

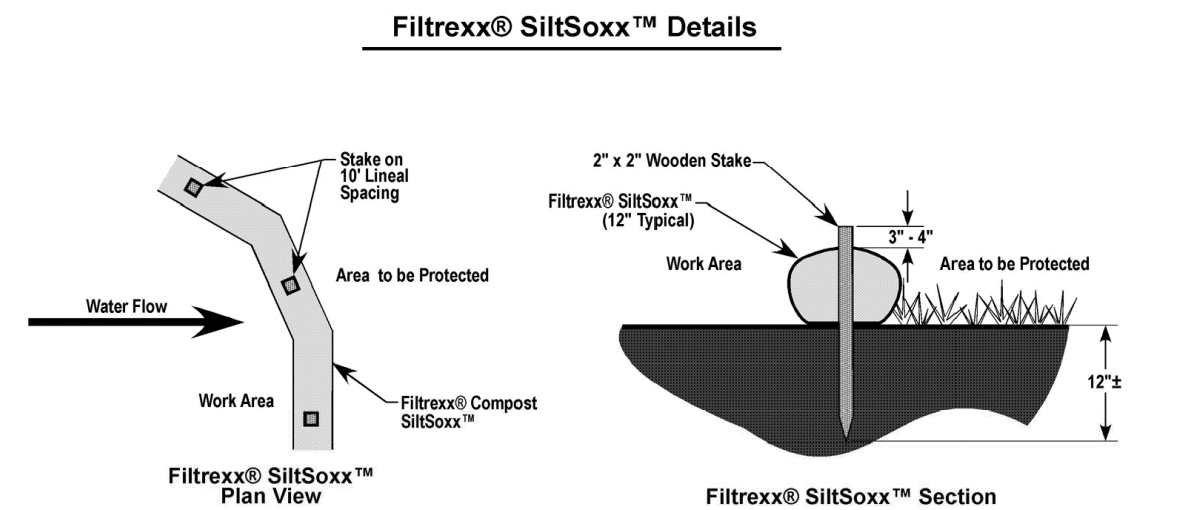
Section 1: Erosion and Sediment Control – Construction Activities
1.1 Filtrrexx SiltSoxx™
Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION
Filtrrexx SiltSoxx™ are a three-dimensional tubular sediment control and storm water runoff filtration device typically used for perimeter control of sediment and other soluble pollutants (such as phosphorus and petroleum hydrocarbons), and around construction activities.

APPLICATION
Filtrrexx SiltSoxx™ are to be installed down slope of any disturbed area requiring erosion and sediment control and filtration of soluble pollutants from runoff. SiltSoxx™ are effective when installed perpendicular to sheet or low concentrated flow. Acceptable applications include:
• Site perimeters
• Above and below disturbed areas subject to sheet runoff, interfill and silt erosion
• Above and below exposed and erodible slopes
• Around area drains or ditches located in a "sump"
• On compacted soils where trenching of silt fence is difficult or impossible
• Around sensitive trees where trenching of silt fence is not beneficial for tree survival or may unnecessarily disturb established vegetation.
• On frozen ground where trenching of silt fence is impossible.
• On paved surfaces where trenching of silt fence is impossible.

