Project Summary Report

Formulating a Site Plan to Support the Ecology and Management Needs of Bluff Point, in Groton CT

Prepared for:

University of Connecticut &

Connecticut National Estuarine Research Reserve (CTNERR)

Prepared by:

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Introduction

The Connecticut National Estuarine Research Reserve (CTNERR), acting through its lead agency the University of Connecticut (UConn) and in coordination with the Connecticut Department of Energy and Environmental Protection (CTDEEP) was awarded grant funding through the Long Island Sound Futures Fund (LISFF) to develop an evaluation of the State of Connecticut owned properties at Bluff Point in Groton, Connecticut.

Bluff Point is the largest undeveloped wooded coastal peninsula between New York and Cape Cod, located in Groton, Connecticut. The park is made up of over 800 acres and is bounded by the Poquonnock River on the west, Mumford Cove on the east, and Fishers Island Sound to the south.

The Property contains three state-owned resources: Bluff Point State Park, Bluff Point Coastal Reserve, and Bluff Point Natural Area Preserve. These three resources are often colloquially referred to collectively as “Bluff Point State Park,” but for the purpose of this project, are referred to as the “Bluff Point Property,” or “the Property.”

As part of the CTNERR, the Bluff Point Property provides an important ecological resource for the State of Connecticut as well as Long Island Sound. The property includes a variety of coastal habitats, including coastal forest, beach and dune, grassland, coastal plain pond, coastal bluff, tidal wetlands, intertidal mudflats, eelgrass beds, and back-beach sandflat. More than 200 bird species are found on Bluff Point, including various herons, hawks, cormorants, and federally threatened piping plover. The park boasts annual visitation of almost 500,000 parkgoers who value the biodiversity, natural beauty, and recreational opportunities afforded by the park.

SLR Consulting partnered with CTNERR to conduct a series of public engagement events to collect feedback from parkgoers and stakeholders on how the Bluff Point property is used, identify areas of concern within the Property, and to discuss potential mitigation strategies. These strategies were coordinated closely with members of both CTDEEP Parks staff as well as CTDEEP Wildlife division, who both have individual management goals for the Property.

Study Goals

The CTNERR is primarily interested in ecological habitat protection and conducting outreach and environmental stewardship. Pursuant to the research, stewardship, training, and outreach goals of the CTNERR, the goals of this ecological restoration study were to engage with the public and other interested parties to evaluate the highest-priority resources within the park that may be in need of restoration or protection from climate-change related threats, and to develop conceptual mitigation projects to address those issues. As such, the goals of the study were as follows:

Restoration Priorities:

1. Identify existing conditions at the Property relative to coastal erosion and wetland habitat stability and understand the public use and priorities for the Property.
2. Discuss some noted issues with the property and develop mitigation strategies that align with CTDEEP management goals as well as capitalizing on CTNERR ecological restoration goals including:
    a. The main vehicular entrance to the Property in the northwestern corner of the property is through an underpass beneath the Amtrak railroad tracks and is subject to daily flooding which prevents access to the park and causes safety concerns for park users who may become stranded inside the Property.
    b. Several culverts that support access and hiking trails within the park and provide hydraulic connections between tidal wetlands and the Poquonnock River tidal estuary are identified as undersized and in need of replacement, causing degradation of the associated tidal marsh habitat.
    c. The "lower" of two existing parking lots is subject to daily tidal inundation, limiting parking and degrading water quality in the Poquonnock River tidal estuary.
    d. General strategies for invasive vegetation management as applicable to the site based on regional concerns and a generalized site observation (no detailed invasive species surveys are envisioned).
    e. Potential for other demonstration projects to promote good environmental stewardship and education.
3. Discuss the potential projects with CTDEEP, the public and other stakeholders for input on restoration projects as well as to improve understanding of public use and access priorities.
4. Develop three of the highest priority RA projects into formal conceptual design sketches for use in grant funding applications and further community outreach.

Figure 1, below, illustrates the issues discussed

Conceptual Mitigation Alternatives

SLR and CTNERR met with CTDEEP staff several times and field-walked the property on two occasions to assess and discuss the issues listed above and develop potential alternatives to each. Several alternatives were developed, as depicted in Figure 1 and summarized in Table 1, below.

Existing Main Entrance Impacted by Tidal Flooding

Potential At-Grade Railroad Crossing and New Park Entrance

Potential At-Grade Railroad Crossing and New Park Entrance

FEMA Effective AE Zone (1% Annual Chance of Exceedance, or 100-year Floodplain)

Relocate Parking Out of Flood-Prone Area

Remove Existing Parking in Flood-Prone Area and Restore to Tidal Wetland

Existing Trails

Abandon Existing Flood-Prone Access Drive and Convert to Pedestrian Only Trail (Construct Boardwalks and Remove Degraded Culverts)

Relocate Main Park Access Road

Flint Ct
Sutton Park
Midway Oval Park
Fort Hill Brook
Ivy Ct
Gary Ct
ows Field
CSX Transportation Railroad
Amtrak
Depot Rd
State Park
CSX Transportati
Poquonnock River
Coastal Reserve
Groton-New London Airport
Bluff Point State Park
Natural Area Preserve

Bluff Point Alternative Analysis

Bluff Point Restoration Plan

Connecticut National Estuarine Research Reserve

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TABLE 1
SUMMARY OF PROPOSED CONCEPTUAL MITIGATION ALTERNATIVES

	PROBLEM	PROPOSED MITIGATION
1	Tidal and stormwater flooding frequently impacts primary entrance road beneath existing railroad underpass	Relocate main public entrance to at-grade railroad crossing (a) 400 feet east of the existing underpass at western border of Amtrak maintenance facility or (b) along eastern boundary of Amtrak facility along Industrial Drive. Either relocation would require some minor tree clearing, agreements with railroad, new construction, safety measures at crossings, etc.
2	"Lower" parking area is subject to daily tidal inundation	Conversion of lower parking lot to tidal marsh with improvement of the upper parking lot to better accommodate handicap, bus, and boat trailer parking. Retain overall parking capacity with smaller footprint. Include the following considerations: - Reduce elevation of lower parking lot and restore tidal marsh vegetation/habitat - Retain existing small-craft boat ramp - Convert upper parking lot to make it more efficient (parking, bus, and boat trailer parking) - Construct a new parking lot to restore lost parking spaces (options to be identified) and consider gravel/permeable pavers - Integrate access to new parking lot with potential changes to primary public entrance
3	Coastal erosion and flooding along the main trail, combined with tidal marsh degradation due to poorly functioning culverts and fill placed to construct road/trail	Remove culverts under main trail and replace with timber boardwalks, relocate emergency access from coastal area to a more sustainable inland route, where two primary alternative routings have been identified: (a) route along bike trail connecting signpost #24 and #4, which will require more ledge removal and tree clearing; or (b) along existing trails that extend farther towards the point, which is a longer route but will incur less disturbance

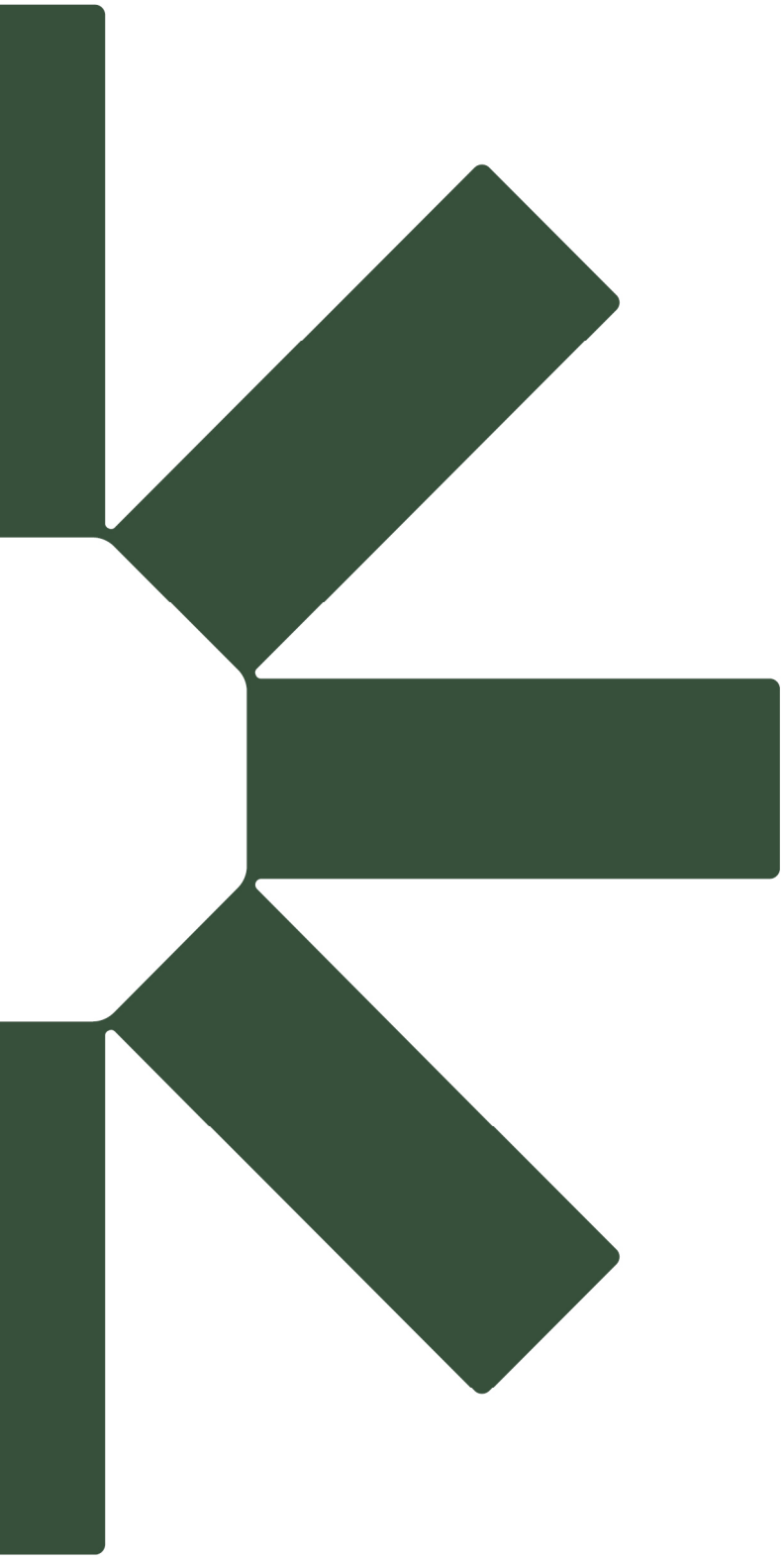
Public Engagement

The project team hosted two public meetings, one in-person (Fort Trumbull, New London, CT on November 13, 2024 at 5:30pm) and one virtual (Zoom on November 20, 2024 at 3:00pm). These meetings allowed park users to provide feedback on their experiences at the property, any issues they have identified with the property, and their priorities for restoration, as well as to collect preliminary feedback on the mitigation strategies that SLR and CTNERR had developed.

Summary

The following attachments to this memorandum provide additional information for each of the phases of this planning study project.

- Attachment A – Overview of Proposed Restoration Alternatives
- Attachment B – Summary of Public Engagement Feedback
- Attachment C – Proposed Restoration Concept Sketches
- Attachment D – Proposed Restoration Cost Opinions
- Attachment E – Sample Scope of Services



Making Sustainability Happen

Attachment A:

Overview of Proposed Restoration Alternatives

SLR

Technical Memorandum

To:	Bluff Point Project Team CTNERR	**From:**	Elizabeth McCarthy **SLR International Corporation**
cc:	Noah Slovin, Jim Murac, Fernanda Mastroluca	**Date:** **Project No.**	January 15, 2025 141.021853.00001

RE: Public Feedback Related to Bluff Point Restoration Plan Priority Projects

This memorandum summarizes three concepts strategies to advance restoration at Bluff Point, as identified through several public engagement efforts and a site walk conducted by the project team on December 10, 2024.

