

An aerial photograph of a city waterfront at dusk. The image shows a dense cluster of modern, multi-story buildings with illuminated windows and facades. A large, curved pier or promenade extends into the water, lined with walkways and small structures. Numerous sailboats are moored in the marina. The water is calm, reflecting the city lights. The overall atmosphere is urban and sophisticated.

# Marsh Point Ecological Preservation Design

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# Site Location: Sayreville NJ



Fig. 19 Sayreville Location In NJ



Fig. 20 Location of Site in Sayreville



Fig. 21 Location of my Site



Fig. 22 View from the East Side



Fig. 23 Map Location of Riverton



# Research Summaries for Penn's Landing Design:

## Brownfield Regeneration: Waterfront Site Developments in Liverpool and Cologne:

- The article explores the advantages and challenges of regenerating brownfield sites in Liverpool and Cologne, particularly those with historical and architectural significance. It highlights the importance of sustainability and eco-friendliness in these projects. The authors aimed to find commonalities in the outcomes of the sites and document their achievements and unique aspects. They discovered that regenerating brownfield sites is necessary for most inner-city and urban developments, and it's crucial to customize the design to fit the surrounding environment. The article concentrates on European approaches to brownfield regeneration, suggesting that appropriately using these sites could trigger significant projects and promote economic growth in inner-city areas. The authors also suggest utilizing brownfield sites located near rivers.

## Green is the New Brown: "old schools toxic" and environmental gentrification on a New York City waterfront. Sustainability in the global city: myth and practice:

- The data indicates that shutting down polluting industries leaves a gap in the social hierarchy, and green replacements can end up favoring the wealthy, causing environmental gentrification. This happens because politics and private investments often disregard the basic needs of lower-class people. Even when attempts are made to keep them in the area, revitalized sites tend to displace lower-income families. The paper also discusses waterfront sustainability and the negative perception of brownfield sites. The study's goal is to investigate the possible harm caused by waterfront designs and their sustainability, challenging common assumptions about these designs.

## Revitalizing Cities through Design of Waterfront Brownfields:

- The data emphasizes the significance of revamping waterfronts to suit the needs and desires of the community. The authors researched two brownfield projects in Ontario, Canada, and surveyed public opinion before and after the redesign. They discovered that sometimes the town government prefers a mixed-use waterfront, while the community wants an eco-friendly or transit-oriented design. The authors conclude that the type of design that works best depends on the suitability and sustainability of the site. The study looked into environmentally friendly and brownfield rejuvenation techniques, within the framework of New Urbanism, to assess if they can address community problems.

# GOALS AND OBJECTIVES

## Goals:

1. Establish a green space for Riverton and Sayreville residents to enjoy
2. Develop strategies to conserve the wetlands and their ecosystems
3. Create opportunities to educate people about the history of the site and its ecology

## Objectives:

1. Identify green amenities that Riverton is not currently planning to include
2. Determine the distance to other parks in the area
3. Investigate strategies for protecting the wetland shoreline
4. Research methods for maintaining ecological health
5. Explore design approaches that incorporate the site's history
6. Establish educational areas throughout the site.



Fig. 1 Raritan Riverbank



Fig. 2 Wetland Restoration

# Penn's Landing Information

- The Penn's Landing Cap spans across 11.5 acres of land.
- The park attracts a diverse mix of visitors including locals, workers on lunch breaks, tourists, and others, making it a versatile and multi-use destination.
- The park features various recreational activities such as a skating rink, water features, and a stage for events, as well as commercial elements like a cafe.
- Penn's Landing offers both active and passive activities for visitors to enjoy



Fig. 4 Penn's Landing Park



Fig. 3 Penn's Landing Waterfront



Fig. 5 Penn's Landing Full View

# Penn's Landing Information

Looking at Penn's Landing's proximity to I-95 while my site is in proximity to the Garden State Parkway



Fig. 6 Penn's Landing Park Buildings



Fig. 7 Penn's Landing Park Hotels



Fig. 8 Penn's Landing Park Base Plan



# Research Summaries for Wynyard Quarter:

## Small City Waterfront Restoration:

- The data indicates that for smaller towns to create waterfront designs, it's crucial to focus on a simpler plan and one key programmatic element. The design should align with the town's identity and primary industry. The authors aimed to investigate how this new trend of waterfront designs could be relevant to smaller, low-income towns. They discovered that it's possible but not as intricate as designs in larger cities. The design's feasibility hinges on finding investors willing to invest in a project that won't yield significant returns, unlike in larger metropolitan areas. The article explains that affordability issues often exclude smaller towns from the booming market of waterfront developments, suggesting budget-friendly designs to create a profitable waterfront.

## Remediating a Working Waterfront, Gloucester MA

- The article explains how a contaminated brownfield site along the waterfront was remediation with a \$30 million investment, including the use of engineered barriers, seawalls, and groundwater treatment chimneys to address rising sea levels. The author stresses that waterfront remediation is an expensive and intricate process that requires substantial engineering and design work, but often receives little attention from the government. However, the article concludes that despite the difficulties, waterfront remediation can be successful with the right investment and design efforts, resulting in a beautiful and healthy waterfront.



# Wynyard Quarter Information

- The design encompasses 21.8 hectares and was created by Warren and Mahoney, an architectural firm based in New Zealand and Australia.
- The primary users of this design are Auckland residents and downtown workers.
- This mixed-use site includes both commercial and residential buildings, but lacks an emphasis on green environmental amenities compared to the other two designs.
- The design style is modern with sharp edges, rather than fluid curves.
- Located on a reclaimed peninsula in New Zealand, Wynyard Quarter prioritizes the waterfront and incorporates an open space network that provides a highly connected and generous public realm.



Fig. 9 Wynyard Quarter Base Plan

# Wynyard Quarter Information

My project is focused on how the design of Wynyard Quarter was able to utilize a limited amount of space, situated between the waterfront and an already developed area.

The images on the bottom left and right illustrate the practical considerations of working along Auckland's Downtown waterfront, including major roadworks and potential green alleys that could enhance the city's green spaces.

The top image depicts a rendered view of the Wynyard Quarter, illustrating its proximity to both the water and the urban center.



Fig. 11 Wynyard Quarter Waterfront



Fig. 10 Wynyard Quarter Major Roads



Fig. 12 Wynyard Quarter Axes

# Research Summaries for Parkers Landing Design:

## Green Gentrification in Europe and North American Cities:

- The data explores how urban greening can lead to gentrification in under-served neighborhoods. The authors aimed to investigate if parks are causing residents to move out, and discovered a stronger link to gentrification as more money is invested in greening the area. The research aims to raise awareness of the issue and connect the findings to global trends. The authors conclude that urban greening can contribute to social and racial inequalities in access to green-space, environmental, and climate injustice. They also categorize the role of adding green as “lead,” “integrated,” or “subsidiary.”

## On the Revitalized Waterfront: Creative Milieu for Creative Tourism:

- The article suggests creating a sustainable waterfront with a focus on culture and tourism. Instead of prioritizing commercial gain, the authors recommend using the town’s history and uniqueness to draw people in. They found that designing an attractive site that also showcases the town’s culture is the best approach. However, this may not work for all towns, and investors may not see a worthwhile return on investment. The article discusses how waterfronts have evolved in their relationship with urbanism over time and emphasizes the cultural aspect of waterfront designs as a tourist attraction.

# Parkers Landing Information

- This site is situated in Washougal, Washington, on a marshland.
- The design occupies an area of 35 acres.
- The site users will primarily be the residents of the development, visitors to the waterfront, and those who utilize the trail systems in Washington.
- The site incorporates programmatic elements that reflect its history and environment.
- The soil on the site was not contaminated to a degree that necessitated remediation as it was formerly a lumber mill



Fig. 14 Parkers Landing Base Plan



Fig. 13 Parkers Landing Pathway



Fig. 15 Parkers Landing Waterfront



# Parkers Landing Information

The soil and environmental emphasis of Parkers Landing relate to my project site. I aim to incorporate the way architects linked the park to the wider grid, and find programmatic elements that promote environmental sustainability at Riverton.