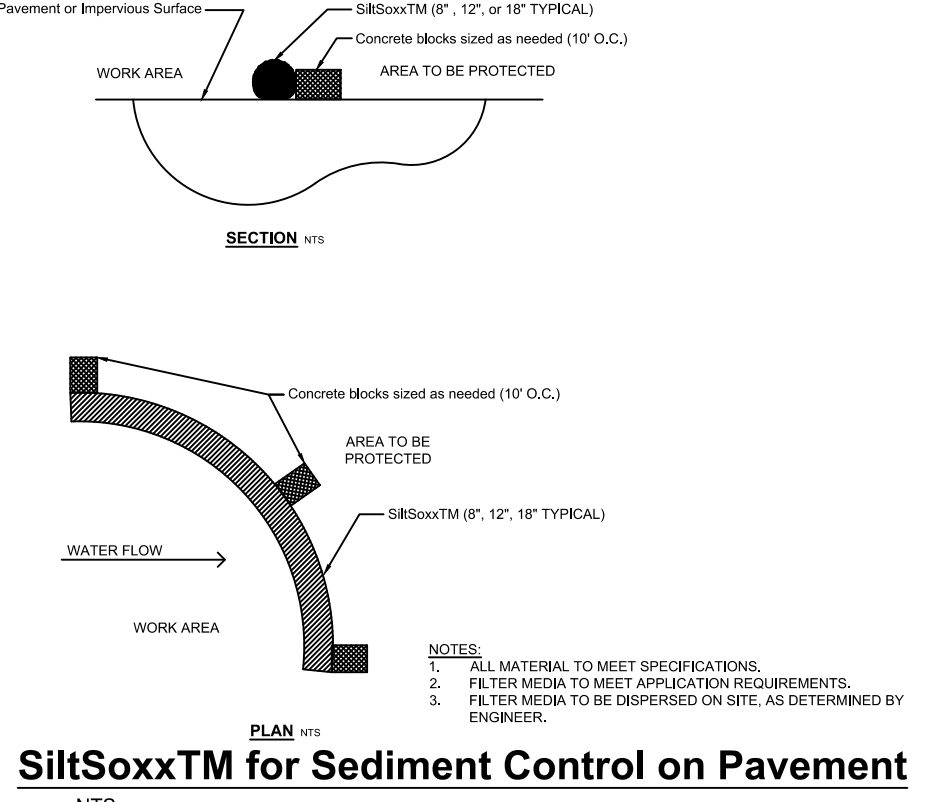
INSTALLATION
1. SiltSoxx™ used for perimeter control of sediment and soluble pollutants in storm runoff shall meet Filtrrexx SiltSoxx™ Material Specifications and use Certified Filtrrexx FilterMedia™.
2. Contractor is required to use Filtrrexx Certified™ as determined by Filtrrexx International, LLC (440-926-2607 or visit website at www.filtrrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application (current listing can be found at www.filtrrexx.com). Look for the Filtrrexx Certified™ Seal.
3. SiltSoxx™ will be placed at locations indicated on plans as directed by the Engineer.
4. SiltSoxx™ should be installed parallel to the base of the slope or other disturbed area. In extreme conditions (i.e., 2:1 slopes), a second SiltSoxx™ shall be constructed at the top of the slope.
5. Stakes shall be installed through the middle of the SiltSoxx™ on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes. In the event staking is not possible, i.e., when SiltSoxx™ are used on pavement, heavy concrete blocks shall be used behind the SiltSoxx™ to help stabilize during maintenance events.
6. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
7. Loose coarser material may be backfilled along the upslope side of the SiltSoxx™, filling the seam between the soil surface and the device, improving filtration and sediment retention.
8. If the SiltSoxx™ is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for establishment of permanent vegetation. The Engineer will specify seed requirements.
9. Filtrrexx SiltSoxx™ are not to be used in perennial, ephemeral, or intermittent streams.
See design drawing schematic for correct Filtrrexx SiltSoxx™ installation (Figure 1.1).

INSPECTION AND MAINTENANCE
Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. SiltSoxx™ should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional SiltSoxx™ may be required to reduce effective slope length or sediment removal may be necessary. SiltSoxx™ shall be inspected until area above has been permanently stabilized and construction activity has ceased.
1. The Contractor shall maintain the SiltSoxx™ in a functional condition at all times and it shall be routinely inspected.
2. If the SiltSoxx™ has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the SiltSoxx™ when accumulation has reached 1/2 of the effective height of the SiltSoxx™, or as directed by the Engineer. Alternatively, a new SiltSoxx™ can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
4. SiltSoxx™ shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
5. The FilterMedia™ will be dispersed on site once disturbed areas have been permanently stabilized, construction activity has ceased, or as determined by the Engineer.
6. For long-term sediment and pollution control applications, SiltSoxx™ can be seeded at the time of installation to create a vegetative filtering system for prolonged and increased filtration of sediment and soluble pollutants (contained vegetative filter strip). The appropriate seed mix shall be determined by the Engineer.



