

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING. DATE: 3/28/88

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS. DATE: 3/14/88

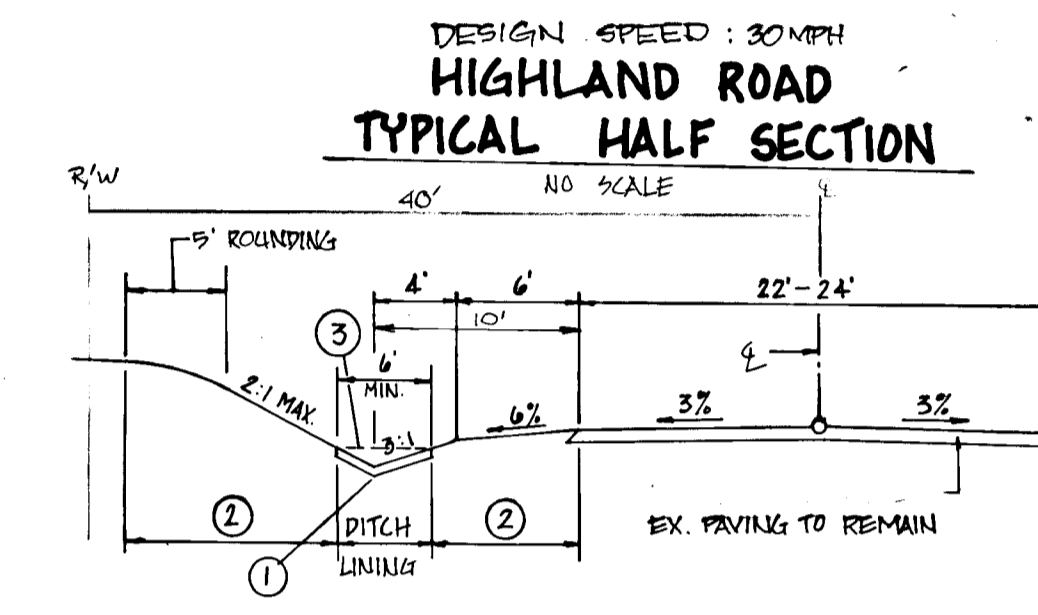
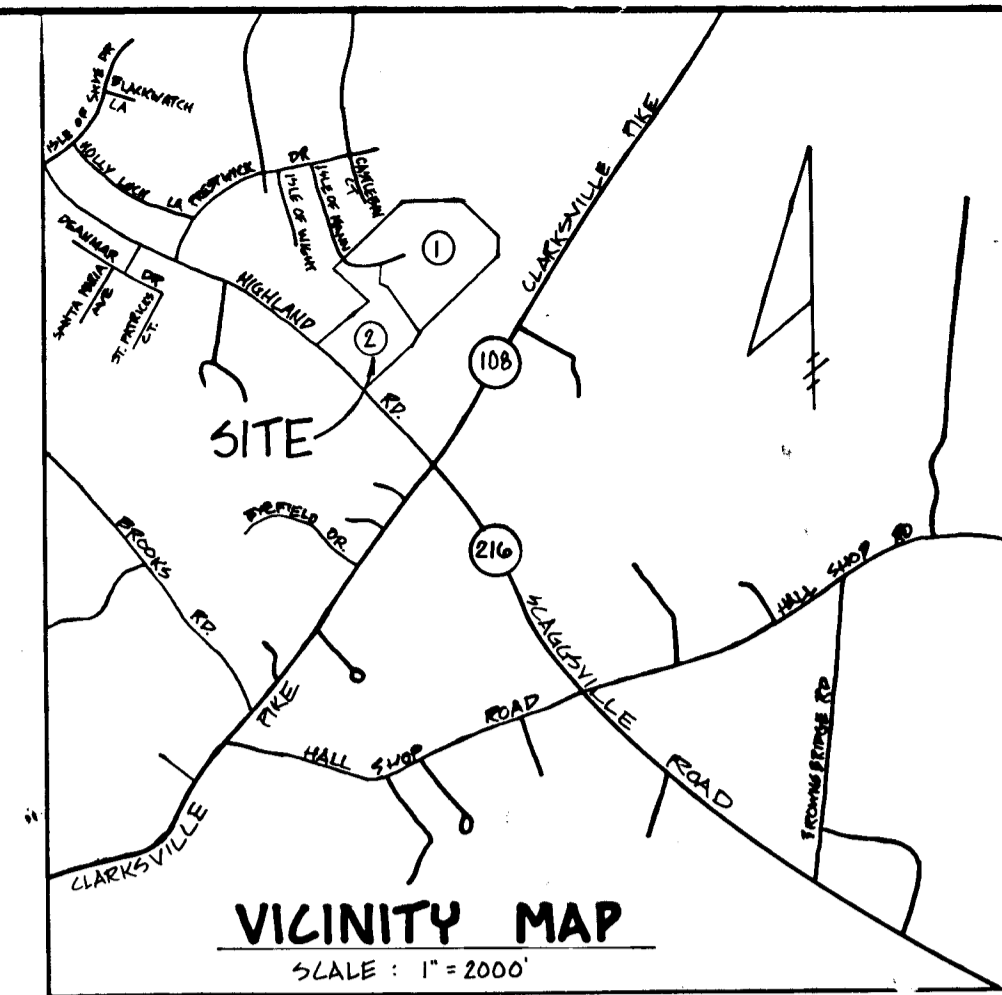
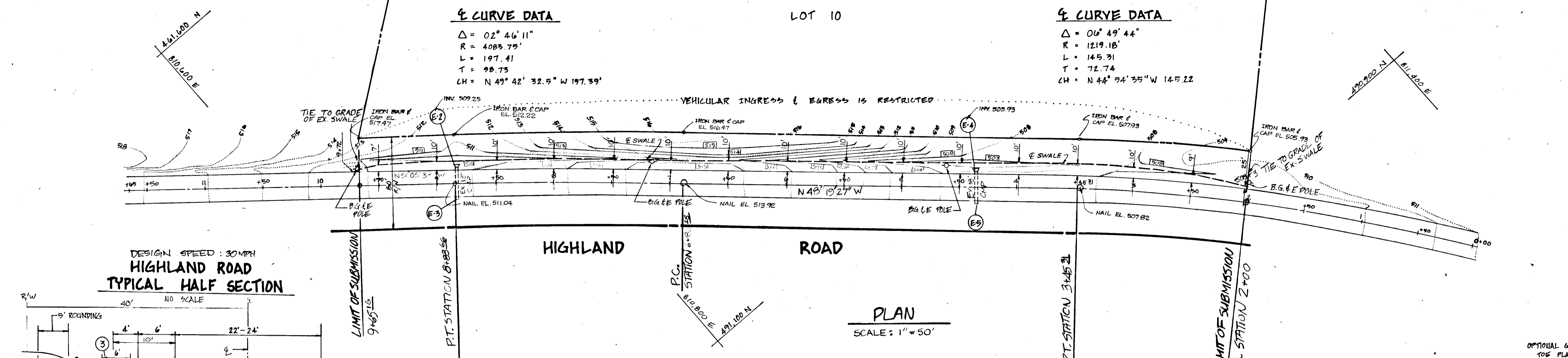
**SHANABERGER + LANE**  
8726 TOWN & COUNTRY BLDG. SUITE 203  
ELLCOTT CITY, MD. 21043  
(301) 461-9563

OWNER & DEVELOPER:  
JAMES M. SANBORN  
4967 TEN OAKS RD.  
DAYTON, MD 21036

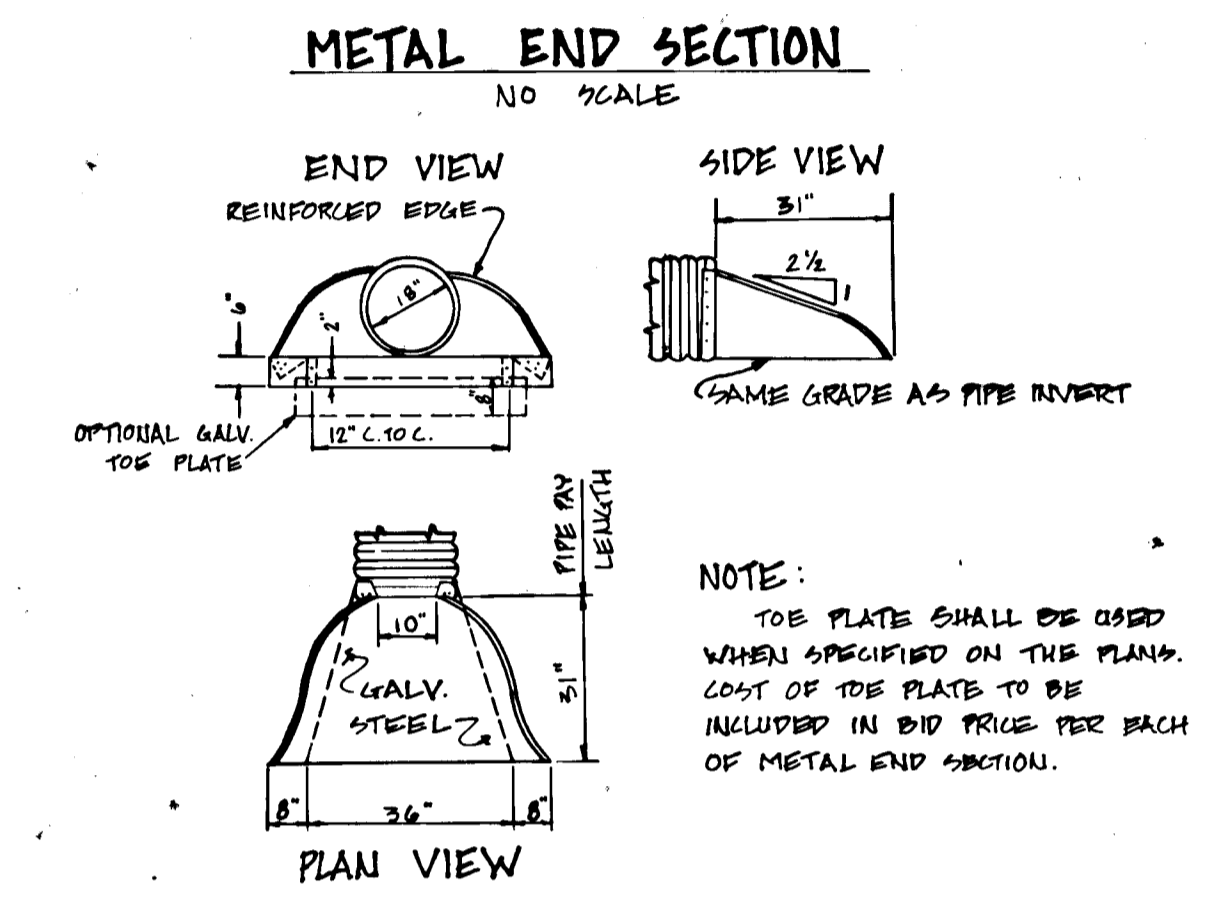
PLAN & PROFILE OF HIGHLAND ROAD KOANDAH GARDEN ESTATES SECTION I, AREA 1, LOTS 3-10 5<sup>TH</sup> ELECTION DISTRICT HOWARD COUNTY, MARYLAND TAX MAP 34, PARCEL 378 SEE VP-86-26, 5-87-49, P-87-53

