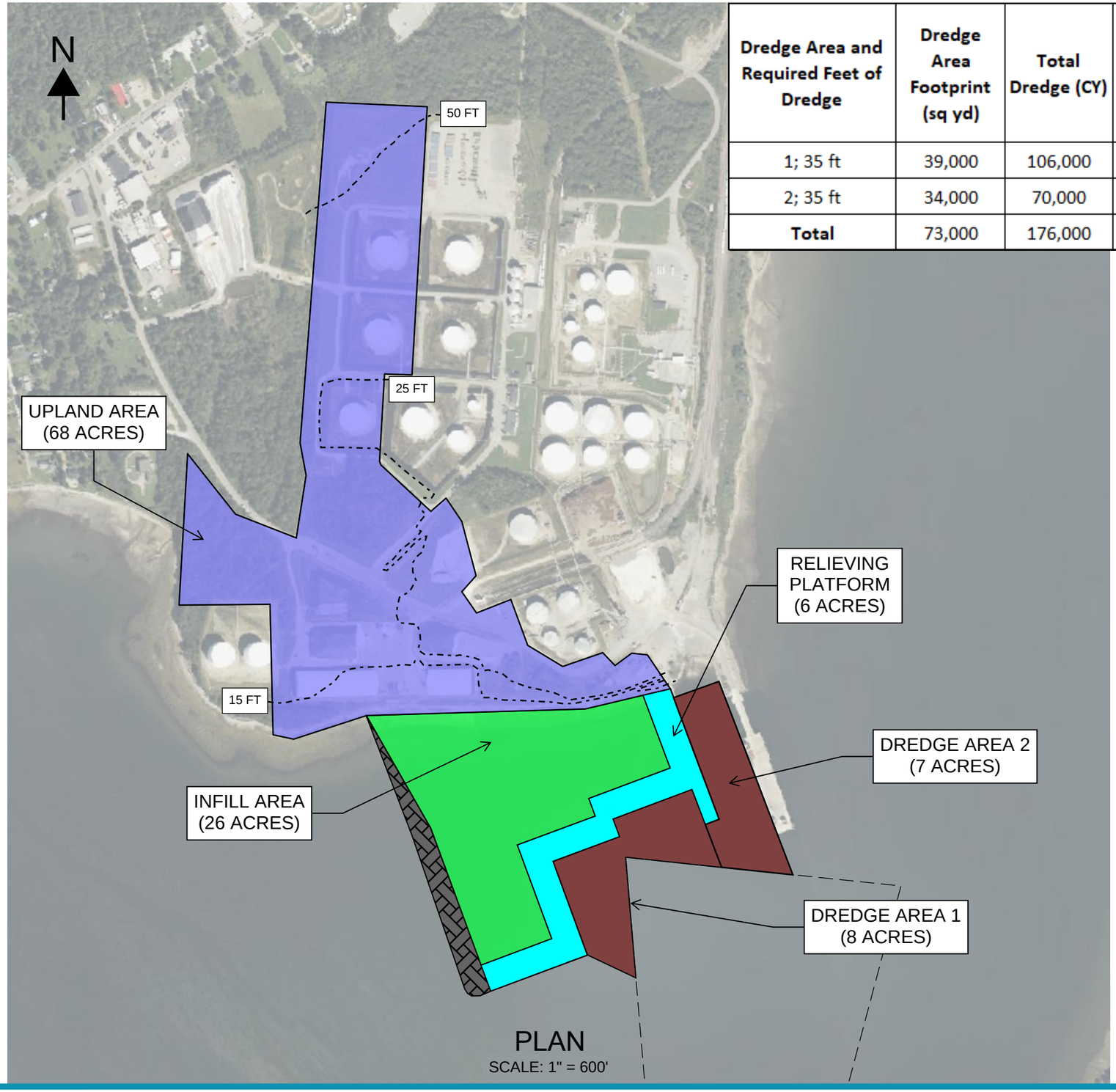
Attachment D

Sprague Proposed Alternatives



PLAN
SCALE: 1" = 600'

Dredge Area and Required Feet of Dredge	Dredge Area Footprint (sq yd)	Total Dredge (CY)	Dredge Volume of Top 3 ft Layer (CY)	Dredge Volume Below 3 ft Depth up to Glacial Till (CY)	Glacial Till Dredge Volume (CY)	Soft Material (Mud/Muck) (CY)
1; 35 ft	39,000	106,000	76,000	30,000	0	106,000
2; 35 ft	34,000	70,000	34,000	33,000	3,000	67,000
Total	73,000	176,000	110,000	63,000	3,000	173,000

MaineDOT completed an independent dredge quantity review of the Sprague Alternative using detailed data collected for the state's Mack Point Alternative. This sheet summarizes this review.

Notes:

1. Sprague Alternative shown. Deck height set to 15 ft based on FEMA flood levels.

2. All numbers are preliminary and approximate based on available bathymetric and geotechnical data.

3. Net material import of 770,000 CY required.

4. Average elevation at back of terminal is approximately 62 ft.

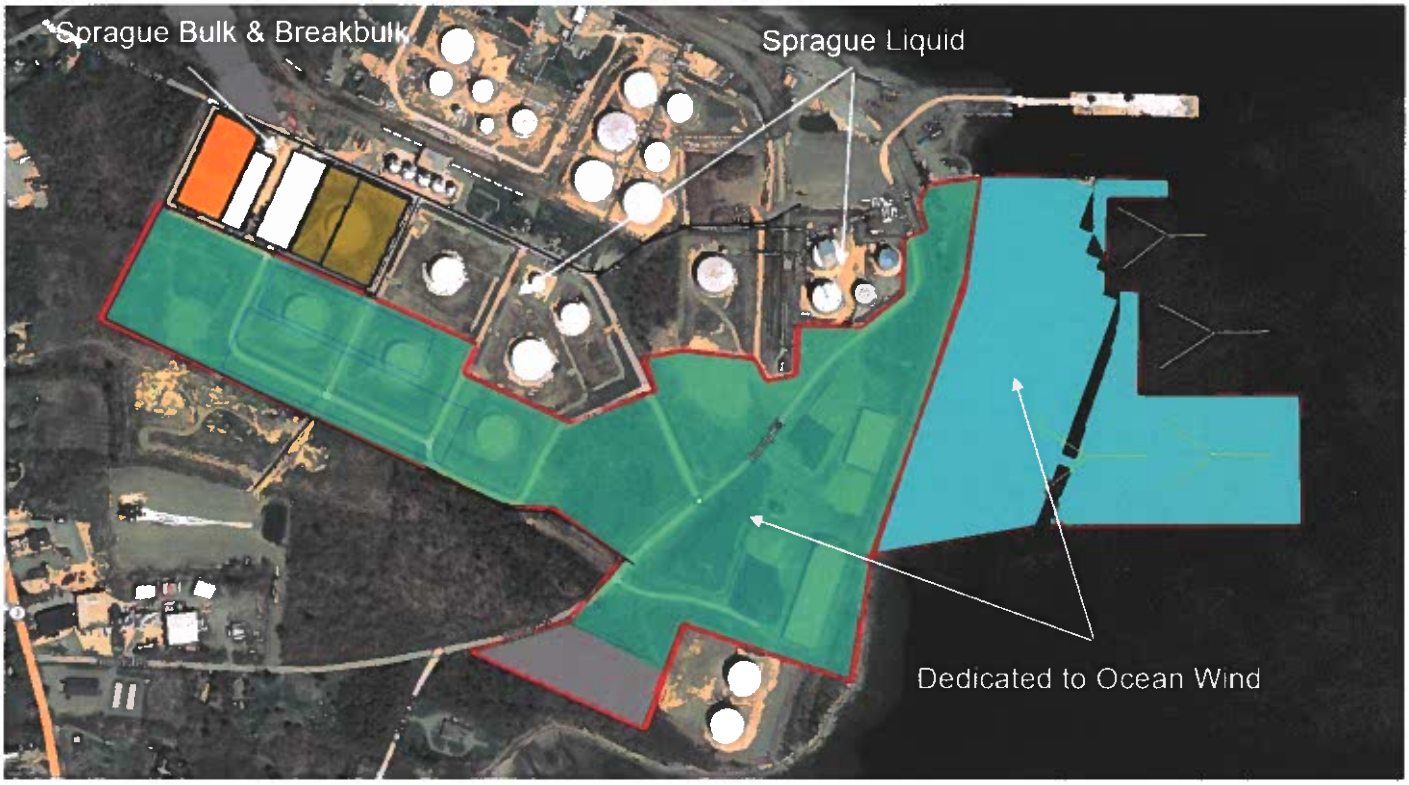
CONCEPTUAL DRAWING
NOT TO BE USED FOR CONSTRUCTION

300' 0' 300' 600'
SCALE: 1" = 600'

