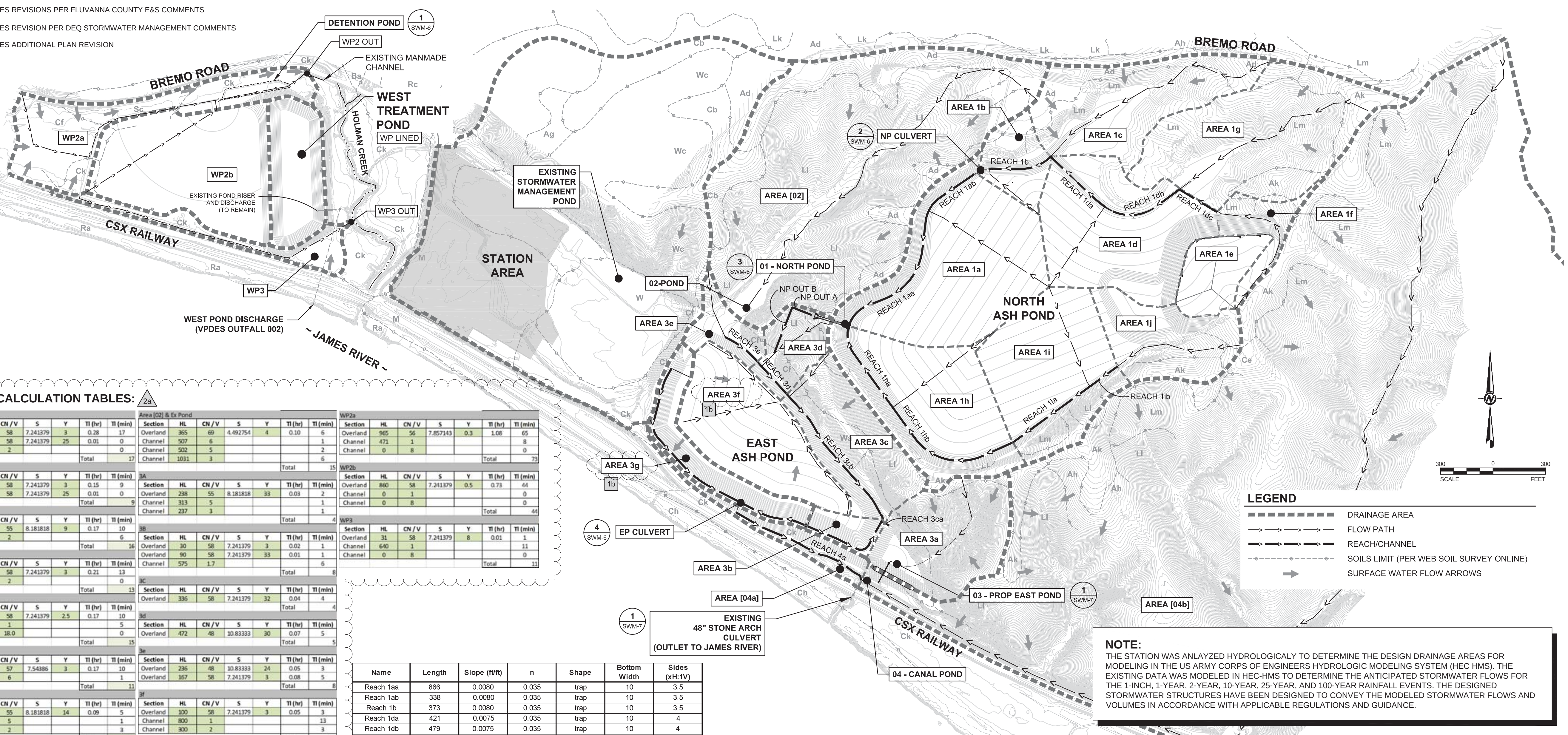
1a - DENOTES REVISIONS PER FLUVANNA COUNTY E&S COMMENTS

1b - DENOTES REVISION PER DEQ STORMWATER MANAGEMENT COMMENTS

1c - DENOTES ADDITIONAL PLAN REVISION



LEGEND

- DRAINAGE AREA
- FLOW PATH
- REACH/CHANNEL
- SOILS LIMIT (PER WEB SOIL SURVEY ONLINE)
- SURFACE WATER FLOW ARROWS

NOTE:

THE STATION WAS ANLAYZED HYDROLOGICALY TO DETERMINE THE DESIGN DRAINAGE AREAS FOR MODELING IN THE US ARMY CORPS OF ENGINEERS HYDROLOGIC MODELING SYSTEM (HEC HMS). THE EXISTING DATA WAS MODELED IN HEC-HMS TO DETERMINE THE ANTICIPATED STORMWATER FLOWS FOR THE 1-INCH, 1-YEAR, 2-YEAR, 10-YEAR, 25-YEAR, AND 100-YEAR RAINFALL EVENTS. THE DESIGNED STORMWATER STRUCTURES HAVE BEEN DESIGNED TO CONVEY THE MODELED STORMWATER FLOWS AND VOLUMES IN ACCORDANCE WITH APPLICABLE REGULATIONS AND GUIDANCE.

LAG TIME CALCULATION TABLES: 2a

1a

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	785	58	7.241379	3	0.28	17
Overland	29	58	7.241379	25	0.01	0
Channel	0	2				0
					Total	17

1b

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	365	58	7.241379	3	0.15	9
Overland	33	58	7.241379	25	0.01	0
					Total	9

1c

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	774	55	8.181818	9	0.17	10
Channel	685	2				6
					Total	16

1d

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	558	58	7.241379	3	0.21	13
Channel	0	2				0
					Total	13

1e

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	370	58	7.241379	2.5	0.17	10
Channel	322	1				5
DC	140	18.0				0
					Total	15

1f

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	405	57	7.54386	3	0.17	10
Channel	506	6				1
					Total	11

1g

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	460	55	8.181818	14	0.09	5
Channel	400	5				1
Channel	390	2				3
					Total	10

1h

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	675	58	7.241379	3	0.24	15
Overland	48	58	7.241379	25	0.01	1
					Total	15

1i

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	615	58	7.241379	3	0.23	14
Channel	0	2				0
					Total	14

1j

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	431	55	8.181818	12	0.09	6
Channel	135	5				0
Channel	185	2				2
					Total	8

Area [02] & Ex Pond

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	365	69	4.492754	4	0.10	6
Channel	507	6				1
Channel	502	5				2
Channel	1031	3				6
					Total	15

3A

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	238	55	8.181818	33	0.03	2
Channel	313	5				1
Channel	237	3				1
					Total	4

3B

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	30	58	7.241379	3	0.02	1
Overland	90	58	7.241379	33	0.01	1
Channel	575	1.7				6
					Total	8

3C

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	336	58	7.241379	32	0.04	4
					Total	4

3d

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	472	48	10.83333	30	0.07	5
					Total	5

3e

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	236	48	10.83333	24	0.05	3
Overland	167	58	7.241379	3	0.08	5
					Total	8

3f

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	100	58	7.241379	3	0.05	3
Channel	800	1				13
Channel	300	2				3
					Total	19

3g

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	120	58	7.241379	33	0.02	1
Channel	1030	2				9
					Total	10

Area [04a] & Canal Pond West

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	70	58	7.241379	33	0.01	1
					Total	1

Area [04b] & Cannal Pond East

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	557	48	10.83333	12	0.13	8
Channel	4050	4				17
Channel	2278	2				19
					Total	44

WP2a

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	965	56	7.857143	0.3	1.08	65
Channel	471	1				8
Channel	0	8				0
					Total	73

WP2b

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	860	58	7.241379	0.5	0.73	44
Channel	0	1				0
Channel	0	8				0
					Total	44

WP3

Section	HL	CN / V	S	Y	Tl (hr)	Tl (min)
Overland	31	58	7.241379	8	0.01	1
Channel	640	1				11
Channel	0	8				0
					Total	11

Name	Length	Slope (ft/ft)	n	Shape	Bottom Width	Sides (xH:1V)
Reach 1aa	866	0.0080	0.035	trap	10	3.5
Reach 1ab	338	0.0080	0.035	trap	10	3.5
Reach 1b	373	0.0080	0.035	trap	10	3.5
Reach 1da	421	0.0075	0.035	trap	10	4
Reach 1db	479	0.0075	0.035	trap	10	4
Reach 1dc	250	0.0300	0.035	trap	5	4
Reach 1ha	546	0.0080	0.035	trap	10	3.5
Reach 1hb	839	0.0080	0.035	trap	10	3.5
Reach 1ia	328	0.0080	0.035	trap	10	3.5
Reach 1ib	194	0.0080	0.035	trap	10	3.5
NP Out A	120	0.0050	0.040	trap	10	2
NP Out B	280	0.2300	0.040	trap	10	2
Reach 3ca	135	0.0080	0.040	trap	40	3
Reach 3cb	808	0.0050	0.035	trap	6	3
Reach 3d	250	0.0050	0.035	trap	6	3
Reach 3e	233	0.0050	0.035	trap	6	3
Reach 4a	830	0.0170	0.035	V	0	3
Reach WP2a	230	0.0300	0.040	trap	4	3
Reach WP3a	1040	0.0100	0.040	trap	3	2

