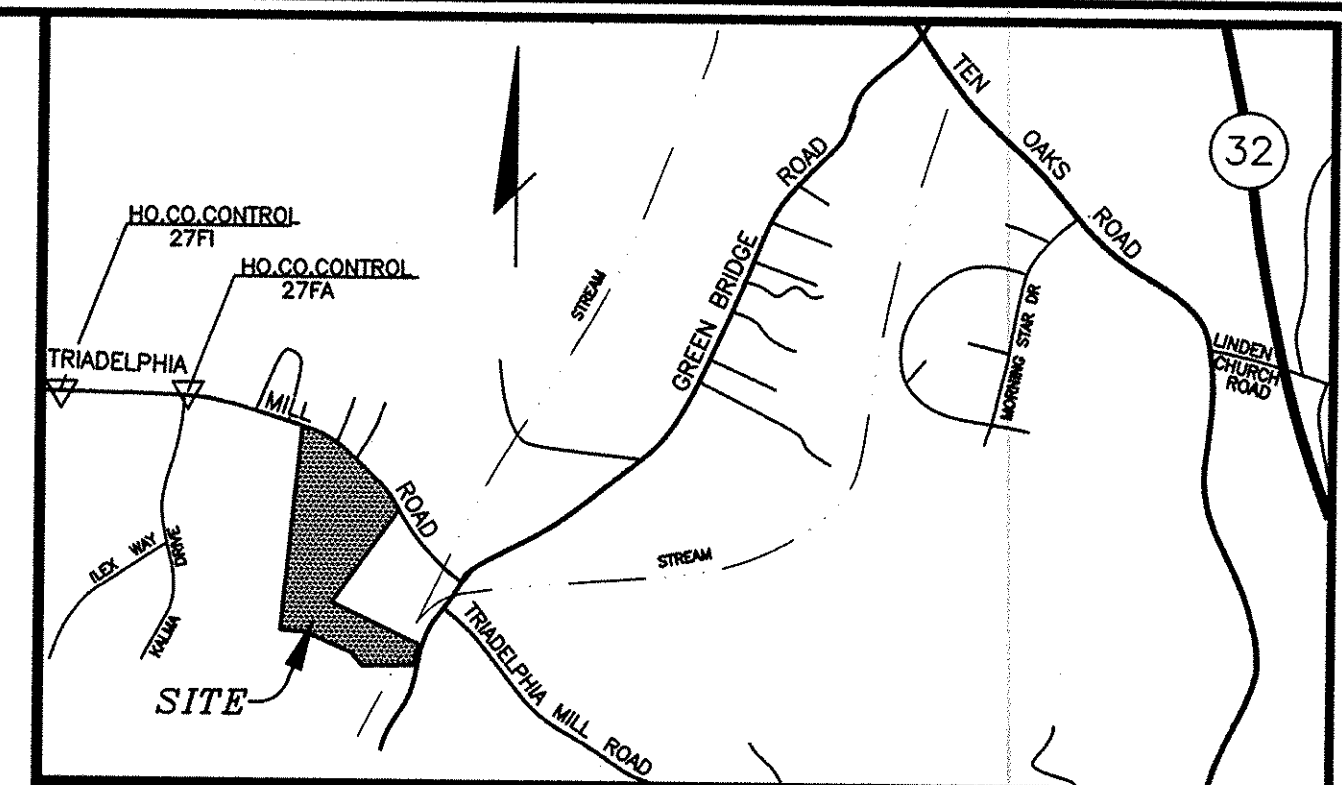


SHEET INDEX	
1	TITLE SHEET
2	ROAD CONSTRUCTION PLAN
3	GRADING, SEDIMENT CONTROL PLAN AND LANDSCAPING
4	STORM DRAIN PROFILES AND STORMWATER MANAGEMENT DETAILS
5	STORM DRAIN DRAINAGE AREA MAP
6	GRADING, SEDIMENT CONTROL AND STORMWATER MANAGEMENT DETAILS

TWIST & TURN ESTATES FINAL ROAD CONSTRUCTION PLANS HOWARD COUNTY, MARYLAND

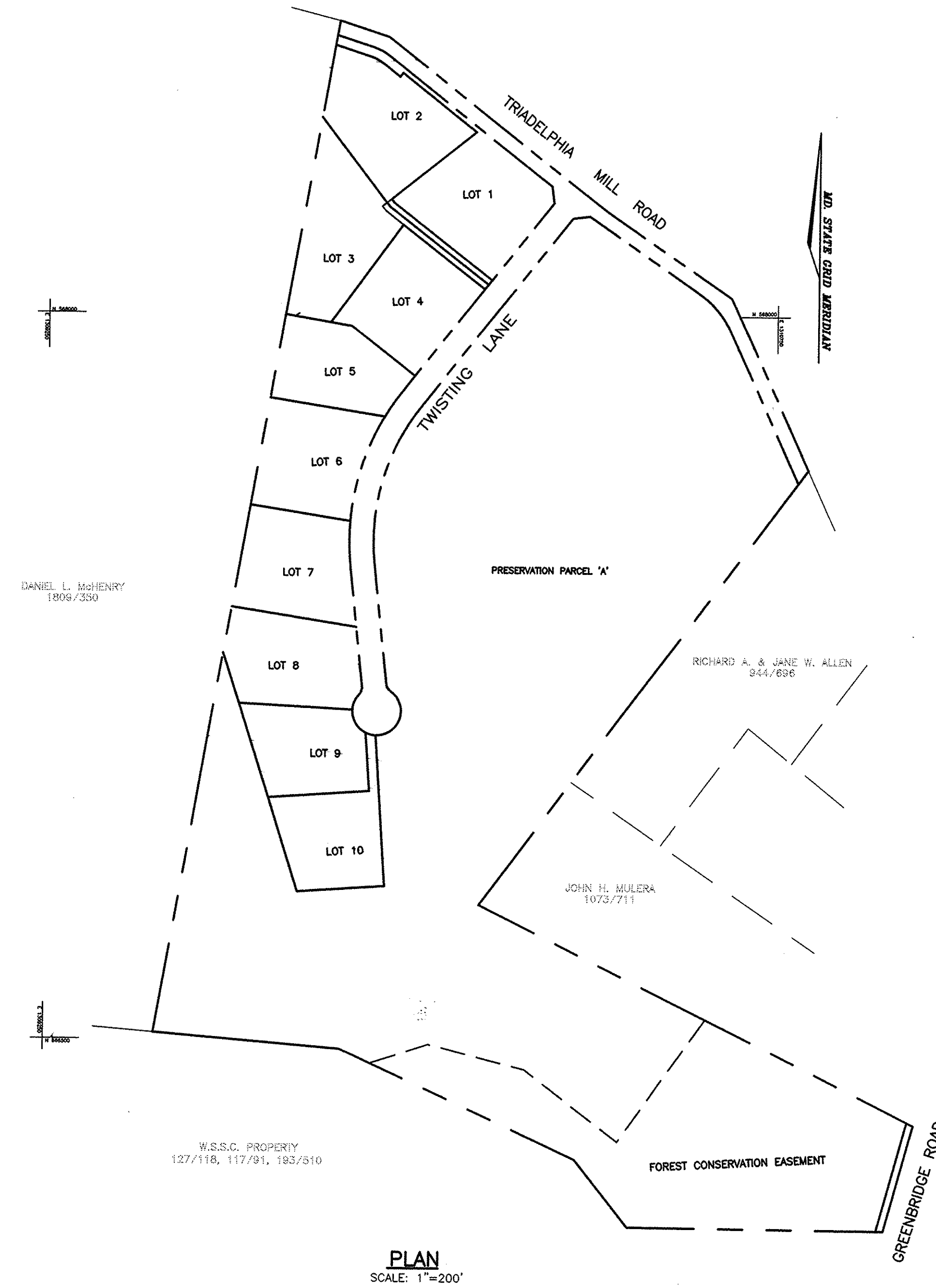


VICINITY MAP

SCALE: 1"=2000'

