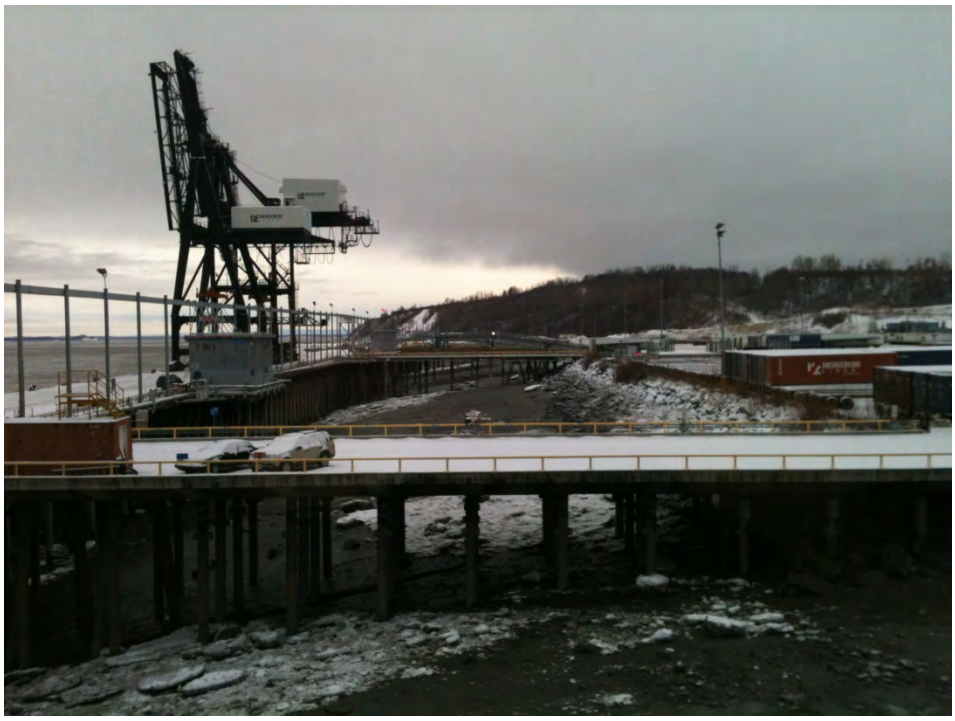
PORT OF ANCHORAGE INTERMODAL EXPANSION PROJECT

ANCHORAGE, AK

CONCEPT PLAN CHARRETTE REPORT



January 15, 2013
U.S. Army Engineer District, Alaska
Task Order No. W912PP-09-D-0016, T.O. ZJ03
Project ANC027 WP5 – Recommended Concept Plan

Prepared for
CH2M Hill International Services
949 E. 26th Avenue, Suite 500
Anchorage, AK 99508

Prepared by
Clancy Value Services, LLC
1515-42nd Ave. E.
Seattle, WA 98112

Clancy
Value Services LLC

January 15, 2013

Mr. Doug Playter
CH2M Hill International Services
949 E. 26th Avenue, Suite 500
Anchorage, AK 99508

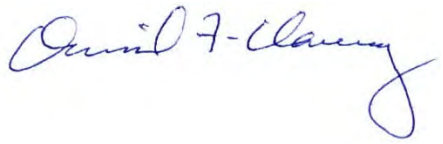
Re: Port of Anchorage Intermodal Expansion Project
Anchorage, AK
Concept Plan Charrette Report
U.S. Army Engineer District, Alaska
Task Order No. W912PP-09-D-0016, T.O. ZJ03
Project ANC027 WP5 – Recommended Concept Plan

Dear Doug:

Transmitted herewith is the electronic version of the Concept Plan Charrette Report for the above referenced project. This incorporates comments recently received and supersedes the reports previously issued.

We appreciate your assistance and cooperation as well as that of the project team and all other stakeholders. Should you have any questions please contact me.

Sincerely,



Daniel F. Clancy, AIA, CVS-Life, LEED AP
Clancy Value Services, LLC

1515-42nd Ave. E., Seattle, WA 98112
206.601.5571 dan@clancyvalueservices.com

Content

1. Executive Summary

1.1 Background

A value-based design charrette was conducted on a preliminary concept design from November 13-15 for the project described below. Representatives from the US Maritime Administration (MARAD), the Municipality of Anchorage (MOA), the Port of Anchorage (POA), Totem Ocean Trailer Express (TOTE), Horizon Lines, Cook Inlet Tug & Barge, the South West Alaska Pilots Association, the US Army Corps of Engineers Alaska District (USACE), and the CH2M Hill design team participated all three days.

