The following plan concept was submitted by Chuck Dowding.

Why is Elder Now w/simple ADA access is a good solution

Costs under $6,000,000 using WPD cost estimates
Repositions and extends the storm water outfall pipe, which must be done under any plan
Includes enhanced ADA access, which should be included in any plan
Employs existing ramp for non motorized access
Follows the 2030 Waterfront plan recommendations of

1) minimal erosion protection and
2) heightened attention to aesthetics

Eliminates interaction with any other 3rd parties and thus simplifies permit application
Leverages existing and successful bluff erosion protection at both Elder and Centennial parks
Eliminates walls produced by the rubble stone breakwaters at normal lake water elevations
Provides 2 usable beaches with immediate water access at normal lake water elevations

Cost comparisons of ***Elder Now*** with Elder and Centennial Option 2s using WPD supplied cost estimates

Elder Now without rubble stone breakwater or ramp		3,028,000
Centennial without rubble stone breakwater with ADA access		1,660,000
Total	**4,688,000**	

Elder option 2 with rubble stone break water		6,972,000
Centennial option 2 with rubble stone break water		5,219,000
Total	**12,191,000**	

Elder Now Plan to produce swimmable beach without foreclosing options

Observations

I As a first step avoid use of stone breakwater by relying on the bluff stabilization devices now in place which withstood the last high lake level. With lake at its average level (580) there is less urgency than at Lloyd.

II Some/many feel that Lloyd has too much sand and the elevation 591 or even the proposed Elder 589, 300 foot long breakwater produce a 11 or 9 ft wall at the water's edge when at the average (and present) lake level of 580

III Is access ramp necessary to make Elder swimmable or use for non motorized water craft (Elder Now light)

Back to the Future – the 2030 Plan Considerations

Did not consider ramifications of a property swap

Reconstructed Lloyd allows assessment of rubble stone beach capture concept

Breakwater tapers at shore to minimize loss of beach

- A Rubble-mound breakwater structure
- B Stormwater management improvements
- C Secure non-motorized water craft storage
- D Existing boat house improvements
- E Boardwalk improvements
- F Dune landscape restoration
- G Bluff restoration
- H Expand surface parking
- I Nature based play area
- J Construct a new upper-level restroom building
- K Vehicular circulation improvements and retaining walls
- L Lifeguard stations
- M New sheet-pile groin
- N Renovate single-family home into new beachfront event space
- O New beach house

- A Rubble-mound breakwater structure
- B Stormwater management improvements
- C Secure non-motorized water craft storage
- D Existing boat house improvements
- E Boardwalk improvements
- F Vehicular circulation improvements and retaining walls
- G New sheet-pile groin
- H Bluff restoration
- I Nature based play area
- J Construct a new upper-level restroom building


Overfill Beach at Lloyd


Future Bowl Effect at Elder – Centennial
With Rubble Stone Breakwaters
587
Photo taken at Lloyd on 7 July
Lake at ~580

Breakwater notes indicate Minimization of shoreline protection Heightened consideration of aesthetics

Elder Lane Park & Beach: Program & Site Improvements Matrix

0 - $250,000 $$$$$$
$250,000 - $500,000 $$$$$$
$500,000 - $1,000,000 $$$$$$
$1,000,000 - $3,000,000 $$$$$$
$3,000,000 - $5,000,000 $$$$$$

"LAC Priority? (1 = highest priority)	Supports plan goals?		Cost (construction, soft costs)	Grant opportunity?	Partnership opportunity?	Revenue generator?	"Level of effort"	Dependent on shoreline improvements?	Notes
Elder Program and Operations Improvements									
1	√	Dedicate north half of beach as non-motorized boating beach	$$$$$$	√	√		low		Interim plan
1	√	Establish partnerships for environmental educational programming	$$$$$$	√	√		low		
2	√	Dedicate full beach as non-motorized boating beach	$$$$$$	√	√		low	√	
2	√	Expand program offerings and partnerships with local rowing / sailing clubs	$$$$$$		√	√	low		
2	√	Provide a rental program for non-motorized boats and paddle boards	$$$$$$		√	√	medium		Partnership with private operator, local preference
Elder General Site Improvements									
1	√	Sign program implementation (allowance)	$$$$$$	√			low		May be eligible for ICMP Sustainable Coastal Planning Grant, Illinois Transportation Enhancement Program (ITEP) funding*
1	√	Site furnishing and lighting program implementation (allowance)	$$$$$$				low		[WPD Operational budget item]
1	√	Stormwater management improvements Constructed wetland Storm sewer improvements	$$$$$$	√			medium		Requires partnership with Village.

*Grant source funded by State of Illinois

Elder Lane Park & Beach: Shoreline Improvements Matrix

0 - $250,000 $$$$$$
$250,000 - $500,000 $$$$$$
$500,000 - $1,000,000 $$$$$$
$1,000,000 - $3,000,000 $$$$$$
$3,000,000 - $5,000,000 $$$$$$

"LAC Priority? (1 = highest priority)	Supports plan goals?		Cost (construction, soft costs)	Grant opportunity?	Partnership opportunity?	Revenue generator?	"Level of effort"	Dependent on shoreline improvements?	Notes
Elder Shoreline Improvements									
1	√	Rubble-mound breakwater structure Remove existing stormwater outfall and pier Remove sheet pile groins Back-shore rubble-mound revetment Beach sand backfill	$$$$$$	√			high		PH 1 (north property line); includes minimum amount of shoreline structure required to replace existing structures, maintain beach and protect constructed improvements; requires sensitivity to aesthetics of structure; may be eligible for Great Lakes Fishery and Ecosystem Restoration (GLFER) Program funding (US Army Corps of Engineers); requires federal, state, and local permitting

*Grant source funded by State of Illinois

Centennial Park & Beach: Program & Site Improvements Matrix

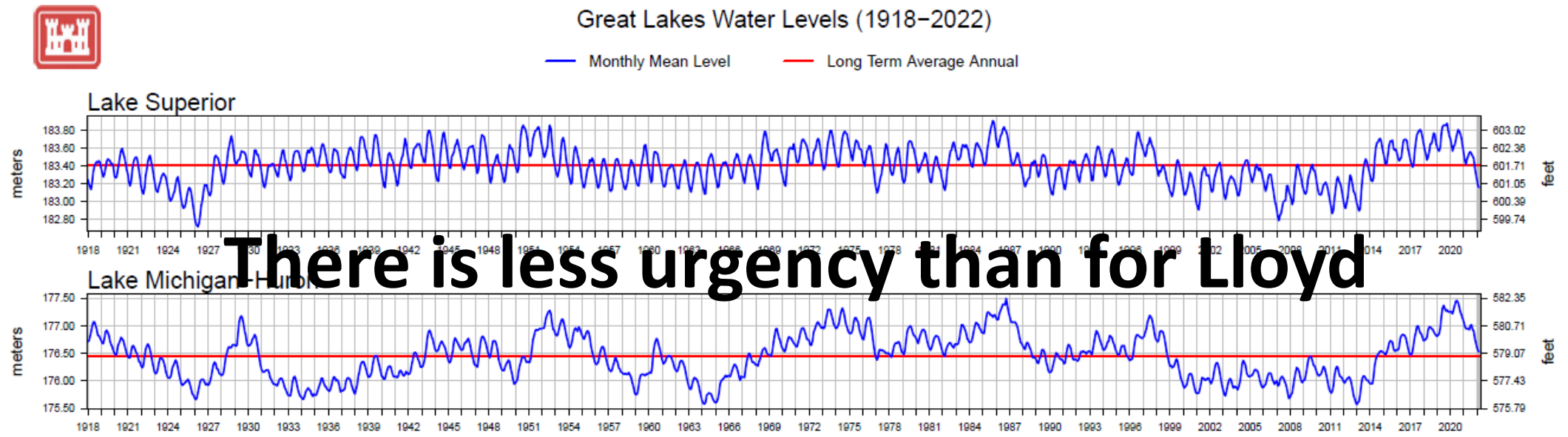
0 - $250,000 $$$$$$
$250,000 - $500,000 $$$$$$
$500,000 - $1,000,000 $$$$$$
$1,000,000 - $3,000,000 $$$$$$
$3,000,000 - $5,000,000 $$$$$$

"LAC Priority? (1 = highest priority)	Supports plan goals?		Cost (construction, soft costs)	Grant opportunity?	Partnership opportunity?	Revenue generator?	"Level of effort"	Dependent on shoreline improvements?	Notes
Centennial Program and Operations Improvements									
1	√	Property acquisition	$$$$$$	√	√		high		
1	√	Dedicate beach as swimming beach	$$$$$	√	√		medium		Requires relocation of dog run to alternate open space within the Village
Centennial General Site Improvements									
1	√	Sign program implementation (allowance)	$$$$$	√			low		May be eligible for ICMP Sustainable Coastal Planning Grant, Illinois Transportation Enhancement Program (ITEP) funding*
1	√	Site furnishing and lighting program implementation (allowance)	$$$$$				low		[WPD Operational budget item]

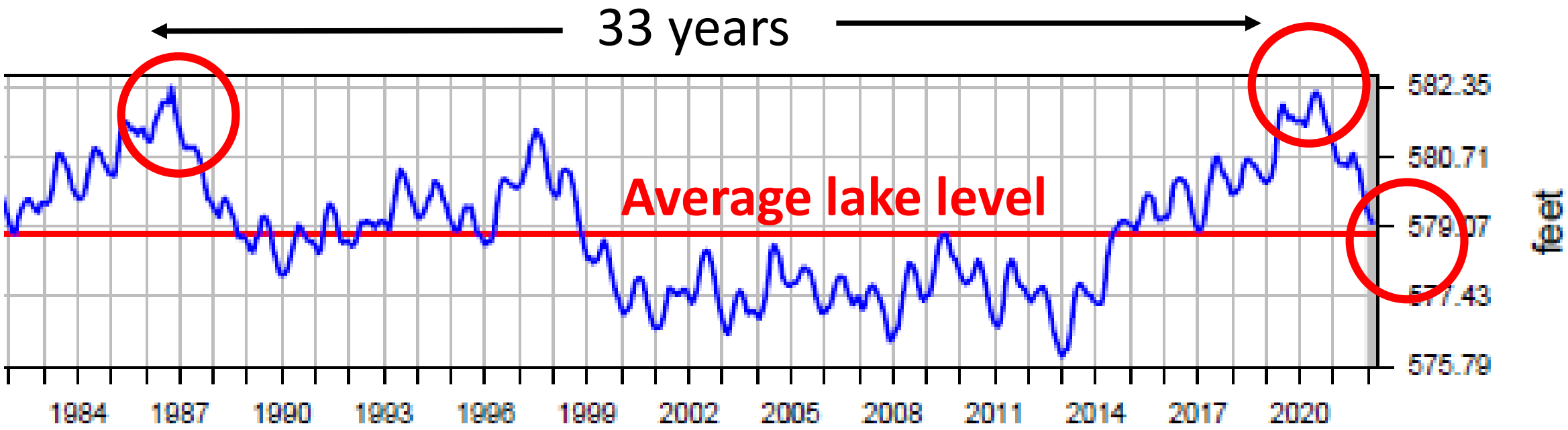
Centennial Park & Beach: Shoreline Improvements Matrix

0 - $250,000 $$$$$$
$250,000 - $500,000 $$$$$$
$500,000 - $1,000,000 $$$$$$
$1,000,000 - $3,000,000 $$$$$$
$3,000,000 - $5,000,000 $$$$$$

"LAC Priority? (1 = highest priority)	Supports plan goals?		Cost (construction, soft costs)	Grant opportunity?	Partnership opportunity?	Revenue generator?	"Level of effort"	Dependent on shoreline improvements?	Notes
Centennial Shoreline Improvements									
1	√	Rubble-mound breakwater structure - PH 1 improvement Remove sheet pile groins Back-shore rubble-mound revetment Beach sand backfille	$$$$$$	√			high		PH 1 (south property line); includes minimum amount of shoreline structure required to replace existing structures, improve beach and protect constructed improvements; requires sensitivity to aesthetics of structure; may be eligible for Great Lakes Fishery and Ecosystem Restoration (GLFER) Program funding (US Army Corps of Engineers); requires federal, state, and local permitting
1	√	New sheet-pile groin	$$$$$$	√			high		PH 1 (north property line); includes minimum amount of shoreline structure required to replace existing structures, improve beach and protect constructed improvements; requires sensitivity to aesthetics of structure; may be eligible for Great Lakes Fishery and Ecosystem Restoration (GLFER) Program funding (US Army Corps of Engineers); requires federal, state, and local permitting
2	√	Rubble-mound breakwater structure Remove sheet pile groins Back-shore rubble-mound revetment Beach sand backfill	$$$$$$	√			high		PH 2 (north property line); dependent on property acquisition; includes minimum amount of shoreline structure required to improve beach and protect constructed improvements; requires sensitivity to aesthetics of structure; may be eligible for Great Lakes Fishery and Ecosystem Restoration (GLFER) Program funding (US Army Corps of Engineers); requires federal, state, and local permitting

