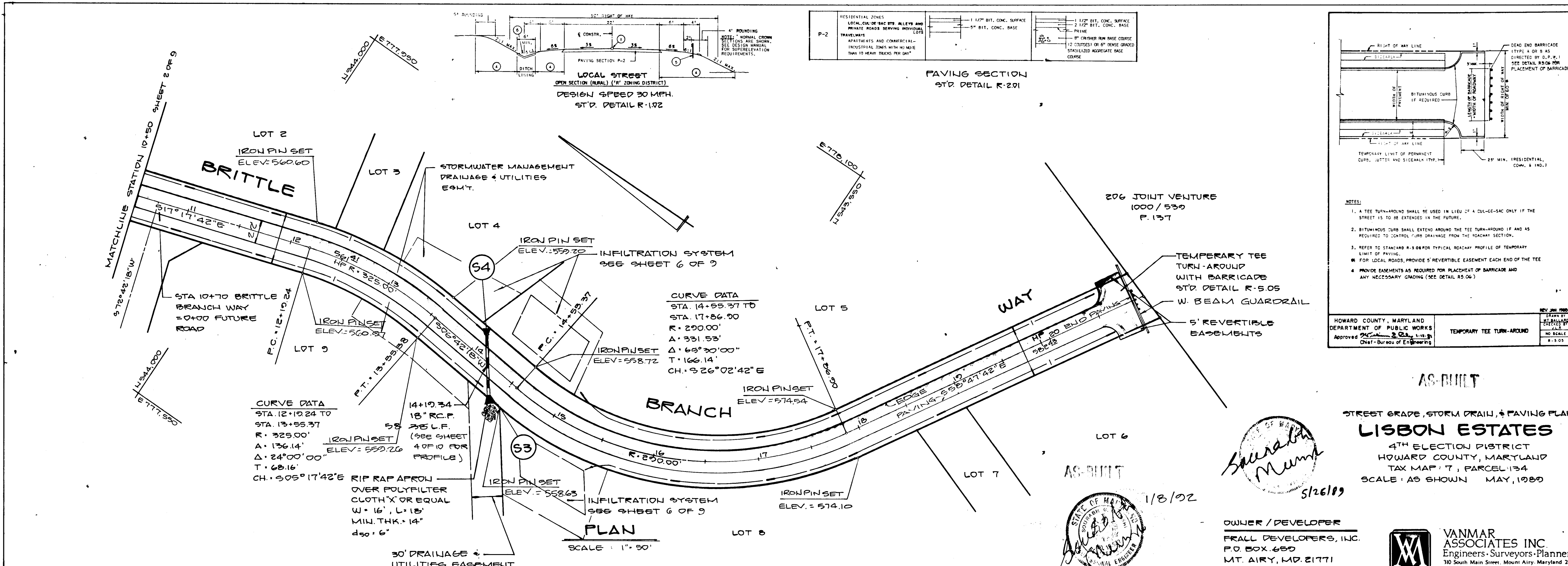
VANMAR ASSOCIATES JNC
 Engineers - Surveyors - Planners
 310 South Main Street, Mount Airy, Maryland 21771
 (301) 829-2890 (301) 831-5015



1/8/02
SHEET 2 OF 9
F-89-236

DATE: _____
 BY: _____
 SURVEYED: _____
 PLOTTED: _____
 NOTE BOOK: _____
 NO. _____

DATE: _____
 BY: _____
 SURVEYED: _____
 PLOTTED: _____
 NOTE BOOK: _____
 NO. _____



THESE NOTES SHALL BE USED IN LIEU OF A CURVE-SAC ONLY IF THE STREET IS TO BE EXTENDED IN THE FUTURE.

BITUMINOUS CURB SHALL EXTEND AROUND THE TURN-AROUND IF AND AS REQUIRED TO CONTROL CURB DRAINAGE FROM THE ROADWAY SECTION.

REFER TO STANDARD R-108 FOR TYPICAL PROFILE OF TEMPORARY LIMIT OF PAVING.

FOR LOCAL ROADS, PROVIDE 5' REVERSIBLE EASEMENTS EACH END OF THE TEE.

PROVIDE EASEMENTS AS REQUIRED FOR PLACEMENT OF BARRICADE AND ANY NECESSARY GRADING (SEE DETAIL R-206).

TEMPORARY TEE TURN-AROUND
 HOWARD COUNTY, MARYLAND
 DEPARTMENT OF PUBLIC WORKS
 APPROVED: [Signature] DATE: 5/26/89
 CHIEF, BUREAU OF ENGINEERING

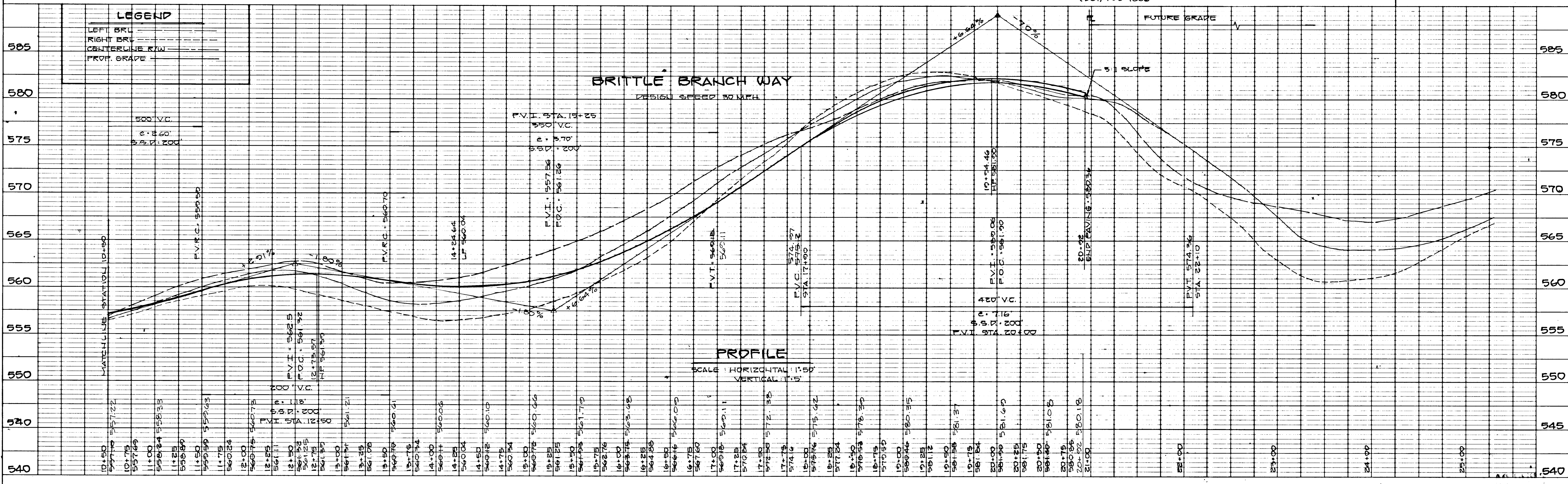
DEVELOPER'S CERTIFICATE
 I, THE DEVELOPER, CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT-LEVEL OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND EROSION BEFORE BEGINNING THE PROJECT.
 [Signature] DATE: 5/26/89

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 PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] DATE: 5/26/89

REVIEW FOR HOWARD COUNTY AND LOCAL TECHNICAL REQUIREMENTS
 [Signature] DATE: 5/26/89
 HOWARD COUNTY

APPROVED HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, LAND DEVELOPMENT DIVISION DATE: 3/2/90
 [Signature]
 CHIEF, BUREAU OF HIGHWAYS DATE: 3-2-90
 [Signature]
 CHIEF, BUREAU OF ENGINEERING DATE: _____

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 CHIEF, DIVISION OF CONSTRUCTION DATE: 4/20/90
 [Signature]
 PLANNING AND LAND DEVELOPMENT

