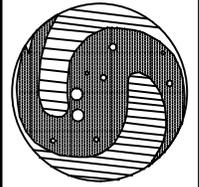


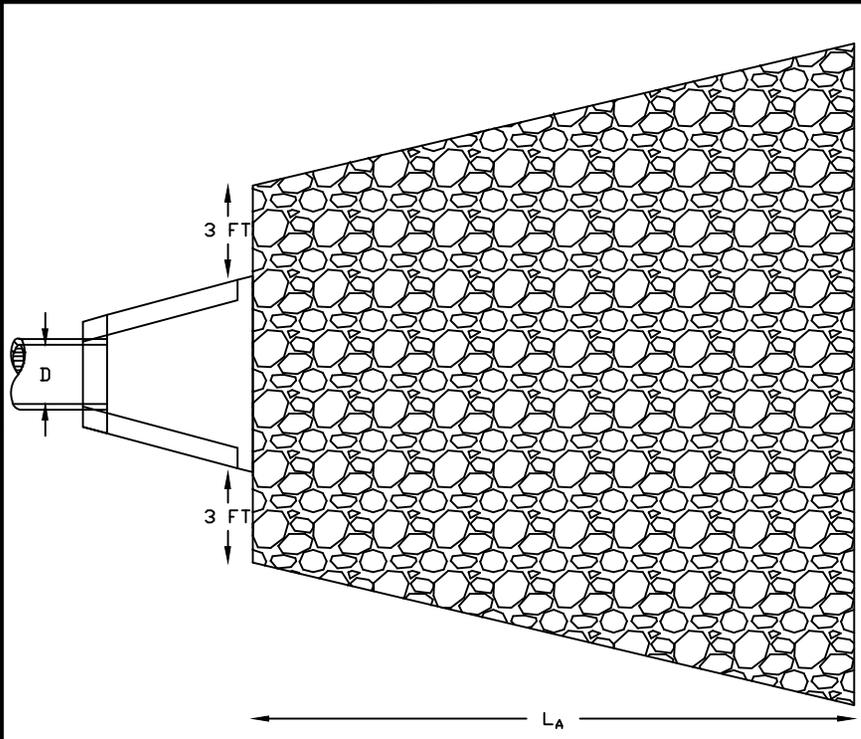
REVISION	BY	DATE



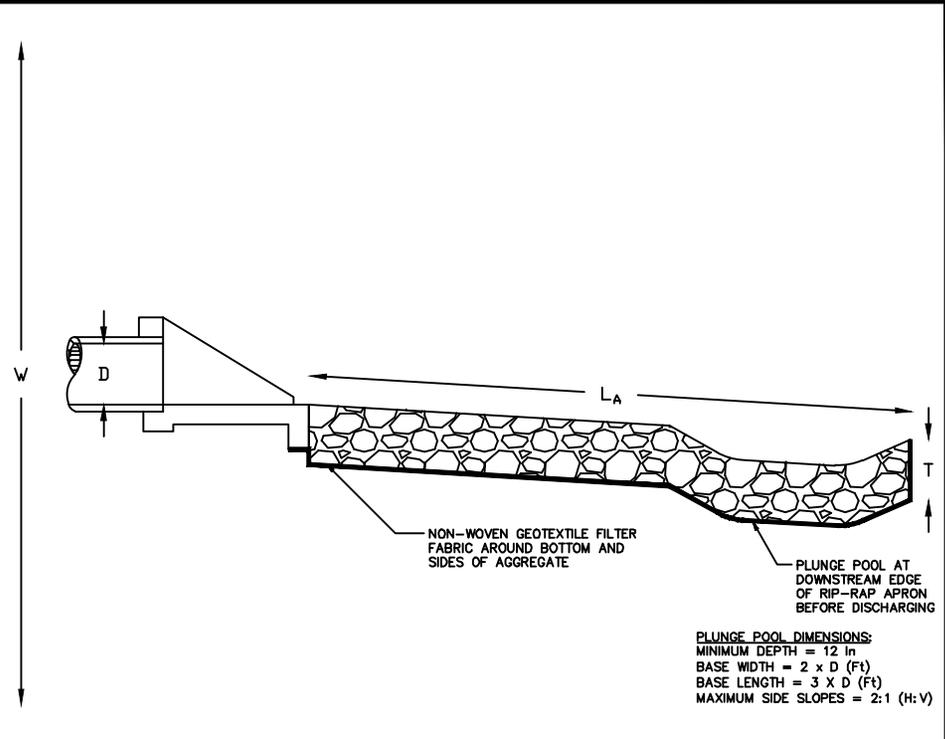
SANITATION DISTRICT NO. 1

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DATE: March 2019
 STANDARD DRAWING NO: STM-21



RIP-RAP APRON PLAN VIEW
N.T.S.



RIP-RAP APRON SECTION VIEW
N.T.S.

L_A (Ft) = REFER TO TABLE
 W (Ft) = $L_A + D$ (Ft)
 T (In) = $2.0 \times D_{50}$ (In)

PLUNGE POOL DIMENSIONS:
 MINIMUM DEPTH = 12 In
 BASE WIDTH = 2 x D (Ft)
 BASE LENGTH = 3 X D (Ft)
 MAXIMUM SIDE SLOPES = 2:1 (H:V)

NOTES:

1. FLOW RATES LISTED IN THE TABLE SHALL BE BASED ON THE 10-YEAR 24-HOUR DESIGN STORM PEAK FLOW RATE.
2. OUTLET EROSION PROTECTION IN THE FORM OF A RIP-RAP APRON SHALL REMAIN STRAIGHT THROUGHOUT ITS ENTIRE LENGTH.
3. ENSURE THAT RIP-RAP CONSISTS OF A WELL-GRADED MIXTURE OF STONE. LARGER STONE SHOULD BE PREDOMINATE, WITH SUFFICIENT SMALLER SIZES TO FILL THE VOIDS BETWEEN THE STONES. RIP-RAP SHALL BE ANGULAR IN SHAPE, NOT ROUNDED.
