

# Nature Based Shoreline Irondequoit Bay Park West



Monroe County Soil & Water  
Conservation District

Kelly Emerick, Executive Director

November 17, 2020



Department of  
Environmental  
Conservation

# Project Budget & Expenses

## 2018-2020

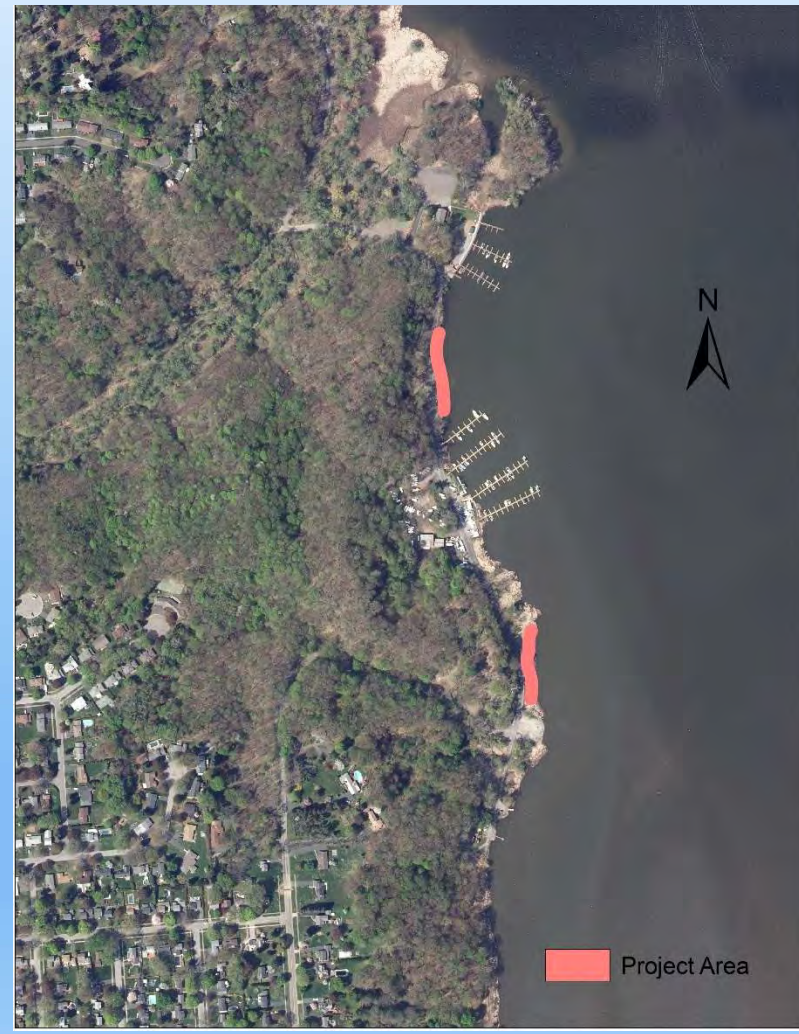
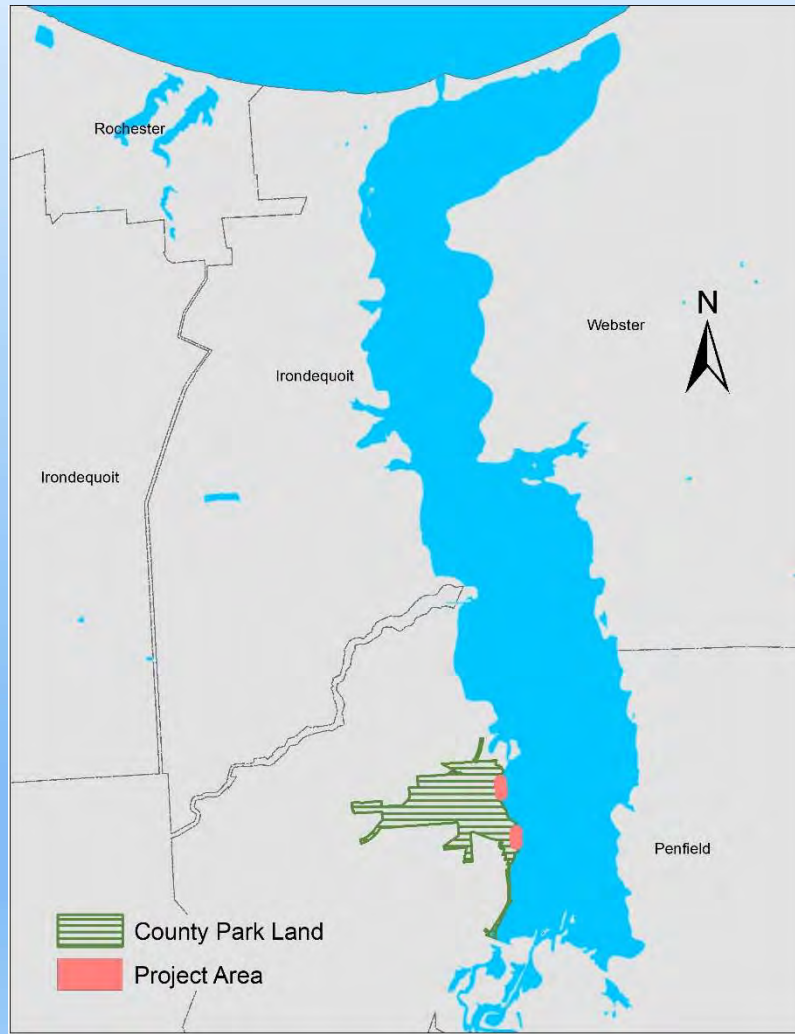
<b>Total Project Costs</b>	<b>\$313,575</b>
WQIP Round 14 Funds	\$151,000
<b>FL-LOWPA Funds</b>	<b>\$67,112</b>
Total Match Funds (IK/Cash)	\$95,463

