

PROVIDOR NAME	DATE/AREA	PARCEL #
WATERLOO ELEMENTARY SCHOOL		489
PLAT # AC L.P. BLOCK # ZONE	PLAT # AC L.P. BLOCK # ZONE	PLAT # AC L.P. BLOCK # ZONE
307/010 1 B R-20	37 6	0069.01
WATER SEWER	SEWER	

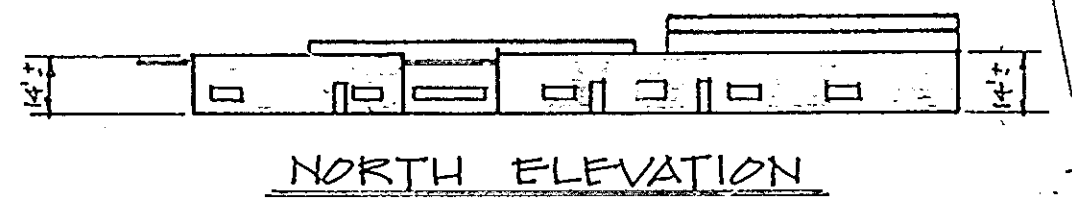
ADDRESS CHART	
NUMBER	STREET ADDRESS
PARCEL 489	3040 MARYLAND ROUTE 108

GENERAL NOTES

- TOPOGRAPHIC & BOUNDARY INFORMATION PROVIDED BY HOWARD CO. B.O.E., & GRIMM & PARKER
- THIS PARCEL IS NOT AFFECTED BY A 100 YEAR FLOOD PLAIN.
- ALL EXISTING UTILITIES I.E. MANHOLES, VALVES, METERS, ETC SHALL BE ADJUSTED TO MEET FINISHED GRADE & FIELD CONDITIONS
- EXISTING ZONING = R-20
- EXISTING IMPERVIOUS AREA = 126,100 SF
- PROPOSED IMPERVIOUS AREA = 127,800 SF = 14% INCREASE
- TOTAL LOT AREA = 10.4 ACRES ±
- PARKING SPACES SHOWN = 62 (INCLUDING 3 HANDICAP)
- TOTAL DISTURBED AREA = 233,000 SF
- ALL SEWER CLEANOUTS ARE TO BE PLACED IN A 2'x2' SQUARE CONCRETE PAD SEE SHEET M-1
- TOTAL BLDG BUILDING = 95,500 SF = 12.3% TOTAL SITE AREA, AREA W/ADD ALTERNATE = 61,575 SF = 13.6% TOTAL SITE AREA.
- PAVING TO BE IN ACCORDANCE WITH HOWARD CO. STANDARDS & SPECIFICATIONS. ALL EXPOSED CONCRETE TO BE TROWELLED & BROOM FINISHED.
- ALL EXISTING PLAYGROUND EQUIPMENT WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REMOVED, STOCKPILED, AND REINSTALLED AS DIRECTED BY THE ARCHITECT.
- RE-GRADE & HYDROSEED AT REMOVED MACADAM AREAS. PROVIDE GDD WHERE INDICATED.
- AT AREAS OF EXISTING PAVING TO BE PATCHED, CONTRACTOR TO PROVIDE COMPACTED FILL AND BASE TO WITHIN 2" OF FINISH GRADE.
- SEE SHEET ME-1 FOR SITE LIGHTING.
- PROVIDE INVERTS @ 0.0'±.

ZONING R-20
ST. JOHN'S LUTHERAN
CHURCH CEMETERY

NOTE: FOR RELOCATION OF PLAYGROUND EQUIPMENT, SEE ARCHITECTURAL PLANS.



BUILDING PROFILES
NO SCALE

PLAN SCALE: 1" = 40'

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAIN SYSTEMS & ROADS
HOWARD COUNTY DEPT. OF PUBLIC WORKS
DATE: 10-31-85

APPROVED: FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPT.
DATE: 10-31-85

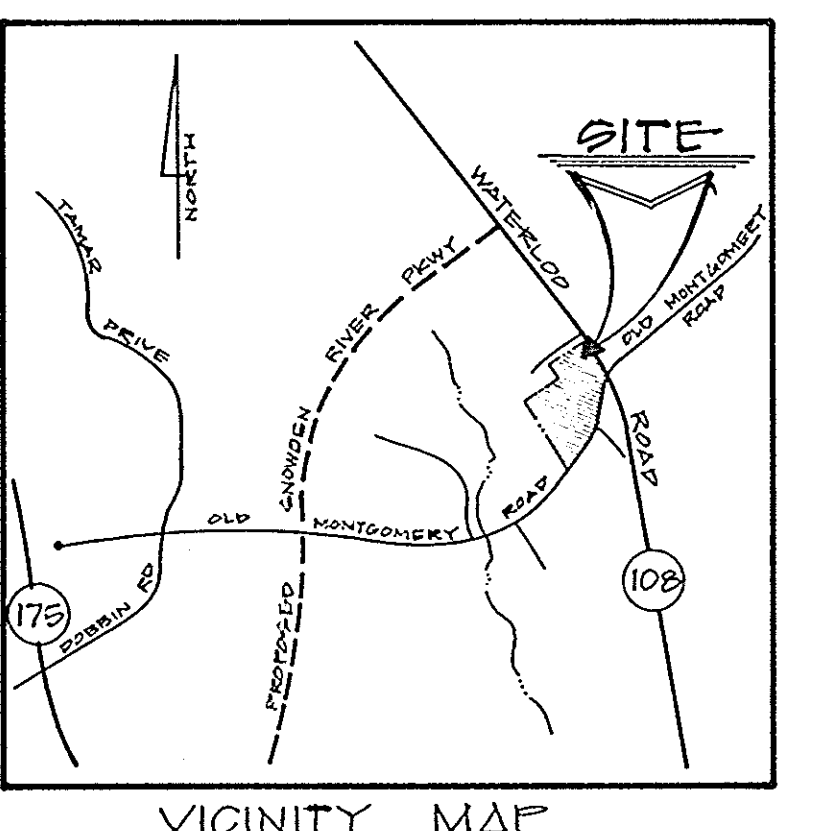
APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
DATE: 11-1-85

REVISIONS		
DATE	DESCRIPTION	BY
2-17-85	REVISION TO SHEET M-2: PLANNING & ZONING	WAL

JOYCE ENGINEERING CORPORATION
Professional Engineers & Land Planning
Surveying & Construction Management (301) 595-4353
11033-C BALTIMORE AVENUE, BELTSVILLE, MD 20705

DES: W.A.J. IDFT: F.A.M. SHEET OF 4
SCALE: 1" = 40' JOB NO.: 85-009
DATE: APRIL 1985 FILE NO.: 25-223

C-1
1 OF 4



APPROVED
DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION
HOWARD COUNTY, MARYLAND
DATE: 10-17-85

ADD ALTERNATE GA & GB
SIDEWALK ADD-ALTERNATE
NEW TREES ADD-ALTERNATE
ALT # GA-SIDEWALK ALT. FOR ENTIRE BASE BID WITH NEW PDD WING.
ALT # GB-SIDEWALK ALT. FOR ENTIRE BASE BID WITH ADD-ALT. WING.

