FINAL GRADING, SOIL EROSION & SEDIMENT CONTROL PLAN FOR BRADBURY SUBDIVISION

6th ELECTION DISTRICT

PRINCE GEORGE'S COUNTY, MARYLAND

SEQUENCE OF CONSTRUCTION

	WORK DESCRIPTION	Time	STATUS AS OF DEC, 2019
1.	Conduct a pre-construction meeting with Prince George's County DPW&T Inspector (301) 883-5390.	1 Day	
2.	Notify DPW&T inspector 24 hours prior to commencement of work.	1- 2 Days	
3.	Install stabilized construction entrance as shown on plan	2 - 3 Days	
4.	Clear and grub area where necessary to install stream diversion and culverts installation.	3 - 24 Days	
	A. Remove existing concrete slab.		
	B. Install 60"Ø HDPE temporary diversion pipe to intercept flow during culvert construction.		
	C. Place temporary sandbag diversion upstream to divert water into the diversion pipes.		
	D. Place sandbag dike downstream to prevent the stream from backwashing into the construction area.		
	E. Install sump pit devices to keep the construction area dry.		
	F. Install the first culvert pipe, 60"ORCP and the riprap protection, as shown in inset 'A'.		
	G. Adjust earth dike location and install ISSD in downstream & SF as shown in inset 'B'.		
	H. Remove temporary 60" Ø HDPE stream diversion pipe.		
	I. Install remaining culverts (60" RCP & 72" RCP), headwalls and riprap outfall protection.		
	J. Backfill to subgrade above culvert. Stabilize the disturbed slopes and stream bed with methods in accordance with vegetative specifications.		
	K. Seed and mulch any remaining disturbed areas.		
	L. Clean up the construction site.		
	M. Remove sandbag dikes and sediment control around culvert construction area with the approval of sediment control inspector.		
5.	Obtain inspector's approval to start the site construction.	24 - 25 Days	
6.	Clear and grub area within the limit of disturbance where sediment control devices are to be provided as shown on sediment control plan.	25 - 32 Days	
7.	Install all perimeter controls including silt fence, initial mountainable berm, engineering earth dikes, sediment trap, gabion and initial earth dikes (modified as necessary during earthwork and construction) as shown on the grading and sediment control plan.	32 - 39 Days	
8.	Install stormwater management underground facilities.	39 - 69 Days	PENDING
9.	Install temporary WSSC service for adjoining property as shown on the sediment control plan.	69 - 76 Days	
10.	Install storm drain, water and sewer.	76 - 84 Days	
11.	Rough grade the entire site. Use the temporary stockpile area to store topsoil.	84 - 100 Days	
12.	Begin house construction as the lots are rough graded. Do not begin house construction on lots 17 & 18 due to presence of trap.	100 - 220 Days	
13.	Bring proposed road to final grade and install base paving. Construct curb and gutter, pave the roads, build side walks, and construct site amenities.	220 - 235 Days	
14.	Finalise grading of all areas. Tie in all grades as shown on plan.	235 - 242 Days	
15.	When the contributary drainage areas to the sediment traps have been stabilized, install sediment controls for the removal of trap. With the inspector's approval, remove sediment trap as shown in inset 'C'.	242 - 249 Days	
16.	Start the construction of houses on lots 17 & 18.	249 - 310 Days	
17.	Upon completion of all proposed construction, permanently stabilize all remaining disturbed areas.	310 - 317 Days	
18.	Upon inspector's approval, remove all remaining sediment control measures.	317 - 324 Days	
	Notes: Total Construction Time:	324 Days	

1. Schedule may be adjusted due to inclement weather.
2. House construction maybe be started after the lot is rough graded.
3. To protect important aquatic species, in - stream work is prohibited as determined by the classification of the stream as follows: Class I stream work maybe not be conducted during the waters in - period of March 1 through June 15, inclusive, during any year.

1. Utilization of Environmental Site Design

The project construction requires utilization of items such as silt fence, sediment trap, Rip-Rap Protection, earth dikeTSOS as being a part of utilizing environmental site design. As it is shown on plans, all sediment controls including construction entrances are placed in such a way to utilize an environmental aspect of site design for each lot. Detailed information about the construction of all erosion and sediment controls has been included with the Sequence of Construction.

2. Maintenance of Limits of Disturbance to Protect Natural Areas

The owner will provide daily maintenance of all erosion and sediment controls within the limits of disturbance to protect natural areas. All damaged items such as silt and super silt fence will be fixed immediately by the contractor. Any sediment left behind the silt fence needs to be removed so it can not move further downstream. It is the owner/contractor responsibility to act immediately and provide proper maintenance if needed. The contractor/owner will provide stabilization to all remaining areas after all erosion/sediment controls are removed.

3. Control of Construction Equipment and Vehicles

The contractor will provide a correct control of construction equipment and vehicles during all stages of this project, including cleaning equipment as necessary prior to leaving the site.

4. Evaluation and Appropriate Limitation of Site Clearing

The proper evaluation of the limits of site clearing shall be done with DER inspector during the pre-construction meeting. The contractor shall correctly re-evaluate the limits of site clearing at each phase of this project before initiating any construction activities.

5. Evaluation and Designation of Site Area for Phasing or Sequencing

The contractor will closely follow the phasing and sequencing of construction per the approved plans.

6. Identification of Soils at High Risk for Erosion and Advancement Stabilization Techniques to be Used

The contractor will identify all soils at high risk for erosion and provide advanced stabilization techniques per approved plan. The contractor shall inform the engineer about any additional stabilization techniques to be used that are different than those shown on the approved plans. The contractor shall check the soil information data listed on the Cover Page of the Grading, Soil Erosion and Sediment Control Plan.

7. Identification of Steep Slopes and Designation of Limitations on Clearing Them

All areas with steep slopes greater than 3:1 as shown on the plan require stabilization within 7 days as reflected on plans. Contractor will provide additional stabilization for all interior areas not currently being graded in coordination with the inspector/engineer.

8. Evaluation and Designation of Stabilization Requirements and Time Limits and Protection Measures for Discharges to the Chesapeake Bay

Not Applicable

9. Impaired Waters or waters with an established Total Maximum Daily Load (TMDL)

Not Applicable

~~As of April 26th, 2011, no construction has started on this property~~

As of Dec. 23rd, 2019, no construction has started on this property

SEDIMENT CONTROL LEGEND:

SCE	STABILIZED CONSTRUCTION ENTRANCE
PD/S-1	EARTH DIKE
PERIMETER DIKE/SWALE	
SF	SILT FENCE
SSF	SUPER SILT FENCE
	PROPOSED DRAINAGE DIVIDE
	EXISTING DRAINAGE DIVIDE
RRP	RIP-RAP INFLOW PROTECTION
	INITIAL EARTH DIKE
PSD - 12	PIPE SLOPE DRAIN
	STONE OUTLET STRUCTURE
ISSD	IN-STREAM STONE DIKE
SP	SUMP PIT
	SAND BAGS
RRP	RIPRAP INFLOW PROTECTION

MISS UTILITY
FOR LOCATION OF UTILITIES CALL 1-800-257-7777
48 HOURS IN ADVANCE OF ANY WORK IN THE VICINITY

OWNER/DEVELOPER

COME BACK TERPS LLC
ATTN: MR. TZANNETIS A. SERLEMITSOS
5055 AMESBURY DR.,COLUMBIA MD 21044
T.P. (603) 393-4125
E-mail: tascts@yahoo.com

SHEET INDEX:

SHEET NO.	PLAN TYPE
1	COVER SHEET
2	GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
3 - 5	GRADING, SOIL EROSION AND SEDIMENT CONTROL NOTES & DETAILS

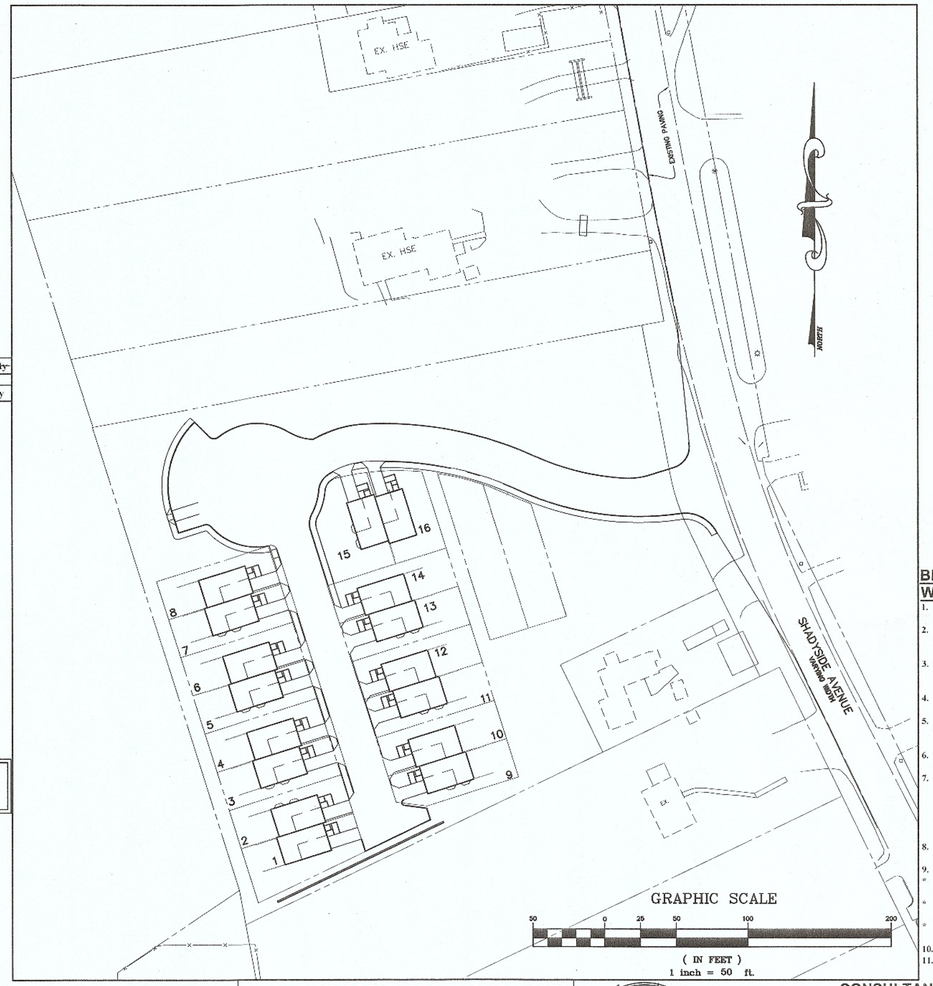
SOIL MAP:
SCALE: 1"=1000'
FROM P.G SOIL MAP SHEET NO. 25

NOTES ON UTILITIES

1. Utility information shown hereon was obta ined from available records and verified in the field insofar as possible. All utility locations should be considered approximate. The exact location of all underground utilities must be field by the contractor prior to construction.
2. The contractor must h and -dig test pits at all utility crossings to determine the exact location and depth of all utilities well in advance of construction.
3. For marking locations of existing utilities, notify "MISS UTILITY" at 1 - 800 - 257 - 7777, 48-hours prior to any excavation e construction.
4. Omissions and/or additions of utilities found during construction shall be sole responsibilities of any contractor engaged in excavation at this site. CDDI, Inc. shall be notified immediately or any and all utility information, omissions a nd additions found by any contractor.
5. Due to the proximity of live underground and overhead utilities, CDDI, Inc. is not responsible for any damage or injury sustained during construction by any person, trucks, trailers, or equipment used to or adjacent t o the site.

WETLAND NOTE:

IT IS THE APPLICANT'S RESPONSIBILITY TO OBTAIN ANY STATE PERMITS, IF REQUIRED, FOR ANY CONSTRUCTION ACTIVITY COVERED BY THIS PLAN WHICH IMPACTS A STATE REGULATED WETLAND. ANY CHANGES TO PLANS FOR THIS DEVELOPMENT WHETHER REQUIRED BY THE STATE OR INITIATED BY THE APPLICANT TO MEET STATE REQUIREMENTS, MUST BE APPROVED BY PGSCD.



GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

TOTAL DISTURBED AREA = 2.40 ACRES

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. 19644, EXPIRATION DATE: 4/18/2021

STATE OF MARYLAND · MASSOUD TOWHIDI · NO. 19644 · REGISTERED PROFESSIONAL ENGINEER

08/14/20

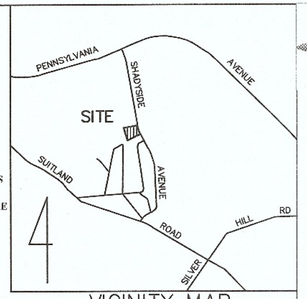
Mapped Soil Types on Bradbury Property

Map Unit	Description	K Factor	Hydric
BIA	Beltsville Silt Loam, 0 To 2 Percent Slopes	.43	no
CtD2	Croom Gravelly Sandy Loam, 15 To 25 Percent Slopes, Moderately Eroded	.43	no
CuC	Croom-Urban Land Complex, 8 To 15 Percent Slopes	.43	no

* May potentially contain hydric inclusions

NOTES:

1. Schedule may be adjusted due to inclement weather and any adjustment needs approval by PGSCD.
2. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
   A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERMITER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
   B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
3. STABILIZATION PRACTICES ON THIS PROJECT MUST BE IN COMPLIANCE WITH THE REQUIREMENTS OF COMAR 26.17.1.08 G REGULATIONS.



VICINITY MAP
SCALE: 1"=2000

LEGEND:

EXISTING:

- FIRE HYDRANT
- WATER MANHOLE
- STORM DRAIN MANHOLE
- SEWER MANHOLE
- LIGHT POLE
- POWER POLE
- FENCE LINE
- SPECIMENT TREE
- TREE LINE
- OHW — OVER HEAD WIRES
- 2 — INTER. 2' CONTOUR
- 10 — INDEX 10' CONTOUR
- BUILDING/SHEDS
- FP — EX. 100 YR. FLOOD PLAIN
- WUS — WATER OF U.S. LIMITS
- WL — WETLAND
- WB — WETLAND BUFFER
- PROPOSED 100 YR. F.P.

PROPOSED:

- FIRE HYDRANT
- WATER VALVE
- WATER MANHOLE
- STORM DRAIN MANHOLE
- SEWER MANHOLE
- CATCH BASIN
- YARD INLET
- STORM DRAIN PIPE
- FLOW LINE
- TREE LINE
- BUILDING RESTRICTION LINE(TYP.)
- 20 — CONTOUR
- BUILDING

SITE NOTES:

1. TAX MAP/GRID:80/D2
2. ADC:18E8
3. 200 SHEET NO: 203SE04
4. PLAT REF.:PARCEL "A"& LOTS 15 THRU 40-BLOCK"N"; "BRADBURY SUBDIVISION"; P.B.91,P.NO.42(LOT 40 EXCLUDED)
5. BOUNDARY BASED ON RECORDED PLAT,DETERMINED BY C.D.D.I.
6. AREA:(SURVEY) 111,057 S.F. OR 2.5495 A.C. (PLAT) 111,363 S.F. OR 2.5500 A.C.
7. SEWER/WATER CATEGORIES: S-3/W-3
8. ZONING: R-T
   PROPOSED:ONE FAMILY SEMI-DETACHED
9. NO KNOWN HISTORICAL SITES.
10. WETLANDS, IF ANY, SHOWN HEREON.
11. 2 FEET TOPOGRAPHY: AERIAL BY McKenzie Snyder.
12. WATER OF U.S. BY C.D.D.I.
13. 100 YEAR FLOODPLAIN DELINEATION BY C.D.D.I.
14. NO CEMETERIES FOUND ON SITE.
15. SWM CONCEPT PLAN APPROVAL NO: 9810-2004-00
16. FIRE:#17,BOULEVARD HEIGHTS-0.67 MILE
17. POLICE:OXON HILL DISTRICT 4-4.64 MILES
18. A FEE-IN-LIEU OF $19,100 SHALL BE PAID, FOR PARKS AND RECREATION FACILITIES.
19. R-T REGULATIONS
    MIN. AREA FOR DEV.: 2 AC.
    NET LOT AREA: 1,500 S.F.(MIN.)
    LOT COVERAGE: MAX.LOT COVERAGE OF OVERALL NET TRACT AREA: 35%
    LOT WIDTH AT FRONT BLDG LINE: 100 FT. FOR ENTIRE TRACT
    LOT WIDTH AT FRONT STREET LINE: 100 FT. FOR ENTIRE TRACT
    18' SETBACK FROM "STREET" MIN. (CENTER UNIT)
    VARIATIONS IN SETBACKS: 2 FT.MIN.
    800 S.F. MIN. FOR FRONT,SIDE & REAR (500 S.F.MIN.;OPEN AREA)
    DENSITY:8.00 MAX. (ONE FAMILY SEMI-DETACHED)
    8.00 x 2.55=20 UNITS PERMITTED
    18 UNITS PROPOSED
20. PARKING:
    2.04 SPACES PER DWELLING UNIT:18X2.04=37 REQUIRED; 38 PROPOSED

OWNER /DEVELOPERS CERTIFICATE

I/WE HEREBY CERTIFY THAT I/WE HAVE REVIEWED THIS SOIL EROSION AND SEDIMENT CONTROL PLAN AND THAT ANY CLEARING, GRADING, DRAINAGE, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. PRINCE GEORGE'S SOIL CONSERVATION DISTRICT AND THE ENFORCEMENT AUTHORITY SHALL HAVE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATIONS.

