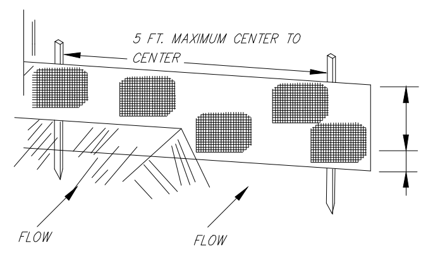
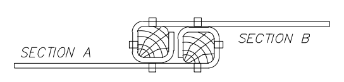
STANDARD SYMBOL
SF

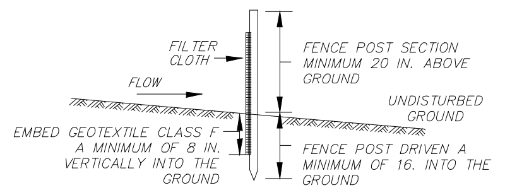


**PERSPECTIVE VIEW**



**TOP VIEW**

**JOINING TWO ADJACENT SILT FENCE SECTIONS**



**CROSS SECTION**

### CONSTRUCTION SPECIFICATIONS

1. FENCE POSTS MUST BE A MINIMUM OF 36 IN. LONG DRIVEN 16 IN. MINIMUM INTO THE GROUND. WOOD POSTS MUST BE OF SOUND QUALITY HARDWOOD WITH 1–1/2 IN. MINIMUM WIDTH WHEN SQUARE CUT, OR 1–3/4 IN. MINIMUM DIAMETER WHEN ROUND. STEEL POSTS MUST BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.
2. FASTEN GEOTEXTILE SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID–SECTION. GEOTEXTILE MUST MEET THE FOLLOWING REQUIREMENTS (GEOTEXTILE CLASS F):

| PROPERTY | VALUE | TEST METHOD |
|---|---|---|
| TENSILE STRENGTH | 50 LBS/IN (MIN.) | ASTM D–4595 |
| TENSILE MODULUS | 20 LBS/IN (MIN.) | ASTM D–4595 |
| FLOW RATE | 0.3 GAL/FT$^2$ /MINUTE (MAX.) | ASTM D–5141 |
| FILTERING EFFICIENCY | 75% (MIN.) | ASTM D–5141 |

3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, OVERLAP, FOLD, AND STAPLE THEM TO PREVENT SEDIMENT BYPASS.
4. INSPECT SILT FENCE AFTER EACH RAINFALL EVENT, AT LEAST DAILY DURING SUSTAINED RAINFALL EVENTS, AND MAINTAIN WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHES 30% OF THE FABRIC HEIGHT.

DATE APPR
REVISED
ISSUED:
REFERENCE

## SILT FENCE-1

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 301.1

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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### SILT FENCE DESIGN CRITERIA:

TABLE 3.1: SILT FENCE SLOPE LENGTH AND FENCE LENGTH CONSTRAINTS

| SLOPE STEEPNESS | SLOPE LENGTH (MAXIMUM) (FEET) | SILT FENCE LENGTH (MAXIMUM) (FEET) |
|---|---|---|
| FLATTER THAN 50:1 (2%) | UNLIMITED | UNLIMITED |
| > 50:1 TO 10:1 (2% to 10%) | 125 | 1,000 |
| > 10:1 TO 5:1 (10% to 20%) | 100 | 750 |
| > 5:1 TO 3:1 (20% to 33%) | 60 | 500 |
| > 3:1 TO 2:1 (33% to 50%) | 40 | 250 |
| > 2:1 (> 50%) | 20 | 125 |

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.
- TO AVOID CIRCUMVENTION, EXTEND THE ENDS OF THE SILT FENCE UPSLOPE TO PREVENT WATER AND SEDIMENT FROM FLOWING AROUND THE ENDS OF THE FENCE.

DATE APPR
REVISED
ISSUED:
REFERENCE

## SILT FENCE-2

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 301.2

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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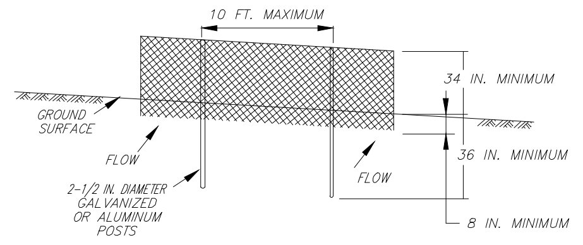
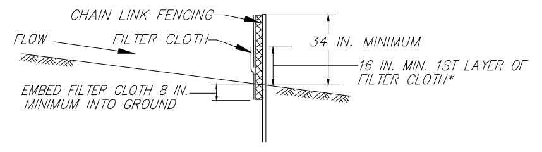
STANDARD SYMBOL
SSF

**PERSPECTIVE VIEW**



**CROSS SECTION**



NOTE:
- IF MULTIPLE LAYERS ARE REQUIRED TO ATTAIN NECESSARY HEIGHT.
- FENCE POST SPACING SHALL NOT EXCEED 10 FT. CENTER TO CENTER.

### CONSTRUCTION SPECIFICATIONS

1. FENCING MUST BE AT LEAST 42 INCHES IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST DISTRICT DEPARTMENT OF TRANSPORTATION (DDOT) DETAILS FOR CHAIN LINK FENCING. THE DDOT SPECIFICATION FOR A 6–FOOT FENCE MUST BE USED, SUBSTITUTING MINIMUM 42–INCH FABRIC AND 6–FOOT LENGTH POSTS. POSTS DO NOT NEED TO BE SET IN CONCRETE.
2. SECURELY FASTEN CHAIN LINK FENCE TO THE FENCE POSTS WITH WIRE TIES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. SECURELY FASTEN GEOTEXTILE TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID–SECTION.
4. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES INTO THE GROUND.
5. WHEN TWO SECTIONS OF GEOTEXTILE FABRIC ADJOIN EACH OTHER, FOLD AND OVERLAP BY 6 INCHES.
6. GEOTEXTILE MUST MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F (FROM TABLE 3.2–SEE BELOW):

| PROPERTY | VALUE | TEST METHOD |
|---|---|---|
| TENSILE STRENGTH | 50 LBS/IN (MIN.) | ASTM D–4595 |
| TENSILE MODULUS | 20 LBS/IN (MIN.) | ASTM D–4595 |
| FLOW RATE | 0.3 GAL/FT$^2$ /MINUTE (MAX.) | ASTM D–5141 |
| FILTERING EFFICIENCY | 75% (MIN.) | ASTM D–5141 |

7. INSPECT SUPER SILT FENCE AFTER EACH RAINFALL EVENT, AT LEAST DAILY DURING SUSTAINED RAINFALL EVENTS, AND MAINTAIN WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHES 30% OF THE FABRIC HEIGHT.

DATE APPR
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REFERENCE

## SUPER SILT FENCE-1

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 302.1

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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### SUPER SILT FENCE DESIGN CRITERIA:

TABLE 3.3: SUPER SILT FENCE SLOPE LENGTH AND FENCE LENGTH CONSTRAINTS

| SLOPE | SLOPE STEEPNESS | SLOPE LENGTH (MAXIMUM) (FEET) | SUPER SILT FENCE LENGTH (MAXIMUM) (FEET) |
|---|---|---|---|
| 0 – 10% | 0 – 10:1 | Unlimited | Unlimited |
| 10 – 20% | 10:1 – 5:1 | 200 | 1,500 |
| 20 – 33% | 5:1 – 3:1 | 150 | 1,00 |
| 33 – 50% | 3:1 – 2:1 | 100 | 500 |
| > 50% | > 2:1 | 50 | 250 |

NOTE:
- TO AVOID CIRCUMVENTION, EXTEND THE ENDS OF THE SILT FENCE 5 HORIZONTAL FEET UPSLOPE AT 45–DEGREE ANGLES RELATIVE TO THE MAIN FENCE ALIGNMENT TO PREVENT SEDIMENT ACCUMULATION.

