



Drainage Report

Merritt Reserve

**Situated at 1224 Roseville Road
Roseville, North Carolina 27587**

Prepared For

BRD Land & Investment Management, LLC
6433 Bannington Road
Charlotte, NC 28226

Prepared by

American Engineering Associates Southeast
4020 Westchase Blvd., Suite 450
Raleigh, NC 27607

July 1, 2025

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Merritt Reserve Supplemental

General

This project is located in Roseville, North Carolina just West of the intersection between Roseville Road and Fowler Road, approximately 3200 feet southeast of Louisburg Road (US 401). The site is currently undeveloped and wooded.

The property for this project is bordered to the east by Rolesville Road, undeveloped wooded land to the south, Harris Creek along the western property line, and an existing subdivision is located to the north. The entire project is located within the Neuse River Basin.

The purpose of the project is to provide a residential subdivision consisting of both single-family homes and townhouses. The proposed subdivision, Merritt Reserve, will have 505 total lots built across 143.097 acres, with space dedicated for two future commercial sites.

The purpose of this report is to provide information pertaining to the proposed subdivision and its erosion control measures.

Appendix

Sediment Basin Exhibits & Calculations

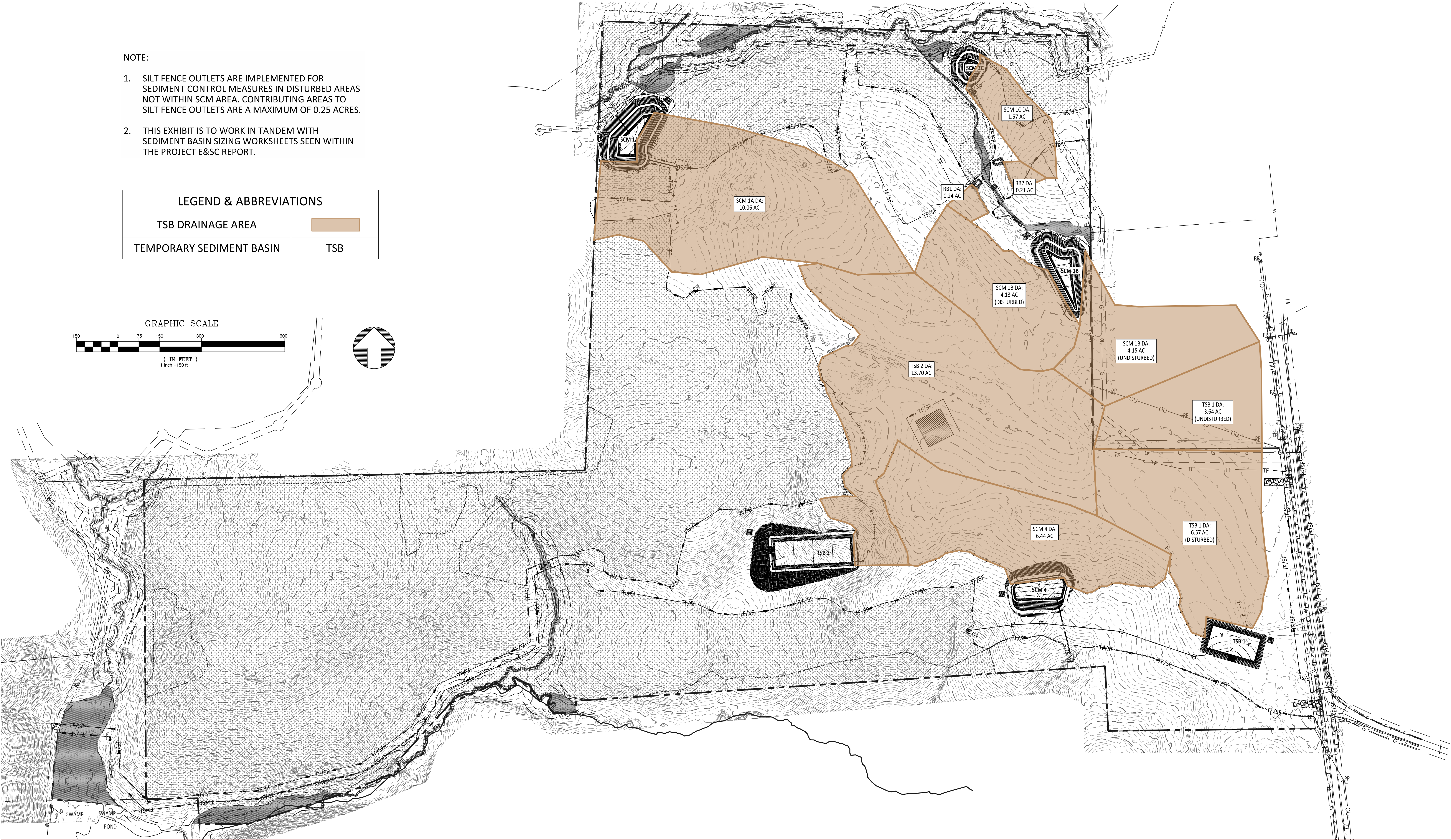
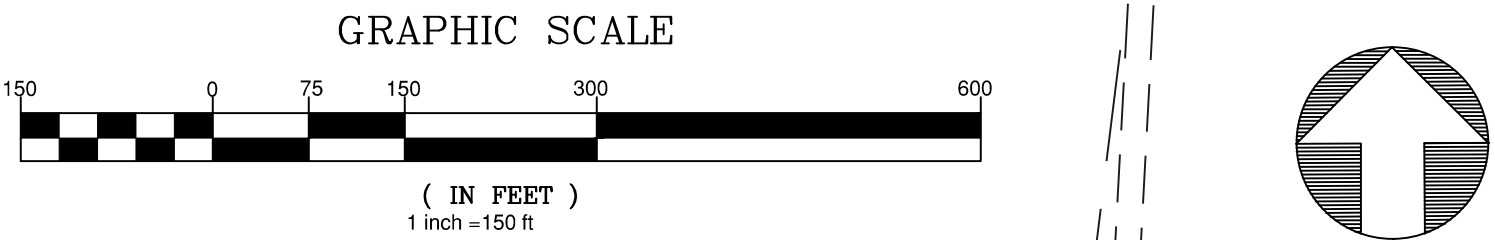
Drainage Swale Exhibits & Calculations

Slope Drain Calculations

Sediment Basin Calculations

- NOTE:
- 1. SILT FENCE OUTLETS ARE IMPLEMENTED FOR SEDIMENT CONTROL MEASURES IN DISTURBED AREAS NOT WITHIN SCM AREA. CONTRIBUTING AREAS TO SILT FENCE OUTLETS ARE A MAXIMUM OF 0.25 ACRES.
 - 2. THIS EXHIBIT IS TO WORK IN TANDEM WITH SEDIMENT BASIN SIZING WORKSHEETS SEEN WITHIN THE PROJECT E&SC REPORT.

LEGEND & ABBREVIATIONS	
TSB DRAINAGE AREA	
TEMPORARY SEDIMENT BASIN	TSB



TEMPORARY SEDIMENT BASIN DRAINAGE AREAS - PH1 STG1



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PROJECT # 230004

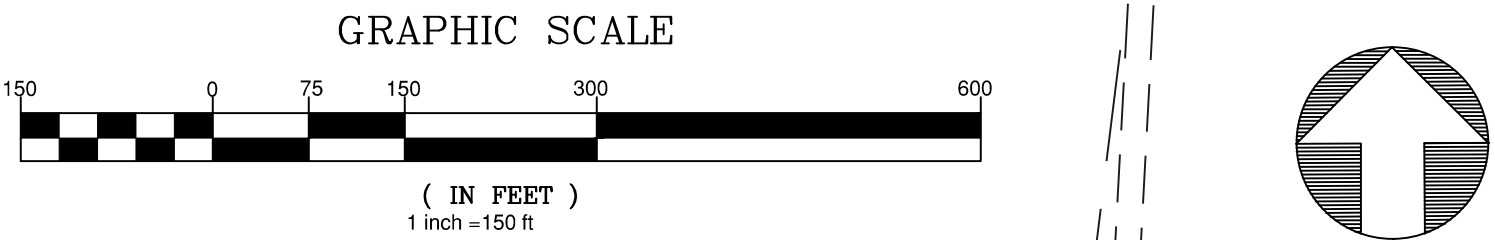
MERRITT RESERVE

ROLESVILLE, NC

July 1, 2025

- NOTE:
- 1. SILT FENCE OUTLETS ARE IMPLEMENTED FOR SEDIMENT CONTROL MEASURES IN DISTURBED AREAS NOT WITHIN SCM AREA. CONTRIBUTING AREAS TO SILT FENCE OUTLETS ARE A MAXIMUM OF 0.25 ACRES.
 - 2. THIS EXHIBIT IS TO WORK IN TANDEM WITH SEDIMENT BASIN SIZING WORKSHEETS SEEN WITHIN THE PROJECT E&SC REPORT.

