

Tinian Harbor Master Plan (CPA-TS-001-15)

**Commonwealth Ports Authority
Commonwealth of the Northern Mariana Islands
ATOSSCOM 2018**

August 1, 2018



Welcome & Introductions

- CNMI government and CPA representatives and other distinguished guests
- Moffatt & Nichol – port planning and engineering consultant to CPA
- Pacific Engineering Group & Services – civil engineering and local coordination



Tinian Harbor Master Plan

Meeting Agenda

- Welcome and introductions
- Public & Stakeholder Comments
- Scope of Master Plan
- Condition report
- Findings
- Master Plan recommendations
- Construction cost and phasing plan



Photo By: Micronesia Environmental Services



Tinian Harbor Master Plan

Tinian Harbor Master Plan Scope

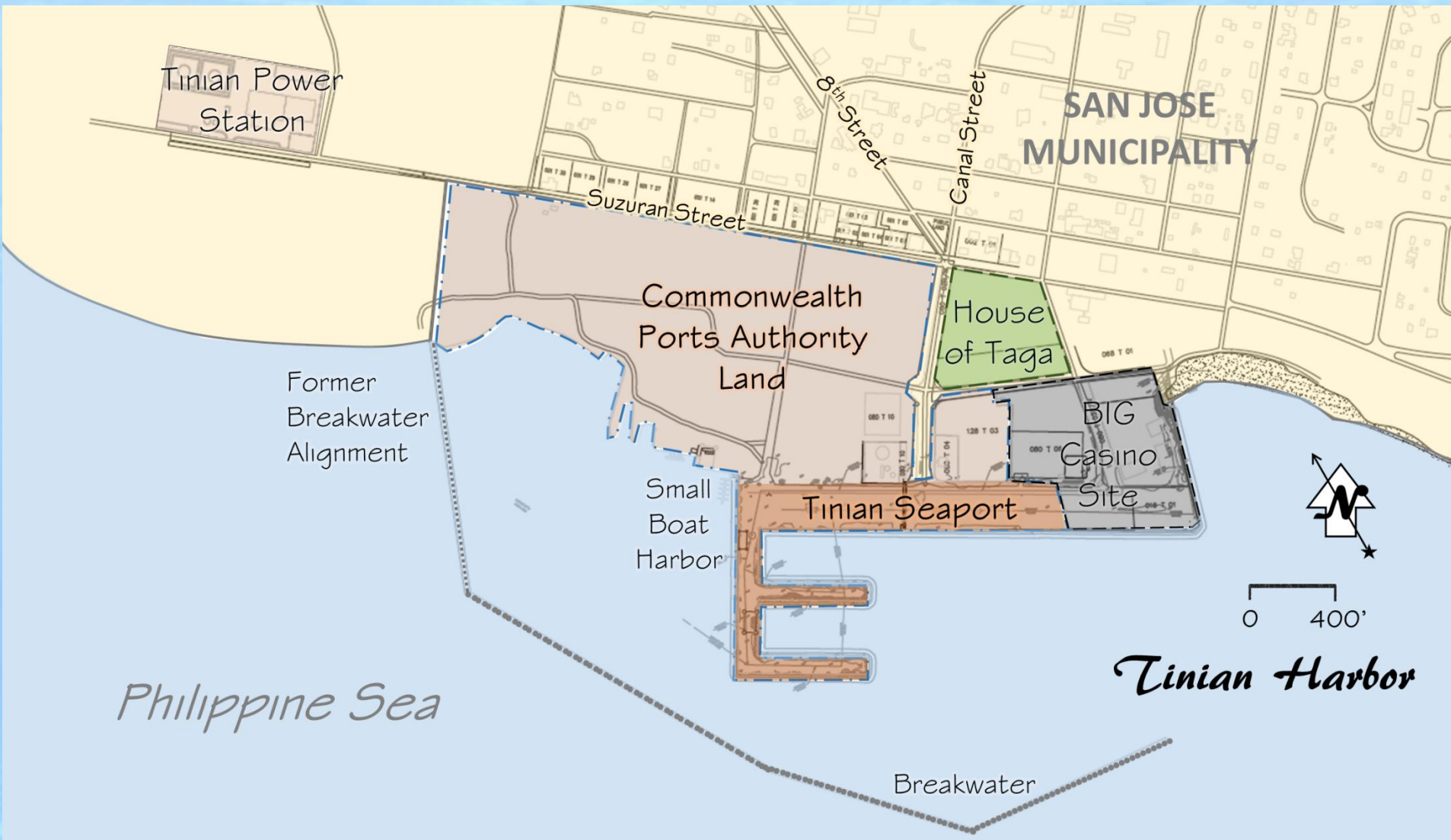
- Define the issues
- Document the physical conditions
- Forecast the need
- Develop solutions
- Devise an implementation plan
- Consider the costs
- Present the plan



Tinian Harbor Master Plan Public & Stakeholder Comments

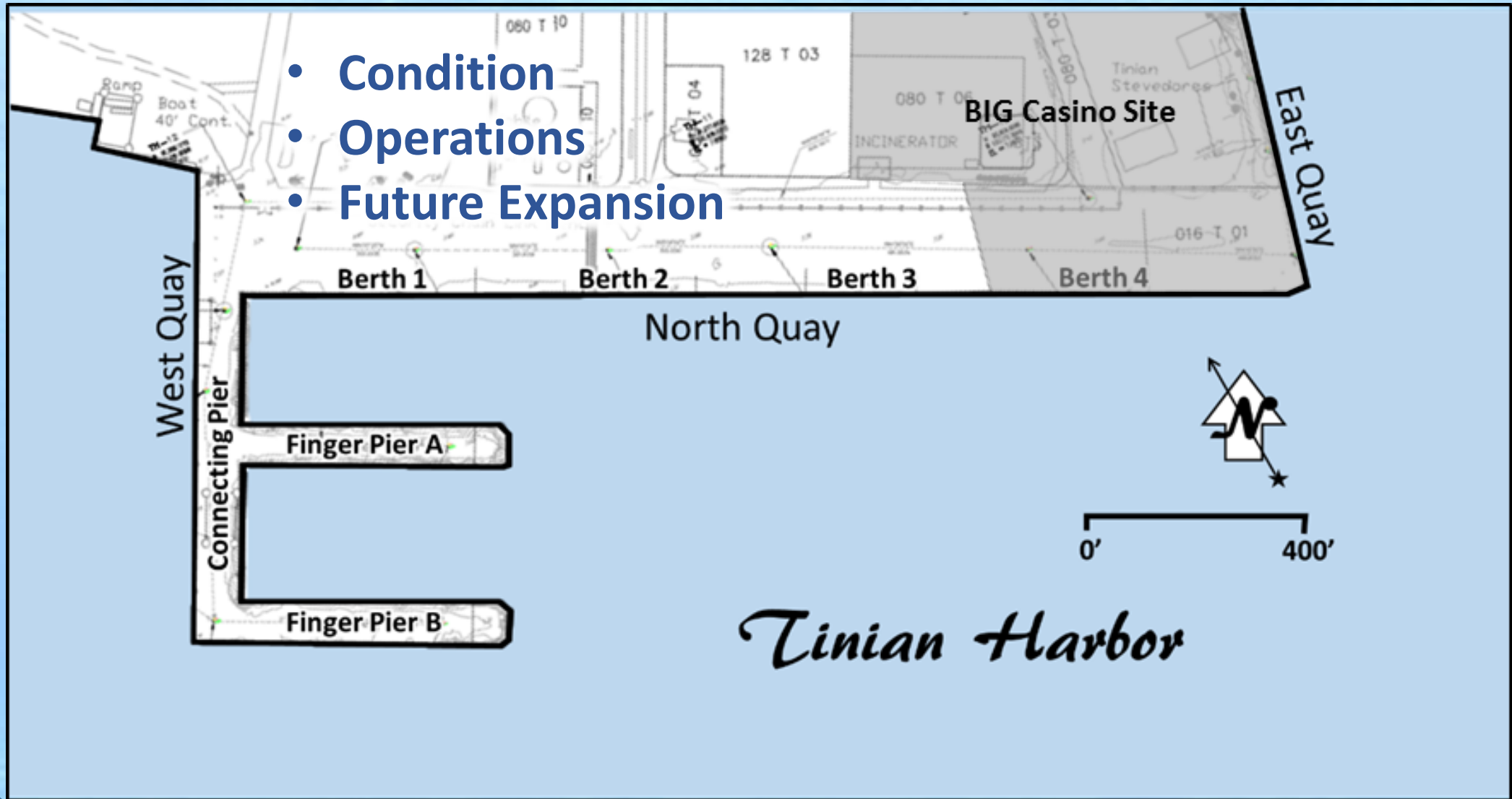
- Deterioration of existing breakwater
- Deterioration/Restrictions imposed by existing piers & wharves
- Lack of berth space:
 - Cargo
 - Fuel
 - Military use of harbor
 - Future cruise and ferry service
- Public access & use of harbor (i.e., small boat berths & ramp, fish cleaning and weighing stations, picnic & BBQ area, boat wash down area, etc.)