# Erosion Problem

- The shoreline and adjacent roadway (Bay Front South) in Irondequoit Bay Park West sustained damages from the high water and flooding events of 2017 predominantly due to shoreline erosion and settling along the road.
- The project area is composed of several small sections of shoreline where there currently is little to no wetland vegetation protecting the shoreline and road.



# Project Location



# Erosion Problem



Facing north  
Area B



Facing southeast  
Area B

**June 2017**



# Erosion Problem



Facing south

**June 2017**

Area B

Facing north

# Goals of Project

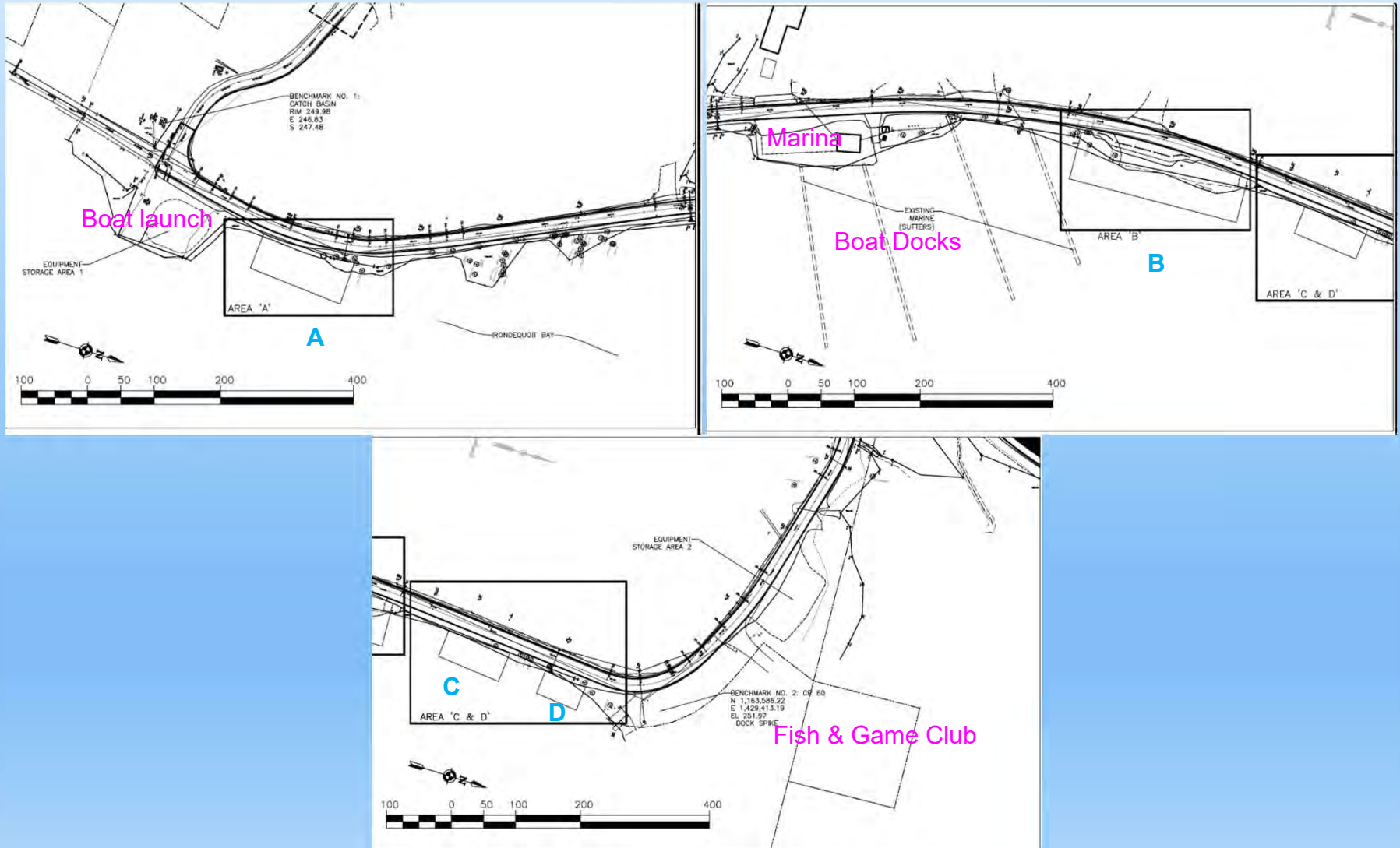
- To provide water quality enhancements and shoreline protection through bioengineering and nature-based stabilization techniques.
- To enhance shoreline stability and increase flood resilience.
- Stabilize roughly 450 linear feet of shoreline and extend and enhance existing shoreline wetland and buffer ecosystems through grading and selective filling.
- Enhance fishing access.