1.2 Project Description

The project involves development of a repair/improvement strategy for constructing a new dock located at the North End of the POA Terminal to meet the original Wet Barge Berth and North Extension intended uses. The work includes stabilization in addition to removal of the Wet Barge Berth and the North Extension that were constructed 2008-2009 using a proprietary open cell sheet pile system due to deficient global stability factor of safety and widespread interlock installation defects.

1.3 Project Goals

The following are summarized from the project management plan prepared by USACE:

a. Provide adequate facilities to support transportation needs of the Port for state and local commerce as well as the national strategic military transport mission for years to come
b. Provide a modern, safe, and efficient regional port that stimulates economic development and the movement of goods into and out of South-Central Alaska
c. Expand and maintain existing property, facilities and equipment to meet growth in established marine trade
d. Encourage natural resource exports and create employment opportunities by attracting new industry and new cargo movement

1.4 Charrette Objectives

The statement of work defined charrette objectives as:

a. Obtain public and private stakeholder input on the development of up to three concepts to an approximate 15-percent design level for presentation to the Executive Committee
b. Optimize a solution for expanding the Port with safe berths
c. Reach consensus on project constraints and factors for evaluating options
d. Partner with private entities, tenants and various agencies involved in the Port of Anchorage Intermodal Expansion Project

1.5 Charrette Findings

The following alternatives were developed for consideration prior to, during and after the charrette. Please note all dimensions, quantities and costs mentioned in these descriptions are preliminary and will be refined during the 15% design effort:

a. Option 1 – Remove cellular sheet pile and backfill; replace with pile-supported 2,200 ft. long x 124 ft. wide dock that aligns with the face of the existing sheet pile and is 400 ft. out from existing Terminals One, Two and Three; include six trestles 230 ft. long x 38 ft. wide with 1,100 ft. long crane rail; results in removal of 19 acres behind the wet

barge berth and North Extension; estimated cost $491M with a cost estimate degree of accuracy between +50%/-30% typical for all options.

b. Option 2 – Remove cellular sheet pile and backfill; replace with 2,800 ft. long x 124 ft. wide dock angled from the dry barge berth back to Terminal Three; include six trestles 230 ft. long x 38 ft. wide with 1,100 ft. long crane rail; results in removal of 28 acres behind the wet barge berth and North Extension; estimated cost $493M.
c. Option 3 – Leave cellular sheet pile in place and fill in front with a 4:1 slope. Install pile-supported 2,200 ft. long x 124 ft. wide dock; include six trestles 112 ft. long crane rail. This option was removed from consideration early in the charrette process because the fill protruding in front of the existing bulkhead would exacerbate the shoaling problems at Terminal 3. A similar alternative (Option 4 below) was developed that does not protrude as far. Since Option 4 would have slightly less impact on shoaling a cost estimate was developed and costs for Option 3 were not developed.
d. Option 4 – Remove top 40 ft. of cellular sheet pile and spill out backfill at 4:1 slope in front of the existing bulkhead; install pile-supported 2,200 ft. long x 124 ft. wide dock; include six trestles 236 ft. long x 38 ft. wide with 1,100 ft. long crane rail; results in removal of 8 acres behind the wet barge berth and North Extension; estimated cost $451M.
e. Option 5 – Remove cellular sheet pile and replace with articulated concrete mat; construct wet barge berth; remove and replace Terminals Two and Three in phases to allow continued operations. Results in removal of 9.7 acres behind the wet barge berth and North Extension; estimated cost $560M. Phasing occurs as follows:
    i. Phase 1- Strengthen terminal 1; shift Horizon and Tote South; remove crane and bus bar to allow shifting of Tote ramps at terminal 2; add 2 trestles at terminal 2; remove/construct terminal 3
    ii. Phase 2-Move Tote to terminal 3; remove/construct terminal 2
    iii. Phase 3 - Move Horizon to terminal 2

f. Option 5-1 Hybrid – (This option was developed after the charrette and its sketch is included in Section 4 Appendix.) Remove cellular sheet pile. Construct multi-use 60 ft. wide x 600 ft. long with dolphins (lengthening effective length to 1,100 ft.) general purpose “lite’ wharf at North Extension. Construct new 125 ft. wide by 815 ft. long berth with crane rails in front of Terminal 2. Construct new 60 ft. wide by 950 ft. long berth with trestles in front of Terminal 3. Since this alternative is still in development estimated costs have not been prepared. However, it is expected to be within the range of the Options presented above. Phasing occurs as follows:
    i. Phase 1 – Remove sheet piling and construct new general purpose “lite” wharf at North Extension
    ii. Phase 2 - Relocate Tote to North Extension, Extend crane busbar to Terminal 3 and shift Horizon to Terminal 3, Construct new 124 ft. x 950 ft. wharf in front of Terminal 2
    iii. Phase 3 – Move Horizon to new Terminal 2, construct new 60 ft. x 815 ft. wharf in front of Terminal 3, then, move Tote to new Terminal 3.
    iv. Completion – When Tote and Horizon are occupying the new Terminals 2-3, the new wharf in the North Extension can be used for new barge and/or deeper draft customers with a potential bottom elevation of -45 ft. MLLW.

