

Attachment 5  
Site Geomorphic Summary

# Photographic Documentation and Geomorphic Assessment Combination Pond Rutland, Vermont

Prepared for City of Rutland  
Prepared by Bear Creek Environmental, LLC

Photographs taken by Mary Nealon on June 13, 2011



**View to Northwest**



**Concrete Headwall**



**View to South**



**View to Northeast**



**Storm drain along Sharon Drive**



**Track rack full of debris**



**Pond Outlet (36 inch CMP)**

## Wetland Above Combination Pond Photographs



## North Cross Section Above Pond (Sta 9+18) Photographs



Upstream



Downstream

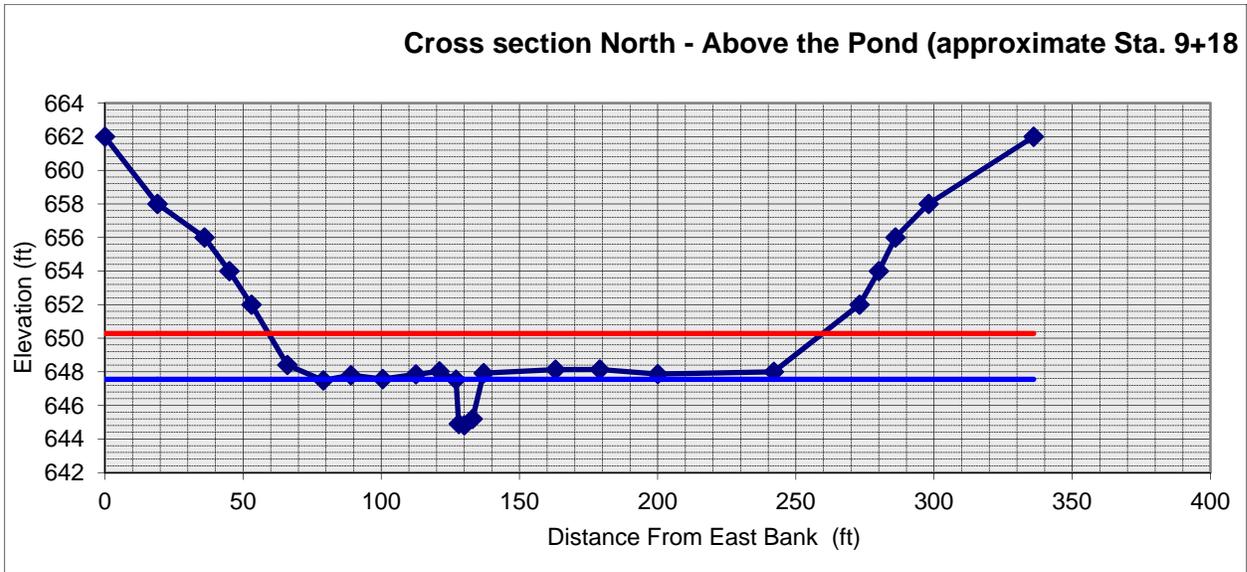


East bank



West bank

## North Cross Section Above Pond (Sta 9+18) Channel Dimensions



Notes: Elevations starting at perimeter of wetland are based on LIDAR.  
 Bankfull elevation estimated based on examination of cross section data following field work.  
 Graph is vertically exaggerated.

Dimensions			
18.47	x-section area	1.49	d mean
12.36	width	14.94	wet P
2.73	d max	1.24	hyd radi
2.73	bank ht	8.27	w/d ratio
197.00	W flood prone area	15.94	ent ratio

