

Big Sugar Creek at West Mountain Road Bank Stabilization Project EWP DSR 119-16-001

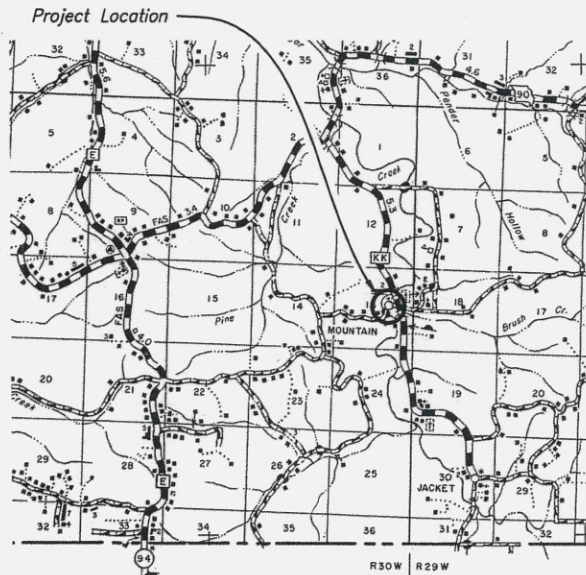
SW $\frac{1}{4}$ NE $\frac{1}{4}$ -Sec.13-T21N-R30W

Lat=36.5402 E; Long= 94.1275 W

McDonald County, Missouri



LOCATION IN MISSOURI



NOTES:

1. All construction shall be completed in compliance with the conditions of the U.S. Army Corps of Engineers General Permit (GP) 41.
2. Missouri law requires that any person making or beginning any excavation notify all underground facility owners/operators which may be affected by said excavation at least two but not more than ten working days in advance, except in the case of an emergency. A "working day" is everyday, except Saturday, Sunday, or a legally declared local, state or federal holiday.
3. To make this notification and locate all utilities at the site or on ingress & egress roads prior to excavation, contact the Missouri One Call system and submit a locate request. The phone number for the Missouri One Call System is 800-344-7483 (1-800-DIG-RITE).
4. Contact county road department prior to starting work to confirm tonnage limitations on local bridges.
5. The contact numbers for technical assistance concerning the plan set are as follows:

Sponsor Liaison: David Holloway, McDonald Co. Commission
Government Liaison: John Feistner or Michael Malone 417-831-5246 x123



The excavator is responsible for having all utilities located at the site or on ingress road prior to beginning work. Call 1-800-DIG-RITE (344-7483) or 811 or click www.mo1call.com 3 days before you dig! The landowner shall ensure that the excavator completes the utility locate request.

ESTIMATED PROJECT QUANTITIES	
Length of Stone Toe Protection	405 LF
Riprap Armament Volume	1,520 CY
Riprap Armament Weight	2,280 TN*
Estimated Excavation	1,300 CY
Seeding and Mulching	1 AC
Pollution Control	1 LS

* Estimate based on 1.5 tons per cubic yard of placed and compacted rock

SHEET INDEX

- Sheet -1- Cover Sheet
- Sheet -2- Existing Condition
- Sheet -3- Planned Construction
- Sheet -4- Cross Section Data
- Sheet -5- Project Details
- Sheet -6- Pollution Control

COVER SHEET Big Sugar Creek at West Mountain Road DSR 119-16-001 EWP McDonald County, MO	Date 8/16
	Designed mjm
	Drawn mjm
	Checked mjm
Approved mjm	Date 8/23/16
United States Department of Agriculture USDA Natural Resources Conservation Service	File Name Drawing Name 8/22/16 15:39 Sheet 1 of 6