1.6 Key Agreements

Of the options initially proposed, three were agreed upon to be pursued further.

a. Drop Option 2 due to the loss of upland acreage
b. Drop Options 3 and 4 due to increased shoaling
c. Consider Option 1 with some value engineering
d. Consider Option 5 for further study because it is preferred by current Horizon and TOTE tenants
e. Consider a hybrid between Options 1 and 5
f. Include a pile test program to help reduce risk and cost estimating contingencies going forward

1.7 Description of the Charrette

The following summarizes the process that resulted in charrette outcomes documented in Section 2:

a. Tuesday –

   After introductions of attendees and discussion of expectations, CH2M Hill gave an overview of the project background and presented four preliminary concept options prepared prior to the charrette along with a fifth option prepared by USACE. Stakeholders and subject matter experts made observations and asked questions that were either addressed or listed as issues for further follow up. After project constraints and functional elements were reviewed, agreement was reached on the performance factors that should be used as criteria for evaluating alternatives. Following a lunch break, the participants brainstormed alternatives and started the risk matrix.

b. Wednesday –

   After reviewing the dredging limits and its on-going operation with USACE-Alaska subject matter experts, the risk matrix was completed by the participants. While the project team developed alternatives, stakeholders and subject matter experts prepared a decision matrix for comparing the alternatives' performance attributes for the evaluation criteria and identified the best performing alternative's advantage for each. The day ended with a preliminary ranking of these performance advantages based on their importance.

c. Thursday –

   While the project team estimated rough order of magnitude initial cost of the alternatives being considered, stakeholders and subject matter experts finalized the decision matrix and ranked the alternatives based on the importance of their advantages. Following a lunch break, an outbrief presentation was given to key stakeholders who shared their feedback and gave direction for the path forward. The charrette concluded with an after action review with core project team members.

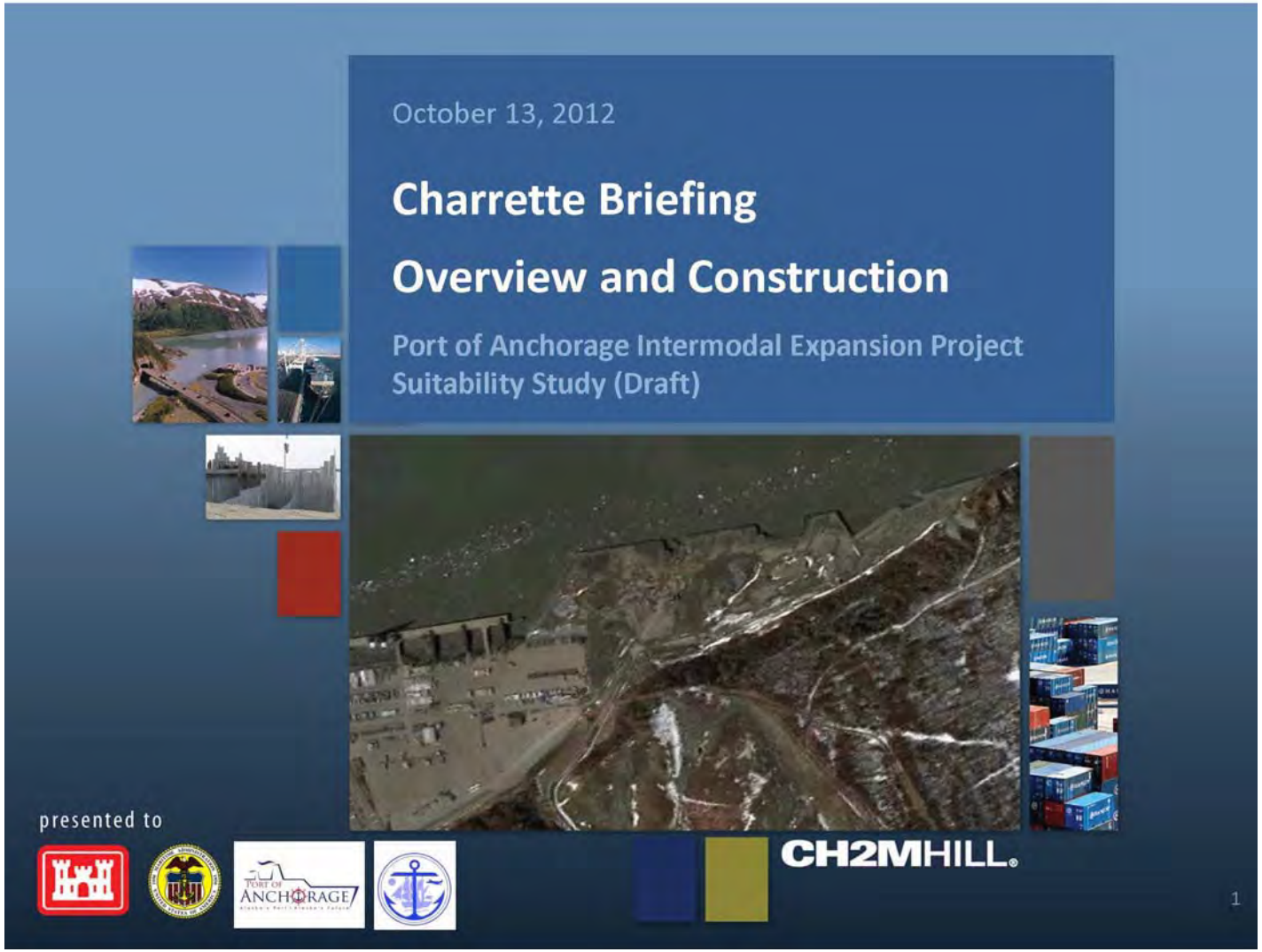
1.8 Core Stakeholders and Project Team Members

