Coquitlam

Addendum No. 2

City of Coquitlam

Tender No. 81832 – Phase 2
2026 & 2027 Cedar Drive Upgrades
(Consists of 27 Pages)

Issue Date: January 26, 2026

Tenderers shall note the following changes:

Revisions

1. **Refer to: FORM OF TENDER**

   Remove: ***Revised*** **– Appendix 1 –** ***Revision No. 1***
   Replace with: ***Revised*** **– Appendix 1 –** ***Revision No. 2***

2. **Add: Appendix F – Denbow Filtrexx Soxx Specifications**

   Note: Denbow Filtrexx Soxx to be installed as per Manufacturer's specifications with wood stakes . The Contractor is to install the works under the supervision of the Manufacturer.

3. **Refer to: SUPPLEMENTARY CONTRACT SPECIFICATIONS, Section 01 53 01S - TEMPORARY FACILITIES (Page SS10)**

   Delete: Clause 1.9.4

   Replace with: Clause 1.9.4

   "Payment for the sheet piles along Cedar Drive and Partington Creek will be made at the unit price bid in the Schedule of Quantities and Prices. Payment for all work performed under this item, as described in the Schedule of Quantities and Prices, will include supply and installation and all other works incidental to install sheet piles for this section including removal after construction has been completed. Contractor will be required to have the sheet pile design completed and sealed by a Professional Engineer.

   Measurement for lineal meter of temporary trench shoring will be made along the center line of the trench from the start to end of the trench after restoration."

4. Refer to: SUPPLEMENTARY CONTRACT SPECIFICATIONS, Section 32 93 01S, PLANTING OF TREES, SHRUBS AND GROUND COVERS (Pages SS 82 to SS 92)

Delete: Clause 1.9.4

Replace with: Clause 1.9.4

"Payment for 450mm dia. Denbow Filtrexx Soxx shall be made at the unit price bid per lineal meter installed. Payment shall be considered full compensation for all costs for equipment, materials, and labour for the supply and installation of Denbow Filtrexx Soxx, including filler media, wooden stakes, backfilling, and all installation as per the Manufacturer's Specifications.

Denbow Filtrexx Soxx to be installed where live willow wattle fences are shown in the Contract Drawings. Drawings to be updated with the correct material in the Issued for Construction Drawings. The Contractor is responsible for contacting and installing the Filtrexx Soxx under the supervision of a Supplier or Manufacturer's representative, as well as installing in final locations determined onsite by the QEP."

Questions & Clarifications

Q1) Please clarify how we will get paid if boulders are encountered during excavations.

A1) Refer to Revised – Appendix 1 – *Revision No. 2*. For boulders encountered from excavation for sediment ponds, open cut installations for water, storm and sanitary mains, Contractors will be paid for removal per Pay Item 10.01. The specifications from MMCD Supplementary Contract Specifications Section 31 23 17 apply.

For boulders encountered during Horizontal Directional Drilling (HDD) sections of installing the sanitary main, Contractors will be paid on Force Account basis as per GC 10.0.

Q2) Sheet piles for tying in the sanitary main at STA 0+817.21 may need to be extended to accommodate HDD works. Please clarify how we will get paid for those works.

A2) Refer to Revised – Appendix 1 – *Revision No. 2* and Revision 3 above. The Contractor will be paid for any necessary sheet piled trench extension as required for the HDD receiving pit in Pay Item 1.04. Measurement for payment will be made along the centerline of the trench for the extended section.

Q3) Would the City accept alternates for the wood wattle fence?

A3) Refer to Revised – Appendix 1 – *Revision No. 2* and Revision 4 above. The Denbow Filtrexx Soxx (450mm dia.) are to be installed in lieu of the wood wattle fences where shown on the Contract Drawings. The Issued for Construction drawings will be updated to reflect this material change.

Manufacturer's Specifications are provided as Appendix F. Note that for this Cedar Drive project's application on a slope, the wood stakes are to be installed on the

downhill side of the Filtrexx Soxx, and not through them, to maintain integrity of the Soxx. Installation reference photo is provided below.

Q3) Please provide flow rate for Partington Creek.

A3) The following baseflow rates are estimated based on modelled scenarios from 2023. Summer baseflow is estimated to be 5.1L/s and Winter baseflow is estimated to be 50 L/s. Baseflows may vary depending on rainfall events.

The Contractor is responsible for developing a bypass plan with adequate capacity based on site conditions and as per the Environmental Management Plan.

Q4) The tender documents have contradictory statements on who is responsible for survey & layout. Please confirm if it is the Contractor's responsibility or the City's.

A4) All Survey Layout will be completed by the City in accordance with the Contract Drawings and Coordinate System set out within them. The Contractor will be provided digital AutoCAD files but shall be responsible to confirm elevations and tie in locations and report any discrepancies prior to construction.

Q5) We note that the asphalt pavement thicknesses differ between the geotechnical report and the surface treatment details shown on the drawings. The geotechnical report indicates a total asphalt thickness of 125 mm, placed in two lifts (75 mm lower course and 50 mm upper course). The civil drawings, however, indicate 50 mm upper course + 50 mm lower course for the road surface. Please confirm which asphalt thickness and lift configuration is correct and governing for pricing and construction.

A5) As stated in the previous Addendum, Tenderers are referred to the Contract Drawings for the Surface Treatment legend in the ROAD + WATER works plans for pricing.

For the Road Surface, the Contractor is to install 50mm top lift asphalt (UC#1) and 50mm base lift asphalt (LC#1). Tenderers must note the road base and subbase installation requirements.

Q6) We were unable to locate any pavement structure recommendations within the geotechnical report for the multi-use path and asphalt driveway. Kindly confirm whether the pavement structures shown on the drawings for these areas are final and governing, or if additional geotechnical recommendations will be issued for the multi-use path and asphalt driveway.

A6) As stated in the previous Addendum, Tenderers are referred to the Contract Drawings for the Surface Treatment legend in the ROAD + WATER works plans for pricing.

For the Multi-Use Path, the Contractor is to install 50mm asphalt (UC#2). For the asphalt driveways, the Contractor is to install 50mm asphalt (UC#2). Tenderers must note the road base installation requirements.

End of Addendum No. 2

Tenderers shall take into account the content of this Addendum in the preparation and submission of the Tender which will form part of the contract and should be acknowledged on the Tender form where indicated.

Upon submitting a Tender, Tenderers will be deemed to have received all addenda and considered the information for inclusion in the Tender submitted.

Issued by:

M. Pain
Manager Procurement
Email: bid@coquitlam.ca

Revised **- APPENDIX 1 -** ***Revision No. 2***
FORM OF TENDER

Contract 81832 - Phase 2
2026 & 2027 Cedar Drive Upgrades

SCHEDULE OF QUANTITIES AND PRICES
(see paragraph 5.3.1 of the Instruction to Tenderers)
(All Tender and Contract Prices shall NOT include GST. GST will apply upon payment)
(Should there be any discrepancy in the information provided, the City's original file copy shall prevail)

