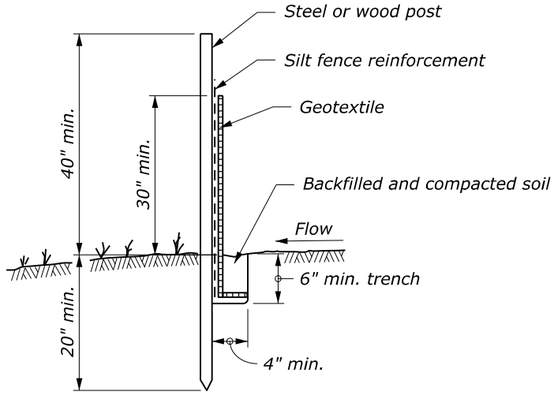
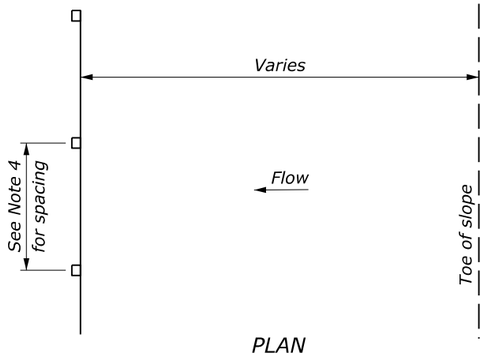
PROJECT	SHEET NUMBER



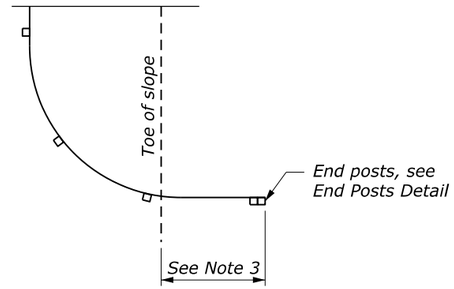
POST AND GEOTEXTILE INSTALLATION DETAIL



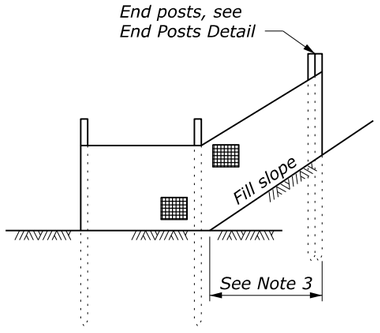
PLAN

NOTE:

1. *Alternate preassembled silt fence options will be allowed as long as specified dimensions are satisfied. Follow manufacturer's recommendations for installation procedures. All types must ensure silt fence remains attached to, and does not slide down, supporting posts.*
2. *Install silt fence to follow the ground contours as closely as possible.*
3. *Curve ends of silt fence upgrade to prevent water from running around the ends.*
4. *10-foot (max.) spacing with silt fence reinforcement. 6-foot (max.) spacing without silt fence reinforcement.*

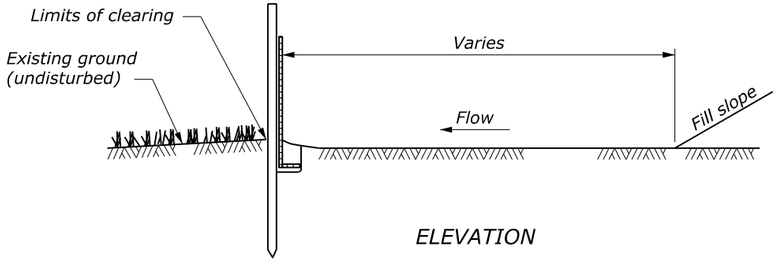


PLAN



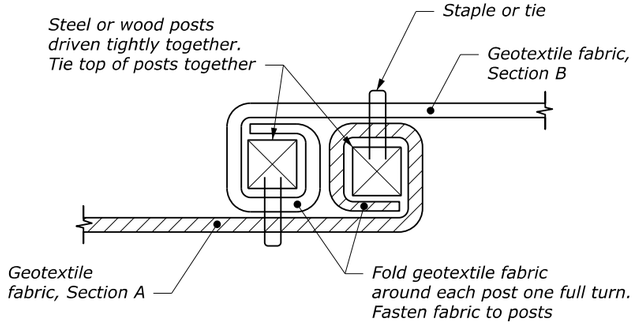
ELEVATION

END DETAIL



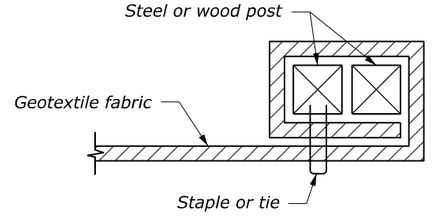
ELEVATION

SILT FENCE INSTALLATION AT TOE OF FILL



PLAN

POSTS AT JOINTS



PLAN

END POSTS DETAIL

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD DETAIL

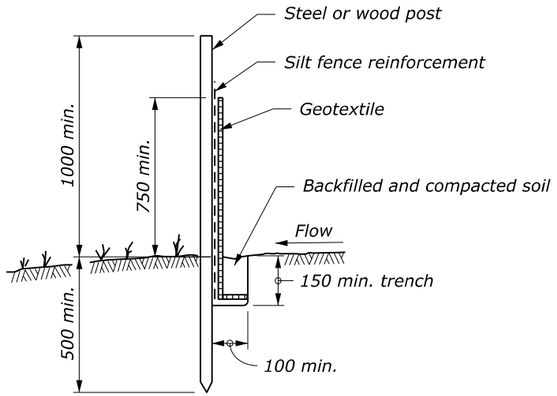
SILT FENCE

DETAIL APPROVED FOR USE 10/2016

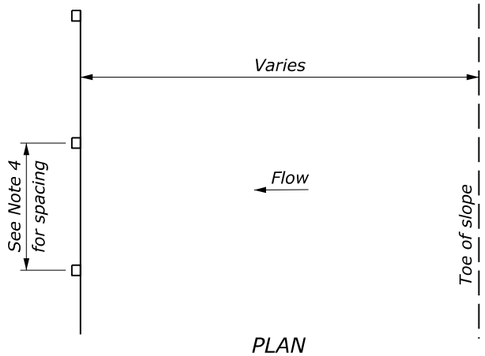
REVISED:

DETAIL W157-1

PROJECT	SHEET NUMBER



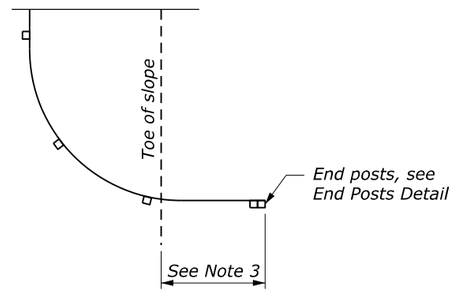
POST AND GEOTEXTILE INSTALLATION DETAIL



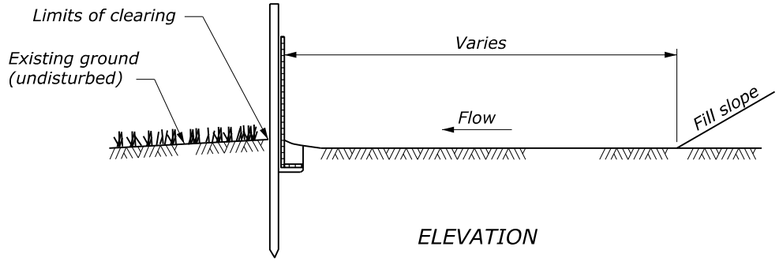
PLAN

NOTE:

1. *Alternate preassembled silt fence options will be allowed as long as specified dimensions are satisfied. Follow manufacturer's recommendations for installation procedures. All types must ensure silt fence remains attached to, and does not slide down, supporting posts.*
2. *Install silt fence to follow the ground contours as closely as possible.*
3. *Curve ends of silt fence upgrade to prevent water from running around the ends.*
4. *3-meters (max.) spacing with silt fence reinforcement. 1.8-meters (max.) spacing without silt fence reinforcement.*
5. *Dimensions without units are millimeters.*

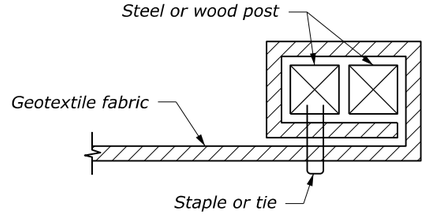


PLAN



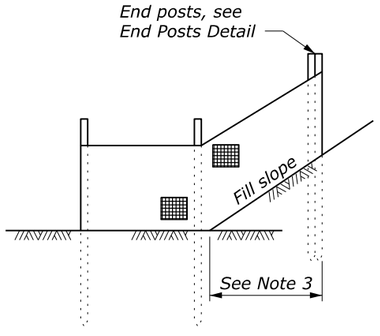
ELEVATION

SILT FENCE INSTALLATION AT TOE OF FILL



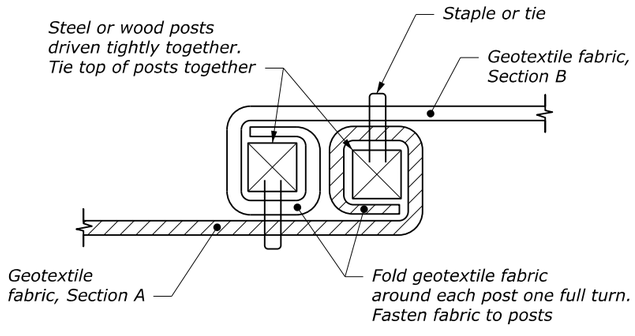
PLAN

END POSTS DETAIL



ELEVATION

END DETAIL



PLAN

POSTS AT JOINTS

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

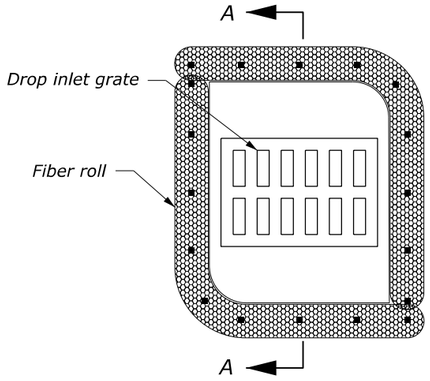
WFLHD METRIC DETAIL

SILT FENCE

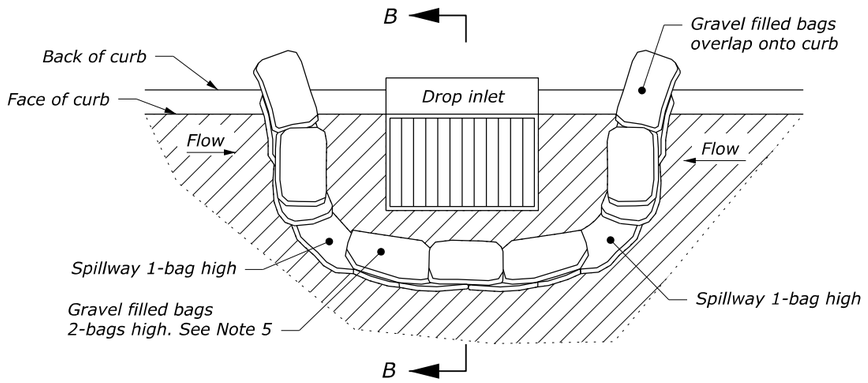
DETAIL APPROVED FOR USE 10/2016
REVISED:

DETAIL WM157-1

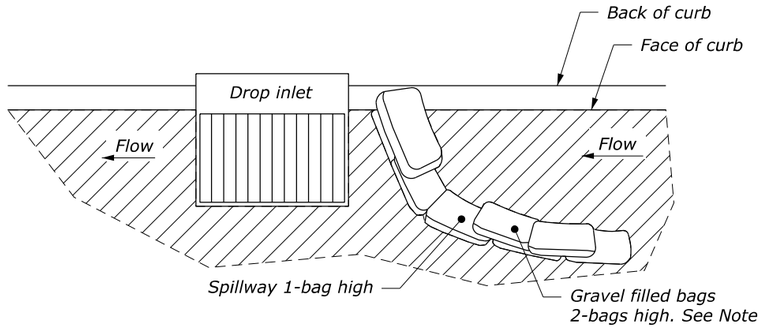
PROJECT	SHEET NUMBER



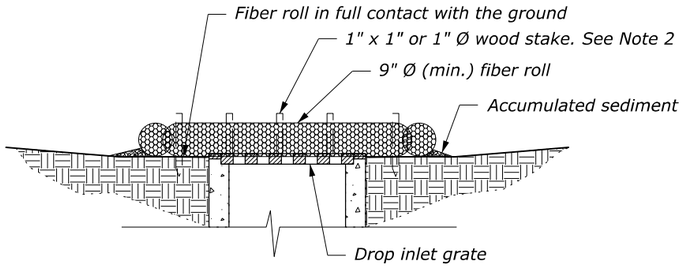
PLAN



PLAN VIEW - INLET AT SAG

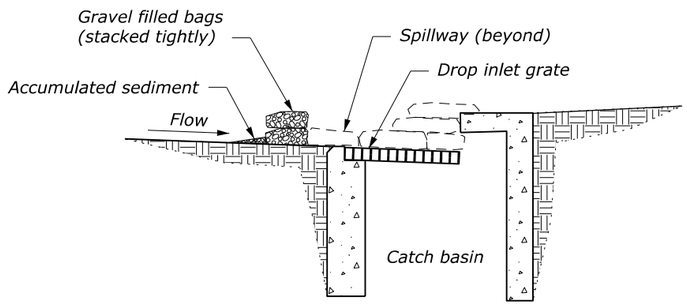


PLAN VIEW - INLET ON GRADE



SECTION A-A

FIBER ROLL
DROP INLET PROTECTION (TYPE A)

