TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

Project: ASTM D 6460: Large-scale Channel Testing (Single Replicate Results)
Concrete Cloth with Transverse Joints
Client: Milliken
Test Date: 16/01/3013
Flow Range: 1.0 - 10.0+ cfs
Flume Size & Slope: 2-ft wide bottom x 2:1 side slopes (Trapezoidal) x 40-ft long; 5% bed slope
Events: Four increasing flows.

Cross-Section	to channel bottom	to water surface	water depth, ft	area, ft2	velocity, ft/sec	R, ft	Q, cfs	Manning's n
1	644	613	0.10	0.22	6.44	0.09	1.44	0.010
	644	590	0.18	0.42	8.07	0.15	3.37	0.012
	644	569	0.25	0.61	8.57	0.20	5.26	0.013
	644	530	0.37	1.03	9.19	0.28	9.45	0.016
2	710	670	0.13	0.30	7.11	0.11	2.11	0.011
	710	660	0.16	0.38	8.18	0.14	3.12	0.011
	710	650	0.20	0.47	9.01	0.16	4.25	0.011
	710	635	0.25	0.61	9.47	0.20	5.81	0.012
3	728	677	0.17	0.39	7.91	0.14	3.09	0.011
	728	675	0.17	0.41	8.52	0.15	3.48	0.011
	728	647	0.27	0.67	9.11	0.21	6.13	0.013
	728	622	0.35	0.94	9.75	0.26	9.14	0.014
4	774	744	0.10	0.22	6.53	0.09	1.41	0.010
	774	731	0.14	0.32	8.89	0.12	2.86	0.009
	774	717	0.19	0.44	9.53	0.16	4.23	0.010
	774	706	0.22	0.55	10.55	0.18	5.76	0.010
5	685	645	0.13	0.30	8.88	0.11	2.64	0.009
	685	620	0.21	0.52	9.05	0.18	4.68	0.012
	685	603	0.27	0.68	9.94	0.21	6.79	0.012
	685	588	0.32	0.84	10.23	0.25	8.58	0.013
6	749	722	0.09	0.19	7.12	0.08	1.37	0.009
	749	709	0.13	0.30	8.29	0.11	2.46	0.009
	749	695	0.18	0.42	9.96	0.15	4.15	0.009
	749	676	0.24	0.59	10.15	0.19	6.03	0.011
7	619	587	0.10	0.23	7.4	0.09	1.72	0.009
	619	555	0.21	0.51	8.52	0.17	4.33	0.012
	619	537	0.27	0.68	9.35	0.21	6.38	0.013
	619	519	0.33	0.87	10.44	0.25	9.10	0.013
8	700	660	0.13	0.30	8.1	0.11	2.40	0.010
	700	654	0.15	0.35	9.19	0.13	3.19	0.009
	700	646	0.18	0.42	10.21	0.15	4.26	0.009
	700	617	0.27	0.69	10.45	0.22	7.24	0.011

Avg Depth 1:	0.12	Avg Manning's *n* 1:	0.010	Overall Average Manning's *n*
Avg Depth 2:	0.17	Avg Manning's *n* 2:	0.011	
Avg Depth 3:	0.22	Avg Manning's *n* 3:	0.011	
Avg Depth 4:	0.29	Avg Manning's *n* 4:	0.012	0.011

Test Setup: The intent of this testing was to measure the Manning's *n* using ASTM D6460 and a trapezoidal channel. The trapezoidal channel with low slope provides an accurate hydraulic radius and the least turbulent flow. It should be noted that the higher flow levels still were somewhat turbulent leading to varying flow depths and velocities from cross-section to cross-section. The channel was "calibrated" by lining it with polyethylene sheeting to create a very, very low friction condition to compare to. The Manning's n for this calibrated condition was 0.010.

CJS 1/18/13
Quality Review / Date

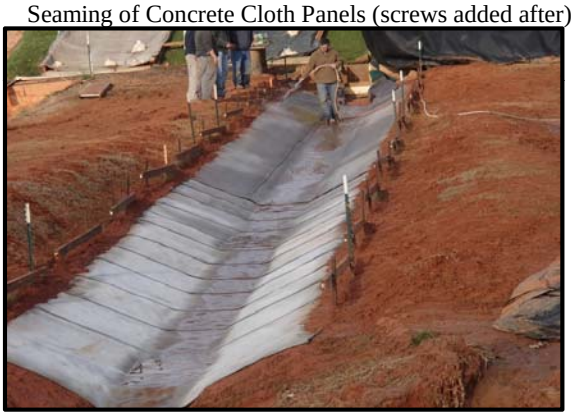
Trapezoidal Channel Prepared

Anchor Trenches along the Top Edge of the Channel

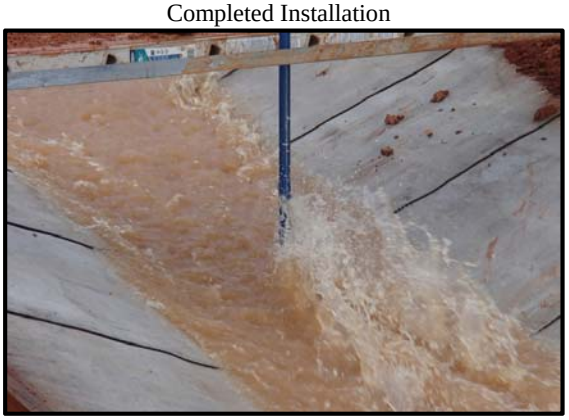
Longitudinal Panels of Concrete Cloth Meet Transverse Panels

Seaming of Concrete Cloth Panels (screws added after)

Completed Installation



Spraying Water to Hydrate Concrete Cloth



Velocity Meter Inserted into Flow

Flow Depth Measured during Flow