



Northeastern University
Coastal Sustainability Institute
Marine Science Center



MassDEP File No. 047-0580
Nahant Conservation Commission Public Hearing
January 20, 2021

Northeastern University Coastal Sustainability Institute

Project Team



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Designed to Avoid and Minimize Wetland Impacts

The CSI Project is needed to modernize the existing NEU research and education facility. It was designed to avoid and minimize work in wetland resources areas. Work is limited to:

LSCSF and Buffer Zone to BVW and Coastal Bank

The project was designed to protect the interests of the WPA, especially **storm damage prevention** and **flood control**, and maritime shrubland restoration will improve on-site **wildlife habitat**.

Similarly, the project will not adversely affect the resource area values protected by the Nahant Bylaw [Article 17 – Wetland Protection] especially those established for LSCSF.

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Public Hearing Outline

- Existing Conditions
- Project Summary
- On-site Wetland Resource Areas
- Work in and Adjacent to Resource Areas
- Mitigation Measures
- Compliance with Performance Standards

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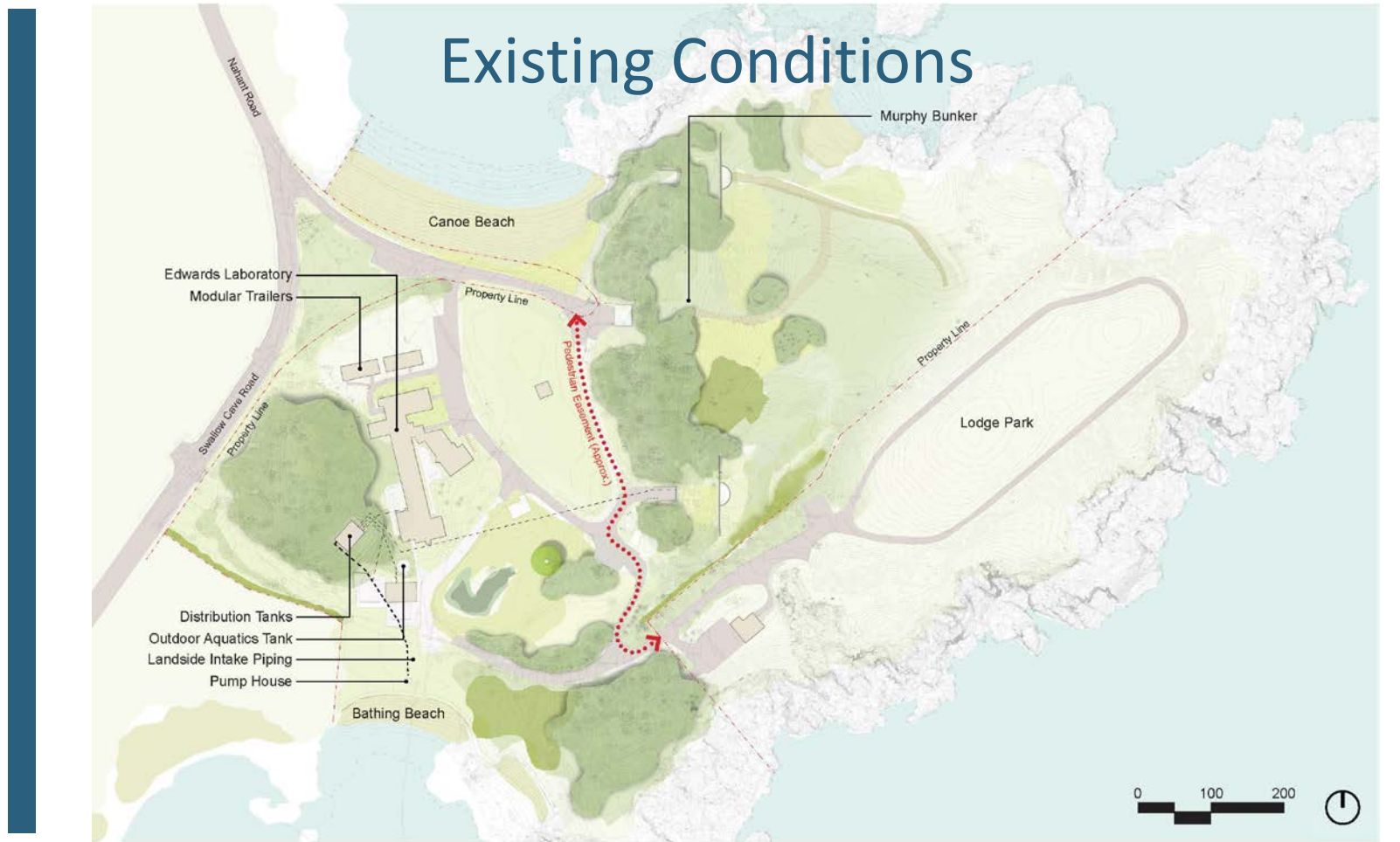
Existing Conditions