# NBS Design

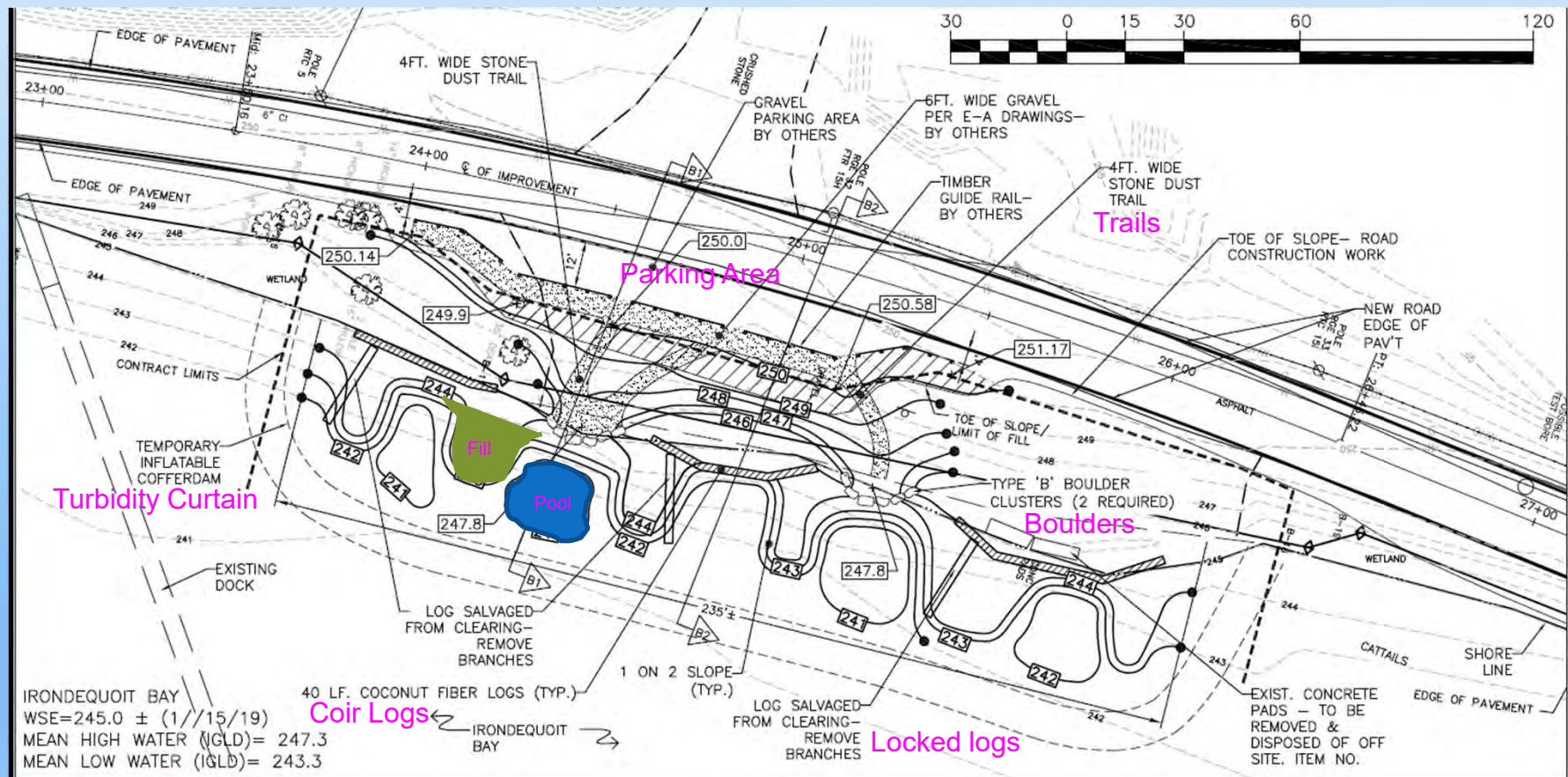
- Project area was split into 4 sections to be stabilized:  
A, B, C & D
- A is farthest south of the project area and D is farthest north of the project area.
- Put out an RFQ for design engineers/LA's; Awarded project to McCord Landscape Architecture.
- Design budget approximately \$20,000 (approximately 20% of estimated project costs)



