

Attachment 8  
Alternatives Analysis Cost Estimate

**\*\* OPINION OF PROBABLE COST \*\***

Combination Pond  
City of Rutland, Vermont

**Alternative #2 - Update Dam to Current Dam Safety Standards**

DESCRIPTION OF THE ITEM	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ESTIMATED COST
<b>GENERAL</b>				
1 Mobilization ( 8% ) of remaining construction costs	LS	1	\$ 8,788.00	\$ 8,788
2 Erosion Prevention and Sediment Control	LS	1	\$ 1,000.00	\$ 1,000
3 Traffic Control	LS	1	\$ 8,000.00	\$ 8,000
4 Clearing and Grubbing	LS	1	\$ 2,500.00	\$ 2,500
5 Control of Water - (Drain Reservoir, Cofferdam, Dewatering)	LS	1	\$ 3,000.00	\$ 3,000
6 Plantings & Seed	LS	1	\$ 500.00	\$ 500
<b>GENERAL SUBTOTAL</b>				<b>\$ 23,288</b>
<b>GENERAL SITE WORK</b>				
7 Restore Embankment	LS	1	\$ 2,500.00	\$ 2,500
8 Common Excavation	CY	300	\$ 10.00	\$ 3,000
9 Removal of Existing Structures	LS	1	\$ 1,250.00	\$ 1,250
10 Articulated Concrete Block - Overtopping Protection	SF	2100	\$ 18.00	\$ 37,800
<b>GENERAL SITE WORK SUBTOTAL</b>				<b>\$ 44,550</b>
<b>ROADWAY RECONSTRUCTION</b>				
11 Road Subbase	CY	100	\$ 80.00	\$ 8,000
12 Road Pavement	TON	60	\$ 100.00	\$ 6,000
13 Gravel Base Course	CY	60	\$ 70.00	\$ 4,200
14 Concrete Curb	LF	120	\$ 30.00	\$ 3,600
<b>ROADWAY RECONSTRUCTION SUBTOTAL</b>				<b>\$ 21,800</b>
<b>SPILLWAY/STORMDRAIN</b>				
15 42" RCP - Outlet Barrel	LF	90	\$ 150.00	\$ 13,500
16 72" RCP - Riser	LS	1	\$ 10,000.00	\$ 10,000
17 Trash Rack	LS	1	\$ 5,000.00	\$ 5,000
<b>SPILLWAY/STORMDRAIN SUBTOTAL</b>				<b>\$ 28,500</b>
<b>CONSTRUCTION SUBTOTAL</b>				<b>\$ 118,638</b>
ADD 25% CONTINGENCY				\$ 29,660
<b>SUB-TOTAL</b>				<b>\$ 148,298</b>
<b>USE</b>				<b>\$ 149,000</b>
<b>ENGINEERING AND PERMITTING</b>				
18 Design - Phase Engineering (12%) of Construction Costs	LS	1	\$ 17,880	\$ 17,880
19 Permitting - Phase Engineering (6%) of Construction Costs	LS	1	\$ 8,898	\$ 8,898
20 Bid/Construction - Phase Engineering (10%) of Construction Costs	LS	1	\$ 14,830	\$ 14,830
<b>ENGINEERING AND PERMITTING SUBTOTAL</b>				<b>\$ 23,728</b>
ADD 25% CONTINGENCY				\$ 5,932
<b>SUB-TOTAL</b>				<b>\$ 29,660</b>
<b>USE</b>				<b>\$ 30,000</b>
Prepared: 2/7/2012			<b>CONSTRUCTION SUBTOTAL</b>	<b>\$ 149,000</b>
Printed: 4/3/2012			<b>ENGINEERING AND PERMITTING SUBTOTAL</b>	<b>\$ 30,000</b>
Prepared by: ZDC			<b>TOTAL</b>	<b>\$ 179,000</b>
Checked by: MTM				

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**\*\* OPINION OF PROBABLE COST \*\***