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ISSUED:
REFERENCE

## SUPER SILT FENCE-2

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 302.2

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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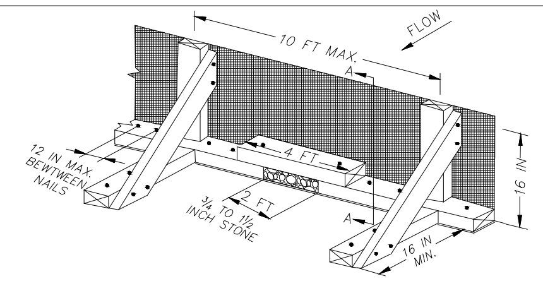
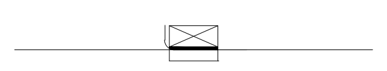
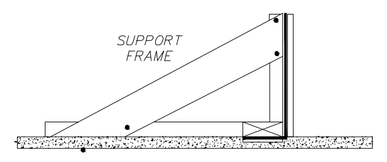


STANDARD SYMBOL
SFOP

**ISOMETRIC VIEW**



**JOINING ADJACENT SECTIONS OF GEOTEXTILE**



**SECTION A-A**

### CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH BY 4 INCH LUMBER.
2. USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN APPENDIX A.
3. SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
4. PROVIDE A 2–FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
5. KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN – OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
7. PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT–LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
8. SECURE BOARDS TO PAVEMENT WITH 40D 5–INCH MINIMUM LENGTH NAILS.
9. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

DATE APPR
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ISSUED:
REFERENCE

## SILT FENCE ON PAVEMENT

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 310.1

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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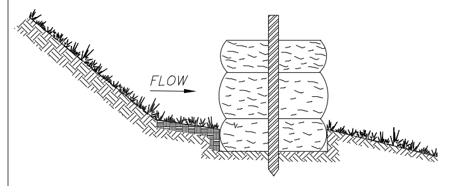
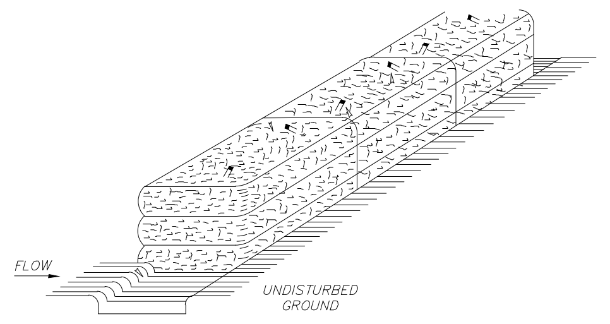


**SECTION**



**PERSPECTIVE VIEW**

### CONSTRUCTION SPECIFICATIONS

1. PLACE BALES IN A ROW ON THE CONTOUR WITH THE ENDS OF EACH BALE TIGHTLY ABUTTING THE ADJACENT BALES.
2. ENTRENCH EACH BALE 4 INCHES MINIMUM INTO THE SOIL AND PLACE SO THE BINDINGS ARE HORIZONTAL. SOME OF THE EXCAVATED SOIL MUST BE BUILT UP AND COMPACTED AT THE UPSTREAM EDGE OF THE DIKE TO PREVENT PIPING AND UNDERCUTTING.
3. SECURELY ANCHOR BALES IN PLACE BY EITHER TWO STAKES OR RE–BARS DRIVEN THROUGH THE BALE 12 TO 18 INCHES INTO THE GROUND. DRIVE THE FIRST STAKE IN EACH BALE TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. DRIVE THE STAKES FLUSH WITH THE TOP OF THE BALE.
4. IMMEDIATELY INSPECT STRAW BALE BARRIERS AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL EVENTS. RE–DRIVE THE ANCHORING STAKES IF THEY BECOME EXPOSED. REMOVE SEDIMENT WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
5. REMOVE ALL BALES WHEN THE SITE HAS BEEN STABILIZED. GRADE FLUSH AND STABILIZE THE TRENCH WHERE THE BALES WERE LOCATED.

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## STRAW BALE DIKE

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 305.1

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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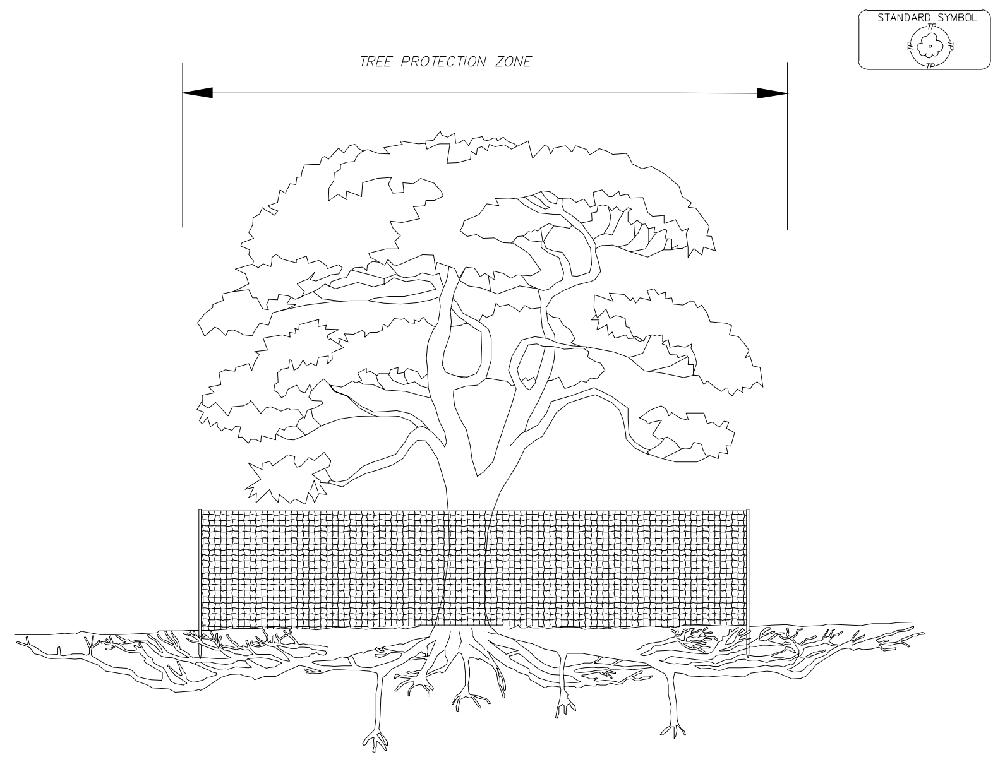
STANDARD SYMBOL
TP



**SECTION VIEW**

DATE APPR
REVISED
ISSUED:
REFERENCE

## TREE PROTECTION

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 903.1

SOURCE: URBAN TREE FOUNDATION 2014

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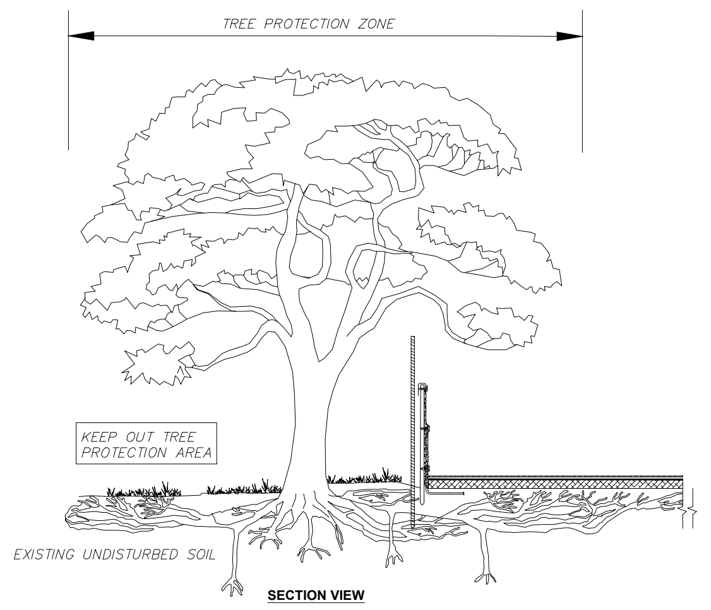
STANDARD SYMBOL
TP



**SECTION VIEW**

### CONSTRUCTION SPECIFICATIONS

1. MATTING MATERIAL MUST BE DOUBLE SIDED GEOCOMPOSITE, GEONET CORE WITH NON–WOVEN COVERING (SUCH AS TENSAR ROADRAIN RD7) OR APPROVED EQUIVALENT.
2. INSTALL ROOT PROTECTION MATTING BY A CERTIFIED ARBORIST.
3. TO BE USED FOR DESIGNATED TEMPORARY CONSTRUCTION ACCESS AND STOCKPILE AREAS.
4. PLACE MATTING ON 6 IN. WOOD CHIP MULCH UNLESS OTHERWISE DIRECTED.
5. FOR HEAVY TRAFFIC AREAS, COVER MATTING WITH STEEL PLATES.