NOTE: CONTRACTOR SHALL COORDINATE ALL UTILITY WORK MECHANICAL ENGINEERING PLAN. SOME FIELD MODIFICATIONS MAY BE REQUIRED TO ACCOMPLISH THE INTENT OF THE PLANS.

PLANT LIST (ADD ALTERNATE # 6)		
KEY QUAN.	NAME	SIZE CONDITION
OP 4 (7)	QUERCUS PALUSTRIS - PIN OAK	12-14' 2 1/2" GAL B&D
OP 1 (8)	ALEPITIA TRIANGULARIS INERMIS - SWEET GUM	14-16' 3" 4" GAL B&D
RE 2	NYCTAGALUS - RED OXFORD	10-12' 2 1/2" GAL B&D
OP 2	COENOS FLORIDA - FLOWERING DOORWAY	10-12' B & D
M.F. 1	MALVA FLORIDANA - JAPANESE FLOWERING CRAB	7-2 1/2" GAL B&D

NOTE: QUANTITY SHOWN IN PARENTHESES ARE FOR ADD-ALTERNATE

REFER TO C-4 FOR DETAILS AND DETAILS OF PERMANENT CHECK DIKES FOR STORM WATER MANAGEMENT & INFILTRATION.

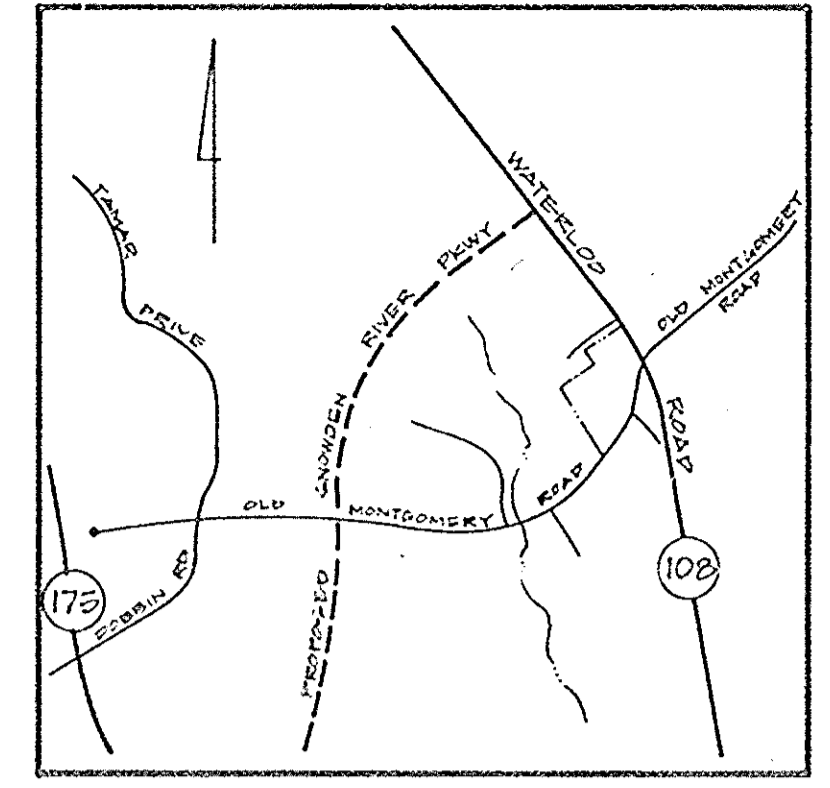
OWNER/DEVELOPER:
BOARD OF EDUCATION OF HOWARD COUNTY
2045 ROUTE 32
COLUMBIA, MARYLAND 21044

SITE GRADING, DEVELOPMENT PAVING & SEWER RELOCATION PLAN
BUILDING ADDITIONS & RENOVATIONS
TAX MAP: 37 PARCEL: 489
DEED REFERENCE: LIBER: 307 AT FOLIO: 356
WATERLOO ELEMENTARY SCHOOL
GULIFORD ELECTION DISTRICT # 6
HOWARD COUNTY, MARYLAND

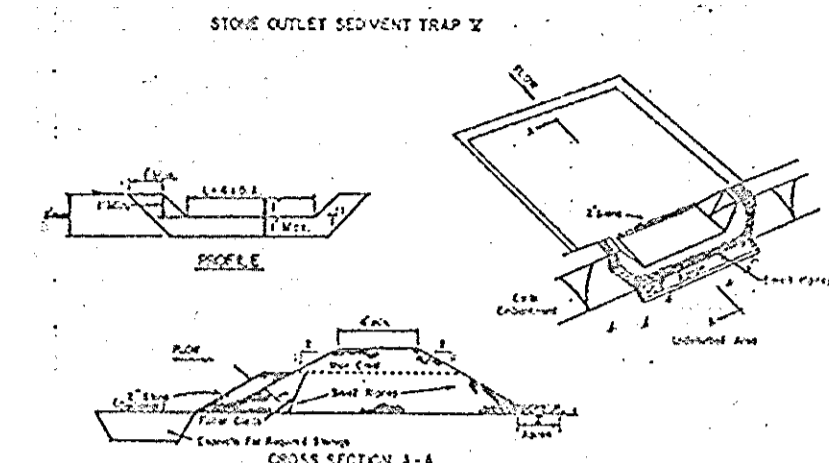
STONE OUTLET SEDIMENT TRAP #1

EXISTING DRAINAGE AREA = 4.2 AC
 PROPOSED DRAINAGE AREA = 6.0 AC
 REQUIRED STORAGE = 6.0 x 0.7 x 27 = 904.5 CF
 STORAGE PROVIDER = 9348 CF
 DIMENSION = 3' x 70' x 35' (BOTTOM)
 INV TRAP = 76.3
 CLEANOUT ELEV = 76.8
 CREST ELEV = 78.3
 TOP OF BERM = 79.5