Fig. 16 Parkers Landing Playground

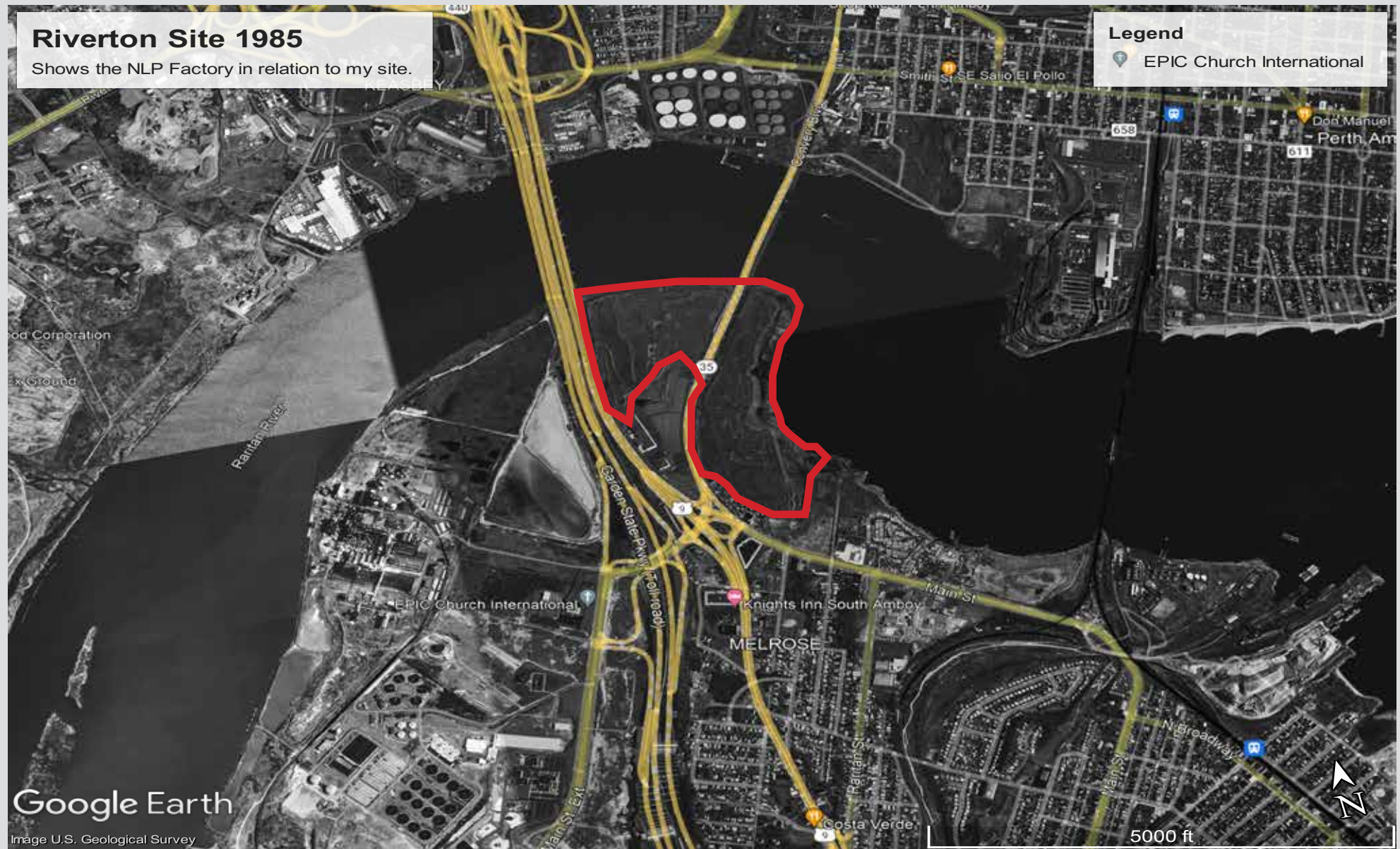


Fig. 17 Parkers Landing Views



Fig. 18 Parkers Landing Playground 2

# Brownfield Remediation and History of the Site



# Brownfield Remediation and History of the Site

This image depicts the size of the factory, which was a large sprawling facility that contaminated the waterways and soil with lead. Although the factory was located on the west side, the company owned the entire peninsula.





# Areas Affected by the Contamination

This map highlights the impact of the former factory on the entire peninsula, emphasizing the need for careful consideration of remediation plans within my design

## Contaminated Sites

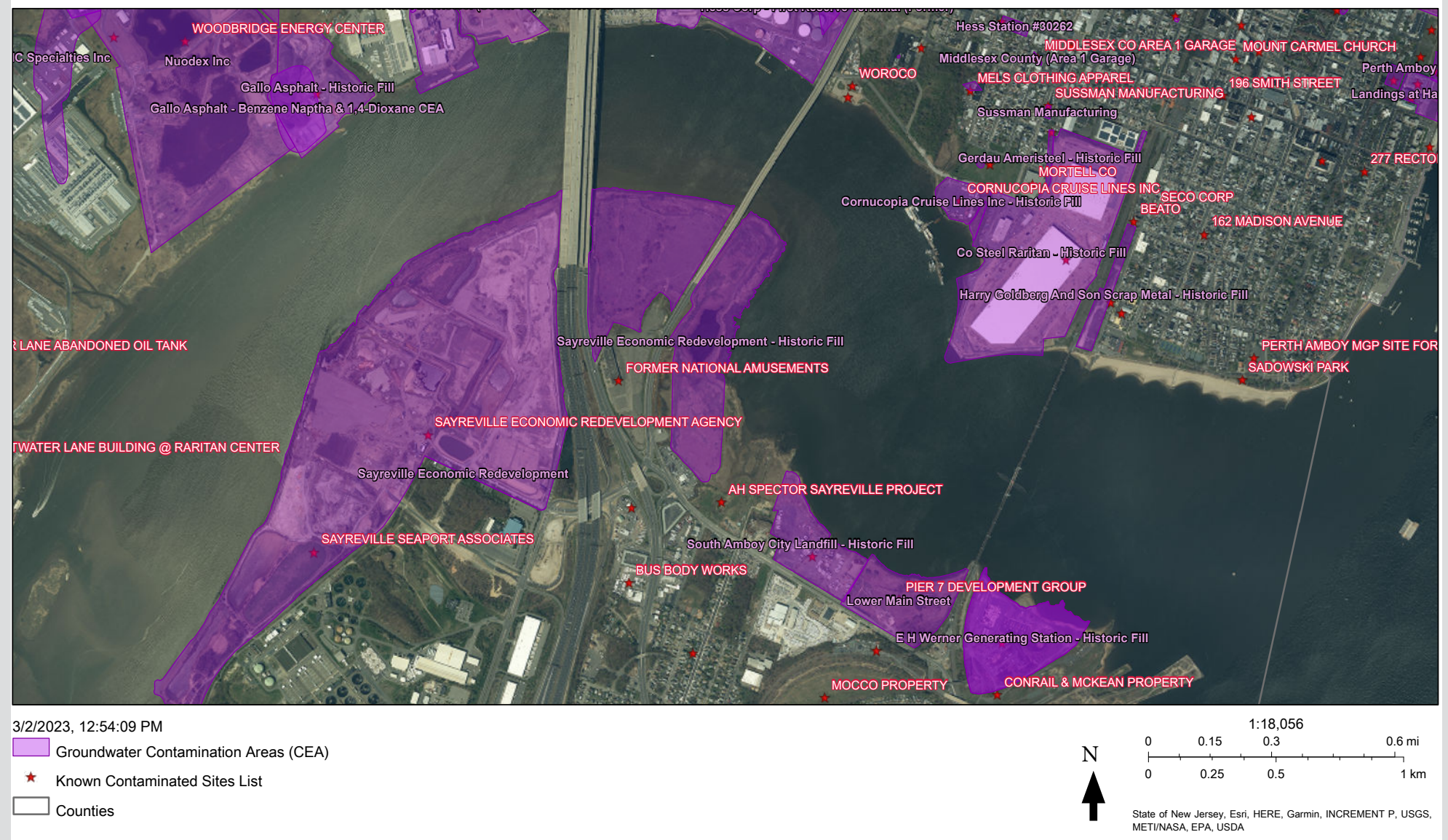


Fig. 25 EPA map of contaminated areas



# What is Riverton & What is the Site



Scale: 1" = 150'

Fig. 26 Distinction between Riverton and my site

# East side of the Parkway

These images depict the current state of the site, which is heavily saturated and overrun with invasive species like Phragmites.



Fig. 27 Aerial of Marsh Point





# East side of the Parkway

## Topography

This map displays the site's contour lines with a 2-foot interval. The majority of the area is no more than 6-7 feet above sea level, with the exception of the eastern section across the Garden State Parkway, which reaches a height of 23 feet.