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REFERENCE

## TREE ROOT PROTECTION WITH SILT FENCE

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 903.2

SOURCE: URBAN TREE FOUNDATION 2014

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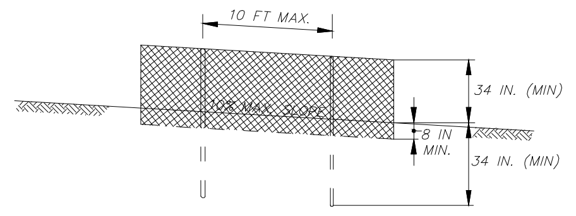
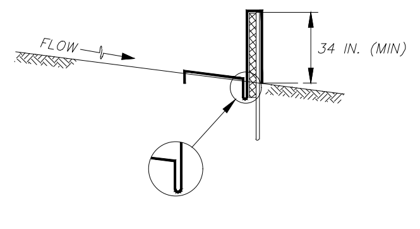
MAXIMUM DRAINAGE AREA = 2 ACRES

STANDARD SYMBOL
DF



**ELEVATION**



**SECTION**

### CONSTRUCTION SPECIFICATIONS

1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2–3/8 INCH MAXIMUM OPENING).
2. USE 2–3/8 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

DATE APPR
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ISSUED:
REFERENCE

## DIVERSION FENCE

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 401.1

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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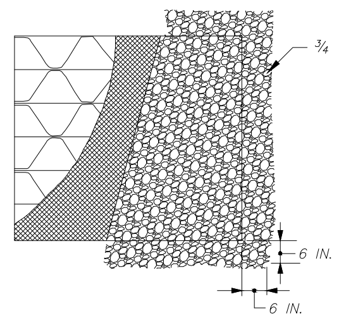
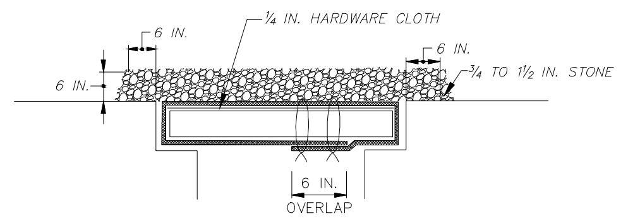
MAXIMUM DRAINAGE AREA = ¼ ACRE

STANDARD SYMBOL
AGIP



**PLAN/CUT AWAY VIEW**



**CROSS SECTION**

### CONSTRUCTION SPECIFICATIONS

1. LIFT GRATE AND WRAP WITH GEOTEXTILE CLASS E TO COMPLETELY COVER ALL OPENINGS, SECURE WITH WIRE TIES, THEN SET GRATE BACK IN PLACE.
2. PLACE CLEAN ¾ TO 1–½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 4 TO 6 INCHES THICK ON THE GRATE TO SECURE THE FABRIC.
3. IF THERE ARE ANY SIGNS OF STREET FLOODING OR WATER PONDING, THIS STRUCTURE MUST BE CLEANED OR REPLACED, OR REDESIGNED WITH A VIABLE ALTERNATIVE.

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ISSUED:
REFERENCE

## AT GRADE INLET PROTECTION STORM DRAIN INLET PROTECTION

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 307.2

SOURCE: 2011 MARYLAND STANDARDS AND SPECIFICATIONS

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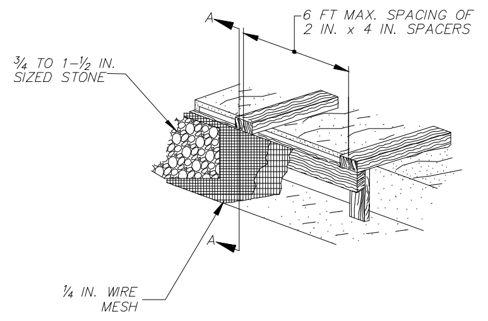
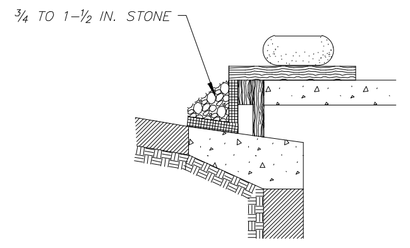
MAXIMUM DRAINAGE AREA = ¼ ACRE

STANDARD SYMBOL
CIP



**ISOMETRIC**



**SECTION A-A**

### CONSTRUCTION SPECIFICATIONS

1. ATTACH A CONTINUOUS PIECE OF 1/2 INCH x 1/2 INCH WIRE MESH, (30 INCHES MINIMUM WIDTH BY THROAT LENGTH, PLUS 4 FEET) TO THE 2–INCH x 4–INCH WEIR (MEASURING THROAT LENGTH PLUS 2 FEET) AS SHOWN ON THE STANDARD DRAWING.
2. PLACE A CONTINUOUS PIECE OF GEOTEXTILE CLASS E OF THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH TO THE 2–INCH x 4–INCH WEIR.
3. SECURELY NAIL THE 2–INCH x 4–INCH WEIR TO A 9–INCH LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAXIMUM 4 FEET APART).
4. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL (MINIMUM 2–FOOT LENGTHS OF 2–INCHES x 4–INCHES TO THE TOP OF THE WEIR AT SPACER LOCATIONS). EXTEND THESE 2–INCH x 4–INCH ANCHORS ACROSS THE INLET TOP AND BE HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHT.
5. PLACE THE ASSEMBLY SO THAT THE END SPACERS ARE 1 FOOT BEYOND BOTH ENDS OF THE THROAT OPENING.
6. FORM THE 1/2–INCH x 1/2–INCH WIRE MESH AND THE GEOTEXTILE FABRIC TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN 3/4 TO 1–1/2 INCH STONE OVER THE WIRE MESH AND GEOTEXTILE IN SUCH A MANNER AS TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
7. THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE GEOTEXTILE FABRIC AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT.
8. ASSURE THAT STORM FLOWS DO NOT BYPASS THE INLET BY INSTALLING A TEMPORARY EARTH OR ASPHALT DIKE TO DIRECT THE FLOW TO THE INLET.
9. IF THERE ARE ANY SIGNS OF STREET FLOODING OR WATER PONDING, THIS STRUCTURE MUST BE CLEANED OR REPLACED, OR REDESIGNED WITH A VIABLE ALTERNATIVE SUCH AS 3.3 FILTER SOCK.

*NOTE: FILTER SOCK IS AN ALTERNATIVE WHICH IS EASIER TO INSTALL AND MAINTAIN THAN THIS STANDARD DESIGN.

DATE APPR
REVISED
ISSUED:
REFERENCE

## CURB INLET PROTECTION STORM DRAIN INLET PROTECTION

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 307.3

SOURCE: 2011 MARYLAND STANDARDS AND SPECIFICATIONS

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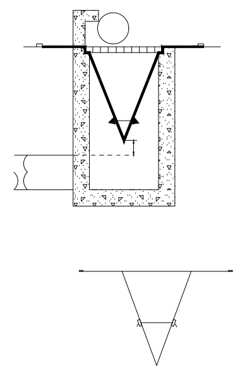
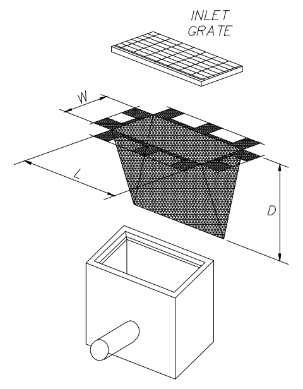
MAXIMUM DRAINAGE AREA = ½ ACRE

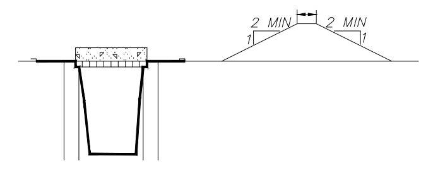
STANDARD SYMBOL
F.B.S



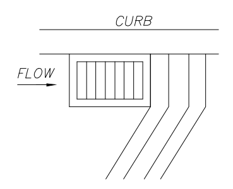
**INSTALLATION DETAIL**



**ISOMETRIC VIEW**



**ELEVATION VIEW**



**PLAN VIEW**

### CONSTRUCTION SPECIFICATIONS

1. INSTALL PROPRIETARY FILTER BAG PRODUCTS PER MANUFACTURER'S RECOMMENDATIONS.
2. GEOTEXTILE MUST MEET THE SPECIFICATIONS OUTLINED IN TABLE 3.9– GEOTEXTILE MATERIAL PROPERTIES FOR INLET FILTER BAG.
3. INSPECT FILTER BAGS ON A WEEKLY BASIS OR AFTER EACH RAINFALL EVENT, WHICHEVER IS SOONER.
4. CLEAN FILTER BAGS AND/OR REPLACE WHEN THE BAG IS HALF FULL.
5. REPLACE DAMAGED FILTER BAGS IMMEDIATELY.
6. INITIATE NEEDED REPAIRS IMMEDIATELY AFTER THE INSPECTION.

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ISSUED:
REFERENCE

## INLET FILTER BAG CURBED ROADWAY

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 309.1

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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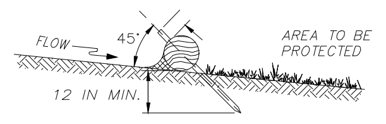
STANDARD SYMBOL
FS–18
DESIGNATION FS–18 REFERS TO 18 INCH DIAMETER FILTER SOCK.