SCALE AS SHOWN SHEET 1 OF 5

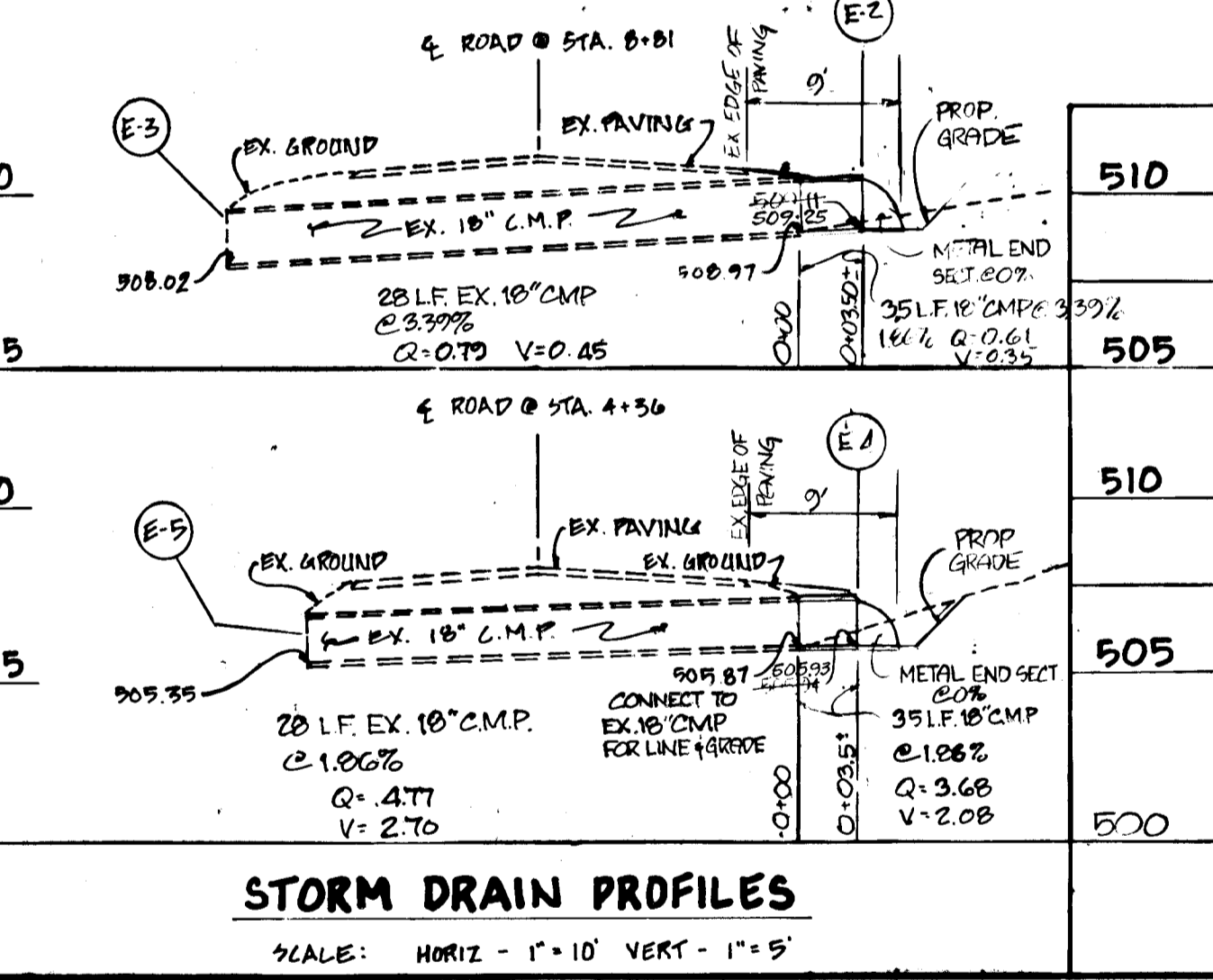
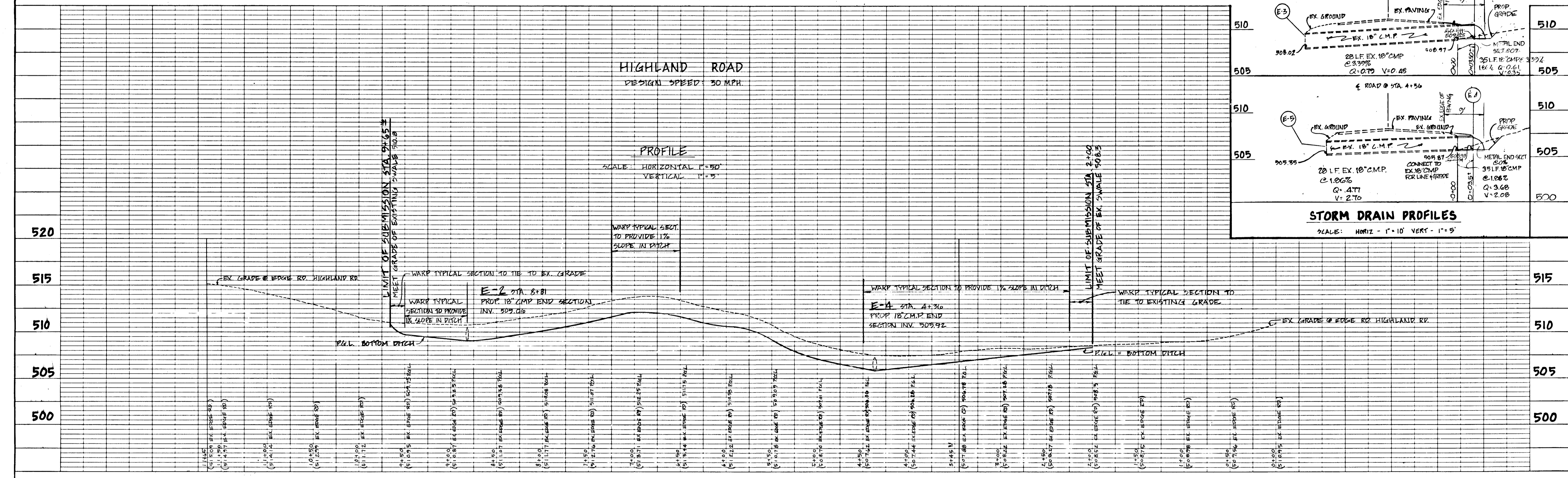
1209



- 1 PROFILE GRADE LINE (P.G.L.)
- 2 INDICATES 2\"/>
- 3 DITCH CROSS SECTION SLOPE TO BE FLATTENED TO PROVIDE A GRADE OF AT LEAST 1% IN DITCH TO MAINTAIN POSITIVE DRAINAGE.



AS-BUILT SURVEY CERTIFIED BY  
 G. SCOTT SHANABERGER, MD. PLS  
 No. 10849, ON 10-16-89



APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING.  
 APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS.  
 CHIEF, LAND DEVELOPMENT DIV.  
 CHIEF, BUREAU OF HIGHWAYS  
 CHIEF, BUREAU OF ENGINEERING

**SHANABERGER + LANE**  
 8726 TOWN & COUNTRY BLDG SUITE 203  
 ELLICOTT CITY, MD. 21043  
 (301) 461-9563

DES	DRN	CHK	DATE
UDG	SLM	UDG	10/10/87
BY	NO.	REVISION	DATE

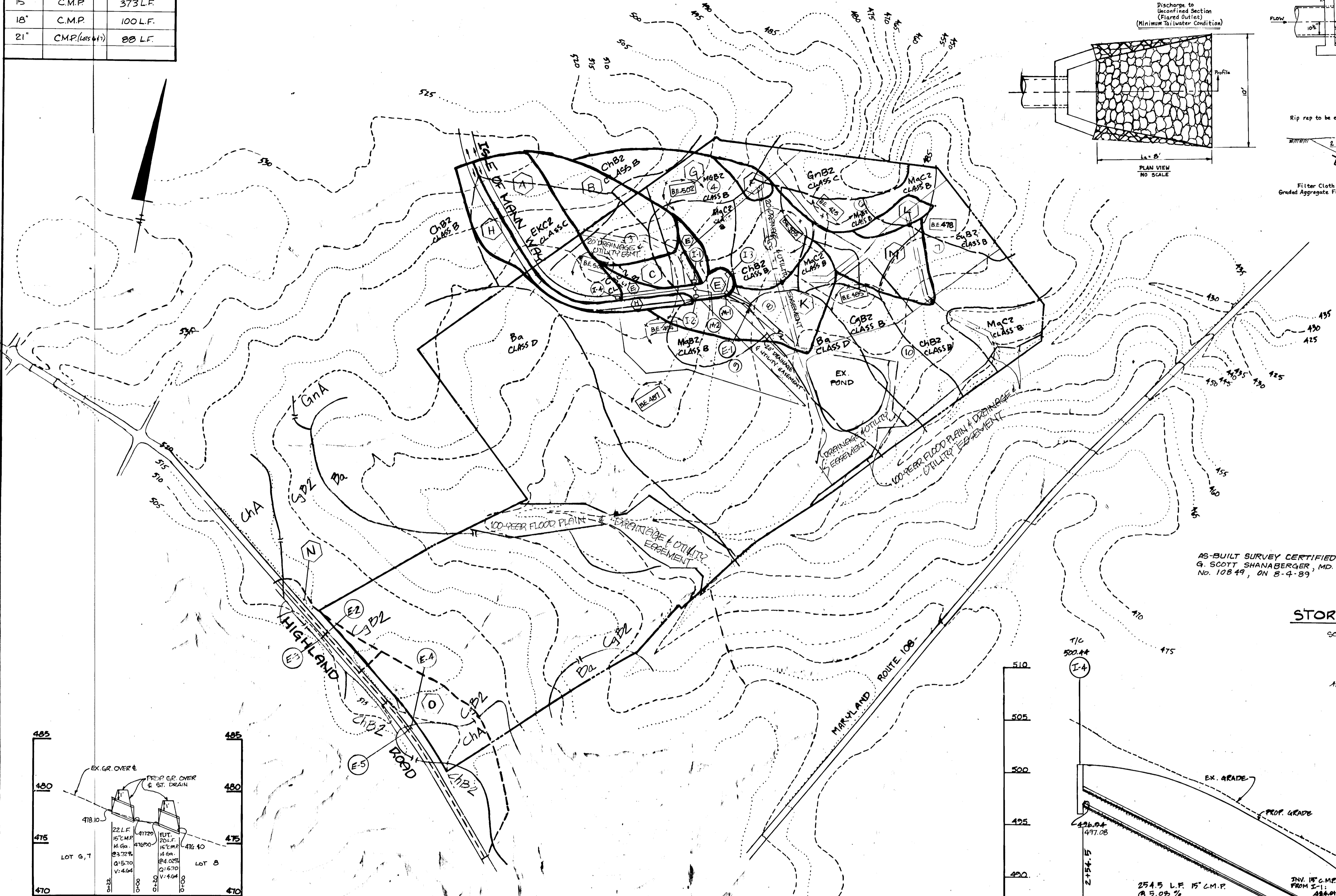
OWNER & DEVELOPER:  
 JAMES M. SANBORN  
 4967 TEN OAKS RD.  
 PANTON, MD 21036

