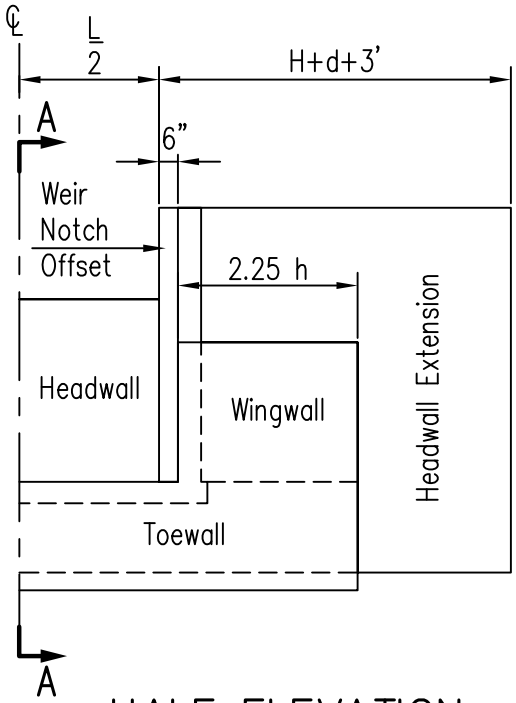
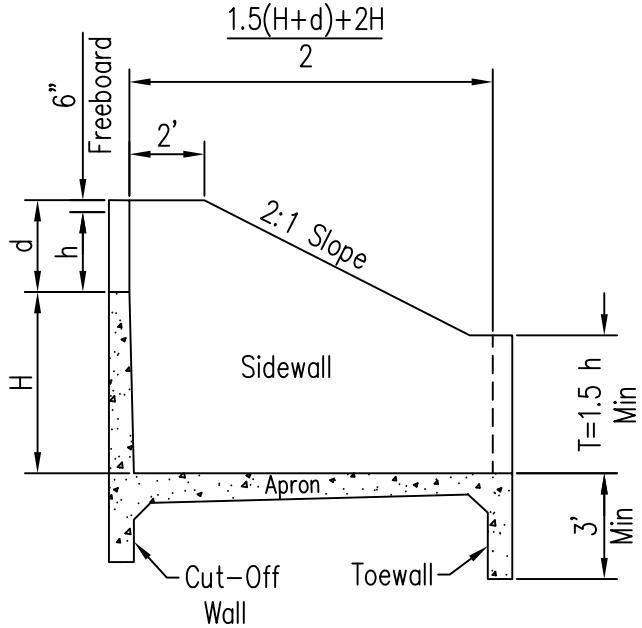
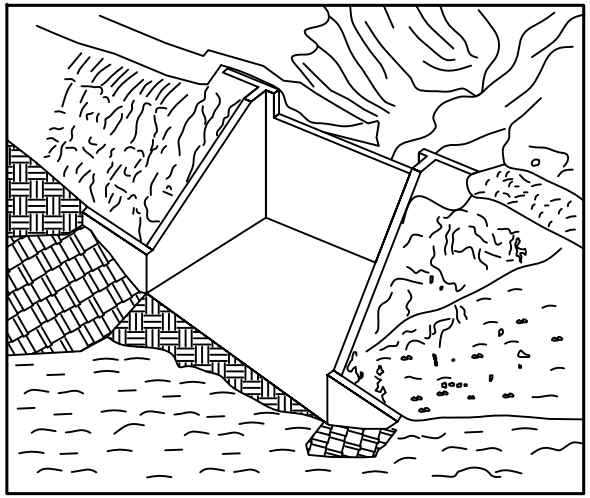


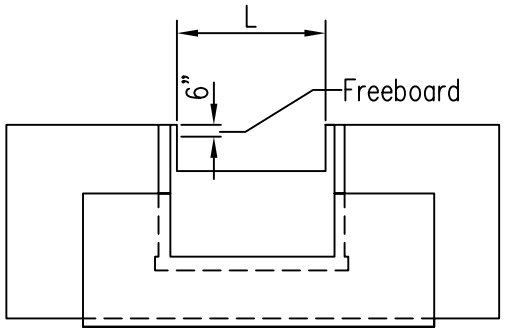
HALF ELEVATION



SECTION A–A



PERSPECTIVE VIEW



FRONT VIEW

CHART SHOWING CAPACITY OF WEIRS								
HEAD h	LENGTH OF WEIR OPENING "L" IN FEET							
	6'–0"	8'–0"	10'–0"	12'–0"	14'–0"	16'–0"	18'–0"	20'–0"
1'–6"	34.9	47.1	59.3	71.6	83.8	96.1	108	121
2'–0"	52.8	71.6	90.4	109	128	147	166	185
2'–6"	72.4	98.7	125	151	178	204	230	257
3'–0"	93.4	128	162	197	232	266	301	336
3'–6"	116	159	203	246	290	333	377	421

CAPACITY OF WEIRS

$Q=3.33\ (L-0.2h)\ h^{3\backslash 2}$

NOTE:
STRUCTURE DATA SHEET MUST ACCOMPANY REQUEST FOR DETAIL PLANS.