**Valley Type: Very Broad**  
**Rosgen Stream Type: E**  
**Dominant Substrate: Sand/Silt**  
**Bedform: Dune-Ripple**

## Middle Cross Section Above Pond (Sta 9+33) Photographs



Upstream



Downstream

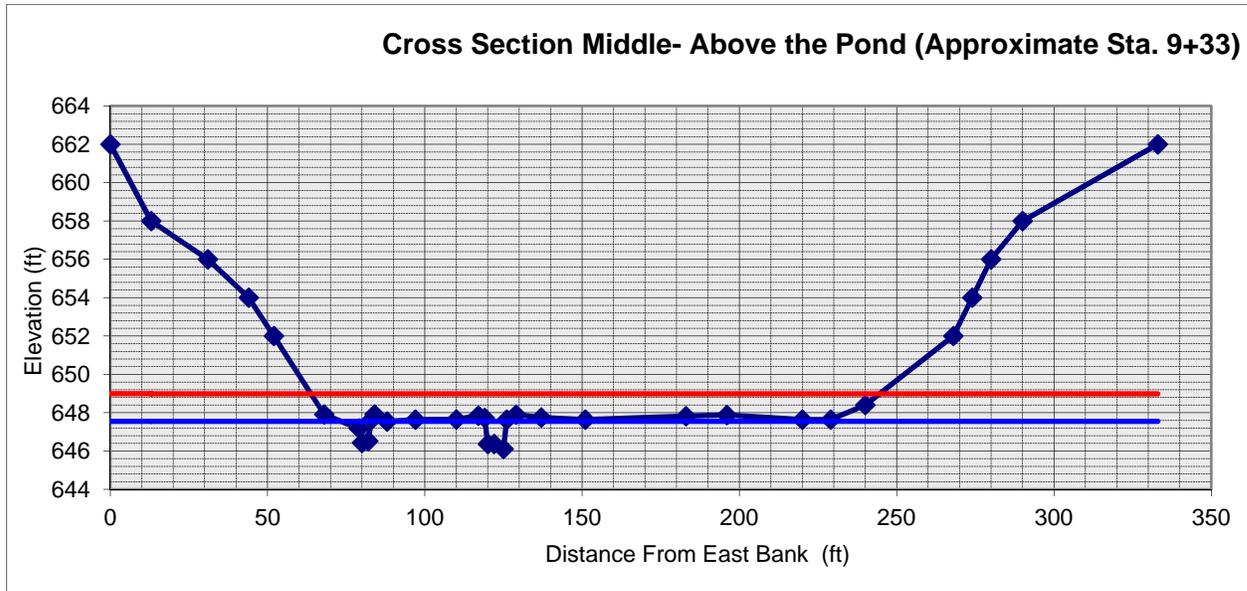


East bank



West bank

## Middle Cross Section Above Pond (Sta 9+33) Channel Dimensions



Notes: Elevations starting at perimeter of wetland are based on LIDAR.  
 Bankfull elevation estimated based on examination of cross section data following field work.  
 Graph is vertically exaggerated.

Dimensions			
11.88	x-section area	0.69	d mean
17.31	width	19.43	wet P
1.44	d max	0.61	hyd radi
1.44	bank ht	25.22	w/d ratio
183.00	W flood prone area	10.57	ent ratio