PLAN & PROFILE OF HIGHLAND ROAD  
**KOANDAH GARDENS ESTATES**  
 SECTION 1, AREA 1, LOTS 3-10  
 5<sup>TH</sup> ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 TAX MAP 34, PARCEL 37B  
 SEE VP-86-24, S-87-49, P-87-53  
 SCALE AS SHOWN  
 SHEET 2 OF 3

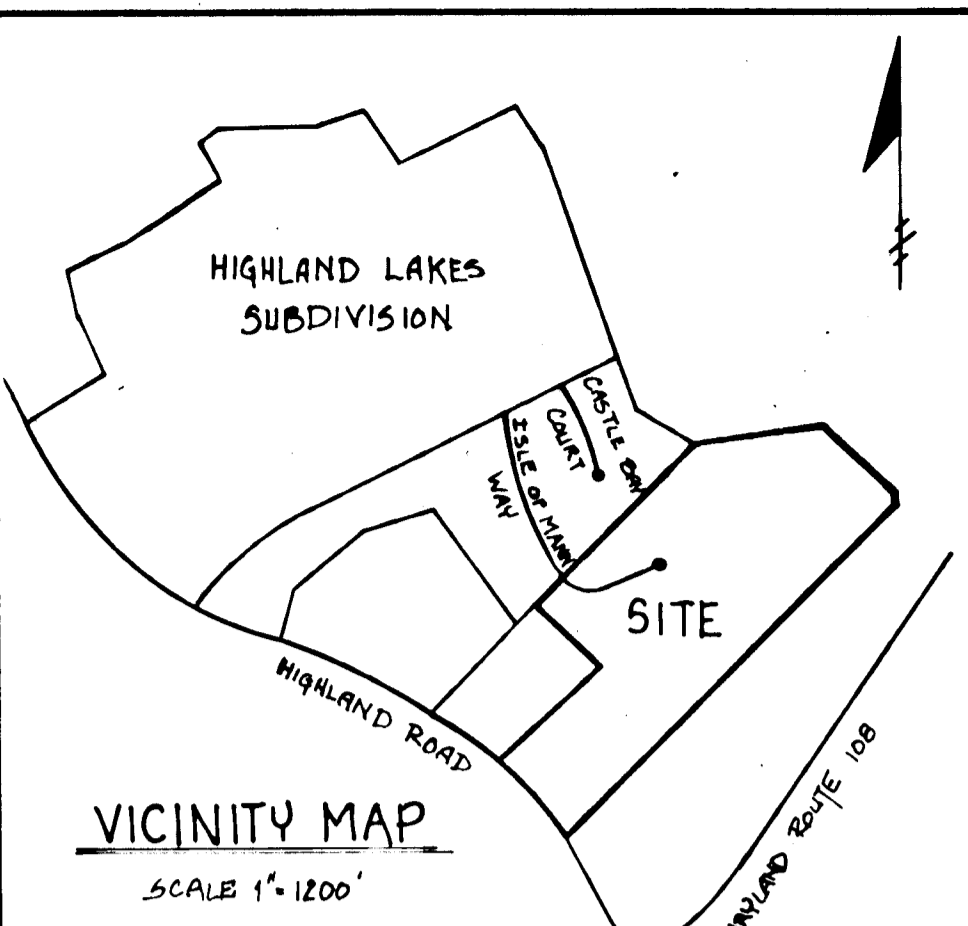
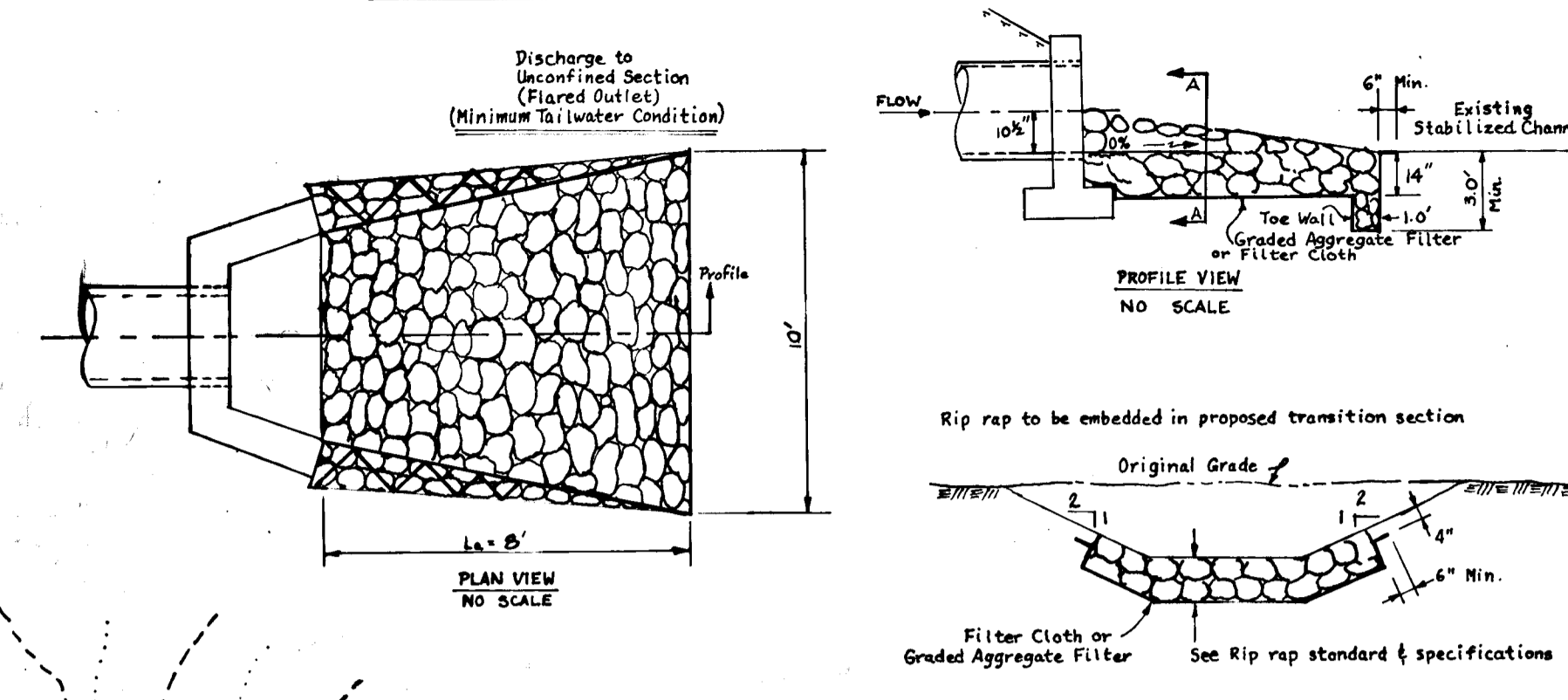
1209

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
15"	C.M.P.	373 L.F.
18"	C.M.P.	100 L.F.
21"	C.M.P. (last 4')	88 L.F.

**DRAINAGE AREA MAP**  
SCALE: 1" = 200'



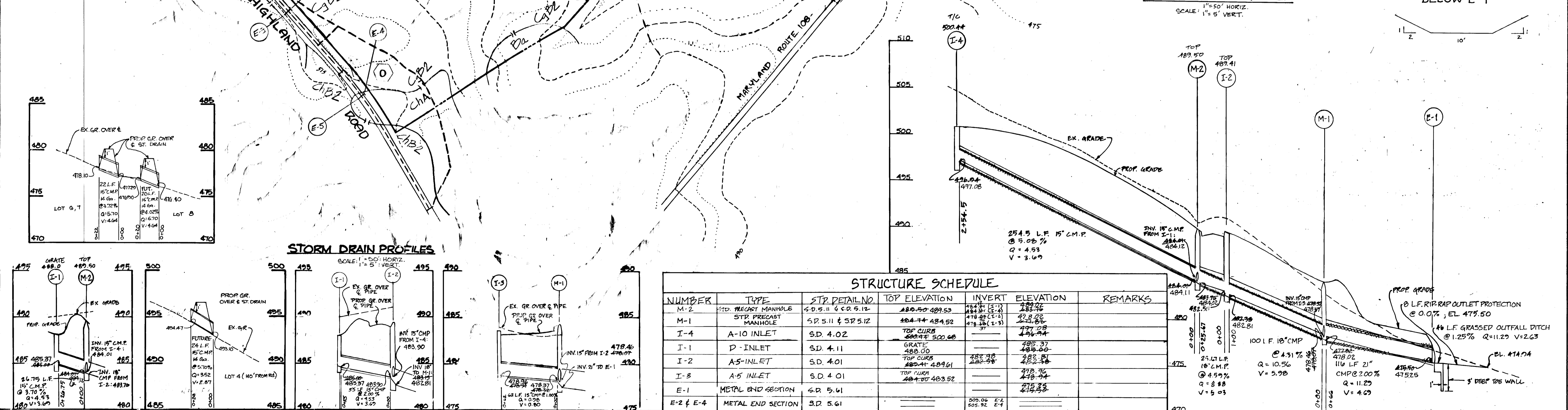
**RIP-RAP OUTLET PROTECTION AT E-1**



DRAINAGE AREA INFORMATION							
D.A.	AREA (AC.)	ZONING	C	PI	T.C.	I	Q
A	3.7	R	0.24	5	16.0	5.1	4.53
B	3.0	R	0.23	5	16.0	5.1	3.52
C	0.7	R	0.24	5	16.0	5.1	0.86
E	0.8	R	0.24	5	16.0	5.1	0.98
F	0.5	R	0.22	5	16.0	5.1	0.56
G	4.8	R	0.21	5	16.0	5.1	6.14
H	1.4	R	0.24	5	16.0	5.1	1.71
I	0.1	R	0.15	5	16.0	5.1	0.13
J	0.4	R	0.20	5	16.0	5.1	0.53
K	3.1	R	0.24	5	16.0	5.1	3.70
L	0.4	R	0.15	5	16.0	5.1	0.30
M	2.4	R	0.15	5	16.0	5.1	2.33
N	0.6	R	0.24	20.7	14.9	5.5	0.79
O	3.9	R	0.24	5.8	16.8	5.1	4.77

