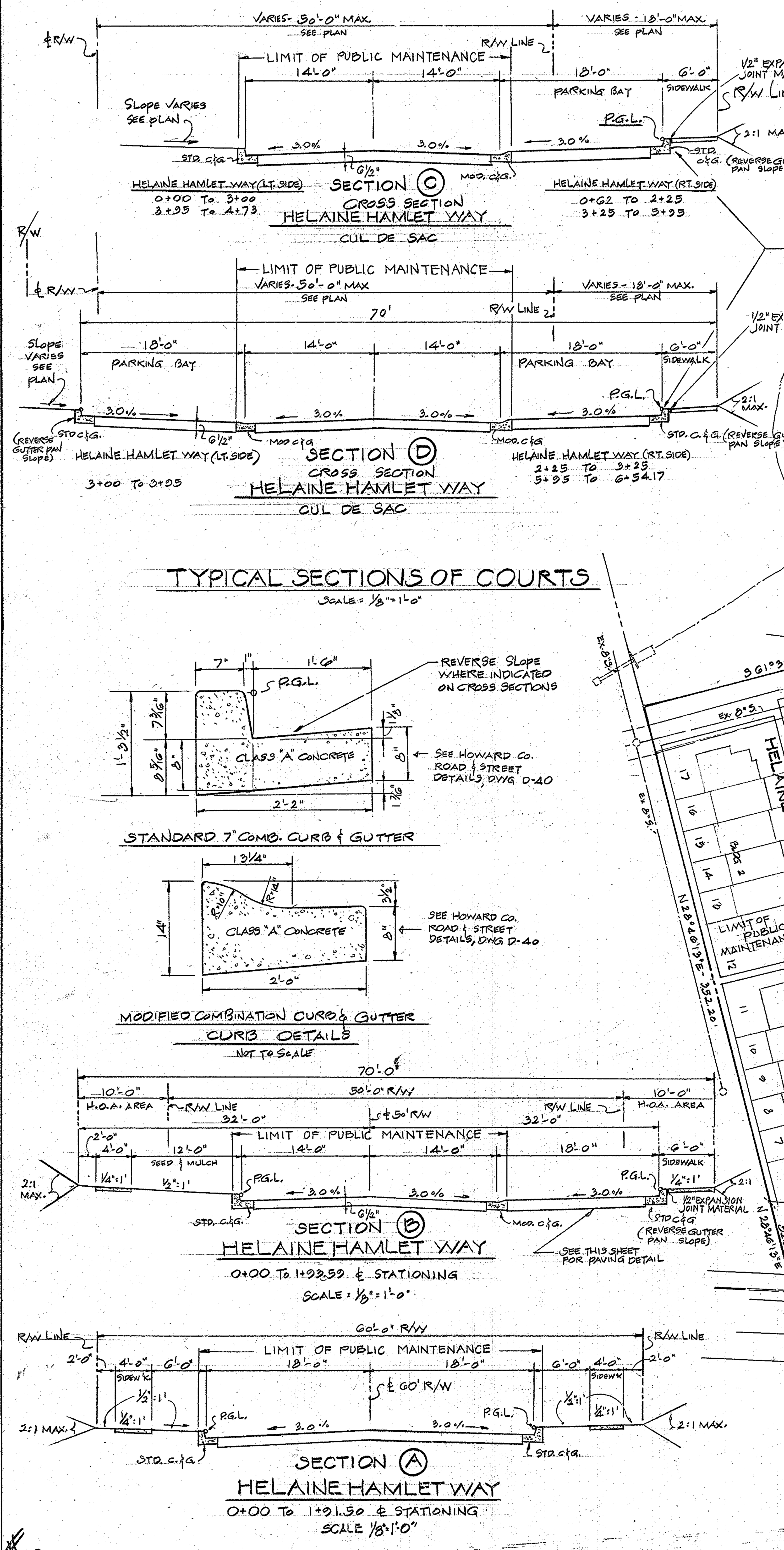
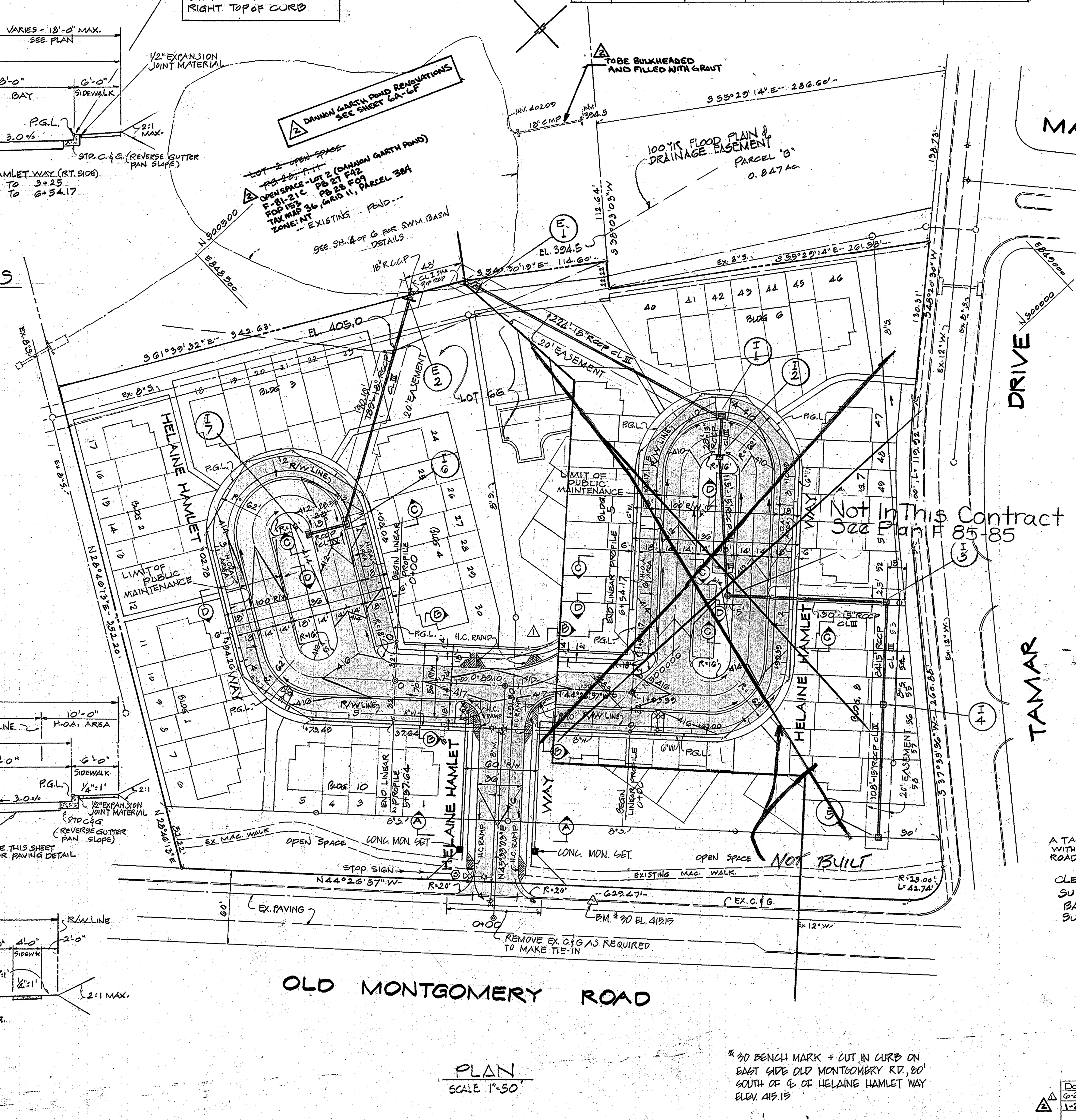


STORM DRAIN STRUCTURE SCHEDULE

№	TYPE	TOP ELEV.	INV. OUT	LOCATION	REMARKS
I-1	A-5 (W=2.5')	409.82	404.38	4+06 HELAINE HAMLET WAY RT.	D-64A, PAGE 119-A
I-2	A-5 (W=2.5')	409.82	404.80	4+06 HELAINE HAMLET WAY RT	D-64A, PAGE 119-A
I-3	"S" GRATE (RETICULAR GR.)	410.00	406.67	SEE PLAN	D-98, PAGE 153
I-4	"S" GRATE	411.30	407.88	SEE PLAN	D-98, PAGE 153
I-5	"S" GRATE	412.60	409.38	SEE PLAN	D-98, PAGE 153
I-6	A-5 (W=2.5')	411.81	406.78	1+03 HELAINE HAMLET WAY LT	D-64A, PAGE 119-A
I-7	A-5 (W=2.5')	411.81	407.59	1+03 HELAINE HAMLET WAY LT	D-64A, PAGE 119-A
M-1	STD. MH	413.50	405.69	SEE PLAN	D-103, PAGE 158
E-1	TYPE "C"	—	403.04	SEE PLAN	D-52, PAGE 107
E-2	TYPE "C"	—	403.00	SEE PLAN	D-52, PAGE 107

(2) SHEET INDEX

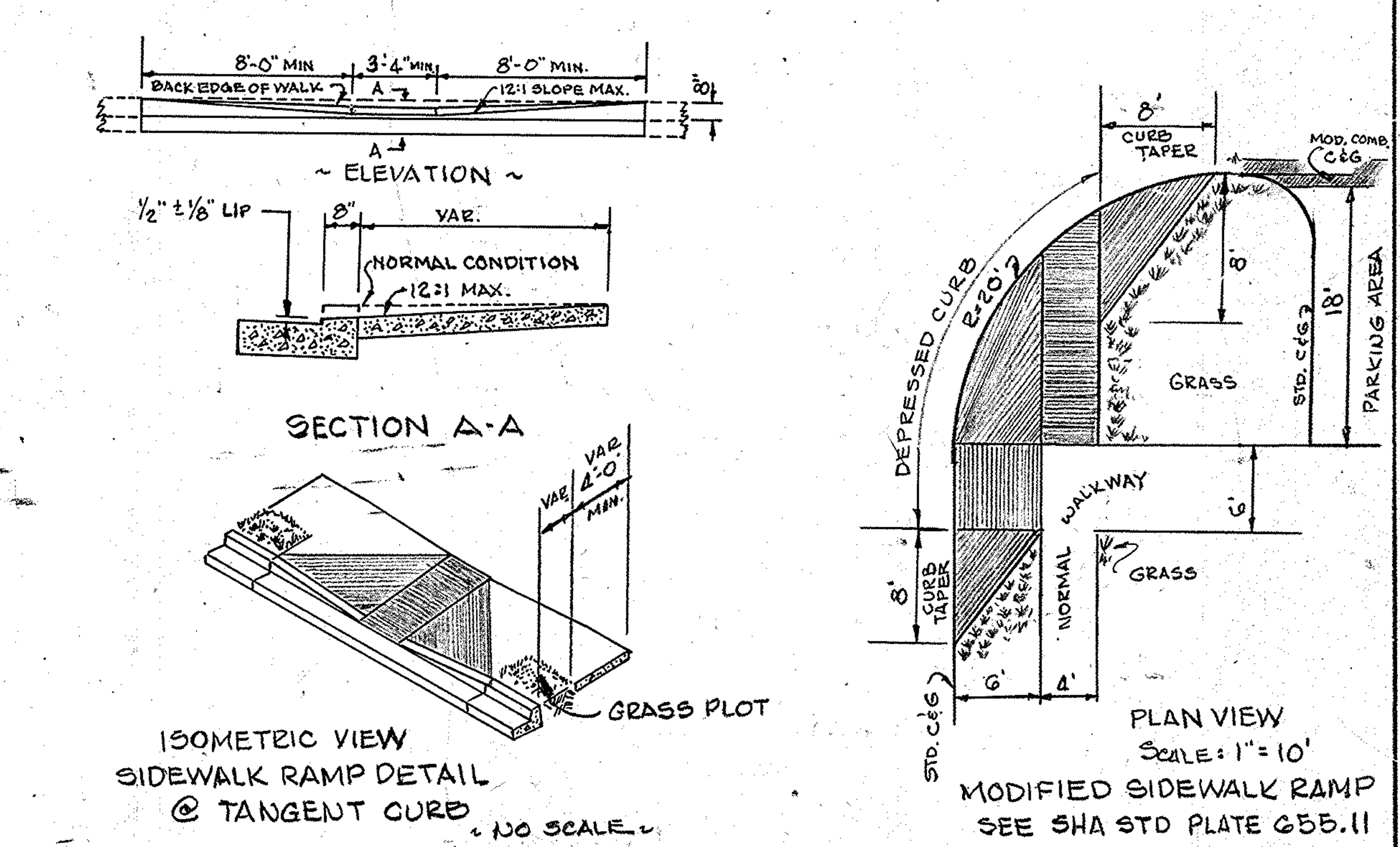


* 30 BENCH MARK + CUT IN CURB ON EAST SIDE OLD MONTGOMERY RD., 80' SOUTH OF ℄ OF HELAINE HAMLET WAY ELEV. 415.15

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 33079 Expiration Date: 1.16.17

For Rev (2) only



A TACK COAT IS REQUIRED IN ACCORDANCE WITH SECTION C-31-4 OF HOWARD COUNTY ROAD CONSTRUCTION CODE & STD. SPECIFICATIONS

CLEARING & GRADING	ARTICLE C-1
SUBGRADE	ARTICLE C-2
BASE COURSE	ARTICLE C-33
SURFACE COURSE	ARTICLE C-31

1 1/2" BITUMINOUS CONCRETE SURFACE BAND C-3

5" BITUMINOUS CONCRETE BASE BAND C-2 OR C-3

TO BE CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY ROAD CONSTRUCTION CODE & STANDARD SPECIFICATIONS

THE BASE WILL BE PRIMED IN ACCORDANCE WITH SECT. C-30-3 PROVIDED IN THE HOWARD CO. ROAD CONSTRUCTION CODE & STANDARD SPECIFICATIONS.

PAVING DETAIL

NOT TO SCALE

(2) REVISED SITE DEVELOPMENT PLAN
OPEN SPACE LOT 2 - DANNON GARTH POND
VILLAGE OF LONG REACH, SECTION 1 / AREA 9
ZONE NT, TAX MAP 36, GRID 11, PARCEL 384
6th ELECTION DISTRICT. HOWARD COUNTY, MD

	Date	Revision	BY
(1)	6-20-85	See F-85-85 For Revised Lay-Out	JK
(2)	1-26-15	DANNON GARTH POND RENOVATIONS (SHEET 6A-6H)	SMC

(2) THE PERMIT DEADLINE FOR THE POND RENOVATIONS (GRADE VANES, EXCAVATION, WEIR/SPILLWAY, PEDESTRIAN BRIDGE) IS DECEMBER 19, 2015.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF ENGINEERING — DATE 1-12-81

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING

CHIEF DIVISION OF LAND DEVELOPMENT — DATE 1-16-81

ELECTION DISTRICT GUILFORD № 6
HOWARD COUNTY, MARYLAND

OWNER	DEVELOPER
~~FRED M. & SHIRLEE BART~~	LONGREACH JOINT VENTURE
~~7709 PARK HEIGHTS AVE~~	P.O. BOX 850
~~BALTO., MD. 21208~~	MILLERSVILLE, MD. 21108

PROJECT AREA:

VILLAGE OF LONG REACH

SECTION 1 / AREA 6, PARCEL "B" & SECTION 1 / AREA 9, RESUBDIVISION OF PARCEL "A"

PROJECT TITLE

PLAN, TYPICAL CROSS SECTIONS & DETAILS HELAINE HAMLET WAY

SCALE: AS SHOWN — DATE

ENGINEER
KIDDE CONSULTANTS, INC.
1020 CROMWELL BRIDGE RD.
TOWSON, MD. 21204

GEORGE LAMBROS
REGISTERED PROFESSIONAL ENGINEER
№ 6519

VILLAGE OF LONG REACH, SECTION 1 / AREA 6 PARCEL "B" &
VILLAGE OF LONG REACH, SECTION 1 / AREA 9 RESUBDIVISION OF PARCEL "A"
COLUMBIA VP 81-37
LOTS A-4 to A-65 F 81-21c

PB27-F42 PB28-F09 FDP 153 SHEET 1 OF 6

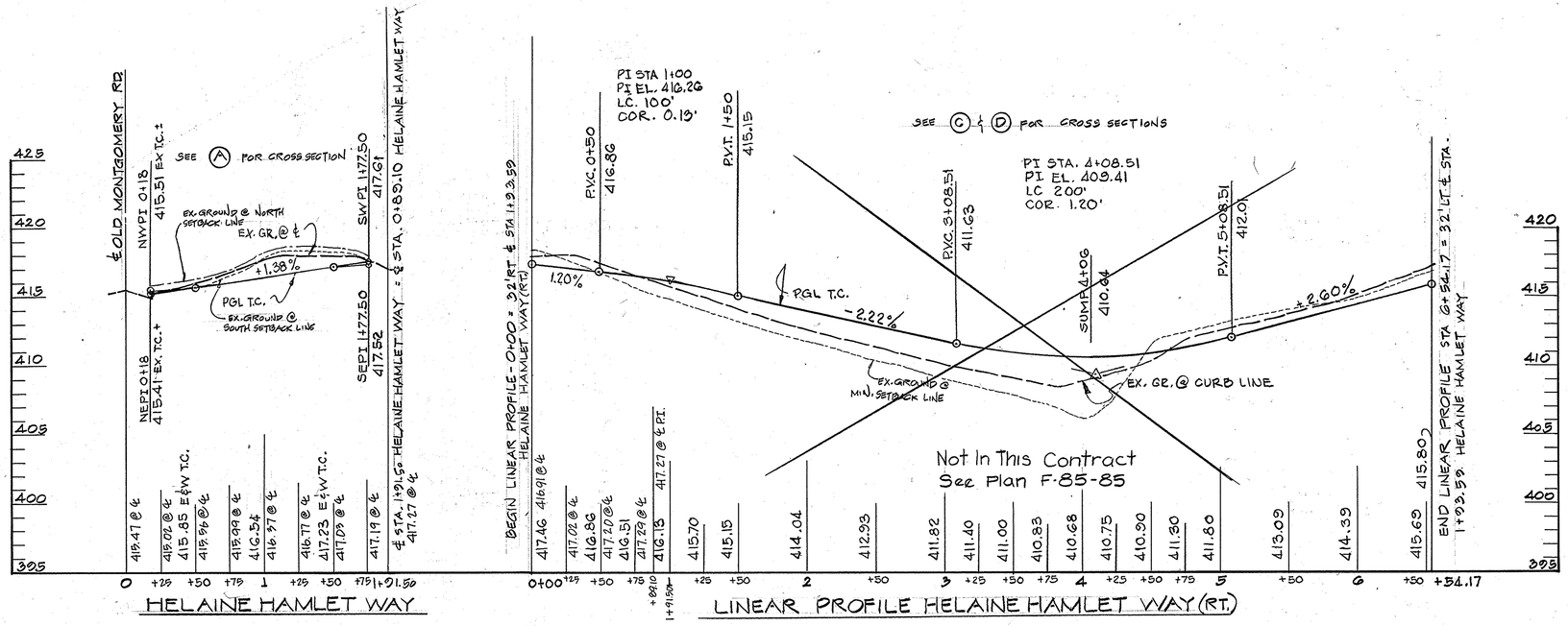
AS-BUILT 10-31-84

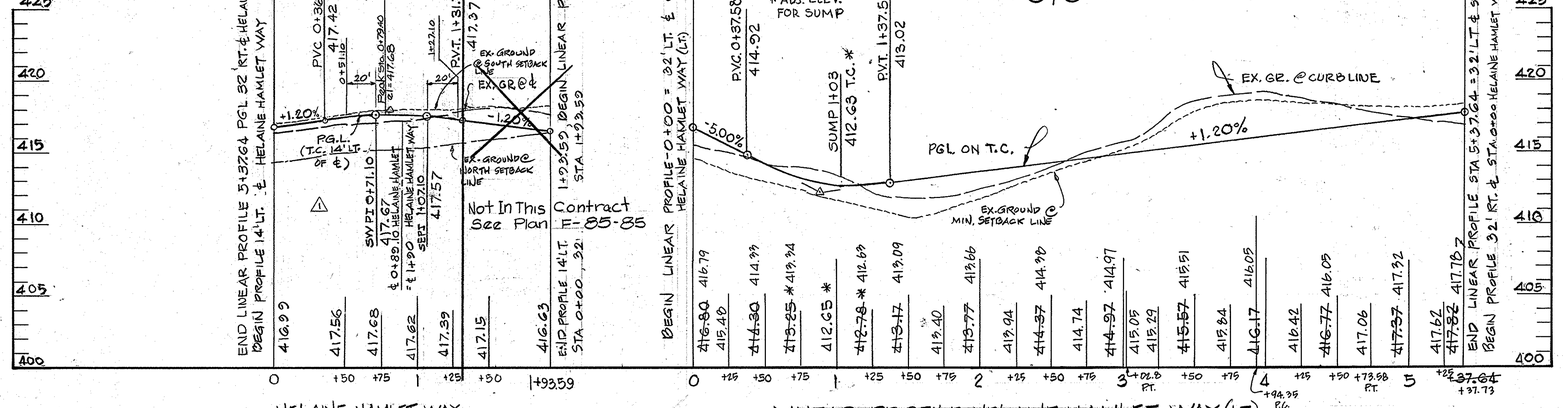
F-81-21C

79078A

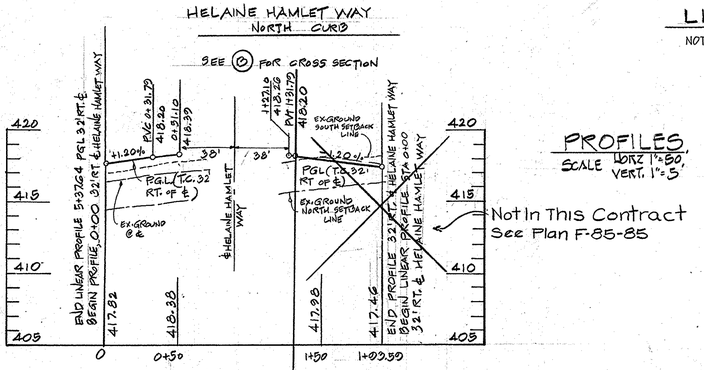
#160

LIMIT OF PUBLIC MAINTENANCE





NOTE: ALL ELEVATIONS ARE TOP CURB.



PROFILES
SCALE HORZ 1"=50'
VERT. 1"=5'

Not In This Contract
See Plan F-85-85

#100

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF ENGINEERING — 1-12-81 DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 1-16-81 DATE

ELECTION DISTRICT GUILFORD Nº 6
HOWARD COUNTY, MARYLAND

OWNER	DEVELOPER
~~FRED M. & SHIRLEE BART 7309 PARK HEIGHTS AVE. BALTO., MD. 21208~~	LONGREACH JOINT VENTURE P.O. Box 850 MILLERSVILLE, MD. 21108

2 COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

PROJECT AREA:
VILLAGE OF LONG REACH
SECTION 1/AREA 6, PARCEL "B" &
SECTION 1/AREA 9, RESUBDIVISION OF PARCEL "A"

PROJECT TITLE
ROAD PROFILES
HELAINE HAMLET WAY

SCALE: AS SHOWN — DATE

ENGINEER
KIDDE CONSULTANTS, INC.
1020 CROMWELL BRIDGE RD.
TOWSON, MD. 21204

George Lambros
GEORGE LAMBROS
REGISTERED PROFESSIONAL ENGINEER
Nº 6819

STATE OF MARYLAND — GEORGE LAMBROS — No. 6819 — REGISTERED PROFESSIONAL ENGINEER

1-29-15

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 33079 Expiration Date 1-16-17

FOR REV 2 ONLY

2 REVISED SITE DEVELOPMENT PLAN
OPEN SPACE LOT 2 DANNON GARTH POND
VILLAGE OF LONG REACH, SECTION 1 AREA 9
ZONE NT. TAX MAP 36 GRID 11 PARCEL 384
6th ELECTION DISTRICT, HOWARD COUNTY MD

Date	Revision	BY
2 6-20-85	See F-85-85 for Revised Lay-out	JK
1 12-15	DANNON GARTH POND RENOVATIONS (SHEET 6A-6A)	JK & MC

PB28, F09
PB27, F42

VILLAGE OF LONG REACH, SECTION 1/AREA 6
PARCEL "B" &
VILLAGE OF LONG REACH, SECTION 1/AREA 9
RESUBDIVISION OF PARCEL "A"
COLUMBIA VP 81-37
LOTS A-1 to A-65 F 81-21 C

FDP 153 SHEET 2 OF 6

AS-BUILT 10-31-84

F-81-21C

7P078 A

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 1-12-81
CHIEF BUREAU OF ENGINEERING DATE

APPROVED HOWARD COUNTY OFFICE OF PLANNING & ZONING

[signature] 1-16-81
CHIEF DIVISION OF LAND DEVELOPMENT DATE

ELECTION DISTRICT GUILFORD Nº 6
HOWARD COUNTY, MD.