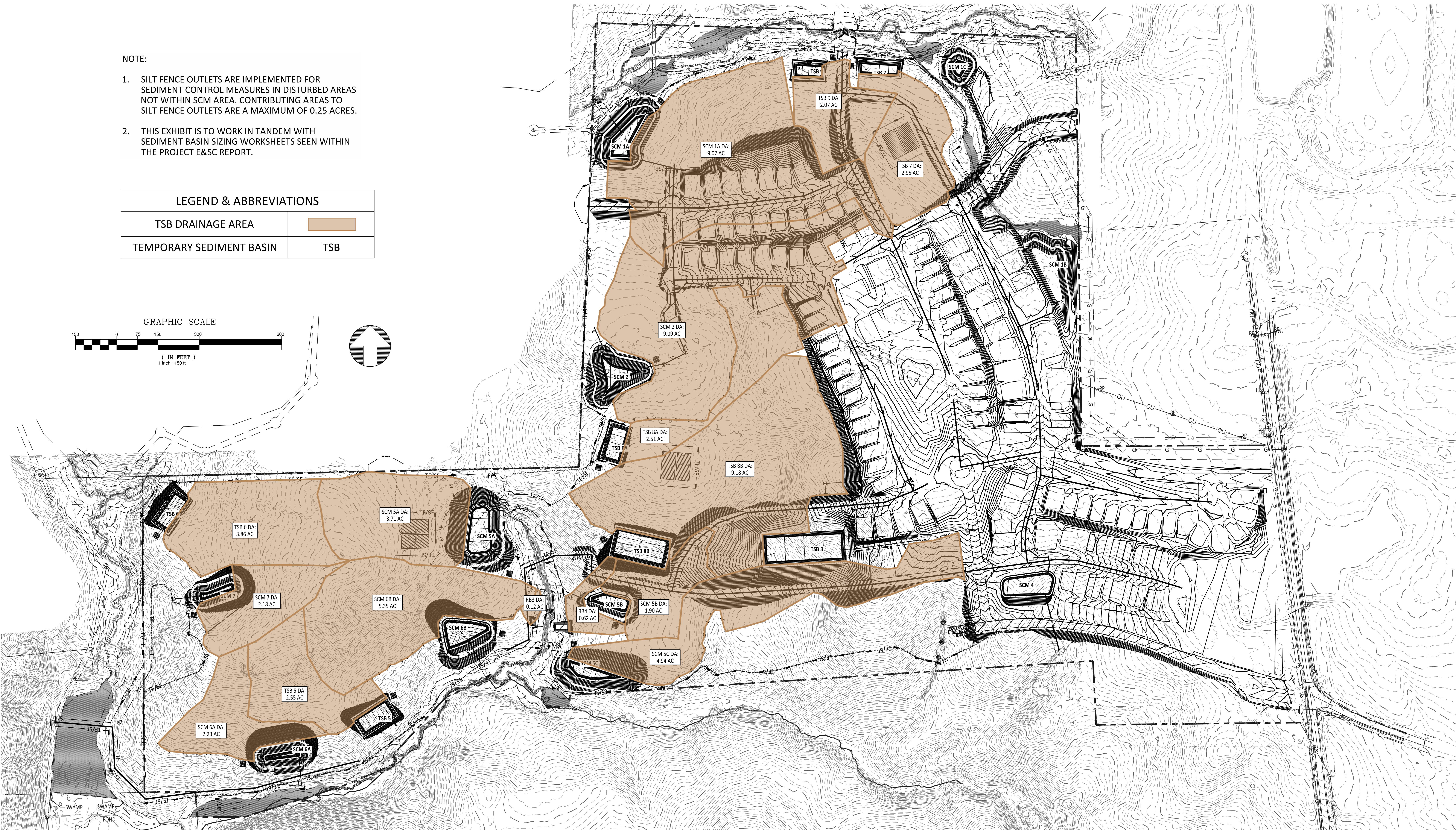
LEGEND & ABBREVIATIONS	
TSB DRAINAGE AREA	
TEMPORARY SEDIMENT BASIN	TSB



TEMPORARY SEDIMENT BASIN DRAINAGE AREAS - PH1 STG2

1. SILT FENCE OUTLETS ARE IMPLEMENTED FOR SEDIMENT CONTROL MEASURES IN DISTURBED AREAS NOT WITHIN SCM AREA. CONTRIBUTING AREAS TO SILT FENCE OUTLETS ARE A MAXIMUM OF 0.25 ACRES.
2. THIS EXHIBIT IS TO WORK IN TANDEM WITH SEDIMENT BASIN SIZING WORKSHEETS SEEN WITHIN THE PROJECT E&SC REPORT.

LEGEND & ABBREVIATIONS	
TSB DRAINAGE AREA	
TEMPORARY SEDIMENT BASIN	TSB



TEMPORARY SEDIMENT BASIN DRAINAGE AREAS - PH2 & 3 STG1

1. SILT FENCE OUTLETS ARE IMPLEMENTED FOR SEDIMENT CONTROL MEASURES IN DISTURBED AREAS NOT WITHIN SCM AREA. CONTRIBUTING AREAS TO SILT FENCE OUTLETS ARE A MAXIMUM OF 0.25 ACRES.
2. THIS EXHIBIT IS TO WORK IN TANDEM WITH SEDIMENT BASIN SIZING WORKSHEETS SEEN WITHIN THE PROJECT E&SC REPORT.

LEGEND & ABBREVIATIONS	
TSB DRAINAGE AREA	
TEMPORARY SEDIMENT BASIN	TSB



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PROJECT # 230004

ROLESVILLE, NC
July 1, 2025

PH1 STG1

Selection of Sediment Control Measure

0.24	Total Drainage Area	User entry	RB1
Okay	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
0.24	Disturbed Area (Acres)		
0.82	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	10325	0	0	0.60	5.75	0.24	0.24	0.82
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Total Area (SF) 10325

*Assumes woods or grass

Slope Drain ($Q=C*i_{10}*A$)

i_{10} = 5.75 in/hr

Q = 0.82 cfs

PH1 STG1

Temporary Sediment Trap

RB1

Okay

0.24 Disturbed Area (Acres)
0.82 Peak Flow from 10-year Storm (cfs)

853 Required Volume ft³
359 Required Surface Area ft²
13.4 Suggested Width ft
26.8 Suggested Length ft

18 Trial Top Width at Spillway Invert ft
30 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (1.5 feet below grade + 2 to 3.5 feet above grade)

6 Bottom Width ft
18 Bottom Length ft
108 Bottom Area ft²

900 Actual Volume ft³

Okay

540 Actual Surface Area ft²

Okay

5 Trial Weir Length ft
1 Trial Depth of Flow ft

15.0 Spillway Capacity cfs

Okay

PH1 STG1

Selection of Sediment Control Measure

0.21	Total Drainage Area	User entry	RB2
Okay	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
0.21	Disturbed Area (Acres)		
0.73	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	9119	0	0	0.60	5.75	0.21	0.21	0.73
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Total Area (SF) 9119

*Assumes woods or grass

Slope Drain ($Q = C \cdot i_{10} \cdot A$)

$i_{10} =$ 5.75 in/hr

$Q =$ 0.72 cfs

PH1 STG1

Temporary Sediment Trap

RB2

Okay

0.21 Disturbed Area (Acres)
0.73 Peak Flow from 10-year Storm (cfs)

754 Required Volume ft³
317 Required Surface Area ft²
12.6 Suggested Width ft
25.2 Suggested Length ft

17 Trial Top Width at Spillway Invert ft
30 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (1.5 feet below grade + 2 to 3.5 feet above grade)

5 Bottom Width ft
18 Bottom Length ft
90 Bottom Area ft²

828 Actual Volume ft³

Okay

510 Actual Surface Area ft²

Okay

5 Trial Weir Length ft
1 Trial Depth of Flow ft

15.0 Spillway Capacity cfs

Okay

PH1 STG1

Selection of Sediment Control Measure

10.06	Total Drainage Area	User entry	SCM 1A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Do Not Use	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
10.06	Disturbed Area (Acres)		
43.80	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	438023	0	0	0.60	7.20	10.06	10.06	43.80
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Total Area (SF) 438023

*Assumes woods or grass

Slope Drain ($Q=C*i_{10}*A$)

i_{10} = 7.20 in/hr

Q = 43.44 cfs

PH1 STG1

Stormwater Pond with Skimmer

Okay

SCM 1A

10.06 Drainage Area (Acres)
43.80 Peak Flow from 10-year Storm (cfs)

7/1/25

18100 Required Volume ft³
19053 Required Surface Area ft²
97.6 Suggested Width ft
195.2 Suggested Length ft

100 Trial Top Width at Spillway Invert ft
200 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

84 Bottom Width ft
184 Bottom Length ft
15456 Bottom Area ft²

70741 Actual Volume ft³

Okay

20000 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2 Orifice Size (1/4 inch increments)
3.92 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG1

Selection of Sediment Control Measure

8.28	Total Drainage Area	User entry	SCM 1B
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
4.13	Disturbed Area (Acres)		
30.06	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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180863	179915	0	0	0.50	7.20	8.28	4.13	30.06
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Total Area (SF) 360778

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 29.82 cfs

PH1 STG1

Stormwater Pond with Skimmer

Okay

SCM 1B

8.28 Drainage Area (Acres)
30.06 Peak Flow from 10-year Storm (cfs)

7/1/25

14908 Required Volume ft³
13078 Required Surface Area ft²
80.9 Suggested Width ft
161.7 Suggested Length ft

100 Trial Top Width at Spillway Invert ft
210 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

84 Bottom Width ft
194 Bottom Length ft
16296 Bottom Area ft²

74421 Actual Volume ft³

Okay

21000 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2 Orifice Size (1/4 inch increments)
3.23 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG1

Selection of Sediment Control Measure

1.57	Total Drainage Area	User entry	SCM 1C
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
1.57	Disturbed Area (Acres)		
6.85	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed*	Disturbed	Off-site	Impervious	Rational	i(10)	Tot. D. A.	Disturbed	Q(10)
(SF)	(SF)	(SF)	(SF)	C Factor	(in./hr.)	(AC)	(AC)	(CFS)

0	68542	0	0	0.60	7.20	1.57	1.57	6.85
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Total Area (SF) 68542

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 6.80 cfs

PH1 STG1

Stormwater Pond with Skimmer

Okay

SCM 1C

1.57 Drainage Area (Acres)
6.85 Peak Flow from 10-year Storm (cfs)

7/1/25

2832 Required Volume ft³
2981 Required Surface Area ft²
38.6 Suggested Width ft
77.2 Suggested Length ft

50 Trial Top Width at Spillway Invert ft
66 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 13 feet above grade)

38 Bottom Width ft
54 Bottom Length ft
2052 Bottom Area ft²

7956 Actual Volume ft³

Okay

3300 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

1.5 Skimmer Size (inches)
0.125 Head on Skimmer (feet)
1 Orifice Size (1/4 inch increments)
3.47 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG1

Selection of Sediment Control Measure

6.44	Total Drainage Area	User entry	SCM 4
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
6.44	Disturbed Area (Acres)		
28.06	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	280603	0	0	0.60	7.20	6.44	6.44	28.06
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Total Area (SF) 280603

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 27.83 cfs

PH1 STG1

Stormwater Pond with Skimmer

Okay

SCM 4

6.44 Drainage Area (Acres)
28.06 Peak Flow from 10-year Storm (cfs)

7/1/25

11595 Required Volume ft³
12206 Required Surface Area ft²
78.1 Suggested Width ft
156.2 Suggested Length ft

83 Trial Top Width at Spillway Invert ft
193 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 13 feet above grade)

71 Bottom Width ft
181 Bottom Length ft
12851 Bottom Area ft²
43233 Actual Volume ft³
16019 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

2.5 Skimmer Size (inches)
0.208 Head on Skimmer (feet)
1.75 Orifice Size (1/4 inch increments)
3.59 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG1