AS-BUILT SURVEY CERTIFIED BY  
G. SCOTT SHANABERGER, MD. P.L.S.  
No. 10849, ON 8-4-89

**STORM DRAIN PROFILES**



STRUCTURE SCHEDULE						
NUMBER	TYPE	STR. DETAIL NO.	TOP ELEVATION	INVERT ELEVATION	REMARKS	
M-2	STD. PRECAST MANHOLE	S.D. 5.11 & 5.12	480.50	489.53	489.53	
M-1	STD. PRECAST MANHOLE	S.D. 5.11 & 5.12	484.74	484.52	484.52	
I-4	A-10 INLET	S.D. 4.02	TOP CURB 480.45	480.68	480.68	
I-1	D-INLET	S.D. 4.11	488.00	488.00	488.00	
I-2	A-5 INLET	S.D. 4.01	TOP CURB 482.41	482.58	482.58	
I-3	A-5 INLET	S.D. 4.01	TOP CURB 484.41	483.52	483.52	
E-1	METAL END SECTION	S.D. 5.61	484.00	483.52	483.52	
E-2 & E-4	METAL END SECTION	S.D. 5.61	480.00	480.92	480.92	

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING.  
*Joseph R. Rott* 3/13/88  
CHIEF, BUREAU OF PLANNING & LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS.  
*William H. Westland* 3/11/88  
CHIEF, BUREAU OF HIGHWAYS