CONSTRUCTION BASELINE DATA			
Station	Northing	Easting	Elevation
TBM 1	13,269,011.88	1,309,290.10	1074.6
TBM 2	13,268,830.47	1,309,131.73	1075.3
AP 1	13,269,022.84	1,309,344.27	-
AP 2	13,269,088.21	1,309,298.16	-
0+00	13,268,864.31	1,309,395.52	-
1+00	13,268,946.02	1,309,337.88	-
2+00	13,269,027.74	1,309,280.24	-
3+00	13,269,109.46	1,309,222.60	-
4+00	13,269,191.18	1,309,164.96	-
4+20	13,269,207.52	1,309,153.43	-

NOTES ON CONTROL POINTS:

- Control established using GPS survey method. Horizontal control is reference the North American Datum 83. Vertical control is reference the North American Vertical Datum 88. All displayed units in feet.
- TBM 1 control is the head of 1/2" dia. steel bolt driven flush with the ground marked with fluorescent paint. TBM 2 control is top of 1"x2" wooden stake marked with fluorescent tape.

NOTES ON PLANNED CONSTRUCTION:

- All construction shall be completed in compliance with the conditions of the U.S. Army Corps of Engineers General Permit (GP) 41.
- Contractor will coordinate haul route with the county road department to confirm tonnage limitations on bridges and will submit a transportation safety plan to ensure proper signage and safety measures are in place prior to construction.
- Government representatives listed on Sheet 1 are available on request to establish the construction baseline. Layout of the slope protection measures shall be approved in the field by the government representative.

LEGEND:

- Streamflow
- Active Erosion
- Overhead Utility
- Existing Fence
- Benchmark

Date 8/16
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 Drawn mjm
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 Approved _____

PLANNED CONSTRUCTION
Big Sugar Creek at West Mountain Road
DSR 119-16-001 EWP
McDonald County, MO

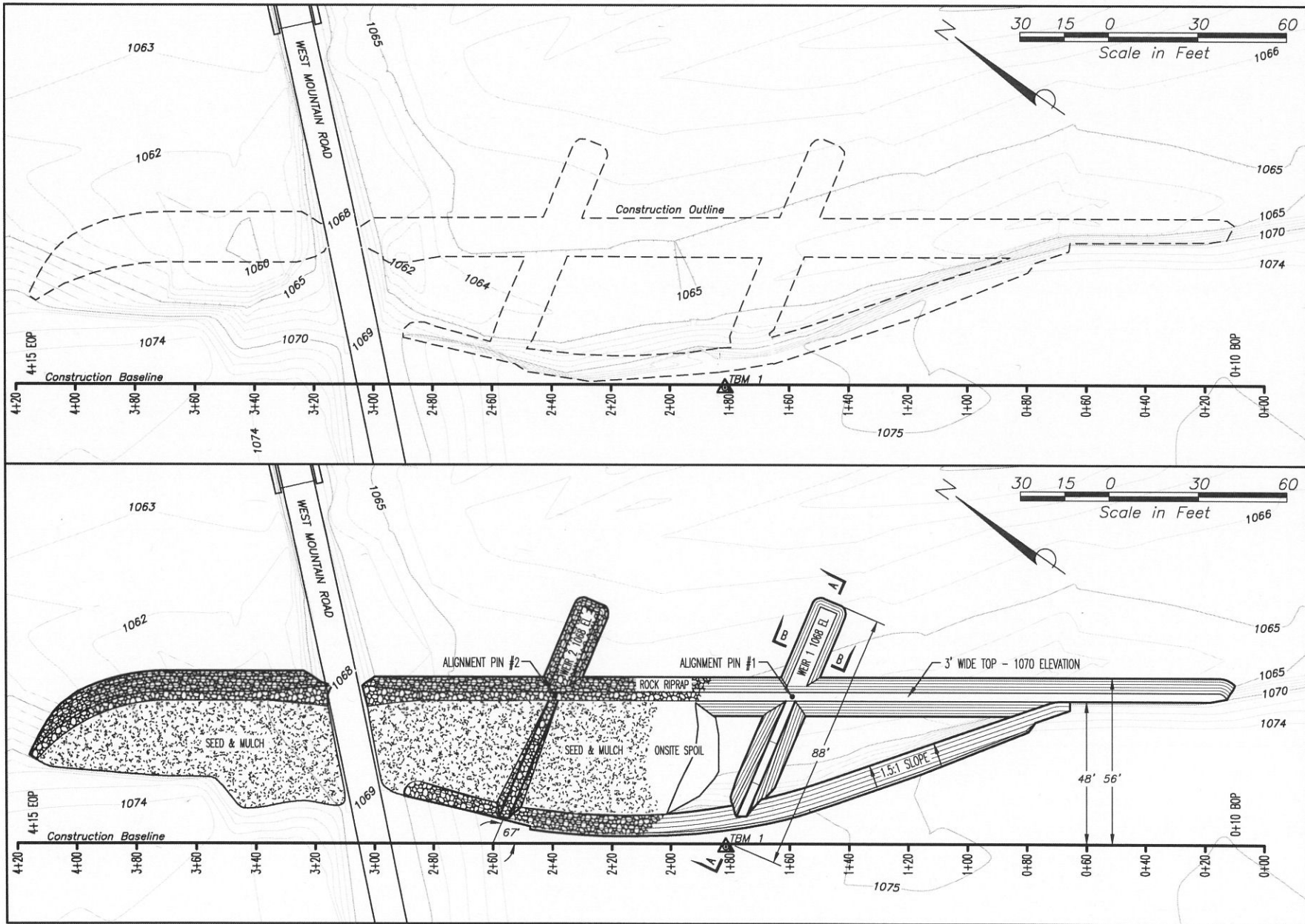
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USDA
 Natural Resources
 Conservation Service