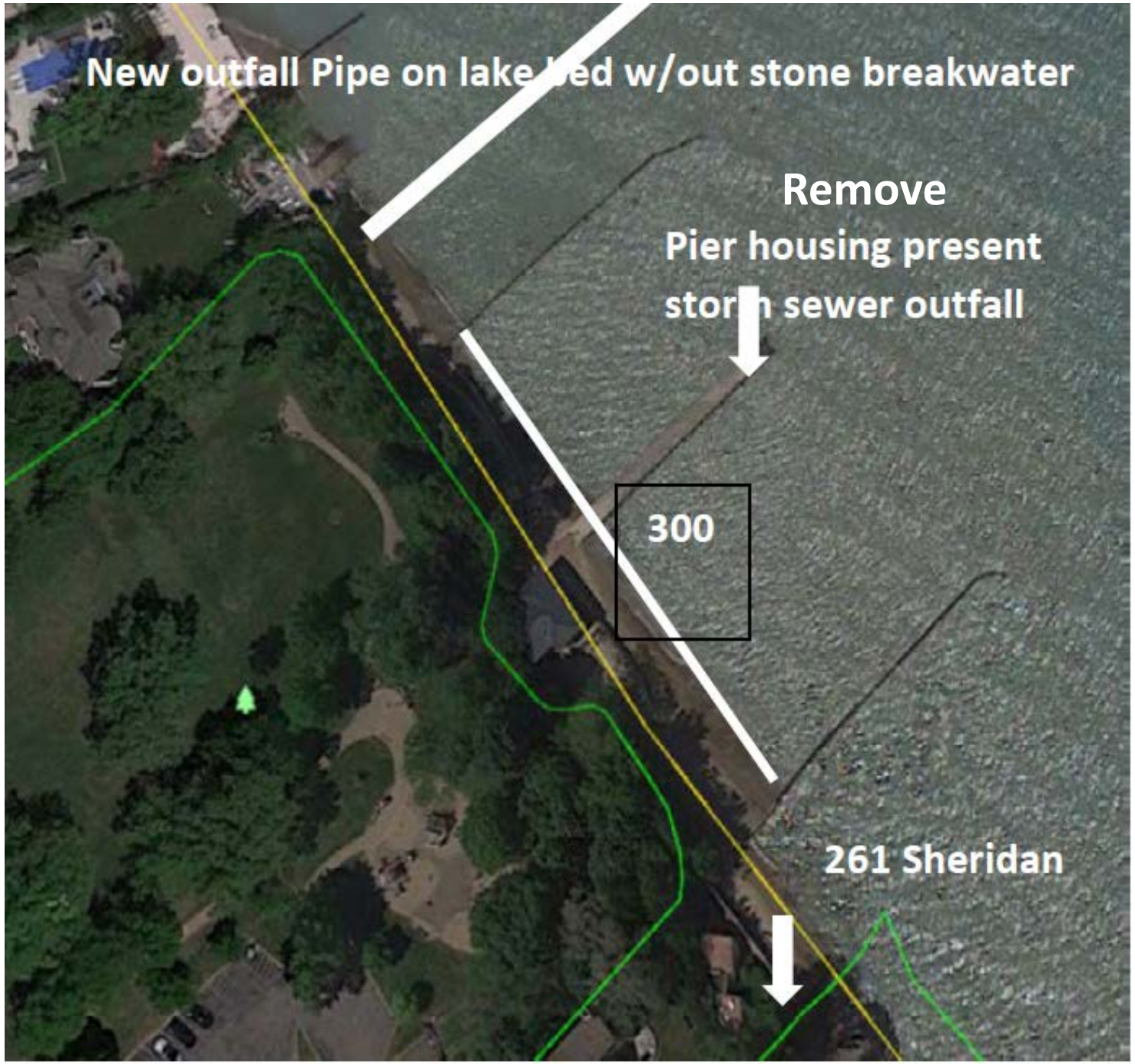


There is less urgency than for Lloyd



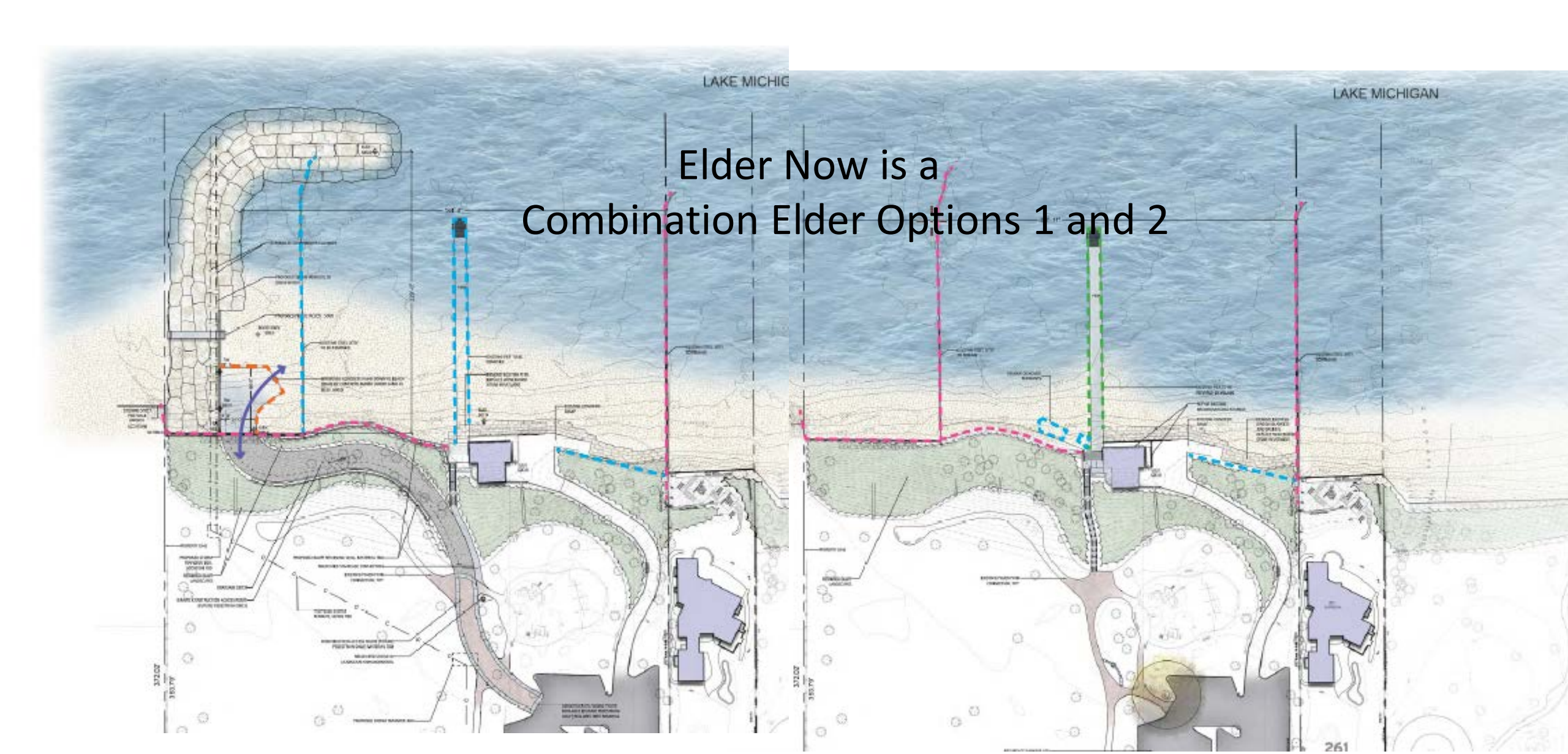

Elevation 590 sheet pile wall behind stairs installed before the recent high lake level remains stable
Thus planter boxes are not necessary
Beach Template Concept
Standing at ~ elevation 580 on 31 May


Elder Beach looking North
Photo taken on 22 June 2022
No need for stabilization of bluff
1980's sheet piles and gabions show no signs of instability



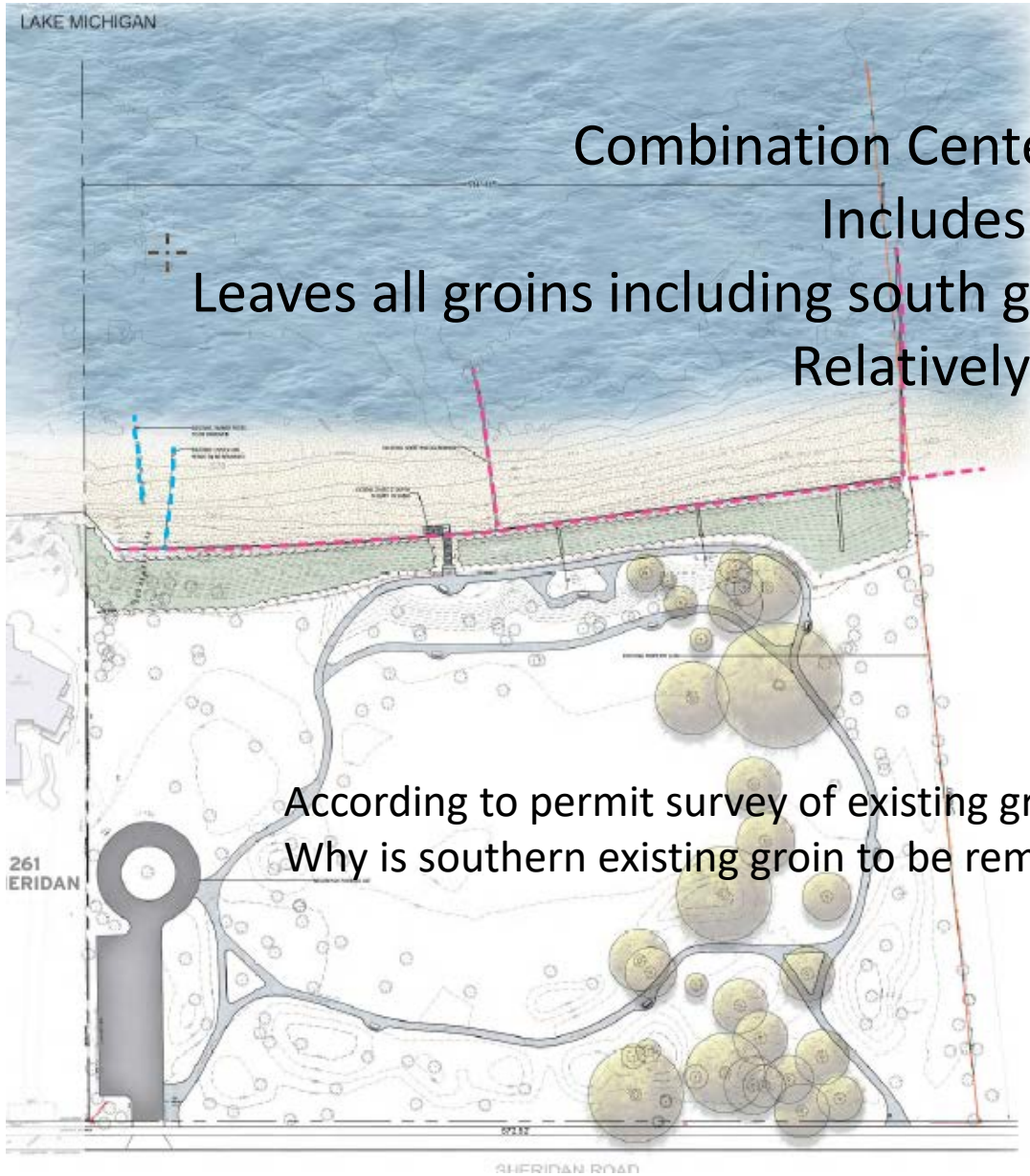
- Leave in place sheet pile groin at boundary between Elder/261 (elevation ~ 583) at southern end of 300 feet on drawing to left
- Build pollution reduction devices for Village storm sewer outfall already designed by Burke
- In surf zone, encase outfall pipe in sheet pile protection with maximum height of sheet piles equal to present groin height of 583.
- Beyond surf zone bury pipe in clay trench
  - 200 ft out as presently planned or
  - 350 ft to extend to deeper water