Concept	Problem	Potential Solutions	Relevant notes from Public Engagement
Provide non-floodprone access to Bluff Point properties	Tidal and stormwater flooding frequently impacts entrance road beneath railroad underpass	**Short-term Solution** • Clear and upgrade existing drainage pipe (may not be effective for stormwater flooding during high tides, sea level rise may overtop bank) **Mid-term Solution** • Regrading to reduce stormwater into underpass **Long-term Solutions** • Relocate main public entrance to at-grade railroad crossing (a) around 400 feet east of the existing underpass at western border of Amtrak maintenance facility or (b) along eastern boundary of Amtrak facility along Industrial Drive. Either relocation would require some minor tree clearing, agreements with railroad, new construction, safety measures at crossings, etc.	• Frequent flooding reported at the underpass. Underpass reportedly too low for many buses. Suggestions for off-site parking should include access near the entrance to limit walking distance • Suggestions to construct at-grade crossing • Walking into the property on foot via underpass reportedly unsafe as the sidewalk ends on the south side of the underpass • Many access property via interconnections with other recreational spaces, interested in maintaining and enhancing connections and access points • Limited accessibility to certain areas because of flooding and flooded entrance were top challenges noted in survey • Priority solutions recommended by survey respondents: improve access to property, ensure access under bridge is passable

Concept	Problem	Potential Solutions	Relevant notes from Public Engagement
Provide non-floodprone parking and restore filled tidal marsh habitat	Flooding of "lower" parking lot	**Low Cost Alternative** • Signage • Minor repair/fill to lower lot with some partial retreat **Long Term** Conversion of lower parking lot to tidal marsh with improvement of the upper parking lot to better accommodate handicap, bus, and boat trailer parking. Retain overall parking capacity with smaller footprint. • Reduce elevation of lower parking lot and restore tidal marsh vegetation/habitat • Retain existing small-craft boat ramp • Convert upper parking lot to make it more efficient (parking, bus, and boat trailer parking) • Construct a new parking lot to restore lost parking spaces (options to be identified) and consider gravel/permeable pavers • Integrate access to new parking lot with potential changes to BPSP public entrance	• Frequent discussion about erosion and flooding in parking lot • Infrequent visitors reportedly unaware that parking lot floods • Support for restoring lower lot to wetland; but restore parking elsewhere and keep boat launch • Suggestions to create new parking (a) east of the access road in the empty lot owned by Amtrak, or (b) near historic roundhouse (replace lost parking and connect visitors with the historic area through educational signage • Lower lot reportedly often needs to accommodate many buses and is used as a turnaround area; consider this when designing solutions • Interest in posting signs in parking lot (or other areas) to share information about ecosystems and landscape history • Flooded parking lot was a top challenge noted in survey • Priority solutions recommended by survey respondents: improve parking lot quality and address drainage at the parking lot

Concept	Problem	Potential Solutions	Relevant notes from Public Engagement
Provide non erosion/floodprone main pathway within interior of park, and restore degraded tidal wetlands	Coastal erosion and flooding along the main trail, combined with tidal marsh degradation due to poorly functioning culverts and fill placed to construct road/trail	**"Hard Infrastructure" Alternative** • Upgrade trail in place with armoring and fill, install larger box culverts at tidal wetlands (not preferred) **Nature-Based Alternative:** • Remove culverts under main trail and replace with timber boardwalks • Relocate main access road to inland route: (a) route along bike trail connecting signpost #24 and #4, which will require more ledge removal and tree clearing; or (b) along existing trails that extend farther towards the point, which is a longer route but will incur less disturbance • Construct turnarounds for maintenance vehicles • Fill to compact roadway and reduce steep grades and erosion • Install culverts where drainage is necessary	• Interested in efforts to address trail flooding along trails • Not interested in trail widening • Frequent flooding noted on trails • Many educational programs rely on trail to access wetlands and shoreline, concerns around proposed solutions limiting access • Suggested building boardwalks or using fill and drainage pipes to address flooded trails • When trails flood, people reportedly bike around flooded areas and cause more erosion • Flooding on the trails reportedly creates accessibility challenges, especially for those with limited mobility • Top challenges noted by survey include eroded and washed-out trails, limited accessibility to certain areas because of flooding • Priority solutions recommended by survey respondents: address drainage along trails, add boardwalks or bridges over areas that regularly flood, and increase signage regarding water warnings and trail status

Attachment B:

Summary of Public Engagement Feedback

Technical Memorandum

To:	Bluff Point Project Team	**From:**	Elizabeth McCarthy
Company:	CTNERR and CTDEEP	**SLR International Corporation**	
cc:	Noah Slovin, Jim Murac	**Date:**	November 25, 2024
		Project No.	141.021853.00001

RE: Bluff Point Restoration Plan
Summary of Public Engagement Events

Public Engagement Events

As part of the public engagement efforts informing the Bluff Point Restoration Plan, the project team hosted two public meetings, one in-person and one virtual. This memorandum summarizes the two events, including key takeaways, findings, and public feedback. It is important to note that a public survey was conducted prior to the public meeting; however, the findings of this survey are not reflected in this memorandum. This memorandum builds upon and supplements the results of the survey, which were processed separately and used to inform the referenced engagement events. A memorandum focused specifically on the survey results was shared with the project team.

Both meetings followed a similar agenda and had the same objectives:

- review existing conditions and results from the public survey;
- understand typical uses, challenges faced by parkgoers, priorities related to restoration, and concerns of access to and within the Bluff Point property;
- engage with participants through interactive discussions and activities to spark conversations around a resilient vision for Bluff Point;
- improve awareness and collaboration between the project team and invested members of the public while designing the Bluff Point Restoration Plan.

An in-person engagement event was held on **November 13th** at 5:30 pm at Fort Trumbull in New London, CT. The event was very well attended. There were 60 people registered for the event, and 50 people checked in at the event.

The project team facilitated a virtual engagement event on **November 20th** at 3:00 pm on Zoom. There were 38 attendees, including three elected officials at the municipal and state level.

In-Person Engagement Event on November 13th

Each event was kicked-off with an introduction of the project team and a brief overview of the different Bluff Point property designations, roles of CTDEEP and CTNERR, and the NFWF grant program funding the project, as well as a general review of the project. SLR then provided information on existing conditions at Bluff Point property, including coastal erosion, wetlands, flood-prone areas, and sea level rise scenarios, and presented key takeaways from the completed public survey.

The presentation was followed by interactive breakout sessions led by members of the project team. Attendees were provided opportunities to engage in conversations with our project team, sharing valuable insight into uses of Bluff Point Property, observed challenges, and priorities or considerations for proposed restoration activities. At the in-person event, attendees were invited to walk around to four separate stations:

1. Access
2. Recreation
3. Climate vulnerabilities and resilience opportunities
4. Project website and interactive maps

At each station, attendees were able to leave sticky notes and stickers marking specific areas of interest and providing comments on the maps, aerial photos, or tables.

The interactive element of the virtual meeting was designed to mirror the stations and activities used at the in-person event. Attendees rotated through four breakout rooms:

1. Recreation
2. Access
3. Climate Vulnerability and Resilience Opportunities

4. General Q&A with CTDEEP and CTNERR team members

Zoom whiteboards were used in the breakout room to facilitate interactive discussions and allow participants to tie their comments to specific points on a map of the property.

Key Takeaways

Attendees provided feedback that we have summarized within the categories below.

Environmental Concerns

- Attendees reported damage to plant communities from bike use on trails that are unauthorized. It was also mentioned that flooding trails often exacerbates this issue as bikers will tend to ride around puddles and wet areas, expanding the area of impact.
- Expressed interest in targeted efforts to protect beaches and dunes from dogs who are off-leash and enter natural areas
- Attendees acknowledged the stress that recreation can place on wildlife and natural areas, as visitors do not always respect environmental stewardship expectations and tend to explore areas that are not authorized. It was also noted that restoration efforts should focus on balancing environmental benefits with recreation needs and interests.
- There was frequent discussion about erosion and flooding observed along main paths, parking lot areas, and side trails. These included trees falling into the water and potholes in the parking lot. Specific locations are noted in the climate and vulnerability section of the memorandum.

Signage

- Attendees mentioned that many visitors are unaware that the parking lot floods, or where the flood-prone areas are, and cars often get stuck, which may be avoided with clear postings.
- Participants were interested in signage with clear information about connectivity to other green spaces (Groton-Stonington Trolley Trail, Haley Park, etc.), the history of the railyard, environmental stewardship expectations, and educational information about habitats and the surrounding area to encourage relationships between visitors and the natural environment.
- General suggestions for marking trails and flagging those that are flood-prone following high rain events or considering other approaches to alert visitors of trails that are flooded.
- Attendees suggested that all signage and posting, both current and future, should be multilingual to encourage accessibility and inclusivity.

Parking Lot

- Participants generally expressed support for moving the lower lot and restoring the area to marsh/wetland; however, it was important to people that parking is provided elsewhere to make up for any loss and the kayak/boat launch area remained.
- Attendees suggested creating new parking east of the access road south of the underpass, near the old railyard and restroom area, or in the empty lot on Industrial Drive (owned by Amtrak).
- Many attendees were associated with educational programs and informed facilitators that the lower lot is needed to accommodate many buses and used to turn the buses around, which should be considered when thinking about parking solutions (note: bus access is also impacted by the railroad underpass: see “Access and Mobility section below).

Access and Mobility

- Many people noted that they access the property by biking, and a handful of people mentioned boating or kayaking.
- Drivers access the property by the main road entrance through the railroad underpass; many bikers reported accessing the property from Haley Farm to the east. A small number of attendees reported walking or jogging to the property by the main road entrance from their homes or from the Pequannock Bridge Boardwalk.
- Attendees commented that the underpass is too low for many buses, meaning they have to park elsewhere and walk into Bluff Point property.
- It was mentioned that flooded trails cause inconveniences, but also challenges for accessibility and visitors with mobility limitations. This was also noted when discussing beach access. Participants suggested constructing shorter, smooth trails to access the water as many can’t make the full 1-mile trek to the beach.
- Attendees suggested constructing an at-grade crossing for use if the underpass is flooded.

Connectivity

- Attendees are interested in the project recognizing regional connections and enhancing access with adjacent green spaces (Trolley Trail, Eastern Shoreline Path, Tri Town Trail, Haley, etc.). Many attendees noted that they bike, walk, or paddle over from Haley and other recreation areas.
- Participants shared information about other planning efforts that may be relevant to this project, including a recent grant for the park near Pequannock and the fact that SEAT is revisiting stops to determine if additional stops should be added.

Education

- Attendees mentioned that many educational programs rely on water and shoreline access from coastal trail and were worried that restoration activities along these coastal trails may impact access to marshes or the shoreline.
- Attendees shared how programs access the property. Some organizations arrive by boat or skiff. Since some organizations arrive by large buses, they are unable to drive through the underpass and park elsewhere and walk into the property.

Safety

- Attendees expressed concern about limited emergency access within the park and minimal trail markings creating challenges and unsafe wayfinding conditions.
- Attendees mentioned that walking into the property on foot via the underpass can be unsafe as there is a dangerous sidewalk at the entrance.

Restoration Priorities and Concerns

- Generally, there were comments that restoration activities should not result in trail widening.
- Participants were interested in efforts to address flooding along trails and the parking lot.
- Attendees would like restoration activities to balance recreation uses at the property and ecosystem health.

Summary of Feedback

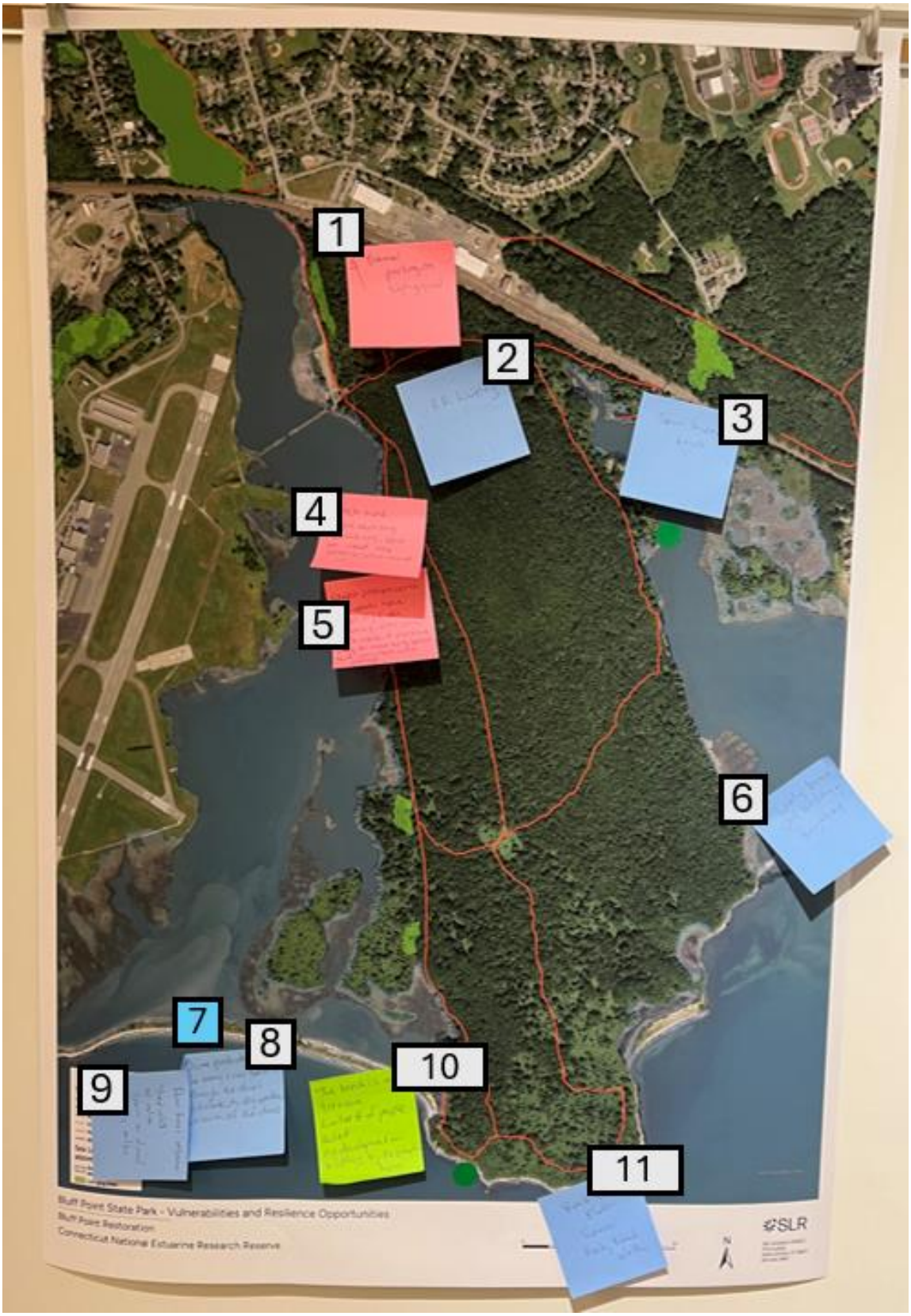
Vulnerability and Resilience Opportunities