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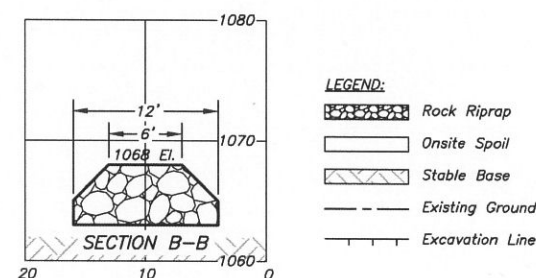
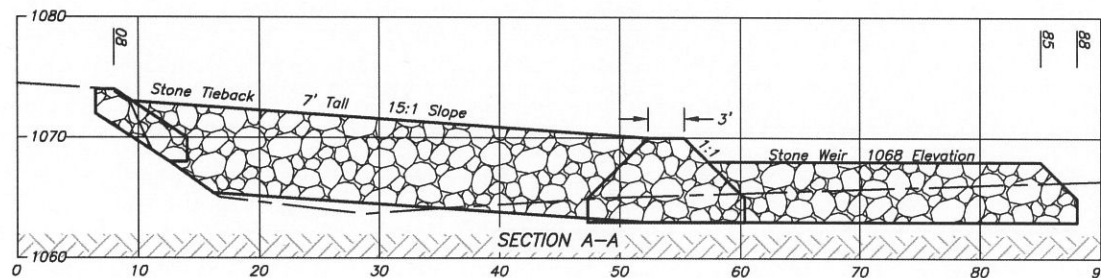
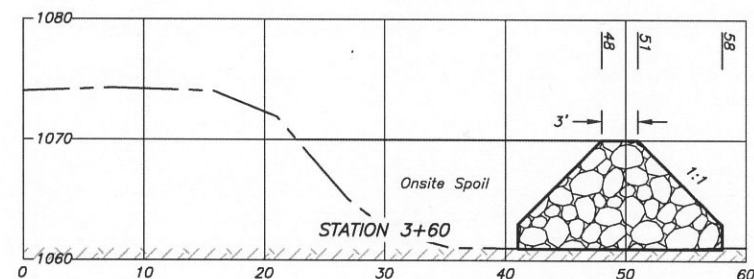
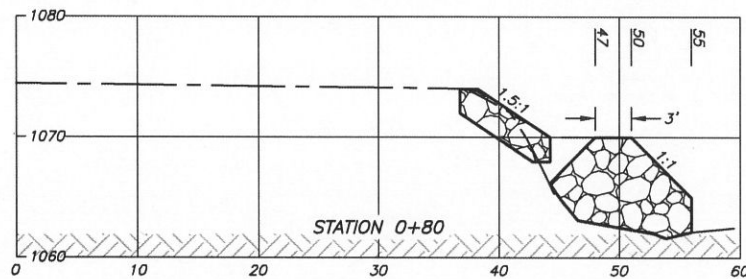
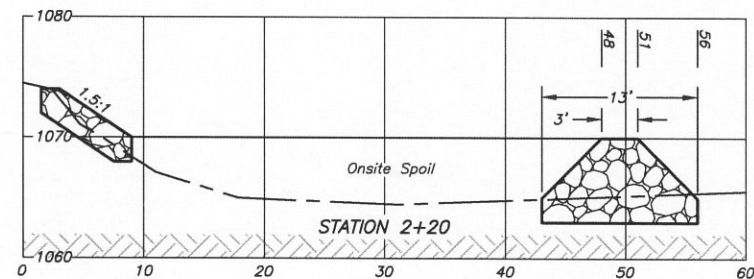
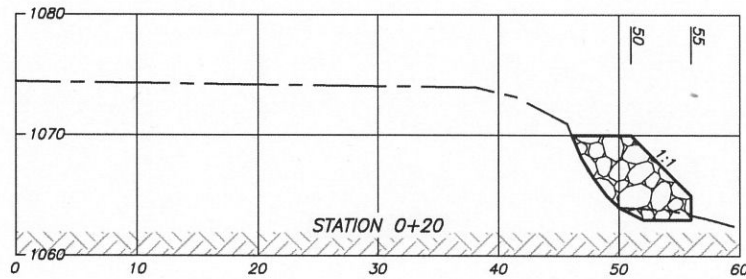
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Date <u>8/16</u> Designed <u>mjm</u> Drawn <u>mjm</u> Checked _____ Approved _____	
PLANNED CONSTRUCTION Big Sugar Creek at West Mountain Road DSR 119-16-001 EWP McDonald County, MO	
United States Department of Agriculture USDA Natural Resources Conservation Service	File Name _____ Drawing Name _____ 8/22/16 15:39 Sheet 3 of 6