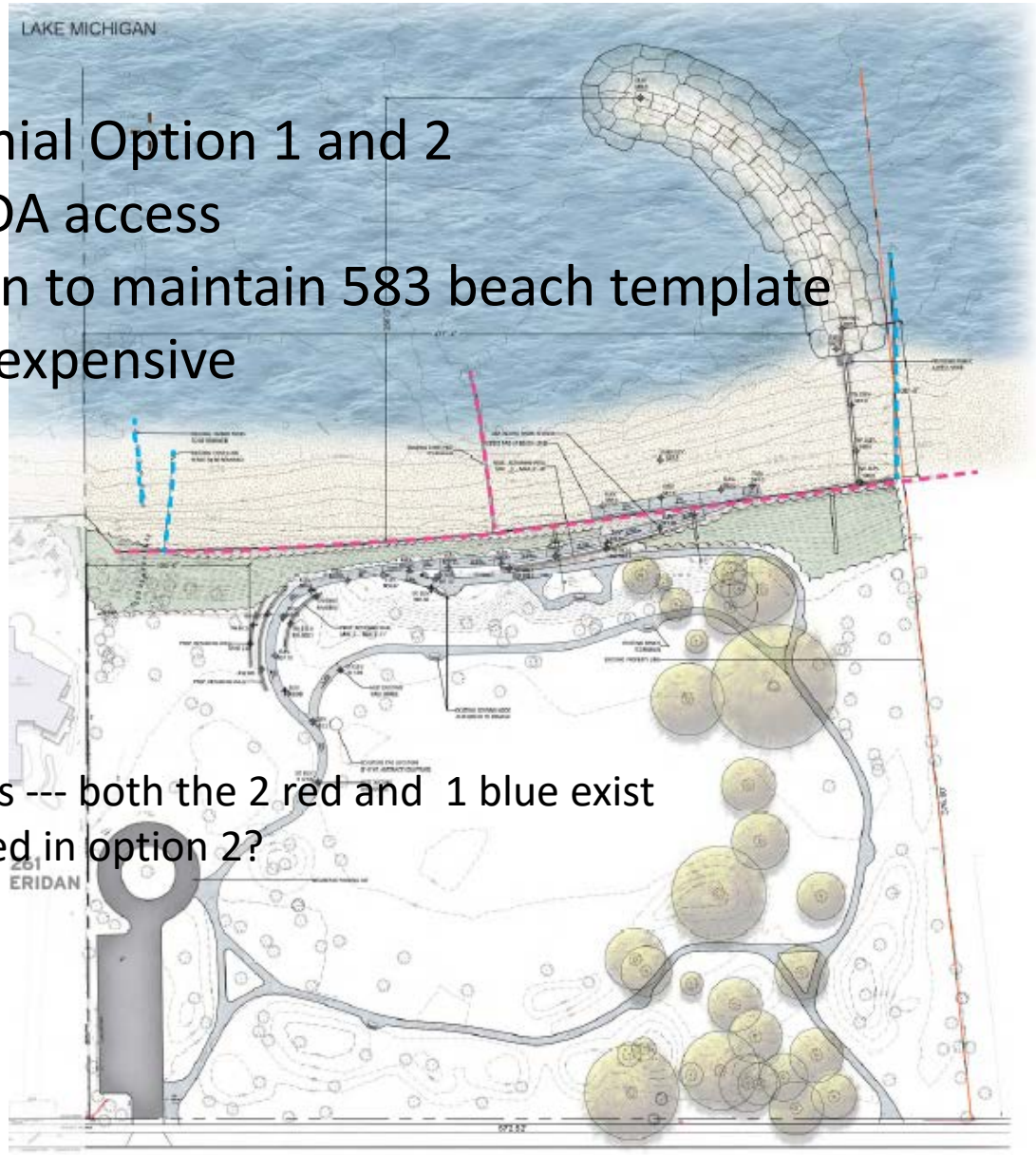
- Remove existing north sheet pile graoin
- Demolish pier housing present outfall pipe in middle of beach
- Now have some 400 ft beach to repurpose according to new post Lloyd use patterns
- Add beach sand if necessary
- Go swimming
- Add stone breakwater if necessary
- Add ramp later if necessary


LAKE MICHIG
LAKE MICHIGAN
Elder Now is a
Combination Elder Options 1 and 2

Element Description	Price	Qty	Units	Total	no new ramp use existing	with ramp
Mobilization	$ 600,000.00	1		$600,000.00	$600,000.00	$600,000.00
Buried Stone Revetment 12 ton per ft.	$2,500.00	175	ft	$437,500.00	$437,500.00	$437,500.00
Concrete demo/removal	$100.00	600		$60,000.00	$60,000.00	$60,000.00
Bluff Restoration	$ 150,000.00	1		$150,000.00	$150,000.00	$150,000.00
Sand Placement Mason Sand	$45.00	9600		$432,000.00		
Paving of Parking Lot	$6.00	26254		$157,524.00	$157,524.00	$157,524.00
35 ton per foot breakwater	$ 5,820.00 0	300		$1,746,000.00		
15 ton per foot 1/2 breakwater	$3,000.00	100		$300,000.00		
Stone Steps 35 Ton Breakwater	$55,000.00	1		$55,000.00		
Steel Sheet Piling 30' deep	$3,200.00	200		$640,000.00	$320,000.00	$640,000.00
Concrete for ramp	$100.00	1700		$170,000.00		$170,000.00
Access Roadway Stone w/Drainage	$250,000.00	1		$250,000.00		$250,000.00
Retaining Walls	$100,000.00	1		$100,000.00		$100,000.00
Relocated Stormwater Outfall	$600.00	500	L ft	$300,000.00	$300,000.00	$300,000.00
Relocated Stormwater Outfall 36"	$450.00	325	L ft	$292,500.00	$292,500.00	$292,500.00
Demo (steel, pier, misc.)	$220,000.00	1		$157,524.00	$157,524.00	$157,524.00
Total				$5,910,524.00	$2,475,048.00	$3,315,048.00
Soft Costs				$175,000.00	$175,000.00	$175,000.00
Thotal hard and soft costs				$6,085,524.00	$2,650,048.00	$3,490,048.00
Contingency (15%)				$886,578.60	$377,555.00	$545,250.00
Total				$6,972,102.60	$3,027,603.00	$4,035,298.00
Missing Considerations						
Pollution reduction devices not priced						
Differentiationg costs of pipes material and installetion						
Village requirement for enhanced outfall capacity -- what plans does Village have to increase upstream capacity and when?						

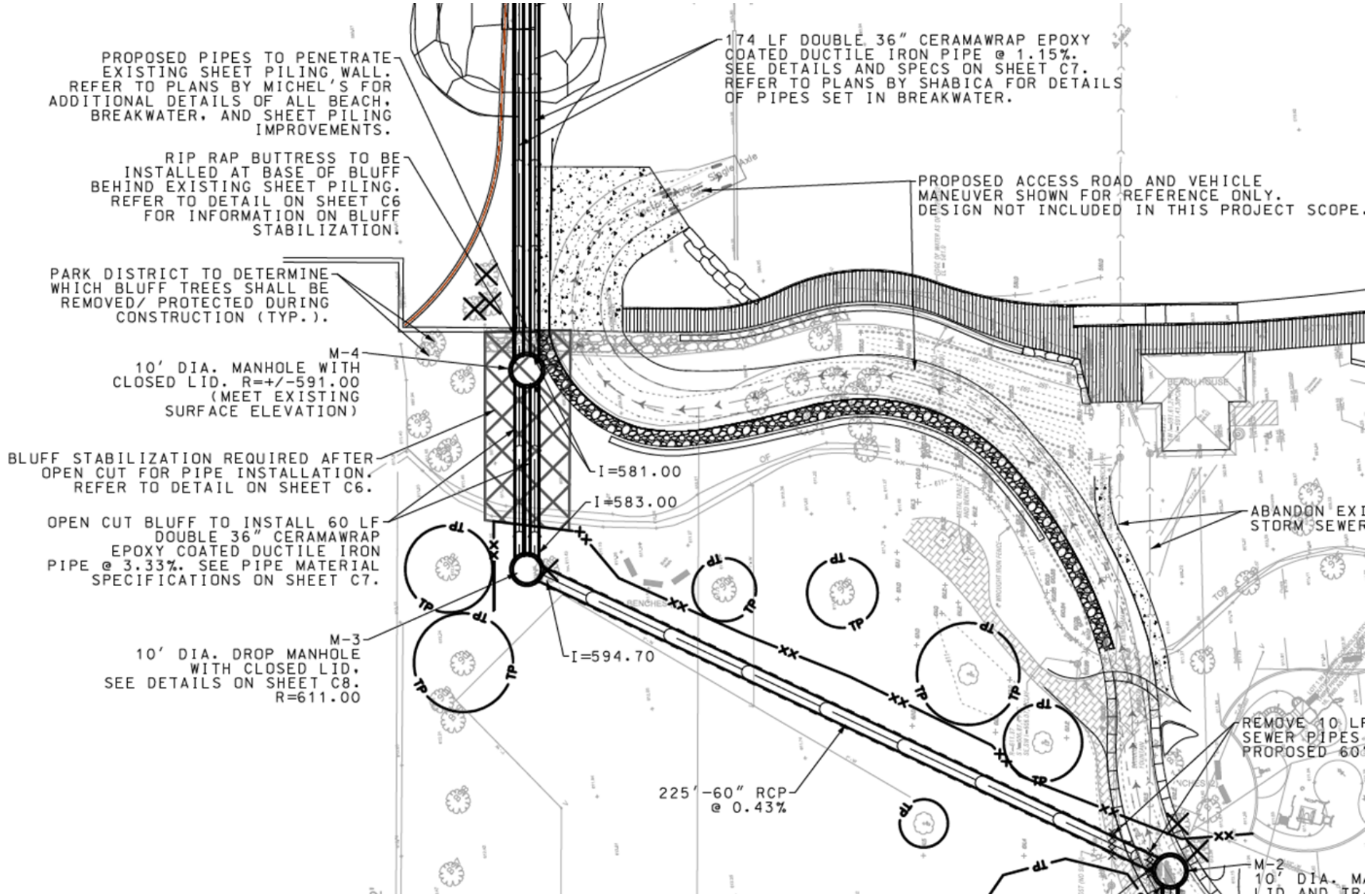
Combination Centennial Option 1 and 2
Includes ADA access
Leaves all groins including south groin to maintain 583 beach template
Relatively inexpensive

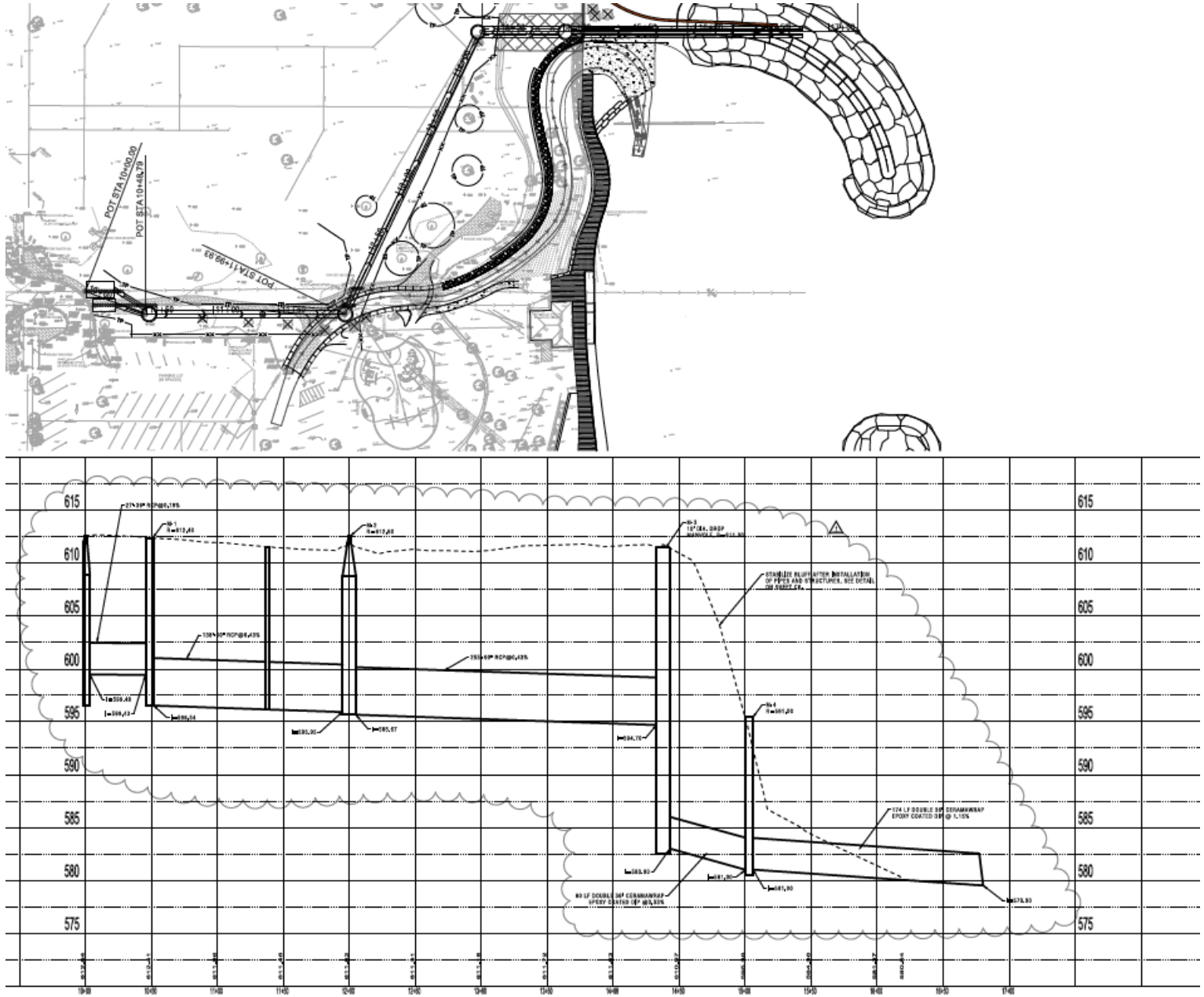




According to permit survey of existing groins --- both the 2 red and 1 blue exist
Why is southern existing groin to be removed in option 2?

