

**VEGETATIVE 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.(35 lbs. per 1000 sq. ft.)
- Oats - 120 lbs./ac.(275 lbs. per 1000 sq. ft.)

**SEEDING PERIODS**

- Fescue or Brome - March 1 to June 1
- Wheat or Rye - August 1 to October 1
- Oats - March 15 to November 1
- March 15 to September 15

**MULCH RATES:** 100 lbs. per 1000 sqft.(4,356 lbs. per acre)

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

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

**PROJECT TITLE:**

**BETH ACADEMY**

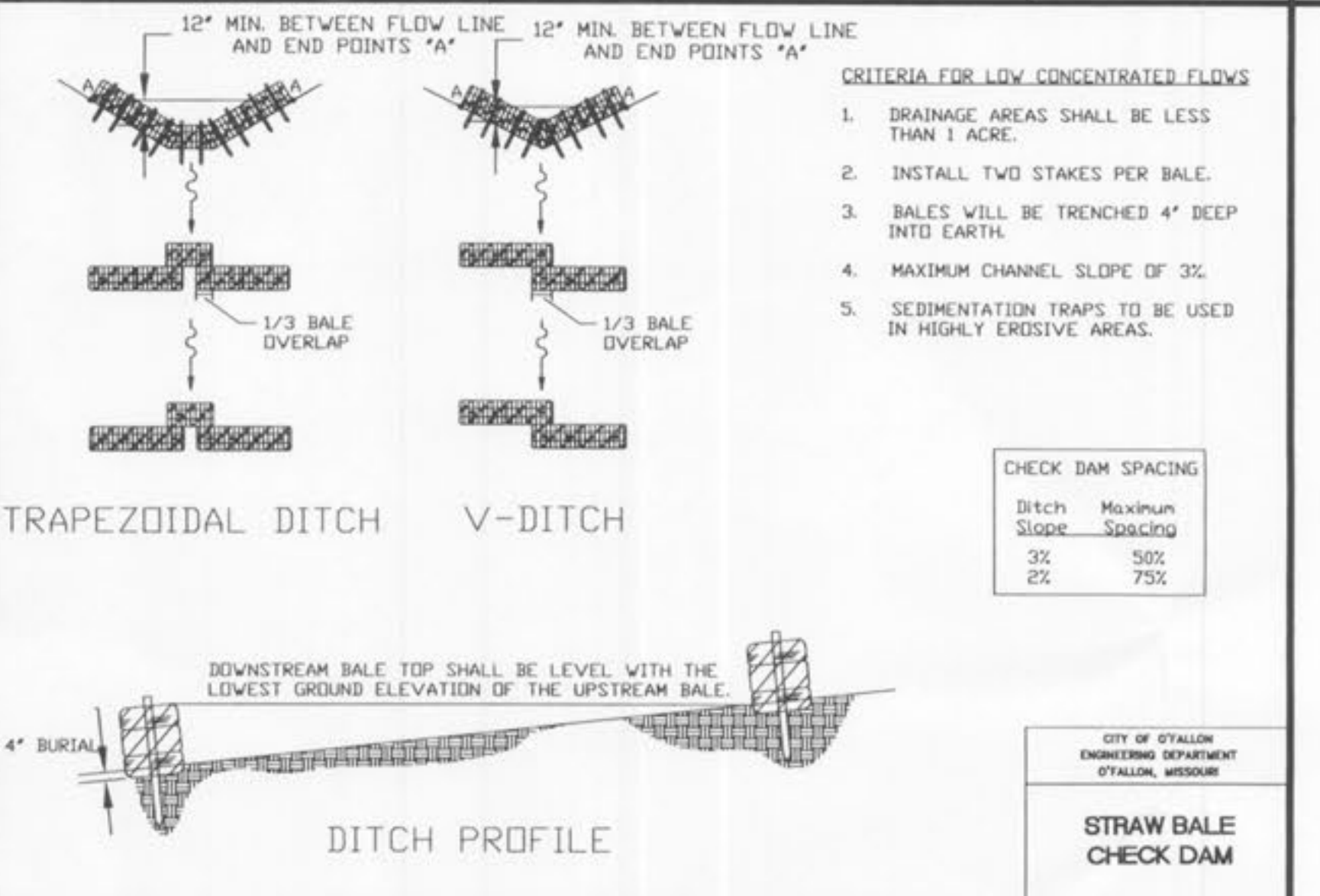
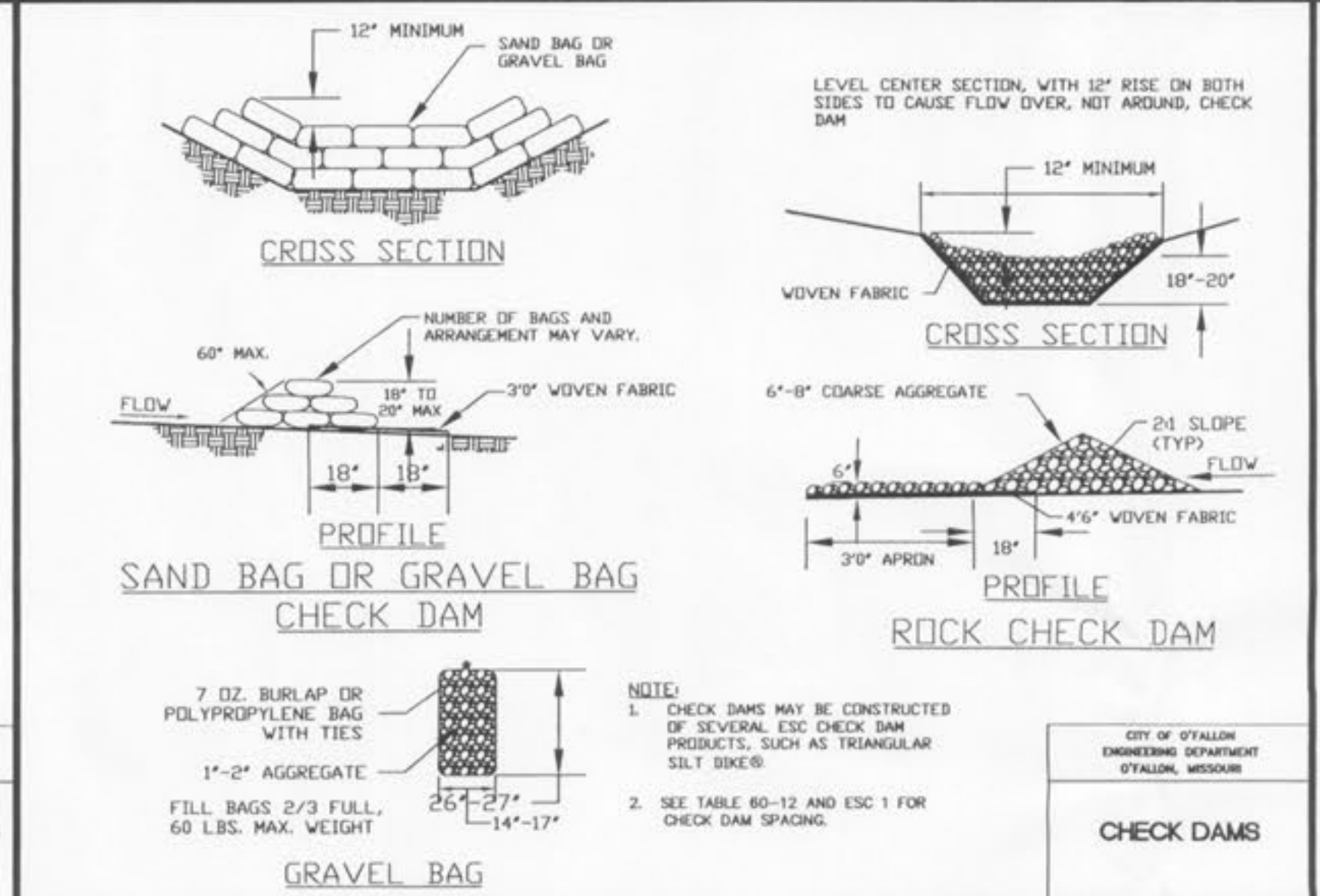
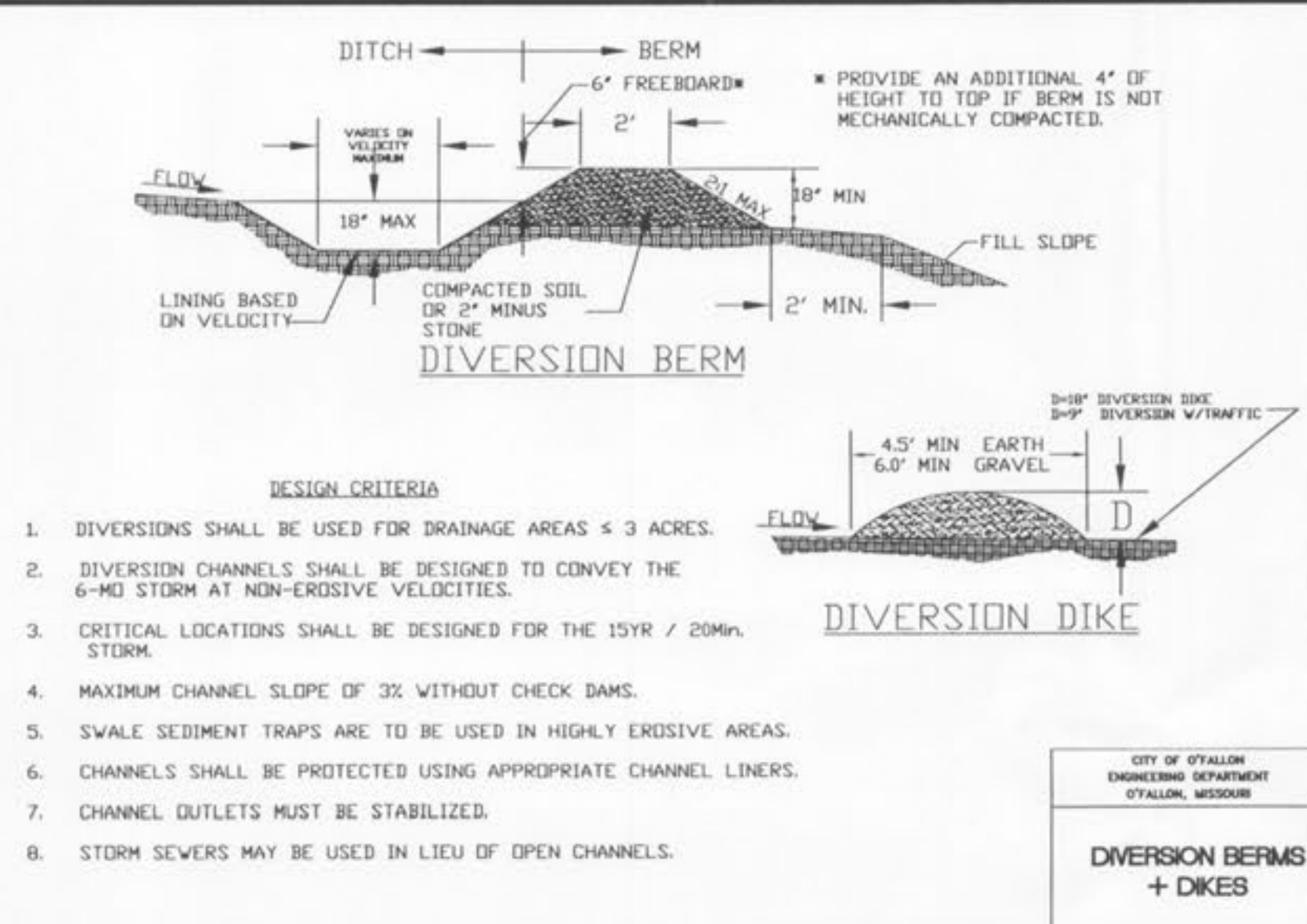
**EROSION CONTROL DETAILS**