DESIGN DATA

fs =18,000, fc =2,000, fc =800, v =40 u =100
Stresses in pounds per square inch.
Trapezoidal loading on headwall = 60 lbs per square foot, on sidewalls = 40 lbs per square foot.
Steel cover = 2", except on earth = 3".
Where possible, all steel shall be secured in place before concrete is poured.
Only material conforming to A.S.T.M. shall be used.
Steel to be intermediate grade new billet deformed. bars.
Fillets may be used on inside corners if desired.
Curved lip and entrance are optional.
Construction joints, when necessary, to be formed by using beveled 2"x4".
Steel weights do not allow for waste due to cutting.
If footings are required, add 10% to steel weights and 15% to volume of concrete.

"B" = Dams with buttresses

Revised 3–11–46

REINFORCED CONCRETE
NOTCH SPILLWAY DAMS

RELATIVE DIMENSIONS CONCRETE AND STEEL
QUANTITIES, DRAWING NUMBERS, WEIR CAPACITIES

REGION 5 REGIONAL OFFICE

U.S. DEPARTMENT AGRICULTURE
SOIL CONSERVATION SERVICE
H. H. Bennett, Chief

REFERENCE: File No. 6.12.1A
Sheet 1 of 2

CARTOGRAPHIC APPROVAL: TECHNICAL APPROVAL

DESIGN	DRAWN	CHECKED	DATE	DRAWING NO
G. W. FOSTER	C.L. TULE	G. W. FOSTER	10–17–1941	3–L–4100

IL–SCS
OCTOBER 1969

Head Wall Height		Total Weir Depth h+6"	LENGTH OF WEIR OPENING "L" IN FEET															
			6'-0'		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"	
H	h	d	Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.	
			Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs
3'-0"	1'-6"	2'-0"	4110		4111		4112		4113		4114		4115		4116		4117	
			7.0	400	7.7	445	8.3	499	8.9	539	9.5	593	10.2	651	10.8	697	11.5	741
	2'-0"	2'-6"	4130		4131		4132		4133		4134		4135		4136		4137	
			7.7	449	8.4	492	9.1	552	9.7	594	10.4	652	11.1	712	11.8	759	12.4	808
	2'-6"	3'-0"	4150		4151		4152		4153		4154		4155		4156		4157	
			8.5	519	9.2	563	9.9	624	10.5	672	11.2	727	11.9	791	12.6	840	13.3	885
	3'-0"	3'-6"	4170		4171		4172		4173		4174		4175		4176		4177	
			9.4	615	10.1	662	10.8	724	11.5	775	12.3	832	13.0	893	13.7	946	14.4	987
4'-0"	1'-6"	2'-0"	4210		4211		4212		4213		4214		4215		4216		4217	
			9.4	605	10.3	670	11.2	746	12.0	808	12.9	883	13.8	965	14.6	1029	15.5	1093
	2'-0"	2'-6"	4230		4231		4232		4233		4234		4235		4236		4237	
			10.3	665	11.2	731	12.1	811	13.0	876	13.9	954	14.8	1037	15.7	1106	16.6	1179
	2'-6"	3'-0"	4250		4251		4252		4253		4254		4255		4256		4257	
			11.0	701	11.9	767	12.8	849	13.7	911	14.6	993	15.5	1075	16.4	1142	17.3	1207
	3'-0"	3'-6"	4270		4271		4272		4273		4274		4275		4276		4277	
			12.6	869	13.6	952	14.5	1034	15.5	1103	16.4	1211	17.3	1288	18.2	1361	19.2	1435
5'-0"	1'-6"	2'-0"	4310		4311		4312		4313		4314		4315		4316		4317	
			11.2	746	12.2	829	13.2	926	14.2	1004	15.2	1105	16.2	1203	17.2	1286	18.2	1368
	2'-0"	2'-6"	4330		4331		4332		4333		4334		4335		4336		4337	
			12.0	911	13.0	1004	14.0	1108	15.0	1197	16.0	1337	17.1	1418	18.1	1521	19.1	1613
	2'-6"	3'-0"	4350		4351		4352		4353		4354		4355		4356		4357	
			13.5	993	14.6	1084	15.6	1191	16.7	1280	17.7	1423	18.8	1514	19.8	1606	20.8	1728
	3'-0"	3'-6"	4370		4371		4372		4373		4374		4375		4376		4377	
			15.4	1113	16.4	1215	17.5	1314	18.6	1407	19.6	1551	20.6	1643	21.7	1763	22.8	1858
6'-0"	1'-6"	2'-0"	4410		4411		4412		4413		4414		4415		4416		4417	
			14.0	1045	15.2	1150	16.3	1267	17.5	1379	18.6	1513	19.7	1721	20.9	1834	22.1	1969
	2'-0"	2'-6"	4430		4431		4432		4433		4434		4435		4436		4437	
			15.3	1133	16.4	1238	17.6	1351	18.7	1521	19.9	1676	21.0	1796	22.2	2050	23.3	2180
	2'-6"	3'-0"	4450		4451		4452		4453		4454		4455		4456		4457	
			16.0	1306	17.2	1429	18.3	1541	19.3	1723	20.6	1854	21.8	2113	23.0	2242	24.2	2439
	3'-0"	3'-6"	4470		4471		4472		4473		4474		4475		4476		4477	
			17.7	1450	18.8	1578	20.0	1692	21.2	1881	22.4	2021	23.6	2287	24.8	2442	26.0	2583