TEMP. 12" HIGH SNOW FENCE



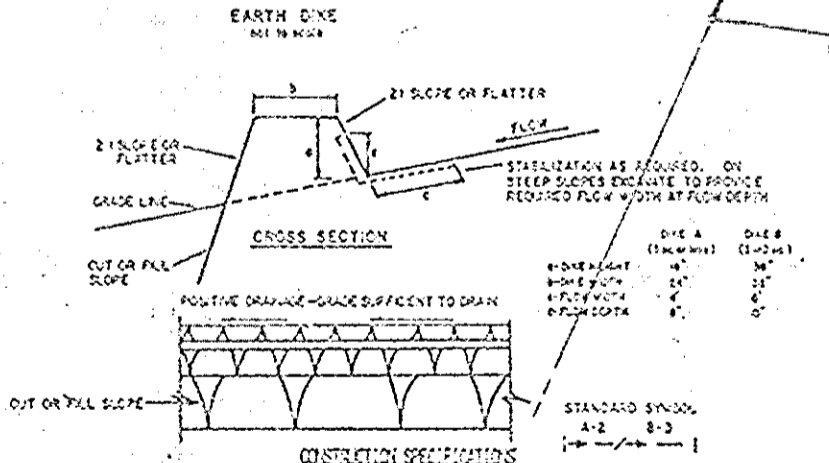
VICINITY MAP
SCALE: 1" = 1000'



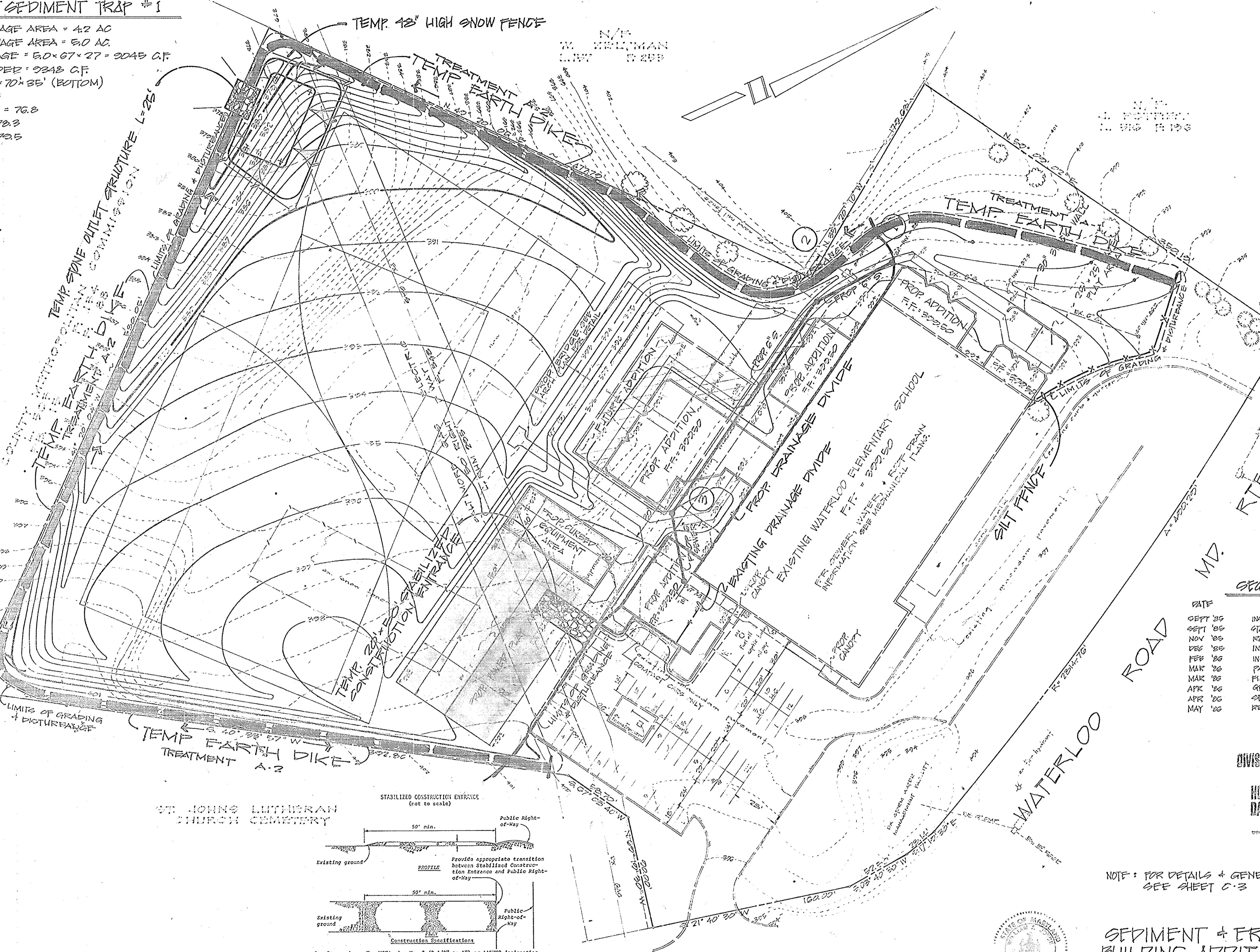
2. The fill material for the sediment trap shall be free of rocks and other hard objects, as well as unsorted stones, roots, stumps, or other obstructions. The sediment trap shall be constructed by installing a concrete outlet in the trap structure.
- All cut and fill slopes shall be 2:1 or flatter.
 - The stone wall in the outlet shall be built using 4" x 8" along with a 1/2" thickness of 2" aggregate placed on the upstream side on the outlet slope 2' outside the outlet structure.
 - Reinforced concrete shall be used for the outlet structure when the sediment trap is constructed on a slope greater than 2:1.
 - The structure shall be finished after each cut and deposit area is tested.
 - Construction operations shall be carried out in such a manner as to avoid soil erosion and water pollution.
 - The structure shall be secured and the area stabilized with the drainage area has been properly stabilized.

SEDIMENT CONTROL NOTES

- A minimum of 24 hours notice must be given to the Howard County Office of Inspections and Permitting prior to the start of any construction (202-243-7777).
- All vegetative and structural practices are to be installed according to the provisions of the 1992 Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within:
 - a) 7 calendar days for all perimeter sediment control structures, ditches, perimeter slopes and all slopes greater than 3:1.
 - b) 14 days for 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. 12, 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 1992 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. For permanent structures, see Sec. 212. For temporary structures, see Sec. 213. Temporary stabilization which allows only the minimum recommended seeding rates do not allow for proper permeation and establishment of grass.
- 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: 19.4 AC
 - AREA TO BE DISTURBED OR REDISTURBED: 19.4 AC
 - AREA TO BE MAINTAINED OR PROTECTED: 0.0 AC
 - TOTAL DISTURBED AREA: 19.4 AC
 - OFFSITE WASTEWATER AREA LOCATION: TO BE DETERMINED BY THE HOWARD COUNTY DEPARTMENT OF PERMITTING AND INSPECTIONS
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be replaced on the 6th day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.