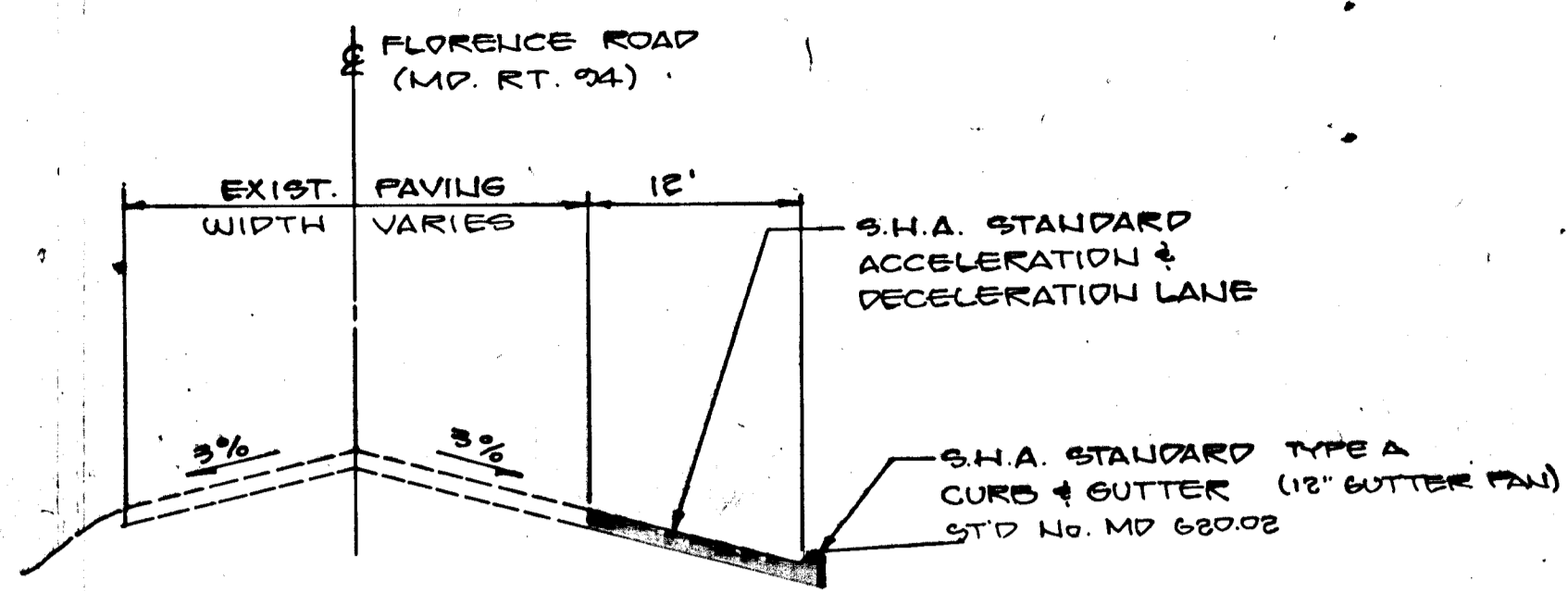


15410

U.S. 500
U.S. 500

FLORENCE ROAD
MARYLAND ROUTE No. 94

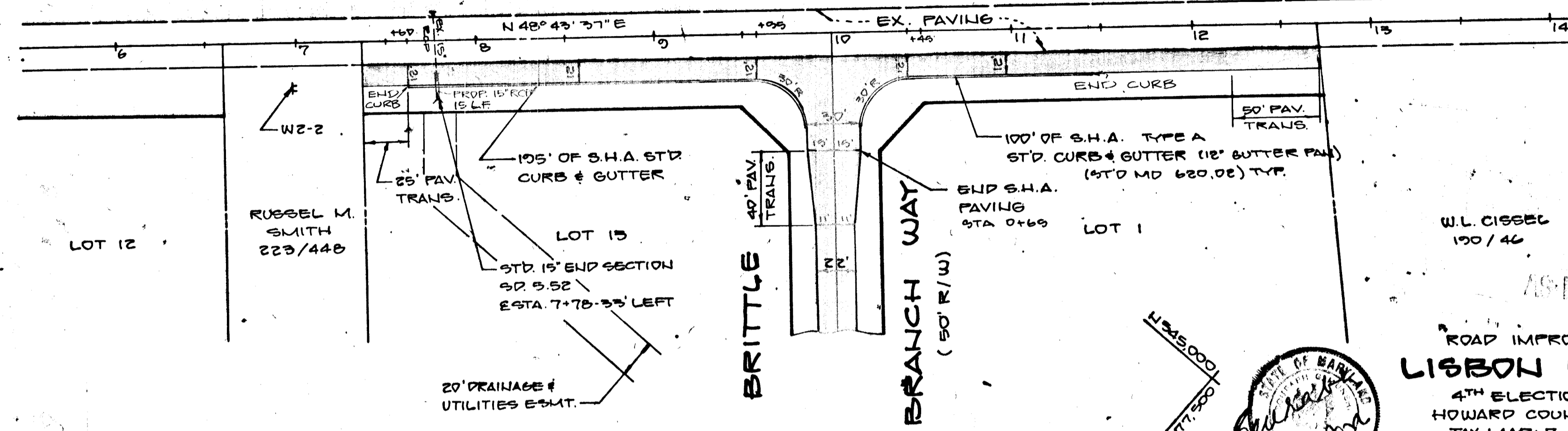
HOWARD CO. CONTROL
7730001
CONC. MON. FLUSH W/ GROUND
ELEVATION 599.43



TYPICAL SECTION

MD. ROUTE 94
STATION 7+39 - STATION 12+10

NOTE:
MD. S.H.A. PAVING TO CONSIST OF 3" (NOMINAL) BITUMINOUS CONCRETE SURFACE IN 2-1/2" LAYERS UTILIZING ALLEN MIXTURE PLUS 5" (NOMINAL) BITUMINOUS CONCRETE BASE (OR 5" SAND ASPHALT BASE) ON ONE OF THE FOLLOWING: 4" OR 6" OR 4" DENSE GRADED STABILIZED AGGREGATE BASE OR 6" GRAVEL OR 12" SELECT BORROW OR EQUIVALENT MATERIAL.



PLAN

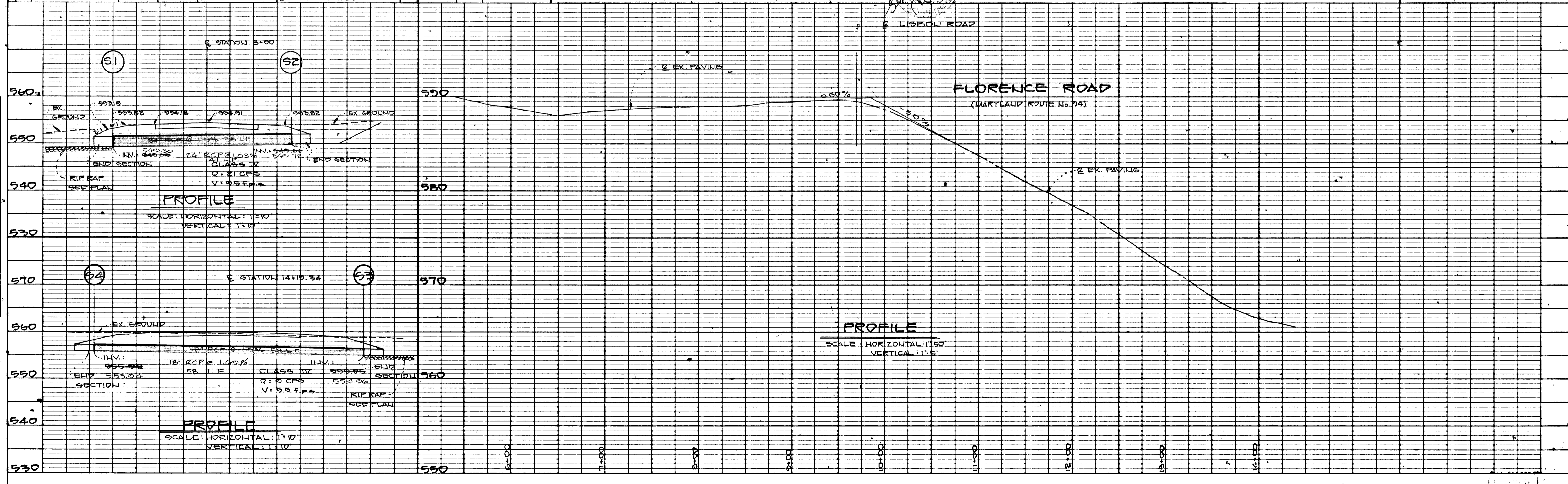
SCALE: 1" = 50'

OWNER/DEVELOPER
FRALL DEVELOPERS, INC.
P.O. BOX 680
MT AIRY, MD. 21771
(301) 793-1866

VANMAR ASSOCIATES INC.
Engineers-Surveyors-Planners
30 South Main Street, Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-5015

STRUCTURE SCHEDULE			
No.	TYPE	INVERT ELEVATION	LOCATION
01	STD 24" END SEC	549.77	STA. 8+00 - 20' LEFT
02	STD 24" END SEC	549.66	STA. 8+00 - 16'4" RIGHT
03	STD 18" END SEC	555.09	STA. 14+48 - 23'2" RIGHT
04	STD 18" END SEC	555.82	STA. 14+02 - 10'22" LEFT

PIPE SCHEDULE		
TYPE	SIZE	LENGTH
RCP	24"	38 LF
RCP	18"	58 LF



FOLLOWING INITIAL SOIL DISTURBANCE OR RECONSTRUCTION PERMITS...
NOTE: THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTOR/SURVEY DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT 702-7878

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
James A. P. [Signature] 5/26/89 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.
[Signature] DATE

REVIEW FOR HOWARD S.C.D. AND LISTED TECHNICAL REQUIREMENTS
[Signature] DATE
U.S. SOIL CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] DATE
HOWARD S.C.D.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
3/2/90 DATE
[Signature] CHIEF, LAUD DEVELOPMENT DIVISION
[Signature] CHIEF, BUREAU OF HIGHWAYS
3-2-90 DATE
[Signature] CHIEF, BUREAU OF ENGINEERING

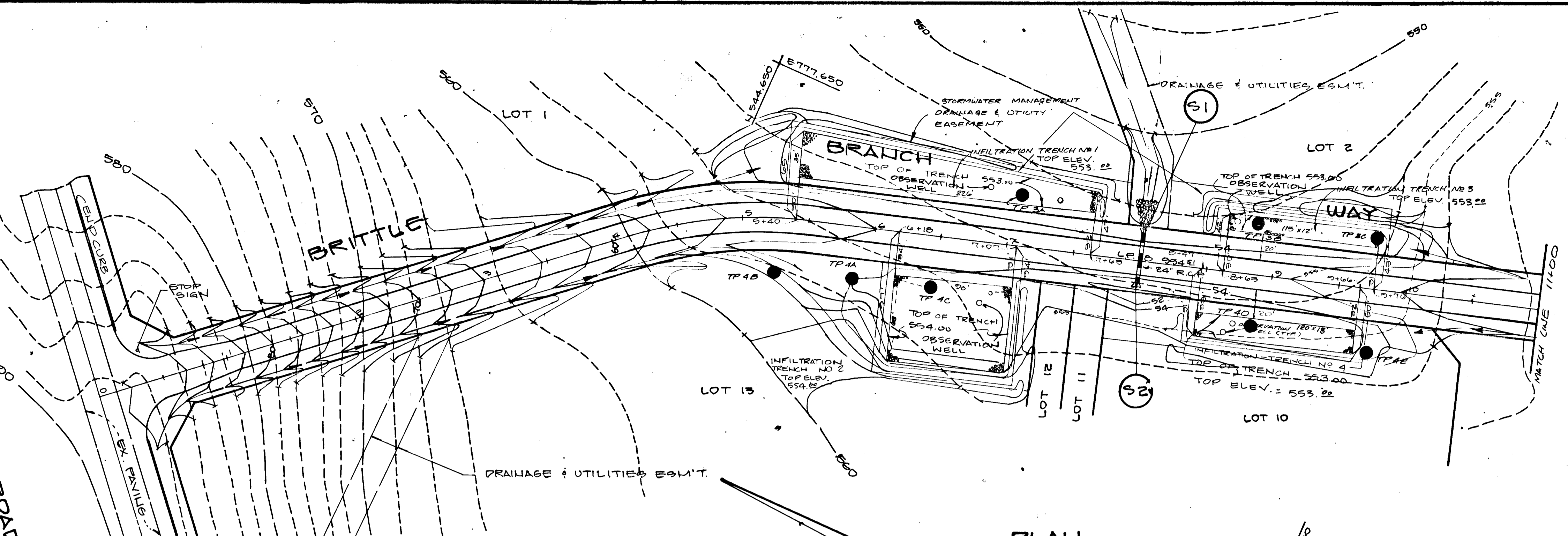
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] DATE
[Signature] CHIEF, DIVISION OF CONSTRUCTION PLANNING AND LAND DEVELOPMENT