Tinian Harbor General Site Plan

- Condition
- Operations
- Future Expansion

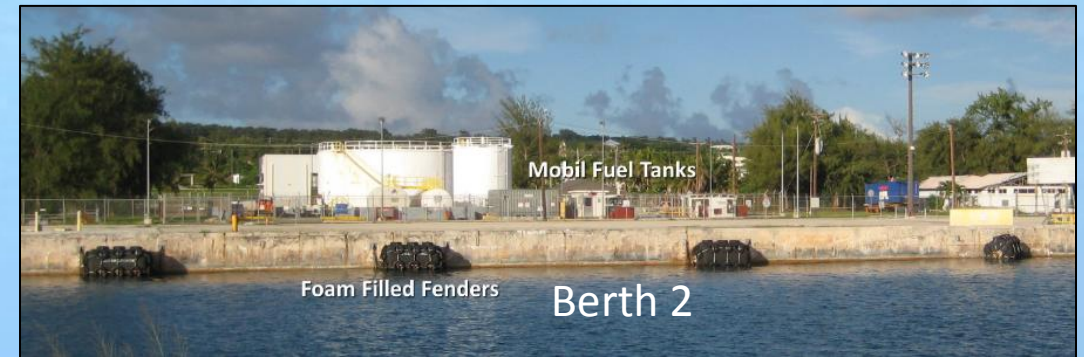


Tinian Commercial Harbor

► **Berth 1:** Quay wall corrosion, loss of backfill, missing fenders

► **Berth 2:** Quay wall corrosion, loss of backfill

► **Berth 3:** Quay wall corrosion, loss of backfill, missing fenders



Photos By: Moffatt & Nichol, October 2016



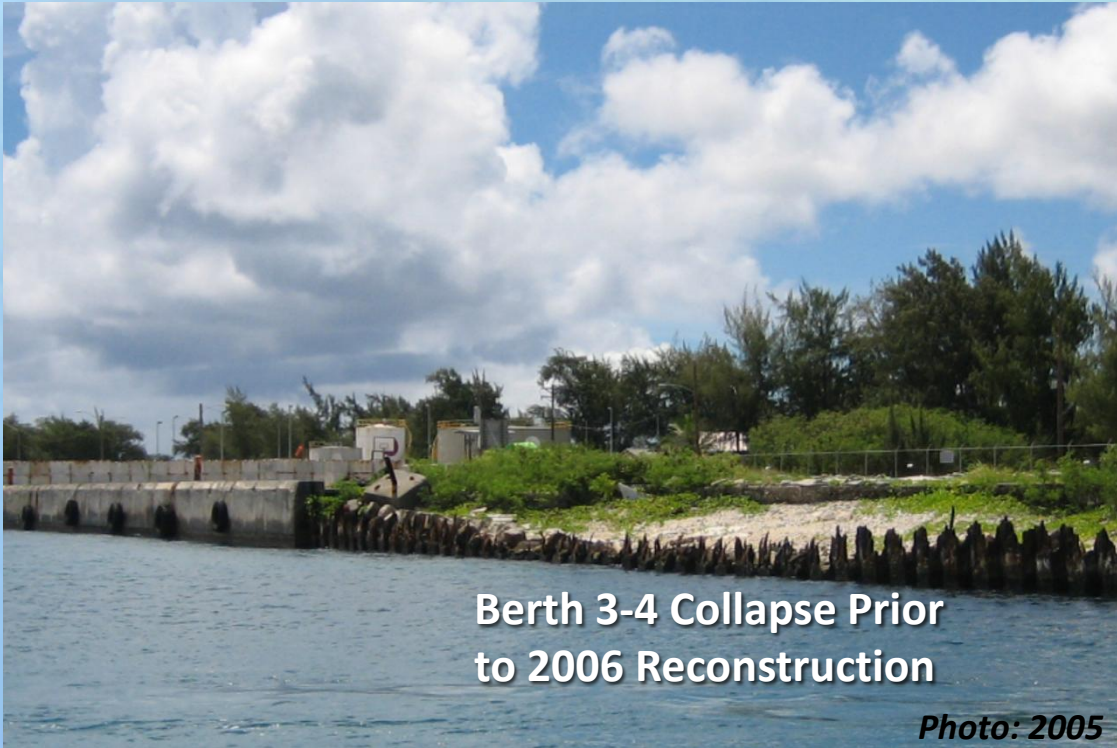
Tinian Harbor North Quay Condition



Photos By: Moffatt & Nichol, May 2015



Berth 2 Underwater Inspection



Berth 3-4 Collapse Prior to 2006 Reconstruction

Photo: 2005



4 to 8 inches of pavement subsidence

06-22-2017 15:33
Photo By: PEGS, June 2017