Combination Pond  
City of Rutland, Vermont

**Alternative #3 - Bottom Release**

DESCRIPTION OF THE ITEM	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ESTIMATED COST
<b>GENERAL</b>				
1 Mobilization ( 8% ) of remaining construction costs	LS	1	\$ 880.00	\$ 880
2 Erosion Prevention and Sediment Control	LS	1	\$ -	\$ -
3 Traffic Control	LS	1	\$ -	\$ -
4 Clearing and Grubbing	LS	1	\$ -	\$ -
5 Control of Water - (Drain Reservoir, Cofferdam, Dewatering)	LS	1	\$ 3,000.00	\$ 3,000
6 Plantings & Seed	LS	1	\$ -	\$ -
<b>GENERAL SUBTOTAL</b>				\$ 3,880
<b>GENERAL SITE WORK</b>				
<b>GENERAL SITE WORK SUBTOTAL</b>				\$ -
<b>ROADWAY RECONSTRUCTION</b>				
<b>ROADWAY RECONSTRUCTION SUBTOTAL</b>				\$ -
<b>SPILLWAY/STORMDRAIN</b>				
7 Bottom Release System	LS	1	\$ 8,000.00	\$ 8,000
<b>SPILLWAY/STORMDRAIN SUBTOTAL</b>				\$ 8,000
<b>CONSTRUCTION SUBTOTAL</b>				\$ 11,880
ADD 25% CONTINGENCY				\$ 2,970
<b>SUB-TOTAL</b>				\$ 14,850
<b>USE</b>				\$ 15,000
<b>ENGINEERING AND PERMITTING</b>				
8 Design - Phase Engineering (12%) of Construction Costs	LS	1	\$ 1,800	\$ 1,800
9 Permitting - Phase Engineering (6%) of Construction Costs	LS	1	\$ 891	\$ 891
10 Bid/Construction - Phase Engineering (10%) of Construction Costs	LS	1	\$ 1,485	\$ 1,485
<b>ENGINEERING AND PERMITTING SUBTOTAL</b>				\$ 2,376
ADD 25% CONTINGENCY				\$ 594
<b>SUB-TOTAL</b>				\$ 2,970
<b>USE</b>				\$ 3,000
Prepared: 2/7/2012			<b>CONSTRUCTION SUBTOTAL</b>	\$ 15,000
Printed: 4/3/2012			<b>ENGINEERING AND PERMITTING SUBTOTAL</b>	\$ 3,000
Prepared by: ZDC			<b>TOTAL</b>	\$ 18,000
Checked by: MTM				

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Combination Pond  
City of Rutland, Vermont