At this station, participants were asked to consider the climate vulnerabilities or challenges they have observed at Bluff Point and envision a resilient future for Bluff Point, as well as how different approaches to restoration align with uses of the property and identified concerned. During the in-person event, attendees were invited to place sticky-notes or color-coded stickers on a series of maps. The maps used for this activity were a sitewide overview of FEMA flood zones and sea level rise, and three focused aerial images of the parking lot, picnic area, and coastal trail. The colors for the stickers are associated with the following prompts:

- Green – areas that you love at Bluff Point property
- Red – areas where you have observed challenges or climate impacts
- Blue – suggestions for potential restoration activities

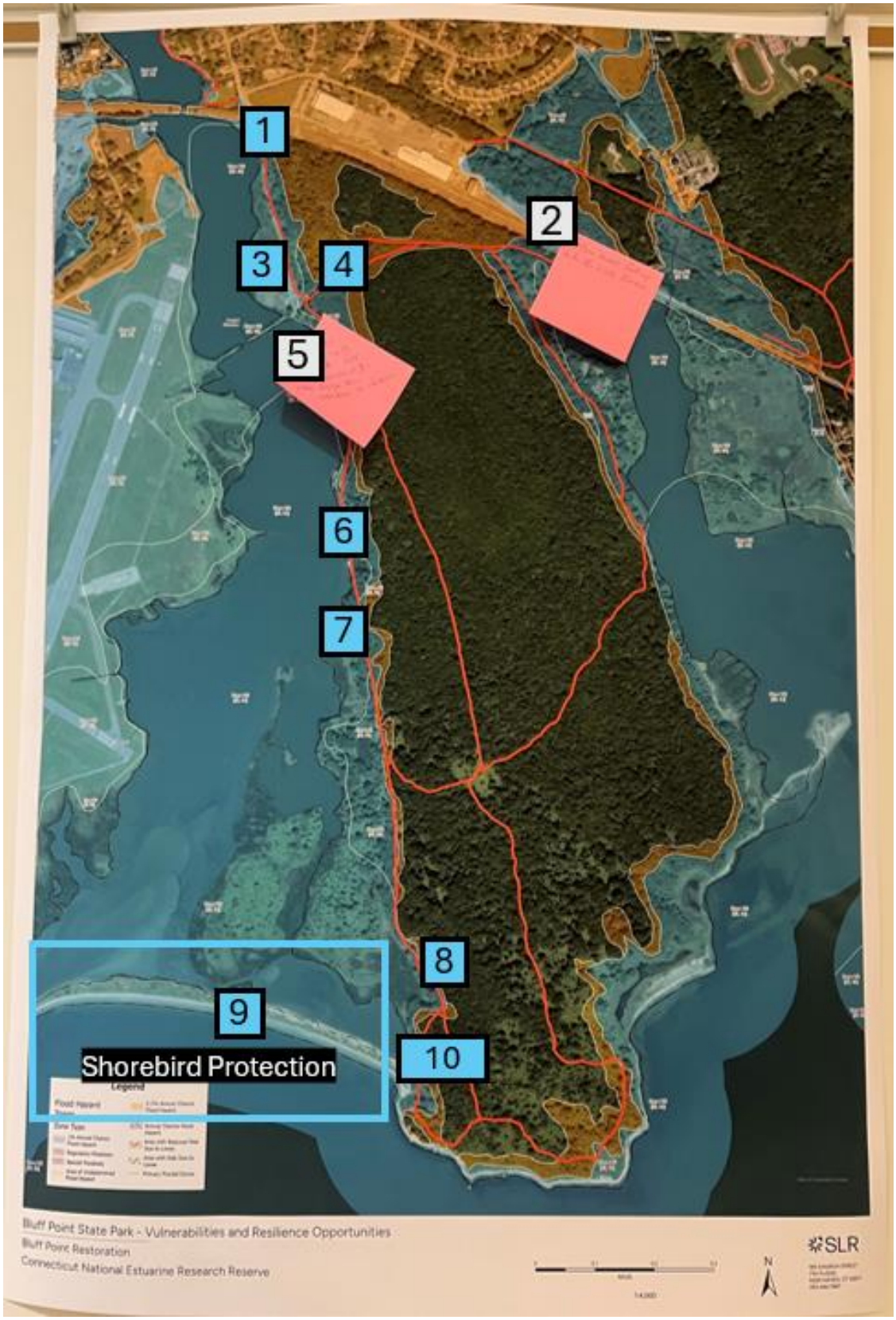
The virtual engagement event included the same series of maps and questions related to climate vulnerabilities and resilience opportunities, but participants were only asked to place sticky notes on the map to simplify the activity.

The comments received at this station during both the in-person and virtual engagements are summarized below, corresponding to the assigned number on the various maps. The numbers in blue boxes were provided during the virtual engagement event, and those in white boxes were collected in-person.



Vulnerability and Resilience Station (Map #1 – Sea Level Rise)

1. “Potential parking on high ground”
2. “Railroad history”
3. “Scenic landing, beach”
4. “Bench here impacted by erosion, can’t be used by people who need it”
5. “Small entrance to the water here that is used by kids, elderly, etc. who can’t make it all the way to the big beach. Inclines are steep at this point.”
6. “Lovely beach that is good for birding and kayaking”
7. “I love Bushy Point and am glad to see that it isn’t projected to have significant sea level rise impacts. I am curious though, has any analysis been done into the storm surge protection it provides to the airport and Pequannock River corridor? It could help justify future restoration work.”
8. “Dune protection. Too many cross trails through the dunes, degradation and erosion of dunes.”
9. “Dune grass restoration; “boardwalks” to reduce strain on dunes”
10. “The beach is a treasure. Limited number of people, quiet, no development or buildings by the beach”
11. “Rock face Bluff. Scenic Rocky Beach Walk”



Vulnerability and Resilience Station (Map #2 – FEMA Flood Zones)

1. “The height restriction of the underpass is too low for many buses, which are often traveling to Bluff Point for educational purposes. Currently, buses have to park elsewhere and walk into the property.”
2. “More trees falling into the water. Erosion”
3. “I have observed unaware visitors parked in the lower lot and then when they return it flooded around their vehicle. I agree with restoring the lower parking lot, especially considering many people get stuck in the area. What would happen to the kayak launching area in the lower parking lot if the lot is returned to be a marsh? The lower lot is used for parking large buses for educational programs, and often needs to accommodate many buses! Parking would need to be restored elsewhere to not have a net loss of parking.”
4. “Consider turning the area near the restroom and old rail line into parking to allow removal of the lower parking lot without losing parking space. Opportunity for historic value. Benefit of connecting visitors with the railyard. Opportunity for invasive species management since vegetation in the area is heavily overgrown with invasives.”
5. “Trees falling into the water. The parking lot and northern portion of this trail floods.”
6. “Add a bridge design to float up when the water level rises too high. The lower Bluff trail here is one of my favorites, and I was worried you were going to get rid of it, but I would love for it to stay! Explore opportunities for this trail to be elevated or improve drainage.”
7. “The coastal areas along here are used for educational purposes. Will suggestions or restoration solutions impact access to the shoreline? Will boardwalks and bridges that replace the degrading culverts limit access? We would love continued access to the marshes and shoreline.”
8. “Flooding and erosion on the bayside walking path”
9. “Concerned about protections for piping plovers and horseshoe crabs. Dogs running free, enclosures people don’t see to respect’
10. “Connection to the beach is sometimes flooded”

Vulnerability and Resilience Station (Map #3 – Parking Lot)

1. “Deep holes from flooding”
2. “Keep the boat launch”
3. “Kayak launch”
4. “Move the parking lot more upland and turn the lower lot into a marsh/wetland. Keeping the boat launch for kayaks and stand-up paddle boards. Remove a few of the larger rocks that are in the way.”
5. “Flooding”
6. “Move this parking lot to Industrial Drive by Amtrak property to create a new lot”
7. “Make the different designation (State Park vs. Coastal Reserve vs. Natural Preserve) clear with markings and signage at the entrance”
8. “Boat launching at the property is confusing. There should be more signage and specification about what areas are allowed for boat launching, to make it easier for users! Informal boat launching area vs. intended boat launch area. Keep the kayak launch area if the lower lot is restored to a marsh!”
9. “Flooding”

Vulnerability and Resilience Station (Map #4 – Picnic Area)

The green dots on the map represent areas that attendees identified as their favorite spots or areas of the property that they frequently use. A number of green stickers were placed in the picnic area, and the informal kayak launching area. A red sticker was placed on the shore, demonstrating that an attendee has observed challenges or climate impacts here. The following are comments that were received during the engagement events, corresponding to the numbers marked on the map.

1. “This is a really nice place to meet with our running group and hang out after a run.”
2. “This area is highly used by school groups to eat lunch. Could there be a reminder to students and teachers to clean up after themselves? Maybe put placards or something on the picnic table to increase environmental stewardship.”

Vulnerability and Resilience Station (Map #5 – Coastal Trails)

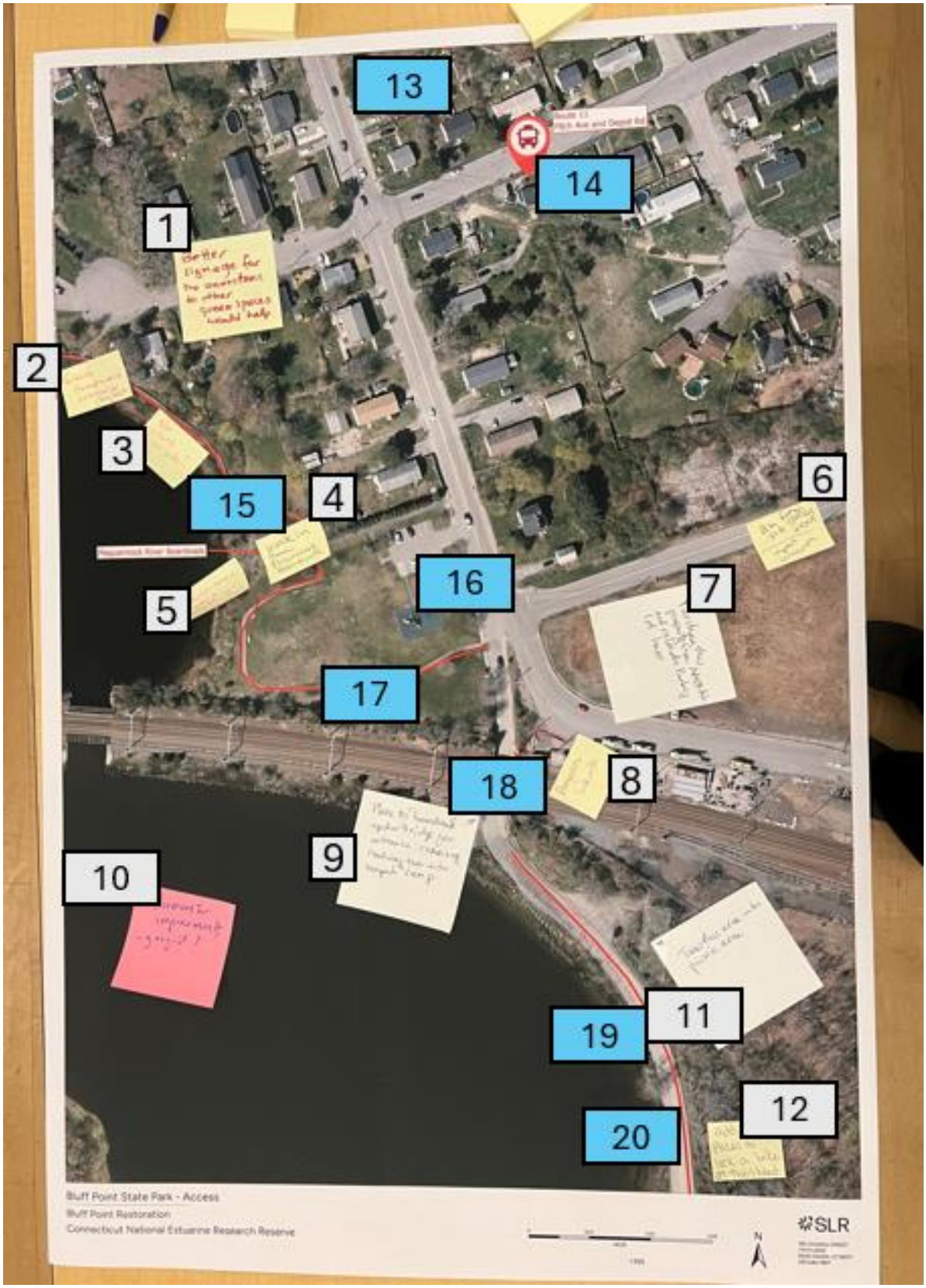
The red stickers along the coastal trail represent areas where attendees identified climate-related impacts or challenges. Based on the discussions at this station, the red stickers along this specific coastal trail are likely connected to flooding.