Subsidence

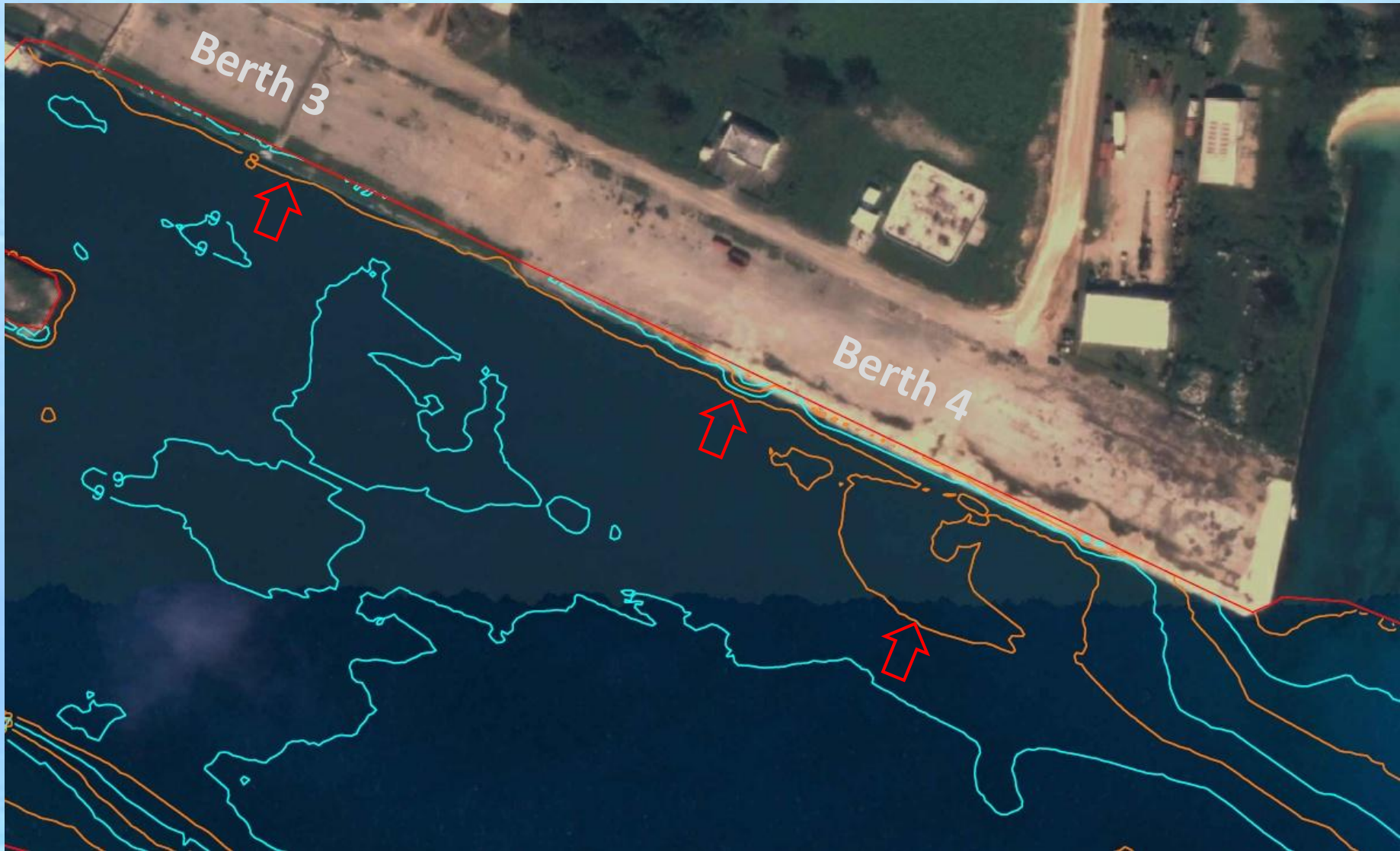
Vegetated Area

Pavement Break

Photo By: Moffatt & Nichol, October 2016



Tinian Harbor North Quay Condition



Tinian Harbor North Quay Material Loss



Photo By: Micronesian Environmental Services



Tinian Harbor Finger Piers & Breakwater

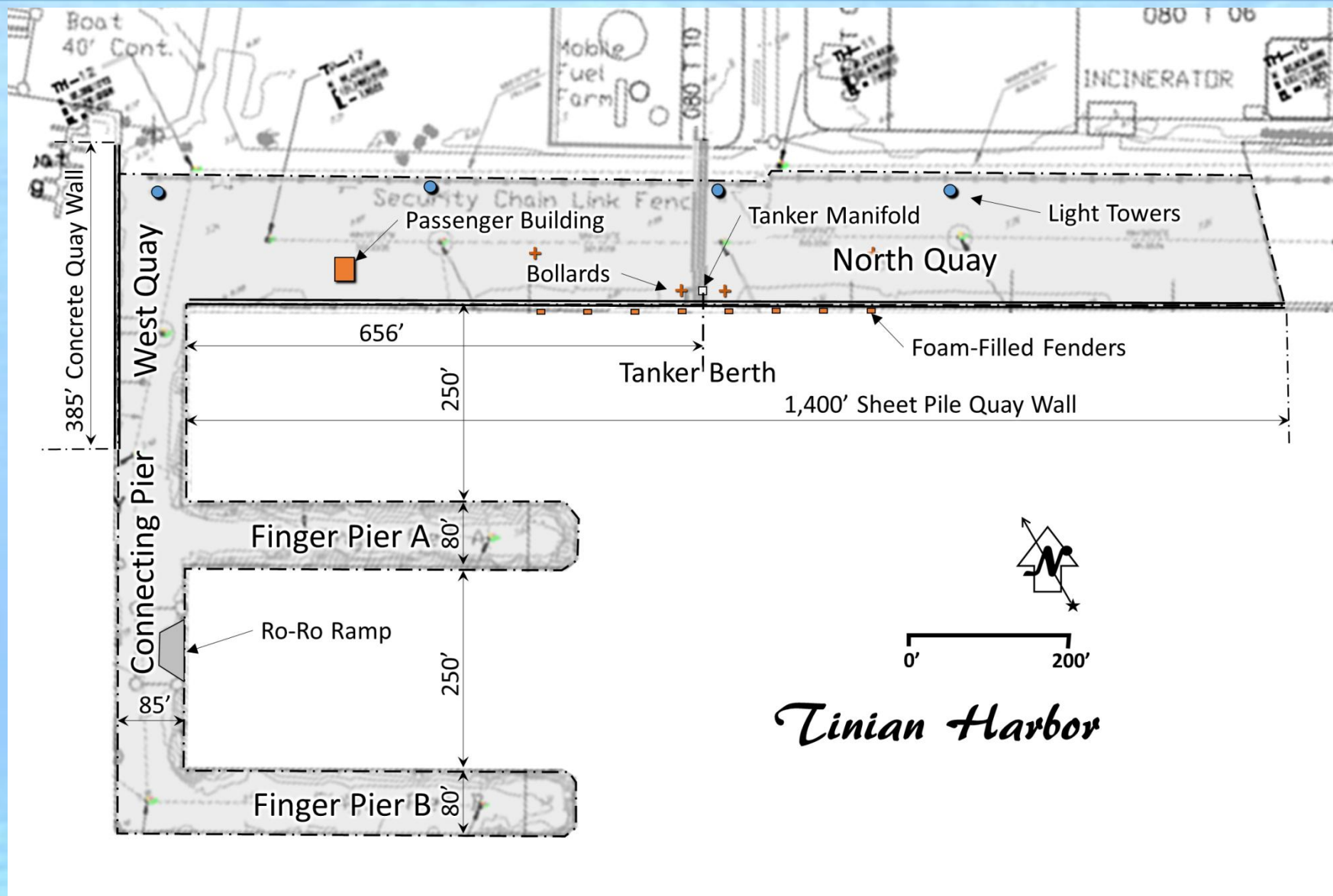
 moffatt & nichol



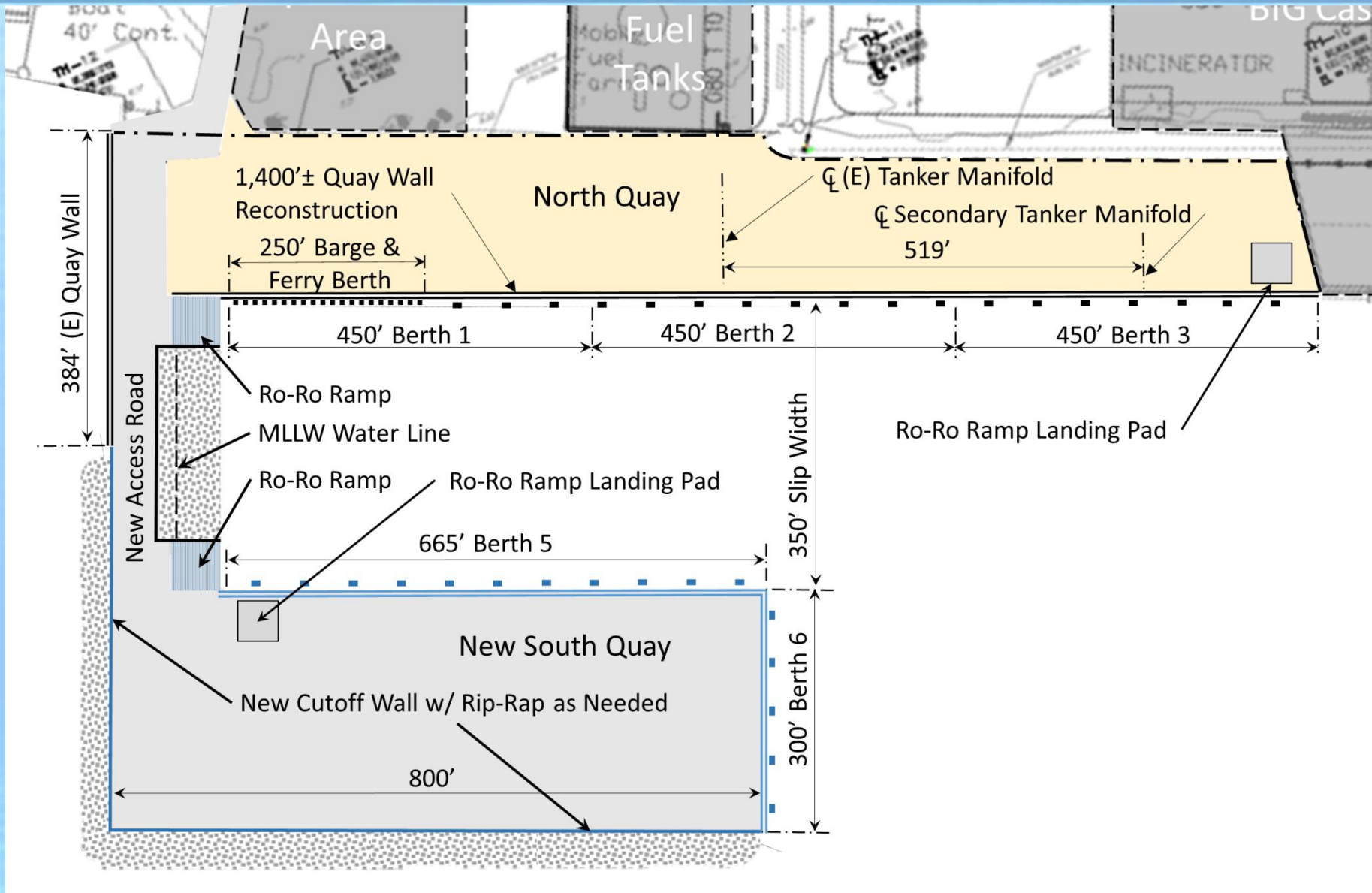
Tinian Harbor Commercial Vessels



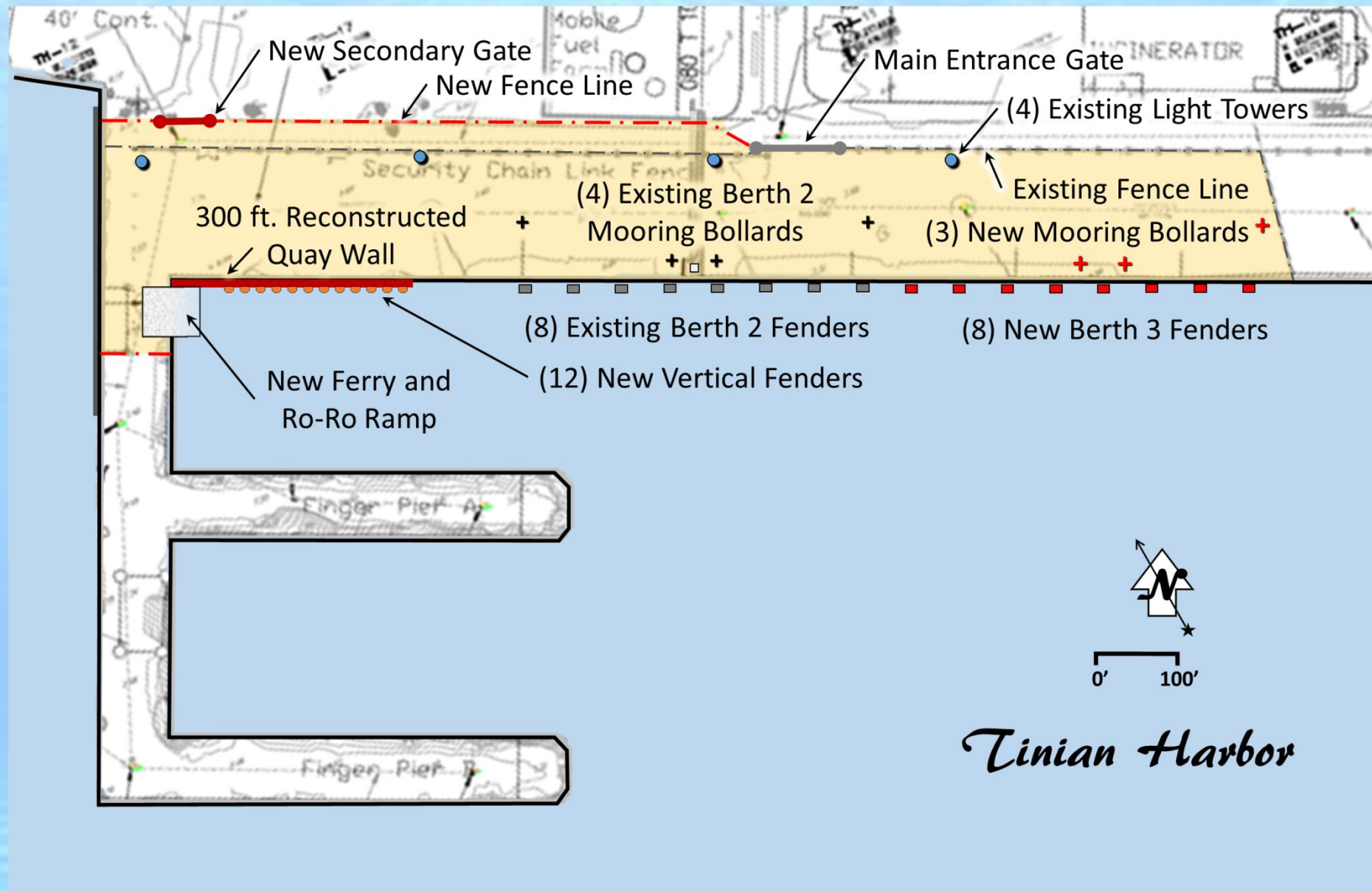
Tinian Harbor Military Vessels



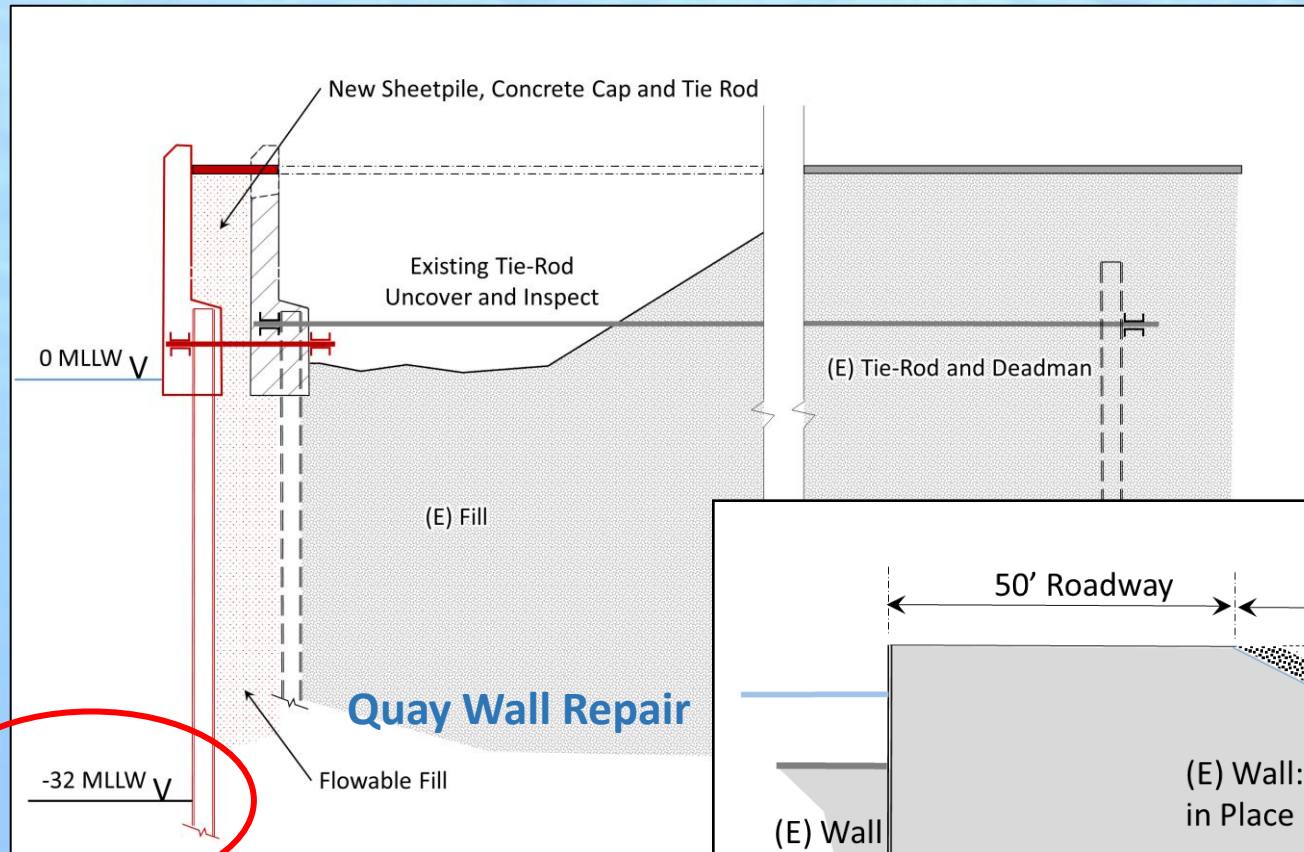
Tinian Commercial Harbor



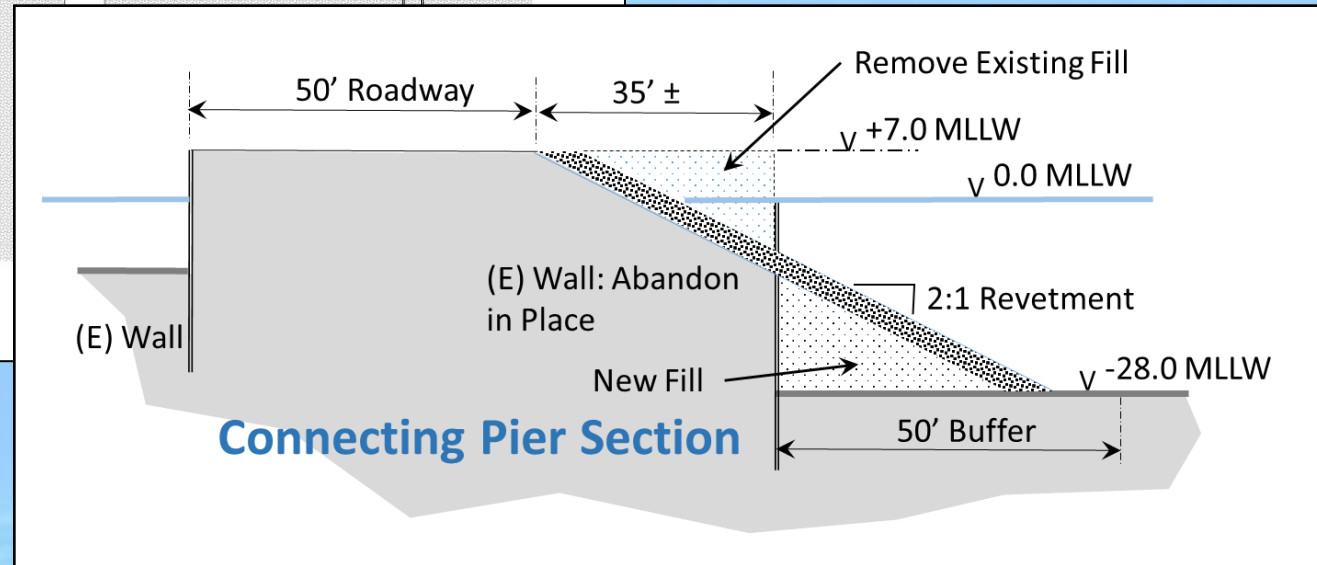
Tinian Harbor Master Plan Full Build-Out



