

## **Appendix A**

### **Riverine Habitat Restoration Conceptual Designs**



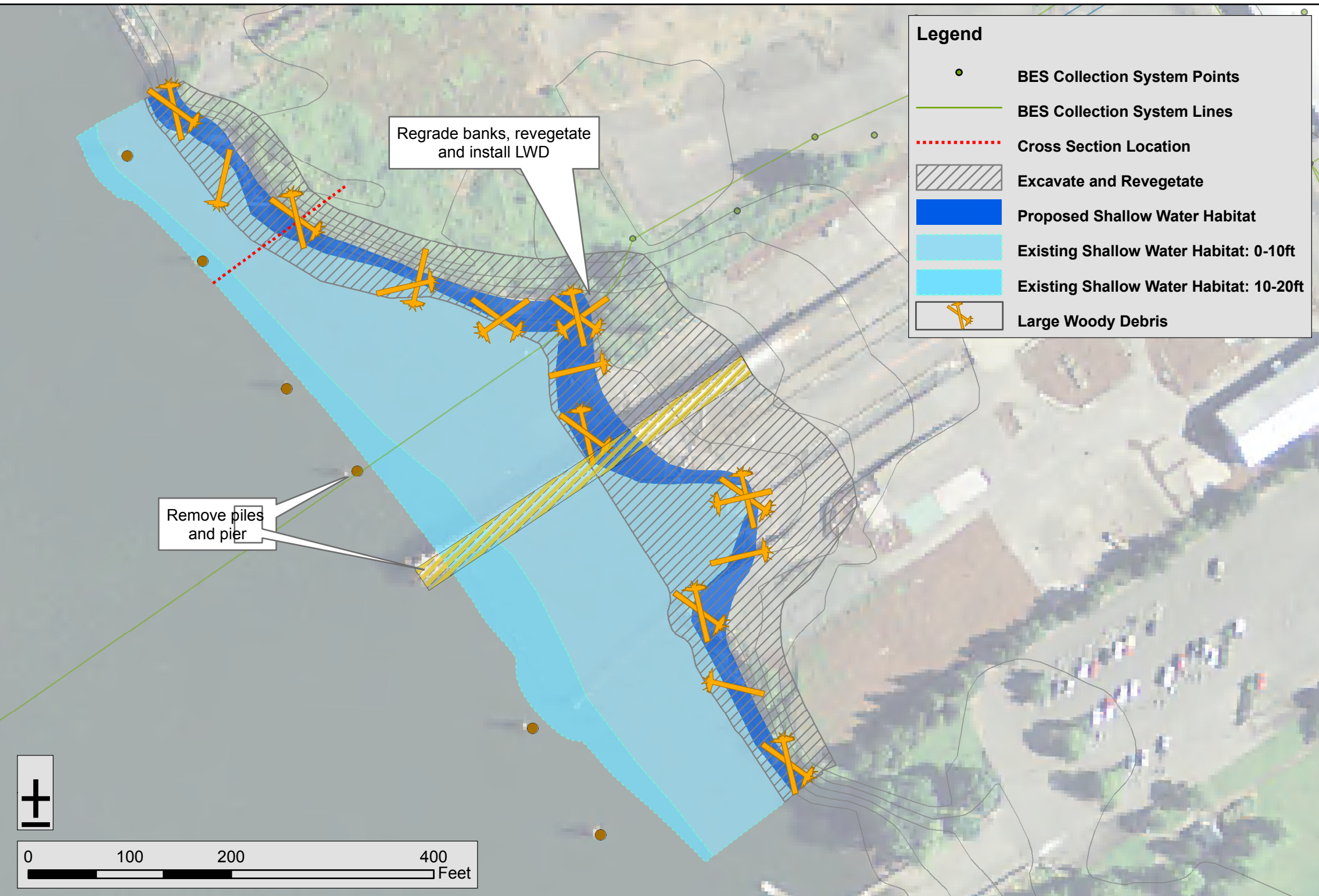
## North Reach Mitigation Bank Riverine Habitat Restoration