ITEM NO.	MMCD Ref./ (Supplementary Contract Specifications)	DESCRIPTION	UNIT OF MEASURE	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
1.0	**01 53 01S**	**TEMPORARY FACILITIES**				
1.01	(1.9.2)	Ground Water Management and Dewatering of all site	Lump Sum	1		
1.02	(1.9.3)	Partington Creek Bypass as per Environmental Management Plan (EMP) - Appendix D and ESC Plan (Contract Drawings)	Lump Sum	1		
1.03	(1.9.4)	Temporary shoring to be provided as required to maintain existing road during north culvert installations. Shoring design to be sealed by a professional engineer	Lump Sum	1		
1.04	(1.9.4)	Temporary trench shoring to be provided as required for sanitary main Horizontal Directional Drilling receiving pit at STA 0+820 c/w trench excavation, approved native backfill, and shoring removal after construction. Shoring design to be sealed by a professional engineer (Provisional)	lin.m	20		
2.0	**01 55 00S**	**TRAFFIC CONTROL, VEHICLE ACCESS AND PARKING**				
2.01	1.5.1	Traffic Control and Management		Incidental to Contract		
3.0	**01 57 01S**	**ENVIRONMENTAL PROTECTION**				
3.01	(1.6.1)	ESC supply & installation, maintenance and removal	ALLOWANCE			$ 120,000
4.0	**01 58 01S**	**PROJECT IDENTIFICATION**				
4.01	(1.3.1)	Construction Zone Information Signs	Each	4		
5.0	**03 30 20S**	**CONCRETE WALKS, CURBS AND GUTTERS**				
5.01	(1.4.3)	MMCD C4 Curb and Gutter (Solid or Slotted)	lin.m	1,827		
5.02	(1.4.5)	Concrete Pedestrian Letdowns	Square Meter	48		
5.03	(1.4.5)	Concrete Driveway Letdowns and Aprons	Square Meter	94		
5.04	(1.4.10)	Tactile Strip - 24x48in. Access Tile, Truncated Dome Pattern, Yellow color - Cast-in-place Removable Type	Each	9		
6.0	**04 43 00S**	**CHANNEL SUBSTRATE**				
6.01	(1.3.1)	Channel Substrate Gravel Mix	Tonnes	2,200		
6.02	(1.3.2)	600mm Dia. Boulder (Provisional)	Each	50		
7.0	**26 56 01S**	**ROADWAY LIGHTING**				
7.01	1.9.1	Street and MUP Lighting	Lump Sum	1		
8.0	**31 11 01S**	**CLEARING AND GRUBBING**				
8.01	(1.4.1)	Tree and Shrub Removals, Clearing and Grubbing	Lump Sum	1		
9.0	**31 23 01S**	**EXCAVATING, TRENCHING AND BACKFILLING**				
9.01	(1.10.9)	Imported Trench Backfill (75mm Minus) (Provisional)	Tonnes	400		

ITEM NO.	MMCD Ref./ (Supplementary Contract Specifications)	DESCRIPTION	UNIT OF MEASURE	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
10.0	**31 23 17**	**ROCK REMOVAL**				
10.01	1.6	Removal of boulders from excavation for open cut utility installations and sediment ponds only	Cubic Meter	250		
11.0	**31 23 23**	**CONTROLLED DENSITY FILL**				
11.01	1.4	Infill of Existing 1200mm Dia. HDPE Culvert with Controlled Density Fill (CEMATRIX or Approved Equal) (Provisional)	Cubic Meter	110		
12.0	**31 24 13S**	**ROADWAY EXCAVATION, EMBANKMENT AND COMPACTION**				
12.01	(1.8.5)	Common Excavation - Off Site Disposal, includes stripping and top soil removal (Provisional)	Cubic Meter	10,980		
12.02	(1.8.5)	Common Excavation - Off Site Disposal to local sites (NE Coquitlam) (Provisional)	Cubic Meter	9,700		
12.03	(1.8.5.5)	Common Excavation - Onsite reuse (Provisional)	Cubic Meter	4,300		
12.04	(1.8.5.7)	Relocating boulders (600mm or bigger) on preload and alongside driveways (Provisional)	each	100		
12.05	(1.8.5.8)	Japanese Knotweed Removal and Off Site Disposal (Provisional)	Cubic Meter	1,050		
12.06	1.8.7	Imported Embankment Fill, 75mm Minus (Provisional)	tonne	500		
12.07	(1.8.10)	Overexcavation, Offsite Disposal, Backfilling (includes top soil stripping) (Provisional)	Cubic Meter	200		
12.08	(1.8.14)	Light Weight Fill Material - Pumice Aggregate c/w Geotextile Wrap (Nilex 4551 or Approved Equivalent)	Cubic Meter	1,300		
12.09	(1.8.15)	Japanese Knotweed Removal and Disposal at 1341 Gilleys Trail (Provisional)	Cubic Meter	950		
12.10	(1.8.16)	Regrading of embankment slope (SE section) below tree line after removal of sloughed top soil as shown on Contract Drawings. Work is recommended to be done from the embankment top so as to protect existing Coho Gravel.	Square Meter	1,100		
12.11	(1.8.17)	Remove existing 200mm dia. watermain, outside of new watermain alignment or new sediment pond excavation, as per Contract Drawings (Provisional)	lin.m	139		
12.12	(1.8.17)	Remove abandoned gas main, outside of new utility alignment or new sediment pond excavation, as per Contract Drawings (Provisional)	lin.m	122		
13.0	**31 37 10**	**RIPRAP**				
13.01	1.4.1	Placing 300mm Riprap for armoring and side slope stability as shown on Contract Drawings (Provisional)	Cubic Meter	150		
14.0	**32 11 16.1S**	**GRANULAR SUBBASE**				
14.01	(1.4.3)	75mm Minus Crushed Granular Sub Base - Road	Tonne	4,230		
14.02	(1.4.3)	75mm Minus Crushed Granular Sub Base - Driveways (Provisional)	Tonne	640		
14.03	(1.4.6)	75mm Clear Crushed Gravel	Tonne	650		
15.0	**32 11 23S**	**GRANULAR BASE**				
15.01	(1.4.3)	19mm Minus Crushed Granular Base, variable thickness, for roadway and as shown on Contract Drawings	Tonne	5,190		
16.0	**32 12 13.1S**	**ASPHALT TACK COAT**				
16.01	(1.5.1)	Asphalt Tack Coat	Square Meter	8,060		
17.0	**32 12 16S**	**HOT-MIX ASPHALT CONCRETE PAVING**				
17.01	(1.5.1)	Machine Laid Hot Mix Asphalt 50mm (MMCD Upper course #1)	Tonne	990		

ITEM NO.	MMCD Ref./ (Supplementary Contract Specifications)	DESCRIPTION	UNIT OF MEASURE	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
17.02	(1.5.1)	Machine Laid Hot Mix Asphalt 50mm (MMCD Lower Course #1)	Tonne	990		
17.03	(1.5.1)	Machine Laid Hot Mix Asphalt (Driveways/Letdowns, MUP) (MMCD Upper Course #2)	Tonne	530		
18.0	**32 17 23S**	**PAINTED PAVEMENT MARKINGS**				
18.01	(1.5.3)	Permanent Thermoplastic Pavement Markings	Lump Sum	1		
18.02	(1.5.4)	Supply & Install of Traffic Signage - City to supply all new sign tabs	Lump Sum	1		
19.0	**32 31 13S**	**CHAIN LINK FENCES AND GATES**				
19.01	1.5.1	Chain Link Fence (1.8m High) (as per MMCD C13)	lin.m	682		
19.02	1.5.2	Chain Link Gate (1.8m High) - 4300 Oliver Road	lin.m	11		
19.03	1.5.2	Chain Link Gate (1.8m High) - North Pond	lin.m	6		
19.04	1.5.3	Relocation of Existing Chain Link Gates (4170 Cedar Drive)	Each	1		
19.05	1.5.2	4.0m Wide Tubular Swing Gate as shown on Drawing Sheet 07	Each	1		
19.06	(1.5.5)	Supply & Install 5-foot tall (incl.1-foot buried) wire mesh fence - 4265 Cedar Drive East Property Line (match existing type)	lin.m	53		
19.07	(1.5.6)	Fixed Steel Bollards as per COQ-L8	Each	6		
20.0	**32 84 23S**	**IRRIGATION SYSTEM**				
20.01	(1.11)	Providing and Installing irrigation system complete with double check valve assembly (Watt 007QT), irrigation controller, Rainbird PEB valves, all labor, equipment and materials needed to complete the work as shown on Contract Drawings including maintenance for one year as described in specifications.	Lump Sum	1		
21.0	**32 91 21S**	**TOP SOIL AND FINSIH GRADING**				
21.01	(1.4.1)	Growing Mediums specified in Contract Drawings	Cubic Meter	7,000		
21.02	(1.4.1)	Bark Mulch (100mm), Composted, Brown Colour as Shown in Contract Drawings	Cubic Meter	150		
22.0	**32 92 19S**	**HYDRAULIC SEEDING**				
22.01	(1.8)	Hydroseed (Provisional)	Square Meter	310		
22.02	1.8.3	Erosion Control Blanket (Terrafix C200 or approved equivalent) installed as per Manufacturer's specifications	Square Meter	11,320		
23.0	**32 92 23S**	**SODDING**				
23.01	(1.8.1)	Sodding	Square Meter	1,950		
24.0	**32 93 01S**	**PLANTING OF TREES, SHRUBS, AND GROUND COVERS**				
24.01	(1.9.1)	Tree - Abies grandis - Grand Fir	Each	30		
24.02	(1.9.1)	Tree - Acer circinatum - Vine Maple	Each	10		
24.03	(1.9.1)	Tree - Alnus rubra - Red Alder	Each	9		
24.04	(1.9.1)	Tree - Alnus sinuata - Sitka Alder	Each	73		
24.05	(1.9.1)	Construction Deficiency Holdback	Each	32		
24.06	(1.9.1)	Tree - Comus nuttallii - Pacific Dogwood	Each	15		