Head Wall Height		Total Weir Depth h+6"	LENGTH OF WEIR OPENING "L" IN FEET															
			6'-0'		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"	
H	h	d	Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.	
			Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs
7'-0"	1'-6"	2'-0"	4510		4511		4512		4513		4514		4515		4516		4517	
			16.5	1410	17.6	1593	19.1	1715	20.4	1856	21.6	2018	22.9	2171	24.2	2328	25.5	2462
	2'-0"	2'-6"	4530		4531		4532		4533		4534		4535		4536		4537	
			17.2		18.5	1647	19.8	1770	21.1	1919	22.4	2026	23.7	2226	26.0	2406	27.4	2512
	2'-6"	3'-0"	4550		4551		4552		4553		4554		4555		4556		4557	
			19.1		20.4	1894	21.7	2009	23.0	2172	24.3	2320	26.8	2762	B 29.5	2789	B 31.0	2802
	3'-0"	3'-6"	4570		4571		4572		4573		4574		4575		4576		4577	
			20.5		21.8	1908	23.1	2095	24.4	2205	26.8	2389	28.2	2564	B 30.7	2875	B 32.2	2934
8'-0"	1'-6"	2'-0"	4610		4611		4612		4613		4614		4615		4616		4617	
			20.8		22.2		23.6	1996	25.1	2134	26.5	2352	29.4	2503	B 30.9	3032	B 32.3	3028
	2'-0"	2'-6"	4630		4631		4632		4633		4634		4635		4636		4637	
			22.0		23.5		24.9	2012	26.3	2125	27.7	2250	B 30.7		B 32.2		B 33.7	
	2'-6"	3'-0"	4650		4651		4652		4653		4654		4655		4656		4657	
			24.2		25.6		27.0	2144	28.4	2266	B 31.2		B 32.7	2796	B 34.2		B 35.6	
	3'-0"	3'-6"	4670		4671		4672		4673		4674		4675		4676		4677	
			25.8		27.2		28.6	2556	30.0	2759	B 32.8	2740	B 34.3	3015	B 35.8	3231	B 37.3	3427
9'-0"	1'-6"	2'-0"	4710		4711		4712		4713		4714		4715		4716		4717	
	2'-0"	2'-6"	4730		4731		4732		4733		4734		4735		4736		4737	
	2'-6"	3'-0"	4750		4751		4752		4753		4754		4755		4756		4757	
	3'-0"	3'-6"	4770		4771		4772		4773		4774		4775		4776		4777	
					36.0	2874			39.4	3132			44.5	3512				
10'-0"	1'-6"	2'-0"	4810		4811		4812		4813		4814		4815		4816		4817	
	2'-0"	2'-6"	4830		4831		4832		4833		4834		4835		4836		4837	
							40.8	3313										
	2'-6"	3'-0"	4850		4851		4852		4853		4854		4855		4856		4857	
							41.0	3339			B 46.7	3797			B 50.5	4152		
	3'-0"	3'-6"	4870		4871		4872		4873		4874		4875		4876		4877	

CONCRETE AND STEEL QUANTITIES, DRAWING NUMBERS AND WEIR CAPACITIES

NOTES: (11-2012)
To use the 4100 series standard drop spillway Drawings:
1. All #3 reinforcement bars should be changed to #4, and steel weights increased accordingly.
2. Use only where the ratio of weir depth to headwall height (d/H) < 0.5, unless provisions are made to armor the downstream channel against scour.