Selection of Sediment Control Measure

10.22	Total Drainage Area	User entry	TSB 1
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Do Not Use	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
6.58	Disturbed Area (Acres)		
37.10	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
158598	286592	0	0	0.50	7.20	10.22	6.58	37.10

Total Area (SF) 445190

*Assumes woods or grass

Slope Drain ($Q = C \cdot i_{10} \cdot A$)

$i_{10} =$ 7.20 in/hr

$Q =$ 36.79 cfs

PH1 STG1

Temporary Sediment Basin

Okay

TSB 1

10.22 Drainage Area (Acres)

37.10 Peak Flow from 10-year Storm (cfs)

7/1/25

18396 Required Volume ft³

16138 Required Surface Area ft²

89.8 Suggested Width ft

179.7 Suggested Length ft

95 Trial Top Width at Spillway Invert ft

190 Trial Top Length at Spillway Invert ft

2 Trial Side Slope Ratio Z:1

3 Trial Depth ft (2 to 13 feet above grade)

83 Bottom Width ft

178 Bottom Length ft

14774 Bottom Area ft²

49164 Actual Volume ft³

Okay

18050 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)

0.25 Head on Skimmer (feet)

2.25 Orifice Size (1/4 inch increments)

3.15 Dewatering Time (days)

Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG1

Selection of Sediment Control Measure

13.70	Total Drainage Area	User entry	TSB 2
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Do Not Use	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
13.70	Disturbed Area (Acres)		
59.69	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	596905	0	0	0.60	7.20	13.70	13.70	59.69
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Total Area (SF) 596905

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 59.20 cfs

PH1 STG1

Temporary Sediment Basin

Okay

TSB 2

13.70 Drainage Area (Acres)
59.69 Peak Flow from 10-year Storm (cfs)

7/1/25

24665 Required Volume ft³
25965 Required Surface Area ft²
113.9 Suggested Width ft
227.9 Suggested Length ft

100 Trial Top Width at Spillway Invert ft
285 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 13 feet above grade)

88 Bottom Width ft
273 Bottom Length ft
24024 Bottom Area ft²

78714 Actual Volume ft³

Okay

28500 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2.25 Orifice Size (1/4 inch increments)
4.22 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG2

Selection of Sediment Control Measure

8.47	Total Drainage Area	User entry	SCM 1A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
8.47	Disturbed Area (Acres)		
36.89	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	368868	0	0	0.60	7.20	8.47	8.47	36.89
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Total Area (SF) 368868

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 36.58 cfs

PH1 STG2

Stormwater Pond with Skimmer

Okay

SCM 1A

8.47 Drainage Area (Acres)
36.89 Peak Flow from 10-year Storm (cfs)

7/1/25

15242 Required Volume ft³
16045 Required Surface Area ft²
89.6 Suggested Width ft
179.1 Suggested Length ft

100 Trial Top Width at Spillway Invert ft
200 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

84 Bottom Width ft
184 Bottom Length ft
15456 Bottom Area ft²

70741 Actual Volume ft³

Okay

20000 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2 Orifice Size (1/4 inch increments)
3.30 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG2

Selection of Sediment Control Measure

9.34	Total Drainage Area	User entry	SCM 1B
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
9.34	Disturbed Area (Acres)		
40.69	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	406892	0	0	0.60	7.20	9.34	9.34	40.69
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Total Area (SF) 406892

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 40.35 cfs

PH1 STG2

Stormwater Pond with Skimmer

Okay

SCM 1B

9.34 Drainage Area (Acres)
40.69 Peak Flow from 10-year Storm (cfs)

7/1/25

16814 Required Volume ft³
17699 Required Surface Area ft²
94.1 Suggested Width ft
188.1 Suggested Length ft

100 Trial Top Width at Spillway Invert ft
210 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

84 Bottom Width ft
194 Bottom Length ft
16296 Bottom Area ft²
74421 Actual Volume ft³
21000 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2 Orifice Size (1/4 inch increments)
3.64 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG2

Selection of Sediment Control Measure

1.49	Total Drainage Area	User entry	SCM 1C
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
1.49	Disturbed Area (Acres)		
6.50	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	64993	0	0	0.60	7.20	1.49	1.49	6.50
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Total Area (SF) 64993

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 6.45 cfs

PH1 STG2

Stormwater Pond with Skimmer

Okay

SCM 1C

1.49 Drainage Area (Acres)

6.50 Peak Flow from 10-year Storm (cfs)

7/1/25

2686 Required Volume ft³

2827 Required Surface Area ft²

37.6 Suggested Width ft

75.2 Suggested Length ft

50 Trial Top Width at Spillway Invert ft

66 Trial Top Length at Spillway Invert ft

2 Trial Side Slope Ratio Z:1

3 Trial Depth ft (2 to 13 feet above grade)

38 Bottom Width ft

54 Bottom Length ft

2052 Bottom Area ft²

7956 Actual Volume ft³

Okay

3300 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

1.5 Skimmer Size (inches)

0.125 Head on Skimmer (feet)

1 Orifice Size (1/4 inch increments)

3.29 Dewatering Time (days)

Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG2

Selection of Sediment Control Measure

10.91	Total Drainage Area	User entry	SCM 2
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Do Not Use	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
4.08	Disturbed Area (Acres)		
31.64	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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297909	177543	0	0	0.50	5.75	10.91	4.08	31.64
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Total Area (SF) 475452

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 5.75 in/hr

Q = 31.38 cfs

PH1 STG2

Stormwater Pond with Skimmer

Okay

SCM 2

10.91 Drainage Area (Acres)
31.64 Peak Flow from 10-year Storm (cfs)

7/1/25

19647 Required Volume ft³
13764 Required Surface Area ft²
83.0 Suggested Width ft
165.9 Suggested Length ft

95 Trial Top Width at Spillway Invert ft
145 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

79 Bottom Width ft
129 Bottom Length ft
10191 Bottom Area ft²

47761 Actual Volume ft³

Okay

13775 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2.25 Orifice Size (1/4 inch increments)
3.36 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG2

Selection of Sediment Control Measure

6.94	Total Drainage Area	User entry	SCM 4
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
6.94	Disturbed Area (Acres)		
30.21	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	302145	0	0	0.60	7.20	6.94	6.94	30.21
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Total Area (SF) 302145

*Assumes woods or grass

Slope Drain ($Q = C \cdot i_{10} \cdot A$)

$i_{10} =$ 7.20 in/hr

$Q =$ 29.96 cfs

PH1 STG2

Stormwater Pond with Skimmer

Okay

SCM 4

6.94 Drainage Area (Acres)
30.21 Peak Flow from 10-year Storm (cfs)

7/1/25

12485 Required Volume ft³
13143 Required Surface Area ft²
81.1 Suggested Width ft
162.1 Suggested Length ft

83 Trial Top Width at Spillway Invert ft
193 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 13 feet above grade)

71 Bottom Width ft
181 Bottom Length ft
12851 Bottom Area ft²
43233 Actual Volume ft³
16019 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

2.5 Skimmer Size (inches)
0.208 Head on Skimmer (feet)
1.75 Orifice Size (1/4 inch increments)
3.87 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG2

Selection of Sediment Control Measure

10.64	Total Drainage Area	User entry	TSB 2
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Do Not Use	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
10.64	Disturbed Area (Acres)		
46.36	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	463567	0	0	0.60	7.20	10.64	10.64	46.36
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Total Area (SF) 463567

*Assumes woods or grass

Slope Drain ($Q = C \cdot i_{10} \cdot A$)

$i_{10} =$ 7.20 in/hr

$Q =$ 45.97 cfs

PH1 STG2

Temporary Sediment Basin

Okay

TSB 2

10.64 Drainage Area (Acres)
46.36 Peak Flow from 10-year Storm (cfs)

7/1/25

19156 Required Volume ft³
20164 Required Surface Area ft²
100.4 Suggested Width ft
200.8 Suggested Length ft

100 Trial Top Width at Spillway Invert ft
285 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 13 feet above grade)

88 Bottom Width ft
273 Bottom Length ft
24024 Bottom Area ft²

78714 Actual Volume ft³

Okay

28500 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2.25 Orifice Size (1/4 inch increments)
3.28 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH1 STG2

Selection of Sediment Control Measure

5.65	Total Drainage Area	User entry	TSB 3
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
5.65	Disturbed Area (Acres)		
24.61	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	246102	0	0	0.60	7.20	5.65	5.65	24.61
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Total Area (SF) 246102

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 24.41 cfs

PH1 STG2

Skimmer Basin

TSB 3

Okay

7/1/25

5.65 Drainage Area (Acres)
24.61 Peak Flow from 10-year Storm (cfs)

10170 Required Volume ft³
10705 Required Surface Area ft²
73.2 Suggested Width ft
146.3 Suggested Length ft

75 Trial Top Width at Spillway Invert ft
150 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 3.5 feet above grade)

63 Bottom Width ft
138 Bottom Length ft
8694 Bottom Area ft²

29844 Actual Volume ft³

Okay

11250 Actual Surface Area ft²

Okay

15 Trial Weir Length ft
1 Trial Depth of Flow ft

45.0 Spillway Capacity cfs

Okay

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
1.5 Orifice Size (1/4 inch increments)
3.91 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

0.12	Total Drainage Area	User entry	RB3
Okay	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
0.12	Disturbed Area (Acres)		
0.42	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	5252	0	0	0.60	5.75	0.12	0.12	0.42
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Total Area (SF) 5252

*Assumes woods or grass

Slope Drain ($Q = C \cdot i_{10} \cdot A$)

$i_{10} =$ 5.75 in/hr

$Q =$ 0.42 cfs

PH2 STG1

Temporary Sediment Trap

RB3

Okay

0.12 Disturbed Area (Acres)
0.42 Peak Flow from 10-year Storm (cfs)

434 Required Volume ft³
182 Required Surface Area ft²
9.6 Suggested Width ft
19.1 Suggested Length ft

15 Trial Top Width at Spillway Invert ft
25 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (1.5 feet below grade + 2 to 3.5 feet above grade)

3 Bottom Width ft
13 Bottom Length ft
39 Bottom Area ft²

549 Actual Volume ft³

Okay

375 Actual Surface Area ft²

Okay

5 Trial Weir Length ft
1 Trial Depth of Flow ft

15.0 Spillway Capacity cfs

Okay

PH2 STG1

Selection of Sediment Control Measure

0.62	Total Drainage Area	User entry	RB4
Okay	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
0.62	Disturbed Area (Acres)		
2.17	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	27214	0	0	0.60	5.75	0.62	0.62	2.17
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Total Area (SF) 27214