Post Closure			North Pond									
Model Inputs			Area 1a	Area 1b	Area 1c	Area 1d	Area 1e	Area 1f	Area 1g	Area 1h	Area 1i	Area 1j
Total Drainage Area (ac)			17.32	3.40	11.67	14.07	3.83	2.96	16.95	13.36	12.57	7.18
Land Coverage (ac)	Heavy Woods, CN =	55	0	0.27	5.63	3.48	0	0.64	12.89	0	0.75	2.63
	Brush, CN =	48	0	0	1.2	0	0	0	1.25	0	0	0
	Grass/Meadow, CN =	58	17.32	3.13	4.84	10.59	3.83	2.32	2.81	13.36	11.82	4.55
	Gravel/Impervious, CN =	91	0	0	0	0	0	0	0	0	0	0
	Exposed CCR, CN =	91	0	0	0	0	0	0	0	0	0	0
	Water Surface, CN =	98	0	0	0	0	0	0	0	0	0	0
Composit CN			58	58	56	57	58	57	55	58	58	57
Percent Impervious (%)			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lag Time (min)			17	9	16	13	15	11	10	15	14	8

Post Closure			East Pond								Canal Pond		West Pond		
Model Inputs			Area [02]	Area 3a	Area 3b	Area 3c	Area 3d	Area 3e	Area 3f	Area 3g	Area 4a	Area 4b	WP2a	WP2b	WP3
Total Drainage Area (ac)			42.81	9.48	1.66	8.68	3.39	2.54	10.68	4.99	2.76	306.20	9.70	14.03	3.35
Land Coverage (ac)	Heavy Woods, CN =	55	36.01	7.35	0	2.08	0.5	0	0	0	0	125.98	3.75	0	0.93
	Brush, CN =	48	0	0	0	0	1.25	0.78	0	0	0.97	180.22	1.47	0	0
	Grass/Meadow, CN =	58	5.07	2.13	1.58	6.6	1.34	1.71	10.68	4.69	1.49	0	4.23	14.03	1.82
	Gravel/Impervious, CN =	91	1.31	0	0.08	0	0.3	0.05	0	0.3	0.3	0	0.25	0	0.06
	Exposed CCR, CN =	91	0	0	0	0	0	0	0	0	0	0	0	0	0
	Water Surface, CN =	98	0.42	0	0	0	0	0	0	0	0	0	0	0	0
Composit CN			57	56	60	57	57	56	58	60	58	51	56	58	58
Percent Impervious (%)			4%	0%	5%	0%	9%	2%	0%	6%	11%	0%	3%	0%	2%
Lag Time (min)			15	4	8	4	5	8	19	10	1	44	73	44	11

HYDRAULIC ANALYSIS (POST-DEVELOPMENT CONDITIONS) 1a 1b

HEC-HMS MODEL INPUTS

	Drainage Area	Peak Discharge (CFS)					
	DA (ac)	1-inch	1-year	2-year	10-year	25-year	100-year
Area 1e	3.84	0.00	0.20	0.70	3.50	6.20	11.60
Area 1f	3.20	0.00	0.10	0.60	3.30	5.80	11.00
Reach-1dc	7.04	0.00	0.30	1.20	6.60	11.60	22.00
Area 1g	16.64	0.00	0.30	2.10	15.10	27.80	54.70
Reach-1db	23.68	0.00	0.60	3.20	21.20	38.50	75.40
Area 1d	14.08	0.00	0.50	2.30	13.10	23.20	44.20
Reach-1da	37.76	0.00	1.00	5.40	34.20	61.60	119.20
Area 1c	11.52	0.00	0.30	1.30	8.50	15.60	30.70
Reach-1b	49.28	0.00	1.30	6.70	42.50	76.90	149.30
Area 1b	3.20	0.00	0.20	0.80	3.90	6.70	12.50
NP Culvert	52.48	0.00	1.40	6.80	40.20	68.20	110.70
Reach-1ab	52.48	0.00	1.40	6.70	40.10	68.20	110.70
Area 1a	17.28	0.00	0.80	2.90	14.60	25.60	48.20
Reach-1aa	69.76	0.00	2.10	9.20	53.50	91.40	154.20
Area 1j	7.04	0.00	0.30	1.60	8.40	14.70	27.60
Reach-1ib	7.04	0.00	0.30	1.60	8.40	14.60	27.50
Area 1i	12.80	0.00	0.60	2.40	12.30	21.40	40.20
Reach-1ia	19.84	0.00	0.90	3.80	19.80	34.40	64.70
Reach-1hb	19.84	0.00	0.90	3.80	19.70	34.20	64.40
Area 1h	13.44	0.00	0.60	2.40	12.40	21.50	40.50
Reach-1ha	33.28	0.00	1.50	6.00	31.70	55.40	104.60
01 - North Pond	103.04	0.00	3.40	14.30	82.50	142.10	250.50

	Drainage Area	Peak Discharge (CFS)					
	DA (ac)	1-inch	1-year	2-year	10-year	25-year	100-year
WP Liner DA	5.89	7.10	18.80	22.80	34.50	42.50	56.60
WP Lined	5.89	0.30	2.00	2.60	4.30	5.50	7.40
WP2b	14.02	0.00	0.40	1.30	6.00	10.50	20.10
WP2a	9.73	0.10	0.40	0.90	3.20	5.40	9.90
West Pond Detention	23.74	0.10	0.30	0.50	6.80	12.70	23.50
Reach-WP1a	23.74	0.10	0.30	0.50	6.80	12.70	23.50
WP2 out	23.74	0.10	0.30	0.50	6.80	12.70	23.50
WP3	3.33	0.10	0.30	0.90	3.90	6.60	12.20
Reach-WP3a	3.33	0.10	0.30	0.90	3.90	6.60	12.10
WP3 out	3.33	0.10	0.30	0.90	3.90	6.60	12.10

	Drainage Area	Peak Discharge (CFS)					
	DA (ac)	1-inch	1-year	2-year	10-year	25-year	100-year
Area [02]	42.88	5.60	15.30	22.40	57.10	87.50	149.10
02 - Pond	42.88	3.00	10.90	16.10	56.50	86.70	147.60
Area 3e	2.56	0.10	0.20	0.60	3.00	5.20	9.90
Reach-3e	45.44	3.00	11.00	16.30	58.20	89.70	153.50
NP Out A	103.04	0.00	3.40	14.30	82.40	141.90	250.40
NP Out B	103.04	0.00	3.40	14.30	82.40	141.90	250.40
Area 3d	3.20	0.40	1.00	1.80	5.70	9.10	15.90
Reach-3d	151.68	3.10	11.70	29.40	134.10	225.70	399.10
Area 3f	10.88	0.00	0.50	1.70	8.50	14.90	28.30
Area 3c	8.96	0.00	0.60	2.70	13.20	22.50	41.90
Reach-3cb	171.52	3.10	12.50	31.40	144.80	244.40	433.60
Area 3b	1.92	0.10	0.50	1.00	3.20	5.10	8.90
Reach-3ca	173.44	3.10	12.60	31.60	145.60	245.80	436.20
Area 3a	9.60	0.00	0.40	2.40	13.10	22.80	43.10
03 - Prop East Pond	183.04	2.70	4.70	6.10	13.40	18.60	88.60
03 - EP Spillway	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area 3g	5.12	0.30	1.30	2.50	8.00	12.60	21.90
EP Culvert	5.12	0.30	1.10	2.10	5.80	8.50	13.70
Area [04a]	2.56	0.40	1.10	2.10	5.90	9.10	15.40
Reach-4a	7.68	0.50	1.50	2.70	8.00	12.60	20.60
Area [04b]	305.92	0.00	1.50	6.60	65.90	137.70	309.00
04 - Canal Pond	496.64	2.80	6.20	12.90	76.30	150.30	251.10
Outlet to James	496.64	2.80	6.20	12.90	76.30	150.30	251.10

HYDRAULIC ANALYSIS (POST-DEVELOPMENT CONDITIONS) 1a 1b

HEC-HMS MODEL OUTPUTS

Golder Associates

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
2	1/24/16	JRD	REV. PER DEQ SWM COMMENTS	KLL	ATN	JRD
1	1/20/16	JRD	REV. PER COUNTY AND DEQ COMMENTS	ABM	ATN	JRD

COMMONWEALTH OF VIRGINIA
JAMES R. DIFRANCESCO
Lic. No. 028260
2-24-16
PROFESSIONAL ENGINEER

PROJECT

DOMINION
BREMO POWER STATION
CCR SURFACE IMPOUNDMENT
CLOSURE PLAN
FLUVANNA COUNTY, VIRGINIA

TITLE

POST-DEVELOPMENT DRAINAGE AREA CALCULATIONS

PROJECT No.	15-20347
FILE No.	1520347J_SMW3-5
REV. 0	SCALE AS SHOWN
DESIGN JRD	08/18/15
CADD ATN	08/18/15
CHECK DPM	10/14/15
REVIEW JRD	10/14/15