1. “I think this is the section that floods regularly. Soaks my shoes when I run. When it is dry, I tripped and fell here.”
2. “I would like the flooded areas to be filled (with drainage pipes under the ground) without widening the trail”
3. “If some of the interior trails were better marked, I and others could avoid this area when flooded”
4. “Great idea for a boardwalk to allow drainage. There are many educational activities that happen here, so make sure they would still have access to here and along the water’s edge. Could the culverts be larger or more frequent along the trail to allow more water to enter the marsh?”
5. “A flag at the start of the trail near the parking lot to indicate that there is flooding would help so that I don’t start running into a flooded path.”
6. “The last time I was at Bluff Point, I found a pathway that went around the flooded area. Is this a planned path or just one that was created by people who don’t want wet feet?”
7. “By these pipes I have seen large puddles form after a storm. These can freeze over during the winter and be risky to cross.”

Access

This station focused on access to and within Bluff Point property. The questions prompting participants were: How do you get to Bluff Point State Park and Coastal Reserve? If you don’t currently visit, what opportunities might exist to facilitate access? How can access be improved?

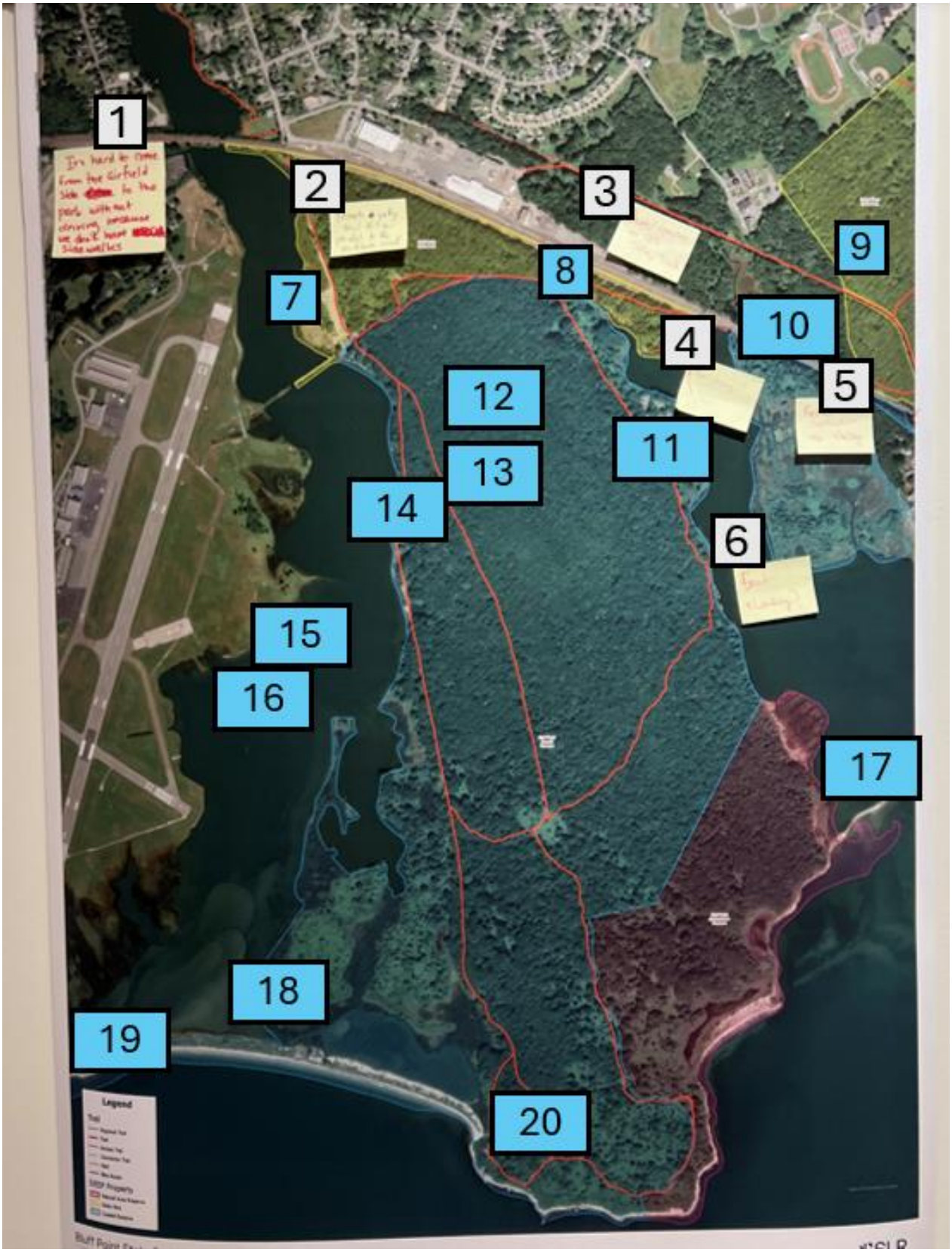
Attendees were asked to leave sticky notes on two maps of Bluff Point, as displayed in the images below. One of the maps was an overview of the property and surrounding area while the other was focused on the entrance point to the property and connecting trails.



Access Station (Map #1)

The comments received are summarized below, corresponding to the assigned number on the maps. The numbers in blue boxes were provided during the virtual engagement event, and those in white boxes were collected in-person.

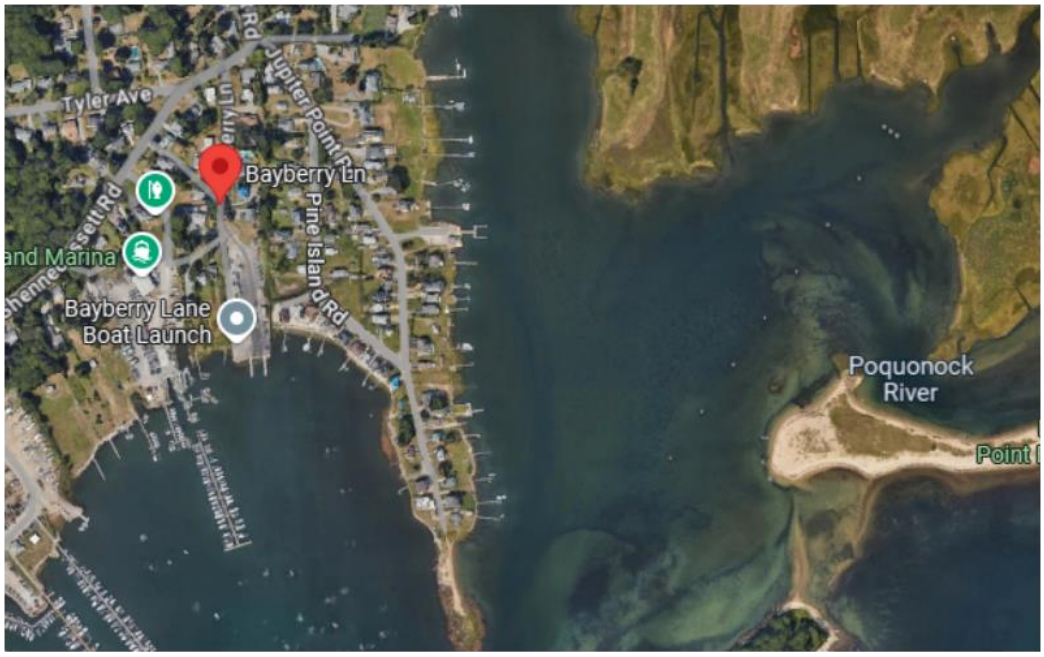
1. “Better signage for the connections to other green spaces would help”
2. “Fitch Boardwalk entrance by foot”
3. “Not allowed to bike?”
4. “Walk in from Pequannock Boardwalk”
5. “Wish there was a paddling entrance here”
6. “Bike from Groton-Stonington Trolley Trail, improve connection”
7. “Purchase this property from Amtrak and relocate parking lot here”
8. “Dangerous sidewalk”
9. “Place 10’ boardwalk under bridge for entrance, turn remaining roadway into kayak ramp”
10. “Stormwater improvements, geogrid?”
11. “Turn this area into a picnic area”
12. “Add places to lock a bike at the trailhead”
13. “We have parked at the Middle School Property”
14. “SEAT transit authority is revisiting their bus stops and considering whether to add additional stops. Town of Groton should look at this with access to outdoor spaces. SEAT is also expanding the “hop” service where folks can request to be picked up.”
15. “Lots of trash around this boardwalk. In a community clean up this Spring, we pulled 10 large trash bags out of here. We could have done more if we had more time.”
16. “Town of Groton recently received a grant for this park. Follow up with more details!” Megan, Town of Groton)
17. “Pump Track is being installed by the Town along the boardwalk area”
18. “Often flooded. Can get hung up with flooding because worried about car. Maybe add an at-grade crossing at the southern end of Sutton Park and drive along the rail corridor to the main parking lot. Talk with Town of Groton public about who owns the road into the park (CTDOT pumps for some roads). Overpass does not accommodate all school bus sizes. They have to ask for a special school bus or use a different site or walk in if the bus can’t get through the underpass. Charter buses in particular can’t fit under the underpass.”
19. “Walking Safety”
20. “Safety for those that need to walk into the park, including students, volunteers doing cleanups, etc.”



Access Station (Map #2)

The comments received are summarized below, corresponding to the assigned number on the maps. The numbers in blue boxes were provided during the virtual engagement event, and those in white boxes were collected in-person.

1. “It is hard to come from the airfield side to the park without driving because we don’t have sidewalks”
2. “Promote walk trail that runs parallel to the entrance road”
3. “Better connection to Groton-Stonington Trolley Track”
4. “Boat landing?”
5. “Better connection to Haley”
6. “Boat landing?”
7. “I usually drive to Bluff Point, park in the parking lot. I drive to Bluff Point and use the main access road to the Park.”
8. “Potential for at-grade crossing?”
9. “Sometimes I bike from Haley Farm to Bluff”
10. “Sometimes I walk in from Haley Farm. Bike over from Haley Farm. Biking from Mumford Cove (visit 2-3 times a week).”
11. “This is the Upland Sand Plain area. It is a rare habitat/ecosystem in CT. CT Botanical Society led a walk here a couple of months ago.”
12. “Beach wheelchair to increase accessibility (electric one may be required but there are versions that don’t require electricity). Consider grants to acquire a beach wheelchair.”
13. “ATVs for access to parts of the park”
14. “Flooded areas can lead to more mosquitos”
15. “Project O arrives by skiff to deliver programming with students”
16. “I have gone by boat (Boston Whaler) to the Cove for years. It is a perfect spot for snorkeling.”
17. “I have canoed/kayaked/standup paddle boarded over from Mumford Cove. It was a magical destination when we had little kids because it was an adventure to get there.”
18. “In the past, I believe there was dredging to keep the channel open North of Bushy Point Beach, in the mouth of the Pequannock River. Project Oceanology frequently uses Carolina Skiffs to access the park with school-year students and campers.”
19. “I often kayak in from the Bayberry Lane launch area”



20. “Not very accessible to people with movement challenges at Bushy Point Beach”

Other comments related to access include:

- “Recognize regional connections to/near Bluff: Groton-Stonington Trolley Trail, Eastern Shoreline Path, SECCOG identified program, Tri Town Trail, Pequannock River Boardwalk”
- “State just completed a study of the Pequannock Road underpass, which has pumps installed. The boardwalk is well used and there is funding for more work in the area.”
- “Bike to Bluff Point from Mumford Cove (under the viaduct)”
- “When there is flooding along certain trails and roads, people bike around the flooded areas and cause more erosion”
- “Puddles along trails and roadway are inconvenient and create accessibility challenges, especially for those with limited mobility”
- ‘NEMBA does much of the trail maintenance”
- “Improve trail connection to Haley Farm State Park: better wayfinding, trail surface issues (drainage, rough, unmaintained sections – especially the trail just West of the Trail bridge over Amtrak that is very rugged, rocky, and hazardous)”
- “Access via kayak, bicycle from Haley Farm Mumford Cove, or by foot from Pequannock River Boardwalk”
- “Public Transit to trails APP (do buses carry bikes?)”
- “Access via Haley’s farm”
- “I have put my kayak in the boat launch area, then have to be thoughtful about where to leave my car so it won’t be flooded when I return.”