ITEM NO.	MMCD Ref./ (Supplementary Contract Specifications)	DESCRIPTION	UNIT OF MEASURE	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
24.07	(1.9.1)	Tree - Crataegus douglasii - Black Hawthorn	Each	31		
24.08	(1.9.1)	Tree - Malus fusca - Oregon Crab Apple	Each	13		
24.09	(1.9.1)	Tree - Picea glauca - White Spruce	Each	6		
24.10	(1.9.1)	Tree - Pinus contorta - Shore Pine	Each	27		
24.11	(1.9.1)	Tree - Prunus emarginata - Bitter Cherry	Each	20		
24.12	(1.9.1)	Shrubs	Each	5,493		
24.13	(1.9.1)	Ground Cover	Each	3,004		
24.14	(1.9.1)	Tree - Pseudotsuga menziesii - Douglas Fir	Each	16		
24.15	(1.9.1)	Tree - Quercus garryana - Garry Oak	Each	6		
24.16	(1.9.1)	Tree - Thuja plicata - Western Red Cedar	Each	52		
24.17	(1.9.1)	Tree - Tsuga heterophylla - Western Hemlock	Each	17		
24.18	(1.9.3)	Large Woody Debris	Each	36		
24.19	(1.9.3)	Tree Snag	Each	13		
24.20	(1.9.3)	Bat Box	Each	16		
24.21	(1.9.4)	450mm dia. Denbow Filtrexx Soxx on Steep Slopes in lieu of wood wattle fences where shown on Contract Drawings (to be installed as directed by QEP and Manufacturer's Rep per Manufacturer Specifications).	Linear Meter	2,781		
24.22	(1.9.1)	Transplant Existing Trees Located at the West side of Drainage Channel to New Location as shown on Contract Drawings c/w reinstating topsoil in existing tree locations	Each	66		
25.0	**33 05 25S**	**HORIZONTAL DIRECTIONAL DRILLING**				
25.01	(3.1)	450mm (18") DR11 HDPE Sanitary Main c/w Temporary Cap - Grey Pipe (HDPE Pipe to be supplied by the City; excluding fittings; Contractor to coordinate delivery, unloading, and safety and storage on site)	Linear Meter	472		
26.0	**33 11 01S**	**WATERWORKS**				
26.01	(1.8.2)	200mm DI CL50 Water Main (V-Bio Encased) TR Flex; Approved Native Backfill c/w Steel Casing with RACI spacers (At Road Tie-In North) as shown on Contract Drawings	Linear Meter	151		
26.02	(1.8.3)	200 x 200 x 200 Tee	Each	1		
26.03	(1.8.3)	200 x 200 x 150 Tee	Each	3		
26.04	(1.8.3)	200mm 45 Degree DI Elbow	Each	3		
26.05	(1.8.3)	200mm Gate Valve	Each	4		
26.06	(1.8.4)	50mm Water Service Connection to #4170 (as per COQ-W2e) c/w Terminal City Nelson type valve box, meter setter, and all appurtenances as per Standard Detail WM-3. Existing water service to be removed and capped as per COQ -W2h.	Each	1		
26.07	(1.8.4)	25mm Water Service Connection to #4180 (as per COQ-W2b-2) c/w Terminal City Nelson type valve box, meter setter, and all appurtenances as per Standard Detail WM-2. Existing water service to be removed and capped as per COQ -W2g.	Each	1		
26.08	(1.8.4)	25mm Water Service Connection to #4265 (as per COQ-W2b-2) c/w Terminal City Nelson type valve box, meter setter, and all appurtenances as per Standard Detail WM-2.	Each	1		
26.09	(1.8.5)	Air Release Valve (as per COQ-W6)	Each	1		

ITEM NO.	MMCD Ref./ (Supplementary Contract Specifications)	DESCRIPTION	UNIT OF MEASURE	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
26.10	(1.8.7)	Blow-off Assembly (as per COQ-W8)	Each	1		
26.11	(1.8.13)	Existing 200mm Watermain Tie-In	Each	3		
26.12	(1.8.14)	Fire Hydrant Assembly Terminal City C71P c/w Storz (Complete as per MMCD W4)	Each	2		
26.13	(1.8.15)	Existing Fire Hydrant Assembly Relocation c/w Lead Extension	Each	1		
27.0	**33 30 01S**	**SANITARY**				
27.01	(1.6.2)	375mm SDR35 PVC Sanitary Main; Approved Native Backfill	Linear Meter	417		
27.02	(1.6.2)	200mm SDR35 PVC Sanitary Main; Approved Native Backfill	Linear Meter	12		
27.03	(1.6.2)	375mm Dia. Temporary Cap	Each	2		
27.04	(1.6.2)	200mm Dia. Temporary Cap	Each	1		
27.05	(1.6.3)	New 100mm Dia. Sanitary Service Connection to #4265 (as per MMCD S7)	Each	1		
27.06	(1.6.7)	Existing 375mm Sanitary Main Tie-In	Each	1		
28.0	**33 40 01S**	**STORM SEWERS**				
28.01	(1.6.6)	100mmØ PVC Perforated Pipe Including Day Lighting, Drain Rock, Filter Fabric as shown in Contract Drawings.	Linear Meter	250		
29.0	**33 42 13S**	**PIPE CULVERTS**				
29.01	(1.5.2)	600mm Conc. Culvert (Creek Bypass)	Linear Meter	100		
29.02	(1.5.2)	300mm Conc. Culvert	Linear Meter	20		
29.03	(1.5.2)	Installation of 1.2mx2.1m CONC. Box Culvert; c/w Weir and Coho Gravel As Shown on Contract Drawings (Concrete Culverts are supplied by the City)	Linear Meter	72		
29.04	(1.5.2)	Installation of 0.9mx2.1m CONC. Box Culvert; c/w Weir and Coho Gravel As Shown on Contract Drawings (Concrete Culverts are supplied by the City)	Linear Meter	36		
29.05	(1.5.2)	250mm SDR28 PVC Culvert	Linear Meter	33		
29.06	(1.5.2)	200mm SDR28 PVC Culvert	Linear Meter	37		
29.07	(1.5.2)	200mm Dia. Flap Gate	Each	1		
30.0	**33 44 01S**	**MANHOLES AND CATCHBASINS**				
30.01	(1.5.1.1)	1050mm Concrete Sanitary Pre-benched Manhole Base c/w Slab, Frame and Cover	Each	7		
30.02	(1.5.1.2)	1050mm Sanitary Manhole Risers	Vert. Meter	28		
30.03	(1.5.7)	1050mm Concrete Sanitary Overbuild Manhole Base c/w Benching, Slab, Frame and Cover	Each	2		
30.04	(1.5.3.2)	Water Valve Box Replacement - Terminal City Nelson Type as Directed by CA (Provisional)	Each	3		

Total Tendered Price (exclude GST): _____

(Transfer the amount to Form of Tender Summary Page 1)

Name of **Contractor:**

Appendix F – Denbow Filtrexx Soxx Specifications

filtrexx® LAND IMPROVEMENT SYSTEMS

Filtrexx® Sediment Control

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrexx® Sediment control is a three-dimensional tubular sediment control and storm water runoff filtration device typically used for **perimeter control** of sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons), on and around construction activities. Filtrexx® Sediment control traps sediment and soluble pollutants by *filtering* runoff water as it passes through the matrix of the Sediment control *and* by allowing water to temporarily pond behind the Sediment control, allowing *deposition* of suspended solids. Sediment control is also used to reduce runoff flow velocities on sloped surfaces.