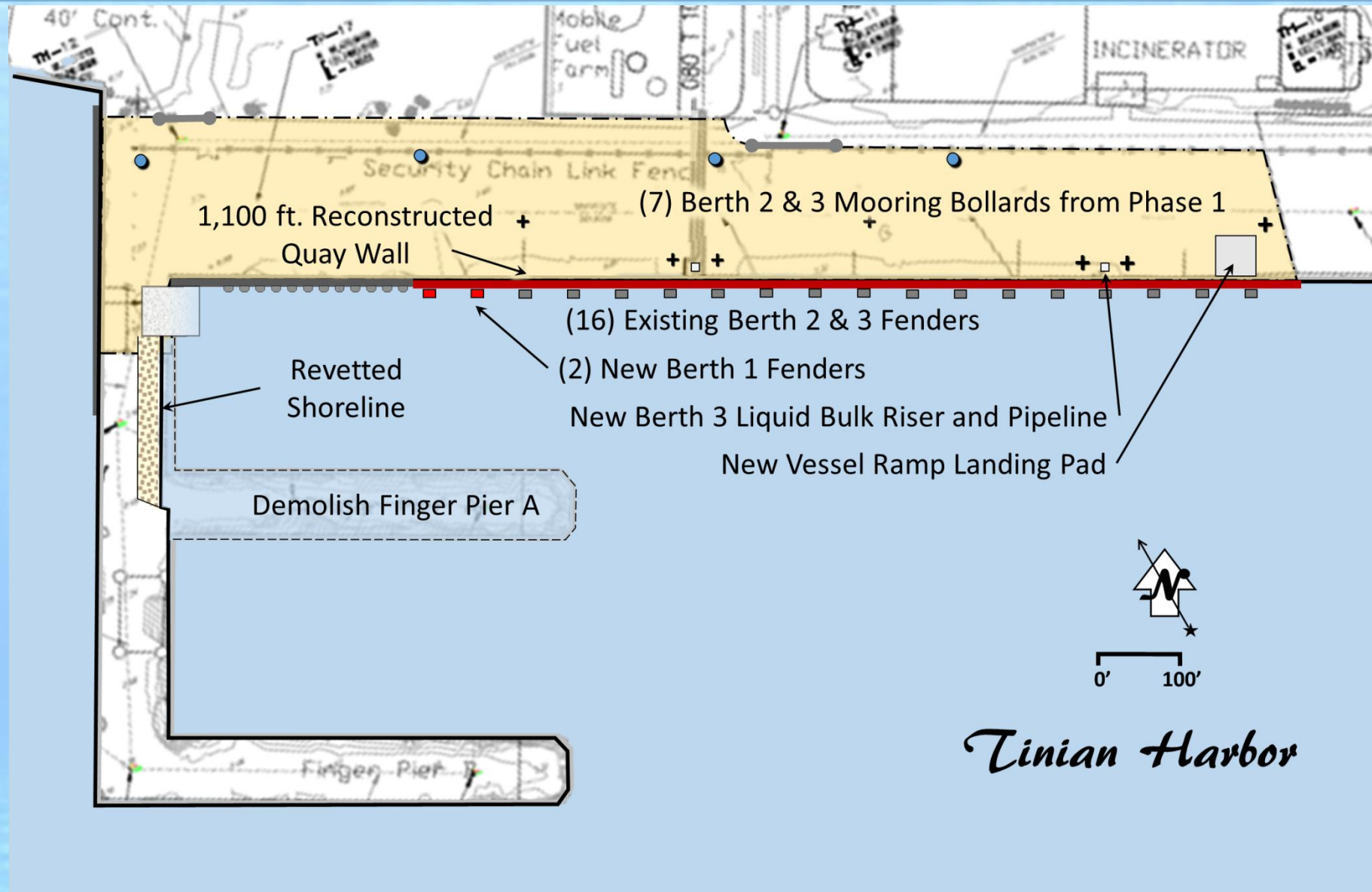
Tinian Harbor Master Plan Phase 1



Increased Design Depth



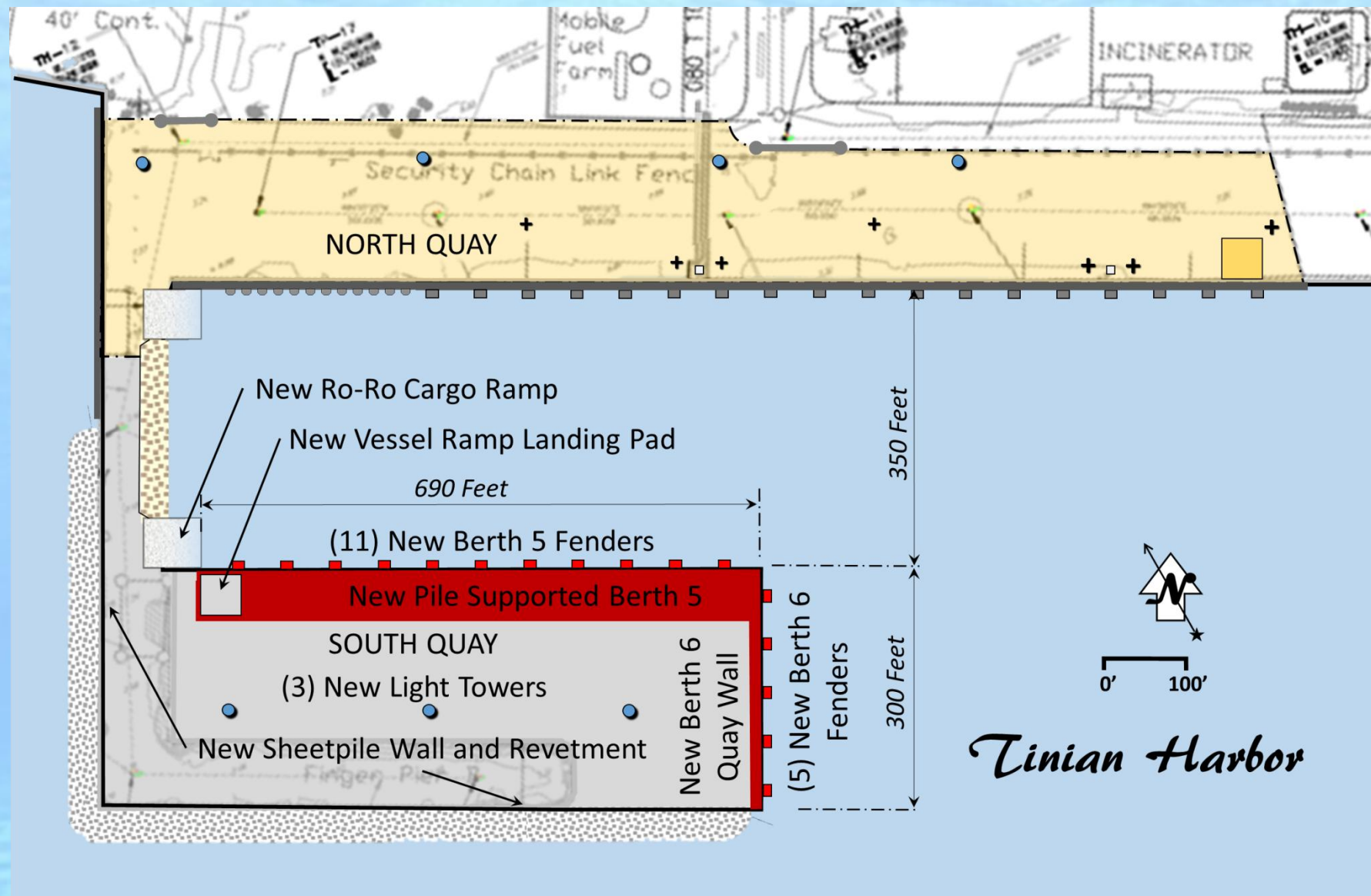
Tinian Harbor Master Plan Details



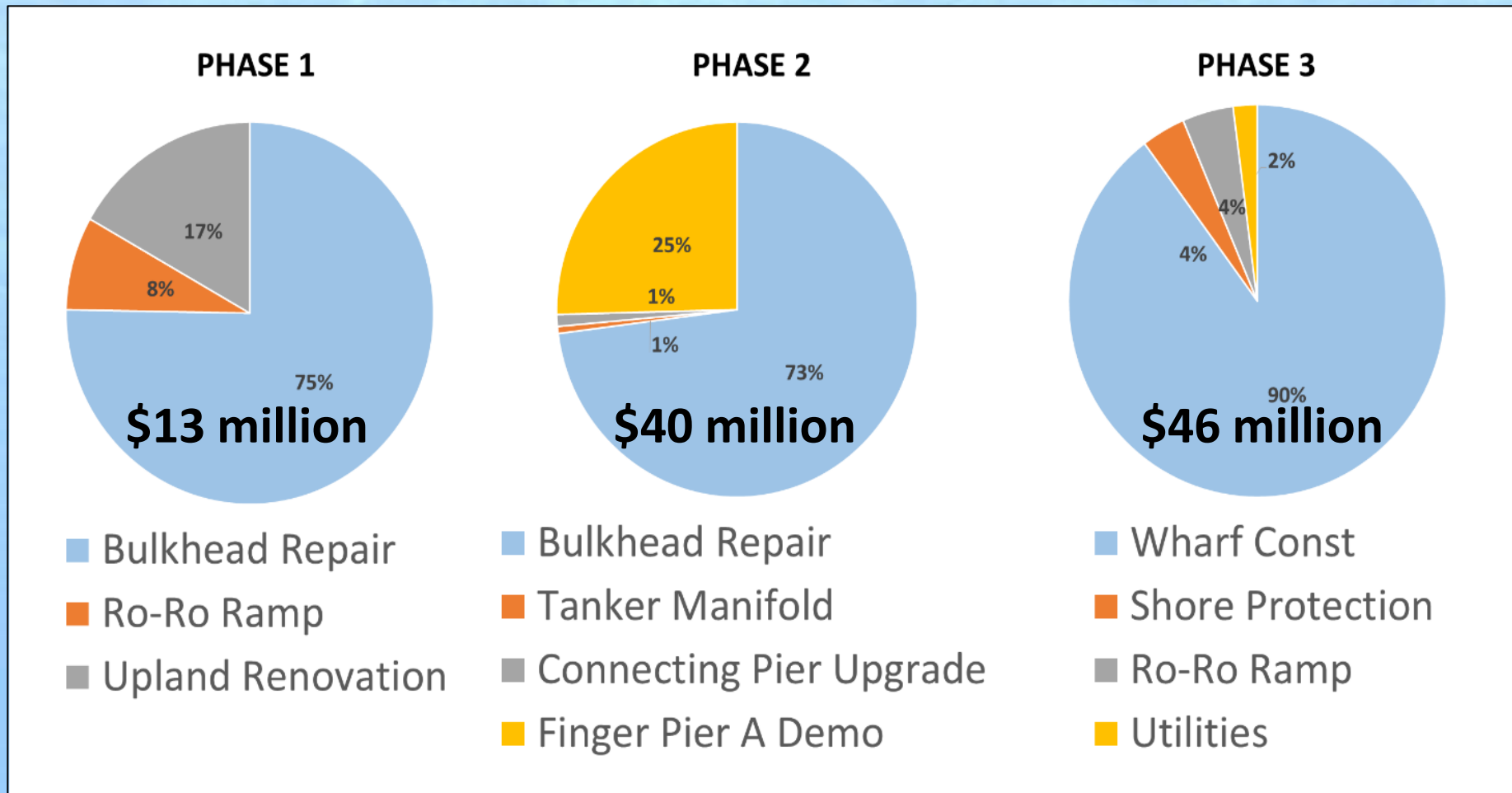