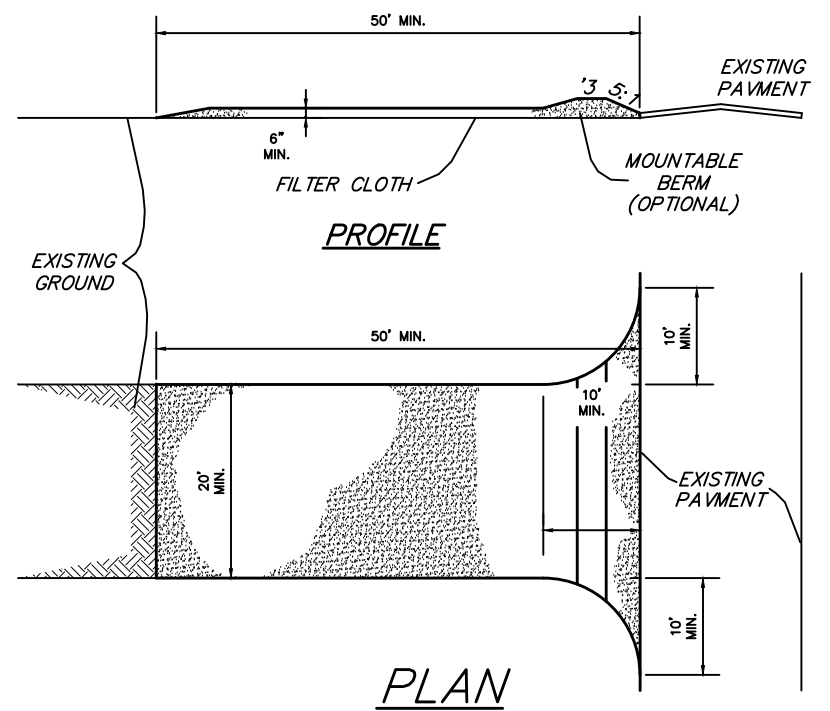
Slope Percent	Maximum Slope Length Above SiltSoxx™ in Feet (meters)*				
	8 in (200 mm) SiltSoxx™	12 in (300 mm) SiltSoxx™	18 in (450 mm) SiltSoxx™	24 in (600 mm) SiltSoxx™	32 in (800 mm) SiltSoxx™
2 (or less)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	200 (60)	250 (75)	300 (90)	400 (120)	500 (150)
15	140 (40)	170 (50)	200 (60)	325 (100)	450 (140)
20	100 (30)	125 (38)	140 (42)	260 (80)	400 (120)
25	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

*Based on a failure point of 36 in (0.9 m) super silt fence (wire reinforced) at 1000 ft (303 m) of slope, watershed width equivalent to receiving length of sediment control device, 1 in/24 hr (25 mm/24 hr) rain event. **Effective height of SiltSoxx™ after installation and with constant head from runoff as determined by Ohio State University.