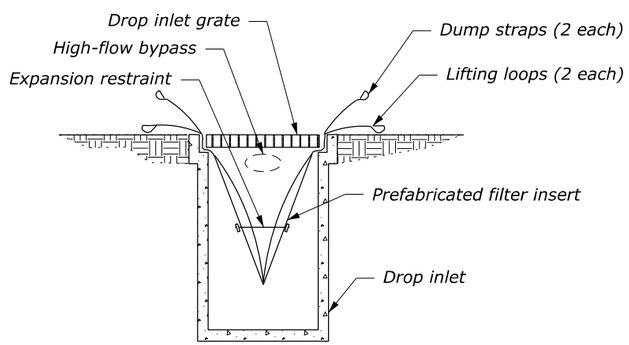


SECTION B-B

GRAVEL BAG BERM
DROP INLET PROTECTION (TYPE B)

NOTE:

1. *Select the inlet protection device to fit field conditions as approved by the CO.*
2. *Install fiber rolls with stakes spaced no more than 24-inches on center. Drive stakes 12-inches (min.) in undisturbed soil.*
3. *Approximate finished dimension of gravel bags is 12-inches x 18-inches.*
4. *Maximum top of gravel bag spillway elevation = Top of curve minus 1-inch.*
5. *Pack gravel filled bags tightly together end to end to ensure no sediment flows between or underneath the bags. Where tight fit is unachievable, install geotextile filter, class 2, type C along the upstream face of the bags. Place fabric over the top of the bags to the spillway elevation. Anchor the fabric by placing the next layer of bags on top of it. Extend the geotextile fabric a minimum of 18-inches upstream of the bags. Cover geotextile fabric to the top of the fabric with clean, silt-free coarse aggregate between 2-inches and 3-inches in diameter.*
6. *Size the prefabricated filter insert (Type C) to fit the drop inlet and allow collected material removal without spillage. Include a high-flow bypass in the insert.*



PREFABRICATED FILTER INSERT
DROP INLET PROTECTION (TYPE C)
See Note 6

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD DETAIL

TEMPORARY INLET PROTECTION

Sheet 1 of 2

DETAIL APPROVED FOR USE 7/2016	DETAIL
REVISED:	W157-2

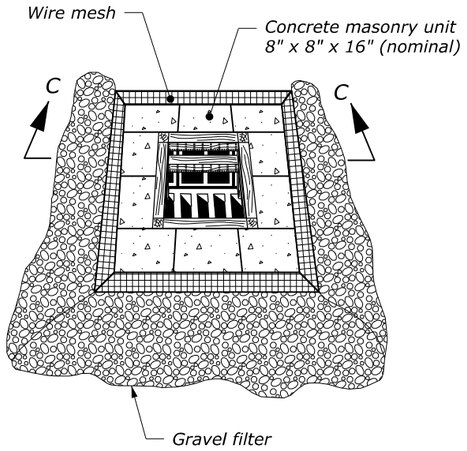
14 February 2023 7:58 AM c:\pw-work\d0413405\W157-2.dgn [Det W157-2a]

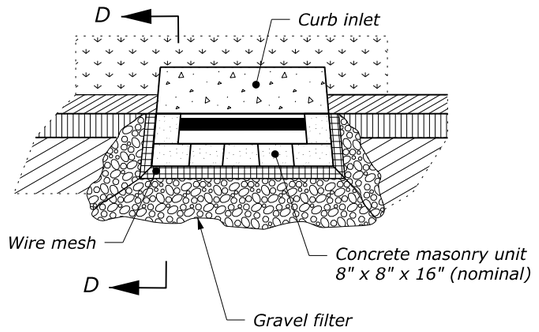
PROJECT	SHEET NUMBER

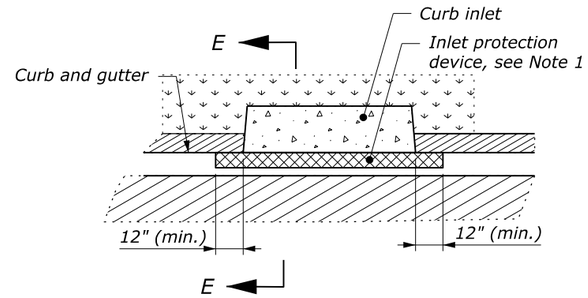
NOTE:

1. *Inlet protection device (type E) may consist of continuous filter tubing filled with gravel or other prefabricated filter material. Install device according to manufacturer's recommendations.*

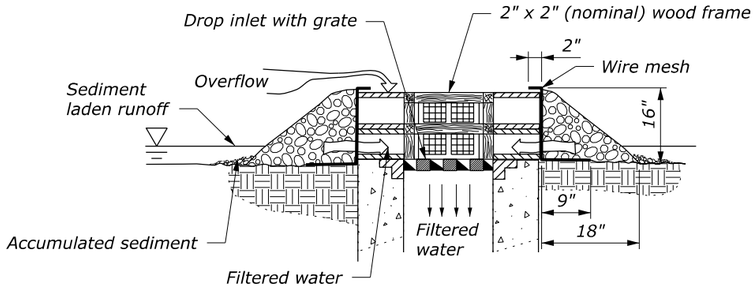
2. *Vary dimensions to fit field conditions.*





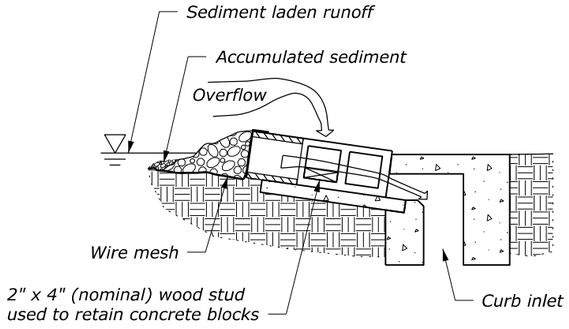


PLAN



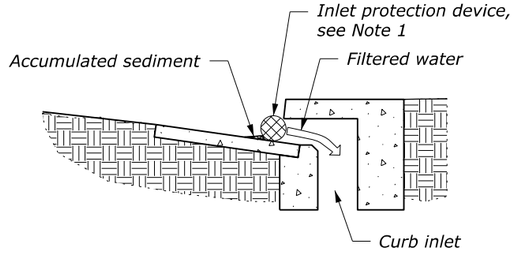
SECTION C-C

BLOCK AND GRAVEL
DROP INLET PROTECTION (TYPE D1)



SECTION D-D

BLOCK AND GRAVEL
CURB INLET PROTECTION (TYPE D2)



SECTION E-E

INLET PROTECTION DEVICE
CURB INLET PROTECTION (TYPE E)

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

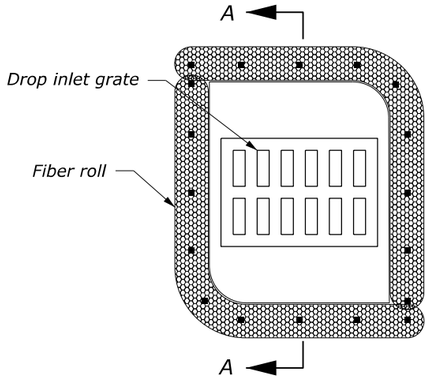
WFLHD DETAIL

TEMPORARY INLET PROTECTION

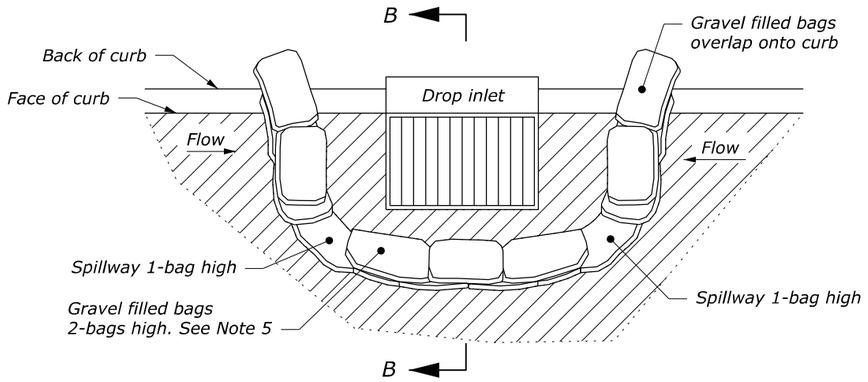
Sheet 2 of 2

DETAIL APPROVED FOR USE 7/2016	DETAIL
REVISED:	W157-2

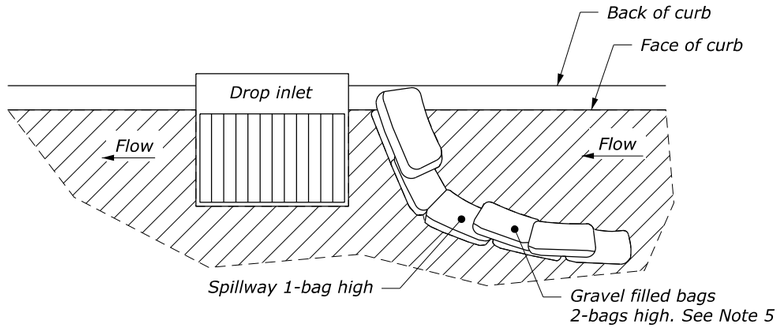
PROJECT	SHEET NUMBER



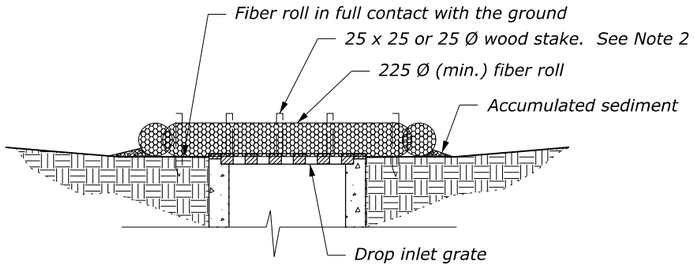
PLAN



PLAN VIEW - INLET AT SAG

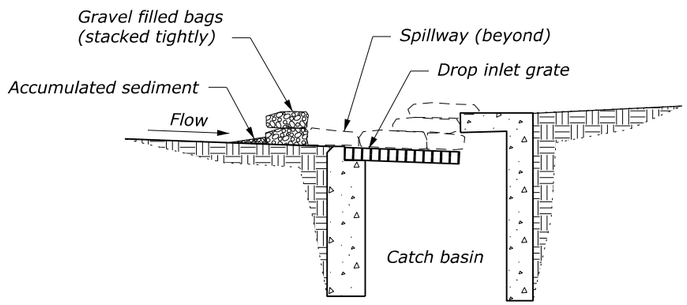


PLAN VIEW - INLET ON GRADE



SECTION A-A

FIBER ROLL
DROP INLET PROTECTION (TYPE A)

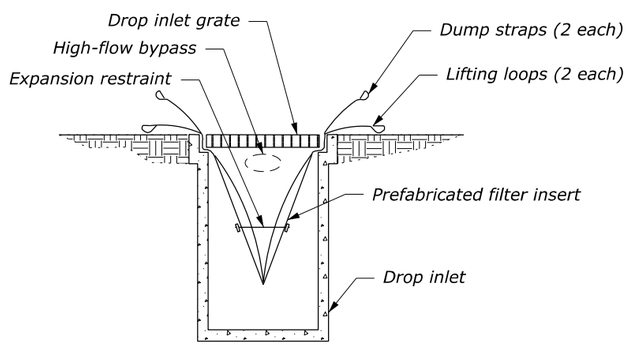


SECTION B-B

GRAVEL BAG BERM
DROP INLET PROTECTION (TYPE B)

NOTE:

1. Select the inlet protection device to fit field conditions as approved by the CO.
2. Install fiber rolls with stakes spaced no more than 600 mm on center. Drive stakes 300 mm (min.) in undistrubed soil.
3. Approximate finished dimension of gravel bags is 300 mm x 450 mm.
4. Maximum top of gravel bag spillway elevation = Top of curve minus 25 mm.
5. Pack gravel filled bags tightly together end to end to ensure no sediment flows between or underneath the bags. Where tight fit is unachievable, install geotextile filter, class 2, type C along the upstream face of the bags. Place fabric over the top of the bags to the spillway elevation. Anchor the fabric by placing the next layer of bags on top of it. Extend the geotextile fabric a minimum of 450 mm upstream of the bags. Cover geotextile fabric to the top of the fabric with clean, silt-free coarse aggregate between 50 mm and 75 mm in diameter.
6. Size the prefabricated filter insert (Type C) to fit the drop inlet and allow collected material removal without spillage. Include a high-flow bypass in the insert.
7. Dimensions without units are millimeters.