Installation Method – Perimeter Control

APPLICATION

Filtrexx® Sediment control is to be installed down slope of any disturbed area requiring erosion and sediment control and filtration of soluble pollutants from runoff. Sediment control is effective when installed perpendicular to sheet or low concentrated flow, and in areas that silt fence is normally considered appropriate. Acceptable applications include:

- Site perimeters
- Above and below disturbed areas subject to sheet runoff, interrill and rill erosion
- Above and below exposed and erodable slopes
- Along the toe of stream and channel banks
- Around area drains or inlets 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.

Sediment control can be applied to areas of high sheet runoff and erosion, on slopes up to a 1:1 grade (should be used in conjunction with slope stabilization/erosion control technology on slopes > 4:1), around inlets, and in other disturbed areas of construction sites requiring sediment control. Sediment control may also be used in sensitive environmental areas, where migration of wildlife may be impeded by the use of fences or trenching may damage roots.

It is possible to drive over Sediment control during construction (although not recommended), however, these areas should be immediately repaired by manually moving Sediment control back into place, if disturbed. Continued heavy construction traffic may destroy the fabric mesh, reduce the dimensions, and reduce the effectiveness of the Sediment control.

ADVANTAGES AND DISADVANTAGES

Advantages

- Tubular filtration matrix allows for better trapping and removal of sediment and soluble pollutants in storm water runoff compared to planar

constructed sediment control devices (i.e., silt fence).
- Greater surface area contact with soil than typical sediment control devices, reducing potential for runoff to create rills under the device leading to unfiltered sediment.
- No trenching is required; therefore soil is not disturbed upon installation or removal.
- Sediment control can be installed year-round in difficult soil conditions such as frozen or wet ground, and dense and compacted soils, as long as stakes can be driven.
- Sediment control is easily implemented as a treatment in a greater treatment train approach to erosion and sediment control.
- Organic matter and humus colloids in FilterMedia™ (filler material in Sediment control) have the ability to bind and adsorb phosphorus, metals, and hydrocarbons that may be in storm water runoff.
- Microorganisms in FilterMedia™ have the ability to degrade organic pollutants and cycle captured nutrients in storm water runoff.
- Soxx™ (the mesh netting containment system) allows Sediment control to be placed in areas of high sheet flow and low concentrated flow.
- Sediment control can be direct seeded at time of application to provide greater stability and filtration capability once vegetation is established.
- FilterMedia™ is organic and can be left on site after permanent stabilization is complete, to be used in landscape design and/or seeded and planted with permanent vegetation.
- FilterMedia™ improves existing soil structure if spread out and used as a soil amendment after construction activity is complete.
- Biodegradable or photodegradable Sediment control can be left on site after construction activity eliminating the need for removal and labor and disposal costs.
- Sediment control can be used on slopes to slow down runoff velocity, disperse concentrated runoff, and reduce effective slope lengths, reducing the erosive potential of stormwater runoff.
- Sediment control is less likely to obstruct wildlife movement and migration than planar/silt fence sediment control practices.
- Sediment control is available in 8 in.(200mm), 12 in. (300mm), 18 in. (450mm), 24 in. (600mm), and 32 in (800mm) diameters for customized applications and challenging situations.
- Sediment control is available in 200 ft (61m). continuous lengths to prevent weak sections and creation of concentrated flow situations typical to low points in runs of other sediment control devices. End points are sleeved together to form continuous runs of unlimited lengths without low or break points.
- Sediment control may assist in qualification for LEED® Green Building Rating and Certification credits under LEED® New Construction 2.2. Awarded credits may be possible from SS Prerequisite 1, SS Credit 5.1, SS Credit 6.2, WE Credit 2, MR Credit 4.1, MR Credit 4.2, MR Credit 5.1, MR Credit 5.2, and MR Credit 6. *Note: LEED® is an independent program offered through the US Green Building Council. LEED® credits are determined on a per project basis by an independent auditing committee. Filtrexx® neither guarantees nor assures LEED® credits from the use of its products.*

ADVANTAGES			
	LOW	MED	HIGH
Installation Difficulty	✓		
Durability			✓
Sediment Control			✓
Soluble Pollutant Control		✓	
Runoff Flow Control		✓	
Life Cycle Cost	✓		

Disadvantages
- If filler material of Sediment control is not Certified FilterMedia™, performance may be diminished.
- If not installed correctly, maintained or used for a purpose or intention that does not meet specifications performance may be diminished.
- If land surface is extremely bumpy, rocky, or changes elevation abruptly ground surface contact to Sediment control may be diminished thereby adversely effecting performance.

MATERIAL SPECIFICATIONS

Sediment control use only photodegradable or biodegradable Soxx™ netting materials available from Filtrexx® International, LLC and are the only mesh materials accepted in creating Sediment control for any purpose. For Soxx™ tubular mesh material specifications see Table 1.1.

FILTERMEDIA™ CHARACTERISTICS

Specifications for Sediment control use only Certified Filtrexx® FilterMedia™ which is a coarse composted material that is specifically designed for removal of solids and soluble pollutants from storm water runoff. FilterMedia™ can be altered or customized to target specific pollutants in runoff as approved by the Engineer or Filtrexx® International. All Certified Filtrexx® FilterMedia™ has been third party tested and certified to meet minimum performance criteria defined by Filtrexx® International. Performance parameters include; hydraulic flow through rate, total solids removal efficiency, total suspended solids removal efficiency, turbidity reduction, nutrient removal efficiency, metals removal efficiency, and motor oil removal efficiency. For information on the physical and chemical properties of Certified FilterMedia™ refer to Certified FilterMedia™ Specifications in Appendix 5.25. Look for the Filtrexx® Certified™ FilterMedia™ Seal from our international network of Filtrexx® Certified™ Installers.

PERFORMANCE

Performance testing and research on Sediment control has been extensive. Results from testing and research programs conducted on Sediment control include: hydraulic flow through rate, ponding rate and calculation (behind Sediment control), sediment storage capacity (inside + behind tool), total solids removal efficiency, suspended solids removal efficiency (with and w/out biopolymer and polymer flocculants), turbidity reduction (with and w/out biopolymer and polymer flocculants), nitrate-N removal efficiency, total P removal efficiency, soluble reactive P removal efficiency (with and w/out Nutrient Agent), petroleum hydrocarbon (motor oil) removal efficiency, and heavy metals (Cu, Fe, Mn, Zn) removal efficiency. For a summary of performance testing, research results, and design specifications see Table 1.1 and Table 1.2. For copies of full reports contact Filtrexx® International, LLC.

Successful bidders will furnish adequate research support showing their manufactured product meets or exceeds performance and design criteria outlined in this standard specification. Research or performance testing will be accepted if it meets the following criteria: conducted by a neutral third party, utilizes standard test methods reported by ASTM or referenced in a peer reviewed scientific journal, product and control treatments are tested in triplicate, performance results are reported for product and control (control should be a bare soil under the same set of environmental and experimental conditions), results are peer reviewed, results indicate a minimum 60% TSS removal efficiency and a minimum hydraulic flow through rate of 5 gpm/ft^2. Bidders shall attach a copy of the research report indicating test methodologies utilized and results.
Note: the Contractor is responsible for establishing a working erosion and sediment control system and may, with approval of the Engineer, work outside the minimum construction requirements as needed. Where the Sediment control deteriorates or fails, it shall be repaired or replaced with an effective alternative.