LEGEND:

- Rock Riprap
- Onsite Spoil
- Stable Base
- Existing Ground
- Excavation Line

NOTES:

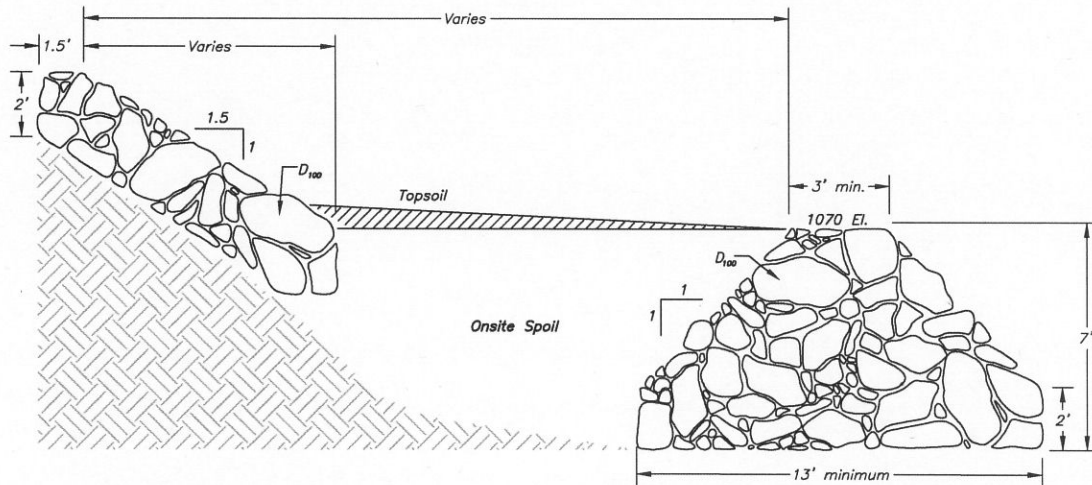
1. Beginning of project (BOP) and end of project (EOP) are taken to be 0+10 and 4+15 respectively.
2. For gradation of rock and for stationing coordinates, refer to Sheet 5 of the plan set.
3. Stone weirs shall be excavated to elevation 1063 or until refusal when stable rock is encountered. It is not necessary to backfill around stone weirs. Weirs shall comply with the dimensions indicated in section B-B.
4. Stone tiebacks slope upward heading West at approximately 15:1 and will be constructed to form a row of rock that is three (3) feet wide at the top, 13' wide at the base, with side slopes no steeper than 1:1. Onsite spoil is authorized to form the base of the stone tiebacks.
5. Stone tiebacks and stone weirs will be oriented upstream in such a fashion so as to have a 67 degree incident angle with the construction baseline. This can be attained by pairing station 1+80 with alignment pin 1 and station 2+60 with alignment pin 2.