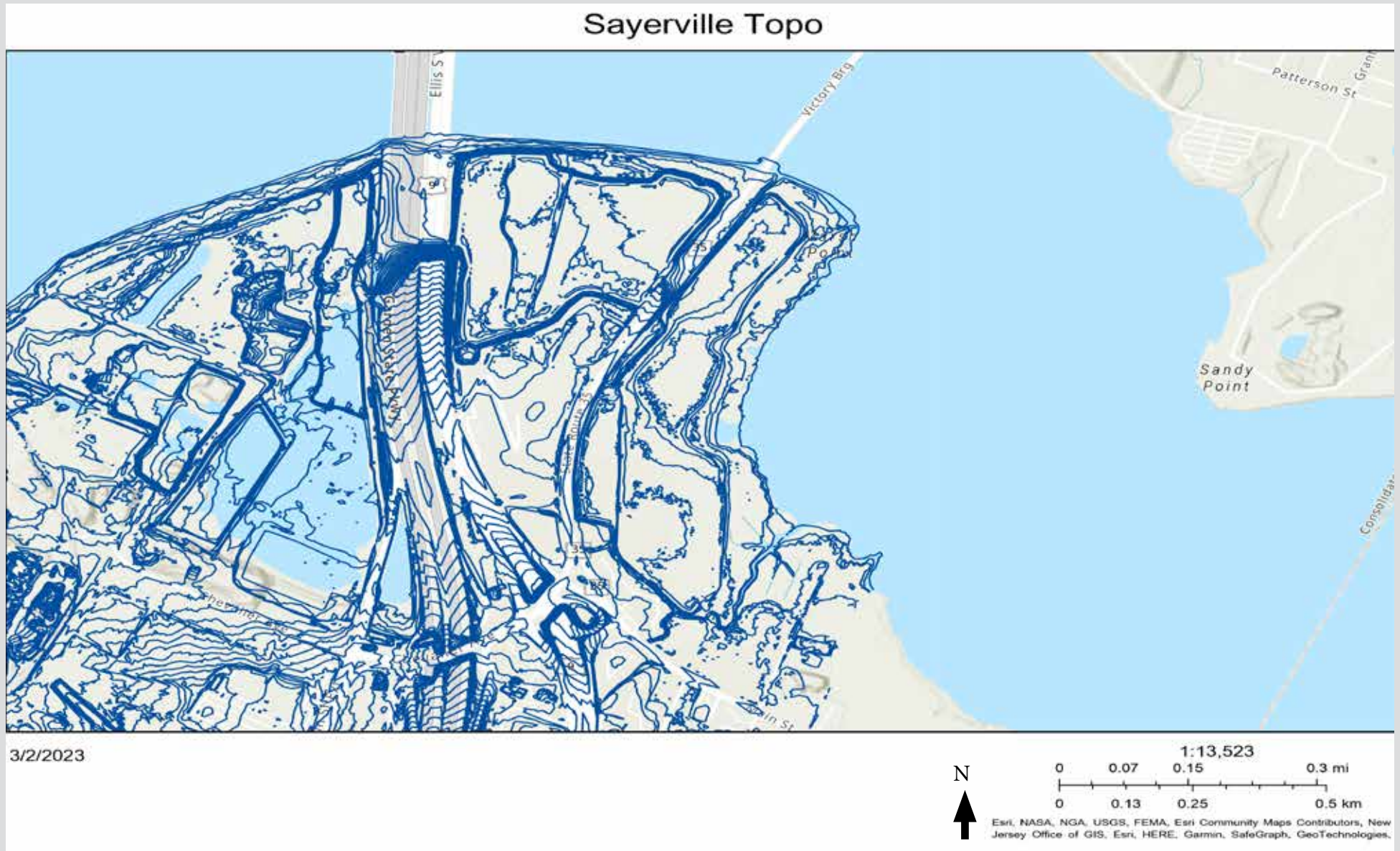


Fig. 28 Topography of Marsh Point

# East side of the Parkway Flood Risk

This map emphasizes the low elevation of the site. The eastern side of the site is located in a high flood zone, which will significantly impact the design, while the western high point has minimal flood risk.

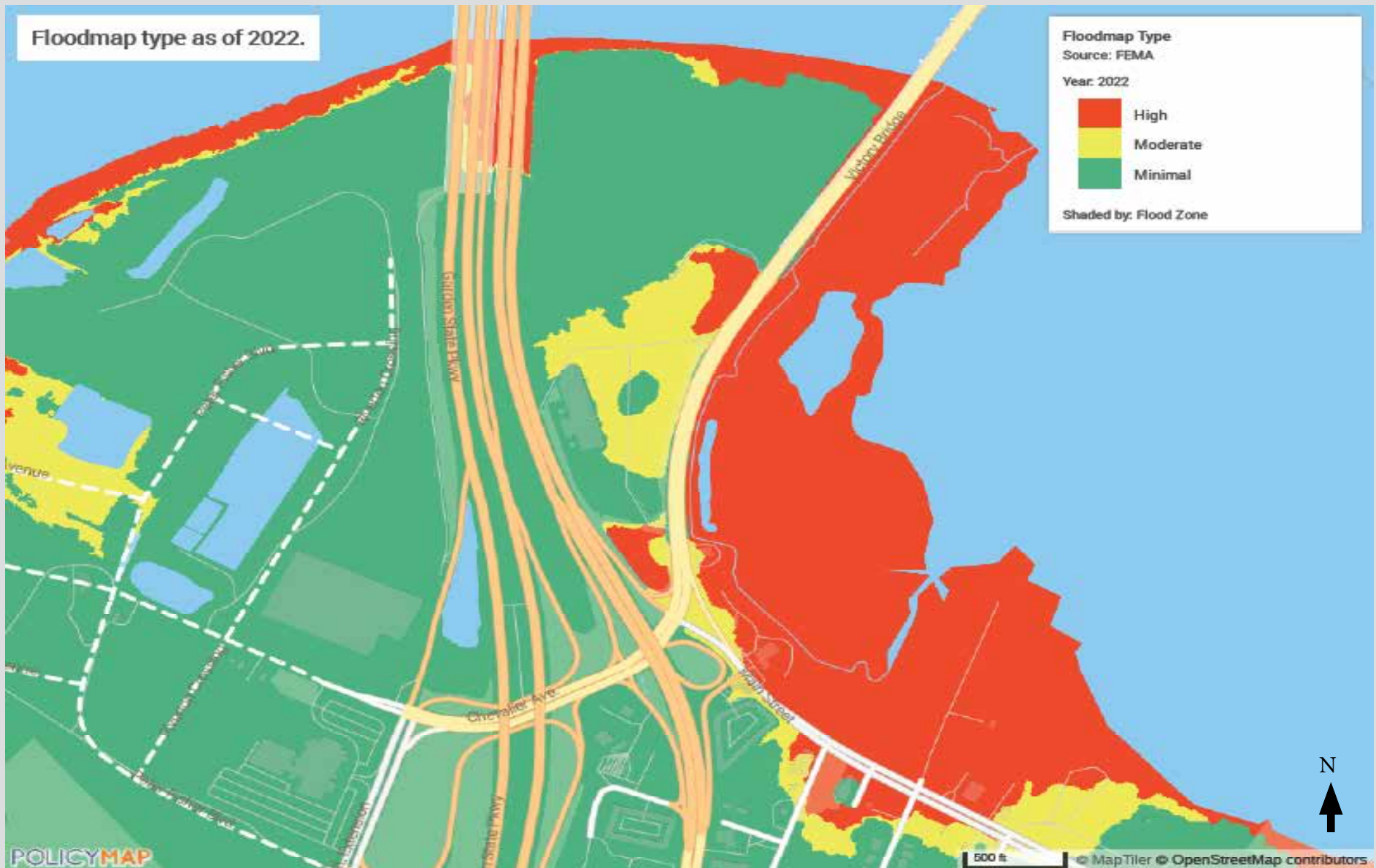
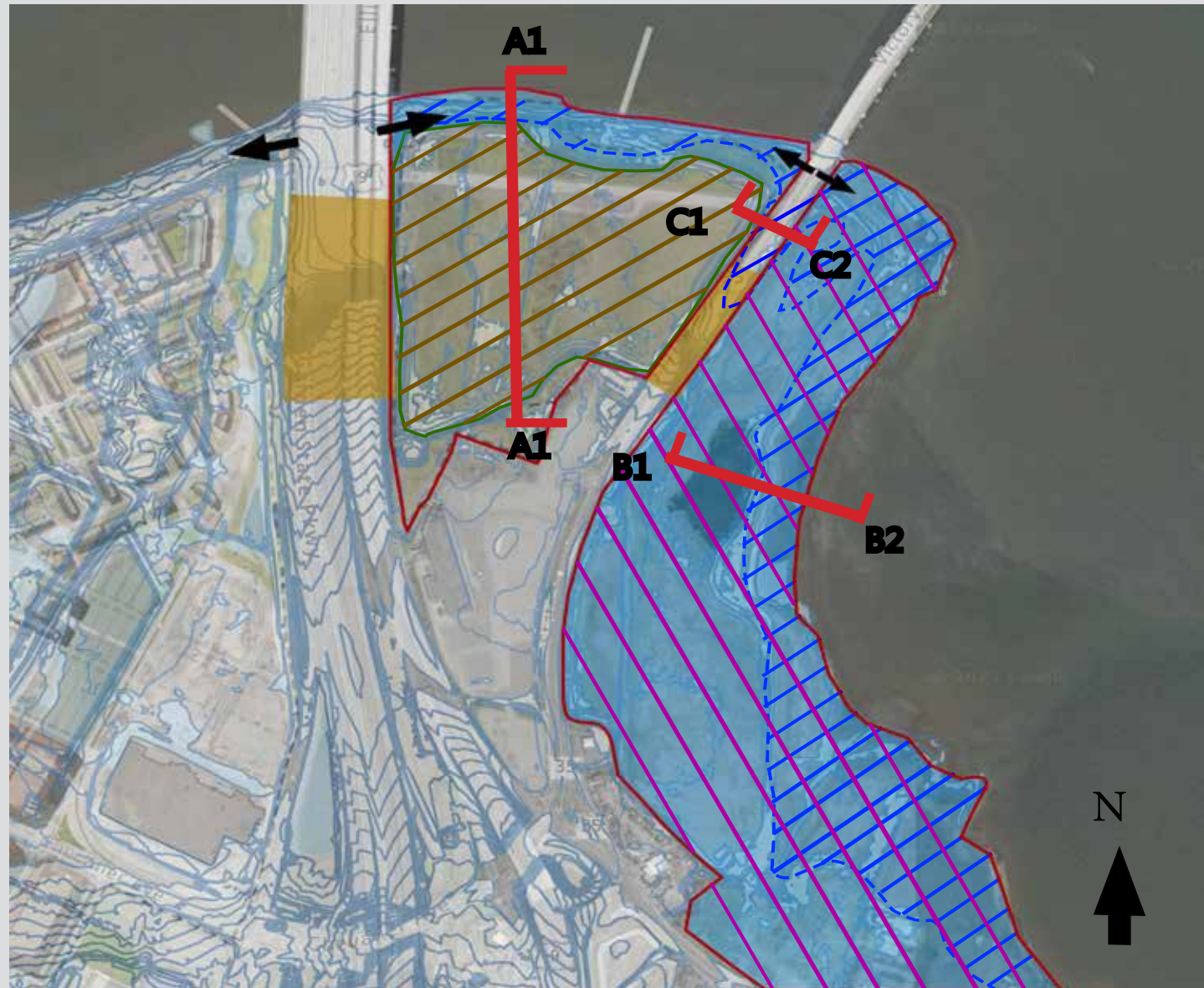