*Assumes woods or grass

Slope Drain ($Q=C*i_{10}*A$)

i_{10} = 5.75 in/hr

Q = 2.16 cfs

PH2 STG1

Temporary Sediment Trap

RB4

Okay

0.62 Disturbed Area (Acres)
2.17 Peak Flow from 10-year Storm (cfs)

2249 Required Volume ft³
945 Required Surface Area ft²
21.7 Suggested Width ft
43.5 Suggested Length ft

25 Trial Top Width at Spillway Invert ft
50 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (1.5 feet below grade + 2 to 3.5 feet above grade)

13 Bottom Width ft
38 Bottom Length ft
494 Bottom Area ft²

2544 Actual Volume ft³

Okay

1250 Actual Surface Area ft²

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

PH2 STG1

Selection of Sediment Control Measure

9.07	Total Drainage Area	User entry	SCM 1A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
9.07	Disturbed Area (Acres)		
39.51	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	395116	0	0	0.60	7.20	9.07	9.07	39.51
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Total Area (SF) 395116

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 39.19 cfs

PH2 STG1

Stormwater Pond with Skimmer

Okay

SCM 1A

9.07 Drainage Area (Acres)
39.51 Peak Flow from 10-year Storm (cfs)

7/1/25

16327 Required Volume ft³
17187 Required Surface Area ft²
92.7 Suggested Width ft
185.4 Suggested Length ft

100 Trial Top Width at Spillway Invert ft
200 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

84 Bottom Width ft
184 Bottom Length ft
15456 Bottom Area ft²

70741 Actual Volume ft³

Okay

20000 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2 Orifice Size (1/4 inch increments)
3.53 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

9.09	Total Drainage Area	User entry	SCM 2
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
9.09	Disturbed Area (Acres)		
31.64	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	396173	0	0	0.60	5.75	9.09	9.09	31.64
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Total Area (SF) 396173

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 5.75 in/hr

Q = 31.38 cfs

PH2 STG1

Stormwater Pond with Skimmer

Okay

SCM 2

9.09 Drainage Area (Acres)
31.64 Peak Flow from 10-year Storm (cfs)

7/1/25

16371 Required Volume ft³
13762 Required Surface Area ft²
83.0 Suggested Width ft
165.9 Suggested Length ft

95 Trial Top Width at Spillway Invert ft
145 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

79 Bottom Width ft
129 Bottom Length ft
10191 Bottom Area ft²

47761 Actual Volume ft³

Okay

13775 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2 Orifice Size (1/4 inch increments)
3.54 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

3.71	Total Drainage Area	User entry	SCM 5A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
3.71	Disturbed Area (Acres)		
16.17	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	161745	0	0	0.60	7.20	3.71	3.71	16.17
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Total Area (SF) 161745

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 16.04 cfs

PH2 STG1

Stormwater Pond with Skimmer

Okay

SCM 5A

3.71 Drainage Area (Acres)
16.17 Peak Flow from 10-year Storm (cfs)

7/1/25

6684 Required Volume ft³
7036 Required Surface Area ft²
59.3 Suggested Width ft
118.6 Suggested Length ft

87 Trial Top Width at Spillway Invert ft
175 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

71 Bottom Width ft
159 Bottom Length ft
11289 Bottom Area ft²
52857 Actual Volume ft³
15225 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

2 Skimmer Size (inches)
0.167 Head on Skimmer (feet)
1.5 Orifice Size (1/4 inch increments)
3.15 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

1.90	Total Drainage Area	User entry	SCM 5B
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
1.90	Disturbed Area (Acres)		
8.30	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	82967	0	0	0.60	7.20	1.90	1.90	8.30
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Total Area (SF) 82967

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 8.23 cfs

PH2 STG1

Stormwater Pond with Skimmer

Okay

SCM 5B

1.90 Drainage Area (Acres)

8.30 Peak Flow from 10-year Storm (cfs)

7/1/25

3428 Required Volume ft³

3609 Required Surface Area ft²

42.5 Suggested Width ft

85.0 Suggested Length ft

55 Trial Top Width at Spillway Invert ft

144 Trial Top Length at Spillway Invert ft

2 Trial Side Slope Ratio Z:1

4 Trial Depth ft (2 to 13 feet above grade)

39 Bottom Width ft

128 Bottom Length ft

4992 Bottom Area ft²

25653 Actual Volume ft³

Okay

7920 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

2.5 Skimmer Size (inches)

0.208 Head on Skimmer (feet)

1 Orifice Size (1/4 inch increments)

3.25 Dewatering Time (days)

Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

4.94	Total Drainage Area	User entry	SCM 5C
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
4.94	Disturbed Area (Acres)		
21.50	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	214974	0	0	0.60	7.20	4.94	4.94	21.50
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Total Area (SF) 214974

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 21.32 cfs

PH2 STG1

Stormwater Pond with Skimmer

Okay

SCM 5C

4.94 Drainage Area (Acres)
21.50 Peak Flow from 10-year Storm (cfs)

7/1/25

8883 Required Volume ft³
9351 Required Surface Area ft²
68.4 Suggested Width ft
136.8 Suggested Length ft

60 Trial Top Width at Spillway Invert ft
215 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

44 Bottom Width ft
199 Bottom Length ft
8756 Bottom Area ft²
43141 Actual Volume ft³
12900 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
1.5 Orifice Size (1/4 inch increments)
3.42 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

2.23	Total Drainage Area	User entry	SCM 6A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.23	Disturbed Area (Acres)		
9.73	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	97275	0	0	0.60	7.20	2.23	2.23	9.73
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Total Area (SF) 97275

*Assumes woods or grass

Slope Drain ($Q=C*i_{10}*A$)

i_{10} = 7.20 in/hr

Q = 9.65 cfs

PH2 STG1

Stormwater Pond with Skimmer

Okay

SCM 6A

2.23 Drainage Area (Acres)

9.73 Peak Flow from 10-year Storm (cfs)

7/1/25

4020 Required Volume ft³

4231 Required Surface Area ft²

46.0 Suggested Width ft

92.0 Suggested Length ft

32 Trial Top Width at Spillway Invert ft

138 Trial Top Length at Spillway Invert ft

2 Trial Side Slope Ratio Z:1

4 Trial Depth ft (2 to 13 feet above grade)

16 Bottom Width ft

122 Bottom Length ft

1952 Bottom Area ft²

12565 Actual Volume ft³

Okay

4416 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)

0.25 Head on Skimmer (feet)

1 Orifice Size (1/4 inch increments)

3.48 Dewatering Time (days)

Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

5.35	Total Drainage Area	User entry	SCM 6B
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
5.35	Disturbed Area (Acres)		
23.30	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	232986	0	0	0.60	7.20	5.35	5.35	23.30
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Total Area (SF) 232986

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 23.11 cfs

PH2 STG1

Stormwater Pond with Skimmer

Okay

SCM 6B

5.35 Drainage Area (Acres)
23.30 Peak Flow from 10-year Storm (cfs)

7/1/25

9628 Required Volume ft³
10135 Required Surface Area ft²
71.2 Suggested Width ft
142.4 Suggested Length ft

82 Trial Top Width at Spillway Invert ft
161 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

66 Bottom Width ft
145 Bottom Length ft
9570 Bottom Area ft²
45373 Actual Volume ft³
13202 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

4 Skimmer Size (inches)
0.333 Head on Skimmer (feet)
1.5 Orifice Size (1/4 inch increments)
3.21 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

2.18	Total Drainage Area	User entry	SCM 7
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.18	Disturbed Area (Acres)		
9.51	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed*	Disturbed	Off-site	Impervious	Rational	i(10)	Tot. D. A.	Disturbed	Q(10)
(SF)	(SF)	(SF)	(SF)	C Factor	(in./hr.)	(AC)	(AC)	(CFS)

0	95097	0	0	0.60	7.20	2.18	2.18	9.51
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Total Area (SF) 95097

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 9.43 cfs

PH2 STG1

Stormwater Pond with Skimmer

Okay

SCM 7

2.18 Drainage Area (Acres)

9.51 Peak Flow from 10-year Storm (cfs)

7/1/25

3930 Required Volume ft³

4137 Required Surface Area ft²

45.5 Suggested Width ft

91.0 Suggested Length ft

33 Trial Top Width at Spillway Invert ft

140 Trial Top Length at Spillway Invert ft

2 Trial Side Slope Ratio Z:1

4 Trial Depth ft (2 to 13 feet above grade)

17 Bottom Width ft

124 Bottom Length ft

2108 Bottom Area ft²

13285 Actual Volume ft³

Okay

4620 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

2.5 Skimmer Size (inches)

0.208 Head on Skimmer (feet)

1 Orifice Size (1/4 inch increments)

3.73 Dewatering Time (days)

Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

2.55	Total Drainage Area	User entry	TSB 5
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.55	Disturbed Area (Acres)		
11.12	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	111213	0	0	0.60	7.20	2.55	2.55	11.12
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Total Area (SF) 111213

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 11.03 cfs

PH2 STG1

Skimmer Basin

TSB 5

Okay

7/1/25

2.55 Drainage Area (Acres)
11.12 Peak Flow from 10-year Storm (cfs)

4596 Required Volume ft³
4838 Required Surface Area ft²
49.2 Suggested Width ft
98.4 Suggested Length ft

65 Trial Top Width at Spillway Invert ft
130 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 3.5 feet above grade)

53 Bottom Width ft
118 Bottom Length ft
6254 Bottom Area ft²
21984 Actual Volume ft³
8450 Actual Surface Area ft²

Okay

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
1 Orifice Size (1/4 inch increments)
3.98 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

3.86	Total Drainage Area	User entry	TSB 6
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
3.86	Disturbed Area (Acres)		
16.81	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed*	Disturbed	Off-site	Impervious	Rational	i(10)	Tot. D. A.	Disturbed	Q(10)
(SF)	(SF)	(SF)	(SF)	C Factor	(in./hr.)	(AC)	(AC)	(CFS)

0	168107	0	0	0.60	7.20	3.86	3.86	16.81
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Total Area (SF) 168107

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 16.67 cfs

PH2 STG1

Skimmer Basin

TSB 6

Okay

7/1/25

3.86 Disturbed Area (Acres)
16.81 Peak Flow from 10-year Storm (cfs)

6947 Required Volume ft³
7312 Required Surface Area ft²
60.5 Suggested Width ft
120.9 Suggested Length ft

60 Trial Top Width at Spillway Invert ft
130 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 3.5 feet above grade)

48 Bottom Width ft
118 Bottom Length ft
5664 Bottom Area ft²
20124 Actual Volume ft³
7800 Actual Surface Area ft²

Okay

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
1.25 Orifice Size (1/4 inch increments)
3.85 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