	Name	Agency	Title
1	Robert Loken	MARAD	Project Manager and Director of West Gateways
2	Christopher Moore	MARAD	Director of West Gateways Offices
3	Roger Bohnert	MARAD	Deputy Associate Administrator
4	George Vakalis	MOA	Municipal Manager
5	Richard Wilson	MOA	Port Director
6	Steve Ribuffo	MOA	Deputy Port Director
7	Todd Cowles	MOA	Port Engineer
8	Larry McCallister	USACE	Deputy Commander for PPMD
9	George Newman	USACE	Project Manager
10	David Frenier	USACE	Engineering Chief
11	Karl Harvey	USACE	Cost Estimator
12	Pat Coullahan	USACE	Contracting Chief
13	Craig Lance	USACE	Construction
14	Mike Salyer	USACE	Environmental
15	James Sauceda	USACE	Engineering Technical Lead
16	Ken Eisses	USACE	Alaska, Hydraulics/Hydrology
17	Pat Zettler	USACE	Alaska, Charrette Manager
18	Doug Playter	CH2M Hill	Project Manager
19	David Mock	CH2M Hill	Maritime Design Lead
20	Simo Hoite	CH2M Hill	Port Operations/Cranes/Containers
21	Don Anderson	CH2M Hill	Geotechnical Engineering
22	Joseph Taylor	CH2M Hill	Civil Engineer
23	Robert Wells	CH2M Hill	Cost Estimator
24	Daniel Clancy	Clancy Value Service	Facilitator
25	Michael Richardson	Meridian Management	Recorder