**Valley Type: Very Broad**

**Rosgen Stream Type: E (multiple channel in this location)**

**Dominant Substrate: Sand/Silt**

**Bedform: Dune-Ripple**

## South Cross Section Above Pond (Sta 9+79) Photographs



Upstream



Downstream

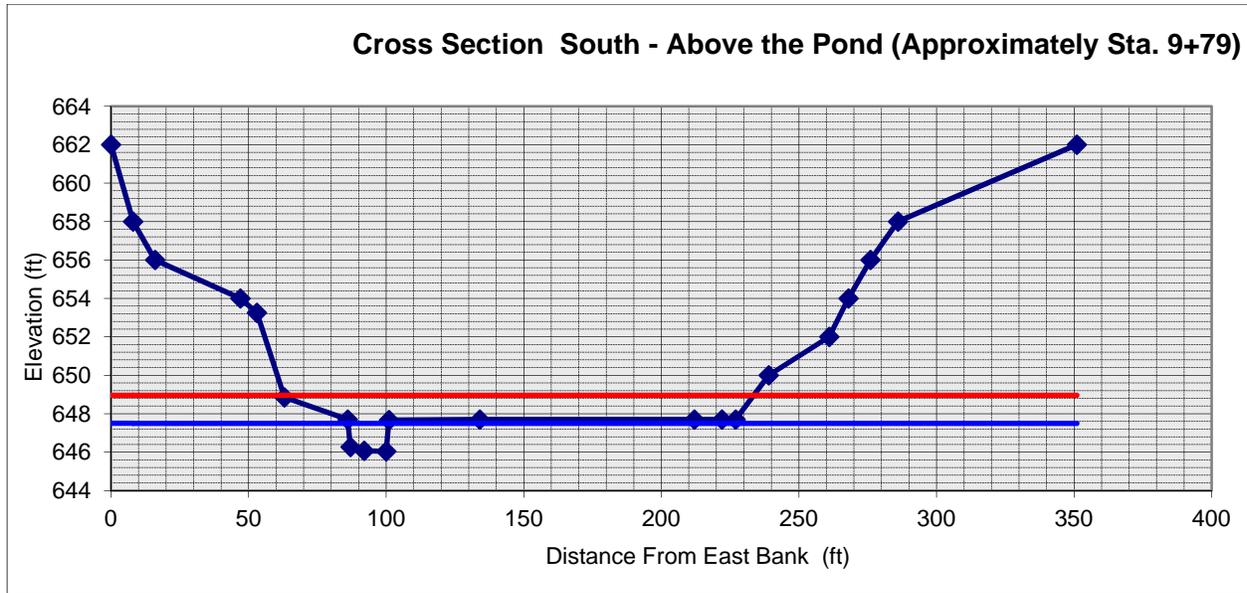


East bank



West bank

## South Cross Section Above Pond (Sta 9+79) Channel Dimensions



Notes: Elevations starting at perimeter of wetland are based on LIDAR.  
 Bankfull elevation estimated based on examination of cross section data following field work.  
 Graph is vertically exaggerated.

Dimensions			
19.39	x-section area	1.31	d mean
14.76	width	16.22	wet P
1.46	d max	1.20	hyd radi
1.46	bank ht	11.23	w/d ratio
172.00	W flood prone area	11.66	ent ratio

**Valley Type: Very Broad**

**Rosgen Stream Type: E (multiple channel in this location)**

**Dominant Substrate: Sand/Silt**

**Bedform: Dune-Ripple**

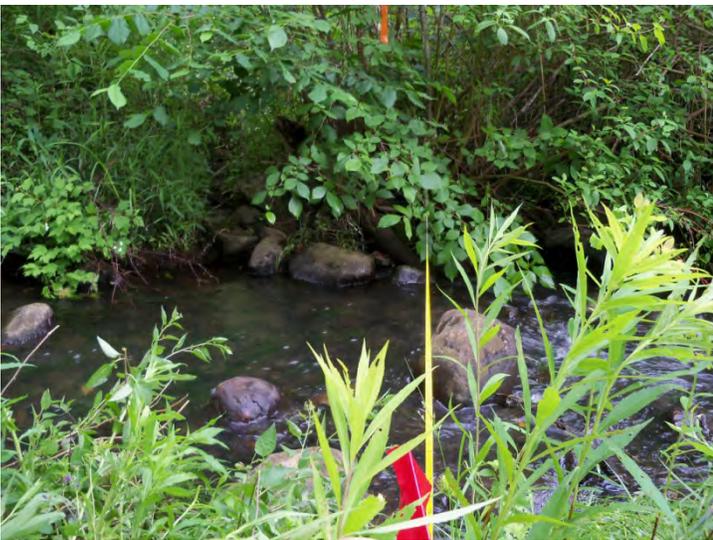
## North Cross Section Below Pond (Sta 15+88) - Riffle Photographs