**Alternative #4 - By-pass Channel**

DESCRIPTION OF THE ITEM	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ESTIMATED COST
<b>GENERAL</b>				
1 Mobilization ( 8% ) of remaining construction costs	LS	1	\$ 3,904.00	\$ 3,904
2 Erosion Prevention and Sediment Control	LS	1	\$ 2,000.00	\$ 2,000
3 Traffic Control	LS	0	\$ 1,000.00	\$ -
4 Clearing and Grubbing	LS	1	\$ 2,500.00	\$ 2,500
5 Control of Water - (Drain Reservoir, Cofferdam, Dewatering)	LS	1	\$ 3,000.00	\$ 3,000
6 Plantings & Seed	LS	1	\$ 2,000.00	\$ 2,000
<b>GENERAL SUBTOTAL</b>				<b>\$ 11,404</b>
<b>GENERAL SITE WORK</b>				
7 Common Excavation	CY	380	\$ 10.00	\$ 3,800
8 Diversion Berm	CY	75	\$ 20.00	\$ 1,500
9 Type II Stone Fill - Channel Protection	CY	100	\$ 35.00	\$ 3,500
10 Diversion Berm Between Pond and Channel	CY	100	\$ 20.00	\$ 2,000
11 Removal of Existing Concrete Wall	LS	1	\$ 1,000.00	\$ 1,000
12 Diversion Headwall	LS	1	\$ 5,000.00	\$ 5,000
<b>GENERAL SITE WORK SUBTOTAL</b>				<b>\$ 16,800</b>
<b>ROADWAY RECONSTRUCTION</b>				
<b>ROADWAY RECONSTRUCTION SUBTOTAL</b>				<b>\$ -</b>
<b>SPILLWAY/STORMDRAIN</b>				
13 48" RCP By-Pass Pipe	LF	110	\$ 150.00	\$ 16,500
14 Precast Concrete Headwall	EA	1	\$ 5,000.00	\$ 5,000
15 Connection to Existing Structure	LS	1	\$ 1,000.00	\$ 1,000
<b>SPILLWAY/STORMDRAIN SUBTOTAL</b>				<b>\$ 22,500</b>
<b>CONSTRUCTION SUBTOTAL</b>				<b>\$ 52,704</b>
ADD 25% CONTINGENCY				\$ 13,176
<b>SUB-TOTAL</b>				<b>\$ 65,880</b>
<b>USE</b>				<b>\$ 66,000</b>
<b>ENGINEERING AND PERMITTING</b>				
16 Design - Phase Engineering (12%) of Construction Costs	LS	1	\$ 7,920	\$ 7,920
17 Permitting - Phase Engineering (6%) of Construction Costs	LS	1	\$ 3,953	\$ 3,953
18 Bid/Construction - Phase Engineering (10%) of Construction Costs	LS	1	\$ 6,588	\$ 6,588
<b>ENGINEERING AND PERMITTING SUBTOTAL</b>				<b>\$ 10,541</b>
ADD 25% CONTINGENCY				\$ 2,635
<b>SUB-TOTAL</b>				<b>\$ 13,176</b>
<b>USE</b>				<b>\$ 14,000</b>
Prepared: 2/7/2012			<b>CONSTRUCTION SUBTOTAL</b>	<b>\$ 66,000</b>
Printed: 4/3/2012			<b>ENGINEERING AND PERMITTING SUBTOTAL</b>	<b>\$ 14,000</b>
Prepared by: ZDC			<b>TOTAL</b>	<b>\$ 80,000</b>
Checked by: MTM				

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Combination Pond  
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**Alternative #5 - By-pass Pipe**

DESCRIPTION OF THE ITEM	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ESTIMATED COST	
<b>GENERAL</b>					
1 Mobilization ( 8% ) of remaining construction costs	LS	1	\$ 4,822.00	\$ 4,822	
2 Erosion Prevention and Sediment Control	LS	1	\$ 1,000.00	\$ 1,000	
3 Traffic Control	LS	1	\$ 1,000.00	\$ 1,000	
4 Clearing and Grubbing	LS	1	\$ 2,500.00	\$ 2,500	
5 Control of Water - (Drain Reservoir, Cofferd Dam, Dewatering)	LS	1	\$ 3,000.00	\$ 3,000	
6 Plantings & Seed	LS	1	\$ 500.00	\$ 500	
<b>GENERAL SUBTOTAL</b>				\$ 12,322	
<b>GENERAL SITE WORK</b>					
7 Common Excavation	CY	150	\$ 10.00	\$ 1,500	
8 Diversion Berm	CY	70	\$ 20.00	\$ 1,400	
9 Diversion Headwall	LS	1	\$ 5,000.00	\$ 5,000	
<b>GENERAL SITE WORK SUBTOTAL</b>				\$ 7,900	
<b>ROADWAY RECONSTRUCTION</b>					
<b>ROADWAY RECONSTRUCTION SUBTOTAL</b>				\$ -	
<b>SPILLWAY/STORMDRAIN</b>					
10 15" RCP By-Pass Pipe	LF	475	\$ 75.00	\$ 35,625	
11 Concrete Headwall	EA	1	\$ 5,000.00	\$ 5,000	
12 Anchors for By-Pass Pipe	EA	10	\$ 100.00	\$ 1,000	
13 Fill Under Pipe	CY	175	\$ 10.00	\$ 1,750	
14 Connection to Existing Structure	LS	1	\$ 1,000.00	\$ 1,000	
<b>SPILLWAY/STORMDRAIN SUBTOTAL</b>				\$ 44,375	
<b>CONSTRUCTION SUBTOTAL</b>				\$ 65,097	
ADD 25% CONTINGENCY				\$ 16,274	
<b>SUB-TOTAL</b>				\$ 81,371	
<b>USE</b>				\$ 82,000	
<b>ENGINEERING AND PERMITTING</b>					
15 Design - Phase Engineering (12%) of Construction Costs	LS	1	\$ 9,840	\$ 9,840	
16 Permitting - Phase Engineering (6%) of Construction Costs	LS	1	\$ 4,882	\$ 4,882	
17 Bid/Construction - Phase Engineering (10%) of Construction Cos	LS	1	\$ 8,137	\$ 8,137	
<b>ENGINEERING AND PERMITTING SUBTOTAL</b>				\$ 13,019	
ADD 25% CONTINGENCY				\$ 3,255	
<b>SUB-TOTAL</b>				\$ 16,274	
<b>USE</b>				\$ 17,000	
Prepared: 2/7/2012	<b>CONSTRUCTION SUBTOTAL</b>				\$ 82,000
Printed: 4/3/2012	<b>ENGINEERING AND PERMITTING SUBTOTAL</b>				\$ 17,000
Prepared by: ZDC	<b>TOTAL</b>				\$ 99,000
Checked by: MTM					