Date	8/16
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Drawn	mjm
Checked	
Approved	

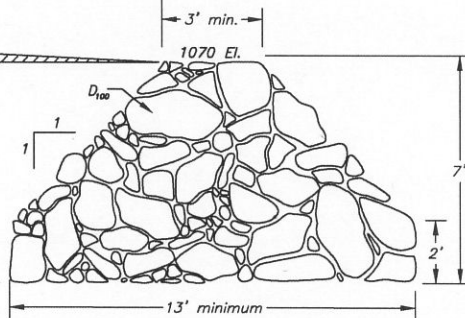
CROSS SECTION DATA
Big Sugar Creek at West Mountain Road
DSR 119-16-001 EWP
McDonald County, MO

United States
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Agriculture
USDA
Natural Resources
Conservation Service

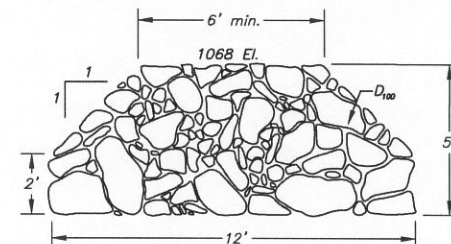
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TYPICAL ROCK BLANKET



TYPICAL STONE TOE



TYPICAL STONE WEIR SECTION

NOTES ON ROCK GRADATION:

1. Rock riprap is the source material to achieve the lines and grades described in this plan set. Rock riprap shall be sound, durable stone meeting the requirements of MoDOT Type 4 Ditch Liner with the approximate gradation show at right.
2. The source, type, and gradation of rock shall be reviewed and approved by the government representative prior to procurement or placement.
3. Rock riprap shall not be placed until the foundation is completed and the subgrade surfaces have been inspected and approved by the government representative.

GRADATION OF ROCK	
PERCENT PASSING BY SIZE	SIZE (INCHES)
100	2.0 $D_{50} = 30"$
50-80	1.4 $D_{50} = 21"$
25-50	$D_{50} = 15"$
10-30	.5 $D_{50} = 8"$
0-5	.2 $D_{50} = 3"$

NOTES ON PLACEMENT:

1. All rock shall be delivered and placed in a manner that will ensure that the installed measures are reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks and spalls filling the voids between the larger rocks. Larger rock shall be placed at the toe of the rock protection measures to form a stable base. End-dumping of rocks without any further compactive effort to ensure consolidation is not an acceptable method of construction.
2. Slopes flatter than specified in this plan set are allowed, however, no adjustments to quantities will be made. All stone shall be placed by equipment on the surfaces and to the depths specified. The channel shall be excavated to the cross sections and grades shown on the plans. The excavated surfaces shall be reasonably smooth. The channel bank alignment shall be uniform.
3. Rock Blanket shall be a minimum of thirty (30) inches thick when measured perpendicular to the slope, of varying height as shown in the plans, with an angle of repose no steeper than 1.5:1. Voids encountered in forming a uniform slope for the rock blanket shall be filled with offsite rock.
4. Stone toe shall be fashioned from a row or longitudinal rock with a thirteen (13) feet wide base placed to an excavation depth of 1163 elevation or until refusal, three (3) foot wide top at 1170 elevation, and an angle of repose not to exceed 1:1.
5. Stone weirs shall be fashioned from a row of rock with a minimum top width of six (6) feet placed at a level 1068 elevation, a base of twelve (12) feet excavated to a 1063 depth or until refusal by a stable rock base, with a maximum rock side slope being 1:1.

NOTES ON SPOIL AND DISTURBED EARTH SURFACES:

1. Separate topsoil from all on-site excavate. Use separated topsoil as a final cover over disturbed and low bank areas to provide a sufficient substrate for seed.
2. During construction, spoil will be stockpiled away from concentrated flow areas. After rock riprap operations are completed, excess spoil shall be spread uniformly in designated areas and along the rock armament toe.
3. Seed and mulch all disturbed areas due to construction and equipment operation to include the equipment staging area according to plan specifications.
4. Fences removed to enable contractor access shall be replaced by the contractor to an equal or improved condition upon completion of the rock fill operations.

Date 8/16
Designed mjm
Drawn mjm
Checked
Approved

PROJECT DETAILS
Big Sugar Creek at West Mountain Road
DSR 119-16-001 EWP
McDonald County, MO

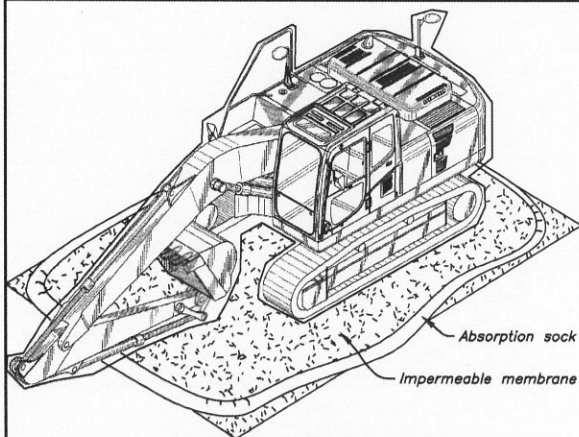
United States
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Conservation Service

File Name

Drawing Name

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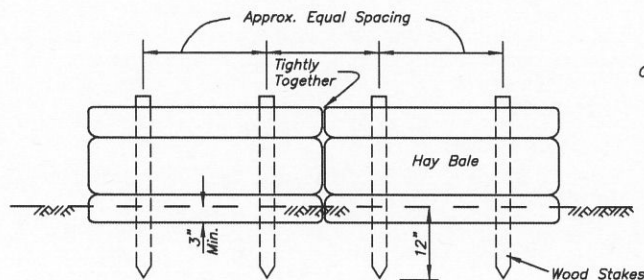
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**EXAMPLE EQUIPMENT REFUELING
& MAINTENANCE STATION**

NOTES ON PETROLEUM, OIL, AND LUBRICANT CONTAINMENT:

1. The contractor shall provide a site-adapted plan for the prevention of petroleum, oil, and lubricants (POL) used onsite from entering the stream channel in accordance with the COE general permit.
2. Equipment refueling and maintenance will be consistently conducted in a centralized location where spill control materials are present.
3. When equipment is shut down for maintenance or refueling operations, place drip pans, diapers, or absorbents under vehicles to mitigate spills.
4. Recycle solvents, coolants, and lubricants to the maximum extent possible. Label and date all waste accumulation containers and keep POL waste products separate from other refuse.