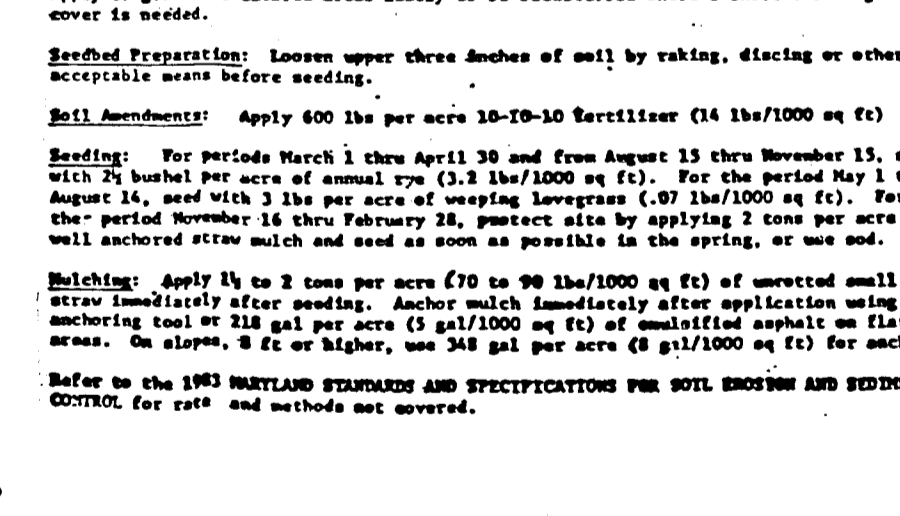
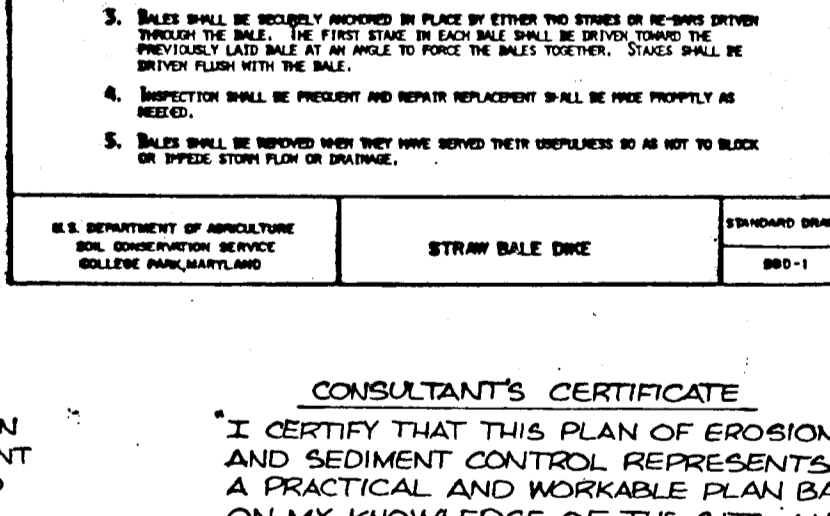
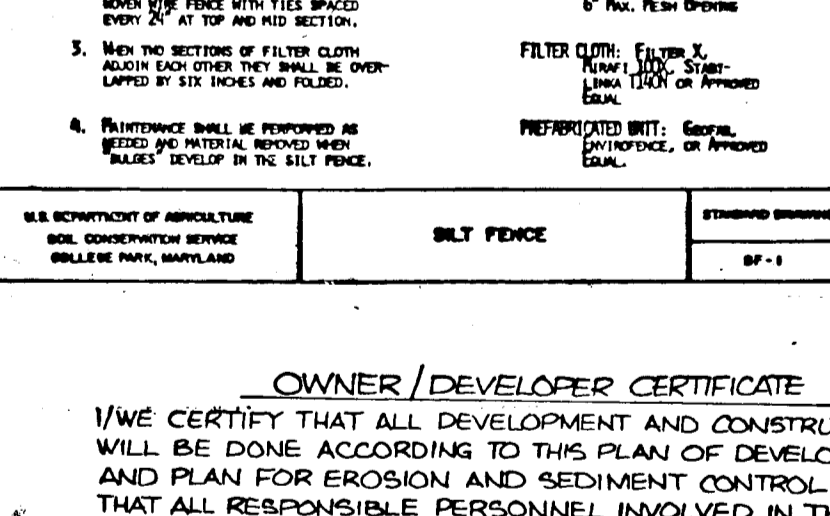
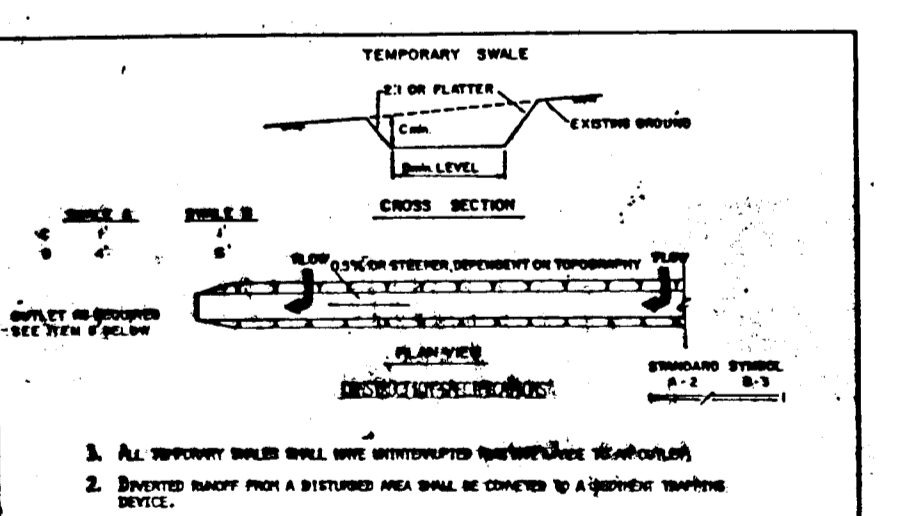
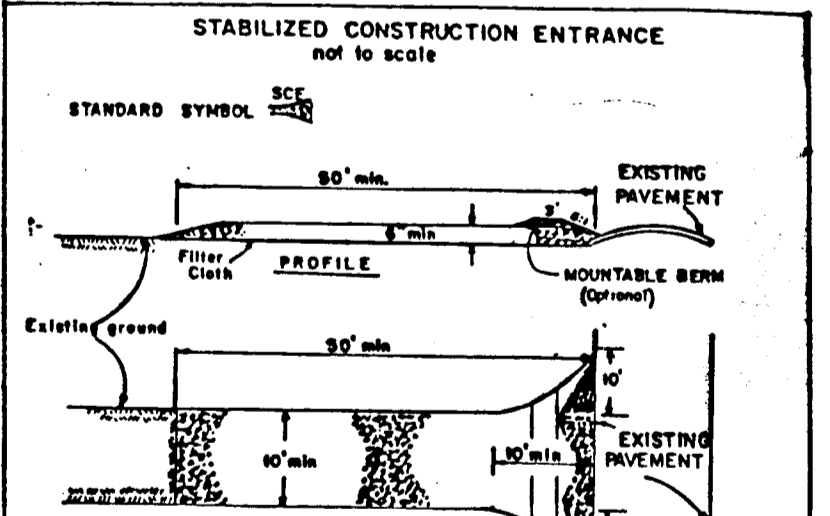
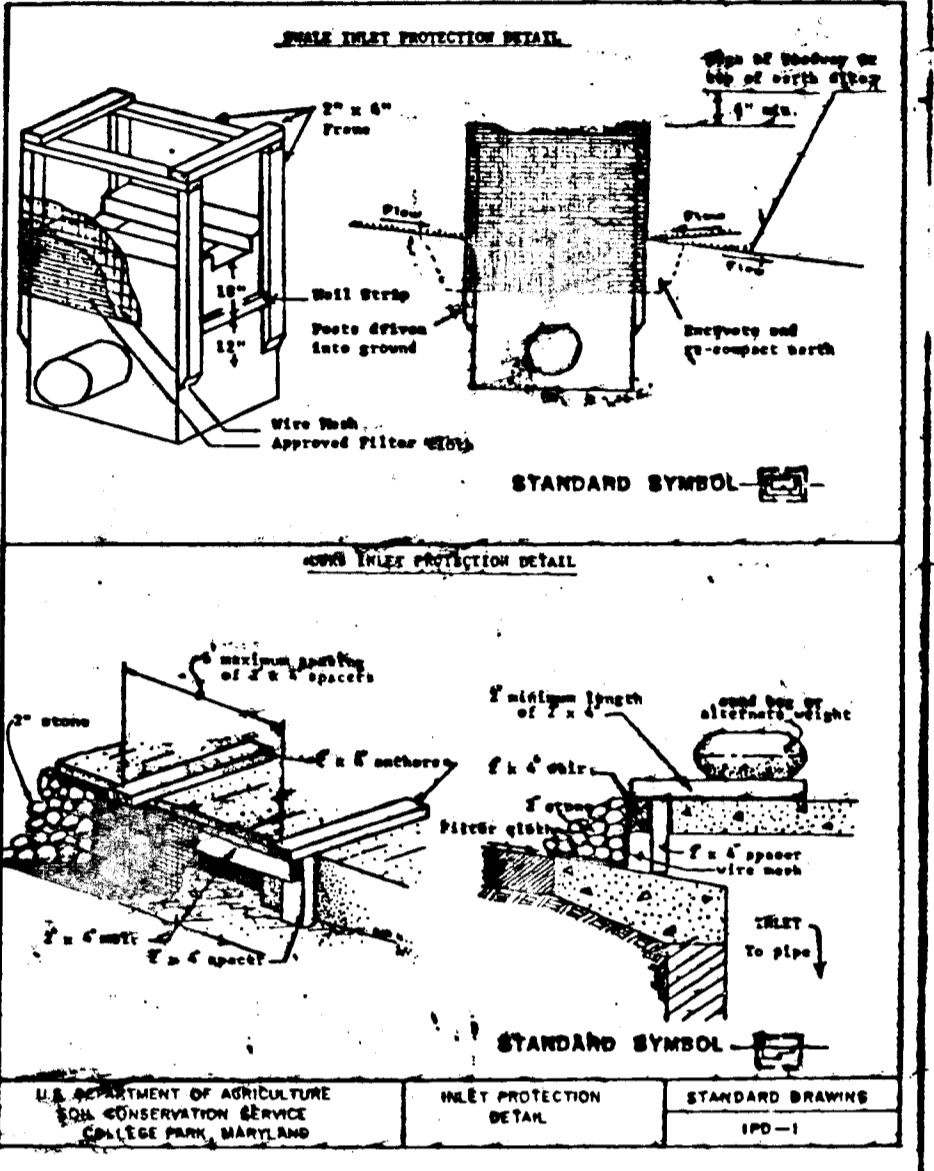
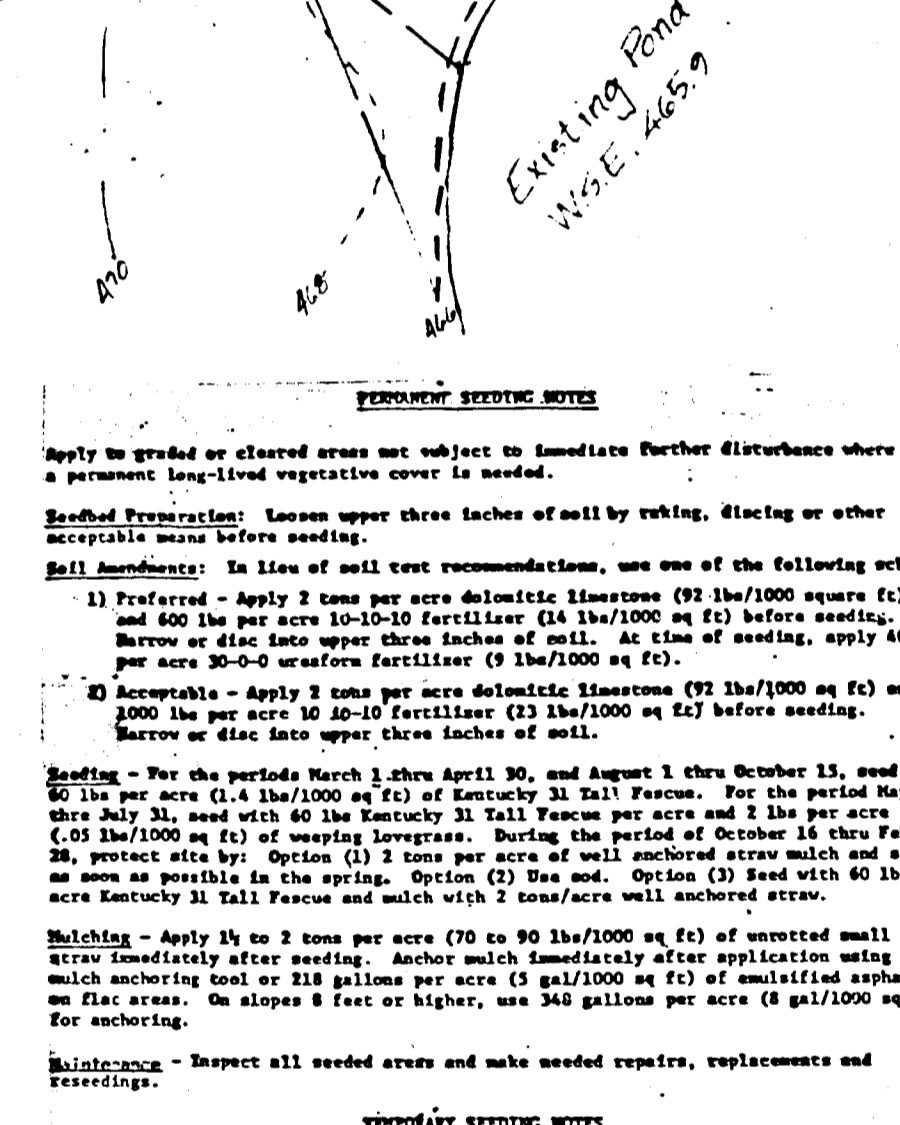
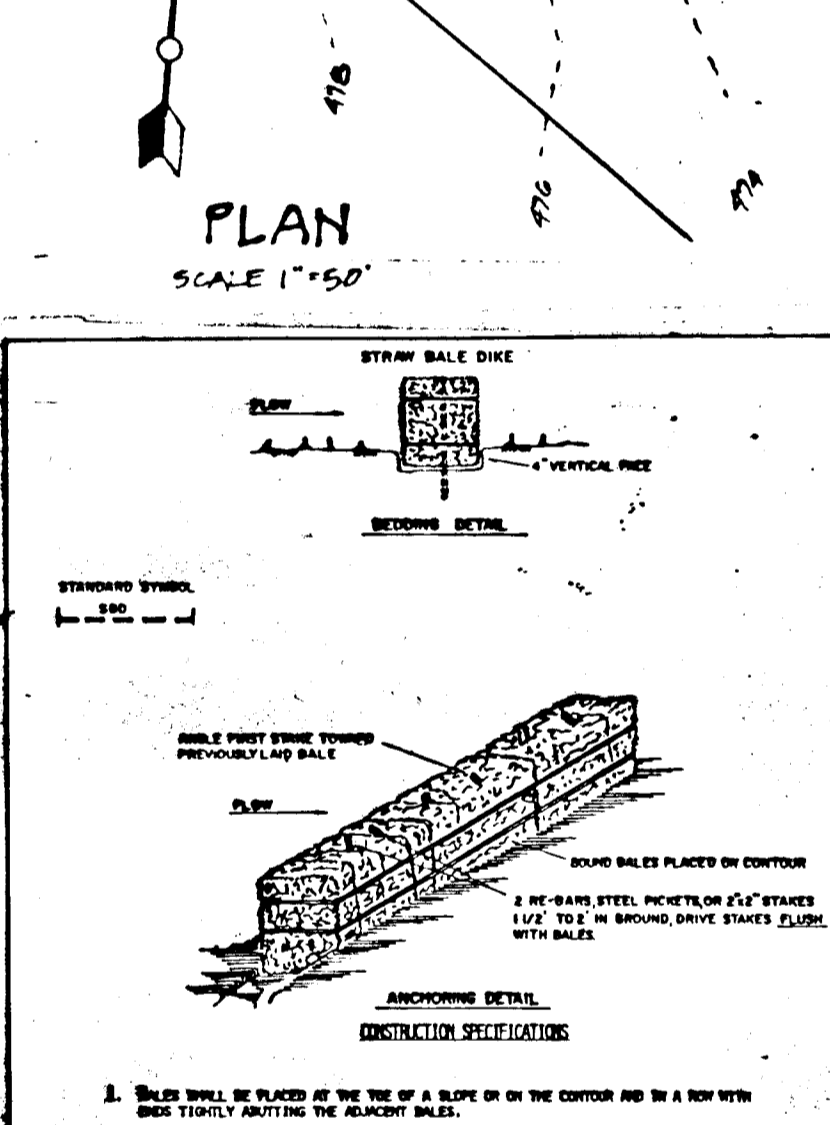