TYPE OF STRUCTURE	CONSTRUCTION SPECIFICATIONS	THICKNESS
1	5-3" S&W	3-4" S&W
2	5-3" S&W	3-4" S&W
3	5-3" S&W	3-4" S&W
4	5-3" S&W	3-4" S&W



SEQUENCE OF CONSTRUCTION

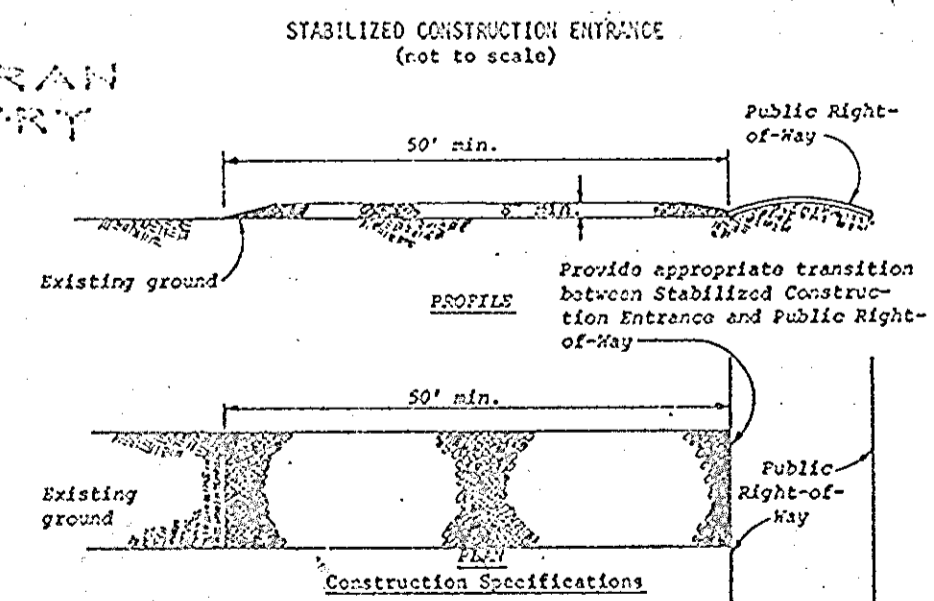
DATE	FUNCTION	TIME
SEPT '85	INSTALL SEDIMENT CONTROL	2 WKS
SEPT '85	START BLDG. ADDITION CONSTRUCTION	30 WKS
NOV '85	ROUGH GRADE	6 WKS
FEB '86	INSTALL SEWER	4 WKS
FEB '86	INSTALL COND WALKS	2 WKS
MAR '86	PAVE PLAY AREA	1 WK
MAR '86	FINE GRADE + CONSTRUCT BALL FIELD + STABILIZED	3 WKS
APR '86	GENERAL CLEANUP + FINE GRADE	2 WKS
APR '86	STABILIZE SITE	2 WKS
MAY '86	REMOVE SEDIMENT CONTROL	1 WK

MAINTENANCE - CONTINUAL

APPROVED
 DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION
 HOWARD COUNTY, MARYLAND
 DATE: 10-17-85
 [Signature]

NOTE: FOR DETAILS + GENERAL NOTES + STABILIZATION NOTES SEE SHEET C-3

SEDIMENT & EROSION CONTROL PLAN
BUILDING ADDITIONS & RENOVATIONS
 TAX MAP: 37 PARCEL: 480
 DEED REFERENCE: LIBER: 307 AT FOLIO: 356
WATERLOO ELEMENTARY SCHOOL
 GULIFORD ELECTION DISTRICT # 6
 HOWARD COUNTY, MARYLAND



- Stone size - Use MSRA size No. 2 (2-1/2" to 1") or MS100 designation #41, size No. 2 (2-1/2" to 1-1/2"). Use crushed stone.
- Length - As effective, but not less than 30 feet.
- Thickness - Not less than eight (8) inches.
- Width - Not less than full width of all points of ingress or egress.
- Washing - When necessary, wheels shall be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with crushed stone which drains into an approved sediment trap or sediment basin. All sediment shall be prevented from entering any storm drain, ditch, or watercourse through use of sand bags, gravel, boards or other approved methods.
- Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public right-of-way. Lots may require periodic top dressing with additional stone as conditions demand and repair and/or cleanup of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public right-of-way must be removed immediately.

PLAN SCALE: 1" = 40'

REVIEW FOR: HOWARD S.C.D.
 NAME AND MEETS TECHNICAL REQUIREMENTS: J. Helms
 DATE: 10/28/85
 U.S. SOIL CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
 [Signature]
 DATE: 10/28/85
 HOWARD COUNTY S.C.D.

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAIN SYSTEMS + ROADS
 HOWARD COUNTY DEPT. OF PUBLIC WORKS
 [Signature]
 DATE: 10-31-85
 BUREAU OF ENGINEERING

APPROVED FOR PUBLIC WATER + PUBLIC SEWERAGE SYSTEMS
 HOWARD COUNTY HEALTH DEPT.
 [Signature]
 DATE: 10-31-85
 HEALTH OFFICER

APPROVED FOR HOWARD COUNTY OFFICE OF PLANNING + ZONING
 [Signature]
 DATE: 11-1-85
 PLANNING DIRECTOR
 [Signature]
 DATE: 11-1-85
 CHIEF, DIVISION OF LAND DEVELOPMENT + ZONING ADMIN. DATE

REVISIONS	JOYCE ENGINEERING CORPORATION
	Professional Engineers + Land Planning Surveying + Construction Management (202) 265-4550 11033-C BALTIMORE AVENUE, BELTSVILLE, MD 20705
	DES: W.J.D.F.T. M.S. SHEET 1 OF 2 SCALE: 1" = 40' JOB NO: 85-000 DATE: APRIL '85 FILE NO: 85-000

STANDARD AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION TEMPORARY SEEDING

Definition: Planting short-term vegetation on critical areas.

Purpose: To temporarily stabilize the soil to reduce damages from sediment and runoff to downstream areas; improve wildlife habitat; enhance natural beauty.

Conditions Where Practice Applies: Graded or cleared areas which are subject to erosion for a period of 14 days or more.