SIGNATURE: Ghazi Hussain DATE: 23 December 2019
NAME (PRINTED): Ghazi Hussain TITLE: Finance Director, Member
PHONE NO.: (908) 323 9780
COMPLETE ADDRESS: 5055 Amesbury Drive, Columbia MD 21044

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 LOCATION AND MANNER WHICH DOES NOT ADVERSLY 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, UNSIGHTLYDEBRIS, 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 STABILIZED IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETERIA 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 VOLUNTARY RE-VEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSITENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTACKY 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-CONSXTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PREVENT AQUATICS 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 THE 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.

CONSULTANT'S CERTIFICATION

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

SIGNATURE: MD LICENSE # 19644 DATE: 08/14/20
NAME: MASSOUD TOWHIDI, PE
CDDI
4600 POWDER MILL ROAD, SUITE 200, BELTSVILLE, MD 20705
(301) 937-3501

STATE OF MARYLAND · MASSOUD TOWHIDI · NO. 19644 · REGISTERED PROFESSIONAL ENGINEER

UTILITY CERTIFICATION:

I HEREBY CERTIFY THAT THE EXISTING AND/OR PROPOSED UNDERGROUND UTILITY INFORMATION SHOWN HEREON HAS BEEN CORRECTLY DUPLICATED FROM UTILITY COMPANY RECORDS, FURTHER THAT THIS PROJECT HAS BEEN CAREFULLY COORDINATED WITH EACH INVOLVED UTILITY COMPANY, AND ALL AVAILABLE UNDERGROUND UTILITY INFORMATION RELATIVE TO THIS PLAN HAS BEEN SOLICITED FROM THEM.

08/14/20
MASSOUD TOWHIDI, P.E. MD. REG. #19644 DATE

DRAINAGE/CERTIFICATION:

I HEREBY CERTIFY THAT THE GRADING SHOWN ON THIS PLAN CONFORMS WITH SUBTITLE 32, DIVISION TWO OF THE PRINCE GEORGE'S COUNTY CODE AND THAT I HAVE INSPECTED THIS SITE AND THAT ALL DRAINAGE ON TO THIS SITE FROM OTHER UPGRADE PROPERTIES, AND FROM THIS SITE ONTO OTHER DOWNGRADE PROPERTIES HAS BEEN ADDRESSED IN SUBSTANTIAL ACCORDANCE WITH APPLICABLE CODES.

08/14/20
MASSOUD TOWHIDI, P.E. MD. REG. #19644 DATE

STATE OF MARYLAND · MASSOUD TOWHIDI · NO. 19644 · PROFESSIONAL ENGINEER

PRINCE GEORGE'S SOIL CONSERVATION DISTRICT
APPROVAL 2-27-21
SEDIMENT CONTROL, GRADING, SOILS AND DRAINAGE
SCD 129-07- 02 2504
EXPIRATION DATE
POND
DISTRICT SIGNATURE APPROVAL DATE
5-1-07
UPDATE 4-27-09 Rev 9-11-20 gw
UPDATE 5-9-11
UPDATE 2-27-19

MARYLAND · DEPARTMENT OF NATURAL RESOURCES · 1941

CAPITOL DEVELOPMENT DESIGN, INC.
ENGINEERS – PLANNERS – SURVEYOR'S
4600 POWDER MILL ROAD – SUITE 200 – BELTSVILLE, MD 20705
OFFICE (301) 937-3501 FAX (301) 937-3507

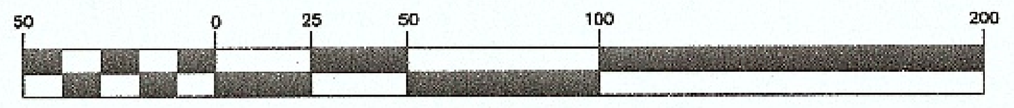
BRADBURY SUBDIVISION
SQUALDINGS 6TH ELECTION DISTRICT
PRINCE GEORGE'S COUNTY, MARYLAND

COVER SHEET FOR FINAL GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN FOR STREETS, UTILITIES, HOUSE AND SWM CONSTRUCTION

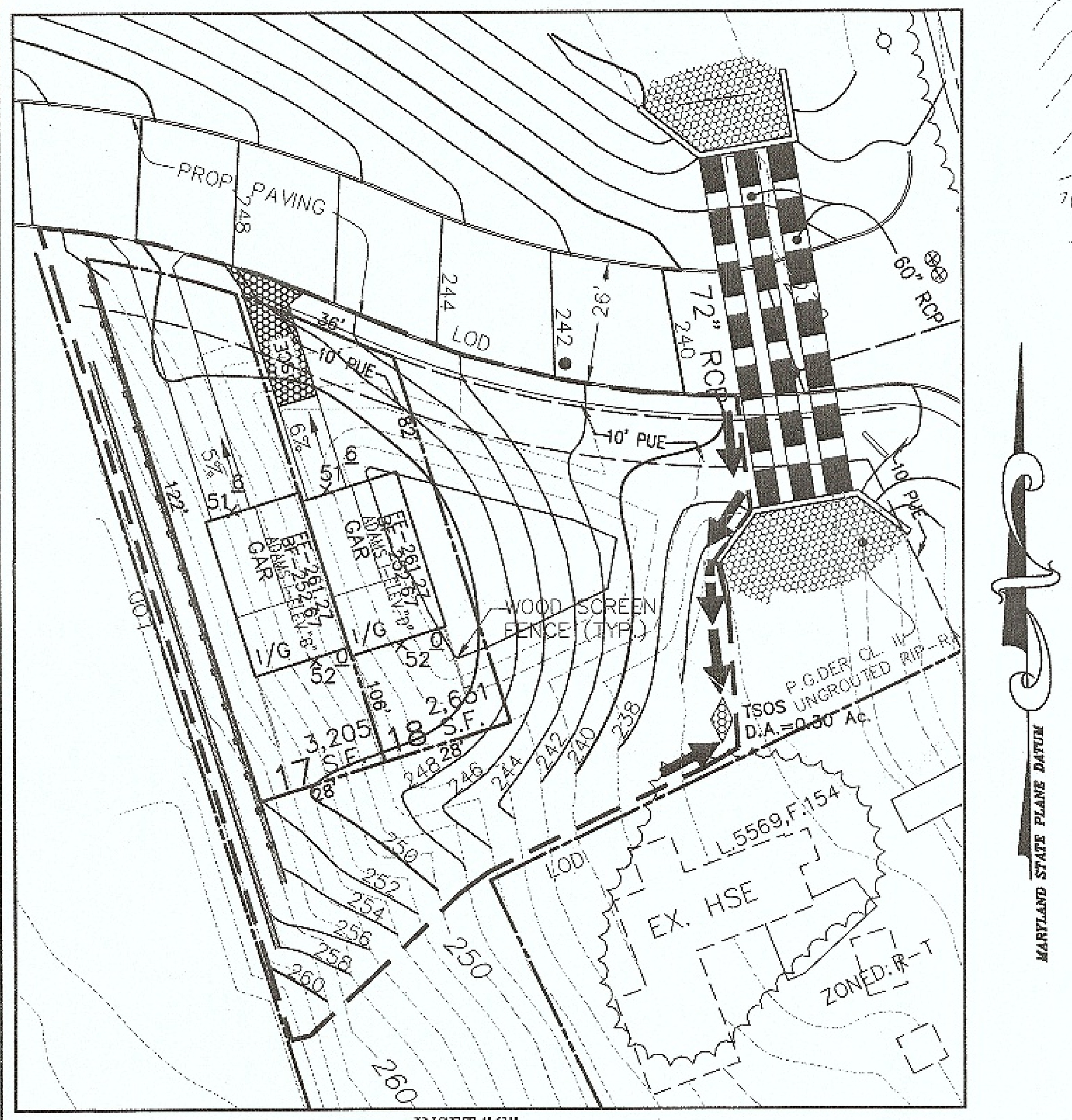
REVISIONS

1. PLAN UPDATE,	RRR, 04/26/2011
2. PLAN UPDATE,	RRR 12/20/2019
3. ADDRESS SCD COMMENTS,	RRR 08/14/2020

DATE: NOV., 2006
DWN. RLS | CHECKED VC
SCALE: 1"=50'
PROJECT/FILE NO. 04-020
SHEET NO. SC 1 OF 5



SEDIMENT TRAP NO. 1:
TYPE: PIPE OUTLET SEDIMENT TRAP (ST-I)
D.A. (PRE-DEVELOPMENT)=1.60 AC.
D.A. (POST-DEVELOPMENT)=1.90 AC.
WET STORAGE REG'D.=3,420 C.F.
DRY STORAGE REG'D.=3,420 C.F.
WET STORAGE PROVIDED=3,578 C.F.
DRY STORAGE PROVIDED=3,443 C.F.
STORAGE DEPTH(WET)=2.20'
STORAGE DEPTH(DRY)=1.50'
TRAP BOTTOM ELEVATION=236.00
WET STORAGE ELEVATION=238.20
DRY STORAGE ELEVATION=239.70
TOP OF EMBANKMENT ELEVATION=240.00
AVERAGE BOTTOM SIZE=46'X40'
WIDTH AT TOP OF EMBANKMENT=4.0'
MAX. SIDE SLOPE (CUT & FILL)=2:1
CLEANOUT ELEVATION=237.20



INSET "C"

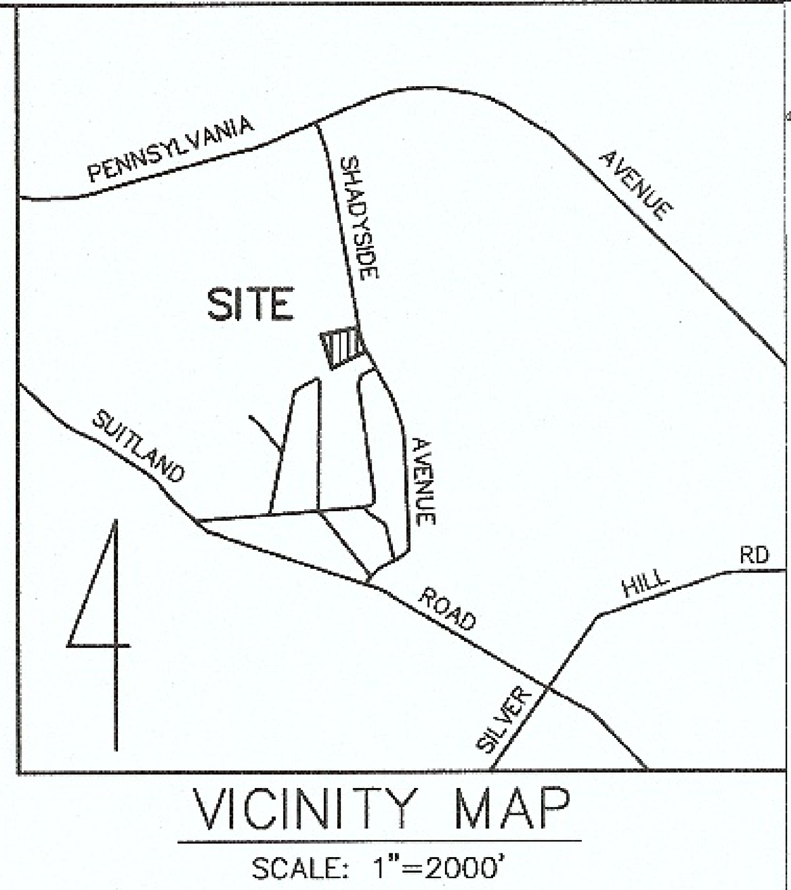
GRADING,SOIL EROSION AND SEDIMENT CONTROL PLAN FOR REMOVAL OF STONE OUTLET SEDIMENT TRAP #1 AND CONSTRUCTION OF LOTS 17 & 18

LEGEND:

EXISTING:	PROPOSED:
FIRE HYDRANT	FIRE HYDRANT
WATER MANHOLE	WATER VALVE
STORM DRAIN MANHOLE	WATER MANHOLE
SEWER MANHOLE	STORM DRAIN MANHOLE
LIGHT POLE	SEWER MANHOLE
POWER POLE	CATCH BASIN
—x— FENCE LINE	YARD INLET
SPECIMENT TREE	STORM DRAIN PIPE
TREE LINE	FLOW LINE
—OHW— OVER HEAD WIRES	TREE LINE
2 INTER. 2' CONTOUR	BUILDING RESTRICTION LINE(TYP.)
10 INDEX 10' CONTOUR	20 CONTOUR
BUILDING/SHEDS	BUILDING
FP EX. 100 YR. FLOOD PLAIN	
WUS WATER OF U.S. LIMITS	
WL WETLAND	
WB WETLAND BUFFER	
PROPOSED 100 YR. F.P.	

MISS UTILITY
FOR LOCATION OF UTILITIES CALL 1-800-257-7777
48 HOURS IN ADVANCE OF ANY WORK IN THE VICINITY

PROVIDE INITIAL EARTH DIKE ON EX. GRADE TO DIVERT FLOW TO THE TRAP AND MODIFIED AS NECESSARY AS GRADING PROGRESS.



VICINITY MAP
SCALE: 1"=2000'

SEDIMENT CONTROL LEGEND:

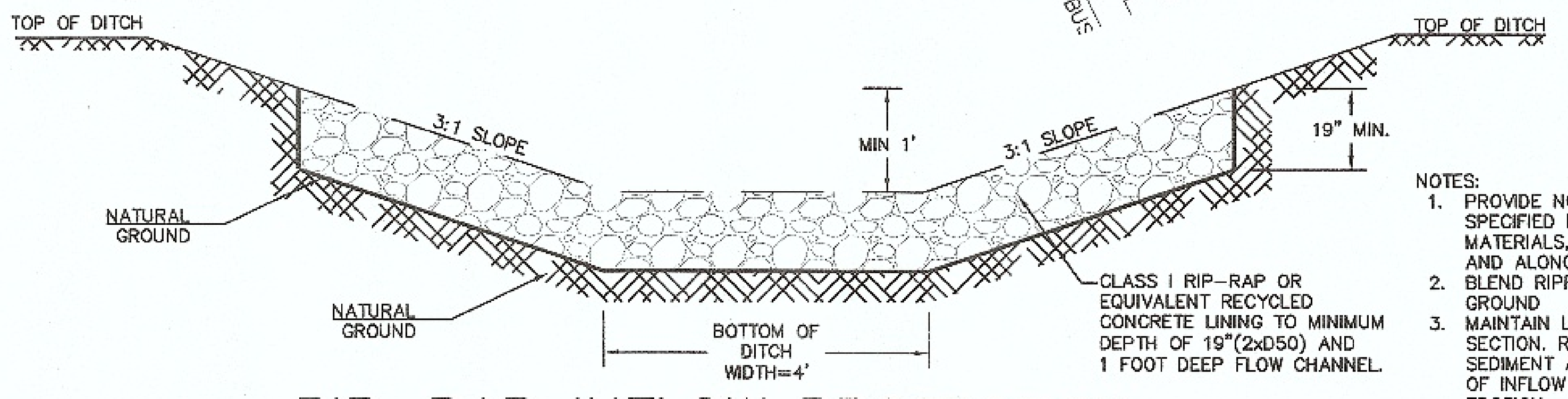
Symbol	Description
SCE	STABILIZED CONSTRUCTION ENTRANCE
	EARTH DIKE
PD/S-1	PERIMETER DIKE/SWALE
SF	SILT FENCE
SSF	SUPER SILT FENCE
	PROPOSED DRAINAGE DIVIDE
	EXISTING DRAINAGE DIVIDE
RRP	RIP-RAP INFLOW PROTECTION
	INITIAL EARTH DIKE
PSD - 12	PIPE SLOPE DRAIN
	STONE OUTLET STRUCTURE
ISSD	IN-STREAM STONE DIKE
SP	SUMP PIT
	SAND BAGS
GM	GABION

STATE OF MARYLAND
MASSOUD TOWHIDI
NO. 19644
REGISTERED PROFESSIONAL ENGINEER
08/14/20

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. 19644
EXPIRATION DATE: 4/18/2021

STATE OF MARYLAND
MASSOUD TOWHIDI
NO. 19644
REGISTERED PROFESSIONAL ENGINEER
8-31-20



RIP-RAP INFLOW PROTECTION
CROSS SECTION A-A
NOT TO SCALE

NOTES:
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
2. BLEND RIPRAP INTO EXISTING GROUND
3. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

OWNER/DEVELOPER
COME BACK TERPS LLC
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PRINCE GEORGE'S SOIL CONSERVATION DISTRICT
MARYLAND
1941

CDD
CAPITOL DEVELOPMENT DESIGN, INC.
ENGINEERS - PLANNERS - SURVEYOR'S
4600 POWDER MILL ROAD - SUITE 200 - BELTSVILLE, MD 20705
OFFICE (301) 937-3501
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BRADBURY SUBDIVISION
SQUALDINGS 6TH ELECTION DISTRICT
PRINCE GEORGE'S COUNTY, MARYLAND