- "Emergency access along the coastal trails that regularly flood"
- "Posts with emergency trail markers are unclear"
- "Alternate connections and connectivity to adjacent green spaces and other recreation areas"

Recreation

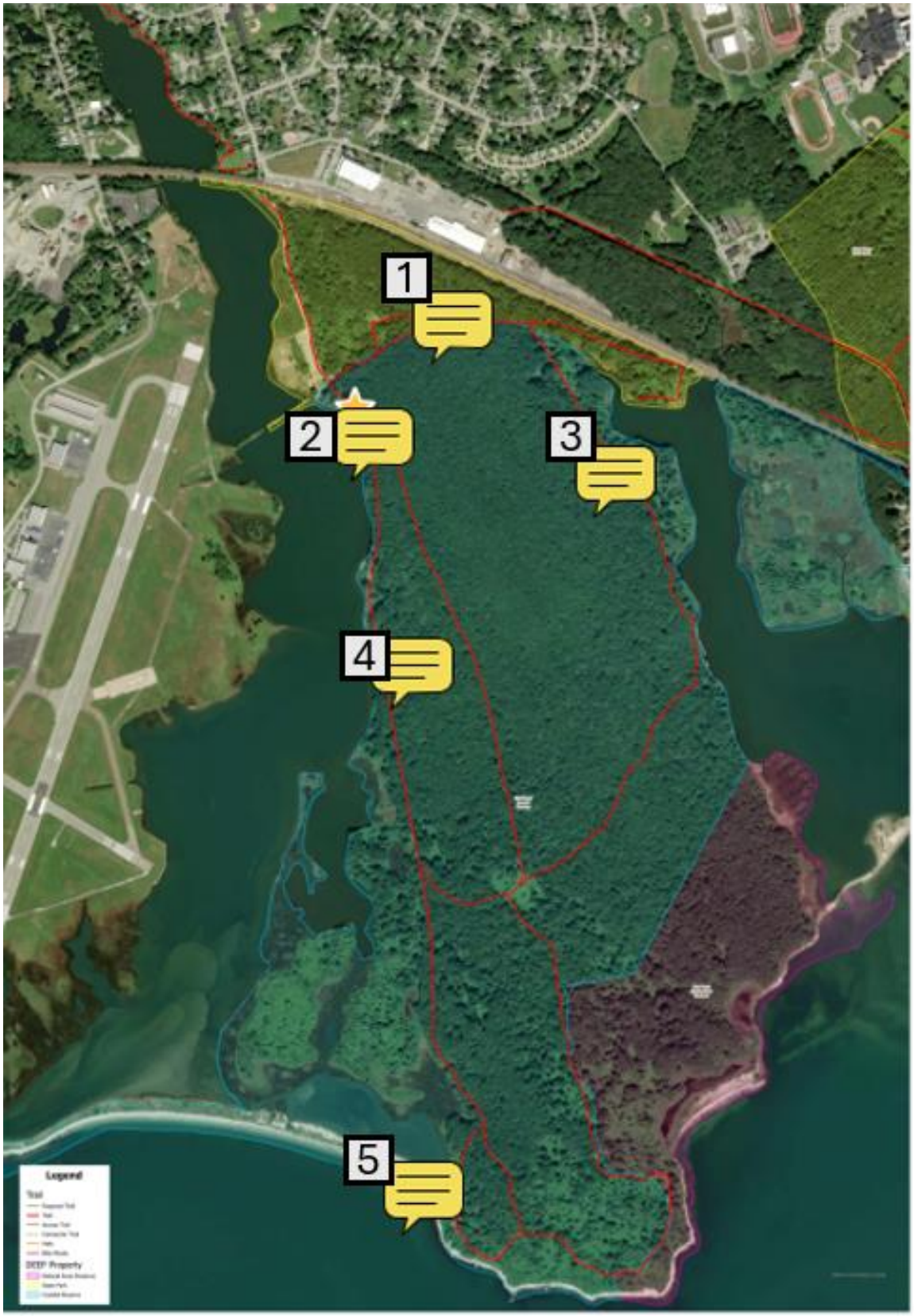
At this station, attendees engaged in discussions with CTDEEP and CTNERR staff about recreation at Bluff Point property and authorized trails at the property. Specific questions that were asked of participants were: What forms of recreation do you engage in at Bluff Point Property? What are your concerns or priorities around recreation? How do you use the trails on the property?

Attendees were asked to leave sticky notes in response to the various prompts and on a map of the trail system at the property. The comments are summarized below. Stars indicate the number of comments that referenced to topic, or in some cases where people wrote "Agree!" on sticky-notes.

Forms of Recreation	Recreation Priorities	Recreation Concerns
• Birding ★★★★★ • Mountain Biking★★★★★ • Hiking ★★★★ • Kayaking ★★★★ • Teaching educational programs using the marshes and shoreline area ★★★ • Swimming★★★ • Running★★★ • Geocaching★★ • Fishing and shell fishing ★★ • Beach★★ • Horseback riding ★★ • Snorkeling ★★ • Water-based recreation of all forms ★★ • Letterboxing • Horseshoe crab sightings • Wildlife viewing	• "Multilingual signage is important. The new educational signage should be multilingual in order for it to be more widely accessible" ★★★ • "Tell the story of the rail yard and the landscape and explore the railroad historic landmarks"★★★ • "Better marking on interior trails so I don't get lost. Better park trail map at the entrance showing smaller trails and trail mark map"★★★ • "Construct areas for large group educational events. Provide and promote access for educational programs for school and community groups"★★★ • "Signage from Haley to Bluff Point to let people know about the connectivity. More signage about how to connect to other outdoor	• "Make sure that restoration allows for continued and improved access to variety of habitats for educational programs"★★★★ • "No trail widening or cutting the forest to make wider trails for maintenance"★★ • "Limit green truck use on the trails! Evaluate the need and use for the tricks, are they necessary? Could a smaller (ATV?) be used instead? Also, use of trucks could be timed with the tide schedule so trucks wouldn't be driving on the road during high tide."★★ • "Crab and fishermen education to prevent fishing lines from being discarded" • "Side trails aren't marked well, only the main trails"

Forms of Recreation	Recreation Priorities	Recreation Concerns
• "Skiing sometimes if it snows" • "Plant identification and scavenger hunts" • Exploring • "Train and plane watching" • Nature-based play with children • "NEMBA has beginner/kids/family mountain bike rides, which are very important to brining kids outdoors" • Gravel bike riding along main trails • Stand up paddle boarding • "We used to have fires on the beach in the 80s and 90s" • Scouts • "Star gazing in the parking lot"	spaces without driving"★★★ • "Design better single track trails (improve drainage, sensible loops, wayfinding, fun/challenging, offset bad behavior)" • "Emergency posts marked" • "Do not widen hiking trails" • "Boardwalk on the Marsh so it can be used for education without destroying plants" • "Remove invasive plants" • "Provide trail maps" • "Provide more accessible (smooth) trail options" • "Paved conditions" • "Benches for accessibility" • "Can the area around the governor's house foundation be improved?" • "Interactive signs to be used as a guided tour around the park to learn about different habitats/areas of interest" • "Protection of the marsh grasses along the kayak and boat launch" • "Birding along the shoreline" • "Bike stations with maintenance tools" • "Protect the wildlife (birding) in recreational	• "Biking impacts on natural plant diversity" • "Education for dog owners, stop the dog poop littering and free-roaming dog" • "Safety; wayfinding; being able to locate people in an emergency" • "Erosion from people going off-trail to access the water" • "Protect beach for migratory birds (especially piping plovers)" • "Balance of natural resource protection priorities with recreational access" • "Sand depleted on the beach" • "Could have improved picnic area, lots of demand for use at the parking lot area and not a lot of facilities" • "Damage to plant communities from mountain bikers" • "Snorkeling, not seeing the diversity of species that have been seen in the past" • "Bathrooms" • "Better protection at barrier beach for shore birds against dogs, especially for those who bring their dogs via boats or greater park ranger presence in the area

Forms of Recreation	Recreation Priorities	Recreation Concerns
	uses, especially within the coastal reserve” • “There is a new technology that helps people with visual impairments navigate hiking trails, it would be great to see this set up at Bluff Point” • “Pathway access without flooding and accessibly for students with mobility differences” • “Shorter, direct accessible path to the beach, it is about 1 mile walk” • “Rock trails in the northern inland part of the property are great for mountain biking, having some marked with directions and difficulty level (ex. Woody Hill in RI)” • “Historic story of Bluff for the summer community” • “Access to trash cans and waste disposal during hikes/walks to prevent littering of doggy bags” • “Trash cans available for park users” • “Ensure toilet and facilities at the point are maintained and open as long as possible during the season” • “Create ‘temporary’ use boardwalks during flooding”	especially on days with high traffic” • “Access (bench at the beach entrance)” • “Carriage road flooding and inundation” • “Limit signage” • “Trash on the Bluff and debris” • “Beach areas are receding” • “Enhance beach walk at the end of Bluff to go around the point and connect to the main trail” • “Some way to indicate flooding before I start running at the trailhead would be helpful”



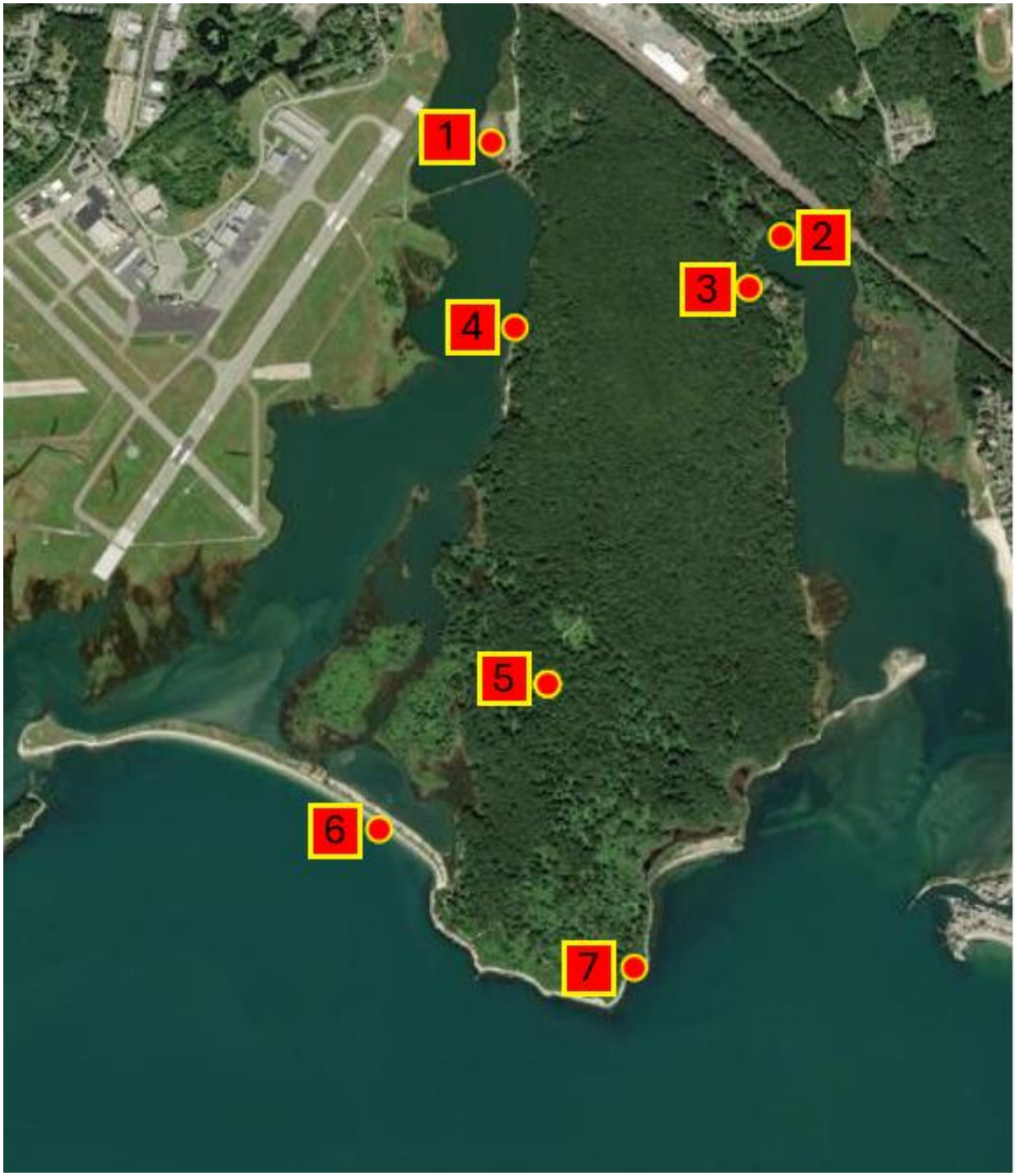
Recreation Station

The comments received directly on the trail map during the virtual engagement event are summarized below, corresponding to the assigned number on the map.

1. “Trails with technical benefit in this area.”
2. “This is a great space for students to access with limited mobility.”
3. “Good technical area for cycling.”
4. “This is a great educational space for teaching along the shoreline”
5. “This is a great swimming area. Agree!”

Map It!

Participants were walked through the project website and shown how to submit responses on the map-based survey. The survey allows individuals to drop a point on a map of the Bluff Point Property, leave a description of the selected area such as flooding, erosion, or uses, and attach a picture, if desired. The project website includes a map that automatically updates to display individual responses.