SPECIFICATIONS:

- Site Preparation**
 - Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
 - Final grading and shaping has usually not been completed for temporary seedings.
- Soil Amendments**

For temporary seedings, fertilizer shall be applied at the rate of 600 lbs/acre or 15 lbs/1,000 sq. ft., using 10-10-10 or equivalent. Soils which are highly acid should be limed.
- Seedbed Preparation**

When the area to be seeded has been recently loosened to the extent that an adequate seedbed exists, no additional treatment is required. However, when the area to be seeded is packed, crusted, and hard, the top layer of soil shall be loosened by disking, raking or other acceptable means before seeding.
- Seeding**
 - Select a mixture from Table 50-1.
 - Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydroseeder (slurry includes seed and fertilizer).
- Mulching**

When seedings are made on critical sites or adverse soil conditions, mulch material will be applied immediately after seeding. Seedings made during optimum seeding dates and with favorable soils on very flat areas may not need to be mulched. Mulch materials are listed in order of their effectiveness.

 - Materials and Amounts**
 - Mulch matting** - such as jute or excelsior blanket shall be stapled to the surface in waterways and on steep slopes. Lighter materials of paper, plastic and cotton mulch matting may be used where erosion hazard is not severe. If the area is to be mowed, do not use metal staples.
 - Straw** - Material shall be unrotted small grain, straw applied at the rate of 1 1/2 to 2 tons per acre, or 70 to 90 (two bales) pounds per 1,000 sq. ft. Mulch materials shall be relatively free of all kinds of weeds and shall be free of prohibited noxious weeds such as: thistles, Johnsongrass and quackgrass. Spread uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 sq. ft. sections and place 70-90 lbs. of mulch in each section.
 - Wood chips** - at the rate of approximately 6 tons per acre or 275 lbs. per 1,000 square feet may be used when available and when feasible to use.
 - Wood cellulose fiber** - mulch at the rate of 1,500 pounds per acre or 35 pounds per 1,000 sq. ft. may be applied by hydroseeding.
 - Mulch anchoring** shall be accomplished immediately after mulch placement to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area, erosion hazard, and cost. On sloping land, practice No. 1 below, should be done on the contour wherever possible, except "tracking" should be done up and down the slope with 1/4 inch cleat marks running across the slope.
 - Mulch Anchoring Tool and Tracking.** A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the surface 2 inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely. Tracking is primarily used on steeper than 3:1 cut and fill slopes to cut the mulch into the soil with 1/4" track cleats of a bulldozer making grooves across the slope.
 - Mulch Nettings** - Staple lightweight biodegradable paper, plastic or cotton nettings over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4 feet wide and up to 300 feet long.
 - Liquid Mulch Binders** - Applications of liquid binders should be heavier at edges where wind catches mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance. Caution should be used with asphalt in residential and similar areas.
 - Outback asphalt - rapid curing (RC-70, RC-250, and RC-800) or medium curing (MC-250 or MC-800). Apply 5 gallons per 1,000 square feet or 200 gallons per acre on flat areas and on slopes less than 8 feet high. On slopes 8 feet or more high, use 8 gallons per 1,000 square feet or 348 gallons per acre.
 - Emulsified asphalt - (ES-1, CS-1, CS-2, MS-2, RS-1, RS-2, CS-1, and CS-2). Apply 5 gallons per 1,000 square feet or 200 gallons per acre on flat areas and on slopes less than 8 feet high. On slopes 8 feet or more high, use 8 gallons per 1,000 square feet or 348 gallons per acre.
 - All asphalt designations are from the Asphalt Institute Specifications.
 - Synthetic binders** - Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petrosol or Terra Tac may be used at rates recommended by the manufacturer to anchor mulch material.
 - Wood cellulose fiber** - Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood fiber per 100 gallons.
 - Peg and Twine** - Drive 8-to 10-inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Staples may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross within a square pattern. Secure twine around each peg with two or more round turns.

References:

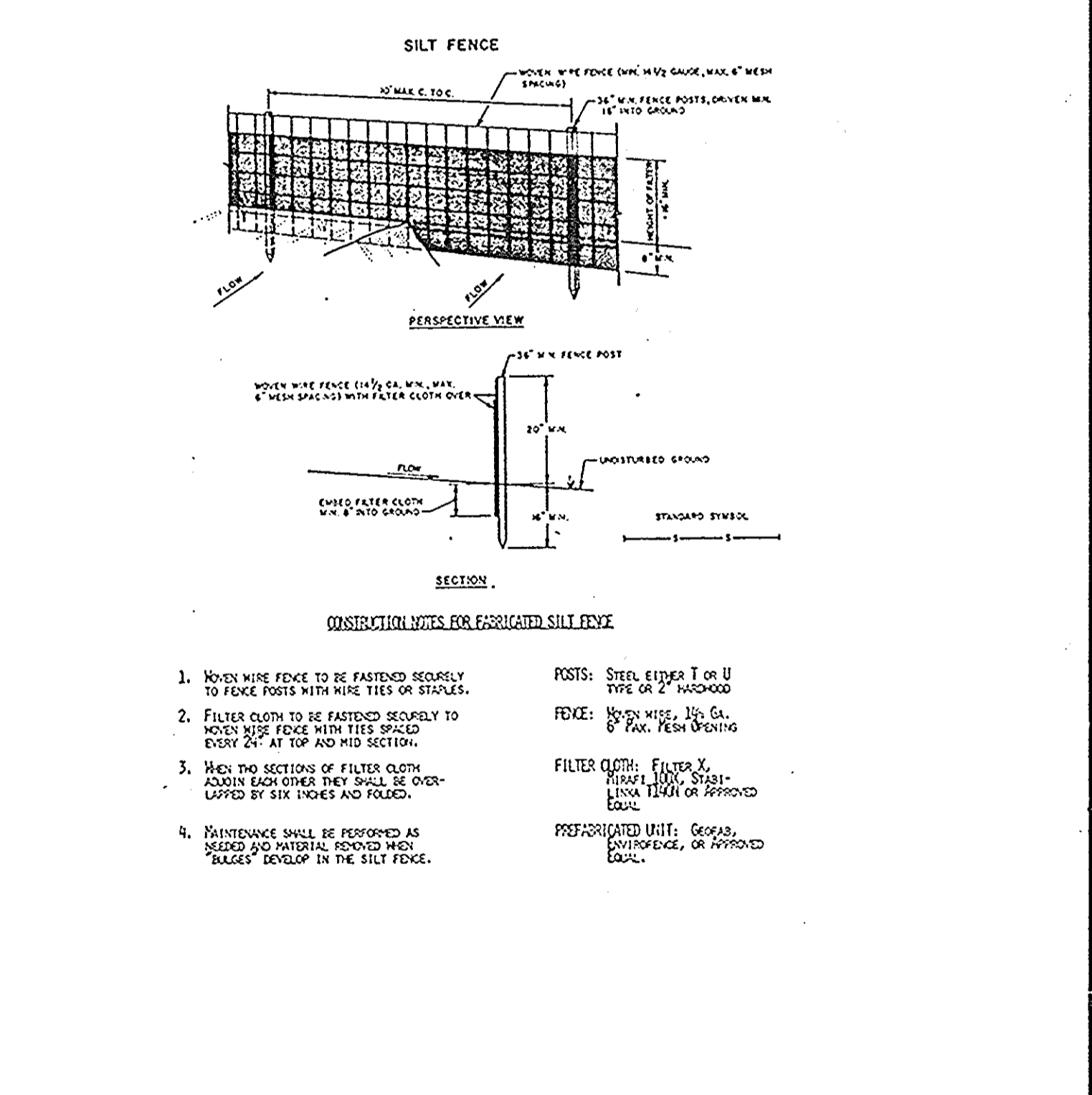
- USDA, Soil Conservation Service Field Office Technical Guides.
- Maryland State Highway Administration Specifications.
- Maryland Water Resources Administration has developed an Audiovisual Training Program, "Temporary Soil Stabilization," which relates to this subject.