Fig. 29 Flood Map of Marsh Point



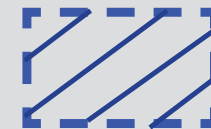
# Map of Opportunities and Constraints



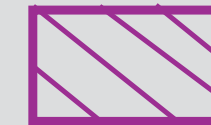
## KEY



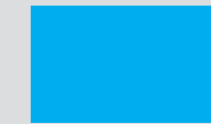
Site Location



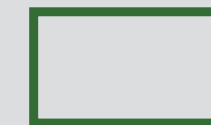
High Tide



Existing Wetlands



Flood Zone



Higher Elevation



Woodland Vegetation



Barriers:  
Not Traversable  
through



Connectors

Fig. 30 Opportunities and Constraints Map

Scale: 1" = 150'

# The Marsh Point Ecological Preservation: Sections



**A1**

Scale: 1" = 150' **A2**



**B1**

Scale: 1" = 70' **B2**

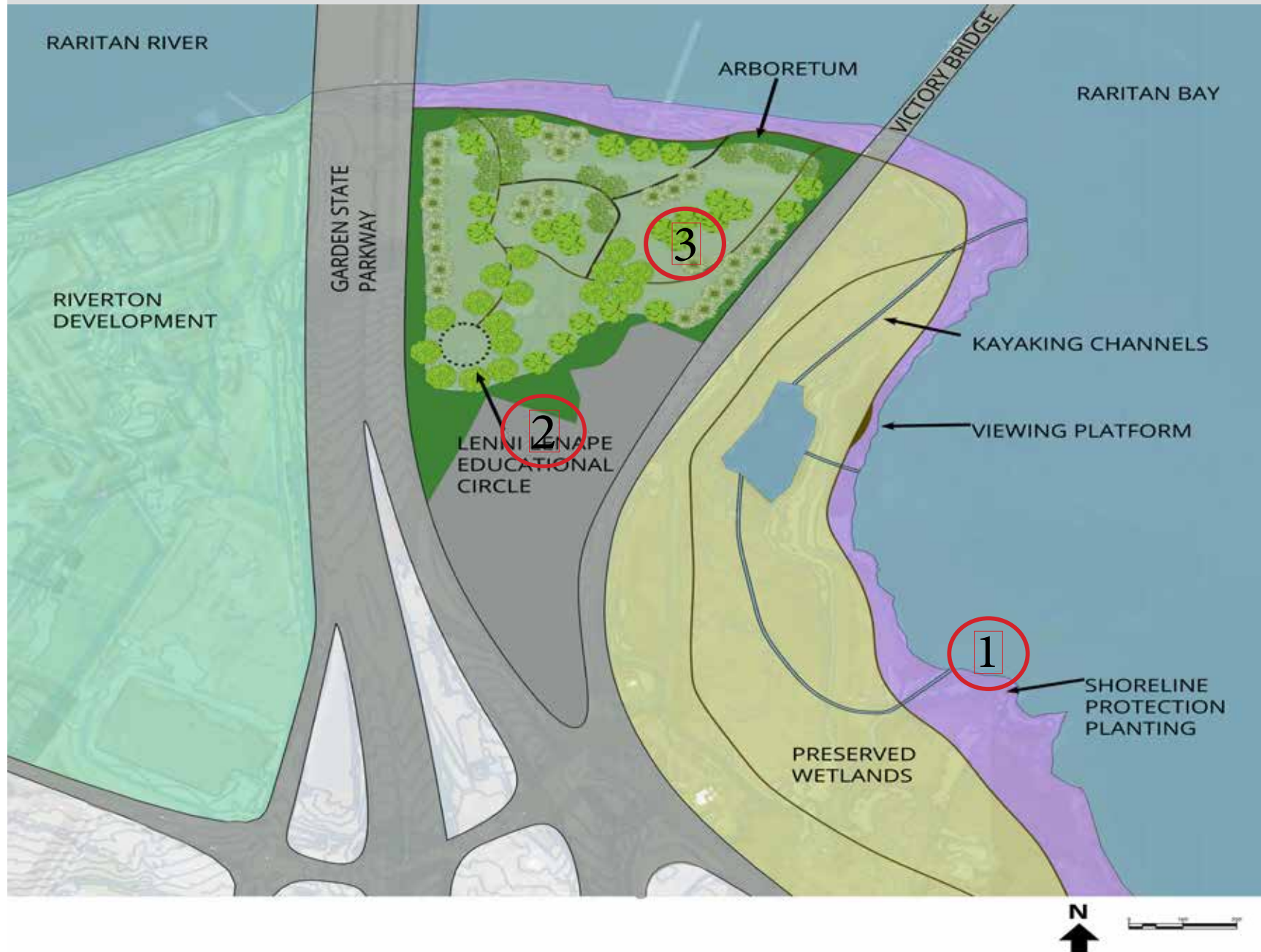


**C1**

Scale: 1" = 30' **C2**



# The Marsh Point Ecological Preservation Conceptual Plan



The initial design for the site.