GENERAL NOTES

1. ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
2. PROJECT BACKGROUND:
LOCATION: TAX MAP 27 BLOCK 24 PARCEL 24
5 TH ELECTION DISTRICT
ZONING: RR
TOTAL TRACT AREA: 45.31 AC.
NUMBER OF PROPOSED LOTS: 10 SFD
DATE PRELIMINARY PLAN APPROVED: FEBRUARY 6, 1997
APPLICABLE DPZ FILE NUMBERS: S-96-20, P-97-06, WP-97-65
3. TRACT BOUNDARY ESTABLISHED BY A BOUNDARY SURVEY BY MARKS & VOGEL ASSOCIATES, INC. DATED SEPTEMBER, 1996.
4. TOPOGRAPHY TAKEN FROM AN AERIAL SURVEY BY POTOMAC AERIAL SURVEYS, INC. DATED JANUARY, 1996. CONTOUR INTERVAL IS 2 FEET, FIELD VERIFIED BY MARKS & VOGEL ASSOCIATES, INC.
27FA (N) 569,002.0747 (E) 1,306,892.515
27FI (N) 568,964.5816 (E) 1,308,655.313
5. THE BEARINGS SHOWN ON THIS PLAN ARE REFERRED TO THE SYSTEM OF COORDINATES ESTABLISHED IN THE MARYLAND COORDINATE SYSTEM (NAD 83) AS PROJECTED BY THE FOLLOWING HOWARD COUNTY GEODETIC CONTROL STATIONS:
27FA (N) 569,002.0747 (E) 1,306,892.515
27FI (N) 568,964.5816 (E) 1,308,655.313
6. THE ELEVATIONS SHOWN ON THIS PLAN ARE REFERRED TO THE SYSTEM OF COORDINATES ESTABLISHED IN THE MARYLAND COORDINATE SYSTEM (NAD 29) AS PROJECTED BY THE FOLLOWING HOWARD COUNTY GEODETIC CONTROL STATIONS:
2734001 ELEVATION 532.568
7. WATER AND SEWER FOR THIS PROJECT WILL BE PRIVATE.
8. STORMWATER MANAGEMENT SHALL BE PROVIDED BY EXTENDED DETENTION(WATER QUALITY). HAZARD CLASSIFICATION FOR THE STRUCTURE SHALL BE 'A'.
9. WETLANDS DELINEATION PREPARED BY MARKS & VOGEL ASSOCIATES, INC. DATED APRIL, 1996.
10. FOREST STAND DELINEATION PLAN PREPARED BY MARKS & VOGEL ASSOCIATES, INC. DATED APRIL, 1996.
11. APFO TRAFFIC STUDY PREPARED BY STREET TRAFFIC STUDY, LTD. DATED JANUARY, 1996.
12. FLOODPLAIN SHOWN HEREON IS BASED ON AN ANALYSIS PREPARED BY MARKS & VOGEL ASSOCIATES, INC. DATED OCTOBER, 1996.
13. A NOISE STUDY IS NOT REQUIRED FOR THIS SITE.
14. GEOTECHNICAL REPORT PROVIDED BY HERBST/BENSON & ASSO. DATE NOVEMBER, 1996.
15. STREET LIGHTING IS NOT REQUIRED ON THIS SITE.
16. THIS PLAN IS SUBJECT TO WAIVER PETITION WP-97-65, APPROVED 1/15/97, WHICH IS A REQUEST TO WAIVE 16.115(C)(2) WHICH PROHIBITS CONSTRUCTION WITHIN A FLOODPLAIN AND 16.116(C)(2)(3) WHICH PROHIBITS GRADING AND/OR THE REMOVAL OF VEGETATION FROM WITHIN 50 FEET OF AN INTERMITTENT STREAM. THE WAIVERS APPLY TO THE DISTURBANCE ASSOCIATED WITH THE CONSTRUCTION OF TWISTING LANE AT ITS INTERSECTION WITH TRIADELPHIA MILL ROAD.
17. THE PLANNING BOARD DIRECTORS APPROVAL IS SUBJECT TO:
THE DEVELOPER SHALL OBTAIN ANY REQUIRED STATE PERMITS FOR THE PROPOSED CONSTRUCTION OF TWISTING LANE AT ITS INTERSECTION WITH TRIADELPHIA MILL ROAD.
THIS PLAN IS SUBJECT TO 88-97-07 E, APPROVED 7/31/97, WHICH IS A SPECIAL EXCEPTION IN ACCORDANCE WITH SECTION 131.N.21 OF THE ZONING REGULATIONS TO ALLOW FOR A FARM TENANT HOUSE OCCUPIED BY ONE OR MORE PERSONS INVOLVED IN A BONA FIDE FARMING OPERATION OF THE OWNER AND IS LOCATED ON AT LEAST 25 ACRES BUT LESS THAN 50 ACRES IN AREA.
18. ANY EX. DRIVEWAYS ON SITE THAT ACCESS MCHENRY PROPERTY STRUCTURES WILL BE REMOVED OR RELOCATED PRIOR TO ROAD CONSTRUCTION.
19. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. CONTRACTOR TO INSTALL ALL REQUIRED LANDSCAPING IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
20. THE EXISTING DRIVEWAY THAT ACCESS THE PRESERVATION PARCEL STRUCTURES WILL REMAIN UNTIL THE ROAD CONSTRUCTION IS COMPLETED. AT THAT TIME THE DRIVEWAY WILL BE ABANDONED OR REMOVED BY THE OWNER.



PLAN
SCALE: 1"=200'

OWNER/DEVELOPER
DONALD E. SOUDER AND ALLEN MAE SOUDER
14191 TRIADELPHIA MILL ROAD
DAYTON, MARYLAND 21036
(301) 854-3408

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

Andrew M. Daneko 8-27-97
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Candy Hamilton 9/3/97
CHIEF, LAND DEVELOPMENT DATE

Mark Vogels 9/3/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

AS-BUILT CERTIFICATE		
		DATE
NO.	REVISION	DATE

**TWIST & TURN ESTATES
LOTS 1 THRU 10 AND
PRESERVATION PARCEL 'A'**

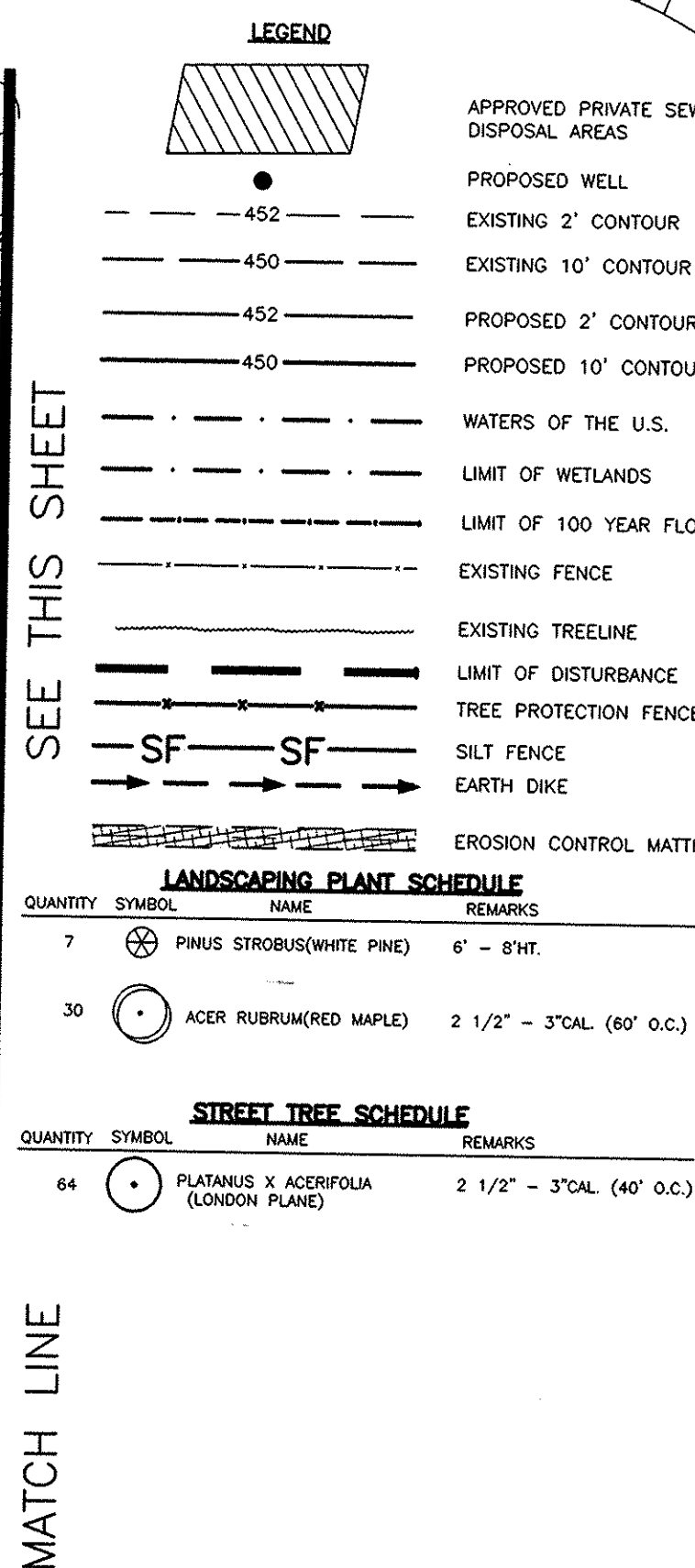
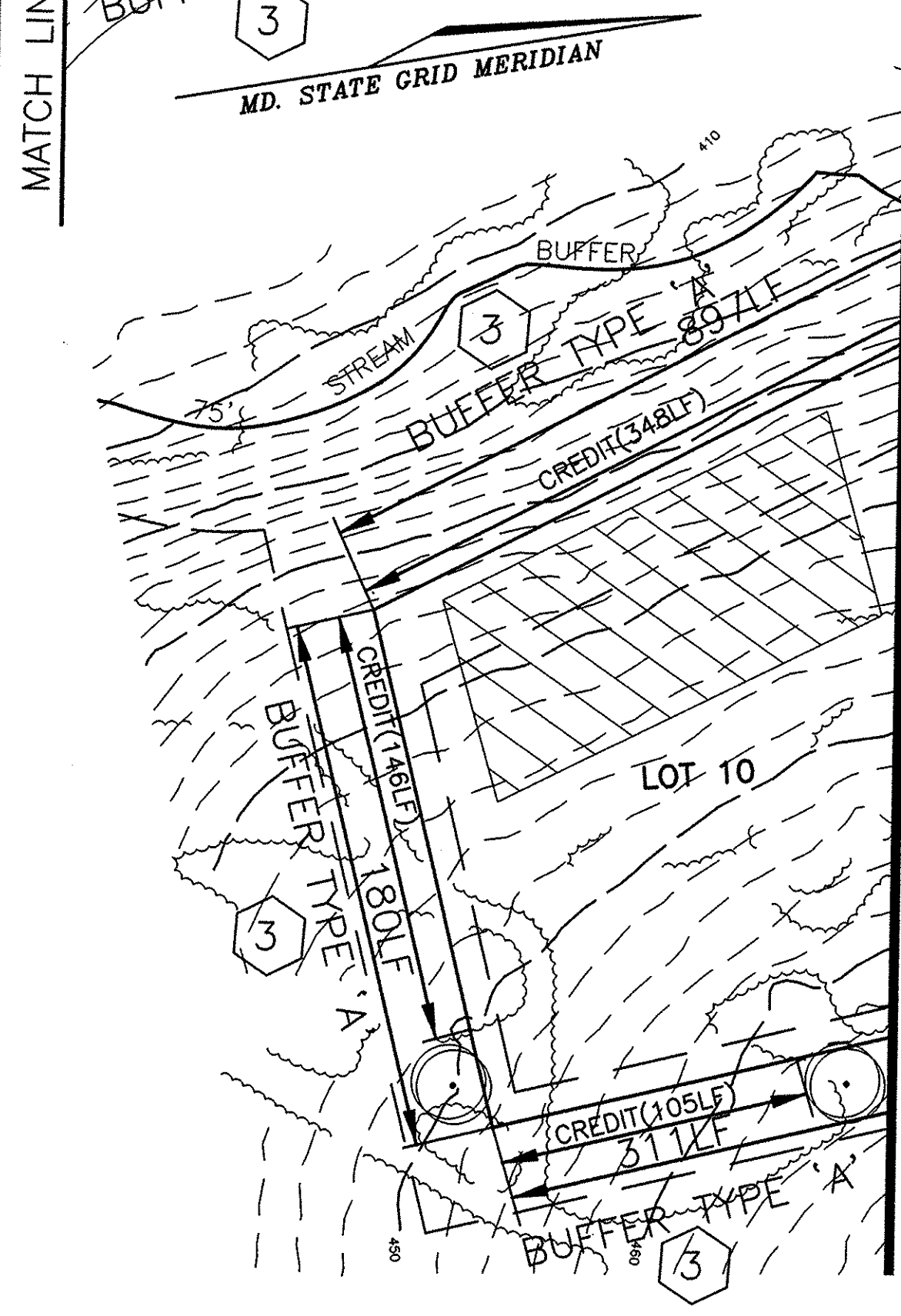
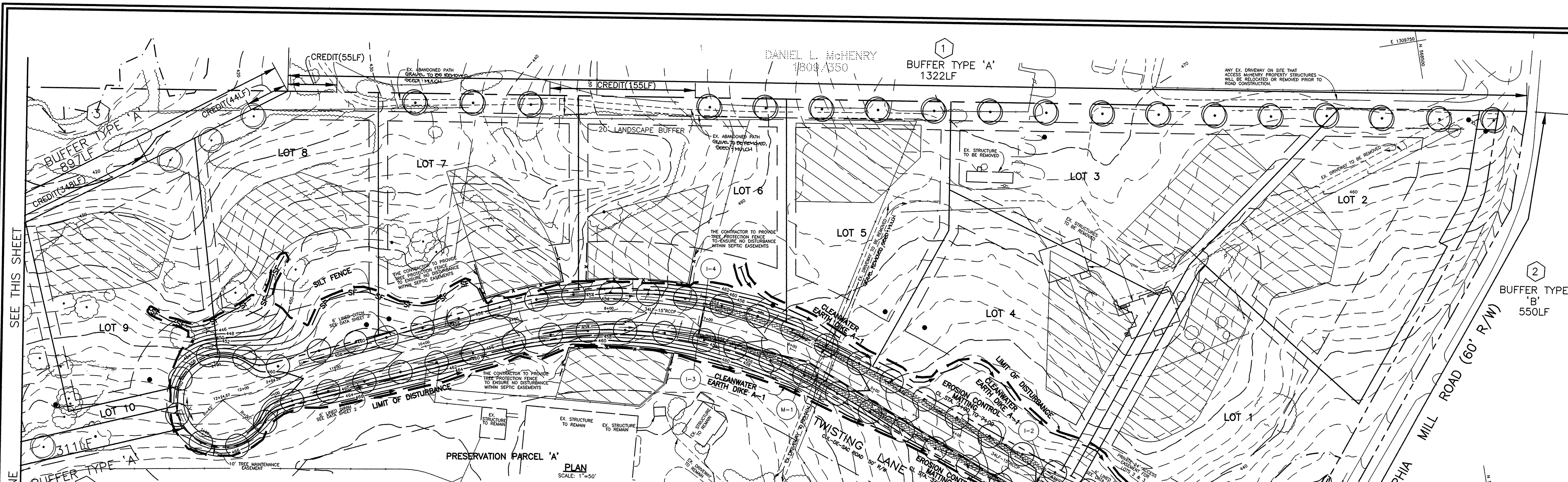
TITLE SHEET