DESIGN CRITERIA

The sediment and pollutant removal process characteristic to Sediment control combines both filtering and deposition from settling solids. This is different than methods that rely on ponding for deposition of solids for sediment control (i.e., silt fence). Ponding occurs when water flowing to the Sediment control accumulates faster than the hydraulic flow through rate of the Sediment control. Typically, hydraulic flow-through rates for Sediment control are 50% greater than geotextile filter fabric (silt fence). *Greater hydraulic flow-through rates reduce ponding, therefore reducing the need for taller sediment control structural design height.* Additionally, Sediment control does not blind as easily with small soil/sediment colloids, as do

Filtering Water

planar geotextile sediment control barriers (such as silt fence). However, installation and maintenance is especially important for proper function and performance. For engineering design details see Figure 1.1. For a summary of specifications for product/practice use, performance and design see Table 1.1 and Table 1.2.

For most standard perimeter control applications, a 12 in (300mm) diameter Sediment control can replace a 24 to 36 in (600 to 900mm) silt fence. See Table 1.3 and 1.4 and Figure 1.2 for standard design specifications for maximum allowable slope lengths. Note: In some low flow conditions, an 8 in (200mm) Sediment control may replace a 24 in (600mm) silt fence. Design consideration should be given to the duration of the project, total area of disturbance, rainfall/runoff potential, soil erosion potential, and sediment loading.

Runoff Flow:
Sheet runoff flow and ponding depth should not exceed the height of the Sediment control. If overflow of the device is a possibility, larger diameter Sediment control should be constructed, other sediment control devices may be used, or management practices to reduce runoff should be installed. Alternatively, a second Sediment control may be constructed or used in combination with

Figure 1.3 Filtrexx® Sediment Control Design Tool for Sediment Control Applications.

Step 1: Choose units. ft or m		ft				
Step 2: Choose input: Tr or I		Tr				
	total rainfall	inches	1.5	storm duration	hours: 24	
Step 3: Choose input: A or W			W			
	width of area	ft	400.00	length of slope	ft: 250	43560
Step 4: Input slope		%	10			452.588
Step 5: Input reduction runoff percent		%	10			
			sediment control (8,12,16)	silt fence (24, 30)		
Step 6: Input effective length of filter		ft	400	400		
Step 7: Input diameter/height of filter		inches	12	36		

Step 8: Find time to overflow filter and total flow/ft the filter can handle

Step 9: On figure find for given flow expected time to overflow filter

Part A. Evaluation of q_l

I inches/hr	A acres	s percent	Q gpm	L_{ss} ft	q_l gpm/ft
0.063	2.2957	10	58.15	400	0.145

Part B. Predicted time and total flow to top filter.

	q_o gpm/hr	D inches	Effective D inches	Time Overflow hr	Total Flow gal/f	Filter OKAY time > tr
Sediment control (Coarse Material)	0.145	12	9.6	**99.1**	**865**	OKAY
Silt Fence	0.145	36	30.6	**97.5**	**851**	OKAY

Use on Ecological Sensitive Sites

compost erosion control blankets or rolled erosion control blankets to slow runoff and reduce erosion. The Filtrexx® Design Tool™ can assist in planning and designing what diameter Sediment control should be used, correct spacing requirements, and what rainfall and site conditions can lead to runoff breaching of the Sediment control. For a copy of the Filtrexx® Design Tool™ contact Filtrexx® Technical Support at 440-926-2607.

Level Contour:
Sediment control should be placed on level contours to assist in dissipating low concentrated flow into sheet flow and reducing runoff flow velocity. Do not construct Sediment control to concentrate runoff or channel water. Sheet flow of water should be perpendicular to the Sediment control at impact and relatively un-concentrated. Placing Sediment control on undisturbed soil will reduce the potential for undermining.

Runoff and Sediment Accumulation:
Where possible, Sediment control should be placed at a 5 ft (1.5m) or greater distance away from the toe of the slope to allow for proper runoff accumulation for sediment deposition and to allow for maximum sediment storage capacity behind the device. If a 5 ft (1.5m) distance is not available, due to construction restrictions, a second Sediment control may be installed to increase ponding and sediment accumulation capacity. Steeper slopes allow less sediment storage behind the sediment control device and may require larger Sediment control or shorter slope lengths.

End Around Flow:
In order to prevent water flowing around the ends of Sediment control, the ends of the Sediment control must be constructed pointing upslope so the ends are at a higher elevation. A minimum of 10 linear ft (3m) per end each placed at a 30 degree angle is recommended.

Vegetated Sediment control :
For permanent areas Sediment control can be direct-seeded to allow vegetation established directly in the device, and may be expanded to 5 ft (1.5m) upslope and downslope from the device, for added performance. Vegetation on and around the Sediment control will assist in slowing runoff velocity for increased deposition and filtration of pollutants. The option of adding vegetation will be at the discretion of the Engineer. No additional soil amendments or fertilizer are required for vegetation establishment in the Sediment control.

Slope Spacing & Drainage Area:
Maximum drainage area to, and slope spacing between Sediment control is dependent on: rainfall intensity and duration used for specific design/plan, slope steepness, and width of area draining to the Sediment control. Refer to the Filtrexx® Design Tool™ (Filtrexx® Library #301) developed by The Ohio State University to accurately design a plan based on your site and climate conditions. See *Design Capacity Prediction Tool for SiltSoxx™ and Silt Fence* (Filtrexx® Library #3313) *and Flow-Through Rates and Evaluation of Solids Separation of Compost FilterMedia™ vs. Silt Fence in Sediment Control Applications* (Filtrexx® Library #104) for more information on the Design Tool or the research project and results used to create the tool. Figure 1.3 provides an example of the user interface for the Design Tool. For a free copy of the Design Tool contact Filtrexx® Technical Support. A specification for maximum slope lengths, based on a 1 in (25 mm)/24 hr rainfall event is provided in Table 1.3 and Figure 1.2; and for a 2 in (50 mm)/24 hr rainfall event is provided in Table 1.4.

INSTALLATION

1. Sediment control used for perimeter control of sediment and soluble pollutants in storm runoff shall meet Filtrexx® Soxx™ Material Specifications and use Certified Filtrexx® FilterMedia™.
2. Contractor is required to be a Filtrexx® Certified™ Installer as determined by Filtrexx® International, LLC (440-926-2607 or visit website at Filtrexx®.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.Filtrexx®.com). Look for the Filtrexx® Certified™ Installer Seal.

3. Sediment control will be placed at locations indicated on plans and in a manner as directed by the Engineer or Manufacturer.
4. Sediment control should be installed parallel to the base of the slope or other disturbed area. In challenging conditions (i.e., 2:1 slopes), a second Sediment control shall be constructed at the top of the slope.
5. Stakes should be installed through the middle of the Sediment control 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 Sediment control is used on pavement, heavy concrete blocks shall be used behind the Sediment control to help stabilize during rainfall/runoff events.
6. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
7. Loose compost may be backfilled along the upslope side of the Sediment control, filling the seam between the soil surface and the device, improving filtration and sediment retention.
8. If the Sediment control 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. Filtrexx® Sediment control is not to be used in perennial, ephemeral, or intermittent streams. See design drawing schematic for correct Filtrexx® Sediment control installation (Figure 1.1).

INSPECTION

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Sediment control should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Sediment control may be required to reduce effective slope length or sediment removal may be necessary. Sediment control shall be inspected until area above has been permanently stabilized and construction activity has ceased.

MAINTENANCE

1. The Contractor shall maintain the Sediment control in a functional condition at all times and it shall be routinely inspected.
2. If the Sediment control 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 Sediment control when accumulation has reached 1/2 of the effective height of the Sediment control, or as directed by the Engineer. Alternatively, a new Sediment control can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
4. Sediment control 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 area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.
6. For long-term sediment and pollution control applications, Sediment control 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.

DISPOSAL/RECYCLING

Filtrexx® FilterMedia™ is a composted organic product recycled and manufactured from locally generated organic, natural, and biologically based materials. Once all soil has been stabilized and construction activity has been completed, the FilterMedia™ may be dispersed with a loader, rake, bulldozer or similar device and may be incorporated into the soil as an amendment or left on the soil surface to aid in permanent seeding or landscaping. Leaving the FilterMedia™ on site reduces removal and

Close Up of Sediment Control

disposal costs compared to other sediment control devices. The mesh netting material will be extracted from the FilterMedia™ and disposed of properly by the Contractor. The photodegradable mesh netting material (FilterSoxx™) will degrade in 2 to 5 years if left on site. Biodegradable mesh netting material is available and does not need to be extracted and disposed of, as it will completely decompose in approximately 6 to 12 months. Using biodegradable Sediment control completely eliminates the need and cost of removal and disposal.