PLAN
DATE
BY
REVISIONS
NO. DATE
NOTE BOOK
NO. DATE
ALIGNMENT CHECKED
FT. OF WAY CHECKED

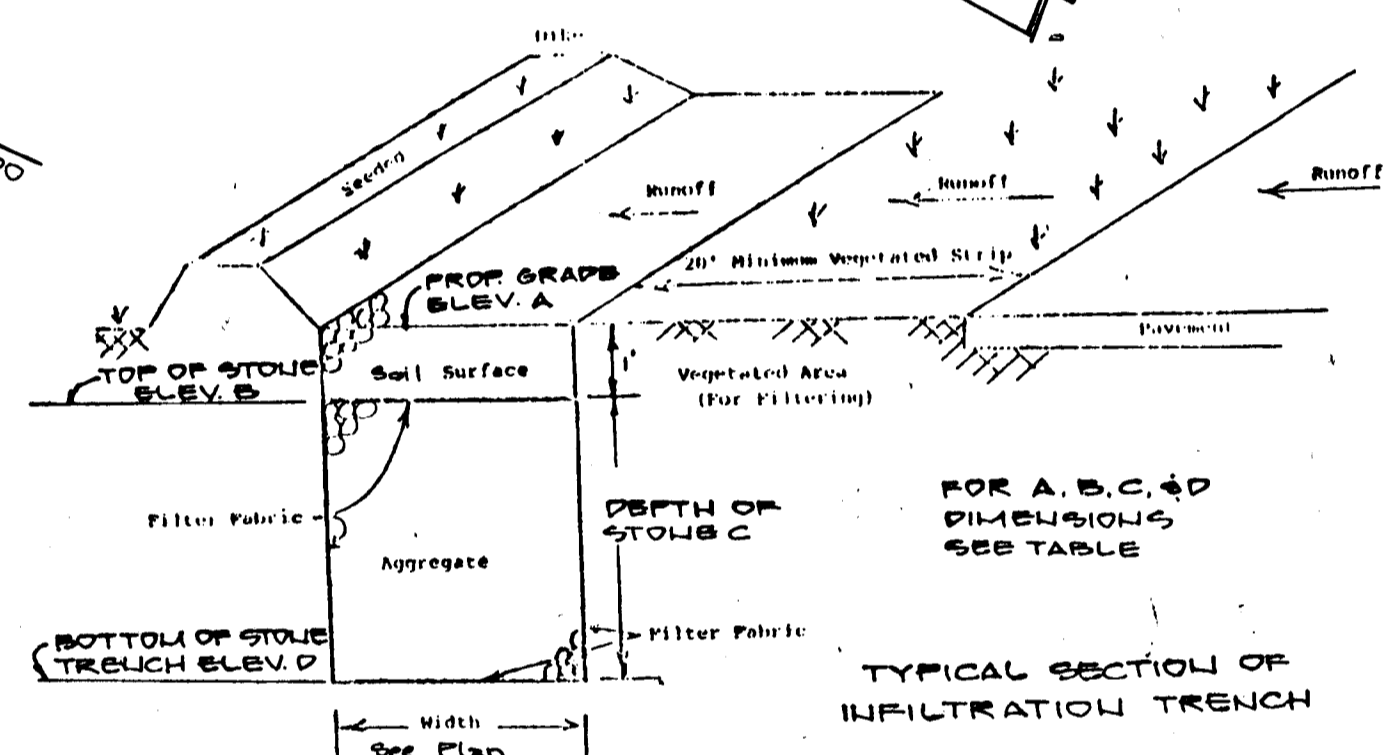
PROFILE
DATE
BY
REVISIONS
NO. DATE
NOTE BOOK
NO. DATE
STRUCTURE NOTATIONS CHECKED

1546

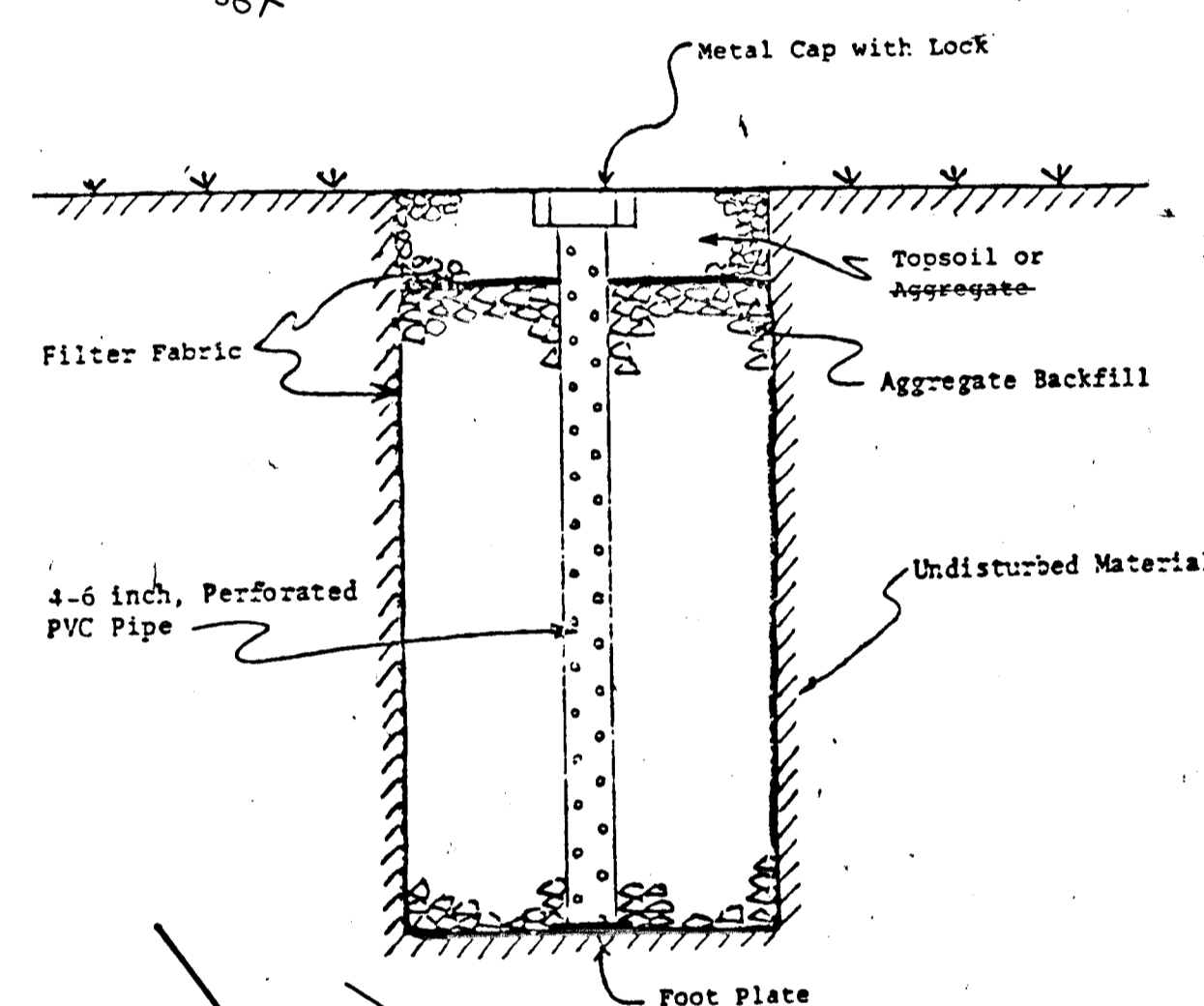
FORENCE ROAD
(MARKLAND ROUTE 163A)
(60' R/W)



PLAN
SCALE: 1" = 50'