FINAL GRADING, SOIL EROSION & SEDIMENT CONTROL PLAN

REVISIONS
1. PLAN UPDATE, RRR, 04/26/2011
2. PLAN UPDATE, RRR 12/20/2019
3. ADDRESS SCD COMMENTS, RRR 08/14/2020

DATE: NOV., 2006
DWN. RLS
CHECKED VC
SCALE: 1"=30'
PROJECT/FILE NO. 04-020
SHEET NO. SC 2 OF 5

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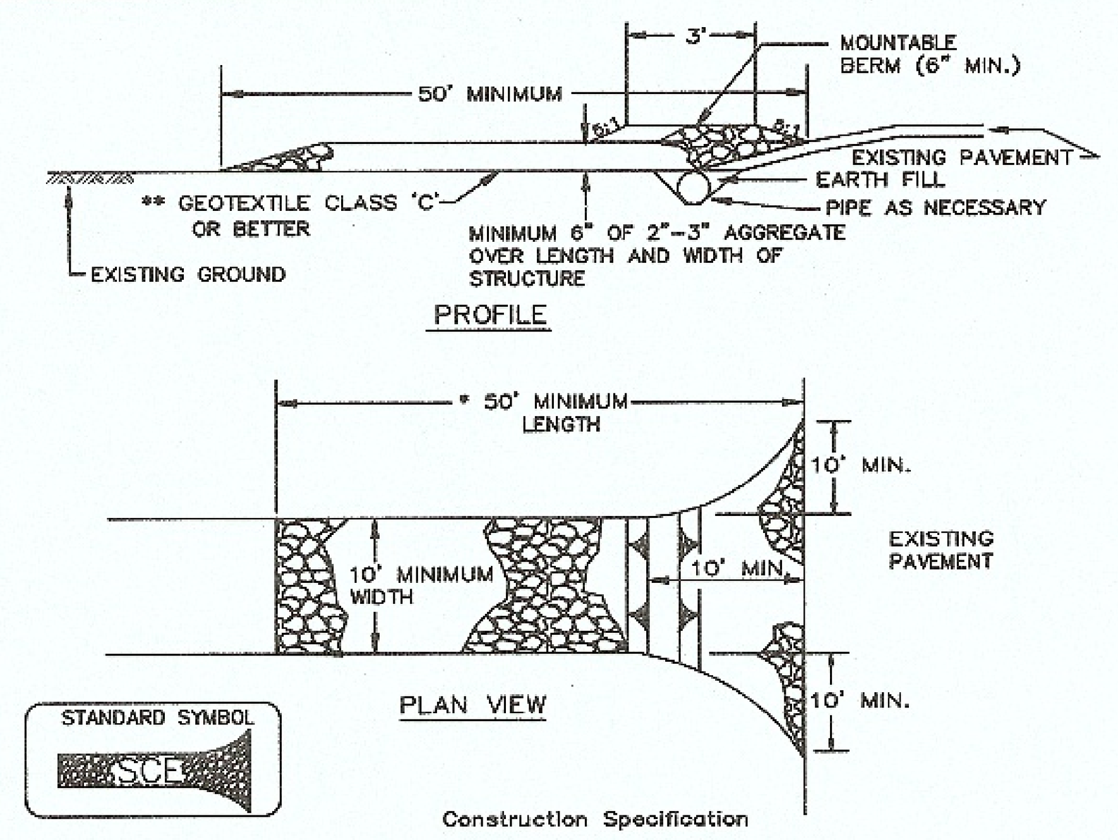
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

STABILIZED CONSTRUCTION ENTRANCE

Construction Specification

1. Length – minimum of 50'* (30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. ** The plan approval authority may not require single family residences to use geotextile.

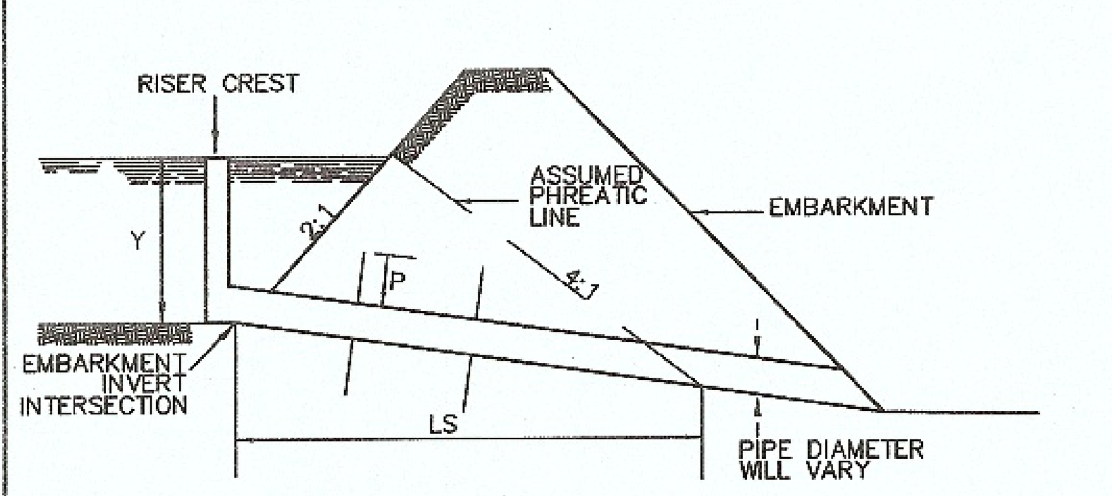
4. Stone – crushed aggregate (2" to 3"), or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 13 – ANTI-SEEP COLLAR DESIGN



ANTI SEEP COLLAR DESIGN

where: p= vertical projection of anti-seep collar (ft).

Ls = length of pipe in the saturated zone (ft.)

y= distance in feet from upstream invert of pipe to highest normal water level expected to occur during the life of the structure usually the top of the riser.

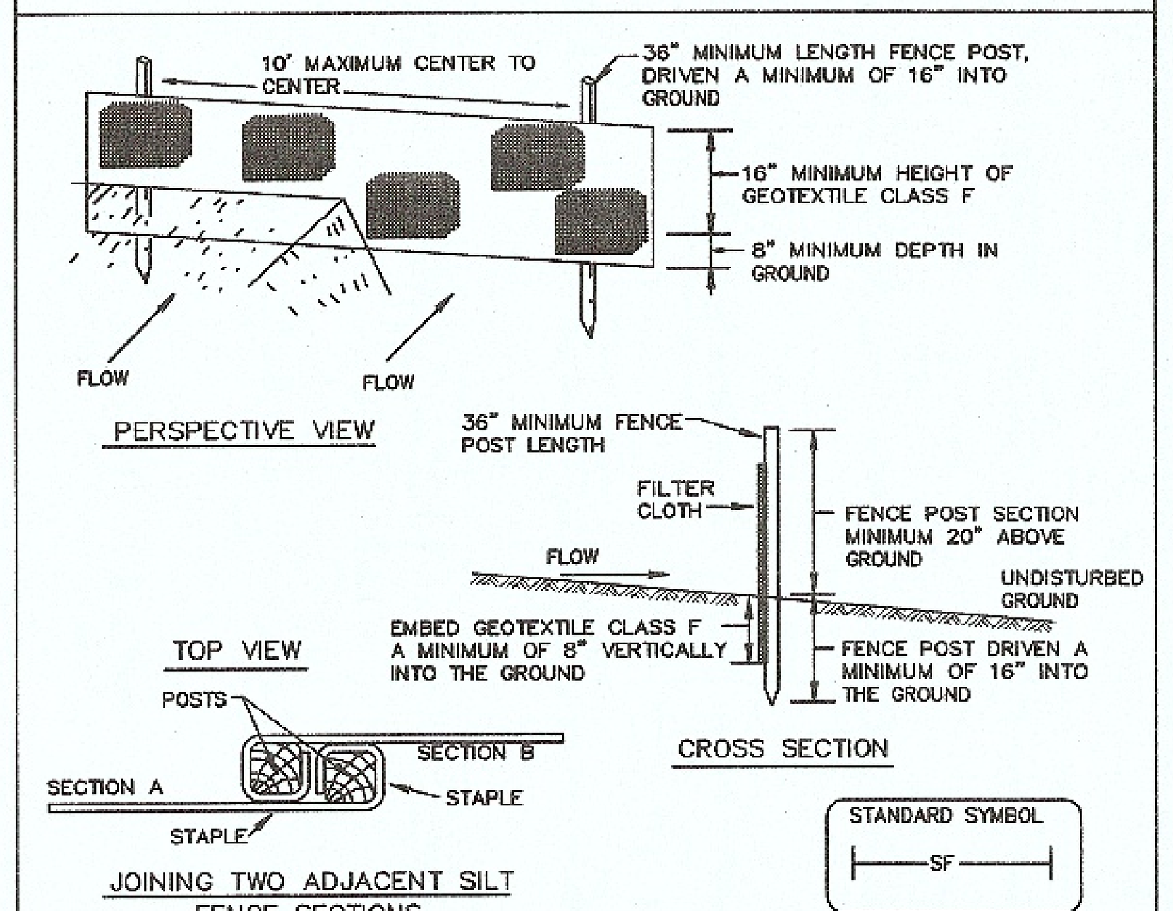
z= slope of upstream embankment as a ratio of z ft. horizontal to one ft. vertical.

z_o= slope of pipe in feet per foot.

This procedure is based on the phreatic line as shown in the drawing above:

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 19 – 23	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE

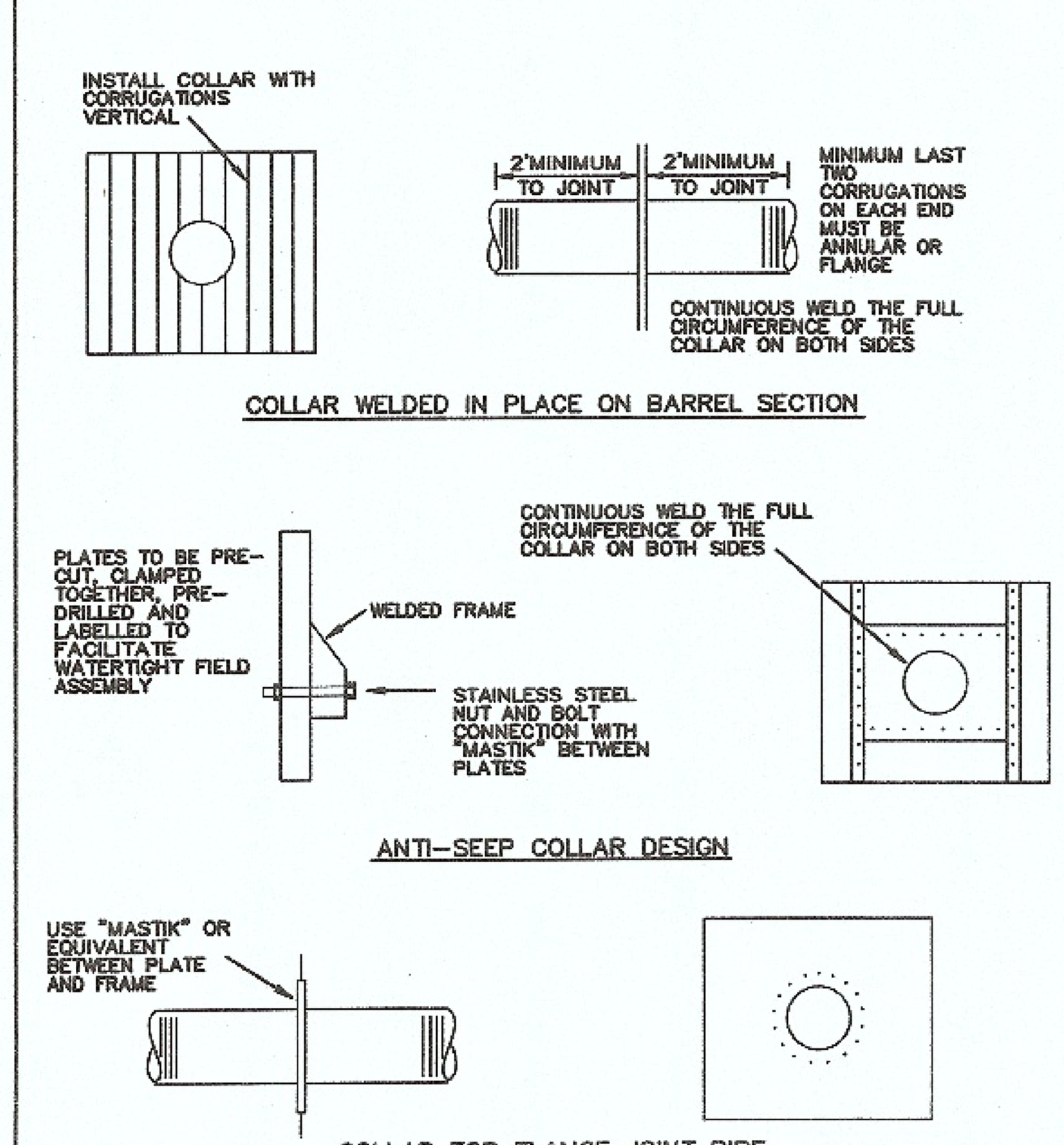
Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

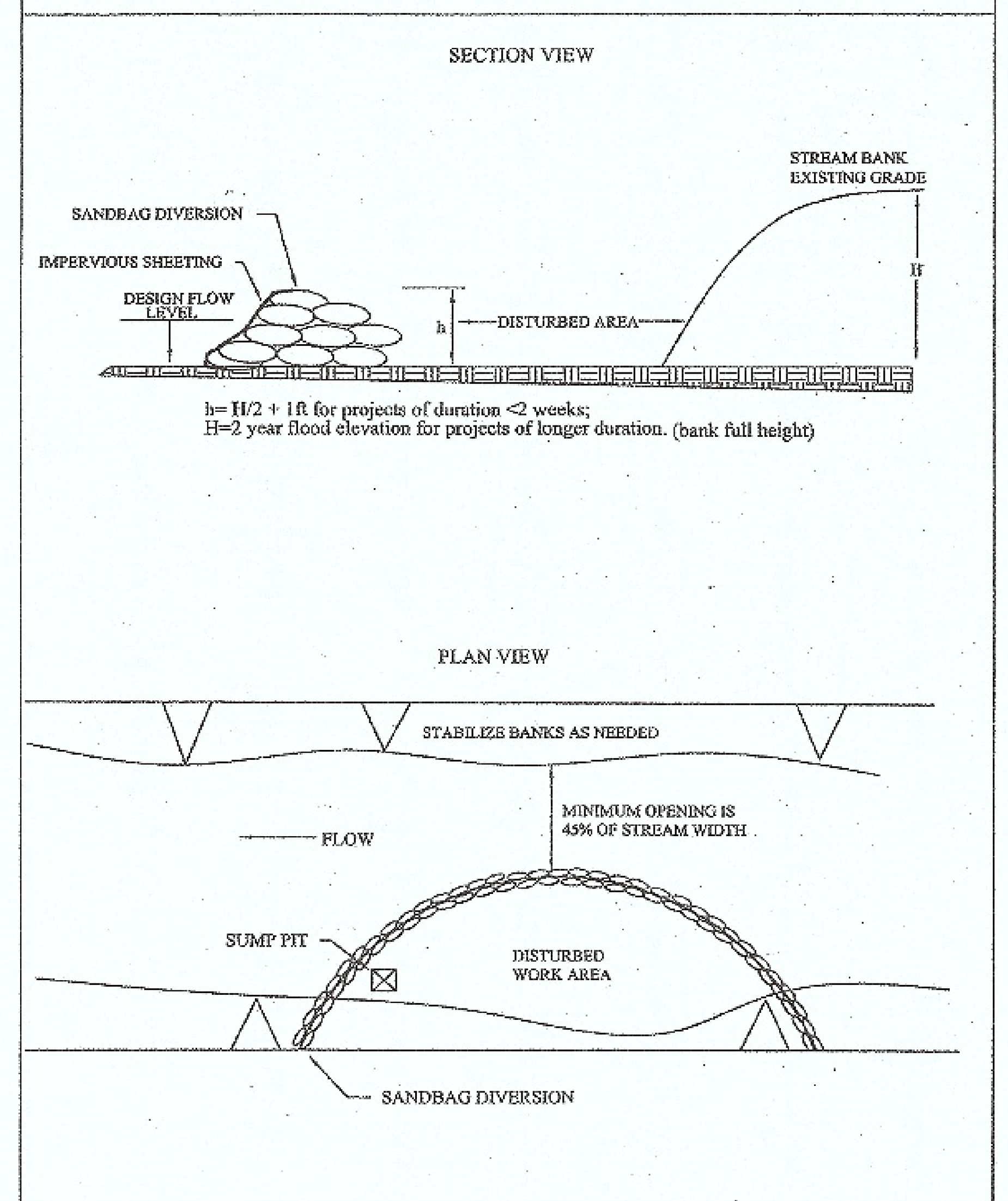
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 14 – TYPICAL ANTI-SEEP COLLARS



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 19 – 24	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

PGSCD DETAIL 2 SANDBAG DIVERSION



TEMPORARY IN-STREAM CONSTRUCTION MEASURES	PAGE III-4	Prince George's Soil Conservation District

PGSCD DETAIL 2 SANDBAG DIVERSION

Construction Specifications

1. The height (H) of the sandbag diversion shall be 2-year flood elevation (bankfull height) for projects of two weeks or greater duration. For projects of shorter duration the height (h) can be H/2 + 1 foot where H is the height of the embankment.