PREFABRICATED FILTER INSERT
DROP INLET PROTECTION (TYPE C)
See Note 6

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD METRIC DETAIL

TEMPORARY INLET PROTECTION

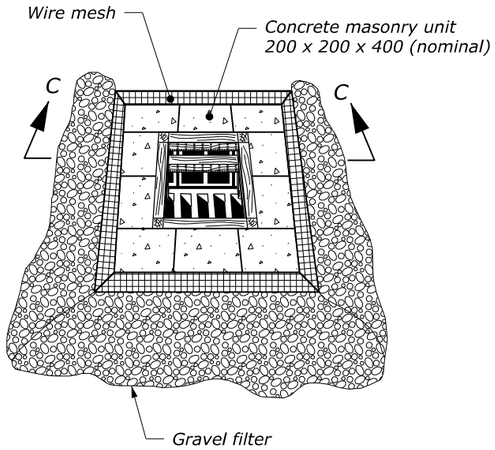
Sheet 1 of 2

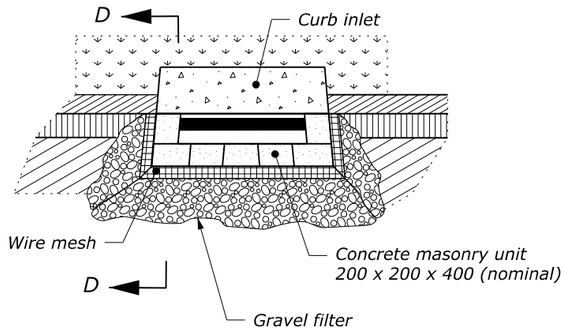
DETAIL APPROVED FOR USE 7/2016	DETAIL
REVISED:	WM157-2

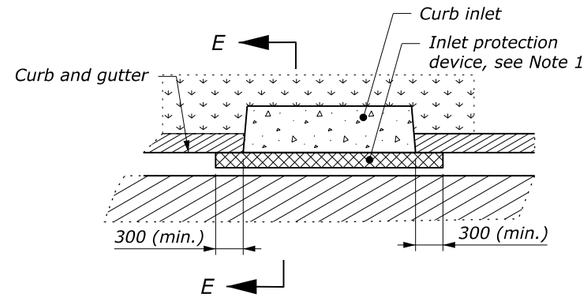
PROJECT	SHEET NUMBER

NOTE:

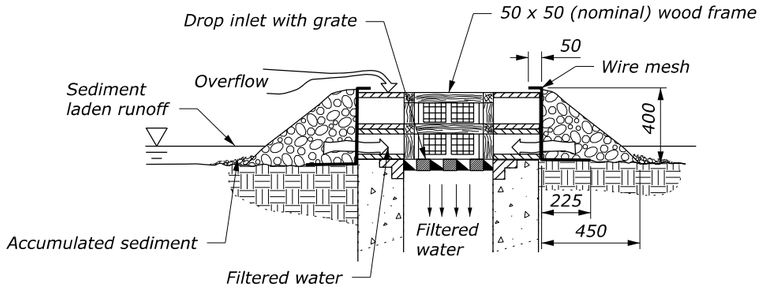
1. *Inlet protection device (type E) may consist of continuous filter tubing filled with gravel or other prefabricated filter material. Install device according to manufacturer's recommendations.*
2. *Vary dimensions to fit field conditions.*
3. *Dimensions without units are millimeters.*





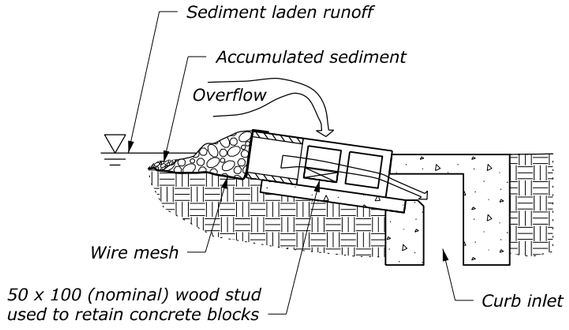


PLAN



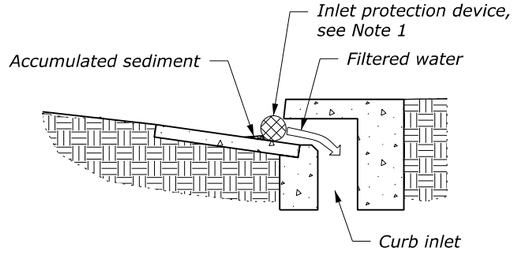
SECTION C-C

BLOCK AND GRAVEL DROP INLET PROTECTION (TYPE D1)



SECTION D-D

BLOCK AND GRAVEL CURB INLET PROTECTION (TYPE D2)



SECTION E-E

INLET PROTECTION DEVICE CURB INLET PROTECTION (TYPE E)

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD METRIC DETAIL

TEMPORARY INLET PROTECTION

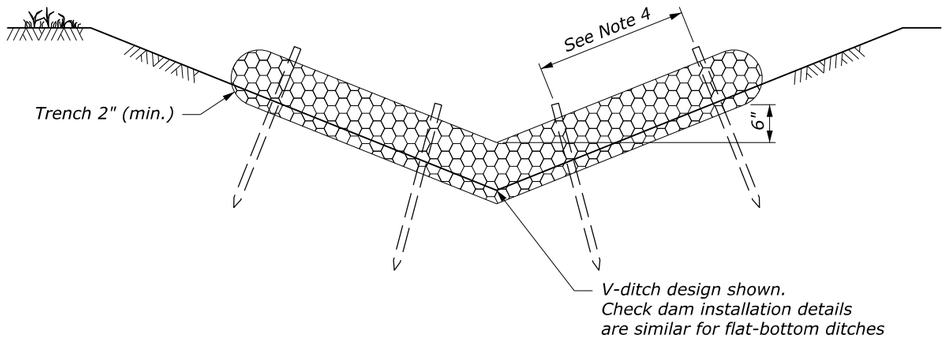
Sheet 2 of 2

DETAIL APPROVED FOR USE 7/2016

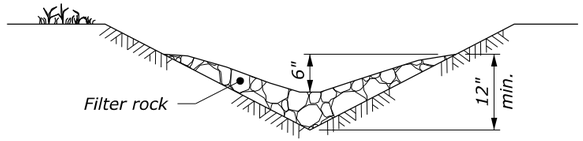
REVISED:

DETAIL WM157-2

PROJECT	SHEET NUMBER



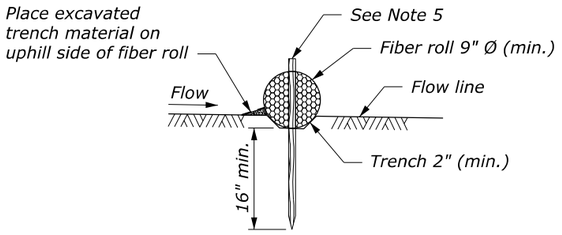
CROSS SECTION



V-DITCH
CROSS SECTION

NOTE:

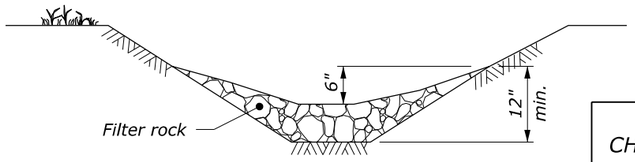
1. Construct check dams from fiber rolls, filter rock, or gravel bags as approved by the CO, to meet the functional requirements of the check dam device.
2. Repair all rills or gullies and properly compact prior to installation.
3. Install check dams in ditches perpendicular to the flowline.
4. Stake fiber rolls in place with 1⅛-inch x 1⅛-inch wood stakes. Drive stakes at each end of the fiber roll and at 2-foot (max.) spacing.
5. Drive stakes into undisturbed soil of trench bottom. Expose stakes 2-inches (min.) above top of fiber roll.
6. Provide sufficient length to prevent water from flowing around the ends of the fiber roll.
7. Adjust check dam spacing based on site-specific conditions.



FIBER ROLL
STAKING DETAIL

FIBER ROLL CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60

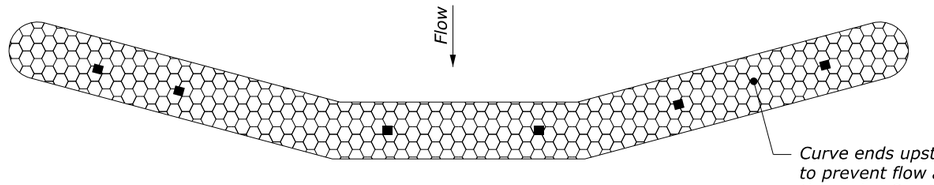
* Spacing calculated based on 9" Ø minimum fiber roll.
Do not use fiber roll check dams on ditch grades steeper than 5%.



FLAT-BOTTOM DTICH
CROSS SECTION

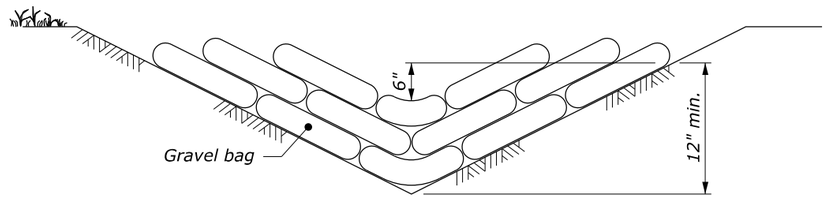
FILTER ROCK CHECK DAM SPACING (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60
6%	50

FILTER ROCK CHECK DAM



PLAN

FIBER ROLL CHECK DAM



CROSS SECTION

GRAVEL BAG CHECK DAM

GRAVEL BAG CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60
6%	50

* Do not use gravel bag check dams on ditch grades steeper than 6%.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

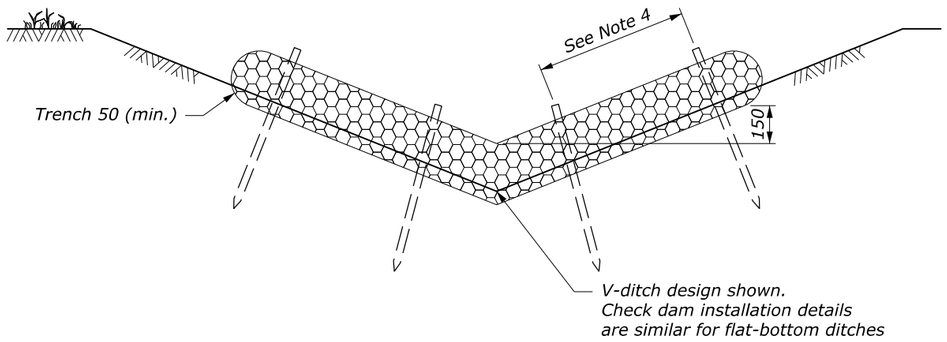
WFLHD DETAIL

CHECK DAM
MODERATE GRADES

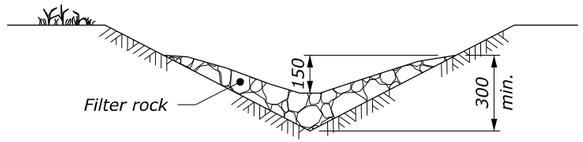
DETAIL APPROVED FOR USE 7/2016
REVISED:

DETAIL
W157-15

PROJECT	SHEET NUMBER



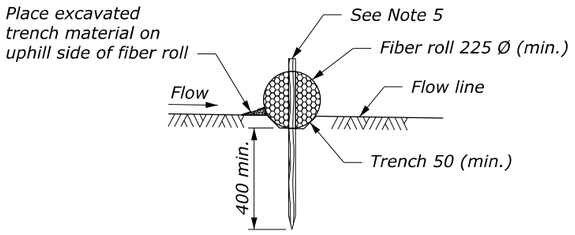
CROSS SECTION



V-DITCH
CROSS SECTION

NOTE:

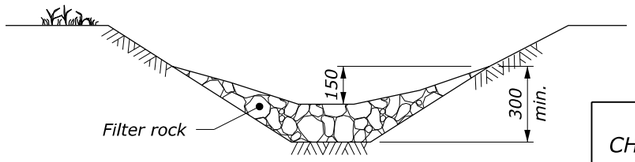
1. Construct check dams from fiber rolls, filter rock, or gravel bags as approved by the CO, to meet the functional requirements of the check dam device.
2. Repair all rills or gullies and properly compact prior to installation.
3. Install check dams in ditches perpendicular to the flowline.
4. Stake fiber rolls in place with 28 mm x 28 mm wood stakes. Drive stakes at each end of the fiber roll and at 600 mm (max.) spacing.
5. Drive stakes into undisturbed soil of trench bottom. Expose stakes 50 mm (min.) above top of fiber roll.
6. Provide sufficient length to prevent water from flowing around the ends of the fiber roll.
7. Adjust check dam spacing based on site-specific conditions.
8. Dimensions without units are millimeters.



FIBER ROLL
STAKING DETAIL

FIBER ROLL CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (m)
2%	45
3%	30
4%	24
5%	18

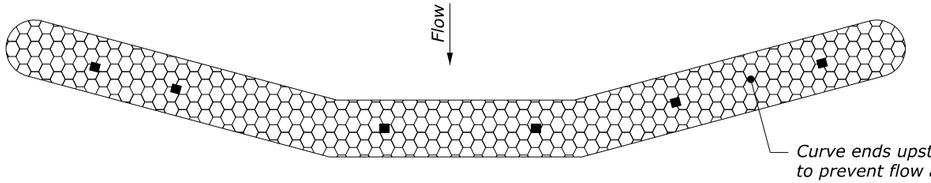
* Spacing calculated based on 225 Ø minimum fiber roll.
Do not use fiber roll check dams on ditch grades steeper than 5%.