2.0 Charrette Outcomes

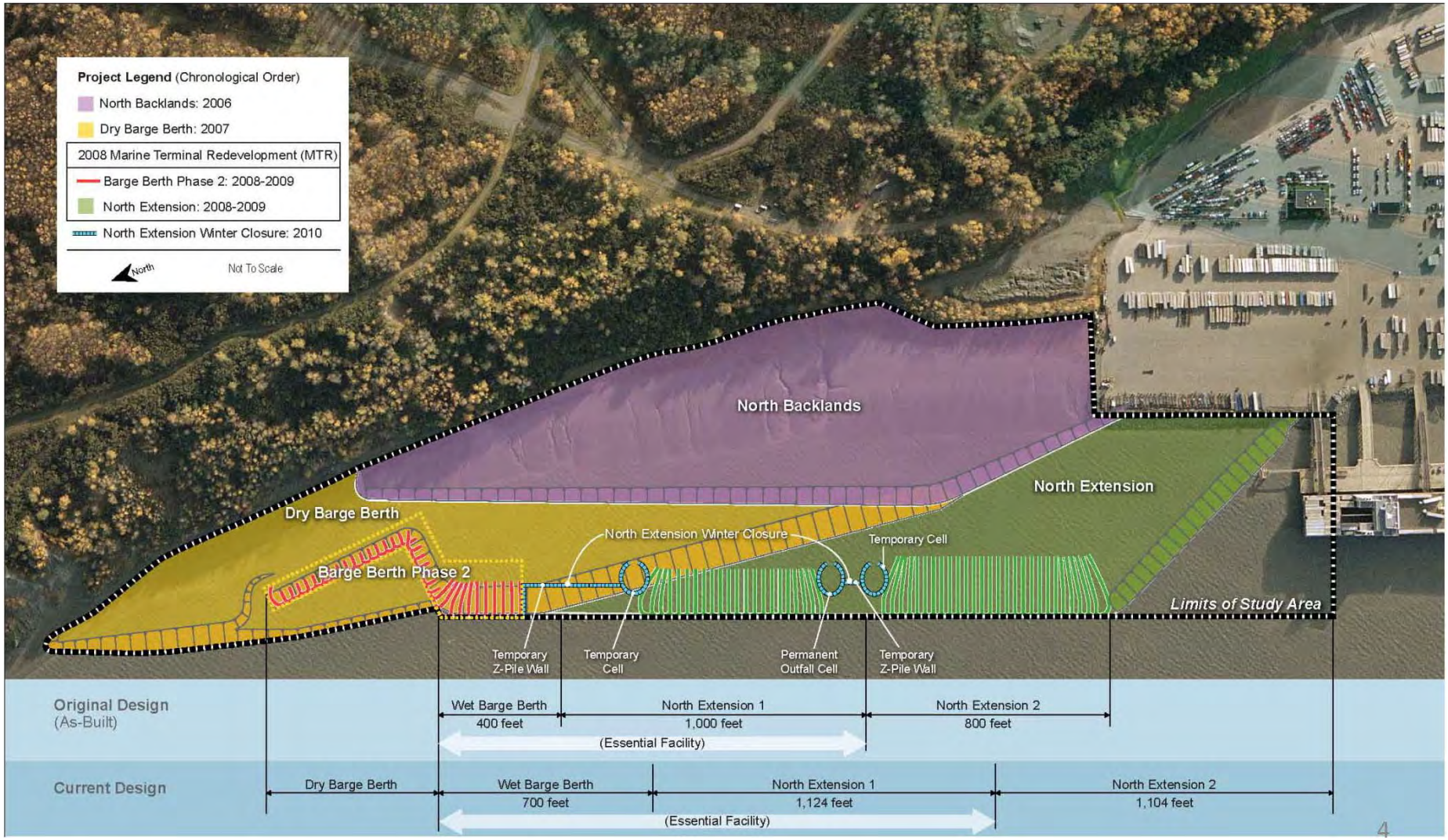
2.1 Inbrief Presentation

After the participants shared their expectations and objectives, the following briefing along with a presentation options was given of five options developed prior to the charrette by Doug Playter at CH2M Hill.