TAX MAP #27 REFERENCE: S-96-20, P-97-06, WP-97-65
PARCEL 24 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

MARKS & VOGEL ASSOCIATES, INC.
ENGINEERS - SURVEYORS - PLANNERS

3691 PARK AVENUE, SUITE 101 ELLICOTT CITY, MARYLAND 21043 TELEPHONE: (410) 461-5828 FAX: (410) 465-8866

DESIGN BY: J.C.O.	
DRAWN BY: J.C.O.	
CHECKED BY: R.H.V.	
DATE: AUGUST 8, 1997	
SCALE: AS SHOWN	
W.O. NO.: 96-03	1 SHEET OF 6



SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

LANDSCAPE TYPE	B
TOTAL LINEAR FEET OF PERIMETER	440
NUMBER OF TREES REQUIRED	8
SHADE TREES (1-20)	8
EVERGREEN TREES (1-40)	0
CREDIT FOR EXISTING VEGETATION	YES*
LINEAR FEET	130
CREDIT FOR OTHER LANDSCAPING	NO
NUMBER OF PLANTS PROVIDED (440-130=310)	310
SHADE TREES (1-50)	0
EVERGREEN TREES (1-40)	0
SHRUBS (10:1 TREE SUBSTITUTION)	0
* CREDIT FOR ENVIRONMENTAL AREA (WETLANDS, FLOODPLAIN AND WATERS OF THE U.S.)	0

SEDIMENT BASIN NO. 1

DRAINAGE AREA: 2.2 AC.
 STORAGE WET/DRY REQUIRED: 7920 C.F.
 STORAGE WET/DRY PROVIDED: 7920 C.F.
 STORAGE ELEV.: 425.8 (TOTAL) 424.9 (WET)
 STORAGE DEPTH: 2.5' (TOTAL) 1.9' (WET)
 BOTTOM ELEV.: 423.0
 TOP OF EMBANKMENT: 426.5
 CLEANOUT ELEV.: 423.95
 INVERT IN HOLES IN VERTICAL DEWATERING PIPE: 424.9

POND SUMMARY

	2 YEAR	10 YEAR	100 YEAR
FLOW INTO POND	6.5 c.f.s.	18.7 c.f.s.	34.5 c.f.s.
FLOW OUT OF POND	0.9 c.f.s.	12.9 c.f.s.	31.7 c.f.s.
W.S. ELEVATION	426.07	427.15	427.52
STORAGE VOLUME	0.21 AC FT	0.35 AC FT	0.40 AC FT

SCHEDULE A PERIMETER LANDSCAPE EDGE

LANDSCAPE EDGE	(1)	(2)	(3)
LANDSCAPE TYPE	A	B	A
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	1322	550	1005
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 205	NO 0	YES 643
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO 0	NO 0	NO 0
NUMBER OF PLANTS REQUIRED (BASED ON TOTAL PERIMETER) TYPE A TYPE B			
SHADE TREES (1-40)	22	0	16
EVERGREEN TREES (1-40)	0	0	0
SHRUBS	0	0	0
NUMBER OF PLANTS PROVIDED (BASED ON TYPE A TYPE B) (DESCRIBE BELOW IF NEEDED)	1322	550	1005
SHADE TREES (1-40)	22	0	16
EVERGREEN TREES (1-40)	0	0	0
SHRUBS (10:1 SUBSTITUTION)	0	0	0

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT DETENTION FACILITY

STORMWATER MANAGEMENT FACILITY
 ROUTINE MAINTENANCE
 1. FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF FUNCTIONING PROPERLY.
 2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
 3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
 4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SEC. 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 37 LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$3,700.00.

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 37 LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$3,700.00.

"AS-BUILT" CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS APPROVED PLANS AND SPECIFICATIONS.

ROBERT H. VOGEL, P.E. NO. 16193
 CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

NO.	REVISION	DATE

ENGINEERS CERTIFICATE

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

Robert H. Vogel 8/11/97
 SIGNATURE OF ENGINEER DATE
 ROBERT H. VOGEL

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Donald E. Souder 8/11/97
 SIGNATURE OF DEVELOPER DATE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Robert W. Ziehme 8/20/97
 USA-NATURAL RESOURCES CONSERVATION SERVICE DATE

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

Robert W. Ziehme 8/20/97
 HOWARD SOIL CONSERVATION DISTRICT DATE

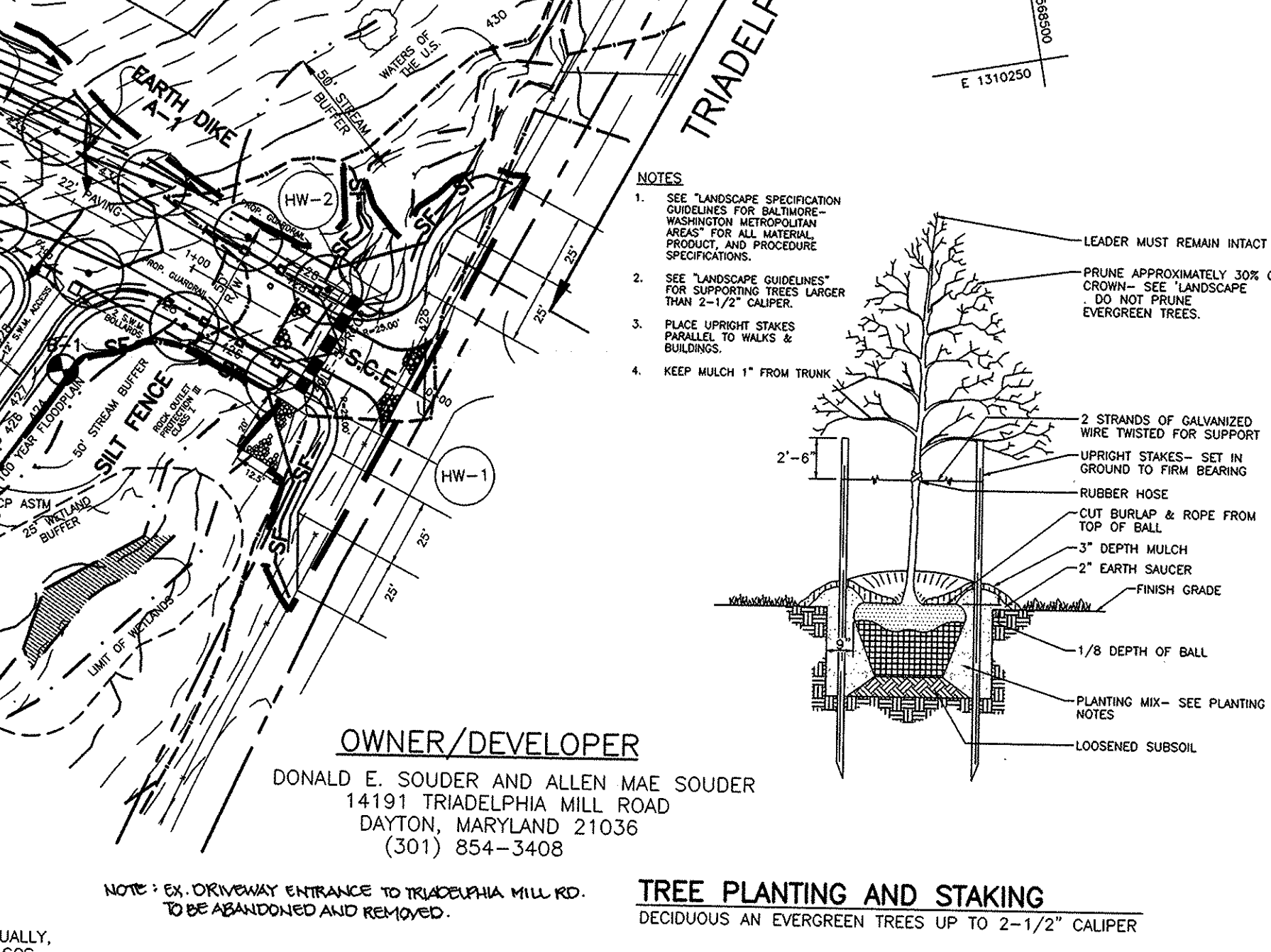
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Andrew M. Penzler 8-27-97
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chris Hamilton 9/3/97
 CHIEF, LAND DEVELOPMENT DATE

