

Maine Offshore Wind Port
Alternatives Evaluation Matrix

March 6, 2023

PRACTICABILITY

Alternative	1. Satisfies Purpose & Need (Yes/No)	Site Requirements, Logistics & Constructability									10. Currently Available (Y/N)	11. Cost (USD\$)
		2. Contiguous Upland Area (min. 100 ac)	3. Wharf Frontage (min. 1,500 feet)	4. Fed. Maint. Av. Channel Access (min. 35 feet, MLLW)	5. No At-Draft & Direct Access to Open Water (Yes/No)	6. Wharf Accessibility High Tide and Flood	7. Impacts to Navigation	8. Dredging & Disposal	9. Upland Site Preparation			
No Build	No	Not applicable	Not applicable	Maintenance dredging to occur	Not applicable	Not applicable	None	· Maintenance dredging to federal channel to occur · CAD cell required	Not applicable	Not applicable		
Mack Point	Yes	· Approx. 60 acres available (according to Sprague) and 40 acres infill required · Contiguous with no narrow areas and on the waterfront	Meets minimum 1,500 feet	· Approx. 2,000 feet from federal channel · Maintenance dredging to occur to restore consistent channel depth of -35 ft MLLW	No vertical or horizontal navigational restrictions	· Tidal range of approx. 10 feet · FEMA flood elevation of +15 feet NAVD88 · Deck elevation would be set at +15 feet; the site would slope up at 1%	· Introduction of new vessels would affect existing vessel traffic · Pilots noted winds across the beam (widest part of the ship) would make maneuverability at berth (oriented east-west, perpendicular to prevailing winds) difficult	· 690,000 cubic yards · Maintenance dredging to federal channel to occur · CAD cell required		· Yes. 60 acres identified by Sprague is available, but subject to change · Sprague Operating Resources, LLC operates Mack Point and owns the liquid bulk pier; Maine Port Authority owns the dry bulk pier, which Sprague operates		
Sears Island	Yes	· Approx. 70 acres available and 30 acres infill required · Contiguous with no narrow areas and on the waterfront	Meets minimum 1,500 feet	· Approx. 400 feet from federal channel · Maintenance dredging to occur to restore consistent channel depth of -35 ft MLLW	No vertical or horizontal navigational restrictions	· Tidal range of approx. 10 feet · FEMA flood elevation of +15 feet NAVD88 · Deck elevation would be set at +15 feet; the site would slope up at 1%	· Introduction of new vessels would affect existing vessel traffic · Pilots noted the north-south wharf configuration, parallel to prevailing winds, is favorable for berthing	· Maintenance dredging to federal channel to occur · CAD cell required		Yes, owned by the State of Maine		
Hybrid (Mack Point + Sears Island)	Yes	· Mack Point contains approx. 60 acres and Sears Island contains approx. 60 acres · Area is larger than minimum 100 acres because of separated operations · At each location the site is contiguous with no narrow areas. Both sites are on the waterfront for marshalling/integration facility on Sears Island and foundation assembly/ fabrication/manufacturing on Mack Point	Meets minimum 1,500 feet · Mack Point has independent 1,100 feet and Sears Island has independent 1,100 feet. The total length is greater than minimum 1,500 feet because both sites require enough frontage to accommodate a delivery vessel and an offshore wind foundation.	· Marshalling would occur from Sears Island: approx. 400 feet from federal channel · Maintenance dredging to occur to restore consistent channel depth of -35 ft MLLW	No vertical or horizontal navigational restrictions	· Tidal range of approx. 10 feet · FEMA flood elevation of +15 feet NAVD88 · Deck elevation would be set at +15 feet; the site would slope up at 1%	· Introduction of new vessels would affect existing vessel traffic · No new berths proposed at Mack Point. Vessels accessing Mack Point would share use of the existing bulk pier with existing users · Pilots noted the north-south wharf configuration, parallel to prevailing winds, is favorable for berthing	· 370,000 cubic yards at Mack Point · Maintenance dredging to federal channel to occur · CAD cell required		· Yes. 60 acres identified by Sprague is available, but subject to change · Sprague Operating Resources, LLC operates Mack Point and owns the liquid bulk pier; Maine Port Authority owns the dry bulk pier, which Sprague operates · Sears Island site is owned by the State of Maine		
Eastport	Yes	· Approx. 90 acres available and 10 acres infill required · Contiguous with no narrow areas and on the waterfront	Meets minimum 1,500 feet	· No federal channel present · Direct access to waters at least 65 ft MLLW	· No vertical or horizontal navigational restrictions · Travel through Canadian waters required	· Tidal range of approx. 19 feet · FEMA flood elevation of +22 feet NAVD88 · Deck elevation would be set at +22 feet; the site would slope up at 1%		No dredging is required		· Yes. Owned by Eastport Port Authority · Existing operations would have to be displaced.		