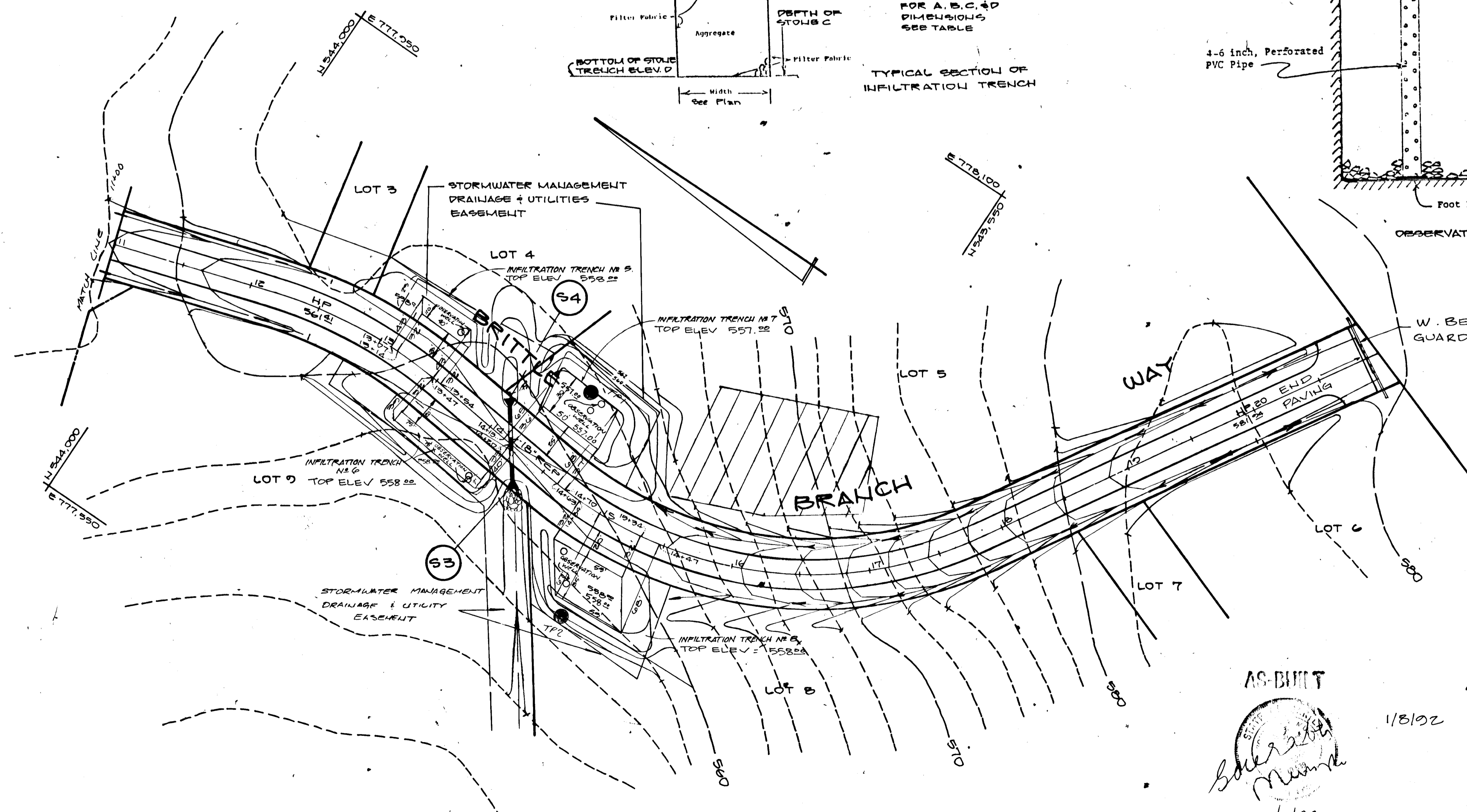


TYPICAL SECTION OF INFILTRATION TRENCH



OBSERVATION WELL

- INFILTRATION TRENCH**
- Construction Specifications**
- 1. Siting**
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.
 - 2. 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 removed from the trench sides in order to prevent fabric puncturing or casting during subsequent installation procedures. The side walls of the trench shall be inspected, measured and noted by heavy equipment.
 - 3. Fabric Installation**
The filter fabric roll must be cut to the proper width prior to installation. The cut width must include sufficient material to extend trench perimeter irregularities and for a 6-inch minimum top overlap. If the fabric roll over the trench and needs a sufficient length to allow placement of the fabric down into the trench. Stakes or other anchoring objects should be placed on the fabric on the slope of the trench to keep the trench open during windy periods. When overlaps are required between rolls, the upstream roll should top a minimum of 2 feet over the downstream roll in order to provide a snagged effect. The overlap secures fabric continuity or to ensure that the fabric conforms to the excavation surface during aggregate placement and compaction.
 - 4. Stone Aggregate Placement and Compaction**
The stone aggregate should be placed in lifts and compacted using plate compaction. At a rate of about 2 inches per lift. The compaction process requires fabric conformity to the excavation sides, thereby reducing the potential for soil piping, fabric clogging, and settlement problems.
 - 5. Overlapping and Sealing**
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 with stone aggregate shall be placed over the lap at sufficient intervals to maintain the lap during subsequent backfilling.
 - 6. Continuation**
Care shall be exercised to prevent material or fill wells from intersecting with the stone aggregate. All concentrated stone aggregate shall be removed and replaced with uncontaminated stone aggregate.
 - 7. Voids Behind Fabric**
Voids can be created between the fabric and excavation sides and shall be sealed. Removing the fabric or other material from the trench walls in the course of such voids. Material shall be placed in these voids at the same rate as the stone aggregate. The filter fabric underlying the excavation sides. Soil piping, fabric clogging, and possible surface subsidence will be avoided by this essential process.
 - 8. Buried Observation Well**
Necessity measured wells may be difficult to maintain in areas where the well extends in high or water table subsidence or subsidence wells. Buried wells may be installed in areas where the well extends to the excavation sides. These conditions may require testing before the well is installed. Buried wells shall be installed in areas where the well extends to the excavation sides. These conditions may require testing before the well is installed.
 - 9. Vegetative Buffer**
A vegetative buffer of at least 30 feet (later, if possible) shall be used to increase surface runoff from all impervious areas.
 - 10. Traffic Control**
Heavy equipment and traffic shall be restricted from traveling over the infiltration areas to maintain compaction of the soil.
 - 11. Observation Well**
An observation well, as shown on construction plans, shall be provided. The depth of the well at the time of installation will be clearly marked on the well cap.
- References**
- The observation well shall be monitored periodically. For the three 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 date at which the facility appears after large storms and the depth of the well at 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 indicates that a more frequent schedule is required.
- Sediment Build-up**
- Sediment build-up in the top face of stone aggregate or the surface later should be monitored on the same schedule as the observation well. A monitoring well in the top face of stone aggregate will be drilled when the trench has a stone surface. Sediment deposits shall not be allowed to build up to the point where it will reduce the rate of infiltration into the trench.



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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 NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

James A. Fry 5/26/89
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."

Garrah Munn 5/26/89
DATE

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

Garrah Munn 2/23/90
DATE

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

Garrah Munn 2/23/90
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Garrah Munn 3/2/90
DATE

Garrah Munn 2/23/90
DATE

Garrah Munn 3/5/90
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Garrah Munn 3/2/90
DATE

INFILTRATION TRENCH SUMMARY

TRENCH #	PROP GRADE ELEV. A	TOP OF STONE ELEV. B	DEPTH OF STONE C	BOTTOM OF STONE TRENCH ELEV. D
1	553.00	552.00	2.5'	547.50
2	554.00	553.00	2.5'	550.50
3	553.00	552.00	3.0'	547.00
4	553.00	552.00	3.5'	548.50
5	552.00	551.00	5.5'	551.50
6	552.00	551.00	4.5'	552.50
7	557.00	556.00	5.5'	550.50
8	558.00	557.00	4.5'	552.50

AS-BUILT

SITE GRADING PLAN & STORMWATER MANAGEMENT PLAN
LISBON ESTATES
4TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP: 7, PARCEL 134
SCALE: AS SHOWN MAY, 1989

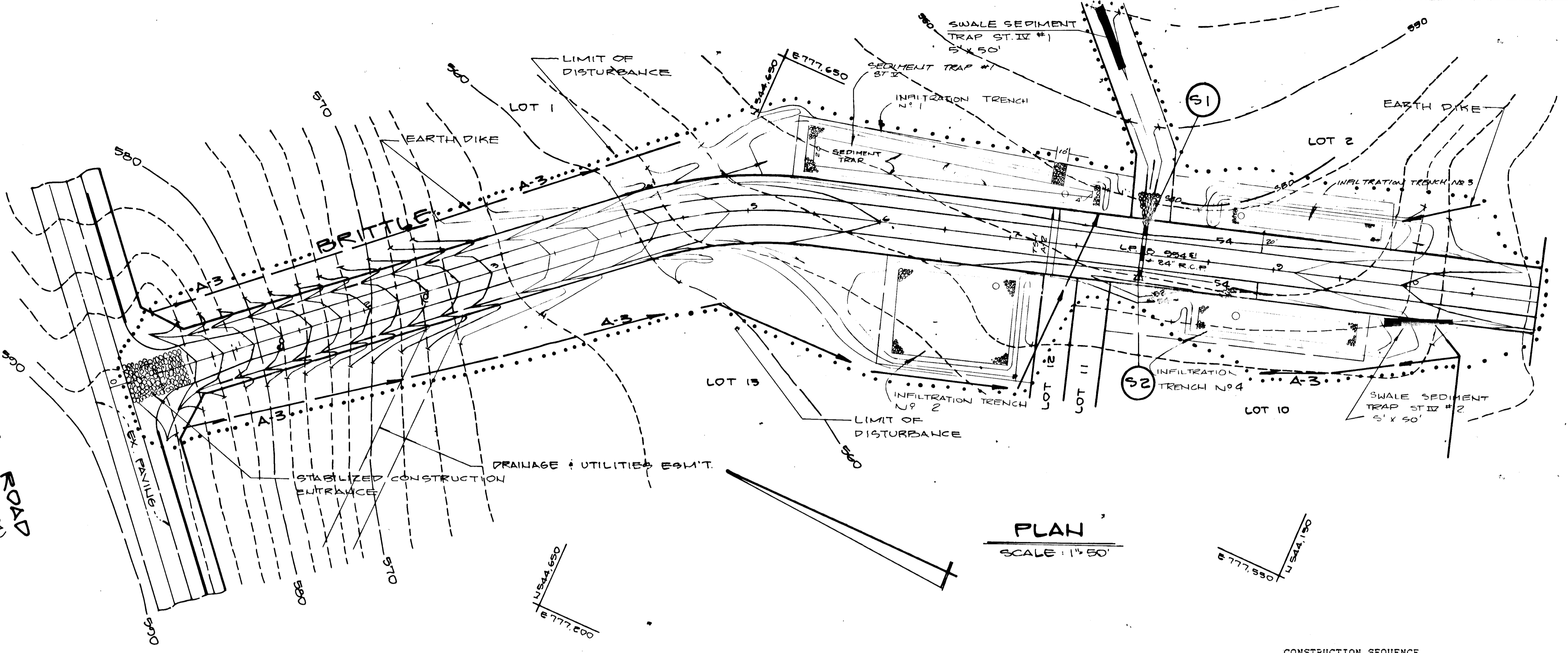
Garrah Munn
5/26/89

AS-BUILT
Garrah Munn
1/8/92

OWNER/DEVELOPER
FRALL DEVELOPERS, INC.
P.O. BOX 650
MT. AIRY, MD. 21771
(301) 705-1866

VANMAR ASSOCIATES INC.
Engineers-Surveyors-Planners
310 South Main Street, Mount Airy, Maryland 21771
(301) 829-2890 (301) 831-505

FLORENCE ROAD
(PARTIAL ROUTE #94)
(60' R/W)



PLAN
SCALE: 1"=50'

- 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. Grade and stabilize off road ditches prior to construction the road, storm drains & road side ditches.
 6. Clear & grub for grading of road, storm drains & ditches.
 7. During construction of Route #94. Maintain one lane at all times, and use flagmen to control traffic.
 8. Install bituminous paving & stabilize disturbed area.
 9. Remove all sediment control devices when approved by sediment control inspector.
 10. INSTALL INFILTRATION TRENCHES
 11. STABILIZE ALL THE DISTURBED AREA.