**MUSLER ENGINEERING COMPANY**

CIVIL ENGINEERING - PLANNING - LAND SURVEYING  
32 Portwest Court, St. Charles, Missouri 63303  
Telephone: (636) 916-0444  
Fax: (636) 916-9444

CERTIFICATE OF AUTHORITY: ENGINEERING, E-2326-D, LAND SURVEYING, LS-284-D-5

DATE: APRIL 2010  
DRAWN: R.S.M./J.R.S.  
CHECKED: R.S.M./J.R.S.  
PROJECT NO.:  
SHEET NO.: 10-1178



**DISCLAIMER OF RESPONSIBILITY**

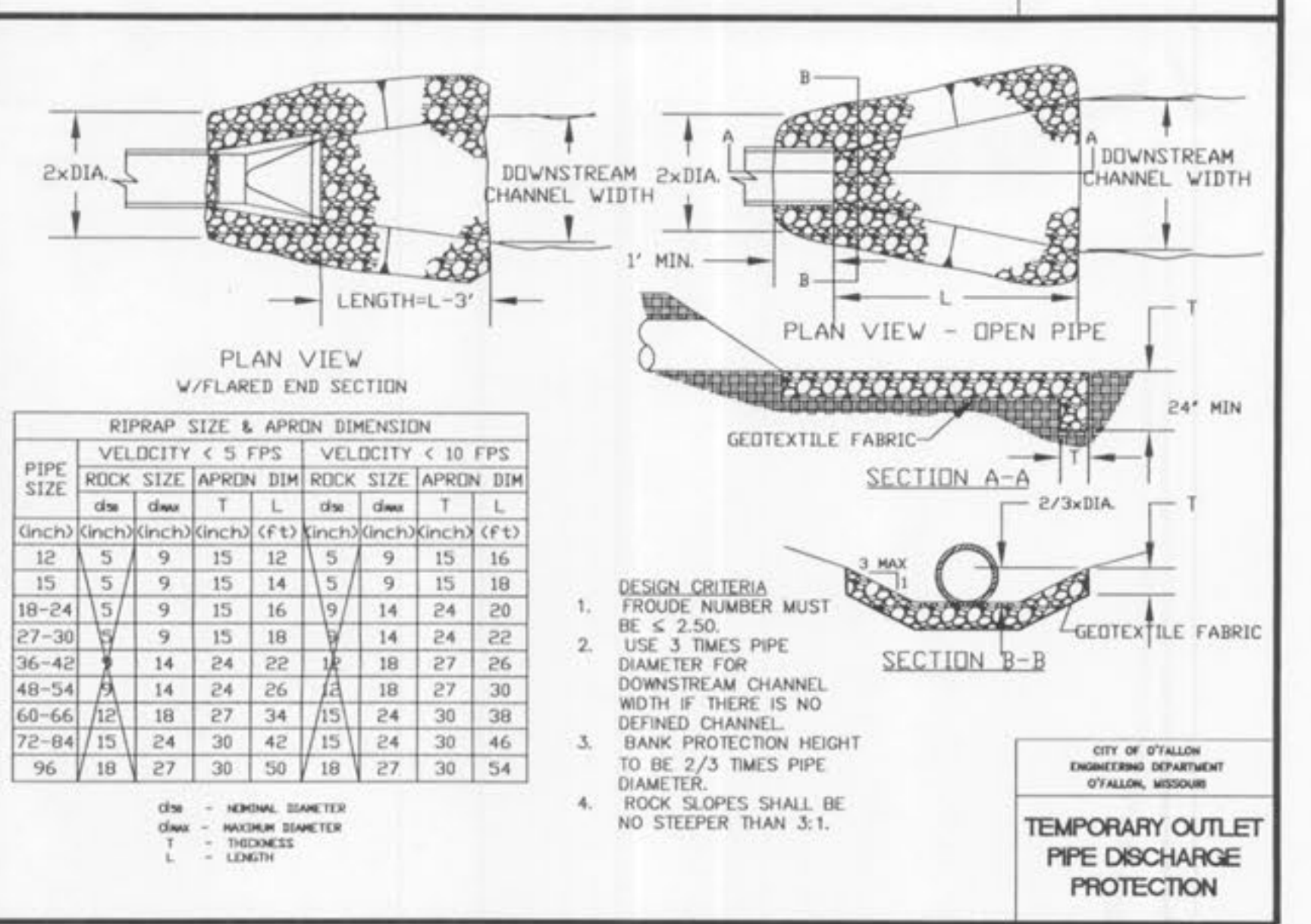
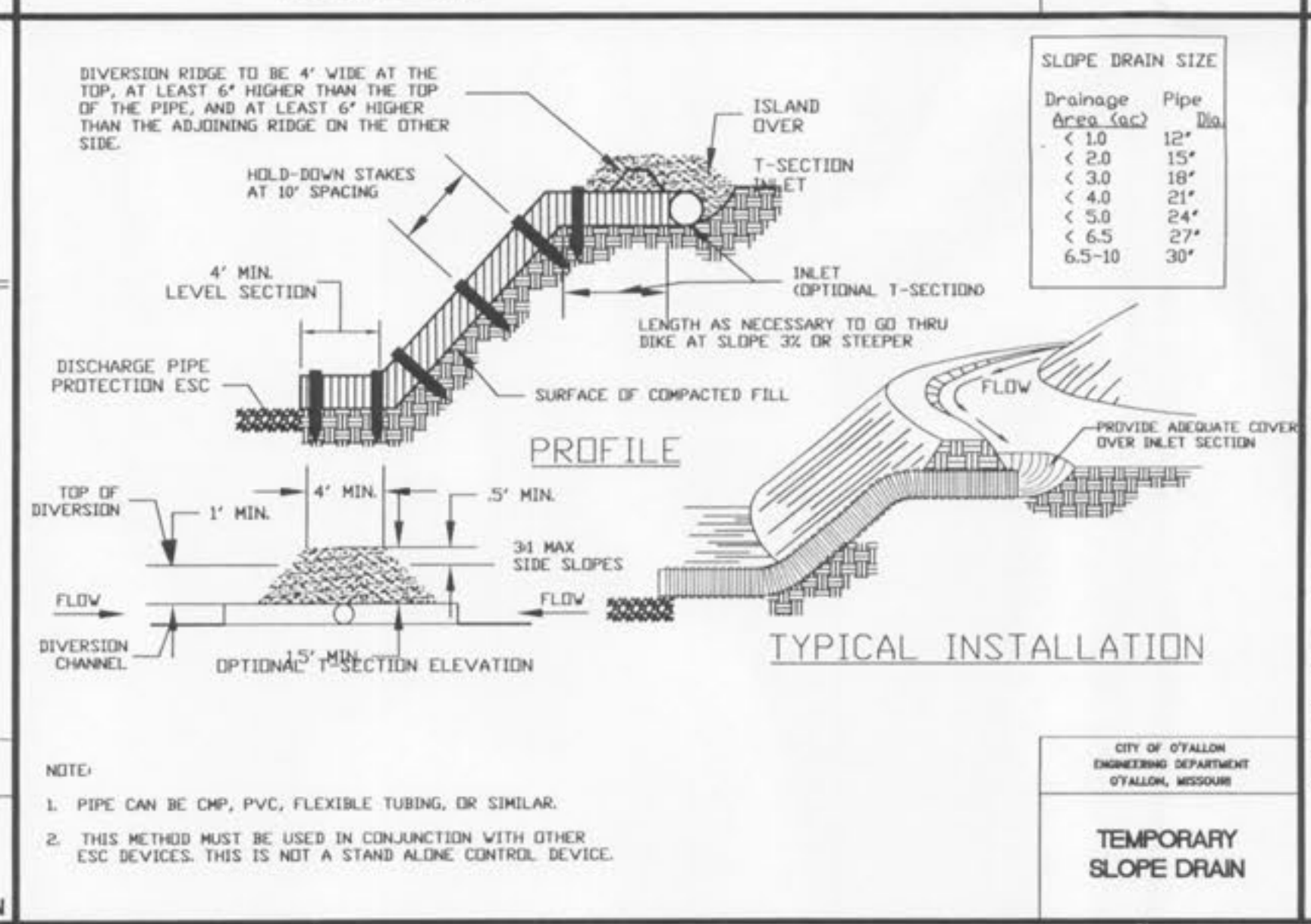