The Marine Science Center opened in 1967 on the site of a former defense facility. The MSC is housed in remnant military facilities including the Edwards Laboratory and the underground Murphy bunker

- The Edwards Laboratory houses the principal teaching and research facilities
- Murphy Bunker provides space for research and teaching

Renovations and modernization to this 50+ year old facility are needed to meet 21st century education and research needs.

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Existing Conditions

The Marine Science Center (MSC)

- 20.4-acre site
- ~3,500 linear feet of ocean frontage
- Site topography ranges from sea level to +64 feet (atop the Murphy Bunker)
- Canoe Beach to the north and Bathing Beach to the south
- Central grassed area
- Scrub/shrub communities on the east and west (invasive species)

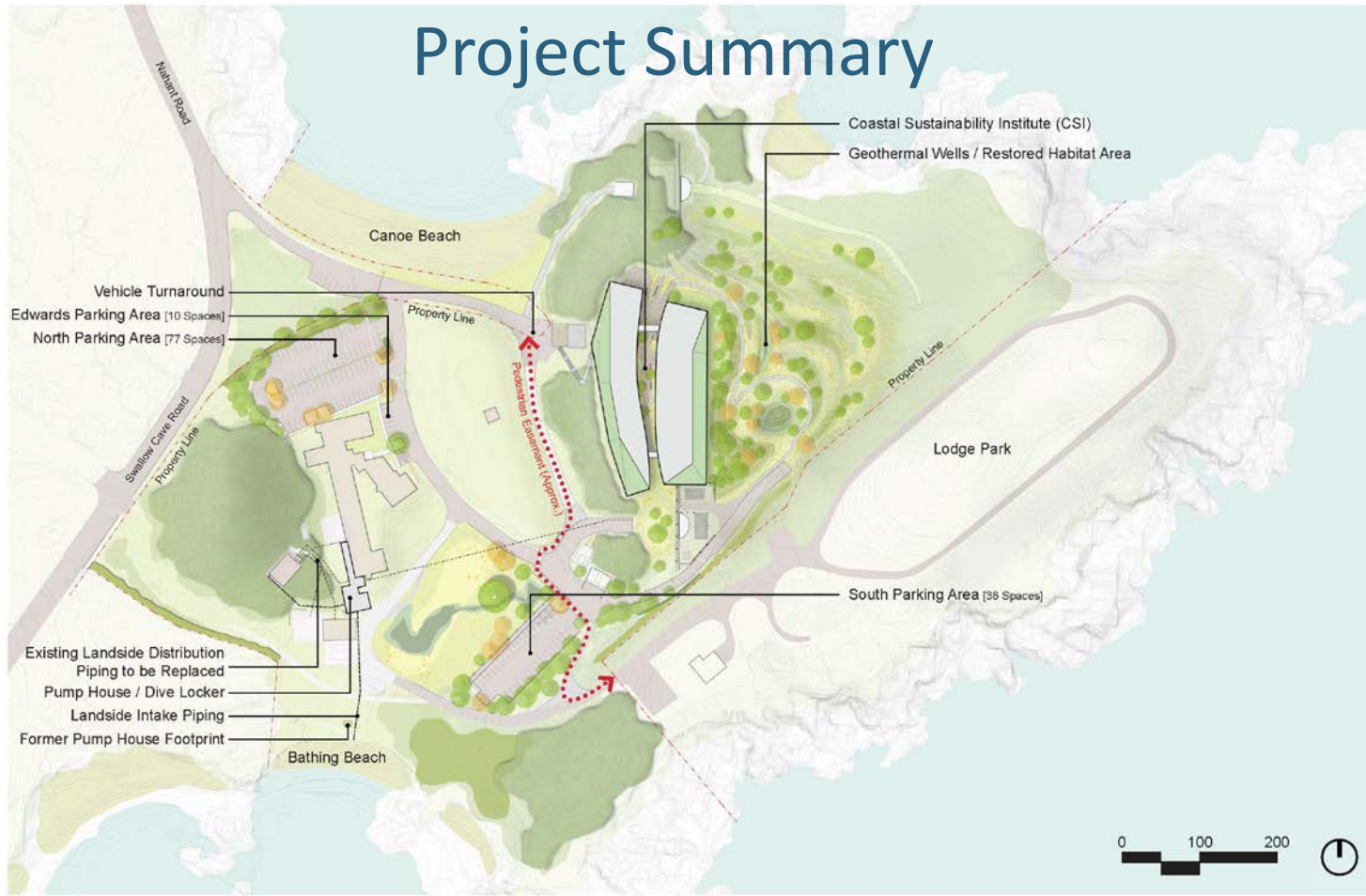
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Project Summary