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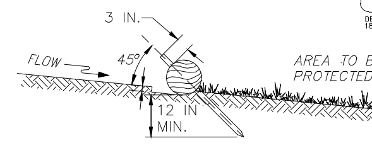
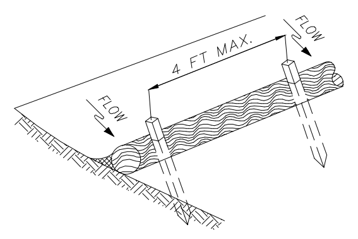
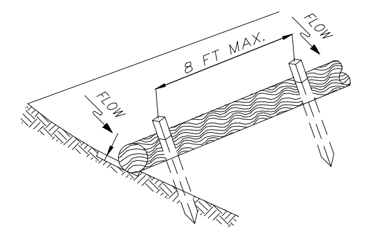


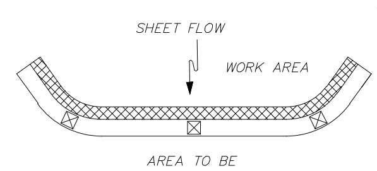
**SECTION**





***ENTRENCHED INSTALLATION**

**UNTRENCHED INSTALLATION**



*NOTE:
- THIS APPLICATION MAY NOT BE USED WITH SOCKS SMALLER THAN 12 IN.

**PLAN VIEW**

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## FILTER SOCK - 1

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 303.1

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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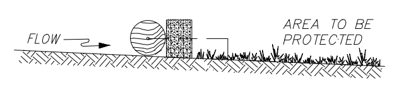
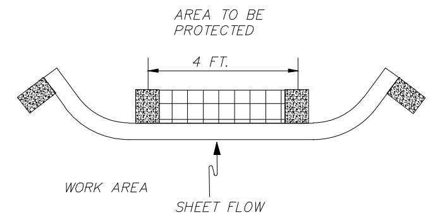


**HARD SURFACE INSTALLATION SECTION**



STANDARD SYMBOL
FS–18
DESIGNATION FS–18 REFERS TO 18 INCH DIAMETER FILTER SOCK.

**HARD - SURFACE INSTALLATION PLAN VIEW**

### CONSTRUCTION SPECIFICATIONS

1. BEFORE INSTALLING, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN 1–INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF THE FILTER SOCK.
2. FILL SOCK UNIFORMLY WITH COMPOST OR ALTERNATE FILTER MEDIA TO DESIRED LENGTH, WITH ENOUGH MATERIAL THAT THE SOCKS DO NOT DEFORM.
3. PLACE SOCKS ALONG CONTOURS, WITH THE ENDS TURNED UPSLOPE AT 30 TO 45 DEGREES FOR A LENGTH OF AT LEAST 5 FEET TO PREVENT RUNOFF BYPASS.
4. FOR UNTRENCHED INSTALLATION, BACKFILL MULCH OR COMPOST ON THE UPSTREAM SIDE OF THE SOCK AND TAMP TO PREVENT UNDERCUTTING AND PIPING.
5. ANCHORING MUST CONFORM TO THE FOLLOWING LIST: (a) MINIMUM 2–INCH SQUARE CROSS SECTION HARDWOOD; (b) DRIVEN AT LEAST 12 INCHES BELOW GRADE, OR 8 INCHES IF IN DENSE CLAY SOILS; (c) PROTRUDE ABOVE FILTER SOCKS AT LEAST 3 INCHES; (d) DRIVEN IN AT 45–DEGREE ANGLE UPSLOPE; (e) SPACED AT NO MORE THAN 4 FEET APART, OR 8 FEET APART IF THE FILTER SOCK IS ENTRENCHED 4 INCHES INTO THE GROUND.
6. DO NOT USE ENTRENCHED INSTALLATION ON FILTER SOCKS SMALLER THAN 12 INCHES IN DIAMETER.
7. FOR HARD SURFACE INSTALLATION, SUCH AS ON PAVEMENT, ANCHORING MAY BE NECESSARY WHERE STRAIGHT SECTIONS EXCEED 4 FEET. SEE DETAIL ABOVE, AND GREATER INSTRUCTION IN THE FILTER SOCK SPECIFICATION. WHEN NO ANCHORING IS USED, THE PRACTICE MUST BE CHECKED DAILY, REGARDLESS OF WHETHER RAINFALL OCCURS. ANCHORED INSTALLATION IS ALWAYS PREFERRED TO NON–ANCHORED INSTALLATION, IF POSSIBLE.
8. FOR AT–GRADE INLET PROTECTION, FILTER SOCKS MUST COMPLETELY ENCLOSE THE DRAIN. IF USED AS CURB INLET PROTECTION, THE EFFECTIVE HEIGHT OF THE FILTER SOCK MUST NOT BE HIGHER THAN THE HEIGHT OF THE CURB; USE 8–INCH DIAMETER FILTER SOCK FOR STANDARD HIGHWAY APPLICATIONS.
9. IF MULTIPLE SECTIONS OF FILTER SOCK ARE NEEDED FOR A CONTINUOUS RUN, OVERLAP ENDS OF SEPARATE SECTIONS A MINIMUM OF 2 FEET AND STAKE ENDS.
10. TO REACH TALLER HEIGHTS, IT IS POSSIBLE TO STACK FILTER SOCKS. SEE SPECIFICATION FOR MORE DETAIL.
11. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF HALF THE EXPOSED HEIGHT OF SOCK AND REPLACE SOCK. REPLACE FILTER SOCK IF TORN. REINSTALL FILTER SOCK IF UNDERMINING OR DISLODGING OCCURS. REPLACE CLOGGED FILTER SOCKS.
12. FOR VEGETATED, PERMANENT OR SEMI–PERMANENT INSTALLATIONS, MAINTAIN THE PLANTS AS IS APPROPRIATE FOR THE SPECIES USED.

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## FILTER SOCK - 2

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 303.2

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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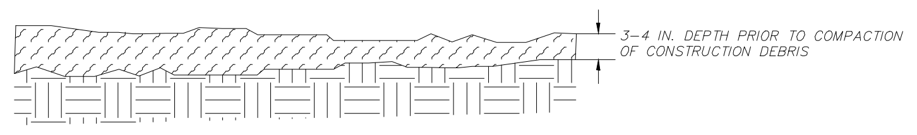
STANDARD SYMBOL
DEBRIS



### CONSTRUCTION SPECIFICATIONS

1. DURING DEMOLITION, SORT MATERIALS, AND ENSURE THAT MATERIALS USED FOR EROSION CONTROL ARE APPROVED FOR THIS PURPOSE BY THE DESIGN ENGINEER OR THEIR REPRESENTATIVE.
2. ENSURE THAT THE BARE GROUND SURFACE IS DRY AND COMPACTED BEFORE SPREADING THE DEBRIS LAYER.
3. SPREAD AND COMPACT TO A DEPTH OF 3 TO 4 INCHES.
4. DURING CONSTRUCTION, REPLENISH AND COMPACT THE SURFACE WITH ACCEPTABLE MATERIAL IF THE SURFACE IS DISTURBED, EXPOSING BARE SOIL, OR IF SOIL IS TRACKED INTO THE SURFACE AND MAY BE EXPORTED OFF SITE. AT THE CLOSE OF CONSTRUCTION, PROPERLY DISPOSE OF OR REUSE THE MATERIAL, AS INDICATED ON THE CONSTRUCTION PLANS.

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## CONSTRUCTION DEBRIS GROUND COVER

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 204.1

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

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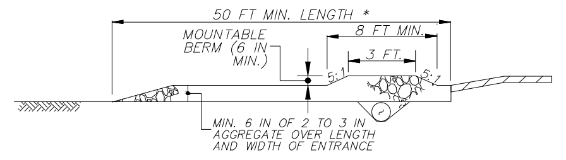
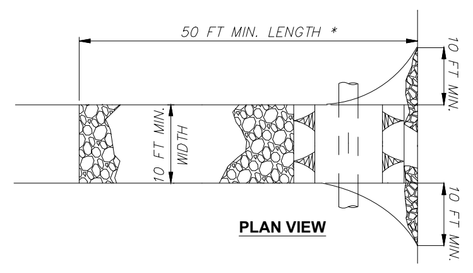


**PROFILE**

STANDARD SYMBOL
SCE



**PLAN VIEW**

### CONSTRUCTION SPECIFICATIONS

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

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ISSUED:
REFERENCE

## STABILIZED CONSTRUCTION ENTRANCE

DISTRICT OF COLUMBIA
DEPARTMENT OF ENERGY & ENVIRONMENT
DWG. NO 201.1

SOURCE: 2011 MARYLAND STANDARDS & SPECIFICATIONS

**Table 2.4 Temporary Seeding for Site Stabilization**

| Plant Species | Seeding Rate[1] | | Seeding Depth (inches)[2] | Recommended Seeding Dates Plant Hardiness Zone 7a and 7b[3] |
|---|---|---|---|---|
| | lb/ac | lb/1,000 ft$^2$ | | |
| Cool-Season Grasses | | | | |
| Annual Ryegrass | 40 | 1.0 | 0.5 | Feb. 15 to Apr. 30;<br>Aug. 15 to Nov. 30 |
| Barley | 96 | 2.2 | 1.0 | Feb. 15 to Apr. 30;<br>Aug. 15 to Nov. 30 |
| Oats | 72 | 1.7 | 1.0 | Feb. 15 to Apr. 30;<br>Aug. 15 to Nov. 30 |
| Wheat | 120 | 2.8 | 1.0 | Feb. 15 to Apr. 30;<br>Aug. 15 to Nov. 30 |
| Cereal Rye | 112 | 2.8 | 1.0 | Feb. 15 to Apr. 30;<br>Aug. 15 to Dec. 15 |
| Warm-Season Grasses | | | | |
| Foxtail Millet | 30 | 0.7 | 0.5 | May 1 to Aug. 14 |
| Pearl Millet | 20 | 0.5 | 0.5 | May 1 to Aug. 14 |

Notes:

[1] Seeding rates for the warm-season grasses are in pounds of pure live seed (PLS). Actual planting rates must be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Generally, do not use cereal rye as a nurse crop unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

[2] For sandy soils, plant seeds at twice the depth listed above.