METHOD OF MEASUREMENT

Bid items shall show measurement as 8 (200), 12 (300), 18 (450), 24 (600), 32 (800) inch (mm) diameter Filtrexx® Sediment control' per linear foot (or linear meter), installed.

Engineer shall notify Filtrexx® of location, description, and details of project prior to the bidding process so that Filtrexx® can provide design aid and technical support.

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ADDITIONAL INFORMATION

For other references on this topic, including trade magazine and press coverage, visit the Filtrexx® Website at: http://www.filtrexx.com/resourcespress.htm
For research reports not included in the Appendix, visit: http://www.filtrexx.com/resourcesreports.htm

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TABLES & FIGURES:

Table 1.1. Filtrexx® Soxx™ Material Specifications.

Material Type	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (HDPP)	Multi-Filament Polypropylene SafteySoxx	Multi-Filament Polypropylene DuraSoxx
Material Characteristic	Photodegradable	Biodegradable	Photodegradable	Photodegradable	Photodegradable
Design Diameters	5 in (125mm), 8 in (200mm), 12 in (300mm), 18 in (400mm),	8 in (200mm), 12 in (300mm), 18 in (400mm),	8 in (200mm), 12 in (300mm), 18 in (400mm), 24 in (600mm), 32 in (800mm)	8 in (200mm), 12 in (300mm), 18 in (400mm),	8 in (200mm), 12 in (300mm), 18 in (400mm), 24 in (600mm), 32 in (800mm)
Mesh Opening	3/8 in (10mm)	3/8 in (10mm)	3/8 in (10mm)	1/8 in (3mm)	1/8 in (3mm)
Tensile Strength	26 psi (1.83 kg/cm2)	26 psi (1.83 kg/cm2)	44 psi (3.09 kg/cm2)	202 psi (14.2 kg/cm2)*	202 psi (14.2 kg/cm2)
% Original Strength from Ultraviolet Exposure (ASTM G-155)	23% at 1000 hr	ND	100% at 1000 hr	100% at 1000 hr	100% at 1000 hr
Functional Longevity/ Project Duration	9 mo-3 yr	6-12 months	1-4 yr	2-5 yr	2-5 yr

* Tested at Texas Transportation Institute/Texas A&M University (ASTM 5035-95).

Table 1.2. Filtrexx® Sediment Control Performance and Design Specifications Summary.

Design Diameter / **Design & Performance**	**8 in (200mm)**	**12 in (300mm)**	**18 in (450mm)**	**24 in (600mm)**	**32 in (800mm)**	**Testing Lab/ Reference**	**Publication(s)**
Effective Height	6.5 in (160mm)	9.5 in (240mm)	14.5 in (360mm)	19 in (480mm)	26 in (650mm)	The Ohio State University, Ohio Agricultural Research and Development Center	Transactions of the American Society of Agricultural & Biological Engineers, 2006
Effective Circumference	25 in (630mm)	38 in (960mm)	57 in (1450mm)	75 in (1900mm)	100 in (2500mm)		
Density (when filled)	13 lbs/ft (20 kg/m)	32 lbs/ft (50 kg/m)	67 lbs/ft (100 kg/m)	133 lbs/ft (200 kg/m)	200 lbs/ft (300 kg/m)	Soil Control Lab, Inc	
Air Space	20%	20%	20%	20%	20%	Soil Control Lab, Inc	
Maximum continuous length	unlimited	unlimited	unlimited	unlimited	unlimited		
Staking Requirement	10 ft (3m)	10 ft (3m)	10 ft (3m)	10 ft (3m)	10 ft (3m)		
Maintenance Requirement (sediment accumulation removal at X height)	3.25 in (80mm)	4.75 in (120mm)	7.25 in (180mm)	9.5 in (240mm)	13 in (325mm)		

(continued on next page)

Table 1.2. Filtrexx® Sediment Control Performance and Design Specifications Summary. *(continued)*

Initial Maintenance Requirement based on Rainfall-Runoff*	22 in (55 cm); 1109 L/linear m	32 in (80 cm); 1388 L/linear m	42 in (105 cm); 1825 L/linear m	64 in (160 cm); 2776 L/linear m	86 in (215 cm); 3885 L/linear m	The University of Georgia & Auburn University	
Functional Longevity**	2 – 5 yr	2 – 5 yr	2 – 5 yr	2 – 5 yr	2 – 5 yr		
Maximum Slope Length (<2%)	600 ft (183m)	750 ft (229m)	1000 ft (305m)	1300 ft (396m)	1650 ft (500m)	The Ohio State University, Ohio Agricultural Research and Development Center	Filtrexx® Design Tool™, Filtrexx® Library #301, Filtrexx® Tech Link #3304 & #3311
Hydraulic Flow Through Rate	7.5 gpm/ft (94 L/min/m)	11.3 gpm/ft (141 L/min/m)	15.0 gpm/ft (188 L/min/m)	22.5 gpm/ft (281 L/min/m)	30.0 gpm/ft (374 L/min/m)	The Ohio State University, Ohio Agricultural Research and Development Center; University of Guelph, School of Engineering/ Watershed Research Group	Filtrexx® Tech Link #3311 & #3313, #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006, Second Interagency Conference on Research in Watersheds, 2006
P Factor (RUSLE)	0.1-0.32	0.1-0.32	0.1-0.32	0.1-0.32	0.1-0.32	USDA ARS Environmental Quality Lab/University of Georgia	American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Sediment Storage Capacity***	174 cu. in (2850cc)	396 cu. in (6490cc)	857 cu. in (14040cc)	1631 cu. in (26840cc)	2647 cu. in (43377 cc)		Filtrexx® Tech Link #3314
Total Solids Removal	98%	98%	98%	98%	98%	Soil Control Lab, Inc	International Erosion Control Association, 2006
Total Suspended Solids Removal	78%	78%	78%	78%	78%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Turbidity Reduction	63%	63%	63%	63%	63%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
TSS Removal w/ PAM	97%	97%	97%	97%	97%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
TSS Removal w/ Flocculent	97%	97%	97%	97%	97%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006

Table 1.2. Filtrexx® Sediment Control Performance and Design Specifications Summary. *(continued)*

Turbidity Reduction w/ PAM	98%	98%	98%	98%	98%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Turbidity Reduction w/ Flocculent	94%	94%	94%	94%	94%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Total Phosphorus Removal	34%	34%	34%	34%	34%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Reactive Phosphorus Removal	38%	38%	38%	38%	38%	USDA ARS Environmental Quality Lab	American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Total Phosphorus Removal w/ Nutrient Agent	60%	60%	60%	60%	60%	USDA ARS Environmental Quality Lab	American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Reactive Phosphorus Removal w/ Nutrient Agent	99%	99%	99%	99%	99%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Nitrate-N Removal	25%	25%	25%	25%	25%	USDA ARS Environmental Quality Lab	American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Ammonium-N Removal	15%	15%	15%	15%	15%	USDA ARS Environmental Quality Lab	
Ammonium-N Removal w/ Nutrient Agent	33%	33%	33%	33%	33%	USDA ARS Environmental Quality Lab	
Motor Oil Removal	96%	96%	96%	96%	96%	Soil Control Lab, Inc	International Erosion Control Association, 2006
Diesel Fuel Removal	Testing in Progress	Testing in Progress	Testing in Progress	Testing in Progress	Testing in Progress	Soil Control Lab, Inc	
Gasoline Removal	Testing in Progress	Testing in Progress	Testing in Progress	Testing in Progress	Testing in Progress	Soil Control Lab, Inc	
Iron (Fe) Removal	22%	22%	22%	22%	22%	Soil Control Lab, Inc	
Zinc (Zn) Removal	9%	9%	9%	9%	9%	Soil Control Lab, Inc	
Manganese (Mn) Removal	8%	8%	8%	8%	8%	Soil Control Lab, Inc	

(continued on next page)