"B" = Dams with buttresses

Revised 3-11-46

REINFORCED CONCRETE NOTCH SPILLWAY DAMS
RELATIVE DIMENSIONS CONCRETE AND STEEL
QUANTITIES, DRAWING NUMBERS, WEIR CAPACITIES
REGION 5 REGIONAL OFFICE
U.S. DEPARTMENT AGRICULTURE
SOIL CONSERVATION SERVICE
H. H. Bennett, Chief
REFERENCE: File No. 6.12.1B Sheet 2 of 2
CARTOGRAPHIC APPROVAL: TECHINICAL APPROVAL

DESIGN	DRAWN	CHECKED	DATE	DRAWING NO
G. W. FOSTER	C.L. TULE	G. W. FOSTER	10-17-1941	3-L-4100

IL-SCS
OCTOBER 1969

(210-EFH, Notice IL57, December 2012)

6-12.1b

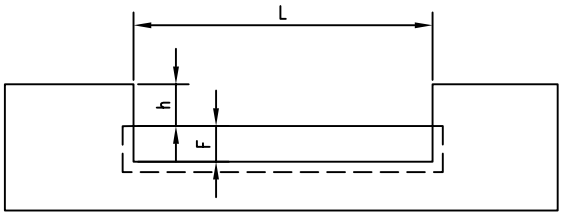
DRAWING NUMBERS AND MATERIAL QUANTITIES

Height Of Headwall	Depth Of Weir	LENGTH OF WEIR OPENING															
		6'-0'		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"	
F	h	Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.		Dwg No.	
		Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs	Conc. Cu.Yd.	Steel Lbs
1'-0"	1'-0"	7406 A		7408 A		7410 A		7412 A		7414 A		7416 A		7418 A		7420 A	
		1.3	58	1.6	66	1.8	75	2.0	83	2.2	91	2.4	99	2.6	108	2.8	116
	1'-6"	7426 A		7428 A		7430 A		7432 A		7434 A		7436 A		7438 A		7440 A	
		1.7	75	1.9	84	2.1	94	2.3	104	2.6	113	2.8	123	3.0	132	3.2	142
	2'-0"	7446 A		7448 A		7450 A		7452 A		7454 A		7456 A		7458 A		7460 A	
		1.8	139	2.0	156	2.3	173	2.5	190	2.7	207	3.0	224	3.2	241	3.4	258
	2'-6"	7466 B		7468 B		7470 B		7472 B		7474 B		7476 B		7478 B		7480 B	
		3.8	146	4.1	158	4.5	170	4.9	182	5.3	193	5.7	205	6.1	217	6.4	229
	3'-0"	7486 B		7488 B		7490 B		7492 B		7494 B		7496 B		7498 B		7500 B	
		4.5	291	4.9	309	5.3	327	5.7	345	6.1	363	6.5	380	6.9	399	7.3	417
1'-6"	1'-0"	7606 A		7608 A		7610 A		7612 A		7614 A		7616 A		7618 A		7620 A	
		1.7	82	2.0	94	2.2	105	2.5	116	2.7	128	3.0	139	3.3	150	3.5	161
	1'-6"	7626 A		7628 A		7630 A		7632 A		7634 A		7636 A		7638 A		7640 A	
		2.0	93	2.3	105	2.5	116	2.8	127	3.0	139	3.4	150	3.6	161	3.9	172
	2'-0"	7646 B		7648 B		7650 B		7652 B		7654 B		7656 B		7658 B		7660 B	
		3.6	254	4.0	278	4.4	301	4.9	325	5.3	348	5.7	372	6.2	395	6.6	419
	2'-6"	7666 B		7668 B		7670 B		7672 B		7674 B		7676 B		7678 B		7680 B	
		5.0	303	5.4	325	5.9	348	6.3	371	6.8	394	7.2	416	7.7	439	8.1	462
	3'-0"	7686 B		7688 B		7690 B		7692 B		7694 B		7696 B		7698 B		7700 B	
		5.2	390	5.7	414	6.2	448	6.7	469	7.2	496	7.7	523	8.2	551	8.7	578
2'-0"	1'-0"	7806 A		7808 A		7810 A		7812 A		7814 A		7816 A		7818 A		7820 A	
		2.2	92	2.5	105	2.9	118	3.2	131	3.6	143	3.9	156	4.3	169	4.7	182
	1'-6"	7826 B		7828 B		7830 B		7832 B		7834 B		7836 B		7838 B		7840 B	
		3.6	262	4.0	288	4.5	315	5.0	341	5.5	367	6.0	393	6.4	420	6.9	446
	2'-0"	7846 B		7848 B		7850 B		7852 B		7854 B		7856 B		7858 B		7860 B	
		3.9	291	4.4	317	4.9	344	5.4	370	5.9	397	6.4	423	6.9	449	7.4	476
	2'-6"	7866 B		7868 B		7870 B		7872 B		7874 B		7876 B		7878 B		7880 B	
		5.6	474	6.1	511	6.6	549	7.1	586	7.6	623	8.1	660	8.6	697	9.1	734
	3'-0"	7886 B		7888 B		7890 B		7892 B		7894 B		7896 B		7898 B		7900 B	
		6.1	549	6.6	586	7.1	624	7.6	661	8.1	699	8.6	736	9.1	773	9.6	811
2'-6"	1'-0"	7906 B		7908 B		7910 B		7912 B		7914 B		7916 B		7918 B		7920 B	
		4.0	286	4.4	314	5.0	345	5.5	370	6.0	398	6.5	427	7.0	455	7.6	483
	1'-6"	7926 B		7928 B		7930 B		7932 B		7934 B		7936 B		7938 B		7940 B	
		4.1	275	4.7	302	5.2	330	5.7	357	6.3	383	6.8	412	7.3	438	7.9	466
	2'-0"	7946 B		7948 B		7950 B		7952 B		7954 B		7956 B		7958 B		7960 B	
		5.0	384	5.6	421	6.1	459	6.7	496	7.3	534	7.8	572	8.4	609	9.0	647
	2'-6"	7966 B		7968 B		7970 B		7972 B		7974 B		7976 B		7978 B		7980 B	
		5.9	459	6.5	494	6.9	532	7.5	569	8.1	606	8.7	643	9.3	679	9.9	716
	3'-0"	7986 B		7988 B		7990 B		7992 B		7994 B		7996 B		7998 B		8000 B	
		6.3	535	6.9	574	7.5	616	8.1	662	8.7	703	9.3	744	9.9	786	10.5	823

