ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

EPHEMERAL

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Tributary 6	Tributary 12	Tributary 14	Tributary 16	Tributary 18	
Dominant Effect	1.6	1.6	1.6	1.6	1.6	
Duration of Effect	2.0	2.0	2.0	2.0	2.0	
Existing Condition	2.0	1.5	1.5	1.0	0.5	
Lost Kind	0.5	0.5	0.5	0.5	0.5	
Preventability	0.5	0.5	0.5	0.5	0.5	
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	
Sum of r Factors	6.7	6.2	6.2	5.7	5.2	
Impacted Area	0.002	0.003	0.0003	0.001	0.006	
R × AA =	0.014	0.017	0.002	0.005	0.032	0.000

Total Required Credits = ∑ (R × AA) = 0.071

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

EPHEMERAL

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Tributary 22	Tributary 25	Tributary 28	Tributary 29		Tributary 33
Dominant Effect	1.6	1.6	1.6	1.6		1.6
Duration of Effect	2.0	2.0	2.0	2.0		2.0
Existing Condition	1.5	1.5	1.5	1.5		1.5
Lost Kind	0.5	0.5	0.5	0.5		0.5
Preventability	0.5	0.5	0.5	0.5		0.5
Rarity Ranking	0.1	0.1	0.1	0.1		0.1
Sum of r Factors	6.2	6.2	6.2	6.2	0	6.2
Impacted Area	0.002	0.018	0.005	0.006		0.011
R × AA =	0.014	0.113	0.028	0.035	0.000	0.067

Total Required Credits = ∑ (R × AA) = 0.258

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

EPHEMERAL

REQUIRED MITIGATION CREDITS WORKSHEET

Factor			Tributary 47	Tributary 48	Tributary 54	Tributary 56
Dominant Effect			1.6	1.6	1.6	1.6
Duration of Effect			2.0	2.0	2.0	2.0
Existing Condition			1.5	1.5	1.5	1.5
Lost Kind			0.5	0.5	0.5	0.5
Preventability			0.5	0.5	0.5	0.5
Rarity Ranking			0.1	0.1	0.1	0.1
Sum of r Factors	0	0	6.2	6.2	6.2	6.2
Impacted Area			0.014	0.003	0.015	0.018
R × AA =	0.000	0.000	0.086	0.016	0.094	0.110

Total Required Credits = ∑ (R × AA) = 0.305

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

EPHEMERAL

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Tributary 60	Tributary 62		Tributary 67	Pipeline Tributary 5	
Dominant Effect	1.6	1.6		1.6	1.0	
Duration of Effect	2.0	2.0		2.0	0.1	
Existing Condition	1.0	0.5		1.5	0.1	
Lost Kind	0.5	0.5		0.5	0.5	
Preventability	0.5	0.5		0.5	0.5	
Rarity Ranking	0.1	0.1		0.1	0.1	
Sum of r Factors	5.7	5.2	0	6.2	2.3	
Impacted Area	0.015	0.121		0.002	0.008	
R × AA =	0.083	0.630	0.000	0.014	0.018	

Total Required Credits = ∑ (R × AA) = 0.745

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

WETLAND

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Wetland 1 (PFO)	Wetland 2 (PFO)	Wetland 3 (PFO)	Wetland 4 (PSS)	Wetland 4 (PEM)	Wetland 4 (PFO)
Dominant Effect	1.6	1.6	1.6	1.6	1.6	1.6
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	1.0	1.0	1.0	1.0	0.5	1.5
Lost Kind	2.0	2.0	2.0	2.0	1.5	2.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	7.2	7.2	7.2	7.2	6.2	7.7
Impacted Area	0.11	0.1	0.03	6.53	0.33	4.07
R × AA =	0.79	0.72	0.22	47.02	2.05	31.34

Total Required Credits = ∑ (R × AA) = 82.129

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

WETLAND

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Wetland 5 (PFO)	Wetland 6 (PFO)	Wetland 7 (PFO)	Wetland 8 (PFO)	Wetland 9 (PFO)	Wetland 10 (PFO)
Dominant Effect	1.6	1.6	1.6	1.6	1.6	1.6
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	1.0	1.5	1.5	1.5	1.5	1.5
Lost Kind	2.0	2.0	2.0	2.0	2.0	2.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	7.2	7.7	7.7	7.7	7.7	7.7
Impacted Area	0.03	0.01	0.28	0.46	0.11	0.02
R × AA =	0.216	0.077	2.156	3.542	0.847	0.154