[3] The planting dates listed are averages and may require adjustment to reflect local conditions.

**Table 2.5 Permanent Seeding Summary**

| Permanent Seeding Summary | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Seed Mixture | | | | Fertilizer Rate (10-20-20) | | | Lime Rate |
| No. | Species | Application Rate (lb/ac) | Seeding Dates | Seeding Depths | N | $P_20_5$ | $K_20$ | |
| | | | | | 45 lb/ac | 90 lb/ac | 90lb/ac | 2 tons/ac |
| | | | | | (1.0 lb/ 1,000 ft$^2$) | (2 lb/ 1,000 ft$^2$) | (2 lb/ 1,000 ft$^2$) | (90 lb/ 1,000 ft$^2$) |
| | | | | | | | | |

Turfgrass Mixtures

Select a seed mixture from Table 2.6, using Table 2.7 (conditions by mix) as a guideline. Some guidance for common mixes is as follows:

1. Kentucky Bluegrass (full sun mixture) – For use in areas that receive intensive management. The recommended certified Kentucky bluegrass cultivars seeding rate is 1.5 to 2.0 pounds per 1,000 square feet. Choose a minimum of three bluegrass cultivars ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.
2. 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. The certified perennial ryegrass cultivars/certified Kentucky bluegrass seeding rate is 2 pounds mixture per 1,000 square feet. A minimum of three Kentucky bluegrass cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.
3. Tall Fescue/Kentucky Bluegrass (full sun mixture) – For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. The recommended mixture includes 95% to100% certified tall fescue cultivars and 0% to5% certified Kentucky bluegrass cultivars. The seeding rate is 5 to 8 pounds per 1,000 square feet. One or more cultivars may be blended.
4. Kentucky Bluegrass/Fine Fescue (shade mixture) – For use in areas with shade in bluegrass lawns or for establishment in high quality, intensively managed turf area. The mixture includes 30% to 40% certified Kentucky bluegrass cultivars and 60% to 70% of certified fine fescue. The seeding rate is 1½ to 3 pounds per 1,000 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: Select turfgrass varieties from those listed in the most current Maryland-Virginia Turfgrass Variety Recommendation Work Group list (http://www.pubs.ext.vt.edu/).

Sod grass

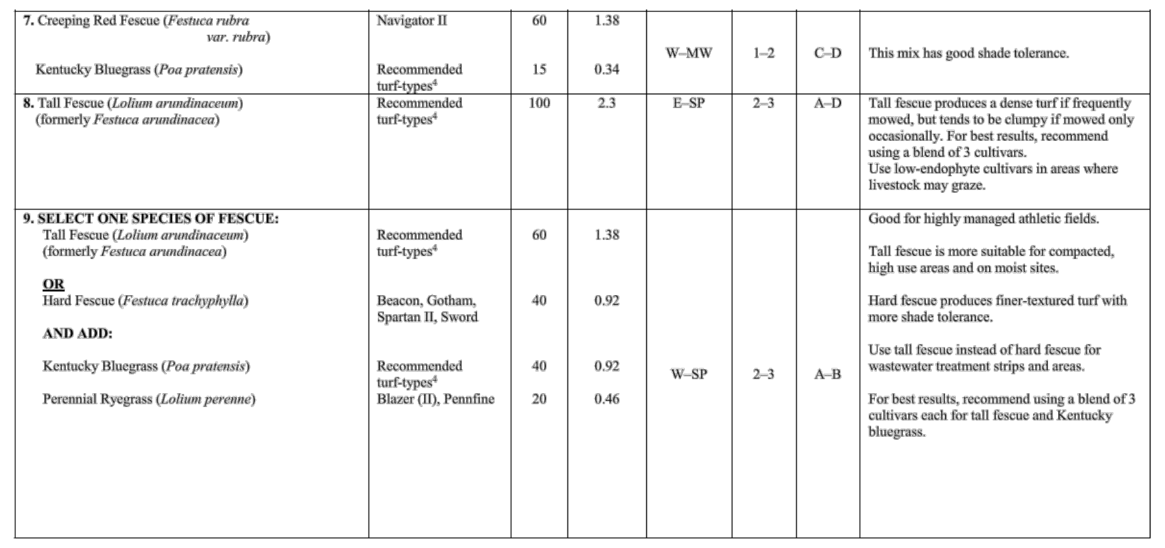
Use sod grass to provide quick cover on disturbed areas (2:1 grade or flatter).

1. Class of turfgrass sod must comply with the grass varieties listed in Table 2.7. Make sod labels available to the job foreman and inspector.
2. Machine cut sod at a uniform soil thickness of ¾ inches, plus or minus ¼ inches, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Individual pieces of sod must be cut to the supplier's width and length. Maximum allowable deviation from standard widths and lengths is 5%. Broken pads and torn or uneven ends will not be acceptable.
3. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10% of the section.
4. Do not harvest or transplant sod when moisture content (excessively dry or wet) may adversely affect its survival.
5. Harvest, deliver, and install sod within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

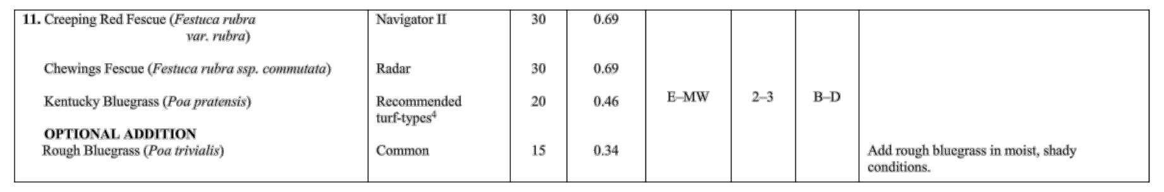
Planting Dates

The recommended planting dates for permanent cover can be found in Table 2.8.

From Table 2.7



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **7.** Creeping Red Fescue (*Festuca rubra var. rubra*) | Navigator II | 60 | 1.38 | W–MW | 1–2 | C–D | This mix has good shade tolerance. |
| Kentucky Bluegrass (*Poa pratensis*) | Recommended turf-types[4] | 15 | 0.34 | | | | |
| **8.** Tall Fescue (*Lolium arundinaceum*) (formerly *Festuca arundinacea*) | Recommended turf-types[4] | 100 | 2.3 | E–SP | 2–3 | A–D | Tall fescue produces a dense turf if frequently mowed, but tends to be clumpy if mowed only occasionally. For best results, recommend using a blend of 3 cultivars.<br>Use low-endophyte cultivars in areas where livestock may graze. |
| **9. SELECT ONE SPECIES OF FESCUE:** | | | | W–SP | 2–3 | A–B | Good for highly managed athletic fields. |
| Tall Fescue (*Lolium arundinaceum*) (formerly *Festuca arundinacea*) | Recommended turf-types[4] | 60 | 1.38 | | | | Tall fescue is more suitable for compacted, high use areas and on moist sites. |
| **OR** Hard Fescue (*Festuca trachyphylla*) | Beacon, Gotham, Spartan II, Sword | 40 | 0.92 | | | | Hard fescue produces finer-textured turf with more shade tolerance. |
| **AND ADD:** | | | | | | | Use tall fescue instead of hard fescue for wastewater treatment strips and areas. |
| Kentucky Bluegrass (*Poa pratensis*) | Recommended turf-types[4] | 40 | 0.92 | | | | |
| Perennial Ryegrass (*Lolium perenne*) | Blazer (II), Pennfine | 20 | 0.46 | | | | For best results, recommend using a blend of 3 cultivars each for tall fescue and Kentucky bluegrass. |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **11.** Creeping Red Fescue (*Festuca rubra var. rubra*) | Navigator II | 30 | 0.69 | E–MW | 2–3 | B–D | |
| Chewings Fescue (*Festuca rubra ssp. commutata*) | Radar | 30 | 0.69 | | | | |
| Kentucky Bluegrass (*Poa pratensis*) | Recommended turf-types[4] | 20 | 0.46 | | | | |
| **OPTIONAL ADDITION** Rough Bluegrass (*Poa trivialis*) | Common | 15 | 0.34 | | | | Add rough bluegrass in moist, shady conditions. |