- Murphy Bunker Addition
Existing Murphy Bunker Footprint: 80,614 s.f.
Proposed CSI Building Addition: 11,800 s.f. of additional footprint
- Resurface the internal access roads and install new underground utilities
- Upgrade driveway south of Murphy Bunker for fire / emergency access
- Pedestrian pathways
- Two parking areas to meet Nahant Zoning requirements
- Geothermal wellfield
- Replacement seawater intake system (DEP File No. 047-0582)

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Project Summary



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On-Site Wetland Resource Areas

- Land Under the Ocean
- Coastal Beach
- Coastal Bank
- Rocky Intertidal Shore
- LSCSF (100-year flood plain)
- Bordering Vegetated Wetland

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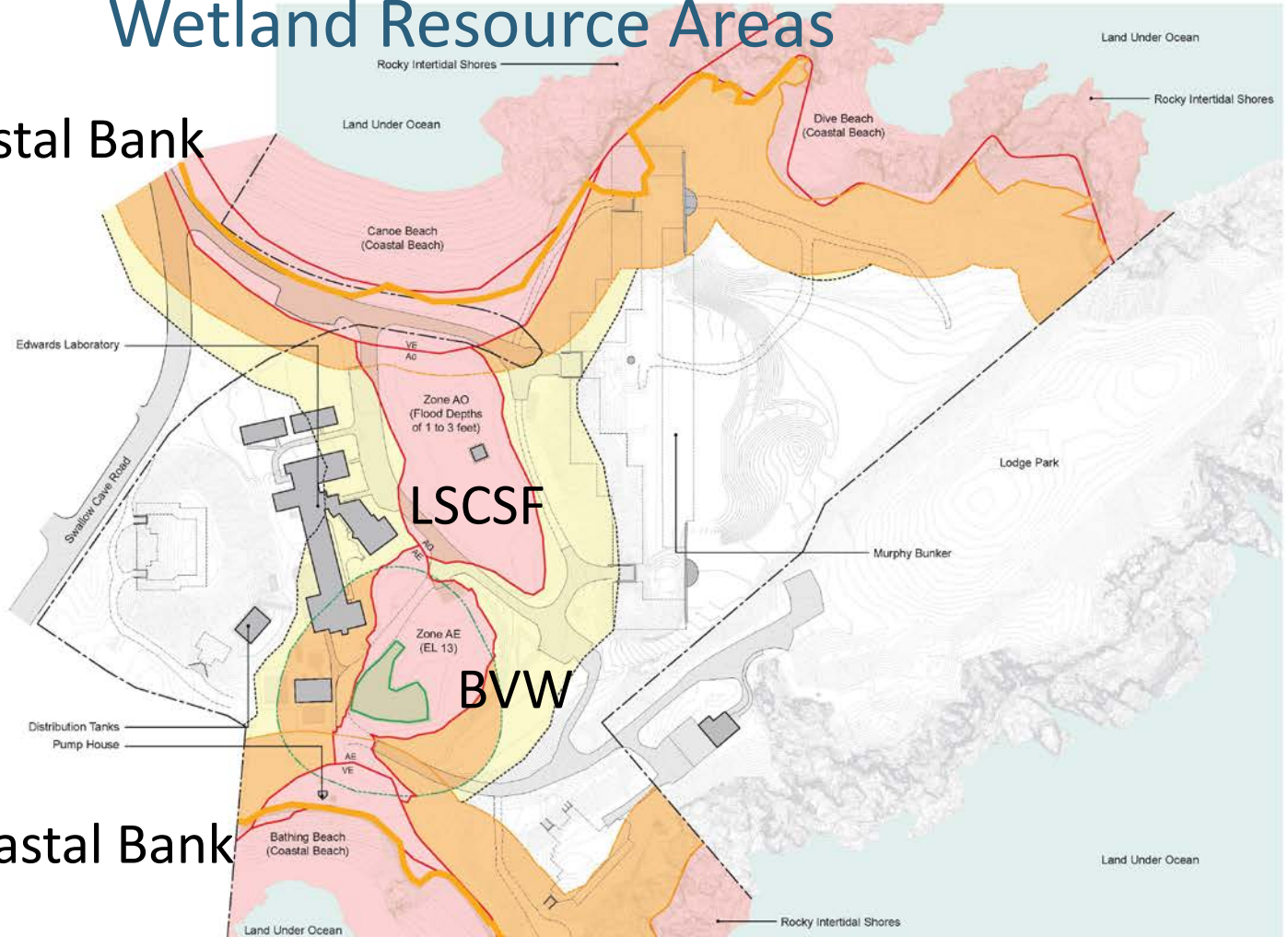
Wetland Resource Areas