### Cost Estimate

Line Item	Quantity	Units	Unit Cost	Cost
Site Preparation	1	LS	\$ 241,453	\$ 241,453
Dewatering & Turbidity Control	1	LS	\$ 113,000	\$ 113,000
Demo of Structures	258	TN	\$ 200	\$ 51,556
Regrade Banks	14,714	TN	\$ 35	\$ 514,993
Place Sandy Substrate	-	CY	\$ 60	\$ -
Place Streambed Material	-	TN	\$ 100	\$ -
Place Erosion Control Fabric	12,457	SY	\$ 3.50	\$ 43,601
Plant Near-Shore Vegetation	2.6	AC	\$ 16,000	\$ 41,182
Place Large Woody Debris	98	EA	\$ 1,000	\$ 98,000
General Markups	1	LS	\$ 1,821,243	\$ 1,821,243
<b>Total Cost (Rounded)</b>				<b>\$ 2,926,000</b>

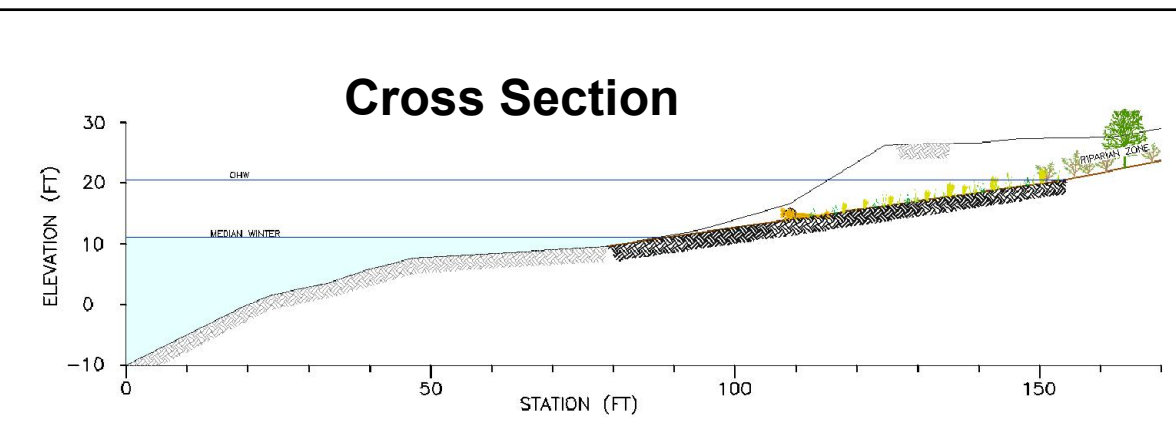
**Legend**

- BES Collection System Points
- BES Collection System Lines
- - - Cross Section Location
- Excavate and Revegetate
- Proposed Shallow Water Habitat
- Existing Shallow Water Habitat: 0-10ft
- Existing Shallow Water Habitat: 10-20ft
- Large Woody Debris



**Cross Section Legend**

- Median Winter Water Level
- Existing Ground
- Proposed Ground
- Riparian-Upland
- Riparian Shrub
- Hydrophytes
- Large Woody Debris