OWNER	DEVELOPER
~~FRED M. & SHIRLEE BART~~	LONGREACH JOINT VENTURE
~~7709 PARK HEIGHTS AVE~~	P.O. BOX 830
~~BALTO, MD. 21208~~	MILLERSVILLE, MD. 21108

PROJECT AREA:
VILLAGE OF LONG REACH
SECTION 1 /AREA 6, PARCEL "B" &
SECTION 1/ AREA 9, RESUBDIVISION OF PARCEL "A"

PROJECT TITLE
DRAINAGE AREA MAP
STORM DRAIN PROFILES

SCALE: AS SHOWN DATE

ENGINEER
KIDDE CONSULTANTS, INC.
1020 CROMWELL BRIDGE RD.
TOWSON, MD. 21204

[signature]
GEORGE LAMBROS
REGISTERED PROFESSIONAL ENGINEER
Nº 6519

(△) COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

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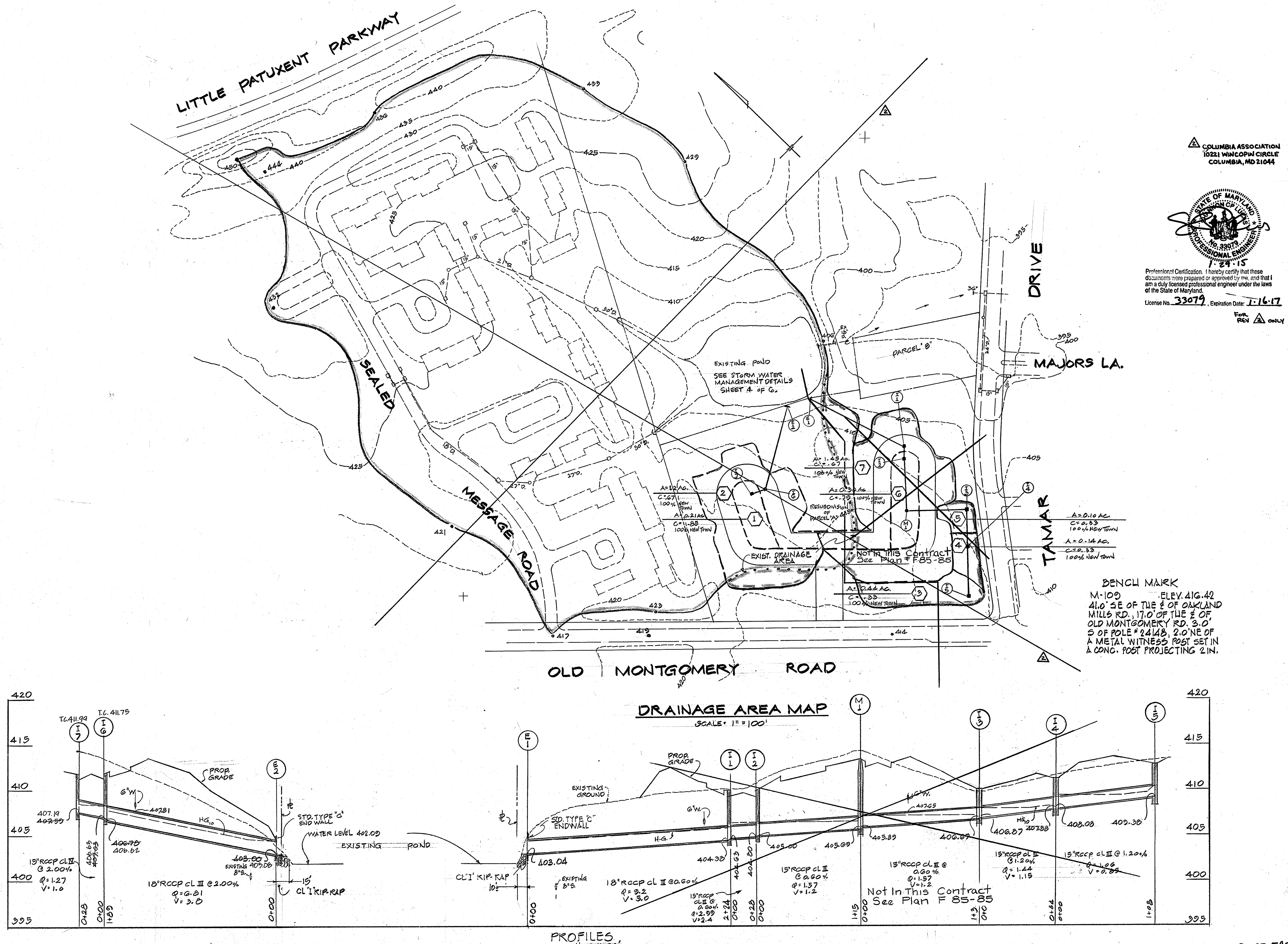
License No. 33079, Expiration Date: 1-16-17
FOR REV △ ONLY



△ REVISED SITE DEVELOPMENT PLAN
OPEN SPACE LOT 2 - DANNON GARTH POND
VILLAGE OF LONG REACH, SECTION 1 / AREA 9
ZONE NT, TAX MAP 36, GRID 11, PARCEL 384
6th ELECTION DISTRICT, HOWARD COUNTY, MD

VILLAGE OF LONG REACH, SECTION 1 /AREA 6
PARCEL "B" &
VILLAGE OF LONG REACH, SECTION 1 /AREA 9
RESUBDIVISION OF PARCEL "A"
COLUMBIA VP 81-37
LOTS A-1 to A-65 F 81-21C
SHEET 3 OF 6

△ 1-26-15 DANNON GARTH POND RENOVATIONS (SHEET 6A-6H) SMC

PB 27, F42
PB 28, F09

FDP 153

AS-BUILT 10-31-84

F-81-21C

79078 A

OWNERS CERTIFICATION

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT, POND CONSTRUCTION & EROSION & SEDIMENT CONTROL. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS AS DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD SOIL CONSERVATION DISTRICT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS-BUILT" OF THE POND WITHIN 30 DAYS OF COMPLETION

LONG REACH JOINT VENTURE

Peter Robbins — 10-30-80

PETER ROBBINS — DATE

PLAN CERTIFICATION

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION & SEDIMENT CONTROL REPRESENTS A PRACTICAL & 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 DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH A RED-LINED "AS-BUILT" WITHIN 30 DAYS OF COMPLETION.

George Lambros — 8/19/80

DATE

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

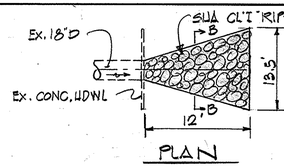
[illegible] — 12-17-80

DATE

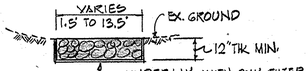
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION & SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Robert W. Zirkin — 12-17-80

DATE



PLAN



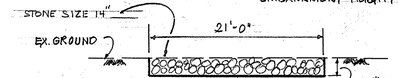
SECTION "B-B"

RIP-RAP OUTLET PROTECTION

NO SCALE

STRUCTURE CLASSIFICATION

CLASSIFICATION	a
STORAGE HEIGHT PRODUCT	12.0 AC.FT'
NORMAL SURFACE AREA	1.00 AC.
STRUCTURE LOCATION	URBAN
EMBANKMENT HEIGHT	6'

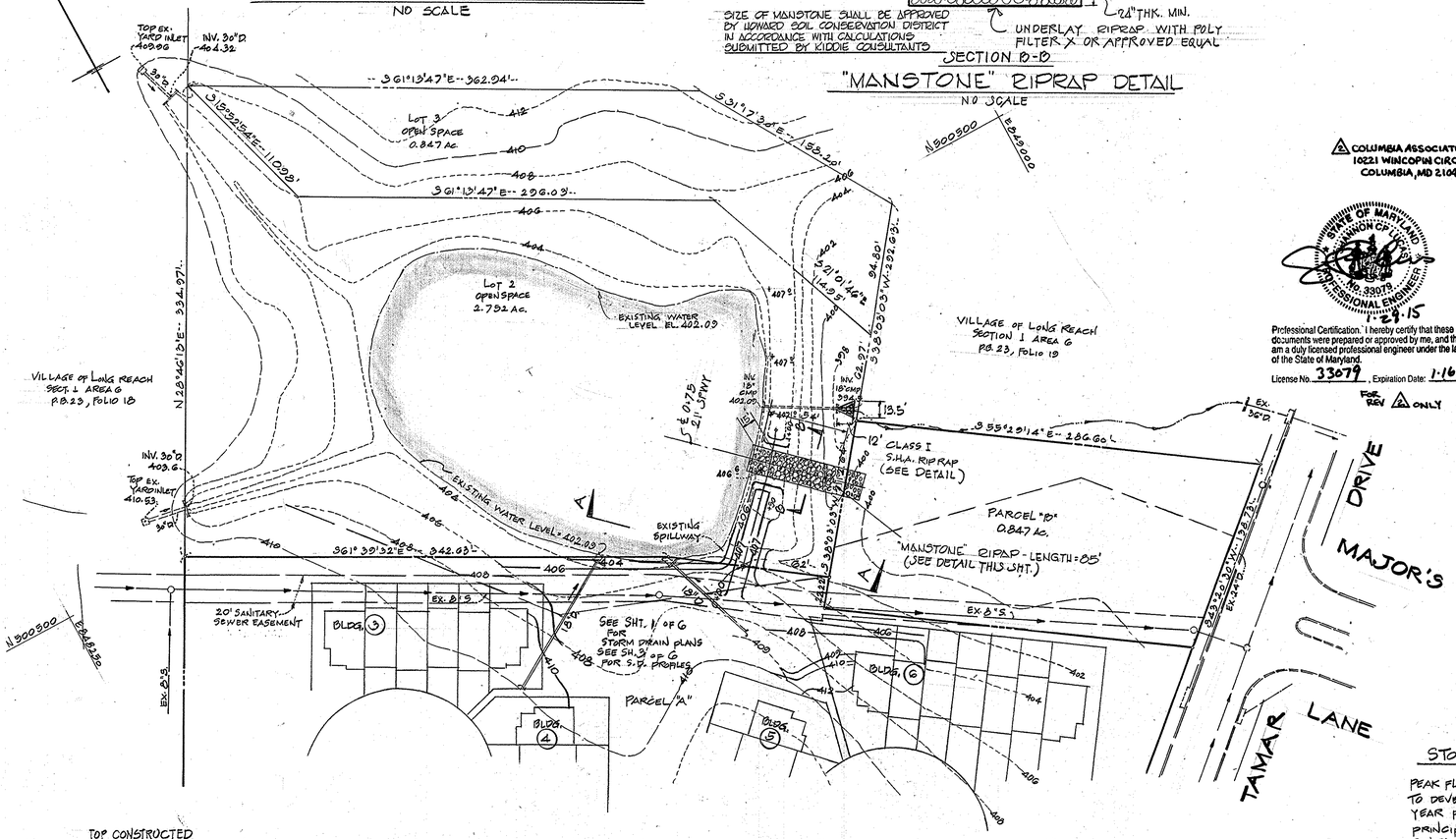


SIZE OF MANSTONE SHALL BE APPROVED BY HOWARD SOIL CONSERVATION DISTRICT IN ACCORDANCE WITH CALCULATIONS SUBMITTED BY KIDDIE CONSULTANTS

SECTION B-B

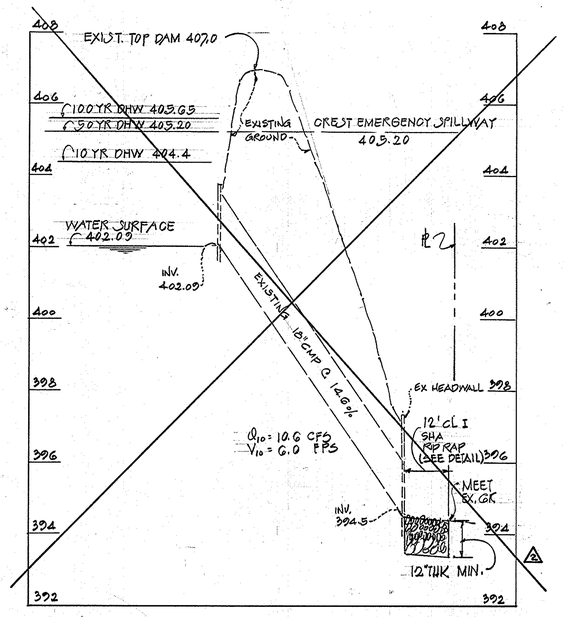
"MANSTONE" RIPRAP DETAIL

NO SCALE



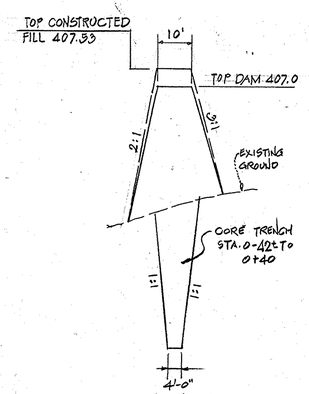
PLAN

SCALE: 1" = 50'



PIPE PROFILE

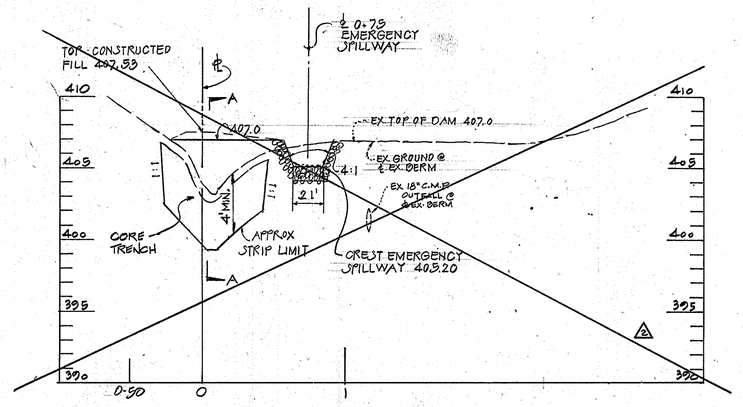
SCALE: 1" = 20' HOR. 1" = 2' VERT.



A-A

SECTION AT EXISTING SPILLWAY

SCALE: 1" = 20' HOR. 1" = 2' VERT.



CROSS SECTION OF EMBANKMENT

SCALE: 1" = 50' HOR. 1" = 5' VERT.

STORM WATER MANAGEMENT CRITERIA

PEAK FLOWS RESULTING FROM A TWO YEAR FREQUENCY STORM PRIOR TO DEVELOPMENT WILL NOT BE EXCEEDED DURING RECURRENT TWO YEAR FREQUENCY STORMS AFTER DEVELOPMENT.
PRINCIPAL SPILLWAY (EXISTING 18" CMP) IS DESIGNED TO CONTAIN 10 YR & 50 YR STORMS BELOW THE CREST OF THE EMERGENCY SPILLWAY.

CONSTRUCTION SPECIFICATIONS

1. THE BACKFILL MATERIAL FOR THE CORE TRENCH & THE UPSTREAM SIDE OF THE DAM SHALL BE THE MOST IMPERVIOUS MATERIAL AVAILABLE. THE MOVEMENT OF THE HAULING & SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH 8" MAXIMUM THICKNESS LAYER SHALL BE COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DENSITY. SEE A.S.T.M. SPECS. 698
2. ALL EXPOSED EDGES OF THE EMBANKMENT 2:1 OR FLATTER SHALL BE STABILIZED BY:
   a. SPREADING 4" OF TOPSOIL
   b. WORKING IN ONE TON OF GROUND LIME & 1000# OF 10-10-10 FERTILIZER PER ACRE.
   c. SEEDING W/ MIXTURE OF 60# KENTUCKY 31 TALL FESCUE & 20# KOREAN LESPEDEZA PER ACRE.
3. AREA UNDER THE EMBANKMENT SHALL BE CLEARED & GRUBBED TO REMOVE ALL TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
4. FOR ADDITION SPEC. SEE MD. SPEC. (MD.-378)

2 REVISED SITE DEVELOPMENT PLAN
OPEN SPACE LOT 2 - DANNON GARTH POND
VILLAGE OF LONG REACH, SECTION 1 / AREA 9
ZONE NT, TAX MAP 36, GRID 11, PARCEL 384
6th ELECTION DISTRICT, HOWARD COUNTY, MD

PB27, F42
PB28, F09

2 1-22-15 DANNON GARTH POND RENOVATIONS - SMC (SHEET 6A - 6H)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF ENGINEERING — 1-12-81 DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 1-16-81 DATE

ELECTION DISTRICT GUILFORD Nº 6
HOWARD COUNTY, MARYLAND

OWNER	DEVELOPER
~~FRED M. & SHIRLEE GART~~ ~~7705 PARK HEIGHTS AVE BALTO, MD. 21208~~	LONGREACH JOINT VENTURE P.O. BOX 850 MILLERSVILLE, MD. 21108

2 COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

PROJECT AREA:
VILLAGE OF LONG REACH
SECTION 1 / AREA 6, PARCEL "B" & SECTION 1 / AREA 9, RESUBDIVISION OF PARCEL "A"

PROJECT TITLE:
STORM WATER MANAGEMENT BASIN PLAN, PROFILE & DETAILS

SCALE: AS SHOWN — DATE

ENGINEER:
KIDDE CONSULTANTS, INC.
1020 CROMWELL BRIDGE RD.
TOWSON, MD. 21204

STATE OF MARYLAND — GEORGE LAMBROS — No. 6313 — REGISTERED PROFESSIONAL ENGINEER

George Lambros
GEORGE LAMBROS
REGISTERED PROFESSIONAL ENGINEER
Nº 6313

STATE OF MARYLAND — SHANNON C. LEWIS — No. 33079 — PROFESSIONAL ENGINEER — 1-23-15

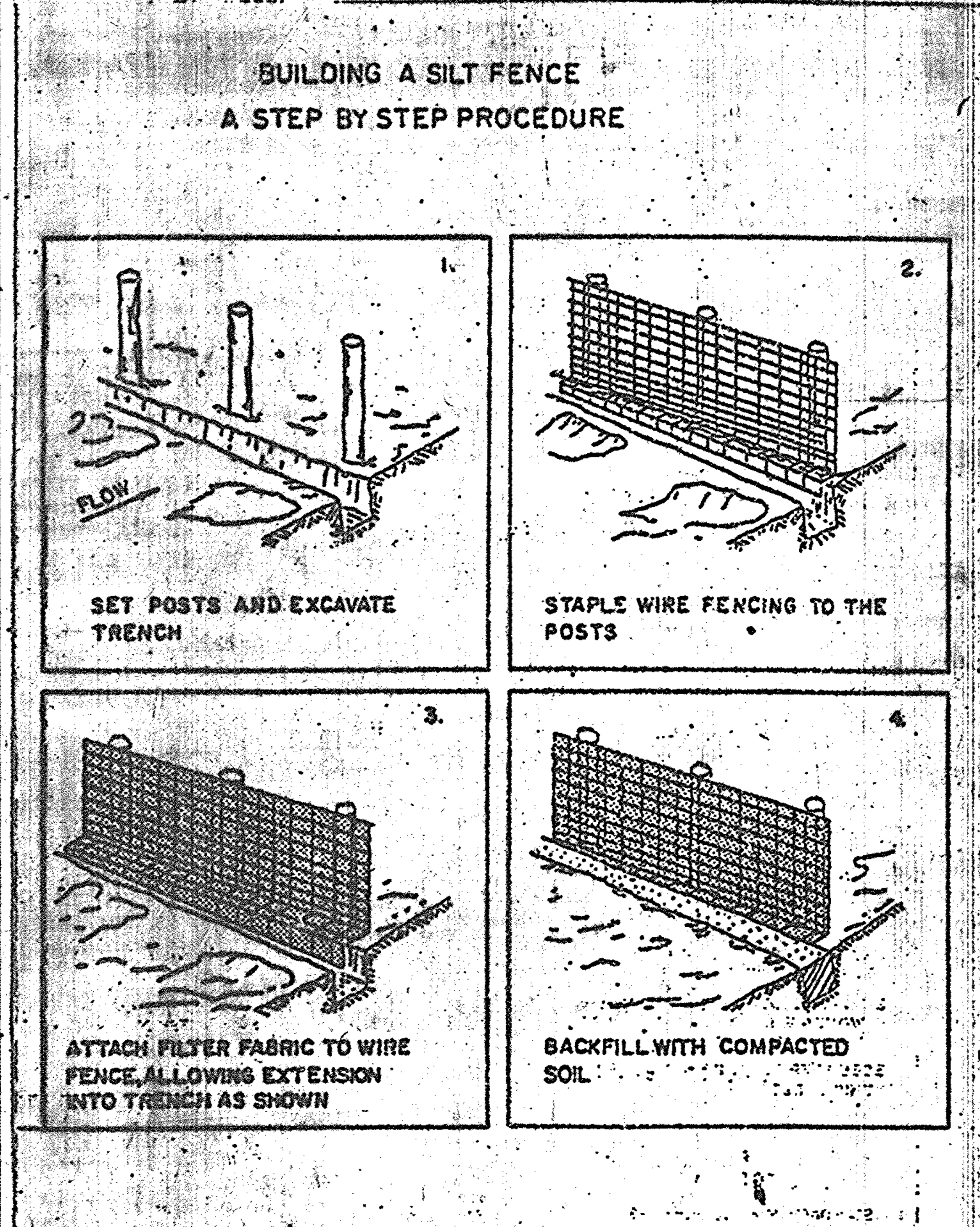
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 33079, Expiration Date: 1-16-17
FOR REV 2 ONLY

VILLAGE OF LONG REACH, SECTION 1 / AREA 6 PARCEL "B" & VILLAGE OF LONG REACH, SECTION 1 / AREA 9 RESUBDIVISION OF PARCEL "A" COLUMBIA LOTS A-1 to A-65 — VP 81-37, F 81-21 C

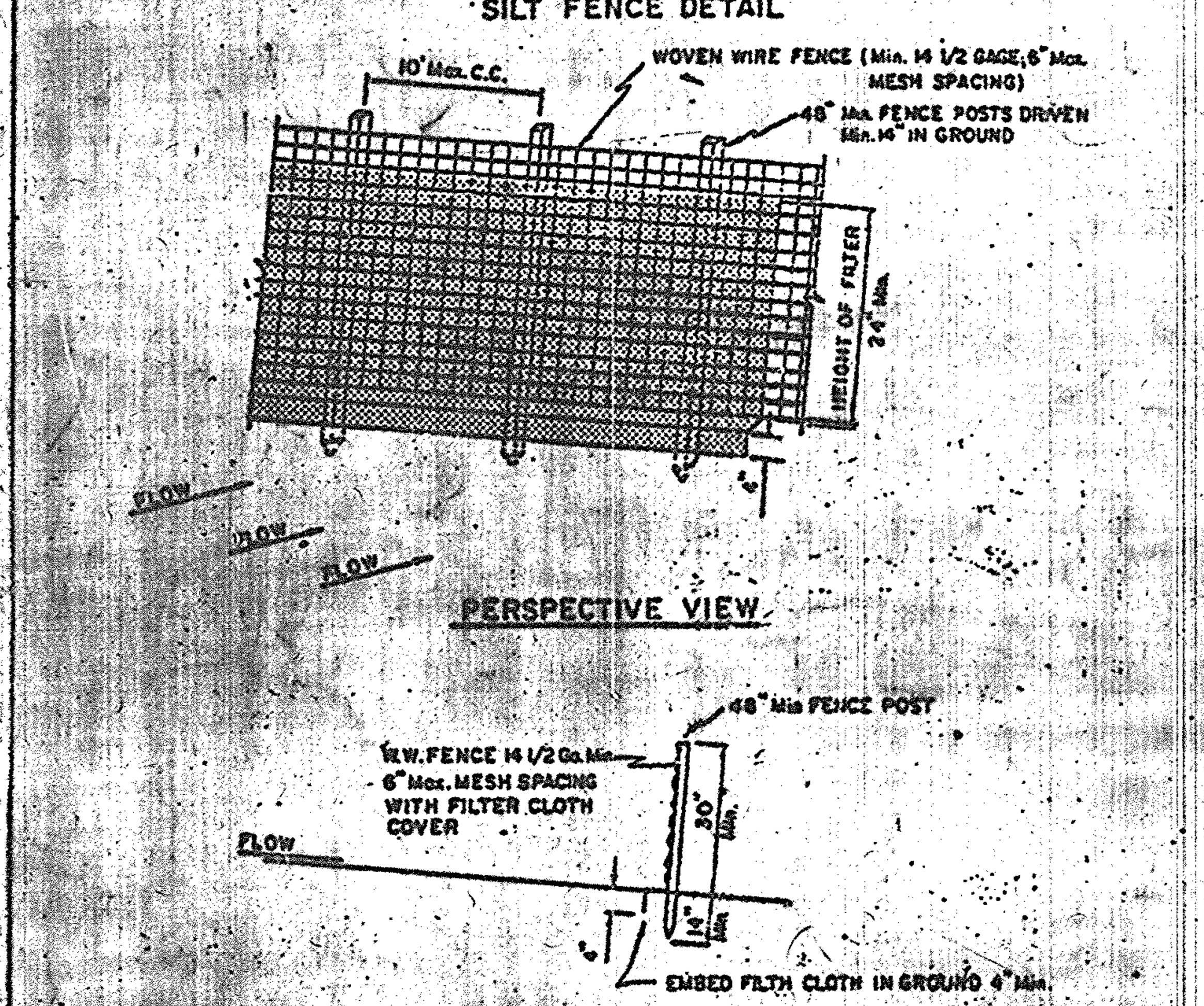
1 REV. 10/30/80 K.C.I. — SHEET 4 OF 6

FDP 153 F-81-21C

79078A



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MD.	SILT FENCE	STANDARD DRAWING SF-1A



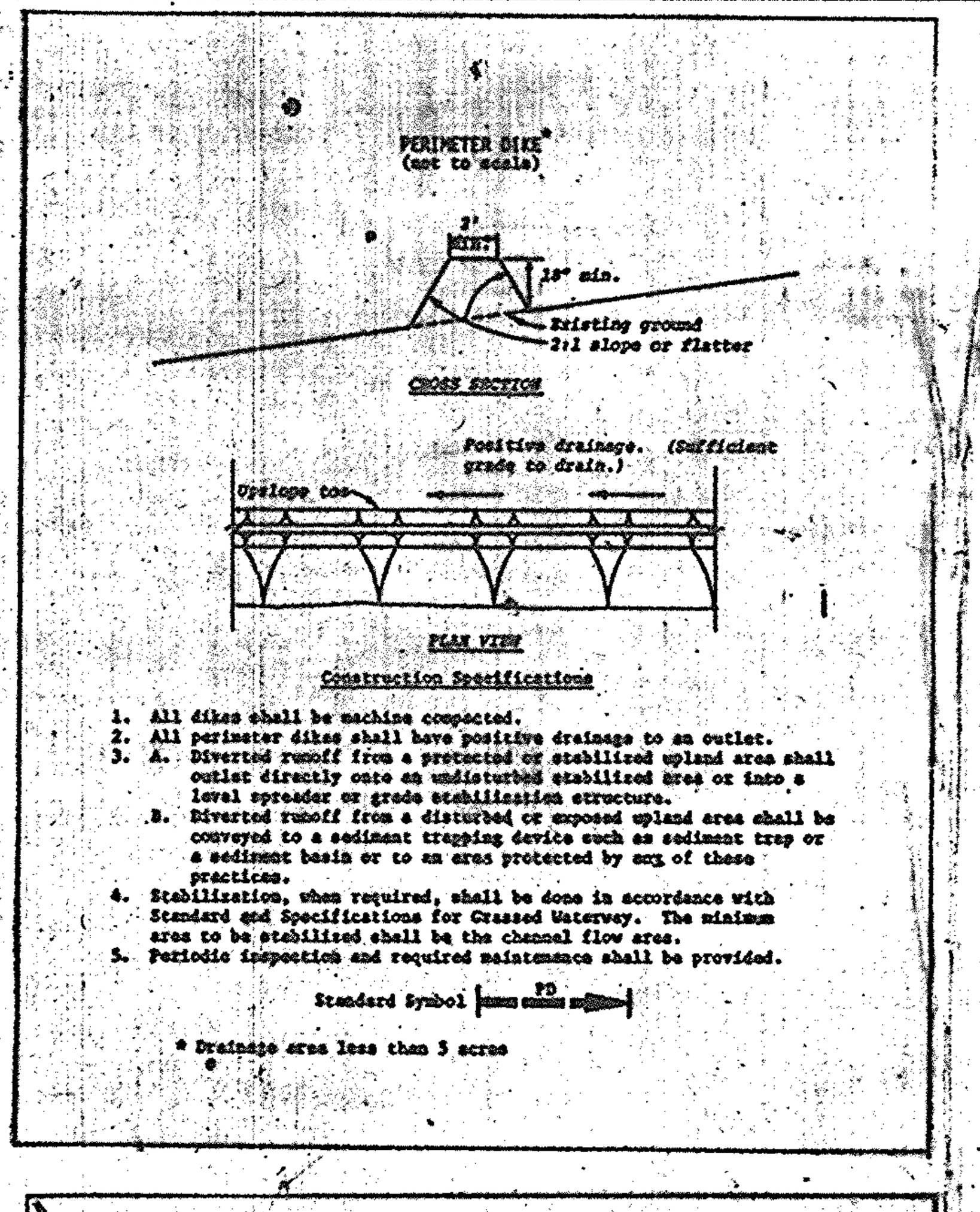
CONSTRUCTION NOTES

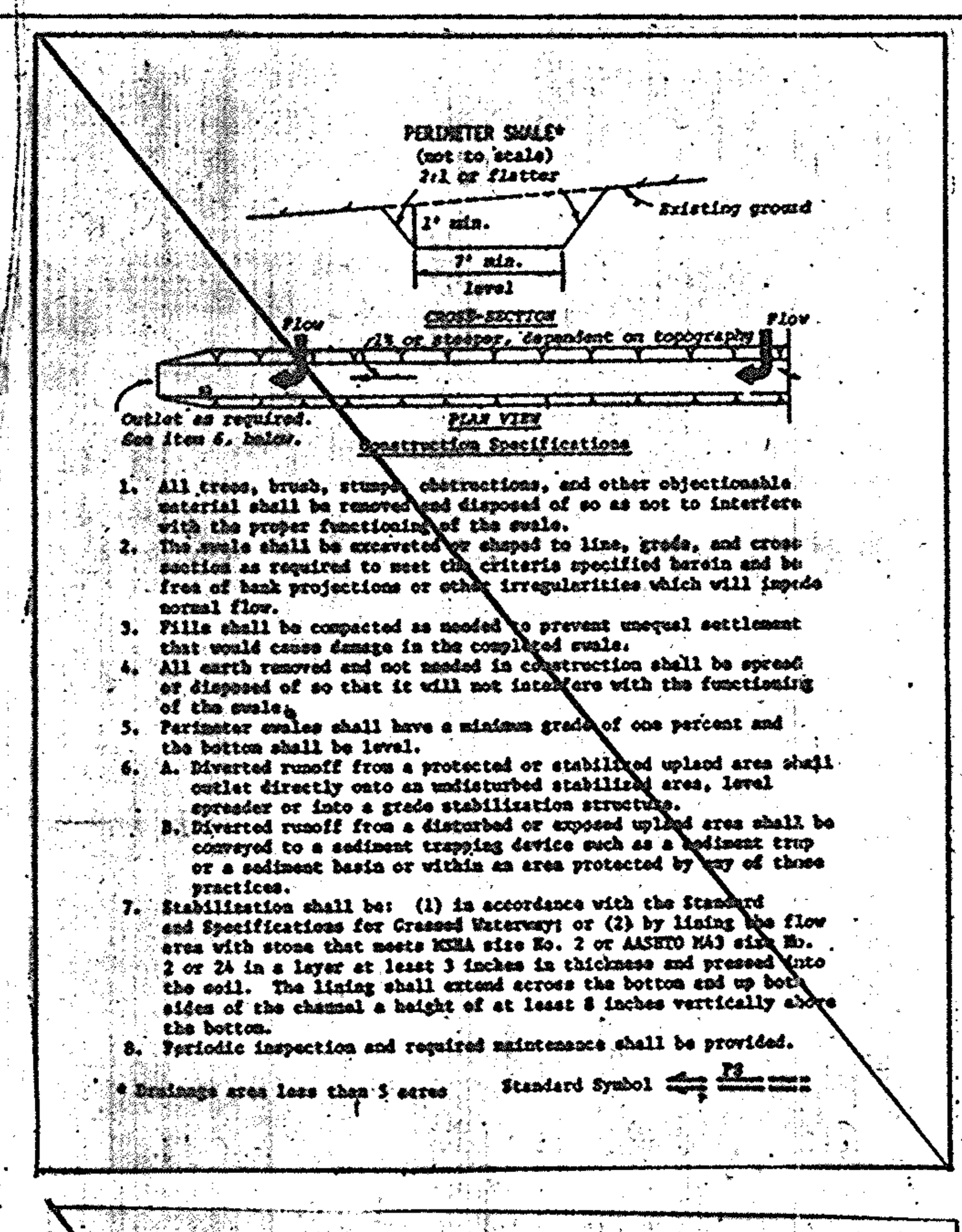
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH WIRE TIES SPACED EVERY 24" AT TOP AND MID SECTION
3. SEE STEP BY STEP PROCEDURE ON BACK OF THIS SHEET.