DRAWING SWM-3

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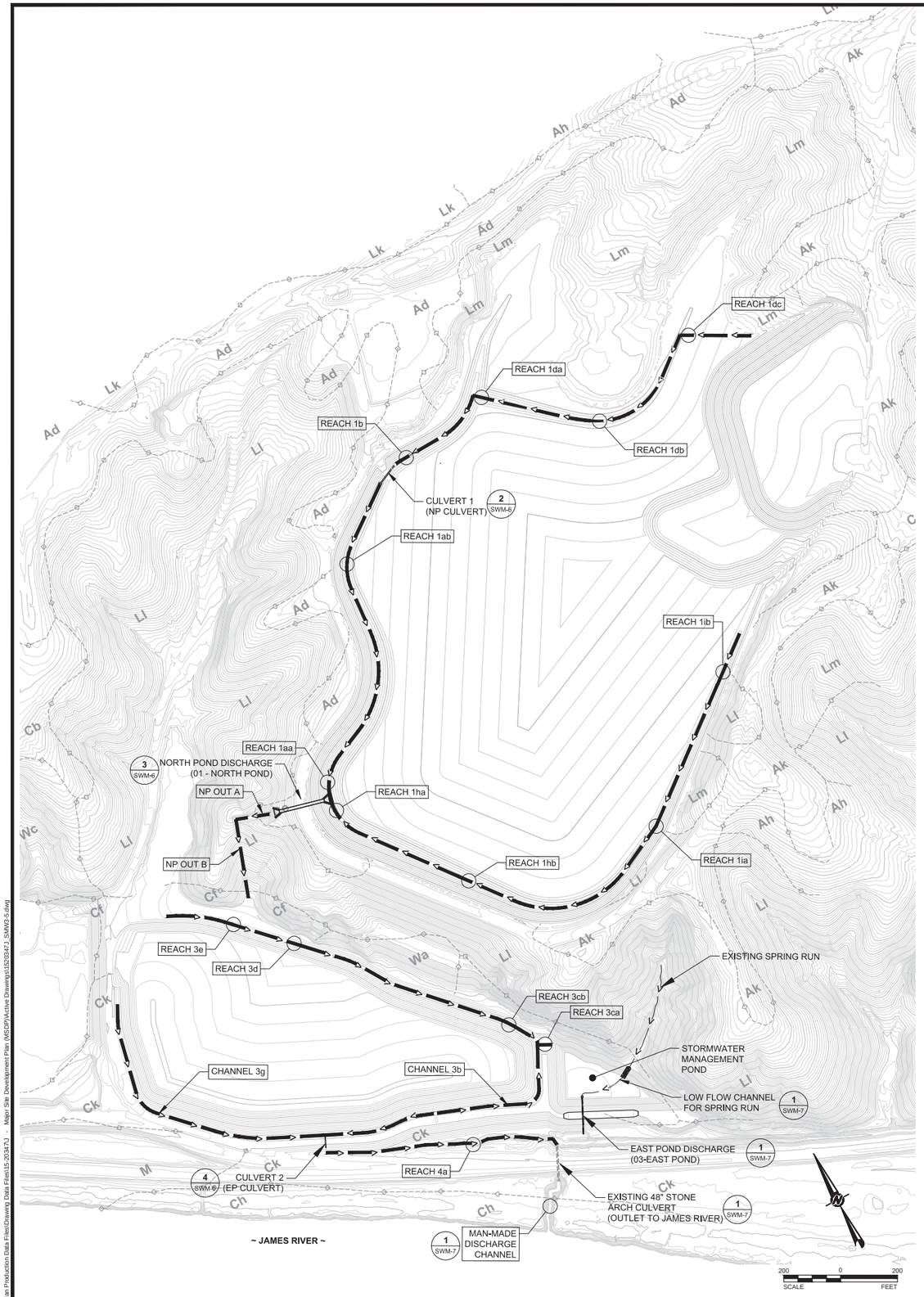

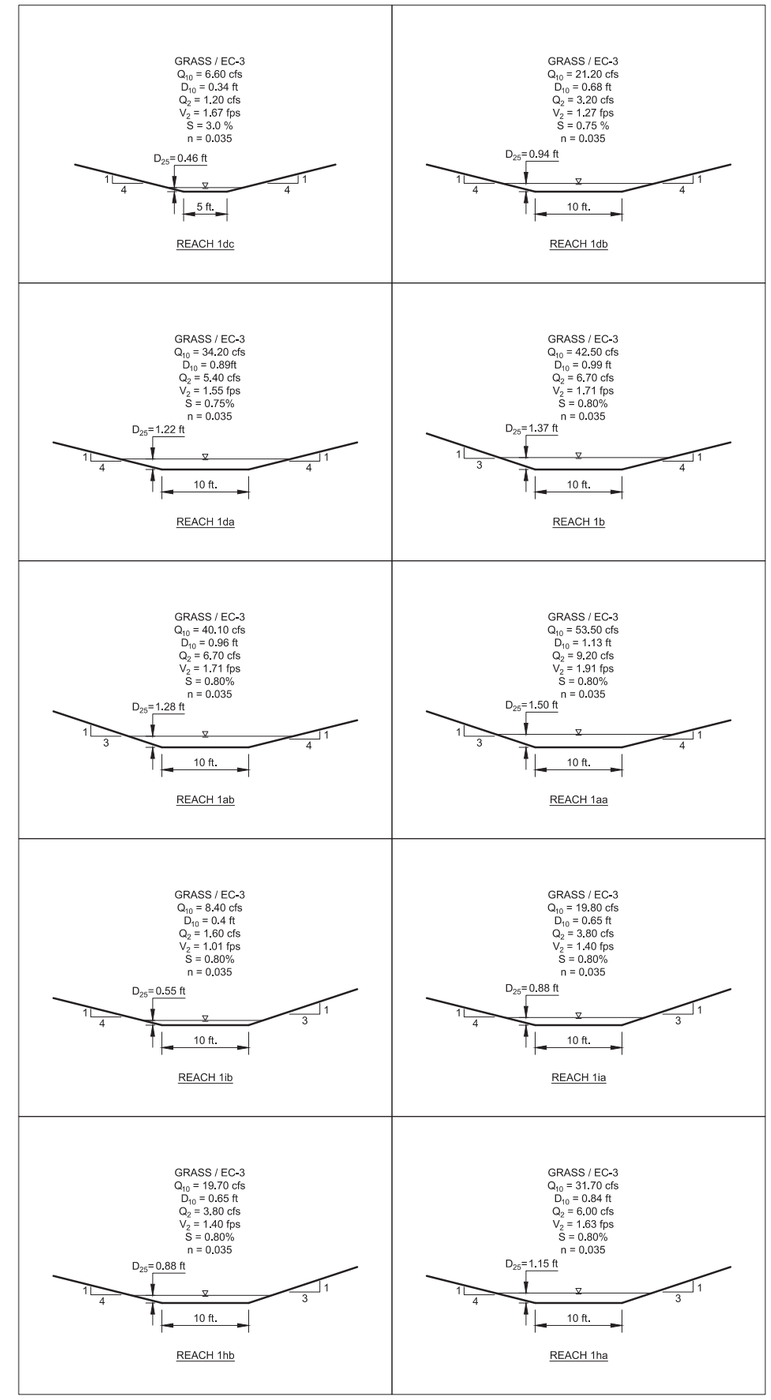

Golder Associates

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
1	1/24/16	JRD	REV. PER DEQ SWM COMMENTS	KLL	ATN	JRD
2	1/20/16	JRD	REV. PER COUNTY AND DEQ COMMENTS	ABM	ATN	JRD

COMMONWEALTH OF VIRGINIA
JAMES R. DIFRANCESCO
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2-24-16
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PROJECT

DOMINION
BREMO POWER STATION
CCR SURFACE IMPOUNDMENT
CLOSURE PLAN

FLUVANNA COUNTY, VIRGINIA

TITLE

CHANNEL CROSS SECTIONS (1 OF 2)

PROJECT No.		15-20347
FILE No.		1520347J_SMW3-5
REV. 0	SCALE	AS SHOWN
DESIGN	JRD	08/18/15
CADD	ATN	08/18/15
CHECK	DPM	10/14/15
REVIEW	JRD	10/14/15