FLAT-BOTTOM DTICH
CROSS SECTION

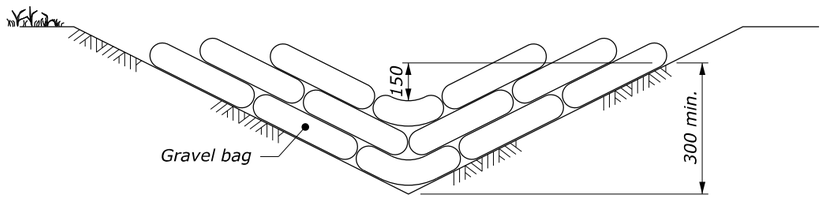
FILTER ROCK CHECK DAM SPACING (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (m)
2%	45
3%	30
4%	24
5%	18
6%	15

FILTER ROCK CHECK DAM



PLAN

FIBER ROLL CHECK DAM



CROSS SECTION

GRAVEL BAG CHECK DAM

GRAVEL BAG CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (m)
2%	45
3%	30
4%	24
5%	18
6%	15

* Do not use gravel bag check dams on ditch grades steeper than 6%.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD METRIC DETAIL

CHECK DAM
MODERATE GRADES

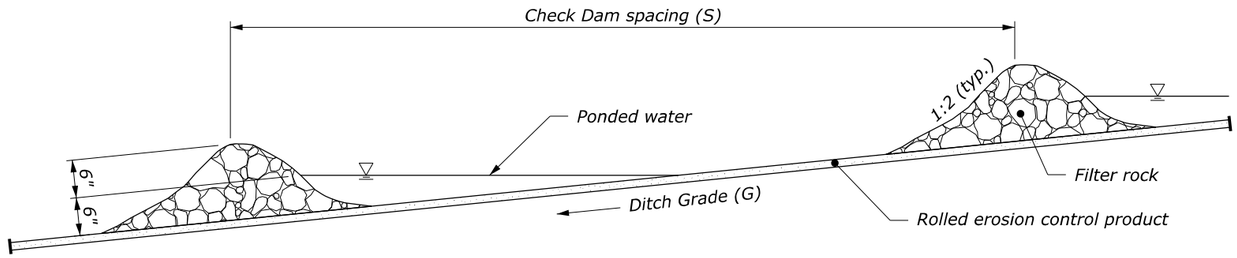
DETAIL APPROVED FOR USE 7/2016
REVISED:

DETAIL
WM157-15

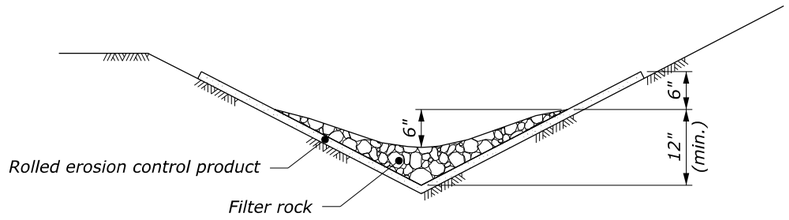
PROJECT	SHEET NUMBER

NOTE:

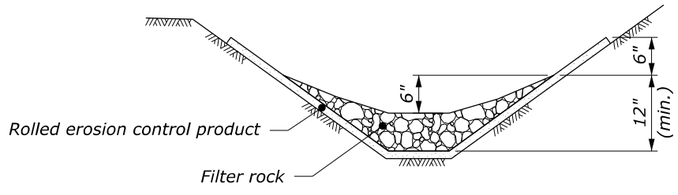
1. *Repair all rills or gullies and properly compact prior to installation.*
2. *Install check dams in ditches perpendicular to the flowline.*
3. *Adjust check dam spacing based on site-specific conditions.*



PROFILE VIEW



CROSS SECTION
V-DITCH



CROSS SECTION
FLAT-BOTTOM DITCH

FILTER ROCK CHECK DAM SPACING (See Note 3)	
DITCH GRADE (G)	*MAX. CHECK DAM SPACING (S) (FT)*
7%	*40*
8% and 9%	*30*
≥10%	*20*

FILTER ROCK CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD DETAIL

CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT

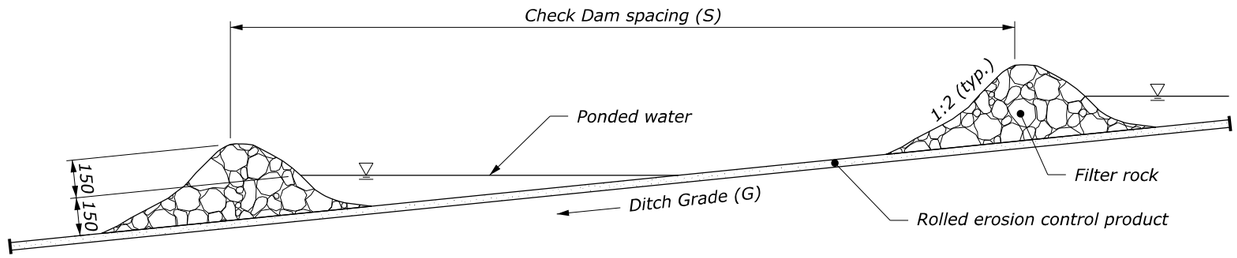
DETAIL APPROVED FOR USE 7/2016
REVISED:

DETAIL
W157-16

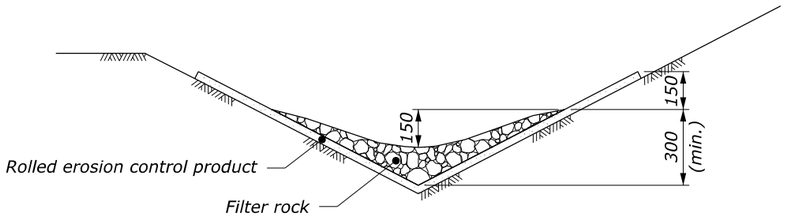
PROJECT	SHEET NUMBER

NOTE:

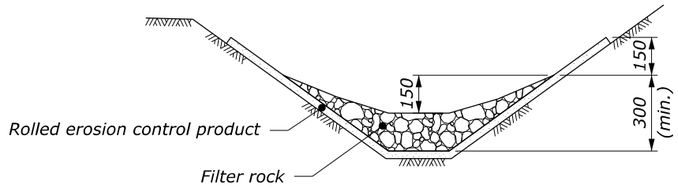
1. *Repair all rills or gullies and properly compact prior to installation.*
2. *Install check dams in ditches perpendicular to the flowline.*
3. *Adjust check dam spacing based on site-specific conditions.*
4. *Dimensions without units are millimeters.*



PROFILE VIEW



CROSS SECTION
V-DITCH



CROSS SECTION
FLAT-BOTTOM DITCH

FILTER ROCK CHECK DAM SPACING (See Note 3)	
DITCH GRADE (G)	*MAX. CHECK DAM SPACING (S) (m)*
7%	*12*
8% and 9%	*9*
≥10%	*6*

FILTER ROCK CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT

NO SCALE

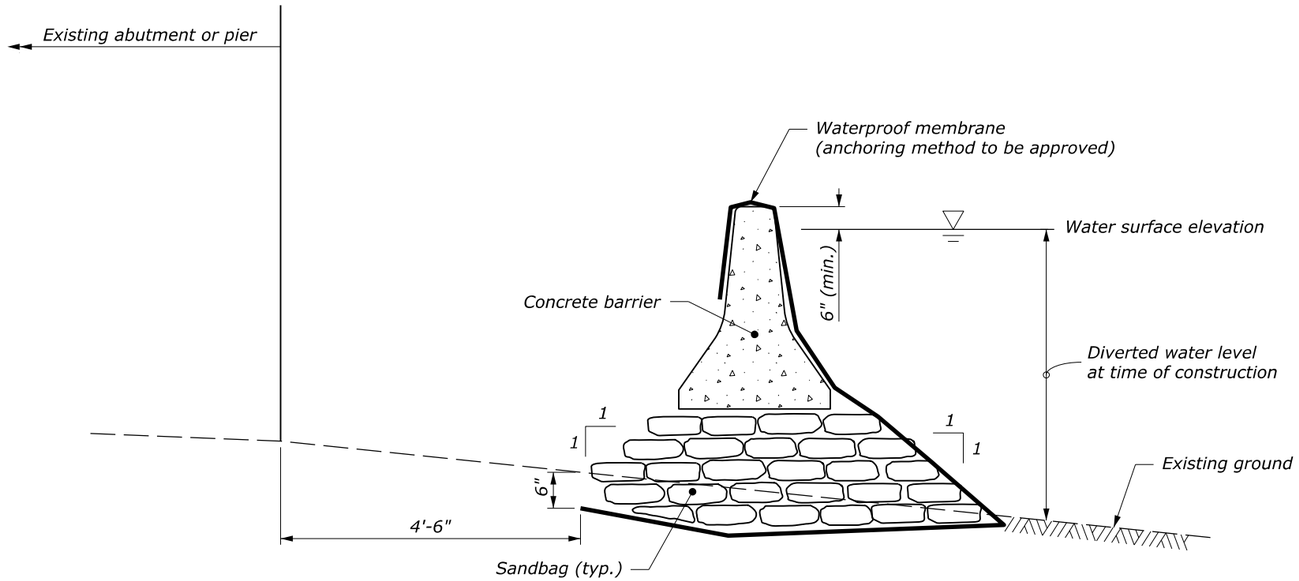
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD METRIC DETAIL

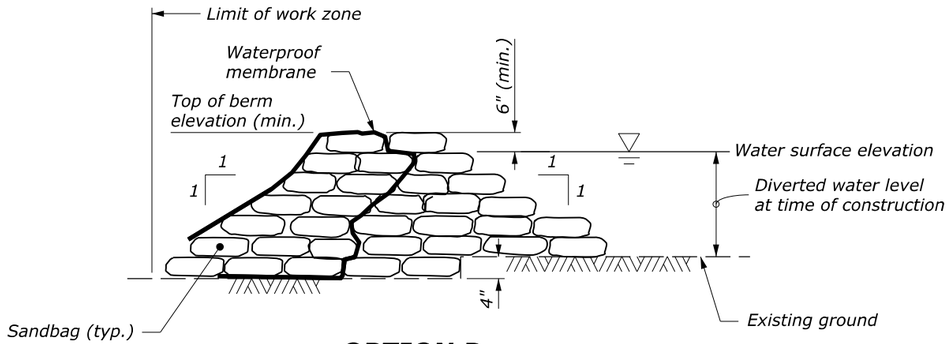
CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT

DETAIL APPROVED FOR USE 7/2016	DETAIL
REVISED:	WM157-16

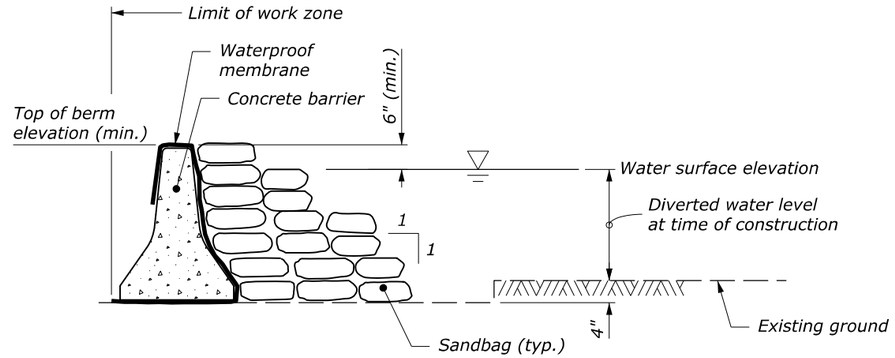
PROJECT	SHEET NUMBER



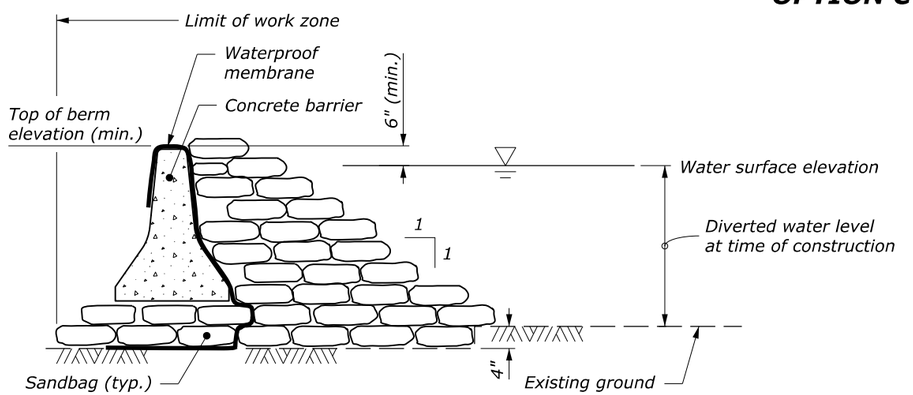
OPTION A



OPTION B



OPTION C



OPTION D

NOTE:

1. These options suggest configurations for diverting a stream during construction operations. Alternate stream diversion methods may be chosen (including any approved prefabricated or portable diversion berms, dams, etc.). As a minimum, provide a temporary diversion berm with a minimum height equal to the water surface elevation with 6" (min.) freeboard. Submit temporary stream diversion plans for approval prior to installation.
2. Place sandbags to form a pyramid by laying equal numbers of bottom rows as there are vertical course. Overlap the upper rows of sandbags above the joints in lower rows.
3. Place a maximum of one diversion in the stream at any given time.
4. While in use, inspect and maintain the temporary diversion berm daily. Repair as needed after rainfall events or as directed. Remove sediment when deposits reach half the height of the sandbag barrier.