Tinian Harbor



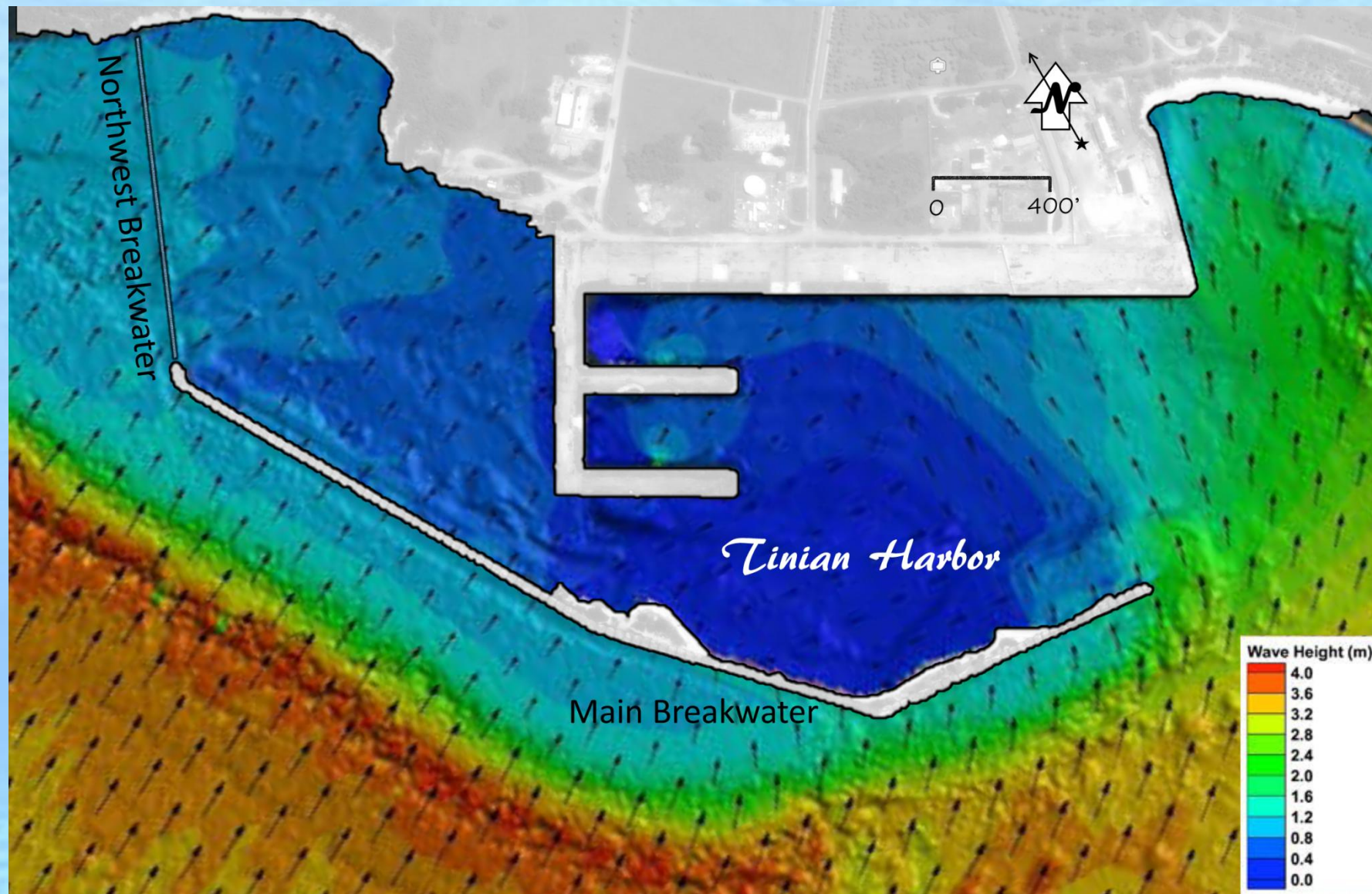
Tinian Harbor Master Plan Phase 2



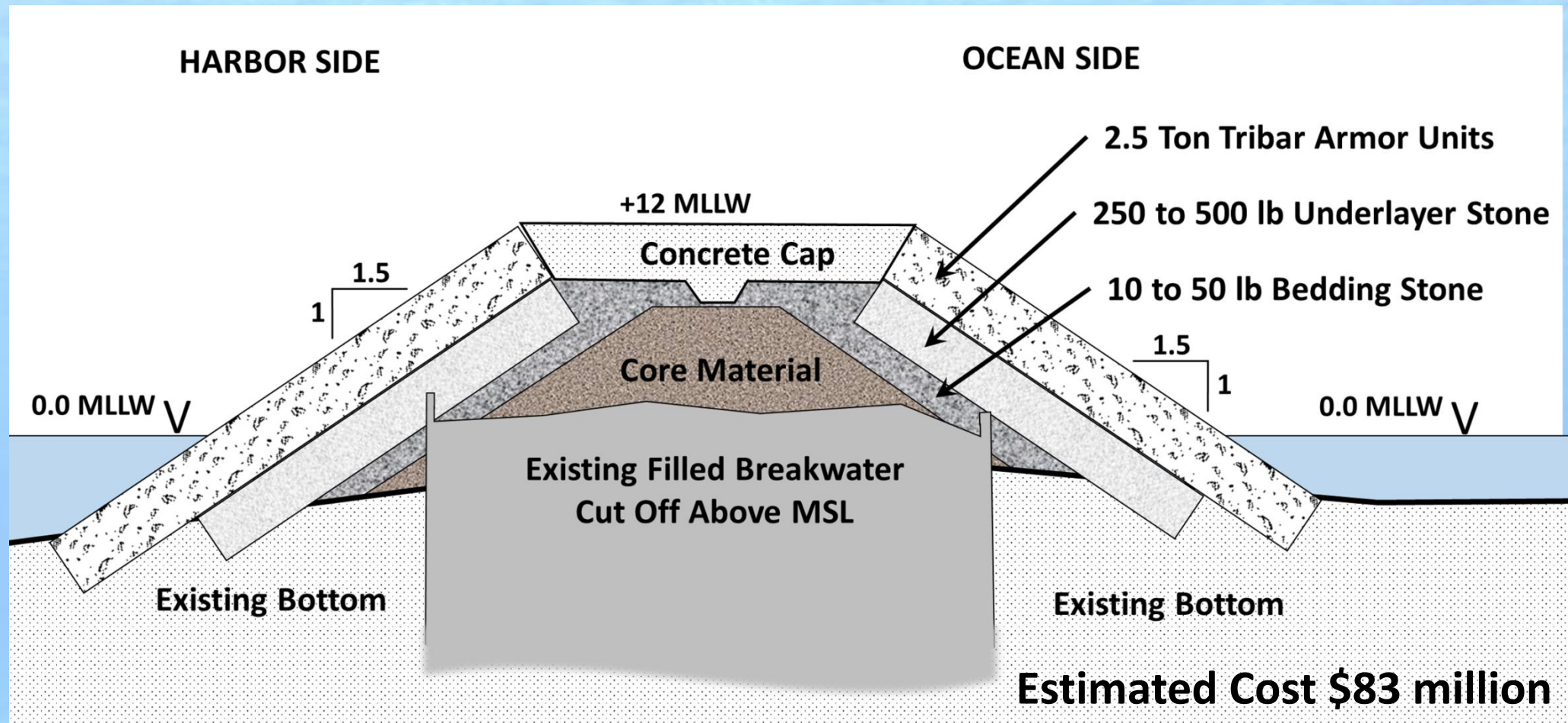
Tinian Harbor Master Plan Phase 3