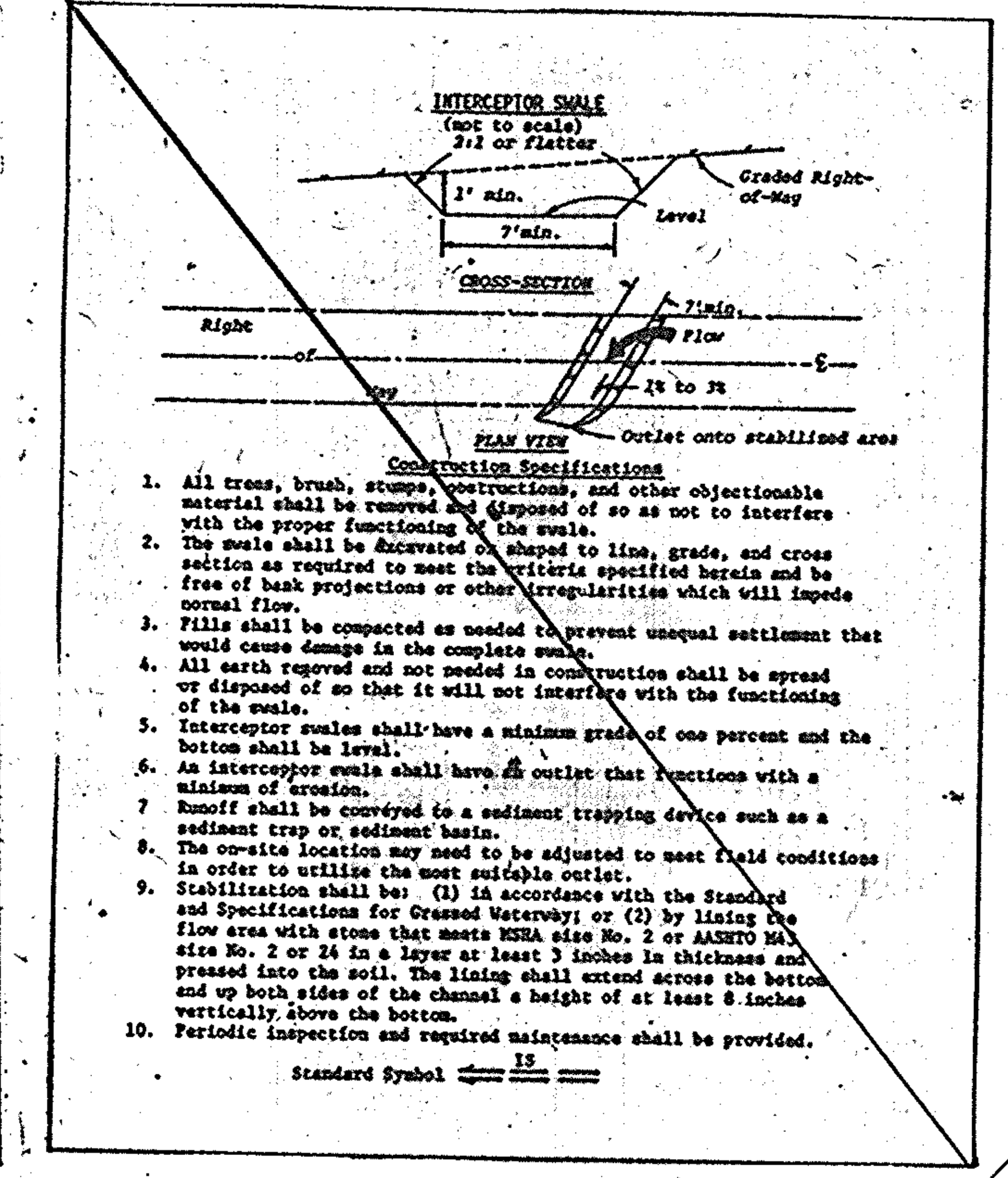
POSTS: STEEL EITHER T or U TYPE OR 2" HARDWOOD
FENCE: WOVEN WIRE, 14 1/2 Ga. Max. 6" MESH OPENING
FILTER CLOTH: FILTER X, MIRIFI 100X, LAUREL EROSION CONTROL CLOTH, STABILINKA, POLYFILTER X, OR EQUAL

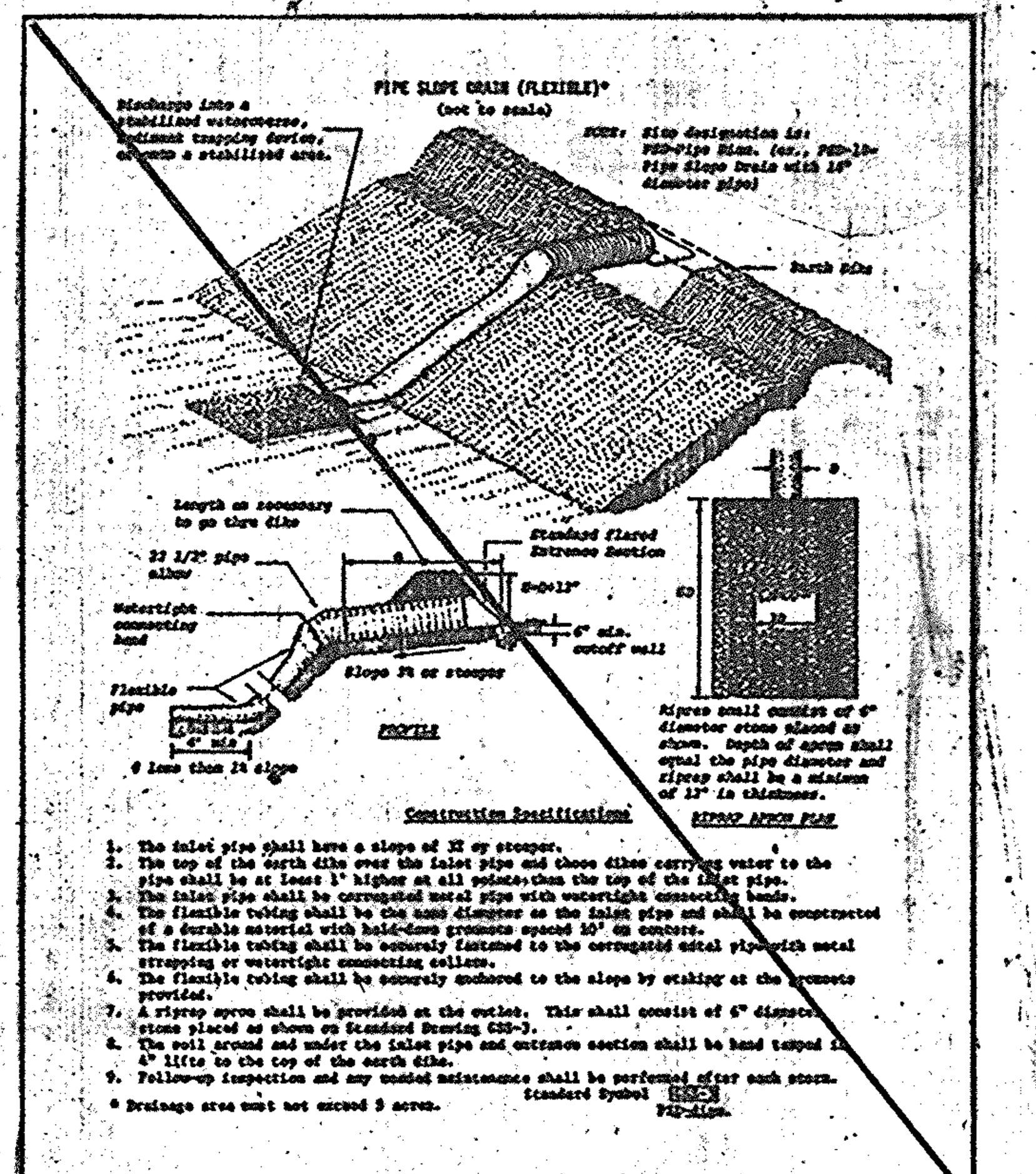
STANDARD SYMBOL —∍—∍— •DRAINAGE AREA LESS THAN 1/2 ACRE

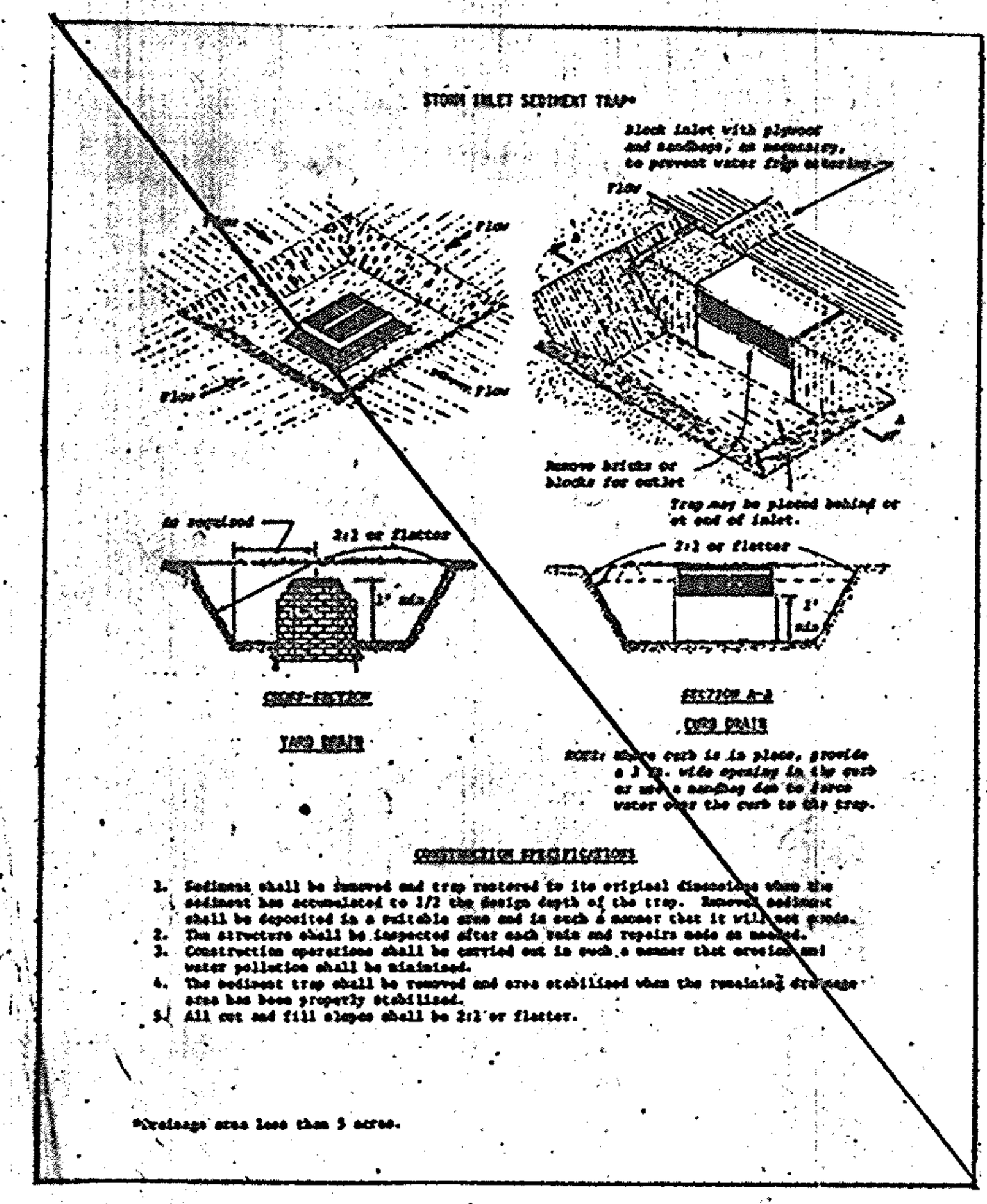
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MD.	SILT FENCE	STANDARD DRAWING SF-1

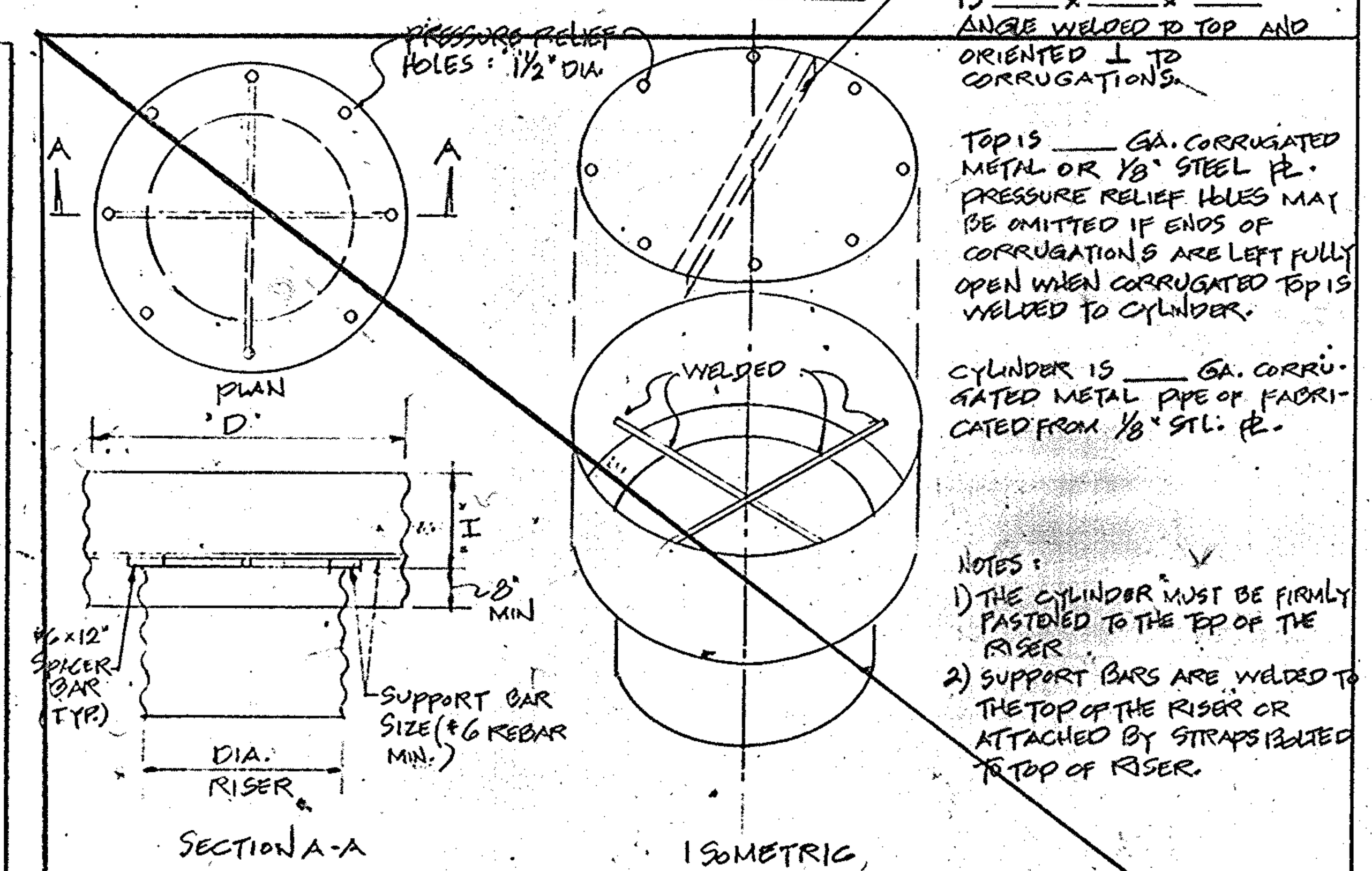












CONCENTRIC TRASH RACK & ANTI-VORTEX DEVICE
NOT TO SCALE

SEDIMENT CONTROL NOTES

1. Refer to USDA - Soil Conservation Service, "Standards & Specifications for Soil Erosion and Sediment Control in Developing Areas", for standard details & detailed specifications of the practices specified herein.
2. During layout of Sediment Control practices required on this plan minor field adjustments can and will be made to insure the arrest and control of any sediment before it leaves the site. Changes in sediment control practices require prior approval of the Sediment Control Inspector and the County Soil Conservation District.
3. At the end of each working day all sediment control practices will be inspected and left in operational condition.
4. All distrubed areas not stabilized by buildings, paving, or walks shall be stabilized as follows:
   Seedbed Preparation: Loosen upper 3 inches of soil by raking, discing or other acceptable means before seeding.
   Soil Amendments: Apply 2 tons per acre dolomitic limestone (92 lbs./1,000 sq.ft.) and 600 lbs. per acre 0-20-20 fertilizer (14 lbs./1,000 sq. ft.). Harrow or disc lime and fertilizer into upper three inches of soil. At time of seeding, apply 400 lbs. per acre (9.2 lbs./1,000 sq. ft.) of 38-0-0 ureaform fertilizer and 500 lbs. per acre (11.5 lbs./1,000 sq. ft.) of 10-20-20 fertilizer.
   Seeding - For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs./1,000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (.05 lbs/1,000 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 sod. Option (3) - seed with 60 lbs./acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.
   Mulching - Apply 1½ to 2 tones per acre (70 to 90 lbs./1,000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using 200 gallons per acre (5 gallons/1,000 sq. ft.) of emulsified asphalt on flat areas. on slopes 8 feet or higher, use 348 gallons per acre (8 gallons/1,000 sq. ft.) for anchoring.
   Maintenance - Inspect all seeded areas and make needed repairs, replacements, and reseedings.
5. All disturbed areas left idle for more than 30 days shall be stabilized as follows:
   Seedbed Preparation - Loosen upper 3 inches by discing, raking, or other acceptable means.
   Soil Amendments - Apply 600 lbs. per acre (15 lbs./1,000 sq. ft.) of 10-20-10 fertilizer.
   Seeding - For periods March 4 thru April 30, and from August 15 thru November 15, seed with 2½ bushels per acre (3.2 lbs./1,000 sq. ft.) of annual rye. For the period May 1 thru August 14 seed with 3 lbs./acre (0.07 lbs./1,000 sq. ft.) of weeping lovegrass.
   Mulching - Apply 1½ to 2 tons per acre (70 to 90 lbs./1,000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using 200 gallons per acre (5 gallons/1,000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet higher use 348 gallons per acre (8 gallons/1,000 sq. ft.) for anchoring.
6. Any changes to the grading proposed on this plan will require it to be resubmitted to the District.

DEVELOPER'S CERTIFICATION

I certify that all development will be done according to this Plan of Development and Plan of Silt & Sedimentation Control, and that all clearing, construction and Development will be done pursuant to said Plan.

LONG REACH JOINT VENTURE
Peter Robbins (signature) — PETER ROBBINS — 8-19-80 — Date

ENGINEER'S CERTIFICATION

I certify that the Plan of Development & Plan for Control of Silt & Erosion meet the requirements, Standards & Specifications of the Soil Conservation District.

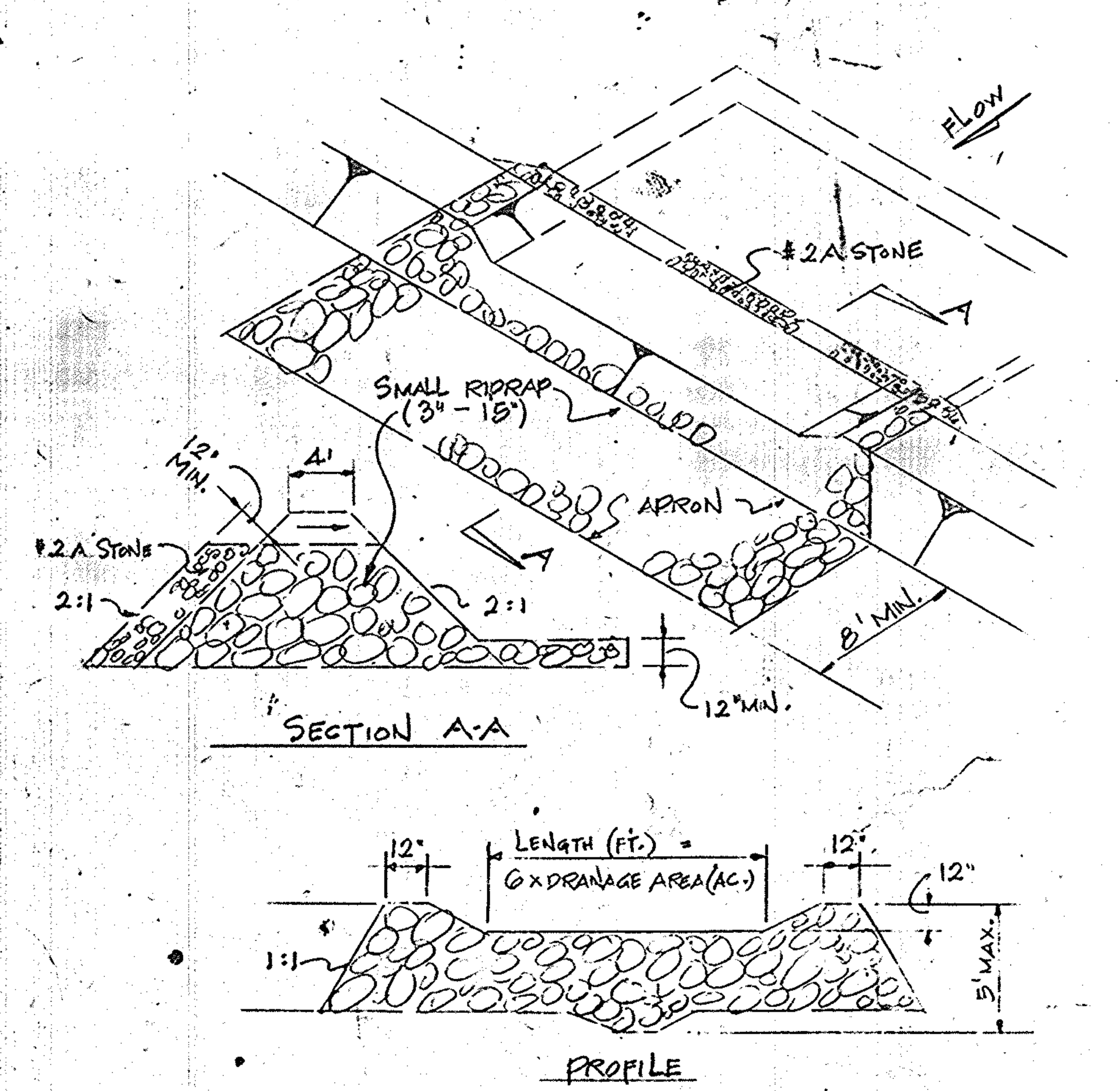
George Lambros (signature) — 10/2/80 — Date
KIDDE CONSULTANTS, INC. GEORGE LAMBROS P.E. 6519
1020 Cromwell Bridge Road
Towson, MD. 21204

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER (seal)

SEQUENCE OF OPERATIONS:

1. NOTIFY HOWARD COUNTY SEDIMENT CONTROL DIVISION AT LEAST 48 HRS. BEFORE WORK BEGINS.
2. CLEAR AND GRUB FOR SEDIMENT CONTROL MEASURES ONLY.
3. INSTALL AND STABILIZE TEMPORARY SEDIMENT CONTROL MEASURES SHOWN.
4. CLEAR AND GRUB REMAINDER OF SITE.
5. ROUGH GRADE.
6. CONSTRUCTION OF UTILITIES, STORM DRAINS, BLDGS, KEEP STORM DRAINS INOPERATIVE (SEE DETAIL SHEET 7 OF 8)
7. FINE GRADE.
8. STABILIZE SITE AS PER SPECIFICATIONS.
9. REMOVE TEMPORARY SEDIMENT CONTROL MEASURES AFTER OBTAINING PERMISSION FROM HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

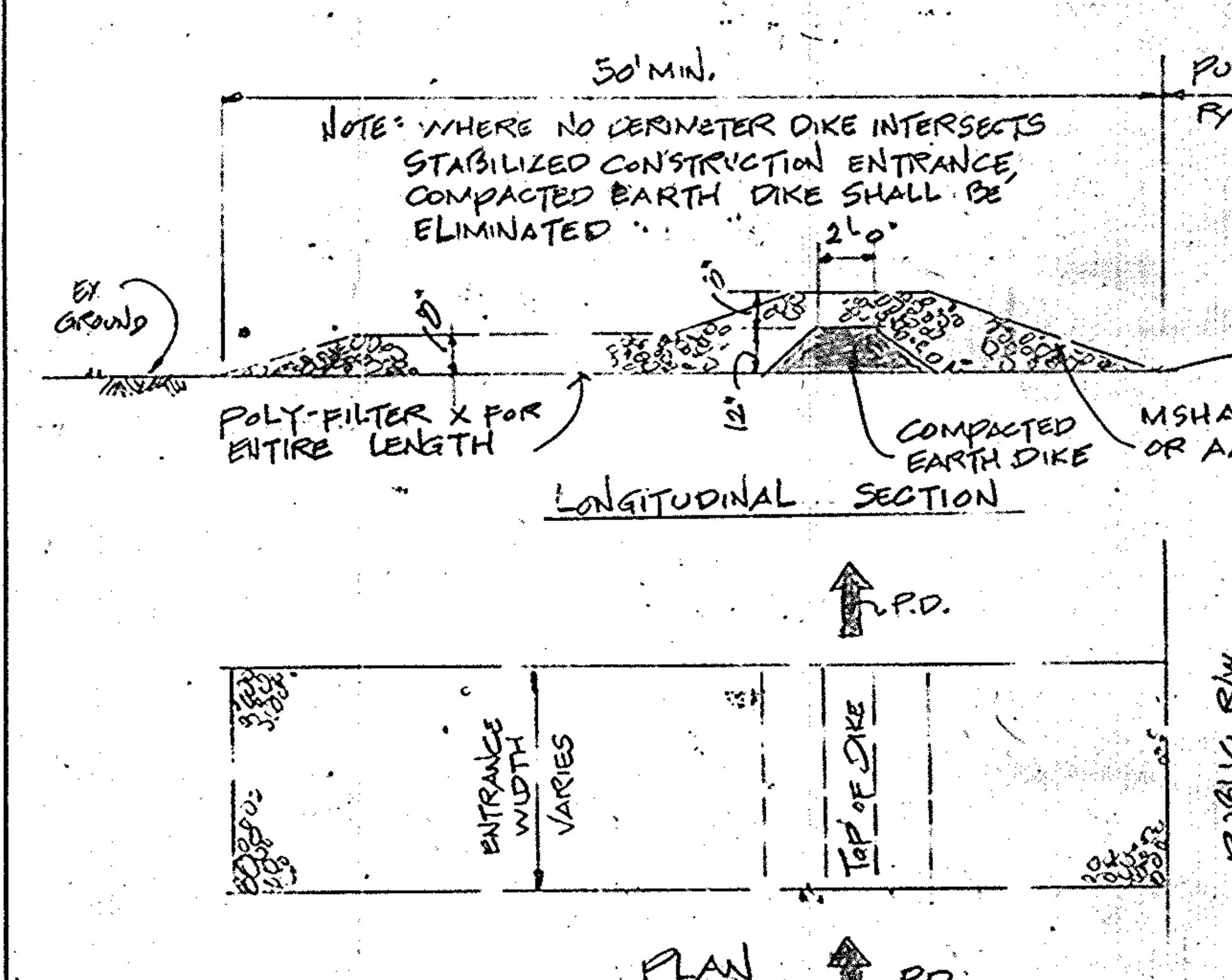
DISTURBED AREA: 300,584 SQ.FT.
APPROXIMATE EARTH MOVEMENT: CUT 11,471.3 C.Y.± FILL 8,334.9 C.Y.±
NOTE: EXCESS YARDAGE SHALL BE HAULED OFFSITE TO AN AREA WITH AN APPROVED SEDIMENT CONTROL PLAN.