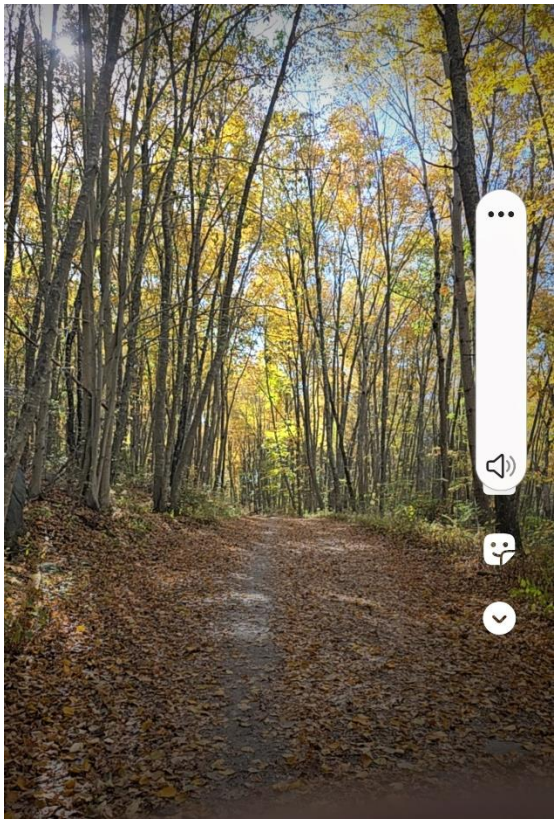


Responses to the Survey123

Some attendees submitted survey responses at the event, as summarized below with numbers corresponding to the assigned number on the map.

1. “Flooding at high tides”
2. “Erosion is fast here. Large trees are in danger.”
3. “Flooding”

4. “Litter/Marine Debris, erosion, invasive species, flooding”
5. “I wish the road here was asphalt so it was more convenient to run and walk”



6. “Cast up sail boats, damage to marshes”
7. “Lots of erosion from water runoff makes the area hazardous”

General Comments

A basket was provided at the event for participants to leave general comments and feedback that they felt were not addressed within the scope of the stations. This included potential partners or organizations to connect with and other ongoing projects on the property. The comments received are summarized below, categorized based on content.

Maintenance and Trails

- “More clean-ups of litter and marine debris, please! We love Bluff Point and want it to stay beautiful!”
- “DEEP maintenance should be scheduled based on tides, so they have less impact on trails and avoid the wet times”
- “Please do not pave the trails!”
- “No trail widening”
- “Equestrian use at the property, don’t pick up after horses”

Visitor Experience at Bluff Point

- “Can we add nature education signage in the park so people can learn about their surroundings? Types of trees, bird habitats, invasive species identification, history of the land, etc. Would love to slow down and create relationship with the space!”
- “Concerned about adding garbage cans only because it may encourage folks to leave even more garbage, any evidence for this?”
- “Improved security - as a woman walking alone, even if it is just signage about security”

Environmental Considerations

- “Invasive plants”
- “There can be tension between recreation and wildlife. Areas elsewhere have successfully closed access to areas during nesting season, for example, an opening them when nesting is over”
- “Is there any consideration for noise pollution? I know this is difficult to police, but I know it is also a scientifically identified problem for wildlife (and myself...). Boats, jet skis, and music are so loud. Airport is clearly not something that can be changed but maybe some improvements can be made?”

Project Questions

- “Communication for folks on next steps. Some periodicity (6 months?)”
- “Please evaluate areas critically. Evaluate existing conditions. What is the tolerance for flooding and inundation?”

What other projects are taking place at the Bluff Point property?

- “Casual running groups meet at Bluff Point through Mohegan Striders, etc.”
- “Topographic analysis across the road?”

Who else should we include in our projects?

- “Schools – observations around Park, erosion, etc. (Nina at NESS)”
- “Southeast Area Regional Transit (SEAT) – a new stop on local Route 11?”
- “Movie being filmed”
- “Groton Parks and Rec”
- “Connecticut Invasive Plants Working Group (Lauren Kurtz)”
- “Teachers and education program coordinators”
- “Groton Open Space Association”
- “Tri Town Trail (Thomas F. Olson – tfolson@comcast.net)”

Attachment C:

Proposed Restoration Concept Sketches

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TIDAL FLOODING OF MAIN PARK ENTRANCE BENEATH AMTRAK UNDERPASS

PROBLEM:
TIDAL FLOODING ON REGULAR BASIS BENEATH AMTRAK RAILROAD BRIDGE, LOW POINT NEAR NORTHWESTERN ABUTMENT AROUND 1.17 FT NAVD88.

SOLUTION:
MOVE THE PRIMARY ACCESS TO AN AT-GRADE CROSSING FARTHER EAST. TWO LOCATIONS ARE PROPOSED.

- *LOCATION A:* DIRECTLY EAST APPROX. 200-FT ALONG EXISTING ACCESS ROAD (SEE AA-1B).
- *LOCATION B:* FARTHER EAST AT EASTERN END OF AMTRAK MAINTENANCE YARD, USE FORMER RAILROAD BED AS PRIMARY ENTRANCE (SEE AA-1B).

1 PHOTO TAKEN POST FLOODING ON JANUARY 10, 2024

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REVISIONS

ACTIVITY AREA 1

BLUFF POINT STATE PARK
RESTORATION PLAN CONCEPTS
55 DEPOT RD
GROTON, CT 06340

JCM	FRM	JCM
DESIGNED	DRAWN	CHECKED

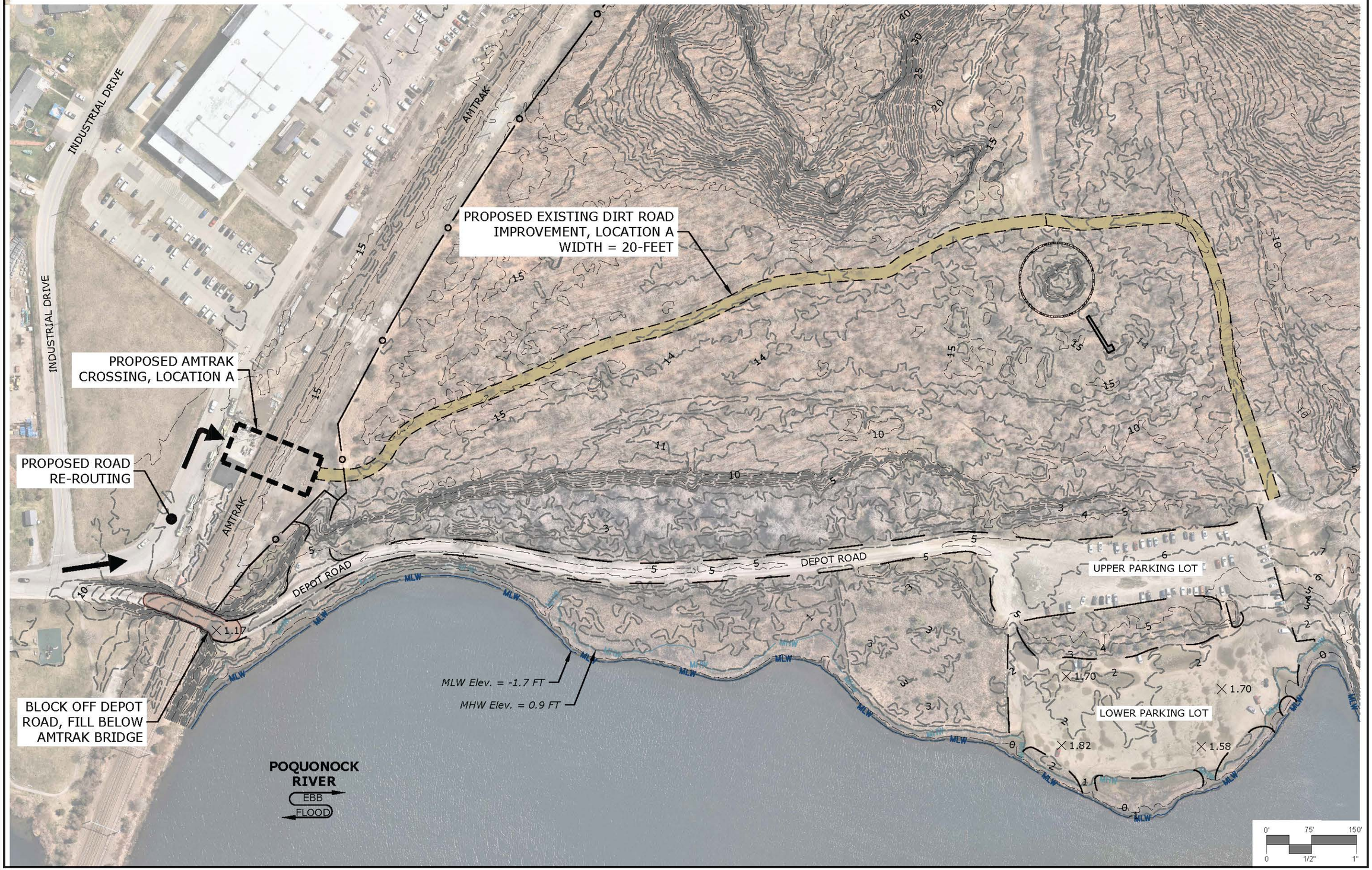
1"=30'
SCALE

DECEMBER 27, 2024
DATE

11958.00134
PROJECT NO.

AA-1
SHEET NO.

AT-GRADE RAILROAD CROSSING AND NEW PARK ENTRANCE ROAD, LOCATION A



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REVISIONS

ACTIVITY AREA 1A

BLUFF POINT STATE PARK
RESTORATION PLAN CONCEPTS

55 DEPOT RD
GROTON, CT 06340

JCM	FRM	JCM
DESIGNED	DRAWN	CHECKED

SCALE: 1"=150'

DATE: DECEMBER 27, 2024

PROJECT NO.: 11958.00134

SHEET NO.: AA-1A

AT-GRADE RAILROAD CROSSING AND NEW PARK ENTRANCE ROAD, LOCATION B

PROPOSED ROAD RE-ROUTING

INDUSTRIAL DRIVE

INDUSTRIAL DRIVE

BLOCK OFF DEPOT ROAD, FILL BELOW AMTRAK BRIDGE

AMTRAK

AMTRAK

AMTRAK

PROPOSED AMTRAK CROSSING, LOCATION B

PROPOSED EXISTING DIRT ROAD IMPROVEMENT, LOCATION B WIDTH = 20-FEET

DEPOT ROAD

DEPOT ROAD

POQUONOCK RIVER

EBB

FLOOD

MLW Elev. = -1.7 FT

MHW Elev. = 0.9 FT

MLW

MHW

0' 100' 200'

0 1/2" 1"

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ACTIVITY AREA 1B

BLUFF POINT STATE PARK
RESTORATION PLAN CONCEPTS

55 DEPOT RD
GROTON, CT 06340

JCM	FRM	JCM
DESIGNED	DRAWN	CHECKED

SCALE: 1"=200'

DATE: DECEMBER 27, 2024

PROJECT NO.: 11958.00134

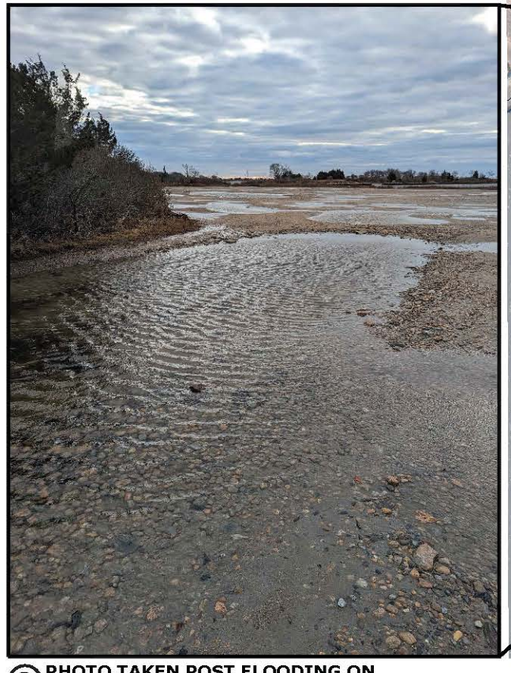
SHEET NO.: AA-1B

TIDAL FLOODING OF LOWER PARKING AREA

PROBLEM:
LOWER PARKING FLOODS ON A REGULAR BASIS AND THEREFORE IS NOT ABLE TO OPERATE AT ITS FULL CAPACITY.

SOLUTION:
LOWER PARKING THE LOT APPROX. 1-FOOT AND RETAIN THE EXISTING BOAT RAMP. CONVERT THE UPPER PARKING LOT TO BOAT TRAILER/BUS AND HANDICAP PARKING. RELOCATE NEW PARKING LOT FARTHER INLAND.

- *LOCATION A:* WITHIN HISTORIC RAILROAD TURNTABLE (SEE AA-2A).
- *LOCATION B:* BETWEEN EXISTING UPPER PARKING AND TURNTABLE (SEE AA-2B).