Tinian Harbor Master Plan Estimated Cost moffatt & nichol



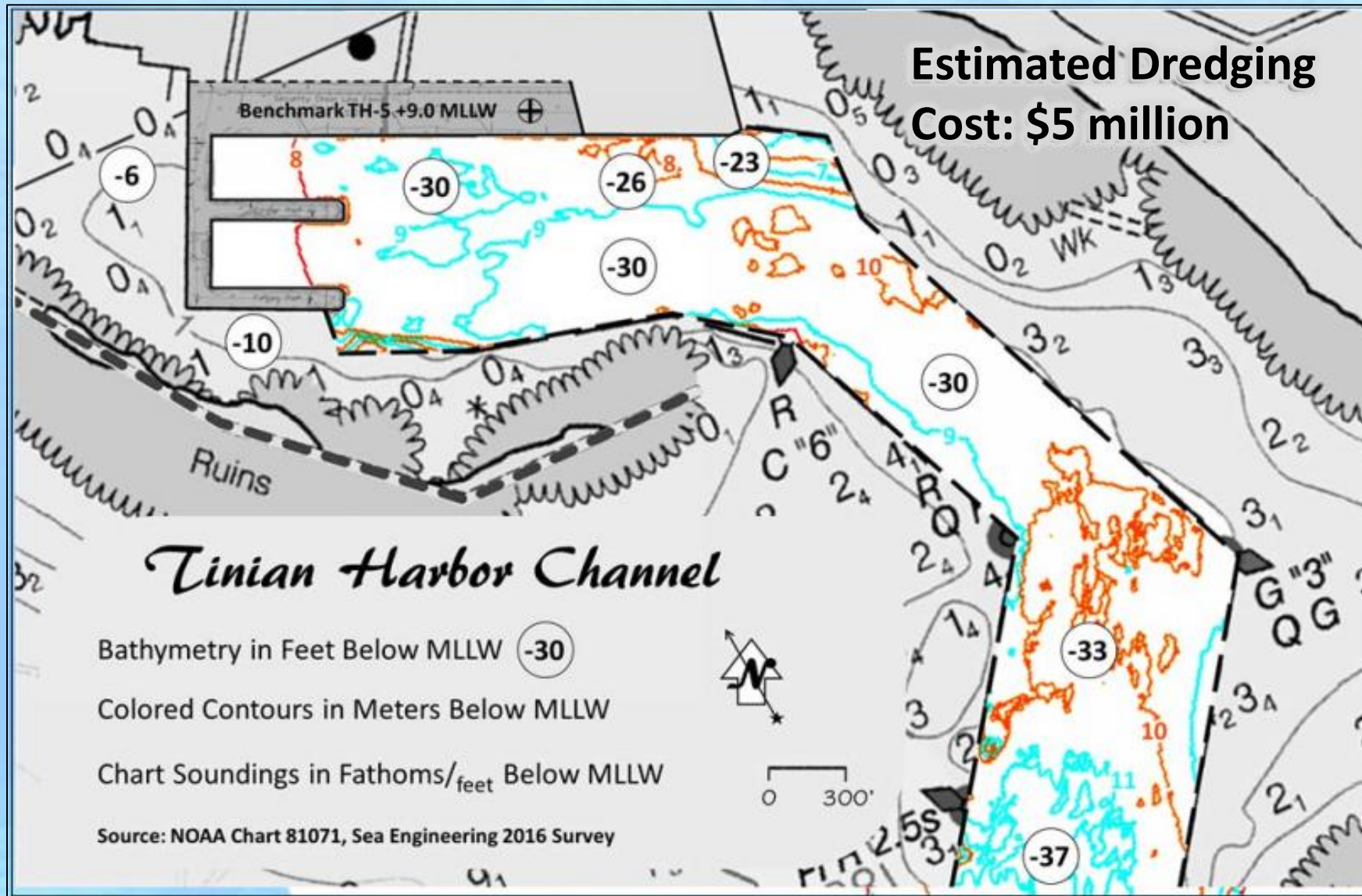
Tinian Harbor Breakwater



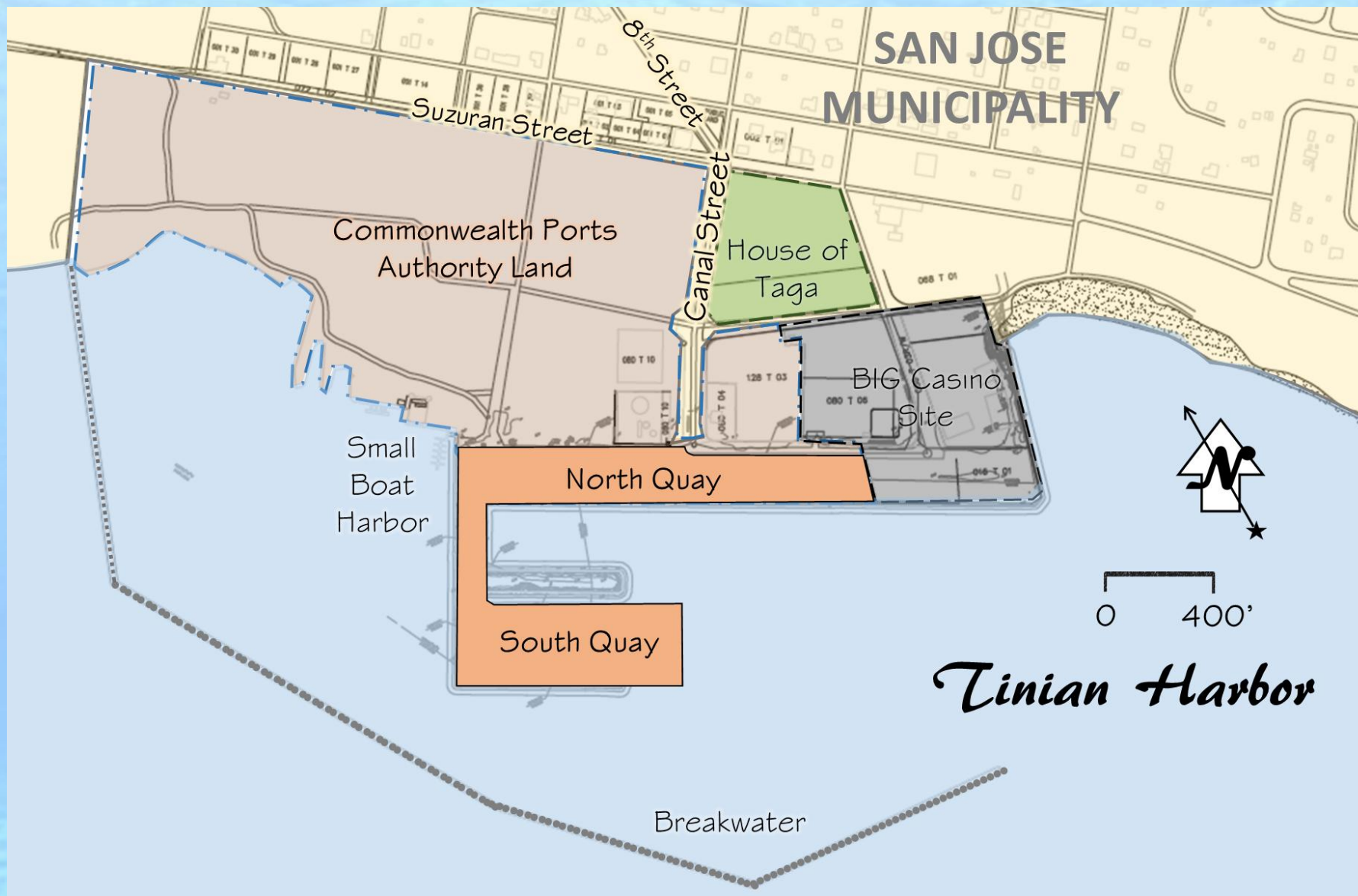
Tinian Harbor Proposed Overtopping Breakwater