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, 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 NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."
James A. Foy 5/26/89
 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."
Suzanne Munn 5/26/89
 DATE

REVIEW FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS
James A. Foy 5/26/89
 AS SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
James A. Foy 5/26/89
 HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
James A. Foy 3/2/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
David W. Heiland 4/29/90
 CHIEF, BUREAU OF HIGHWAYS DATE
Kevin S. Ray 5-5-90
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
David J. Langley 4/29/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

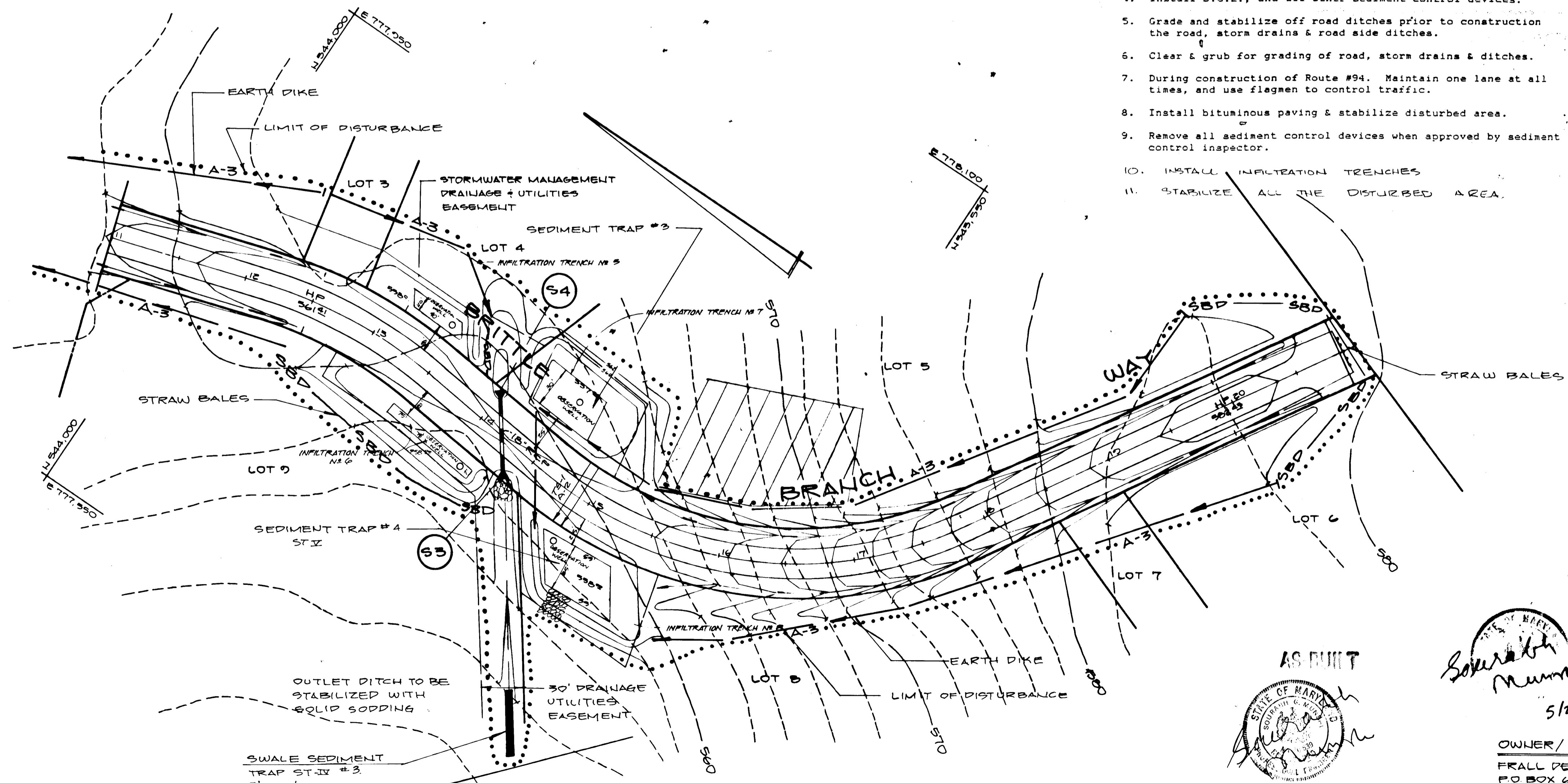
TOTAL DISTURBED AREA = 4.17 AC.
 TOTAL CUT = 4,204 CU. YDS.
 TOTAL FILL = 2,572 CU. YDS.

TRAP #1 ST. V

D.A. TO TRAP	=	204 ACF
STORAGE REQUIRED	=	3,672 CFT.
STORAGE PROVIDED	=	7,704 CFT.
BOTTOM ELEVATION	=	550.00
TOP OF EMBANKMENT	=	554.00
MAX. STORAGE ELEV.	=	553.00
CLEANOUT ELEV.	=	551.50
WEIR ELEVATION	=	553.00

TRAP #4 ST. V

D.A. TO TRAP	=	0.69 Acres
STORAGE REQUIRED	=	1,242 Cu. Ft.
STORAGE PROVIDED	=	5,600 Cu. Ft.
BOTTOM ELEVATION	=	557.00
TOP OF EMBANKMENT	=	560.00
MAX. STORAGE ELEV.	=	559.00
CLEANOUT ELEV.	=	558.00
WEIR ELEVATION	=	559.00

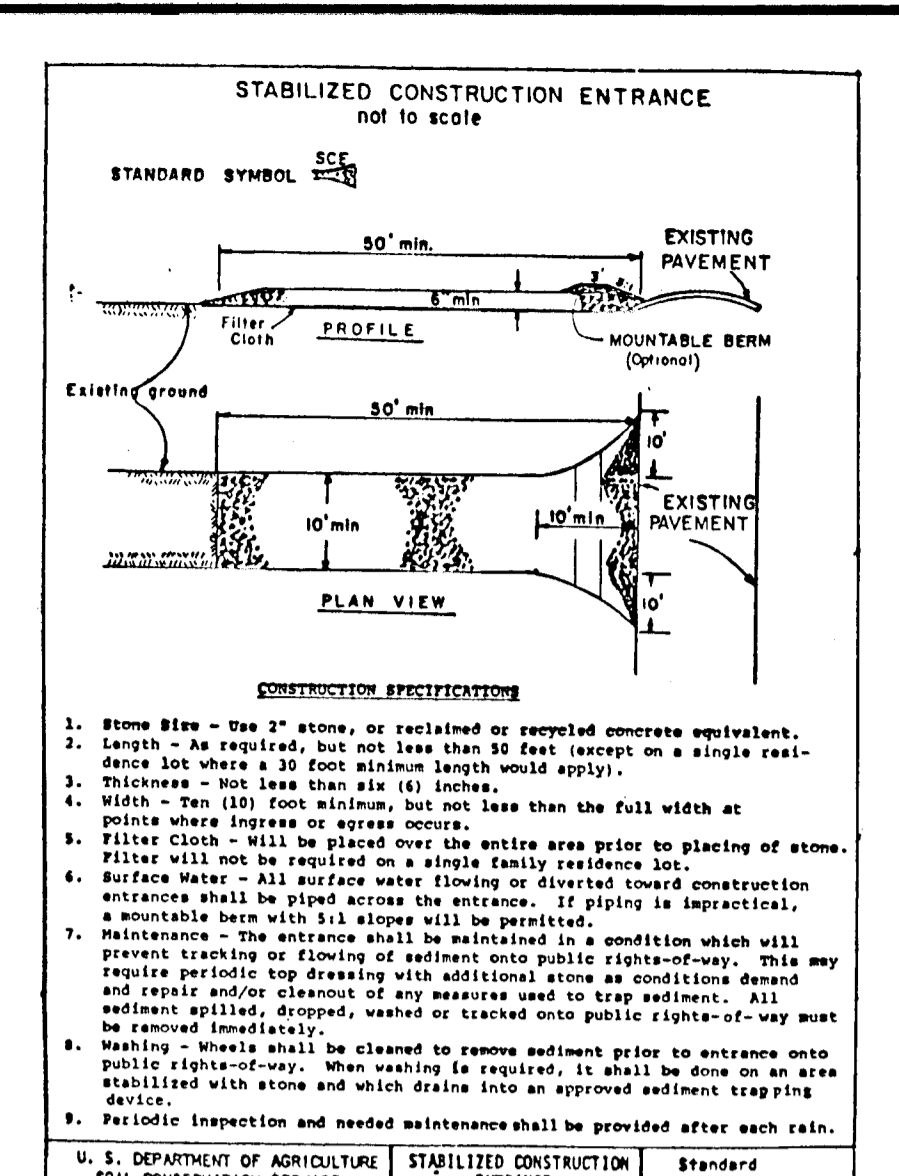
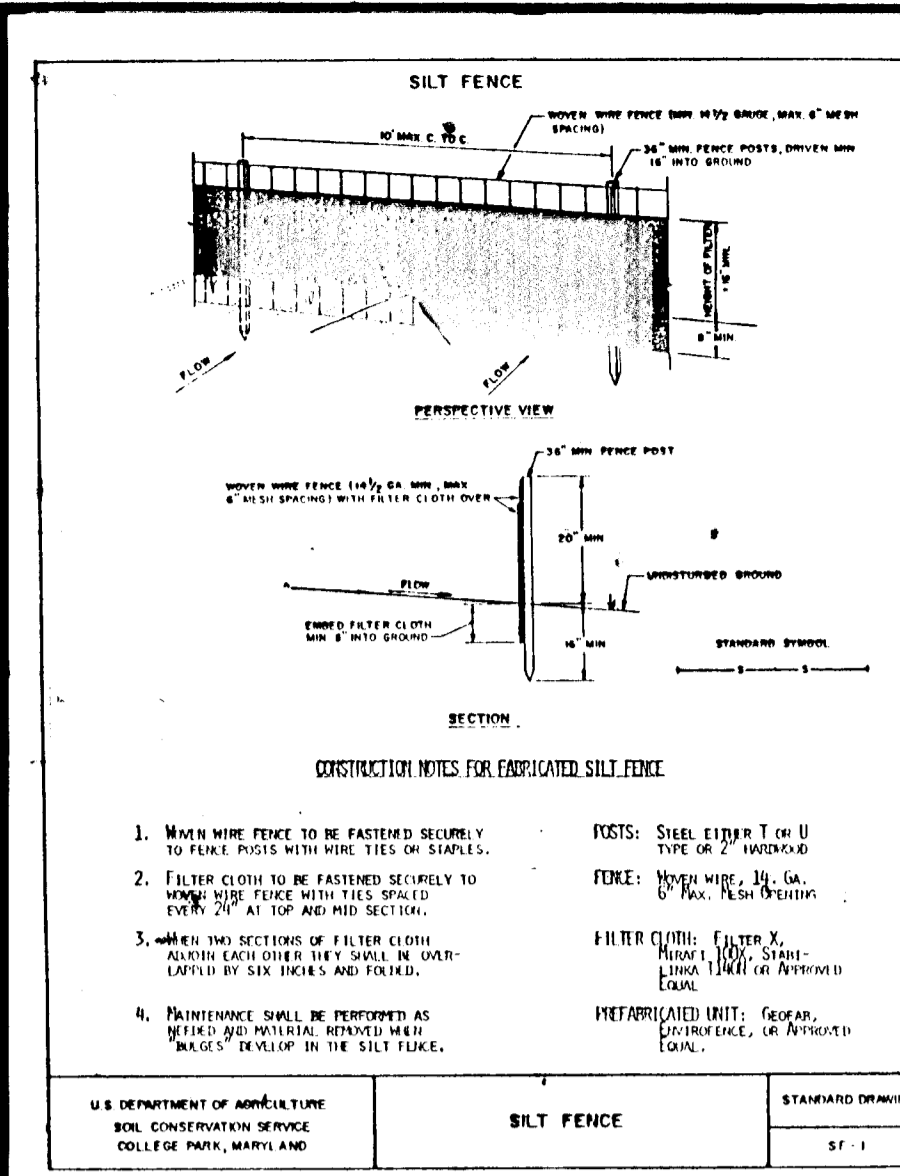