4. THE DIAMETER OF THE LARGEST STONE SIZE SHALL BE NO GREATER THAN 1.5 TIMES THE D_{50} SIZE.
5. THE MINIMUM THICKNESS OF RIP-RAP SHALL BE 2.0 TIMES THE D_{50} SIZE.
6. A NON-WOVEN GEOTEXTILE FILTER FABRIC SHALL BE INSTALLED AROUND THE BOTTOM AND SIDES OF THE RIP-RAP TO PREVENT EROSION.

D, Pipe Diameter (in)	Rip-Rap Apron Dimensions														
	Lowest Values			Intermediate Values to Interpolate From										Highest Value	
	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}
	cfs	Ft	In	cfs	Ft	In	cfs	Ft	In	cfs	Ft	In	cfs	Ft	In
12	4	7	6	6	10	6	9	13	6	12	16	7	14	17	8.5
15	6.5	8	6	10	12	6	15	16	7	20	18	10	25	20	12
18	10	9	6	15	14	6	20	17	7	30	22	11	40	25	14
21	15	11	6	25	18	7	35	22	10	45	26	13	60	29	18
24	21	13	6	35	20	8.5	50	26	12	65	30	16	80	33	19
27	27	14	6	50	24	9.5	70	29	14	90	34	18	110	37	22
30	36	16	6	60	25	9.5	90	33	15.5	120	38	20	140	41	24
36	56	20	7	100	32	13	140	40	18	180	45	23	220	50	28
42	82	22	8.5	120	32	12	160	39	17	200	45	20	260	52	26
48	120	26	10	170	37	14	220	46	19	270	54	23	320	64	37

OUTLET EROSION PROTECTION
(STM-21)
 N.T.S.

DRAFT