**Table 2.8 Recommended Planting Dates for Permanent Cover**

| Type of Plant Material | Planting Dates |
|---|---|
| Seeds - Cool-Season Grasses (includes mixes with forbs and/or legumes) | Feb 15 to Apr 30<br>Aug 15 to Oct 31<br>Nov 1 to Nov 30[3] |
| Seeds - Warm-Season/Cool-Season Grass Mixes (includes mixes with forbs and/or legumes) | Feb 15 to Apr 30[4]<br>May 1 to May 31[5] |
| Sod - Cool-Season | Feb 15 to Apr 30<br>May 1 to Sep 30[5]<br>Oct 1 to Dec 1[5, 6] |

Notes:
1. When seeding toward the end of the listed planting dates, or when conditions are expected to be less than optimal, select an appropriate nurse crop from Table 2.4 Temporary Seeding for Site Stabilization and plant together with the permanent seeding mix.
2. When planted during the growing season, most of these materials must be purchased and kept in a dormant condition until planting.
3. Recommend adding a nurse crop, as noted above, if planting during this period.
4. Warm-season grasses need a soil temperature of at least 50 degrees F in order to germinate. If soil temperatures are colder than 50 degrees, or moisture is not adequate, the seeds will remain dormant until conditions are favorable. In general, planting during the latter portion of this period allows more time for weed emergence and weed control prior to planting. When selecting a planting date, consider the need for weed control vs. the likelihood of having sufficient moisture for later plantings, especially on droughty sites.
5. Additional planting dates during which supplemental watering may be needed to ensure plant establishment.
6. Frequent freezing and thawing of wet soils may result in frost-heaving of materials planted in late fall, if plants have not sufficiently rooted in place. Sod usually needs 4 to 6 weeks to become sufficiently rooted.

Minimum Soil Criteria

Minimum soil conditions required for permanent vegetative establishment include the following:

1. Soil pH must be between 6.0 and 7.0.
2. Soluble salts must be less than 500 parts per million (ppm).
3. The soil must 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. As an exception, it is acceptable to plant lovegrass or serecia lespedeza in sandy soil (< 30% silt plus clay).
4. Soil must 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, topsoil must be added as required in Section 2.6 Topsoiling.

Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites with disturbed areas over 5 acres. Soil analysis may be performed by the University of the District of Columbia or a certified commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing, and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from DOEE. Deliver all fertilizers to the site fully labeled per applicable laws and bear the name, trade name or trademark, and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted) containing at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98% to 100% will pass through a #20 mesh sieve.

### 2.10.5 Construction Specifications

Site Preparation

1. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
2. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
3. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.
4. Distribute lime and fertilizer evenly and incorporate them into the top 3 to 5 inches of soil by disking or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons per acre (200 to 400 pounds per 1,000 square feet) prior to the placement of topsoil.

Seedbed Preparation

1. Temporary Seeding
   (a) Seedbed preparation must consist of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, do not roll or drag smooth but leave in the roughened condition. Track sloped areas (greater than 3:1) 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 to 5 inches of soil by disking or other suitable means.
2. Permanent Seeding – Maintain areas previously graded in conformance with the drawings in a true and even grade, then scarified or otherwise loosened to a depth of 3 to 5 inches 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.
   Apply soil amendments as per soil test or as included on the plans.

   Mix soil amendments into the top 3 to 5 inches of topsoil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. 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. Track steep slopes (steeper than 3:1) by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 to 3 inches of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.
3. Methods of Seeding – Apply seed uniformly with hydroseeder (slurry includes seed, fertilizer and mulch), broadcast or drop seeder, or a cultipacker seeder.
   (a) Hydroseeding
      i) If fertilizer is being applied at the time of seeding, the application rates will not exceed the following: nitrogen, maximum of 100 pounds per acre total of soluble nitrogen; $P_2O_5$ (phosphorous), 200 pounds per acre; $K_2O$ (potassium), 200 pounds per acre.
      ii) Lime – Use only ground agricultural limestone, (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons per acre are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      iii) Seed and fertilizer must be mixed on site and seeding must be done immediately and without interruption.
      iv) Fiber mulch may be incorporated into the hydroseeding mixture. Consult Section 2.7 Mulching for standards and specifications for mulch materials.
   (b) Dry Seeding – This includes use of conventional drop or broadcast spreaders.
      i) Incorporate seed spread dry into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 2.4 or 2.7. The seeded area must then be rolled with a weighted roller to provide good seed to soil contact.
      ii) Where practical, apply seed in two directions perpendicular to each other. Apply half the seeding rate in each direction.
   (c) Drill or Cultipacker Seeding – Mechanized seeders that apply and cover seed with soil.
      i) Cultipacking seeders are required to bury the seed in such a fashion as to provide at least ¼ inches of soil covering. Seedbed must be firm after planting.
      ii) Where practical, apply seed in two directions perpendicular to each other. Apply half the seeding rate in each direction.
4. Sod Installation – During periods of excessively high temperature or in areas having dry subsoil, the subsoil must be lightly irrigated immediately prior to laying the sod.

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

   Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg, or otherwise secure sod to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.

   Immediately water sod following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
5. Incremental Stabilization – Cut Slopes

   Dress, prepare, seed, and mulch all cut slopes as the work progresses. Excavate and stabilize slopes in equal increments not to exceed 15 feet.

   The construction sequence is as follows (refer to Figure 2.1):
   (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 areas 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.

### 2.10.6 Maintenance

Grass Maintenance

1. Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season.
2. Once the vegetation is established, the site must have 95% ground cover to be considered adequately stabilized.
3. If the stand provides less than 40% ground coverage, reestablish following original lime, fertilizer, seedbed preparation and seeding recommendations.
4. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.
5. Maintenance fertilizer rates for permanent seedings are shown in Table 2.9.

**Table 2.9 Maintenance Fertilization for Permanent Seeding**

| Seeding Mixture | Type | Seeding Rate lb/ac | lb/1,000 ft$^2$ | Time | Mowing |
|---|---|---|---|---|---|
| Tall fescue makes up 70% or more of cover. | 10-10-10 | 500 | 11.5 | Yearly or as needed. | Not closer than 3 inches, if occasional mowing is desired. |
| | 30-10-10 | 400 | 9.2 | Fall | |
| Birdsfoot trefoil. | 0-20-0 | 400 | 9.2 | Spring, the year following establishment, and every 4 to 5 years, after. | Mow no closer than 2 inches. |
| Fairly uniform stand of tall fescue or birdsfoot trefoil. | 5-10-10 | 500 | 11.5 | Fall, the year following establishment, and every 4 to 5 years, after. | Not required, no closer than 4 inches in the fall after seed has matured. |
| Weeping lovegrass fairly uniform plant distribution. | 5-10-10 | 500 | 11.5 | Spring, the year following establishment, and every 3 to 4 years, after. | Not required, not closer than 4 inches in fall after seed has matured. |
| Red & chewings fescue, Kentucky bluegrass, hard fescue mixtures. | 20-10-10 | 250 | 5.8 | September, 30 days later. | Mow no closer than 2 inches for red fescue and Kentucky bluegrass, 3 inches for fescue. |
| | | 100 | 2.3 | December, May 20, June 30, if needed. | |
| Red & chewings fescue, Kentucky bluegrass, hard fescue mixtures. | 20-10-10 | 250 | 5.8 | September, 30 days later. | Mow no closer than 2 inches for red fescue and Kentucky bluegrass, 3 inches for fescue. |
| | | 100 | 2.3 | December, May 20, June 30, if needed. | |

Sod Maintenance

1. In the absence of adequate rainfall, perform watering daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4 inches. Water during the heat of the day to prevent wilting.
2. After the first week, sod watering is required as necessary to maintain adequate moisture content.
3. Do not attempt the first mowing of sod until the sod is firmly rooted. Do not remove more than a third of the grass leaf by the initial cutting or subsequent cuttings. Maintain grass height between 2 to 3 inches unless otherwise specified.

## 2.6 Topsoiling

### 2.6.1 Definition

Placement of topsoil over prepared subsoil prior to establishing permanent vegetation.

### 2.6.2 Purpose

To provide a suitable soil medium for vegetative growth.

### 2.6.3 Conditions Where Practice Applies

This practice is recommended for areas with 2:l or flatter slopes where one or more of the following apply:

1. The texture, pH, or nutrient balance of the exposed subsoil/parent material is not adequate to produce vegetative growth.
2. 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.
3. The original soil to be vegetated contains material toxic to plant growth.
4. The soil is so acidic that treatment with limestone is not feasible.

Areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. These areas must have the appropriate stabilization shown on the plans.