2.95	Total Drainage Area	User entry	TSB 7
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.95	Disturbed Area (Acres)		
12.85	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	128507	0	0	0.60	7.20	2.95	2.95	12.85
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Total Area (SF) 128507

*Assumes woods or grass

Slope Drain ($Q = C \cdot i_{10} \cdot A$)

$i_{10} =$ 7.20 in/hr

$Q =$ 12.74 cfs

PH2 STG1

Skimmer Basin

TSB 7

Okay

7/1/25

2.95 Disturbed Area (Acres)
12.85 Peak Flow from 10-year Storm (cfs)

5310 Required Volume ft³
5590 Required Surface Area ft²
52.9 Suggested Width ft
105.7 Suggested Length ft

40 Trial Top Width at Spillway Invert ft
140 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3.5 Trial Depth ft (2 to 3.5 feet above grade)

26 Bottom Width ft
126 Bottom Length ft
3276 Bottom Area ft²
15419 Actual Volume ft³
5600 Actual Surface Area ft²

Okay

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

2.5 Skimmer Size (inches)
0.208 Head on Skimmer (feet)
1.25 Orifice Size (1/4 inch increments)
3.23 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

2.51	Total Drainage Area	User entry	TSB 8A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.51	Disturbed Area (Acres)		
10.95	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	109461	0	0	0.60	7.20	2.51	2.51	10.95
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Total Area (SF) 109461

*Assumes woods or grass

Slope Drain ($Q=C*i_{10}*A$)

i_{10} = 7.20 in/hr

Q = 10.86 cfs

PH2 STG1

Skimmer Basin

TSB 8A

Okay

7/1/25

2.51 Drainage Area (Acres)
10.95 Peak Flow from 10-year Storm (cfs)

4523 Required Volume ft³
4761 Required Surface Area ft²
48.8 Suggested Width ft
97.6 Suggested Length ft

62 Trial Top Width at Spillway Invert ft
124 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 3.5 feet above grade)

50 Bottom Width ft
112 Bottom Length ft
5600 Bottom Area ft²
19860 Actual Volume ft³
7688 Actual Surface Area ft²

Okay

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

2 Skimmer Size (inches)
0.167 Head on Skimmer (feet)
1.25 Orifice Size (1/4 inch increments)
3.07 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

9.18	Total Drainage Area	User entry	TSB 8B
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
9.18	Disturbed Area (Acres)		
39.97	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	399675	0	0	0.60	7.20	9.18	9.18	39.97
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Total Area (SF) 399675

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 39.64 cfs

PH2 STG1

Skimmer Basin

TSB 8B

Okay

7/1/25

9.18 Drainage Area (Acres)
39.97 Peak Flow from 10-year Storm (cfs)

16515 Required Volume ft³
17385 Required Surface Area ft²
93.2 Suggested Width ft
186.5 Suggested Length ft

95 Trial Top Width at Spillway Invert ft
190 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 3.5 feet above grade)

83 Bottom Width ft
178 Bottom Length ft

14774 Bottom Area ft²

49164 Actual Volume ft³

Okay

18050 Actual Surface Area ft²

Okay

20 Trial Weir Length ft

1 Trial Depth of Flow ft

60.0 Spillway Capacity cfs

Okay

3 Skimmer Size (inches)

0.25 Head on Skimmer (feet)

2 Orifice Size (1/4 inch increments)

3.57 Dewatering Time (days)

Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG1

Selection of Sediment Control Measure

2.07	Total Drainage Area	User entry	TSB 9
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.07	Disturbed Area (Acres)		
9.02	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	90211	0	0	0.60	7.20	2.07	2.07	9.02
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Total Area (SF) 90211

*Assumes woods or grass

Slope Drain ($Q=C*i_{10}*A$)

i_{10} = 7.20 in/hr

Q = 8.95 cfs

PH2 STG1

Skimmer Basin

TSB 9

Okay

7/1/25

2.07 Disturbed Area (Acres)
9.02 Peak Flow from 10-year Storm (cfs)

3728 Required Volume ft³
3924 Required Surface Area ft²
44.3 Suggested Width ft
88.6 Suggested Length ft

45 Trial Top Width at Spillway Invert ft
100 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3.5 Trial Depth ft (2 to 3.5 feet above grade)

31 Bottom Width ft
86 Bottom Length ft
2666 Bottom Area ft²

12426 Actual Volume ft³

Okay

4500 Actual Surface Area ft²

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

2.5 Skimmer Size (inches)
0.208 Head on Skimmer (feet)
1 Orifice Size (1/4 inch increments)
3.54 Dewatering Time (days)
Suggest about 3 days

Skimmer Size	
(Inches)	
1.5	
2	
2.5	
3	
4	
5	
6	
8	

PH2 STG2

Selection of Sediment Control Measure

10.02	Total Drainage Area	User entry	SCM 1A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Do Not Use	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
10.02	Disturbed Area (Acres)		
43.64	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	436404	0	0	0.60	7.20	10.02	10.02	43.64
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Total Area (SF) 436404

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 43.28 cfs

PH2 STG2

Stormwater Pond with Skimmer

Okay

SCM 1A

10.02 Drainage Area (Acres)

43.64 Peak Flow from 10-year Storm (cfs)

7/1/25

18033 Required Volume ft³

18983 Required Surface Area ft²

97.4 Suggested Width ft

194.8 Suggested Length ft

100 Trial Top Width at Spillway Invert ft

200 Trial Top Length at Spillway Invert ft

2 Trial Side Slope Ratio Z:1

4 Trial Depth ft (2 to 13 feet above grade)

84 Bottom Width ft

184 Bottom Length ft

15456 Bottom Area ft²

70741 Actual Volume ft³

Okay

20000 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)

0.25 Head on Skimmer (feet)

2 Orifice Size (1/4 inch increments)

3.90 Dewatering Time (days)

Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

8.95	Total Drainage Area	User entry	SCM 2
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
8.95	Disturbed Area (Acres)		
31.14	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed*	Disturbed	Off-site	Impervious	Rational	i(10)	Tot. D. A.	Disturbed	Q(10)
(SF)	(SF)	(SF)	(SF)	C Factor	(in./hr.)	(AC)	(AC)	(CFS)

0	389900	0	0	0.60	5.75	8.95	8.95	31.14
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Total Area (SF) 389900

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 5.75 in/hr

Q = 30.88 cfs

PH2 STG2

Stormwater Pond with Skimmer

Okay

SCM 2

8.95 Drainage Area (Acres)
31.14 Peak Flow from 10-year Storm (cfs)

7/1/25

16112 Required Volume ft³
13545 Required Surface Area ft²
82.3 Suggested Width ft
164.6 Suggested Length ft

95 Trial Top Width at Spillway Invert ft
145 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

79 Bottom Width ft
129 Bottom Length ft
10191 Bottom Area ft²

47761 Actual Volume ft³

Okay

13775 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2 Orifice Size (1/4 inch increments)
3.49 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

8.03	Total Drainage Area	User entry	SCM 5A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
8.03	Disturbed Area (Acres)		
34.97	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	349691	0	0	0.60	7.20	8.03	8.03	34.97
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Total Area (SF) 349691

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 34.68 cfs

PH2 STG2

Stormwater Pond with Skimmer

Okay

SCM 5A

8.03 Drainage Area (Acres)
34.97 Peak Flow from 10-year Storm (cfs)

7/1/25

14450 Required Volume ft³
15211 Required Surface Area ft²
87.2 Suggested Width ft
174.4 Suggested Length ft

87 Trial Top Width at Spillway Invert ft
175 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

71 Bottom Width ft
159 Bottom Length ft
11289 Bottom Area ft²
52857 Actual Volume ft³
15225 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2 Orifice Size (1/4 inch increments)
3.13 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

6.69	Total Drainage Area	User entry	SCM 5C
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
6.69	Disturbed Area (Acres)		
29.15	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	291468	0	0	0.60	7.20	6.69	6.69	29.15
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Total Area (SF) 291468

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 28.91 cfs

PH2 STG2

Stormwater Pond with Skimmer

Okay

SCM 5C

6.69 Drainage Area (Acres)
29.15 Peak Flow from 10-year Storm (cfs)

7/1/25

12044 Required Volume ft³
12678 Required Surface Area ft²
79.6 Suggested Width ft
159.2 Suggested Length ft

60 Trial Top Width at Spillway Invert ft
215 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

44 Bottom Width ft
199 Bottom Length ft
8756 Bottom Area ft²
43141 Actual Volume ft³
12900 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
1.5 Orifice Size (1/4 inch increments)
4.63 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

2.33	Total Drainage Area	User entry	SCM 6A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.33	Disturbed Area (Acres)		
10.15	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	101465	0	0	0.60	7.20	2.33	2.33	10.15
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Total Area (SF) 101465

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 10.06 cfs

PH2 STG2

Stormwater Pond with Skimmer

Okay

SCM 6A

2.33 Drainage Area (Acres)
10.15 Peak Flow from 10-year Storm (cfs)

7/1/25

4193 Required Volume ft³
4414 Required Surface Area ft²
47.0 Suggested Width ft
94.0 Suggested Length ft

32 Trial Top Width at Spillway Invert ft
138 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

16 Bottom Width ft
122 Bottom Length ft
1952 Bottom Area ft²
12565 Actual Volume ft³
4416 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
1 Orifice Size (1/4 inch increments)
3.63 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

6.43	Total Drainage Area	User entry	SCM 6B
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
6.43	Disturbed Area (Acres)		
28.03	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed*	Disturbed	Off-site	Impervious	Rational	i(10)	Tot. D. A.	Disturbed	Q(10)
(SF)	(SF)	(SF)	(SF)	C Factor	(in./hr.)	(AC)	(AC)	(CFS)

0	280307	0	0	0.60	7.20	6.43	6.43	28.03
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Total Area (SF) 280307

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 27.80 cfs

PH2 STG2

Stormwater Pond with Skimmer

Okay

SCM 6B

6.43 Drainage Area (Acres)
28.03 Peak Flow from 10-year Storm (cfs)

7/1/25

11583 Required Volume ft³
12193 Required Surface Area ft²
78.1 Suggested Width ft
156.2 Suggested Length ft

82 Trial Top Width at Spillway Invert ft
161 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
4 Trial Depth ft (2 to 13 feet above grade)