2. Sandbags shall consist of materials which are resistant to ultra-violet radiation, punctures and tearing. Sandbags must be woven tightly enough to prevent leakage of fill material (i.e. sand, fine gravel, etc.).

3. Sheeting shall consist of polyethylene or other material which is impervious and resistant to punctures and tearing. Sheeting shall be overlapped such that the upstream portion covers the downstream portion with at least an 18 inch overlap.

4. The diversion structure shall be installed from upstream to downstream during periods of low flow.

5. The streambed shall be hand prepared prior to placement of the base layer of sandbags to ensure a water tight fit. It may be necessary to prepare the bank in a similar fashion.

6. All excavated material shall be deposited and stabilized in an approved area outside of the 100 year floodplain.

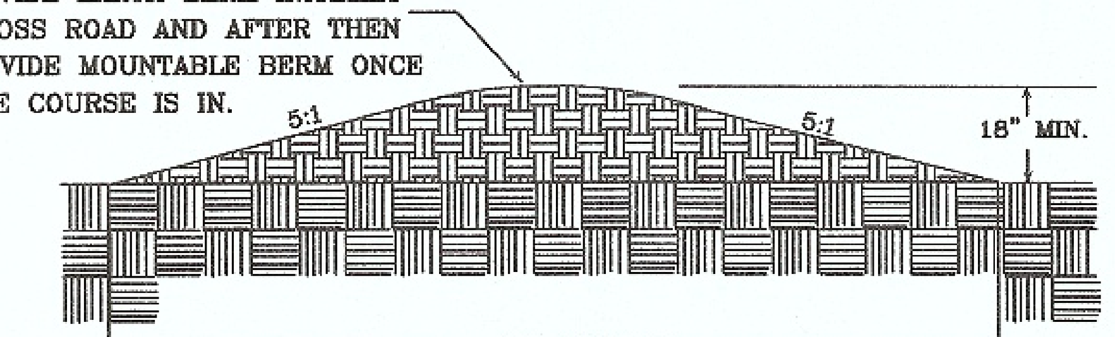
7. Dewatering of sediment laden water from the construction area shall be pumped from a sump pit to a trapping device or a stable outlet.

8. Sandbag diversions can not obstruct more than 55% of the stream width. Bank stabilization measures need to be placed in the constricted section if accelerated erosion and bank scour are observed during the construction time or if the project time will last more than 2 weeks.

9. Inspection and any required maintenance shall be performed periodically and after each rain event.

TEMPORARY IN-STREAM CONSTRUCTION MEASURES	PAGE III-5	PRINCE GEORGE'S SOIL CONSERVATION DISTRICT

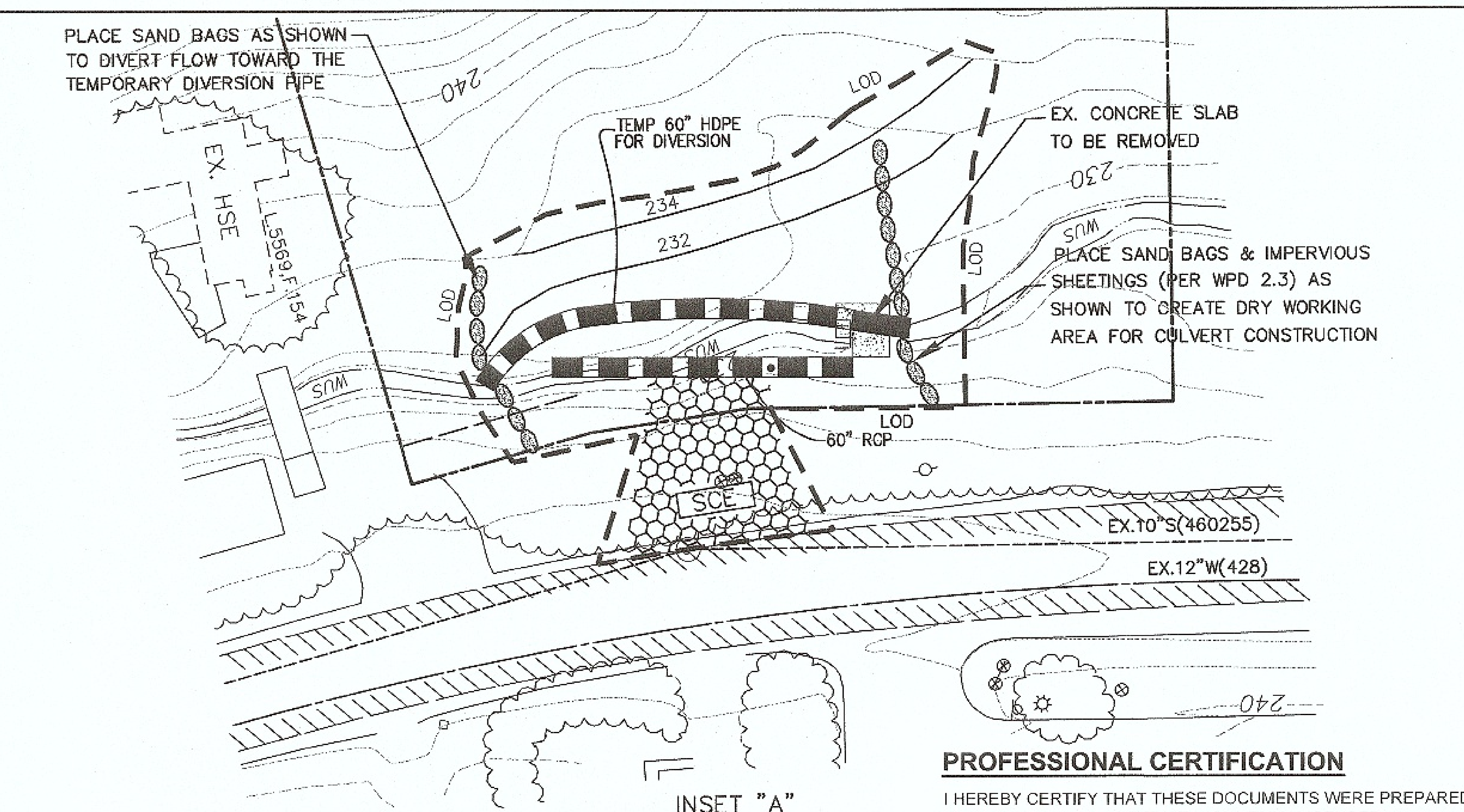
PROVIDE EARTH BERM INITIALLY ACROSS ROAD AND AFTER THEN PROVIDE MOUNTABLE BERM ONCE BASE COURSE IS IN.



MOUNTABLE BERM DIVERSIONS DETAILS
N.T.S.

MISS UTILITY
FOR LOCATION OF UTILITIES CALL 1-800-257-7777
48 HOURS IN ADVANCE OF ANY WORK IN THE VICINITY

OWNER/DEVELOPER
COME BACK TERPS LLC
ATTN: MR. TZANNETIS A. SERLEMITSOS
5085 AMESBURY DR.,COLUMBIA MD 21044
T.P. (603) 393-4125
E-mail: tasets@yahoo.com



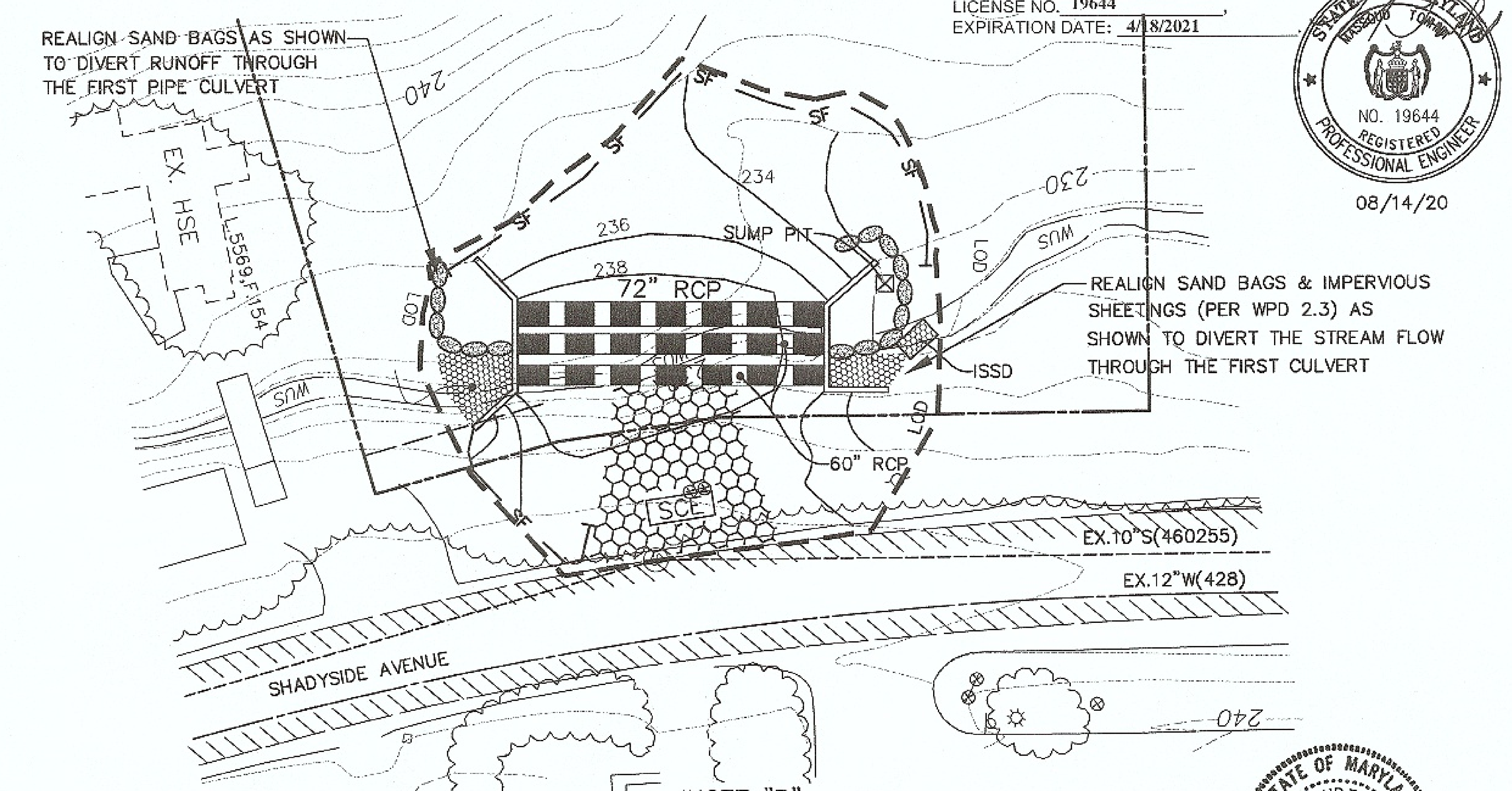
INSET "A"
CULVERT INSTALLATION
SCALE: 1"=30'

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. 19644
EXPIRATION DATE: 4/18/2021

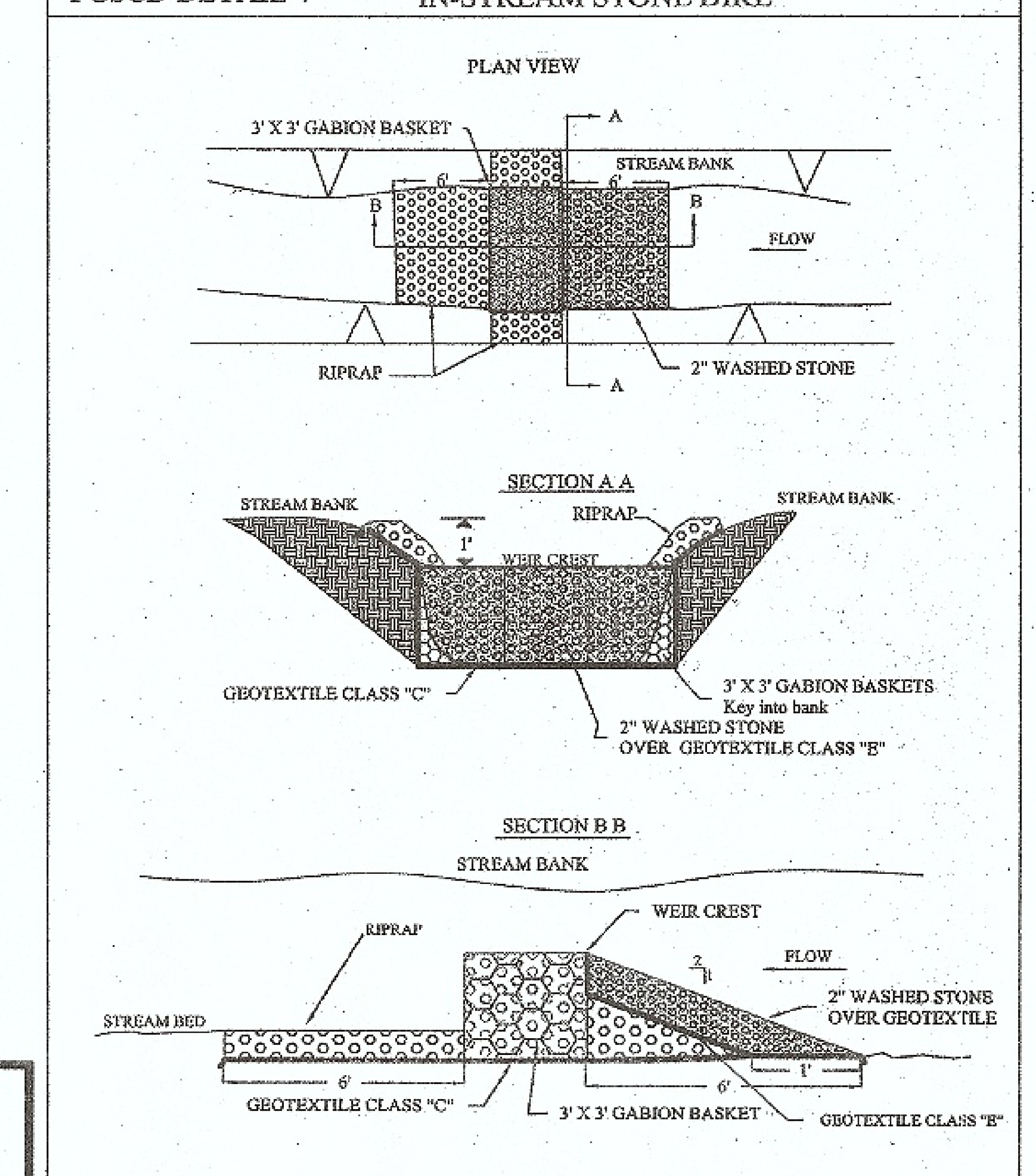
STATE OF MARYLAND NO. 19644 REGISTERED PROFESSIONAL ENGINEER

08/14/20



INSET "B"
CULVERT INSTALLATION
SCALE: 1"=30'

PGSCD DETAIL 4 IN-STREAM STONE DIKE



TEMPORARY IN-STREAM CONSTRUCTION MEASURES	PAGE III-8	Prince George's Soil Conservation District

PGSCD DETAIL 4 IN-STREAM STONE DIKE

Construction Specifications

1. In-stream stone dike is a sediment filtering device for use in streams that carry wet weather flow only. This device is not for use where base flow conditions exist.

2. The stream subgrade shall be smooth, firm and free from protruding objects or voids that would effect the proper positioning of the wire baskets or damage the filter cloth.

3. Material Specifications – Filter fabric: use Geotextile Class C and E
Stones: use 2 inch washed stone for filter and 4 – 12 inch stone for gabions and outlet,
Gabion baskets: 3 foot by 3 foot.

4. Geotextile Class C shall be carefully and loosely placed on the prepared subgrade and secured. Adjacent strips shall overlap a minimum of 12 inches. If the filter fabric is torn or damaged, it will need to be repaired or replaced.

5. The empty wire baskets units shall be set on the prepared subgrade and the vertical ends bound together with wire ties at spacings that are adequate to permit stretching of the units to remove kinks. The use of stakes, pins or other acceptable methods shall be used to insure a good alignment of the empty wire basket units.

6. The empty basket units shall be filled carefully with 4 – 12 inch stone placed by hand or machine to assure good alignment with a minimum of voids between stones and to avoid bulging of mesh. Care shall be taken in placing the top layer of stone to assure a uniform surface thus avoiding any bulging of the lid mesh. The lid shall be secured to the sides and ends with wire ties.

7. A one foot layer of 2 inch washed stone over Geotextile Class E shall be placed on the upstream side for sediment filtering.

8. The outlet shall convey the discharge in an erosion free manner to an existing stable channel. 4 – 12 inch stone underlain with Geotextile Class C shall be employed as necessary.

9. Inspection and any required maintenance shall be performed periodically and after each rain event. Entrapped sediment is to be excavated and disposed of in an approved disposal area outside the 100 year floodplain.