Permanent Seeding and Seeding Dates

No.	Type of Seeding	Seeding Rate (lb/1000 sq. ft.)	CONSTANT PLAIN				MOUNTAINS				
			3/15-4/15	4/15-5/15	5/15-6/15	6/15-7/15	3/15-4/15	4/15-5/15	5/15-6/15	6/15-7/15	
1	Hand Broadcast	60	x	x	x	x	x	x	x	x	x
2	Drill	60	x	x	x	x	x	x	x	x	x
3	Hydroseeder	60	x	x	x	x	x	x	x	x	x
4	Hydroseeder	60	x	x	x	x	x	x	x	x	x
5	Hydroseeder	60	x	x	x	x	x	x	x	x	x
6	Hydroseeder	60	x	x	x	x	x	x	x	x	x
7	Hydroseeder	60	x	x	x	x	x	x	x	x	x
8	Hydroseeder	60	x	x	x	x	x	x	x	x	x
9	Hydroseeder	60	x	x	x	x	x	x	x	x	x
10	Hydroseeder	60	x	x	x	x	x	x	x	x	x
11	Hydroseeder	60	x	x	x	x	x	x	x	x	x
12	Hydroseeder	60	x	x	x	x	x	x	x	x	x
13	Hydroseeder	60	x	x	x	x	x	x	x	x	x
14	Hydroseeder	60	x	x	x	x	x	x	x	x	x
15	Hydroseeder	60	x	x	x	x	x	x	x	x	x
16	Hydroseeder	60	x	x	x	x	x	x	x	x	x
17	Hydroseeder	60	x	x	x	x	x	x	x	x	x
18	Hydroseeder	60	x	x	x	x	x	x	x	x	x
19	Hydroseeder	60	x	x	x	x	x	x	x	x	x
20	Hydroseeder	60	x	x	x	x	x	x	x	x	x
21	Hydroseeder	60	x	x	x	x	x	x	x	x	x
22	Hydroseeder	60	x	x	x	x	x	x	x	x	x
23	Hydroseeder	60	x	x	x	x	x	x	x	x	x
24	Hydroseeder	60	x	x	x	x	x	x	x	x	x
25	Hydroseeder	60	x	x	x	x	x	x	x	x	x
26	Hydroseeder	60	x	x	x	x	x	x	x	x	x
27	Hydroseeder	60	x	x	x	x	x	x	x	x	x
28	Hydroseeder	60	x	x	x	x	x	x	x	x	x
29	Hydroseeder	60	x	x	x	x	x	x	x	x	x
30	Hydroseeder	60	x	x	x	x	x	x	x	x	x

Temporary Seedings by Rates, Depths and Dates

Species	Per Acre	Lbs/1000 Sq. Ft.	Depth (inches)	CONSTANT PLAIN				MOUNTAINS						
				3/15-4/15	4/15-5/15	5/15-6/15	6/15-7/15	3/15-4/15	4/15-5/15	5/15-6/15	6/15-7/15			
Choose one:														
Barley	24 bu.	2.8	1-2	x	x	x	x	By 10/15	x	By 10/15	x	By 10/15	x	By 10/15
Oats	3 bu.	2.2	2-2	x	x	x	x	x	x	x	x	x	x	x
Rye	24 bu.	3.2	1-2	x	x	x	x	x	x	x	x	x	x	x
Italian or perennial ryegrass	40 lbs.	.92	1-1/2	x	x	x	x	By 11/1	x	By 11/1	x	By 11/1	x	By 8/15
Timothy	40 lbs.	.92	1-1/2	x	x	x	x	x	x	x	x	x	x	x
Keeping, Borer, or Lehmann's bluegrass	3 lbs.	.07	1-1/2	x	x	x	x	x	x	x	x	x	x	x
Sudangrass	40 lbs.	.92	1-2	x	x	x	x	x	x	x	x	x	x	x



Notes: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

References:

- USDA, Soil Conservation Service Field Office Technical Guides.
- Maryland State Highway Administration Specifications.
- Maryland Water Resources Administration has developed an Audiovisual Training Program, "Temporary Soil Stabilization," which relates to this subject.

Table 50-1: Seeding Mixture Recommendations

Mixture No.	Seeding Mixture	Perennial	Rate (lb/1000 sq. ft.)	Time	Notes
1, 2, 3, 4, 5, 6	Tall fescue mixtures up to 100% or more of cover	10-10-10 35-20-0	500 600	11.5 9.2	Yearly, or as needed
7, 8, 9	Crownvetch mixtures	0-20-20	400	9.2	Apply the year following establishment
10	Fescue mixtures	5-10-10	500	11.5	Fall only year following establishment
11	Timothy mixtures	5-10-10	500	11.5	Spring the year following establishment
12, 13, 14	Red fescue	10-10-10	500	11.5	Yearly, or as needed
15, 16	Red fescue mixtures	10-10-10 20-10-10 30-10-10	500 500 500	11.5 11.5 11.5	Yearly, or as needed