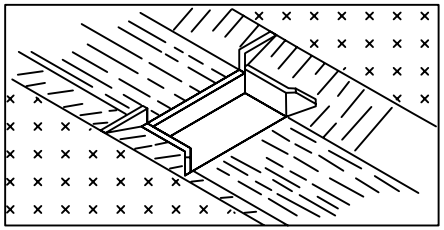
DISCHARGE CAPACITY OF SPILLWAY IN C.F.S.

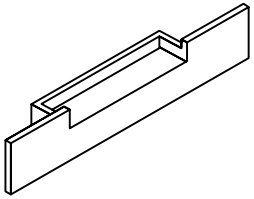
"h" HEAD OVER CREST	LENGTH OF WEIR OPENING "L" IN FEET							
	6'-0"	8'-0'	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"
0'-6"	7.0	9.0	12	14	16	19	21	23
1'-0"	19	26	33	39	46	53	59	66
1"-6"	35	47	59	72	84	96	108	121
2'-0"	53	72	90	109	128	147	166	185
2'-6"	72	99	125	151	178	204	230	257
3'-0"	93	128	162	197	232	266	301	336

NOTE:
The spillway discharge capacities arecomputed from the formula $Q = 3.33(L-0.2h)\ h^{3\backslash 2}$.
When the crest is submerged by high tailwater in the downstream channel, the formula $Q=3.33\ (L-0.2h)\ (Nh)^{3\backslash 2}$ should be used to determine spillway capacities. The Value of the coefficient "N" is given in the table on drawing No 5 L-7285.
Where weirs of greater length than 20'-0" are required the apron and headwall can be expanded using the same detailing and cross-section dimensions. For expanded headwalls, buttress, (counterforts) should be added at approximately 12'-0" on centers.
This spillway should be used primarily as a toe-wall for sod flumes and at critical sections in constructed waterways.