TEMPORARY IN-STREAM CONSTRUCTION MEASURES	PAGE III-9	PRINCE GEORGE'S SOIL CONSERVATION DISTRICT

PRINCE GEORGE'S SOIL CONSERVATION DISTRICT MARYLAND 1941

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BRADBURY SUBDIVISION
SQUALDINGS 6TH ELECTION DISTRICT
PRINCE GEORGE'S COUNTY, MARYLAND

GRADING, SOIL EROSION & SEDIMENT CONTROL NOTES AND DETAILS

REVISIONS
1. PLAN UPDATE, RRR, 04/26/2011
2. PLAN UPDATE, RRR 12/20/2019
3. ADDRESS SCD COMMENTS, RRR 08/14/2020

DATE: APRIL, 2007
DWN. RLS | CHECKED VC
SCALE: AS SHOWN
PROJECT/FILE NO. 04-020
SHEET NO. SC 3 OF 5

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

Purpose

Vegetative Stabilization specifications 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 filtration of rainfall, thereby reducing sediment loads and runoff to downstream areas, and improving wildlife habitat and visual resources.

Conditions Where Practice Applies

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary soil stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

Effects on Water Quality and Quantity

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. Vegetation, over time, 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 devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

Section I – Vegetative Stabilization Methods and Materials

A. Site Preparation

i. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.

ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.

iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.

iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50 % total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50 % will pass through a #100 mesh sieve and 98–100 pass through a #20 mesh sieve.

% will

iv. Incorporate lime and fertilizer into the top 3–5" of soil by disking or other suitable means.

C. Seedbed Preparation

i. Temporary Seeding

a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" 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 should not be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition 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 – 5" of soil by disking or other suitable means.

ii. Permanent Seeding

a. Minimum soil conditions required for permanent vegetative establishment:

1. Soil pH shall be between 6.0 and 7.0
2. Soluble salts shall be less than 500 parts per million (ppm).
3. The soil shall contain less than 40 % clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or special lespedeza is to be planted, then a sandy soil (< 30% silt plus clay) would be acceptable.
4. Soil shall contain 1.5 % minimum organic matter by weight.
5. Soil must contain sufficient pore space to permit adequate root penetration.
6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.

b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 – 5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.

c. Apply soil amendments as per soil test or as included on the plans.

d. Mix soil amendments into the top 3 – 5" of topsoil by disking other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 – 3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

D. Seed Specifications

i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within 6 months immediately preceding the date of sowing such material on this job.

Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.

ii. Inoculant – The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant 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 75–80s F can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding

i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder.

a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen: maximum of 100 lbs per acre total of soluble nitrogen; P205 (phosphorus): 200 lbs/ac; K20 (potassium): 200 lbs/ac.

b. 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.

c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.

a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.

b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

a. "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.

b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (In order of preference)

i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds specified in the Maryland Seed Law.

ii. Wood Cellulose Fiber Mulch (WCFM)

a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.

b. WCFM shall 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.

c. WCFM, including dye, shall contain no germination or growth inhibiting factors.

d. WCFM materials shall 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 shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

e. WCFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic.

f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm, diameter approximately 1 mm, pH range of 4.0 to 8.5, ash content of 1.6 % maximum and water holding capacity of 90 % minimum.

Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas – Mulch shall be applied to all seeded areas immediately after seeding.

i. If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.

ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.

iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs of wood cellulose fiber per 100 gallons of water.

H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area 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 two (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 be used on the contour if possible.

ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. The remainder of area should appear uniform after binder application. Synthetic binders – such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' wide and 300' to 3,000' long.

I. Incremental Stabilization – Cut Slopes

i. All cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.

ii. Construction sequence (Refer to Figure 3 below):

a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.

b. Perform phase 1 excavation, dress, and stabilize.

c. Perform phase 2 excavation, dress, and stabilize. Overseed phase 1 as necessary.

d. Perform final phase excavation, dress, 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.

J. Incremental Stabilization of Embankments – Fill Slopes

i. Embankments shall be constructed in lifts as prescribed on the plans.

ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.

iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.

iv. Construction sequence: Refer to Figure 4 (below).

a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct Slope Silt Fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.

b. Place phase 1 embankment, dress and stabilize.

c. Place phase 2 embankment, dress and stabilize.

d. Place final phase embankment, dress 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.

Section II – Temporary Seeding

Vegetation – annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent seeding is required.

A. Seed Mixtures – Temporary Seeding

i. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) 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 plans and completed, then Table 26 must be put on the plans.

ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

Section III – Permanent Seeding

Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.

A. Seed Mixtures – Permanent Seeding

i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 25. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 – Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.

ii. For sites having disturbed area over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written.

iii. For areas receiving low maintenance, apply ureaform fertilizer (46–0–0) at 3< lbs/1000 sq ft (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Section IV – Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

A. General specifications

i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector.

ii. Sod shall be machine cut at a uniform soil thickness of ", plus or minus ", at the time of cutting. Measurement for thickness shall include top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.

iii. Standard size sections of sod shall 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.

iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to installation.

B. Sod Installation

i. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.

ii. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered 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.

iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.

iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operation of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

C. Sod Maintenance

i. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.

ii. After the first week, sod watering is required as necessary to maintain adequate moisture content.

iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

TABLE 27 GEOTEXTILE FABRICS

CLASS	APPARENT OPENING SIZE MM. MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSI. MIN.
A	0.30	250	500
B	0.60	200	320
C	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (SILT FENCE)	0.40-0.80 *	90	190

* US STD. SIEVE C2-02215

TABLE 28 STONE SIZE

	SIZE RANGE	D_{50}	D_{100}	AASHTO	WEIGHT
NUMBER 57*	3/8" - 1 1/2"	1/2"	1 1/2"	M-43	N/A
NUMBER 1	2" - 3"	2 1/2"	3"	M-43	N/A
RIP-RAP**	4" - 7"	5 1/2"	7"	N/A	N/A
CLASS I	N/A	9.5"	15"	N/A	150lb max
CLASS II	N/A	16"	24"	N/A	700lb max
CLASS III	N/A	23"	34"	N/A	2000lb max

Section V – Turfgrass Establishment

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.

Note: 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.

A. Turfgrass Mixtures

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/1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the 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/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 10% to 35 % of the mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass – Full sun mixture – For use in drought prone and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: certified Tall Fescue Cultivars 95–100%, certified Kentucky Bluegrass Cultivars 0–5%. Seeding rate: 5 to 8 lb/1000 sf. 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 30–40% and certified Fine Fescue and 60–70%. Seeding rate: 1< –3 lbs/1000 square feet. A minimum of 3 Kentucky bluegrass cultivars must be chosen, with each cultivar ranging from a minimum of 10 % to a maximum of 35 % of the mixture by weight.

Note: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mimeo #77, "Turfgrass Cultivar Recommendations for Maryland."

B. Ideal times of seeding

Western MD: March 15 – June 1, August 1 – October 1 (Hardiness Zones – 5b, 6a)

Central MD: March 1 – May 15, August 15 – October 15 (Hardiness Zone – 6b)

Southern MD, Eastern Shore: March 1 – May 15, August 15 – October 15 (Hardiness Zones–7a,7b)

C. Irrigation

If soil moisture is deficient, supply new seedings with adequate water for plant growth (<" – 1" 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 in adverse sites.

D. Repairs and Maintenance

Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season.

i. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.

ii. If the stand provides less than 40% ground coverage, reestablish following original lime, fertilizer, seedbed preparation and seeding recommendations.

iii. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.

iv. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium to high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" Bulletin No. 171.

Section II – Temporary Seeding

Vegetation – annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed Mixtures – Temporary Seeding

1. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure5) 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 plans and completed, then Table 26 must be put on the plans.

ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

Section III – Permanent Seeding

Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.

A. Seed Mixtures – Permanent Seeding

1. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure5) and enter them in the Permanent Seeding Summary below, along with application rates, seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 – Critical Area Planting. For special lawn maintenance areas, section V Turfgrass. Sections IV Sod

ii. For sites having disturbed area over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in.

iii. For areas receiving low maintenance, apply ureaform fertilizer (46–0–0) at 3 1/2 lbs/1000 sq.ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Permanent Seeding Summary

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	Lime Rate
	Seed Mixture (For Hardiness Zone 7A) (From Table 25)				Fertilizer Rate			
1	Tall Fescue(83%)	110 lb/ac	3/1–5/15	1"–2"	90 lb/ac (2 lb/ 1000 sf)	175 lb/ac (4 lb/ 1000 sf)	175 lb/ac (4 lb/ 1000 sf)	2 tons/ac (100 lb/ 1000 sf)
2	Weeping Love Grass (2%)plus	3 lb/ac	5/16–8/14	1"–2"				
3	Serecia Lespedeza(15%)	20 lb/ac	8/15–11/15	1"–2"				

SEDIMENT CONTROL GENERAL NOTES

a. The developer is responsible for the acquisition of all required easement, right and/or right of way pursuant to the discharge from the erosion and sediment control practices, storm water management practices and the discharge of storm water onto or across and grading or other work to be performed on adjacent or downstream properties affected by this plan.

b. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within; a) seven calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than three horizontal to one vertical (3:1) and b) fourteen days for all other disturbed or graded areas on the project site. The in place sediment control measures will be maintained on a continuing basis until the site is permanently stabilized and all permit requirements are met.

c. On all sites with disturbed areas in excess of two acres, approval of the inspection agency is requested upon completion of installation of perimeter erosion and sediment controls before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals will not be authorized until this initial approval by the inspection agency is made.

d. Approval shall be requested upon final stabilization of all sites with disturbed areas in excess of two acres before removal of controls.

e. The owner/developer that signs the certification on an erosion and sediment control plan is the responsible party regardless of any sale of the property or work of subcontractors. Erosion and sediment control plans are approved for one owner/developer only. All permits under an erosion and sediment control plan must and can only be issued to the owner/developer that signs the certification on the plan.

f. PGSCD approval of a erosion and sediment control plan, pursuant to meeting local permit requirements for grading, building or street permits.etc is valid only when the work to be performed under the permit is the same as (no more/no less than) that contained in the plan as approved by the PGSCD.

g. Any changes or modifications to an approved erosion and sediment control plan, not approved by the PGSCD, shall invalidate the plan approval.

h. Offsite borrow or spoil areas must have an approved and active erosion and sediment control plan.

i. Temporary designed sediment basins shall be removed within 36 months after the beginning of construction of the basin.

j. Disturbed surface area 2.40 acres.
Volume of spoil material 0 cyds.
Volume of borrow material 0 cyds
Volume of extra material 0 cyds

Note: Excess material shall be taken to a site with approved/active sediment control

k. List Predominant soil types and general description per PGSCD soil survey :

SOIL NAME	SYMBOLS	HSG
Beltsville Silt Loam	BiA	C
Croom Gravelly Sandy Loam	CtD2	B
Croom–Urban Land Complex	CuC	B

Table 25 Permanent Seeding for Low Maintenance Areas

MIX	Seed Mix (Use Certified Material if Available)	Planting LBS/AC	Planting LBS/1000 Sq. Ft.	Site Conditions	USDA Hardiness Zones[32]	3/1 5/15	3/15 6/1	5/16 8/14	6/2 7/31	8/1 10/1	8/15 10/15	8/15 11/15	notes
1	Tall Fescue (75%), Canada Bluegrass (10%), Kentucky Bluegrass (10%) Redtop (5%)[34]	150	3.4	Moist to Dry	5b		x			x			A
					6a		x			x			
					6b	x					x		
					7a	x						x	
					7b	x						x	
2	Kentucky Bluegrass (50%) Creeping Red Fescue or a Hard Fescue (40%) Redtop (10%)	150	3.4	Moist to Moderately Dry to Dry	5b		x			x			B
					6a		x			x			
					6b	x					x		
3	Tall Fescue (85%) Perennial Ryegrass (10%) Kentucky Bluegrass (5%)	125 15 10	2.9 .34 .23	Moist to Dry	5B		x			x			C
					6A		x			x			
					6B	x					x		
					7A	x						x	
					7B	x						x	
4	Red Fescue or Chewings Fescue (80%) Perennial Ryegrass (20%)	60 60 15	.92 .92 .34	Moist to Dry	5b		x			x			D
					6a		x			x			
					6b	x					x		
5	Tall Fescue (85%) or, Perennial Ryegrass (50%) Plus Crownvetch or Flatpea	110 20 20 20	2.5 .46 .46 .46	Moist to Dry	5b		x			x			E
					6a		x			x			
					6b	x					x		
					7a	x						x	
					7b	x						x	
6	Weeping Lovegass (17%) Serecia Lespedeza (83%)	4 20	.09 .46	Dry to Very Dry	6a	x		x					F
					7a	x		x					
					7b	x		x					

Notes: A/Used by SHA on sloped areas. Add a legume for slopes > than 3:1
B/Used in median areas by SHA. Shade tolerant.
C/Popular Mix– Produces permanent groundcover quickly. Bluegrass thickens stand.
D/Best use on shady slopes not on poorly drained clays.
E/Use on low maintenance, steep slopes. Use tall fescuein draughty cond. Crown vetch best for 5b, 6a, 6b.
F/Suitable for seeding in mid-summer.

31 See table 20 for a list of recommended varieties best suited for Maryland.
32 Refer to Figure 5.
33 Recommended planting dates are indicated by an x. For seeding during time periods not recommended use a nurse crop such as weeping love grass or millet (mid-summer), or cereal rye (late fall to early spring) refer to Table 26 Temporary Seeding
34 Maryland State Highway Administration Approved Mixes.

Table 25 Permanent Seeding for Low Maintenance Areas (Cont'd)

MIX	Seed Mix (Use Certified Material if Available)	Planting Rate LBS/AC	Planting Rate LBS/1000 Sq. Ft.	Site Conditions	USDA Hardiness Zones[32]	3/1 5/15	3/15 6/1	5/16 8/14	6/2 7/31	8/1 10/1	8/15 10/15	8/15 11/15	notes
7	Tall Fescue (83%), Weeping Lovegrass (2%) Plus Serecia Lespedeza(15%)	110 3 20	2.5 .07 .46	Dry to Very Dry	5b		x			x			G
					6a		x			x			
					6b	x					x		
					7a	x						x	
					7b	x						x	
8	Reed Canarygrass (75%) Redtop (6%) Plus Birdfoot Treefoil[35] (19%)	40 3 10	.92 .07 .23	Wet to Moderately Dr	5b		x			x			H
					6a		x			x			
					6b	x					x		
					7a	x						x	
					7b	x						x	
9	Tall Fescue (86%) Poa Trivials (7%) Birdsfoot Treefoil (7%)	125 10 10	2.9 .23 .23	Wet to Moderately Dry	5b		x			x			I
					6a		x			x			
					6b	x					x		
10	Tall Fescue (80%) Hard Fescue (20%)	120 30	3.4 .69	Wet to Dry	5b		x			x			J
					6a		x			x			
					6b	x					x		
					7a	x						x	
					7b	x						x	
11	Hard Fescue (100%)	.75	1.7	Moist to Dry	5b		x			x			K
					5a		x			x			
					6a	x					x		
					7a	x						x	

Notes: G/Weeping lovegrass may be seeded with tall fescue in mid- summer. Serecia lespedeza is best suited for zones 7a and 7b.
H/Use on poorly drained soils-ditches or waterways. Birdsfoot trefoilis best for zones 5b, 6a, above 2,000 ft.
I/Use inareas of moist shade. POA trivials thrives in wet shady areas..
J/Tall fescue may be seeded alone. The hard fescue provides better shade tolerance and produces a better stand.
K/Low fertility grass. Requires infrequent mowing, good companion for wild flowers.
G-20-19

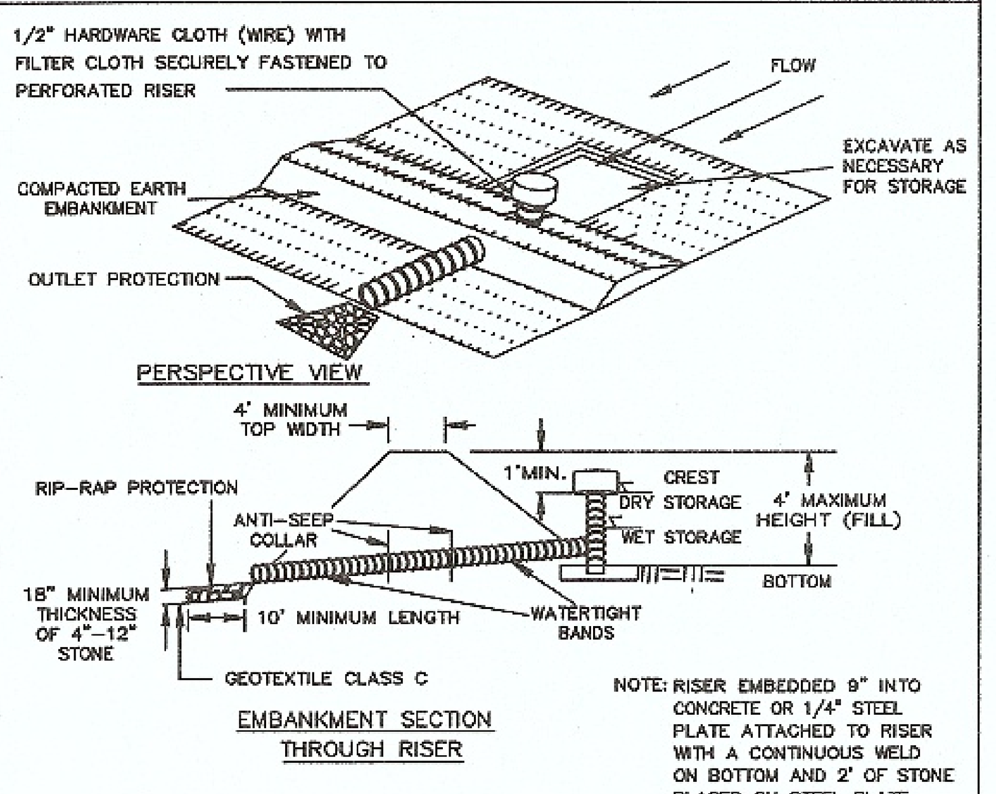
35 Leguminous seeds shall be inocula or treated with unexpired approved cultures for the specific legume. In the proper proportions, as specified on the package label. The inoculant shall be stored at rood temperature. Out of direct sun mechanical seeders thoroughly mix the powder form of the inoculant with the seed by wetting the seed with a small amount of water and then adding the powder. The inoculated seed is then mixed with ot light and away from heating units. When seeding dry with planted within 24 hours. Inoculaated seed not planted within the specified time will be reinoculated. When using hydraulic seeders use 10 times the amount of inoculant s her seeds and planted within 48 hours. Seeds inoculated with liquid cultures shall be reinoculation will be necessary. specified for dry seeding. Inoculated seed shall not be exposed to sunlight or left in a slurry for more than one hour, otherwise

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. 19644
EXPIRATION DATE: 4/18/2021

STATE OF MARYLAND · MASSOUD TOWHIDI · NO. 19644 · REGISTERED PROFESSIONAL ENGINEER · 08/14/20

DETAIL 8 – PIPE OUTLET SEDIMENT TRAP – ST I



Construction Specifications

1. The area under the embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material, or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. The total trap volume as measured from the bottom to riser crest elevation shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be 1' above the riser crest elevation.
4. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (900cf/ac). The sediment shall be deposited in a suitable area and in such a manner that it will not erode.
5. The structure shall be inspected periodically and after each rain and repairs made as necessary.