Mike Penzler 9/2/97
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



OWNER/DEVELOPER
 DONALD E. SOUDER AND ALLEN MAE SOUDER
 14191 TRIADDELPHIA MILL ROAD
 DAYTON, MARYLAND 21036
 (301) 854-3408

TREE PLANTING AND STAKING
 DECIDUOUS AN EVERGREEN TREES UP TO 2-1/2" CALIPER

MARKS & VOGEL ASSOCIATES, INC.
 ENGINEERS - SURVEYORS - PLANNERS

3691 PARK AVENUE, SUITE 101
 BELLICOTT CITY, MARYLAND 21048

TELEPHONE: (410) 461-5828
 FAX: (410) 465-8966

DESIGN BY: J.C.O.
 DRAWN BY: J.C.O.
 CHECKED BY: R.H.V.
 DATE: AUGUST 8, 1997
 SCALE: AS SHOWN
 W.O. NO.: 96-03

3 SHEET OF 6

'C' FACTORS				
INLET NO.	D.A.(Ac.)	% IMP.	ZONE	'C'
1	1.42	13.4	RR	0.32
2	2.58	10.7	RR	0.28
3	3.16	17.8	RR	0.32
4	0.28	40.0	RR	0.49



LEGEND

- 452 --- EXISTING 2' CONTOUR
- 450 --- EXISTING 10' CONTOUR
- 452 --- PROPOSED 2' CONTOUR
- 450 --- PROPOSED 10' CONTOUR
- WATERS OF THE U.S.
- LIMIT OF WETLANDS
- LIMIT OF 100 YEAR FLOODPLAIN
- WSE=428.3 (650) FLOODPLAIN CROSS SECTION
- EXISTING FENCE
- EXISTING TREELINE
- SOILS DIVIDE
- STORM DRAIN DRAINAGE DIVIDE
- LIMITS OF 100 YEAR FLOODPLAIN

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	GROUP
MIB2	MANOR LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
MID3	MANOR LOAM, 15 TO 20 PERCENT SLOPES, SEVERELY ERODED	B
MIC3	MANOR LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B
MIC2	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
GnB2	GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
Ha	HATBORO SILT LOAM	D

NOTE:
-HOWARD SOIL SURVEY, MAP NUMBERS 17 & 22.

PLAN
SCALE: 1"=100'

OWNER/DEVELOPER

DONALD E. SOUDER AND ALLEN MAE SOUDER
14191 TRIADELPHIA MILL ROAD
DAYTON, MARYLAND 21036
(301) 854-3408

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Richard M. Daniels 8-27-97
CHIEF, BUREAU OF HIGHWAYS DATE

Cindy Hamilton 9/3/97
CHIEF, LAND DEVELOPMENT DATE
Mike Dammas 9/3/97
CHIEF, DEVELOPMENT ENGINEERING DIVISION / DATE
M.K.