AS BUILT
 STATE OF MARYLAND
 11/8/92

Suzanne Munn
 5/26/89

OWNER / DEVELOPER
 FRALL DEVELOPERS, INC.
 P.O. BOX 650
 MT. AIRY, MD. 21771
 (301) 705-1866

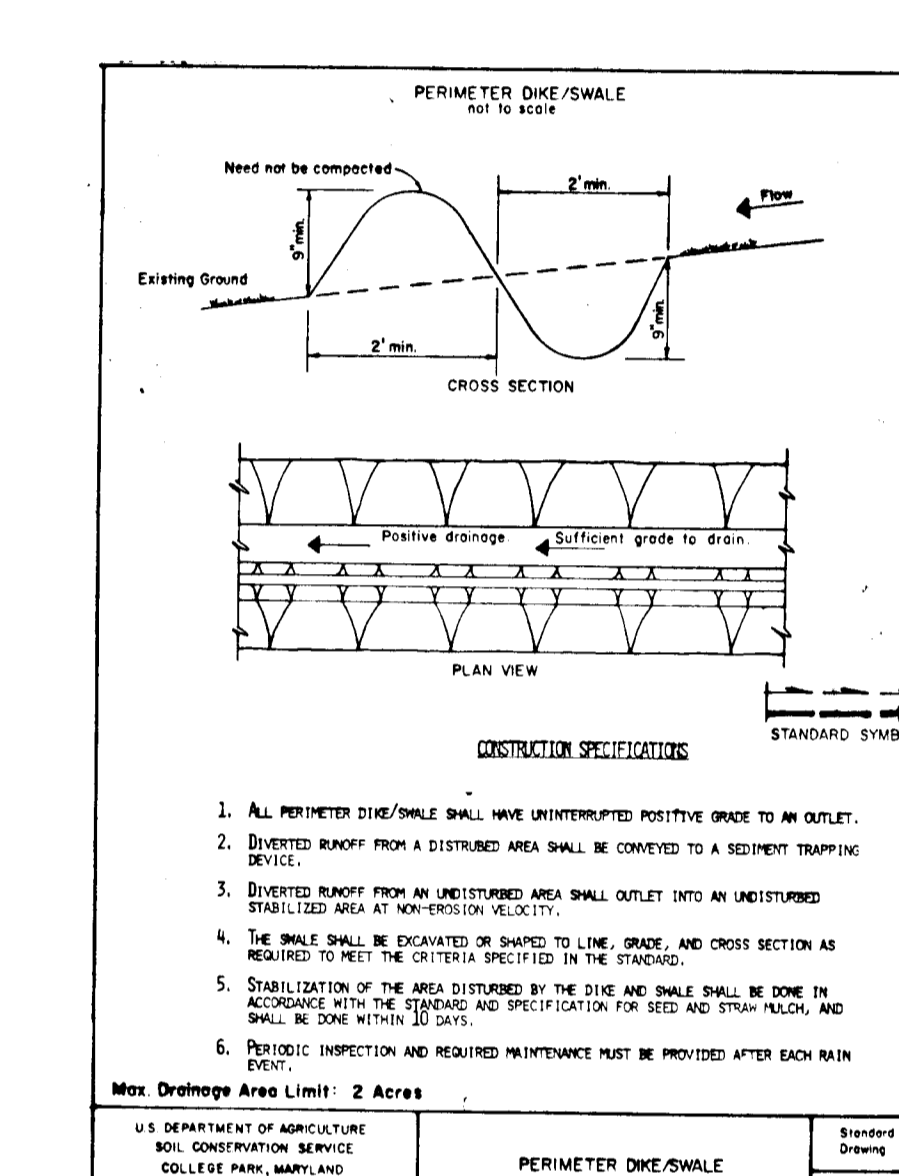
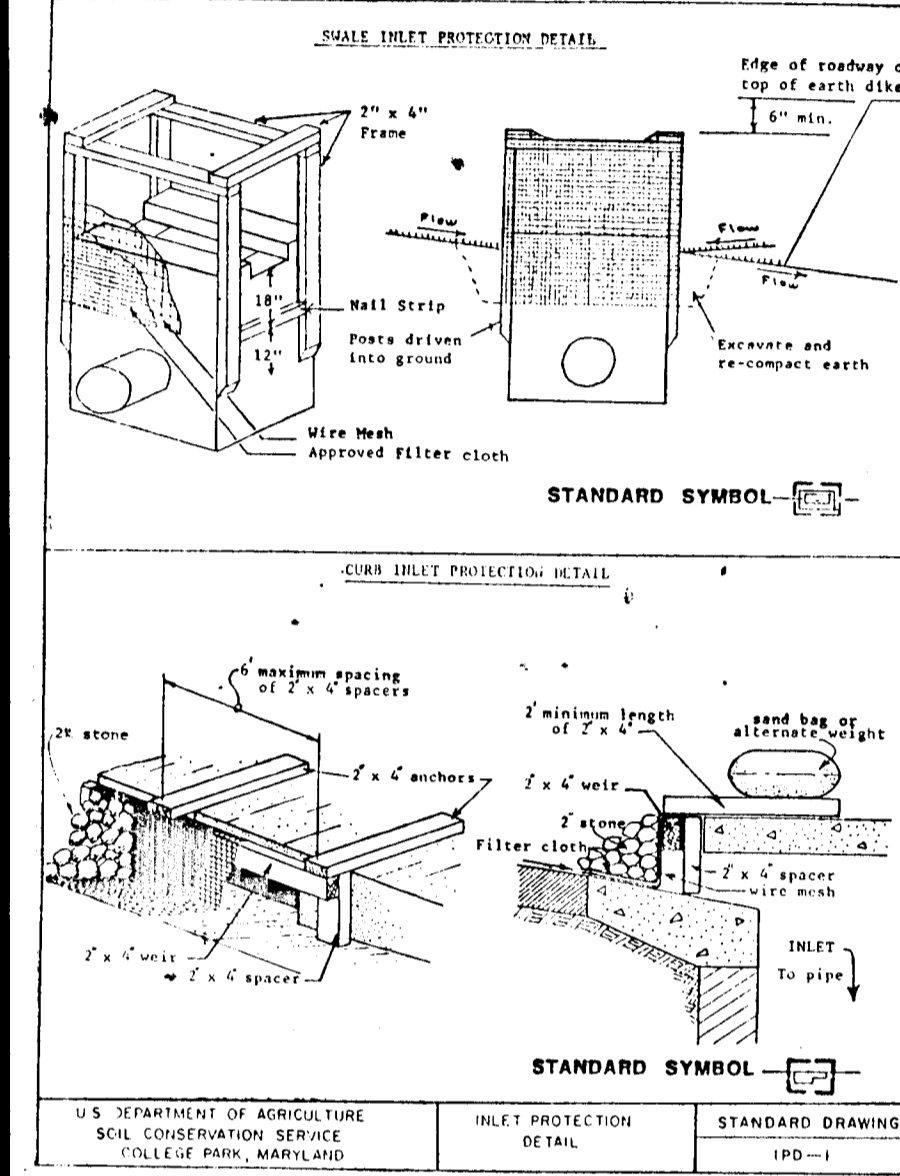
AS-BUILT
 11/8/92
 VANMAR ASSOCIATES INC.
 ENGINEERS-SURVEYORS-PLANNERS
 100 South Main Street, Mount Airy, Maryland 21771
 (301) 829-2890 (301) 831-5015



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. (932-2437)
- 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 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 shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 5) and (Sec. 5d), temporary seeding (Sec. 5c) and mulching (Sec. 5e). Temporary stabilization with mulch alone can only be done when recommended seedings 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	26.00 Acres
Area Disturbed	17.00 Acres
Area to be roofed or paved	0.00 Acres
Area to be vegetatively stabilized	9.00 Acres
Total Cut	400.00 Cu. Yds.
Offsite waste/borrow area location	273.00 Cu. Yds.
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.