Phasing for Port Intermodal Expansion Project

Constructed Overview of North Expansion



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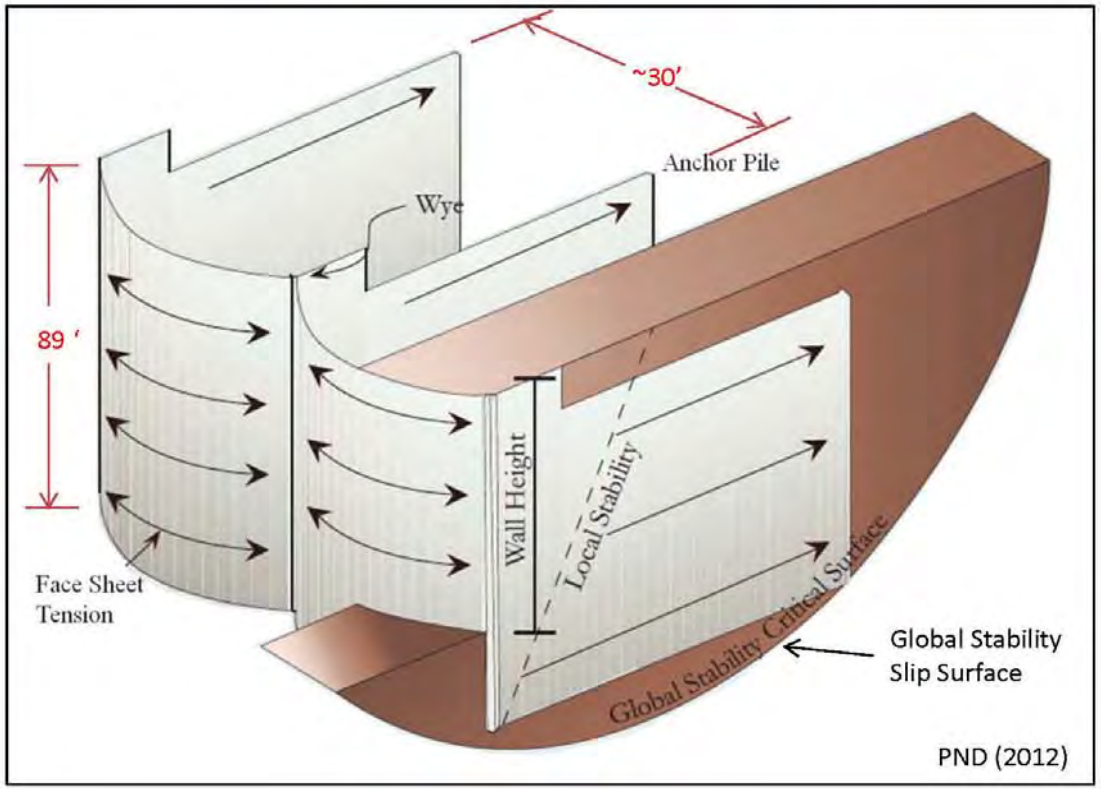
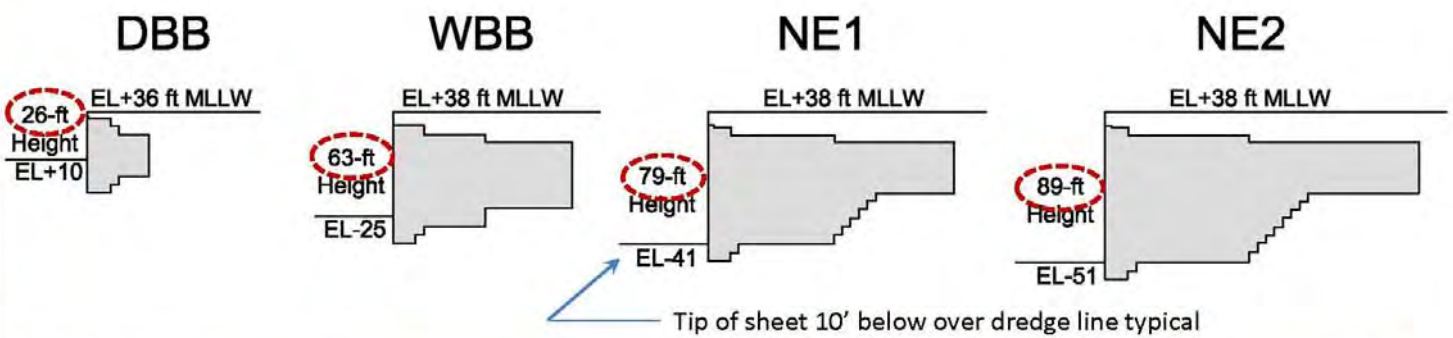
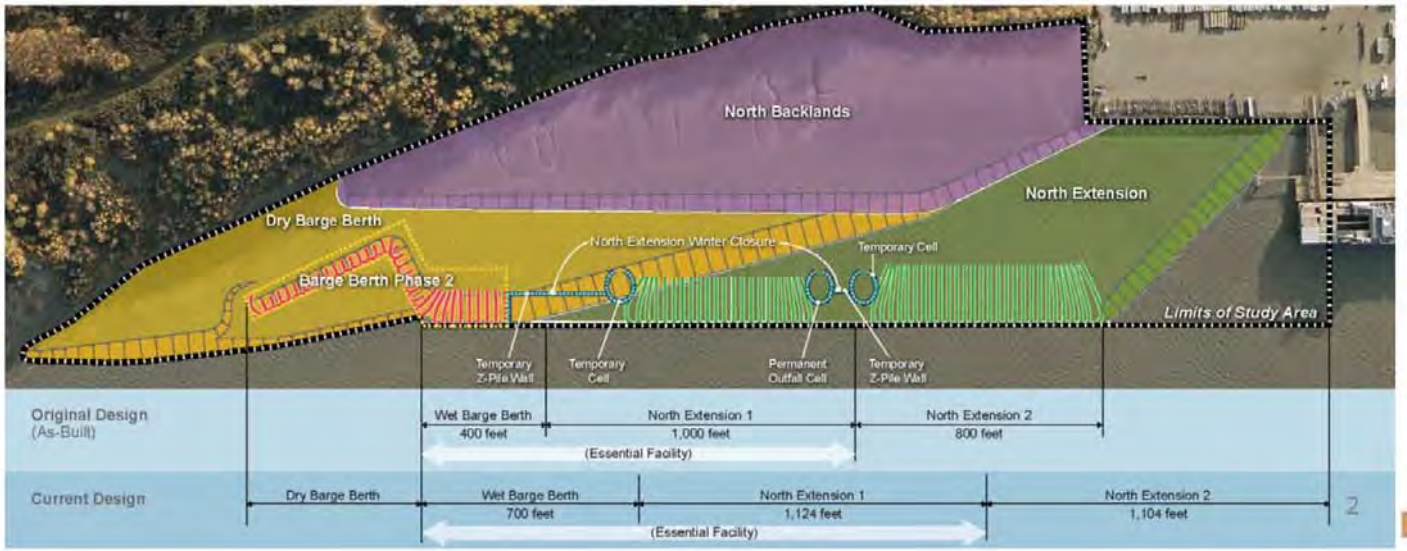
OPEN CELL Sheet Pile (OCSP) System