AS-BUILT CERTIFICATE		
DATE		
NO. REVISION DATE		

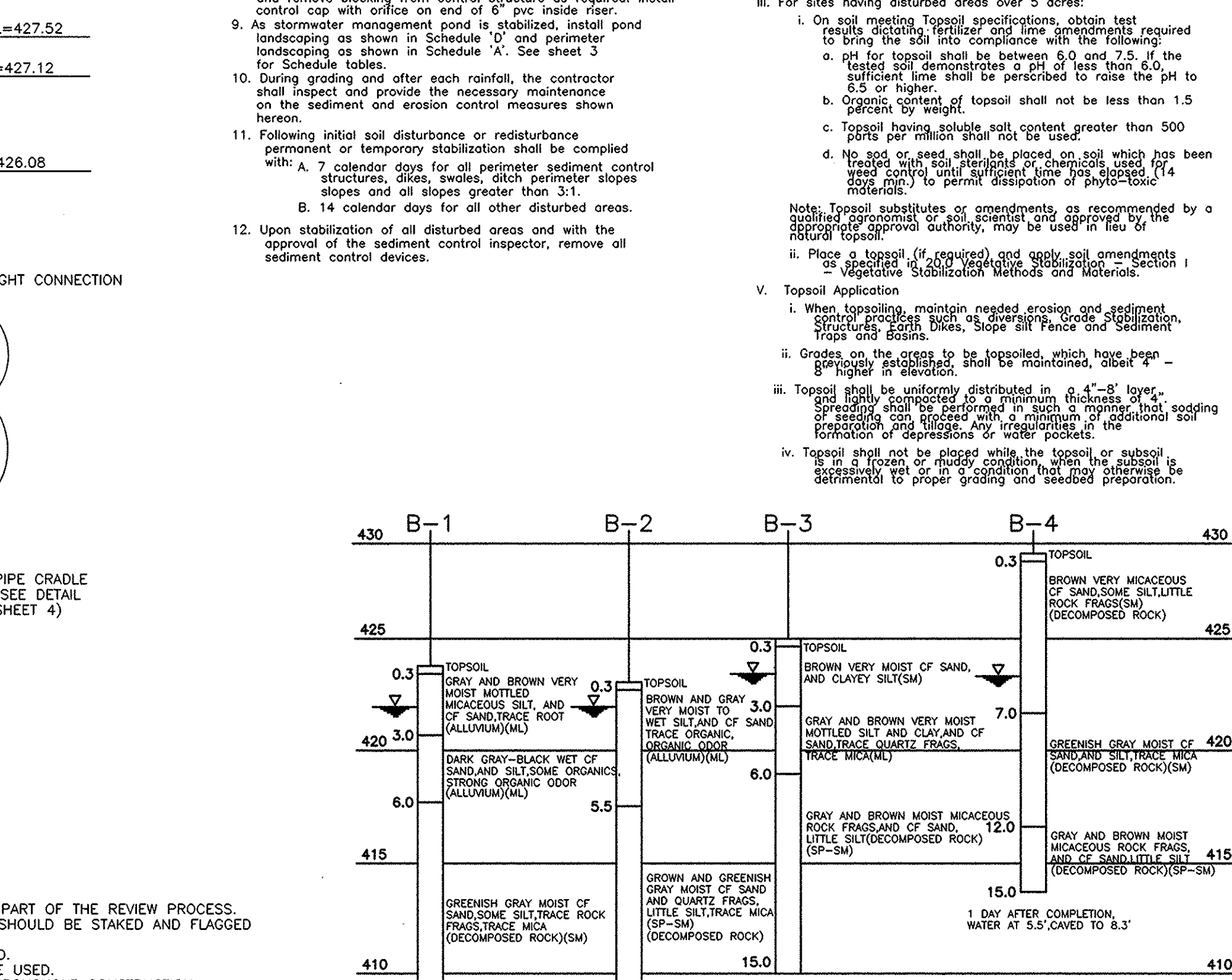
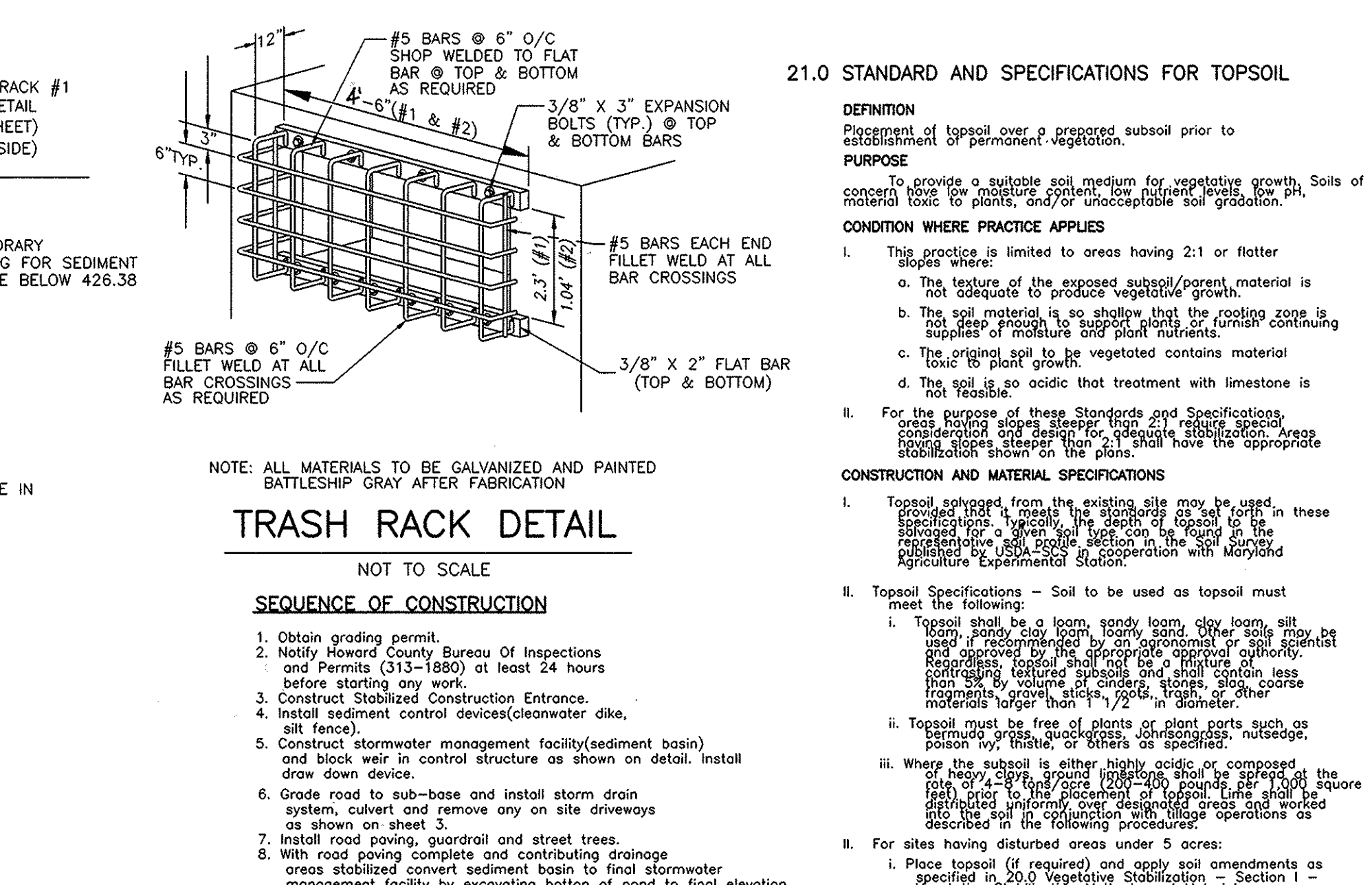
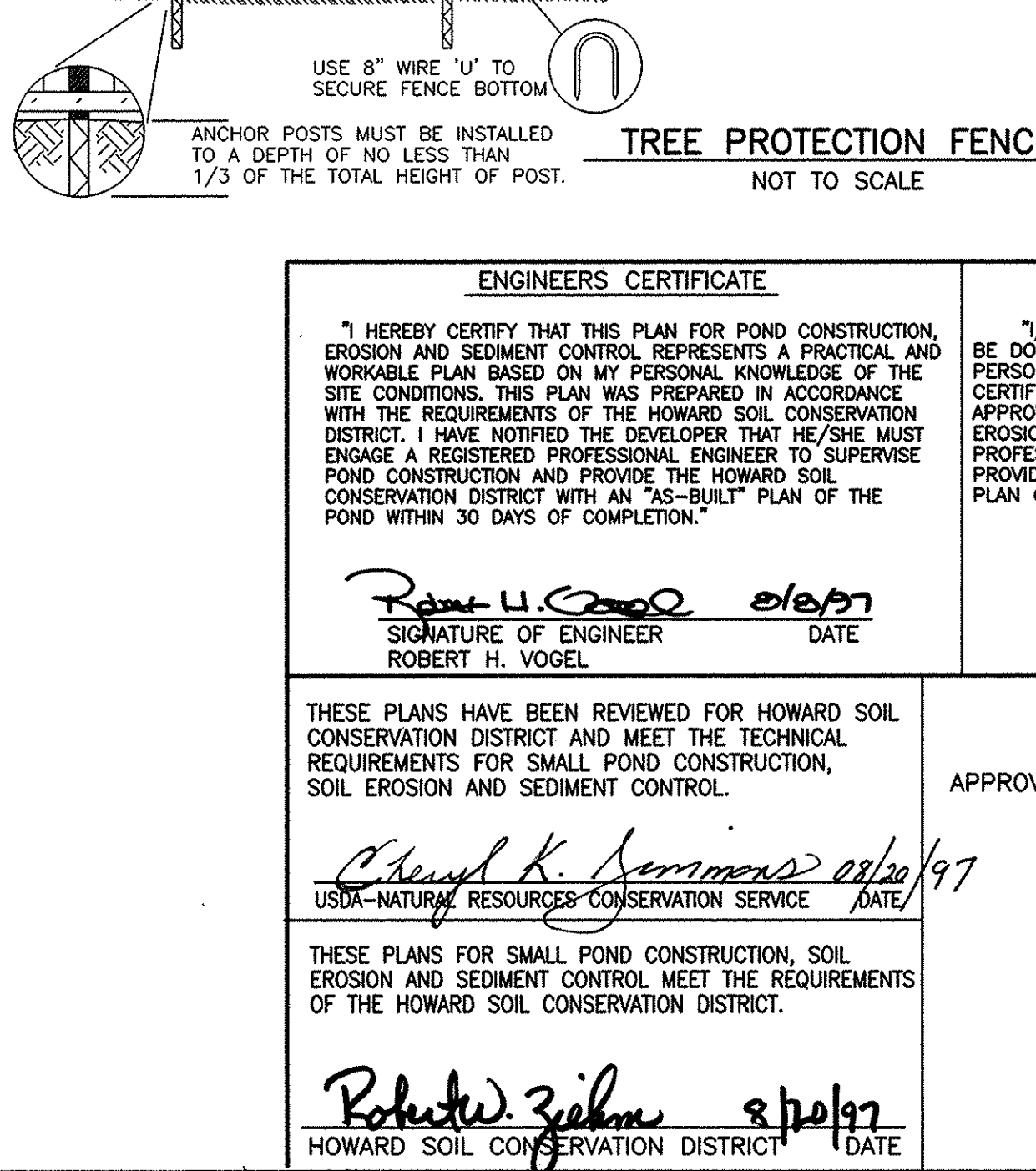
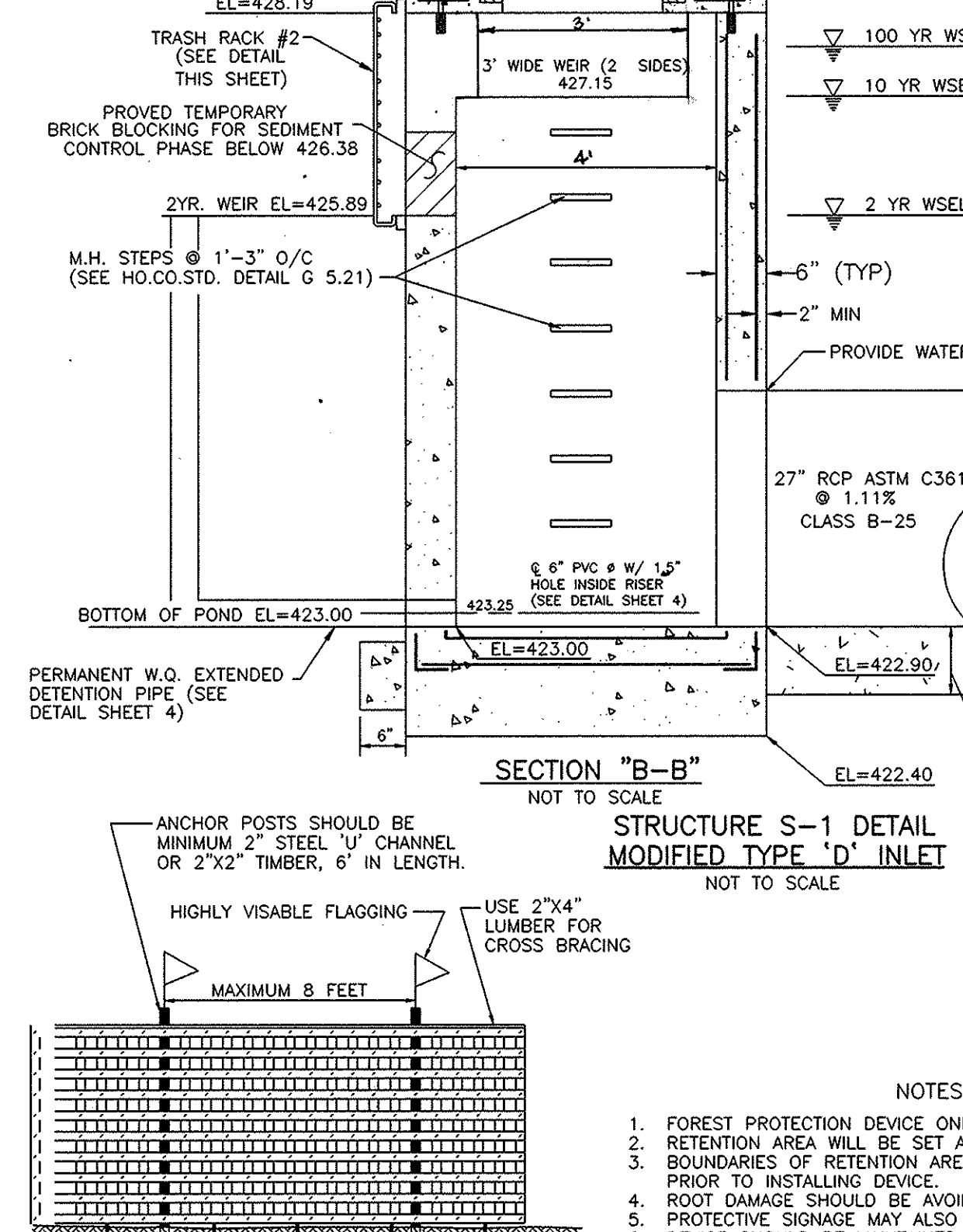