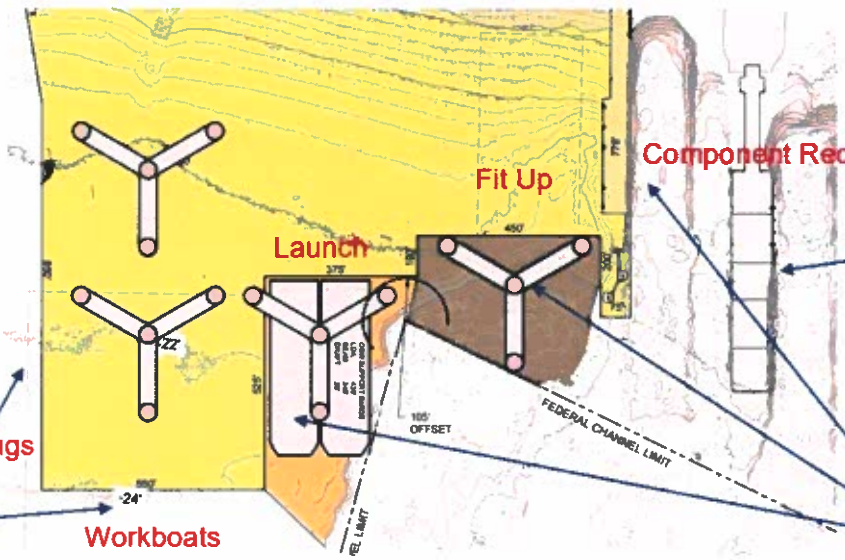
The following was prepared by Sprague and distributed at MaineDOT's Oct. 25, 2023 Informational Public Meeting.

Alternative Terminal Layout

100 acres dedicated to ocean wind while preserving current capabilities



Greatly Increased Unit/Vessel Docking Capability, including workboat, tug, and backup receipt docks



2nd non-dedicated component receipt dock for all but largest nacelles.

1,100' in two locations for work boats and tugs.

1750' in three separate locations for wind component receipt, base launch and unit fit up.

Facility Comparisons

Facility	Total Size (acres)	Over Water Fill Area (acres)	Dredge Amount (Cu. Yds.)	Large units dock total length (feet)	Smaller vessel Dock length (feet)	Type of Property	Existing Road and utilities	Existing Rail	Fresh Open Water Impacted (acres)
Moffat & Nichols Mack Point	100	35	500,000	1,500	0	Industrial	Yes	Yes	6
Sears Island	100	25	0	1,500	0	Greenfield	No	No	0
Sprague Low Impact Alternative	100	35	61,000	1,750	1,000	Industrial	Yes	Yes	<1

Recent Northern New England Dredges

Project	Year	Cubic Yards
Boston Harbor Deepening	2022	12,000,000
Portland Maintenance	2014	500,000
Portsmouth Turning Basin	2022	275,000
Portland Harbor Maintenance	Planning	245,000
Scarborough River Maintenance	Nov 2023	130,000
Scarborough River Maintenance	2014	91,500
Moffat & Nichols Layout	2026	500,000
Sprague Mack Point Layout		61,000

Enhancements from Original Concept

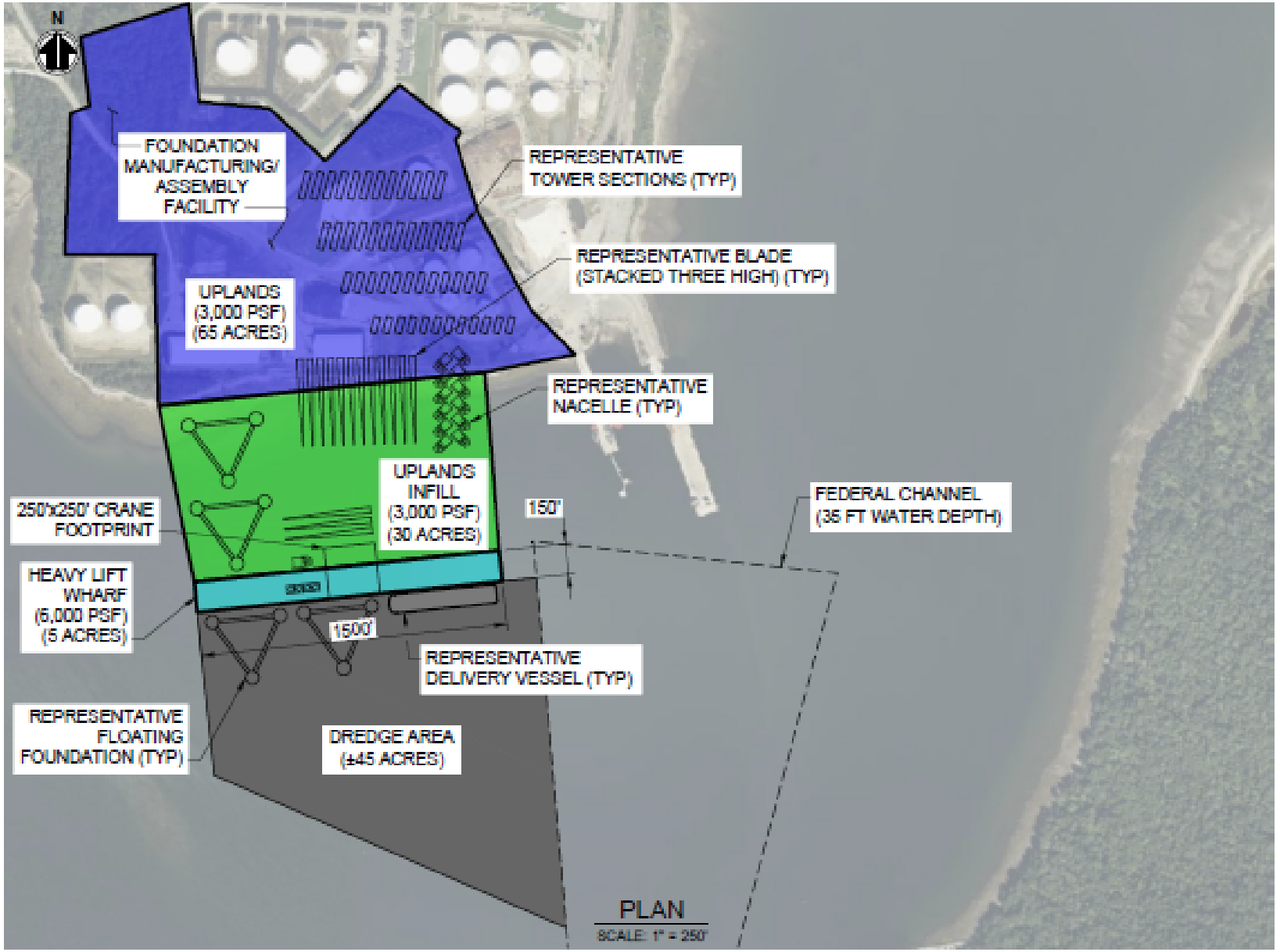
- Greatly reduced dredging requirement
- Increased vessel docking capability
- Reduced wetland impact
- Reduced need for soil extractions
- Avoids potential problem areas
- Mitigates impact of fetch and southwest winds
- Provides for a stand-alone 100-acre wind terminal
- Provides a lower impact repurposing of an industrial site with very minimal green area use
- Preserves all current terminal handling capability

The following was prepared by Sprague and submitted to MPA by email April 4, 2023.

Floating Ocean Wind Plan

For large scale
Units of 15-20 MW
using a semi-submersible barge
or TugDock unit and taking advantage of existing water depths

State Plan via Moffat & Nichols



NOTES:

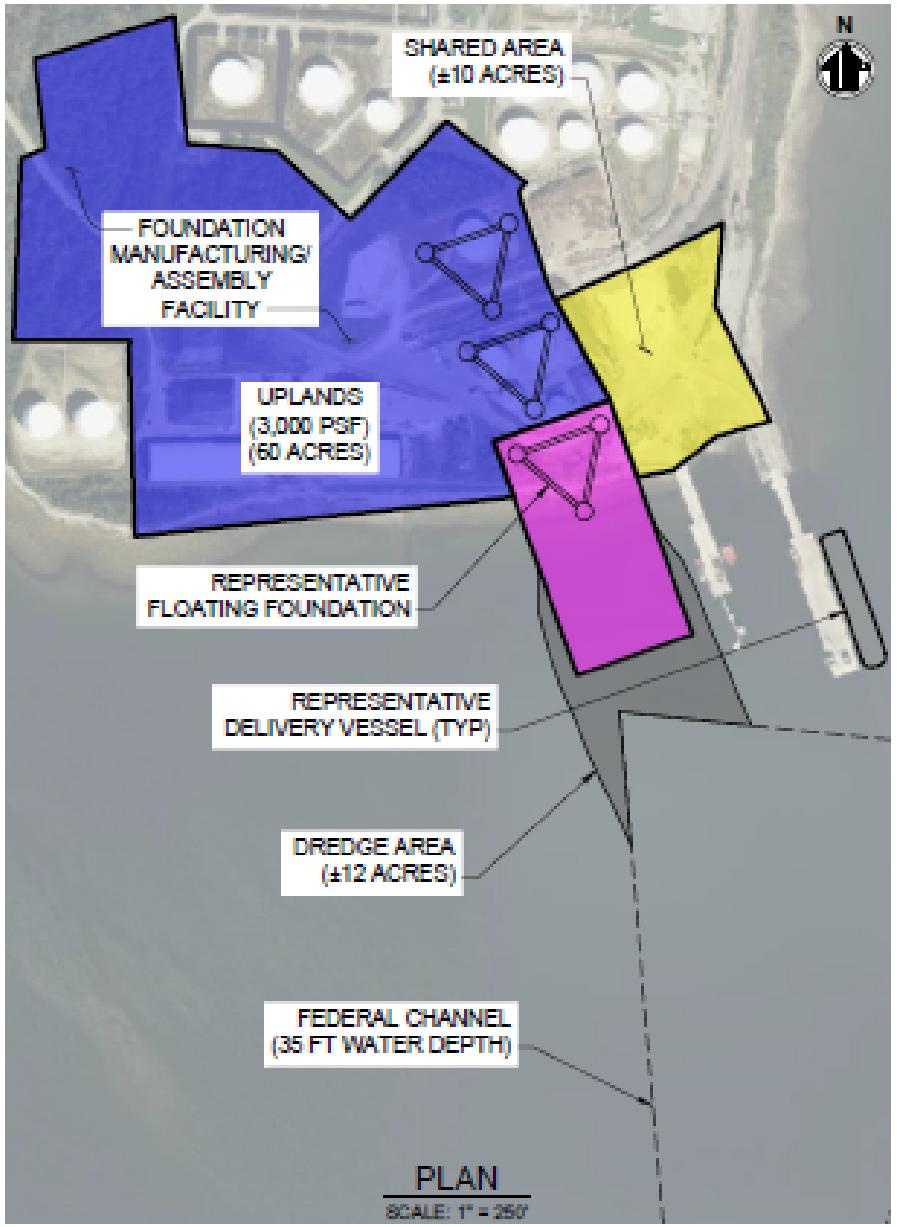
1. Layout is preliminary.
2. Layout assumes 20MW wind turbine generator components, and are representative based on available information.
3. Foundation size is approximate. It has been scaled from existing semi-submersible installations to accommodate 20MW turbine units.
4. Based on existing water depths, a dredge of approximately 690,000 CY would be required.
5. The designated layout is based on areas that Sprague Energy has indicated are available for redevelopment and are subject to change. Sprague Energy and Canadian Pacific Rail are owners of the land in this area and will be displaced.
6. Layout assumes offshore wind vessel will utilize the existing turning basin in the federal channel.

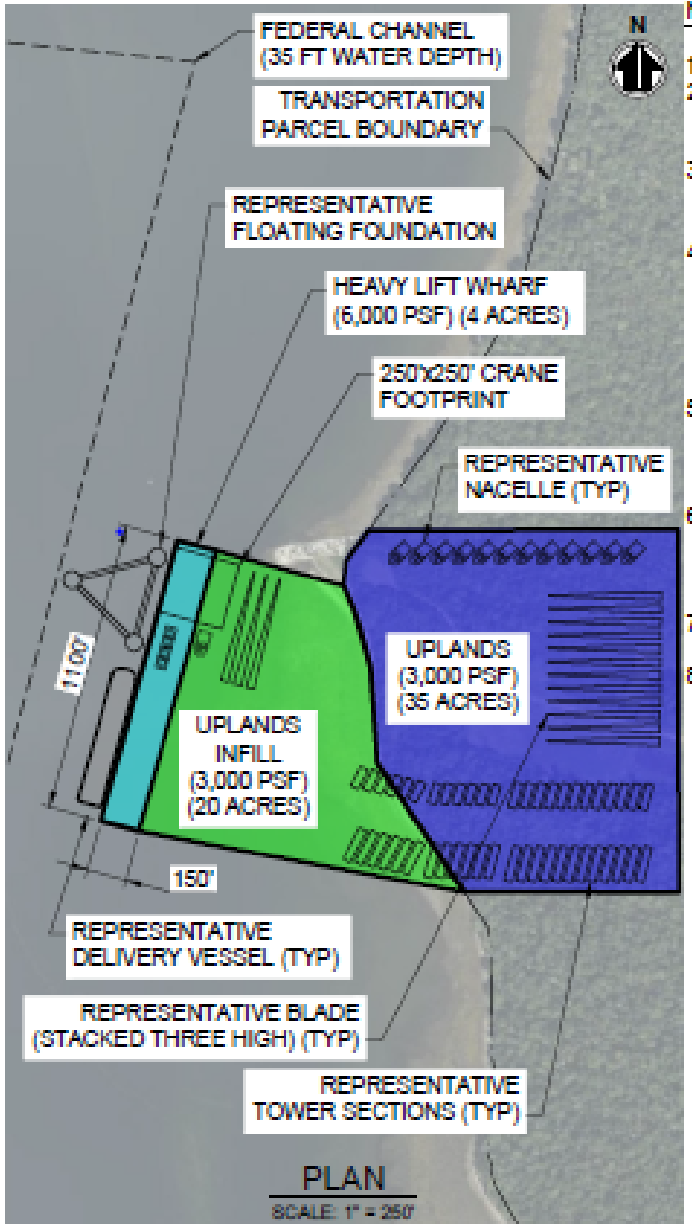
MAINE FLOATING OFFSHORE WIND PORT ALTERNATIVES ANALYSIS

moffatt & nichol 2023.03.06 MACK POINT ALTERNATIVE

CONCEPTUAL DRAWING
NOT TO BE USED FOR CONSTRUCTION

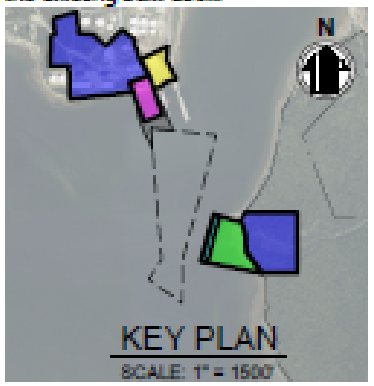
State Hybrid Plan via Moffat & Nichols





NOTES:

1. Layout is preliminary.
2. Layout assumes 20MW wind turbine generator components, and are representative based on available information.
3. Foundation size is approximate. It has been scaled from existing semi-submersible installations to accommodate 20MW turbine units.
4. Based on existing water depths, no dredge or designated turning basin is required at the Sears Island site. A dredge of approximately 370,000 CY would be required at the Mack Point site. This number is subject to change with continued site exploration and design progress.
5. In the hybrid scenario, the Mack Point site is assumed to be a foundation manufacturing/ assembly facility. The Sears Island site is assumed to be an integration/marshalling facility.
6. In this layout, raw materials are delivered at the existing Sprague Bulk Dock. It is assumed the delivery vessel uses the Federal Channel as a turning basin.
7. The marine ramp location and size is approximate. It is based on data provided by the State of Maine.
8. The designated layout at Mack Point is based on areas that Sprague Energy has indicated are available for redevelopment and are subject to change. Sprague Energy and Canadian Pacific Rail are owners of the land in this area and will be displaced. This includes an approximately 10 acre area shared with other activities on the terminal used to access the existing bulk dock.