SiltSoxx™ for Sediment Control on Pavement

STABILIZED CONSTRUCTION ENTRANCE



VEGETATION ESTABLISHMENT For Urban Development Sites APPENDIX A

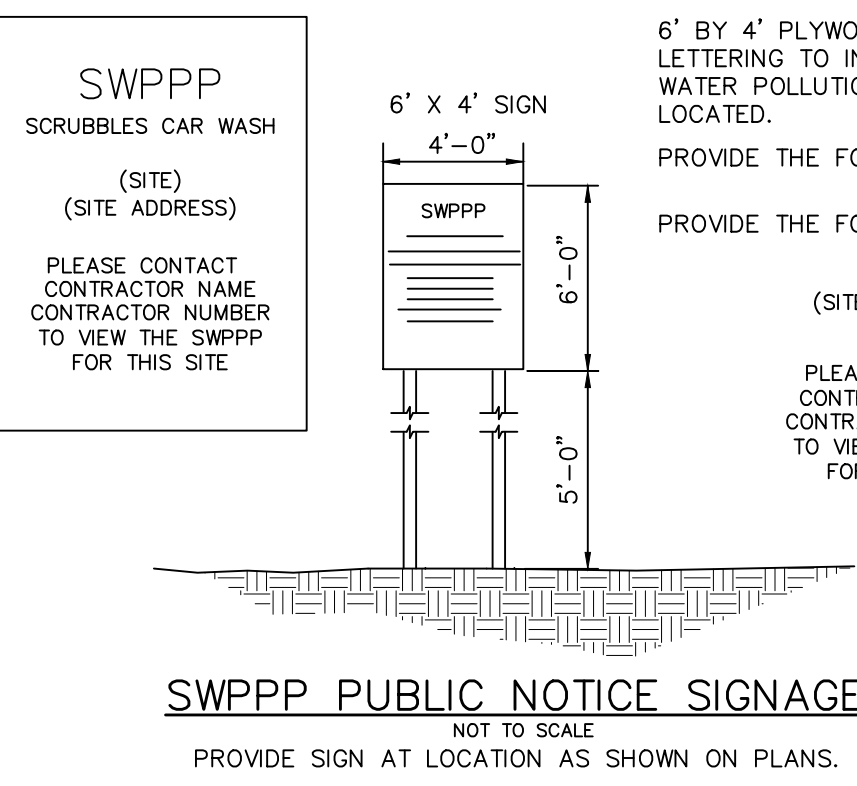
SEEDING RATES:
PERMANENT:
Tall Fescue – 30 lbs./ac. Smooth
Brome – 20 lbs./ac.
Combined – Fescue @ 15 lbs./ac. AND Brome @ 10 lbs./ac.
TEMPORARY:
Wheat or Rye – 150 lbs./ac. (3.5 lbs. per 1,000 s.f.)
Oats – March 15 to September 15
100 lbs. per 1,000 sq. ft. (4,356 lbs. per ac.)

SEEDING PERIODS:
Fescue or Brome – March 1 to June 1
Wheat or Rye – March 15 to November 1
Oats – March 15 to September 15

MULCH RATES:
100 lbs. per 1,000 sq. ft. (4,356 lbs. per ac.)

FERTILIZER RATES:
Nitrogen 30 lbs./ac.
Phosphate 30 lbs./ac.
Potassium 30 lbs./ac.
Lime 600 lbs./ac. ENM*

* ENM = effective neutralizing material as per State evaluation of quarried rock.



SWPPP PUBLIC NOTICE SIGNAGE

CONSTRUCTION SPECIFICATIONS

- Stone Size – Use 2" stone, or reclaimed or recycled concrete equivalent.
- Length – As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
- Thickness – Not less than six (6) inches.
- Width – Twenty (20) foot minimum, but not less than the full width at points where ingress or egress occurs.
- Filter Cloth – Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
- Surface Water – All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
- Maintenance – The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanup of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
- Washing – Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
- Periodic inspection and needed maintenance shall be provided after each rain.

Tensar International Corporation
5401 St. Wendel-Cynthiana Road
Poseyville, Indiana 47333
Tel: 800.772.2040
Fax: 812.867.0247
www.nagreen.com

Material and Performance Specification S75 Erosion Control Blanket

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.37 in (9.4 mm)
Resiliency	ECTC Guidelines	78.8%
Water Absorbency	ASTM D1117	426%
Mass/Unit Area	ASTM 6475	11.97 oz/yd ² (402 g/m ²)
Swell	ECTC Guidelines	15%
Smaller Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	6.31 oz-in
Light Penetration	ECTC Guidelines	7.3%
Tensile Strength – MD	ASTM D6818	130.8 lbs/ft (1.94 kN/m)
Elongation – MD	ASTM D6818	24.4%
Tensile Strength – TD	ASTM D6818	85.2 lbs/ft (1.26 kN/m)
Elongation – TD	ASTM D6818	26.8%

Maximum Permissible Shear Stress	
Unvegetated Shear Stress	1.55 lbs/ft ² (74 Pa)
Unvegetated Velocity	5.00 ft/s (1.52 m/s)

