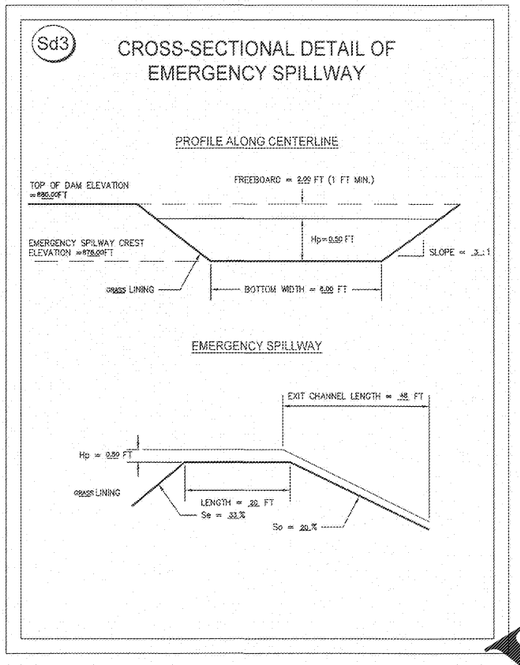
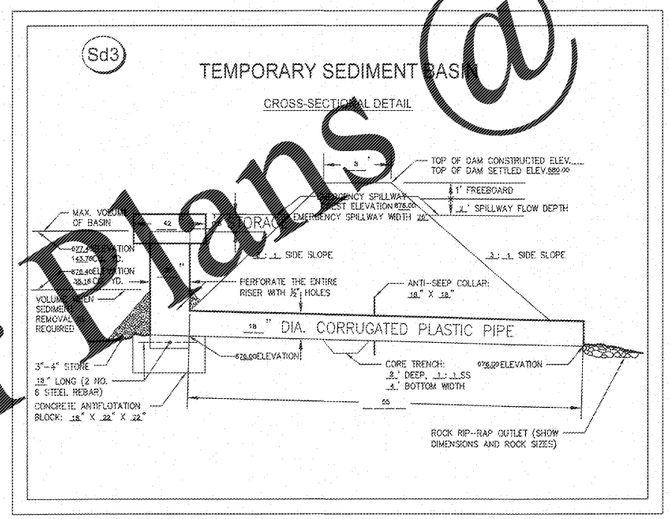
SEDIMENT BASIN No.3

TEMPORARY SEDIMENT BASIN DESIGN				
		Project Name =	Calhoun	
		Basin No. =	3	
		Total area draining to basin =	1.60	acres
		Disturbed area draining to basin =	1.60	acres
		Bottom el of Sed Basin =	676.00	ft
		Top of Dam El =	679.20	ft
		Em Spillway Crest El =	678.50	ft
Volume				
1	Compute minimum required storage volume.	Vs =	107.12	cy. =
2	Compute volume of basin at clean-out.	Vc =	35.18	cy. =
3	Determine elevation corresponding to minimum required storage volume, Vs. (Determined by stage/storage relationship)	Min RC el =	677.10	ft
4	Determine elevation corresponding to clean-out volume, Vc. (Determined by stage/storage relationship)	Co el =	676.40	ft
5	Compute length of riser.	Riser L =	1.10	ft
Stormwater Runoff				
6	Compute peak discharge from a 2-yr, 24-hr storm event. *(Attach runoff computation sheet)*	Q2 =	5.59	cfs
7	Compute peak discharge from a 25-yr, 24-hr storm event. *(Attach runoff computation sheet)*	Q25 =	12.36	cfs
Surface Area/Configuration Design				
8	Compute minimum basin surface area (SAmin)	SAmin =	2435.00	sf
9	Check available area at elevation of riser crest. (Determined by stage/storage relationship)	Avail. A =	3044.00	sf
		Avail. A > SAmin	Yes	
10	Compute required length to achieve 2:1 L:W ratio.	Ave W =	46.5	ft
		Req. L =	93	ft
		Avail. L =	98	ft
		2:1 L:W	Yes	
Principal Spillway				
11	Determine maximum principal spillway capacity	Qmax = Q2 =	5.59	cfs
12	Compute the vertical distance between the centerline of the outlet pipe and the emergency spillway crest (H).	H =	1.25	ft
13	Compute the total pipe length of the principal spillway, L, using Figure 6-29.3 (or ACAD).	L =	50	ft
14	Determine diameter of principal spillway (Dps) and flow through the principal spillway (Q) from Table 6-29.1 using H and Qmax.	Dps =	18	in.
		Q from Table =	6.0375	cfs
15	Compute actual flow through the principal spillway, using Table 6-29.1 to determine the correction factor for pipe length, L.	Qps =	6.34	cfs
16	Compute riser diameter (Dr)	Dr =	30	in.
17	Compute trash rack diameter (Dt)	Dt =	42	in.
18	Determine the minimum distance between the riser crest and the emergency spillway crest, h, using Table 6-29.2, Dr, and Qps.	h =	0.6	
Concrete Riser Base Design				
19	Determine the volume of concrete per vertical foot of riser height needed, from Table 6-29.3 to prevent flotation.	Req. V of Conc./ft =	4.20	cf/v.f.
20	Compute total volume of concrete required.	Tot. Req. V of Conc. =	4.72	cf
21	Assume base thickness, B (usually 18")	B =	1.50	ft
22	Compute required surface area.	Req. SA =	3.15	sf
23	Compute riser base length (l) and width (w) (assume square base).	l = w =	1.77	ft
Anti-Seep Collar Design				
24	Determine if anti-seep collar is required. If yes to any of the following conditions, a collar is required.	Req'd	Yes	
	- The settled height of the dam is greater than 15 feet.			
	- The principal spillway diameter (Dps) is smooth pipe larger than 8".			
	- The principal spillway diameter (Dps) is corrugated metal pipe larger than 12".	X		
25	Determine size of anti-seep collar required.	Size =	18	in.
	18-inch projection (for heads (H) less than or equal to 10 feet).	18		
	24-inch projection (for heads (H) greater than 10 feet).	24		
Emergency Spillway (es)				
26	Compute minimum capacity of emergency spillway (Qes).	Qes = Q25 - Qps =	6.02	cfs
27	Determine stage (Hp), bottom width (b), velocity (V), and minimum exit slope (S) using Table 6-29.4 and Qes.	Hp =	0.5	ft
		b =	8	ft
		V =	2.7	fps
		S =	3.9	%
28	Actual entrance channel slope.	Se =	33	%
29	Actual exit channel slope. Note: If So is steeper than S (from Table 6-29.4), then the velocity in the exit channel will increase.	So =	20	%
		If So > S	Yes	
		Vo =	4.41	fps
		Proper Lining =	Grassed	
Design Elevations				
30	Riser Crest Elevation	RC el =	677.10	
31	Compute minimum emergency spillway crest elevation.	Min esC el =	677	
32	Determine design high water elevation.	D HW el =	678.60	ft
33	Determine elevation of top of dam.	El of top of dam =	679	ft