# The Marsh Point Ecological Preservation: Reference Images

1

Shoreline  
Protection  
Planting



Planting Circle

2

Educational  
Circle



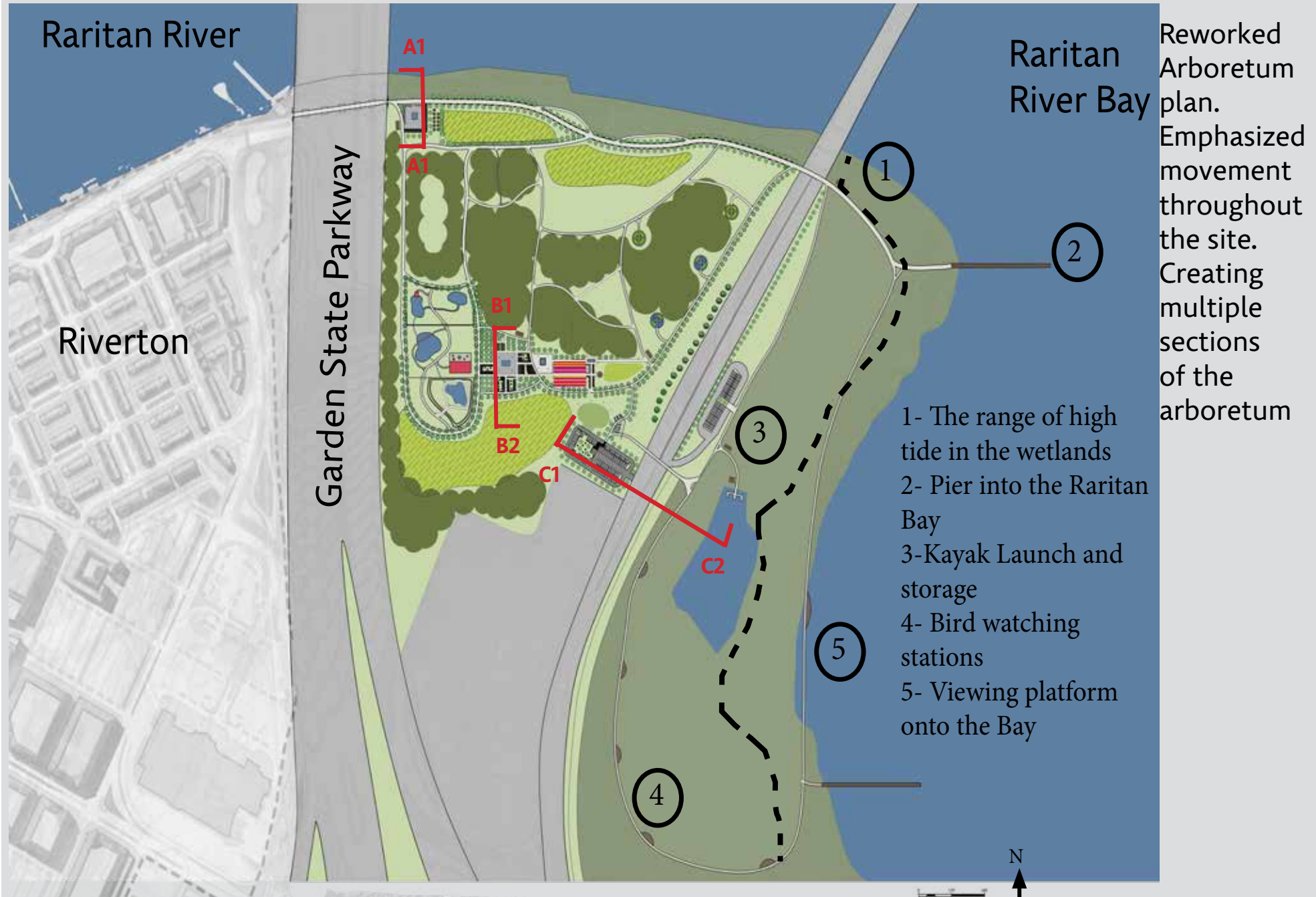
3

Arboretum

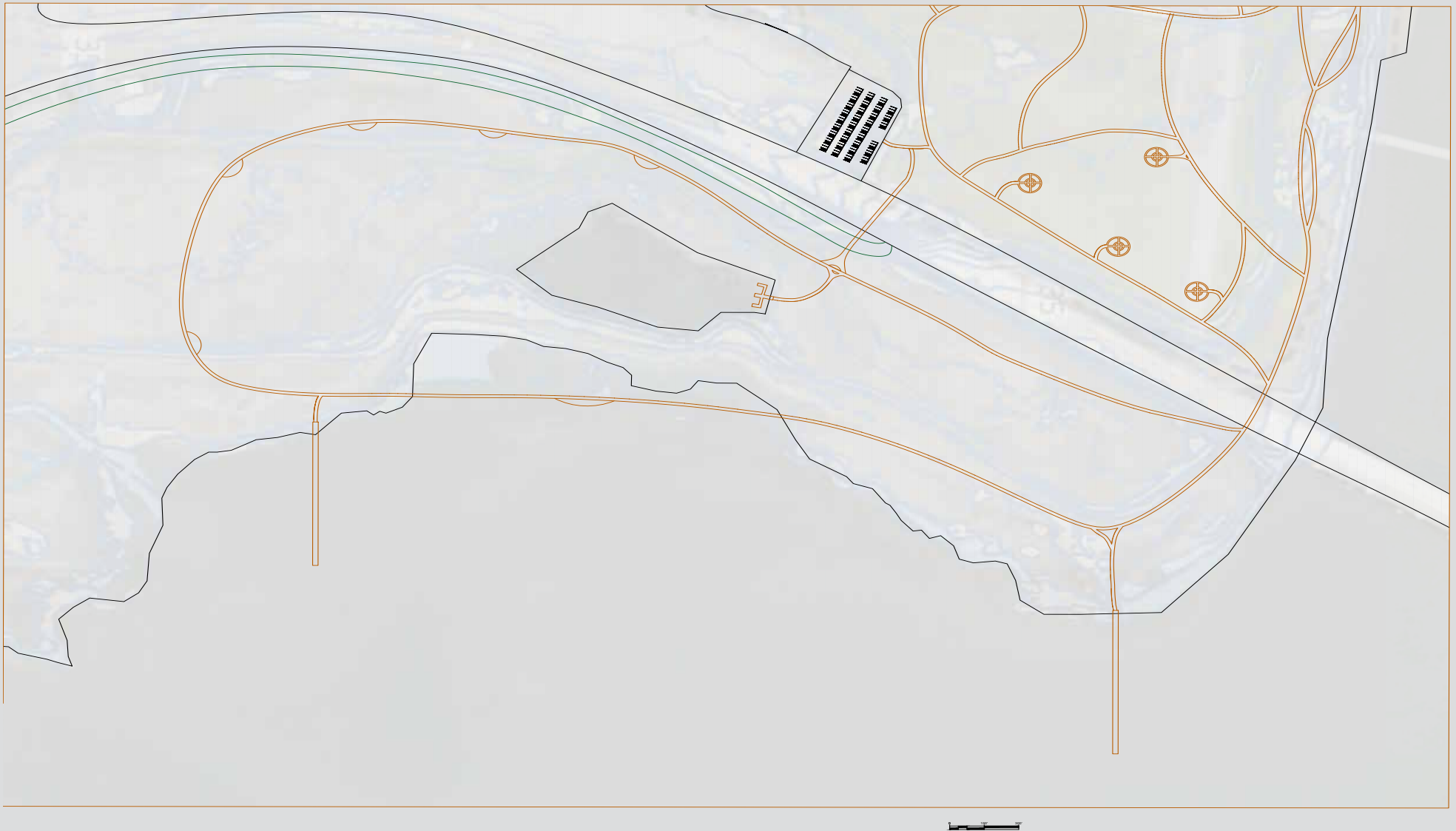




# The Marsh Point Ecological Preservation Arboretum Revised Plan



# The Marsh Point Ecological Preservation: Reference Images

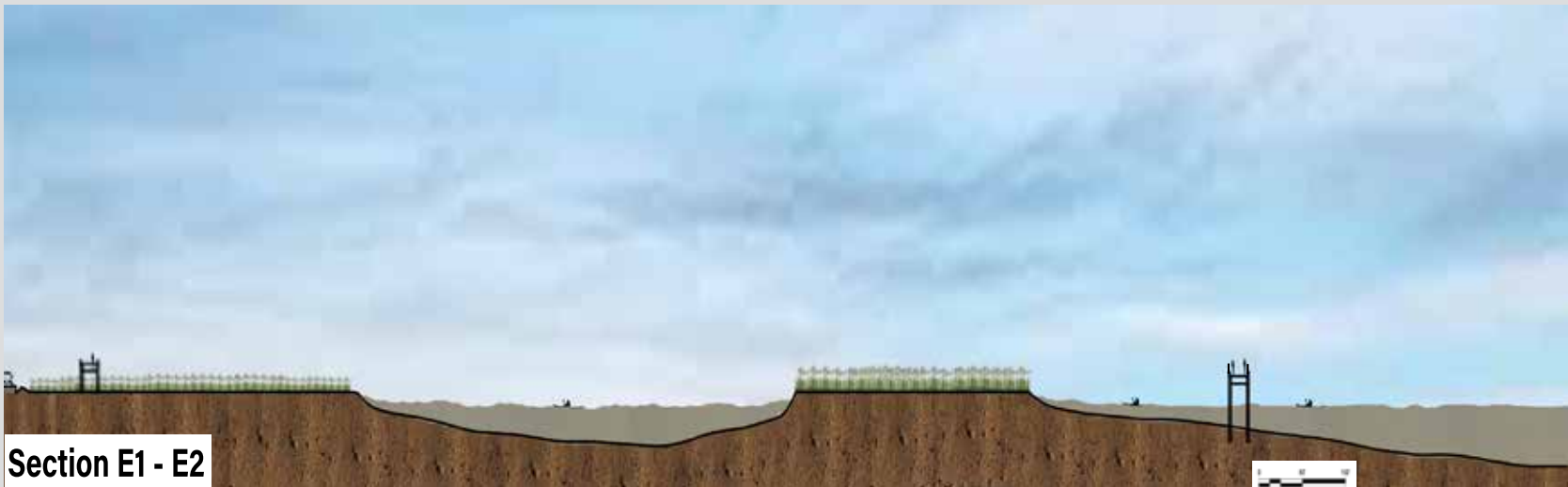