Upstream



Downstream

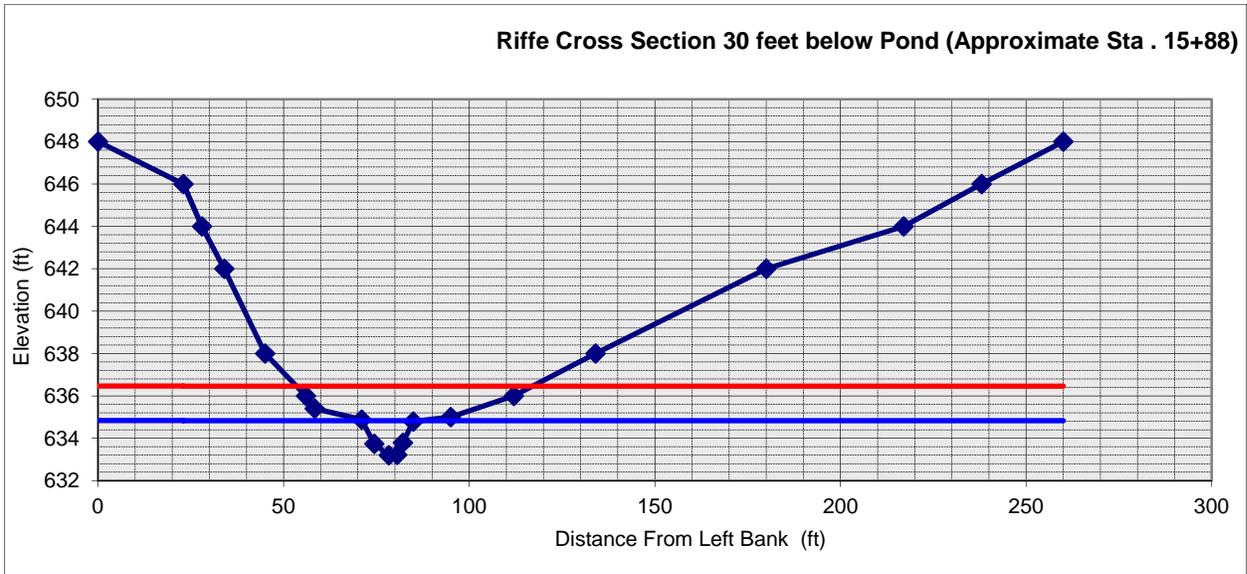


East bank



West bank

## North Cross Section Below Pond (Sta 15+88) - Riffle Channel Dimensions



**Note: Graph is vertically exaggerated.**

Dimensions			
14.32	x-section area	0.91	d mean
15.67	width	16.16	wet P
1.63	d max	0.89	hyd radi
1.63	bank ht	17.15	w/d ratio
63.00	W flood prone area	4.02	ent ratio