### 2.6.4 Design Criteria

Topsoil salvaged from the existing site may be used if it meets the standards in these specifications. Place topsoil and apply soil amendments as specified in Section 2.10 Vegetative Stabilization. Soil to be used as topsoil must meet the following specifications:

1. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by DOEE. Regardless, topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 inch in diameter.
2. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, other poisonous plants, or others as specified in Section 2.10 Vegetative Stabilization. Topsoil must also be free from invasive plants or plant parts.
3. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4–8 tons per acre (200–400 pounds per 1,000 square feet) prior to the placement of topsoil. Distribute lime uniformly over designated areas and work into the soil in conjunction with tillage operations as described in the next step.

For sites with disturbed areas over 5 acres, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the requirements set forth in Section 2.10 Vegetative Stabilization. Alternatives to natural topsoil and alternative soil amendments, such as composted sewage sludge or other composted materials, may be used in place of fertilizer and lime, as allowed by other applicable regulations and as approved by a certified agronomist or soil scientist.

### 2.6.5 Construction Specifications

1. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, silt fence, and sediment traps and basins.
2. Grades on the areas to be topsoiled, which have been previously established, must be maintained, though now with an additional 4 to 8 inches height in elevation.
3. After the areas to be topsoiled have been brought to grade, and immediately prior to dumping and spreading the topsoil, loosen the subgrade by discing or by scarifying to a depth of a least 4 inches to permit bonding of the topsoil to the subsoil. Pack the subsoil by passing a bulldozer up and down over the entire surface area of the slope to create horizontal erosion check slots to prevent topsoil from sliding down the slope.
4. Uniformly distribute topsoil in a 4-inch to 8-inch layer and lightly compact to a minimum thickness of 4 inches. Perform spreading in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Correct any irregularities in the surface resulting from topsoiling or other operations to prevent the formation of depressions or water pockets.
5. Do not place topsoil 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.

### 2.6.6 Maintenance

After precipitation events, confirm that topsoil and subsoil are properly bonded and no sloughing has occurred.

## 2.7 Mulching

### 2.7.1 Definition

The application of a protective layer of mulch or other suitable material to the soil surface.

### 2.7.2 Purpose

To protect the soil surface from the forces of raindrop impact and overland flow. Mulch helps to conserve moisture, reduce runoff and erosion, control weeds, prevent soil crusting, and promote the establishment of desired vegetation. Mulch is frequently used to accent landscape plantings.

### 2.7.3 Conditions Where Practice Applies

Mulching can be used at any time where protection of the soil surface is desired. The primary purpose of mulching is to protect newly seeded disturbed areas. However, it can also be used for stand-alone protection of the soil surface under adverse weather conditions when seed germination could be jeopardized. Mulch may also be used together with plantings of trees, shrubs, or certain ground cover that do not provide adequate soil stabilization by themselves.

Use mulching in conjunction with temporary seeding operation as specified in Section 2.10 Vegetative Stabilization.

### 2.7.4 Design Criteria

A surface mulch is the most effective, practical means of controlling runoff and erosion on disturbed land prior to vegetation establishment. Mulch reduces soil moisture loss by evaporation, prevents crusting and sealing of the soil surface, moderates soil temperatures, provides a suitable microclimate for seed germination, and may increase the infiltration rate of the soil.

Organic mulches such as straw, wood chips, and shredded bark have been found to be the most effective. Do not use materials that may be sources of competing weed and grass seeds. Be aware that decomposition of some wood products can tie up significant amounts of soil nitrogen, making it necessary to modify fertilization rates or add fertilizer with the mulch.

Various types of netting materials are available to anchor organic mulches. Chemical soil stabilizers or soil binders are less effective than other types of mulches when used alone. These products are primarily useful for tacking wood fiber mulches.

Choose materials for mulching based on soil conditions, season, type of vegetation, and size of the area. A properly applied and tacked mulch is always beneficial. It is especially important when conditions for germination are not optimum, such as midsummer and early winter, and on difficult areas such as cut slopes and slopes with southern exposures.

Mulch Materials

1. Straw must be unrotted small grain straw. Mulch materials must be relatively free of weeds and must be free of noxious weeds such as thistles, Johnsongrass, and quackgrass. Spread mulch uniformly by hand or mechanically. Straw can be windblown and must be anchored down by an acceptable method.
2. Wood chips are particularly well suited for utility and road rights-of-way, as well as areas that will not be closely mowed or around ornamental plantings. Wood chips do not require tacking. Because they decompose slowly, they must be treated with 12 pounds of nitrogen per ton to prevent nutrient deficiency in plants. Mulch can be inexpensive if chips are obtained from trees cleared on the site.
3. Wood fiber consists of specially prepared wood cellulose processed into a uniform fibrous physical state. It is used in hydroseeding operations and applied as part of a slurry. It creates the best seed-soil contact when applied over top of (as a separate operation) newly seeded areas. These fibers do not require tacking, although tacking agents or binders are sometimes used in conjunction with the application of fiber mulch. The following conditions apply to wood fiber:
   (a) Wood fiber is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
   (b) Wood fiber, including dye, must contain no germination or growth inhibiting factors.
   (c) Wood fiber materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer, and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover on application, having moisture absorption and percolation properties, and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
   (d) Wood fiber material must not contain elements or compounds at concentration levels that will be phytotoxic.
   (e) Wood fiber must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter of approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6% maximum, and water holding capacity of 90% minimum.

### 2.7.5 Construction Specifications

1. Prior to mulching, install any needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, channels, and sediment traps and basins.
2. Apply seed and soil amendments at required rates to bring the soil into compliance with the requirements set forth in Section 2.10 Vegetative Stabilization.
3. Apply mulch at required rates. Depending on site conditions, hydraulically applied mulches may be applied in a one-step process where all components may be mixed together in single tank loads. Consult with the manufacturer for further details.
   (a) Straw – Apply straw mulch over all seeded areas at the rate of 2 tons per acre, or 2 bales per 1,000 square feet, to a uniform loose depth of 1 to 2 inches. Apply so that the soil surface is not exposed.
   (b) Wood chips – Apply wood chips at the rate of approximately 10-20 tons per acre or 500 to 900 pounds per 1,000 square feet; the depth should be 2 to 7 inches.
   (c) Wood cellulose fiber – Apply wood cellulose fiber at a dry weight rate of 2,000 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. Wood cellulose fiber is not typically used on slopes steeper than 5%. For steeper slopes, apply at rates or in conjunction with tackifiers per manufacturer's specifications based on slope and other site characteristics. In hydroseeding operations, a green dye added to the slurry assures a uniform application.
4. Anchor mulch immediately following application to minimize loss by wind or water. Depending upon the size of the area and erosion hazard, use one of the following methods:
   (a) Mulch anchoring tool – A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
   (b) Liquid mulch binders – Application of liquid mulch binders and tackifiers should be heaviest at the edges of areas and at crests of ridges and banks to resist wind. Apply binder uniformly to the rest of the area. Binders may be applied after mulch is spread, or it may be sprayed into the mulch as it is being blown onto the soil. Applying straw and binder together is the most effective method.
   (c) Synthetic binders – Synthetic binders must follow the application rates specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
   (d) Netting – Lightweight plastic, cotton, jute, wire, or paper nets may be stapled over the mulch according to the manufacturer's recommendations.
   (e) Mats – Mats promote seedling growth in the same way as organic mulches. They are very useful in establishing grass in channels and waterways. A wide variety of synthetic and organic materials are available. "Excelsior" is a wood fiber mat that should not be confused with wood fiber slurry (see Section 2.9 Rolled Erosion Control Products).
5. When installing nets and mats, it is critical to obtain a firm, continuous contact between the material and the soil. Without such contact, the material is useless, and erosion will occur underneath. Any mat or blanket-type product used as a protective mulch should provide cover of at least 30% of the surface where it is applied.
   (a) Apply lime, fertilizer, and seed before laying the net or mat.
   (b) Start laying the net from the top of the slope and unroll it down the grade. Allow netting to lay loosely on the soil or mulch cover but without wrinkles—do not stretch.
   (c) To secure the net, bury the upslope end in a slot or trench no less than 6 inches deep, cover with soil, and tamp firmly. Staple the net every 12 inches across the top end and every 3 feet around the edges and bottom. Where 2 strips of net are laid side by side, overlap the adjacent edges 3 inches and staple together. Each strip of netting should also be stapled down the center, every 3 feet. Do not stretch the net when applying staples.
   (d) To join two strips, cut a trench to anchor the end of the new net. Overlap the end of the previous roll 18 inches, and staple every 12 inches just below the anchor slot.

### 2.7.6 Maintenance

Periodically inspect all mulches and soil coverings to check for erosion, particularly after precipitation events. Where erosion is observed in mulched areas, apply additional mulch. Inspect nets and mats after rainstorms for dislocation or failure. If washouts or breakage occur, reinstall netting or matting as necessary after repairing damage to the slope or ditch. Inspections should take place until grasses are firmly established. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface; repair as needed.