Element Description		Price	Qty	Units	Total	no breakwater		
Mobilization		$ 600,000.00	1		$600,000.00	$600,000.00		
Demo (steel, fencing, wood piles)		$100,000.00	1		$100,000.00	$100,000.00		
Bluff Restoration		$ 150,000.00	1		$120,000.00	$120,000.00		
Sand Placement Mason Sand		$45.00	120000		$540,000.00			
Paving of Parking Lot		$6.00	6800		$40,800.00	$40,800.00		
35 ton per foot breakwater		$ 5,820.00 0	250		$1,455,000.00			
15 ton per foot 1/2 breakwater		$3,000.00	100					
Steel Staircase Lump Sum		$50,000.00	1		$50,000.00	$50,000.00		
Steel Sheet Piling 30' deep		$3,200.00	228		$729,600.00		leave exising	
Concrete for ramp		$100.00	812		$81,200.00	$81,200.00		
Access Roadway Stone w/Drainage TBD		$250,000.00	1		$250,000.00			
Retaining Walls		$120,000.00	1		$120,000.00			
ADA walkway and connection Lump Sum		$300,000.00	1		$300,000.00	$300,000.00		
Total					$4,386,600.00	$1,292,000.00		
Soft Costs					$175,000.00	$175,000.00		
Thotal hard and soft costs					$4,561,600.00	$1,467,000.00		
Contingency (15%)					$657,900.00	$193,800.00		
Total					$5,219,500.00	$1,660,800.00		
Missing Considerations								
Access roadway not on these plans								

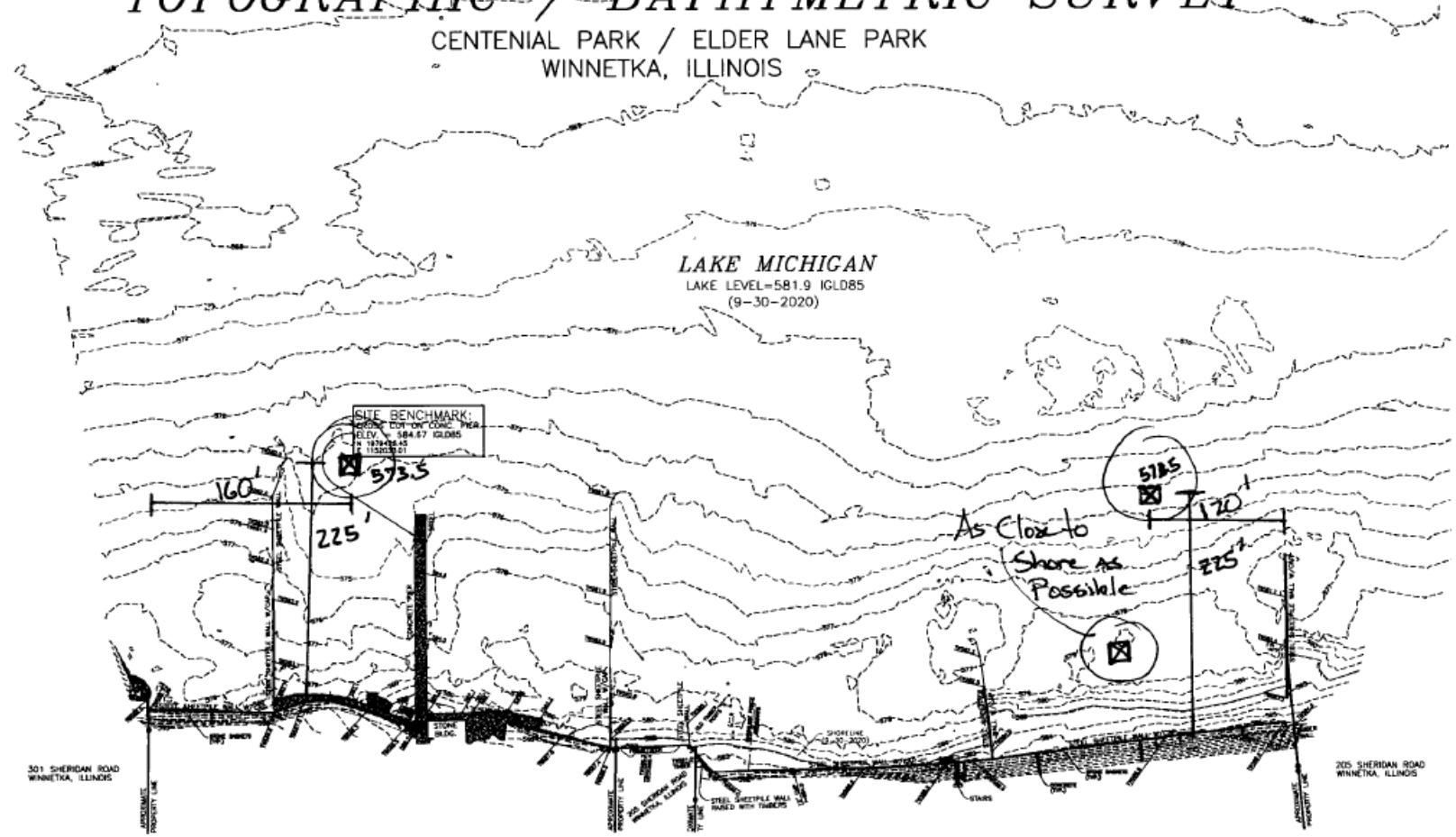

PROPOSED PIPES TO PENETRATE EXISTING SHEET PILING WALL. REFER TO PLANS BY MICHEL'S FOR ADDITIONAL DETAILS OF ALL BEACH, BREAKWATER, AND SHEET PILING IMPROVEMENTS.
RIP RAP BUTTRESS TO BE INSTALLED AT BASE OF BLUFF BEHIND EXISTING SHEET PILING. REFER TO DETAIL ON SHEET C6 FOR INFORMATION ON BLUFF STABILIZATION.
PARK DISTRICT TO DETERMINE WHICH BLUFF TREES SHALL BE REMOVED/ PROTECTED DURING CONSTRUCTION (TYP.).
M-4
10' DIA. MANHOLE WITH CLOSED LID. R=+/-591.00 (MEET EXISTING SURFACE ELEVATION)
BLUFF STABILIZATION REQUIRED AFTER OPEN CUT FOR PIPE INSTALLATION. REFER TO DETAIL ON SHEET C6.
OPEN CUT BLUFF TO INSTALL 60 LF DOUBLE 36" CERAMAWRAP EPOXY COATED DUCTILE IRON PIPE @ 3.33%. SEE PIPE MATERIAL SPECIFICATIONS ON SHEET C7.
M-3
10' DIA. DROP MANHOLE WITH CLOSED LID. SEE DETAILS ON SHEET C8. R=611.00
174 LF DOUBLE 36" CERAMAWRAP EPOXY COATED DUCTILE IRON PIPE @ 1.15%. SEE DETAILS AND SPECS ON SHEET C7. REFER TO PLANS BY SHABICA FOR DETAILS OF PIPES SET IN BREAKWATER.
PROPOSED ACCESS ROAD AND VEHICLE MANEUVER SHOWN FOR REFERENCE ONLY. DESIGN NOT INCLUDED IN THIS PROJECT SCOPE.
I=581.00
I=583.00
I=594.70
225'-60" RCP @ 0.43%
ABANDON EXI
STORM SEWER
REMOVE 10 LF
SEWER PIPES
PROPOSED 60
M-2
10' DIA. MA
LID AND TR
TP
XX


POT STA 10+00.00
POT STA 10+46.79
POT STA 11+99.93
615
610
605
600
595
590
585
580
575

Clay depth / Soil sample for testing

TOPOGRAPHIC / BATHYMETRIC SURVEY

CENTENIAL PARK / ELDER LANE PARK
WINNETKA, ILLINOIS

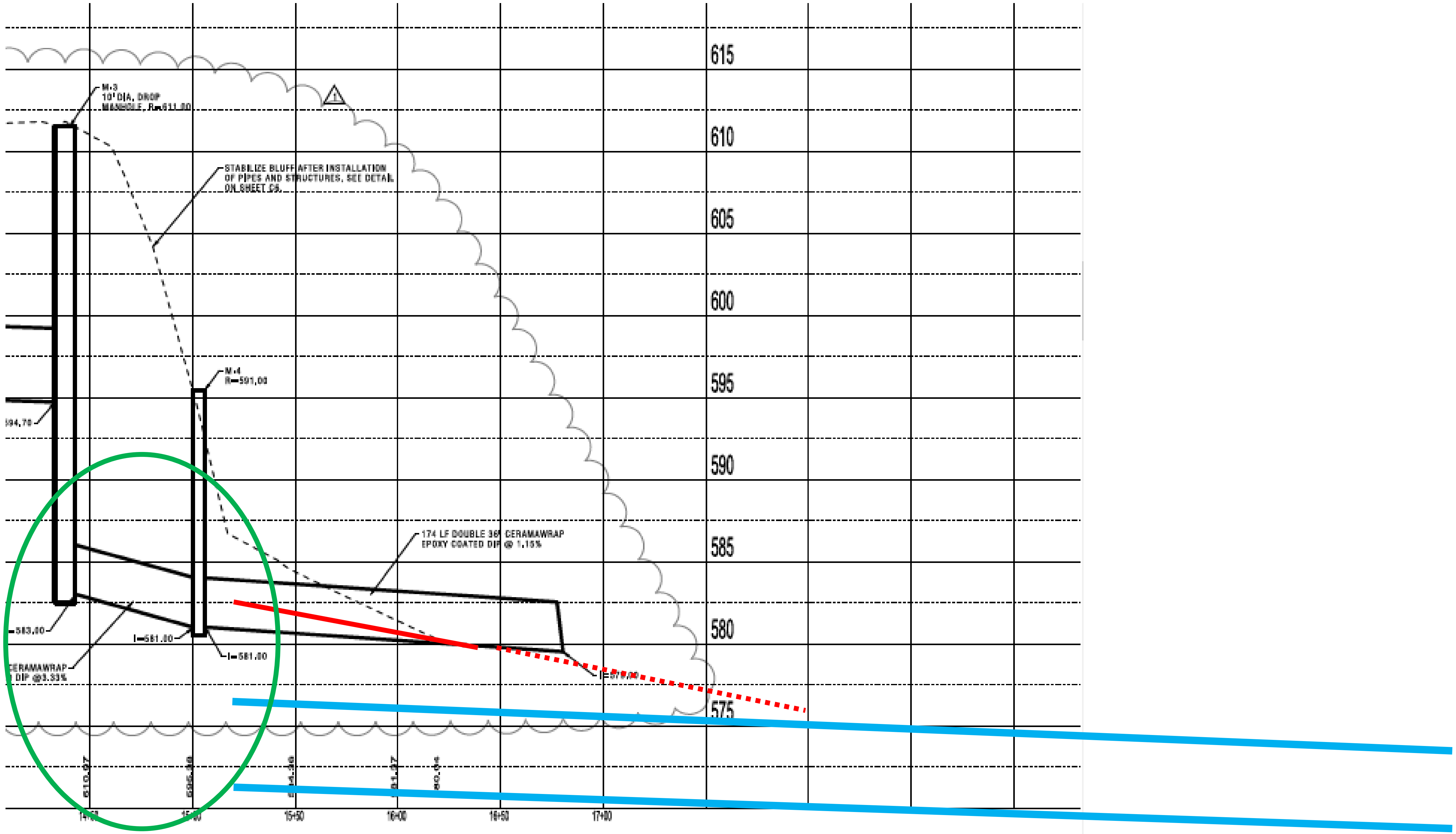


GRAPHIC SCALE
(30 FEET)
1 inch = 40 ft.