NO SCALE

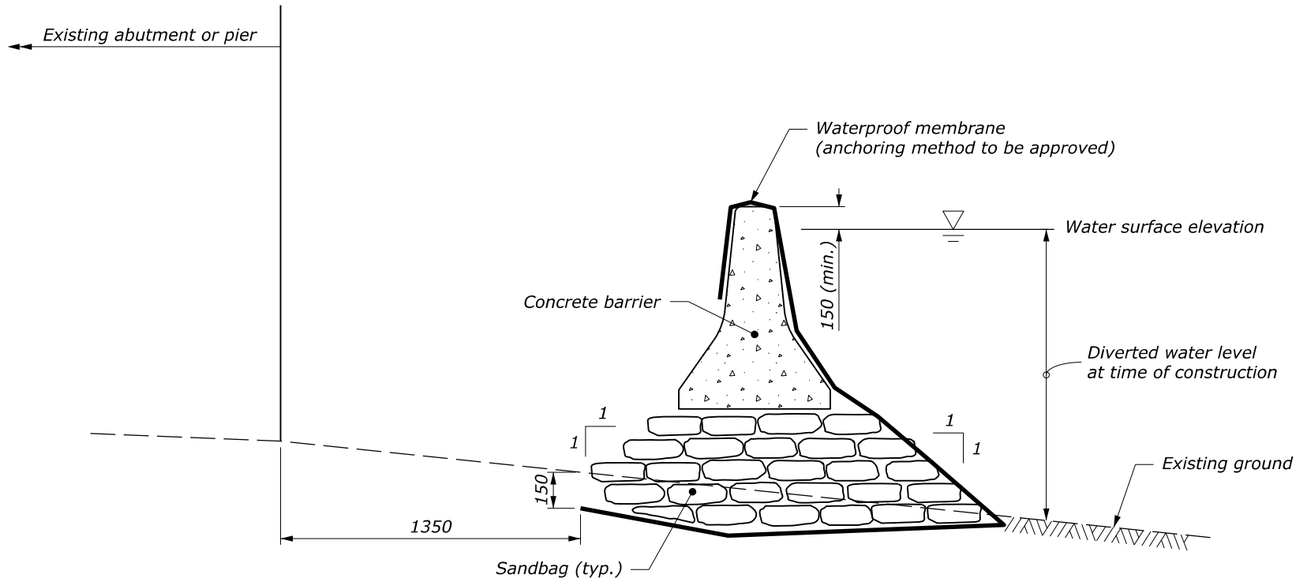
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD DETAIL

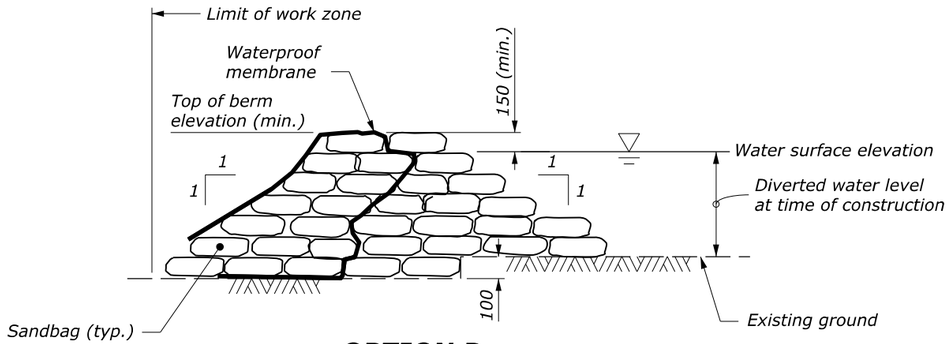
TEMPORARY DIVERSION BERM METHODS

DETAIL APPROVED FOR USE 7/2016	DETAIL
REVISED:	W157-17

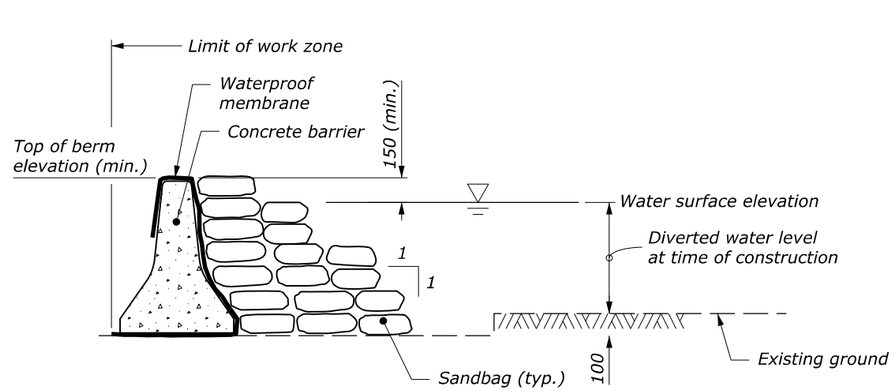
PROJECT	SHEET NUMBER



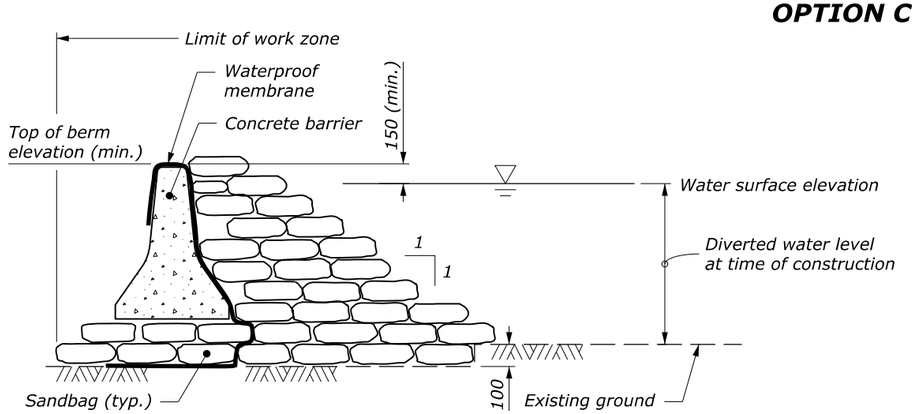
OPTION A



OPTION B



OPTION C



OPTION D

NOTE:

1. *These options suggest configurations for diverting a stream during construction operations. Alternate stream diversion methods may be chosen (including any approved prefabricated or portable diversion berms, dams, etc.). As a minimum, provide a temporary diversion berm with a minimum height equal to the water surface elevation with 150 mm (min.) freeboard. Submit temporary stream diversion plans for approval prior to installation.*
2. *Place sandbags to form a pyramid by laying equal numbers of bottom rows as there are vertical course. Overlap the upper rows of sandbags above the joints in lower rows.*
3. *Place a maximum of one diversion in the stream at any given time.*
4. *While in use, inspect and maintain the temporary diversion berm daily. Repair as needed after rainfall events or as directed. Remove sediment when deposits reach half the height of the sandbag barrier.*
5. *Dimensions without units are millimeters.*

NO SCALE

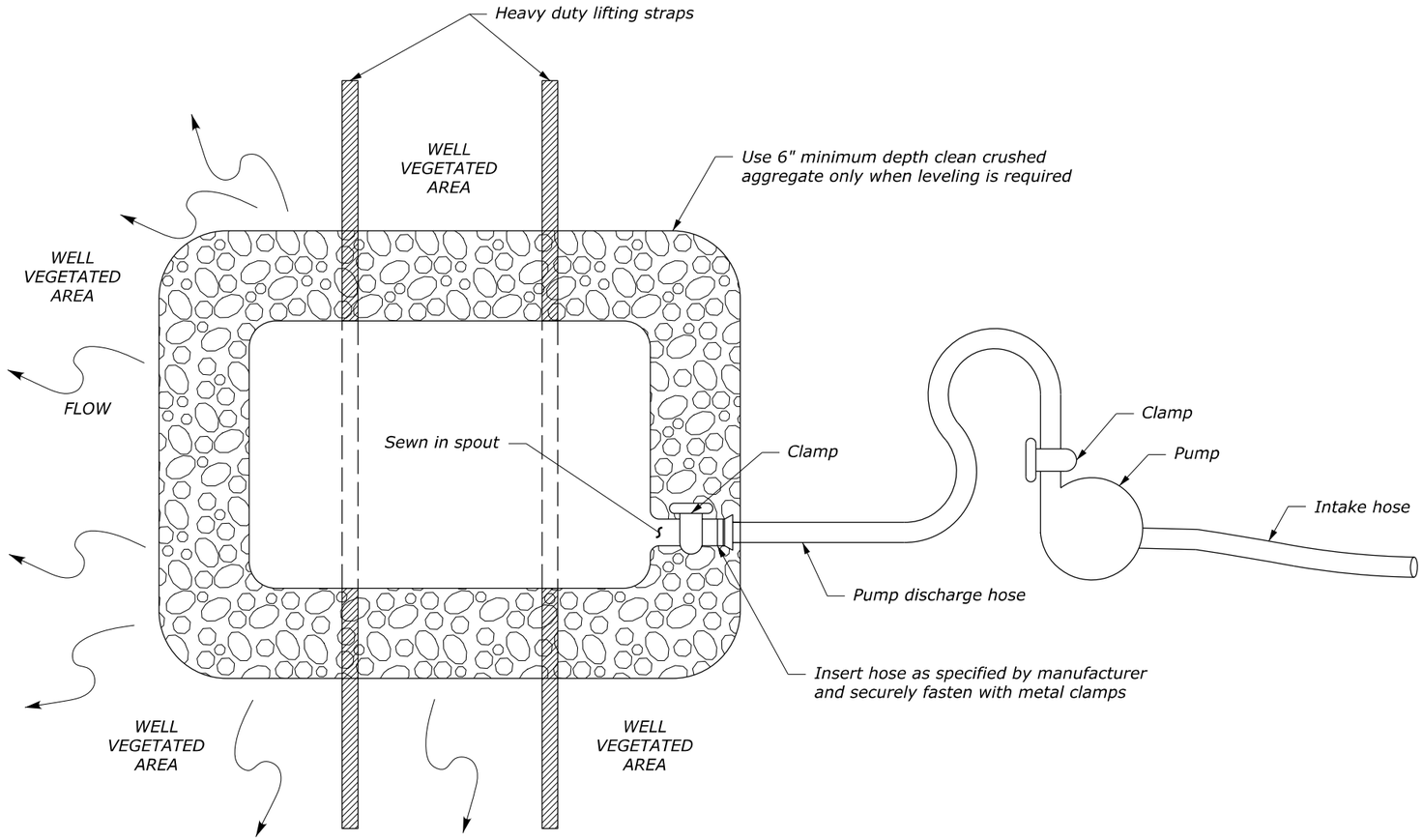
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

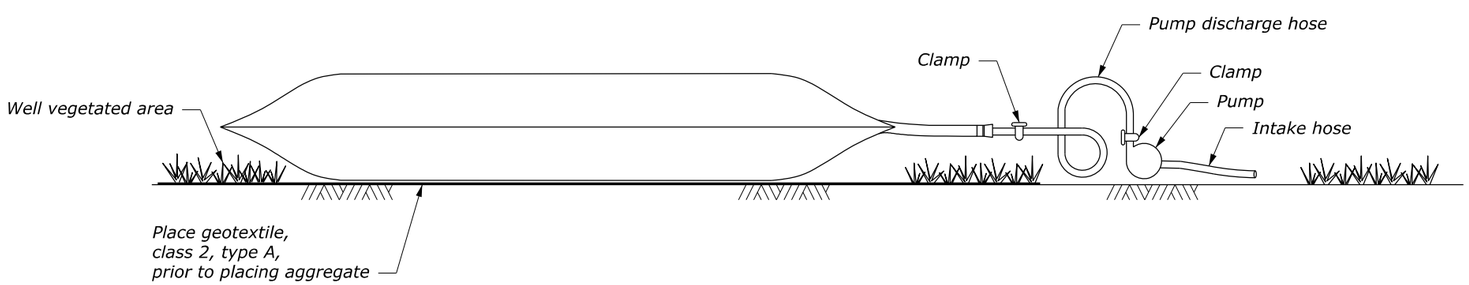
WFLHD METRIC DETAIL

TEMPORARY DIVERSION BERM METHODS

DETAIL APPROVED FOR USE 7/2016	DETAIL
REVISED:	WM157-17

PROJECT	SHEET NUMBER





NOTE:

1. Locate bags in level areas (less than 5% grade). When level areas are not available, place geotextile and coarse aggregate to level the bags.
2. Locate bags in approved areas. Discharge onto stable, erosion resistant areas.
3. Locate bags in areas accessible by equipment for maintenance and removal.
4. Insert a maximum of one hose in each bag at any given time.
5. Replace bags when 50% of the sediment capacity has been reached and/or when there is a failure. Have spare bags on site for replacement.
6. Do not cut or empty filter bag onsite.
7. Do not permit discharge from the bags to drain back into work or access areas of the project.

NO SCALE

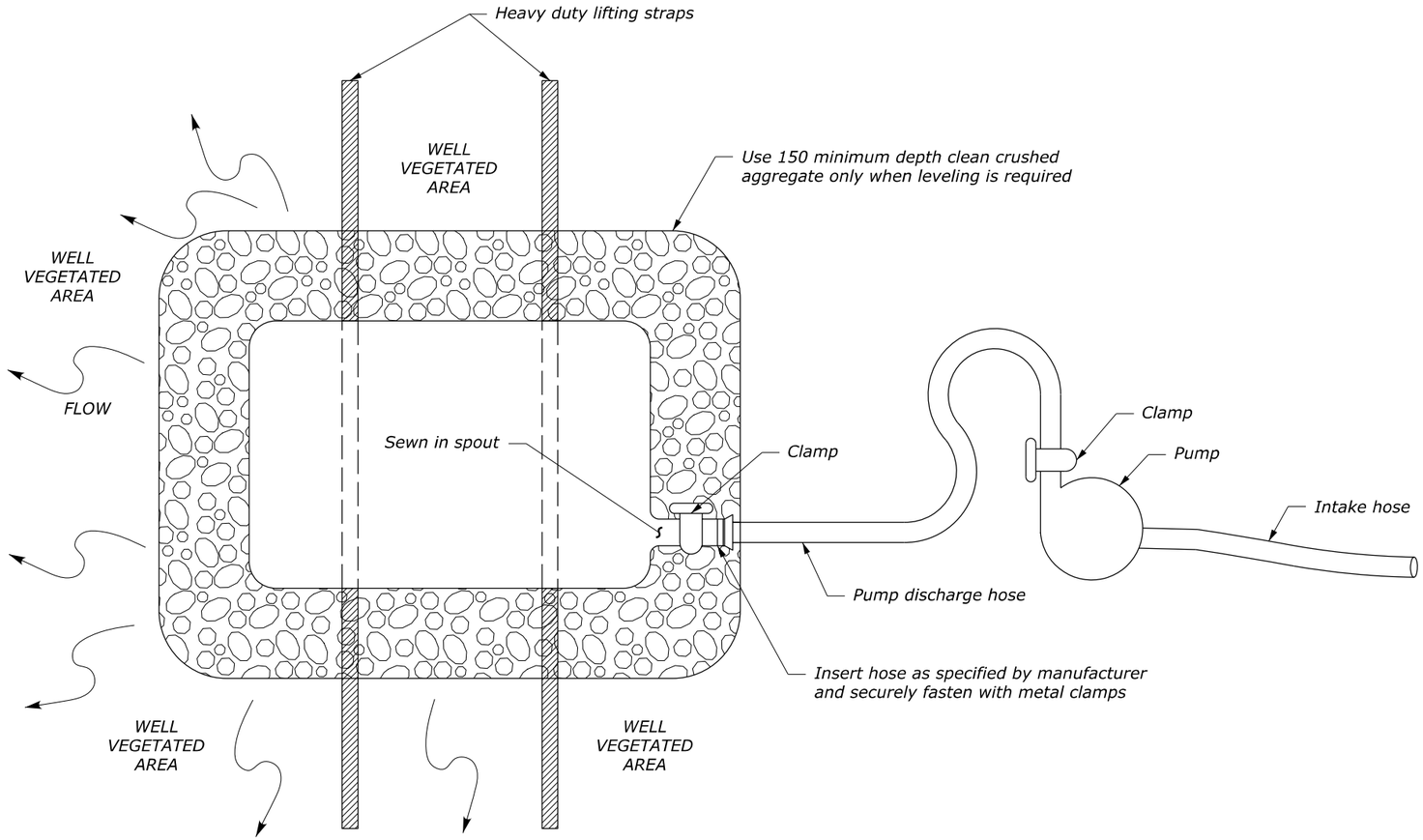
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