Basin 3 Faircloth Skimmer Dimensions

Skimmer Size	2.5	inch
Orifice Radius	0.9	inch(es)
Orifice Diameter	1.8	inch(es)



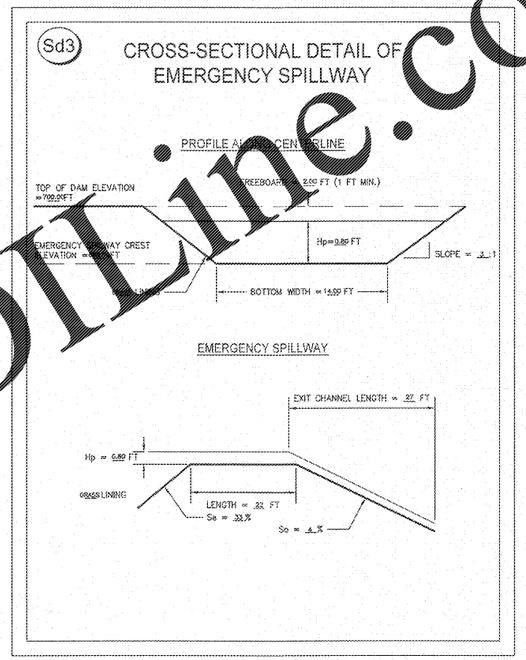


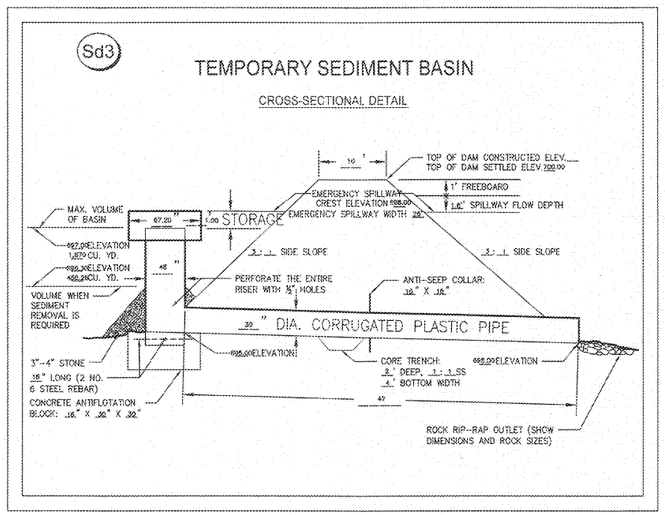
SEDIMENT BASIN No.4

TEMPORARY SEDIMENT BASIN DESIGN				
		Project Name =	Calhoun	
		Basin No. =	4	
		Total area draining to basin =	20.83	acres
		Disturbed area draining to basin =	20.83	acres
		Bottom el of Sed Basin =	696.00	ft
		Top of Dam El =	700.00	ft
		Em Spillway Crest El =	699.00	ft
Volume				
1	Compute minimum required storage volume.	Vs =	1395.61	cy. =
2	Compute volume of basin at clean-out.	Vc =	458.26	cy. =
3	Determine elevation corresponding to minimum required storage volume, Vs. (Determined by stage/storage relationship)	Min RC el =	698.85	ft
4	Determine elevation corresponding to clean-out volume, Vc. (Determined by stage/storage relationship)	Co el =	696.30	ft
5	Compute length of riser.	Riser L =	0.85	ft
Stormwater Runoff				
6	Compute peak discharge from a 2-yr, 24-hr storm event. *(Attach runoff computation sheet)*	Q2 =	25	cfs
7	Compute peak discharge from a 25-yr, 24-hr storm event. *(Attach runoff computation sheet)*	Q25 =	[illegible]	cfs
Surface Area/Configuration Design				
8	Compute minimum basin surface area (SAmin)	SAmin =	15064.2	
9	Check available area at elevation of riser crest. (Determined by stage/storage relationship)	Avail. A =	46154.00	sf
		Avail. A > SAmin	yes	
10	Compute required length to achieve 2:1 L:W ratio.	Ave W =	130	ft
		Req. L =	260	ft
		Avail. L =	300	ft
		2:1 L:W	Yes	
Principal Spillway				
11	Determine maximum principal spillway capacity	Qmax = Q2 =	25	cfs
12	Compute the vertical distance between the centerline of the outlet pipe and the emergency spillway crest (H).	H =	1.75	ft
13	Compute the total pipe length of the principal spillway, L, using Figure 6-29.3 (or ACAD).	L =	70	ft
14	Determine diameter of principal spillway (Dps) and flow through the principal spillway (Q) from Table 6-29.1 using H and Qmax.	Dps =	30	in.
		Q from Table =	32.6	cfs
15	Compute actual flow through the principal spillway, using Table 6-29.1 to determine the correction factor for pipe length, L.	Qps =	32.60	cfs
16	Compute riser diameter (Dr)	Dr =	48.00	in.
17	Compute trash rack diameter (Dt)	Dt =	67.20	in.
18	Determine the minimum distance between the riser crest and the emergency spillway crest, h, using Table 6-29.2, Dr, and Qps.	h =	1	
Concrete Riser Base Design				