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Combination Pond  
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**Alternative #6 - Groundwater Augmentation**

DESCRIPTION OF THE ITEM	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ESTIMATED COST
<b>GENERAL</b>				
1 Mobilization ( 8% ) of remaining construction costs	LS	1	\$ 4,130.00	\$ 4,130
2 Erosion Prevention and Sediment Control	LS	1	\$ 1,000.00	\$ 1,000
3 Traffic Control	LS	1	\$ 1,000.00	\$ 1,000
4 Clearing and Grubbing	LS	0	\$ 2,500.00	\$ -
5 Control of Water - (Drain Reservoir, Cofferdam, Dewatering)	LS	1	\$ 3,000.00	\$ 3,000
6 Plantings & Seed	LS	1	\$ 2,000.00	\$ 2,000
<b>GENERAL SUBTOTAL</b>				\$ 9,130
<b>GENERAL SITE WORK</b>				
7 Common Excavation	CY	200	\$ 10.00	\$ 2,000
<b>GENERAL SITE WORK SUBTOTAL</b>				\$ 2,000
<b>ROADWAY RECONSTRUCTION</b>				
<b>ROADWAY RECONSTRUCTION SUBTOTAL</b>				\$ -
<b>SPILLWAY/STORMDRAIN</b>				
8 15" RCP	LF	475	\$ 75.00	\$ 35,625
9 5' Dia. Slotted Concrete Manhole	EA	1	\$ 5,000.00	\$ 5,000
10 Anchors for 15" RCP Pipe	EA	10	\$ 100.00	\$ 1,000
11 Connection to Existing Structure	LS	1	\$ 1,000.00	\$ 1,000
<b>SPILLWAY/STORMDRAIN SUBTOTAL</b>				\$ 42,625
<b>CONSTRUCTION SUBTOTAL</b>				\$ 55,755
ADD 25% CONTINGENCY				\$ 13,939
SUB-TOTAL				\$ 69,694
<b>USE</b>				\$ 70,000
<b>ENGINEERING AND PERMITTING</b>				
12 Design - Phase Engineering (12%) of Construction Costs	LS	1	\$ 8,400	\$ 8,400
13 Permitting - Phase Engineering (6%) of Construction Costs	LS	1	\$ 4,182	\$ 4,182
14 Bid/Construction - Phase Engineering (10%) of Construction Cos	LS	1	\$ 6,969	\$ 6,969
<b>ENGINEERING AND PERMITTING SUBTOTAL</b>				\$ 11,151
ADD 25% CONTINGENCY				\$ 2,788
SUB-TOTAL				\$ 13,939
<b>USE</b>				\$ 14,000
Prepared: 2/7/2012			<b>CONSTRUCTION SUBTOTAL</b>	\$ 70,000
Printed: 4/3/2012			<b>ENGINEERING AND PERMITTING SUBTOTAL</b>	\$ 14,000
Prepared by: ZDC			<b>TOTAL</b>	\$ 84,000
Checked by: MTM				