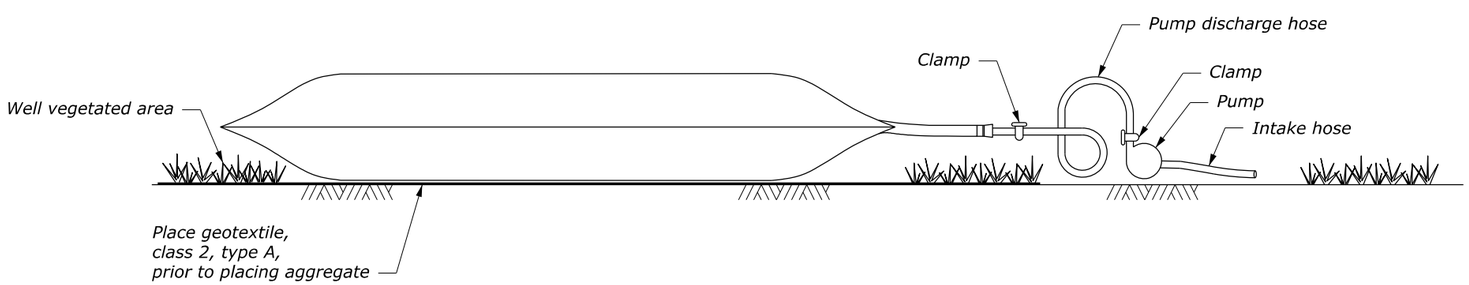
WFLHD DETAIL

SEDIMENT FILTER BAG

DETAIL APPROVED FOR USE 10/2016	DETAIL
REVISED:	W157-18

PROJECT	SHEET NUMBER





NOTE:

1. Locate bags in level areas (less than 5% grade). When level areas are not available, place geotextile and coarse aggregate to level the bags.
2. Locate bags in approved areas. Discharge onto stable, erosion resistant areas.
3. Locate bags in areas accessible by equipment for maintenance and removal.
4. Insert a maximum of one hose in each bag at any given time.
5. Replace bags when 50% of the sediment capacity has been reached and/or when there is a failure. Have spare bags on site for replacement.
6. Do not cut or empty filter bag onsite.
7. Do not permit discharge from the bags to drain back into work or access areas of the project.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD METRIC DETAIL

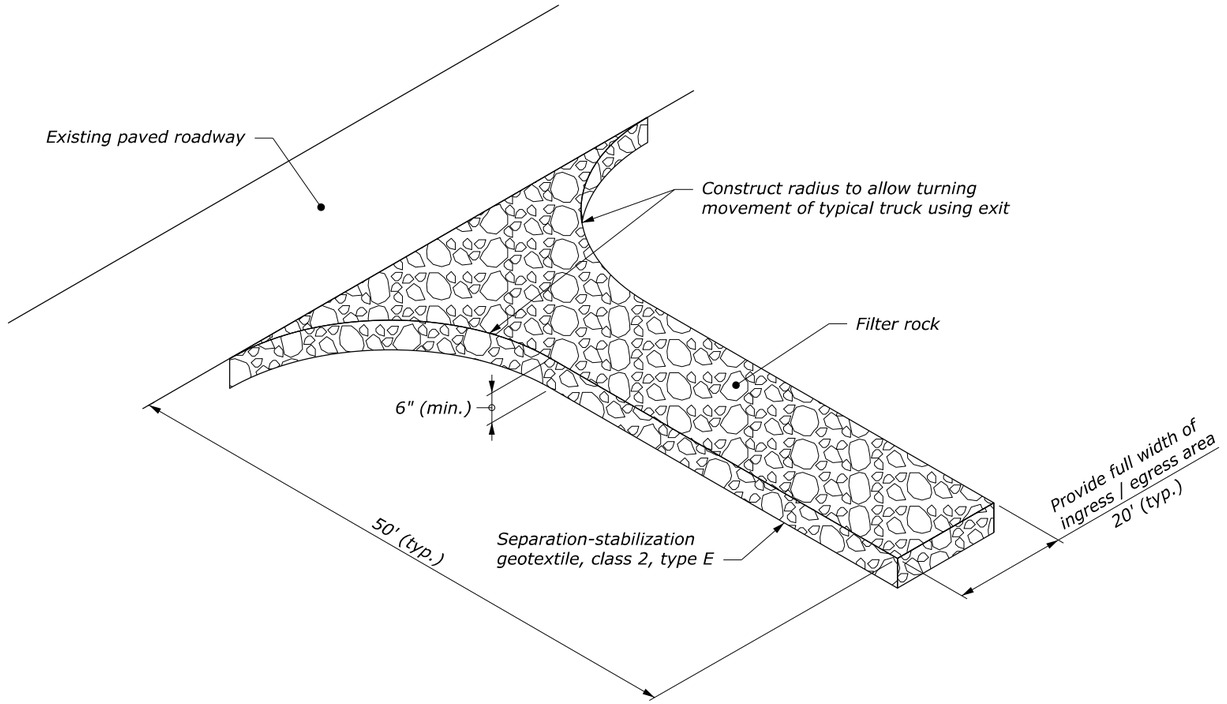
SEDIMENT FILTER BAG

DETAIL APPROVED FOR USE 10/2016	DETAIL
REVISED:	WM157-18

PROJECT	SHEET NUMBER

NOTE:

1. *Use this entrance for construction vehicles only.*
2. *Construct drainage ditches along entrance as directed. Provide temporary drainage culvert where entrance crosses existing drainage ditches.*
3. *Minimize tracking onto paved roadway by removing built up sediment.*
4. *Adjust length to fit field conditions as approved.*



STABILIZED CONSTRUCTION EXIT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD DETAIL

STABILIZED CONSTRUCTION EXIT

DETAIL APPROVED FOR USE 7/2016

REVISED:

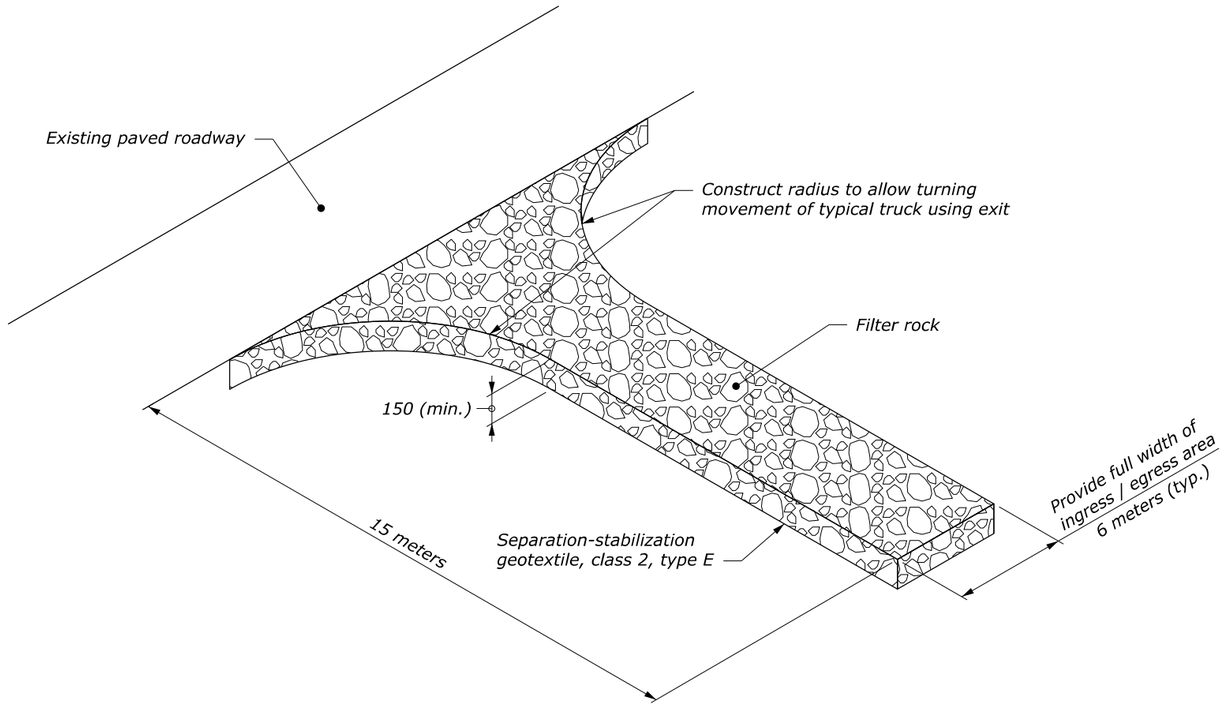
DETAIL W157-19

15 February 2023 8:20 AM c:\pw-work\d0422331\W157-19.dgn [Det W157-19]

PROJECT	SHEET NUMBER

NOTE:

1. *Use this entrance for construction vehicles only.*
2. *Construct drainage ditches along entrance as directed. Provide temporary drainage culvert where entrance crosses existing drainage ditches.*
3. *Minimize tracking onto paved roadway by removing built up sediment.*
4. *Adjust length to fit field conditions as approved.*
5. *Dimensions without units are millimeters.*



STABILIZED CONSTRUCTION EXIT

NO SCALE

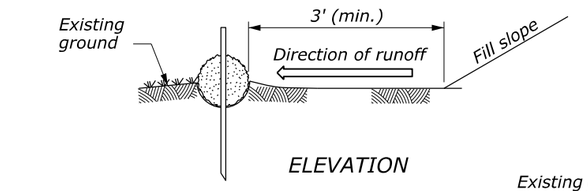
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD METRIC DETAIL

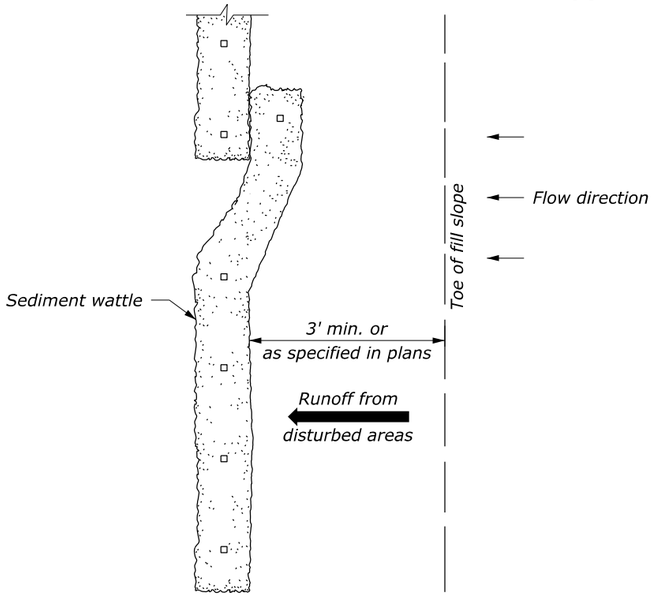
STABILIZED CONSTRUCTION EXIT

DETAIL APPROVED FOR USE 7/2016	DETAIL
REVISED:	WM157-19

PROJECT	SHEET NUMBER

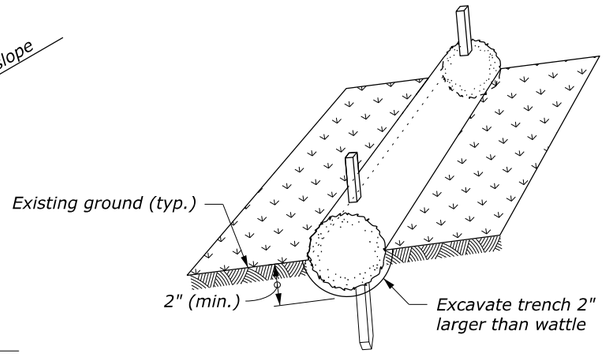


ELEVATION

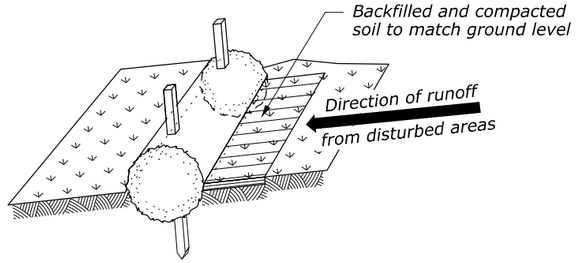


PLAN

INSTALLATION BEYOND TOE OF SLOPE



Step 1: Excavate trench and install sediment wattles



Step 2: Backfill soil against sediment wattles

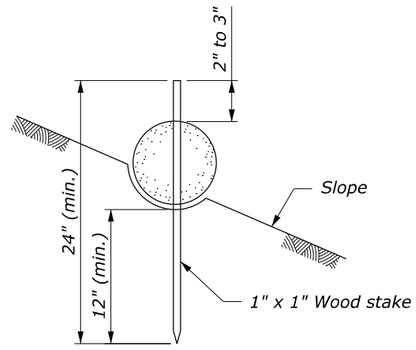
PROPERLY STAKED AND ENTRENCHED SEDIMENT WATTLE