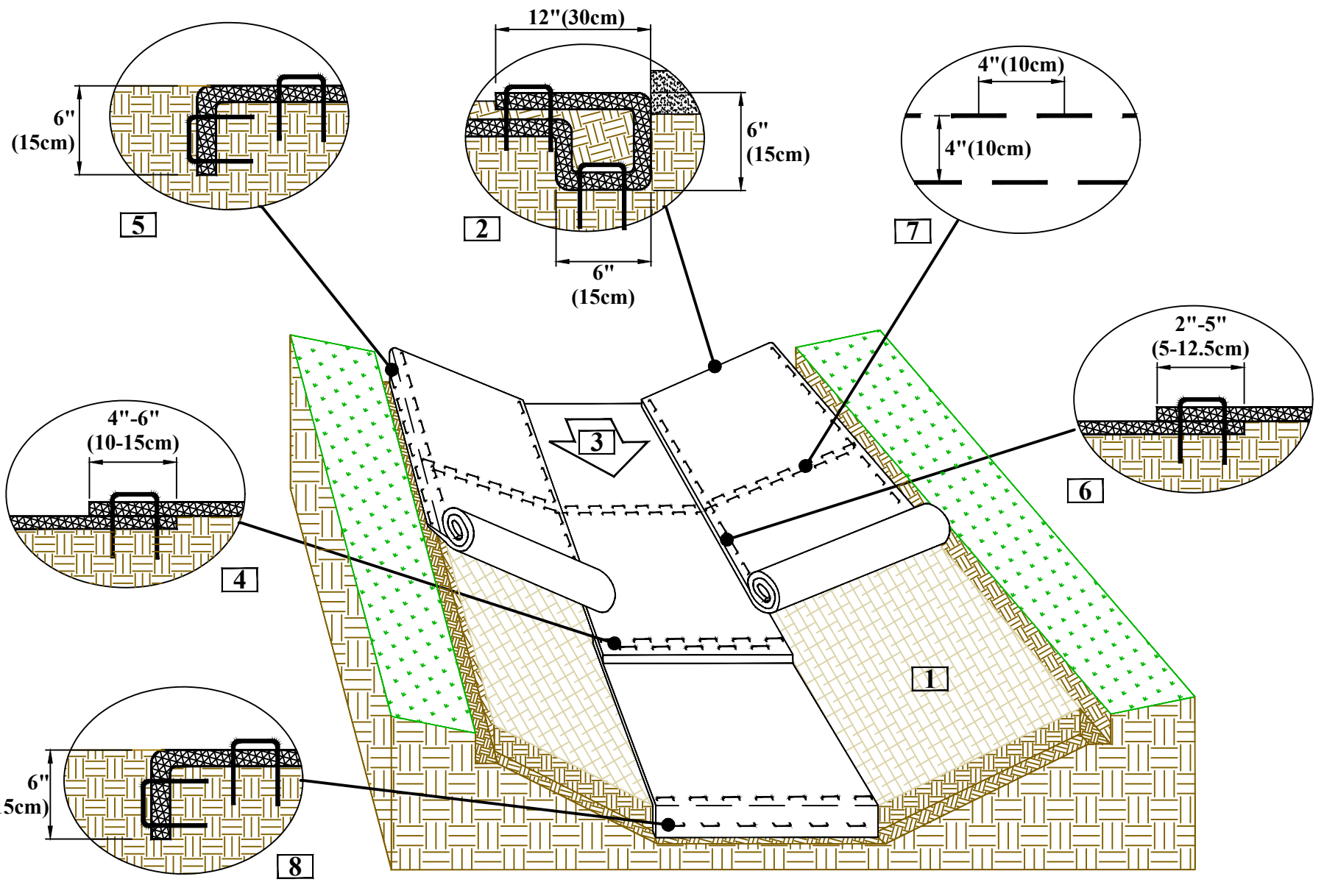
Slope Design Data: C Factors	
Slope Length (L)	≤ 3:1 3:1 - 2:1 ≥ 2:1
≤ 20 ft (6 m)	0.029 NA NA
20-50 ft	0.11 NA NA
≥ 50 ft (15.2 m)	0.19 NA NA