Reworked Wetland plan. Created a larger loop with bird watching stations as well as piers and a kayak launch.

# The Marsh Point Ecological Preservation: Reference Images



Section over the plaza

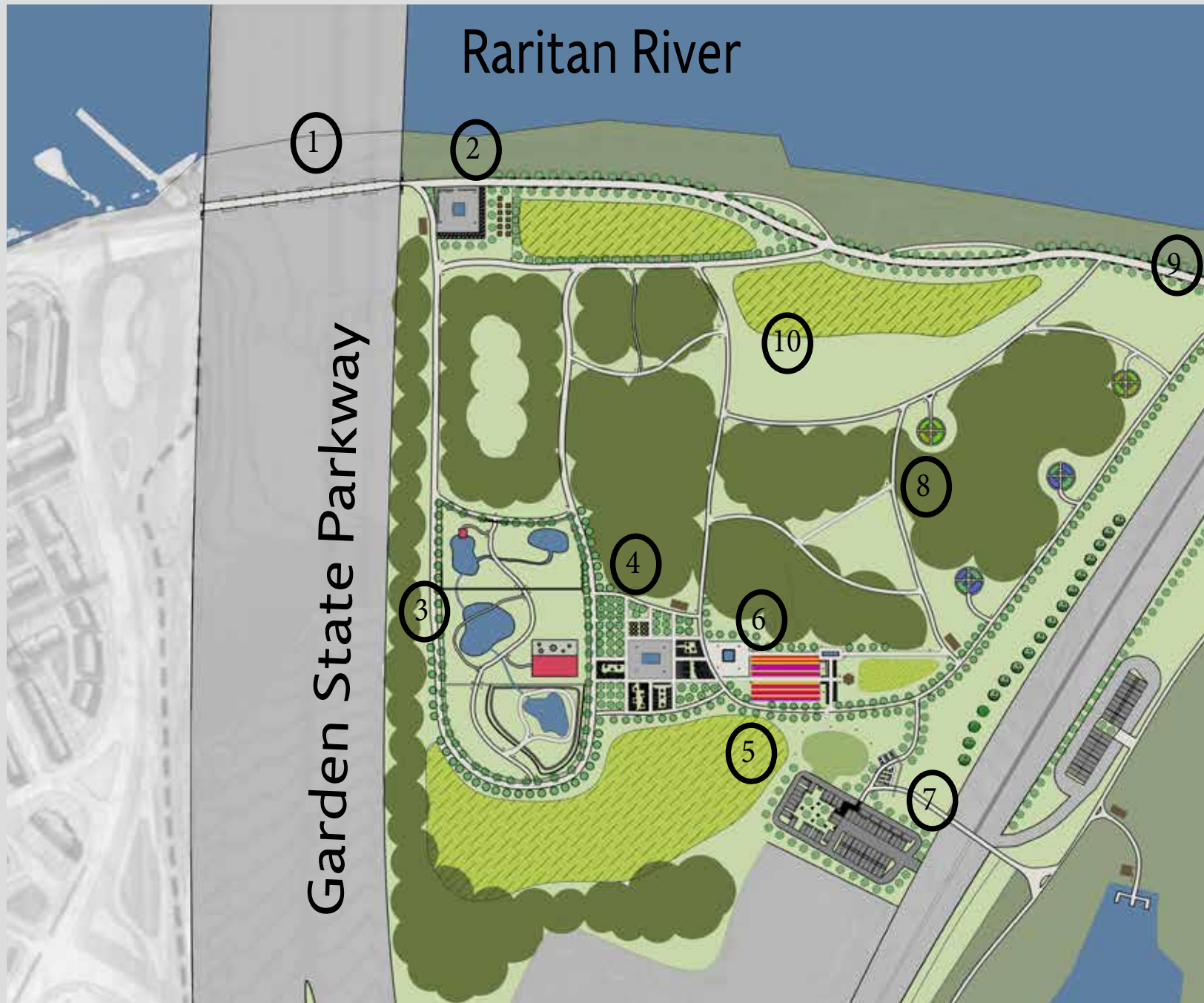


Section E1 - E2

Sections to show the landscape topo and built aspects.



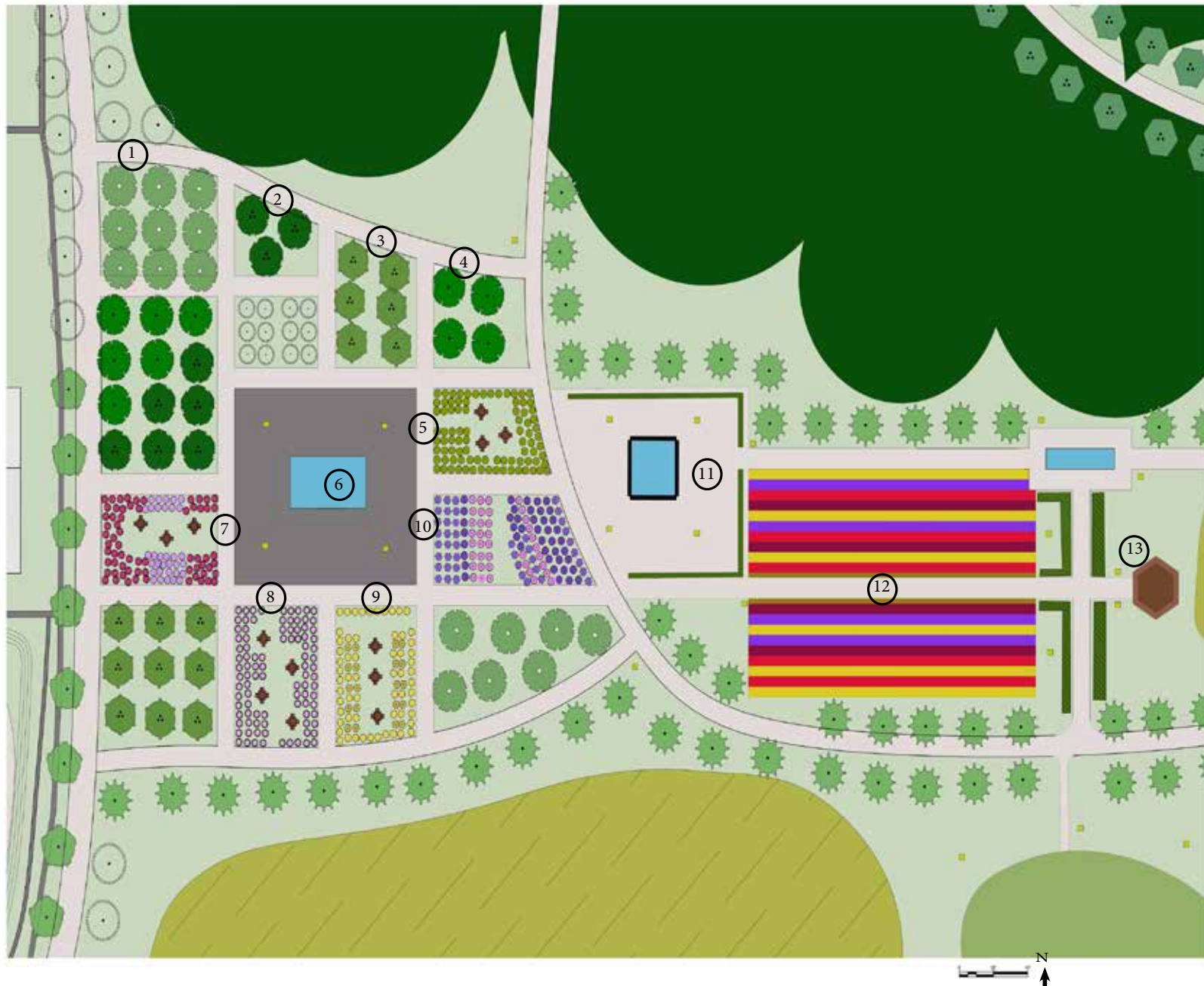
# The Marsh Point Ecological Preservation: Arboretum Plan