LEGEND

- Property Line
- Land Subject to Coastal Storm Flowage
FEMA Zones as Noted
- Bordering Vegetated Wetland (BVW)
- 100' BVW Buffer Zone
- Coastal Bank
- 100' Coastal Bank Buffer Zone

Coastal Dune
The remaining portions of the man-made, created Coastal Dune are present along the upper portion of Canoe Beach as permitted under DEP File #047-0529. The artificial Coastal Dune has been subject to periodic storm damage following its construction.

Coastal Bank



- State Wetland/Water Resource Area
Town Wetland Bylaw Protected
- State Wetland/Water Resource Buffer Zone
Town Wetland Bylaw Protected
- Town Wetland Bylaw Protected Areas
Lands within 100 Feet of any Wetland
- Land Under Ocean

Coastal Bank

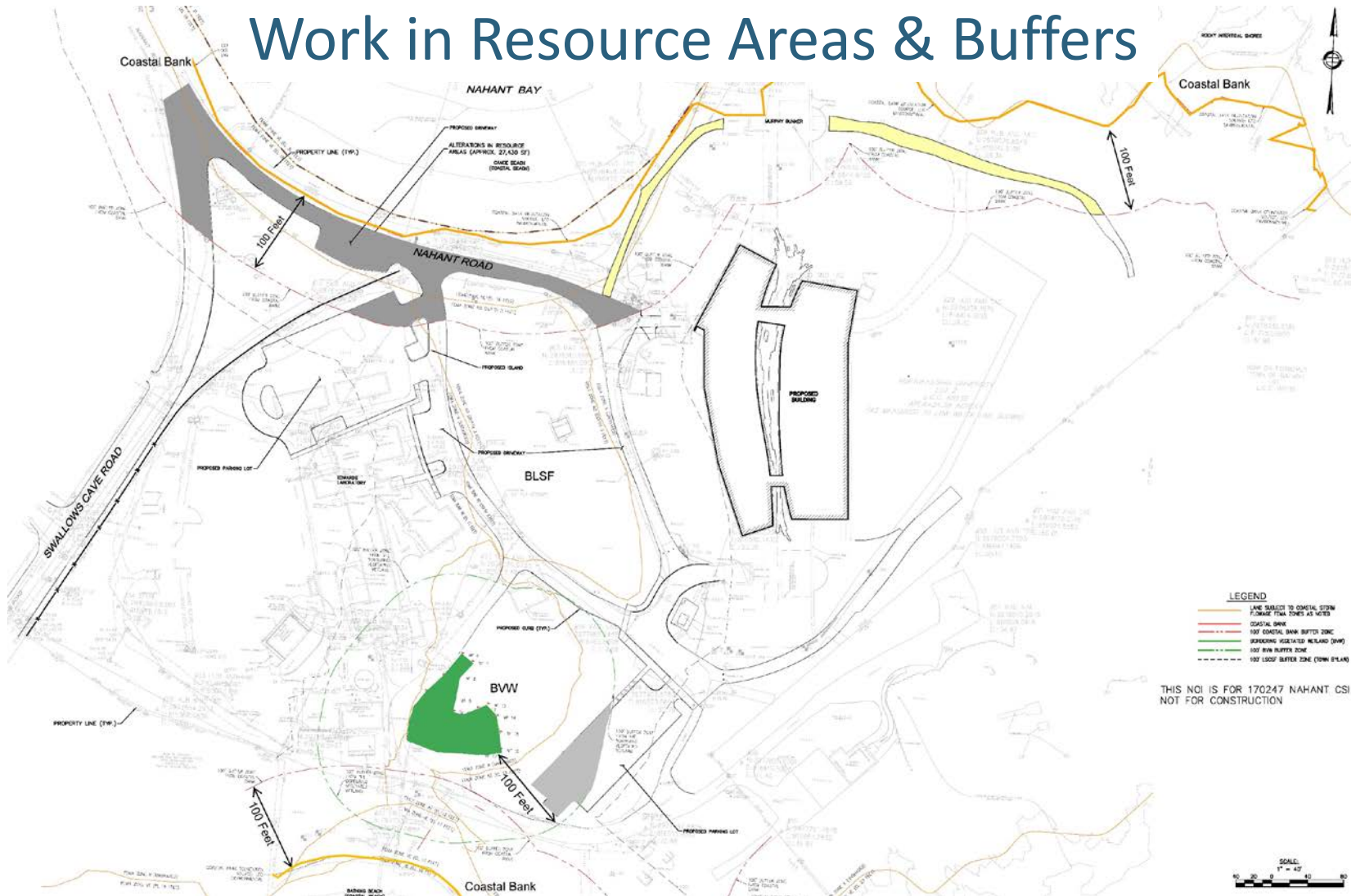
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Work in Resource Areas & Buffers