APPROVED DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION HOWARD COUNTY, MARYLAND DATE 10-17-85

APPROVED FOR PUBLIC WATER & SEWER AGE STORM DRAIN SYSTEMS & ROADS

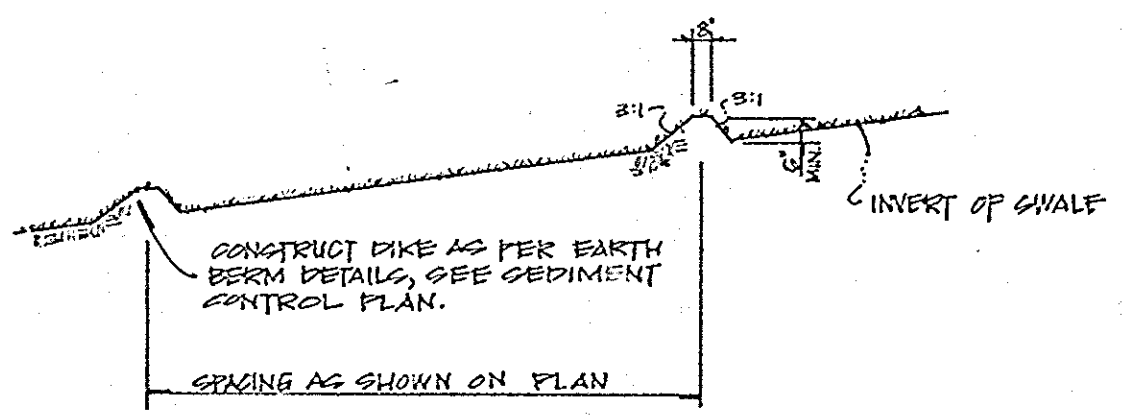
APPROVED FOR PUBLIC WATER & SEWER SEWER SYSTEMS

REVISIONS

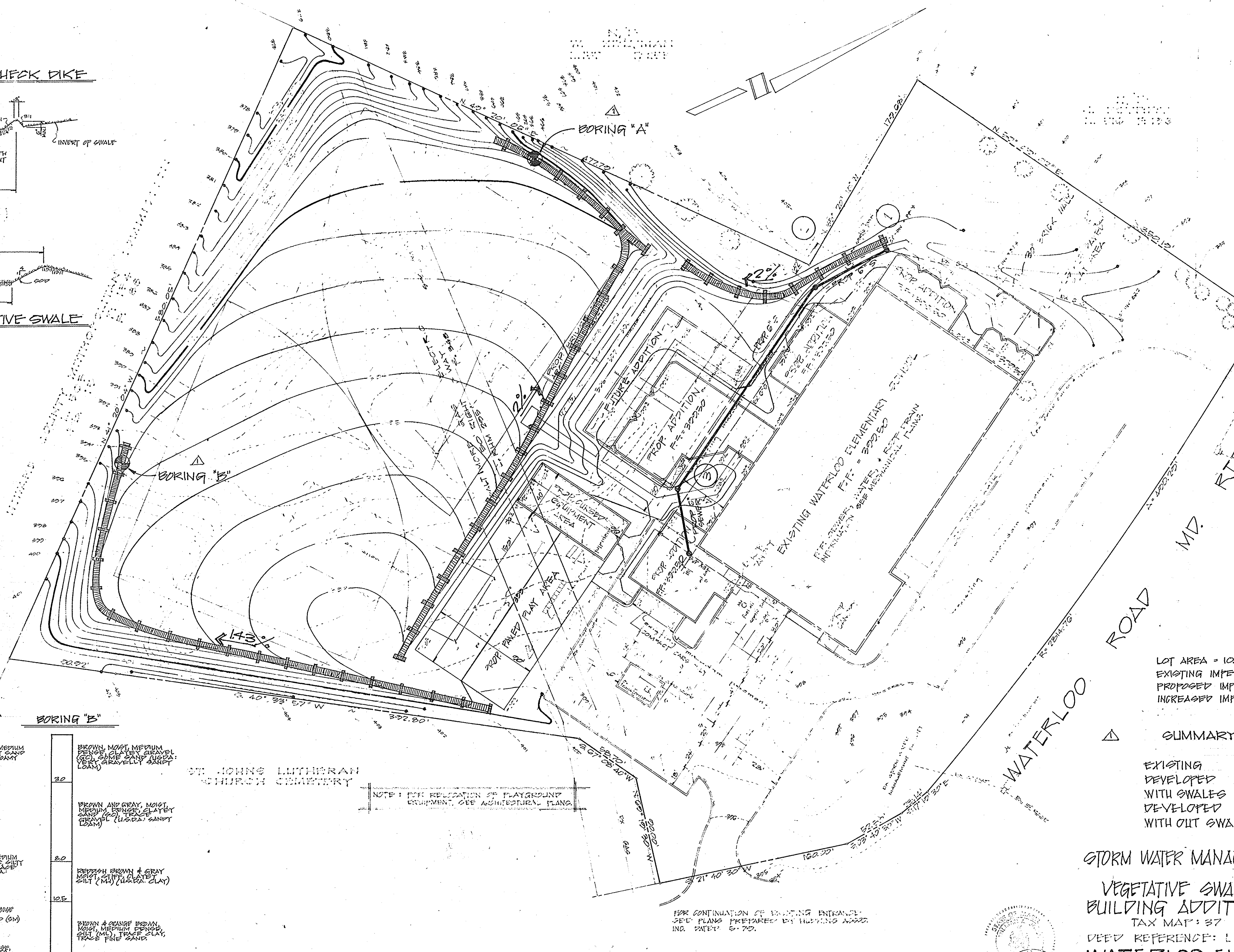
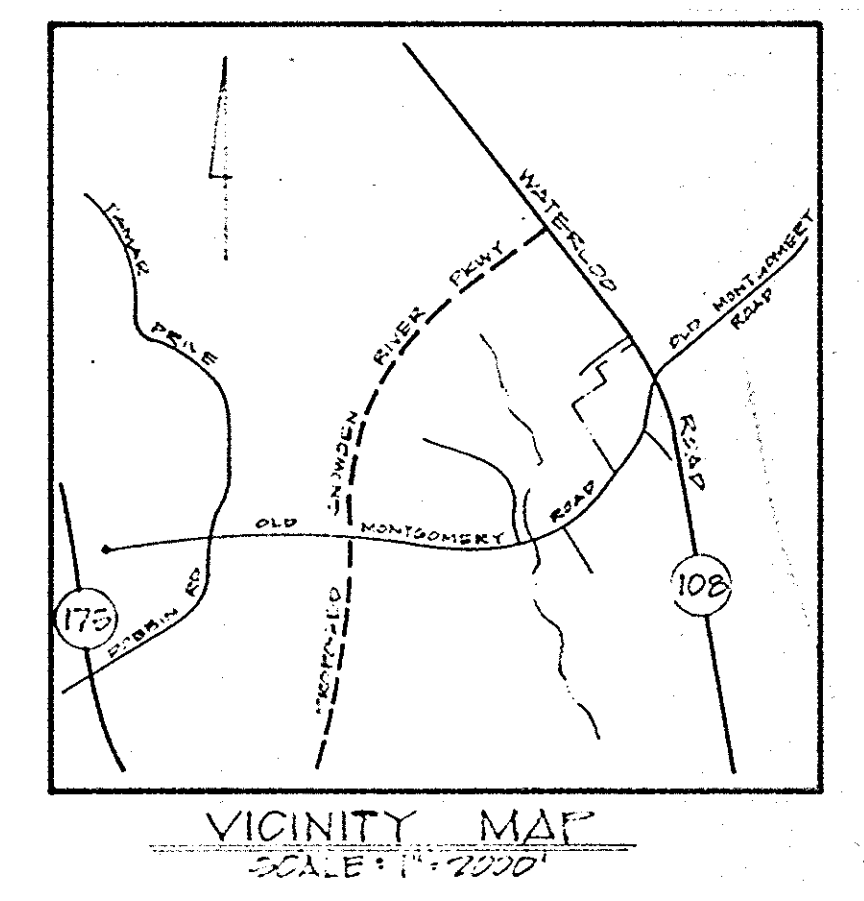
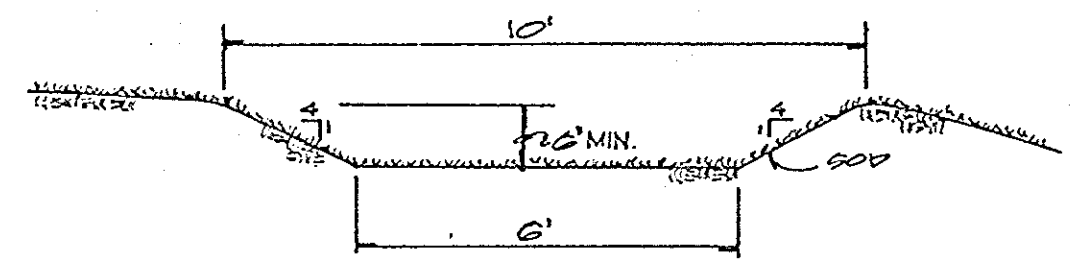
JOYCE ENGINEERING CORPORATION
Professional Engineers & Land Planning
Surveying & Construction Management (301) 595-4353
11033-C BALTIMORE AVENUE, BELTSVILLE, MD 20705