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POTENTIAL ENVIRONMENTAL IMPACT

Alternative	Impacts to Waters of the U.S. (WOTUS), Wetlands & Waterbodies from Dredge, Excavation, Fill, Conversion					Fisheries			Wildlife, Plants, & Habitat		
	12. Freshwater Wetlands & Vernal Pools	13. Streams	14. Navigable Waters	15. Coastal Wetlands	16. Eelgrass	17. Endangered Atlantic salmon and Sturgeon	18. State & Federally Managed Species	19. Shellfish	20. Plants	21. Animals & Birds	
No Build	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	
Mack Point	<ul style="list-style-type: none"> Freshwater Forested / Shrub-Scrub: TBD Freshwater Emergent: TBD Freshwater Open Water: 6 acres Vernal Pools: Not Present 	Not Present	Open Ocean: 86 acres	<ul style="list-style-type: none"> Estuarine and Marine Wetland: 5 acres 	<ul style="list-style-type: none"> 0 acre (historical) Not present 	<ul style="list-style-type: none"> Atlantic Salmon (Adults & Smolts) Atlantic Sturgeon Shortnose Sturgeon 	<ul style="list-style-type: none"> Brook Trout Habitat Scallop Management Zone present 	<ul style="list-style-type: none"> Blue Mussels: 0.1 acre Softshell Clams: <0.1 acre 	<ul style="list-style-type: none"> Forest: 22 acres (Red Maple, Eastern White Pine, Red Spruce, Balsam Fir, White Cedar, Eastern Hemlock, Sugar Maple, Yellow Birch, Northern Red Oak, Paper Birch, American Beech, Quaking Aspen, White Spruce) 	<ul style="list-style-type: none"> Bald Eagle, Bald Eagle Nest approx. 1 mile west Endangered Species: Sea Turtles (Range, No Critical Habitat, Green, Kemp's Ridley, Leatherback, Loggerhead) Endangered Species: Northern Long-eared Bat, Roseate Tern, Monarch Butterfly Tidal Waterfowl & Wading Bird Habitat: 8 acres Waterfowl Flyway (Atlantic Flyway): Present 	<ul style="list-style-type: none"> USFWS Birds of Conservation Concern: 11 species (Black-billed Cuckoo, Bobolink, Canada Warbler, Cape May Warbler, Chimney Swift, Evening Grosbeak, Lesser Yellowlegs, Olive-sided Flycatcher, Prairie Warbler, Willet, Wood Thrush) Other Migratory Birds: 13 species (Black Guillemot, Black Scoter, Common Eider, Common Loon, Long-tailed Duck, Razorbill, Red Phalarope, Red-breasted Merganser, Red-throated Loon, Ring-billed Gull, Surf Scoter, Thick-billed Murre, White-winged Scoter)
Sears Island	<ul style="list-style-type: none"> Freshwater Forested / Shrub-Scrub: 6 acres Freshwater Emergent: Not Present Freshwater Open Water: Not Present Vernal Pools: Not Present 	Not Present	Open Ocean: 34 acres	<ul style="list-style-type: none"> Estuarine and Marine Wetland: 12 acres 	<ul style="list-style-type: none"> 5 acres (historical) 0 acre (2022 survey) 	<ul style="list-style-type: none"> Atlantic Salmon (Adults & Smolts) Atlantic Sturgeon 	<ul style="list-style-type: none"> Herring Management Area Scallop Management Zone present Blood worms present within 1 mile 	<ul style="list-style-type: none"> Atlantic Surf Clams: <0.1 acre Softshell Clams: 20 acres Razor Clams, Blue Mussels present within 1 mile 	<ul style="list-style-type: none"> Forest: 78 acres (Red Maple, Eastern White Pine, Red Spruce, Balsam Fir, White Cedar, Eastern Hemlock, Sugar Maple, Yellow Birch, Northern Red Oak, Paper Birch, American Beech, Quaking Aspen, White Spruce) 	<ul style="list-style-type: none"> Bald Eagle Endangered Species: Sea Turtles (Range, No Critical Habitat, Green, Kemp's Ridley, Leatherback, Loggerhead) Endangered Species: Northern Long-eared Bat, Roseate Tern State Threatened: Razorbill State Special Concern: Eastern Ribbon Snake Tidal Waterfowl & Wading Bird Habitat: 19 acres 	<ul style="list-style-type: none"> Waterfowl Flyway (Atlantic Flyway): Present USFWS Birds of Conservation Concern: 11 species (Black-billed Cuckoo, Bobolink, Canada Warbler, Cape May Warbler, Chimney Swift, Evening Grosbeak, Lesser Yellowlegs, Olive-sided Flycatcher, Prairie Warbler, Willet, Wood Thrush) Other Migratory Birds: 12 species (Black Guillemot, Black Scoter, Common Eider, Common Loon, Long-tailed Duck, Red Phalarope, Red-breasted Merganser, Red-throated Loon, Ring-billed Gull, Surf Scoter, Thick-billed Murre, White-winged Scoter)