DRAWING
SWM-4

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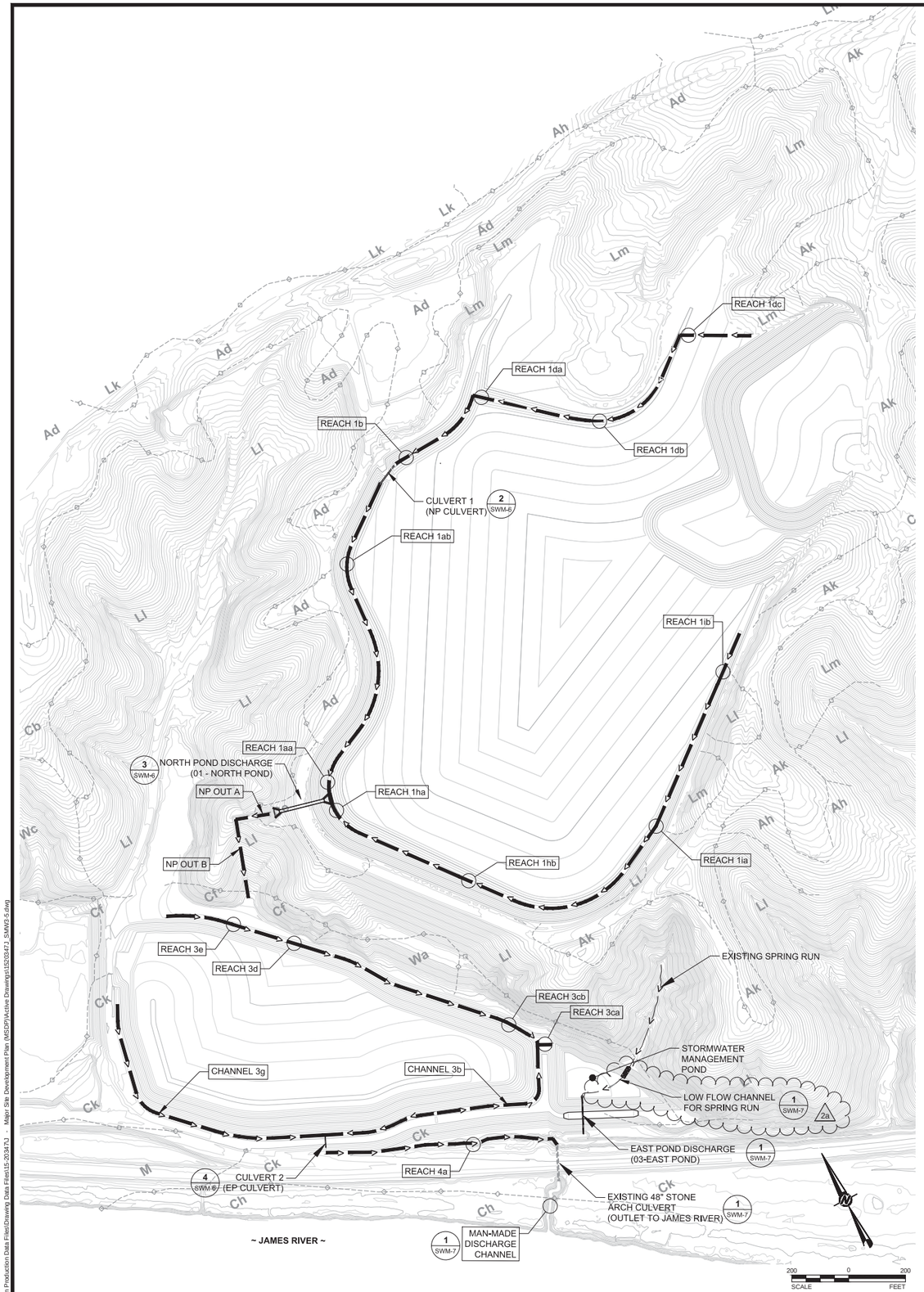

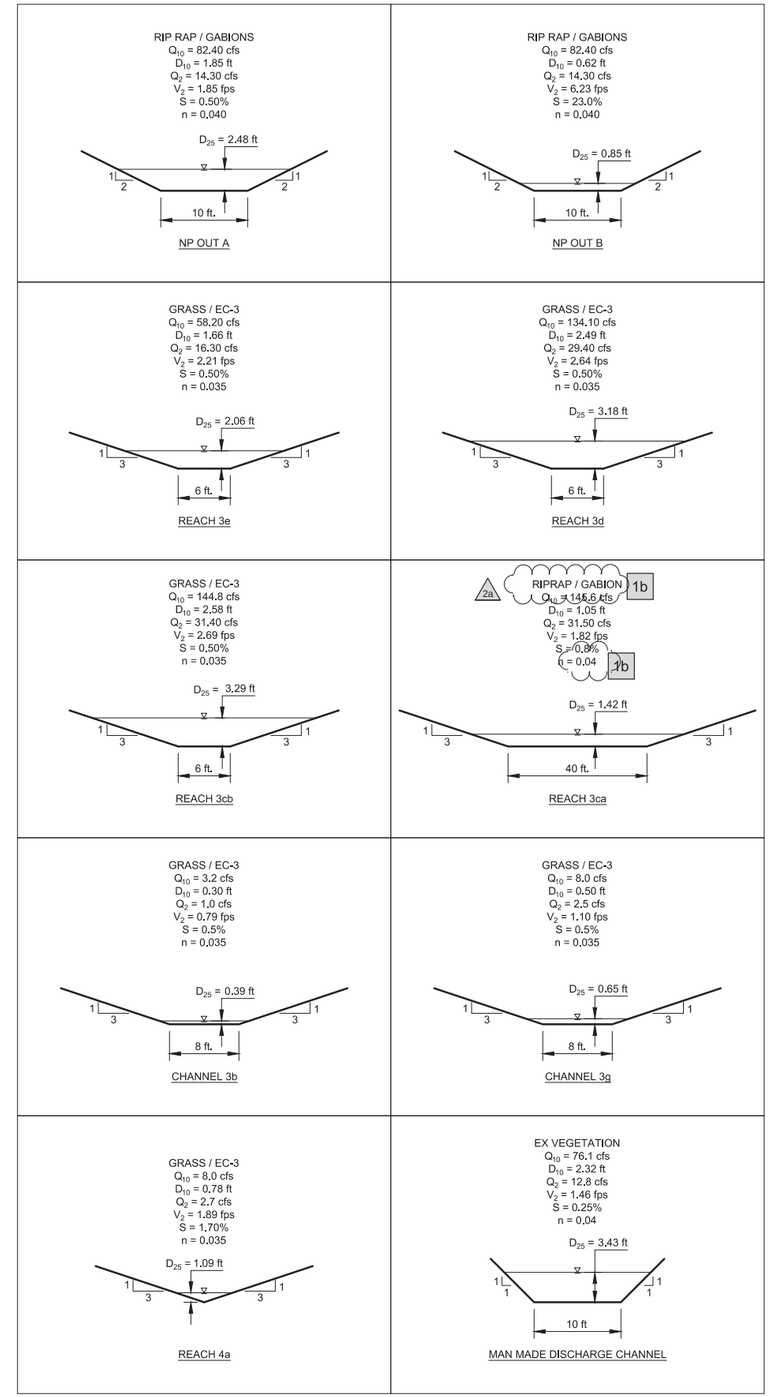

Golder Associates

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
2	1/24/16	JRD	REV. PER DEQ SWM COMMENTS	KLL	ATN	JRD
1	1/20/16	JRD	REV. PER COUNTY AND DEQ COMMENTS	ABM	ATN	JRD

COMMONWEALTH OF VIRGINIA
JAMES R. DEFRANCESCO
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2-24-16
PROFESSIONAL ENGINEER

PROJECT
DOMINION
BREMO POWER STATION
CCR SURFACE IMPOUNDMENT
CLOSURE PLAN
FLUVANNA COUNTY, VIRGINIA

TITLE
CHANNEL CROSS SECTIONS (2 OF 2)

PROJECT No.		15-20347
FILE No.		1520347J_SMW3-5
REV. 0	SCALE	AS SHOWN
DESIGN	JRD	08/18/15
CADD	ATN	08/18/15
CHECK	DPM	10/14/15
REVIEW	JRD	10/14/15

DRAWING SWM-5

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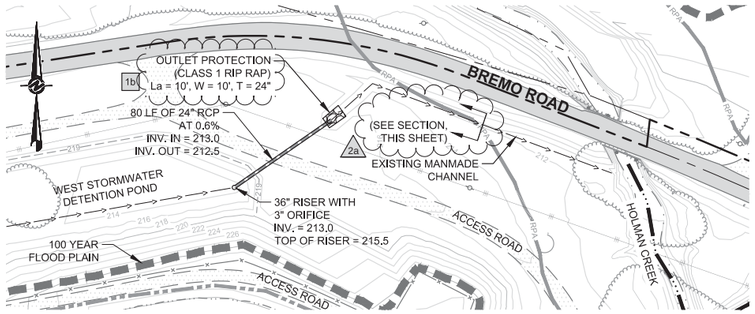
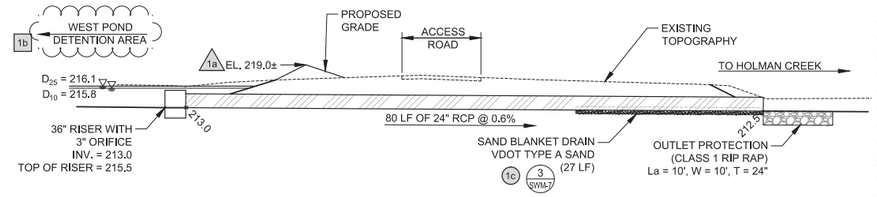
1a - DENOTES REVISIONS PER FLUVANNA COUNTY E&S COMMENTS