19	Determine the volume of concrete per vertical foot of riser height needed, from Table 6-29.3 to prevent flotation.	Req. V of Conc./ft =	10.98	cf/v.f.
20	Compute total volume of concrete required.	Tot. Req. V of Conc. =	9.33	cf
21	Assume base thickness, B (usually 18")	B =	1.50	ft
22	Compute required surface area.	Req. SA =	6.22	sf
23	Compute riser base length (l) and width (w) (assume square base).	l = w =	2.49	ft
Anti-Seep Collar Design				
24	Determine if anti-seep collar is required. If yes to any of the following conditions, a collar is required.	Req'd	yes	
	- The settled height of the dam is greater than 15 feet.			
	- The principal spillway diameter (Dps) is smooth pipe larger than 8".			
	- The principal spillway diameter (Dps) is corrugated metal pipe larger than 12".	X		
25	Determine size of anti-seep collar required.	Size =	18	in.
	18-inch projection (for heads (H) less than or equal to 10 feet).	18		
	24-inch projection (for heads (H) greater than 10 feet).	24		
Emergency Spillway (es)				
26	Compute minimum capacity of emergency spillway (Qes).	Qes = Q25 - Qps =	21.37	cfs
27	Determine stage (Hp), bottom width (b), velocity (V), and minimum exit slope (S) using Table 6-29.4 and Qes.	Hp =	0.8	ft
		b =	16	ft
		V =	3.5	fps
		S =	3.2	%
28	Actual entrance channel slope.	Se =	33	%
29	Actual exit channel slope. Note: If So is steeper than S (from Table 6-29.4), then the velocity in the exit channel will increase.	So =	4	%
		If So > S	Yes	
		Vo =	3.74	fps
		Proper Lining =	Grassed	
Design Elevations				
30	Riser Crest Elevation	RC el =	696.85	
31	Compute minimum emergency spillway crest elevation.	Min esC el =	697.35	ft
32	Determine design high water elevation.	D HW el =	698.65	ft
33	Determine elevation of top of dam.	El of top of dam =	699.65	ft

Basin 4 Faircloth Skimmer Dimensions

Skimmer Size	5	inch
Orifice Radius	2.5	inch(es)
Orifice Diameter	4.9	inch(es)





EROSION CONTROL CERTIFICATION
I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HERIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION.

BY: _____

ROSS GRIMBALL, REGISTERED GEORGIA ENGINEER No. 026522

LEVEL II CERTIFIED DESIGN PROFESSIONAL
CERTIFICATION NUMBER 0000035848

GEORGIA REGISTERED No. 026522 PROFESSIONAL ENGINEER ROSS G. GRIMBALL

5-22-18

THIS DRAWING IS NOT VALID WITHOUT AN ORIGINAL BLUE INK SIGNATURE AND ORIGINAL HANDWRITTEN DATE OF A LICENSED PROFESSIONAL ENGINEER.

SEDIMENT CONTROL DETAILS & NOTES

ES-7

RC 161031
file: 161031 details
drawn: dmt
date: 05-22-2018

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