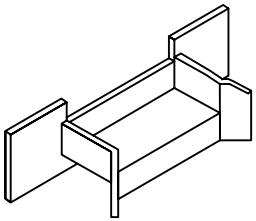


ELEVATION





TYPE A



TYPE B

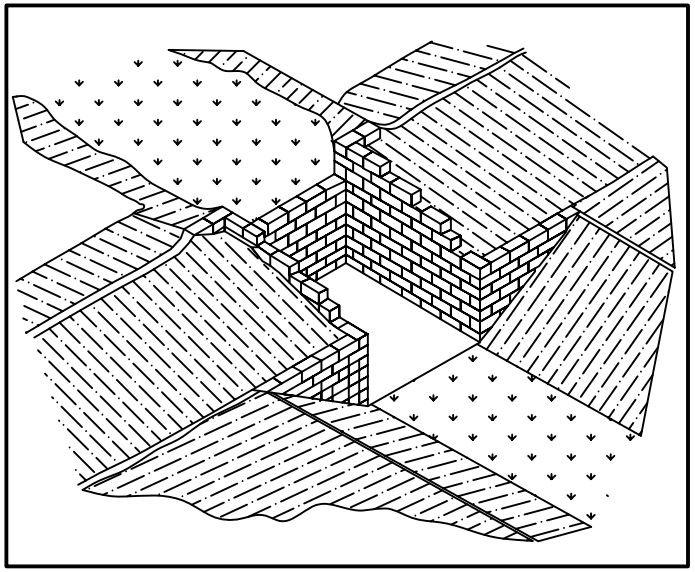
Formula For Apron Length = $\frac{1.5(F+h)+2h}{2}$

INDEX SHEET FOR R/C TOE-WALLS
TYPE "A" BOX INLET TOE-WALL
TYPE "B" STRAIGHT DROP TOE-WALL

U.S. DEPARTMENT AGRICULTURE
SOIL CONSERVATION SERVICE

		Date		
Designed	A. F. Moratz	11-16-50	Approved BY	
			Title	DESIGN ENG (IN CHARGE DESIGN)
Drawn	A. F. Lewandowski	11-18-50		
			Title	HEAD CARTOGRAPHIC UNIT
Traced	L. D. Lamb	11-18-50	Sheet No 1 of 1	Drawing No 3-L-7400
Checked				

Revised 10-15-56



DISCHARGE CAPACITY OF SPILLWAY IN C.F.S.					
"h" HEAD	LENGTH OF WEIR OPENING "L" IN FEET				
	4'-0"	8'-0'	12'-0"	16'-0"	20'-0"
1'-4"	19	39	60	80	100
2'-0"	34	71	109	147	185
2'-8"	50	103	166	225	283
3'-4"	68	148	230	311	391
4'-0"	86	193	299	406	515

$$Q = 3.33\ (L-0.2h)\ h^{3\backslash 2}$$

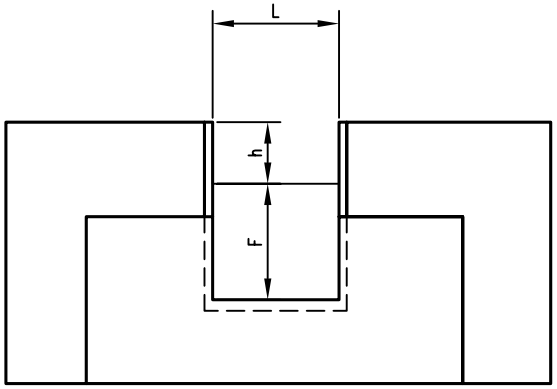
NOTE:

The General use of this spillway is limited to grade stabilization and as toe walls for the protection of the of the outlet of sod flumes or channels. It is not recommended as a water impounding structure.

The discharge capacities given do not include freeboard within the spillway. The earth fill berms shall be constructed to a minimum settled fill height of 1'-0" above the top of the headwall extensions.

On special design spillways allow 0'-6" (minimum) freeboard.

The concrete used to fill the Block Cores is included in the above quantities. Mortar volumes are not shown. They may be computed by the formula; (No. of blocks) (0.001) = ____cu. yds.



ELEVATION

Note
"Structure data sheets must accompany request for detail plans"

Sheet 1 of 2

INDEX SHEET FOR
CONCRETE BLOCK STRAIGHT
DROP SPILLWAY

U.S. DEPARTMENT AGRICULTURE
SOIL CONSERVATION SERVICE

		Date		
Designed	A. F. Moratz	10-15-52	Approved BY	
			Title	DESIGN ENG (IN CHARGE DESIGN)
Drawn	C. Yurk	11-3-52		
			Title	HEAD CARTOGRAPHIC UNIT
Traced			Sheet No 1 of 2	Drawing No 3-L-22853
Checked	A. F. Moratz	11-5-52		