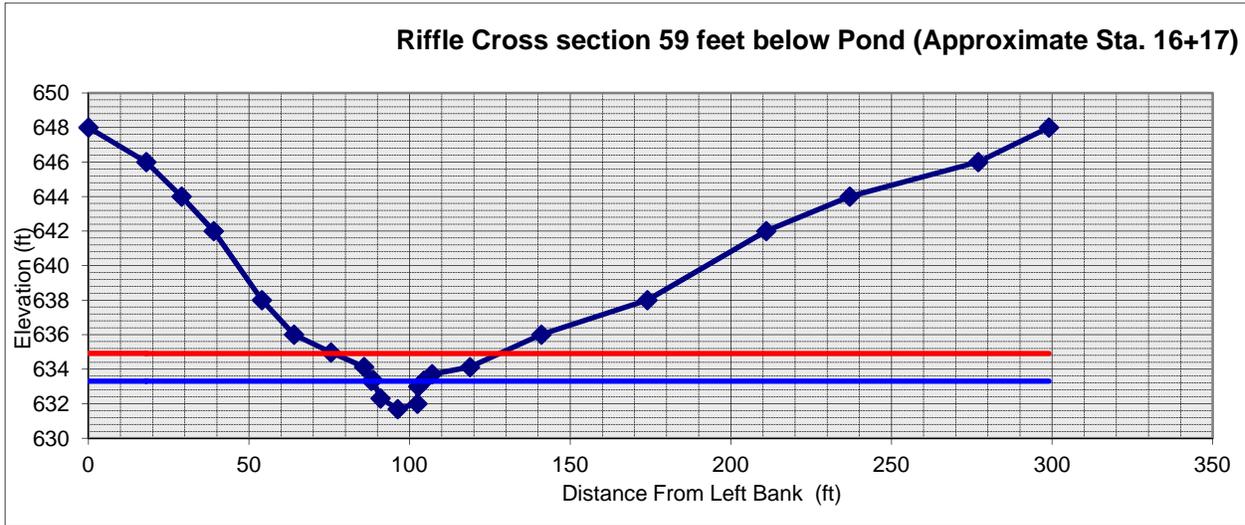
**Valley Type: Very Broad**

**Rosgen Stream Type: C (with B subslope)**

**Dominant Substrate: Cobble**

**Bedform: Riffle-Pool**

## Middle Cross Section Below Pond (Sta 16+17) Channel Dimensions



Note: Graph is vertically exaggerated.

Dimensions			
17.37	x-section area	1.13	d mean
15.41	width	16.49	wet P
1.61	d max	1.05	hyd radi
2.01	bank ht	13.68	w/d ratio
55.00	W flood prone area	3.57	ent ratio

**Valley Type: Very Broad**

**Rosgen Stream Type: C (with B subslope)**

**Dominant Substrate: Cobble**

**Bedform: Riffle-Pool**

## South Cross Section Below Pond (Sta 16+57) - Pool Photographs



Upstream



Downstream

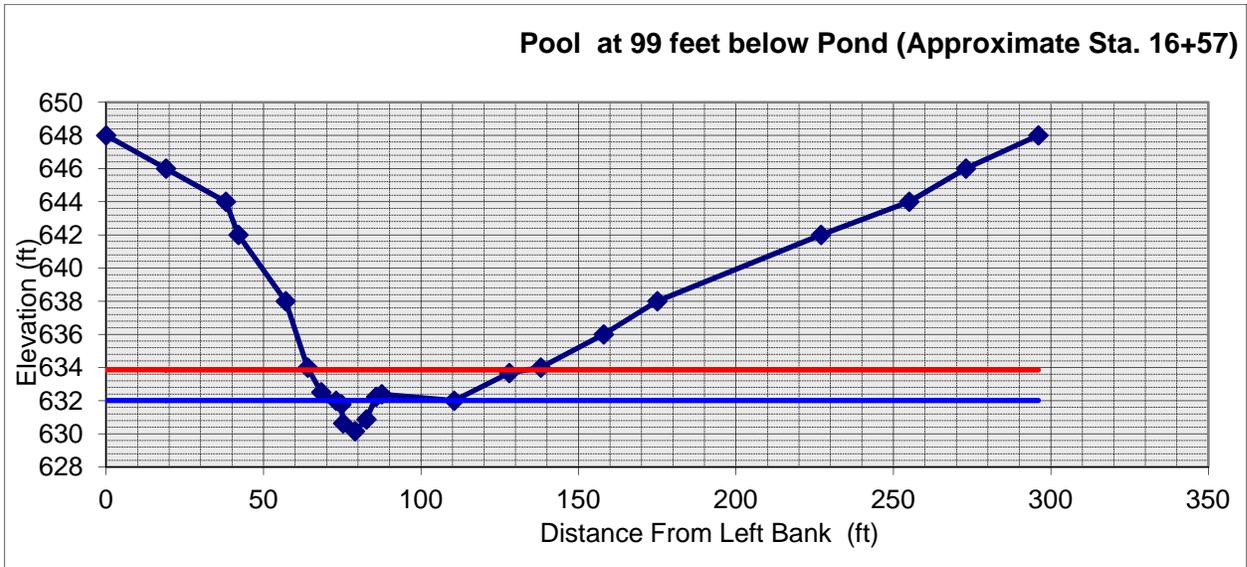


East bank



West bank

## South Cross Section Below Pond (Sta 16+57) - Pool Channel Dimensions



Note: Graph is vertically exaggerated.

Dimensions			
14.32	x-section area	0.91	d mean
15.67	width	16.16	wet P
1.63	d max	0.89	hyd radi
1.63	bank ht	17.15	w/d ratio
63.00	W flood prone area	4.02	ent ratio

**Valley Type: Very Broad**

**Rosgen Stream Type: C (with B subslope)**

**Dominant Substrate: Cobble**

**Bedform: Riffle-Pool**