MAINE FLOATING OFFSHORE WIND PORT ALTERNATIVES ANALYSIS

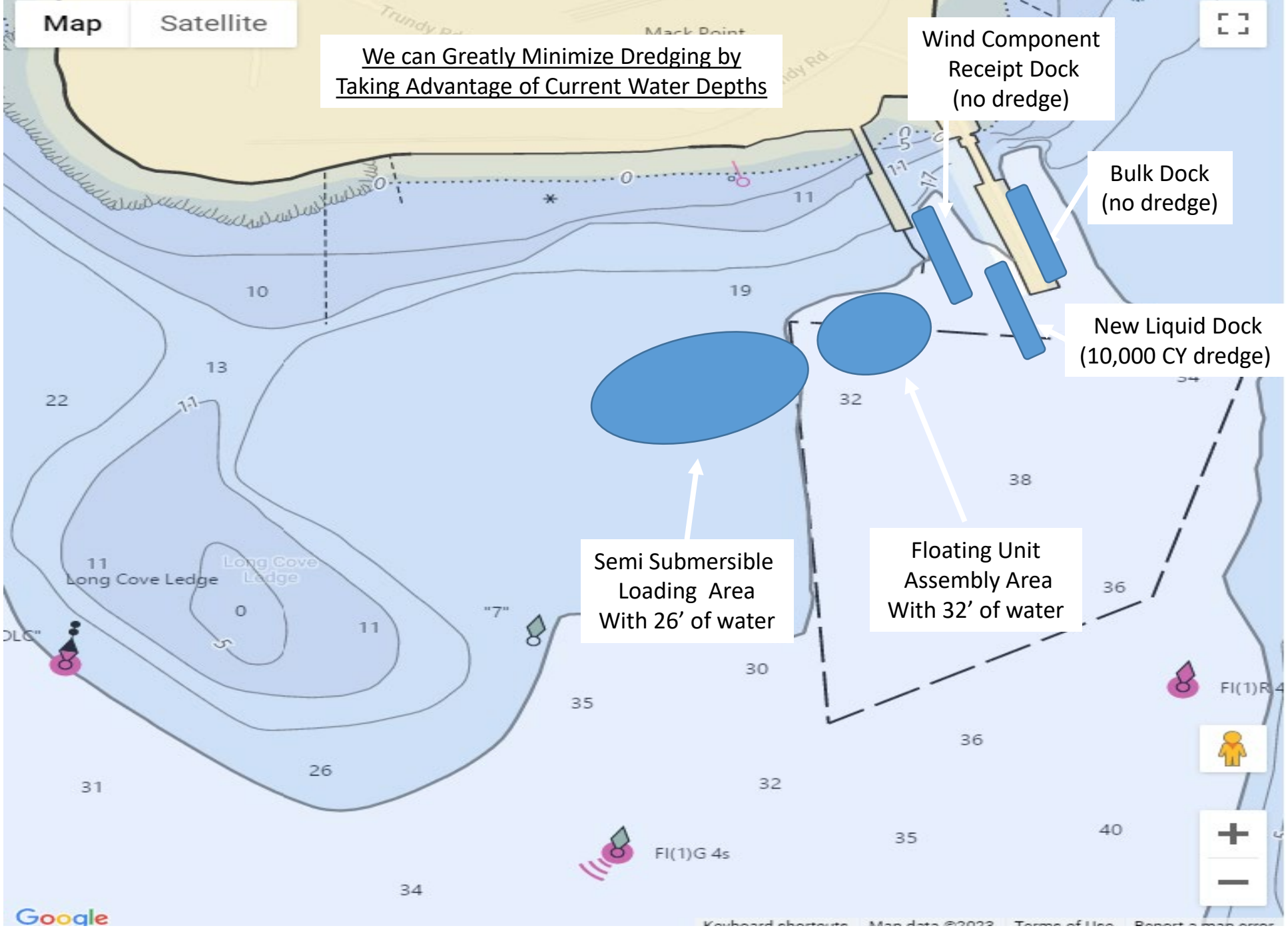
moffatt & nichol 2023.03.06 MACK POINT AND SEARS ISLAND HYBRID ALTERNATIVE

CONCEPTUAL DRAWING
NOT TO BE USED FOR CONSTRUCTION

Lower Cost Alternatives

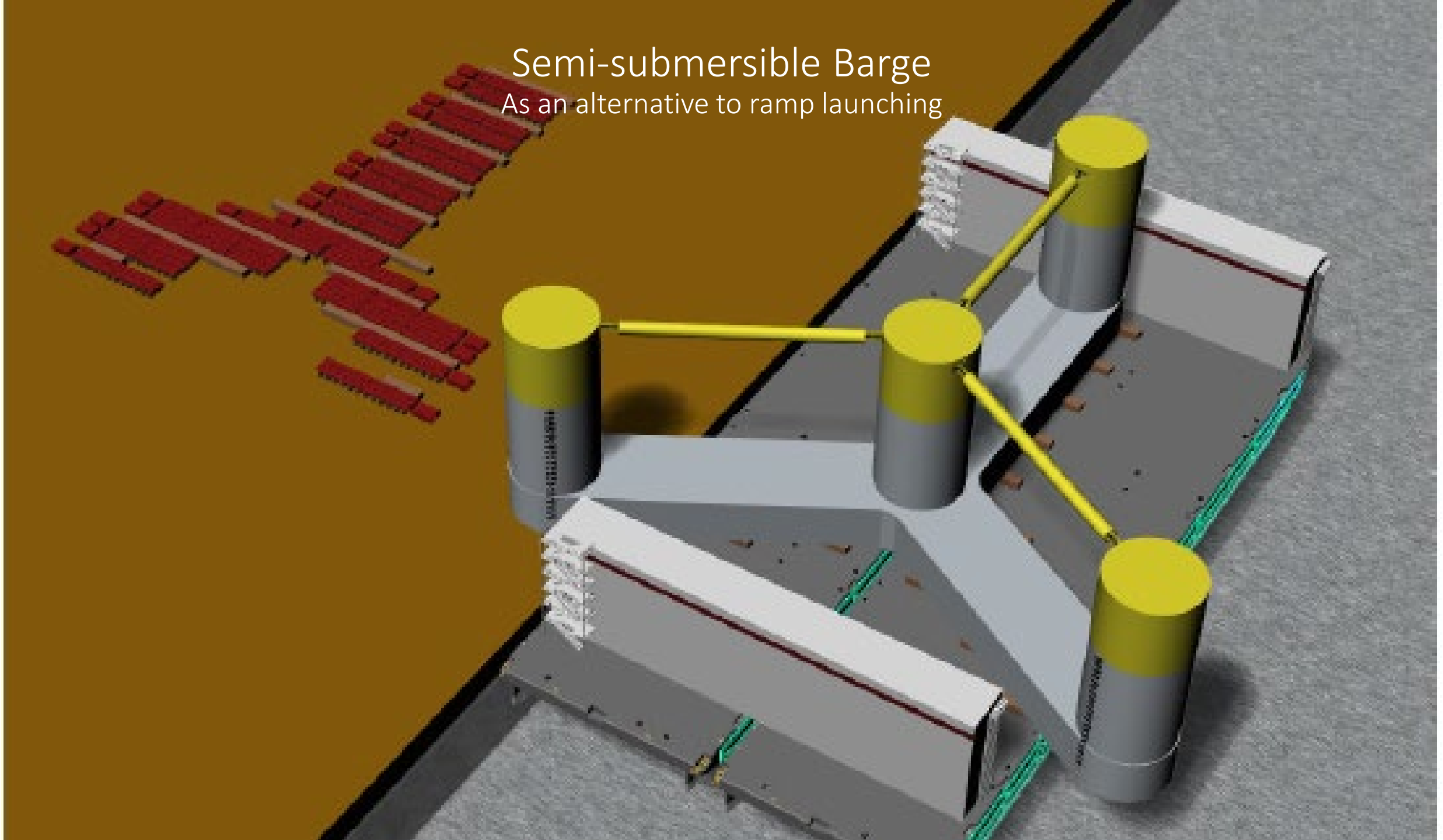
- Take advantage of the natural water depths in area by repositioning the infrastructure. Area near liquid dock already deep enough for floating foundation. Area to west of that deep enough for foundation transfer onto barge. Move of liquid dock allows for new bulk dock in existing dredged cell.

- Rather than using a launch ramp which requires too much dredging and is likely to be overly technology specific for full commercialization, use a semi-submersible unit. This is the approach being suggested for all other global facilities.


Map
Satellite
We can Greatly Minimize Dredging by
Taking Advantage of Current Water Depths
Wind Component
Receipt Dock
(no dredge)
Bulk Dock
(no dredge)
New Liquid Dock
(10,000 CY dredge)
Semi Submersible
Loading Area
With 26' of water
Floating Unit
Assembly Area
With 32' of water
Long Cove Ledge
Fl(1)G 4s
Google