# NBS Design



# NBS Design



## Area B Design

typical for all sections except for the parking and trails

# NBS Design - Landscaping

PLANT LIST					
QUANT.	KEY	LATIN NAME	COMMON NAME	CAL.	ROOTS
2	NS	<i>Nyssa sylvatica</i>	Black Tupelo	1 1/2'	B&B
1	AR	<i>Acer rubrum</i> 'October Glory'	October Glory Red Maple	2 1/2-3"	B&B
1	JC	<i>Juniperus virginiana</i>	Eastern Redcedar		B&B
3	AA	<i>Aronia arbutifolia</i>	Red Chokeberry		#2 cont.
4	CA	<i>Cornus stolonifera</i>	Red Osier Dogwood		#2 cont.
6	CO	<i>Cephalanthus occidentalis</i>	Button Bush		#2 cont.
12	CH	<i>Clethra alnifolia</i>	Sweet pepperbush		#2 cont.
11	MP	<i>Myrica pensylvanica</i>	Bayberry		#2 cont.
6	RV	<i>Rhododendron viscosum</i>	Swamp Azalea		B&B
10	SA	<i>Spiraea alba</i>	Narrow-leaf Meadowsweet		#2 cont.
12	ST	<i>Spiraea tomentosa</i>	Steeplebush		#2 cont.
28	RF	<i>Rudbeckia laciniata</i>	Cutleaf Coneflower		#2 cont.
59	AS	<i>Aster cordifolius</i>	Blue Wood Aster		#1 cont.

LEGEND: B&B Balled & Burlapped Sp. Spread #2 2 Gallon Container Spr. Spr  
BR Bare Root Ht. Height Cal. Caliper O.C. O

WETLANDS PLANT LIST						
QUANT.	KEY	LATIN NAME	COMMON NAME	ROOTS	HT. OR SP.	R
19	AC	<i>Acorus calamus</i>	Sweet Flag	2" Plugs*		Pla
15	AP	<i>Alisma subcordatum</i>	Water Plantain	1 Qt. Pots		Pla
19	HA	<i>Helianthus angustifolius</i>	Swamp Sunflower	1 Qt. Pots		Pla
19	JE	<i>Juncus effusus</i>	Soft Rush	2" Plugs*		Pla
25	LO	<i>Leersia oryzoides</i>	Rice Cutgrass	2" Plugs*		Pla
18	PA	<i>Panicum virgatum</i>	Switchgrass	2" Plugs*		Pla
19	PC	<i>Pontederia cordata</i>	Pickersweed	2" Plugs*		Pla
25	SL	<i>Sagittaria latifolia</i>	Duck Potato	1 Qt. Pots		Pla
10	SV	<i>Scirpus validus</i>	Soft Stem Bulrush	2" Plugs*		Pla