- 1 - Garden State Parkway Underpass
- 2 - Community Plaza with Vegetable Boxes
- 3 - Chinese, Japanese, and Korean Gardens
- 4 - Mughal Garden
- 5 - Reinforced Overflow Parking
- 6 - Dutch Garden
- 7 - I-35 Pedestrian Overpass
- 8 - Ramapo Mountain Tribe Planting Circles
- 9 - I-35 Underpass
- 10 - Meadow Planting



# The Marsh Point Ecological Preservation: Mughal / Dutch Garden Plan



- 1- Apple Trees
- 2- Peach Trees
- 3- Plum Trees
- 4- Cherry Trees
- 5- Sun flower Section
- 6- Gathering Area
- 7- Amaranth/Matthiola Section
- 8- Hellyhook Rosea Section
- 9- Winter Jasmine
- 10- Larkspur/Carnation Section
- 11- Event Area
- 12- Tulip Rows
- 13- Windmill Tower

Zoomed in plan of the gardens. Showing the plant material and layout

# The Marsh Point Ecological Preservation: Ramapo Mountain Tribe Planting Circles



- 1- Planting Circle
- 2- Canopy of surrounding woods
- 3- Planting Circle (Alternative Plants)

Zoomed in plan of the planting circles. Two different types one focusing on food and the other medicinal.

# The Marsh Point Ecological Preservation: Community Plaza Plan

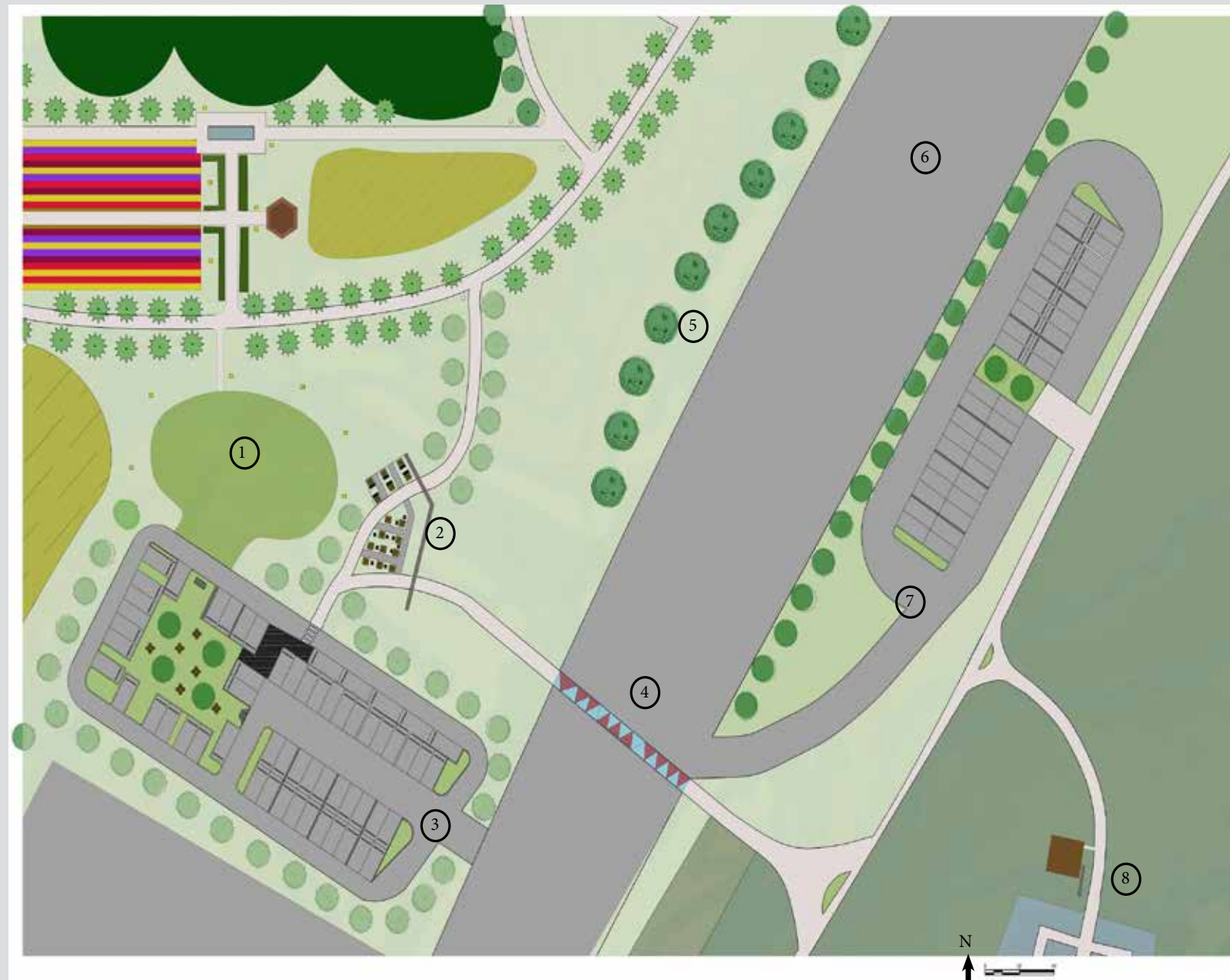


- 1- Underpass Planters
- 2- Planters
- 3- Community Plaza
- 4- Vegetable Boxes
- 5- Shade Structure

Zoomed in plan of the plaza. Showing the shade structure and the community vegetable boxes.



# The Marsh Point Ecological Preservation: Southern Entrance Plan



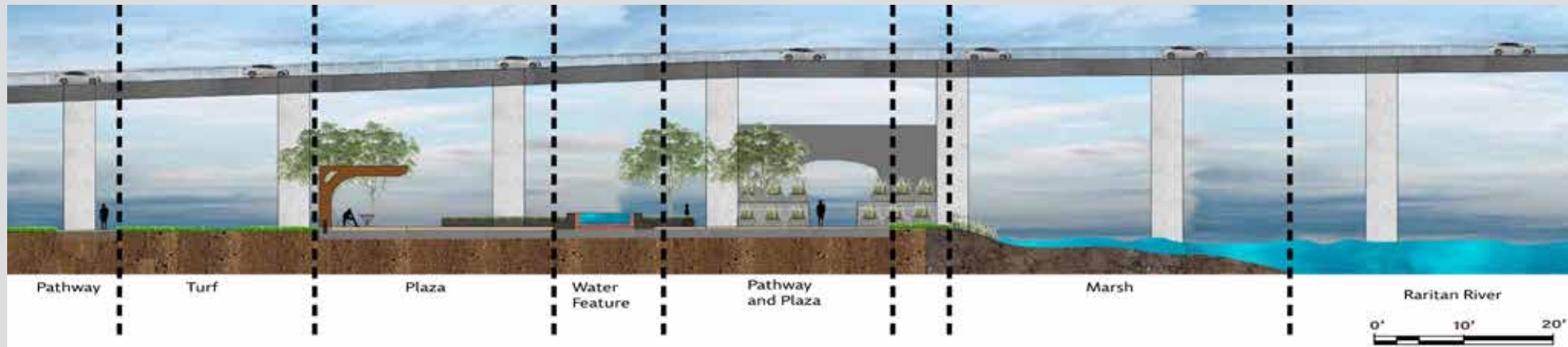
- 1- Overflow Parking
- 2- Souther Welcome Area
- 3- Souther Parking Lot
- 4- Pedestrian Overpass
- 5- Sounds Buffer Planting
- 6- I-35
- 7- Wetlands Parking
- 8- Kayak Launch/Storage

Showing the parking lots and the pedestrian overpass. In addition to the southern entrance to the arboretum.