66 Bottom Width ft
145 Bottom Length ft
9570 Bottom Area ft²
45373 Actual Volume ft³
13202 Actual Surface Area ft²

Okay

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

4 Skimmer Size (inches)
0.333 Head on Skimmer (feet)
1.5 Orifice Size (1/4 inch increments)
3.86 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

2.23	Total Drainage Area	User entry	SCM 7
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.23	Disturbed Area (Acres)		
9.71	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	97086	0	0	0.60	7.20	2.23	2.23	9.71
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Total Area (SF) 97086

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 9.63 cfs

PH2 STG2

Stormwater Pond with Skimmer

Okay

SCM 7

2.23 Drainage Area (Acres)

9.71 Peak Flow from 10-year Storm (cfs)

7/1/25

4012 Required Volume ft³

4223 Required Surface Area ft²

46.0 Suggested Width ft

91.9 Suggested Length ft

33 Trial Top Width at Spillway Invert ft

140 Trial Top Length at Spillway Invert ft

2 Trial Side Slope Ratio Z:1

4 Trial Depth ft (2 to 13 feet above grade)

17 Bottom Width ft

124 Bottom Length ft

2108 Bottom Area ft²

13285 Actual Volume ft³

Okay

4620 Actual Surface Area ft²

Okay

Use Spillway Capacity Sheet to Size Primary and Emergency Spillways

2.5 Skimmer Size (inches)

0.208 Head on Skimmer (feet)

1 Orifice Size (1/4 inch increments)

3.81 Dewatering Time (days)

Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

2.48	Total Drainage Area	User entry	TSB 5
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.48	Disturbed Area (Acres)		
10.79	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	107912	0	0	0.60	7.20	2.48	2.48	10.79
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Total Area (SF) 107912

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 10.70 cfs

PH2 STG2

Skimmer Basin

TSB 5

Okay

7/1/25

2.48 Drainage Area (Acres)
10.79 Peak Flow from 10-year Storm (cfs)

4459 Required Volume ft³
4694 Required Surface Area ft²
48.4 Suggested Width ft
96.9 Suggested Length ft

65 Trial Top Width at Spillway Invert ft
130 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 3.5 feet above grade)

53 Bottom Width ft
118 Bottom Length ft
6254 Bottom Area ft²
21984 Actual Volume ft³
8450 Actual Surface Area ft²

Okay

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
1 Orifice Size (1/4 inch increments)
3.86 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

1.91	Total Drainage Area	User entry	TSB 6
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
1.91	Disturbed Area (Acres)		
8.34	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	83416	0	0	0.60	7.20	1.91	1.91	8.34
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Total Area (SF) 83416

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 8.27 cfs

PH2 STG2

Skimmer Basin

TSB 6

Okay

7/1/25

1.91 Disturbed Area (Acres)
8.34 Peak Flow from 10-year Storm (cfs)

3447 Required Volume ft³
3628 Required Surface Area ft²
42.6 Suggested Width ft
85.2 Suggested Length ft

60 Trial Top Width at Spillway Invert ft
130 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 3.5 feet above grade)

48 Bottom Width ft
118 Bottom Length ft
5664 Bottom Area ft²
20124 Actual Volume ft³
7800 Actual Surface Area ft²

Okay

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

2.5 Skimmer Size (inches)
0.208 Head on Skimmer (feet)
1 Orifice Size (1/4 inch increments)
3.27 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

4.00	Total Drainage Area	User entry	TSB 8A
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
4.00	Disturbed Area (Acres)		
17.43	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	174343	0	0	0.60	7.20	4.00	4.00	17.43
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Total Area (SF) 174343

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 17.29 cfs

PH2 STG2

Skimmer Basin

TSB 8A

Okay

7/1/25

4.00 Drainage Area (Acres)
17.43 Peak Flow from 10-year Storm (cfs)

7204 Required Volume ft³
7584 Required Surface Area ft²
61.6 Suggested Width ft
123.2 Suggested Length ft

62 Trial Top Width at Spillway Invert ft
124 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 3.5 feet above grade)

50 Bottom Width ft
112 Bottom Length ft
5600 Bottom Area ft²
19860 Actual Volume ft³
7688 Actual Surface Area ft²

Okay

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft
30.0 Spillway Capacity cfs

Okay

2 Skimmer Size (inches)
0.167 Head on Skimmer (feet)
1.5 Orifice Size (1/4 inch increments)
3.39 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

9.20	Total Drainage Area	User entry	TSB 8B
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
9.20	Disturbed Area (Acres)		
40.07	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	400734	0	0	0.60	7.20	9.20	9.20	40.07
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Total Area (SF) 400734

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 39.74 cfs

PH2 STG2

Skimmer Basin

TSB 8B

Okay

7/1/25

9.20 Drainage Area (Acres)
40.07 Peak Flow from 10-year Storm (cfs)

16559 Required Volume ft³
17431 Required Surface Area ft²
93.4 Suggested Width ft
186.7 Suggested Length ft

95 Trial Top Width at Spillway Invert ft
190 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3 Trial Depth ft (2 to 3.5 feet above grade)

83 Bottom Width ft
178 Bottom Length ft
14774 Bottom Area ft²

49164 Actual Volume ft³

Okay

18050 Actual Surface Area ft²

Okay

20 Trial Weir Length ft
1 Trial Depth of Flow ft

60.0 Spillway Capacity cfs

Okay

3 Skimmer Size (inches)
0.25 Head on Skimmer (feet)
2 Orifice Size (1/4 inch increments)
3.58 Dewatering Time (days)
Suggest about 3 days

Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

PH2 STG2

Selection of Sediment Control Measure

2.21	Total Drainage Area	User entry	TSB 9
Do Not Use	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
2.21	Disturbed Area (Acres)		
9.61	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	96101	0	0	0.60	7.20	2.21	2.21	9.61
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Total Area (SF) 96101

*Assumes woods or grass

Slope Drain ($Q=C*i10*A$)

i10 = 7.20 in/hr

Q = 9.53 cfs

PH2 STG2

Skimmer Basin

TSB 9

Okay

7/1/25

2.21 Disturbed Area (Acres)
9.61 Peak Flow from 10-year Storm (cfs)

3971 Required Volume ft³
4180 Required Surface Area ft²
45.7 Suggested Width ft
91.4 Suggested Length ft

45 Trial Top Width at Spillway Invert ft
100 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3.5 Trial Depth ft (2 to 3.5 feet above grade)

31 Bottom Width ft
86 Bottom Length ft
2666 Bottom Area ft²

12426 Actual Volume ft³

Okay

4500 Actual Surface Area ft²

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

2.5 Skimmer Size (inches)
0.208 Head on Skimmer (feet)
1 Orifice Size (1/4 inch increments)
3.77 Dewatering Time (days)
Suggest about 3 days

Skimmer Size	
(Inches)	
1.5	
2	
2.5	
3	
4	
5	
6	
8	

PH2 STG2

Selection of Sediment Control Measure

0.96	Total Drainage Area	User entry	TSB 10
Okay	Temporary Sediment Trap	Calculated Value	7/1/25
Okay	Skimmer Sediment Basin		
Okay	Temporary Sediment Basin		
0.96	Disturbed Area (Acres)		
4.17	Peak Flow from 10-year Storm (cfs)		

Items below added by Jakob P. Klein, P.E.

C Factors	Undisturbed*	Disturbed	Off-site	Impervious
	0.22	0.6	0.3	0.9

Undisturbed* (SF)	Disturbed (SF)	Off-site (SF)	Impervious (SF)	Rational C Factor	i(10) (in./hr.)	Tot. D. A. (AC)	Disturbed (AC)	Q(10) (CFS)
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0	41740	0	0	0.60	7.20	0.96	0.96	4.17
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Total Area (SF) 41740

*Assumes woods or grass

Slope Drain ($Q=C*i_{10}*A$)

i_{10} = 7.20 in/hr

Q = 4.14 cfs

PH2 STG2

Skimmer Basin

TSB 10

Okay

7/1/25

0.96 Disturbed Area (Acres)
4.17 Peak Flow from 10-year Storm (cfs)

1725 Required Volume ft³
1816 Required Surface Area ft²
30.1 Suggested Width ft
60.3 Suggested Length ft

30 Trial Top Width at Spillway Invert ft
65 Trial Top Length at Spillway Invert ft
2 Trial Side Slope Ratio Z:1
3.5 Trial Depth ft (2 to 3.5 feet above grade)

16 Bottom Width ft
51 Bottom Length ft
816 Bottom Area ft²

4726 Actual Volume ft³

Okay

1950 Actual Surface Area ft²

Okay

10 Trial Weir Length ft
1 Trial Depth of Flow ft

30.0 Spillway Capacity cfs

Okay

1.5 Skimmer Size (inches)
0.125 Head on Skimmer (feet)
0.75 Orifice Size (1/4 inch increments)
3.75 Dewatering Time (days)
Suggest about 3 days

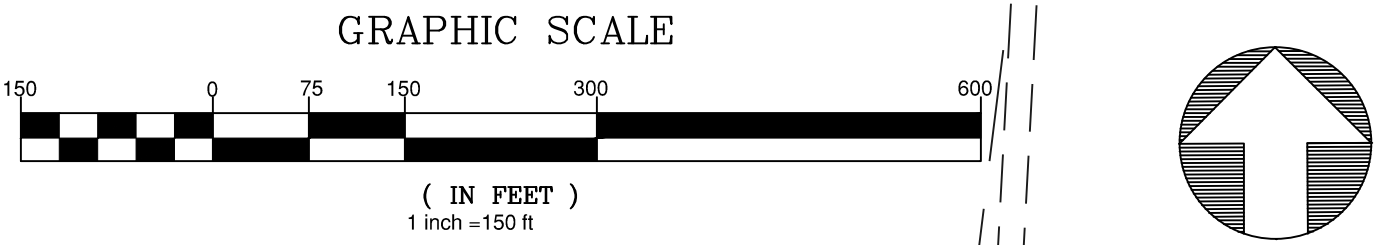
Skimmer Size
(Inches)
1.5
2
2.5
3
4
5
6
8

Drainage Swale Calculations

NOTE:

- 1. SEE PROJECT SCHEDULE SHEETS IN CID PLAN SET FOR TDD CALCULATIONS AND RECOMMENDATIONS.
- 2. AREAS NOT CONTRIBUTING TO DITCHES ARE EITHER CONVEYED VIA STORMWATER INFRASTRUCTURE TO TSB'S OR TO SILT FENCE OUTLETS.