CONSTRUCTION SPECIFICATIONS

1. THE STONE SHALL BE CRUSHED STONE, SMALL RIP RAP 3"-15" WITH 1'-0" THICKNESS OF #2A CRUSHED STONE PLACED ON THE UPGRADE SIDE OF THE RIPRAP.
2. THE CREST OF THE STONE DIKE SHALL BE AT LEAST 6" LOWER THAN THE LOWEST ELEVATION OF THE TOP OF THE EARTH DIKE & SHALL BE LEVEL.
3. THE RIP RAP OUTLET STRUCTURE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
4. THE MINIMUM LENGTH, IN FEET, OF THE CREST OF THE RIPRAP OUTLET STRUCTURE SHALL BE EQUAL TO 6 TIMES THE NUMBER OF ACRES OF THE CONTRIBUTING DRAINAGE AREA.
5. THE RIPRAP OUTLET STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND THE STONE SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE STONE, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

RIP RAP OUTLET STRUCTURE
NOT TO SCALE



STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENT	
James McNelan (signature) — SIGNATURE — US SOIL CONSERVATION SERVICE	12-17-80 DATE
This Development Plan is approved for Soil Erosion and Sediment Control by the Howard County Conservation District APPROVED: (signature) HOWARD S.C.D.	12-17-80 DATE

~~APPROVED: PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS HOWARD COUNTY HEALTH DEPARTMENT~~	
APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING	
(signature) CHIEF, DIVISION OF LAND DEVELOPMENT	1-16-81 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
(signature) CHIEF, BUREAU OF ENGINEERING	1-12-81 DATE

SEDIMENT CONTROL DETAILS CONSTRUCTION SPECIFICATIONS & GENERAL NOTES

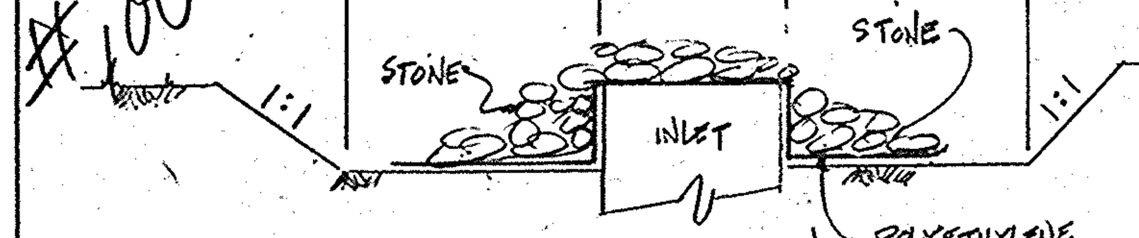
VILLAGE OF LONG REACH

SECTION 1, AREA 6, PARCEL "B" & SECTION 1, AREA 9, RESUBDIVISION OF PARCEL "A"

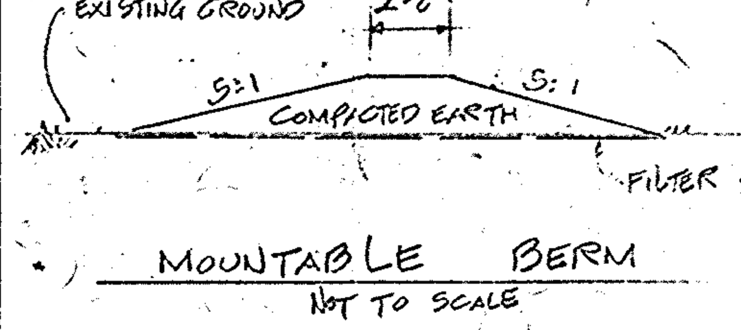
COLUMBIA

Lots A-1 to A-65

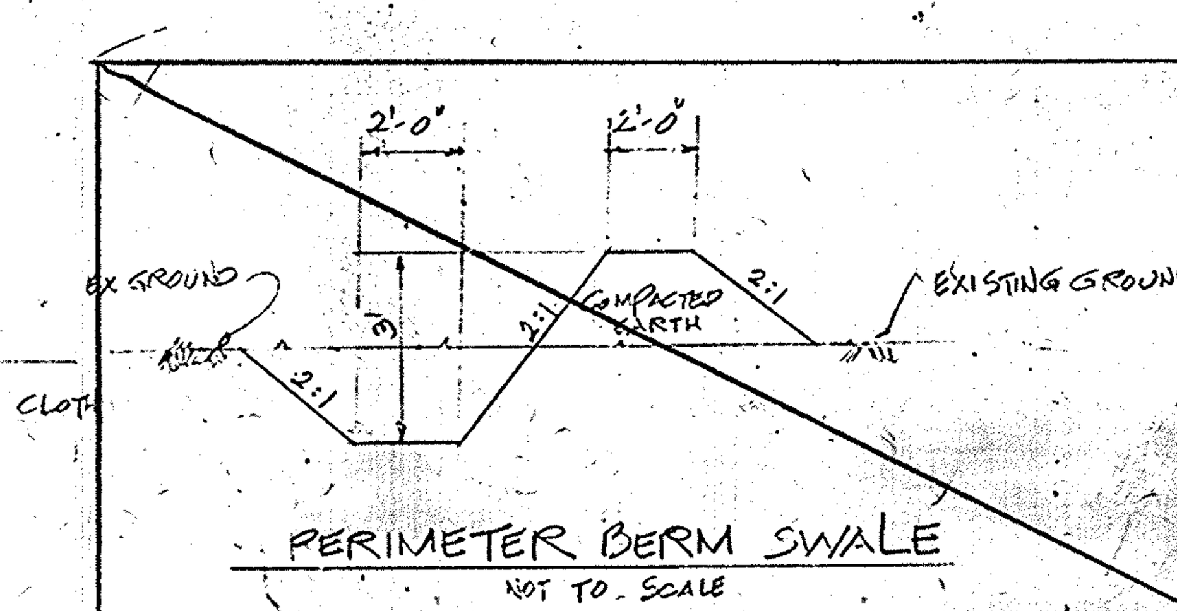
ELECTION DISTRICT 6 — HOWARD COUNTY, MARYLAND
SCALE: AS NOTED — OCTOBER, 1980



INLET PROTECTION DETAIL
NOT TO SCALE



MOUNTABLE BERM
NOT TO SCALE



PERIMETER BERM SWALE
NOT TO SCALE

KIDDE CONSULTANTS, INC.
1020 CROMWELL BRIDGE ROAD
TOWSON, MARYLAND, 21204

VP 81-37
F 81-21 c
SHEET 5 of 6

#100

F-81-21C

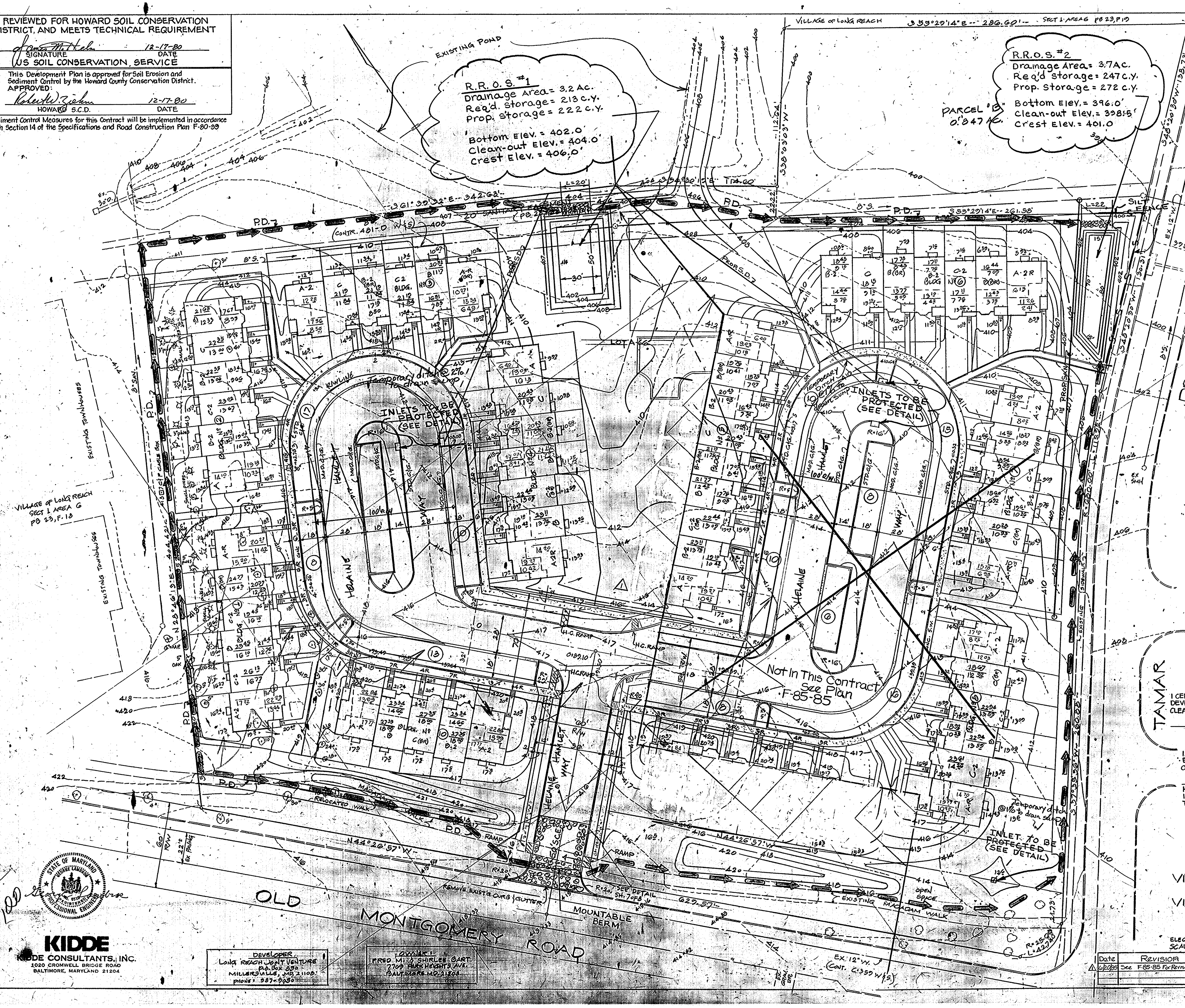
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT, AND MEETS TECHNICAL REQUIREMENT

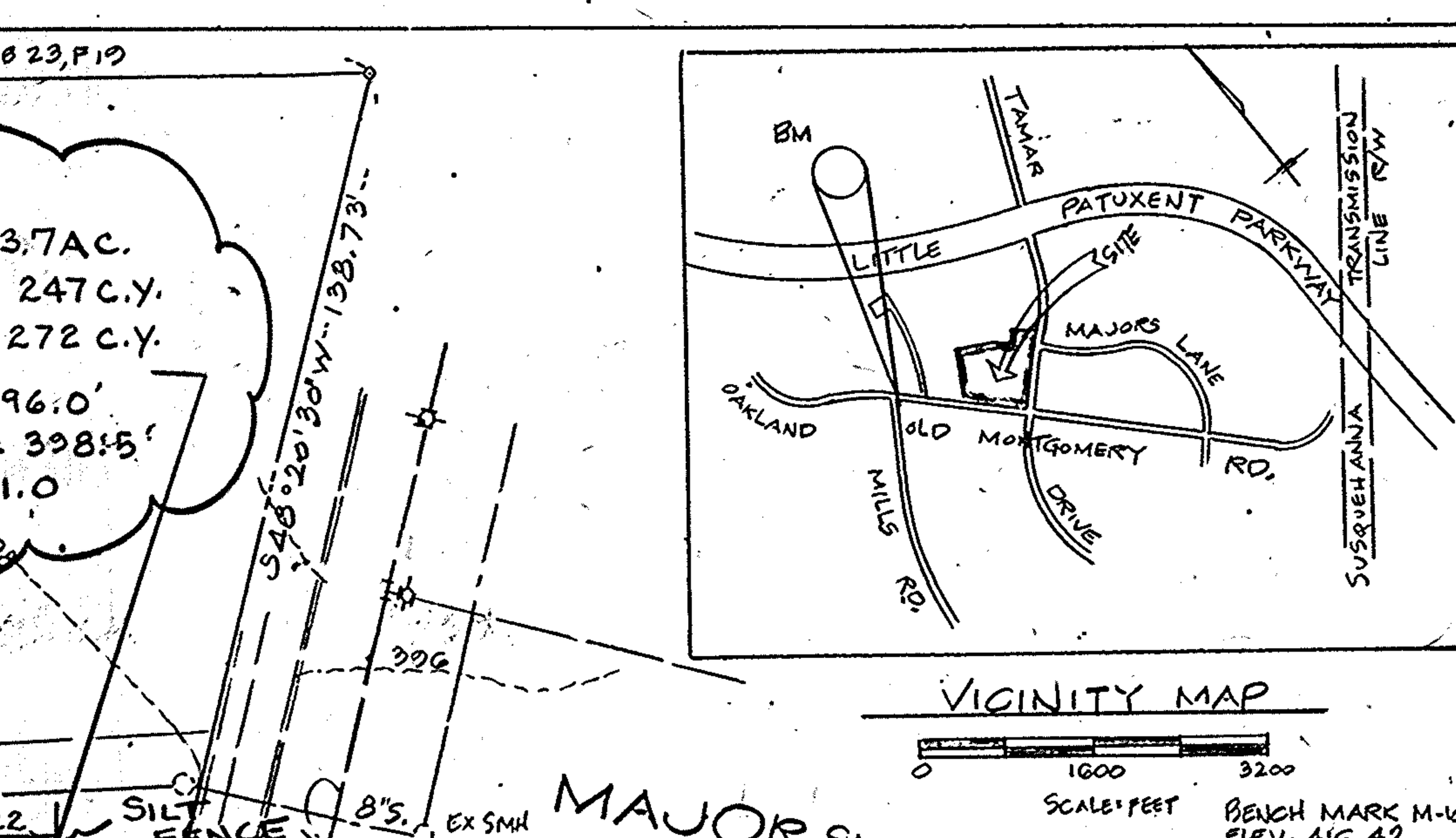
[signature] 12-17-80
SIGNATURE DATE
US SOIL CONSERVATION SERVICE

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard County Conservation District.
APPROVED:

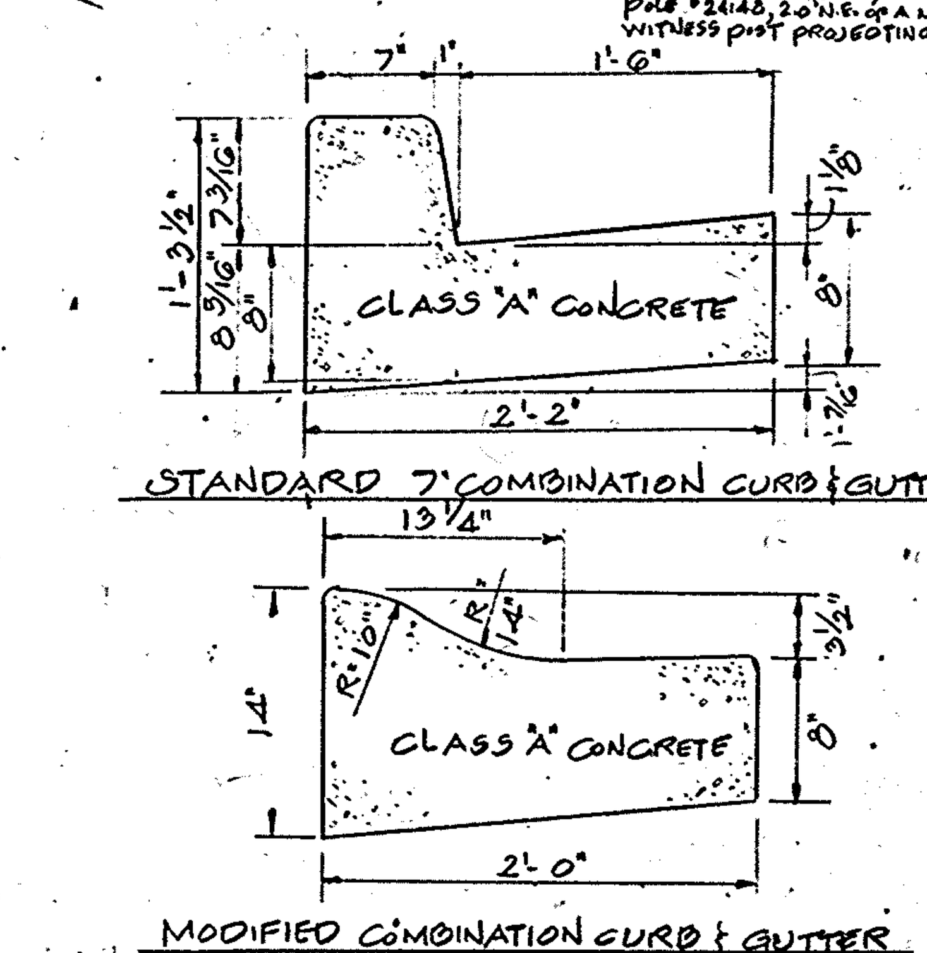
[signature] 12-17-80
HOWARD S.C.D. DATE

Sediment Control Measures for this Contract will be implemented in accordance with Section 14 of the Specifications and Road Construction Plan F-80-39





VICINITY MAP



STANDARD 7" COMBINATION CURB & GUTTER

MODIFIED COMBINATION CURB & GUTTER

CURB DETAILS

NOT TO SCALE

APPROVED HOWARD COUNTY OFFICE OF PLANNING & ZONING

[signature] 1-16-81
CHIEF DIVISION OF LAND DEVELOPMENT DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 1-12-81
CHIEF, BUREAU OF ENGINEERING DATE

DEVELOPER'S CERTIFICATION

I CERTIFY THAT ALL DEVELOPMENT WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN OF SILT & SEDIMENTATION CONTROL, AND THAT ALL CLEARING, CONSTRUCTION AND DEVELOPMENT WILL BE DONE PURSUANT TO SAID PLAN.

[signature] 8-19-80
PETER ROBBINS DATE

ENGINEER'S CERTIFICATION

I CERTIFY THAT THE PLAN OF DEVELOPMENT & PLAN FOR CONTROL OF SILT & EROSION MEET THE REQUIREMENTS, STANDARDS & SPECIFICATIONS OF THE SOIL CONSERVATION DISTRICT.

[signature] 10-2-80
KIDDE CONSULTANTS, INC. GEORGE LAMBROS PE 6519 DATE
1020 CROMWELL BRIDGE ROAD
TOWSON, MARYLAND 21204

LOTS 1-65

SEDIMENT CONTROL PLAN

P 80-16

VILLAGE of LONG REACH, SECTION 1 / AREA 6
PARCEL "B"
VILLAGE of LONG REACH, SECTION 1 / AREA 9
RESUBDIVISION OF PARCEL "A"
COLUMBIA

Lots A-1 to A-65
HOWARD CO., MD.
MAY, 1980
VP 81-37
F 81-21 C
SHEET 6 OF 6

ELECT. DIST. 6
SCALE: 1" = 30'

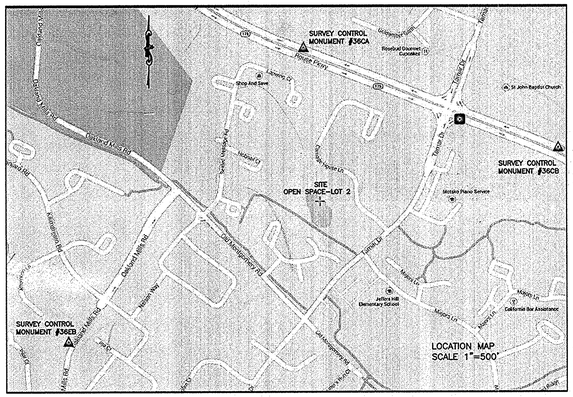
PORTION OF PLAT REC. IN P.B. 27, F 42

Date	Revision	By
6/20/85	See F-85-85 For Revised Lay-Out	LK

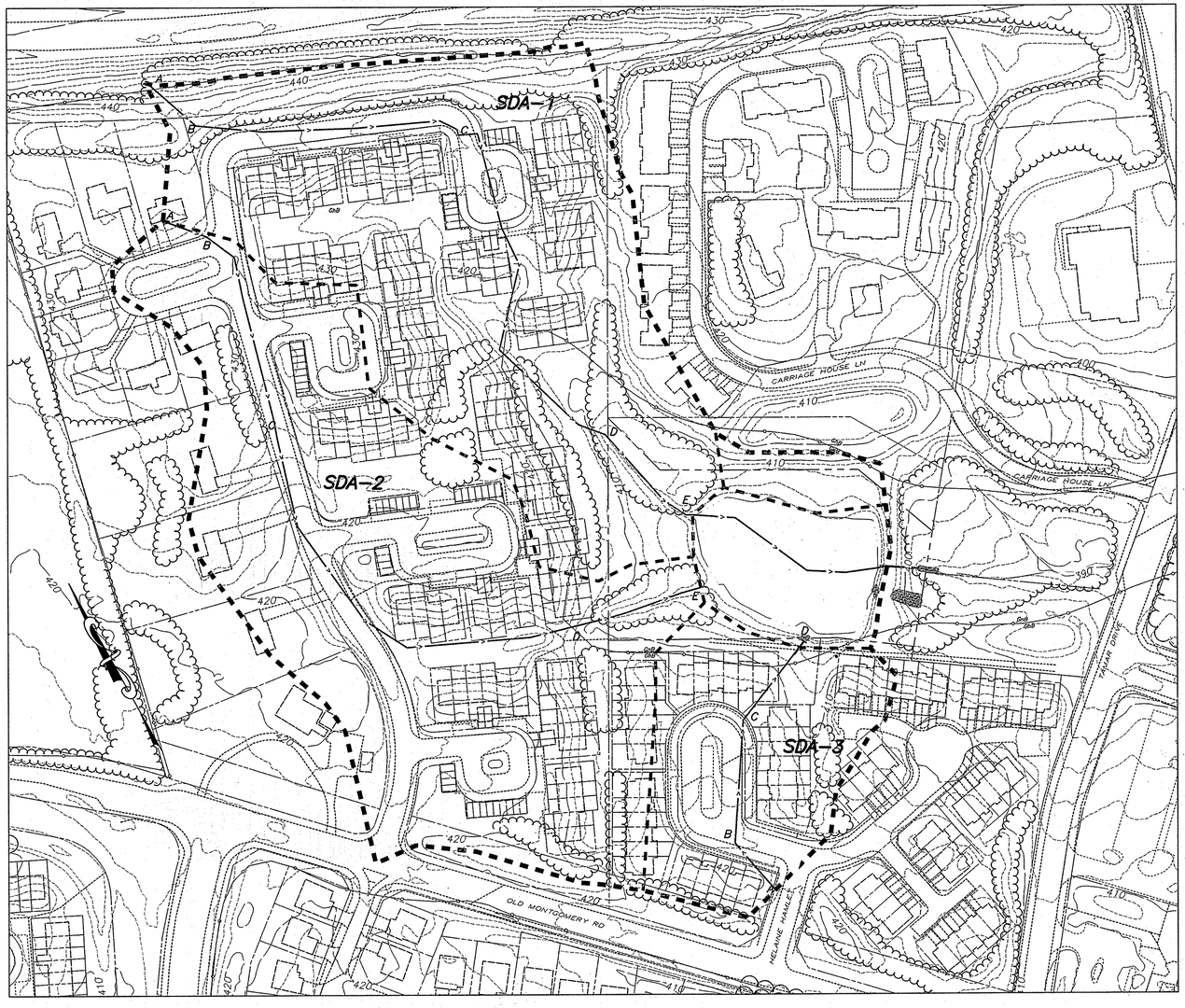
TAX MAP 36 PARCEL 391, DEED REF. 684/136 (5-30-74)

F-81-21C

79078A



LOT 2 OPEN SPACE-SITE ANALYSIS (NOT FOR BIDDING PURPOSES)	
TOTAL AREA OF SITE	2.75 ACRES
AREA DISTURBED:	1.80 ACRES
AREA TO BE ROOFED OR PAVED	0.00 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.84 ACRES
TOTAL CUT (INCLUDES SUBGRADE EXCAVATION)	1070 CU. YDS.
TOTAL FILL (INCLUDES MATERIALS, ROCK, WEIR, ETC.)	700 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	TBD



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

THESE CHANGES AND ADDITIONS TO THE EXISTING F-81-021C PLAN ARE FOR STRUCTURAL REPAIRS TO THE POND. THE POND REPAIRS ARE IN RESPONSE TO AN EMERGENCY REPAIR ORDER ISSUED BY HOWARD COUNTY BUREAU OF ENVIRONMENTAL SERVICES TO THE COLUMBIA ASSOCIATION, DATED FEBRUARY 2014, TO ADDRESS A SEVERELY CORRODED OUTFALL BARREL WHICH HAS DETERIORATED BEYOND REPAIR.

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
SDA1	Open space; grass cover > 75%	(good)	B	5.1	61
	Open space; grass cover > 75%	(good)	C	2	74
	Paved parking lots, roofs, driveways		B	1.3	98
	Paved parking lots, roofs, driveways		C	.56	98
	Total Area / Weighted Curve Number			8.96	72
SDA2	Open space; grass cover > 75%	(good)	B	6.5	61
	Paved parking lots, roofs, driveways		B	3.1	98
	Total Area / Weighted Curve Number			9.6	73
SDA3	Open space; grass cover > 75%	(good)	B	1.73	61
	Paved parking lots, roofs, driveways		B	1	98
	Total Area / Weighted Curve Number			2.73	75

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
SDA1	8.96	0.294	72	POND	NORTH TRIB
SDA2	9.60	0.182	73	POND	WEST TRIB
SDA3	2.73	0.100	75	POND	HELAINE HAMLET

Total Area: 21.29 (ac)

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
SDA1							
SHEET	100	0.0800	0.400				0.206
SHALLOW	403	0.0250	0.025				0.035
CHANNEL	570					4.000	0.040
CHANNEL	182					4.000	0.013
Time of Concentration							0.294
SDA2							
SHEET	70	0.0430	0.150				0.091
SHALLOW	276	0.0145	0.025				0.031
CHANNEL	721					4.000	0.050
CHANNEL	141					4.000	0.010
Time of Concentration							.182
SDA3							
SHEET	90	0.0020	0.011				0.047
SHALLOW	185	0.0160	0.025				0.020
CHANNEL	154					4.000	0.011
Time of Concentration							0.1

"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."