WATTLE SPACING	
Slope	Spacing (FT)
1:4 or flatter	40
1:3	30
1:2	20
1:1	10

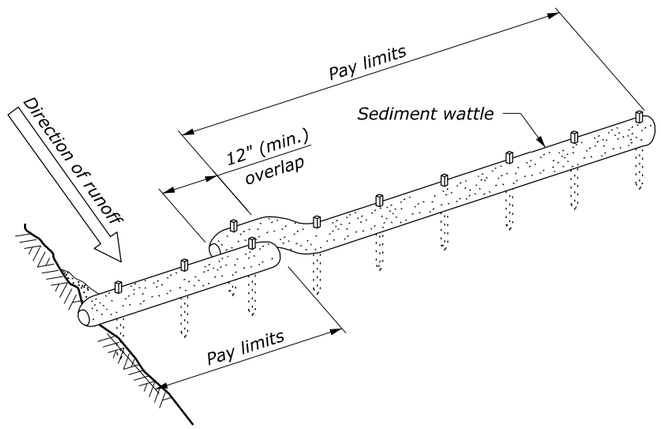
STAKES REQUIRED	
Wattle length (FT)	Stakes required for each wattle
25	8
20	6
12	4

NOTE:

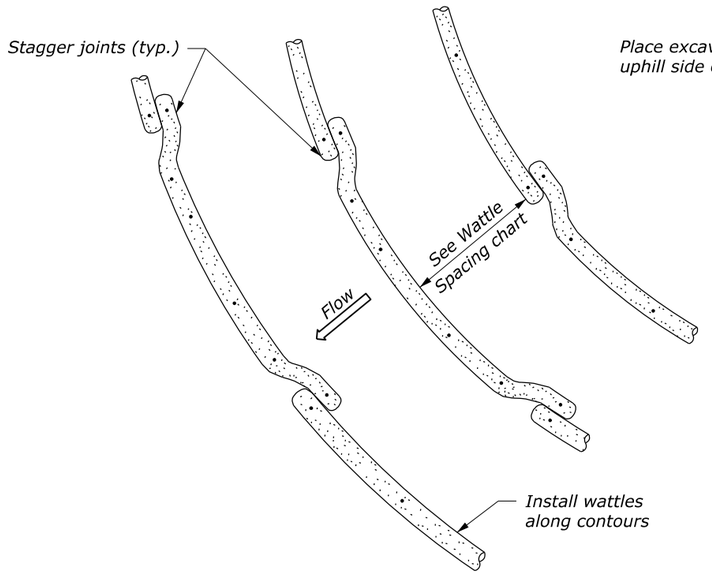
1. Drive stakes at each end and at 4-foot spacing until wattle is secure to slope. Live stakes may be used for permanent installations. Do not crush wattle while staking.
2. Overlap wattles 12-inch minimum. Drive stakes at 6-inches from wattles end angles towards the adjacent wattles and space stakes at 4-foot max.



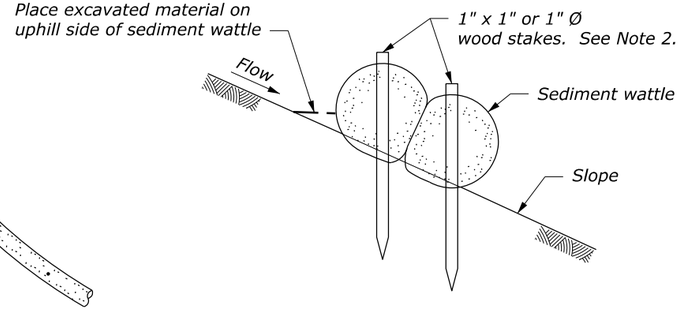
SEDIMENT WATTLE STAKING DETAIL



ALTERNATE SEDIMENT WATTLE JOINT DETAIL SLOPE PROTECTION INSTALLATION



INSTALLATION ALONG SLOPES



SEDIMENT WATTLE LAPPING DETAIL

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

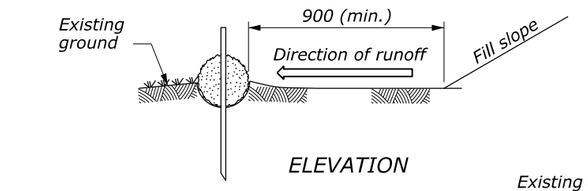
WFLHD DETAIL

SEDIMENT WATTLE

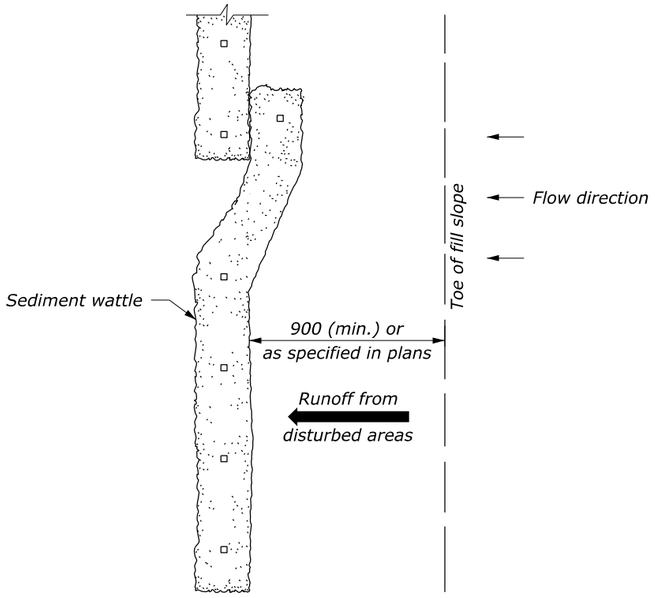
DETAIL APPROVED FOR USE 10/2014
REVISED: 7/2016

DETAIL W157-20

PROJECT	SHEET NUMBER

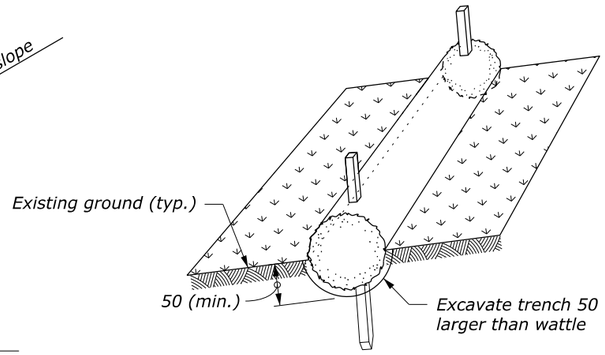


ELEVATION

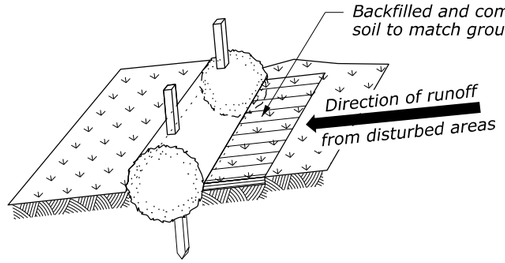


PLAN

INSTALLATION BEYOND TOE OF SLOPE



Step 1: Excavate trench and install sediment wattles



Step 2: Backfill soil against sediment wattles

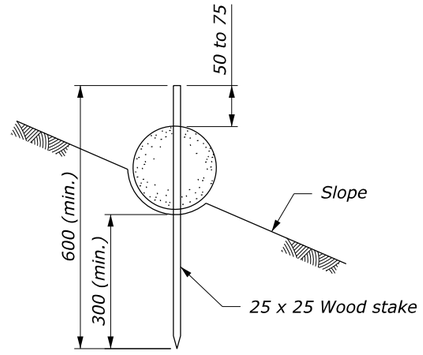
PROPERLY STAKED AND ENTRENCHED SEDIMENT WATTLE

WATTLE SPACING	
Slope	Spacing (m)
1:4 or flatter	12
1:3	9
1:2	6
1:1	3

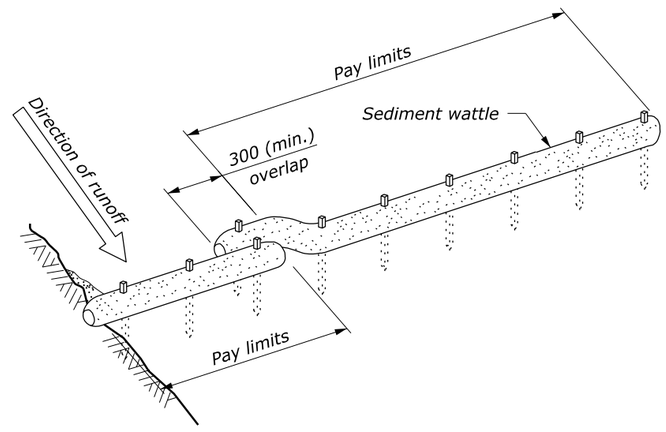
STAKES REQUIRED	
Wattle length (m)	Stakes required for each wattle
7.5	8
6.0	6
3.5	4

NOTE:

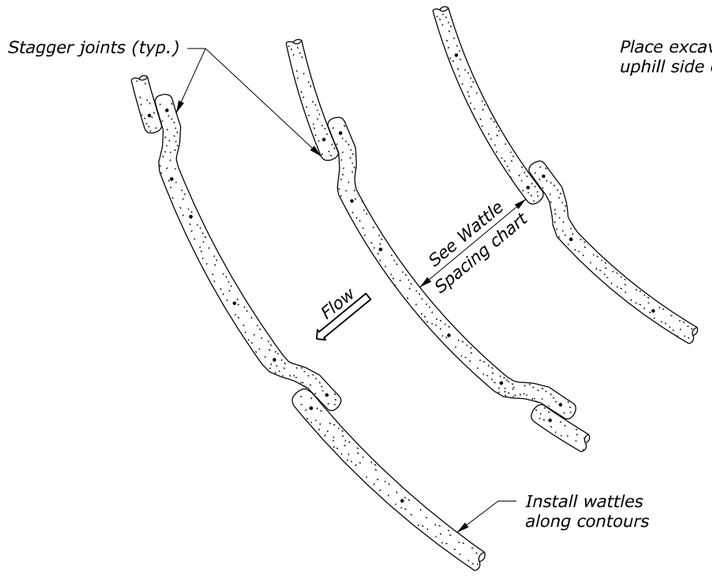
1. Drive stakes at each end and at 1.2 m spacing until wattle is secure to slope. Live stakes may be used for permanent installations. Do not crush wattle while staking.
2. Overlap wattles 300 mm minimum. Drive stakes at 150 mm from wattle end angles towards the adjacent wattle and space stakes at 1.2 meters max.
3. Dimensions without units are millimeters.



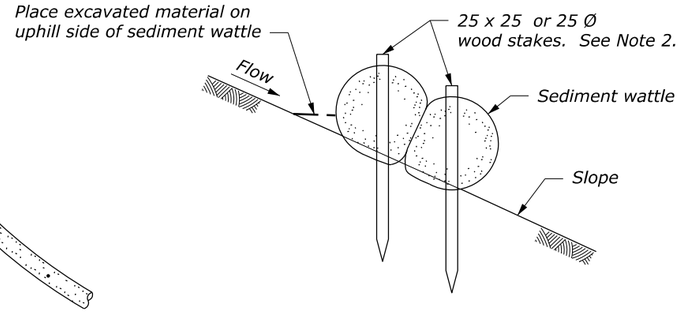
SEDIMENT WATTLE STAKING DETAIL



ALTERNATE SEDIMENT WATTLE JOINT DETAIL SLOPE PROTECTION INSTALLATION



INSTALLATION ALONG SLOPES



SEDIMENT WATTLE LAPPING DETAIL

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

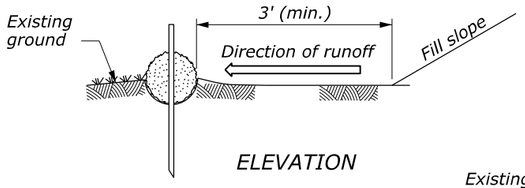
WFLHD METRIC DETAIL

SEDIMENT WATTLE

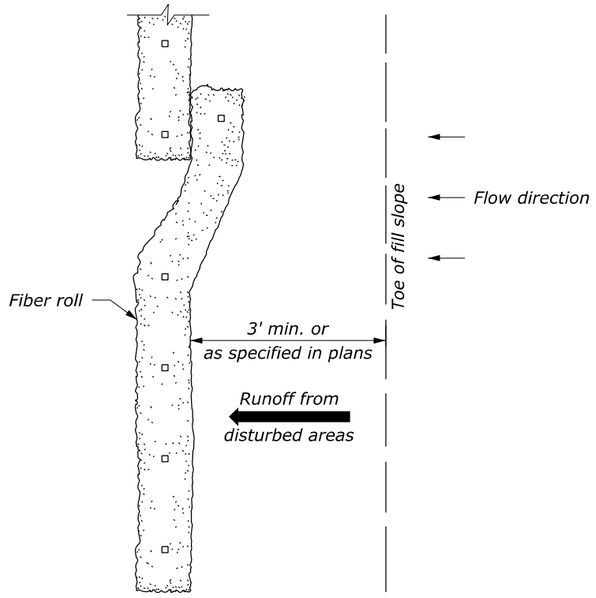
DETAIL APPROVED FOR USE 10/2014
REVISED: 7/2016