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, disking or other acceptable means before seeding, **IN LOT #10 ONLY - LOTS 11-13**

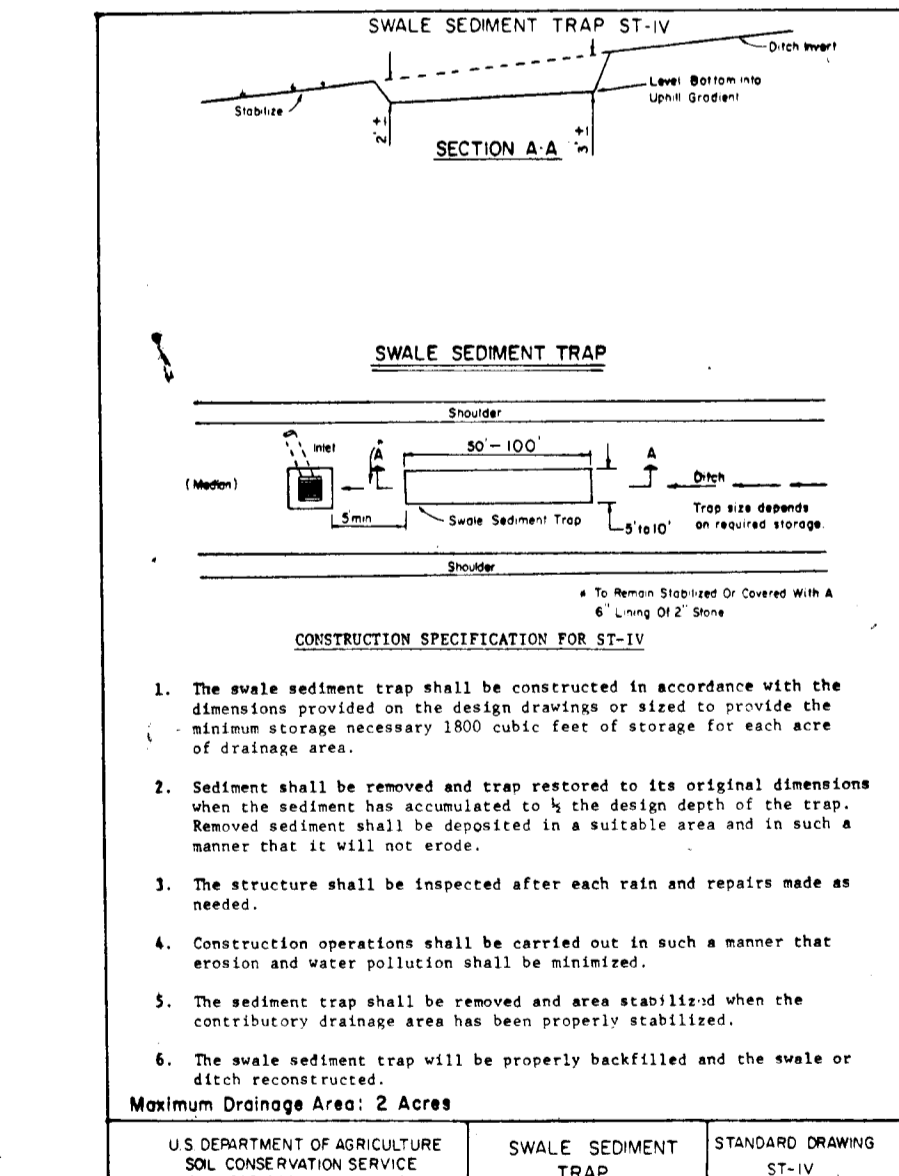
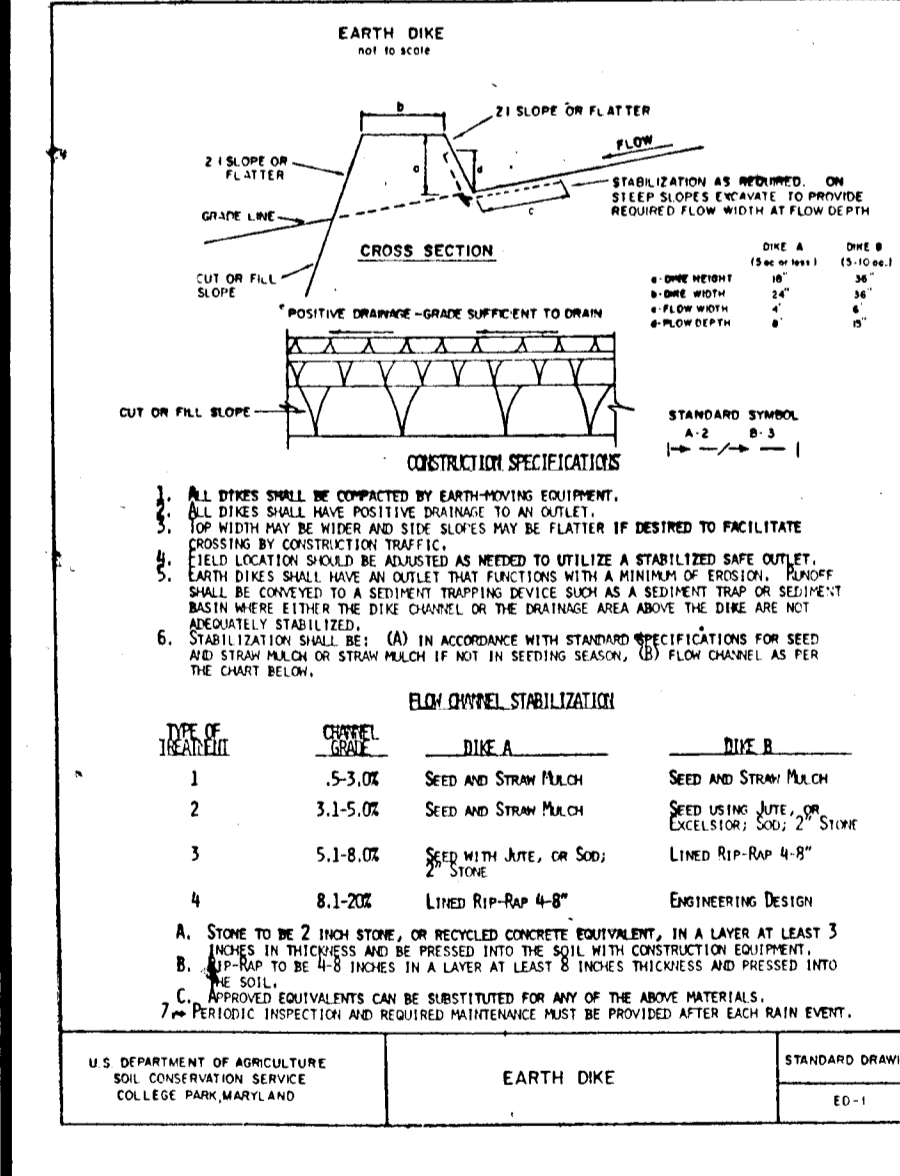
Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:

- Preferred - Apply 2 tons per acre dolomitic limestone (12 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 (12 lbs/1000 sq ft) and 1200 lbs per acre 10-10-10 fertilizer (28 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 per acre of tall fescue per acre and 2 lbs per acre 10-10-10 fertilizer (0.7 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; 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 2 1/2 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 148 gal. per acre (18 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 redistributed where a short-term vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, **IN LOT #10 ONLY - LOTS 11-13**

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

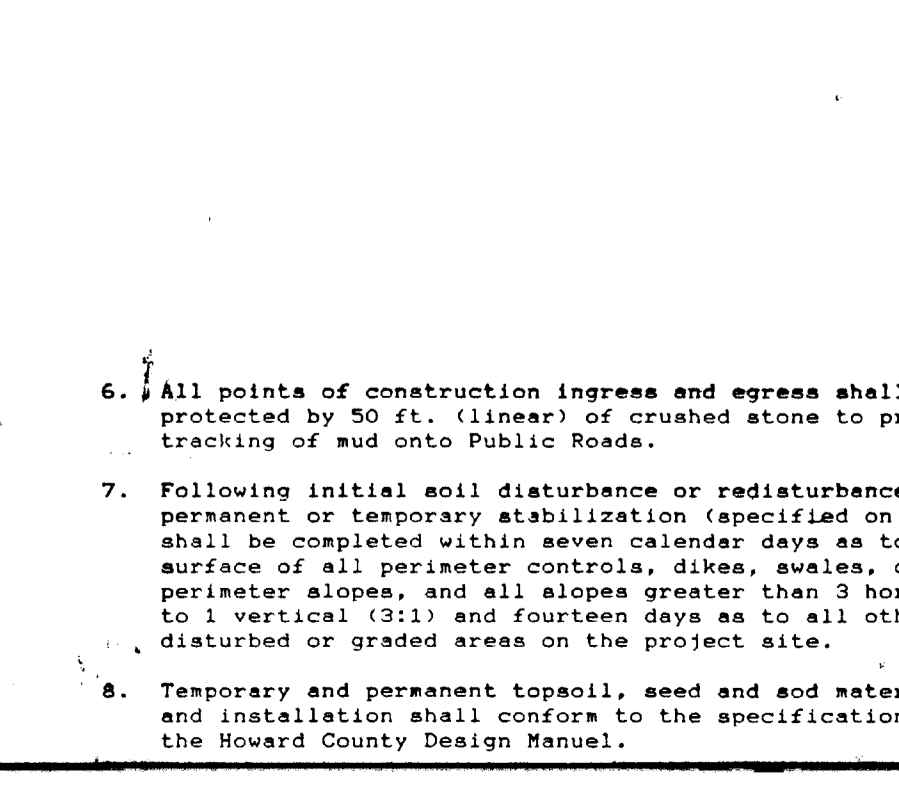
Seeding: For the periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushels per acre of annual rye (12 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (1.07 lbs/1000 sq ft). For the period of November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 2 1/2 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 148 gal. per acre (18 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.