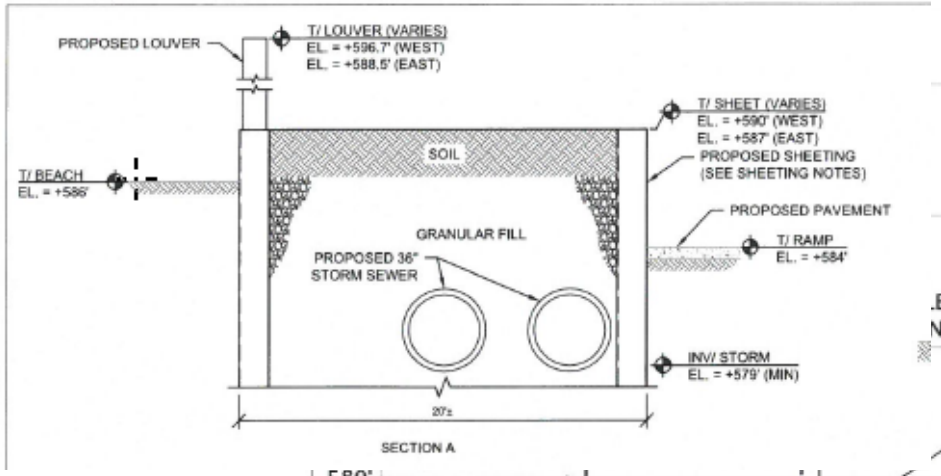
SCALE: 1" = 40'

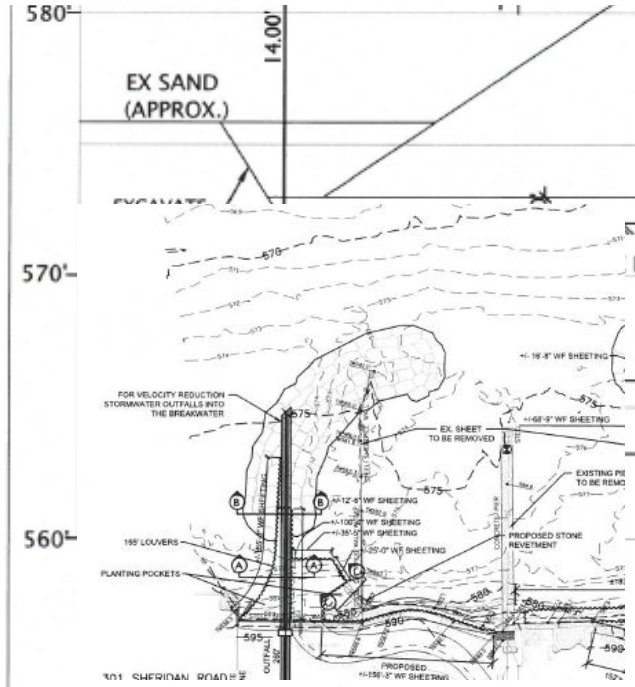
TERRA TECHNOLOGY
LAND SURVEYING, INC.
24198 ROSE AVE. LAKE ZURICH, ILLINOIS 60047
PHONE: (847) 540-8808 E-MAIL: TLS1958@SBCGLOBAL.NET

JOB NO.: 20-0078 SURVEY DATE: 09/30/2020
DRAWING FILE: DATA/20/0078/SITE.DWG



615
610
605
600
595
590
585
580
575
M-3
10' DIA. DROP
MANHOLE, R=611.00
STABILIZE BLUFF AFTER INSTALLATION
OF PIPES AND STRUCTURES, SEE DETAIL
ON SHEET C6.
M-4
R=591.00
594.78
174 LF DOUBLE 36" CERAMAWRAP
EPOXY COATED DIP @ 1.15%
583.00
I=581.00
I=581.00
CERAMAWRAP
DIP @3.33%
610.97
595.58
15+50
16+00
16+50
17+00



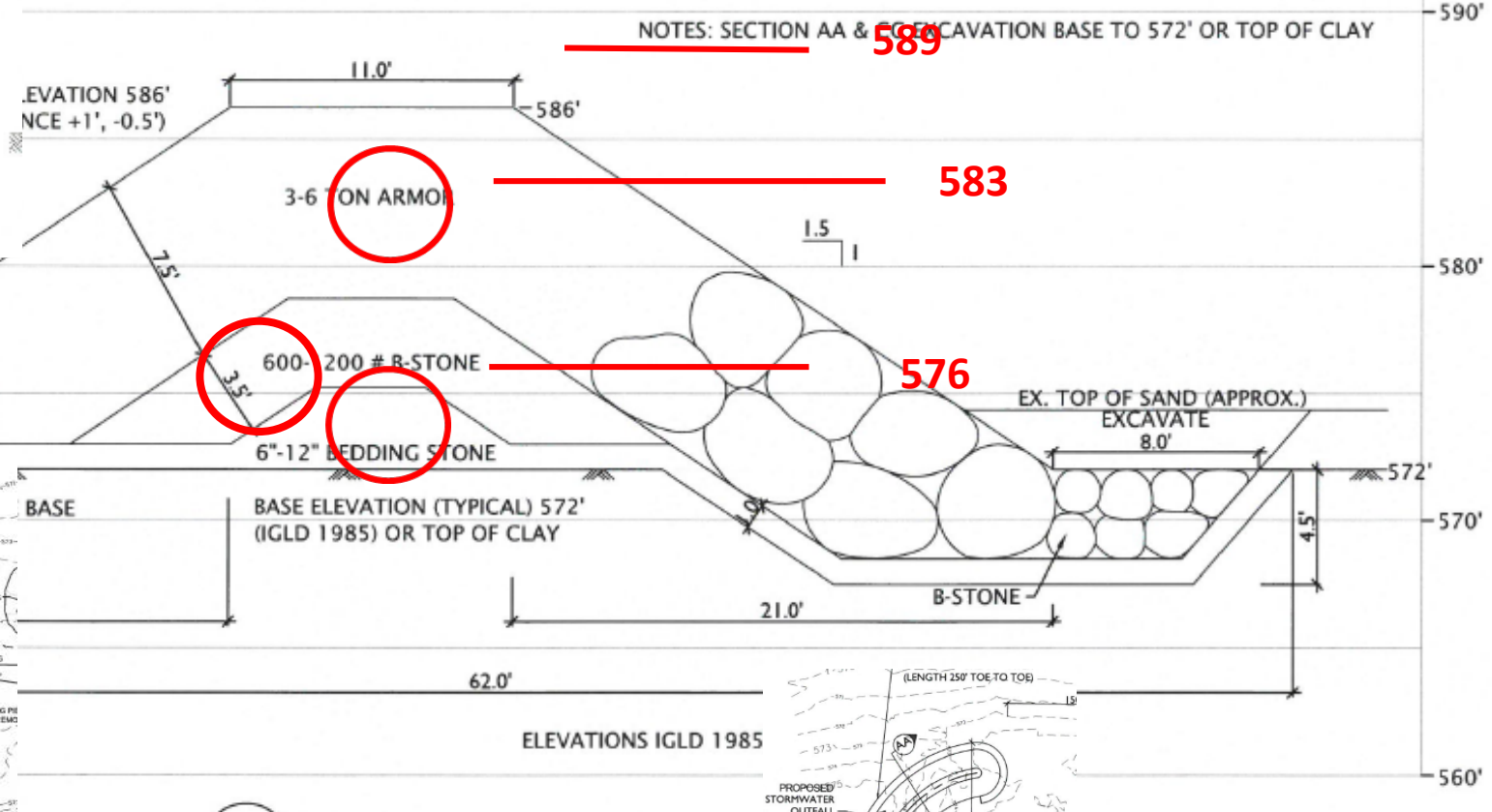


NOTES: SECTION AA & CC EXCAVATION BASE TO 572' OR TOP OF CLAY

589

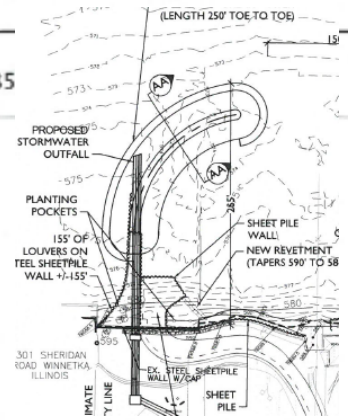
583

576



AA & CC FIG-3 SECTION AA & CC

SCALE : 0' 2.5' 5'



Project Title :
ELDER / CENTENNIAL PARK SHORELINE

Title :
SECTION AA & CC

Figure No. : 4

Date : 11 APRIL 2022

Scale : 0' 2.5' 5'

Element Description	What	Where	Source of Cost	Doc?	Price	Qty	Units	Total	no new ramp use existing	with ramp
Mobilization	General Contractor Cost	Elder			$ 600,000.00	1		$600,000.00	$600,000.00	$600,000.00
Buried Stone Revetment 12 ton per ft.					$2,500.00	175	ft	$437,500.00	$437,500.00	$437,500.00
Concrete demo/removal					$100.00	600		$60,000.00	$60,000.00	$60,000.00
Bluff Restoration	Vegetation restoration of bluff	bluff	Lakota		$ 150,000.00	1		$150,000.00	$150,000.00	$150,000.00
Sand Placement Mason Sand					$45.00	9600		$432,000.00		
Paving of Parking Lot					$6.00	26254		$157,524.00	$157,524.00	$157,524.00
35 ton per foot breakwater					$ 5,820.00 0	300		$1,746,000.00		
15 ton per foot 1/2 breakwater					$3,000.00	100		$300,000.00		
Stone Steps 35 Ton Breakwater					$55,000.00	1		$55,000.00		
Steel Sheet Piling 30' deep					$3,200.00	200		$640,000.00	$320,000.00	$640,000.00
Concrete for ramp					$100.00	1700		$170,000.00		$170,000.00
Access Roadway Stone w/Drainage					$250,000.00	1		$250,000.00		$250,000.00
Retaining Walls					$100,000.00	1		$100,000.00		$100,000.00
Relocated Stormwater Outfall	1 60" diameter on bluff	bluff			$600.00	500	L ft	$300,000.00	$300,000.00	$300,000.00
Relocated Stormwater Outfall 36"	2 36" diameter beach and lake	beach and lake			$450.00	325	L ft	$292,500.00	$292,500.00	$292,500.00
Demo (steel, pier, misc.)	Existing pier and outfall pipe				$220,000.00	1		$157,524.00	$157,524.00	$157,524.00
Total								$5,910,524.00	$2,475,048.00	$3,315,048.00
Soft Costs								$220,000.00	$220,000.00	$220,000.00
Engineering, plans/drawings, permit costs	Non construction costs -- in addition to $600,000 alrady spent							$175,000.00	$100,000.00	$100,000.00
Thotal hard and soft costs								$6,305,524.00	$2,795,048.00	$3,635,048.00
Contingency (15%)	Reserves for unexpected costs							$886,578.60	$377,555.00	$545,250.00
Total								$6,972,102.60	$3,172,603.00	$4,180,298.00
	Spend the remaining money upgrading Tower and making necessary repairs of Centennial									
	Do nothing at Centennial									
Missing Considerations										
Pollution reduction devices not priced										
Differentiationg costs of pipes material and installetion		bluff, bluff/beach slope, surf zone, lake bottom								
Village imposed requirement for enhanced outfall capacity -- what plans does Village have to increase upstream capacity what and when?										

Element Description	What	Where	Source of	Doc?	Price	Qty	Units	Total	no breakwater		
Mobilization	General Contractor Cost	Elder			$ 600,000.00	1		$600,000.00	$600,000.00		
Demo (steel, fencing, wood piles)					$100,000.00	1		$100,000.00	$100,000.00		
Bluff Restoration	Vegetation restoration of bluff	bluff	Lakota		$ 150,000.00	1		$120,000.00	$120,000.00		
Sand Placement Mason Sand					$45.00	120000		$540,000.00			
Paving of Parking Lot					$6.00	6800		$40,800.00	$40,800.00		
35 ton per foot breakwater					$ 5,820.00 0	250		$1,455,000.00			
15 ton per foot 1/2 breakwater	Is this relpaced with the steel groin (11) ?				$3,000.00	100					
Steel Staircase Lump Sum					$50,000.00	1		$50,000.00	$50,000.00		
Steel Sheet Piling 30' deep					$3,200.00	228		$729,600.00		leave exising	
Concrete for ramp					$100.00	812		$81,200.00	$81,200.00		
Access Roadway Stone w/Drainage TBD	Where is this on the plan? Same as Elder Option 2				$250,000.00	1		$250,000.00			
Retaining Walls					$120,000.00	1		$120,000.00			
ADA walkway and connection Lump Sum					$300,000.00	1		$300,000.00	$300,000.00		
Total								$4,386,600.00	$1,292,000.00		
Soft Costs	Engineering, plans/drawings, permit costs, etc.)							$175,000.00	$175,000.00		
Thotal hard and soft costs								$4,561,600.00	$1,467,000.00		
Contingency (15%)	Reserves for unexpected costs							$657,900.00	$193,800.00		
Total								$5,219,500.00	$1,660,800.00		
Missing Considerations											
Access roadway not on these plans											

The following plan concept was submitted by John Root.