Revised 11-3-55

IL-EFM NOTICE 1 3/85

IL-SCS OCTOBER 1969

6-12.3a

DRAWING NUMBERS AND MATERIAL QUANTITIES

Height Of Overfall	Depth Of Weir	LENGTH OF WEIR OPENING														
		4'-0'			8'-0"			12'-0"			16'-0"			20'-0"		
F	h	Dwg No.			Dwg No.			Dwg No.			Dwg No.			Dwg No.		
		Conc. Cu.Yd.	Steel Lbs	Blocks NO.	Conc. Cu.Yd.	Steel Lbs	Blocks NO.	Conc. Cu.Yd.	Steel Lbs	Blocks NO.	Conc. Cu.Yd.	Steel Lbs	Blocks NO.	Conc. Cu.Yd.	Steel Lbs	Blocks NO.
1'-8"	1'-4"	15202			15204			15206			15208			15210		
		2.7	17.4	88	3.8	33.4	97	4.6	54.8	106	5.7	70.78	115	6.7	90.21	124
	2'-0"	15222			15224			15226			15228			15230		
		3.2	17.0	116	4.3	38.5	125	5.4	60.0	134	6.4	82	143	7.5	104	152
	2'-8"	15242			15244			15246			15248			15250		
		3.9	108	162	4.9	123.5	171	5.9	139	180	6.9	182	189	7.9	205	198
	3'-4"	15262			15264			15266			15268			15270		
		4.6	140	214	5.6	158	223	6.7	176	232	7.8	217	241	8.9	240	250
	4'-0"	15282			15284			15286			15288			15290		
		5.3	203	274	6.4	222	283	7.6	240	292	8.7	281	301	9.9	306	310
2'-4"	1'-4"	15302			15304			15306			15308			15310		
		3.3	14	123	4.4	34	135	5.4	50	147	6.5	68	169	7.6	85.5	171
	2'-0"	15322			15324			15326			15328			15330		
		4.6	329	162	6.0	384	174	7.3	447	186	8.7	510	198	10.1	573	210
	2'-8"	15342			15344			15346			15348			15350		
		5.2	359	212	6.6	421	224	8.0	480	236	9.3	540	248	10.7	599	260
	3'-4"	15362			15364			15366			15368			15370		
		5.7	467	257	7.0	530	269	8.4	591	281	9.9	651	293	11.2	712	305
	4'-0"	15382			15384			15386			15388			15390		
		6.7	606	315	8.2	684	327	9.7	746	339	11.2	808	351	12.7	870	363
3'-0"	1'-4"	15402			15404			15406			15408			15410		
		4.6	310	160	6.0	376	175	7.3	440	190	8.6	505	205	10.0	570	220
	2'-0"	15422			15424			15426			15428			15430		
		5.3	385	215	6.7	451	230	8.1	514	245	9.3	577	260	10.6	640	275
	2'-8"	15442			15444			15446			15448			15450		
		5.7	551	248	7.2	649	263	8.7	732	278	10.3	816	293	11.7	899	308
	3'-4"	15462			15464			15466			15468			15470		
		6.9	750	335	8.5	852	350	10.1	947	365	11.7	1042	380	13.3	1137	395
	4'-0"	15482			15484			15486			15488			15490		
		7.6	736	390	9.4	847	405	11.0	937	420	12.7	1024.9	435	14.6	1076	450

DRAWING NUMBERS AND MATERIAL QUANTITIES

Height Of Overfall	Depth Of Weir	LENGTH OF WEIR OPENING														
		4'-0'			8'-0"			12'-0"			16'-0"			20'-0"		
F	h	Dwg No.			Dwg No.			Dwg No.			Dwg No.			Dwg No.		
		Conc. Cu.Yd.	Steel Lbs	Blocks NO.	Conc. Cu.Yd.	Steel Lbs	Blocks NO.	Conc. Cu.Yd.	Steel Lbs	Blocks NO.	Conc. Cu.Yd.	Steel Lbs	Blocks NO.	Conc. Cu.Yd.	Steel Lbs	Blocks NO.
3'-8"	1'-4"	15502			15504			15506			15508			15510		
		5.4	372	208	6.7	439	226	8.2	508	244	9.7	576	262	11.1	644.2	280
	2'-0"	15522			15524			15526			15828			15530		
		6.0	445	260	7.5	513	278	9.0	581	296	10.5	650	314	12.1	717	332
	2'-8"	15542			15544			15546			15548			15550		
		6.9	719	326	8.5	834	342	10.1	930	360	11.7	1041	380	13.3	1123	398
	3'-4"	15562			15564			15566			15568			15570		
		7.4	772	364	9.1	893	382	10.9	995	400	12.6	1096	418	14.3	1188	434
	4'-0"	15582			15584			15586			15588			15590		
		7.7	889	418	9.5	1005	436	11.2	1106.3	454	13.0	1133	472	14.7	1255	487
4'-4"	1'-4"	15602			15604			15606			15608			15610		
		5.4	500	257	7.1	616	278	8.8	711	299	10.6	807	320	12.3	902	341
	2'-0"	15622			15624			15626			15628			15630		
		6.5	684	315	8.1	803	336	9.8	904	357	11.6	1005	378	13.1	1107	399
	2'-8"	15642			15644			15646			15648			15650		
		7.5	807	381	9.2	922	402	11.0	1026	423	12.7	1130	444	14.6	1194	465
	3'-4"	15662			15664			15666			15668			15670		
		7.8	1288	417	9.5	1476	438	11.4	1640	459	13.1	1771	480	14.8	1933	501
	4'-0"	15682			15684			15686			15688			15690		
		8.5	1326	487	10.4	1526.4	508	12.4	1872	529	14.3	1855	550	16.3	2213	571
5'-0"	1'-4"	15702			15704			15706			15708			15710		
		6.2	663	298	8.0	788	322	9.8	896	346	11.6	1004	370	13.4	1112	394
	2'-0"	15722			15724			15726			15728			15730		
		7.5	826	393	9.3	956	417	11.1	1060	441	12.8	1168	465	14.6	1283	489
	2'-8"	15742			15744			15746			15748			15750		
		7.7	1389	424	9.4	1593	448	11.2	1760	472	13.3	1937	496	14.9	2094	520
	3'-4"	15762			15764			15766			15768			15770		
		8.1	1343.3	476	10.1	1535.5	500	12.5	1841	544	14.5	2020	548	16.6	2197	572
	4'-0"	15782			15784			15786			15788			15790		
		9.2	1532	553	11.4	1871	577	13.5	2070	601	16.2	2184	625	17.7	2453	649