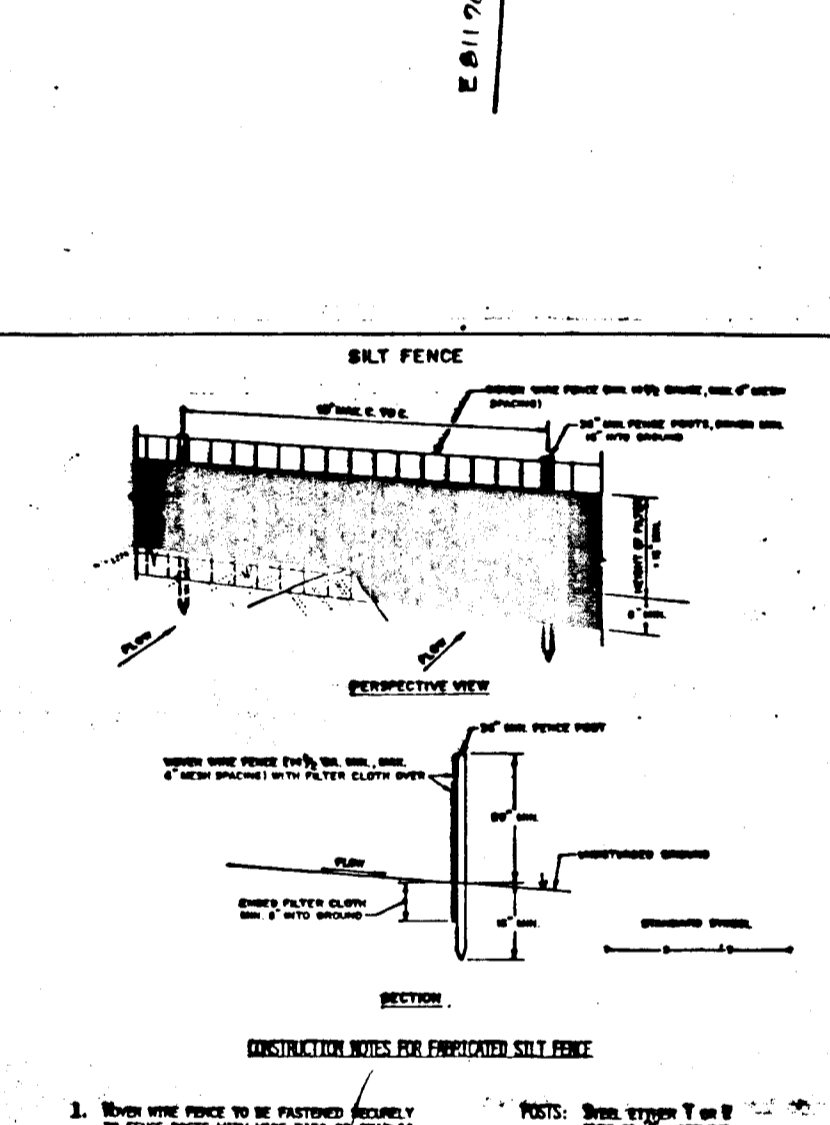
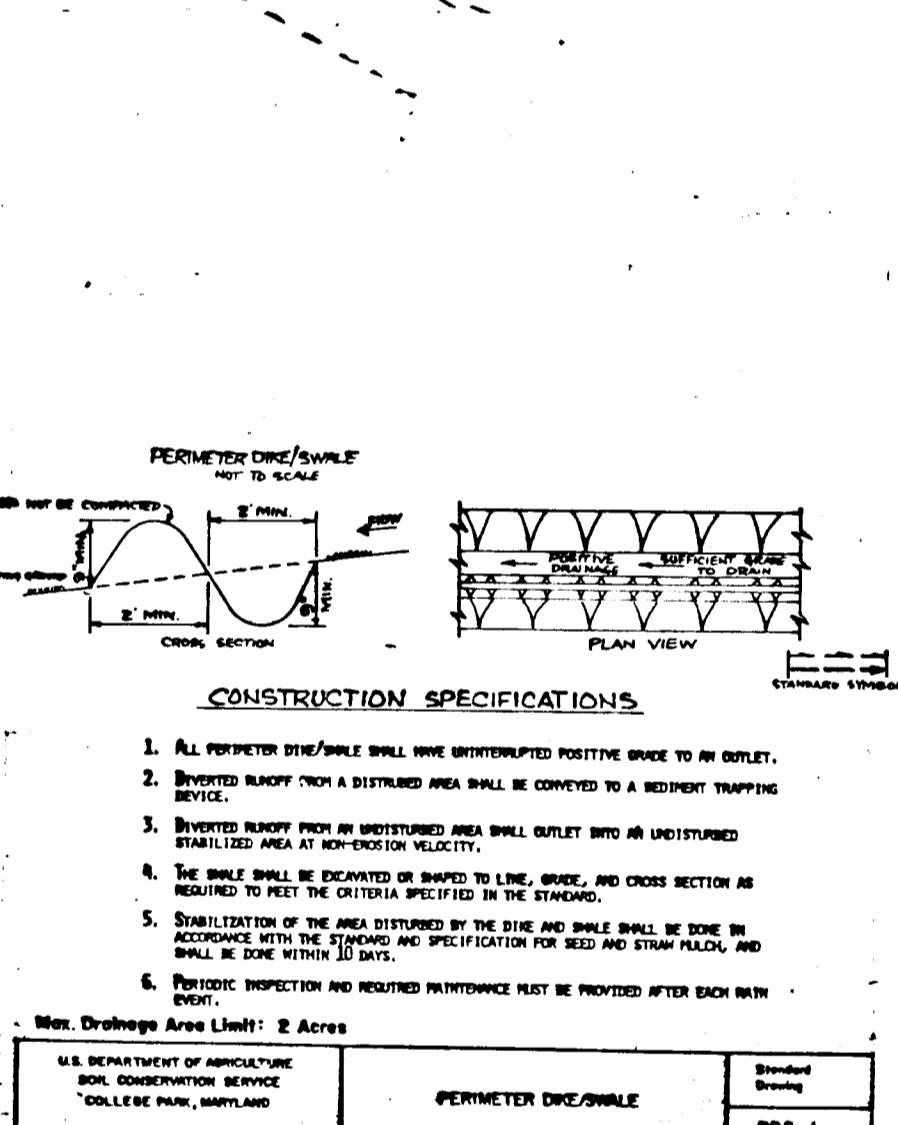
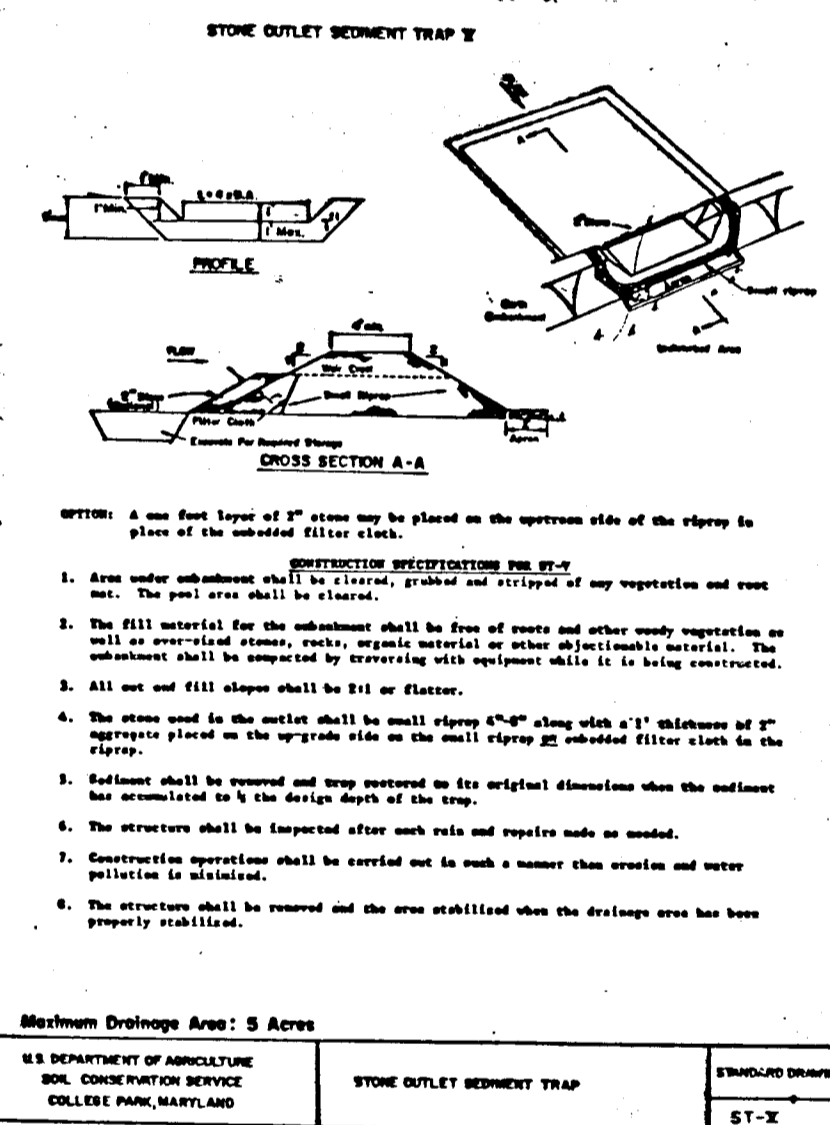
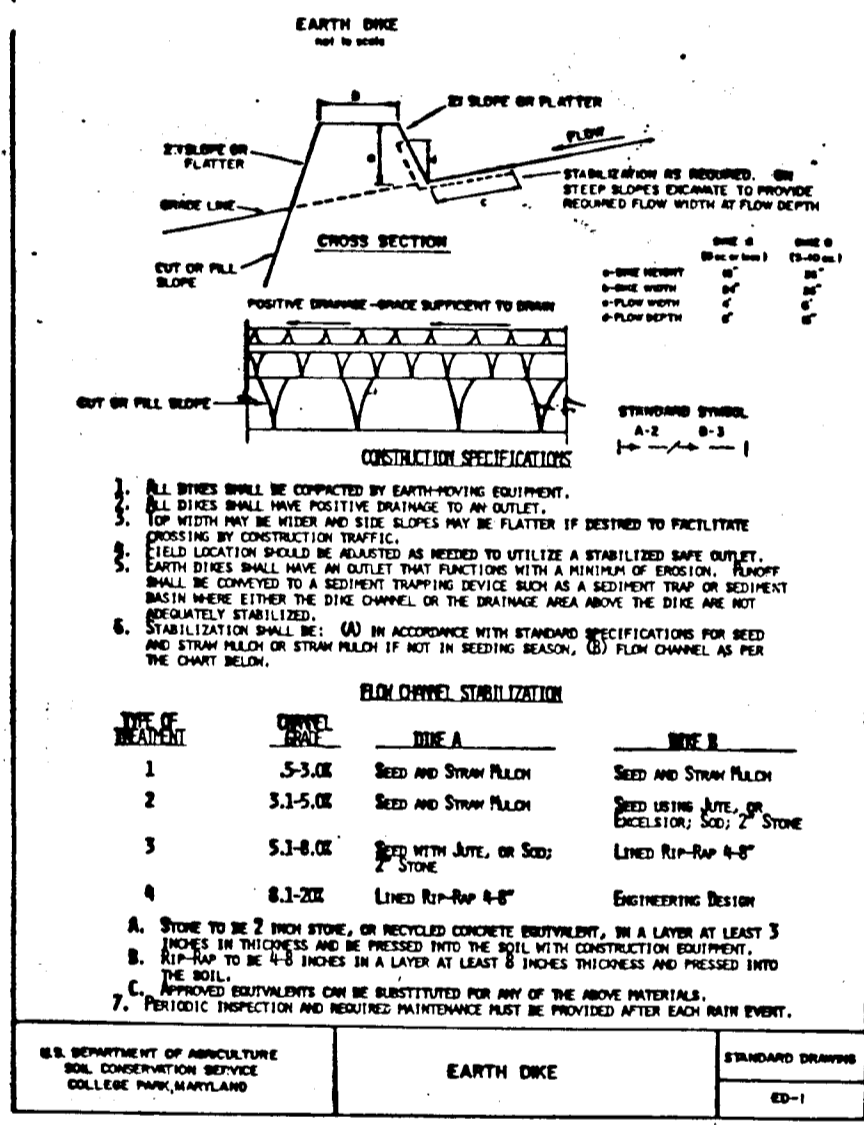
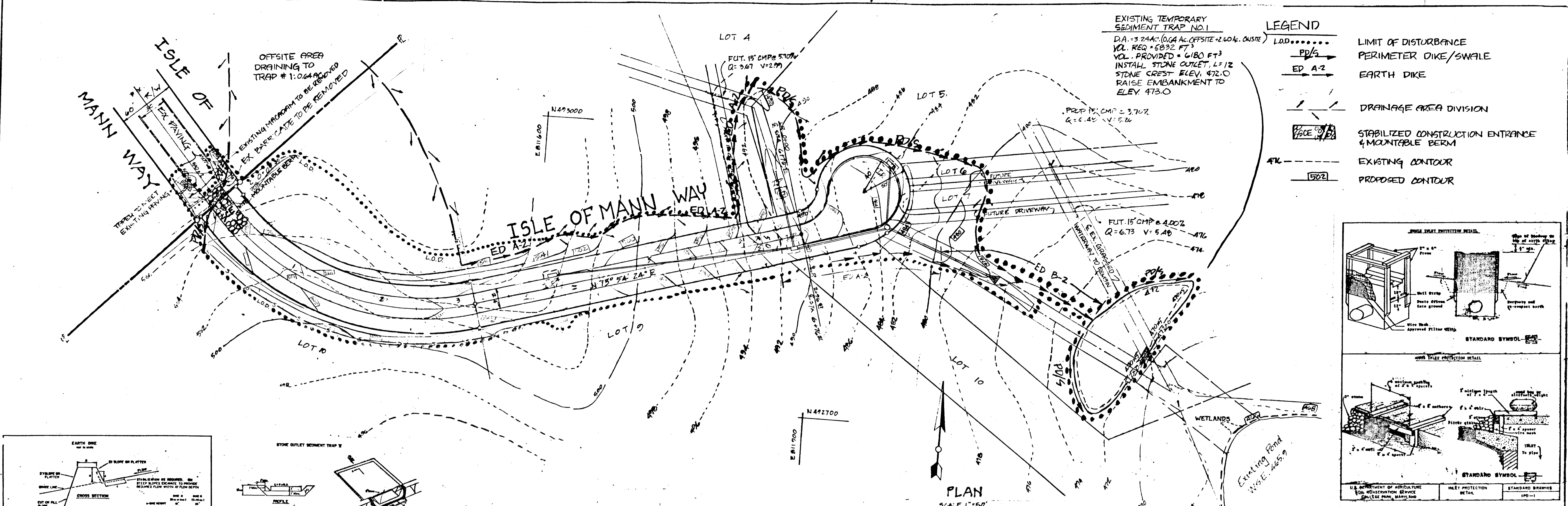
**SHANABERGER & LANE**  
2126 TOWN & COUNTRY BLVD.  
SUITE 203  
ELLCOTT CITY, MD. 21043  
(301) 461-9563

