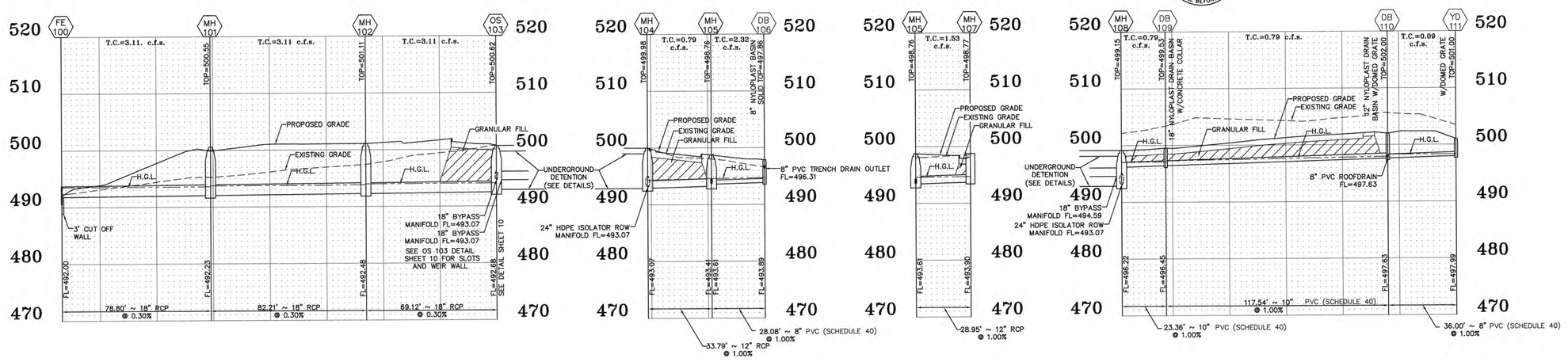
UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO ANY GRADING OR CONSTRUCTION OF THE IMPROVEMENTS.

CALL BEFORE YOU DIG! 1-800-DIG-RITE



(PRIVATE)

STORM SEWER PROFILES

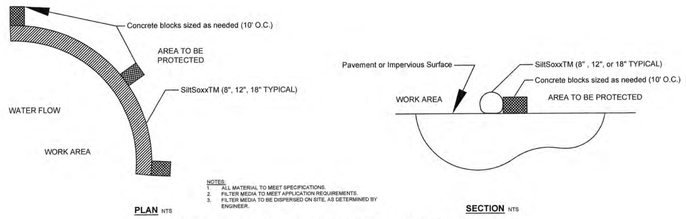
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 10'

* ALL STORM PVC SHALL BE SCHEDULE 40

BAX PROJECT NAME : TYKE TOWN DEVELOPMENT CENTER
BAX PROJECT NO. : 00-11214CA
DESIGN DATE : 03-26-18
FILENAME : TYKE-15

UPP STR	LOW STR	L	DIA	UPPER FL LN	LOWER FL LN	PS	UPPER ST EL	DEPTH HY GR	UPPER HY EL	LOWER HY EL	HYDR GRADE	FR HEAD	VEL	VEL HEAD	JUNC LOSS	TURN LOSS	CURVE LOSS	STR GRADE	INL CAP	DR AREA	PI	Q	TQ	PIPE CAP	LINE NUMBER	REMARKS
YD111	DB110	36	8	497.99	497.63	1.00	501.00	2.70	498.30	498.30	.00000	0.00	0.26	0.00	0.00	0.00	0.00		0.00	0.05	1.87	0.09	0.09	1.57	1	
DB110	DB109	118	10	497.63	496.45	1.00	502.00	4.07	497.93*	497.28	.00080	0.09	1.45	0.03	0.03	0.00	0.00		0.00	0.02	1.87	0.04	0.79	2.85	2	
DB109	MH108	23	10	496.45	496.22	0.98	499.72	2.61	497.11	497.05	.00080	0.02	1.45	0.03	0.04	0.04	0.00		0.00	0.00	0.00	0.00	0.79	2.83	3	ITP=497.05
CI107	MH105	29	12	493.90	493.61	1.00	498.77	4.05	494.72	494.61	.00180	0.05	1.95	0.06	0.06	0.00	0.00		0.00	0.46	3.33	1.53	1.53	3.57	4	
MH106	MH105	28	8	493.89	493.61	1.00	497.86	3.12	494.74	494.59	.00250	0.07	2.26	0.08	0.08	0.00	0.00		0.00	0.00	0.00	0.00	0.79	1.57	5	
MH105	MH104	34	12	493.41	493.07	1.01	498.76	4.17	494.59	494.34	.00420	0.14	2.95	0.14	0.11	0.07	0.00		0.00	0.00	0.00	0.00	2.32	3.57	6	15YR HW=494.34
OS103	MH102	69	18	492.68	492.48	0.30	500.62	6.54	494.09	493.98	.00090	0.06	1.76	0.05	0.05	0.00	0.00		0.00	0.00	0.00	0.00	3.11	5.72	7	
MH102	MH101	82	18	492.48	492.23	0.30	501.11	7.29	493.82	493.73	.00090	0.07	1.76	0.05	0.02	0.02	0.00		0.00	0.00	0.00	0.00	3.11	5.71	8	
MH101	FE100	79	18	492.23	492.00	0.30	500.55	6.97	493.58	493.50	.00090	0.07	1.76	0.05	0.01	0.01	0.00		0.00	0.00	0.00	0.00	3.11	5.71	9	ITP=493.50