Requirements for Options with Breakwaters

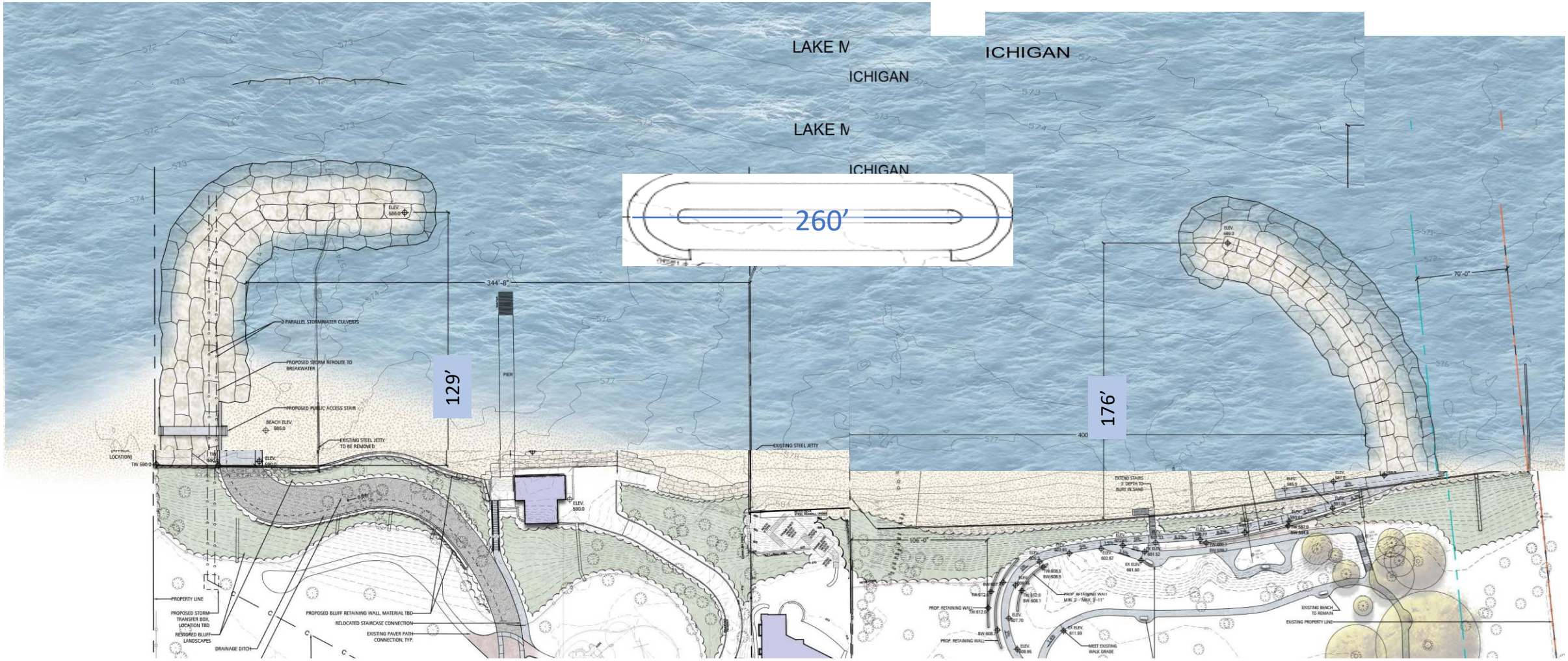
- All options include north, south, central breakwater, and a sand nourishment program. Without all four elements the project will fail to retain sand and will fail to obtain required permits.
- WPD must acquire 261 Sheridan for any breakwater project to proceed. 261 Sheridan must be included in any sand nourishment program and is needed to support any required permits.
- Construction occurs with one mobilization. Each additional mobilization costs a wasteful $600,000

WPD Elder 1/Centennial 1 Cost: $2,285,324
Repair of Existing Beaches

WPD Elder Option1/Centennial Option1 Cost: $2,285,324 Repair of Existing Beaches

- Advantages:
  - More natural beach
  - Lowest environmental impact on lake
  - Substantially less cost
  - The only option that doesn’t require acquisition of 261 Sheridan
- Disadvantages
  - Less available beach
  - Less protection of beach sand

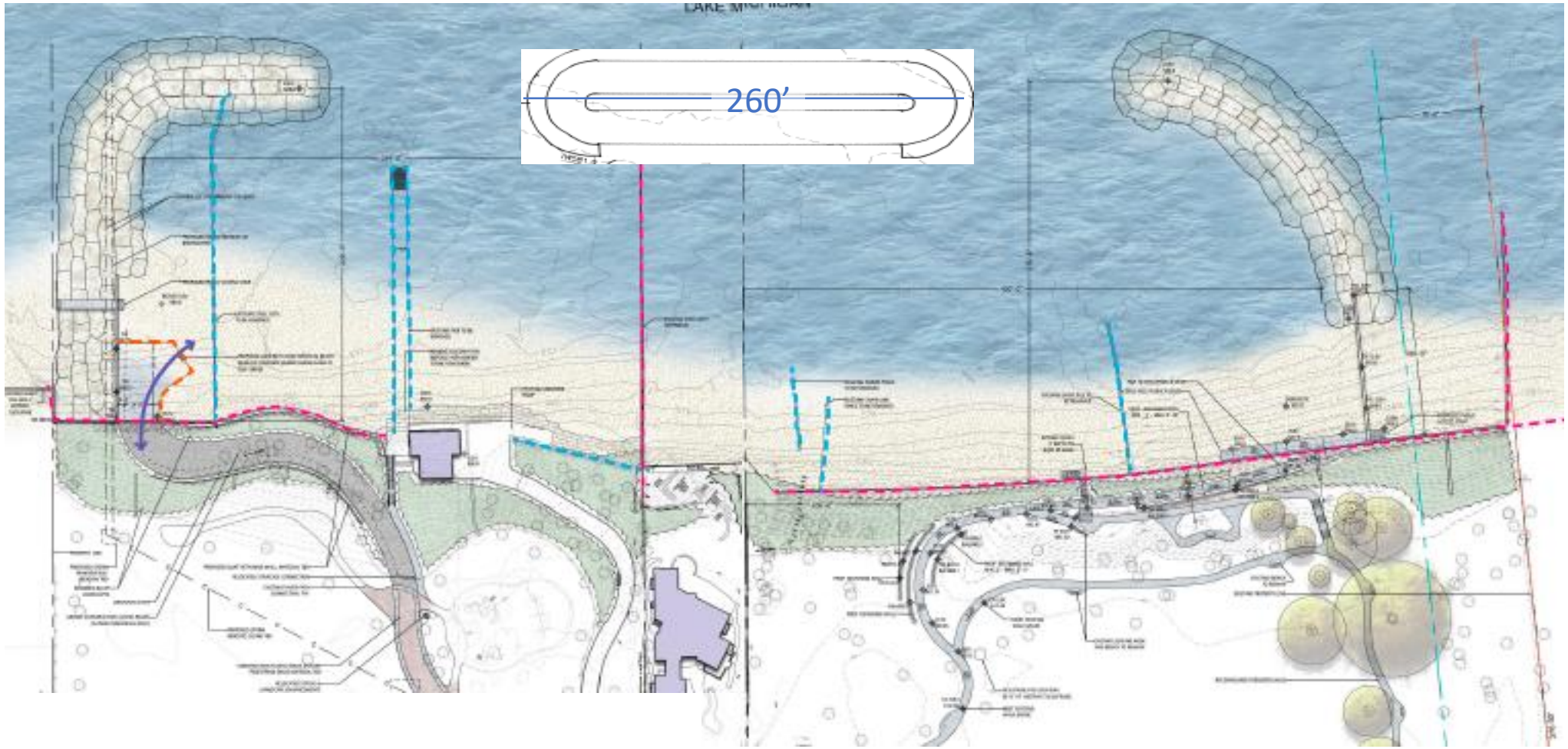
JWR Elder 2/Centennial 5 Cost: $10,220,534
Medium Breakwaters



JWR Elder2/Centennial5 Cost: $10,220,524 Medium Breakwaters

- Advantages:
  - Extended beach
  - Lowest environmental impact of breakwater options
  - Lowest cost of breakwater options
- Disadvantages
  - Less available beach than from longer breakwater options
  - Requires acquisition of 261 Sheridan

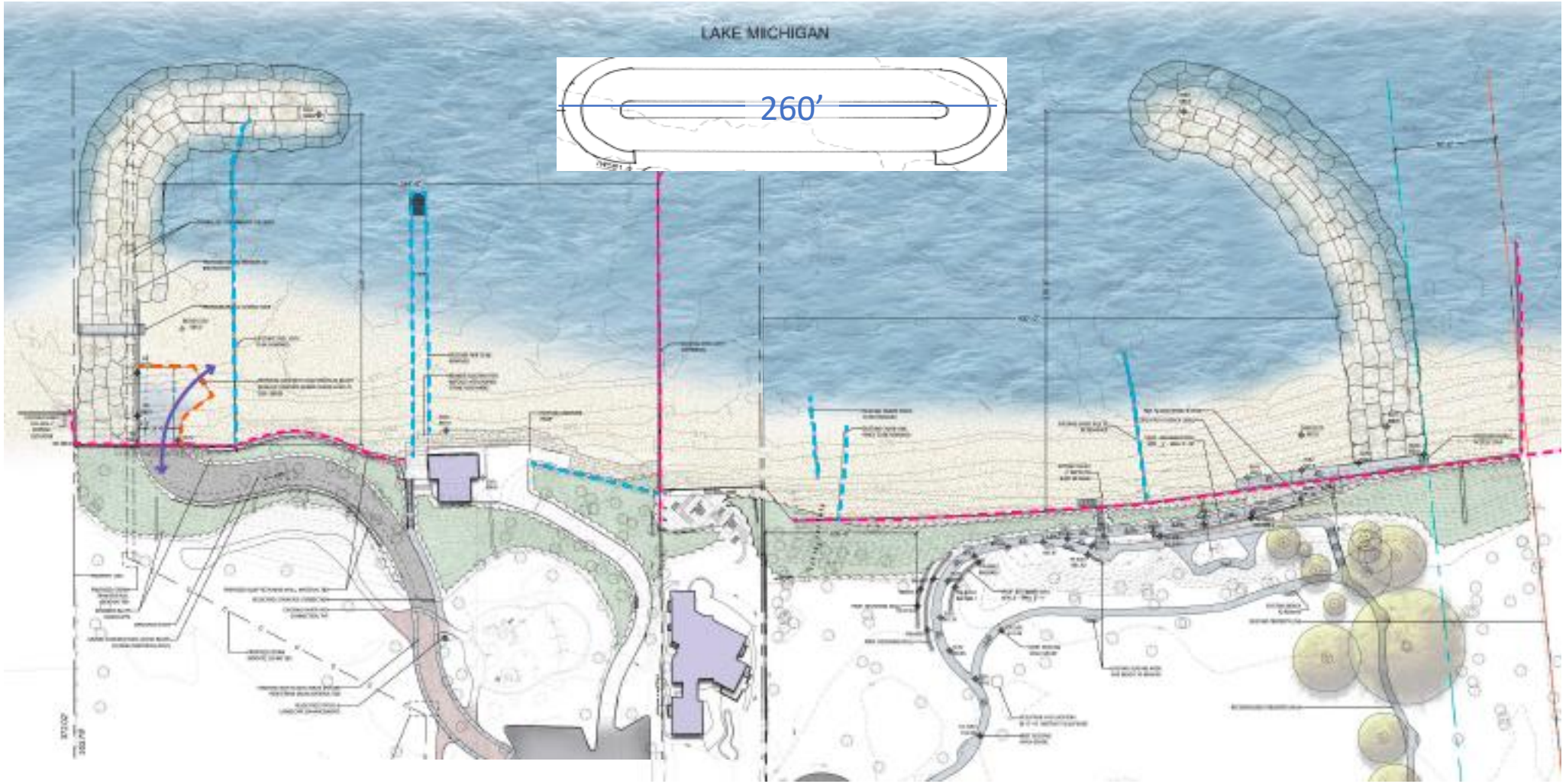
WPD Elder 2/Centennial 4 Cost: $11,660,524 Long Stone & Steel Sheet Pile Breakwaters



WPD Elder2/Centennial4 Cost: $11,660,524 Long Breakwaters w Steel Sheet Pile

- Advantages:
  - Large beach
  - Lower cost ($237,000) than stone breakwater only
- Disadvantages
  - Requires acquisition of 261 Sheridan
  - Stone breakwater with steel pile is an unvetted design
  - Large environmental impact on lake