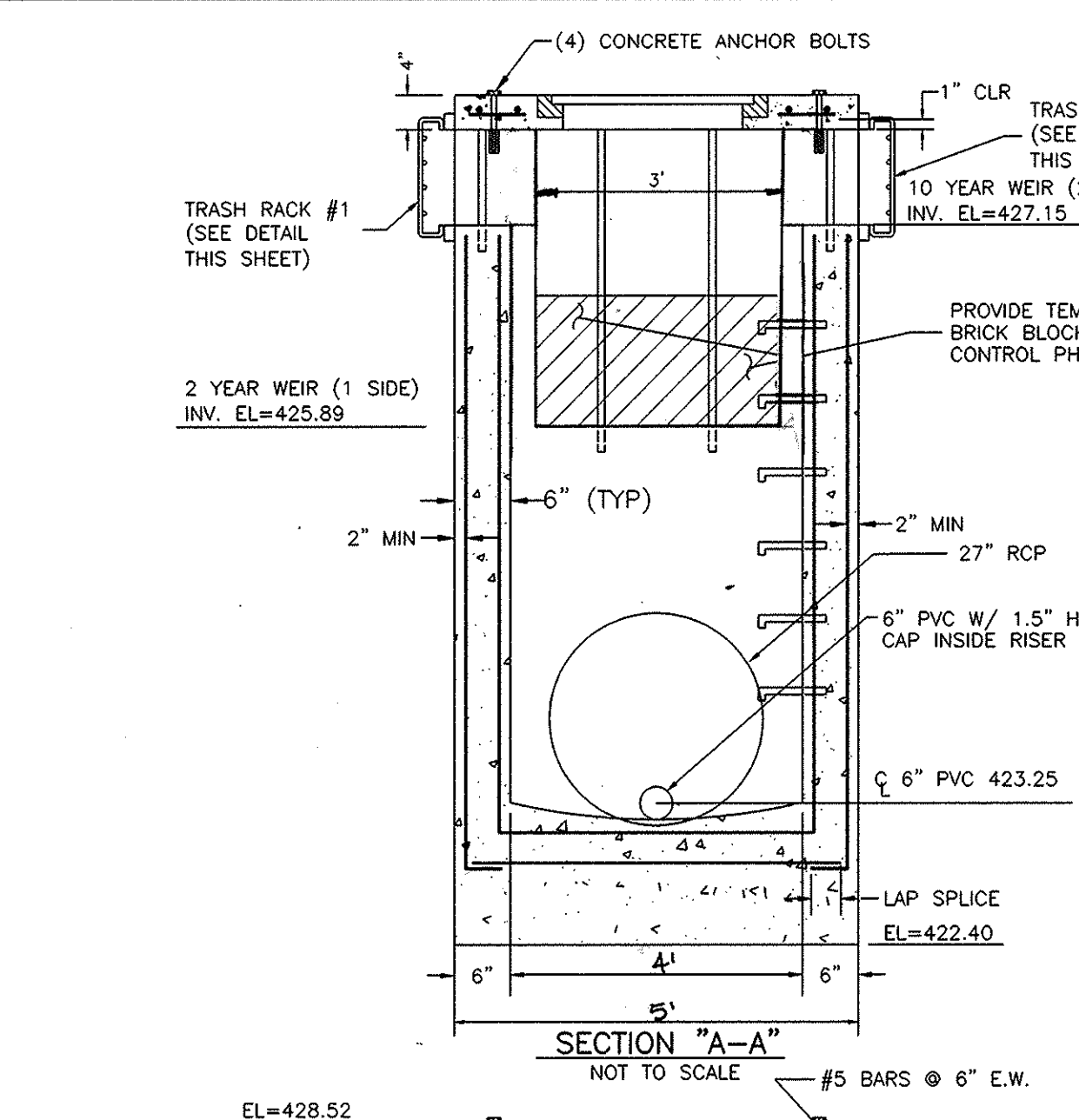
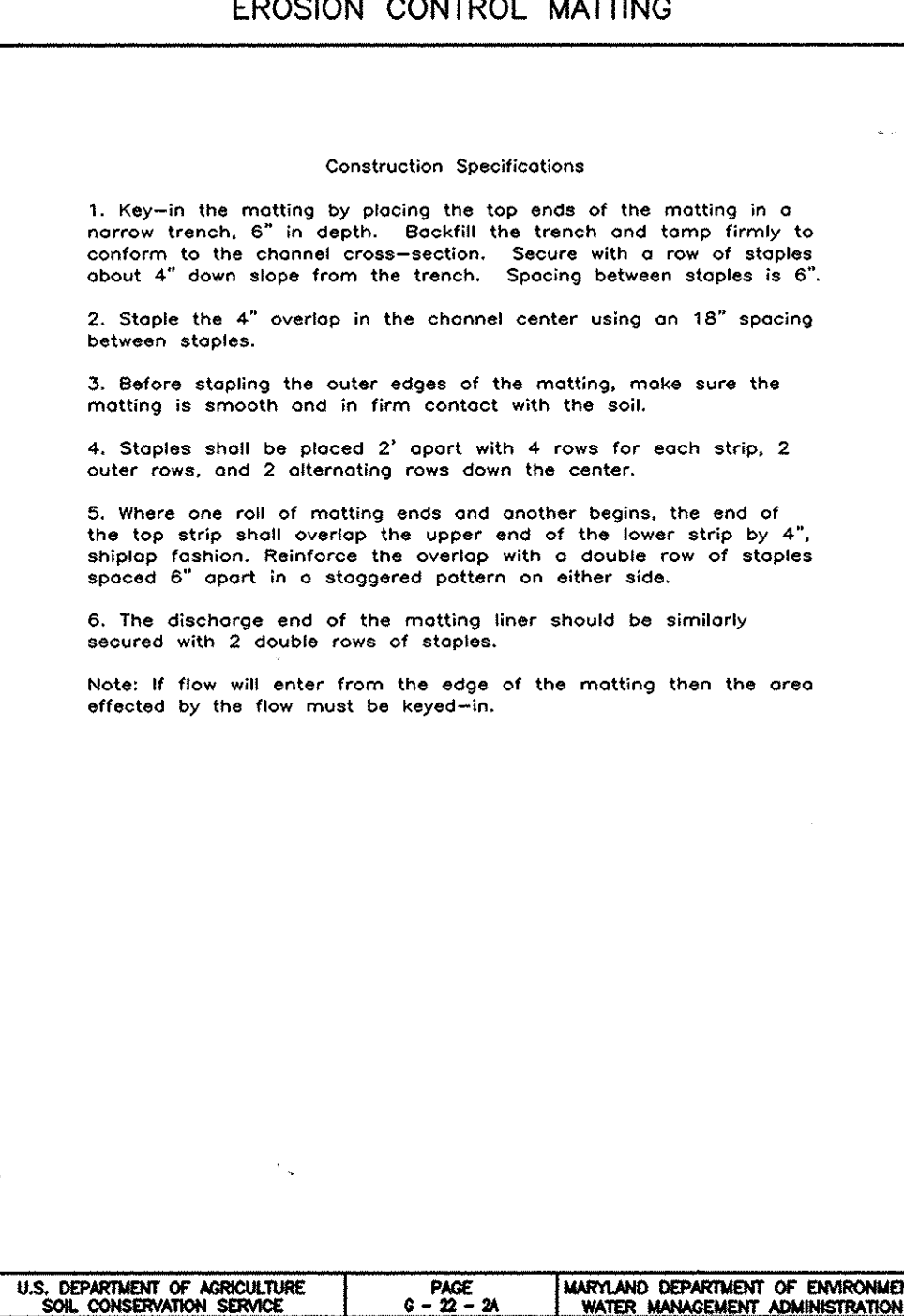
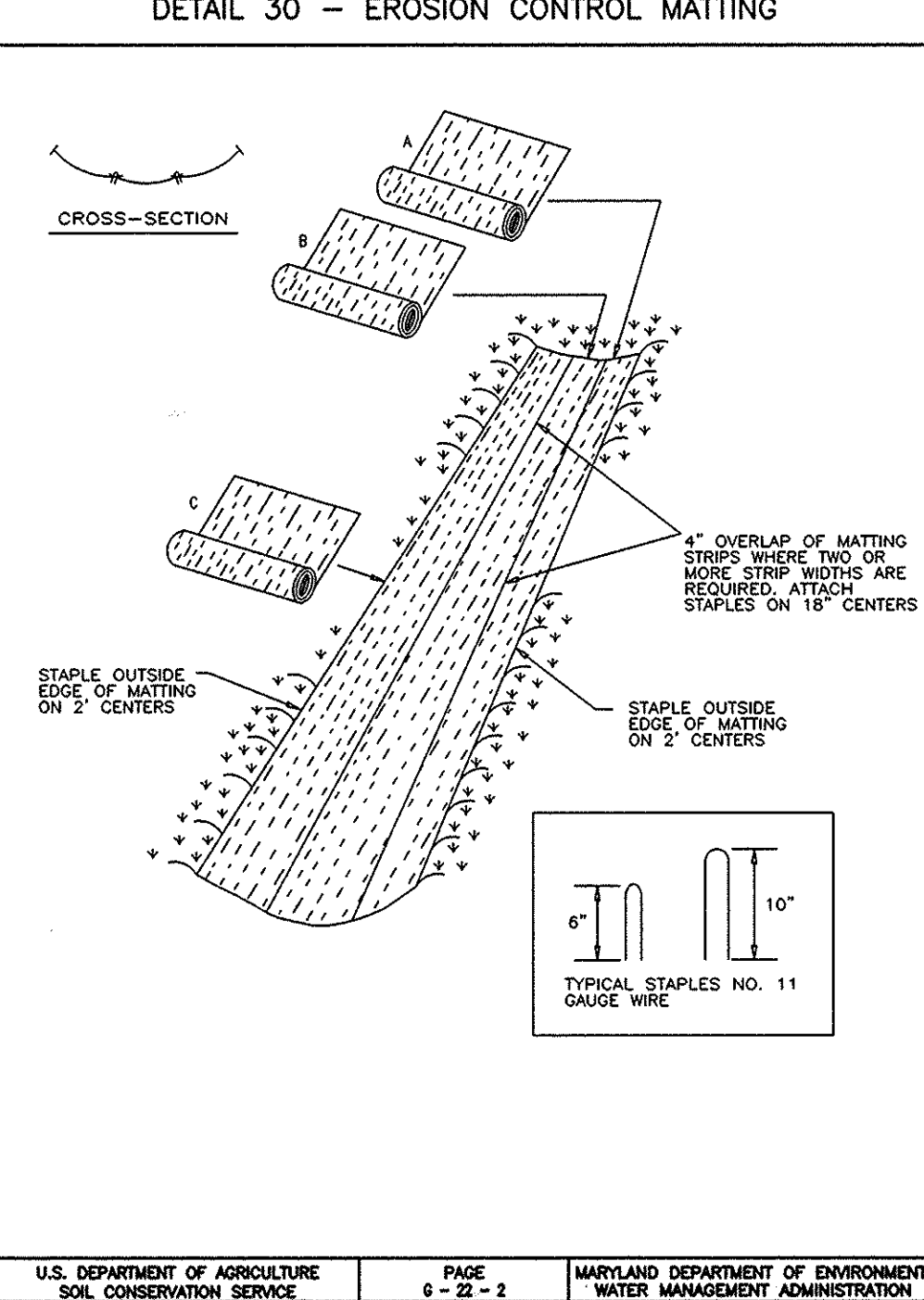
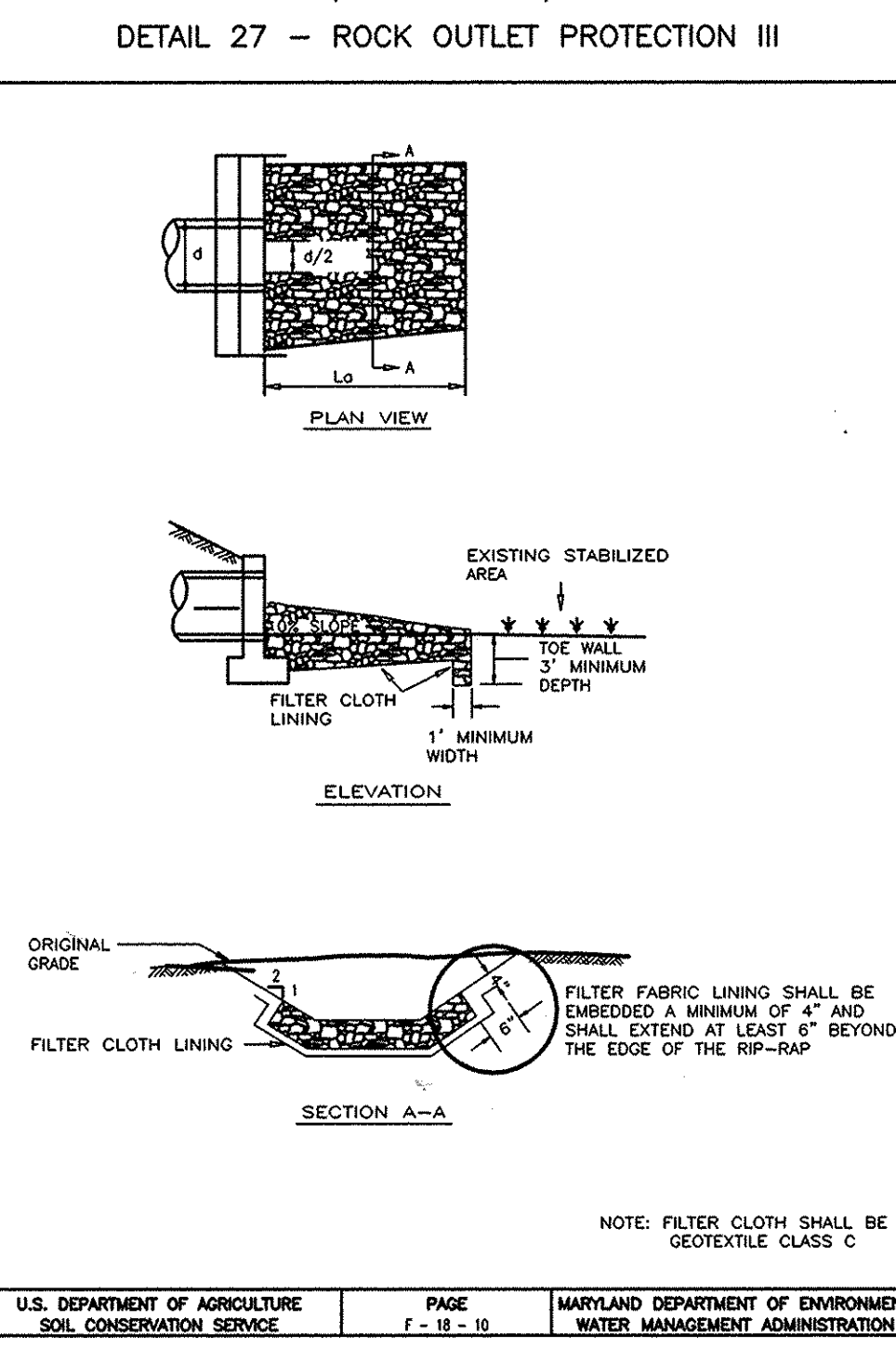
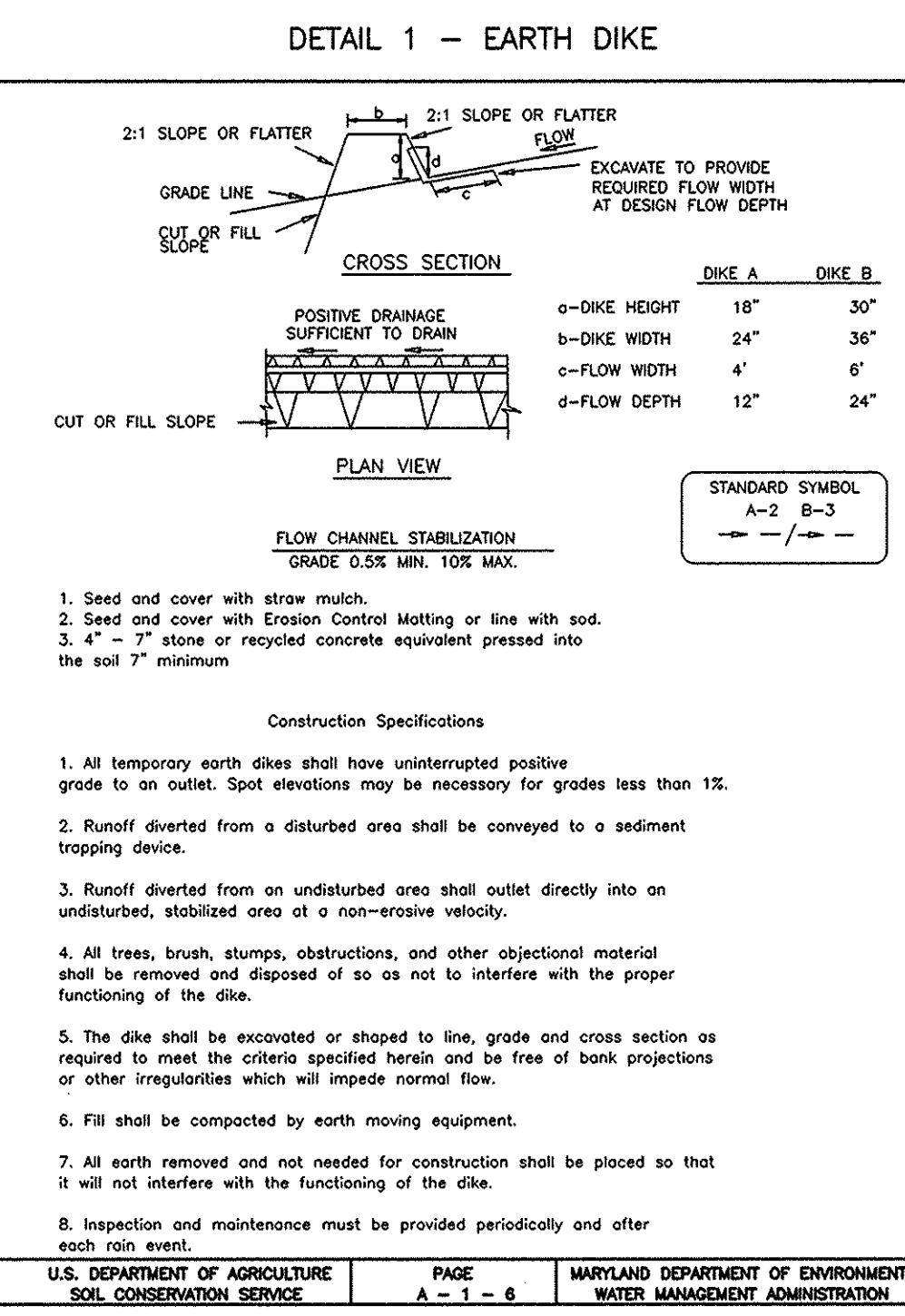