Table 1.2. Filtrexx® Sediment Control Performance and Design Specifications Summary. *(continued)*

Total coliform Removal^	67%	67%	67%	67%	67%	USDA ARS Environmental Quality Lab	
E. coli Removal^	67%	67%	67%	67%	67%	USDA ARS Environmental Quality Lab	
Enterococcus Removal^	47%	47%	47%	47%	47%	USDA ARS Environmental Quality Lab	
E. coli Removal w/ Bacteria Agent^	98%	98%	98%	98%	98%	USDA ARS Environmental Quality Lab	
Fecal coliform Removal w/ Bacteria Agent^	98%	98%	98%	98%	98%	USDA ARS Environmental Quality Lab	
Enterococcus Removal w/ Bacteria Agent^	91%	91%	91%	91%	91%	USDA ARS Environmental Quality Lab	
Clay (<0.002mm) Removal#	65%	65%	65%	65%	65%	USDA ARS Environmental Quality Lab	
Silt (0.002-0.05mm) Removal#	64%	64%	64%	64%	64%	USDA ARS Environmental Quality Lab	
Other Recommended Uses	Inlet Protection, Ditch Protection, Slope Interruption	Inlet Protection, Ditch Protection, Concrete Washout, Filtration System, Slope Interruption	Ditch Protection, Concrete Washout, Filtration System	Ditch Protection, Concrete Washout, Filtration System	Ditch Protection, Concrete Washout, Filtration System		

* Based on rainfall intensity of 12.5 cm (5 in)/hr applied to a bare clay loam soil at a 10% slope; runoff flow rate of 108 ml/sec/linear m (0.52 gpm/linear ft); and mean runoff volume of 230 L/m2 (6.3 g/ft2).

** Functional Longevity is dependent on UV exposure, freeze/thaw frequency, region of US/Canada, runoff-sediment frequency/duration/loading, and adherence to specified maintenance requirement.

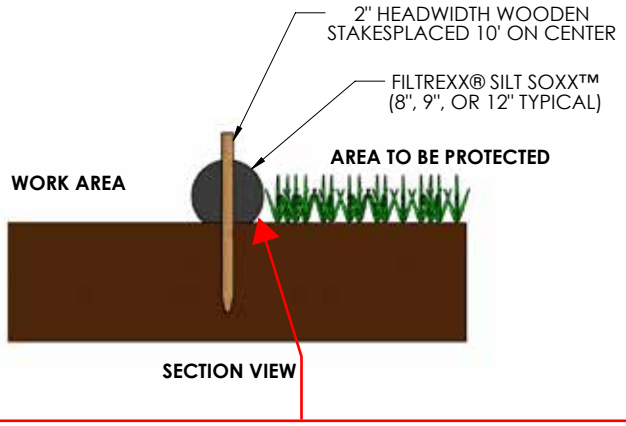
*** Sediment Storage Capacity = sediment accumulation behind (directly upslope) + within the device.

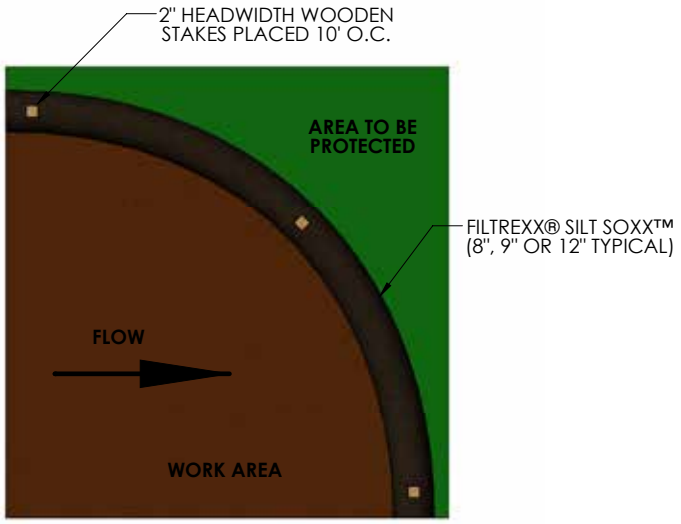
^ Based on manure treated soils where bare soil control exhibited an average MPN for total coliform = 2.02X108/100 mL, E. coli. = 1.72X108/100 mL, Enterococcus = 1.43X106/100 mL .

Based on average runoff-sediment concentrations on 2500 mg/L on a silt loam soil.

Figure 1.1. Engineering Design Drawing for Sediment Control

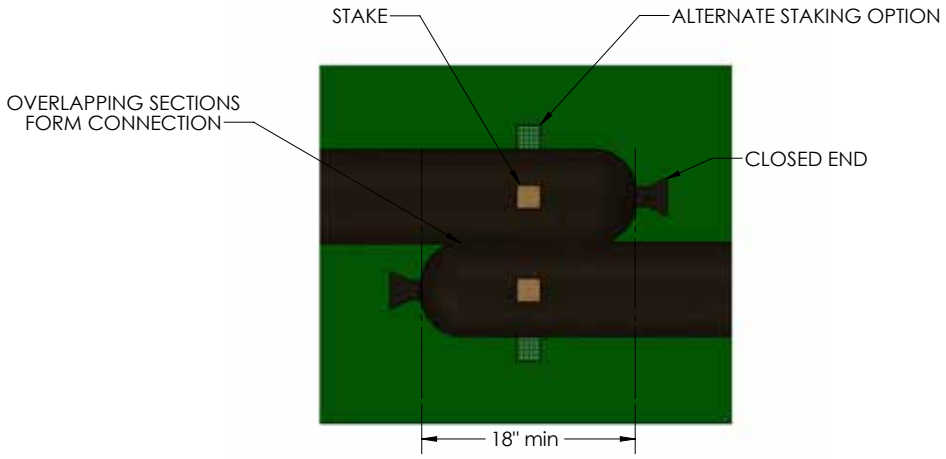
FILTREXX® SILT SOXX™



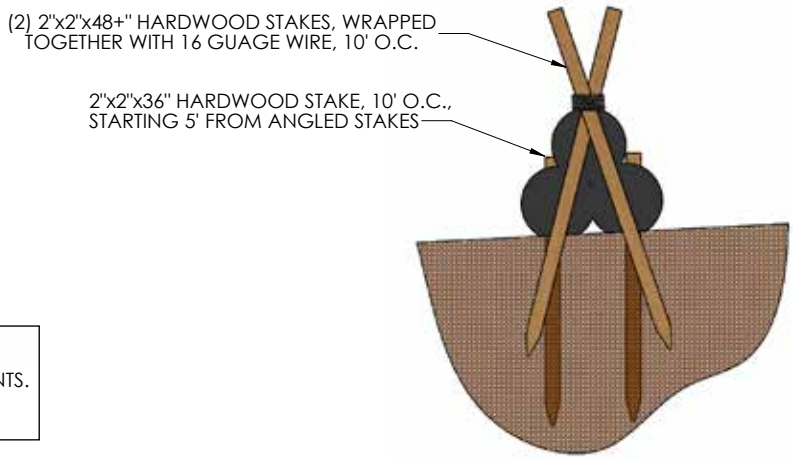


Wood stakes to be installed on downhill side of Filtrexx Soxx for application on Cedar Drive Project

COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



FILTREXX® PYRAMID STAKING DETAIL



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

Figure 1.2. Maximum Slope Lengths of Filtrexx® Sediment Control Based on a 1 in (25 mm)/24 hr Rainfall Event.