Hybrid (Mack Point + Sears Island)	<ul style="list-style-type: none"> Freshwater Forested / Shrub-Scrub: TBD Freshwater Emergent: TBD Freshwater Open Water: 7 acres Vernal Pools: Not Present 	Not Present	Open Ocean: 35 acres	<ul style="list-style-type: none"> Estuarine and Marine Wetland: 14 acres 	<ul style="list-style-type: none"> 4 acres (historical) 0 acre on Sears Island (2022 survey); Not present on Mack Point 	<ul style="list-style-type: none"> Atlantic Salmon (Adults & Smolts) Atlantic Sturgeon Shortnose Sturgeon Salmon Habitat Recovery Units - Present 	<ul style="list-style-type: none"> Brook Trout Habitat Herring Management Area Scallop Management Zone present Blood worms present within 1 mile 	<ul style="list-style-type: none"> Softshell Clams: 14 acres 	<ul style="list-style-type: none"> Forest: 55 acres (Red Maple, Eastern White Pine, Red Spruce, Balsam Fir, White Cedar, Eastern Hemlock, Sugar Maple, Yellow Birch, Northern Red Oak, Paper Birch, American Beech, Quaking Aspen, White Spruce) 	<ul style="list-style-type: none"> Bald Eagle Endangered Species: Sea Turtles (Range, No Critical Habitat, Green, Kemp's Ridley, Leatherback, Loggerhead) Endangered Species: Northern Long-eared Bat; Roseate Tern; Monarch Butterfly State Threatened: Razorbill Tidal Waterfowl & Wading Bird Habitat: 17 acres Waterfowl Flyway (Atlantic Flyway) present 	<ul style="list-style-type: none"> USFWS Birds of Conservation Concern: Black-billed Cuckoo; Bobolink; Canada Warbler; Cape May Warbler; Chimney Swift; Evening Grosbeak; Lesser Yellowlegs; Olive-sided Flycatcher; Prairie Warbler; Willet Other Migratory Birds: 13 species (Wood Thrush; Black Guillemot; Black Scoter; Common Eider; Common Loon; Long-tailed Duck; Red Phalarope; Red-breasted Merganser; Red-throated Loon; Ring-billed Gull; Surf Scoter; Thick-billed Murre; White-winged Scoter)
Eastport	<ul style="list-style-type: none"> Freshwater Forested / Shrub-Scrub: 3 acres Freshwater Emergent: 0.2 acre Freshwater Open Water: Not Present Vernal Pools: Not Present 	<ul style="list-style-type: none"> Stream 1: 776 feet Stream 2: 425 feet 	Open Ocean: 13 acres	<ul style="list-style-type: none"> Estuarine and Marine Wetland: 5 acres 	Not Present	<ul style="list-style-type: none"> Atlantic Salmon (Adults and Smolts) Shortnose Sturgeon (Adults) Atlantic Sturgeon (Adults and Sub Adults) 	<ul style="list-style-type: none"> Herring Management Area Scallop Management Zones present 	<ul style="list-style-type: none"> Sea Scallops: 2 acres Blue Mussels, Soft-shell Clams present within 1 mile 	<ul style="list-style-type: none"> Forest: 46 acres (Red Maple, Eastern White Pine, Balsam Fir, Northern White Cedar, Eastern Hemlock, Sugar Maple, Yellow Birch, Northern Red Oak, Northern White Oak, Paper Birch, Red Spruce) 	<ul style="list-style-type: none"> Bald Eagle, Bald Eagle Nest approx. 0.5 mile east (Shakford Head) Endangered Species: Sea Turtles (Range, No Critical Habitat, Green, Kemp's Ridley, Leatherback, Loggerhead) Endangered Species: Northern Long-eared Bat, Roseate Tern Marine Mammals (historical) State Threatened: Harlequin Duck 	<ul style="list-style-type: none"> Shorebird Habitat: Approx. 0.25 mile west of site Seabird Nesting Island: <1 mile south of site Smelt Access Route: within 1 mile of site USFWS Birds of Conservation Concern: 10 species (Black-billed Cuckoo, Bobolink, Canada Warbler, Cape May Warbler, Chimney Swift, Evening Grosbeak, Lesser Yellowlegs, Olive-sided Flycatcher, Purple