* INDICATES CRITICAL DEPTH



SiltSoxxTM for Sediment Control on Pavement

Table 60-19 Riprap Outlet Dimensions

Pipe Dia. (in)	Velocity ≤ 5 fps: Rock Size (in) d50	Rock Size (in) d100	Blanket T (in)	Blanket L (ft)	Velocity ≤ 10 fps: Rock Size (in) d50	Rock Size (in) d100	Blanket T (in)	Blanket L (ft)
12	5	9	15	12	5	9	15	16
15	5	9	15	14	5	9	15	18
18-24	5	9	15	16	9	14	24	20
27-30	5	9	15	18	9	14	24	22
36-42	9	14	24	22	12	18	27	26
48-54	9	14	24	26	12	18	27	30
60-66	12	18	27	34	15	24	30	38
72-84	15	24	30	42	15	24	30	46
96	18	27	30	50	18	27	30	54

For improved channel discharges, the velocity and flow depth will be used.
For non-circular discharges, the engineer will calculate a circular pipe equivalent.

Where: d_{50} = median stone size (50% stones equal or smaller size)
d_{100} = largest stone size (100% stones equal or smaller size)
T = blanket thickness
L = length of blanket

Tensar NORTH AMERICAN GREEN

Tensar International Corporation
5401 St. Wendel-Cynthiana Road
Poseyville, Indiana 47633
Tel. 800.772.2040
Fax 812.867.0247
www.nagreen.com

Material and Performance Specification
S75 Erosion Control Blanket

Description

The short-term single net erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of up to 12 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a lightweight photodegradable polypropylene netting having an approximate 0.50 x 0.50 (1.27 x 1.27 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches (5-12.5 cm) from the edge) as an overlap guide for adjacent mats.

The S75 shall meet Type 2.C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) *RP-02 Section 713.17*.

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/yd² (407 g/m²)
Swell	ECTC Guidelines	15%
Smolder 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%

Material Content

Matrix	100% Straw Fiber	0.5 lbs/yd² (0.27 kg/m²)
Netting	Top side only, lightweight photodegradable	1.5 lb/1000 ft² (0.73 kg/100 m²) approx. weight
Thread	degradable	

Standard Roll Sizes

Width	6.67 ft (2.03 m)	8.0 ft (2.44 m)	16.0 ft (4.87 m)
Length	108 ft (32.92 m)	112 ft (34.14 m)	108 ft (32.92 m)
Weight ± 10%	40 lbs (18.14 kg)	50 lbs (22.68 kg)	96 lbs (43.54 kg)
Area	80 yd² (66.9 m²)	100 yd² (83.61 m²)	192 yd² (165.5 m²)

Maximum Permissible Shear Stress

Unvegetated Shear Stress	1.55 lbs/ft²	(74 Pa)
Unvegetated Velocity	5.00 ft/s	(1.52 m/s)

Slope Design Data: C Factors

Slope Gradients (S)			
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- Unvrg.