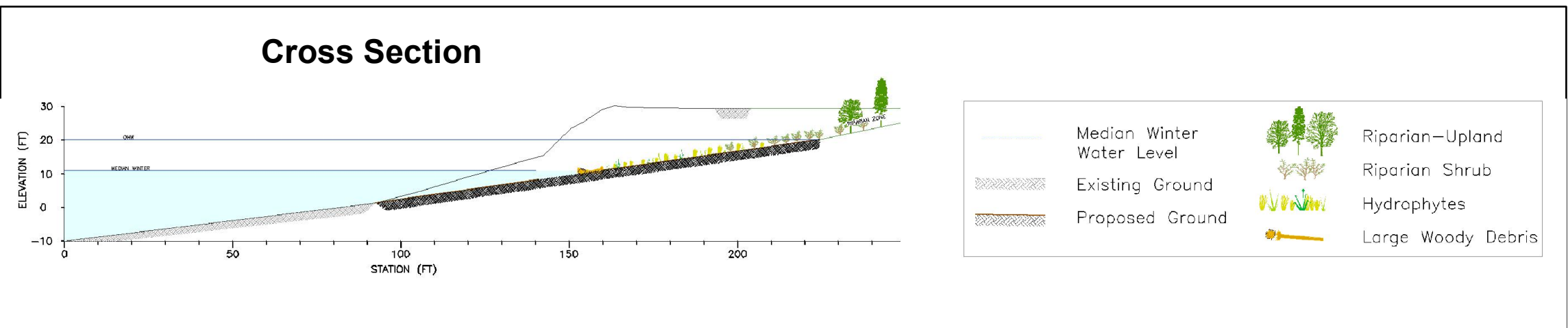
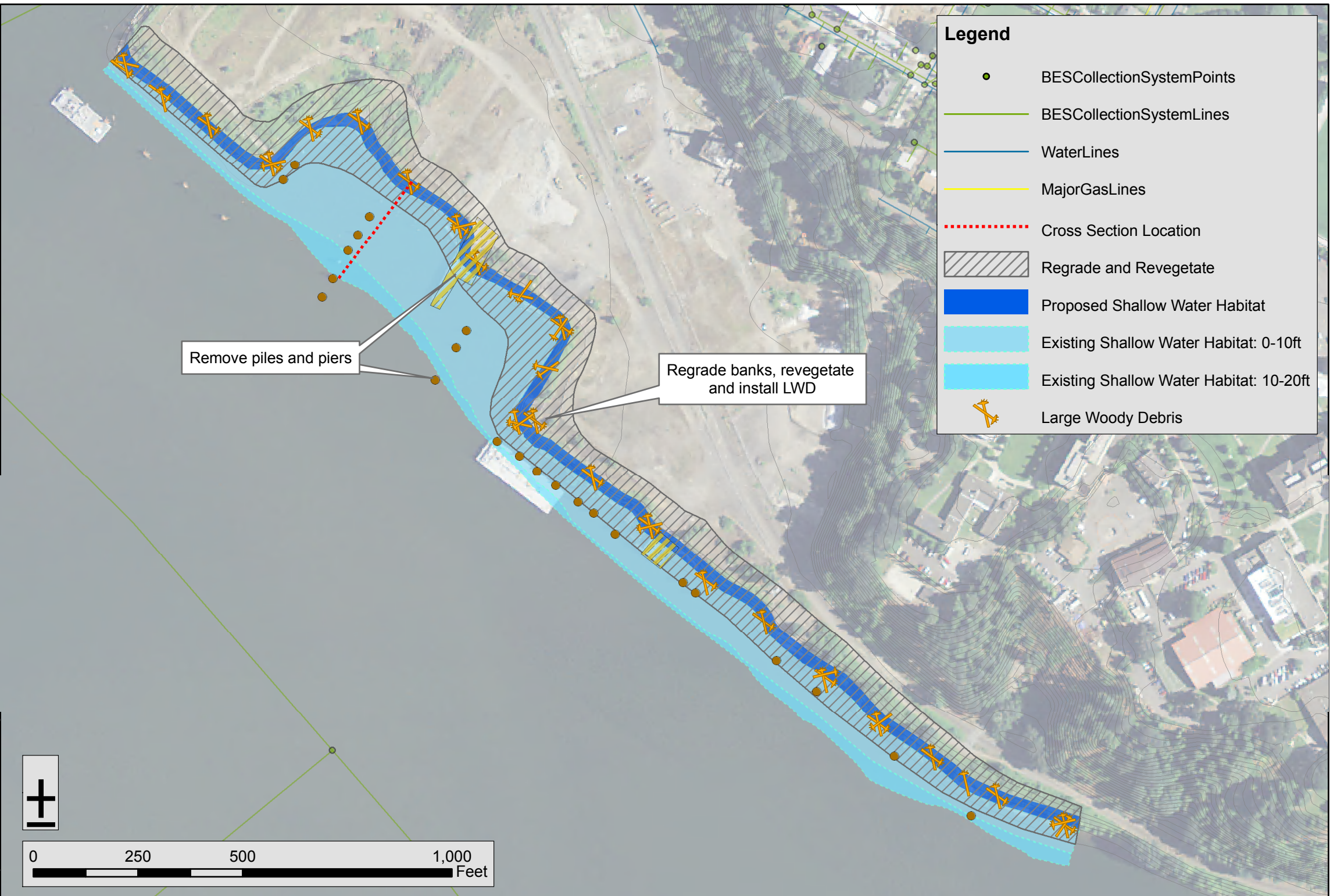
# University of Portland Triangle Park