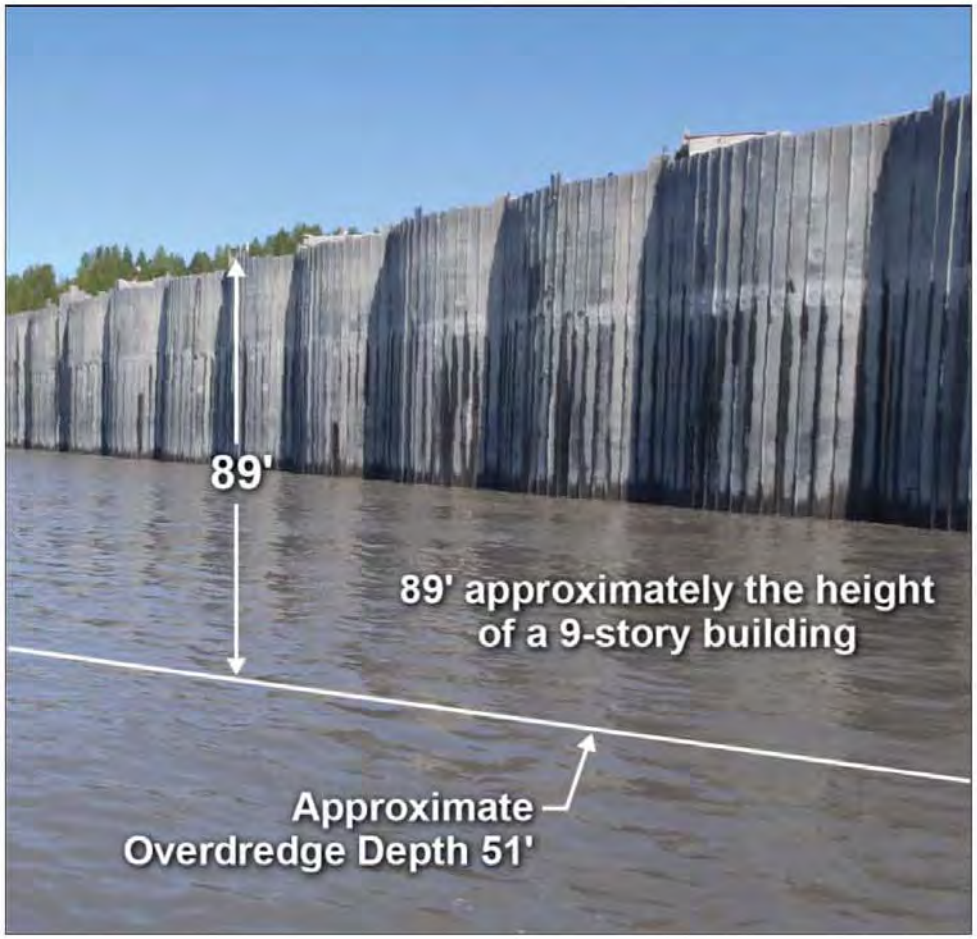


Constructed Typical Sections





Constructed Typical Sections




Dry Barge Berth

Constructability: Sheet Pile Defects

Constructability: Sheet Pile Defects

Constructability: Sheet Pile Defects

Sheet pile "unzipping"