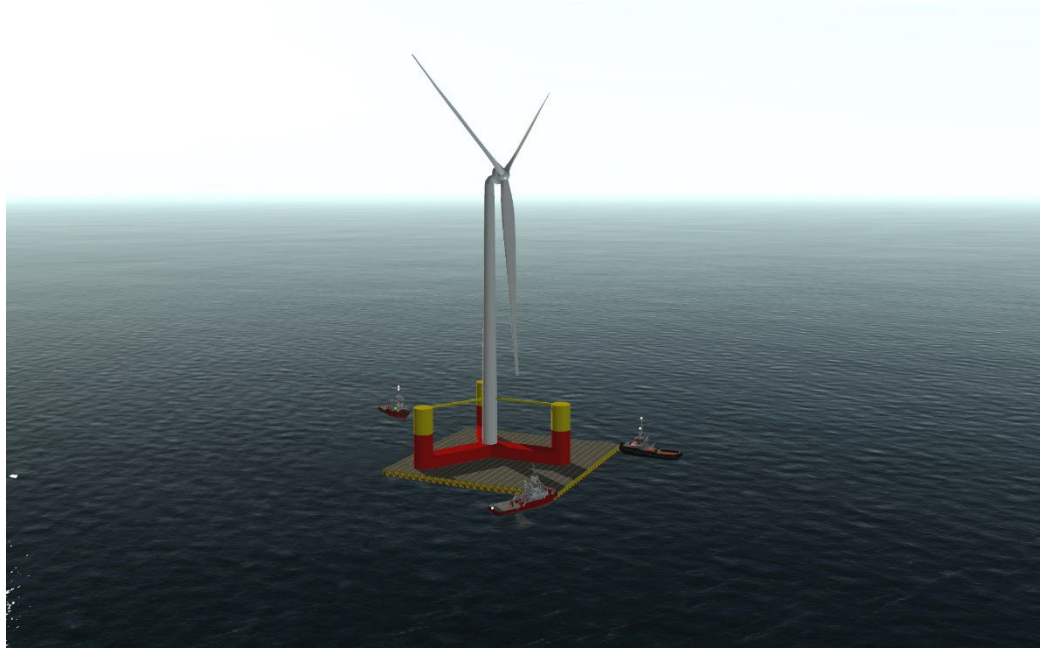
Semi-submersible Barge

As an alternative to ramp launching



Tug Dock Alternative

www.tugdock.com



‘Just in time’ serial marshalling

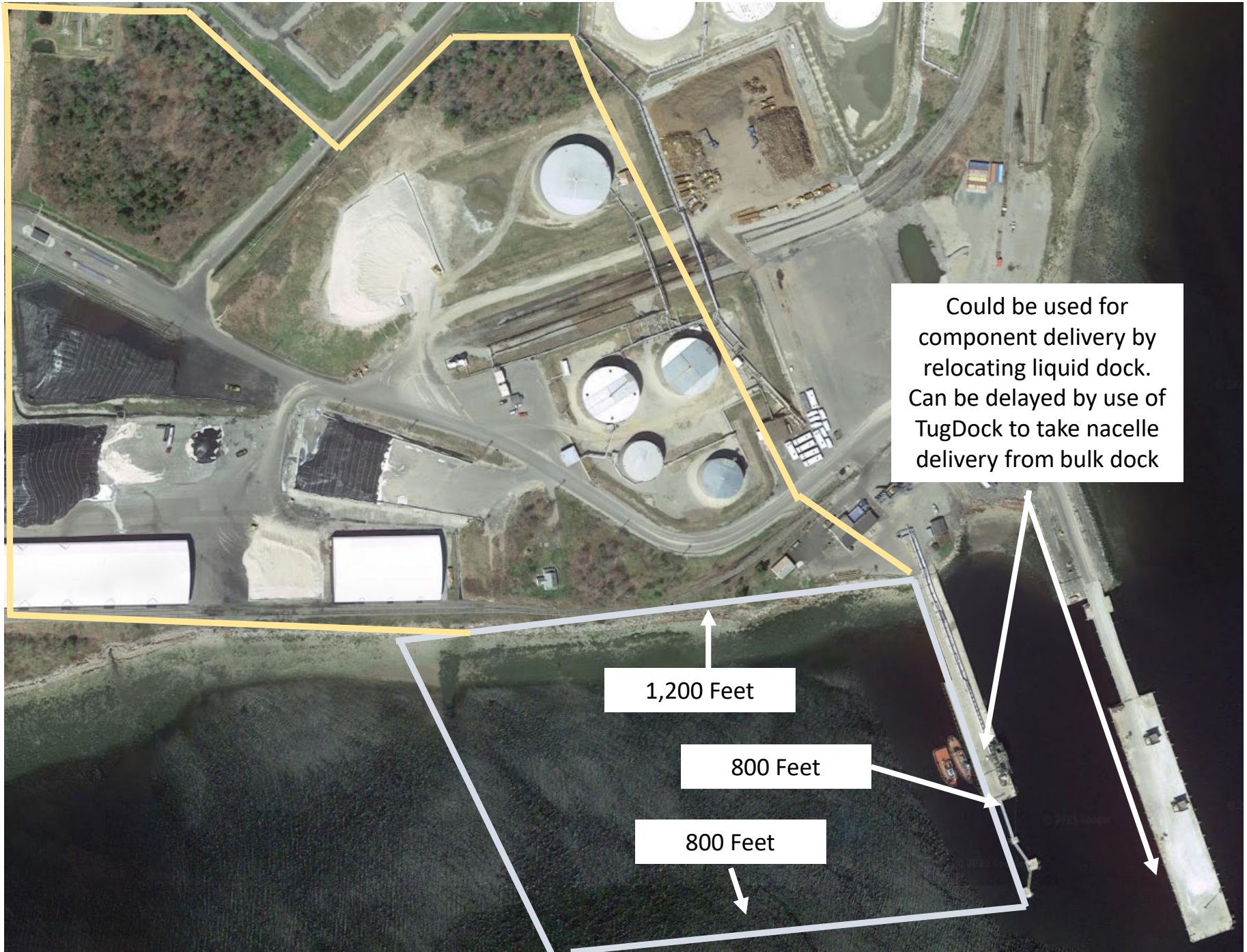
Parts can be built anywhere, then shipped in. For example, 1,000 tonne pieces to ‘port near final location’ for rapid assembly on a Tugdock platform (with a crane). **The ships could even moor alongside the platform and discharge directly onto the Tugdock platform deck.** The Tugdock platform could be miles away from any port, as an independent temporary floating port that is used to overcome the constraints of existing ports.

Tugdock Submersible Platforms provide a means for loadout and launching of floating substructures. The submersible platforms are used in combination for the loadout by positioning the platforms adjacent to the quayside to take the load of the floating substructures and then submerging the platform’s deck below the surface of the water to enable float off. Our technology enables the assembly, launch and recovery of floating substructures in ports with water depth, tidal variations, or space restrictions. The floating platform is then towed to deeper water for launching of the turbines.

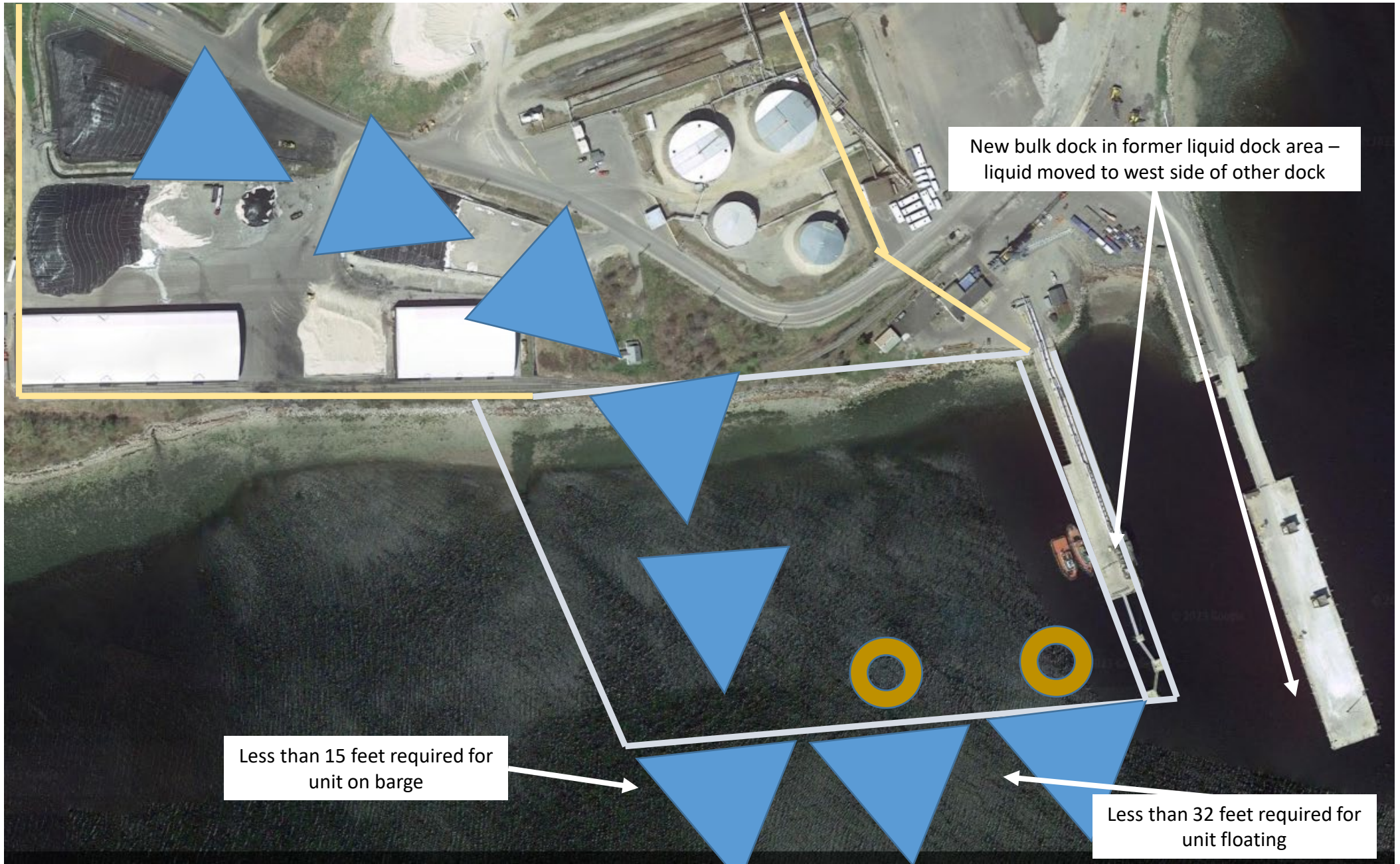
Full Commercial Scale with Component Receipt Dock