Total Required Credits = ∑ (R × AA) = 6.992

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

WETLAND

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Wetland 11 (PFO)	Wetland 12 (PFO)	Wetland 13 (PFO)	Wetland 14 (PFO)	Wetland 15 (PEM)	Wetland 15 (PFO)	Wetland 16 (PFO)
Dominant Effect	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	1.0	1.5	1.5	1.5	0.5	1.5	1.5
Lost Kind	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	7.2	7.7	7.7	7.7	6.7	7.7	7.7
Impacted Area	0.09	0.33	0.1	0.1	0.16	0.06	0.19
R × AA =	0.65	2.54	0.77	0.77	1.07	0.46	1.46

Total Required Credits = ∑ (R × AA) = 7.73

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

RAW WATER PIPELINE & INTAKE PUMP STATION

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Pipeline Wetland 1	Pipeline Wetland 2	Pipeline Wetland 3	Pipeline Wetland 4	Pipeline Wetland 5	Pipeline Wetland 6
Dominant Effect	1.0	1.0	1.0	1.0	1.0	1.0
Duration of Effect	0.1	0.1	0.1	0.1	0.1	0.1
Existing Condition	1.5	0.1	0.1	0.1	0.1	0.1
Lost Kind	2.0	2.0	2.0	2.0	2.0	2.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	5.2	3.8	3.8	3.8	3.8	3.8
Impacted Area	0.040	0.071	0.063	0.028	0.004	0.011
R × AA =	0.208	0.270	0.239	0.106	0.015	0.042

Total Required Credits = ∑ (R × AA) = 0.881

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

RAW WATER PIPELINE & INTAKE PUMP STATION

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Pipeline Wetland 7					
Dominant Effect	1.0					
Duration of Effect	0.1					
Existing Condition	1.5					
Lost Kind	2.0					
Preventability	0.5					
Rarity Ranking	0.1					
Sum of r Factors	5.2	0	0	0	0	0
Impacted Area	0.023					
R × AA =	0.120	0.000	0.000	0.000	0.000	0.000

Total Required Credits = ∑ (R × AA) = 0.120

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

Big Indian Creek Mitigation Site

RESTORATION/ENHANCEMENT MITIGATION FACTORS

Factor	Options				
Net Improvement Vegetation	Minimal Enhancement 0.1 ---------- to ---------- Complete Restoration 1.4				
Net Improvement Hydrology	Minimal Enhancement 0.1 ---------- to ---------- Complete Restoration 1.4				
Credit Schedule	Schedule 5 0	Schedule 4 0.1	Schedule 3 0.2	Schedule 2 0.3	Schedule 1 0.4
Kind	Category 2 0.2	Category 1 0.6			
Maintenance	High 0	Moderate 0.1	Low 0.2	None 0.3	
Monitoring and Contingencies Plan	N/A 0	Minimum 0.1	Moderate 0.2	Substantial 0.3	Excellent 0.4
Control	RC 0.1	RC + CE or GPP 0.3	RC + CE + GPP 0.5		

PROPOSED RESTORATION/ENHANCEMENT MITIGATION WORKSHEET

Factor	Wetland 1	Wetland 2	Wetland 3	Wetland 4	Wetland 5
Net Improvement Vegetation	1.3	1.3	1.3	1.3	1.3
Net Improvement Hydrology	0.7	0.7	0.7	0.4	0.4
Credit Schedule	0.4	0.4	0.4	0.4	0.4
Kind	0.6	0.6	0.6	0.6	0.6
Maintenance	0.3	0.3	0.3	0.3	0.3
Monitoring and Contingencies Plan	0.4	0.4	0.4	0.4	0.4
Control	0.3	0.3	0.3	0.3	0.3
Sum of m Factors M1 =	4.00	4.00	4.00	3.70	3.70
Mitigation Area A1 =	4.39	7.29	1.84	9.84	0.42
M × A =	17.56	29.16	7.36	36.41	1.55