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 (NTPEP)

Test Method	Parameters	Results
ECTC 2 Rainfall	50 mm (2 in)/hr-30 min 100mm (4 in)/hr-30 min 150 mm (6 in)/hr-30 min	SLR** = 8.80 SLR** = 8.16 SLR** = 7.81
ECTC 3 Shear Res.	Shear at 0.50 inch soil loss	1.80 lbs/ft²
ECTC 4 Germination	Top Soil, Fescue, 21 day incubation	228% improvement of biomass

* Bench Scale tests should not be used for design purposes
** Soil Loss Ratio – Soil Loss Bare Soil/Soil Loss with RECP

Proud Participant of:

Tensar International Corporation warrants that at the time of delivery the product furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby executed. If the product does not meet specifications on this page and Tensar is notified prior to installation, Tensar will replace the product at no cost to the customer. **This product specification supersedes all prior specifications for the product described above is and is not applicable to any products shipped prior to January 1, 2011.**

FILTREXX GROWING SOLUTIONS FOR CLEAN WATER

SWPPP Cut Sheet
Last Updated: 7-1-07

Section 1: Erosion and Sediment Control – Construction Activities

1.1 Filtrexx SiltSoxx™

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION
Filtrexx 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), on and around construction activities.

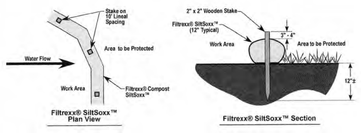
APPLICATION
Filtrexx SiltSoxx™ are to be installed down slope of any disturbed area requiring erosion and sediment control and filtration of soluble pollutants from runoff. SiltSoxx™ are effective when installed perpendicular to sheet or low concentrated flow. Acceptable applications include:
- Site perimeters
- Above and below disturbed areas subject to sheet runoff, interill and rill erosion
- Above and below exposed and erodable slopes
- 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.

INSTALLATION
1. SiltSoxx™ 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 Filtrexx Certified™ as determined by Filtrexx International, LLC (440-926-2687 or visit website at www.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™ 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 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 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. Filtrexx SiltSoxx™ are not to be used in perennial, ephemeral, or intermittent streams.

See design drawing schematic for correct Filtrexx 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 area has 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.

Filtrexx® SiltSoxx™ Details



Notes:
1. All material to meet Filtrexx® specifications.
2. SiltSoxx™ compost/soil/rock/seed fill to meet application requirements.
3. SiltSoxx™ depicted is for minimum slopes. Greater slopes may require larger socks per the Engineer.
4. Compost material to be dispersed on site, as determined by Engineer.

Slope Percent	Maximum Slope Length Above SiltSoxx™ in Feet (meters)* 8 in (200 mm) SiltSoxx™ 7 in (175 mm)**	12 in (300 mm) SiltSoxx™ 10 in (250 mm) **	18 in (450 mm) SiltSoxx™ 15 in (375 mm) **	24 in (600mm) SiltSoxx™ 20 in (500 mm) **	32 in (800mm) SiltSoxx™ 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 (twice 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 Silt Soxx™ after installation and with constant head from runoff as determined by Ohio State University.

PROJECT TITLE:
Construction Plans for
Tyke Town Development Centers
8368 Mexico Road
St. Peters, MO 63376

Bax Project #00-11214CA|Issue Date: 03-26-18

ENGINEERING
PLANNING
SURVEYING
221 Point Test Blvd.
St. Charles, MO 63301
636-928-5552
FAX 928-1718

DISCLAIMER OF RESPONSIBILITY
I hereby specify 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 or survey.

STATE OF MISSOURI
LARRY DAVID WALKER
NUMBER PE-2007020343
PROFESSIONAL ENGINEER
05/07/18

Larry D. Walker
Civil Engineer
Engineers License No. 2007020343
Bax Engineering Company, Inc.
Missouri State Certificate of Authority
Engineering #000655
Missouri State Certificate of Authority
Surveying #000144

REVISIONS

04-16-18	CITY COMMENTS
05-03-18	REV. BASIN DETAILS
05-07-18	CITY COMMENTS

Developer / Owner:
Tyke Town Properties, LLC
P.O. Box 81
Troy, Missouri 63379
636-462-5380

SEWER PROFILES

P+Z No. 17-012955
Approval Date: 02-01-18
City No. #