(2) PHOTO TAKEN POST FLOODING ON JANUARY 10, 2024

DEPOT ROAD

UPPER PARKING LOT

LOWER PARKING LOT
SIZE: 1.83 AC

PROPOSED PARKING AREA TO BE REMOVED AND RESTORE TO TIDAL WETLAND, SEE AA-2A & AA-2B

MHW Elev. = 0.9 FT

MLW Elev. = -1.7 FT

POQUONOCK RIVER
EBB
FLOOD

0' 50' 100'
0 1/2" 1"

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REVISIONS

ACTIVITY AREA 2

BLUFF POINT STATE PARK
RESTORATION PLAN CONCEPTS

55 DEPOT RD
GROTON, CT 06340

JCM	FRM	JCM
DESIGNED	DRAWN	CHECKED

SCALE: 1"=100'

DATE: DECEMBER 27, 2024

PROJECT NO.: 11958.00134

SHEET NO.: AA-2

RESTORE LOWER PARKING LOT AND CONSTRUCT NEW PARKING AT LOCATION A

SEE AA-1A & AA-1B FOR PROPOSED ACCESS ROAD LOCATION ALTERNATIVES

PROPOSED PARKING LOT, LOCATION A SIZE: 1.83 AC

DEPOT ROAD

MLW Elev. = -1.7 FT

MHW Elev. = 0.9 FT

POQUONOCK RIVER

EBB

FLOOD

PROPOSED IMPROVED BOAT RAMP

PROPOSED BOULDER BARRIER (TYP.)

PROPOSED NATIVE TREES AND SHRUBS

PROPOSED NATIVE COASTAL PRENNIALS PLUGS AND #1 CONTAINERS

REMOVE COMPACTED GRAVEL AND LOWER AREA TO ELEV. = 0.5-FT. PLACE 6" OF TOPSOIL, INSTALL TREES, SHRUBS AND SEED. FINAL GRADE APPROX. 1.0-FT NAVD88

1.70

1.82

1.58

0' 60' 120'

0 1/2" 1"

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REVISIONS

ACTIVITY AREA 2A

BLUFF POINT STATE PARK
RESTORATION PLAN CONCEPTS

55 DEPOT RD
GROTON, CT 06340

JCM	FRM	JCM
DESIGNED	DRAWN	CHECKED

SCALE: 1"=120'

DATE: DECEMBER 27, 2024

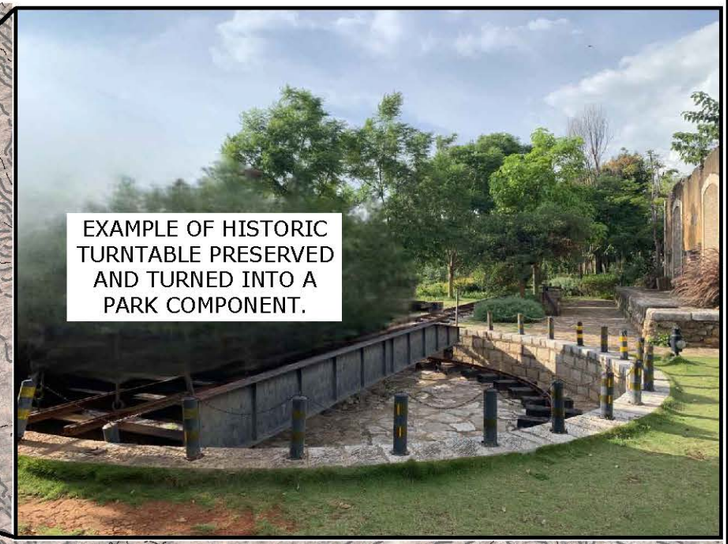
PROJECT NO.: 11958.00134

SHEET NO.: AA-2A

RESTORE LOWER PARKING LOT AND CONSTRUCT NEW PARKING AT LOCATION B

SEE AA-1A & AA-1B FOR PROPOSED ACCESS ROAD LOCATION ALTERNATIVES

PROPOSED PARKING LOT, LOCATION B SIZE:1.83 AC



EXAMPLE OF HISTORIC TURNTABLE PRESERVED AND TURNED INTO A PARK COMPONENT.

MLW Elev. = -1.7 FT

MHW Elev. = 0.9 FT

PROPOSED IMPROVED BOAT RAMP

PROPOSED BOULDER BARRIER (TYP.)

PROPOSED NATIVE TREES AND SHRUBS

PROPOSED NATIVE COASTAL PRENNIALS PLUGS AND #1 CONTAINERS

REMOVE COMPACTED GRAVEL AND LOWER AREA TO ELEV. = 0.5-FT. PLACE 6" OF TOPSOIL, INSTALL TREES, SHRUBS AND SEED. FINAL GRADE APPROX. 1.0-FT NAVD88

POQUONOCK RIVER
EBB
FLOOD

0' 75' 150'
0 1/2" 1"

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REVISIONS

ACTIVITY AREA 2B

BLUFF POINT STATE PARK
RESTORATION PLAN CONCEPTS
55 DEPOT RD
GROTON, CT 06340

JCM	FRM	JCM
DESIGNED	DRAWN	CHECKED

SCALE: 1"=150'

DATE: DECEMBER 27, 2024

PROJECT NO.: 11958.00134

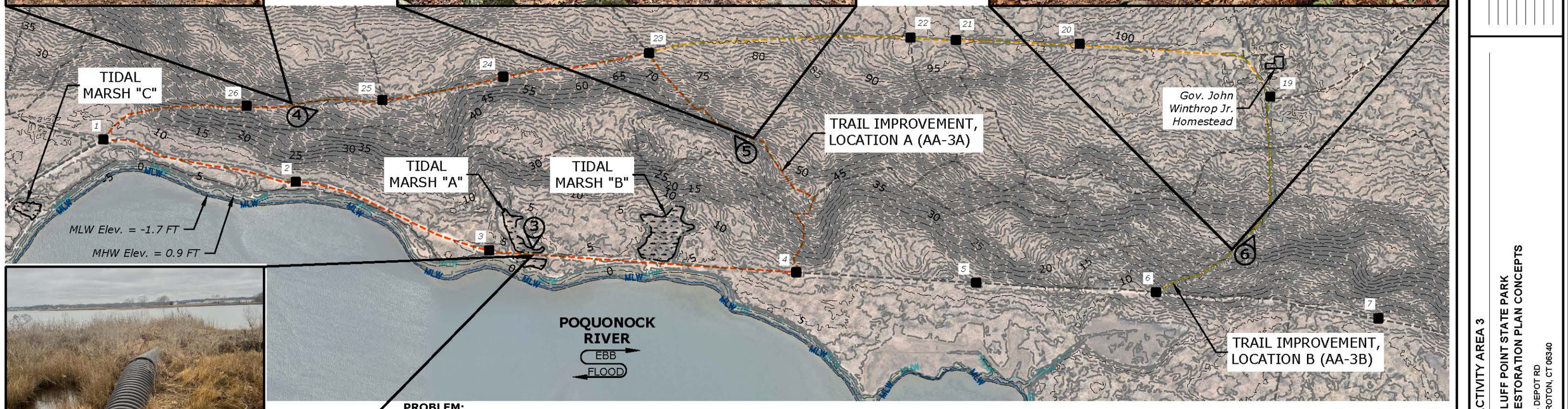
SHEET NO.: AA-2B

MAIN PARK ACCESS ROAD

④ PHOTO TAKEN ON DECEMBER 10, 2024

⑤ PHOTO TAKEN ON DECEMBER 10, 2024

⑥ PHOTO TAKEN ON DECEMBER 10, 2024



③ PHOTO TAKEN ON DECEMBER 10, 2024

PROBLEM:

1. COASTAL EROSION
2. FLOODING DUE TO SEA LEVEL RISE
3. CHOKING TIDAL WETLANDS

0' 175' 350'
0 1/2" 1"

SOLUTION:

MOVE PRIMARY ROAD TO EXISTING INTERIOR ROAD, REMOVE CULVERTS IN DISREPAIR AND REPLACE WITH TIMBER BOARDWALKS, CONVERT PORTION OF MAIN ROAD INTO PEDESTRIAN TRAIL, ENSURE TURNOFFS FOR MAINTENANCE VEHICLES (15-FT WIDE). EXISTING INTERIOR ROAD WILL BE IMPROVED BY WIDENING THE ROAD FROM 12-FT TO 14-FT, MINOR TREE AND BOULDER REMOVAL ALONG SHOULDER, FILLING TO COMPACT ROADWAY AND REDUCE STEEP GRADES AND EROSION, INSTALLATION OF CULVERTS WHERE DRAINAGE IS NECESSARY.

- *LOCATION A:* CONNECTING TRAIL MARKER 23 TO MARKER 4. EXISTING TRAIL IS NARROW; IMPROVEMENTS WILL REQUIRE TREE AND LEDGE REMOVAL, FILLING AND COMPACTING OF TRAIL (SEE AA-3A).
- *LOCATION B:* CONNECTING TRAIL MARKER 19 TO MARKER 6. EXISTING ROAD WILL NEED MINOR TREE AND BOULDER REMOVAL, FILLING AND COMPACTING OF ROAD (SEE AA-3B).

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REVISIONS

ACTIVITY AREA 3

BLUFF POINT STATE PARK
RESTORATION PLAN CONCEPTS

55 DEPOT RD
GROTON, CT 06340

JCM	FRM	JCM
DESIGNED	DRAWN	CHECKED

1"=350'
SCALE

DECEMBER 27, 2024
DATE

11958.00134
PROJECT NO.

AA-3
SHEET NO.

Drawing: W:\CADDESIGN\11958.00134-DE\CAD\BF-CONCEPTS 11X17.DWG Layout: TabAA-3
Plotted by: FMASTROLUCA On the date: Tue, 2025 January 14 - 11:12am

IMPROVE EXISTING TRAIL TO PRIMARY EMERGENCY ACCESS ROUTE, LOCATION A

CONSTRUCT PROPOSED TURNOFFS IN LOCATIONS WHERE EXISTING ROAD IS NATURALLY WIDER AND CLEARED, ENSURE TURNAROUNDS ARE APPROX. EVERY 300-FT (TYP.)

PROPOSED TRAIL IMPROVEMENT, LOCATION A
PROPOSED WIDTH = 14-FEET
FILL = APPROX. 1-FOOT

TIDAL MARSH "A"

TIDAL MARSH "B"

POQUONOCK RIVER
EBB
FLOOD

MLW Elev. = -1.7 FT

MHW Elev. = 0.9 FT

0' 90' 180'
0 1/2" 1"
SCALE: 1" = 180'

TIDAL MARSH "A"

TIDAL MARSH "B"

PORTION OF MAIN ROAD WIDTH TO BE REDUCED TO 6-FEET AND CONVERTED INTO PEDESTRIAN TRAIL

PROPOSED TIDAL WETLAND WOODEN BOARDWALK (TYP.)

0' 50' 100'
0 1/2" 1"
SCALE: 1" = 100'

EXAMPLE OF PROPOSED WETLAND BOARDWALK/BRIDGE

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ACTIVITY AREA 3A

BLUFF POINT STATE PARK
RESTORATION PLAN CONCEPTS
55 DEPOT RD
GROTON, CT 06340

JCM	FRM	JCM
DESIGNED	DRAWN	CHECKED

SCALE: AS NOTED

DATE: DECEMBER 27, 2024

PROJECT NO.: 11958.00134

SHEET NO.: AA-3A

IMPROVE EXISTING TRAIL TO PRIMARY EMERGENCY ACCESS ROUTE, LOCATION B

CONSTRUCT PROPOSED TURNAOFFS IN LOCATIONS WHERE EXISTING ROAD IS NATURALLY WIDER AND CLEARED, ENSURE TURNAROUNDS ARE APPROX. EVERY 300-FT (TYP.)

PROPOSED TRAIL IMPROVEMENT, LOCATION B
PROPOSED WIDTH = 14-FEET
FILL = APPROX. 1-FOOT

TIDAL MARSH "B"

MAIN ROAD AND WETLAND IMRPOVEMENTS SEE AA-3A

MLW Elev. = -1.7 FT

MHW Elev. = 0.9 FT

POQUONOCK RIVER
EBB
FLOOD

SCALE: 1" = 160'

SLR
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
SLRCONSULTING.COM

REVISIONS

ACTIVITY AREA 3B

BLUFF POINT STATE PARK
RESTORATION PLAN CONCEPTS

55 DEPOT RD
GROTON, CT 06340

JCM	FRM	JCM
DESIGNED	DRAWN	CHECKED

1"=160'
SCALE

DECEMBER 27, 2024
DATE

11958.00134
PROJECT NO.

AA-3B
SHEET NO.

Attachment D:

Proposed Restoration Cost Opinions

SLR

Bluff Point State Park - Primary Park Access Roadway Relocation

SLR No. 11958.00134

Groton, Connecticut

Friday, January 17, 2025

Opinion of Probable Project Related and Construction Costs

Activity 1A - At-Grade Railroad Crossing and New Park Entrance Road, Location A

No	Item	Unit	Quantity	Unit Cost	Cost
1.	**Design Phase Services**				
a.	Topographic Survey	LS	1	$100,000	$100,000
b.	Engineering Design	LS	1	$125,000	$125,000
c.	Regulatory Permitting	LS	1	$50,000	$50,000
d.	Construction Administration	LS	1	$100,000	$100,000
2.	**Gravel Road**				
a.	Clearing and grubbing	LS	1	$100,000	$100,000
b.	Strip topsoil along roadway alignment	LS	1	$100,000	$100,000
c.	Improve/construct gravel road (20 ft width) to create main entrance	LF	2,000	$200	$400,000
d.	Construct new at-grade railroad crossing	LS	1	$500,000	$500,000
e.	Abandon/fill previous Amtrak underpass	LS	1	$75,000	$75,000

Subtotal =	$1,550,000.00
+30% Contingency	$465,000.00
Total =	$2,015,000.00

Assumptions

1) Based on estimated quantities to support NOAA funding grant application, no formal engineering design.
2) Construction costs are based on 2024 values.
3) No environmental remediation.
4) No on-site material reuse is possible.
5) No archeaological evaluation.
6) No off-site export of earth or rock.
7) Preset budget for removal of bedrock.