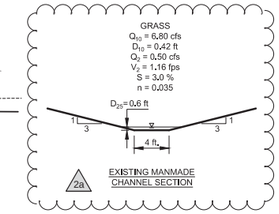
1b - DENOTES REVISION PER DEQ STORMWATER MANAGEMENT COMMENTS

1c - DENOTES ADDITIONAL PLAN REVISION

2a - DENOTES REVISION PER DEQ STORMWATER MANAGEMENT COMMENTS



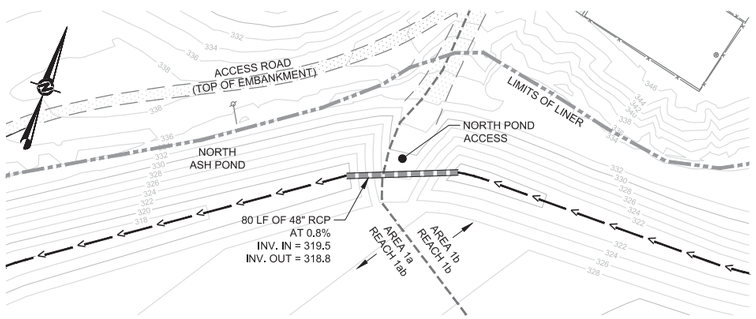


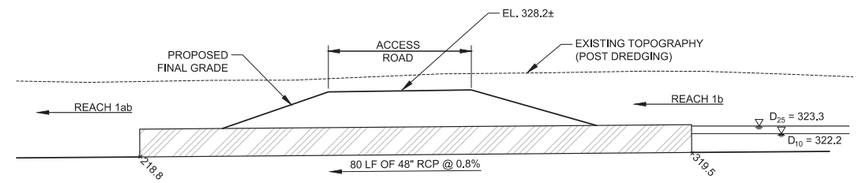


Pond Summary Results	2-year	10-year	25-year	100-year
West Pond Detention (For Adjacent Areas)				
Peak Inflow (CFS)	2.00	8.50	14.60	27.70
Peak Outflow (CFS)	0.50	6.80	12.70	23.50
Peak Elevation (ft)	215.50	215.80	216.10	216.60

West Pond Detention			
Stage Storage tables		Discharge	Notes
elev	Area (ac)	Q (CFS)	
213	0.00	0	<-- 3" Orifice
213.5	0.02	0.17	
214	0.09	0.24	
214.5	0.15	0.30	
215	0.23	0.35	
215.5	0.35	0.39	<-- Top of riser
216	0.46	11.42	
216.5	0.51	23.00	
217	0.53	25.00	

1 SWM-6 WEST STORMWATER DETENTION POND

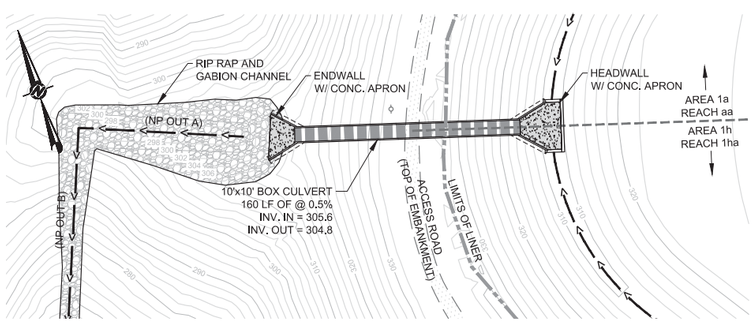


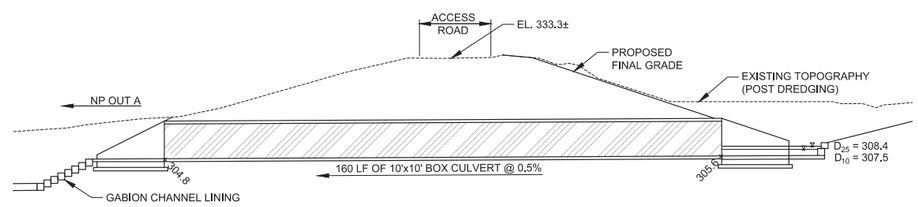


Pond Summary Results	2-year	10-year	25-year	100-year
NP Culver				
Peak Inflow (CFS)	7.10	44.80	81.50	158.30
Peak Outflow (CFS)	6.80	40.20	68.20	110.70
Peak Elevation (ft)	320.40	322.20	323.30	325.30

North Pond, Culvert 1 (NP Culver)			
Stage Storage tables		Discharge	Notes
elev	Area (ac)	Q (CFS)	
319.5	0.00	0	
320	0.02	1.90	
321	0.07	14.40	
322	0.14	35.30	
323	0.25	59.80	
324	0.39	85.00	
325	0.57	106.20	
326	0.78	122.00	

2 SWM-6 NORTH POND, CULVERT 1 (NP CULVERT)

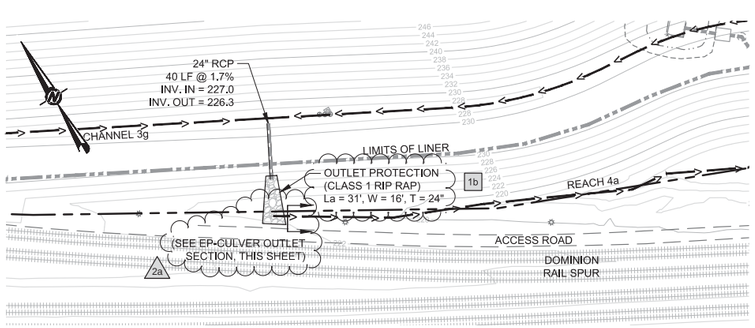


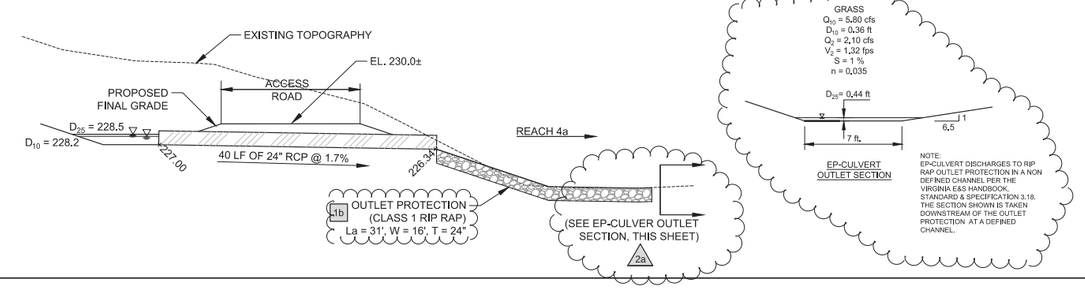


Pond Summary Results	2-year	10-year	25-year	100-year
01 - North Pond				
Peak Inflow (CFS)	14.30	82.50	142.10	250.60
Peak Outflow (CFS)	14.30	82.50	142.10	250.50
Peak Elevation (ft)	306.10	307.50	308.40	309.80

North Pond Discharge (01 - North Pond)			
Stage Storage tables		Discharge	Notes
elev	Area (ac)	Q (CFS)	
305.6	0.00	0	
306	0.02	10.80	
307	0.02	50.50	
308	0.02	110.00	
309	0.02	183.20	
310	0.07	266.40	
312	0.34	458.90	
314	0.77	681.20	
316	1.36	927.50	
318	2.11	1116.30	

3 SWM-6 NORTH POND DISCHARGE (01 - NORTH POND)





Pond Summary Results	2-year	10-year	25-year	100-year
EP culvert				
Peak Inflow (CFS)	2.50	8.00	12.60	21.90
Peak Outflow (CFS)	2.10	5.80	8.50	13.70
Peak Elevation (ft)	227.50	228.20	228.50	229.10

East Pond Culvert (EP - Culvert)			
Stage Storage tables		Discharge	Notes
elev	Area (ac)	Q (CFS)	
227	0.00	0	
228	0.10	4.30	
229	0.26	13.00	
230	0.42	20.50	

4 SWM-5 EAST POND, CULVERT 2 (EP CULVERT)

Golder Associates

REV	DATE	DES	REVISION DESCRIPTION	CHK	CADD
1	1/24/16	JRD	REV. PER DEQ SWM COMMENTS	KLL	ABM
2	1/20/16	JRD	REV. PER COUNTY AND DEQ COMMENTS	ATN	ATN
				JRD	JRD

COMMONWEALTH OF VIRGINIA
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2-24-16
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PROJECT
DOMINION
BREMO POWER STATION
CCR SURFACE IMPOUNDMENT
CLOSURE PLAN
FLUVANNA COUNTY, VIRGINIA

TITLE
CULVERT AND OUTLET CALCULATIONS (1 OF 2)

PROJECT No.	15-20347	
FILE No.	15203473_SWM6-7	
REV. 0	SCALE	AS SHOWN
DESIGN	JRD	08/18/15
CADD	ATN	08/18/15
CHECK	DPM	10/14/15
REVIEW	JRD	10/14/15