DESIGNED	DRAWN	CHECKED	DATE
GLM	RLM	GLM	11/18/88
			11/18/88
			11/18/88

OWNER & DEVELOPER  
**JAMES M. SANBORN**  
4967 TEN OAKS ROAD  
DAYTON, MD. 21036

STORM DRAIN PROFILES & DETAILS  
DRAINAGE AREA MAP  
**KOANDAH GARDENS ESTATES**  
SEC. 1, AREA 1, LOTS 3-10  
5TH ELEC. DIST. HOWARD CO., MD.  
TAX MAP 34, PAR 378 GEE VP. 86-26, 6-87-89 P. 87-53

SCALE: AS SHOWN  
**SHEET 3**  
OF **5**



**BEDIMENT CONTROL NOTES**

- A minimum of 90 hours notice must be given to the Board County Office of Inspection and Permitting prior to the start of any construction. (897-2437)
- All vegetative and structural practices are to be installed according to the specifications (this plan and as to be in conformance with the 1982 HAWAIIAN SOIL CONSERVATION DISTRICT AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbances or re-disturbances, permanent stabilization shall be completed within 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1. 14 days for all other disturbed or graded areas on the project site.
- All sediment traps/basins shall be installed and inspected around the perimeter in accordance with Vol. 1, Chapter 11, of the HAWAIIAN COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified herein in accordance with the 1982 HAWAIIAN COUNTY STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 31) and (Sec. 34), temporary seedings (Sec. 32) and (Sec. 33). Temporary stabilization with which alone can not be done when recommended seedings rates 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 Board County Sediment Control Inspector.
- Site Analysis:  
 Total Area of Site: 7.24 Acres  
 Area to be seeded or planted: 2.77 Acres  
 Total Cut: 3100 Cu. Yds  
 Offsite waste/barrow area location: N/A
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be completed on the same day of disturbance.  
 Additional sediment control must be provided, if deemed necessary by the Board County Sediment Control Inspector.
- On all areas with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment control, and before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.  
 (1) If houses are to be constructed on an "A" or "B" basis, at minimum, Single Lot Sediment Control as shown below shall be implemented.  
 (2) All pipes to be blocked at the end of each lot (see detail below).  
 (3) The total amount of straw bale dikes/silt fence equals 350 L.F.

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

*James M. Helm* 3/4/89  
 CHIEF, SOIL CONSERVATION SERVICE  
 DATE

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

*John P. Roberts* 3/11/89  
 HOWARD S.C.D.  
 DATE

**STABILIZED CONSTRUCTION ENTRANCE**  
 CROSS SECTION  
 CONSTRUCTION SPECIFICATIONS  
 1. STABILIZED CONSTRUCTION ENTRANCE SHALL BE 18" HIGH ABOVE FINISHED GRADE.  
 2. STABILIZED CONSTRUCTION ENTRANCE SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.  
 3. STABILIZED CONSTRUCTION ENTRANCE SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.  
 4. STABILIZED CONSTRUCTION ENTRANCE SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.  
 5. STABILIZED CONSTRUCTION ENTRANCE SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.  
 6. STABILIZED CONSTRUCTION ENTRANCE SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.  
 7. STABILIZED CONSTRUCTION ENTRANCE SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.

**STANDARD SYMBOL**  
 STABILIZED CONSTRUCTION ENTRANCE  
 SCE-1

**PERIMETER DIKE/SWALE**  
 CROSS SECTION  
 CONSTRUCTION SPECIFICATIONS  
 1. ALL PERIMETER DIKE/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.  
 2. DIKES SHALL BE CONSTRUCTED BY EARTH-MOVING EQUIPMENT.  
 3. DIKES SHALL BE 18" HIGH ABOVE FINISHED GRADE.  
 4. DIKES SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.  
 5. DIKES SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.  
 6. DIKES SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.  
 7. DIKES SHALL BE 18" WIDE AT TOP AND 12" WIDE AT BOTTOM.

**STANDARD SYMBOL**  
 PERIMETER DIKE/SWALE  
 PD-1

**OWNER/DEVELOPER CERTIFICATE**

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*James M. Sanborn* 8-2-87  
 SIGNATURE OF DEVELOPER/BUILDER DATE

*Walter L. Dwyer*  
 SIGNATURE OF INSPECTOR DATE

**CONSULTANT'S CERTIFICATE**

I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY KNOWLEDGE OF THE SITE, AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF HOWARD COUNTY SOIL CONSERVATION DISTRICT AND "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL". I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

*Walter L. Dwyer* 3/11/89  
 SIGNATURE DATE  
 MD LICENSE NO. DATE

*James M. Sanborn* 3/11/89  
 SIGNATURE DATE  
 MD LICENSE NO. DATE

**SEQUENCE OF CONSTRUCTION**

- OBTAIN GRADING PERMIT
- NOTIFY HOWARD S.C.D. AT LEAST 48 HOURS BEFORE STARTING WORK. 992-2437.
- CLEAR FOR SEDIMENT CONTROL MEASURES & INSTALL.
- CLEAR REMAINING AREA WITHIN "LIMIT OF DISTURBANCE" AND ROUGH GRADE.
- INSTALL STORM DRAIN SYSTEM.
- CONSTRUCT ROAD AND PANHANDLE DRIVE FOR LOTS 6 & 7.
- STABILIZE ALL DISTURBED AREAS.
- OBTAIN PERMISSION FROM SEDIMENT CONTROL INSPECTOR FOR REMOVAL OF SEDIMENT CONTROL DEVICES AND REMOVE.
- SEDIMENT CONTROL DURING HOUSE CONSTRUCTION TO BE PROVIDED ON AN INDIVIDUAL LOT BASIS.

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING

*James M. Helm* 3/11/89  
 CHIEF DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*John P. Roberts* 3/11/89  
 CHIEF, BUREAU OF HIGHWAYS DATE

*James M. Sanborn* 3-17-88  
 CHIEF BUREAU OF ENGINEERING DATE

**SHANABERGER + LANE**  
 8726 TOWN & COUNTRY BLVD.  
 SUITE 203  
 ELLICOTT CITY, MD 21043  
 461-9563

**OWNER & DEVELOPER:**  
 JAMES M. SANBORN  
 4967 TEN OAKS RD.  
 DAYTON, MD 21036

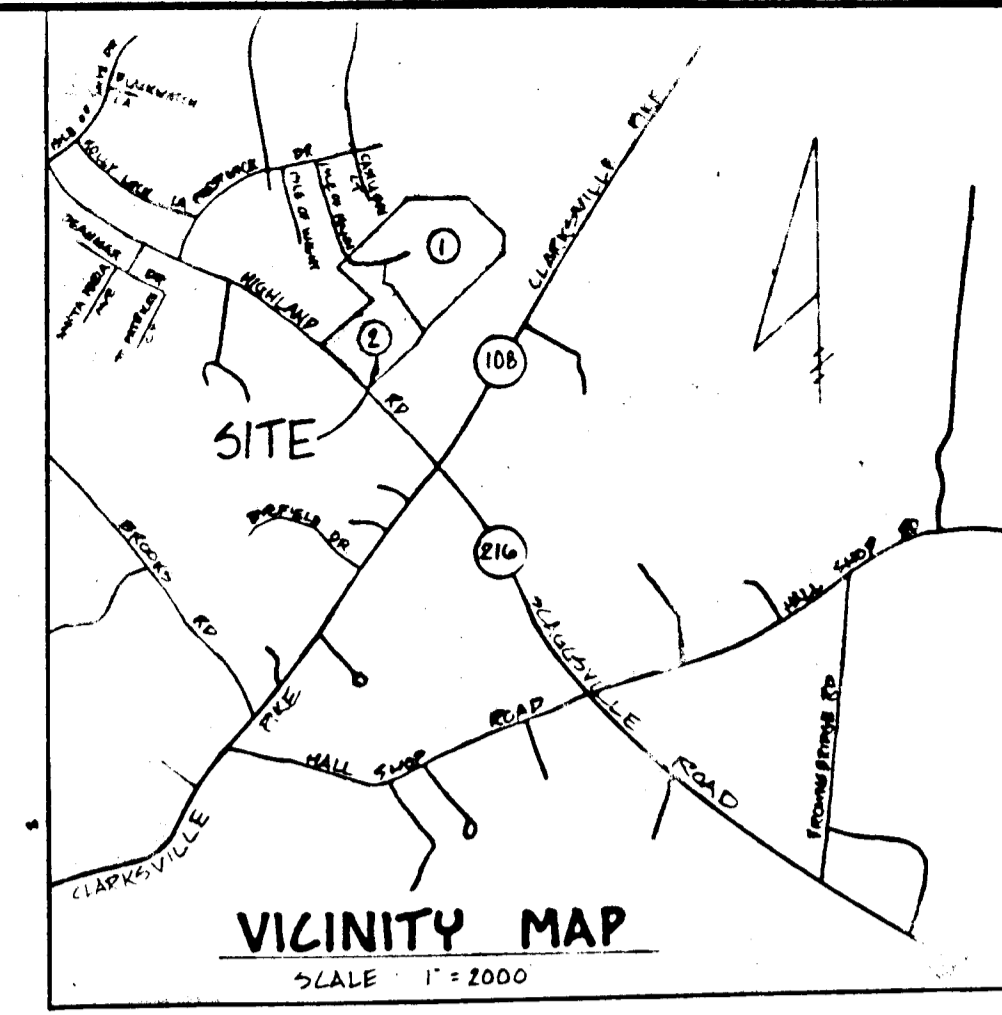
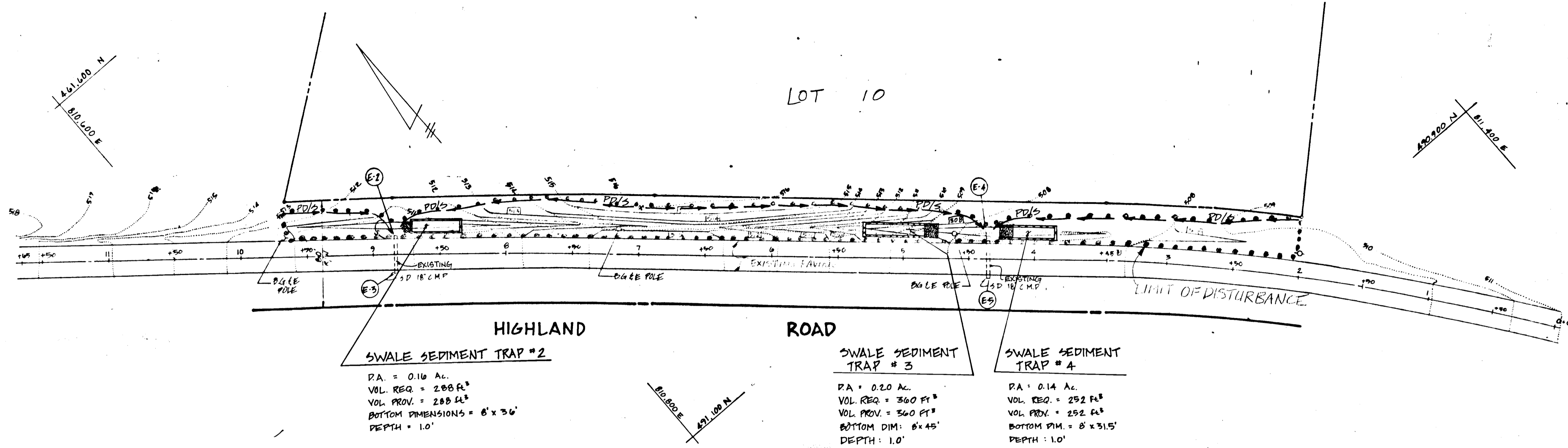
**GRADING, EROSION & SEDIMENT CONTROL PLAN**  
 SEDIMENT CONTROL DETAILS  
**KOANDAH GARDENS ESTATES**  
 SECTION I, AREA 1, LOTS 3-10  
 5TH ELECTION DISTRICT HOWARD COUNTY, MD  
 TAX MAP 34, PARCEL 378  
 SEE VP-86-26, S-87-49, P-87-53