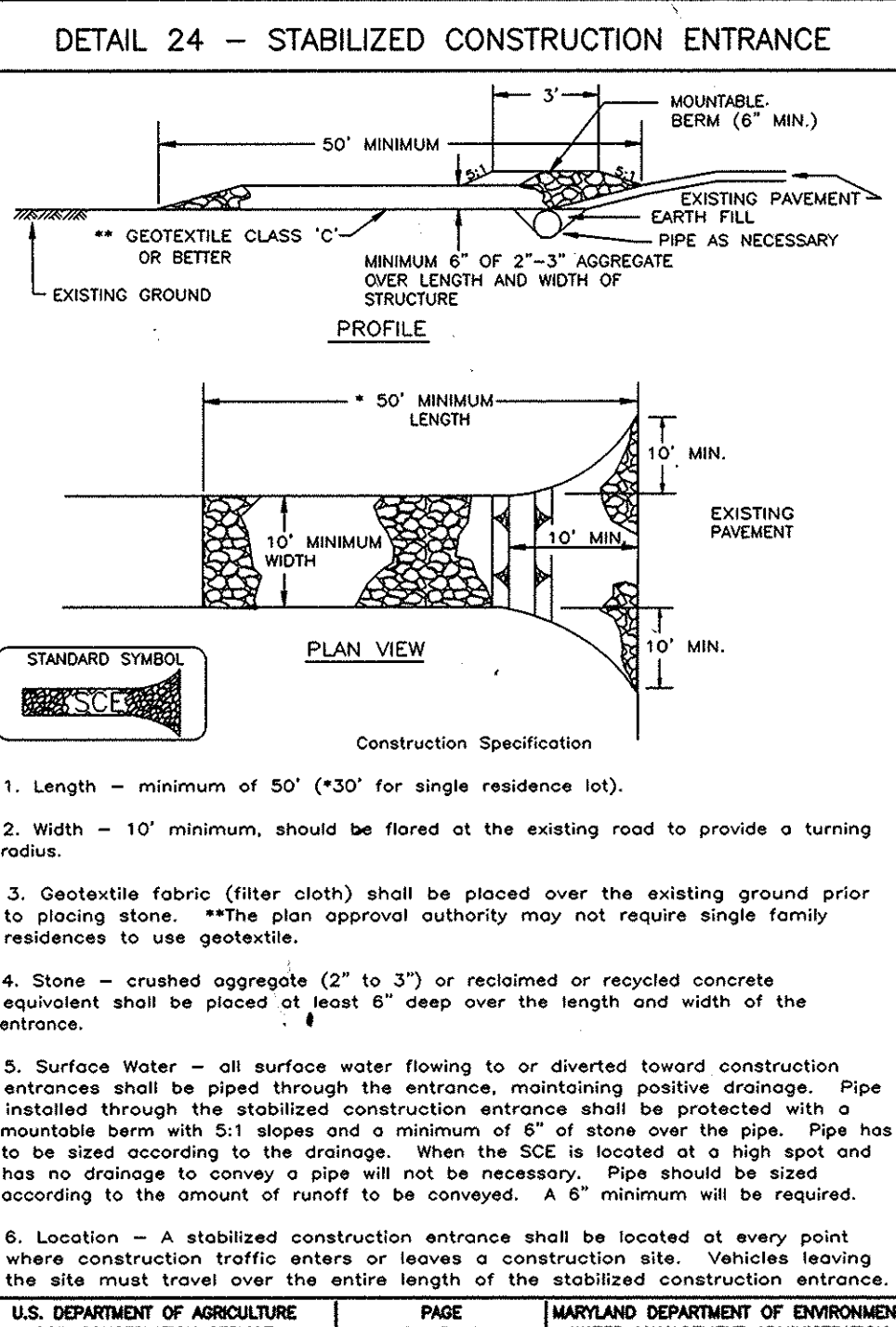
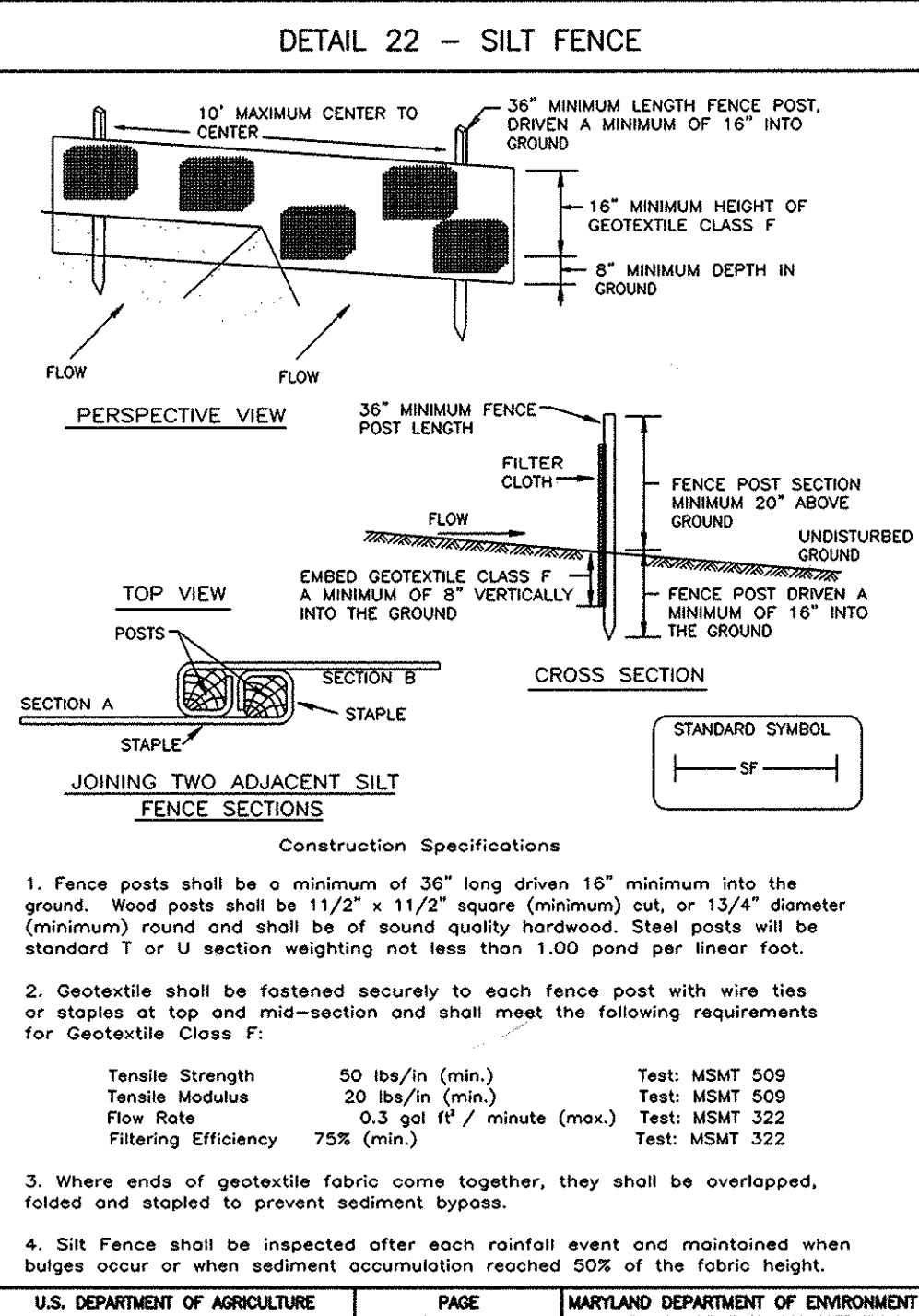
**TWIST & TURN ESTATES
LOTS 1 THRU 10 AND
PRESERVATION PARCEL 'A'
STORM DRAIN DRAINAGE
AREA MAP**