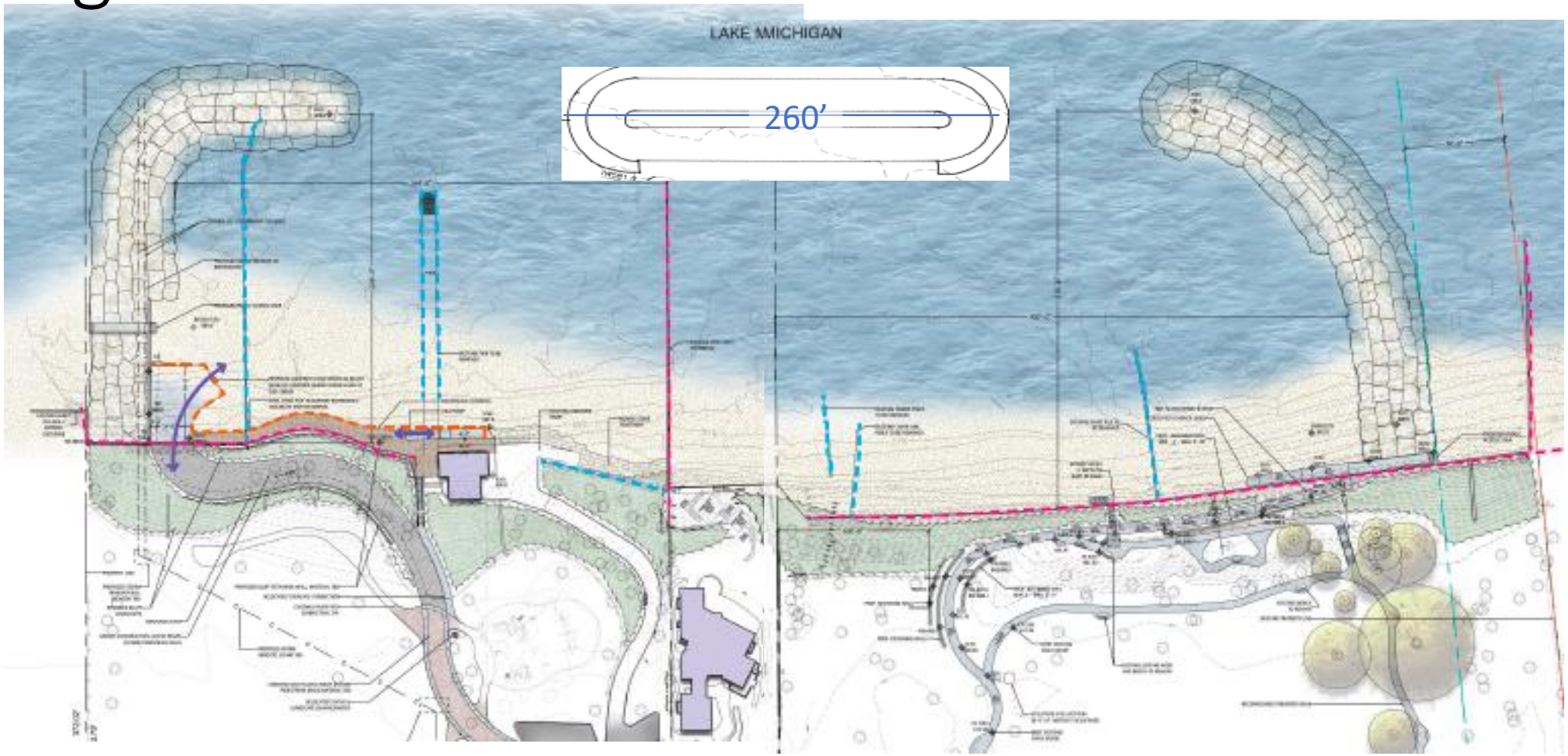
WPD Elder 2/Centennial 5 Cost: $11,897,524 Long Stone Breakwaters



WPD Elder 2/Centennial 5 Cost: $11,897,524 Long Breakwaters

- Advantages:
  - Large beach
  - Proven design for protecting beaches
- Disadvantages
  - Requires acquisition of 261 Sheridan
  - Large environmental impact on lake
  - More expensive than stone breakwater with steel sheet pile ($237,000)

WPD Elder 3/Centennial 5 Cost: $13,209,824 Long Breakwaters w Raised Boardwalk



WPD Elder3/Centennial5 Cost: $13,209,824 Long Breakwaters w Raised Boardwalk

- Advantages:
  - Raised boardwalk w boat storage
  - Large beach
  - Proven design for protecting beaches
- Disadvantages
  - Expense of boardwalk w boat storage is large ($1,312,300)
  - Requires acquisition of 261 Sheridan
  - Large environmental impact on lake

COST COMPARISON ALL OPTIONS		
Option	Description	Cost
WPD Elder 1/Centennial 1	Repair of Existing Beaches	$2,285,324
JWR Elder 2/Centennial 5	Medium Breakwaters	$10,220,534
WPD Elder 2/Centennial 4	Long Stone & Steel Sheet Pile Breakwaters	$11,660,524
WPD Elder 2/Centennial 5	Long Stone Breakwaters	$11,897,524
WPD Elder 3/Centennial 5	Long Breakwaters w Raised Boardwalk	$13,209,824

Centennial Park + Beach:

OPTION 3: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 600,000.00	1	$600,000
Demo (Steel, fencing, wood piles)	$ 100,000.00	1	$100,000
Bluff Restoration	$ 120,000.00	1	$120,000
Sand Placement Mason Sand	$ 45.00	10000	$450,000
Paving of Parking Lot	$ 6.00	6800	$40,800
35 ton per foot breakwater	$ 5,820.00	350	$2,037,000
Granite Staircase Lump Sum	$ 55,000.00	1	$55,000
Steel Sheet Piling 30'	$ 3,200.00	128	$409,600
Concrete for ramp	$ 100.00	812	$81,200
Access Roadway Stone w/Drainage (TBD)	$ 250,000.00	1	$250,000
Retaining Walls	$ 120,000.00	1	$120,000
ADA walkway and connection Lump Sum	$ 300,000.00	1	$300,000
TOTAL			**$4,563,600**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 175,000.00		$175,000
TOTAL			**$4,738,600**

Centennial Park + Beach:

OPTION 1: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 25,000.00	1	$25,000
Removal of Fencing and Wooden Structures	$ 25,000.00	1	$25,000
Bluff Restoration	$ 120,000.00	1	$120,000
Paving of Parking Lot	$ 6.00	6800	$40,800
Extend Stairs	$ 2,000.00	1	$2,000
TOTAL			**$212,800**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 90,000.00		$90,000
TOTAL	$ 302,800.00		**$302,800**

Elder Lane Park + Beach:

OPTION 1: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 600,000.00	1	$600,000
Removal of gabions	$ 60,000.00	1	$60,000
Buried Stone Revetment 12 ton per ft.	$ 2,500.00	160	$400,000
Concrete demo/removal	$ 100.00	600	$60,000
Bluff Restoration	$ 150,000.00	1	$150,000
Sand Placement Mason Sand	$ 45.00	2000	$90,000
Paving of Parking Lot	$ 6.00	26254	$157,524
Pier Repairs (by others) *	$ 400,000.00	1	$400,000
TOTAL	$ 1,517,524.00		**$1,917,524**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 90,000.00		$90,000
TOTAL	$ 1,607,524.00		**$2,007,524**

Elder Lane Park + Beach:

OPTION 2: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 600,000.00	1	$600,000
Buried Stone Revetment 12 ton per ft.	$ 2,500.00	175	$437,500
Concrete demo/removal	$ 100.00	600	$60,000
Bluff Restoration	$ 150,000.00	1	$150,000
Sand Placement Mason Sand	$ 45.00	9600	$432,200
Paving of Parking Lot	$ 6.00	26254	$157,524
35 ton per foot breakwater	$ 5,820.00	300	$1,746,000
15 ton per foot 1/2 breakwater	$ 3,000.00	100	$300,000
Stone Steps 35 Ton Breakwater	$ 55,000.00	1	$55,000
Steel Sheet Piling 30'	$ 3,200.00	200	$640,000
Concrete for ramp	$ 100.00	1700	$170,000
Access Roadway Stone w/Drainage	$ 250,000.00	1	$250,000
Retaining Walls	$ 100,000.00	1	$100,000
Relocated Stormwater Outfall 60" LF	$ 600.00	500	$300,000
Relocated Stormwater Outfall 36" LF	$ 450.00	650	$292,500
Demo (steel, pier, misc.)	$ 220,000.00	1	$220,000
TOTAL			**$5,910,724**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 175,000.00		$175,000
TOTAL			**$6,085,724**

Elder Lane Park + Beach:

OPTION 3:

Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$600,000.00	1	$600,000
Buried Stone Revetment 12 ton per f	$ 2,500.00	160	$400,000
Concrete demo/removal	$ 100.00	600	$60,000
Bluff Restoration	$150,000.00	1	$150,000
Sand Placement Mason Sand	$ 45.00	10800	$486,000
Paving of Parking Lot	$ 6.00	26254	$157,524
35 ton per foot breakwater	$ 5,820.00	300	$1,746,000
15 ton per foot 1/2 breakwater	$ 3,000.00	100	$300,000
Stone Steps 35 Ton Breakwater	$ 55,000.00	1	$55,000
Steel Sheet Piling 30'	$ 3,200.00	420	$1,344,000
Concrete for ramps (Vehicle & Walkv	$ 100.00	2120	$212,000
Access Roadway Stone w/Drainage	$250,000.00	1	$250,000
Retaining Walls	$100,000.00	1	$100,000
Relocated Stormwater Outfall 60" LF	$ 600.00	500	$300,000
Relocated Stormwater Outfall 36" LF	$ 450.00	650	$292,500
Demo (steel, pier, misc.)	$220,000.00	1	$220,000
Elevate Ipe Boardwalk 200 lf	$525,000.00	1	$525,000
TOTAL			**$7,198,024**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)			$200,000
TOTAL			**$7,398,024**

Centennial Park + Beach:

OPTION 5:

Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$600,000.00	1	$600,000
Demo (Steel, fencing, wood piles)	$100,000.00	1	$100,000
Bluff Restoration	$120,000.00	1	$120,000
Sand Placement Mason Sand	$ 45.00	12000	$540,000
Paving of Parking Lot	$ 6.00	6800	$40,800
35 ton per foot breakwater	$ 5,820.00	350	$2,037,000
Steel Sheet Piling 30'	$ 3,200.00	128	$409,600
Concrete for ramp	$ 100.00	812	$81,200
Access Roadway Stone w/Drainage (TBD)	$250,000.00	1	$250,000
Retaining Walls	$120,000.00	1	$120,000
Park Improvements (walkways and drinking fou	$110,000.00	1	$110,000
ADA walkway and connection Lump Sum	$300,000.00	1	$300,000
TOTAL			**$4,708,600**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)			$190,000
TOTAL			**$4,898,600**

Centennial Park + Beach:

OPTION 2: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 600,000.00	1	$600,000
Demo (Steel, fencing, wood piles)	$ 100,000.00	1	$100,000
Bluff Restoration	$ 120,000.00	1	$120,000
Sand Placement Mason Sand	$ 45.00	12000	$540,000
Paving of Parking Lot	$ 6.00	6800	$40,800
35 ton per foot breakwater	$ 5,820.00	250	$1,455,000
Steel Staircase Lump Sum	$ 50,000.00	1	$50,000
Steel Sheet Piling 30'	$ 3,200.00	228	$729,600
Concrete for ramp	$ 100.00	812	$81,200
Access Roadway Stone w/Drainage (TBD)	$ 250,000.00	1	$250,000
Retaining Walls	$ 120,000.00	1	$120,000
ADA walkway and connection Lump Sum	$ 300,000.00	1	$300,000
TOTAL			**$4,386,600**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 175,000.00		$175,000
TOTAL			**$4,561,600**

Centennial Park + Beach:

OPTION 4: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL	
Mobilization	$ 600,000.00	1	$ 600,000.00	$600,000
Demo (Steel, fencing, wood piles)	$ 100,000.00	1	$ 100,000.00	$100,000
Bluff Restoration	$ 120,000.00	1	$ 120,000.00	$120,000
Sand Placement Mason Sand	$ 45.00	12000	$ 540,000.00	$540,000
Paving of Parking Lot	$ 6.00	6800	$ 40,800.00	$40,800
35 ton per foot breakwater	$ 5,820.00	250	$ 1,455,000.00	$1,455,000
Steel Staircase Lump Sum	$ 25,000.00	1	$ 25,000.00	$25,000
Steel Sheet Piling 30'	$ 3,200.00	228	$ 729,600.00	$729,600
Concrete for ramp	$ 100.00	812	$ 81,200.00	$81,200
Access Roadway Stone w/Drainage (TBD)	$ 250,000.00	1	$ 250,000.00	$250,000
Retaining Walls	$ 120,000.00	1	$ 120,000.00	$120,000
Park Improvements (walkways and drinking fountai	$ 110,000.00	1	$ 110,000.00	$110,000
ADA walkway and connection Lump Sum	$ 300,000.00	1	$ 300,000.00	$300,000
TOTAL				**$4,471,600**
SOFT COSTS				
(Engineering, plans/drawings, permit costs, e	$ 190,000.00			$190,000
TOTAL				**$4,661,600**

Centennial Park + Beach:

OPTION 5: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 600,000.00	1	$600,000
Demo (Steel, fencing, wood piles)	$ 100,000.00	1	$100,000
Bluff Restoration	$ 120,000.00	1	$120,000
Sand Placement Mason Sand	$ 45.00	12000	$540,000
Paving of Parking Lot	$ 6.00	6800	$40,800
35 ton per foot breakwater	$ 5,820.00	350	$2,037,000
Steel Sheet Piling 30'	$ 3,200.00	128	$409,600
Concrete for ramp	$ 100.00	812	$81,200
Access Roadway Stone w/Drainage (TBD)	$ 250,000.00	1	$250,000
Retaining Walls	$ 120,000.00	1	$120,000
Park Improvements (walkways and drinking fountain	$ 110,000.00	1	$110,000
ADA walkway and connection Lump Sum	$ 300,000.00	1	$300,000
TOTAL			**$4,708,600**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 190,000.00		$190,000
TOTAL			**$4,898,600**

Centennial Park + Beach:

OPTION 6: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL	
Mobilization	$ 600,000.00	1	$ 600,000.00	$600,000
Demo (Steel, fencing, wood piles)	$ 90,000.00	1	$ 90,000.00	$90,000
Bluff Restoration	$ 120,000.00	1	$ 120,000.00	$120,000
Sand Placement Mason Sand	$ 45.00	12000	$ 540,000.00	$540,000
Paving of Parking Lot	$ 6.00	6800	$ 40,800.00	$40,800
35 ton per foot breakwater	$ 5,820.00	250	$ 1,455,000.00	$1,455,000
Steel Staircase Lump Sum	$ 50,000.00	1	$ 50,000.00	$50,000
Steel Sheet Piling 30'	$ 3,200.00	248	$ 793,600.00	$793,600
Concrete for ramp	$ 100.00	1212	$ 121,200.00	$121,200
Access Roadway Stone w/Drainage (TBD)	$ 250,000.00	1	$ 250,000.00	$250,000
Retaining Walls	$ 120,000.00	1	$ 120,000.00	$120,000
Dog Gate (utilities)	$ 25,000.00	1	$ 25,000.00	$25,000
ADA walkway and connection Lump Sum	$ 300,000.00	1	$ 300,000.00	$300,000
TOTAL				**$4,505,600**
SOFT COSTS				
(Engineering, plans/drawings, permit costs, etc.)	$ 175,000.00			$175,000
TOTAL				**$4,680,600**

Elder Lane Park + Beach:

OPTION 1: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 600,000.00	1	$600,000
Removal of gabions	$ 60,000.00	1	$60,000
Buried Stone Revetment 12 ton per ft.	$ 2,500.00	160	$400,000
Concrete demo/removal	$ 100.00	600	$60,000
Bluff Restoration	$ 150,000.00	1	$150,000
Sand Placement Mason Sand	$ 45.00	2000	$90,000
Paving of Parking Lot	$ 6.00	26254	$157,524
Pier Repairs (by others) *	$ 400,000.00	1	$400,000
TOTAL	$ 1,517,524.00		**$1,917,524**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 90,000.00		$90,000
TOTAL	$ 1,607,524.00		**$2,007,524**

Centennial Park + Beach:

OPTION 1: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Removal of Fencing and Wooden Structures	$ 25,000.00	1	$25,000
Bluff Restoration	$ 120,000.00	1	$120,000
Paving of Parking Lot	$ 6.00	6800	$40,800
Extend Stairs	$ 2,000.00	1	$2,000
TOTAL			**$187,800**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 90,000.00		$90,000
TOTAL	$ 302,800.00		**$277,800**
GRAND TOTAL ELDER/CENTENNIAL			**$2,285,324**

Elder Lane Park + Beach:

OPTION 2: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 600,000.0(	1	$600,000
Buried Stone Revetment 12 ton per ft.	$ 2,500.00	175	$437,500
Concrete demo/removal	$ 100.00	600	$60,000
Bluff Restoration	$ 150,000.0(	1	$150,000
Sand Placement Mason Sand	$ 45.00	9600	$432,200
Paving of Parking Lot	$ 6.00	26254	$157,524
35 ton per foot breakwater	$ 5,820.00	300	$1,746,000
15 ton per foot 1/2 breakwater	$ 3,000.00	100	$300,000
Stone Steps 35 Ton Breakwater	$ 55,000.00	1	$55,000
Steel Sheet Piling 30'	$ 3,200.00	200	$640,000
Concrete for ramp	$ 100.00	1700	$170,000
Access Roadway Stone w/Drainage	$ 250,000.0(	1	$250,000
Retaining Walls	$ 100,000.0(	1	$100,000
Relocated Stormwater Outfall 60" LF	$ 600.00	500	$300,000
Relocated Stormwater Outfall 36" LF	$ 450.00	650	$292,500
Demo (steel, pier, misc.)	$ 220,000.00	1	$220,000
TOTAL			**$5,910,724**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 175,000.00		$175,000
TOTAL			**$6,085,724**

Centennial Park + Beach:

OPTION 4: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Demo (Steel, fencing, wood piles)	$ 100,000.0(	1	$100,000
Bluff Restoration	$ 120,000.0(	1	$120,000
Sand Placement Mason Sand	$ 45.00	12000	$540,000
Paving of Parking Lot	$ 6.00	6800	$40,800
35 ton per foot breakwater	$ 5,820.00	250	$1,455,000
Steel Staircase Lump Sum	$ 25,000.00	1	$25,000
Steel Sheet Piling 30'	$ 3,200.00	228	$729,600
Concrete for ramp	$ 100.00	812	$81,200
Access Roadway Stone w/Drainage (TBD)	$ 250,000.0(	1	$250,000
Retaining Walls	$ 120,000.0(	1	$120,000
Park Improvements (walkways and drinking fountain)	$ 110,000.0(	1	$110,000
ADA walkway and connection Lump Sum	$ 300,000.0(	1	$300,000
TOTAL			**$3,871,600**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 190,000.00		$190,000
TOTAL			**$4,061,600**

Elder/Centennial Beach Central Breakwater

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
35 ton per foot breakwater	$5,280	260	**$1,513,200.00**
GRAND TOTAL			**$11,660,524.00**

Elder Lane Park + Beach:

OPTION 3:

Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$600,000.00	1	$600,000
Buried Stone Revetment 12 ton per ft.	$ 2,500.00	160	$400,000
Concrete demo/removal	$ 100.00	600	$60,000
Bluff Restoration	$150,000.00	1	$150,000
Sand Placement Mason Sand	$ 45.00	10800	$486,000
Paving of Parking Lot	$ 6.00	26254	$157,524
35 ton per foot breakwater	$ 5,820.00	300	$1,746,000
15 ton per foot 1/2 breakwater	$ 3,000.00	100	$300,000
Stone Steps 35 Ton Breakwater	$ 55,000.00	1	$55,000
Steel Sheet Piling 30'	$ 3,200.00	420	$1,344,000
Concrete for ramps (Vehicle & Walkway)	$ 100.00	2120	$212,000
Access Roadway Stone w/Drainage	$250,000.00	1	$250,000
Retaining Walls	$100,000.00	1	$100,000
Relocated Stormwater Outfall 60" LF	$ 600.00	500	$300,000
Relocated Stormwater Outfall 36" LF	$ 450.00	650	$292,500
Demo (steel, pier, misc.)	$220,000.00	1	$220,000
Elevate Ipe Boardwalk 200 lf	$525,000.00	1	$525,000
TOTAL			**$7,198,024**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)			$200,000
TOTAL			**$7,398,024**

Centennial Park + Beach:

OPTION 5: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Demo (Steel, fencing, wood piles)	$ 100,000.00	1	$100,000
Bluff Restoration	$ 120,000.00	1	$120,000
Sand Placement Mason Sand	$ 45.00	12000	$540,000
Paving of Parking Lot	$ 6.00	6800	$40,800
35 ton per foot breakwater	$ 5,820.00	350	$2,037,000
Steel Sheet Piling 30'	$ 3,200.00	128	$409,600
Concrete for ramp	$ 100.00	812	$81,200
Access Roadway Stone w/Drainage (TBD)	$ 250,000.00	1	$250,000
Retaining Walls	$ 120,000.00	1	$120,000
Park Improvements (walkways and drinking fountain)	$ 110,000.00	1	$110,000
ADA walkway and connection Lump Sum	$ 300,000.00	1	$300,000
TOTAL			**$4,108,600**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 190,000.00		$190,000
TOTAL			**$4,298,600**

Elder/Centennial Beach Central Breakwater

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
35 ton per foot breakwater	$5,280	260	**$1,513,200.00**
GRAND TOTAL			**$13,209,824.00**

Elder Lane Park + Beach:

OPTION 2: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 600,000.00	1	$600,000
Buried Stone Revetment 12 ton per ft.	$ 2,500.00	175	$437,500
Concrete demo/removal	$ 100.00	600	$60,000
Bluff Restoration	$ 150,000.00	1	$150,000
Sand Placement Mason Sand	$ 45.00	9600	$432,200
Paving of Parking Lot	$ 6.00	26254	$157,524
35 ton per foot breakwater	$ 5,820.00	300	$1,746,000
15 ton per foot 1/2 breakwater	$ 3,000.00	100	$300,000
Stone Steps 35 Ton Breakwater	$ 55,000.00	1	$55,000
Steel Sheet Piling 30'	$ 3,200.00	200	$640,000
Concrete for ramp	$ 100.00	1700	$170,000
Access Roadway Stone w/Drainage	$ 250,000.00	1	$250,000
Retaining Walls	$ 100,000.00	1	$100,000
Relocated Stormwater Outfall 60" LF	$ 600.00	500	$300,000
Relocated Stormwater Outfall 36" LF	$ 450.00	650	$292,500
Demo (steel, pier, misc.)	$ 220,000.00	1	$220,000
TOTAL			**$5,910,724**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)	$ 175,000.00		$175,000
TOTAL			**$6,085,724**

Centennial Park + Beach:

OPTION 5: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Demo (Steel, fencing, wood piles)	$ 100,000.00	1	$100,000
Bluff Restoration	$ 120,000.00	1	$120,000
Sand Placement Mason Sand	$ 45.00	12000	$540,000
Paving of Parking Lot	$ 6.00	6800	$40,800
35 ton per foot breakwater	$ 5,820.00	350	$2,037,000
Steel Sheet Piling 30'	$ 3,200.00	128	$409,600
Concrete for ramp	$ 100.00	812	$81,200
Access Roadway Stone w/Drainage (TBD)	$ 250,000.00	1	$250,000
Retaining Walls	$ 120,000.00	1	$120,000
Park Improvements (walkways and drinking fountair	$ 110,000.00	1	$110,000
ADA walkway and connection Lump Sum	$ 300,000.00	1	$300,000
TOTAL			**$4,108,600**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.	$ 190,000.00		$190,000
TOTAL			**$4,298,600**

Elder/Centennial Beach Central Breakwater

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
35 ton per foot breakwater	$5,280	260	**$1,513,200.00**
GRAND TOTAL			**$11,897,524.00**

COST COMPARISON ALL OPTIONS		
Option	Description	Cost
WPD Elder 1/Centennial 1	Repair of Existing Beaches	$2,285,324
JWR Elder 2/Centennial 5	Medium Breakwaters	$10,220,534
WPD Elder 2/Centennial 4	Long Stone & Steel Sheet Pile Breakwaters	$11,660,524
WPD Elder 2/Centennial 5	Long Stone Breakwaters	$11,897,524
WPD Elder 3/Centennial 5	Long Breakwaters w Raised Boardwalk	$13,209,824

Elder Lane Park + Beach:

OPTION 2: Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Mobilization	$ 600,000.00	1	$600,000
Buried Stone Revetment 12 ton per ft.	$ 2,500.00	175	$437,500
Concrete demo/removal	$ 100.00	600	$60,000
Bluff Restoration	$ 150,000.00	1	$150,000
Sand Placement Mason Sand	$ 45.00	9600	$432,200
Paving of Parking Lot	$ 6.00	26254	$157,524
35 ton per foot breakwater	$5,280	200	$1,056,000
15 ton per foot 1/2 breakwater	$ 3,000.00	100	$300,000
Stone Steps 35 Ton Breakwater	$ 55,000.00	1	$55,000
Steel Sheet Piling 30'	$ 3,200.00	200	$640,000
Concrete for ramp	$ 100.00	1700	$170,000
Access Roadway Stone w/Drainage	$ 250,000.00	1	$250,000
Retaining Walls	$ 100,000.00	1	$100,000
Relocated Stormwater Outfall 60" LF	$ 600.00	500	$300,000
Relocated Stormwater Outfall 36" LF	$ 450.00	650	$292,500
Demo (steel, pier, misc.)	$ 220,000.00	1	$220,000
TOTAL			**$5,220,724**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.	$ 175,000.00		$175,000
TOTAL			**$5,395,724**

Centennial Park + Beach:

OPTION 5:

Land Based

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
Demo (Steel, fencing, wood piles)	$100,000.00	1	$100,000
Bluff Restoration	$120,000.00	1	$120,000
Sand Placement Mason Sand	$45	6000	$270,000
Paving of Parking Lot	$ 6.00	6800	$40,800
35 ton per foot breakwater	$5,280	250	$1,320,000
Steel Sheet Piling 30'	$ 3,200.00	128	$409,600
Concrete for ramp	$ 100.00	812	$81,200
Access Roadway Stone w/Drainage (TBD)	$250,000.00	1	$250,000
Retaining Walls	$120,000.00	1	$120,000
Park Improvements (walkways and drinking fou	$110,000.00	1	$110,000
ADA walkway and connection Lump Sum	$300,000.00	1	$300,000
TOTAL			**$3,121,600**
SOFT COSTS			
(Engineering, plans/drawings, permit costs, etc.)			$190,000
TOTAL			**$3,311,600**

Elder/Centennial Beach Central Breakwater

ELEMENT DESCRIPTION	UNIT PRICE	QTY.	TOTAL
35 ton per foot breakwater	$5,280	260	**$1,513,200.00**
GRAND TOTAL			**$10,220,524.00**