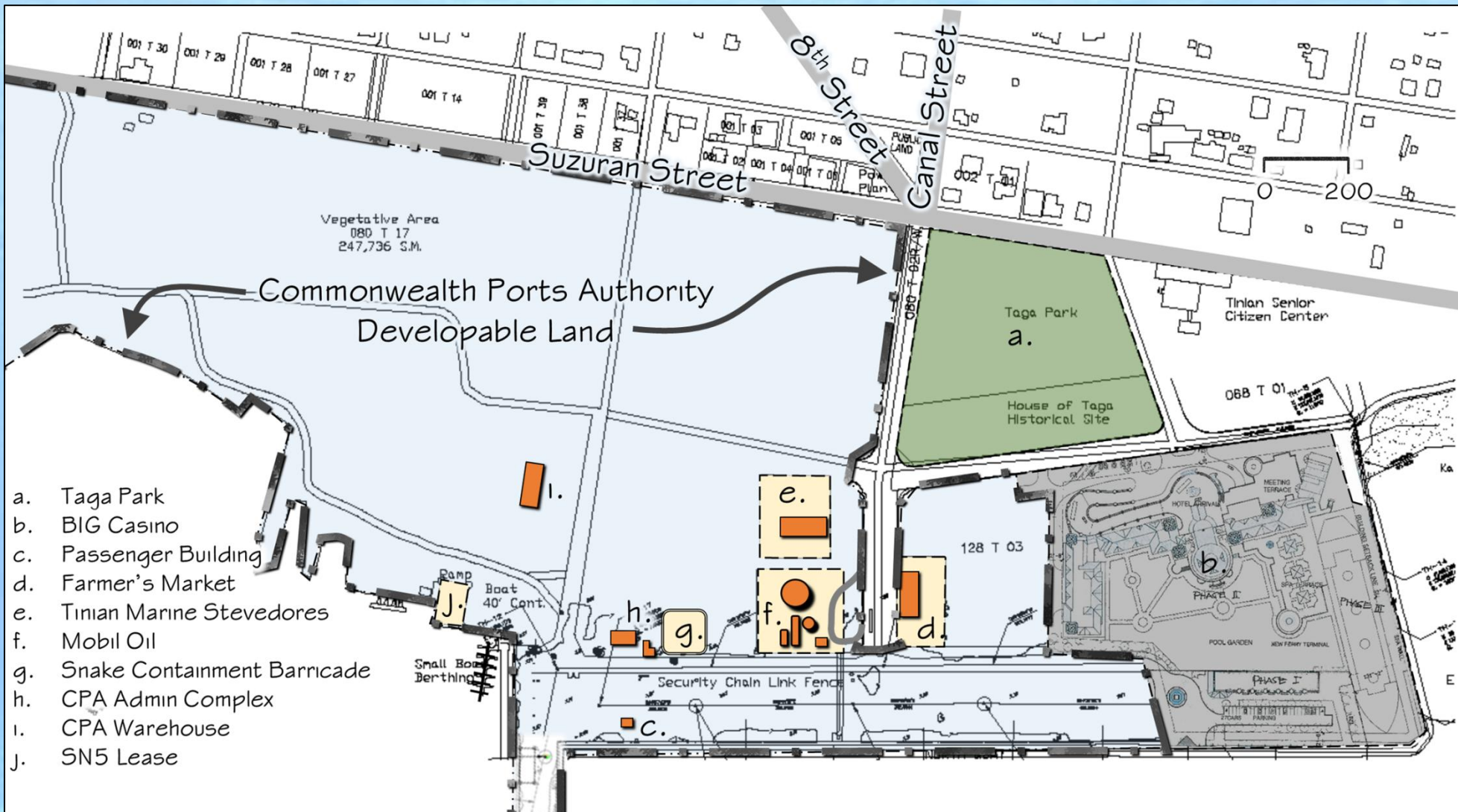
moffatt & nichol



Tinian Harbor Master Plan Dredging

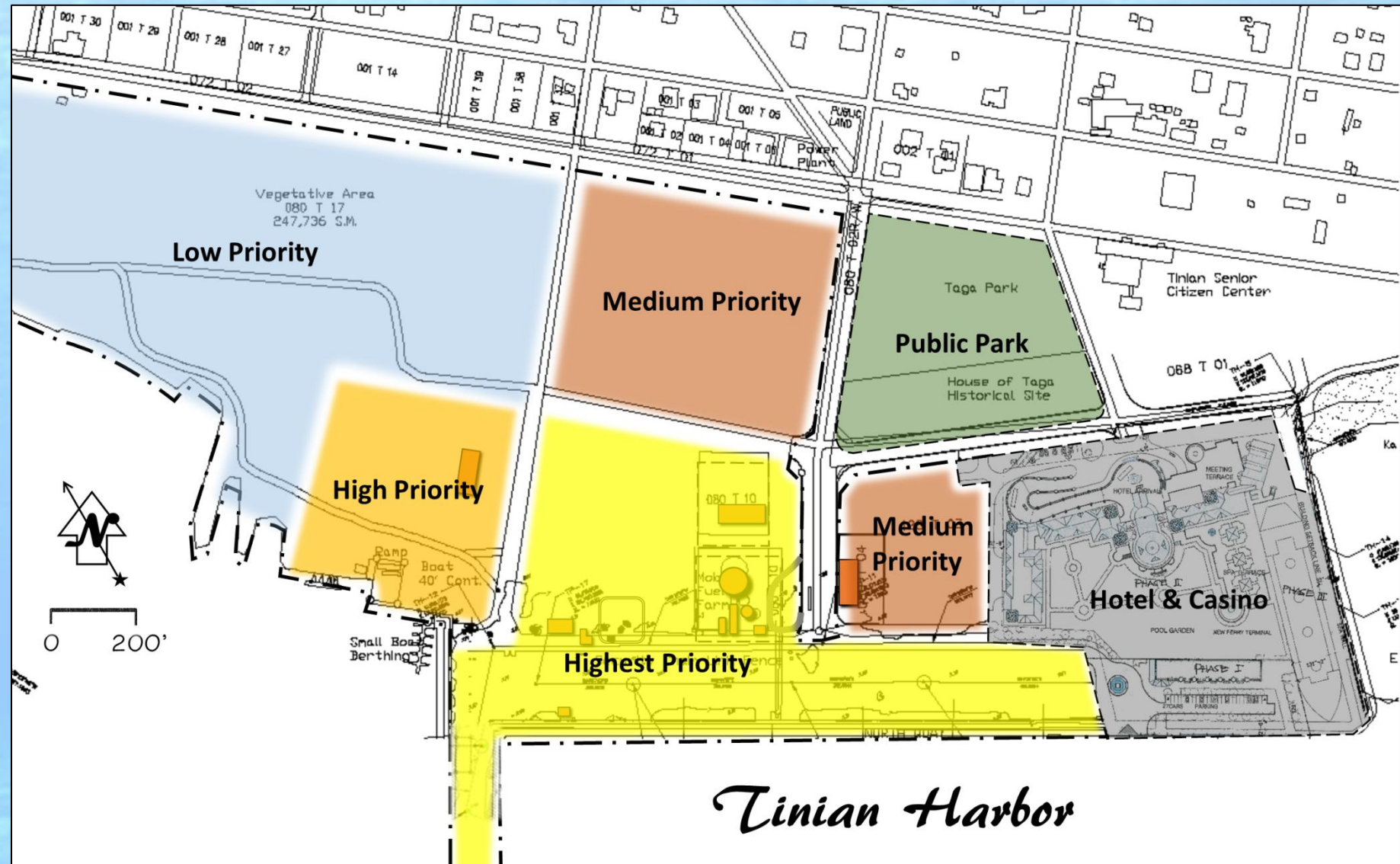


Tinian Harbor Master Plan



Tinian Harbor Upland Master Plan

- **Highest:**
Commercial
Seaport
- **High:** Water
Dependent
- **Medium:**
Seaport Related
- **Low:** Compatible
Economic