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POTENTIAL ENVIRONMENTAL IMPACT CONTINUED

Proposed Alternative	Natural Features		Cultural Resources			Property Impacts / Existing Uses				
	22. Groundwater & Aquifers	23. Floodplains & Coastal Features	24. Archaeological	25. Historic Architectural	26. Tribal Interests	27. Recreation & Conserved Land	28. Residential	29. Business & Commercial & Institutional	30. Farmland	31. Aquaculture
No Build										
Mack Point	Aquifer not present	<ul style="list-style-type: none"> Coastal Bluffs: 2,484 feet Intertidal Coarse Grained Flat: 5 acres Subtidal Dredged Channel: 13 acres Subtidal Estuarine Channel: 62 acres Supratidal Man-made land: 2 acres Intertidal Mixed sand and gravel beach: 2 acres Intertidal Mud Flats: <0.1 acre 		<ul style="list-style-type: none"> No Known NRHP Resources present NRHP-listed/eligible and Previously Identified Historic Resources present within 1 mile (3 districts and 78 structures) 		<ul style="list-style-type: none"> Increased traffic along and across recreational Boater Routes Downeast Fisheries Trail Present within 1 mile (Penobscot Marine Museum) 	<ul style="list-style-type: none"> No residential uses in site footprint Increase in traffic and noise along Trundy Road, US 1, and Port Additional lighting 	<ul style="list-style-type: none"> Sprague Energy would be displaced. Canadian Pacific Rail would be displaced. 	Farmland of Statewide Importance/Prime Farmland (Soil Characteristics): 2 acres	Not Present
Sears Island	Aquifer not present	<ul style="list-style-type: none"> Coastal Bluffs: 2,104 feet Sand Dune Erosion Hazard Areas: 0.4 acre Coarse-grained flat: 21 acres Dredged Channel: <0.1 acre Ledge: 2 acres Mixed Sand and Gravel Beach: 3 acres 		No Known NRHP Resources present		<ul style="list-style-type: none"> Additional traffic along Jetty Road on the Conservation Parcel Conservation Parcel indirect impacts: increased noise, new lighting introduced to area Increased traffic along and across recreational boater routes MaineDOT Umbrella Mitigation Bank Downeast Fisheries Trail present within 1 mile (Penobscot Marine Museum) 	<ul style="list-style-type: none"> No residential uses in site footprint Increase in traffic and noise along Sears Island Road, Jetty Road, US 1 Introduction of new lighting to the area 	Dedicated to transportation use	Farmland of Statewide Importance/Prime Farmland (Soil Characteristics): 25 acres	Not Present
Hybrid (Mack Point + Sears Island)	Aquifer not present	<ul style="list-style-type: none"> Coastal Bluffs: 2,900 feet Sand Dune Erosion Hazard Areas: 0.4 acre Intertidal Coarse Grained Flat: 15.8 acres Intertidal Ledge: 2 acres Supratidal Man-made Land: 0.6 acre Subtidal Dredged Channel: 6 acres Subtidal Estuarine Channel: 11 acres Intertidal Mixed sand and gravel beach: 3 acres Intertidal Mud Flats: <0.1 acre 		<ul style="list-style-type: none"> No Known NRHP Resources Present NRHP-listed/eligible and Previously Identified Historic Resources present within 1 mile (3 districts and 78 structures) 		<ul style="list-style-type: none"> Additional traffic along Jetty Road on the Conservation Parcel Conservation Parcel indirect impacts: increased noise, new lighting introduced to area Increased traffic along and across recreational Boater Routes MaineDOT Umbrella Mitigation Bank Downeast Fisheries Trail present within 1 mile (Penobscot Marine Museum) 	<ul style="list-style-type: none"> No residential uses in site footprint Increase in traffic and noise along Trundy Road, Sears Island Road, Jetty Road, US 1 Introduction of new lighting to the area 	<ul style="list-style-type: none"> Sprague Energy would be displaced. Canadian Pacific Rail would be displaced. 	Farmland of Statewide Importance/Prime Farmland (Soil Characteristics): 21 acres	Not Present
Eastport	<ul style="list-style-type: none"> Aquifer not present 41 domestic and industrial wells within 1 mile 	<ul style="list-style-type: none"> Coastal Bluffs not present Sand Dune Erosion Hazard Areas not present Intertidal Boulder Ramp: 0.1 acre Intertidal Coarse Grained Flat: 6 acres Intertidal Ledge: 3 acres Intertidal Low Energy Beach: 2 acres Supratidal Man-made Land: 0.3 acre Subtidal Medium Velocity Tidal Channel: 9 acres Intertidal Mudflats: 0.1 acre 		<ul style="list-style-type: none"> No Known NRHP Resources Present NRHP-listed/eligible and Previously Identified Historic Resources Present within 1 mile (3 districts and 37 structures) 		<ul style="list-style-type: none"> Commercial whale watching areas present Scuba Diving areas present Recreational boater routes within 1 mile Downeast Fisheries Trail and Downeast Bird Trail present within 1 mile (Shackford Head State Park; Cobscook Bay Resource Center) 	<ul style="list-style-type: none"> No residential uses in site footprint but adjacent residences on Prime Street would likely be displaced Increase in traffic and noise along SR 190 Acquisition of properties along Prime Street Eastport Memorial Nursing Home within 1 mile 	<ul style="list-style-type: none"> Estes Head Cargo Terminal would be displaced Federal Marine Terminals Ltd. operations would be displaced Five warehouses would be displaced Estes Head pier would be demolished Future growth of the Woodland Pulp Mill in Baileyville could be limited 	Farmland of Statewide Importance/Prime Farmland (Soil Characteristics): 66 acres	Cooke Aquaculture Atlantic Salmon facility would be displaced