Allows for launch of 1 unit and fit up of 2 units

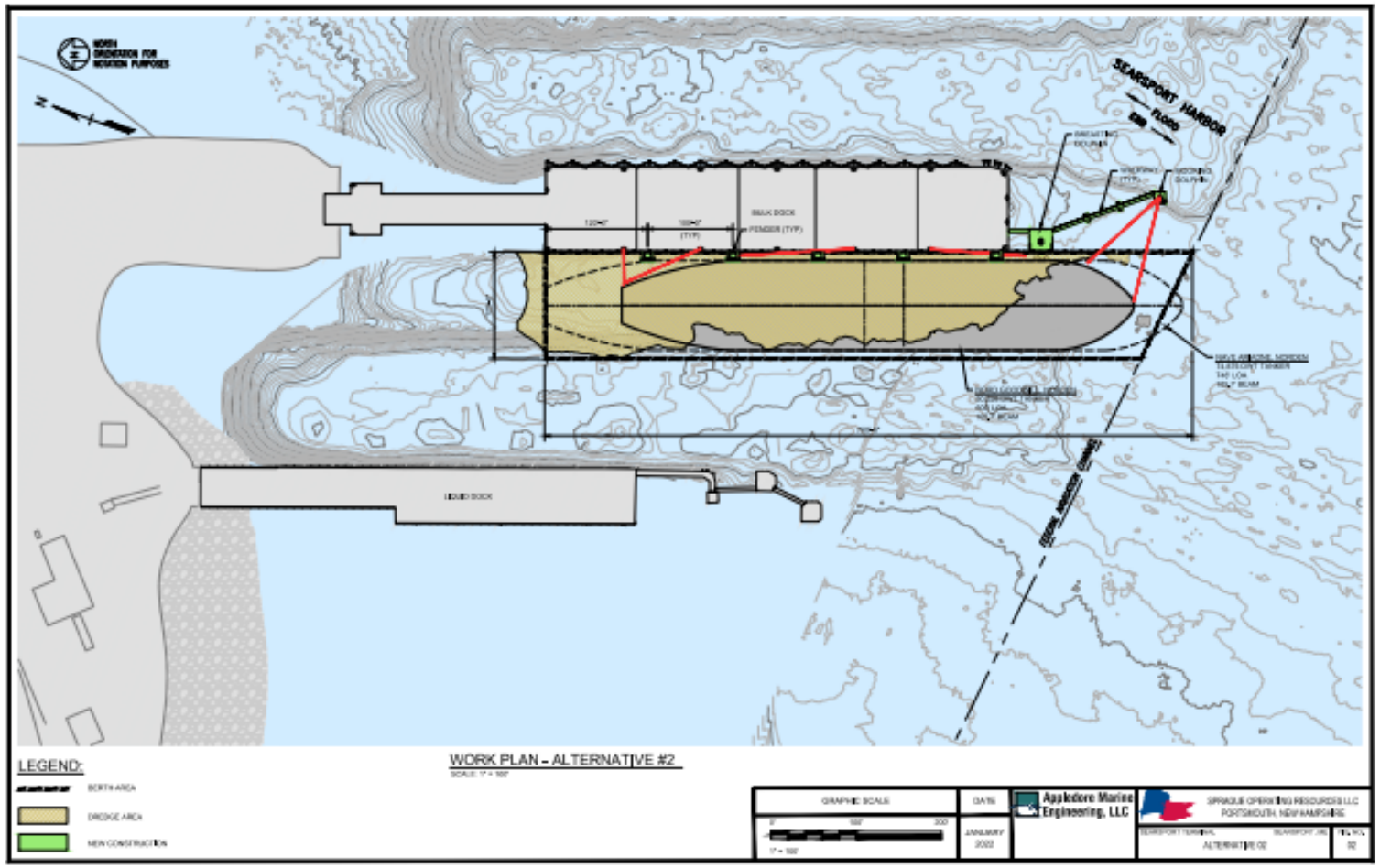
Full Test Array Area – 30 acres on land – 18 acres on water – 48 total – requires minimal asset relocation and dredging



Full Commercial Scale – Construction (2) & Launch (1) Sequence with New Bulk Dock



Liquid Dock Relocation ($12 million)



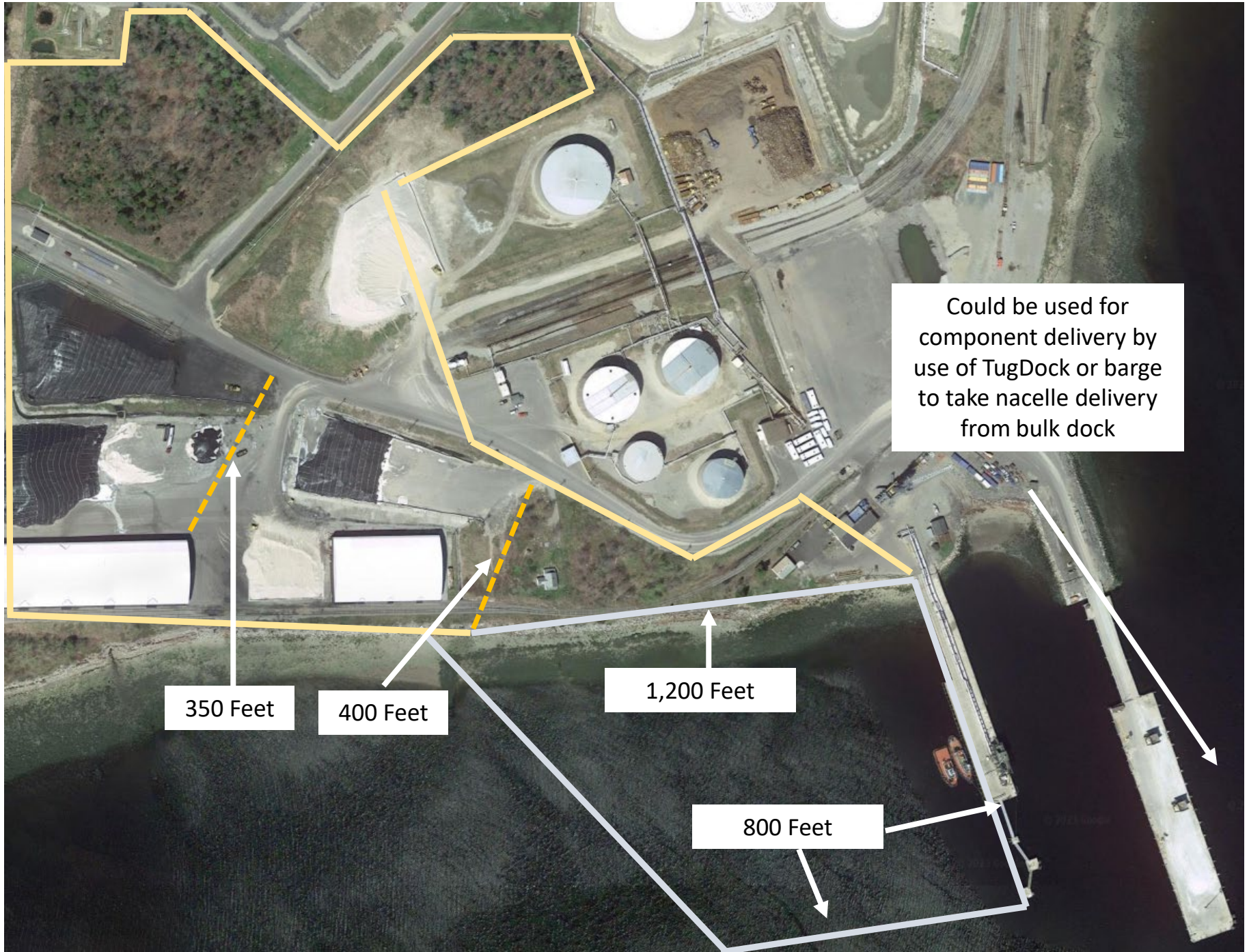
Phased Approach for the Test Array with 2 Options