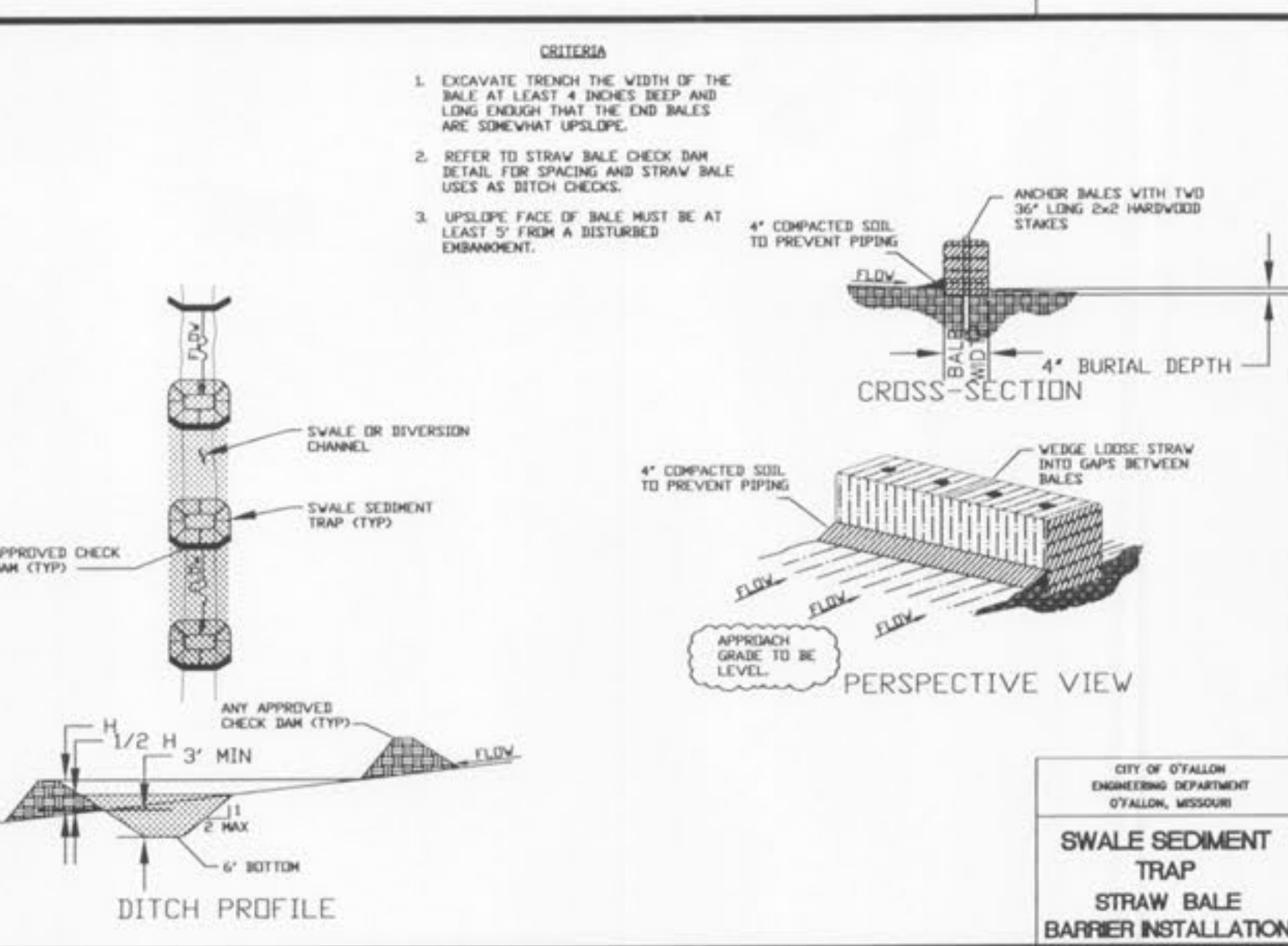
I hereby specify that the documents intended to be authorized by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other drawings, specifications, estimates, reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey.