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PIPE OUTLET SEDIMENT TRAP – ST I

6. Construction operations shall be carried out in such a manner that erosion and water pollution are abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.
8. All cut and fill slopes shall be 2:1 or flatter.
9. All pipe connections shall be watertight.
10. Above the wet storage elevation, the riser shall be perforated with 1/2" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally. No perforations will be allowed within 6" of the horizontal barrel.
11. The riser shall be wrapped with 1/2" hardware cloth (wire) then wrapped with Geotextile Class E. The filter cloth shall extend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.
12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.
13. Fill material around the pipe spillway shall be hand compacted in 4" layers. A minimum of 2' of hand-compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.
14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 9". Steel plate bases shall be at least twice the riser diameter, 1/4" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2' of stone, gravel or tamped earth on the plate.
15. Anti seep collars shall be constructed in accordance with plans (ref. table 16 and Details 13 and 14).
16. Concentric trash rack and anti-vortex device design details are on Detail 16.
17. Refer to Section D for dewatering requirements of sediment traps.
18. Outlet – An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel.
19. Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.

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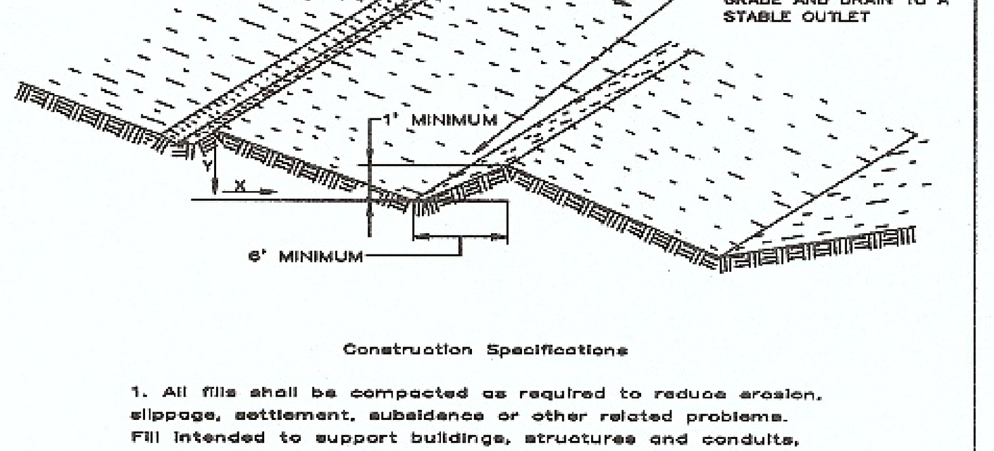
DETAIL 28 – BENCHED SLOPES



Construction Specifications

1. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc., shall be compacted in accordance with local requirements or codes.
2. All fill shall be placed and compacted in layers not to exceed 8" in thickness.
3. Except for approved landfills or nonstructural fills, fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris and other objectionable materials that would interfere with or prevent construction of satisfactory fills.
4. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills. Fill shall not be placed on a frozen foundation.
5. All benches shall be kept free of sediment during all phases of development.
6. Seeps or springs encountered during construction shall be handled in accordance with the Standard and Specification for Subsurface Drain or other approved methods.
7. All graded areas shall be permanently stabilized immediately following finished grading.

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PRINCE GEORGE'S SOIL CONSERVATION DISTRICT · MARYLAND · 1941

OWNER/DEVELOPER

COME BACK TERPS LLC
ATTN: MR. TZANNETIS A. SERLEMITSOS
5055 AMESBURY DR.,COLUMBIA MD 21044
T.P. (603) 393-4125
E-mail: tascts@yahoo.com

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48 HOURS IN ADVANCE OF ANY WORK IN THE VICINITY

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OFFICE (301) 937–3501 FAX (301) 937–3507

BRADBURY SUBDIVISION
SQUALDINGS 6TH ELECTION DISTRICT
PRINCE GEORGE'S COUNTY, MARYLAND

GRADING, SOIL EROSION & SEDIMENT CONTROL NOTES AND DETAILS

REVISIONS
1. PLAN UPDATE, RRR, 04/26/2011
2. PLAN UPDATE, RRR 12/20/2019
3. ADDRESS SCD COMMENTS, RRR 08/14/2020

DATE: APRIL, 2007
DWN. RLS | CHECKED VC
SCALE: AS SHOWN
PROJECT/FILE NO. 04–020
SHEET NO. SC 4 OF 5

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

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.

Conditions Where Practice Applies

I. This practice 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.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type ran be found in the representative soil profile section in the Soil Survey published by USDA–SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications — Soil to be used as topsoil must meet the following:

A. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.

B. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

C. Where the subsoil is either highly acidic or composed of heavy clays, (ground limestone shall be spread at the rate of 4–8 tons/acre (200–400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative .Stabilization — Section I — Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

A. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

1. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

2. Organic content of topsoil shall be not less than 1.5 percent by weight.

3. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

4. No sod or seed shall 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,

Note: Topsoil substitutes or amendments, as recommends by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural

B. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization — Section I — Vegetative Stabilization Methods and Materials.

V. Topsoil Application

A. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

1. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" – 8" higher in elevation.

2. Topsoil shall be uniformly distributed in a 4" – 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall 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 shall be corrected in order to prevent the formation of depressions or water pockets.

3. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding — Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

A. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following, requirements:

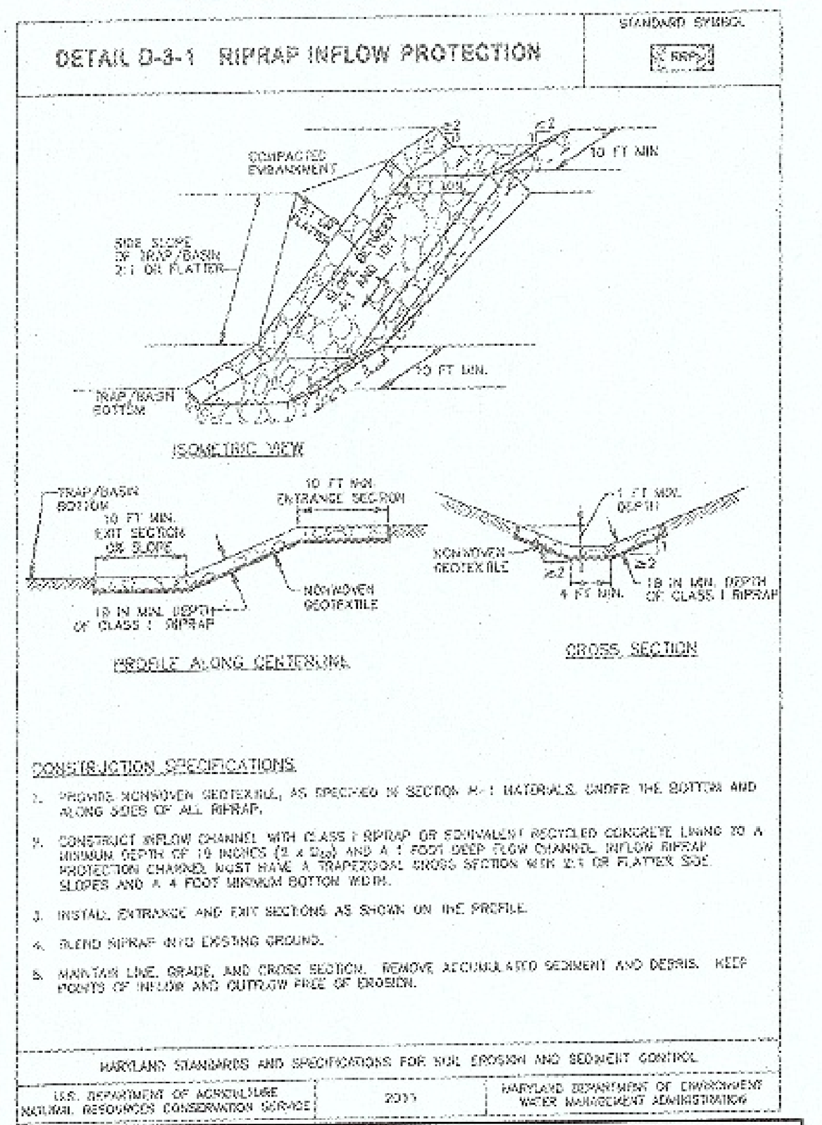
1. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

2. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

3. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

B. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding MD–VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.



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MASOUD TOWHIDI
NO. 19644
REGISTERED PROFESSIONAL ENGINEER
08/14/20

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. 19644
EXPIRATION DATE: 4/18/2021

19.0 STANDARDS AND SPECIFICATIONS FOR LAND GRADING

Design Criteria

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surroundings to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measures for drainage and water removal and vegetative treatment, etc.

Many counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they shall be followed. The plan must show existing and proposed contours of the area(s) to be graded. The plan shall also include practices for erosion control, slope stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slope benches (include grade and cross section), grade stabilization structures, retaining walls, and surface and subsurface drains. The plan shall also include phasing of these practices. The following shall be incorporated into the plan:

I. Provisions shall be made to safely conduct surface runoff to storm drains, protected outlets or to stable water courses to insure that surface runoff will not damage slopes or other graded areas.

II. Cut and fill slopes that are to be stabilized with grasses shall not be steeper than 2:1. (Where the slope is to be mowed the slope should be no steeper than 3:1; 4:1 is preferred because of safety factors related to mowing steep slopes.) Slopes exceeding 2:1 shall require special design and stabilization considerations that shall be adequately shown on the plans.

III. Reverse benches shall be provided whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slope it shall be increased to 30 feet and for 4:1 to 40 feet. Benches shall be located to divide the slope face as equally as possible and shall convey the water to a stable outlet. Soils, seeps, rock outcrops, etc., shall also be taken into consideration when designing benches.

A. Benches shall be a minimum of six–feet wide to provide for ease of maintenance.

B. Benches shall be designed with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Bench gradient to the outlet shall be between 2 percent and 3 percent, unless accompanied by appropriate design and computations.

C. The flow length within a bench shall not exceed 800' unless accompanied by appropriate design and computations. For flow channel stabilization see temporary swale.

IV. Surface water shall be diverted from the face of all cut and/or fill slopes by the use of earth dikes, ditches and swales or conveyed downslope by the use of a designed structure, except where:

A. The face of the slope is or shall be stabilized and the face of all graded slopes shall be protected from surface runoff until they are stabilized.

B. The face of the slope shall not be subject to any concentrated flows of surface water such as from natural drainageways, graded swales, downspouts, etc.

C. The face of the slope will be protected by special erosion control materials, to include, but not limited to: approved vegetative stabilization practices (see section G), rip–rap or other approved stabilization methods.

V. Cut slopes occurring in ripable rock shall be serrated as shown on the following diagram. These serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps cut at nominal two–foot intervals with nominal three–foot horizontal shelves. These steps will vary depending on the slope ratio or the cut slope. The nominal slope line is 1:1. These steps will weather and act to hold moisture, lime, fertilizer and seed thus producing a much quicker and longer lived vegetative cover and better slope stabilization. Overland flow shall be diverted from the top of all serrated cut slopes and carries to a suitable outlet.

VI. Subsurface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.

VII. Slopes shall not be created so close to property lines as to endanger adjoining properties without adequately protecting such properties against sedimentation, erosion, slippage, settlement, subsidence or other related damages.

VIII. Fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tampers or over eight (8) inches in diameter where compacted by rollers or other equipment. Frozen material shall not be placed in the fill nor shall the fill material be placed on a frozen foundation.

IX. Stockpiles, borrow areas and spoil shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.

X. All disturbed areas shall be stabilized structurally or vegetatively in compliance with 20.0 Standards and Specifications for Vegetative Stabilization.

Table 26 Temporary Seeding Rates, Depths, and Dates

Species	Minimum Seeding Rates		Planting Depth[36]	Hardiness Zone[37] and Seeding Dates[38]								
				7a and 7b			6b			6a and 5b		
	Per Acre	Lbs./1000 Sq. Ft.	Inches	2/1 4/30	5/1 8/14	8/15 11/30	3/1 4/30	5/1 8/14	8/15 11/15	3/15 5/31	6/1 7/31	8/1 10/31
Choose One Barley	2.5 BU (122 lbs.)	2.80	1–2	X	–	BY 10/15	X	–	BY 10/15	X	–	BY 10/1
Oats	3 BU (96lbs.)	2.21	1–2	X	–	–	X	–	–	X	–	–
Rye[39]	2.5 BU (140 lbs.)	3.22	1–2	X	–	X	X	–	X	X	–	X
Barley or Rye Plus Foxtail Millet	150	3.45	1	X X	X X	10/15 X	X X	X X	10/15 X	X X	X X	10/1 X
Weeping Lovegrass[41]	4lbs	.09	1/4–1/2	–	X	–	–	X	–	–	X	–
Annual Ryegrass	50lbs	1.15	1/4–1/2	X	–	11/1	X	–	11/1	X	–	8/15
Millet	50lbs	1.15	1/2	–	X	–	–	X	–	–	X	–

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36 Applicable on slopes of 3:1 or flatter

37 Refer to Figure A Adopted from USDA, ARS Miscellaneous Publication # 1475, January 1990

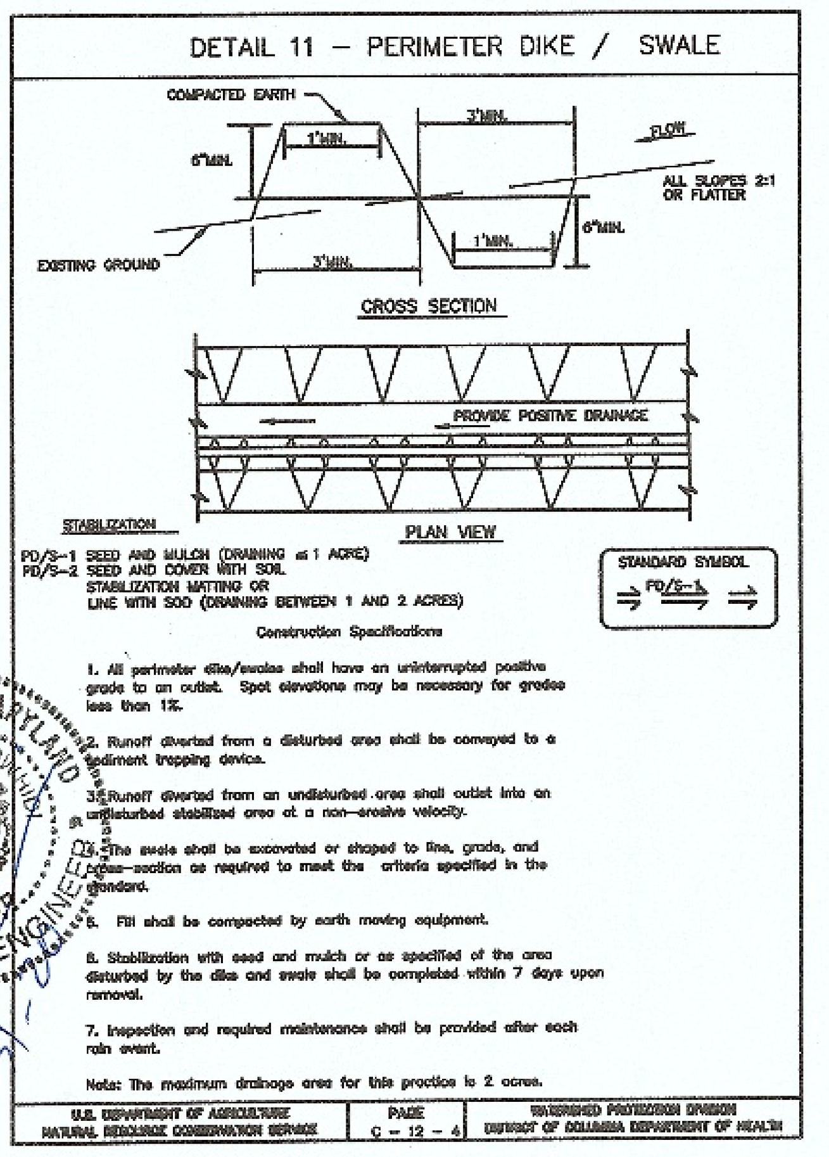
38 Between fall and spring seeding dates, use mulch only if ground is frozen and reseed when thawed