DES. WAJ JDT APC SHEET 4 OF 6
SCALE 1" = 20' JOB NO. 84-748
DATE MARCH 1985 FILE NO. 85-223

TYPICAL SECTION CHECK DIKE
NO SCALE



TYPICAL SECTION VEGETATIVE SWALE
NO SCALE



APPROVED
DIVISION OF LAND DEVELOPMENT &
ZONING ADMINISTRATION
HOWARD COUNTY, MARYLAND
DATE 10-17-85
M. J. [Signature]

LOT AREA = 10.4 ACRES ±
EXISTING IMPERVIOUS AREA = 126,100 SF
PROPOSED IMPERVIOUS AREA = 127,800 SF
INCREASED IMPERVIOUS AREA = 1700 SF OR 1.4%

△ SUMMARY OF CONDITIONS

	2 YEARS	10 YEARS
EXISTING DEVELOPED WITH SWALES	10.3 C.F.S.	24.1
EXISTING DEVELOPED WITH OUT SWALES	11.3 C.F.S.	25.1

STORM WATER MANAGEMENT/INFILTRATION PLAN
FOR
VEGETATIVE SWALES WITH CHECK DIKES
BUILDING ADDITIONS & RENOVATIONS
TAX MAP: 37 PARCEL: 480
DEED REFERENCE: LIBER: 307 AT FOLIO: 350
WATERLOO ELEMENTARY SCHOOL
GULIFORD ELECTION DISTRICT # 6
HOWARD COUNTY, MARYLAND

BORING "A"	BORING "B"
70' BROWN MOIST MEDIUM FINE TO COARSE SILTY SAND (CM) (U.S.P.A. LOAMY SAND)	30' BROWN MOIST MEDIUM FINE TO COARSE SILTY SAND (CM) (U.S.P.A. LOAMY SAND)
10.5' BROWN MOIST MEDIUM FINE TO COARSE SILTY SAND (CM) (U.S.P.A. LOAMY SAND)	20' BROWN AND GRAY, MOIST MEDIUM FINE TO COARSE SILTY SAND (CM) (U.S.P.A. SILTY SAND)
18.0' BROWN MOIST LOOSE SILTY FINE SAND (CM) (U.S.P.A. SAND)	10.5' REDDISH BROWN & GRAY MOIST SILTY (M) (U.S.P.A. CLAY)
19.0' BROWN WET LOOSE SILTY FINE TO COARSE SAND (CM) (U.S.P.A. SAND)	15.0' BROWN & ORANGE BROWN MOIST MEDIUM FINE TO COARSE SAND (CM) (U.S.P.A. SAND)

NOTE: FOR RELOCATION OF PLAYGROUND EQUIPMENT, SEE ARCHITECTURAL PLANS.

FOR CONTINUATION OF EXISTING ENTRANCE, SEE PLANS PREPARED BY HILLING ASSOC. INC. DATED 8-7-80.

PLAN SCALE: 1" = 40'

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAIN SYSTEMS + ROADS HOWARD COUNTY DEPT. OF PUBLIC WORKS <i>[Signature]</i> DIRECTOR DATE: 10-31-85	APPROVED: FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS HOWARD COUNTY HEALTH DEPT. JOYCE BOYLER COUNTY HEALTH OFFICER DATE: 10-30-85	APPROVED: HOWARD COUNTY OFFICE OF PLANNING + ZONING [Signature] PLANNING DIRECTOR DATE: 11-1-85	REVISIONS DATE DESCRIPTION BY 2-19-85 [Description] [Signature]	JOYCE ENGINEERING CORPORATION PROFESSIONAL ENGINEERS & ARCHITECTS 11000 BELT ROAD, SUITE 200, BELTSVILLE, MD 21152 (301) 581-1100 DES: W.A.J. DFT: J.A.M. SHEET 1 OF 4 SCALE: 1" = 40' JOB NO: 85-223 DATE: APRIL '85 FILE NO: 85-223
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