**STATE OF MISSOURI**

JEFFREY R. SMITH, P.E.  
NO. 2001004672  
PROFESSIONAL ENGINEER

7-15-10

JEFFREY R. SMITH, P.E.  
MO. P.E. # E-2001004672



**DIVERSIONARY SWALE COMPUTATIONS FOR VARIOUS SLOPES**

DEPTH = 0.5'	DEPTH = 0.5'	DEPTH = 0.5'
SLOPE = 2.0%	SLOPE = 3.0%	SLOPE = 6.0%
n = .03	n = .03	n = .03
A = 3.75	A = 3.75	A = 3.75
MP = 9.16	MP = 9.16	MP = 9.16
R = 0.41	R = 0.41	R = 0.41
Q = 14.50	Q = 17.76	Q = 25.11
V = 3.87	V = 4.74	V = 6.70

**SLOPE DRAIN SIZE**

Drainage Area (Ac)	Pipe Dia.
< 1.0	12"
< 2.0	15"
< 3.0	18"
< 4.0	21"
< 5.0	24"
< 6.5	27"
6.5-10	30"

**CITY OF OTTAWA  
ENGINEERING DEPARTMENT  
OTTAWA, MISSOURI**

**TEMPORARY SLOPE DRAIN**

**RIPRAP SIZE & APRON DIMENSION**

PIPE SIZE	VELOCITY < 5 FPS				VELOCITY < 10 FPS			
	ROCK SIZE	APRON DIM	ROCK SIZE	APRON DIM	ROCK SIZE	APRON DIM	ROCK SIZE	APRON DIM
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	14	24	22	
36-42	9	14	24	22	18	27	26	
48-54	14	24	26	18	27	30		
60-66	18	27	34	24	30	39		
72-84	24	30	42	30	46			
96	30	50	50	36	54			

**CITY OF OTTAWA  
ENGINEERING DEPARTMENT  
OTTAWA, MISSOURI**

**TEMPORARY SLOPE DRAIN**

**PREPARED FOR:**

BETH HOLDINGS, LLC  
MR. DAVID BETH  
322 COUNTRY MEADOWS DRIVE  
ST. CHARLES, MISSOURI 63303

TELEPHONE: 314-614-2207  
FAX: 314-553-5078  
E-mail: dbeth01@sbcbglobal.net

**P & Z No.**

00-27.17.02 - 4/1/10

**City No.**