- Land Under the Ocean: NONE
- Coastal Beach: NONE
- Coastal Bank: NONE
- Rocky Intertidal Shore: NONE
- LSCSF (100-year flood plain): 25,960 s.f.
- Bordering Vegetated Wetland: NONE
- 100-Foot Buffer Zone to Coastal Bank: 23,857 s.f.
- 100-Foot Buffer Zone to BVW: 6,904 s.f.

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Work in Resource Areas & Buffers



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Work in Resource Areas & Buffers

LSCSF (25,960 s.f.)

- Roadway Improvements
- Portions of Parking Lot
- Subsurface Utilities

100-Foot Buffer Zone to Coastal Bank (23,857 s.f.)

- Roadway Improvements
- Portions of Parking Lot
- Subsurface Utilities
- Access driveway to Murphy Bunker

100-Foot Buffer Zone to BVW (6,904 s.f.)

- Portions of Parking Lot
- Subsurface Utilities

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Mitigation Measures

- Construction-Period Erosion & Sediment Control Measures
- Drainage System complies with Stormwater Management Regulations
- Restore on-site Maritime Shrubland Habitat
- LEED Gold Building Design
- Geothermal Heating and Cooling

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Compliance with Performance Standards

WPA Regulations

- No Performance Standards for LSCSF & Buffer Zones
- Guiding principle is no adverse affect to adjacent resource areas and interests of the WPA
- Roadway improvements will not de-stabilize the Coastal Bank
- No change to BVW - The guiding principle is met
- Work and project elements do not adversely affect the interests of the WPA

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Compliance with Performance Standards

Bylaw Regulations (LSCSF)

- No increase in vertical and horizontal limit of flooding
- Recharge stormwater/floodwater to improve water infiltration ability on-site
- Stormwater BMPs protect water quality of receiving waters
- Avoids storm damage to existing & proposed buildings
- Wildlife habitat improved on-site

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Conclusion

The CSI Project involves modernizing the existing NEU research and education facility. It was designed to avoid and minimize work in wetland resources areas - only involves work in:

LSCSF and Buffer Zone to BVW and Coastal Bank

The project does not adversely affect the interests of the WPA, especially **storm damage prevention** and **flood control**, and maritime shrubland restoration will improve on-site **wildlife habitat**.

Similarly, the project will not adversely affect the resource area values protected by the bylaw [Article 17 – Wetland Protection] specifically LSCSF.

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Questions