SCALE AS SHOWN

SHEET 4 OF 5

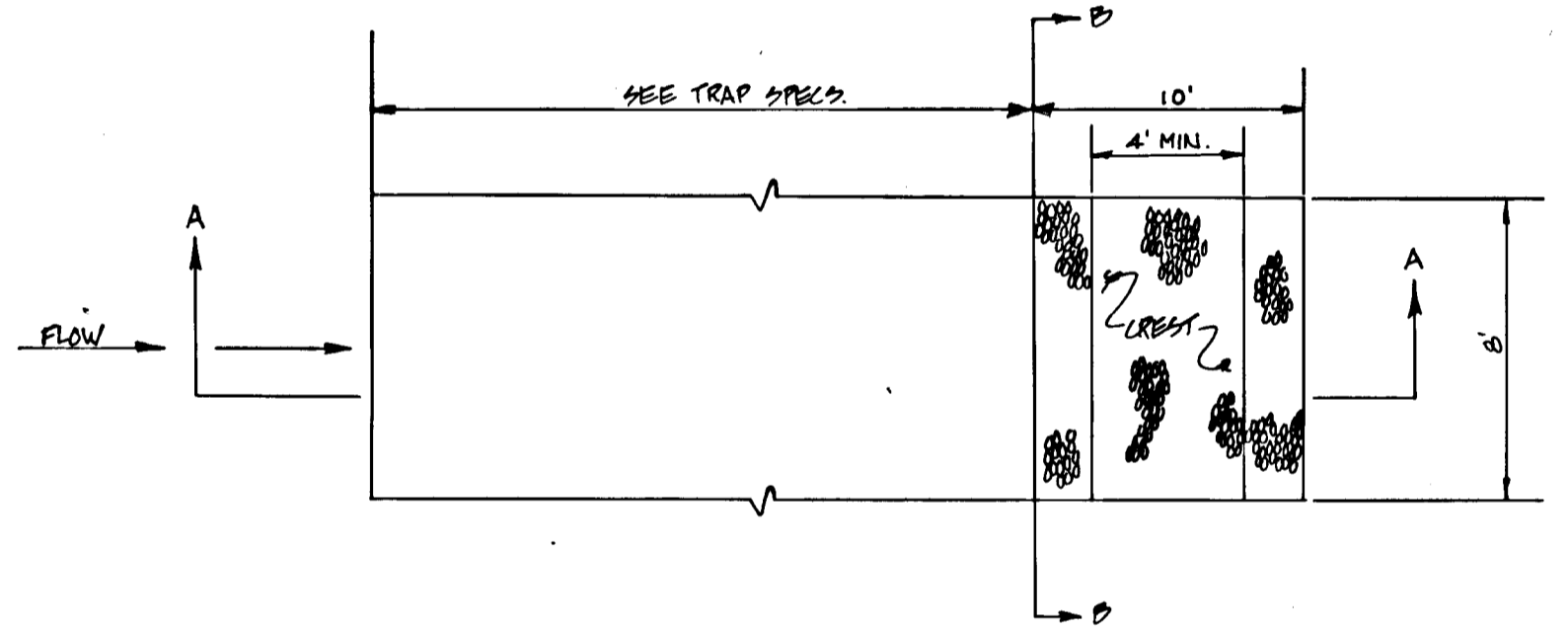
DATE 5/10/87

BY NO REVISION DATE

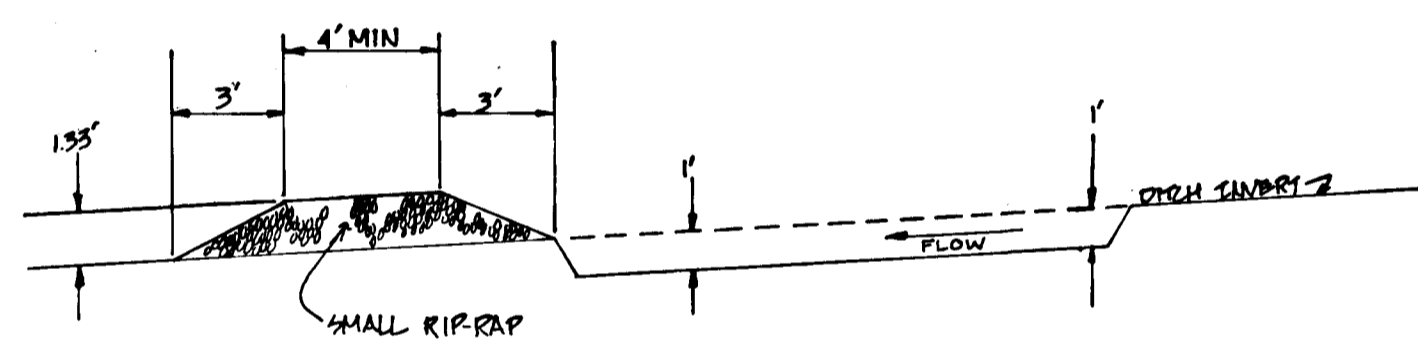


- LEGEND**
- ..... LIMIT OF DISTURBANCE
  - PD/S PERIMETER DIKE/SWALE
  - 422--- EXISTING CONTOUR
  - 422--- PROPOSED CONTOUR
  - [Symbol] SWALE SEDIMENT TRAP

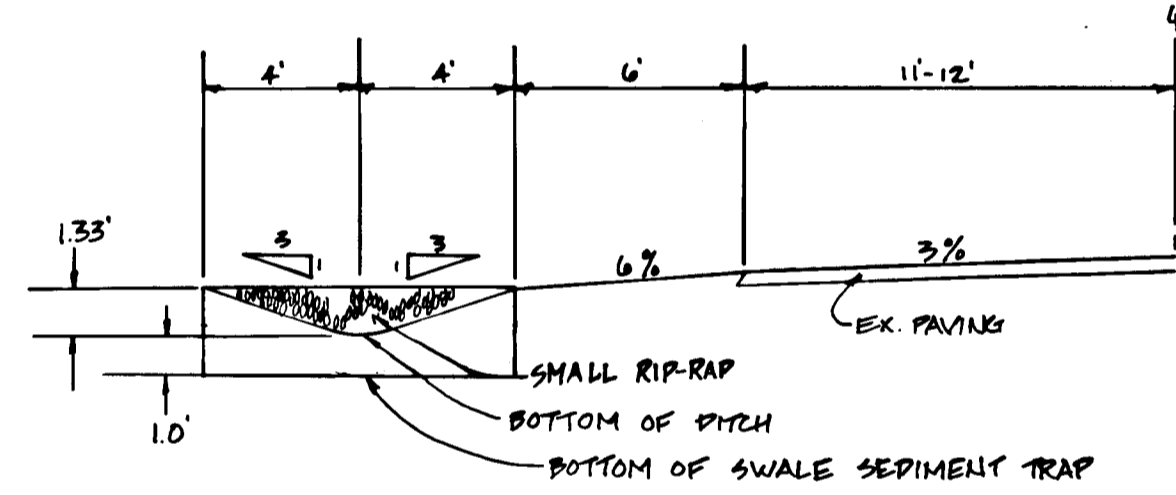
**SWALE SEDIMENT TRAP**  
NO SCALE



**SECTION A-A**  
NO SCALE



**SECTION B-B**  
NO SCALE



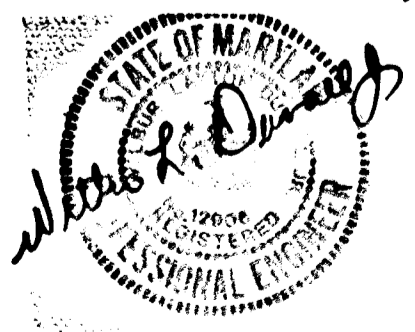
FOR SEDIMENT CONTROL NOTES, SEDIMENT CONTROL DETAILS, SEQUENCE OF CONSTRUCTION & SITE ANALYSIS, SEE SHEET 4 OF 5.

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.  
*James M. Nelson* 3-11-88  
 S.O. SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION & SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT APPROVED.  
*John P. Lobato* 3-11-88  
 HOWARD S.C.D. DATE

**OWNER/DEVELOPER CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.  
*James M. Nelson* 12/6/87  
 SIGNATURE OF DEVELOPER/BOILER DATE

**CONSULTANT'S CERTIFICATE**  
 I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY KNOWLEDGE OF THE SITE, AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF HOWARD COUNTY SOIL CONSERVATION DISTRICT AND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER."  
*Scott Shanaberger* M.P.R.E. L.S.# 10240 11/13/87  
 SIGNATURE DATE  
 NAME: SCOTT SHANABERGER  
*William L. Duvall* 12906 2/10/87  
 SIGNATURE DATE  
 NAME: WILLIAM L. DUVALL



APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING  
*James M. Nelson* 3-14-88  
 CHIEF, LAND DEVELOPMENT DIV. DATE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William W. Wagoner* 3/17/88  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF ENGINEERING  
*Richard E. Reed* 3-17-88  
 CHIEF BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William W. Wagoner* 3/17/88  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF ENGINEERING  
*Richard E. Reed* 3-17-88  
 CHIEF BUREAU OF ENGINEERING DATE

**SHANABERGER & LANE**  
 6250 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MD 21043  
 (301) 461-9533



DATE	BY	NO.	REVISION	DATE
DES 455	SLM	1	MOVE SEDIMENT TRAP #3 30' LEFT (10' FROM BULE POLE)	11/13/87
DRN 51M	SLM	2	2" CMT AT B-1 EXTENDED 50'	11/18/87
CHK 495				
DATE 10/19/87				

**OWNER & DEVELOPER:**  
 JAMES M. SANBORN  
 4967 TEN OAKS RD.  
 DAYTON, MD 21034

GRADING, EROSION, & SEDIMENT CONTROL PLAN  
**KOANDAH GARDENS ESTATES**  
 SECTION 1, AREA 1, LOTS 3-10  
 5<sup>TH</sup> ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 TAX MAP 3A, PARCEL 37B  
 SEE YP-86-26, S-87-49, P-87-35

SCALE  
 1" = 50'  
 SHEET  
 2 OF 5

12071

F-87-200