TAX MAP #27 REFERENCE: S-96-20, P-97-06, WP-97-65
PARCEL 24 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

MARKS & VOGEL ASSOCIATES, INC.
ENGINEERS - SURVEYORS - PLANNERS

3691 PARK AVENUE, SUITE 101 TELEPHONE: (410) 461-6828
ELLICOTT CITY, MARYLAND 21048 FAX: (410) 465-8866

DESIGN BY: J.C.O.	
DRAWN BY: J.C.O.	
CHECKED BY: R.H.V.	
DATE: AUGUST 8, 1997	
SCALE: AS SHOWN	
W.O. NO.: 96-03	5 SHEET 6 OF



OWNER/DEVELOPER

DONALD E. SOUDER AND ALLEN MAE SOUDER
14191 TRIADENIA MILL ROAD
DAYTON, MARYLAND 21036
(301) 854-3408

"AS-BUILT" CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS APPROVED PLANS AND SPECIFICATIONS.

ENGINEERS CERTIFICATE

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

Robert H. Vogel 8/18/97
SIGNATURE OF ENGINEER
ROBERT H. VOGEL

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Donald E. Souder 8/11/97
SIGNATURE OF DEVELOPER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Robert H. Vogel 8/18/97
SIGNATURE OF ENGINEER
ROBERT H. VOGEL

Andy Hamilton 9/3/97
SIGNATURE OF ENGINEER
ANDY HAMILTON

Chief, Development Engineering Division

U.S. DEPARTMENT OF AGRICULTURE PAGE 0-22-2
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

TEMPORARY SEEDING

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

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

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

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual ryegrass (3.2 lbs./1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (0.7 lbs./1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well-anchored straw mulch, and seed as soon as possible in the spring, or use seed.

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

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

PERMANENT SEEDING NOTES

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

Seeded Preparation: Loosen upper 3 inches of soil by raking, disking, or other acceptable means before seeding, if not previously loosened.

Soil Amendments: Use one of the following schedules:

- Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs./1000 sq. ft.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq. ft.) before seeding. Harrow or disc into upper 3 inches of soil. At time of seeding apply 400 lbs. per acre 30-0-0 urea/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 disc into upper three inches of soil.

Seeding: For 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 80 lbs. of Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (0.5 lbs./1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option 1 - 2 tons per acre of well-anchored straw mulch, and seed as soon as possible in the spring. Option 2 - Use seed. Option 3 - Seed with 80 lbs. per acre Kentucky 31 Tall Fescue, and mulch with 2 tons per acre well anchored straw.

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

Maintenance: Inspect all seeded areas, and make needed repairs, replacements, and reseedings.

SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspection, License and Permits Sediment Control Division prior to the start of any construction (313-1855).
- All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
- 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 shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7, HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, soil temporary seeding, and mulching (Sec. G). Temporary stabilization with mulch alone shall 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	45.31 acres
Area Disturbed	2.99 acres
Area to be roofed or paved	0.78 acres
Area to be vegetatively stabilized	2.73 acres
Total Cut	3934 cu. yds.
Total Fill	4206 cu. yds.
Offsite waste/borrow area location	To be determined by contractor, with pre-approval of the Sediment Control Inspector.
- 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 Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be required upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.

U.S. DEPARTMENT OF AGRICULTURE PAGE F-18-10
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MARKS & VOGEL ASSOCIATES, INC.

ENGINEERS - SURVEYORS - PLANNERS

3891 PARK AVENUE, SUITE 101
BILLCOTT CITY, MARYLAND 21048

TELEPHONE: (410) 461-5828
FAX: (410) 465-3968

DESIGN BY: J.C.O.
DRAWN BY: J.C.O.
CHECKED BY: R.H.V.
DATE: AUGUST 8, 1997
SCALE: AS SHOWN
W.O. NO.: 96-03

6 SHEET 6

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