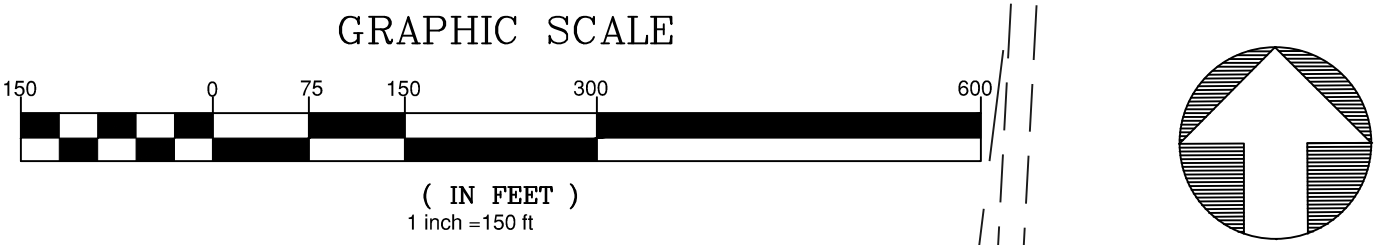
LEGEND & ABBREVIATIONS	
TDD DRAINAGE AREA	
TEMPORARY DIVERSION DITCH	TDD
TEMPORARY SEDIMENT BASIN	TSB



RUNOFF CONTROL MEASURE DRAINAGE AREAS - PH1 STG1

- NOTE:
- 1. SEE PROJECT SCHEDULE SHEETS IN CID PLAN SET FOR TDD CALCULATIONS AND RECOMMENDATIONS.
 - 2. AREAS NOT CONTRIBUTING TO DITCHES ARE EITHER CONVEYED VIA STORMWATER INFRASTRUCTURE TO TSB'S OR TO SILT FENCE OUTLETS.

LEGEND & ABBREVIATIONS	
TDD DRAINAGE AREA	
TEMPORARY DIVERSION DITCH	TDD
TEMPORARY SEDIMENT BASIN	TSB



RUNOFF CONTROL MEASURE DRAINAGE AREAS - PH1 STG2



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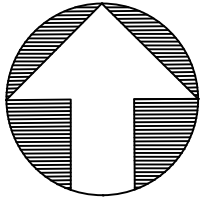
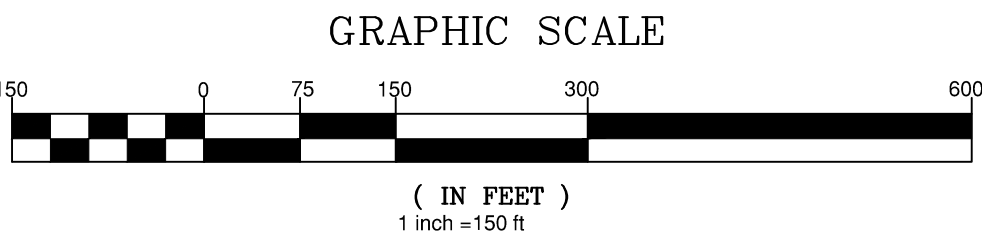
MERRITT RESERVE

ROLESVILLE, NC

July 1, 2025

- NOTE:
- 1. SEE PROJECT SCHEDULE SHEETS IN CID PLAN SET FOR TDD CALCULATIONS AND RECOMMENDATIONS.
 - 2. AREAS NOT CONTRIBUTING TO DITCHES ARE EITHER CONVEYED VIA STORMWATER INFRASTRUCTURE TO TSB'S OR TO SILT FENCE OUTLETS.

LEGEND & ABBREVIATIONS	
TDD DRAINAGE AREA	
TEMPORARY DIVERSION DITCH	TDD
TEMPORARY SEDIMENT BASIN	TSB



RUNOFF CONTROL MEASURE DRAINAGE AREAS - PH2 & 3 STG1



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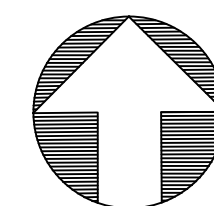
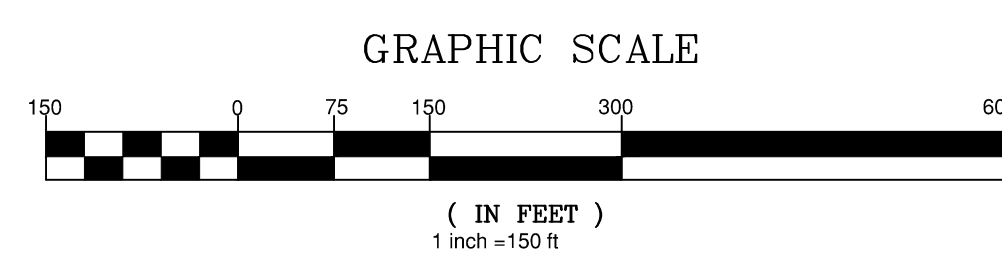
MERRITT RESERVE

ROLESVILLE, NC

July 1, 2025

1. SEE PROJECT SCHEDULE SHEETS IN CID PLAN SET FOR TDD CALCULATIONS AND RECOMMENDATIONS.
2. AREAS NOT CONTRIBUTING TO DITCHES ARE EITHER CONVEYED VIA STORMWATER INFRASTRUCTURE TO TSB'S OR TO SILT FENCE OUTLETS.

LEGEND & ABBREVIATIONS	
TDD DRAINAGE AREA	
TEMPORARY DIVERSION DITCH	TDD
TEMPORARY SEDIMENT BASIN	TSB



RUNOFF CONTROL MEASURE DRAINAGE AREAS - PH2 & 3 STG2



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PROJECT # 230004

MERRITT RESERVE

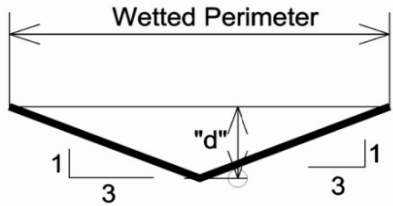
ROLESVILLE, NC

July 1, 2025

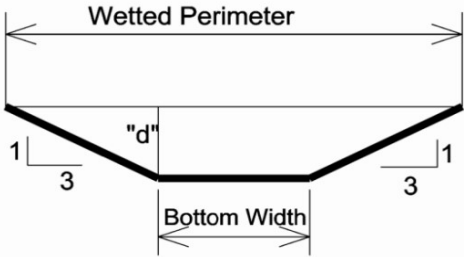
Merritt Reserve - Phase 1

Rev. 110421

Corrected Wetted Perimeter Equation



Ditch Section (For Bottom Width = 0)
(Not To Scale)



Trapezoidal Ditch / Swale Section
(Not To Scale)

TEMPORARY TRIANGULAR SWALE DRAINAGE CHART - MERRIT RESERVE PHASE 1													
Ditch I.D.	D.A., AC.	C	i ₁₀ , in/hr	Q ₁₀ , cfs	Left Side Slope, Z Z:1	Right Side Slope, Z Z:1	Avg. Ditch Slope, %	Bottom Width	Ditch Lining*	Manning, n	Min. Ditch Depth, ft**	Flow Velocity V ₁₀ , fps	Calc.Shear Stress, psf
PHASE 1 STAGE 1													
TDD 1.1	0.32	0.60	7.20	1.38	2.00	2.00	0.41	0.00	Jute Netting	0.033	1.02	1.34	0.18
TDD 1.2	6.24	0.60	7.20	26.96	2.00	2.00	0.50	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	2.40	3.06	0.65
TDD 1A.1	4.79	0.60	7.20	20.69	2.00	2.00	3.40	0.00	Am. Excelsior Co.; Curlex High Velocity; 2 nets	0.033	1.63	5.85	2.82
TDD 1B.1	3.04	0.60	7.20	13.13	2.00	2.00	1.09	0.00	Profile; Futerra	0.033	1.69	3.41	0.94
TDD 2.1A	12.21	0.60	7.20	52.75	2.00	2.00	0.50	0.00	Profile; Futerra	0.033	3.00	3.62	0.84
TDD 2.1B	12.84	0.60	7.20	55.47	2.00	2.00	7.89	0.00	North Am. Green C350; Vegetated	0.033	1.94	10.29	8.08
TDD 4.1	3.82	0.60	7.20	16.50	2.00	2.00	0.79	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	1.90	3.21	0.79
TDD 4.2	1.24	0.60	7.20	5.36	2.00	2.00	2.22	0.00	Am. Excelsior Co.; Straw; 1 net	0.033	1.17	3.55	1.20
PHASE 1 STAGE 2													
TDD 2.2	2.22	0.60	7.20	9.59	2.00	2.00	0.50	0.00	Jute Netting	0.033	1.73	2.36	0.45
TDD 2.3	2.08	0.60	7.20	8.99	2.00	2.00	0.57	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	1.66	2.43	0.48
TDD 3.1	4.27	0.60	7.20	18.45	2.00	2.00	0.20	0.00	Am. Excelsior Co.; Curlex High Velocity; 2 nets	0.033	2.46	1.97	0.27

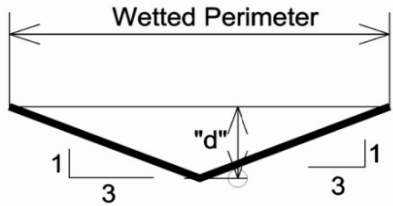
*An approved equal alternate lining may be used

**Ditch depth is Q10 flow depth +0.3 ft of freeboard

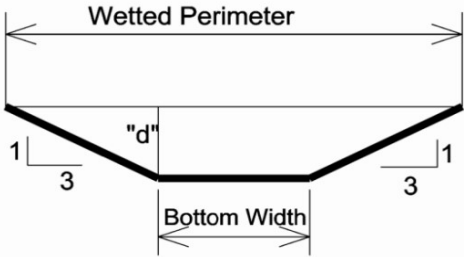
Merritt Reserve - Phase 2 & 3

Rev. 110421

Corrected Wetted Perimeter Equation



Ditch Section (For Bottom Width = 0)
(Not To Scale)



Trapezoidal Ditch / Swale Section
(Not To Scale)