Eugene Lee Fleagle — 1/29/2015

SIGNATURE OF ENGINEER — DATE

PRINT NAME BELOW SIGNATURE

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

HOWARD SOIL CONSERVATION DIRICT — 2/12/15 DATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Rob Plummer — DATE

SIGNATURE OF DEVELOPER

PRINT NAME BELOW SIGNATURE

MS4 CREDIT COMPUTATIONS

ALL WQv MET, IMPERVIOUS COVER TREATED = 6.0 ACRES.

	TSS (TONS/YR)	TN (LB/YR)	TP (LB/YR)
ANNUAL LOADING RATES	3.8	209.2	20.9
POLLUTANT REMOVAL EFFICIENCY	85%	66%	42%
LOAD REMOVED	3.2	87.9	13.8

BASED ON MDE 2014 "WASTELOAD ALLOCATIONS AND IMPERVIOUS ACRES TREATED, GUIDANCE FOR NPDES SYSTEM STORMWATER PERMITS", FOR WET PONDS, FOR 2.5 INCHES RUNOFF DEPTH TREATED.

HYDROLOGY SUMMARY

TR-20 INPUT AND MDE STORAGE COMPS

TOTAL DA (ACRES)	21.29 ACRES
TOTAL IMPERVIOUS (ACRES)	5.96 ACRES
RCN	73
TC (HR)	0.20
WATER QUALITY VOLUME (WQv, CU.FT.), 1"	23,335
WATER QUALITY VOLUME (WQv, CU.FT.), 2.5"	58,340
CHANNEL PROTECTION VOLUME (CPv, CU.FT.)	31,200
STORAGE PROVIDED (CU.FT.)	101,580

SYMBOL	SOIL	HSG
GhB	GLENELG-URBAN LAND	B
GnB	GLENVILLE-BAILE SILT LOAM	C

EXISTING AND PROPOSED TR-20 OUTPUT

STORM EVENT	INFLOW (CFS)	EX. OUTFLOW (CFS)	EX. ELEVATION (FT)	PROP OUTFLOW (CFS)	PROP ELEVATION (FT)
1- YEAR	15.2	1.7	401.26	0.9	400.95
2 - YEAR	24.1	3.1	401.48	1.7	401.21
10 - YEAR	57.0	8.0	402.39	5.3	402.19
100 - YEAR	134.6	15.9	404.48	16.8	404.30

PERMANENT POOL ELEVATION: Existing 401.18 ft.; Proposed 400.40 ft
EMBANKMENT HEIGHT: 10.4 ft
STORAGE AT 400.4': 2 Acre-ft.
STORAGENT PRODUCT: 20.8
HAZARD CLASSIFICATION : "A" Low Hazard

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 2-18-2015 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 2/24/15 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2.24.15 DATE

LEGEND

CONTOURS 538 540

EXISTING BOUNDARY

EXISTING TREELINE

SOIL BOUNDARY

℄ STREAM/EDGE WATER

TIME OF CONCENTRATION FLOW PATH

SUBAREA DRAINAGE DIVIDE

DRAINAGE DIVIDE

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. THE EXISTING FEATURES AND TOPOGRAPHY ARE TAKEN FROM A FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY THOMPSON AND ASSOCIATES DATED JUNE 30, 2014, SUPPLEMENTED WITH HOWARD COUNTY GIS DATA.
5. THE COORDINATES SHOWN HERON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM, NAD 83/NAVD88. HOWARD COUNTY MONUMENT NUMBERS 36EB AND 36CB WERE USED FOR THIS PROJECT.
6. THE RENOVATED STORMWATER POND MAINTAINS TWO YEAR PREDEVELOPMENT FLOWS AND PROVIDES THE WQv AND CPv. THE RENOVATED POND IS DESIGNED TO CONTAIN UP TO THE 100 YEAR STORM WITH ONE FOOT OF FREEBOARD TO THE TOP OF THE EMBANKMENT. THE POND IS OWNED AND MAINTAINED BY THE COLUMBIA ASSOCIATION.
7. EXISTING UTILITIES BASED UPON FIELD RUN SURVEY, SEE NOTE 4 AND 5.
8. THERE IS NO 100 YEAR FLOODPLAIN ON THIS SITE, (PER FEMA FIRM) AND THE SITE IS NOT WITHIN THE CHESAPEAKE BAY CRITICAL AREA.
9. THE WETLAND DELINEATION WAS COMPLETED IN JUNE 2014 BY STORMWATER CONSULTING INC. (SCI). WORK IS AUTHORIZED BY MDE AND USACE (TRACKING #2014-61825/14-NT-3351). WETLAND MITIGATION IS NOT REQUIRED. GEOTECHNICAL INVESTIGATION PERFORMED BY REULING ASSOCIATES IN OCTOBER 2014.
10. THE DEPARTMENT OF PLANNING AND ZONING HAS DETERMINED THE PROPOSED SCOPE OF WORK IS CONSIDERED "NECESSARY DISTURBANCE" TO THE EXISTING WETLANDS, STREAMS AND THEIR BUFFERS.
11. THE PROPOSED POND RENOVATION IS EXEMPT FROM THE FOREST CONSERVATION REQUIREMENTS OF THE HOWARD COUNTY CODE IN ACCORDANCE WITH 16.1200.(b).(1).(iv) BECAUSE IT IS WITHIN THE PLANNED UNIT DEVELOPMENT OF COLUMBIA (NT) WHICH HAD 50% OR MORE OF THE LAND RECORDED AND SUBSTANTIALLY DEVELOPED BEFORE DECEMBER 31, 1992.
12. THE PERMIT DEADLINE FOR THE POND RENOVATIONS (GRADE VANES, EXCAVATION, WEIR/SPILLWAY, PEDESTRIAN BRIDGE) IS DECEMBER 19, 2015.

STATE OF MARYLAND — EUGENE LEE FLEAGLE — No. 33079 — PROFESSIONAL ENGINEER — 1.29.15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 33079, EXPIRATION DATE: 01-16-2017

Date	No.	Revision Description

DANNON GARTH
POND RENOVATION
FOR
VILLAGE OF LONG REACH S-14-7
OPEN SPACE - LOT 2

TAX MAP 36, GRID 11, PARCEL 384 — COLUMBIA ASSOCIATION
ZONE: NT, 6TH ELECTION DISTRICT — 10221 WINCOPIN CIRCLE
HOWARD COUNTY, MD — COLUMBIA, MD 21044

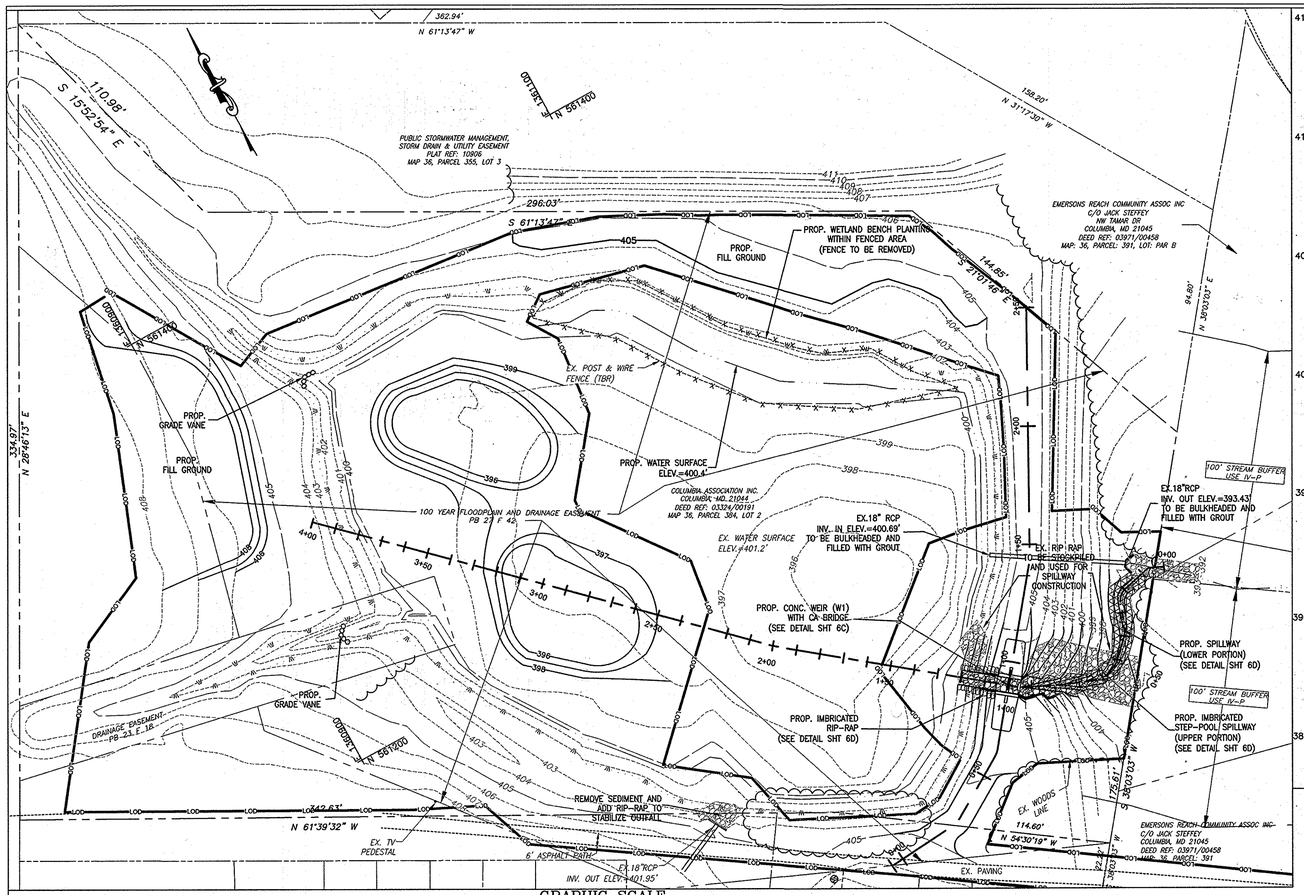
STORMWATER MAINTENANCE & CONSULTING
www.swmaintenance.com | www.mdswm.com
10944 Beaver Dam Rd. Suite C — p: 410.785.0875
Hunt Valley, MD 21030 — f: 443.269.0216

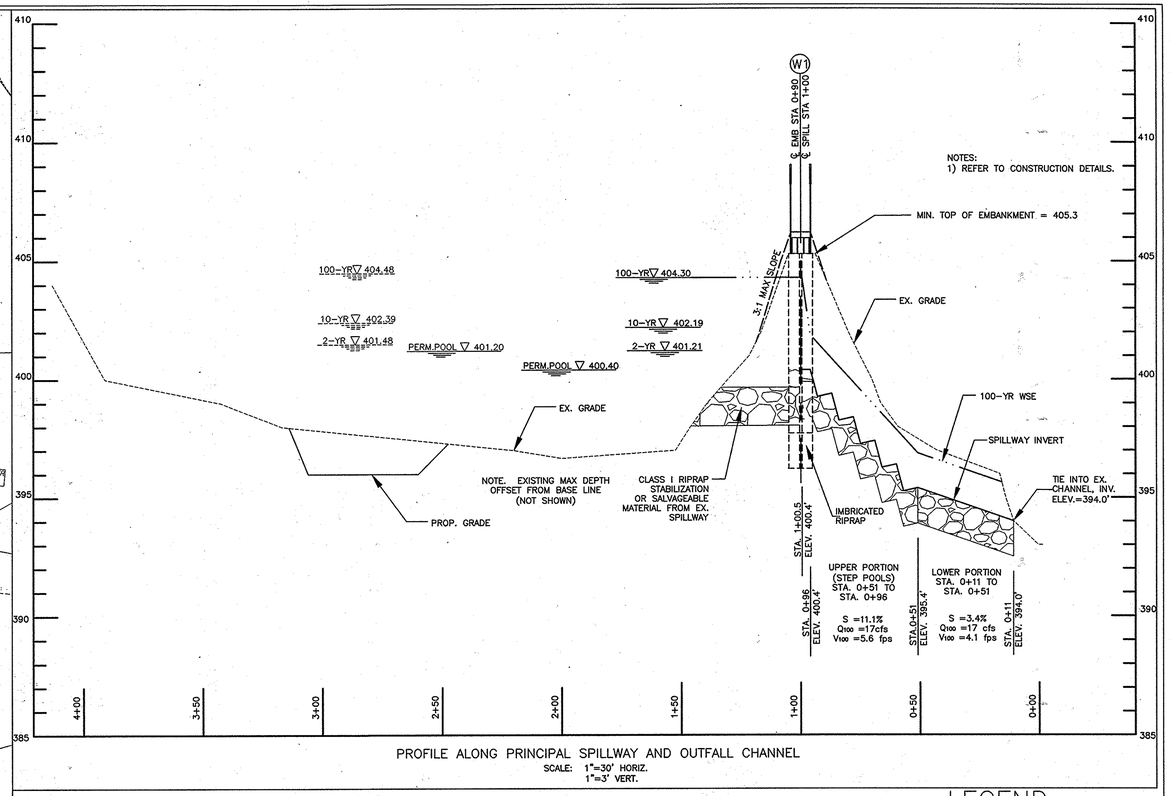
REVISED SDP
DRAINAGE AREA MAP

Designed By: SL	Scale: AS SHOWN	Project No.: 2419
Drawn By: CF/ELF	Date: 01 09 2015	SHEET: 6A OF 6
Checked By: ELF	Approved:	

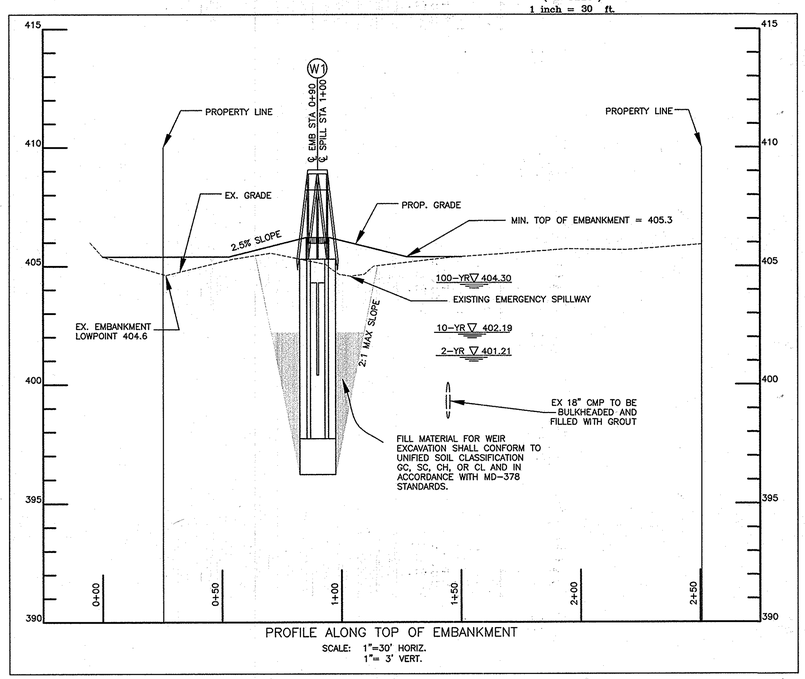
F-81-21C (PB. 27, F. 42) FDP 153 (PB. 28, F. 09)

X:\PROJECTS\2419 Columbia Assoc Dannon Garth Pond\DRAWINGS\1 WORKING DWG\2015 01 26_2419 PLAN.dwg, 6A-DA MAP AND COMPS, 1/28/15 3:37:08 PM

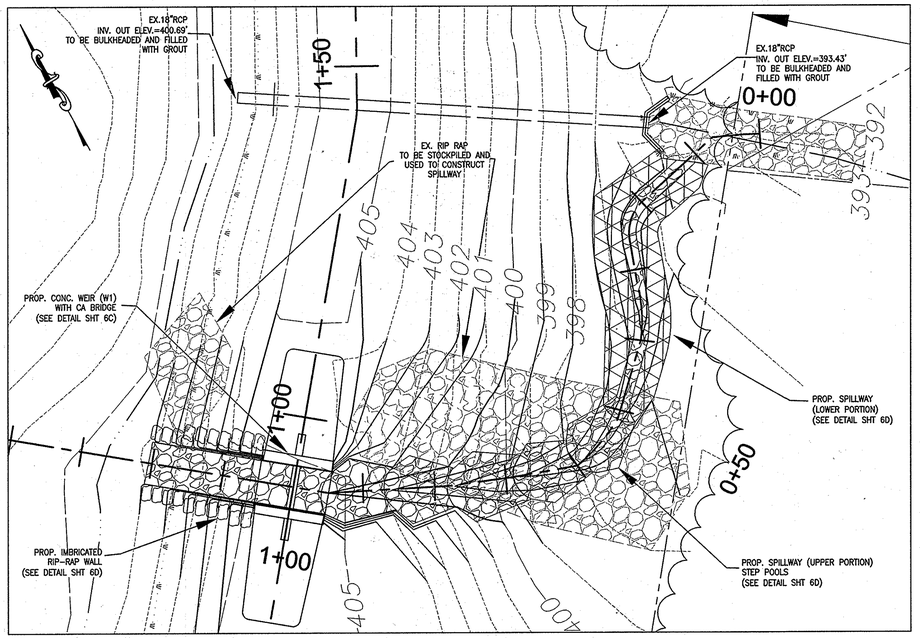




PROFILE ALONG PRINCIPAL SPILLWAY AND OUTFALL CHANNEL
SCALE: 1"=30' HORIZ.
1"=3' VERT.



PROFILE ALONG TOP OF EMBANKMENT
SCALE: 1"=30' HORIZ.
1"= 3' VERT.



GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

LEGEND

	EXISTING	PROPOSED
CONTOURS	538	538
	540	540
EXISTING BOUNDARY		
EXISTING EASEMENT		
EXISTING TREELINE		
SOIL BOUNDARY		
WETLAND BOUNDARY	W W W W W	
LIMIT OF DISTURBANCE	LOD LOD LOD	
EXISTING FENCE AND PROPOSED LIMIT OF PLANTING	X X X X X	
TREE PROTECTION FENCE	TPF TPF TPF	
℄ STREAM/EDGE WATER		

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-18-2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/26/15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2.24.15

Date	No.	Revision Description

DANNON GARTH
POND RENOVATION
FOR
VILLAGE OF LONG REACH S.1 A.2
OPEN SPACE - LOT 2

TAX MAP 36, GRID 11, PARCEL 384
ZONE: NT, 6TH ELECTION DISTRICT
HOWARD COUNTY, MD

COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

STORMWATER MAINTENANCE & CONSULTING
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10944 Beaver Dam Rd. Suite C
Hunt Valley, MD 21030
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STATE OF MARYLAND — SHANNON CRAIG FISHER — No. 33079 — PROFESSIONAL ENGINEER
1-29-15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 33079, EXPIRATION DATE: 01-16-2017

REVISED SDP
PLAN & PROFILE VIEW

Designed By: ELF	Scale: AS SHOWN	Project No.: 2419
Drawn By: CF/ELF	Date: 01 09 2015	SHEET: 6B OF 6
Checked By: ELF	Approved:	

F-81-21C (PB. 27, F. 42) FDP 153 (PB. 28, F. 09)

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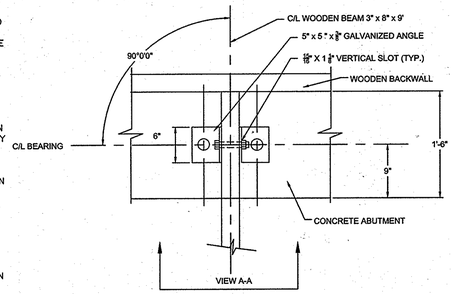
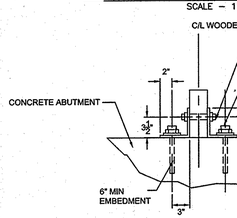
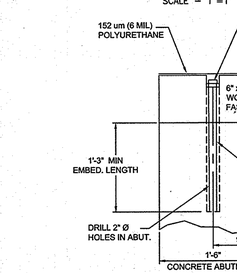
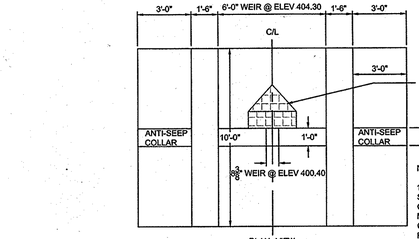
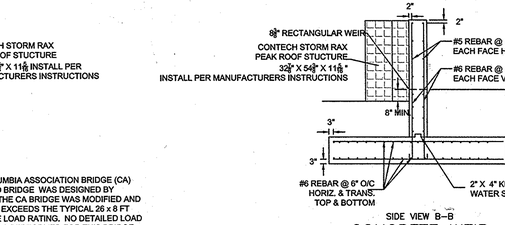
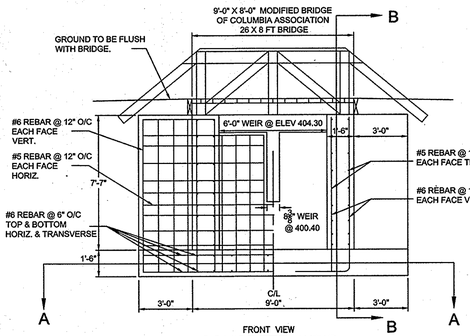


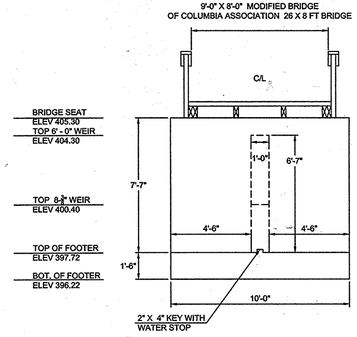


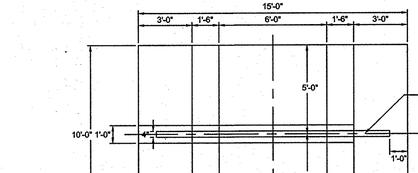


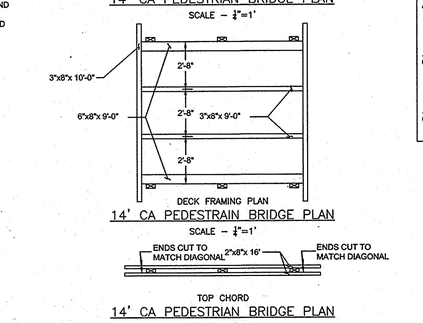


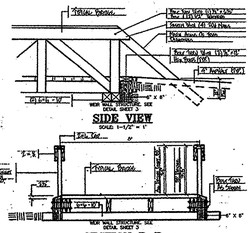












MD – 378 CONSTRUCTION SPECIFICATIONS

1. GENERAL

ALL STORMWATER MANAGEMENT FACILITIES AND SEDIMENT BASIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

2. SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25–FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

3. EARTH FILL

MATERIAL: – THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS,, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST AVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT – AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT. CONTROL THE MOVEMENT OF THE HAULING EQUIPMENT OVER THE FILL SO THAT THE ENTIRE

COMPACTION – SURFACE OF EACH LIFT IS COMPACTED TO 95% OF AASHTO SPECIFICATION T–99 (OR EQUIVALENT ASTM SPECIFICATIONS). FILL MATERIAL MUST CONTAIN ENOUGH MOISTURE TO YIELD THE REQUIRED DEGREE OF COMPACTION WITH THE EQUIPMENT USED.

WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF THE MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +/– 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T–99 (STANDARD PROCTOR).

CUT OFF TRENCH – THE CUT OFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE – THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

4. STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 4 INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN 4 FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100–200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM–CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIAL.

5. REMOVAL AND REPLACEMENT OF DEFECTIVE FILL

FILL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITY OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED ACCEPTABLE RANGE OF MOISTURE CONTENT OR OTHERWISE NOT CONFORMING TO THE REQUIREMENTS OF THE SPECIFICATIONS SHALL BE REWORKED TO MEET THE REQUIREMENTS OR REMOVED AND REPLACED BY ACCEPTABLE FILL. THE BOTTOMS OF SUCH EXCAVATIONS SHALL BE FINISHED FLAT OR GENTLY CURVING AND AT THE SIDES OF SUCH EXCAVATIONS THE ADJACENT SOUND FILL SHALL BE TRIMMED TO A SLOPE NOT STEEPER THAN 3 FEET HORIZONTALLY TO 1 FOOT VERTICALLY EXTENDING FROM THE BOTTOM OF THE EXCAVATION TO THE FILL SURFACE.

6. PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION. ALL PERFORATED PIPES SHALL HAVE A MINIMUM OF 3.31 SQUARE INCHES OF OPENING PER SQUARE FOOT OF PIPE SURFACE (EX. 30 3/8–INCH HOLES PER SQUARE FOOT). PERFORATIONS ARE TO BE UNIFORMLY SPACED AROUND THE FULL PERIPHERY OF THE PIPE. ANY HOLES BLOCKED OR PARTIALLY BLOCKED BY BITUMINOUS COATING SHALL BE OPENED PRIOR TO INSTALLATION.

REINFORCED CONCRETE PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS – REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C–361.

2. BEDDING – REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/ CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL PURPOSES, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE – BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. CONNECTIONS – ALL CONNECTIONS (TO ANTI–SEEP COLLARS, RISER, ETC.) SHALL BE WATERTIGHT. 6. OTHER DETAILS (ANTI–SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS – PVC PIPE SHALL BE PVC–1120 OR PVC–1220 CONFORMING TO ASTM D–1785 OR ASTM D–2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO FOLLOWING: 4" – 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI–SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING – THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. OTHER DETAILS (ANTI–SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

7. CONCRETE

CONCRETE MUST MEET MINIMUM REQUIREMENTS SET FORTH IN MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 918 (PORTLAND CEMENT CONCRETE MIXTURES), MIX NUMBER 3. REINFORCING STEEL MUST BE ASTM A615, GRADE 60. STEEL ANGLES AND ANCHOR BARS MUST BE ASTM A36.

8. ROCK RIP–RAP

ROCK RIP–RAP SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311. GEOTEXTILE SHALL BE PLACED UNDER ALL RIP–RAP AND SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C. THE RIP–RAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIP–RAP IN PLACE SHALL BE REASONABLY HOMOGENEOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS.

9. CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS, THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM THE VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OF MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

10. STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD–342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

11. EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS. ALL DISTURBED AREAS SHALL BE CONTROLLED BY AN EROSION AND SEDIMENT CONTROL PLAN WHICH HAS BEEN APPROVED BY THE PRINCE GEORGE'S COUNTY SOIL CONSERVATION DISTRICT (P.G.C.S.C.D.).

12. FILTER CLOTH

ALL FILTER CLOTH SHALL CONFORM TO MIRAFI 140N, DUPONT TYPAR 3341 OR 3401, SUPAC 5P, AMOCO 4551 OR APROVED EQUAL. ALL FILTER CLOTH SHALL ALSO CONFORM TO THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, OR THE LATEST EDITION.

13. GABIONS

ALL GABIONS SHALL BE PVC COATED WOVEN WIRE BASKETS. STONE SIZE SHALL BE 4 INCHES TO 7 INCHES, (CLASS IV GABIONS)

14. FENCE

CHAIN LINK FENCING: CONSTRUCT FENCING IN ACCORDANCE WITH THE STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 690.01 AND 690.02. USE SPECIFICATIONS FOR A 6–FOOT FENCE, SUBSTITUTING 42" FABRIC AND 6'–8" LINE POSTS. CONSTRUCT THE GATE IN ACCORDANCE WITH SHA STANDARD DETAIL 692.01 WITH 42" FABRIC. THE FABRIC USED FOR THE FENCE AND GATE MUST CONFORM TO AASHTO DESIGNATION M181–74.