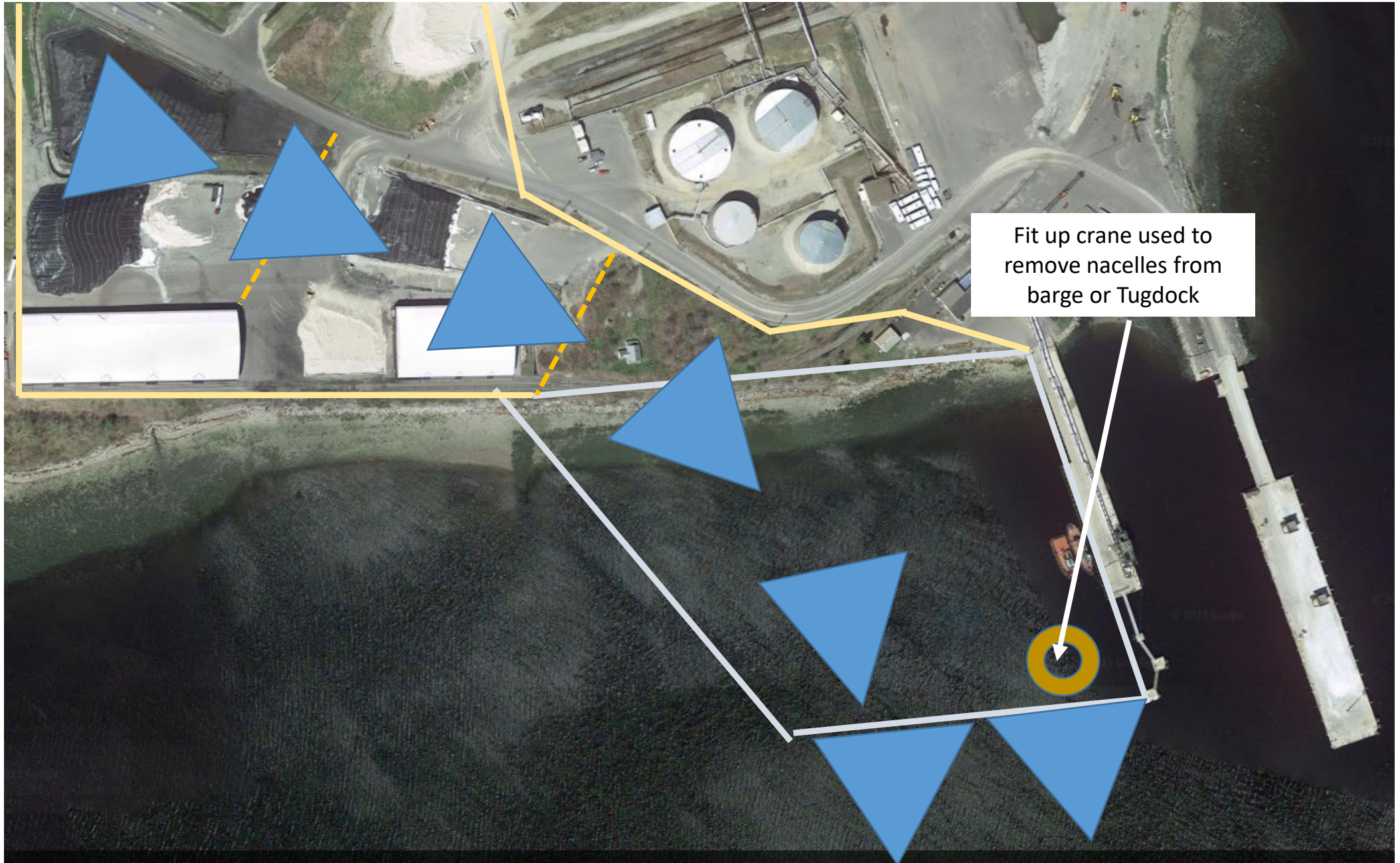
1 – Base construction and launch only – for fit up at Sears Island or another port

2 – Base construction, launch and single unit fit up all in one port

Test Array Project – Launch Only

Full Test Array Area – 30 acres on land – 18 acres on water – 48 total – requires minimal asset relocation and dredging




Fit up crane used to remove nacelles from barge or Tugdock

Phase I - Test Array Project Features and Benefits

- Lower cost first step to achieve test array sooner with less permitting and less environmental impact.
- Provides ocean front to launch one unit by semi-submersible while staging up to two units for fit up with towers and wind power units. Could start with one fit up station but could eventually house two assembly cranes.
- Results in approximately 30 acres of land and 18 acres on water with shared access gate and shared dock road without project interference.
- Gets unit on SPMT into deeper water for transfer to semi-submersible barge which can be reused at multiple facilities. Might be able to substitute TugDock which could be built locally to achieve Buy American status (licensed from owner).
- Retains 60,000 sq foot warehouse for project use – office structure could be built into overhead of warehouse.
- Rail could remain requiring only reinforced crossings and a crossing agreement rather than a sale of the land from the Canadian Pacific.
- Only relocate liquid vessel dock if bulk dock can't accommodate component deliveries using SPMT's and ships gear for this first project. An alternative is to use TugDock to offload nacelles to be transferred to land by the erecting crane eliminating need for component delivery dock until full commercialization. www.tugdock.com
- Only requires relocation of two salt piles and one pet coke pad which can be accommodated more easily into upper yard – possibly with only one tank removal.
- Does not require incurrence of the cost and permitting for oil tanks, new dock road or back gate including scales, relocation of current electrical components in old crew quarter and possibly the boiler room until future time as needed.
- Once full commercial scale is reached can then do all the before mentioned items to maximize land area and production capacity.
- Investment to date is rolled into future port wide expansion and is not a stranded asset.

Next Steps

- Get dims, weights and center of gravity for the wind power units that could be used (20mw) and the same for the units to be used in the test array. (State via M&N and Pine Tree)
- Determine true capacity for current bulk dock to receive components via SPMT assuming the use of heavy lift transport vessels capable of up to 1,500mt through the use of twin crane picks. The current mobile harbor crane has a weight of 467mt and a max load weight of 140mt for a total load of max load of 607mt while on 4 support pads with tires up. The dock design was for 500mt total assuming the use of an American crane weighing 250mt with a load of 250mt (500mt total). The Liebherr has a wider footprint. Dock approach was built to same capacity but is narrower. If SPMT is determined viable compare those dims to the approach as it may need to be widened. (TBD)
- Determine capability of TugDock for component receipt as well as an alternative to the semi-submersible. Could also use a traditional deck barge for component transfer. (Sprague)
- Detailed soundings to discover the current depths. (State - done)
- Layout out a sketch to scale adapting the final layout to maximize the natural water depth minimizing required dredging. Estimate new project costs under full commercialization option and hybrid option (State – M&N)
- First pass estimates have been completed for the cost to relocate the liquid dock to the bulk dock (Sprague - done)
- First pass to build a semi-submersible barge. (State – done)
- Sprague will estimate the costs for relocation of bulk pads and 30,000 warehouse to upper yard. State to determine first pass for costs of the land and water features in the first phase plan.

The following was prepared by Sprague and submitted to MPA by email March 13, 2023.