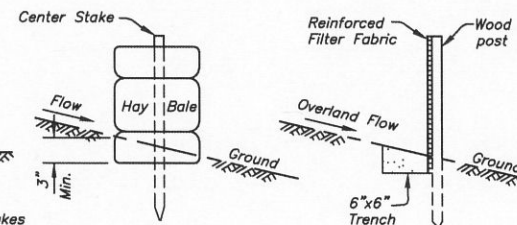
STRAW OR GRASS HAY BALES

NOTES ON EROSION PREVENTION:

1. For large disturbed areas that shall be left open for an extended period of time, silt fence may be required to reduce erosion and the transport of solids into the stream.
2. Post spacing shall be as needed to properly support silt fence or hay bales but shall not exceed 8 feet for the silt fence.
3. Wood posts shall be a minimum $1\frac{1}{2}$ " x $1\frac{1}{2}$ " for softwoods such as pine and a minimum $1\frac{3}{4}$ " x $1\frac{3}{4}$ " for hardwoods such as oak.

NOTES ON DETENTION OF SUSPENDED SOLIDS:

1. For non-navigable streams, a settling basin may be appropriate to reduce suspended solids from being transferred downstream.
2. Construct the settling basin by constructing a temporary dam immediately downstream of the project site. The temporary dam shall be constructed of rock rip-rap or other approved fill materials.
3. Near the end of the project, remove the temporary dam, restoring normal flow to the watercourse. Reuse the fill material to complete the planned stabilization work.

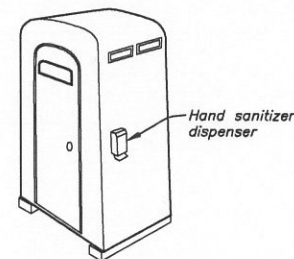
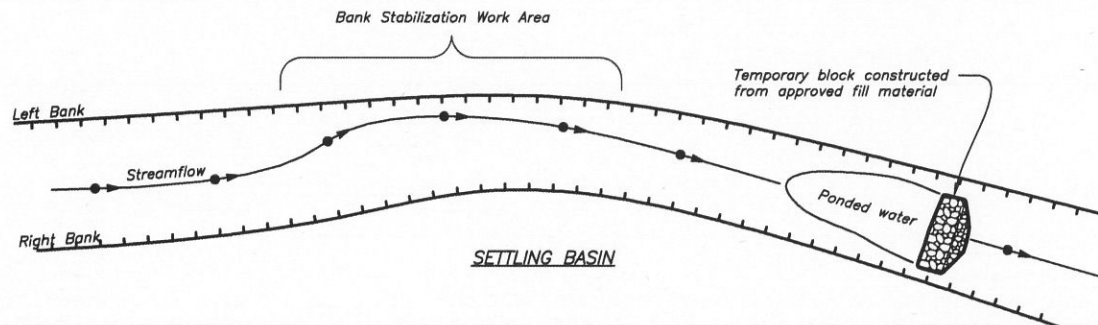


SILT FENCE

NOTES ON SITE SANITATION:

1. The contractor shall provide adequate and readily accessible sanitation facilities as required by the Occupational Safety and Health Administration.
2. Portable toilets shall be present at the rate of one (1) portable toilet per fifteen (15) onsite workers of the same gender.
3. The portable toilet will be installed as a part of mobilization and will be removed from the site during demobilization.
4. The portable toilet will be maintained in a clean, sanitary, and serviceable condition during the period of construction.
5. A hand washing station or antibacterial gel dispenser shall be located in the vicinity of the portable toilet.
6. A trash collection point shall be established onsite for use by the workforce, and all generated trash will be collected and removed from the site weekly.

~ DRAWINGS NOT TO SCALE ~



TYPICAL PORTABLE TOILET

Date 8/16 8/16	
Designed mjm	Drawn mjm
Checked _____	Approved _____
POLLUTION CONTROL Big Sugar Creek at West Mountain Road DSR 119-16-001 EWP McDonald County, MO	
United States Department of Agriculture USDA Natural Resources Conservation Service	File Name _____ Drawing Name _____ 8/22/16 15:39 Sheet 6 of 6