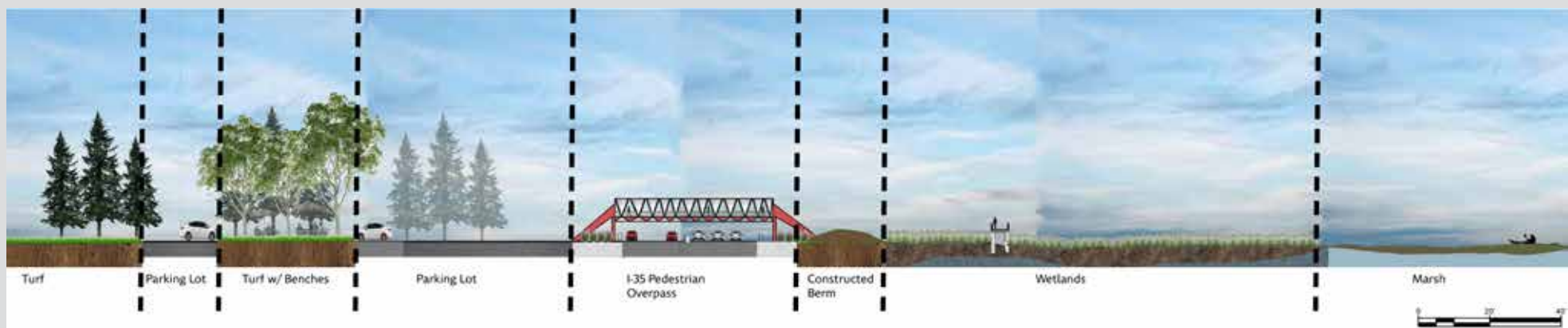
# The Marsh Point Ecological Preservation: Sections



Section over Mughal Garden



Section over the plaza



Section over I-35, Southern Entrance



# Individual Gardens Reference Images: Mughal and Dutch Gardens





# Individual Gardens Reference Images: Mughal and Dutch Gardens



Fig. 31 Tulip Field Reference

The fields of tulips are to be walked through and also bring color to the Garden



Fig. 32 Windmill with field

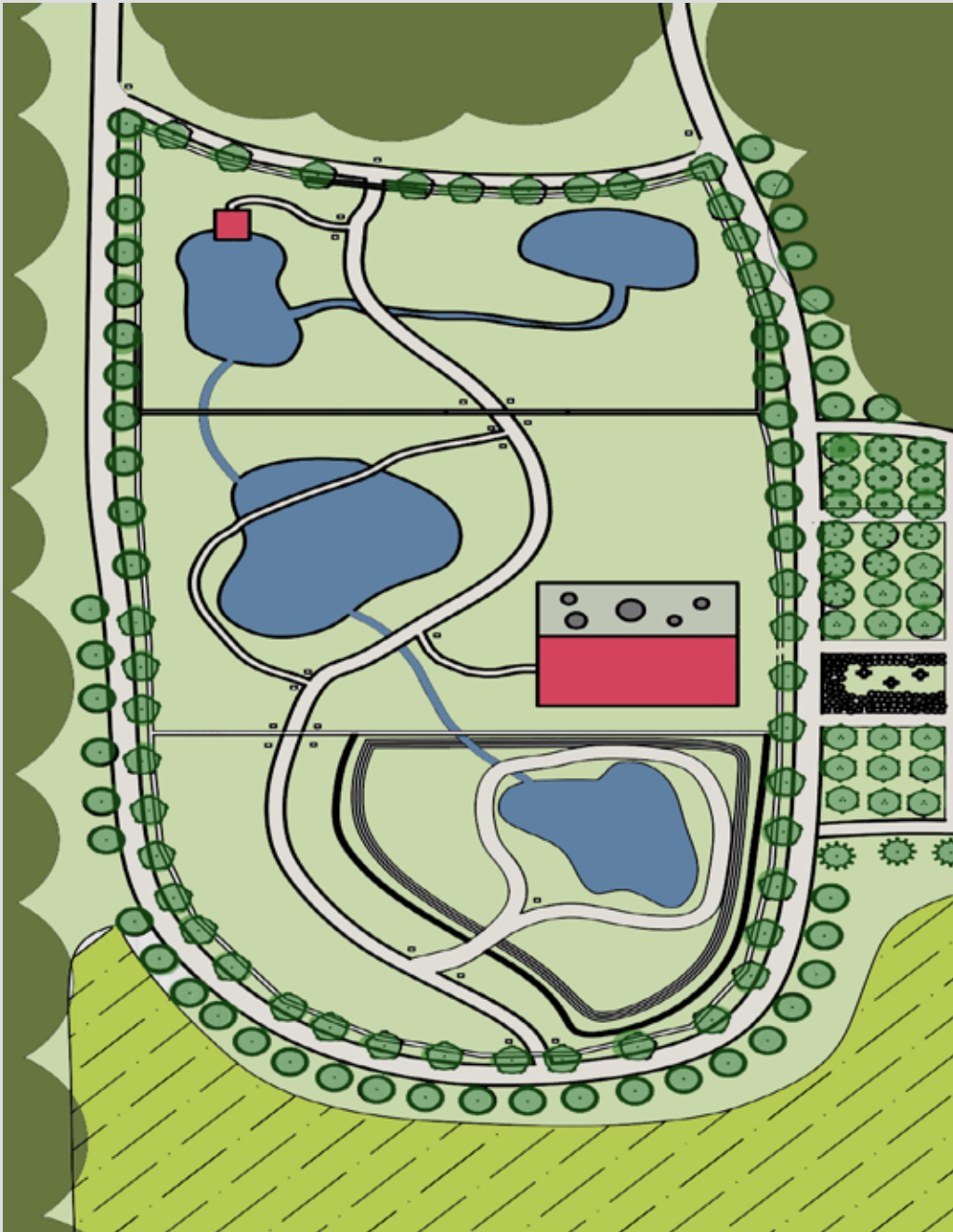
The Windmill is a viewing platform that people can walk up and view the rows of tulips into the Mughal Garden



Fig. 33 Mughal Design inspiration

This image is to show the layout inspiration of the Mughal Garden.

# Individual Gardens Reference Images: Japanese, Chinese, Korean Garden



This plan shows the different gardens of the communities that are in the area. Such as a Chinese Garden (Top) Japanese Garden (Middle) and a Korean Garden (Bottom). Being able to traverse through each and noticing the subtle differences.



# Individual Gardens Reference Images: Japanese, Chinese, Korean Garden

This image is to show what the structure at the edge of the pond would be like in the Chinese Garden



Fig. 34 Structure on the water

This is the meditation stone area in the Japanese Garden



Fig. 35 Meditation area in Japanese Garden

This shows the vegetation in a Korean Garden, there are no structures.



Fig. 36 Natural form in the Korean Garden



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- Checker, M. (2015). Green is the new brown: "old school toxics" and environmental gentrification on a New York City waterfront. *Sustainability in the global city: myth and practice*, 157-179.

## Fig 1 & 2 Raritan Riverbank and Wetlands

Wikimedia Foundation. (2023, February 18). Raritan River. *Wikipedia*. Retrieved April 7, 2023, from [https://en.wikipedia.org/wiki/Raritan\\_River](https://en.wikipedia.org/wiki/Raritan_River)

## Fig 3 - 8 Penns Landing

<https://www.wrtddesign.com/work/penns-landing-conceptual-design>

## Fig 13 - 18 Parkers Landing

<https://parkerslandingwaterfront.com/>

## Fig 31-32

U-Pick Tulips. Holland Ridge Farms. (2023, May 13). <https://www.hollandridgefarms.com/u-pick-tulips/>

## Fig 33

Lutyens' Mughal Gardens. a landscape lover's blog. (2013, June 12). <https://landscapelover.wordpress.com/2012/03/01/lutyens-mughal-gardens/>

## Fig 34 - 36

Sand and Stone Garden. Portland Japanese Garden. (2019, October 20). <https://japanesegarden.org/garden-spaces/sand-stone-garden/>