Roughness Coefficients-Manning	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.055
0.50 - 2.0 ft	0.055 - 0.021
≥ 2.0 ft (0.60 m)	0.021

Bench Scale Testing (NTEPE) Parameters	Results
ECTC 2 Rainfall 50 mm (2 in)/hr-30 min	SLR** = 8.80
ECTC 3 Rainfall 100mm (4 in)/hr-30 min	SLR** = 8.16
ECTC 4 Rainfall 150 mm (6 in)/hr-30 min	SLR** = 7.81
ECTC 3 Shear Res. loss at 0.50 inch soil loss	1.80 lbs/hr*
ECTC 4 Top Soil, Fescue, 21 day incubation	228% improvement

* Soil Loss Ratio = Soil loss from Bare/Soil loss with RECP

** Soil Loss Ratio = Soil loss from Bare/Soil loss with RECP



CHANNEL INSTALLATION DETAIL

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
- Begin at the top of the channel by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12"(30cm) of RECPs extended beyond the up-slope portion of the trench. Use ShoreMax mat at the channel/culvert outlet as supplemental scour protection as needed. Anchor the RECPs with a row of staples/stakes approximately 12"(30cm) apart in the bottom of the trench. Backfill and compact the trench after staking. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the RECPs.
- Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
- Place consecutive RECPs end-over-end (Shingle style) with a 4"-6" overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPs.
- Full length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes approximately 12"(30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after staking.
- Adjacent RECPs must be overlapped approximately 2"-5" (5-12.5cm) (Depending on RECPs type) and stapled.
- In high flow channel applications a staple check slot is recommended at 30 to 40 foot (9 -12m) intervals. Use a double row of staples staggered 4"(10cm) apart and 4"(10cm) on center over entire width of the channel.
- The terminal end of the RECPs must be anchored with a row of staples/stakes approximately 12" (30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after staking.

CRITICAL POINTS
A. Overlaps and Seams
B. Projected Water Line
C. Channel Bottom/Side Slope Vertices

NOTES:
*Horizontal staking spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.
**In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECPs.

Storm Water Pollution Prevention Plan

A. PURPOSE:
The purpose of the Storm Water Pollution Prevention Plan (SWPPP) is to inform the Developer/Contractor of the following objectives they are required to meet:
- Prevent erosion where construction activities shall occur.
- Prevent pollutants from mixing with storm water.
- Prevent pollutants from being discharged by trapping them on-site, before they can affect the receiving waters.
- All regulations of Missouri Department of Natural Resources are met.
- All regulations of the Environmental Protection Agency are met.
- All regulations of the local municipality are met.

B. PROJECT DESCRIPTION:
The project is located in the Dardenne Creek watershed in St. Charles County, Missouri. This project disturbs approximately 6.50 acres.
The project activities consist of the construction of a new building, parking lot and entrance. The site will be protected by the various erosion protection measures listed below:
1. Siltation Control: The entire perimeter of the project that allows storm water to exit will have siltation control installed. Details of these devices are depicted on the detail plans prepared by Box Engineering Company, Inc.
2. Revegetation: The site will consist of varying ground slopes, upon completion of the grading activities the slope prone to erosion will be seeded and stowed to stabilize the slope and prevent erosion.

Soil Disturbance Activity or Condition	Required Stabilization Time
Soil disturbance has ceased in areas greater than 2,000 square feet	14 days
After construction of dikes, swales, diversions, and other concentrated flow areas	5 days
When slopes are steeper than 3 horizontal to 1 vertical	7 days
When slopes are greater than 3% and longer than 150 feet.	14 days
Perimeter controls around soil stockpiles.	End of workday
Stabilization or covering of inactive stockpiles.	30 days
When land disturbance is completed, permanent soil stabilization must be installed.	30 days