Sheet 2 of 2

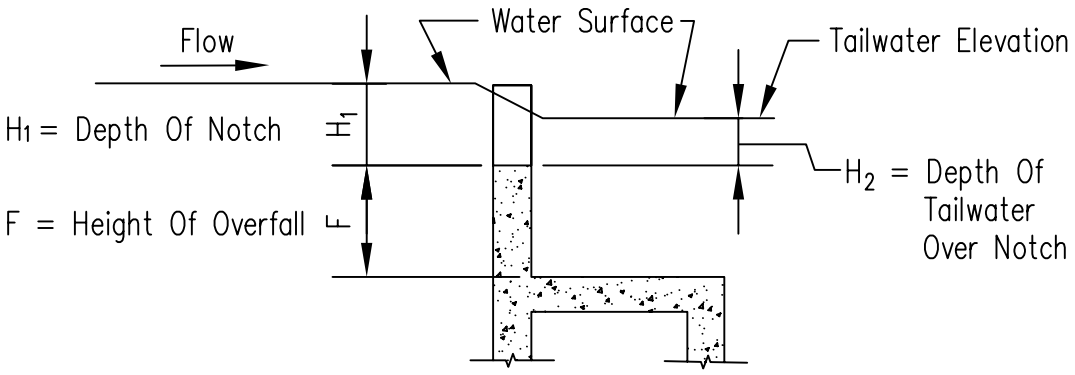
INDEX SHEET FOR
CONCRETE BLOCK STRAIGHT
DROP SPILLWAY

U.S. DEPARTMENT AGRICULTURE
SOIL CONSERVATION SERVICE

		Date	
Designed A. F. Moratz		10-15-52	Approved BY Title DESIGN ENG (IN CHARGE DESIGN)
Drawn C. Yurk		11-3-52	Title HEAD CARTOGRAPHIC UNIT
Traced			Sheet No 2 of 2 / Drawing No 3-L-22853
Checked A. F. Moratz		11-5-52	

Revised 11-3-55

COMPUTATION OF SUBMERGED FLOW OVER DROP SPILLWAYS



1. Determine Tailwater Elevation

2. Detrmine H_2 by: Tailwater Elevation − Crest of Weir Elevation = H_2

3. Assume H_1 (Rule of Thumb--Use 2 x H_2 for First Trial.)

EXAMPLE: Given: F = 4
Q (design) = 250 c.f.s.
Tailwater Elevation = 101.50
Notch Elevation = 100.00

Find: Length and Depth of Notch Required

1. Tailwater elevation = 101.50

2. H_2 = 101.50−100.0 = 1.5

3. H_1 = 3.0 (Use Rule Of Thumb.)

4. H_2 / H_1 = 0.5

5. R = 0.97 (Table 2)

6. $Q_s = \frac{Q\ (\text{design})}{R} = \frac{250}{0.97} = 258$ c.f.s.

7. L = 18' (From ES-65 or Drawing No. 3-L-46897)

NOTE: If dimensions obtained by first trial are not appropriate, select an alternate depth of notch and repeat Steps 4 through 7.

Reference: NATIONAL ENGINEERING HANDBOOK, Section 11, "Drop Spillways"

TABLE 2

"R" Factor	
H_2 / H_1	"R"
0.00	1.00
0.40	0.99
0.50	0.97
0.60	0.94
0.70	0.90
0.80	0.83
0.85	0.76
0.90	0.60
0.95	0.32
1.00	0.00