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Combination Pond  
City of Rutland, Vermont

**Alternative #7 - Dam Removal**

DESCRIPTION OF THE ITEM	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE	ESTIMATED COST
<b>GENERAL</b>				
1 Mobilization ( 8% ) of remaining construction costs	LS	1	\$ 10,784.00	\$ 10,784
2 Erosion Prevention and Sediment Control	LS	1	\$ 1,000.00	\$ 1,000
3 Traffic Control	LS	1	\$ 8,000.00	\$ 8,000
4 Clearing and Grubbing	LS	1	\$ 2,500.00	\$ 2,500
5 Control of Water - (Drain Reservoir, Cofferdam, Dewatering)	LS	1	\$ 3,000.00	\$ 3,000
6 Plantings & Seed	LS	1	\$ 5,000.00	\$ 5,000
<b>GENERAL SUBTOTAL</b>				\$ 25,284
<b>GENERAL SITE WORK</b>				
7 Common Excavation	CY	400	\$ 10.00	\$ 4,000
8 Removal of Existing Structures	LS	1	\$ 1,500.00	\$ 1,500
9 Stream Restoration	LF	100	\$ 300.00	\$ 30,000
<b>GENERAL SITE WORK SUBTOTAL</b>				\$ 35,500
<b>ROADWAY RECONSTRUCTION</b>				
10 Road Subbase	CY	100	\$ 80.00	\$ 8,000
11 Road Pavement	TON	60	\$ 100.00	\$ 6,000
12 Gravel Base Course	CY	60	\$ 70.00	\$ 4,200
13 Concrete Curb	LF	120	\$ 30.00	\$ 3,600
<b>ROADWAY RECONSTRUCTION SUBTOTAL</b>				\$ 21,800
<b>SPILLWAY/STORMDRAIN</b>				
14 12' Wide Concrete Box Culvert	LF	50	\$ 1,000.00	\$ 50,000
15 Precast Concrete Headwall	EA	1	\$ 5,000.00	\$ 5,000
16 Trash Rack	LS	1	\$ 3,000.00	\$ 3,000
<b>SPILLWAY/STORMDRAIN SUBTOTAL</b>				\$ 58,000
<b>CONSTRUCTION SUBTOTAL</b>				\$ 145,584
ADD 25% CONTINGENCY				\$ 36,396
SUB-TOTAL				\$ 181,980
<b>USE</b>				<b>\$ 182,000</b>
<b>ENGINEERING AND PERMITTING</b>				
17 Design - Phase Engineering (12%) of Construction Costs	LS	1	\$ 21,840	\$ 21,840
18 Permitting - Phase Engineering (6%) of Construction Costs	LS	1	\$ 10,919	\$ 10,919
19 Bid/Construction - Phase Engineering (10%) of Construction Cos	LS	1	\$ 18,198	\$ 18,198
<b>ENGINEERING AND PERMITTING SUBTOTAL</b>				\$ 29,117
ADD 25% CONTINGENCY				\$ 7,279
SUB-TOTAL				\$ 36,396
<b>USE</b>				<b>\$ 37,000</b>
Prepared: 2/7/2012			<b>CONSTRUCTION SUBTOTAL</b>	<b>\$ 182,000</b>
Printed: 4/3/2012			<b>ENGINEERING AND PERMITTING SUBTOTAL</b>	<b>\$ 37,000</b>
Prepared by: ZDC			<b>TOTAL</b>	<b>\$ 219,000</b>
Checked by: MTM				

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