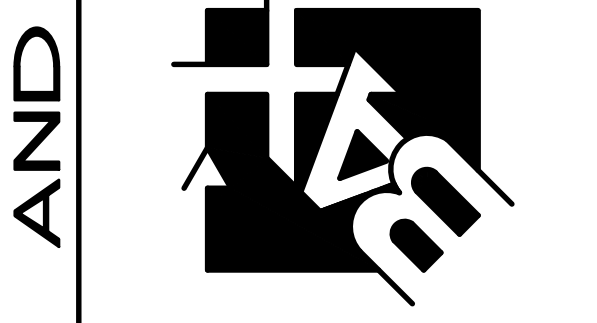
C. MAINTENANCE AND INSPECTION:
Regular Maintenance: Weekly inspections of the project will include: (a) The repair of any sediment (silt) fence and/or staked straw bale barriers damaged or out of place; (b) The removal of any accumulated trash and/or debris; and (c) The removal of any externally deposited waste materials.
Periodic Inspections: Following each rain of more than 0.25 inch in 24 hours, the site will be inspected, and any necessary maintenance will be provided for a period of one year following the completion of the above remediation measures. Summaries of the maintenance and the inspections will be maintained and shall be kept available from the owner. An inspection report shall be filed and kept on site for every inspection. The report shall detail the findings of the inspection and if any action was required. The inspection form needs to include, name of the site, name of the inspector, permit number, date of inspection, major observations and actions taken to correct problems and the signature of the inspector. The inspection reports need to be kept on file by the permittee for three years after the project is completed.
The field inspections will be conducted in a systematic manner to minimize the possibility of any significant feature being overlooked. A detailed checklist will be developed and followed for the examination. Particular attention will be given to detecting evidence of erosion, slope instability, undue settlement, displacement, and tilting. Photographs and drawings will be used freely to record conditions in order to minimize descriptions. The field inspection will include appropriate features and items, including potential hazards to human life or property.
The condition of the slopes and vegetative cover will be evaluated and examined for erosion.
Measures will be taken to promote the growth of vegetation and repair of damage caused by erosion and sedimentation. The inspection will also provide recommendations for measures that need to be undertaken immediately, based on the experience and judgment of the inspector. Necessary follow up inspections will be made as necessary to verify that any maintenance, alteration, or repair measures are accomplished by methods acceptable by standard engineering practice.

SPILL AND SITE POLLUTION

Should an accidental spill occur refer to material safety data sheets. Any spills of hazardous materials in quantities in excess of reportable quantities as defined by EPA or the state agency regulations, shall be immediately reported to the EPA National Response Center (800-424-8802) and Missouri Department of Natural Resources (573-634-2436). Reportable spills for petroleum products is greater than 50 gallons. All other reportable hazardous materials and their quantities may be found on the website of <http://www.dnr.mo.gov> on the local number is 573-840-9750. Federal law requires the responsible party to report any release of oil if it reaches or threatens a sewer, lake, creek, stream, river, groundwater, wetlands, or area such as a road ditch that drains into the above. An emergency spill kit is required to be onsite for all potential spills.

PROJECT TITLE:
CONSTRUCTION PLANS FOR
Scrubbles Car Wash
Highway K
O'Fallon, MO 63368

ENGINEERING PLANNING SURVEYING
221 Point West Blvd.
St. Charles, MO 63301
636-928-6592
FAX 636-928-1718



DISCLAIMER OF RESPONSIBILITY
I hereby certify that the documents intended to be authenticated by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other Drawings, Specifications, Estimates, Reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project.

Copyright © 2024
Box Engineering Company, Inc.
Authority No.: 000855
All Rights Reserved

REVISIONS

Date	Description
08-03-23	FORCE MAIN
09-13-23	COMMENTS/PWSD
09-27-23	REPLACE RETAINING WALL
10-26-23	CITY COMMENTS
11-08-23	PAY CANOPY REV.
12-06-23	CITY COMMENTS
12-13-23	PWSD COMMENTS
12-18-23	MODOT COMMENTS
01-10-24	LIGHT STANDARDS

Developer / Owner:
Tifton Car Wash, L.L.C.
P.O. Box 7726
Tifton, GA 31793
(229) 520-2244

P+Z No. 22-007743
Approved: 10-06-22

City No. #

Page No. 11 of 18

SEDIMENT AND EROSION CONTROL DETAILS