39 May be used as a nurse crop rfdate fall/early winter permanent seedings, add 56 lbs./ac to the permanent seeding mixture

40 Maryland State Highway Administration Temporary Seed Mix

41 May be used as a nurse crop for midummer permanent seedings. Add 2 lbs./ac to permanent seed mix

42 May be used as a nurse crop for midummer permanent seedings. Add 10 lbs./ac to the permanent seeding mix.



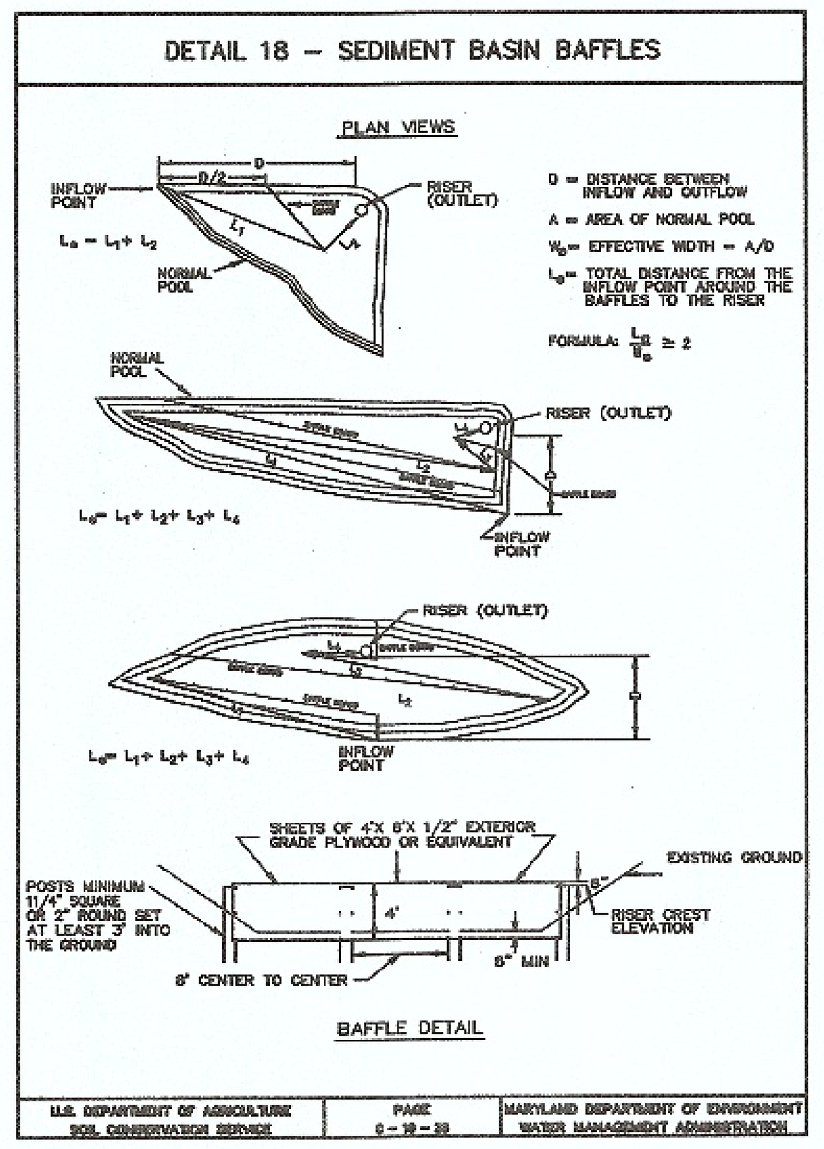


Table 21 Recommended Varieties of Grasses and Legumes for Disturbed Areas

Areas Receiving Lo w Maintenance

Grasses	Varieties
Tall Fescue	Adventure, Apache, Arid, Bonanza, Falcon, Clemfine, Finelawn I, Hounding, Jaguar, Kentucky 312/, Mustang, Olympic, Regel II, Tribute
Perennial Ryegrass	All -Star, Blazer, Manhattan, Palmer, Pennant, Pennfine, Premier, Prelude, Regal, Repell
Kentucky Bluegrass	"Common", Kenblue, Victa, Ram I, Monopoly
Creeping Red Fescue	Pennlawn, Flyer
Hard Fescue	Aurora, Biljart, Reliant, Scaldis, Spartan, Waldina
Chewings Fescue	Longfellow, Victory, Jamestown
Canada Bluegrass	Reubens
Redtop	Streaker
Poa Trivialis	Laser, Sabre
Reed Canarygrass	Ioreed, Palaton, Rise
Weeping Lovegrass	Morpa, "Common"
Legumes	Variety
Crownvetch	Penngift, Chemung
Serecia Lespedeza	Interstate, Interstate 76, Appalow
Flatpea	Lathco
Birdsfoot Trefoil	Empire, Norcen, Viking

1/ Refer to latest Agronomy Memo # 77, University of Maryland- Cooperative Extension Service, for the Turfgrass Cultivars recommended for Maryland. This publication is updated annually.
2/ Kentucky 3 Tall Fescue shall not be used to stabilize wetlands or wetland buffer areas. Contact Maryland Department of Natural Resources, Nontidal Wetlands Division for more information.

G-20-43

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Table 22 Quality of Seed

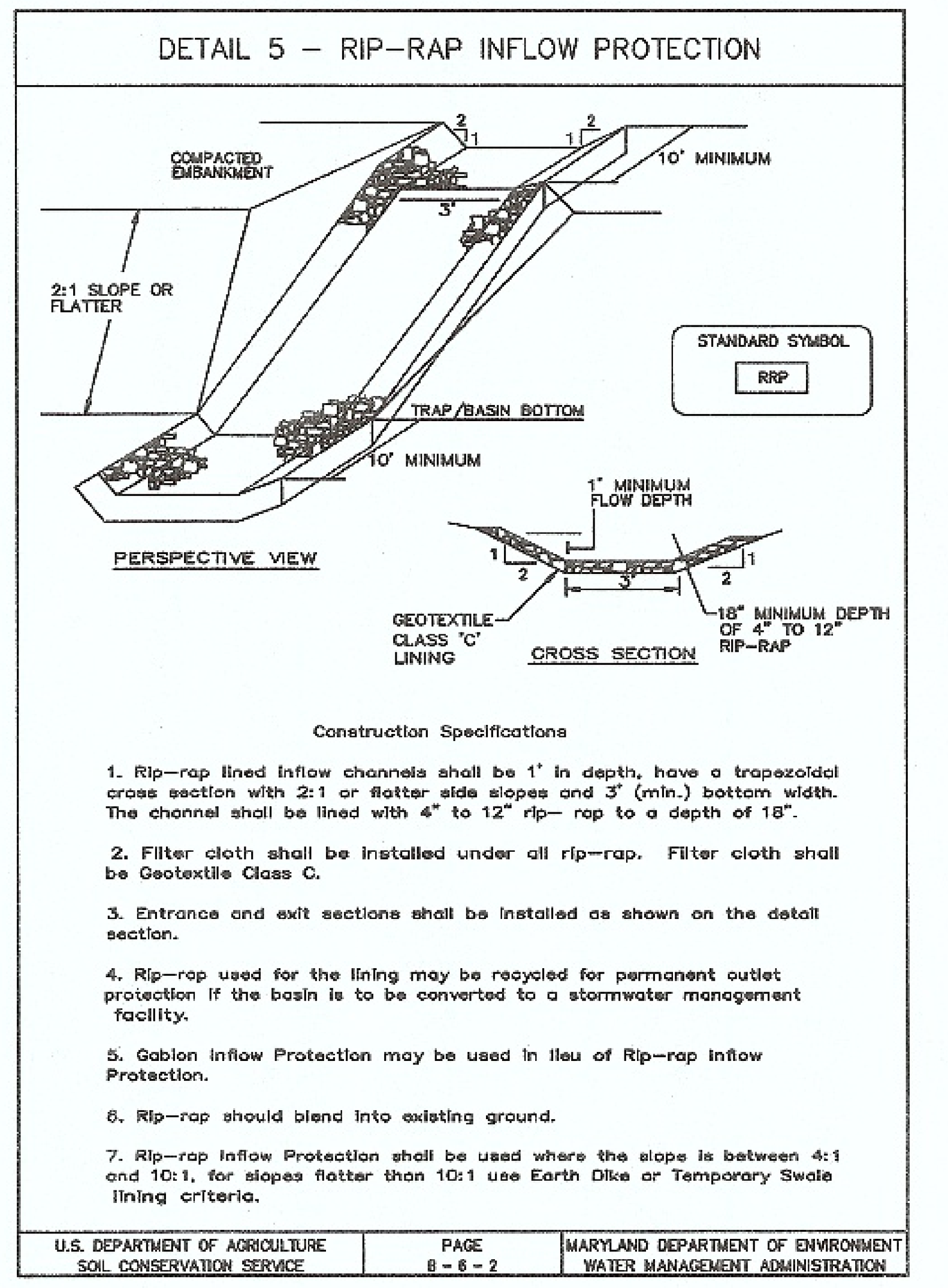
Legumes	Minimum Seed Purity (%)	Minimum Germination (%)
Birdsfoot Trefoil	97	85
Crownvetch	98.5	80
Lespedeza, Sericea	98	85
Flatpea	98	80
Grasses		
Bluegrass, Canada	90	80
Bluegrass, Kentucky	90	80
Fescue, red	98.5	85
Fescue, Chewings	98	85
Fescue, tall	98	90
Lovegrass, weeping	98	80
Redtop	92	80
Reed Canarygrass	96	80
Ryegrass, Annual	95	85
Ryegrass, Perennial	98	90
Other Annuals		
Barley	98	90
Millet	99	80
Oats	99	90
Rye	98.5	85

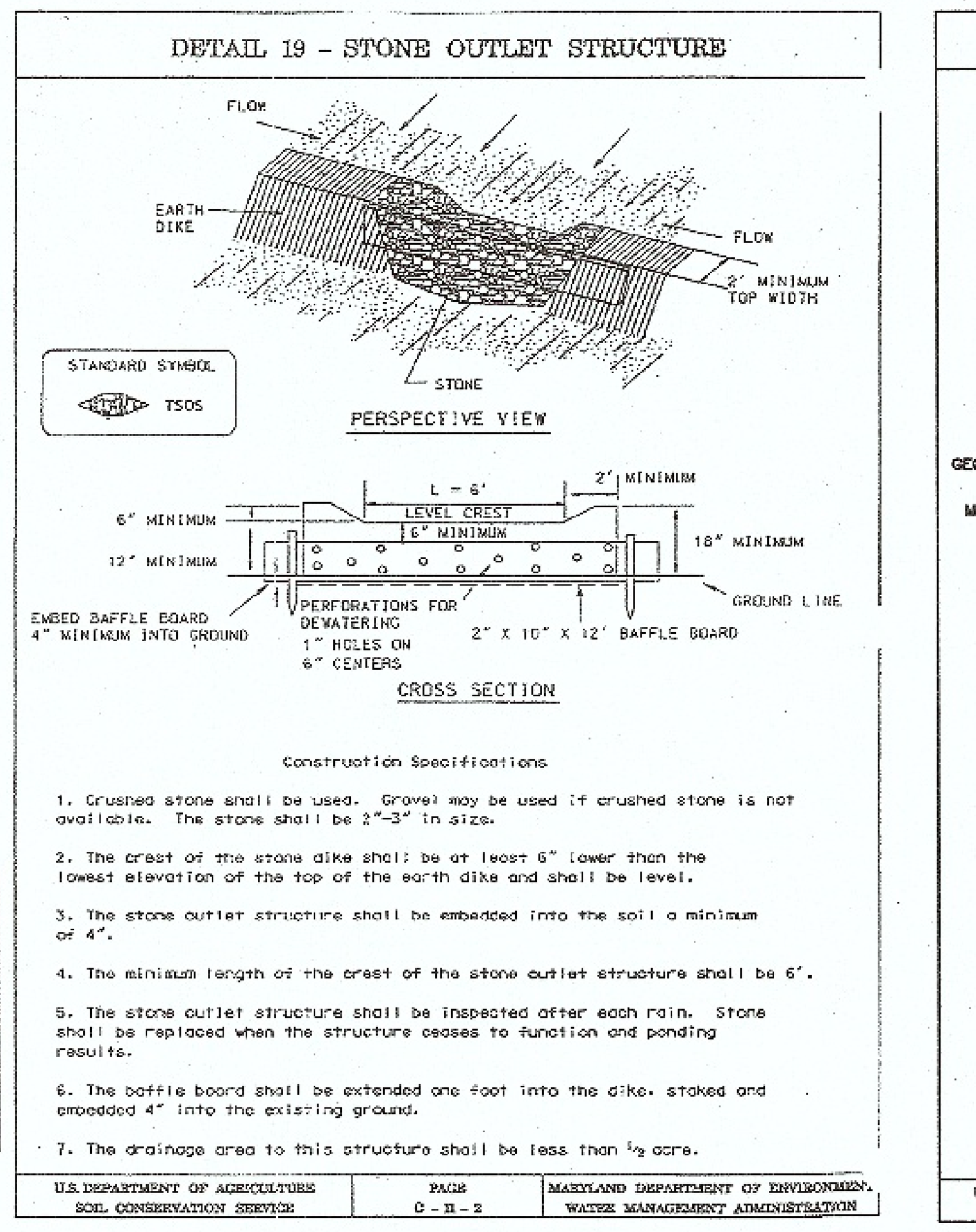
Note: Seed containing prohibited or restricted noxious weeds is unacceptable.
Prohibited Noxious Weeds: Johnsongrass or Johnsongrass crosses, Canada thistle, and quackgrass.
Restricted Noxious Weeds: Wild garlic and wild onion, bermudagrass, annual bluegrass, corn cockle, doddler and bindweed.

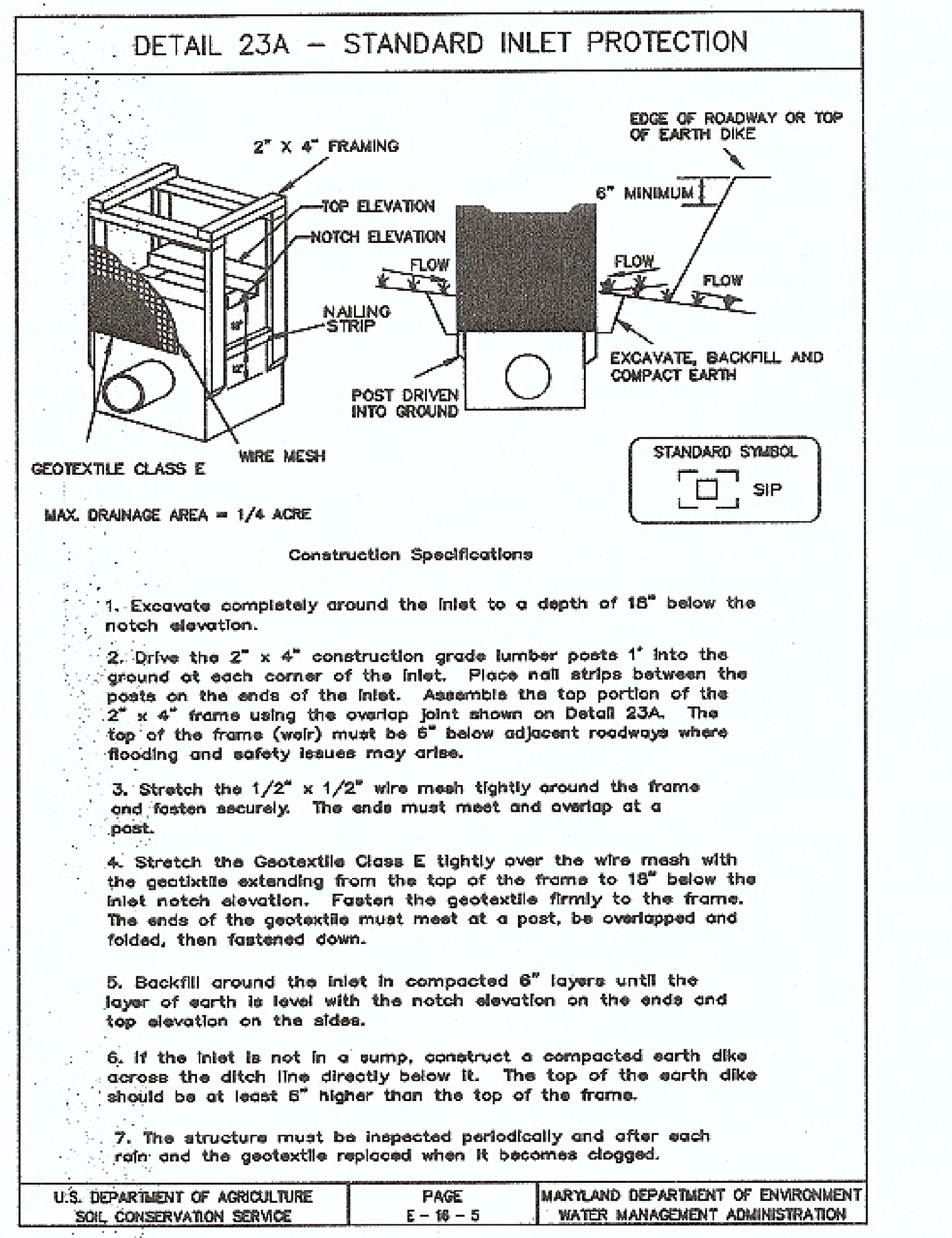
Seed should contain less than 2.5% of weed seeds, however, 0% is desirable.