Construction Specifications for Dust Control
1. The contractor must conduct operations and maintain the project site so as to minimize the creation and dispersion of dust. Use dust control throughout the work at the site.
2. The contractor must provide clean water, free from salt, soil, and other deleterious material to be used for on-site dust control.
3. The contractor shall supply water-spraying equipment capable of accessing all work area.
4. The contractor shall implement strict dust control measures during active construction periods on-site. These control measures shall generally consist of water applications that shall be applied a minimum of once per day during dry weather or more often as required to prevent dust emissions.
5. For water application to undisturbed soil surfaces, the contractor shall:
   5.a. Apply water with equipment consisting of tank, spray bar, and pump with discharge pressure gauge.
   5.b. Arrange spray bar height, nozzle spacing, and spray pattern to provide complete coverage of ground with water.
   5.c. Disperse water through nozzles on spray bar at 20 psi (137.8 kPa) minimum. Keep areas damp without creating nuisance conditions such as ponding.
6. For water application to soil surfaces during demolition and/or excavation, the contractor shall:
   6.a. Apply water with equipment consisting of a tank, pump with discharge gauge, hoses, and mist nozzles.
   6.b. Locate tank and spraying equipment so that the entire excavation area can be misted without interfering with demolition and/or excavation equipment or operations. Keep areas damp without creating nuisance conditions such as ponding.
   6.c. Apply water spray in a manner to prevent movement of spray beyond the site boundaries.

Construction Sequence Notes
1. Sediment traps or basins and other erosion and sediment controls shall be installed no later than the first phase of land grading.
2. Sediment traps or basins and other erosion and sediment controls shall be, installed as soon as new site-related runoff is detected and employed at all times to protect inlets or storm sewers below silt-producing areas.
3. Immediately after debris basins, diversions, waterways, and related structures are built seed and mulch, or install sod & stabilization blanket.
4. No later than the first day of construction install site access measures to minimize off-site vehicle tracking of sediments. Each construction entrance must be stabilized and include each additional measure required to keep sediment from being carried, onto public streets by construction vehicles, and washed into a storm drain or waterways.
5. Remove off-site accumulations of sediment daily during construction and immediately at the request of a DOEE inspector.
6. Perform routine maintenance to prevent any new destabilized areas.

Notes for Underground Utility Work
1. When conducting underground utility work do not open more than five hundred linear feet (500 ft) of trench at any one time.
2. Filter water pumped out of trench excavations prior to discharging to the storm sewer system.
3. Place excavated material for utility work on the uphill side of a trench.
4. Install interim or permanent stabilization immediately after a utility trench is refilled.
5. Use mulch and matting on excavated material to minimize their erosion when natural or artificial grass filter strips are installed to receive stormwater runoff from the excavated materials.

Notes for Roadway Projects
1. Rough graded rights-of-way awaiting installation of utilities or pavement shall be protected by the installation of interceptor dikes across rights-of-way, with spacing of five hundred feet (500 ft) or less between the dikes. The DOEE reviewer may approve alternative controls recommended a DC-licensed PE.
2. The ESC plan must demonstrate how temporary diversion dikes and flumes, or alternative controls recommended by a DC-licensed PE, will convey runoff down cut-and-fill slopes to an DOEE approved outlet.
3. The ESC plan must demonstrate how a permanent drainage structure, including diversions at top-of-slope cuts and diversions to convey runoff to a storm sewer or other suitable outlet, shall be installed at the completion of rough grading, unless the DOEE reviewer approves an alternative recommended by a DC-licensed PE.

Notes for Building Demolition, Razing, and Site Development
1. Erosion shall be controlled by the installation of gutters and downspouts as soon as practicable.
2. Measures shall be taken to achieve a non-eroding velocity for stormwater exiting from a roof or downspout or to temporarily pipe that stormwater directly to a storm drain.
3. The site work shall maximize the preservation of natural vegetation and limit the removal of vegetation to what is necessary for construction or landscaping activity.
4. Remove off-site accumulations of sediment daily during construction and immediately at the request of a DOEE inspector.
5. Filter water pumped from excavations prior to discharging to the storm sewer system.
6. The DOEE inspector may require changes or additions to the ESC plan based on site conditions.
7. Contractor to install straw bales or erosion control tube across stabilized construction entrances when not in use and at end of day.

**DOEE SOIL EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTES**

**1.** Following initial land disturbance or re-disturbance, permanent or interim stabilization must be completed within seven (7) calendar days for the surfaces of all perimeter controls, dikes, swales, ditches, perimeter slopes, and slopes greater than three (3) horizontal to one (1) vertical (3:1); and fourteen (14) days for all other disturbed or graded areas on the project site. These requirements do not apply to areas shown on the plan that are used for material storage other than stockpiling, or for those areas on the plan where actual construction activities are being performed. Maintenance shall be performed as necessary so that stabilized areas continuously meet the appropriate requirements of the District of Columbia Standards and Specifications for Soil Erosion and Sediment Control (ESC). [21 DCMR § 542.9 (o)]

**2.** ESC measures shall be in place before and during land disturbance. [21 DCMR § 543.6]

**3.** Contact DOEE Inspection (202) 535-2977 to schedule a preconstruction meeting at least three (3) business days before the commencement of a land-disturbing activity. [21 DCMR § 503.7 (a)]

**4.** A copy of the approved plan set will be maintained at the construction site from the date that construction activities begin to the date of final stabilization and will be available for DOEE inspectors. [21 DCMR § 542.15]

**5.** ESC measures shall be in place to stabilize an exposed area as soon as practicable after construction activity has temporarily or permanently ceased but no later than fourteen (14) days following cessation, except that temporary or permanent stabilization shall be in place at the end of each day of underground utility work that is not contained within a larger development site. [21 DCMR § 543.7]

**6.** Stockpiled material being actively used during a phase of construction shall be protected against erosion by establishing and maintaining perimeter controls around the stockpile. [21 DCMR § 543.16 (a)]

**7.** Stockpiled material not being actively used or added to shall be stabilized with mulch, temporary vegetation, hydro-seed or plastic within fifteen (15) calendar days after its last use or addition. [21 DCMR § 543.16 (b)]

**8.** Fill material must be free of contamination levels of any pollutant that is, or may be considered to represent, a possible health hazard to the public or may be detrimental to surface or ground water quality, or which may cause damage to property or the drainage system. All fill material must be free of hazardous materials and comply with all applicable District and federal regulations.

**9.** Protect best management practices from sedimentation and other damage during construction for proper post construction operation. [21 DCMR § 543.5]

**10.** Request a DOEE inspector's approval after the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. [21 DCMR § 542.12 (a)]

**11.** Request a DOEE inspector's approval after final stabilization of the site and before the removal of erosion and sediment controls. [21 DCMR § 542.12 (b)]

**12.** Final stabilization means that all land-disturbing activities at the site have been completed and either of the following two criteria have been met: (1) a uniform (for example, evenly distributed, without large bare areas) perennial vegetative cover with a density of seventy percent (70%) of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or (2) equivalent permanent stabilization measures have been employed (such as the use of riprap, gabions, or geotextiles). [21 DCMR § 542.12 (b.1, b.2)]

**13.** Follow the requirements of the United States Environmental Protection Agency approved Stormwater Pollution Prevention Plan (SWPPP) and maintain a legible copy of this SWPPP on site. [21 DCMR § 543.10 (b)]

**14.** Post a sign that notifies the public to contact DOEE in the event of erosion or other pollution. The sign will be placed at each entrance to the site or as directed by the DOEE inspector. Each sign will be no less than 18 x 24 inches in size and made of materials that will withstand weather for the duration of the project. Lettering will be at least 1 inch in height and easily readable by the public from a distance of twelve feet (12 ft). The sign must direct the public, in substantially the following form: "To Report Erosion, Runoff, or Stormwater Pollution" and will provide the construction site address, DOEE's telephone number (202-535-2977), DOEE's e-mail address (IEB.scheduling@dc.gov), and the 311 mobile app heading ("Construction-Erosion Runoff"). [21 DCMR § 543.22]

If a site disturbs 5,000 square feet of land or greater, the ESC plan must contain the following statement:

**15.** A *Responsible Person* must be present or available while the site is in a land-disturbing phase. The *Responsible Person* is charged with being available to (a) inspect the site and its ESC measures at least once biweekly and after a rainfall event to identify and remedy each potential or actual erosion problem, (b) respond to each potential or actual erosion problem identified by construction personnel, and (c) speak on site with DOEE to remedy each potential or actual erosion problem. A *Responsible Person* shall be (a) licensed in the District of Columbia as a civil or geotechnical engineer, a land surveyor, or architect; or (b) certified through a training program that DOEE approves, including a course on erosion control provided by another jurisdiction or professional association. During construction, the *Responsible Person* shall keep on site proof of professional licensing or of successful completion of a DOEE-approved training program. [21 DCMR § 547]