DRAWING
SWM-6

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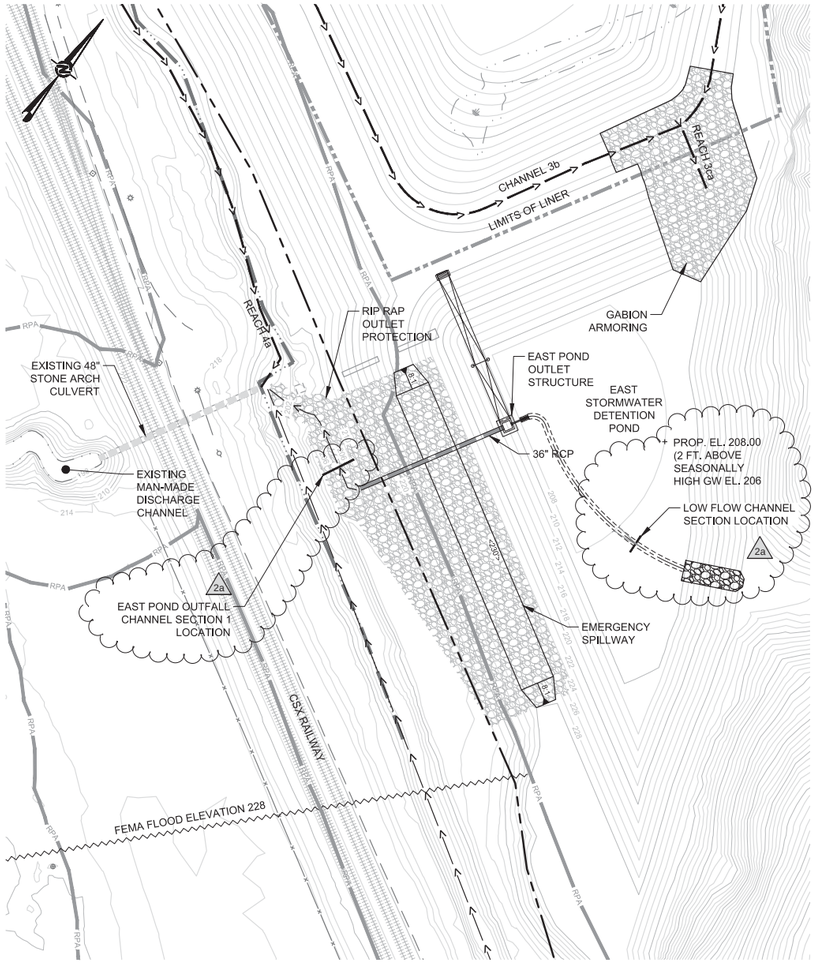
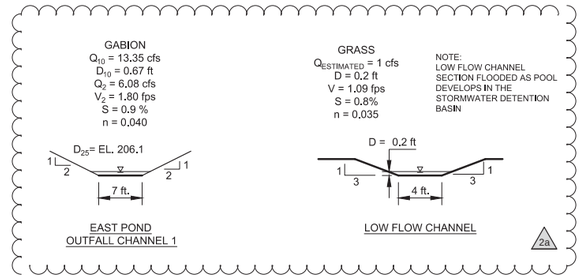
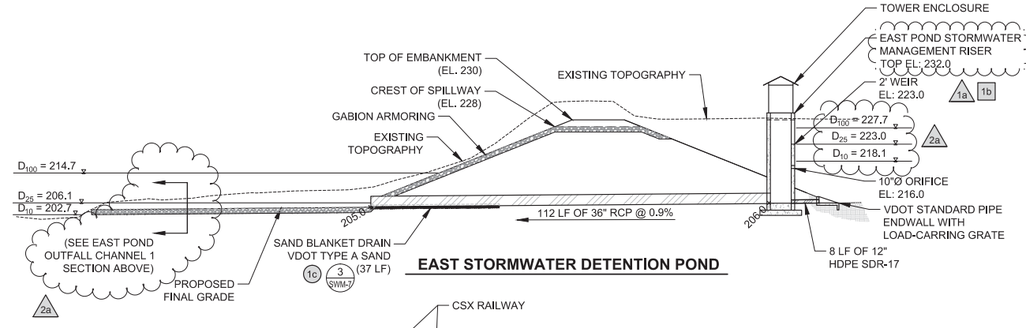


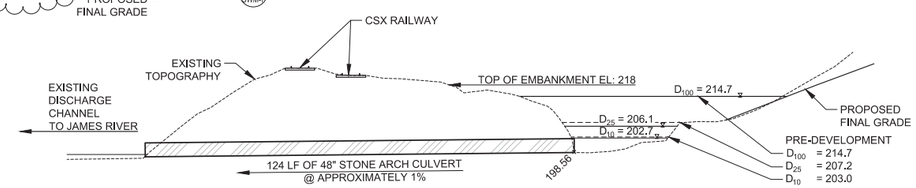
1 SWM-7 **EAST POND DISCHARGE (03 - EAST POND) & CANAL POND DISCHARGE (04-CANAL POND)** 1a 1b

1b

Pond Summary Results	2-year	10-year	25-year	100-year
03 - Prop East Pond				
Peak Inflow (CFS)	32.07	147.98	249.83	443.61
Peak Outflow (CFS)	6.08	13.35	18.61	88.60
Peak Elevation (ft)	210.97	218.12	223.03	227.66
Spillway	0.00	0.00	0.00	0.00
04 - Canal Pond				
Peak Inflow (CFS)	12.92	76.42	157.03	391.43
Peak Outflow (CFS)	12.92	76.33	150.27	251.06
Peak Elevation (ft)	199.71	202.65	206.12	214.66

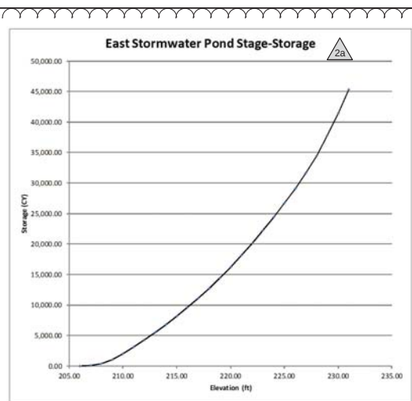






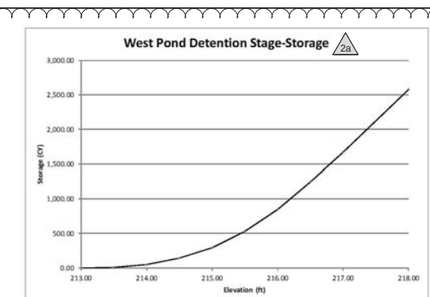
East Pond Discharge (03 - Prop East Pond)			
Stage Storage tables		Discharge	Notes
elev	Area (ac)	Q (CFS)	
206	0.00	0.0	<-- 12" HDPE Pipe
207	0.10	2.71	
208	0.34	3.84	
209	0.57	4.70	
210	0.67	5.42	
211	0.73	6.06	
212	0.77	6.64	
213	0.81	7.18	
214	0.86	7.67	
215	0.91	8.14	
216	0.96	8.58	<-- Orifice B (10"ø)
217	1.01	11.71	
218	1.06	13.23	
219	1.11	14.48	
220	1.17	15.57	
221	1.22	16.57	
222	1.28	17.49	
223	1.34	18.36	<-- 2 ft Weir
224	1.40	25.78	
225	1.46	38.63	
226	1.54	55.00	
227	1.69	74.23	
228	1.90	95.91	<-- Emergency Spillway
229	2.16	836.79	
230	2.41	2196.67	

Canal Pond Rating Table (04-Canal Pond Post Construction)			
Stage Storage tables		Discharge	Notes
elev	Area (ac)	Q (CFS)	
198.56	0.000	0	
199	0.001	3.00	
199.06	0.001	3.70	
199.56	0.002	10.30	
200	0.005	17.80	
200.06	0.006	18.90	
200.56	0.007	29.10	
201	0.009	39.34	
201.06	0.009	40.82	
201.56	0.018	53.22	
202	0.035	63.76	
202.06	0.036	65.17	
202.56	0.054	73.92	
203	0.104	85.25	
204	0.162	109.27	
206	0.308	148.37	
208	0.505	179.08	
210	0.739	204.87	
212	1.240	226.21	
214	2.090	245.22	
216	3.500	262.81	
218	5.470	279.33	



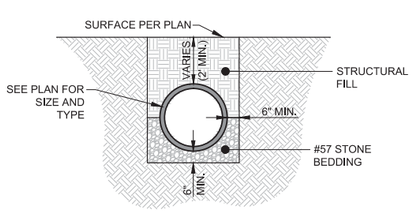
East Stormwater Pond

Elevation	Area		Volume		Cumulative Volume	
(ft)	(sqft)	(acres)	(cuft)	(CY)	(CY)	(cuft)
231.00	104979.6	2.410	104979.60	3888.13	45344.56	1224303
230.00	104979.6	2.410	99484.92	3684.63	41456.42	1119323
229.00	94089.6	2.160	88143.59	3264.58	37771.80	1019839
228.00	82328.4	1.890	77709.72	2878.14	34507.22	931695
227.00	73180.8	1.680	69445.29	2572.05	31629.08	853985
226.00	65775.6	1.510	64464.38	2387.57	29057.04	784540
225.00	63162.0	1.450	61631.11	2282.63	26669.47	720076
224.00	60112.8	1.380	58801.16	2177.82	24386.83	658444
223.00	57499.2	1.320	56187.33	2081.01	22209.01	599643
222.00	54885.6	1.260	53573.49	1984.20	20128.00	543456
221.00	52272.0	1.200	50959.61	1887.39	18143.80	489882
220.00	49658.4	1.140	48565.33	1798.72	16256.40	438923
219.00	47480.4	1.090	46167.43	1709.90	14457.69	390358
218.00	44866.8	1.030	43773.28	1621.23	12747.78	344190
217.00	42688.8	0.980	41595.05	1540.56	11126.55	300417
216.00	40510.8	0.930	39416.79	1459.88	9585.99	258822
215.00	38332.8	0.880	37238.49	1379.20	8126.11	219405
214.00	36154.8	0.830	35060.16	1298.52	6746.91	182166
213.00	33976.8	0.780	32881.79	1217.84	5448.38	147106
212.00	31798.8	0.730	30923.51	1145.32	4230.54	114225
211.00	30056.4	0.690	28960.57	1072.61	3085.22	83301
210.00	27878.4	0.640	25669.58	950.73	2012.61	54340
209.00	23522.4	0.540	18523.05	686.04	1061.88	28671
208.00	13939.2	0.320	8695.82	322.07	375.85	10148
207.00	4356.0	0.100	1452.00	53.78	53.78	1452
206.00	0.0	0.000	-	-	-	-