## North Reach Mitigation Bank Riverine Habitat Restoration



### Cost Estimate

Line Item	Quantity	Units	Unit Cost	Cost
Site Preparation	1	LS	\$ 1,769,560	\$ 1,769,560
Dewatering & Turbidity Control	1	LS	\$ 825,000	\$ 825,000
Demo of Structures	347	TN	\$ 200	\$ 69,432
Regrade Banks	132,444	TN	\$ 35	\$ 4,635,556
Place Sandy Substrate	-	CY	\$ 60	\$ -
Place Streambed Material	-	TN	\$ 100	\$ -
Place Erosion Control Fabric	50,651	SY	\$ 3.50	\$ 177,279
Plant Near-Shore Vegetation	7.3	AC	\$ 16,000	\$ 117,591
Place Large Woody Debris	495	EA	\$ 1,000	\$ 495,000
General Markups	1	LS	\$ 13,347,540	\$ 13,347,540
<b>Total Cost (Rounded)</b>				<b>\$ 21,437,000</b>





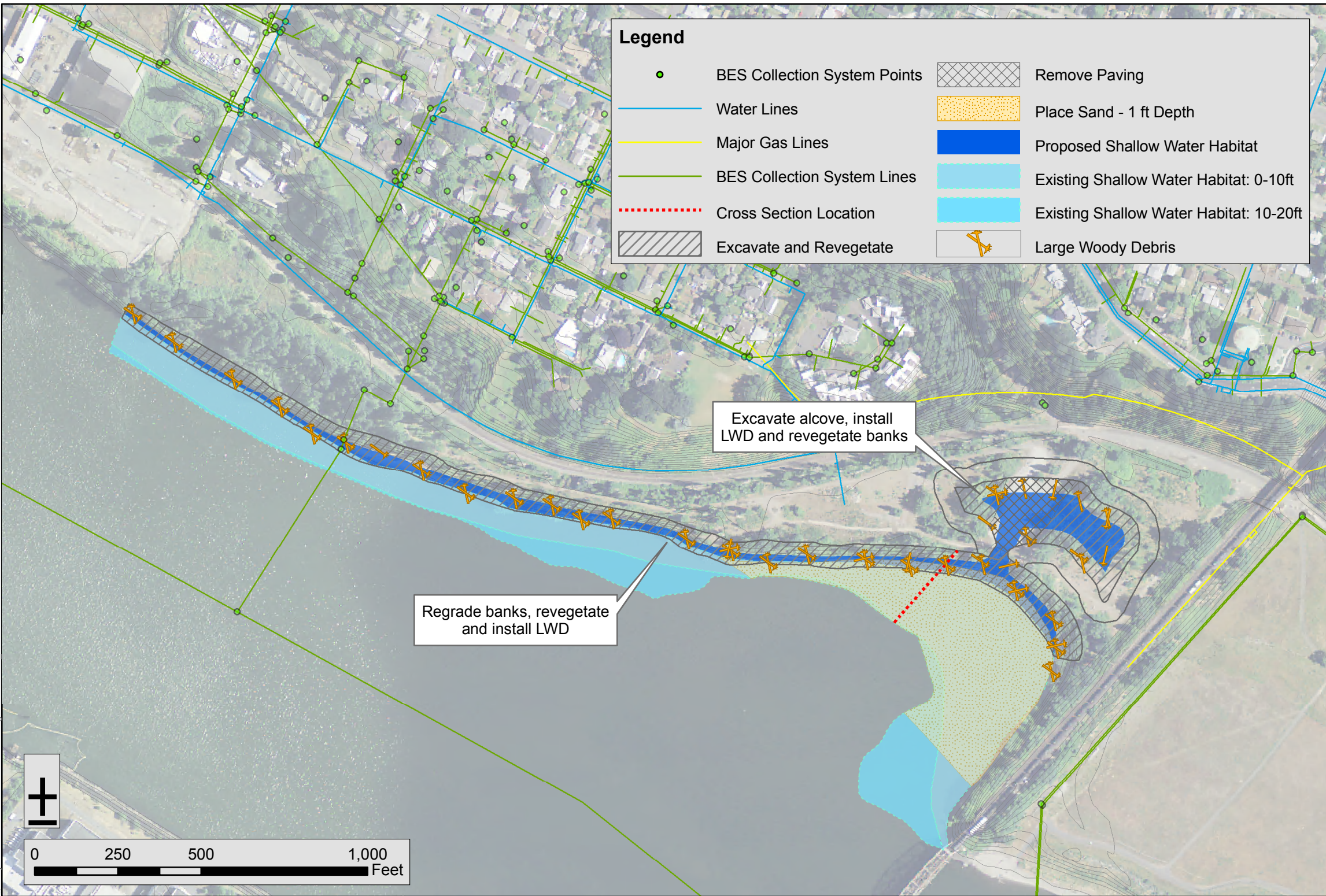
# Willamette Cove

## North Reach Mitigation Bank Riverine Habitat Restoration

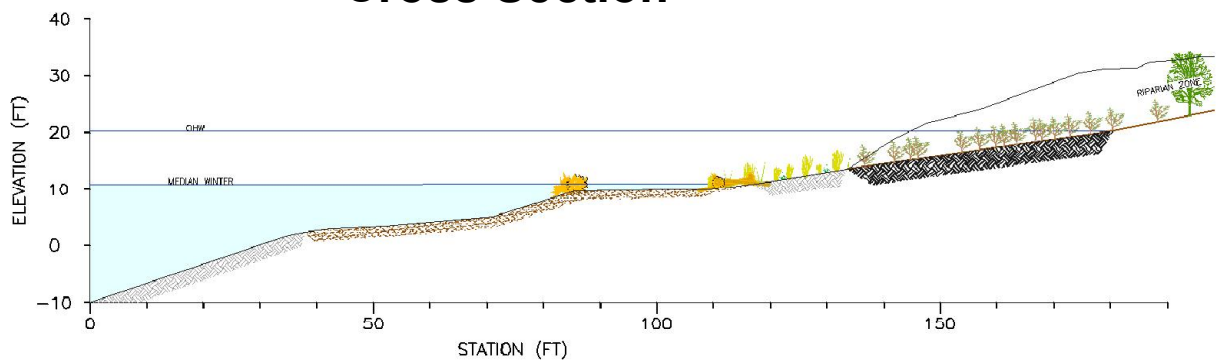


### Cost Estimate

Line Item	Quantity	Units	Unit Cost	Cost
Site Preparation	1	LS	\$ 2,059,389	\$ 2,059,389
Dewatering & Turbidity Control	1	LS	\$ 908,000	\$ 908,000
Demo of Structures	2,000	TN	\$ 200	\$ 400,000
Regrade Banks	134,104	TN	\$ 35	\$ 4,693,630
Place Sandy Substrate	9,500	CY	\$ 60	\$ 570,000
Place Streambed Material	1,420	TN	\$ 100	\$ 142,000
Plant Erosion Control Fabric	25,909	SY	\$ 3.50	\$ 90,681
Plant Near-Shore Vegetation	5.4	AC	\$ 16,000	\$ 85,649
Place Large Woody Debris	465	EA	\$ 1,000	\$ 465,000
General Markups	1	LS	\$ 15,533,675	\$ 15,533,675
<b>Total Cost (Rounded)</b>				<b>\$ 24,949,000</b>



### Cross Section



- Median Winter Water Level
- Existing Ground
- Proposed Ground
- Riparian-Upland
- Riparian Shrub
- Hydrophytes
- Large Woody Debris