15. CONSTRUCTION INSPECTION BY DESIGNATED ENGINEERS

THE CONSTRUCTION OF THE POND AND EMBANKMENT, AND CERTIFICATION THAT THE POND AND EMBANKMENT HAVE BEEN BUILT IN ACCORDANCE WITH THE PLANS SHALL BE UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER. THE ENGINEER SHALL BE NOTIFIED SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT ARRANGEMENTS CAN BE MADE FOR:

(1) INSPECTION OF PIPE TRENCH AND BEDDING

(2) INSPECTION OF RISER AND ANTI–SEEP COLLARS AND

(3) SUPERVISION OF EMBANKMENT CONSTRUCTION AND COMPACTION TESTING. THE ENGINEER SHALL DIRECT THE HANDLING OF WATER DURING CONSTRUCTION, MINOR CHANGES NOT AFFECTING THE INTEGRITY OF THE DAM IN ORDER TO COMPENSATE FOR UNUSUAL SOIL CONDITIONS, AND THE REMOVAL AND REPLACEMENT OF DEFECTIVE FILL.

CAST–IN–PLACE CONCRETE STRUCTURES

1. SPECIFICATIONS: MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, LATEST EDITION. AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, LATEST EDITION, FOR DESIGN. CONCRETE DESIGN BY THE "SERVICE LOAD DESIGN METHOD".

2. CONCRETE: SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414 AND 902, MIX NO. 3.

3. CONTRACTOR MAY ADD COLOR MIX AT PLANT IN ACCORDANCE WITH MANUFACTURES RECOMMENDATION "C–12 MESA BEIGE" AS MANUFACTURED BY L. M. SCOFIELD COMPANY, (213) 723–5285. CONTRACTOR SHALL SUPPLY MIX DESIGN FOR APPROVAL PRIOR TO APPLICATION. LOAD AND MIX TICKETS SHALL BE SUPPLIED FOR EACH TRUCK DELIVERY. NO PARTIAL FIELD MIXES SHALL BE ALLOWED. ALL CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS. DESIGN FC=1,200 PSI. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4 " X 3/4 ". ALL CONSTRUCTION KEYS ARE SHOWN NOMINAL SIZE.

4. REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A–615, GRADE 60 AND ALL REINFORCEMENT SHALL BE EPOXY COATED. WHERE NOT INDICATED, BAR LAP SPLICES SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS. THE MINIMUM CONCRETE COVER SHALL BE 2 INCHES UNLESS OTHERWISE NOTED. DESIGN FS = 24,000 PSI.

5. FOUNDATION: PRESUMED SOIL BEARING CAPACITY = 3,000 PSF. THE ENGINEER MUST APPROVE ALL FOUNDATIONS PRIOR TO CONCRETE PLACEMENT. IF UNSUITABLE MATERIAL IS ENCOUNTERED, THE MATERIAL SHALL BE UNDERCUT AND BACKFILLED WITH STRUCTURAL BACKFILL.

6. PRE–CAST CONCRETE STRUCTURES SHOP DRAWINGS FOR PRE–CAST STRUCTURES WITH SUPPORTING STRUCTURAL COMPUTATIONS (SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER) MEETING ASTM REQUIREMENTS FOR PRE– CAST STRUCTURES MUST BE SUBMITTED TO THE ENGINEER, AND THE APPROVING AGENCY (BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT) FOR APPROVAL PRIOR TO FABRICATION. IF ANY STRUCTURE DIMENSIONS VARY FROM WHAT WAS ORIGINALLY REVIEWER/APPROVED, THEN THE HYDRAULICS, FLOTATION AND STRUCTURAL INTEGRITY WILL HAVE TO BE RE–ANALYZED.

7. ALL CONCRETE SHALL BE SAMPLED AND TESTED BY THE TESTING AGENCY. THE CONTRACTOR SHALL NOTIFY THE TESTING AGENCY 48 HOURS PRIOR TO ANY PLACING OF CONCRETE.

PLAN VIEW

CONCRETE WEIR

SCALE – ¼"=1'

NOTES:

1. COLUMBIA ASSOCIATION BRIDGE (CA) STANDARD BRIDGE WAS DESIGNED BY OTHERS. THE CA BRIDGE WAS MODIFIED AND MEETS OR EXCEEDS THE TYPICAL 26 x 8 FT CA BRIDGE LOAD RATING. NO DETAILED LOAD RATING WAS PERFORMED FOR THIS BRIDGE.

FRONT VIEW

CONCRETE WEIR

SCALE – ¼"=1'

SIDE VIEW B–B

CONCRETE WEIR

SCALE – ¼"=1'

SIDE VIEW B–B

CONCRETE WEIR

SCALE – ¼"=1'

INTERIOR BEARING PLAN DETAIL

SCALE – 1"=1'

NOTES:

1. PROVIDE MECHANICALL GALVANIZED SWEDGE OF APPROVED TYPE OF ANCHOR BOLTS.
2. PROVIDE PLATE WASHERS OF SUFFICIENT SIZE TO COVER THE ROUND HOLE OR SLOT FOR EXTREMES OF MOVEMENT OF THE BEARINGS. WASHER MAY BE CLIPPED IF REQUIRED.
3. FILL ANCHOR BOLT ANGLE HOLES WITH NON-HARDENING CAULKING COMPOUND
4. PERMIT DRILLING OF ANCHOR BOLT HOLES AT ABUTMENT ONLY. WASH AND DRY HOLE BEFORE FILLING WITH NON-SHRINK GROUT.

VIEW A–A

SCALE – 1"=1'

FASCIA BEARING PLAN DETAIL

SCALE – 1"=1'

FOOTER SECTION A–A

CONCRETE WEIR

SCALE – ¼"=1'

SIDE VIEW

14' CA PEDESTRIAN BRIDGE PLAN

SCALE – ¼"=1'

DECK FRAMING PLAN

14' CA PEDESTRAIN BRIDGE PLAN

SCALE – ¼"=1'

TOP CHORD

14' CA PEDESTRIAN BRIDGE PLAN

SCALE – ¼"=1'

SECTION A–A

SPILT RING CONNECTION

SCALE: 1–1/2" = 1'

SIDE VIEW

SCALE: 1–1/2" = 1'

SECTION B–B

SCALE: 1–1/2" = 1'

WATERSTOP

NOT TO SCALE

FRONT VIEW

SPILLWAY

(STREAM STA. 0+96–0+99.5)

NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS

2-18-2015
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

2/26/15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

2-24-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

EUGENE L. FLEAGLE
44289
1/29/2015

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 44289, EXPIRATION DATE: 08–08–2015

Date	No.	Revision Description

DANNON GARTH
POND RENOVATION
FOR
VILLAGE OF LONG REACH S.1 A.2
OPEN SPACE - LOT 2

TAX MAP 36, GRID 11, PARCEL 384
ZONE: NT, 6TH ELECTION DISTRICT
HOWARD COUNTY, MD

COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

STORMWATER
MAINTENANCE & CONSULTING
www.swmaintenance.com | www.mdswm.com
10944 Beaver Dam Rd. Suite C
Hunt Valley, MD 21030
p: 410.785.0875
f: 443.269.0216

REVISED SDP
NOTES, BRIDGE AND WEIR DETAILS

Designed By: ELF	Scale:	Project No.: 2419
Drawn By: ELF	Date: 01 09 2015	SHEET: 6C OF 6
Checked By: SL	Approved:	

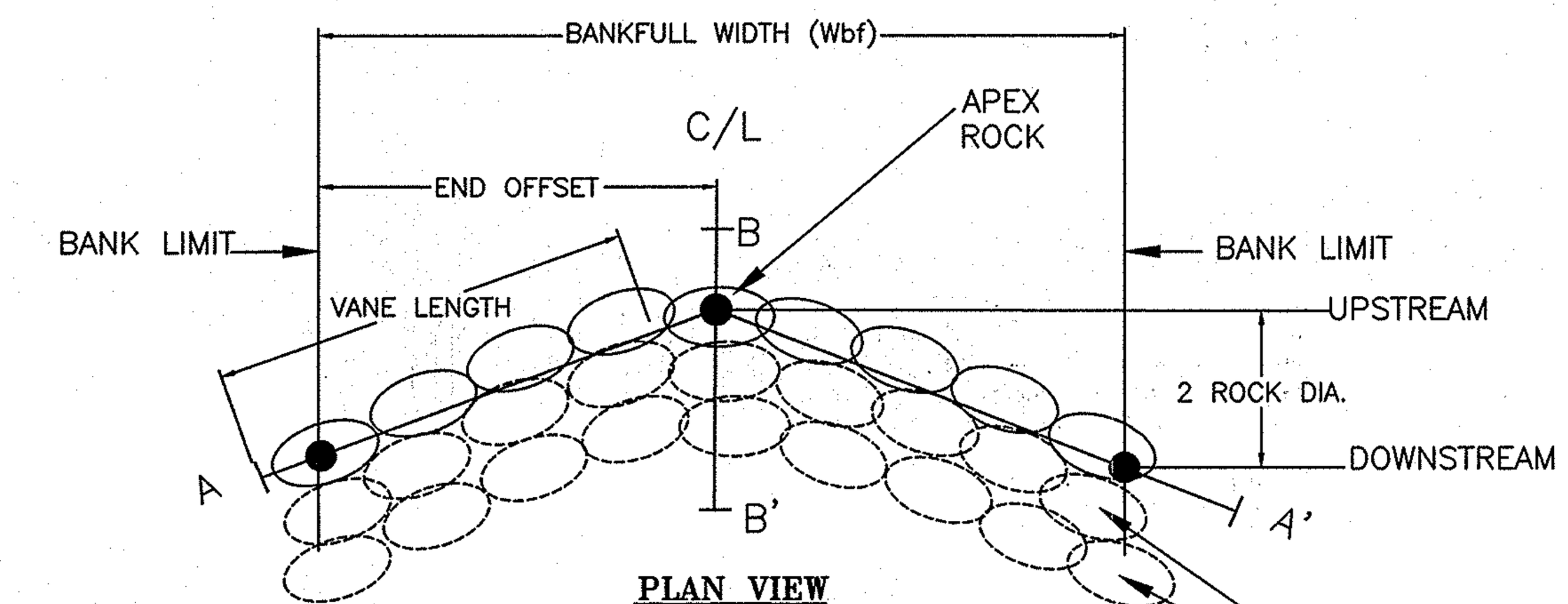
F-81-21C (PB. 27, F. 42) FDP 153 (PB. 28, F. 09)

X:\PROJECTS\2419 Columbia Assoc Dannon Garth Pond\DRAWINGS\1 WORKING DWG\2015 01 26_2419 PLAN.dwg, 6C-BRIDGEWEIR DETAILS, 1/29/15 12:49:57 PM

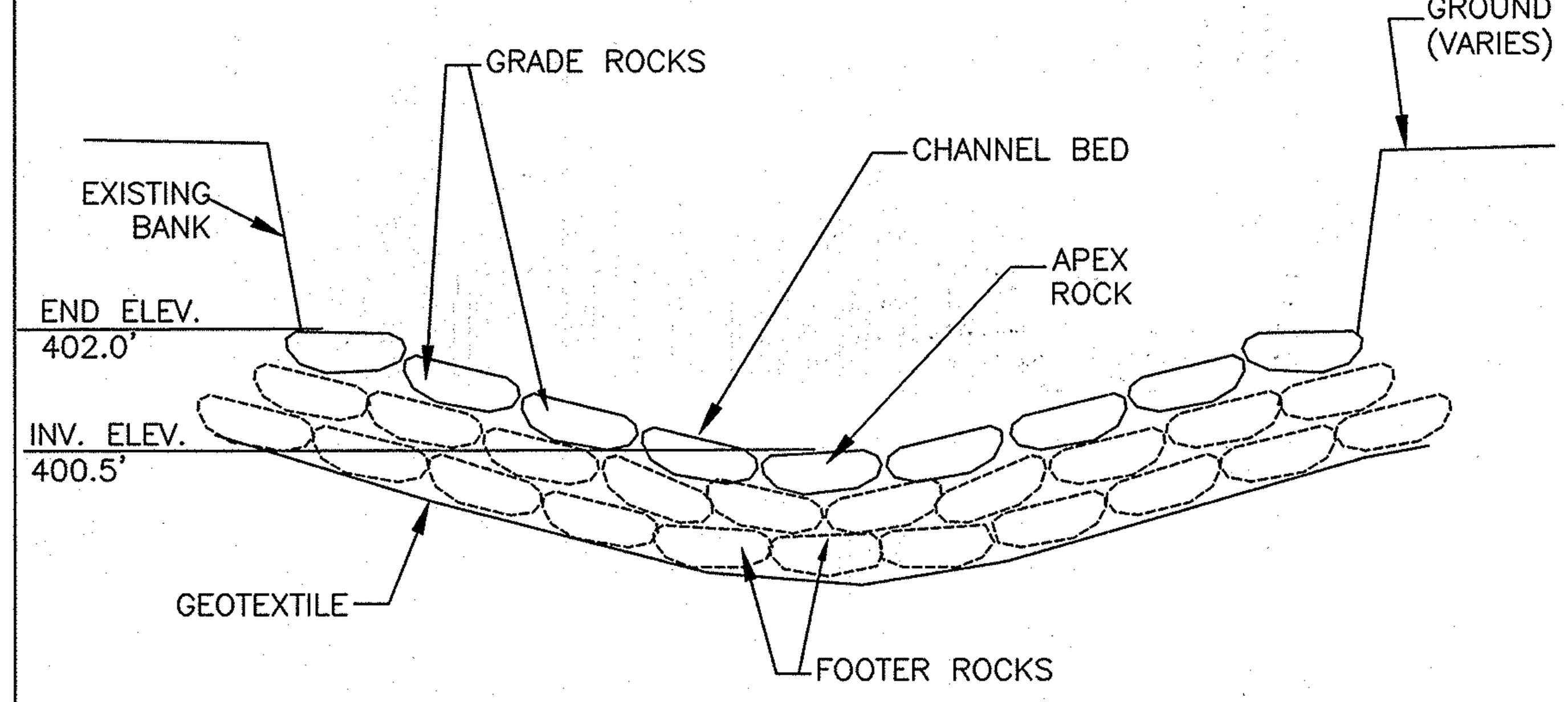
GRADE VANE DETAILS

NOT TO SCALE

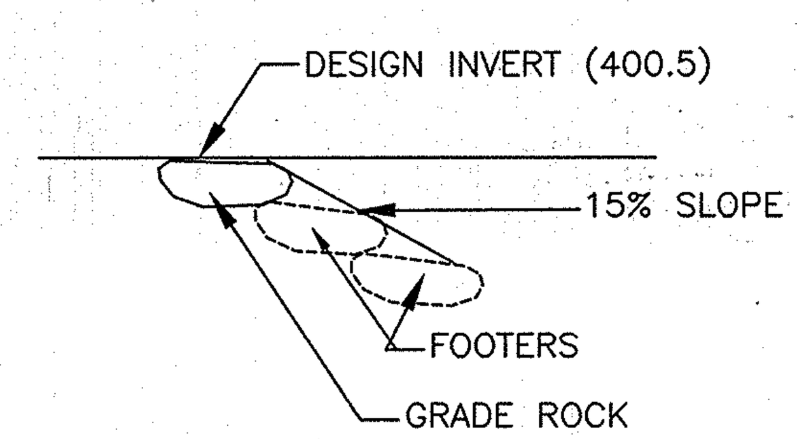
TO BE INSTALLED AS DIRECTED BY THE ENGINEER



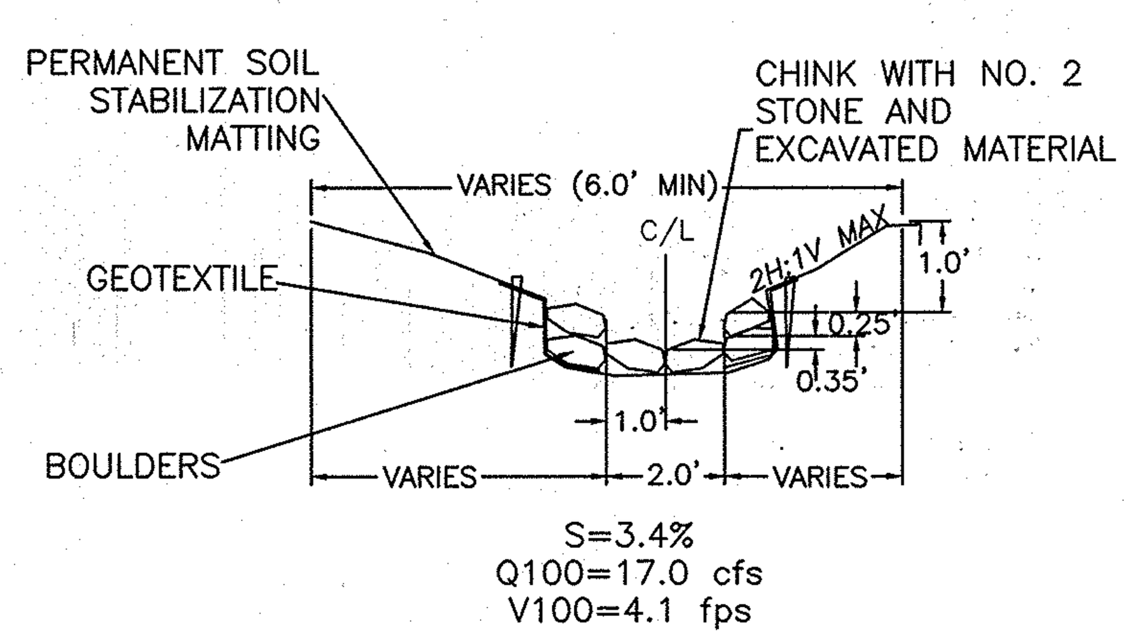
PLAN VIEW



CROSS SECTION (A–A')



PROFILE (B–B')



SPILLWAY (LOWER PORTION)

SCALE – 1"= 4'

MATERIAL SPECS:

GEOTEXTILE: SHA 921.09 TYPE SE NONWOVEN

BOULDERS (ROCK)*:
ROCK SHALL HAVE DRY UNIT WEIGHT OF AT LEAST 156 LB/CF.

GRADE VANES SHALL HAVE AN INTERMEDIATE DIAMETER BETWEEN 8 TO 16 INCHES.

BOULDERS SHALL CONSIST OF ANGULAR, FLAT ROCK WITH DIMENSIONS (FT.) FOR MINOR, INTERMEDIATE (INTER.), AND MAJOR AXIS IN THE RANGES AS SPECIFIED BELOW:

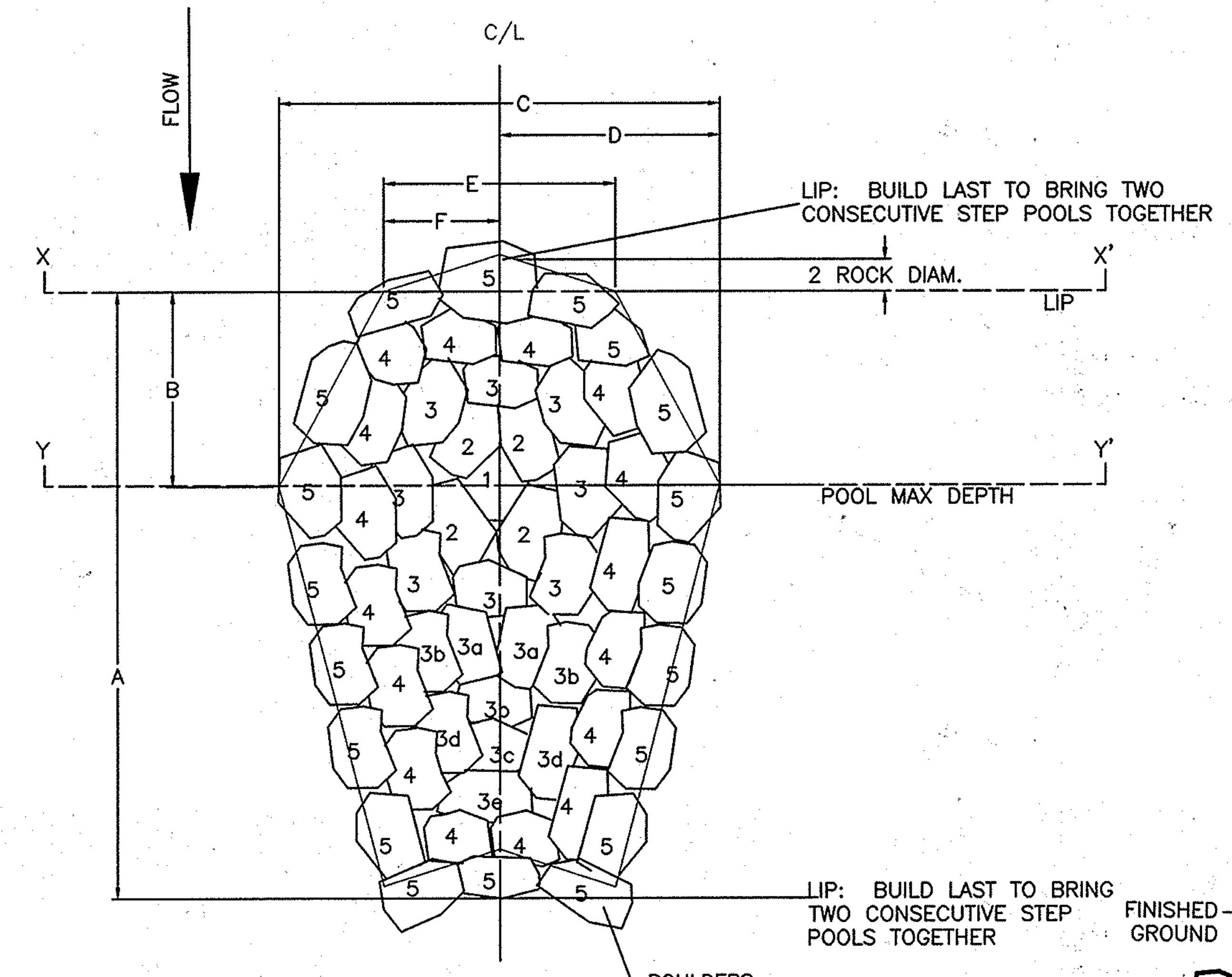
	MINOR		INTER.		MAJOR
UPPER SPILLWAY:	1.5–2.5	X	2.5–3.5	X	3.5–4.5
LOWER SPILLWAY:	0.5–1.0	X	1.0–1.5	X	2.0–3.0

*MAY USE ON–SITE SALVAGEABLE MATERIAL THAT MEETS SPECIFICATIONS OR AS APPROVED BY THE ENGINEER

SOIL STABILIZATION MATTING: SHA 920.05.01 TYPE D
STAKES: SHA 920.08.02

SPILLWAY (UPPER PORTION) – STEP POOL DETAILS

NOT TO SCALE



STEP POOL PLAN

NOT TO SCALE

STEP POOL CONSTRUCTION SEQUENCE

NOTE: WHEN UPSTREAM AND DOWNSTREAM STEP POOLS ARE REFERRED TO IN THIS SEQUENCE, THEIR REFERENCE SHALL BE UNDERSTOOD AS OCCURRING WITHIN THE SAME STEP POOL REACH.

1. STARTING AT THE DOWNSTREAM STEP POOL AND MOVING IN AN UPSTREAM DIRECTION, OVER–EXCAVATE AND/OR FILL THE CHANNEL TO TWO FEET BELOW FINAL GRADE. COMPACT FIRMLY TO MD–378 STANDARDS.

2. INSTALL THE FIRST LAYER OF GEOTEXTILE IN THE MOST DOWNSTREAM STEP POOL, LAYING SHEETS PARALLEL TO THE PROPOSED CENTERLINE AND OVERLAPPING SEPARATE SHEETS A MINIMUM OF THREE FEET. INSTALL THE SECOND LAYER OF GEOTEXTILE AT RIGHT ANGLES TO THE FIRST LAYER, STARTING FROM THE DOWNSTREAM END OF THE REACH AND WORKING UPSTREAM. AGAIN, OVERLAP ADJACENT SHEETS AT LEAST THREE FEET.

3. STARTING AT THE DEEPEST POINT IN THE DOWNSTREAM–MOST STEP POOL BACKFILL THE AREA FOR THE FIRST BOULDER WITH SIX INCHES OF ON–SITE MATERIAL AS APPROVED BY THE ENGINEER. PLACE FIRST BOULDER (NUMBER 1 IN DETAILS) ON THE ON–SITE MATERIAL AND ADJUST THE ELEVATION TO THE DESIGN INVERT OF THE POOL DEEP.

4. PLACE ON–SITE MATERIAL AROUND THE FIRST BOULDER TO FACILITATE PLACEMENT OF BOULDERS AROUND AND OVERLAPPING THE FIRST BOULDER (BOULDERS NUMBERED 2 THROUGH 4 IN THE DETAILS) COMPLETING ALL BUT THE UPSTREAM LIP OF THE STEP POOL.

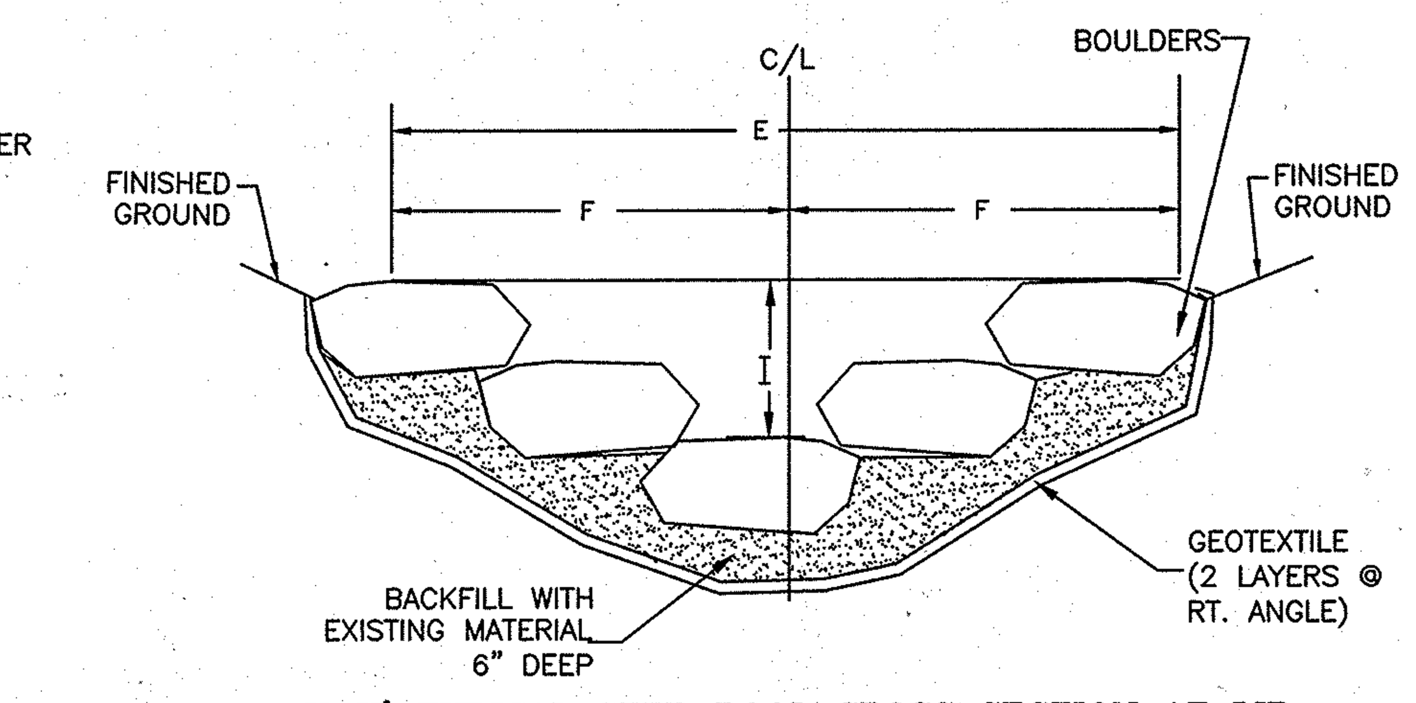
5. CHINK WITH NO. 2 STONE TO FILL VOIDS.