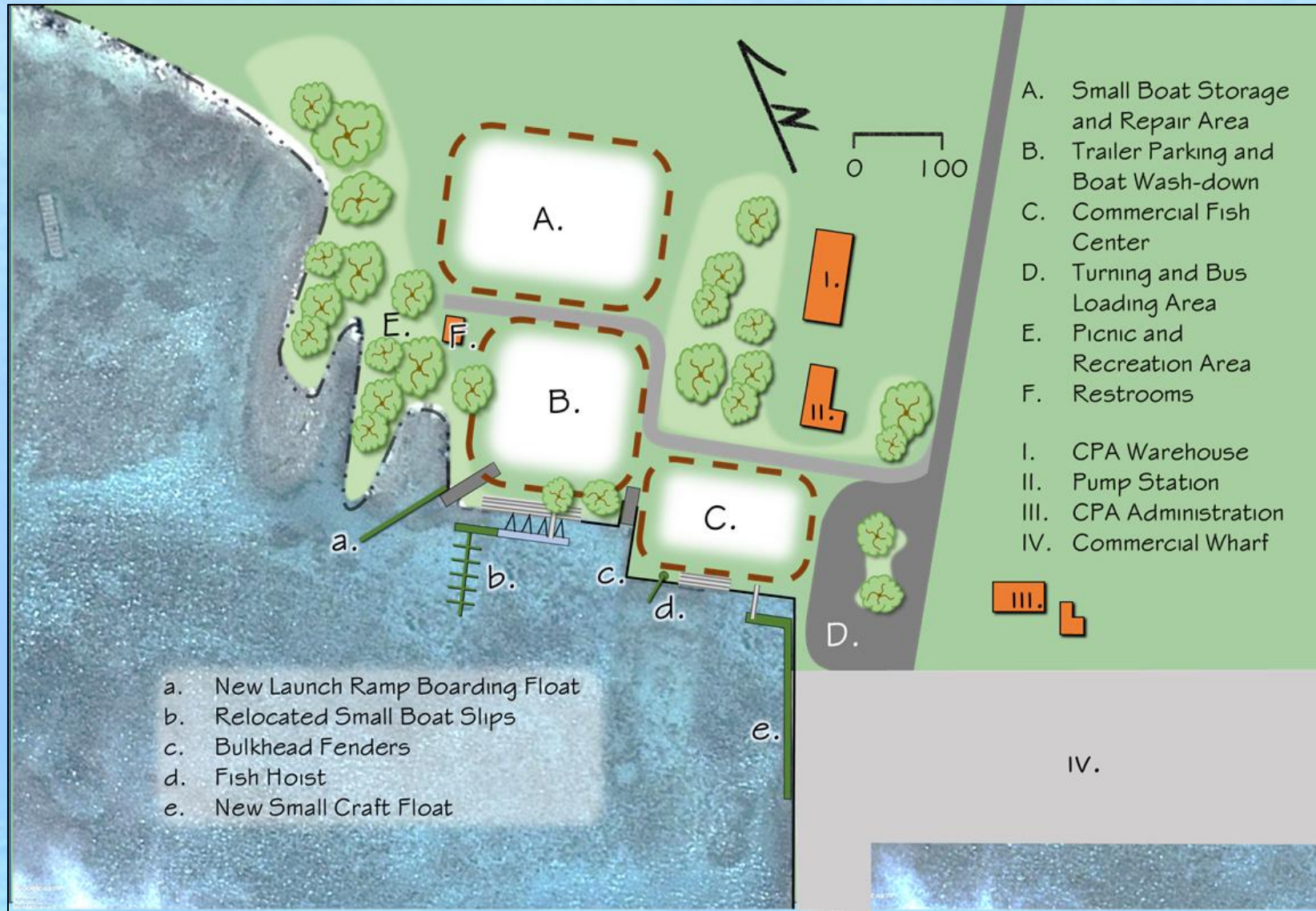


Land Use Priorities

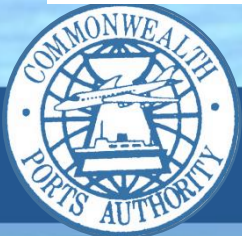
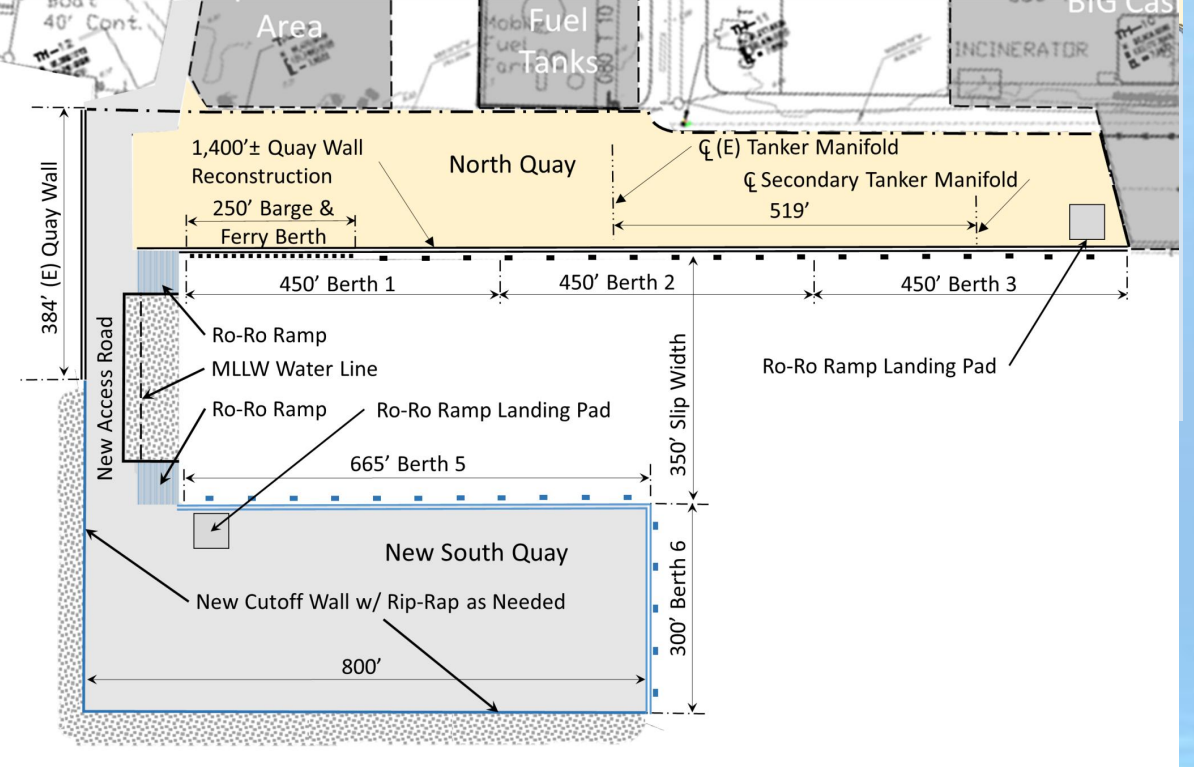
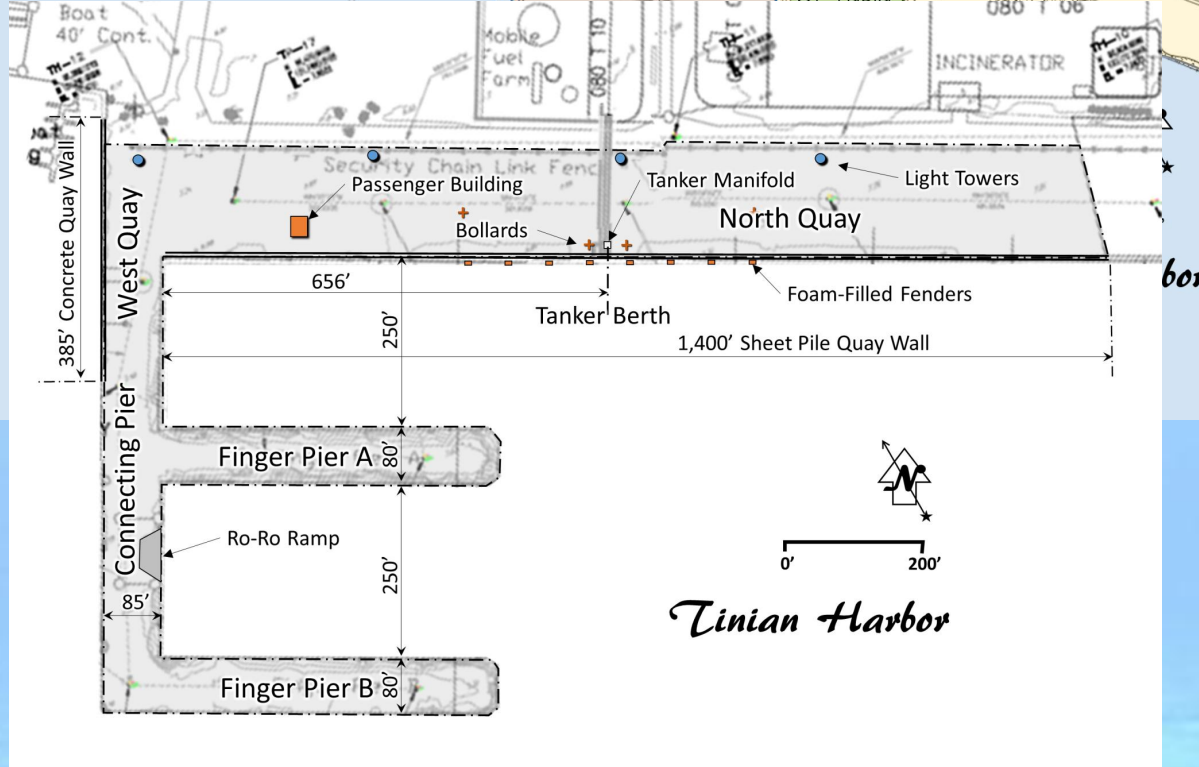
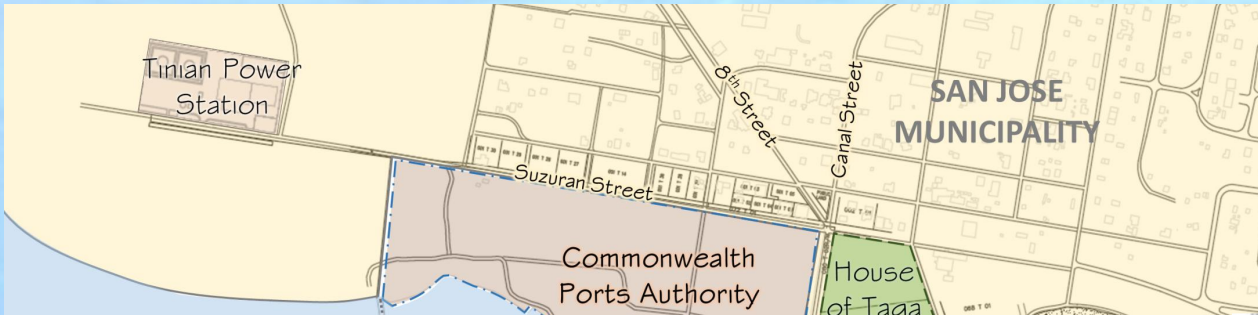


Recommended Land Use





Tinian Harbor Master Plan Public Areas



Tinian Harbor Master Plan