TEMPORARY TRIANGULAR SWALE DRAINAGE CHART - MERRIT RESERVE PHASE 2 & 3													
Ditch I.D.	D.A., AC.	C	i10, in/hr	Q10, cfs	Left Side Slope, Z Z:1	Right Side Slope, Z Z:1	Avg. Ditch Slope, %	Bottom Width	Ditch Lining*	Manning, n	Min. Ditch Depth, ft**	Flow Velocity V10, fps	Calc.Shear Stress, psf
PHASE 2 & 3 STAGE 1													
TDD 1A.2	2.32	0.60	7.20	10.02	2.00	2.00	1.87	0.00	E. Coast Ero. Blank.; Straw/Coir, 2 Jute nets	0.033	1.43	3.90	1.32
TDD 5.1	2.11	0.60	7.20	9.12	2.00	2.00	3.13	0.00	NAG; 70% straw: 30% Coconut; double net	0.033	1.29	4.61	1.94
TDD 5A.1	1.84	0.60	7.20	7.95	2.00	2.00	2.44	0.00	Am. Excelsior Co.; Curlex I.73; 1 net	0.033	1.29	4.06	1.51
TDD 5A.2	1.24	0.60	7.20	5.36	2.00	2.00	0.56	0.00	Jute Netting	0.033	1.42	2.12	0.39
TDD 5B.1	0.17	0.60	7.20	0.73	2.00	2.00	3.50	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	0.68	2.54	0.83
TDD 5C.1	4.18	0.60	7.20	18.06	2.00	2.00	0.88	0.00	Profile; Futerra	0.033	1.93	3.41	0.89
TDD 6.1	1.27	0.60	7.20	5.49	2.00	2.00	1.40	0.00	Profile; Futerra	0.033	1.26	3.00	0.83
TDD 6.2	0.91	0.60	7.20	3.93	2.00	2.00	2.16	0.00	Am. Excelsior Co.; Straw; 1 net	0.033	1.08	3.25	1.05
TDD 6A.1	1.71	0.60	7.20	7.39	2.00	2.00	1.97	0.00	Am. Excelsior Co.; Straw; 1 net	0.033	1.30	3.68	1.23
TDD 6B.1	1.60	0.60	7.20	6.91	2.00	2.00	0.97	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	1.42	2.78	0.68
TDD 6B.2	3.35	0.60	7.20	14.47	2.00	2.00	3.95	0.00	Am. Excelsior Co.; Curlex High Velocity; 2 nets	0.033	1.43	5.66	2.79
TDD 7.1	0.21	0.60	7.20	0.91	2.00	2.00	3.11	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	0.72	2.57	0.82
TDD 7.2	2.74	0.60	7.20	11.84	2.00	2.00	2.47	0.00	E. Coast Ero. Blank.; Excelsior, 1 net	0.033	1.45	4.51	1.77
TDD 8A.1	2.44	0.60	7.20	10.54	2.00	2.00	0.64	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	1.71	2.65	0.56
TDD 8B.1	7.33	0.60	7.20	31.67	2.00	2.00	0.37	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	2.66	2.85	0.54
TDD 8B.2	0.85	0.60	7.20	3.67	2.00	2.00	0.20	0.00	Jute Netting	0.033	1.48	1.31	0.15
TDD 9.1	1.23	0.60	7.20	5.31	2.00	2.00	0.63	0.00	Jute Netting	0.033	1.40	2.21	0.43
PHASE 2 & 3 STAGE 2													
TDD 5.2	0.96	0.60	7.20	4.15	2.00	2.00	0.41	0.00	E. Coast Ero. Blank.; Straw/Coir, 2 Jute nets	0.033	1.38	1.77	0.28
TDD 5.3	1.20	0.60	7.20	5.18	2.00	2.00	1.93	0.00	NAG; 70% straw: 30% Coconut; double net	0.033	1.18	3.34	1.06
TDD 5A.3	0.90	0.60	7.20	3.89	2.00	2.00	0.12	0.00	Am. Excelsior Co.; Curlex I.73; 1 net	0.033	1.63	1.10	0.10
TDD 5A.4	0.54	0.60	7.20	2.33	2.00	2.00	0.19	0.00	Jute Netting	0.033	1.31	1.15	0.12
TDD 5A.5	2.18	0.60	7.20	9.42	2.00	2.00	1.20	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	1.50	3.25	0.90

TDD 6.3A	0.70	0.60	7.20	3.02	2.00	2.00	0.30	0.00	Profile; Futerra	0.033	1.32	1.45	0.19
TDD 6.3B	1.39	0.60	7.20	6.00	2.00	2.00	5.42	0.00	Profile; Futerra	0.033	1.07	5.10	2.60
TDD 8A.2	3.92	0.60	7.20	16.93	2.00	2.00	0.28	0.00	Profile; Futerra	0.033	2.27	2.19	0.34
TDD 8B.3	7.93	0.60	7.20	34.26	2.00	2.00	0.25	0.00	Am. Excelsior Co.; Straw; 1 net	0.033	2.91	2.51	0.41
TDD 8B.4	0.75	0.60	7.20	3.24	2.00	2.00	0.17	0.00	Am. Excelsior Co.; Straw; 1 net	0.033	1.46	1.20	0.12
TDD 9.2	2.13	0.60	7.20	9.20	2.00	2.00	0.15	0.00	Geocoir/Dekowe; Straw; RS-1	0.033	2.06	1.49	0.16
TDD 10.1	0.96	0.60	7.20	4.15	2.00	2.00	1.03	0.00	Am. Excelsior Co.; Curlex High Velocity; 2 nets	0.033	1.21	2.50	0.59

*An approved equal alternate lining may be used

**Ditch depth is Q10 flow depth +0.3 ft of freeboard

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Slope Drain Calculations

Merritt Reserve - Phase 1

where $v = \frac{1.486}{n} R_H^{2/3} S^{1/2}$

Q = discharge or flow rate (ft³/sec)

v = flow velocity (ft/sec)

n = Manning's roughness coefficient

A = cross-sectional area of flow (ft²)

R_H = hydraulic radius (ft) = $\frac{A}{P}$

P = wetted perimeter (ft)

S = slope of the energy grade line (ft/ft)

= $\frac{h_L}{L}$

h_L = head loss (ft)

L = pipe length (ft)

TEMPORARY SLOPE DRAINS - MERRIT RESERVE PHASE 1											
Slope Drain I.D.	D.A., AC.	C	i10, in/hr	Q10, cfs	Inv. Up	Inv. Dn	Pipe Length (ft)	Pipe Slope (ft/ft)	No. of Barrels	Manning, n	Recommended Slope Drain Size (in)*
PHASE 1 STAGE 1											
TDD 1.1	0.32	0.60	7.20	1.38	388.56	384.00	23	0.198	1	0.013	12
TDD 1.2	6.24	0.60	7.20	26.96	385.31	384.00	24	0.055	1	0.013	36
TDD 1B.1	3.04	0.60	7.20	13.13	379.17	374.00	132	0.039	1	0.013	24
TDD 2.1B	12.84	0.60	7.20	55.47	359.00	357.00	38	0.053	1	0.013	48
TDD 4.1	3.82	0.60	7.20	16.50	378.67	360.00	46	0.406	1	0.013	30
TDD 4.2	1.24	0.60	7.20	5.36	377.94	360.00	43	0.417	1	0.013	18
PHASE 1 STAGE 2											
TDD 3.1	4.27	0.60	7.20	18.45	375.00	373.00	10	0.200	1	0.013	30

*Recommended size based on conveyance and inlet capacity

Merritt Reserve - Phase 2 & 3

where $v = \frac{1.486}{n} R_H^{2/3} S^{1/2}$

Q = discharge or flow rate (ft³/sec)

v = flow velocity (ft/sec)

n = Manning's roughness coefficient

A = cross-sectional area of flow (ft²)

R_H = hydraulic radius (ft) = $\frac{A}{P}$

P = wetted perimeter (ft)

S = slope of the energy grade line (ft/ft)

= $\frac{h_L}{L}$

h_L = head loss (ft)

L = pipe length (ft)

TEMPORARY SLOPE DRAINS - MERRIT RESERVE PHASE 2 & 3											
Slope Drain I.D.	D.A., AC.	C	i10, in/hr	Q10, cfs	Inv. Up	Inv. Dn	Pipe Length (ft)	Pipe Slope (ft/ft)	No. of Barrels	Manning, n	Recommended Slope Drain Size (in)**
PHASE 2 & 3 STAGE 1											
TDD 5.1	2.11	0.60	7.20	9.12	307.00	292.00	38	0.395	1	0.013	24
TDD 5A.1	1.84	0.60	7.20	7.95	337.58	310.00	85	0.324	1	0.013	24
TDD 5A.2	1.24	0.60	7.20	5.36	336.21	310.00	78	0.336	1	0.013	18
TDD 5C.1	4.18	0.60	7.20	18.06	312.65	291.00	81	0.267	1	0.013	30
TDD 6.1	1.27	0.60	7.20	5.49	326.40	322.00	27	0.163	1	0.013	18
TDD 6.2	0.91	0.60	7.20	3.93	321.80	321.00	24	0.033	1	0.013	15
TDD 6B.2	3.35	0.60	7.20	14.47	299.50	288.00	45	0.256	1	0.013	30
TDD 7.2	2.74	0.60	7.20	11.84	362.70	361.00	22	0.077	1	0.013	24
TDD 8A.1	2.44	0.60	7.20	10.54	364.50	363.00	16	0.094	1	0.013	24
TDD 8B.1	7.33	0.60	7.20	31.67	349.00	343.00	49	0.122	1	0.013	36
TDD 8B.2	0.85	0.60	7.20	3.67	344.50	343.00	23	0.065	1	0.013	15
TDD 9.1	1.23	0.60	7.20	5.31	360.40	360.00	30	0.013	1	0.013	18
PHASE 2 & 3 STAGE 2											
TDD 5.2	0.96	0.60	7.20	4.15	296.50	292.00	22	0.205	1	0.013	15
TDD 5.3	1.20	0.60	7.20	5.18	310.50	292.00	49	0.378	1	0.013	18
TDD 6.3B	1.39	0.60	7.20	6.00	330.50	322.00	46	0.185	1	0.013	18
TDD 8A.2	3.92	0.60	7.20	16.93	361.36	361.00	34	0.011	1	0.013	30
TDD 8B.3	7.93	0.60	7.20	34.26	342.83	342.00	25	0.033	1	0.013	36
TDD8B.4	0.75	0.60	7.20	3.24	346.00	342.00	18	0.222	1	0.013	15
TDD 9.2	2.13	0.60	7.20	9.20	362.50	361.00	27	0.056	1	0.013	24
TDD 10.1	0.96	0.60	7.20	4.15	380.00	375.00	11	0.455	1	0.013	15

*Recommended size based on conveyance and inlet capacity