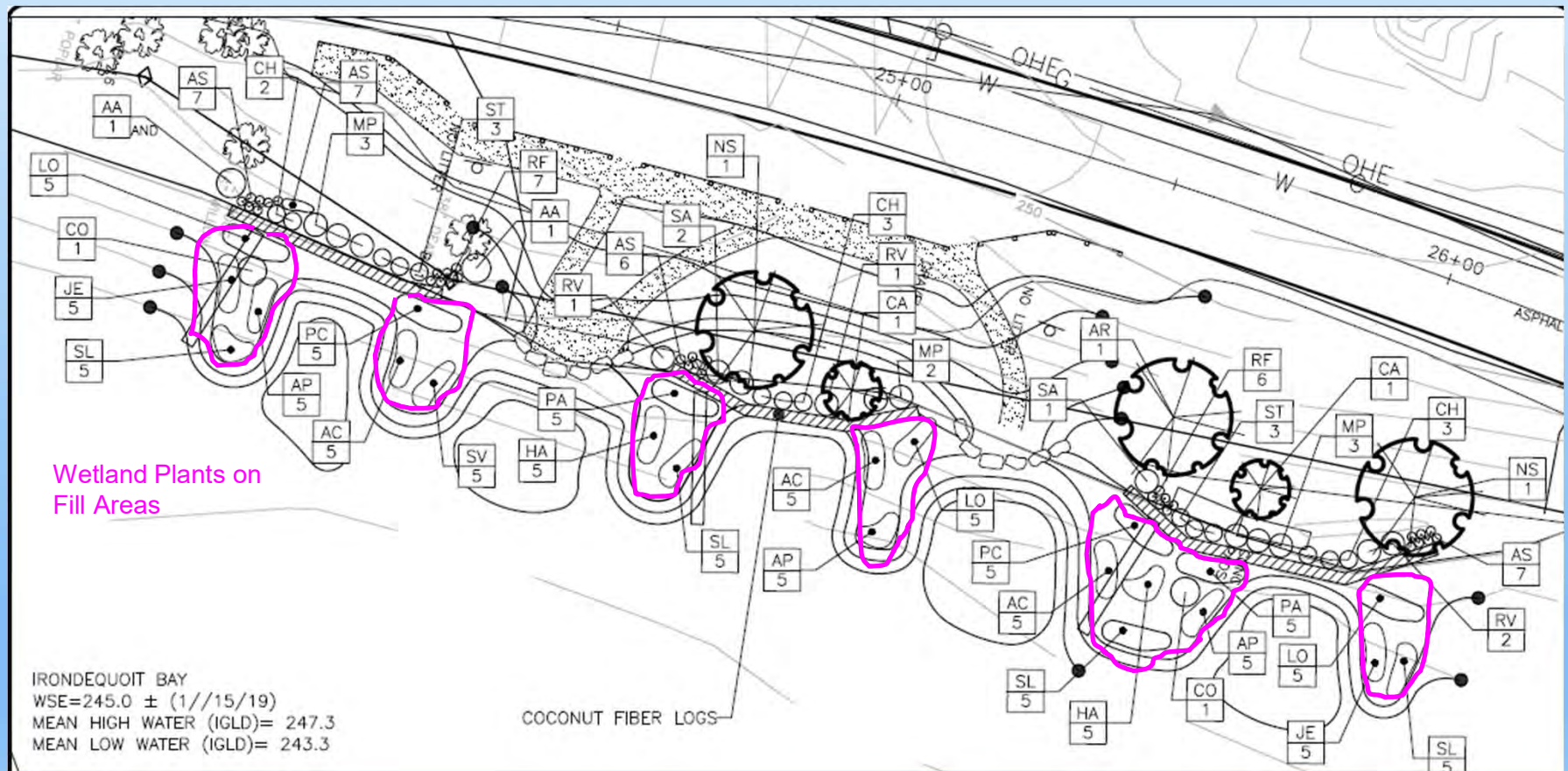
Shoreline Plants  
155

Fill/Wetland area plants  
169

324 Plants Total



# NBS Design - Landscape plan



Area B



# Project Area – Drone Flight





# Construction

November 2019 - June 2020



Area B will be used for typical construction examples



# Construction

- Collaboration between Monroe County Department of Environmental Services (DES), Monroe County Parks Department, and the MCSWCD
- MC DES used 10-wheelers to haul materials in and out of the site
- MC Parks hauled smaller materials for the project
- Both collaborated with CP Ward, the contractor awarded the bid for the project
- Monroe County In-kind contribution (labor & equipment, sand, heavy stone fill) totaled approximately \$36,500
- Project timeline coincide with County replacement of the road