Vegetative Specification and Notes

- Disturb as small an area of the present cover as possible while performing grading.
- Limit duration of exposure of bare earth from grading operation to 7 days by the establishment of temporary vegetation (or mulching if appropriate) or by completing permanent seeding within 14 days.
- Establish permanent vegetative cover immediately after final grading is completed. (This includes all grading on or off this site that is affected by this construction). If final grading is completed at a time other than the seeding season, a temporary ground cover such as mulching will be used to stabilize the bare soil.
- Recommended temporary seed mixture:
 - Seed: Ryegrass at 40 lbs. per acre
 - Line: 1 1/2 tons ground limestone per acre
 - Fertilizer: 10-20-10 at 600 lbs. per acre
 - Mulch: Straw at 1.5 tons per acre
- Recommended permanent seed mixture:
 - Seed: Ry. 31 Fescue at 60 lbs. per acre
 - Line: 1 1/2 tons ground limestone per acre
 - Fertilizer: 10-20-20 at 500 lbs. per acre
 - Mulch: Straw at 1.5 tons per acre
 - Asphalt: SS-1 or equivalent at 218 gal. per acre
- All points of construction ingress and egress shall be protected by 50 ft. (lines) of crushed stone to prevent tracking of mud onto Public Road.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization (applied on plans) shall be completed within seven calendar days as to the surface of all perimeter ditches, dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1) and fourteen days as to all other disturbed or graded areas on the project site.
- Temporary and permanent topsoil, seed and sod materials and installation shall conform to the specifications of the Howard County Design Manual.



TEMPORARY SWALE

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

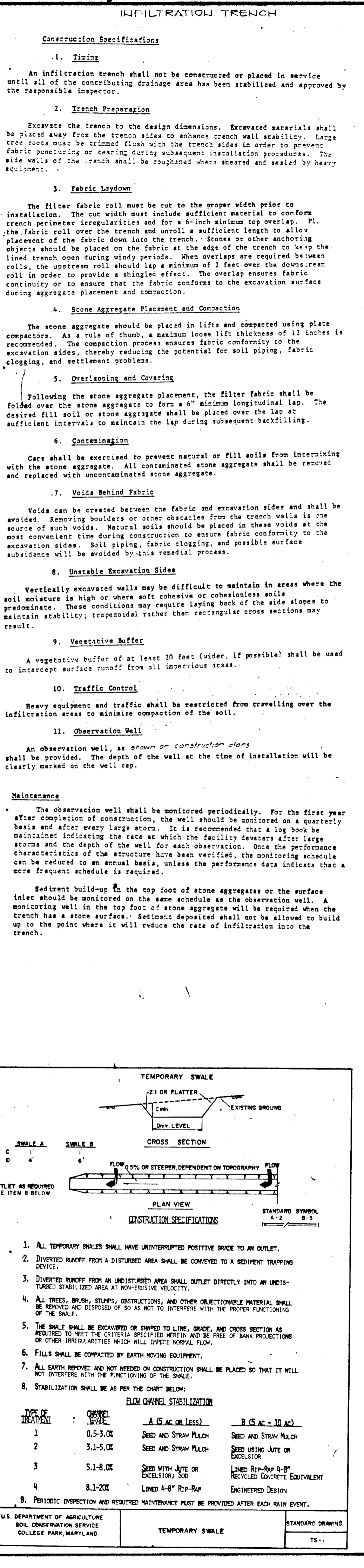
Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, **IN LOT #10 ONLY - LOTS 11-13**

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

Seeding: For the periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushels per acre of annual rye (12 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (1.07 lbs/1000 sq ft). For the period of November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 2 1/2 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 148 gal. per acre (18 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.



SEALING

11892

AS-BUILT

1/8/92

AS-BUILT

1/8/92

OWNER/DEVELOPER

FRALL DEVELOPERS, INC.
P.O. BOX 650
MT. AIRY, MD. 21771
(301)709-1566

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) 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 NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

James R. Foy 5/26/89
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 Munn 5/26/89
DATE

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

James R. Foy 2/23/90
DATE
US SOIL CONSERVATION SERVICE

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

James R. Foy 2/23/90
DATE
HOWARD S.C.D.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Samuel J. Eason 3/2/90
CHIEF, LAND DEVELOPMENT DIVISION
DATE

Franklin W. Wickland 2/28/90
CHIEF, BUREAU OF HIGHWAYS
DATE

James R. Foy 3-5-90
CHIEF, BUREAU OF ENGINEERING
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

David J. Taylor 4/2/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
DATE

SOIL EROSION & SEDIMENT CONTROL DETAILS

LISBON ESTATES

4TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP: 7, PARCEL 104
SCALE: AS SHOWN MAY, 1989

AS-BUILT

1/8/92

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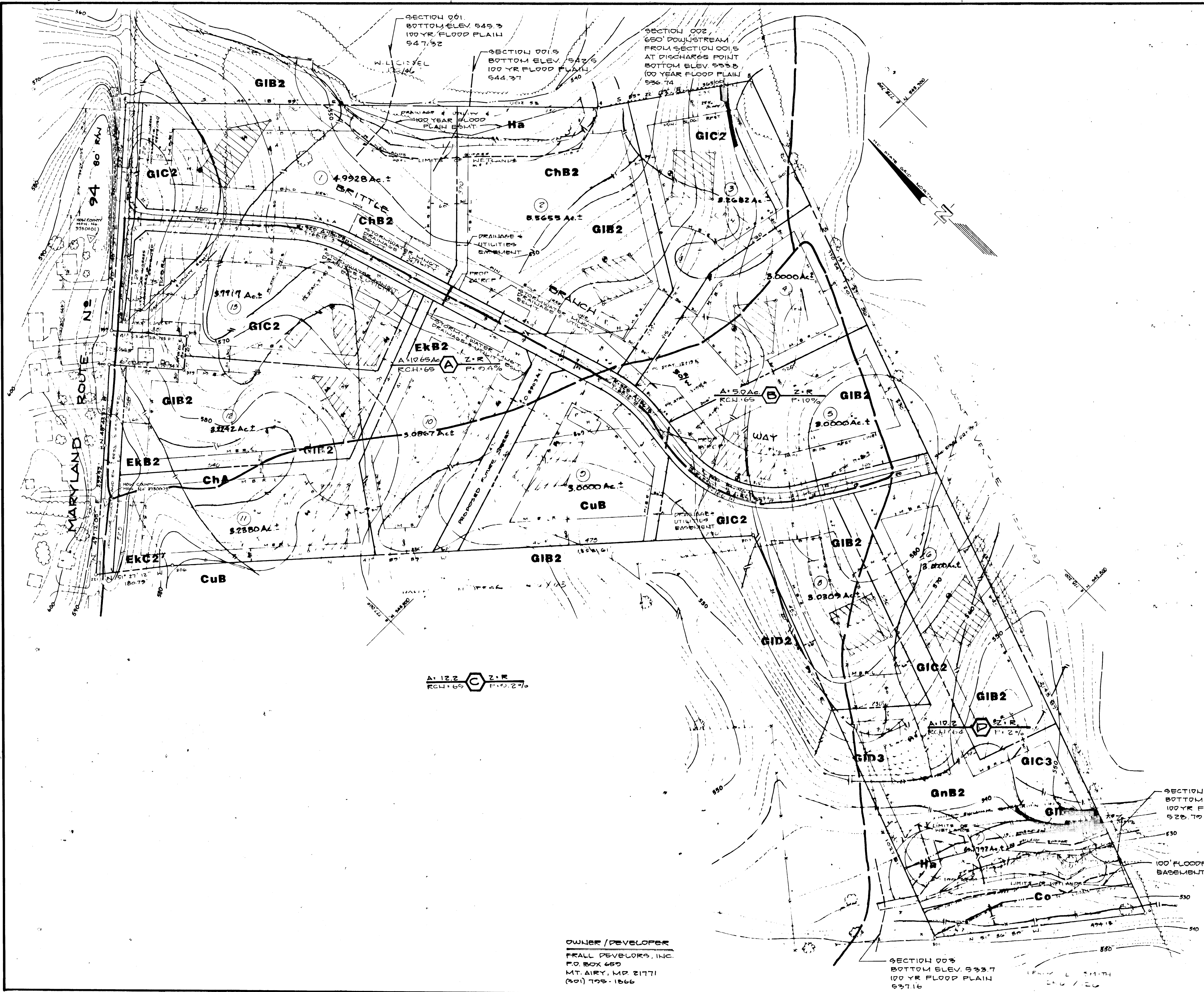
1/8/92

OWNER/DEVELOPER

FRALL DEVELOPERS, INC.
P.O. BOX 650
MT. AIRY, MD. 21771
(301)709-1566

F-89-236

SHEET 8 OF 9



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.

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James R. P. P. 5/26/89
DATE

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Callraeh Munn 5/26/89
DATE

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

James R. P. P. 2/23/90
DATE

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James R. P. P. 2/23/90
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Donald Simpson 3/2/90
CHIEF, LAND DEVELOPMENT DIVISION DATE

Drumelle W. Waterland 2/28/90
CHIEF, BUREAU OF HIGHWAYS DATE

W. S. P. P. 3-5-90
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Rand J. Langley 5/26/89
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

AS-BUILT

Callraeh Munn 5/26/89

AS-BUILT

Callraeh Munn 1/8/92

AS-BUILT

DRAINAGE AREA MAP
LIBRON ESTATES
4TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP '7, PARCEL 134
SCALE: 1"=100'
MAY, 1989

AS-BUILT

1/8/92

F-09-236

VANMAR ASSOCIATES INC.
Engineers-Surveyors-Planners
30 South Main Street, Mount Airy, Maryland 21771
(301) 825-2850 (301) 831-9095

OWNER / DEVELOPER
FRALL DEVELOPERS, INC.
P.O. BOX 669
MT. AIRY, MD. 21771
(301) 795-1866

SECTION 005
BOTTOM ELEV. 533.7
100 YR FLOOD PLAIN
537.16

SECTION 004
BOTTOM ELEV. 526.6
100 YR FLOOD PLAIN
528.79

A: 122 C Z-R
RCU: 69 P: 0.2%

A: 10.2 D Z-R
RCU: 69 P: 2%

1540