Mack Point Ocean Wind

Research Array Concept Plan

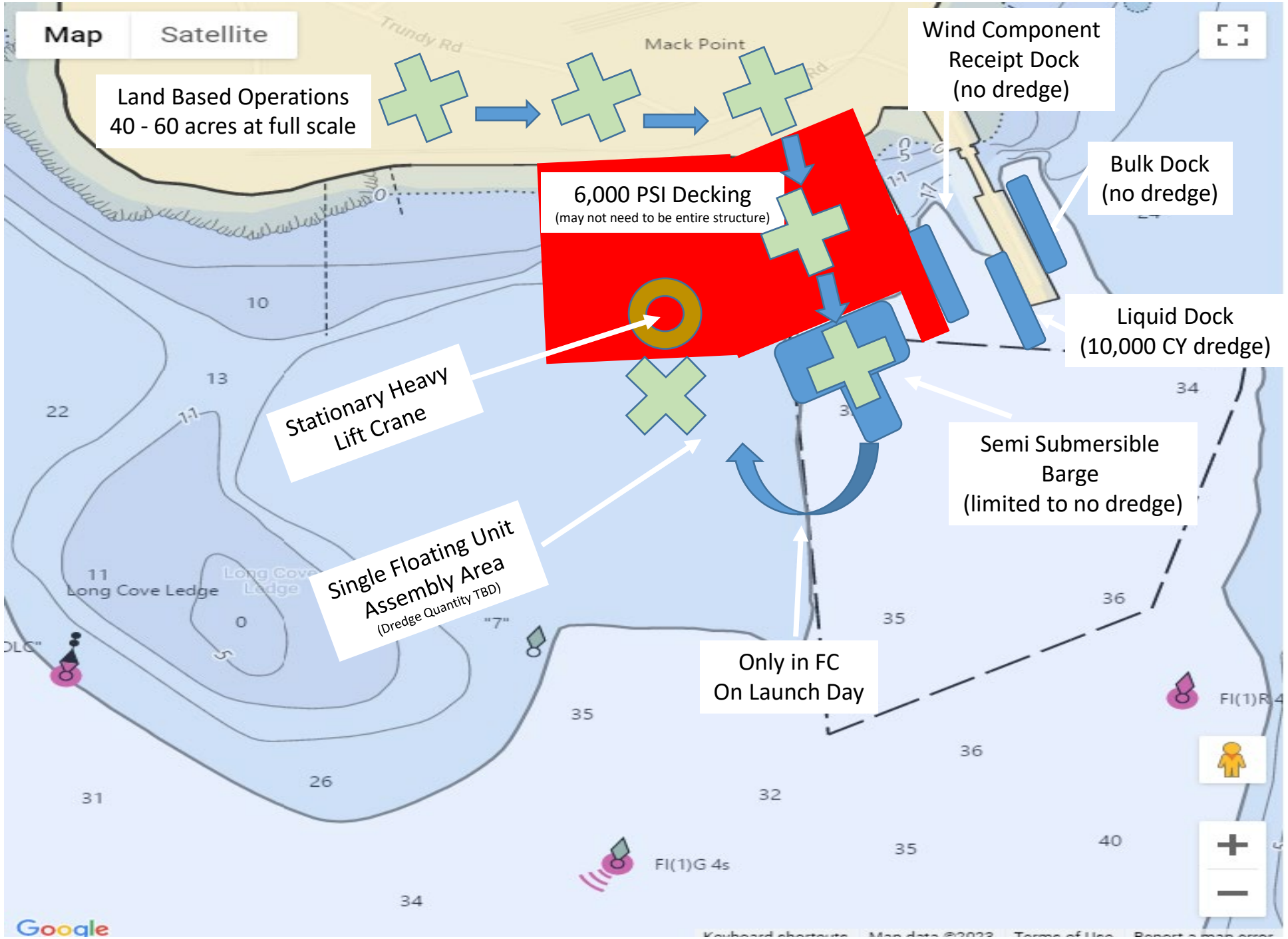
Using a Semi Submersible Barge

Overview

- **Goal is to develop a concept plan for future engineering due diligence that:**
  - Accommodates the construction of the test array (10 units) entirely at Mack point. Provides a phase one application designed to accommodate the research array providing a bridge until more commercial scale is attained (2030 – after environmental impact statement at Sears Island, BOEM leases and PUC issuance of power sales contracts).
  - Allows for the repurposing of those same improvements into the larger floating wind commercialization offering. At that time, this infrastructure could be used to launch 2 units with the foundations then being towed for fit up to area off Sears Island.
  - Incorporates the use of a semi-submersible barge to minimize the risk of a major stranded assets. Most other technology currently assumes the use of semi-submersible rather than a launch ramp. This barge could be used at this terminal and any future terminal in the harbor.
  - Should shorten the permitting time given the areas existing industrial use. And provides a hedge if the rate of commercialization slows.

- **Asset Highlights:**
  - Dock structure extends out roughly 600- 800 feet and is about 800 feet wide with 2 edges reinforced to 6,000 PSI to allow for very heavy cranes and for the final launch by SPMT onto the barge in the Foss concept report (350x400).
  - Able to fit out one floating base unit while assembling and launching another.
  - Eastern edge of dock structure is used for component receipt vessel using current liquid vessel dredge cell. This may be not be required if follow up analysis (below) finds otherwise.
  - Current liquid operations are moved to southwest side of bulk dock (based on a recent front end engineering design analysis the cost is estimated to be $8-$12 million for liquid move with less than 10,000 CU of dredge)
  - Overall dredging requirements can be decreased by taking advantage of the natural depth in this area and by extending out to the federal channel and the issue of fetch can be greatly minimized.

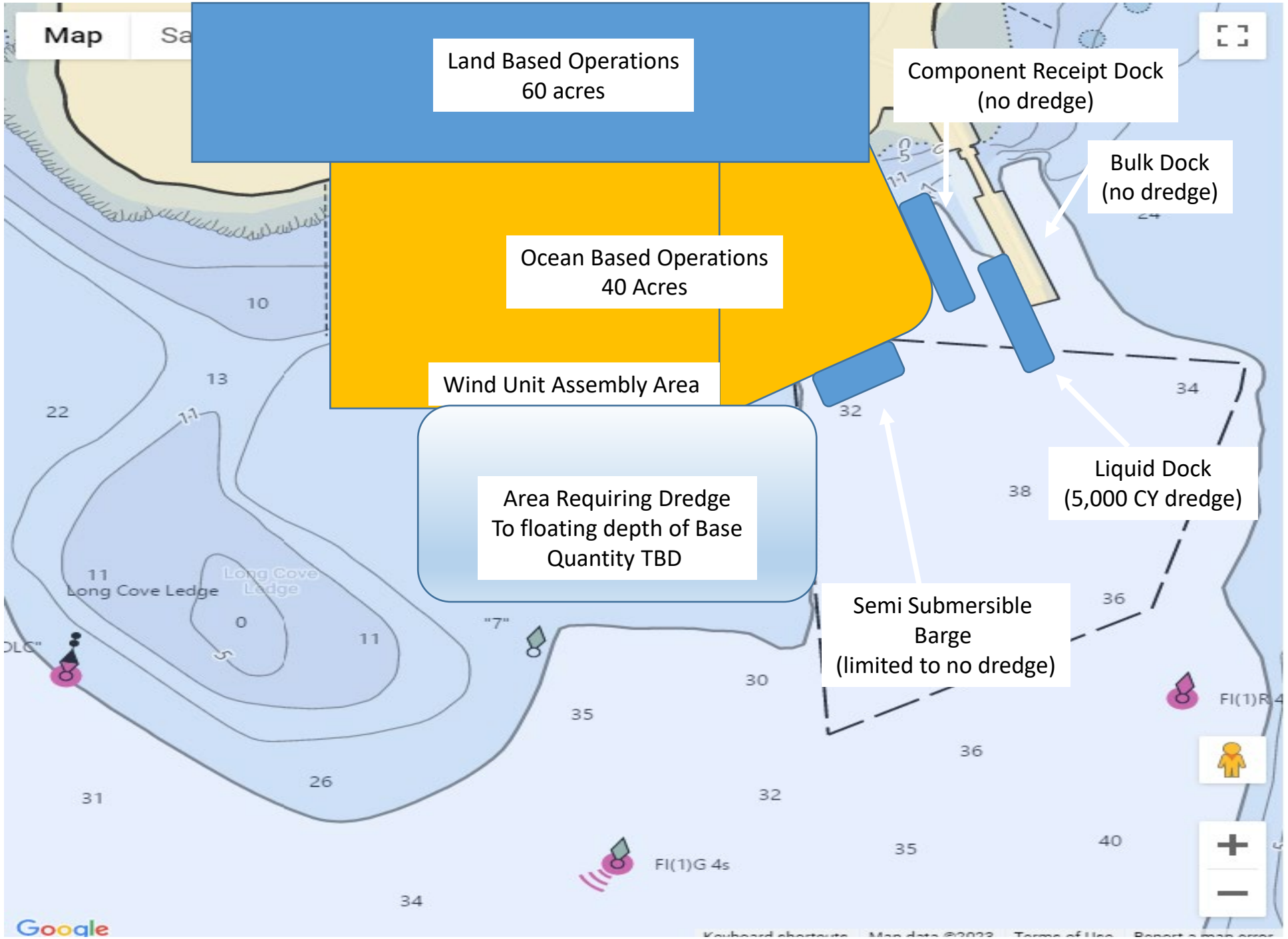
- **Some Immediate Next Steps:**
  - Soundings to determine actual water depth to allow us to best position the infrastructure to minimize dredging.
  - Investigate the potential of using the current bulk dock just for this limited receipt of component for the test array:
    - Assumes the use of large SPMT and delivery by geared UHL vessel. Requires immediate follow up with SPMT providers.
    - Would likely require a widening and strengthening of the approach trestle which is currently the weakest link.
    - Note : If this bulk dock use concept is viable, we could possibly shift everything just to the west edge of existing liquid dock allowing that dock to stay in place until a larger buildout is needed.
  - Determine the required footprint of the actual land-based and water-based development for this first step test array.
  - Perform front end engineering design of the determined infrastructure need.
  - Investigate federal grant opportunities for the construction of a US made semi-submersible barge.


Map
Satellite
Land Based Operations
40 - 60 acres at full scale
Wind Component
Receipt Dock
(no dredge)
Bulk Dock
(no dredge)
6,000 PSI Decking
(may not need to be entire structure)
Liquid Dock
(10,000 CY dredge)
Stationary Heavy
Lift Crane
Semi Submersible
Barge
(limited to no dredge)
Single Floating Unit
Assembly Area
(Dredge Quantity TBD)
Only in FC
On Launch Day
Mack Point
Trundy Rd
Long Cove Ledge
FI(1)G 4s
FI(1)R 4
Google

The following was prepared by Sprague and submitted to MPA by email March 7, 2023.

Ocean Wind Plan

For large scale
Floating ocean wind units
(15+ MW)
Using Semi Submersible Barge


Map
Land Based Operations
60 acres
Component Receipt Dock
(no dredge)
Bulk Dock
(no dredge)
Ocean Based Operations
40 Acres
Wind Unit Assembly Area
Area Requiring Dredge
To floating depth of Base
Quantity TBD
Liquid Dock
(5,000 CY dredge)
Semi Submersible
Barge
(limited to no dredge)
Long Cove Ledge
Fl(1)G 4s
Google