6. REPEAT STEPS 1 THROUGH 5 FOR THE STEP POOL IMMEDIATELY UPSTREAM.

7. ONCE THE IMMEDIATELY UPSTREAM STEP POOL IS COMPLETE (TO NEXT TO HIGHEST NUMBERED IN THE EXAMPLE PLAN), CONSTRUCT THE LIP TO BRING THE TWO CONSECUTIVE STEP POOLS TOGETHER.

8. REPEAT STEPS 1 THROUGH 7 FOR THE REMAINING UPSTREAM STEP POOLS.

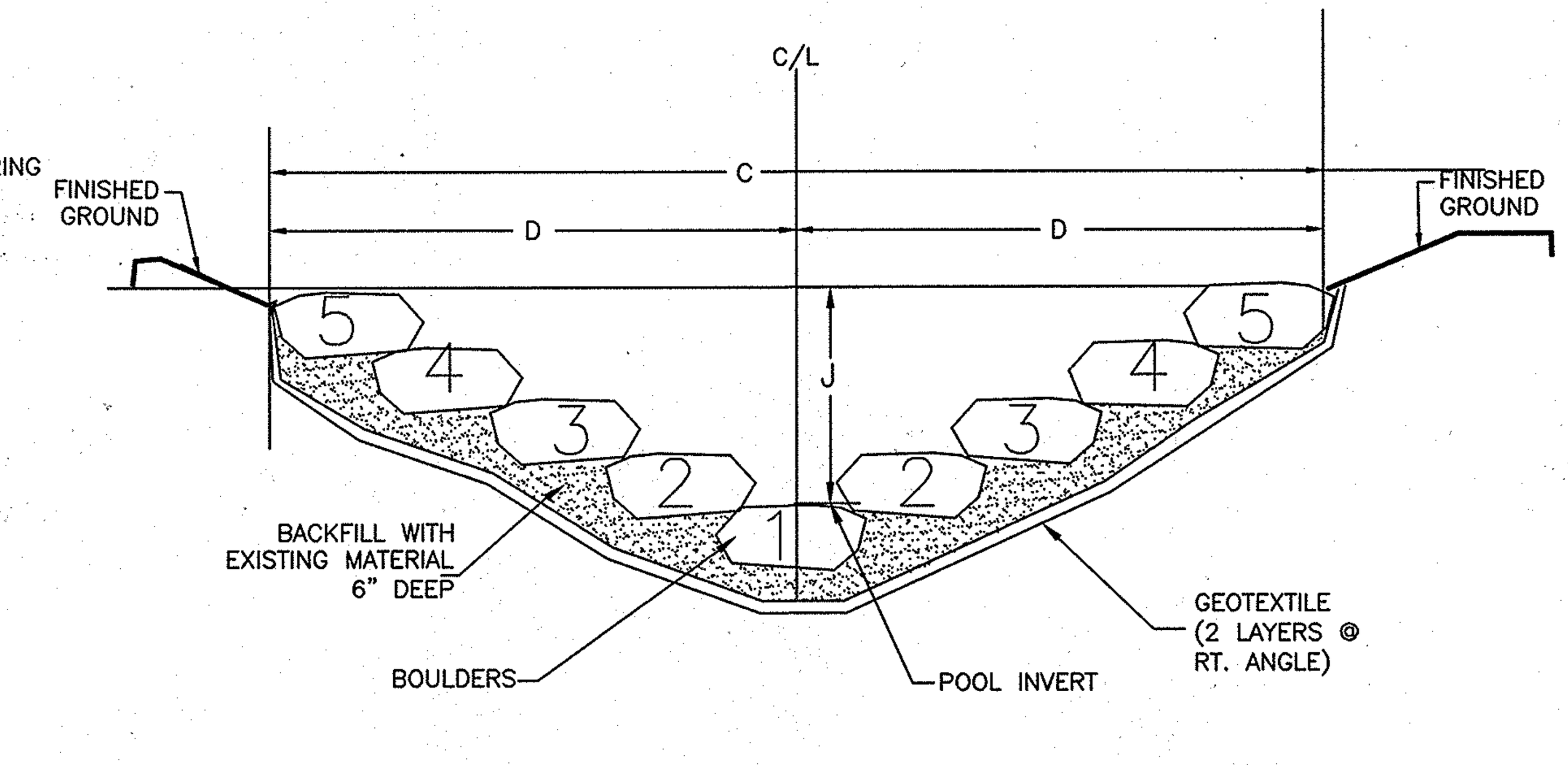
NOTE: NUMBERED BOULDERS IN DETAILS ARE NOT NECESSARILY THE NUMBER NEEDED TO COMPLETE THE STRUCTURE, BUT A GUIDE AS TO THE SEQUENCE FOR BOULDER PLACEMENT



X–X' TYPICAL STEP POOL CROSS SECTION AT LIP

NOT TO SCALE

	REACH 1 STA 0+51 STA 0+96
A	9'
B	3'
C	9'
D	4.5
E	6'
F	3'
G	1.13'
H	1.0'
I	1.6'
J	2.4'

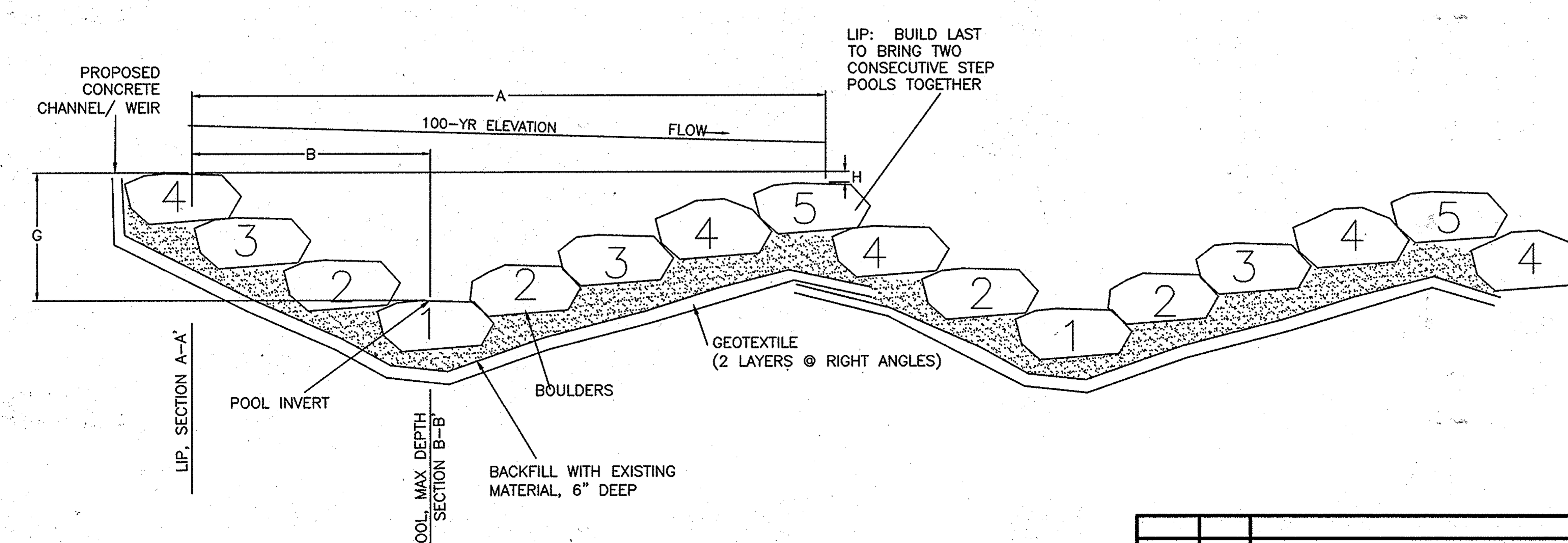


Y–Y' TYPICAL STEP POOL CROSS–SECTION PROFILE AT POOL MAX DEPTH

NOT TO SCALE

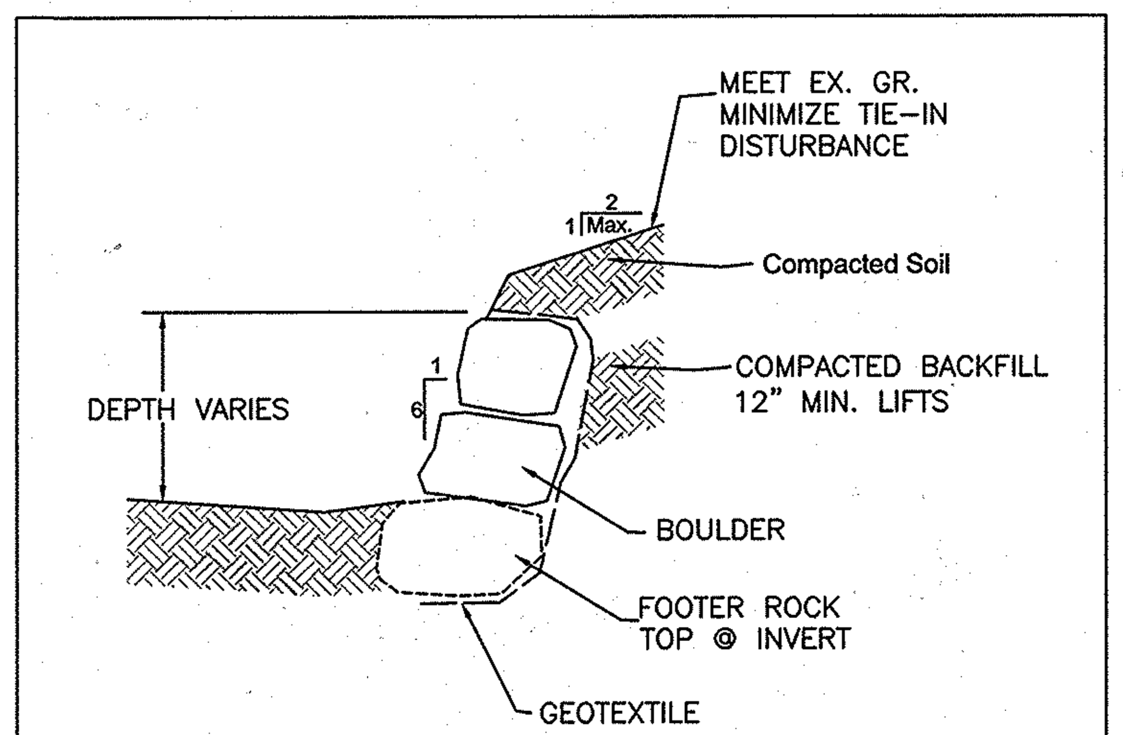
STEP POOL STRUCTURE TABLE

STA.	INV. ELEV. (O.S.=0)	O.S. TOP	TOP ELEV.
0+51	395.4	'–3 , +3	397.5
0+57	395.3	'–3 , +3	397.7
0+60	396.4	'–3 , +3	398.0
0+66	396.3	'–3 , +3	398.7
0+69	397.4	'–3 , +3	399.0
0+75	397.3	'–3 , +3	399.7
0+78	398.4	'–3 , +3	400.0
0+84	398.3	'–3 , +3	400.7
0+87	399.4	'–3 , +3	401.0
0+93	399.3	'–3 , +3	401.7
0+96	400.4	'–3 , +3	402.0



TYPICAL STEP POOL PROFILE

NOT TO SCALE



IMBRICATED RIPRAP WALL DETAIL

NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS

2-18-2015

CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

2/26/15

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

2-24-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

STATE OF MARYLAND PROFESSIONAL ENGINEER No. 33079

1-24-15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 33079, EXPIRATION DATE: 01–16–2017

Date	No.	Revision Description

DANNON GARTH
POND RENOVATION
FOR
VILLAGE OF LONG REACHS-1A-2
OPEN SPACE - LOT 2

TAX MAP 36, GRID 11, PARCEL 384
ZONE: NT, 6TH ELECTION DISTRICT
HOWARD COUNTY, MD

COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

STORMWATER MAINTENANCE & CONSULTING
www.swmaintenance.com | www.mdswm.com
10944 Beaver Dam Rd. Suite C p: 410.785.0875
Hunt Valley, MD 21030 f: 443.269.0216

REVISED SDP
POND DETAILS

Designed By: SL	Scale:	Project No.: 2419
Drawn By: SL	Date: 01 09 2015	SHEET: 6D OF 6
Checked By: ELF	Approved:	

F-81-21C (PB. 27, F. 42) FDP 153 (PB. 28, F. 09)

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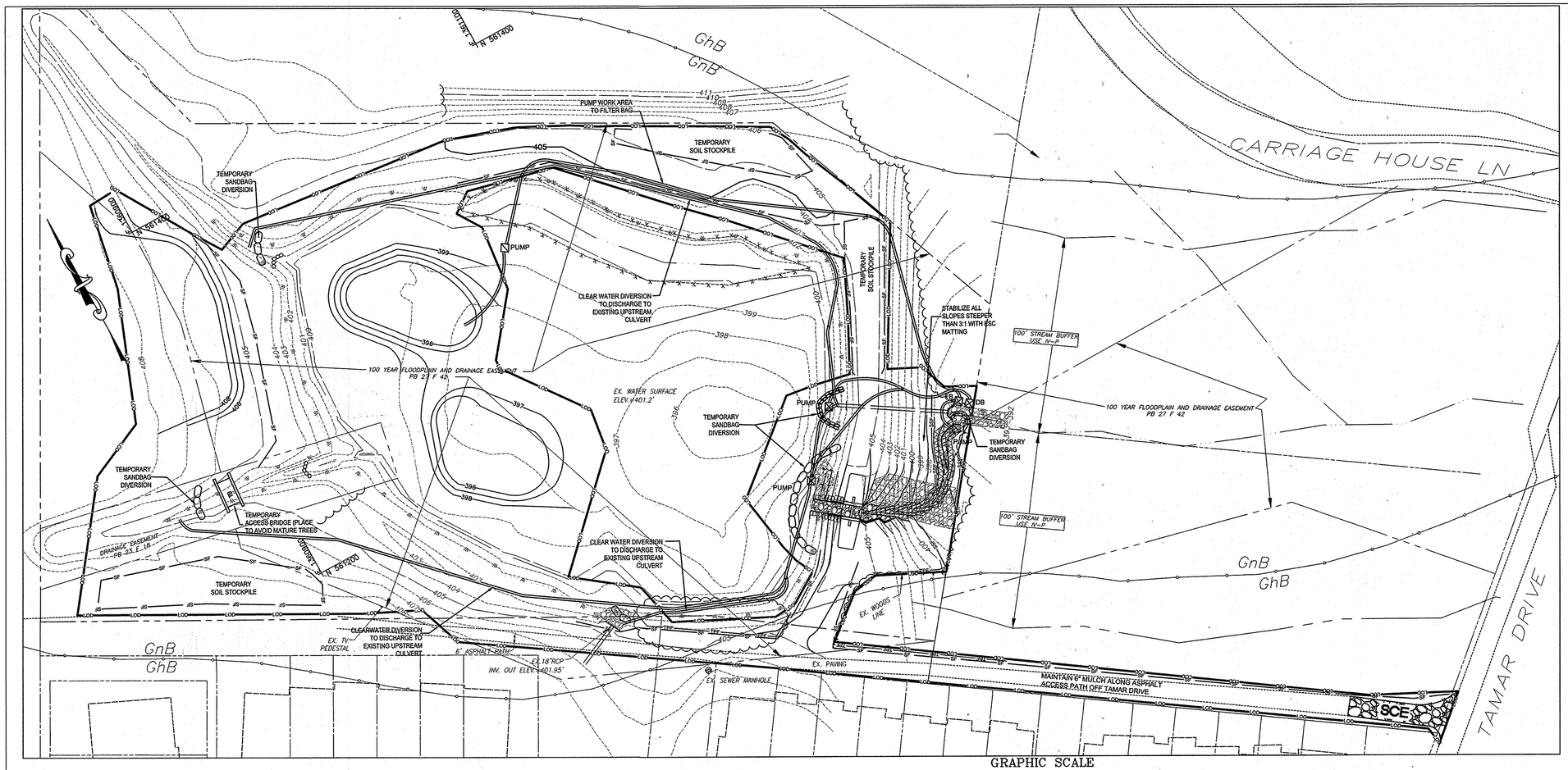


GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

SEQUENCE OF OPERATIONS

1. OBTAIN A GRADING PERMIT FROM HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS.
2. NOTIFY "MISS UTILITY" AT (410) 792–2401 OR 1–800–257–7777 AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION
3. NOTIFY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT (410) 313–1855 AND THE HOWARD COUNTY SOIL CONSERVATION SERVICE AT (410) 489 7987 AT LEAST 48 HOURS PRIOR TO BEGINNING WORK. NOTIFY MARYLAND DEPARTMENT OF ENVIRONMENT, INSPECTION AND COMPLIANCE PROGRAM AT 410–537–3510 AT LEAST FIVE DAYS PRIOR TO COMMENCING WORK IN WETLANDS, WETLAND BUFFERS, STREAMS, OR FLOODPLAINS.
4. IF APPLICABLE, ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED ALONG THE LIMIT OF DISTURBANCE, WHERE THE LIMIT IS WITHIN 50 FEET OF THE FOREST BUFFER/CONSERVATION EASEMENT. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRE–CONSTRUCTION MEETING.
5. WORK SHALL BE PERFORMED IN THE DRY.
6. STABILIZE ALL DISTURBED AREAS AT THE END OF EACH DAY.
7. CLEAR AND GRUB FOR SEDIMENT CONTROL MEASURES AND DEVICES ONLY. (1 DAY)
8. INSTALL PERIMETER SEDIMENT & EROSION CONTROL MEASURES AND DEVICES AT THE POND AND DUMP SITE. (1 DAY)
9. NOTIFY COLUMBIA ASSOCIATES BEFORE COMMENCING DEWATERING OF THE POND FOR THE RELOCATION OF AQUATIC WILDLIFE DURING THE DEWATERING PROCESS. (1/2 DAY)
10. INSTALL CLEAR WATER DIVERSIONS, REMOVABLE PUMP STATIONS, SUMP PIT, AND FILTER BAG(S) FOR DEWATERING SITE OF SEDIMENT LADEN WATER AS SHOWN. (1 DAY).
11. DEWATER EXISTING POND SITE WITH APPROVED DEWATERING METHOD. (4 DAYS)
12. APPROVAL OF THE SEDIMENT AND EROSION CONTROL INSPECTOR SHALL BE REQUIRED UPON COMPLETION OF THE INSTALLATION OF EROSION AND SEDIMENT CONTROLS AND PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. (1 DAY).
13. INSTALL GRADE VANES IN TRIBUTARIES PER THE DESIGN PLANS AND AS DIRECTED BY THE ENGINEER. (2 DAYS)
14. BEGIN POND EXCAVATION AND PLACEMENT OF EXCAVATED MATERIAL IN UPLANDS OR THE APPROVED DUMP SITE. (10 DAYS).
15. INSTALL TEMPORARY BARRIER DIVERSIONS FOR THE CONSTRUCTION OF THE WEIR, PEDESTRIAN BRIDGE AND STEP POOLS. (1 DAY)
16. DEWATER ISOLATED WORK AREA WITH THE APPROVED DEWATERING METHOD. (1 DAY)
17. NOTIFY THE HOWARD COUNTY SEDIMENT AND EROSION CONTROL INSPECTOR UPON COMPLETION OF SAID INSTALLATION. (1/2 DAY)
18. WITH THE APPROVAL OF HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AND THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE. (1 DAY)
19. STOCKPILING RIPRAP FROM EXISTING EMERGENCY SPILLWAY, TO BE USED TO CONSTRUCT THE PROPOSED SPILLWAY STEP POOL AND CHANNEL. (1 DAY)
20. EXCAVATE FOR THE POND WEIR, IMBRICATED RIPRAP SPILLWAY, AND PEDESTRIAN BRIDGE. PLACE EXCAVATED MATERIAL IN THE TEMPORARY STOCKPILE FOR OFF–SITE DISPOSAL OR USE FOR FILL AS APPROVED BY THE GEOTECH. (15 DAYS)
21. INSTALL WEIR STRUCTURE, IMBRICATED RIPRAP SPILLWAY, AND PEDESTRIAN BRIDGE. (30 DAYS)
22. JUST PRIOR TO THE REMOVAL OF THE CLEARWATER BYPASSES, WHILE POND IS STILL DRAWN DOWN, INSTALL WETLAND PLANTINGS WITHIN THE LIMIT OF PLANTING PER THE DESIGN PLANS AND AS DIRECTED BY THE ENGINEER. TIME BETWEEN PLANTING AND ALLOWING THE POND TO FILL TO PROPOSED WATER SURFACE ELEVATION SHALL BE MINIMIZED. (1DAY)
23. WITH THE SEDIMENT CONTROL INSPECTORS APPROVAL, REMOVE TEMPORARY BARRIER DIVERSION AND INSTALL SANDBAG DIVERSION AROUND THE INLET OF THE EXISTING CMP. THE SANDBAG DIVERSION AROUND THE OUTFALL OF THE EXISTING CMP MUST BE MODIFIED TO ALLOW FLOW THROUGH THE WEIR CHANNEL AND TO PREVENT WATER FROM ENTERING THE OUTLET OF THE EXISTING CMP. (1 DAY)
24. BULKHEAD UPSTREAM AND DOWNSTREAM ENDS OF EXISTING OUTFALL BARREL AND GROUT EXISTING OUTFALL PIPE. (1 DAY)
25. ONCE GROUT IS DRY REMOVE SANDBAG DIVERSIONS AROUND THE EXISTING OUTFALL BARREL. (1 DAY)
26. UPON STABILIZATION OF SITE WITH ESTABLISHED VEGETATION AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE PERIMETER SEDIMENT CONTROL MEASURES. (2 DAYS)

LEGEND

	EXISTING	PROPOSED
CONTOURS	538 / 540	538 / 540
EXISTING BOUNDARY		
EXISTING EASEMENT		
EXISTING TREELINE		
EXISTING FENCE AND PROPOSED LIMIT OF PLANTING	–X–X–X–X–X–	
SOIL BOUNDARY		
STREAM/EDGE WATER		
WETLAND BOUNDARY		
LIMIT OF DISTURBANCE	LOD	
TREE PROTECTION FENCE (SSF IS ACCEPTABLE TO REPLACE TPF)	TPF	
SILT FENCE	SF	
SUPER SILT FENCE	SSF	
FILTER BAG	FB	
SANDBAG DIKE/DIVERSION		
CLEAR WATER DIVERSION		
DEWATERING PUMP	PUMP	
DEWATERING BASIN	DB	
TEMPORARY ACCESS BRIDGE	TB	

HOWARD SOIL CONSRVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313–1855).

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE–DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B–4–5). TEMPORARY SEEDING (SEC. B–4–4) AND MULCHING (SEC.B–4–3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

5. 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.

6.

LOT 2 OPEN SPACE-SITE ANALYSIS (NOT FOR BIDDING PURPOSES)	
TOTAL AREA OF SITE	2.75 ACRES
AREA DISTURBED:	1.80 ACRES
AREA TO BE ROOFED OR PAVED	0.00 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.84 ACRES
TOTAL CUT (INCLUDES SUBGRADE EXCAVATION)	1070 CU. YDS.
TOTAL FILL (INCLUDES MATERIALS, ROCK, WEIR, ETC.)	700 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	TBD

7. ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

9. ON ALL SITES 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 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.

10. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK–FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.

11. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.

12. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BE STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100–YEAR FLOODPLAINS

1) NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100–YEAR FLOODPLAIN.

2) PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100–YEAR FLOODPLAIN.

3) DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.

4) PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100–YEAR FLOODPLAIN.

5) REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100–YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.

6) RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100–YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.

7) ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON–PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.

8) AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST–CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.

9) TO PROTECT AQUATIC SPECIES, IN–STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

USE I WATERS: IN–STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.

USE III WATERS: IN–STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.

USE IV WATERS: IN–STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.

10) STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.

11) CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

12) EITHER TEMPORARY OR PERMANENT SEEDING AND/OR STABILIZATION IS TO BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE MINIMUM TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE STRINGENT.

"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."

Eugene Lee Pleagle 1/29/2015
SIGNATURE OF ENGINEER DATE
PRINT NAME BELOW SIGNATURE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON–SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Rob Plummer
SIGNATURE OF DEVELOPER DATE
PRINT NAME BELOW SIGNATURE

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

HOWARD SOIL CONSERVATION DITRICT DATE 2/10/15

SYMBOL	SOIL	HSG
GhB	GLENELG-URBAN LAND	B
GnB	GLENVILLE-BAILE SILT LOAM	C

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS DATE 2-18-2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 2/24/15

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 2-24-15

STATE OF MARYLAND · EUGENE LEE PLEAGLE · 44289 · PROFESSIONAL ENGINEER
1/29/2015

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 44289, EXPIRATION DATE: 08–08–2015

Date	No.	Revision Description

DANNON GARTH
POND RENOVATION
FOR
VILLAGE OF LONG REACH S. 1 A. 2.
OPEN SPACE - LOT 2
TAX MAP 36, GRID 11, PARCEL 384
ZONE: NT, 6TH ELECTION DISTRICT
HOWARD COUNTY, MD

COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

STORMWATER MAINTENANCE & CONSULTING
www.swmaintenance.com | www.mdswm.com
10944 Beaver Dam Rd. Suite C p: 410.785.0875
Hunt Valley, MD 21030 f: 443.269.0216

REVISED SDP
EROSION AND SEDIMENT CONTROL PLAN

Designed By: ELF	Scale:	Project No.: 2419
Drawn By: ELF	Date: 01 09 2015	SHEET: 6E OF 6
Checked By: SL	Approved:	

F-81-21C (PB. 27, F. 42) FDP 153 (PB. 28, F. 09)

X:\PROJECTS\2419 Columbia Assoc Dannon Garth Pond\DRAWINGS\1 WORKING .DWG\2015 01 26_2419 PLAN.dwg, 6E–ESC PLAN, 1/29/15 1:45:02 PM

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.

PURPOSE

TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES

ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION; SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING; SEEDING AND MULCHING; TEMPORARY STABILIZATION; AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY

STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS.

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.

VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE.

SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT

INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUNDCOVER.

2. IF AN AREA HAS LESS THAN 40 PERCENT GROUNDCOVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.

3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUNDCOVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.

4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

DEFINITION

ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.

PURPOSE

TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES

ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

CRITERIA

A. INCREMENTAL STABILIZATION – CUT SLOPES

1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS THE WORK PROGRESSES.

2. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):

A. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF AROUND THE EXCAVATION.

B. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.

C. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.

D. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

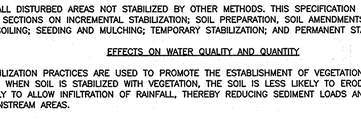


FIGURE B.1: INCREMENTAL STABILIZTION - CUT

B. INCREMENTAL STABILIZATION – FILL SLOPES

1. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE WORK PROGRESSES.

2. STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.

3. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.

4. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2):

A. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON LOW SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.

B. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.

C. PLACE PHASE 1 FILL, PREPARE SEEDBED, AND STABILIZE.

D. PLACE PHASE 2 FILL, PREPARE SEEDBED, AND STABILIZE.

E. PLACE FINAL PHASE FILL, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

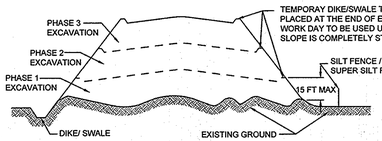


FIGURE B.2: INCREMENTAL STABILIZTION - FILL

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION

THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION

A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

2. PERMANENT STABILIZATION

A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:

I. SOIL PH BETWEEN 6.0 AND 7.0.

II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).