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POTENTIAL ENVIRONMENTAL IMPACT CONTINUED

Community, Economic, & Social Impacts										
Proposed Alternative	32. Visual/Aesthetic & Lighting	33. Noise	34. Hazardous Waste	35. Air Quality	36. Climate Change & Resiliency	37. Host Community Benefits & Impacts	38. Environmental Justice	39. Proximity to Labor Markets & Affordable Housing, etc.	40. Legal or Policy Issues that affect implementation	41. Economic Contribution of Existing Uses to Local Economy
No Build	None									
Mack Point	Lighting added	Introduction of additional noise from increased vehicle traffic along Trundy Road and at Port	Existing facility could be considered a brownfields site							
Sears Island	Introduction of new lighting	· Introduction additional noise from increased vehicle traffic along Sears Island Road, Jetty Road (on the Conservation Parcel) · Introduction of a new, dominant noise source at Port	None known							
Hybrid (Mack Point + Sears Island)	· Lighting added on Mack Point · Introduction of new lighting on Sears Island	· Introduction of additional noise from increased vehicle traffic along Trundy Road, Sears Island Road, Jetty Road (on the Conservation Parcel) · Introduction of a new, dominant noise source at Port	Mack Point could be considered a brownfields site None known on Sears Island							
Eastport	Introduction of new lighting	Introduction of additional noise from increased vehicle traffic along SR190 and at Port	5 Brownfields sites within 1 mile: 15 Sea Street - 2,700 feet northeast Consea Property - 830 feet east Moose Island Marine - 2,000 feet north Boat School - 2,400 feet north Wass Factory - 3,700 feet northeast							