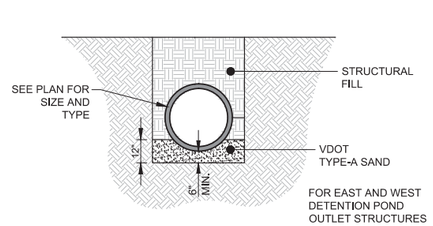


West Pond Detention

Elevation	Area		Volume		Cumulative Volume	
(ft)	(sqft)	(acres)	(cuft)	(CY)	(CY)	(cuft)
218.00	26136.0	0.600	24595.64	910.95	2573.65	69489
217.00	23086.8	0.530	11324.90	419.44	1662.70	44893
216.50	22215.6	0.510	10558.62	391.06	1243.26	33568
216.00	20037.6	0.460	8793.66	325.69	852.20	23009
215.50	15246.0	0.350	6270.65	232.25	526.51	14216
215.00	10018.8	0.230	4107.29	152.12	294.26	7945
214.50	6534.0	0.150	2585.94	95.78	142.14	3838
214.00	3920.4	0.090	1106.62	40.99	46.36	1252
213.50	871.2	0.020	145.20	5.38	5.38	145
213.00	0.0	0.000	-	-	-	-



2 SWM-7 **TYPICAL CULVERT BEDDING DETAIL** 1c



3 SWM-7 **TYPICAL SAND BLANKET DETAIL** 1c

2a - DENOTES REVISION PER DEQ STORMWATER MANAGEMENT COMMENTS

1a - DENOTES REVISIONS PER FLUVANNA COUNTY E&S COMMENTS

1b - DENOTES REVISION PER DEQ STORMWATER MANAGEMENT COMMENTS

1c - DENOTES ADDITIONAL PLAN REVISION

Golder Associates

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
1	1/24/16	JRD	REV. PER DEQ SWM COMMENTS	KLL	ATN	JRD
2	1/20/16	JRD	REV. PER COUNTY AND DEQ COMMENTS	ABM	ATN	JRD

COMMONWEALTH OF VIRGINIA
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PROJECT
DOMINIONS
BREMO POWER STATION
CCR SURFACE IMPOUNDMENT
CLOSURE PLAN
FLUVANNA COUNTY, VIRGINIA

TITLE
CULVERT AND OUTLET CALCULATIONS (2 OF 2)

PROJECT No.		15-20347
FILE No.		1520347J_SWM6-7
REV. 0	SCALE	AS SHOWN
DESIGN	JRD	08/18/15
CADD	ATN	08/18/15
CHECK	DPM	10/14/15
REVIEW	JRD	10/14/15

DRAWING SWM-7

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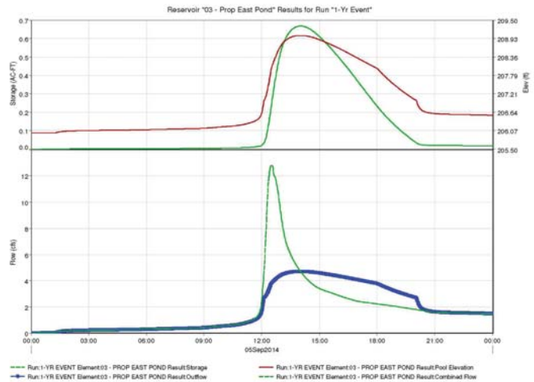
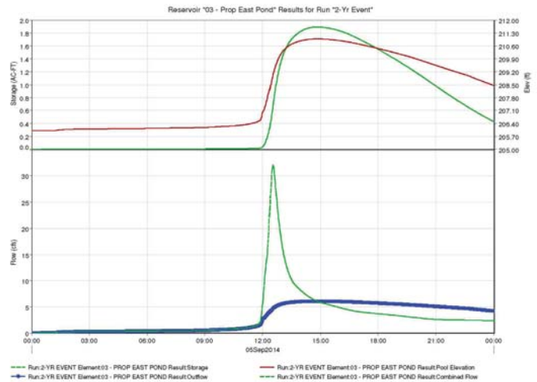
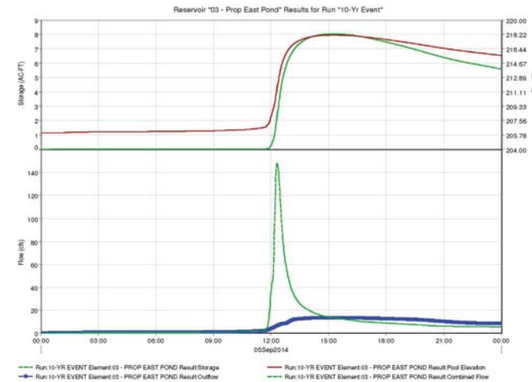
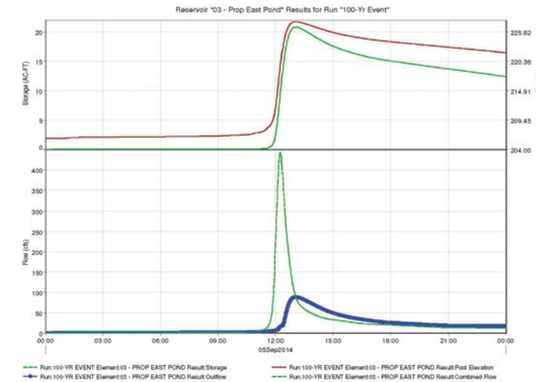
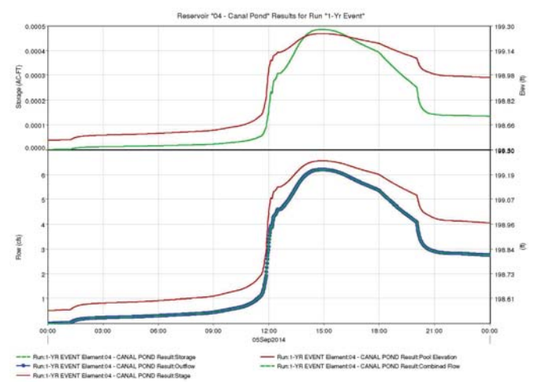


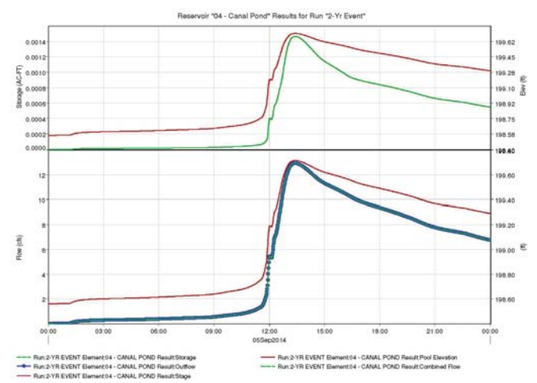


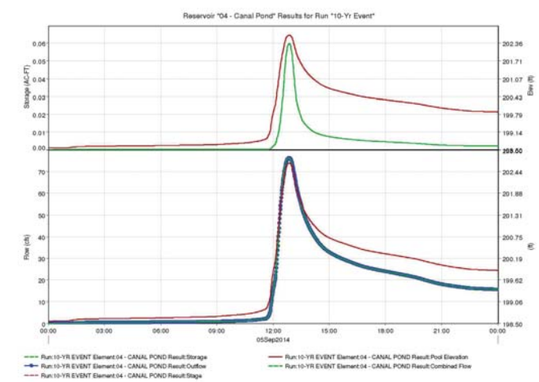


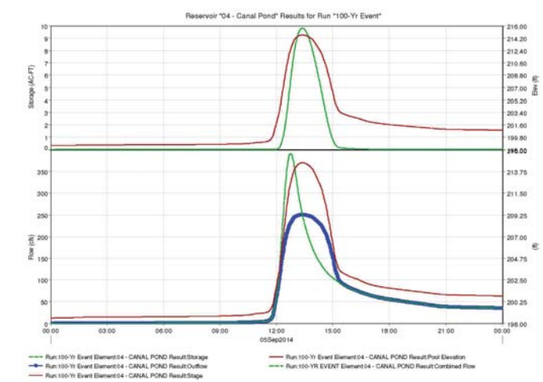


EAST STORMWATER DETENTION POND (03 - PROP EAST POND)