DETAIL
WM157-20

PROJECT	SHEET NUMBER

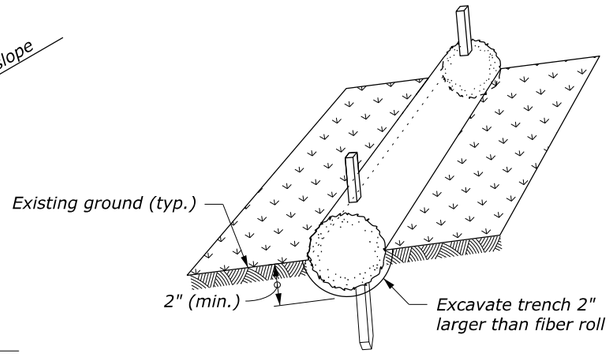


ELEVATION

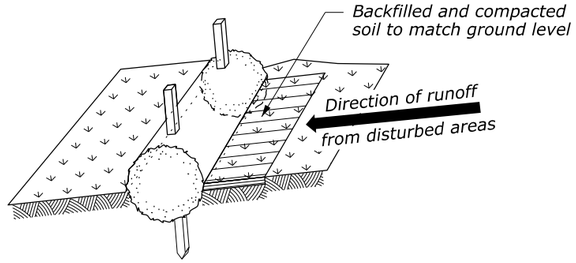


PLAN

INSTALLATION BEYOND TOE OF SLOPE



Step 1: Excavate trench and install fiber rolls



Step 2: Backfill soil against fiber rolls

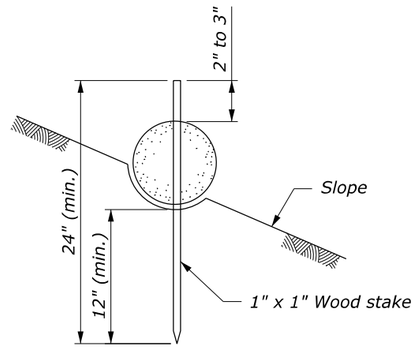
PROPERLY STAKED AND ENTRENCHED FIBER ROLL

FIBER ROLL SPACING	
Slope	Spacing (FT)
1:4 or flatter	40
1:3	30
1:2	20
1:1	10

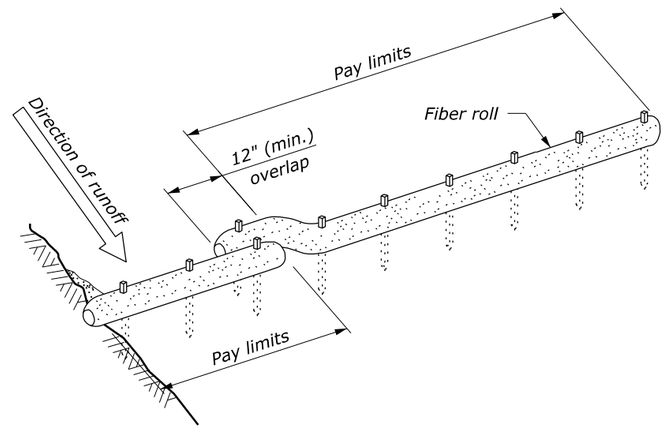
STAKES REQUIRED	
Fiber roll length (FT)	Stakes required for each roll
25	8
20	6
12	4

NOTE:

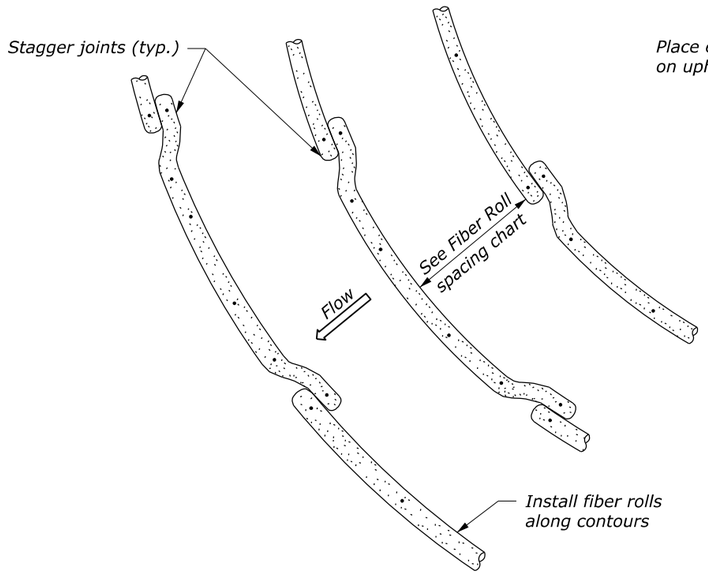
1. Drive stakes at each end and at 4-foot spacing until fiber roll is secure to slope. Live stakes may be used for permanent installations. Do not crush fiber roll while staking.
2. Overlap fiber rolls 12-inch minimum. Drive stakes at 6-inches from fiber roll end angles towards the adjacent fiber roll and space stakes at 4-foot max.



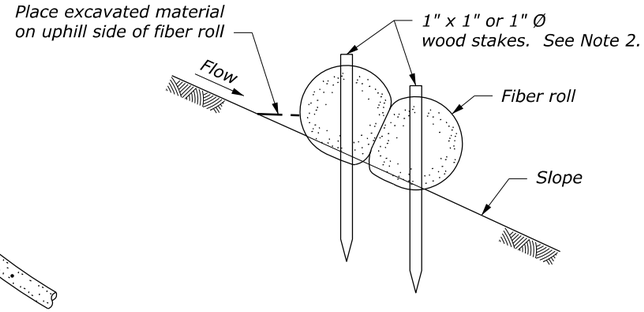
FIBER ROLL STAKING DETAIL



ALTERNATE FIBER ROLL JOINT DETAIL SLOPE PROTECTION INSTALLATION



INSTALLATION ALONG SLOPES



FIBER ROLL LAPPING DETAIL

NO SCALE

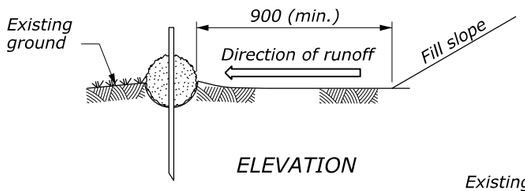
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD DETAIL

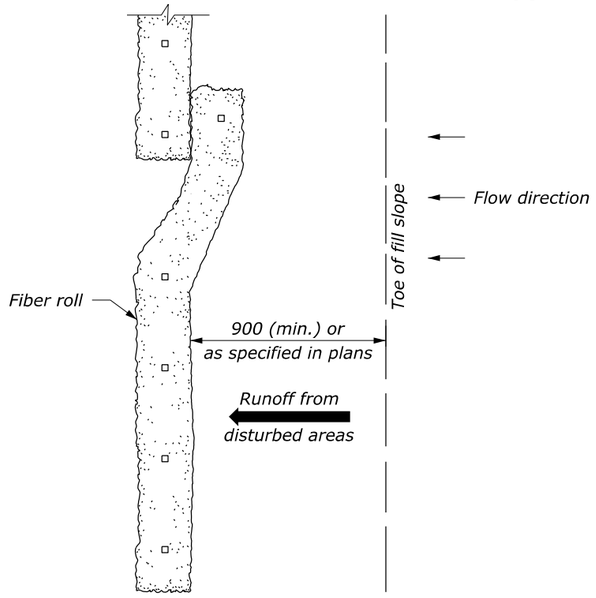
FIBER ROLL

DETAIL APPROVED FOR USE 10/2014	DETAIL
REVISED: 7/2016	W157-21

PROJECT	SHEET NUMBER

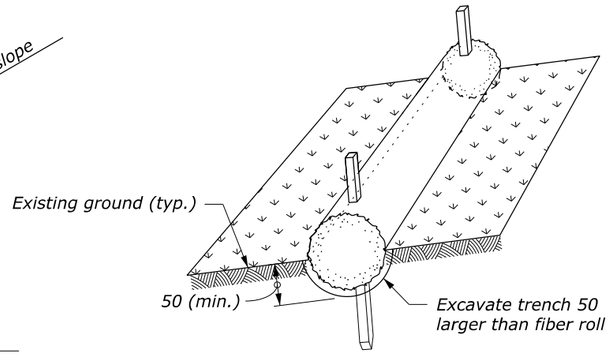


ELEVATION

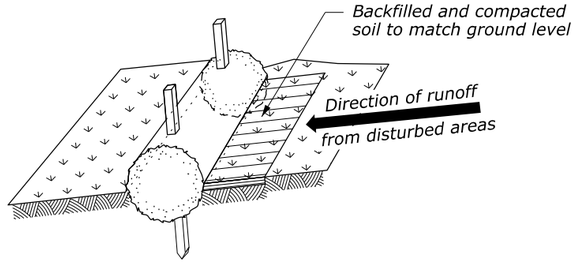


PLAN

INSTALLATION BEYOND TOE OF SLOPE



Step 1: Excavate trench and install fiber rolls



Step 2: Backfill soil against fiber rolls

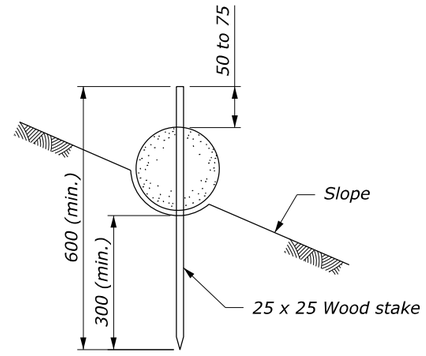
PROPERLY STAKED AND ENTRENCHED FIBER ROLL

FIBER ROLL SPACING	
Slope	Spacing (m)
1:4 or flatter	12
1:3	9
1:2	6
1:1	3

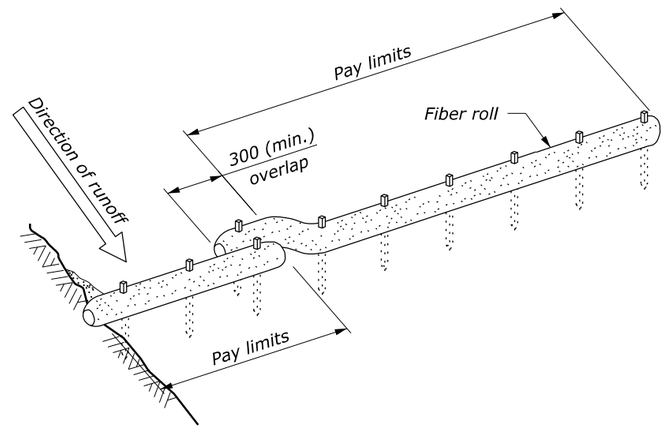
STAKES REQUIRED	
Fiber roll length (m)	Stakes required for each roll
7.5	8
6.0	6
3.5	4

NOTE:

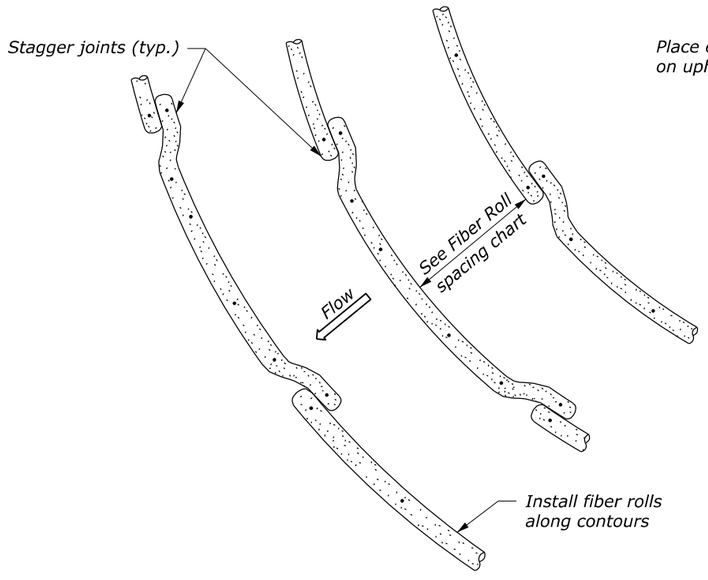
1. Drive stakes at each end and at 1.2 m spacing until fiber roll is secure to slope. Live stakes may be used for permanent installations. Do not crush fiber roll while staking.
2. Overlap fiber rolls 300 mm minimum. Drive stakes at 150 mm from fiber roll end angles towards the adjacent fiber roll and space stakes at 1.2 meters max.
3. Dimensions without units are millimeters.



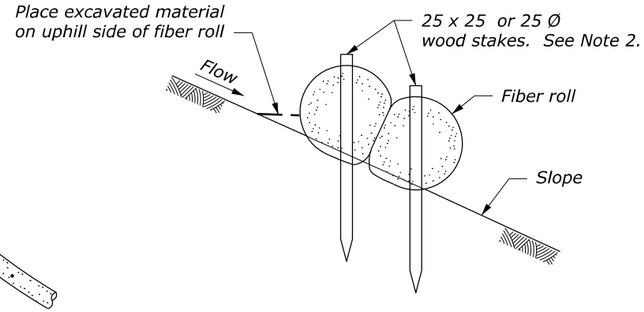
FIBER ROLL STAKING DETAIL



ALTERNATE FIBER ROLL JOINT DETAIL SLOPE PROTECTION INSTALLATION



INSTALLATION ALONG SLOPES



FIBER ROLL LAPPING DETAIL

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
OFFICE OF FEDERAL LANDS HIGHWAY

WFLHD METRIC DETAIL

FIBER ROLL

DETAIL APPROVED FOR USE 10/2014	DETAIL
REVISED: 7/2016	WM157-21