Restoration/Enhancement Credits = $\sum_{4.0}$ (M × A) = 92.04

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

Big Indian Creek Mitigation Site

Minimum Upland Buffer Widths for Mitigation Credit †

Adjacent Land Use Category	Minimum Width
Single Family Residential	50 feet
Multi-Family	75feet
Commercial	75 feet
Industrial	100 feet
Landfill	100 feet
Other Categories	case-by-case

† Widths are based on linear, constant elevation measurement

BUFFER MITIGATION FACTORS

Factors	Options				
Upland Buffer Factor (U1)	>95% 1.0	68% to 95% 0.8	50% to 67% 0.6	33% to 49% 0.3	<33% 0.1
Buffer Enhancement Factor (U2)	>95% 0.15	50% to 95% 0.1	<50% 0.05		

† These factors are determined on a case-by-case basis

UPLAND BUFFER CREDIT WORKSHEET

	Upland 1	Upland 2	Upland 3	Upland 3	Upland 4
Total Jurisdictional Boundary (B1)*	2563	3169	1556	1556	3094
Buffered Jurisdictional Boundary (B2)*	903	1695	1029	331	2126
(B2 ÷ B1) x 100 = % Buffered	35.23%	53.49%	66.13%	21.27%	68.71%
Acres of Upland Buffer (A1)	5.60	3.12	2.65	0.45	15.29
Upland Buffer Factor (U1)	0.30	0.60	0.60	0.10	0.80
A1 x U1 = C1	1.68	1.87	1.59	0.05	12.23
Aquatic Mitigation Area Acres (A2)	4.39	7.29	1.84	1.84	9.84
Buffer Enhancement Factor (U2)	0.05	0.1	0.1	0.05	0.1
A2 x U2 = C2	0.22	0.73	0.18	0.09	0.98
C1 + C2 = D	1.90	2.60	1.77	0.14	13.21

Buffer Credit = ∑D(A-E)= 19.62

* B1 = Total linear feet of jurisdictional boundary of each proposed restoration, enhancment, preservation and/or creation area.

* B2 = Total linear feet of jurisdictional boundary proposed to be buffered for each restoration, enhancment, preservation and/or creation area.

COMPENSATORY WETLANDS MITIGATION WORKSHEETS

Mitigation Summary Worksheet for the Indian Creek Water Supply Reservoir

I. Required Mitigation

	Reservoir Pool Impacts	= 98.21* (13.35 acres)
	Raw Water Pipeline Impact	= 1.02* (0.25 acres)
A.	Total Required Mitigation Credits	= **99.23* (13.6 acres)**

II.	**Mitigation Credit Summary**	**Credits**	**Acres**
B.	Mitigation Bank	--	--
C.	Restoration and/or Enhancement	92.04	23.78
D.	Creation	--	--
E.	Functional Replacement Mitigation = B + C + D	92.04	23.78
F.	Upland Buffer	19.62	27.11
G.	Preservation	0.0	0.0
H.	**Total Proposed Non-Bank Mitigation = E + F + G**	**111.66**	**50.89**

*includes required wetland credits generated from ephemeral tributary impact

The following criteria must be satisfied for the mitigation proposal to meet minimum SOP requirements:

1. Total Proposed Mitigation (Row H) must be greater than or equal to Total Required Mitigation Credits (Row A).

2. Functional Replacement Mitigation (Row E) must be at least 50% of Row A.

3. Preservation Mitigation (Row G) can be up to, but not more than 50% of Row A, if no Upland Buffer Credits are proposed. If Upland Buffer Credits are proposed, then Preservation Mitigation may be reduced to 30% of the Total Required Mitigation Credits.

4. Upland Buffer (Row F) cannot exceed 20% of the Total Required Mitigation (Row A). The following table provides examples of how Preservation and Upland Buffer Mitigation can be used in combination:

Total Required Mitigation Credits	Functional Replacement Credits	Preservation Credits	Upland Buffer Credits
99.23	92.04	0.0	19.62