Bluff Point State Park - Primary Park Access Roadway Relocation

SLR No. 11958.00134

Groton, Connecticut

Friday, January 17, 2025

Opinion of Probable Project Related and Construction Costs

Activity 1B - At-Grade Railroad Crossing and New Park Entrance Road, Location B

No	Item	Unit	Quantity	Unit Cost	Cost
1.	**Design Phase Services**				
a.	Topographic Survey	LS	1	$150,000	$150,000
b.	Engineering Design	LS	1	$125,000	$125,000
c.	Regulatory Permitting	LS	1	$50,000	$50,000
d.	Construction Administration	LS	1	$100,000	$100,000
2.	**Gravel Road**				
a.	Clearing and grubbing	LS	1	$25,000	$25,000
b.	Strip topsoil along roadway alignment	LS	1	$25,000	$25,000
c.	Improve/construct gravel road (20 ft width) to create main entrance	LF	2,600	$200	$520,000
d.	Construct new at-grade railroad crossing	LS	1	$500,000	$500,000
e.	Construct new road through Amtrak yard, negotiate Amtrak easement	LS	1	$500,000	$500,000
f.	Abandon/fill previous Amtrak underpass	LS	1	$75,000	$75,000

Subtotal =	$2,070,000.00
+30% Contingency	$621,000.00
Total =	$2,691,000.00

Assumptions

1) Based on estimated quantities to support NOAA funding grant application, no formal engineering design.
2) Construction costs are based on 2024 values.
3) No environmental remediation.
4) No on-site material reuse is possible.
5) No archeaological evaluation.
6) No off-site export of earth or rock.
7) Preset budget for removal of bedrock.

Bluff Point State Park - Primary Park Access Roadway Relocation
SLR No. 11958.00134
Groton, Connecticut
Friday, January 17, 2025

Opinion of Probable Project Related and Construction Costs

Activity 2A - Restore Lower Parking Lot and Construct New Parking Lot, Location A

No	Item	Unit	Quantity	Unit Cost	Cost
1.	**Design Phase Services**				
a.	Topographic Survey	LS	1	$75,000	$75,000
b.	Engineering Design	LS	1	$125,000	$125,000
c.	Regulatory Permitting	LS	1	$80,000	$80,000
d.	Construction Administration	LS	1	$100,000	$100,000
2.	**Parking Lot**				
a.	Clearing and grubbing	LS	1	$75,000	$75,000
b.	Remove material in lower parking lot to reduce elevation	CY	6,453	$75	$484,000
c.	Add topsoil in lower parking lot	CY	1,613	$150	$242,000
d.	Tidal marsh plantings in lower parking lot	LS	1	$20,000	$20,000
e.	Construct new parking lot	SY	9,000	$125	$1,125,000
f.	Construct new boat ramp	LS	1	$75,000	$75,000

Subtotal =	$2,401,000.00
+30% Contingency	$720,000.00
Total =	$3,121,000.00

Assumptions

1) Based on estimated quantities to support NOAA funding grant application, no formal engineering design.
2) Construction costs are based on 2024 values.
3) No environmental remediation.
4) No on-site material reuse is possible.
5) No archeaological evaluation.
6) No off-site export of earth or rock.
7) Preset budget for removal of bedrock.

Bluff Point State Park - Primary Park Access Roadway Relocation
SLR No. 11958.00134
Groton, Connecticut
Friday, January 17, 2025

Opinion of Probable Project Related and Construction Costs

Activity 2B - Restore Lower Parking Lot and Construct New Parking Lot, Location B

No	Item	Unit	Quantity	Unit Cost	Cost
1.	**Design Phase Services**				
a.	Topographic Survey	LS	1	$75,000	$75,000
b.	Engineering Design	LS	1	$125,000	$125,000
c.	Regulatory Permitting	LS	1	$80,000	$80,000
d.	Construction Administration	LS	1	$100,000	$100,000
2.	**Parking Lot**				
a.	Clearing and grubbing	LS	1	$75,000	$75,000
b.	Remove material in lower parking lot to reduce elevation	CY	6,453	$75	$484,000
c.	Add topsoil in lower parking lot	CY	1,613	$150	$242,000
d.	Tidal marsh plantings in lower parking lot	LS	1	$20,000	$20,000
e.	Construct new parking lot	SY	9,000	$125	$1,125,000
f.	Construct new boat ramp	LS	1	$75,000	$75,000
g.	Restore historic railroad turntable [8]	LS	1	$750,000	$750,000

Subtotal =	$3,151,000.00
+30% Contingency	$945,000.00
Total =	$4,096,000.00

Assumptions

1) Based on estimated quantities to support NOAA funding grant application, no formal engineering design.
2) Construction costs are based on 2024 values.
3) No environmental remediation.
4) No on-site material reuse is possible.
5) No archeaological evaluation.
6) No off-site export of earth or rock.
7) Preset budget for removal of bedrock.
8) Railroad turntable restoration may vary in price substantially depending upon the level of restoration pursued.

Bluff Point State Park - Primary Park Access Roadway Relocation
SLR No. 11958.00134
Groton, Connecticut
Friday, January 17, 2025

Opinion of Probable Project Related and Construction Costs

Activity 3A - Improve Existing Trail to Primary Emergency Access Route, Location A

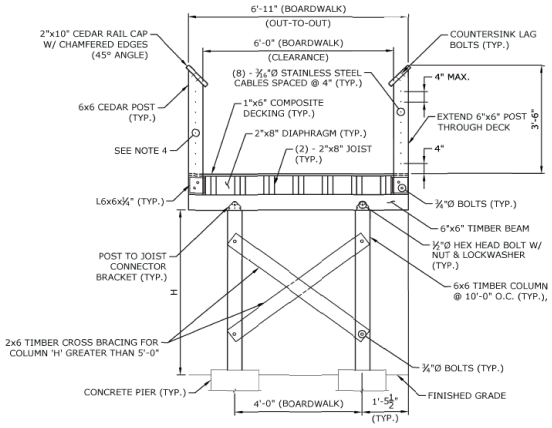
No	Item	Unit	Quantity	Unit Cost	Cost
1.	**Design Phase Services**				
a.	Topographic Survey	LS	1	$75,000	$75,000
b.	Engineering Design	LS	1	$125,000	$125,000
c.	Regulatory Permitting	LS	1	$70,000	$70,000
d.	Construction Administration	LS	1	$100,000	$100,000
2.	**Gravel Road**				
a.	Clearing and grubbing	LS	1	$50,000	$50,000
b.	Strip topsoil along roadway alignment	LS	1	$100,000	$100,000
c.	Improve gravel one-way road rutting, slopes, erosion, and turnaround areas (Segment 1)	LF	2,750	$125	$343,750
d.	Create new gravel one-way road (14 ft width) along alignment of existing bike trail (Segment 2)	LF	1,000	$225	$225,000
e.	Create new gravel one-way road (14 ft width) along existing walking path (Segment 3)	LF	225	$450	$101,250
3.	**Drainage**				
a.	Stormwater culverts beneath road	EA	5	$20,000	$100,000
b.	Roadside ditching and stabilization	ls	1	$50,000	$50,000
c.	Timber pedestrian boardwalks (2x @ 150lf x 8ft wide)	SF	1,800	$175	$315,000

Subtotal =	$1,655,000.00
+30% Contingency	$497,000.00
Total =	$2,152,000.00

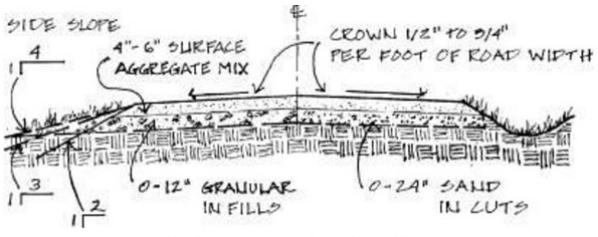
Assumptions

1) Based on estimated quantities to support NOAA funding grant application, no formal engineering design.
2) Construction costs are based on 2024 values.
3) No environmental remediation.
4) No on-site material reuse is possible.
5) No archeaological evaluation.
6) No off-site export of earth or rock.
7) Preset budget for removal of bedrock.

Typical/Illustrative Details, Below



TYPICAL BOARDWALK/OVERLOOK SECTION



Typical crown and road profile

Bluff Point State Park - Primary Park Access Roadway Relocation
SLR No. 11958.00134
Groton, Connecticut
Friday, January 17, 2025

Opinion of Probable Project Related and Construction Costs

Activity 3B - Improve Existing Trail to Primary Emergency Access Route, Location B

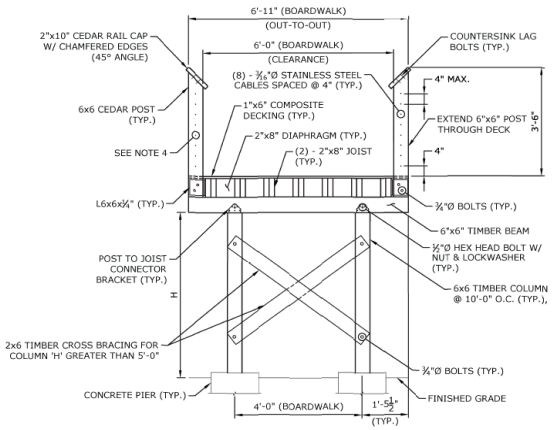
No	Item	Unit	Quantity	Unit Cost	Cost
1. Design Phase Services					
a.	Topographic Survey	LS	1	$100,000	$100,000
b.	Engineering Design	LS	1	$125,000	$125,000
c.	Regulatory Permitting	LS	1	$70,000	$70,000
d.	Construction Administration	LS	1	$100,000	$100,000
2. Gravel Road					
a.	Clearing and grubbing	LS	1	$50,000	$50,000
b.	Strip topsoil along roadway alignment	LS	1	$100,000	$100,000
c.	Improve gravel one-way road rutting, slopes, erosion, and turnaround areas (Segment 1)	LF	6,000	$125	$750,000
d.	Convert existing main road into pedestrian path	LF	2,500	$25	$62,500
3. Drainage					
a.	Stormwater culverts beneath road	EA	5	$20,000	$100,000
b.	Roadside ditching and stabilization	ls	1	$50,000	$50,000
c.	Timber pedestrian boardwalks (2x @ 150lf x 8ft wide)	SF	1,800	$175	$315,000

Subtotal =	$1,823,000.00
+30% Contingency	$547,000.00
Total =	$2,370,000.00

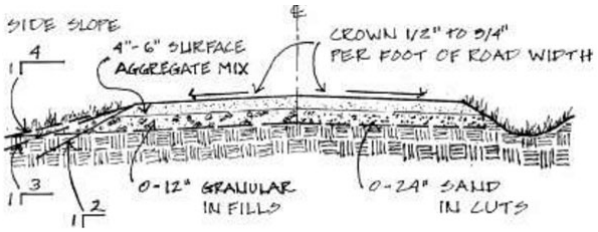
Assumptions

1) Based on estimated quantities to support NOAA funding grant application, no formal engineering design.
2) Construction costs are based on 2024 values.
3) No environmental remediation.
4) No on-site material reuse is possible.
5) No archeaological evaluation.
6) No off-site export of earth or rock.
7) Preset budget for removal of bedrock.

Typical/Illustrative Details, Below



TYPICAL BOARDWALK/OVERLOOK SECTION



Typical crown and road profile

Attachment E:

Sample Scope of Services

SLR

Sample Scope of Services

Project Implementation

In order to develop the conceptual designs contained herein into fully executable construction documents, further data collection, survey, engineering design, permitting, and construction administration services are typically required. The following outline provides a general list of tasks that should be considered as a example/guide for the next phases of project implementation.

Typical Scope Items

1. Data Collection and Topographic Survey
    - Publicly available data collection (FEMA, GIS, LIDAR, parcels, etc)
    - Topographic survey
    - Bathymetric survey
2. Preliminary Design Plans (60%)
    - Structural engineering for boardwalk structures
    - Roadway and trail design
    - Hydrologic and hydraulic stormwater evaluations
    - Sea Level Rise (SLR) evaluation
    - Shoreline stabilization and wave evaluation
    - Planting and site restoration
3. Regulatory Permitting
    - State of CT DEEP, SHPO, NDDB
    - United States Army Corps of Engineers (USACE)
    - Amtrak coordination
4. Final Design Plans (100%)
5. Construction Documents and Technical Specifications (100%)
6. Bid Support
    - Prebid meeting
    - Bid tabulation and review
7. Construction Administration
    - Request for Information (RFI) responses
    - Construction observation
    - Change Order and Payment Requisition reviews
    - Attend and record construction coordination meetings
    - Substantial completion punchlist