Area B under Construction – Turbidity Curtain in Use



## Typical excavation/fill – Area B







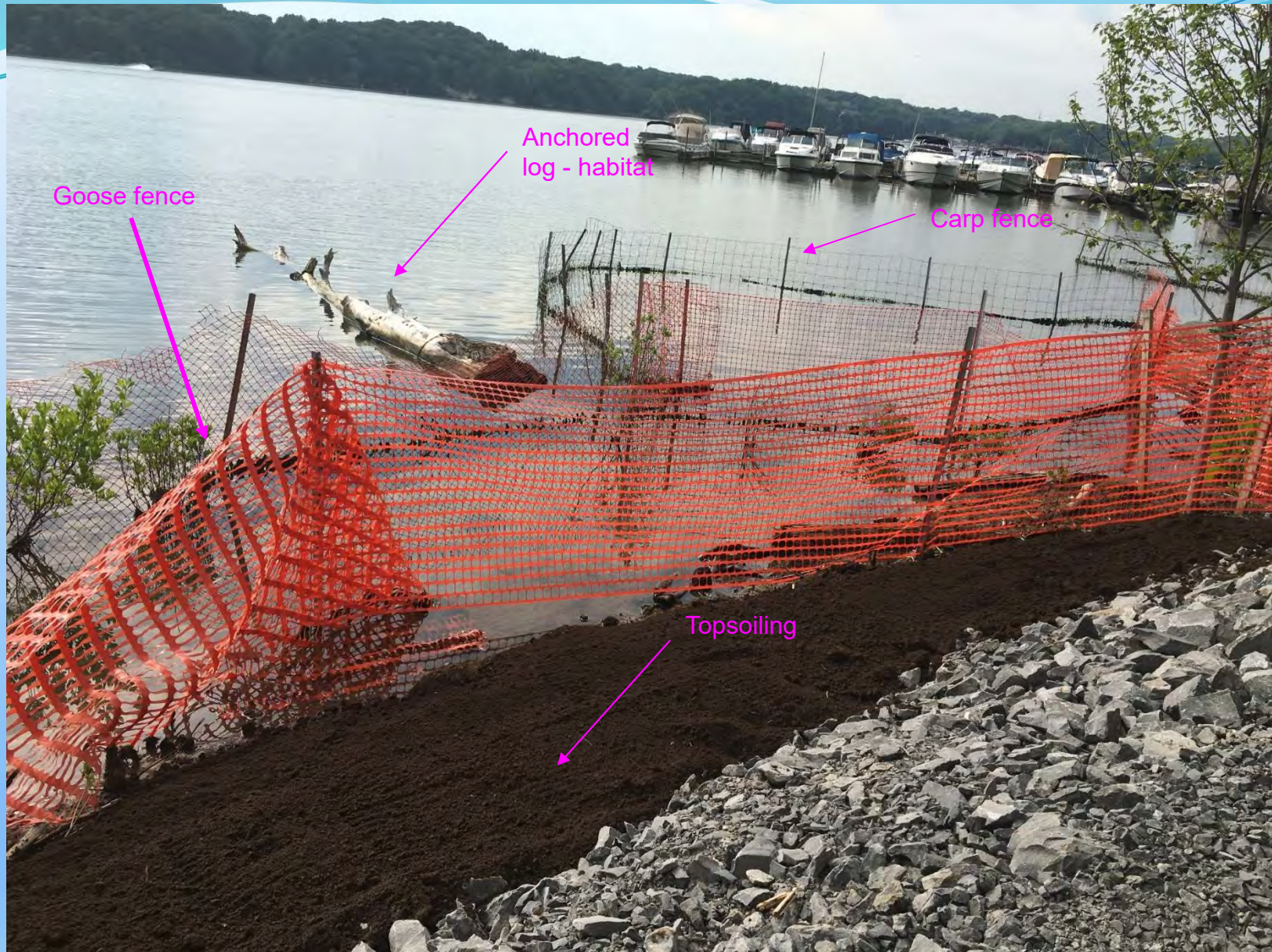
Area B – Rock placed, coir logs placed, goose barrier and carp barrier placed





Area B - Stone Dust Trail Construction





Area B





Area B – Established Large Trees





Area B - Timber Parking Guide Rail Installed





Area A – Coir log protection creation of shoreline



Area A October 2020 – Tech standing on a “finger”





Area B October 2020



September 2020



Area B

Area C

Area D

# Problems/Lessons Learned

- Timeline – starting project in November (required to start due to road construction) was not ideal for water levels as I-Bay water level raises around December timeframe (2019 *was record high water levels*); Prefer to start in July to allow plants to establish (some plants uprooted and floated away).
- Carp/Goose Barriers are not ideal – very difficult to install and will be difficult to remove next year (*required by NYS DEC permit*).
- Rock is still very important for nature-based shorelines; cannot go total bioengineering/vegetation with wave action.



# Next Steps

- Monitor site vegetation and erosion with MC Parks Department
- Remove Carp/Goose Barriers next summer with MC Parks Department
- Wetland Plant visit in summer 2021 for 1 yr. guarantee
- Close out grant with DEC next summer

Thank you!

Questions?