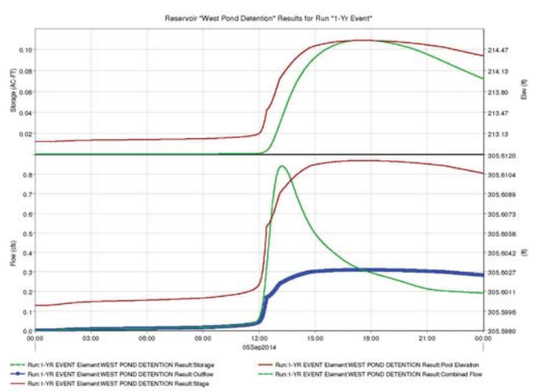


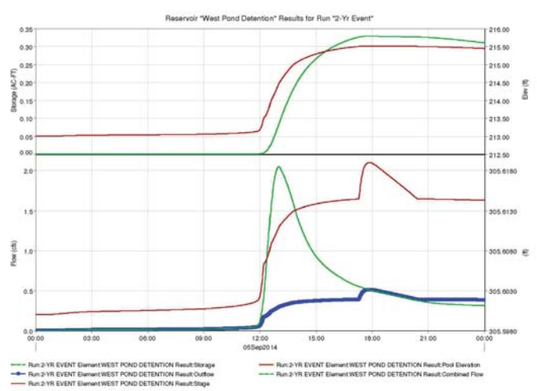


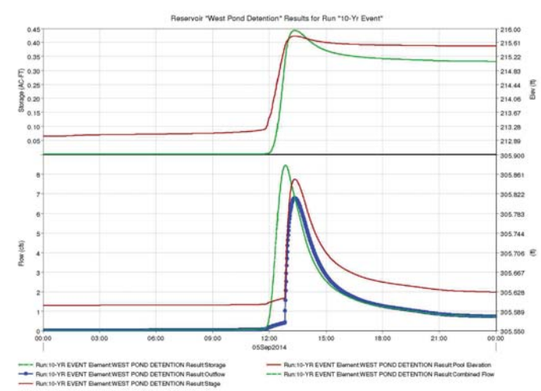


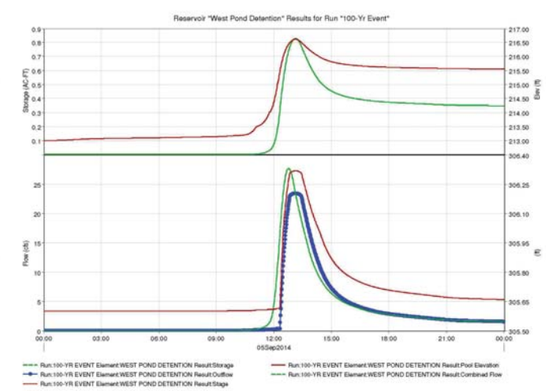


CANAL POND









WEST STORMWATER DETENTION POND

Golder Associates

REV	DATE	DES	REVISION DESCRIPTION	ABM	ATN	JRD
1	1/20/16	JRD	REV. PER COUNTY AND DEQ COMMENTS	CADD	CHK	RVW

COMMONWEALTH OF VIRGINIA
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Lic. No. 025960
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PROFESSIONAL ENGINEER

PROJECT

DOMINION
BREMO POWER STATION
CCR SURFACE IMPOUNDMENT
CLOSURE PLAN

FLUVANNA COUNTY, VIRGINIA

TITLE

POND STORAGE & DISCHARGE CURVES

PROJECT No.		15-20347
FILE No.		1520347J_SWM8
REV. 0	SCALE	AS SHOWN
DESIGN	JRD	08/18/15
CADD	ATN	08/18/15
CHECK	DPM	10/14/15
REVIEW	JRD	10/14/15

DRAWING
SWM-8

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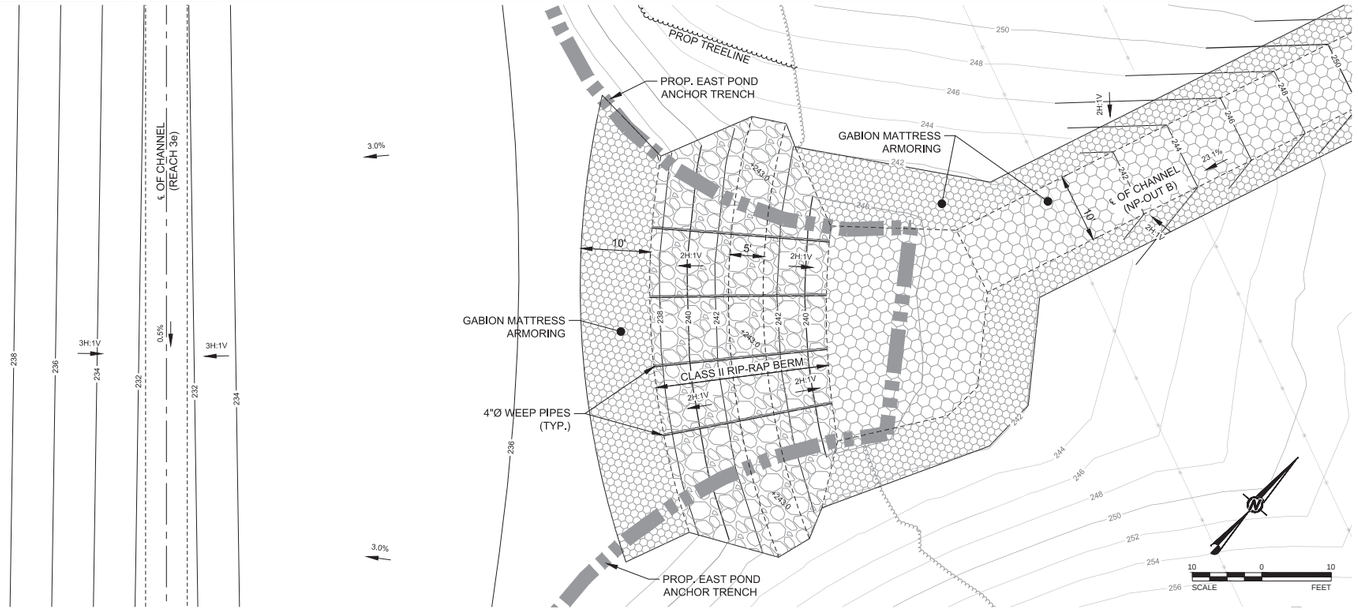
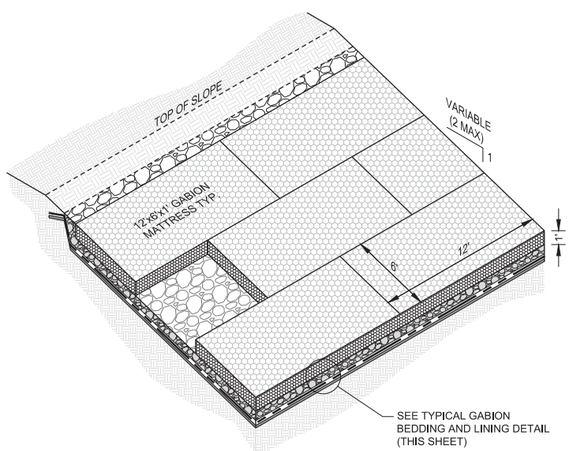
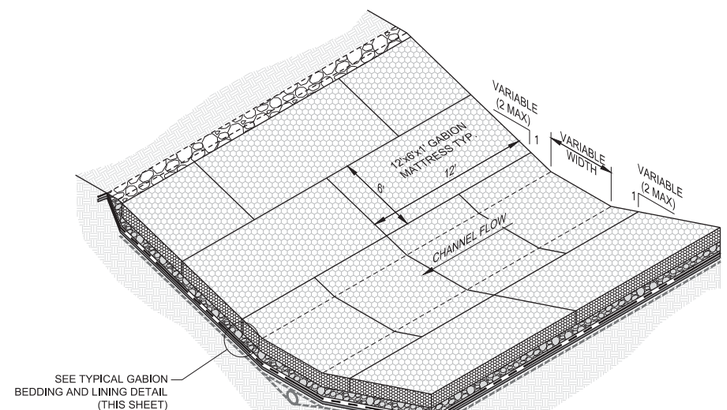


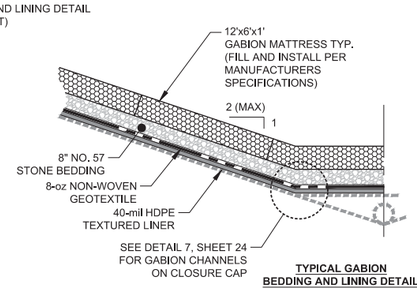
1 SWM-9 **NORTH POND DISCHARGE STILLING BASIN**



GABION MATTRESS AS SLOPE ARMORING (TYPICAL DETAIL)



GABION MATTRESS AS CHANNEL LINING (TYPICAL DETAIL)



TYPICAL GABION BEDDING AND LINING DETAIL

2 SWM-9 **TYPICAL GABION DETAILS**

Golder Associates

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

COMMONWEALTH OF VIRGINIA
JAMES R. DEFRANCESCO
Lic. No. 025260
2-24-16
PROFESSIONAL ENGINEER

PROJECT
DOMINION
BREMO POWER STATION
CCR SURFACE IMPOUNDMENT
CLOSURE PLAN
FLUVANNA COUNTY, VIRGINIA

TITLE
TYPICAL GABION DETAILS

PROJECT No.		15-20347
FILE No.		15203473_SWM9
REV. 0	SCALE	AS SHOWN
DESIGN	JRD	09/21/15
CADD	ATN	09/21/15
CHECK		
REVIEW		

DRAWING SWM-9

C:\Office Production Data Filed\Drawing Data Files\15-20347\3 - Major Site Development Plan (MSD)\Active Drawings\15203473_SWM9.dwg