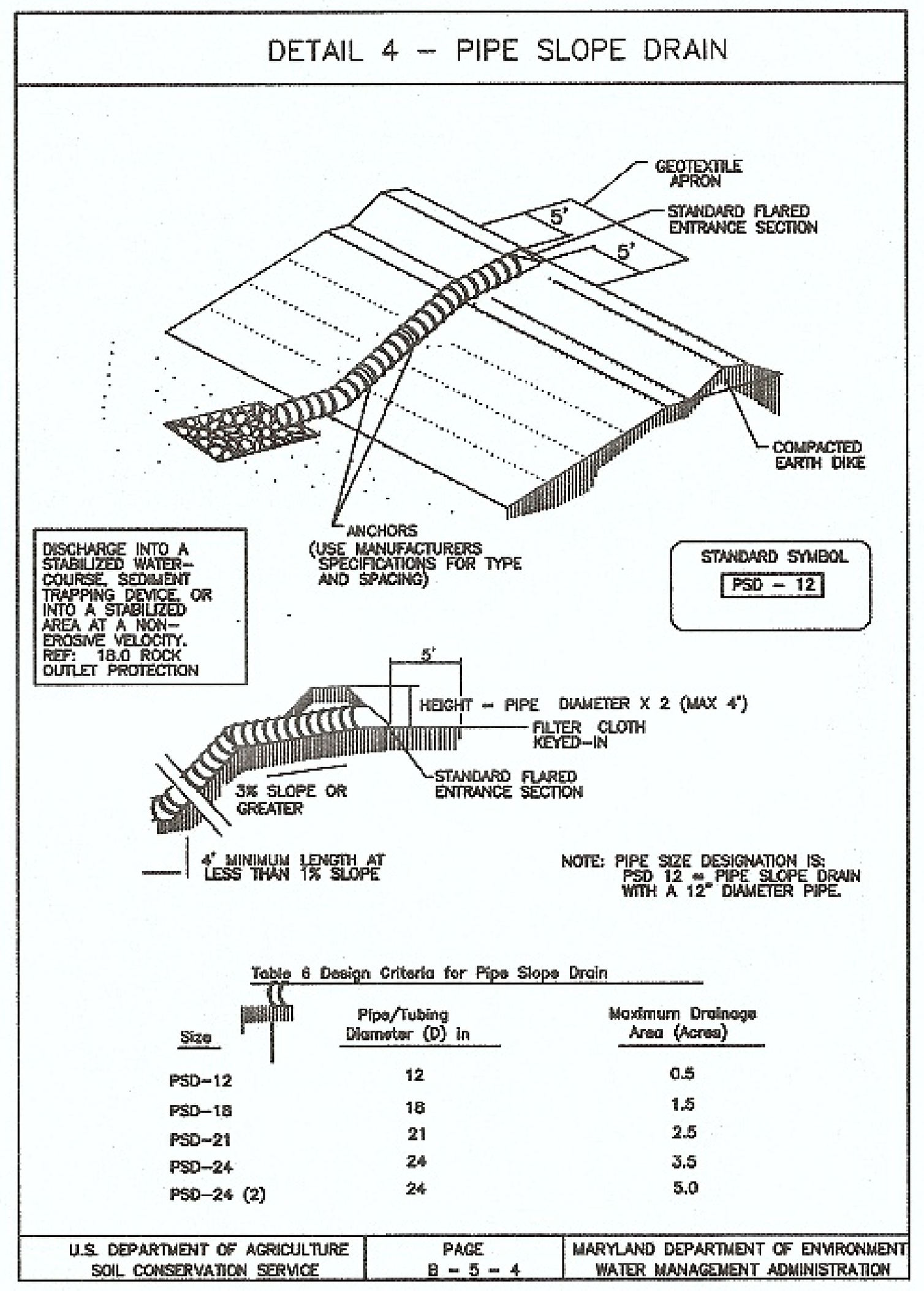
To calculate percent pure live seed, multiply germination times purity and divide by 100.

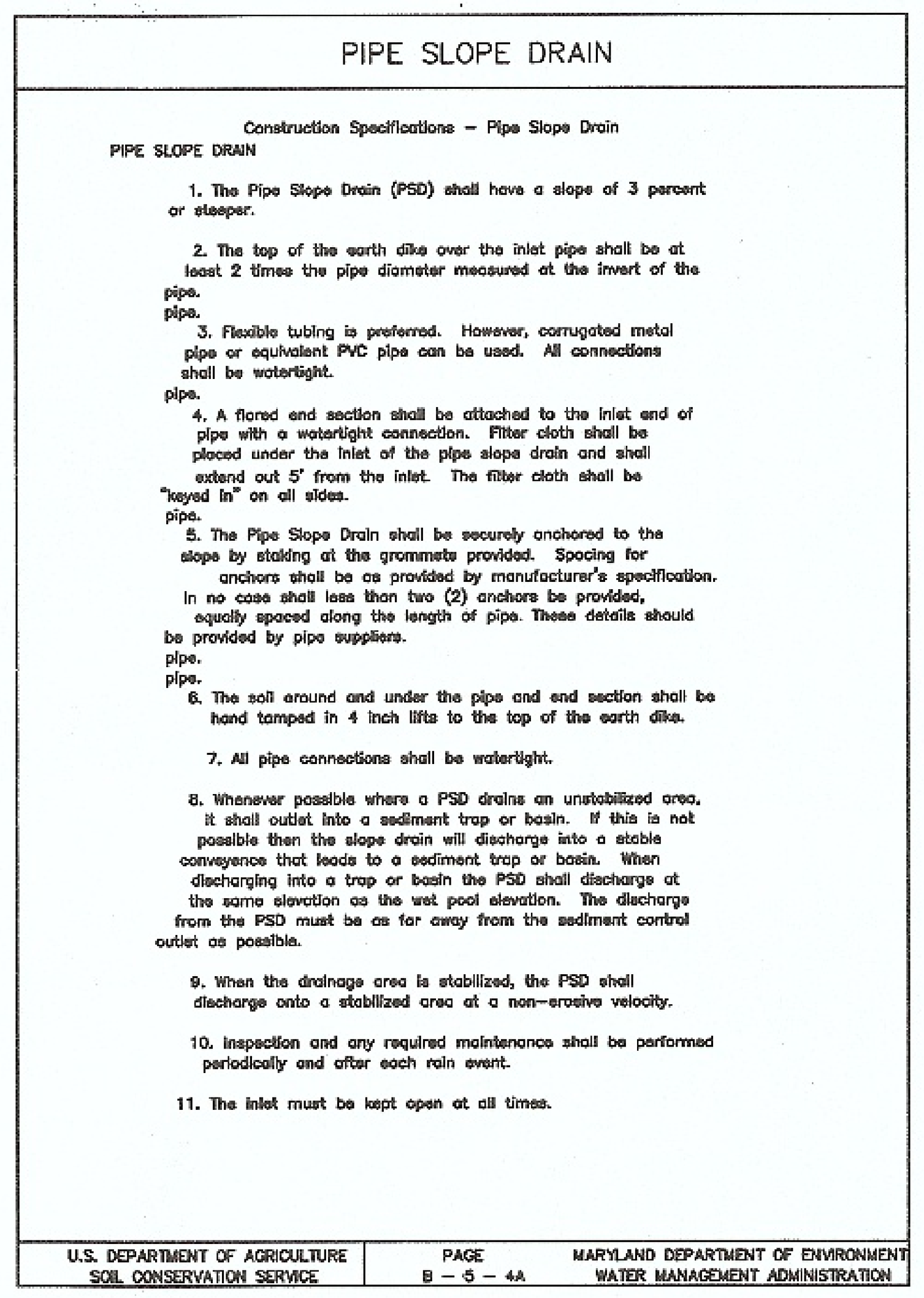
Example: Tall fescue with a germination of 85 percent and a purity of 97 percent. 97x85= 8245. 8245/100 = 82.45 percent pure live seed.
G-20-44

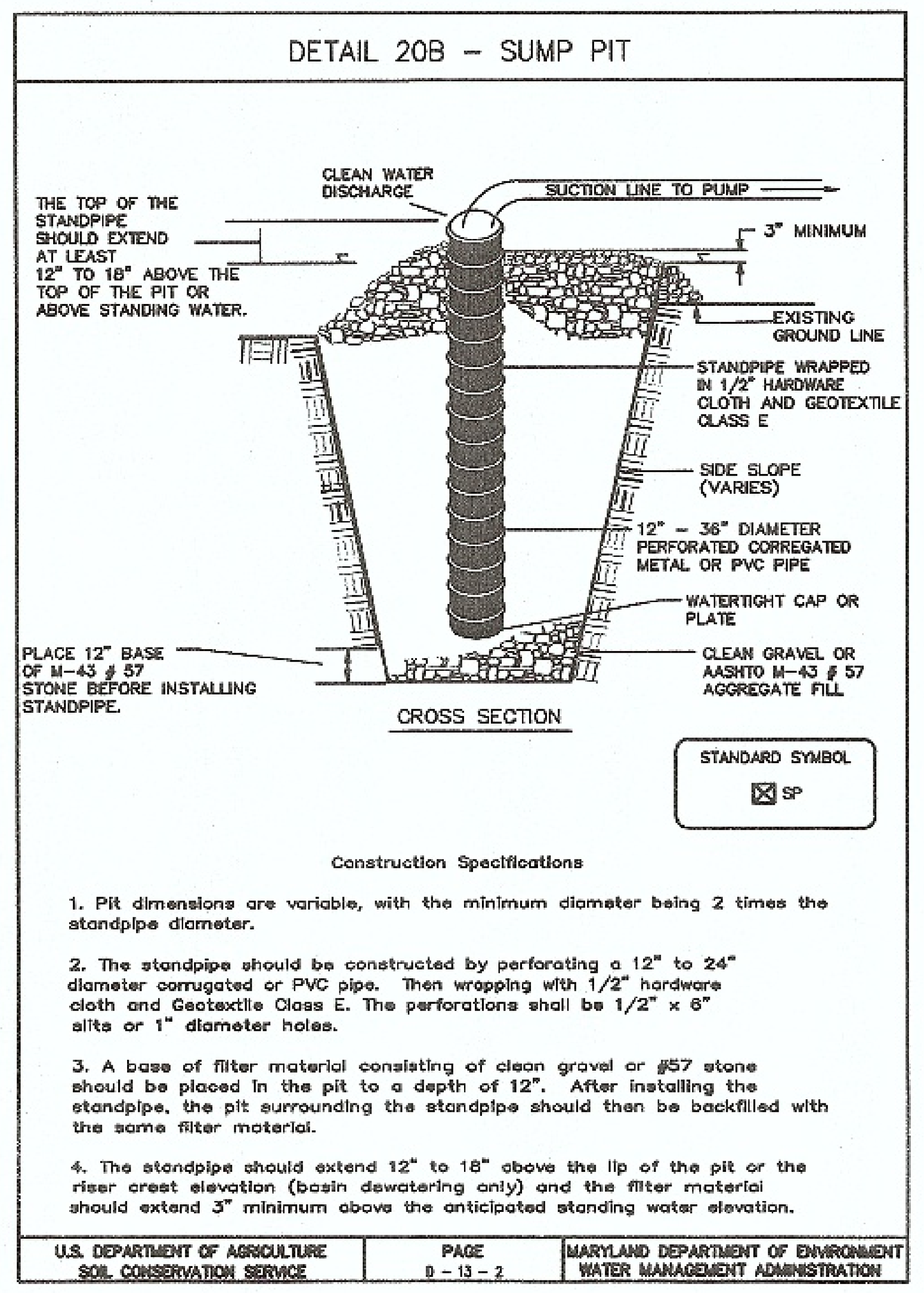


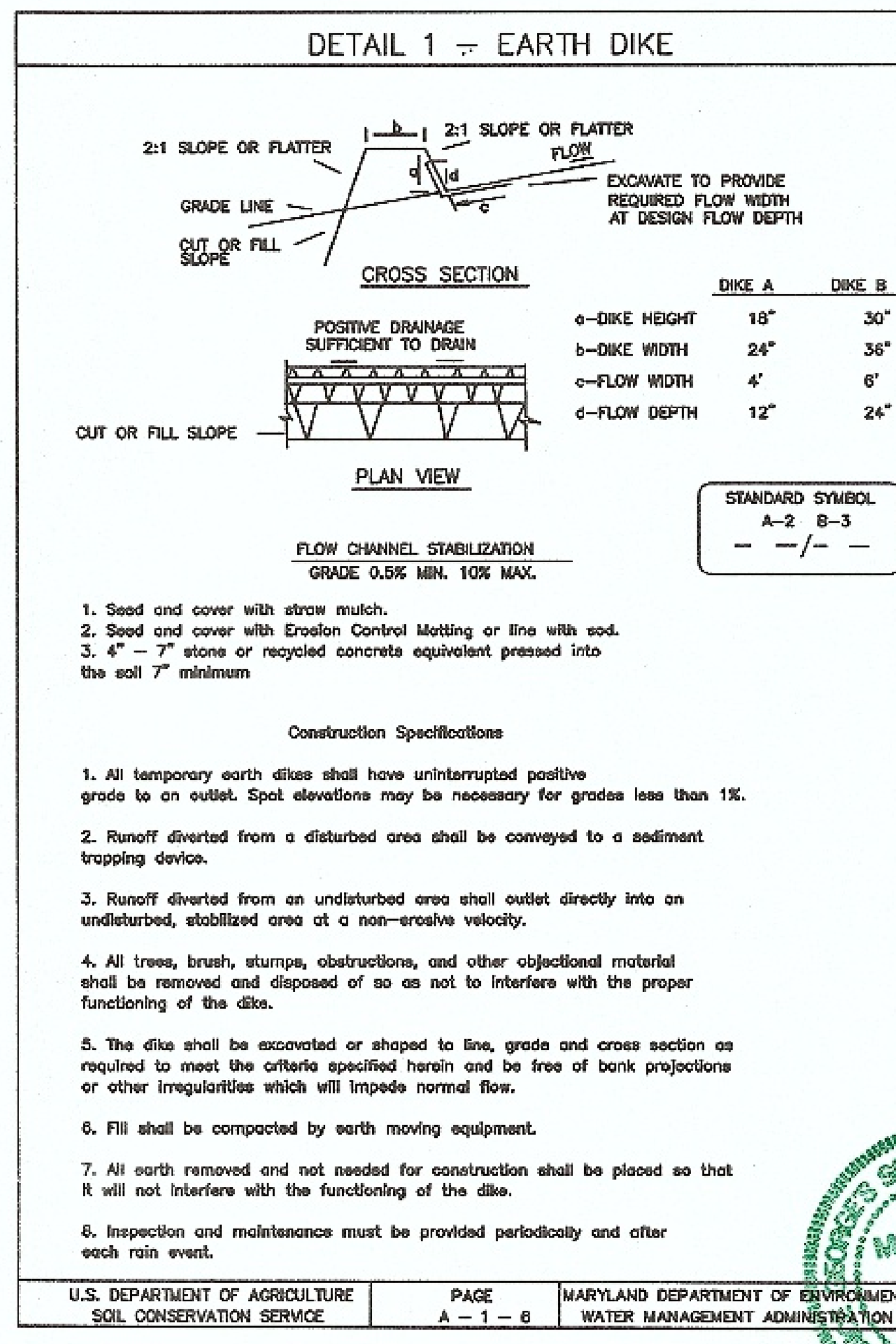












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GRADING, SOIL EROSION & SEDIMENT CONTROL NOTES AND DETAILS

REVISIONS
1. PLAN UPDATE, RRR, 04/26/2011
2. PLAN UPDATE, RRR 12/20/2019
3. ADDRESS SCD COMMENTS, RRR 08/14/2020

DATE: APRIL, 2007
DWN. RLS | CHECKED VC
SCALE: AS SHOWN
PROJECT/FILE NO. 04-020
SHEET NO. SC 5 OF 5