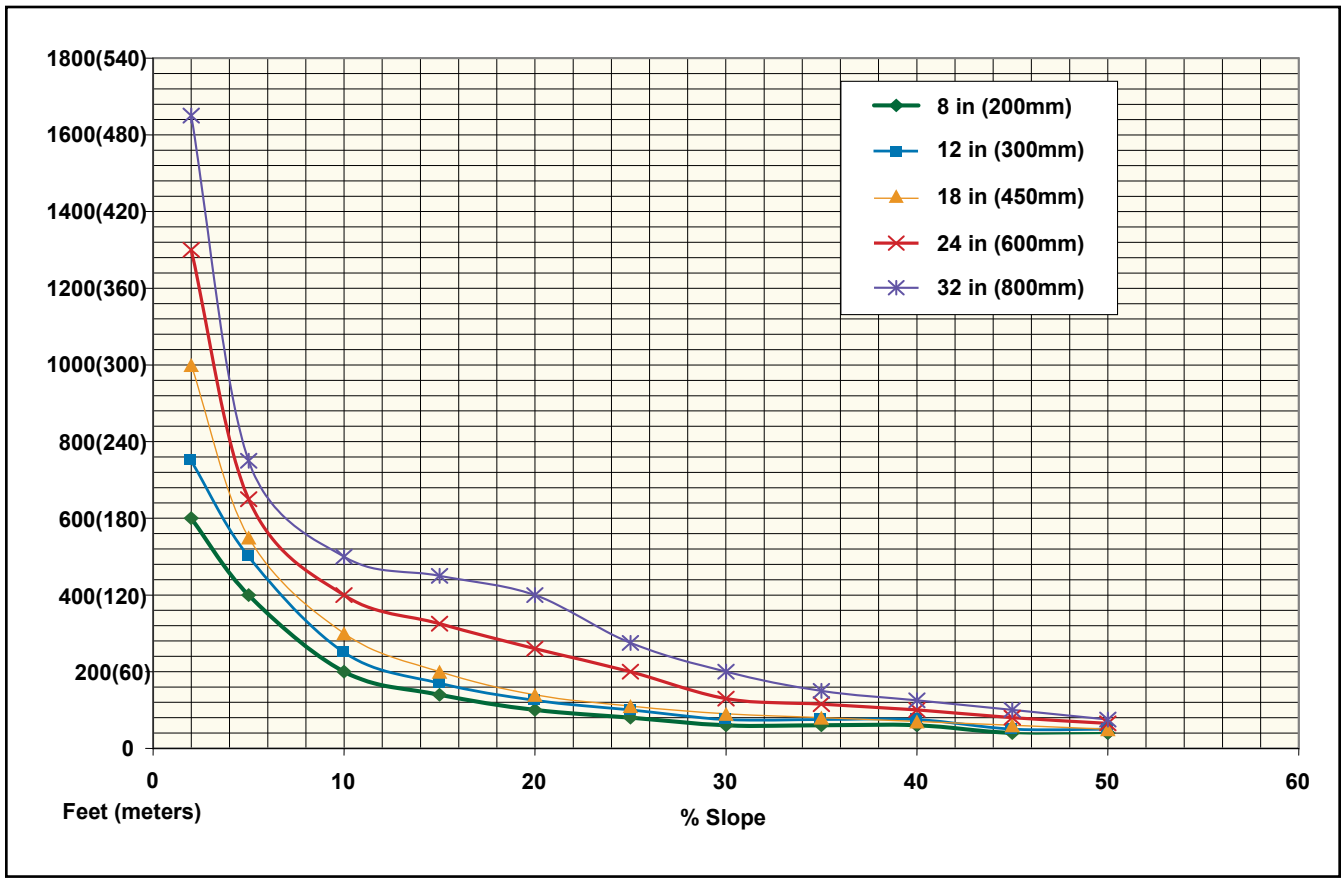


Table 1.3. Maximum Slope Lengths for Filtrexx® Sediment Control Based on a 1 in (25 mm)/24 hr Rainfall Event.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*				
	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	6.5 in (160 mm)**	9.5 in (240 mm) **	14.5 in (360 mm) **	19 in (480 mm) **	26 in (650 mm) **
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 Sediment control after installation and with constant head from runoff as determined by Ohio State University.

Table. 1.4. Maximum Slope Lengths for Filtrexx® Sediment Control Based on a 2 in (50 mm)/24 hr Rainfall Event.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*				
	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	6.5 in (160 mm) **	9.5 in (240 mm) **	14.5 in (360 mm) **	19 in (480 mm) **	26 in (650 mm) **
2 (or less)	300 (90)	375 (110)	500 (150)	650 (200)	850 (260)
5	200 (60)	250 (75)	275 (85)	325 (100)	400 (120)
10	100 (30)	125 (35)	150 (45)	200 (60)	275 (85)
15	70 (20)	85 (25)	100 (30)	160 (50)	225 (70)
20	50 (15)	65 (20)	70 (20)	130 (40)	180 (55)
25	40 (12)	50 (15)	55 (16)	100 (30)	150 (45)
30	30 (9)	40 (12)	45 (13)	65 (20)	100 (30)
35	30 (9)	40 (12)	45 (13)	55 (18)	75 (23)
40	30 (9)	40 (12)	45 (13)	50 (15)	60 (38)
45	20 (6)	25 (8)	30 (9)	40 (12)	50 (15)
50	20 (6)	25 (8)	30 (9)	35 (10)	40 (12)

* 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, 2 in/ 24 hr (50 mm/24 hr) rain event.

** Effective height of Sediment control after installation and with constant head from runoff as determined by Ohio State University.

DENBOW
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ADD 2 - 26

FILTER SOXX™ FAQ

What are FilterSoxx™?
A compost filter sock is a type of contained compost filter berm. It is a geotextile mesh tube filled with composted material that is placed perpendicular to sheet-flow runoff to control erosion and retain sediment in disturbed areas.

How do they work?
Compost filter socks provide a three dimensional filter that retains sediment and other pollutants (e.g., suspended solids, nutrients, and motor oil) while allowing the cleaned water to flow through. All Denbow's Filtrexx® products fulfill municipal Erosion & Sediment Control bylaws.

Where do I purchase FilterSoxxTM?
In British Columbia, the certified Filtrexx agent is Denbow, and all Filtrexx® FilterSoxx™ can be purchased through Denbow. www.denbow.com

filtrexx®
LAND IMPROVEMENT SYSTEMS

How are FilterSoxx™ sold?
- pre-filled in 3 meter lengths loose or packaged and wrapped on pallets
- filled on-site in continuous length – ideal for perimeter control

How do I install FilterSoxx™ on my site?
Lay the FilterSoxx™ on the ground. Step on the Soxx to ensure contact with the ground. In some cases, the Soxx may need to be staked. We recommend staking every 5-10 feet, using wood/metal stakes.

Do I need to replace FilterSoxx™?
If the sock has reached it's sediment load capacity (ie: water is no longer flowing through), it needs to be replaced.

How do I dispose of FilterSoxx™?
When temporary FilterSoxx™ is no longer required, the socks can be cut open. Spread compost out and dispose of the FilterSoxx™.
If compost must be removed from site, dispose of it at your local greenwaste recycling depot.

Contact us today for a quote: 1-888-933-6269

www.denbow.com

Where should I use FilterSoxx™?
Compost filter socks are applicable to construction sites or other disturbed areas where stormwater runoff occurs as sheet flow. FilterSoxx™ can be used in place of a traditional sediment and erosion control tool such as a silt fence or straw bale barrier.

Filter socks are flexible and can be filled in place or pre-filled and moved into position, making them especially versatile. Filter socks used for sediment control are usually 8 inches in diameter, but are also available in12 , 18 and 24 inch diameter.

Applications include:

- ✓ silt fence alternatives
- ✓ straw bale replacements
- ✓ substitute for common construction site BMP's
- ✓ living retaining walls
- ✓ living dyke systems
- ✓ streambank restoration
- ✓ slope stabilization & revegetation
- ✓ attractive landscape features

Filtrexx FilterSoxx technologies utilize nature's own systems in order to control erosion and improve stormwater quality.

FilterSoxx™ specified on your project? Contact us today!

Vegetated filter socks can be left in place to provide long-term filtration of stormwater as a post-construction best management practice (BMP). The vegetation grows into the slope, further anchoring the filter sock. Vegetated socks can also be used for streambank restoration and living retaining walls.

Our Cascadia green wall system uses FilterSoxx. Cascadia walls combine both the aesthetic and the design possibilities of a modern and refined living wall, with the structural properties of an engineered retaining wall system. The effect: a beautiful, yet practical alternative to a reinforced-concrete or block wall.

OUR VALUES

Community
Excellence
Forward Thinking
Faithfulness

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