III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.

IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.

V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.

C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.

D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.

E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING

1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.

3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.

C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.

5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:

A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.

B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

6. TOPSOIL APPLICATION

A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.

B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.

2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.

3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.

4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Rob Plummer
SIGNATURE OF DEVELOPER — DATE
PRINT NAME BELOW SIGNATURE

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE

TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES

TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

A. SEEDING

1. SPECIFICATIONS

A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.

B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.

C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

2. APPLICATION

A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.

II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).

I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (POTASSIUM), 200 POUNDS PER ACRE.

II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.

IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)

A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.

V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

2. APPLICATION

A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.

C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

3. ANCHORING

A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:

I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.

II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.

IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

"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."

Eugene Lee Fleagle
Eugene Lee Fleagle — 1/29/2015
SIGNATURE OF ENGINEER — DATE
PRINT NAME BELOW SIGNATURE

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.

2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.1):				FERTILIZER RATE (10-20-20)	LIME RATE
SPECIES	APPLICATION	SEEDING DATE	SEEDING DEPTHS		
BARLEY	96	3/1-5/15 8/1-10/15	1"	436 LBS./AC. (10/LB100SF)	2 TONS/AC (90LB/1000SF)
CEREAL RYE	112	3/1-5/15 8/1-10/15	1"		
ANNUAL RYE	40	3/1-5/15 8/1-10/15	1/2"		
FOXTAIL MILLET	30	5/15-7/31	1/2"		

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE

TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

A. SEED MIXTURES

1. GENERAL USE

A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 – CRITICAL AREA PLANTING.

C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.

D.FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 ½ POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY .

2. TURFGRASS MIXTURES

A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.

B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.

II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.

III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.

IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1½ TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:

SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND"

CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE

C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)

SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)

D. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1½ INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.

E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (½ TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

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

2/10/15
HOWARD SOIL CONSERVATION DISTRICT — DATE

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.3):					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
1*	SWITCH GRASS	10	3/1 - 5/15 8/15 - 10/15	1/4"-1/2"	45 LBS./AC. (1.0 LB/ 1000 S.F.)	90 LBS./AC. (2.0 LB/ 1000 S.F.)	90 LBS./AC. (2.0 LB/ 1000 S.F.)	2 TONS/AC. (90 LB/ 1000 S.F.)
	HARD FINE FESCUE	15						
	PARTRIDGE PEA	4						
11*	HARD FINE FESCUE	30	3/1 - 5/15 8/15 - 10/15	1/4"-1/2"	45 LBS./AC. (1.0 LB/ 1000 S.F.)	90 LBS./AC. (2.0 LB/ 1000 S.F.)	90 LBS./AC. (2.0 LB/ 1000 S.F.)	2 TONS/AC. (90 LB/ 1000 S.F.)
	TALL FESCUE	20						
	OPT ADD. ** ROUGH BLUEGRASS	15						

* MODIFIED PER COLUMBIA ASSOCIATION INPUT
**ADD ROUGH BLUE GRASS IN MOIST, SHADY CONDITIONS

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS

A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF • INCH, PLUS OR MINUS ¼ INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.

D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION

A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.

B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

3. SOD MAINTENANCE

A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.

B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN • OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

APPROVED: DEPARTMENT OF PUBLIC WORKS

2-18-2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

2/26/15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

2-24-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

44289
1/29/2015

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 44289, EXPIRATION DATE: 08-08-2015

Date	No.	Revision Description

DANNON GARTH
POND RENOVATION
FOR
VILLAGE OF LONG REACH S.1A.2
OPEN SPACE - LOT 2

TAX MAP 36, GRID 11, PARCEL 384
ZONE: NT, 6TH ELECTION DISTRICT
HOWARD COUNTY, MD

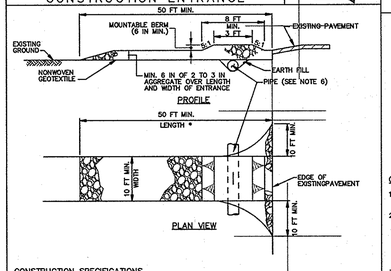
COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

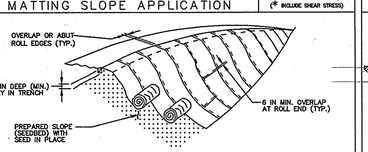
STORMWATER
MAINTENANCE & CONSULTING
www.swmaintenance.com | www.mdswm.com
10944 Beaver Dam Rd. Suite C
Hunt Valley, MD 21030
p: 410.785.0875
f: 443.269.0216

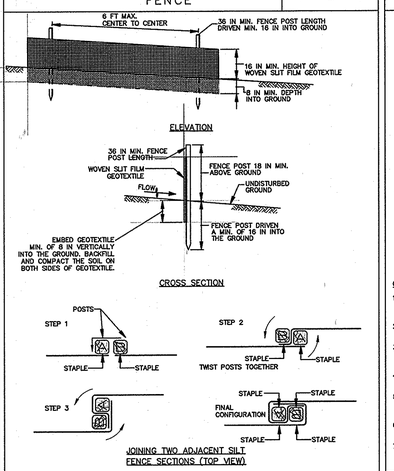
REVISED SDP
EROSION AND SEDIMENT CONTROL
NOTES AND DETAILS I

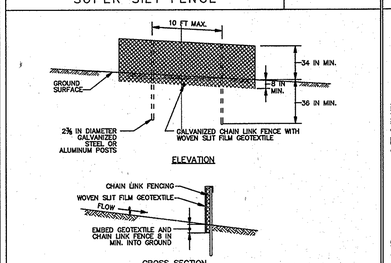
Designed By: ELF	Scale:	Project No.: 2419
Drawn By: ELF	Date: 01 09 2015	SHEET: 6F OF 6
Checked By: SL	Approved:	

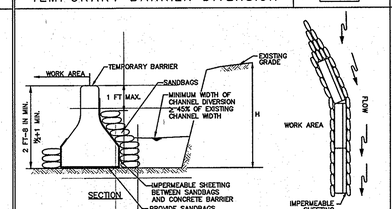
F-81-21C (PB. 27, F. 42) FDP 153 (PB. 28, F. 09)

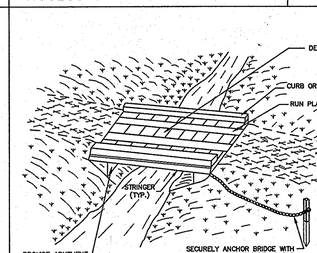


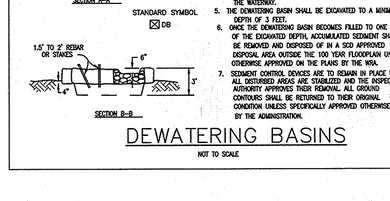


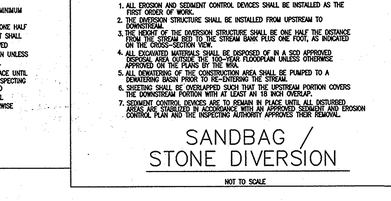


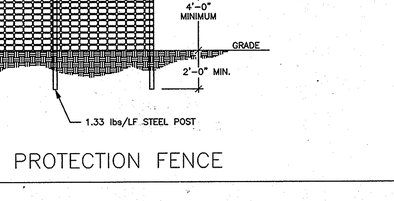












DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE

PROFILE

PLAN VIEW

CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: TSSMS – * lb/ft² (* INCLUDE SHEAR STRESS)

ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: ├──SF──┤

ELEVATION

CROSS SECTION

JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅙ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: ├──SSF──┤

ELEVATION

CROSS SECTION

CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-7 TEMPORARY BARRIER DIVERSION

STANDARD SYMBOL: TBD

SECTION

PLAN

CONSTRUCTION SPECIFICATIONS

1. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
2. USE BARRIER MADE OF CONCRETE OR OTHER APPROVED MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNCTURING AND TEARING.
4. ESTABLISH TOP ELEVATION AT H/2 + 1 FOOT FOR PROJECTS OF DURATION LESS THAN 2 WEEKS OR AS SPECIFIED ON APPROVED PLAN.
5. INSTALL DIVERSION STRUCTURE FROM UPGRADE TO DOWNGRADE.
6. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
7. USE SANDBAG BASE FOR LEVELING AND TO ESTABLISH MINIMUM TOP ELEVATION OF THE BARRIER AS REQUIRED.
8. DISPOSE OF ALL EXCAVATED MATERIALS IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP ABUTMENTS BETWEEN CONCRETE BARRIERS WATER TIGHT. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE

STANDARD SYMBOL: TB

LOCATION PLAN

NOTE:
TIME OF YEAR RESTRICTIONS DO NOT APPLY TO THE CONSTRUCTION OR REMOVAL OF A TEMPORARY ACESS BRIDGE UNLESS THERE IS DISTURBANCE TO THE STREAM CHANNEL.

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: ☒FB

PLAN VIEW

ELEVATION

CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15–0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: PSSMS – * lb/ft² (* INCLUDE SHEAR STRESS)

ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL: CWD – 12
DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION.

PLAN VIEW

PROFILE OF SANDBAGS

SECTION THROUGH SANDBAGS

CONSTRUCTION SPECIFICATIONS

1. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE

STANDARD SYMBOL: TB

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TEMPORARY BRIDGE STRUCTURE AT OR ABOVE THE BANK ELEVATION TO PREVENT IMPACTS FROM FLOATING MATERIALS AND DEBRIS.
2. PLACE ABUTMENTS PARALLEL TO, AND ON, STABLE BANKS.
3. CONSTRUCT BRIDGE TO SPAN ENTIRE CHANNEL UNLESS OTHERWISE INDICATED ON APPROVED PLAN.
4. USE STRINGERS CONSISTING OF LOGS, SAWN TIMBER, PRESTRESSED CONCRETE BEAMS, METAL BEAMS, OR OTHER APPROVED MATERIALS.
5. SELECT DECKING MATERIALS TO PROVIDE SUFFICIENT STRENGTH TO SUPPORT THE ANTICIPATED LOAD. PLACE ALL DECKING MEMBERS PERPENDICULAR TO THE STRINGERS, BUTT TIGHTLY, AND SECURELY FASTEN. DECKING MATERIALS MUST BE BUTTED TIGHTLY TO PREVENT ANY SOIL MATERIAL TRACKED ONTO THE BRIDGE FROM FALLING INTO THE WATERWAY BELOW.
6. SECURELY FASTEN OPTIONAL RUN PLANKING FOR THE LENGTH OF THE SPAN. PROVIDE A RUN PLANK FOR EACH TRACK OF THE EQUIPMENT WHEELS. ALTHOUGH RUN PLANKS ARE OPTIONAL, THEY MAY BE NECESSARY TO PROPERLY DISTRIBUTE LOADS.
7. INSTALL CURBS THE ENTIRE LENGTH OF THE OUTER SIDES OF THE DECK TO PREVENT SEDIMENT FROM ENTERING THE STREAM CHANNEL.
8. ANCHOR BRIDGE SECURELY AT ONLY ONE END USING STEEL CABLE OR CHAIN. ANCHORING AT ONLY ONE END WILL PREVENT CHANNEL OBSTRUCTION IN THE EVENT THAT FLOODWATERS FLOAT THE BRIDGE. ACCEPTABLE ANCHORS ARE LARGE TREES, LARGE BOULDERS, OR DRIVEN STEEL POSTS. ANCHOR MUST BE SUFFICIENT TO PREVENT THE BRIDGE FROM FLOATING DOWNSTREAM.
9. AREAS DISTURBED DURING BRIDGE INSTALLATION AND\OR REMOVAL MUST NOT BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
10. STABILIZE APPROACH TO BRIDGE AND KEEP FREE OF EROSION. CLEAN SEDIMENT FROM DECKING AND CURBS DAILY BY SCRAPING, SWEEPING, AND/OR VACUUMING. ENSURE THAT DECKING AND CURBS REMAIN TIGHTLY BUTTED WITHOUT GAPS. REMOVE DEBRIS TRAPPED BY BRIDGE. MAINTAIN AREAS ADJACENT TO CROSSING TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
11. AFTER THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE IT WITHIN 14 CALENDAR DAYS. IF SUBJECT TO THE USE DESIGNATION CLOSURE, REMOVE AT THE END OF CLOSURE PERIOD. PROTECT STREAM BANKS DURING BRIDGE REMOVAL AND STABILIZE ALL DISTURBED AREAS WITH EROSION CONTROL MATTING. ACCOMPLISH REMOVAL OF THE BRIDGE AND CLEAN UP OF THE AREA WITHOUT CONSTRUCTION EQUIPMENT WORKING IN THE WATERWAY CHANNEL. STORE ALL REMOVED MATERIALS IN AN APPROVED STAGING AREA.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

"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."

Eugene Lee Fleegle
Eugene Lee Fleegle 1/29/2015
SIGNATURE OF ENGINEER DATE
PRINT NAME BELOW SIGNATURE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Rob Plummer
SIGNATURE OF DEVELOPER DATE
PRINT NAME BELOW SIGNATURE

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

John R Robertson 2/19/15
HOWARD SOIL CONSERVATION DITRICT DATE

STANDARD SYMBOL: ☒DB

I. DESCRIPTION

THE WORK SHALL CONSIST OF THE CONSTRUCTION OF A DEWATERING BASIN FOR THE PURPOSE OF RECEIVING SEDIMENT-LADEN WATER PUMPED FROM A CONSTRUCTION SITE TO ALLOW FILTRATION BEFORE THE WATER RE-ENTERS THE WATERWAY.

II. MATERIAL SPECIFICATIONS

1. RIPRAP: RIPRAP SHALL CONSIST OF 4-8 INCH WASHED STONE OR GRAVEL.
2. FILTER FABRIC: THE FILTER CLOTH SHALL BE A WOVEN OR NONWOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMERIC FILAMENTS OR YARNS OF POLYESTER. THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS, HYDROCARBONS, MILDEW AND ROT RESISTANT. NO. 6 STONE (ASSHTO 57) MAY BE USED ON THE INNER-FACE FOR FILTERING INSTEAD OF FABRIC.
3. STRAW BALES: STRAW BALES SHALL MEET THE CRITERIA AS SPECIFIED IN THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

III. CONSTRUCTION REQUIRMENTS

1. THE CONTRACTOR SHALL INSTALL ALL SEDIMENT AND EROSION CONTROL DEVICES AS THE FIRST ORDER OF BUSINESS.
2. EXCAVATED MATERIALS SHALL BE STORED SUCH THAT SEDIMENTS ARE PREVENTED FROM ENTERING THE WATERWAY i.e., SEDIMENT PERIMETER CONTROLS MAY BE NECESSARY.
3. EXCAVATED SUBSOIL AND TOPSOIL SHALL BE KEPT SEPARATE AND REPLACED IN THEIR NATURAL ORDER.
4. ANY DEWATERING OF THE CONSTRUCTION AREA SHALL BE FILTERED THROUGH A DEWATERING BASIN PRIOR TO ENTERING THE WATERWAY.
5. THE DEWATERING BASIN SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 3 FEET.
6. ONCE THE DEWATERING BASIN BECOMES FILLED TO ONE HALF OF THE EXCAVATED DEPTH, ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN A SCD APPROVED DISPOSAL AREA OUTSIDE THE 100 YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE WRA.
7. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED AND THE INSPECTING AUTHORITY APPROVES THEIR REMOVAL. ALL GROUND CONTOURS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION UNLESS SPECIFICALLY APPROVED OTHERWISE BY THE ADMINISTRATION.

DEWATERING BASINS

NOT TO SCALE

SECTION A-A

PLAN VIEW

I. DESCRIPTION

THE WORK SHALL CONSIST OF INSTALLING FLOW DIVERSIONS FOR THE PURPOSE OF EROSION CONTROL WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.

II. MATERIAL SPECIFICATIONS *SUPER SANDBAGS ACCEPTABLE*

1. SANDBAGS: SANDBAGS SHALL CONSIST OF MATERIALS WHICH ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL (i.e., SAND, FINE GRAVEL, ETC.).
2. STONE: STONE SHALL BE WASHED AND HAVE A MINIMUM DIAMETER OF 6 INCHES.
3. SHEETING: SHEETING SHALL CONSIST OF POLYETHYLENE OR OTHER MATERIAL WHICH IS IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.

III. CONSTRUCTION REQUIREMENTS

1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
2. THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
3. THE HEIGHT OF THE DIVERSION STRUCTURE SHALL BE ONE HALF THE DISTANCE FROM THE STREAM BED TO THE STREAM BANK PLUS ONE FOOT, AS INDICATED ON THE CROSS-SECTION VIEW.
4. ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF IN A SCD APPROVED DISPOSAL AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE WRA.
5. ALL DEWATERING OF THE CONSTRUCTION AREA SHALL BE PUMPED TO A DEWATERING BASIN PRIOR TO RE-ENTERING THE STREAM.
6. SHEETING SHALL BE OVERLAPPED SUCH THAT THE UPSTREAM PORTION COVERS THE DOWNSTREAM PORTION WITH AT LEAST AN 18 INCH OVERLAP.
7. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTING AUTHORITY APPROVES THEIR REMOVAL.

SANDBAG / STONE DIVERSION

NOT TO SCALE

NOTES:
1. ALL PLANTS DESIGNATED TO BE SAVED SHALL BE PROTECTED BY FENCING, AS ILLUSTRATED.
2. INSTALL TREE PROTECTION FENCE AT TREE DRIP LINE OR AT EDGE OF DISTURBED AREA, AS SHOWN ON PLANS, PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. SPACE TREE PROTECTION ZONE SIGNS A MINIMUM OF ONE EVERY 300 FEET. THE SIZE OF EACH SIGN MUST BE A MINIMUM OF 2' x 2' AND BE VISIBLE FROM BOTH SIDES OF THE FENCE. THE SIGN MUST CONTAIN THE FOLLOWING LANGUAGE IN BOTH ENGLISH & SPANISH: "TREE PROTECTION ZONE, KEEP OUT".
3. THERE SHALL BE NO STORAGE OF MATERIAL WITHIN THE BOUNDARIES OF THE TREE PROTECTION FENCING.
4. TREE PROTECTION FENCING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.

TREE PROTECTION FENCE

APPROVED: DEPARTMENT OF PUBLIC WORKS

2-18-2015
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

2/26/15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

2.24.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

EUGENE LEE FLEEGLE
44289
1/29/2015

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 44289, EXPIRATION DATE: 08-08-2015

Date	No.	Revision Description

DANNON GARTH
POND RENOVATION
FOR
VILLAGE OF LONG REACH S.1 A.2
OPEN SPACE - LOT 2

TAX MAP 36, GRID 11, PARCEL 384
ZONE: NT, 6TH ELECTION DISTRICT
HOWARD COUNTY, MD

COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

STORMWATER
MAINTENANCE & CONSULTING
www.swmaintenance.com | www.mdswm.com
10944 Beaver Dam Rd. Suite C p: 410.785.0875
Hunt Valley, MD 21030 f: 443.269.0216

REVISED SDP
EROSION AND SEDIMENT CONTROL
NOTES AND DETAILS II

Designed By: ELF	Scale:	Project No.: 2419
Drawn By: ELF	Date: 01 09 2015	SHEET: 6G OF 6
Checked By: SL	Approved:	

F-81-21C (PB. 27, F. 42) FDP 153 (PB. 28, F. 09)

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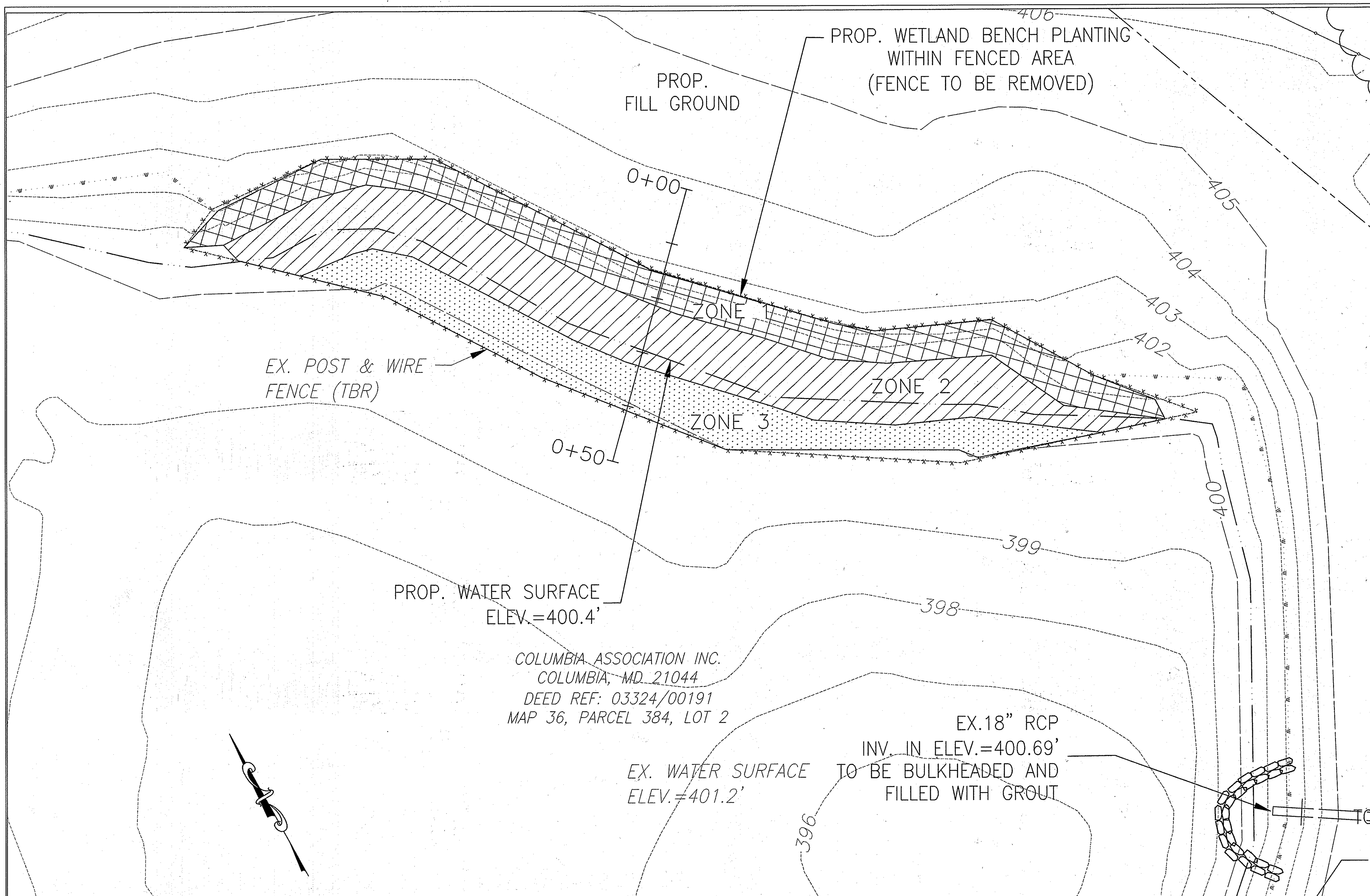


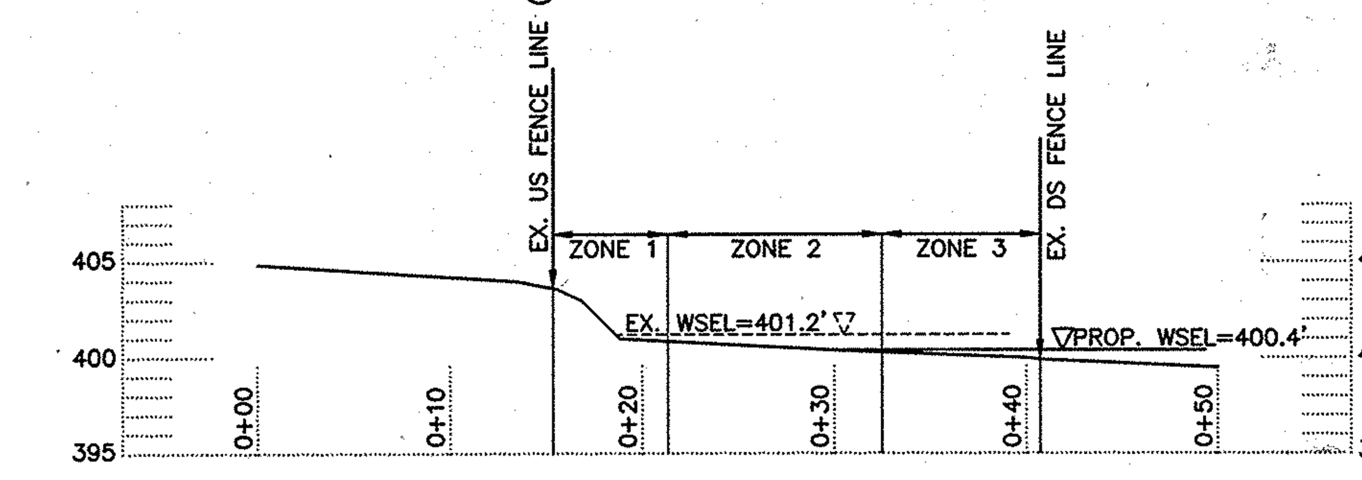
GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch=10ft.

PLANTING SCHEDULE				
COMMON NAME	LATIN NAME	SIZE	SPACING (AS DIRECTED BY ENGINEER)	QUANTITY
Zone 3				
Duck Potato	Sagittaria Latfolia	1 Gal.	12" o/c	60
Pickerel Weed	Pontederia Cordata	1 Gal.	12" o/c	60
Arrow Arum	Peltandra Virginica	1 Gal.	12" o/c	60
Zone 2				
*Rose Mallow	Hibiscus Moscheutos	1 Gal.	24" o/c	20
*Iris (Blue Flag)	Iris Versicolor	2" Plug	12" o/c	200
*Iris (Yellow Flag)	Iris Pseudacorus	2" Plug	12" o/c	200
Soft Rush	Juncus Effusus	2" Plug	12" o/c	150
Sallow Sedge	Carex Lurida	2" Plug	12" o/c	150
Zone 1				
Switchgrass	Panicum Virgatum	2" Plug	12" o/c	200
New York Ironweed	Vernonia Noveboracensis	2" Plug	12" o/c	200

*PLANT ALONG LOW SIDE OF ZONE 2



SCALE: 1"=10' HORIZ.
1"=10' VERT.

EXISTING FENCE AND PROPOSED LIMIT OF PLANTING ---X---X---X---X---X---X-
(FENCE TO BE REMOVED)

APPROVED: DEPARTMENT OF PUBLIC WORKS

2-18-2015

CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

2/26/15

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

2-24-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

STATE OF MARYLAND
DANNON GARTH
No. 33079
PROFESSIONAL ENGINEER
1-29-15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE No. 33079, EXPIRATION DATE: 01-16-2017

Date	No.	Revision Description

DANNON GARTH
POND RENOVATION
FOR
VILLAGE OF LONG REACH S 1 A 2
OPEN SPACE - LOT 2

TAX MAP 36, GRID 11, PARCEL 384
ZONE: NT, 6TH ELECTION DISTRICT
HOWARD COUNTY, MD

COLUMBIA ASSOCIATION
10221 WINCOPIN CIRCLE
COLUMBIA, MD 21044

STORMWATER
MAINTENANCE & CONSULTING
www.swmaintenance.com | www.mdswm.com
10944 Beaver Dam Rd. Suite C p: 410.785.0875
Hunt Valley, MD 21030 f: 443.269.0216

REVISED SDP
WETLAND BENCH PLANTING

Designed By: AP	Scale: AS SHOWN	Project No.: 2419
Drawn By: CF	Date: 01 09 2015	SHEET: 6H OF 6
Checked By: SL	Approved:	

F-81-21C (PB. 27, F. 42) FDP 153 (PB. 28, F. 09)

X:\PROJECTS\2419 Columbia Assoc Dannon Garth Pond\DRAWINGS\1 WORKING DWG\2015 01 26_2419 PLAN.dwg, 6H-WL BENCH, 1/28/15 3:43:22 PM