11

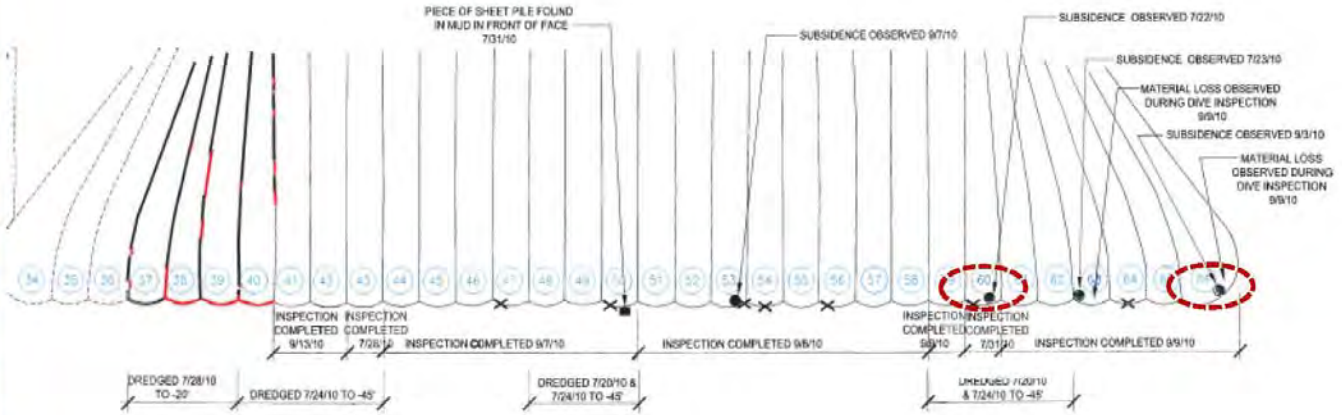
Sinkholes from washout at broken interlocks

Sinkholes developed during inspection dredging

12

North Extension 2 Damage Report

LEGEND:
CELLS NOT INSTALLED
EXISTING CELLS
NO MAJOR DAMAGE OBSERVED WHEN PULLED
DAMAGE OBSERVED WHEN PULLED
FACE SHEET DAMAGE IDENTIFIED DURING DIVE INSPECTION



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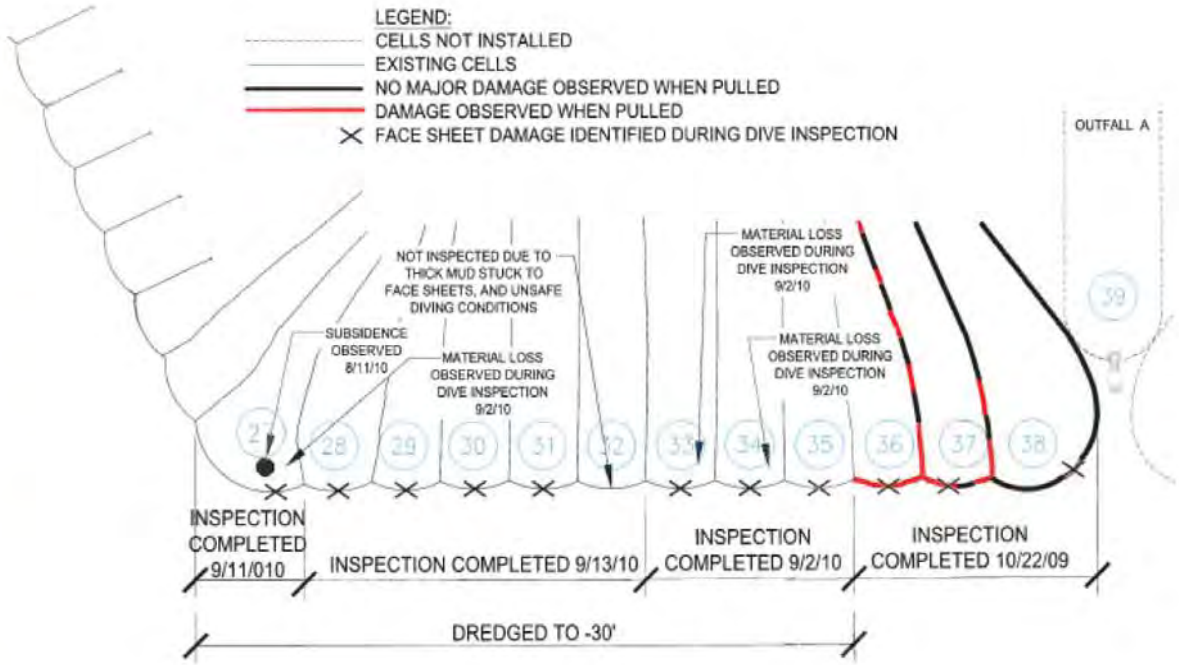
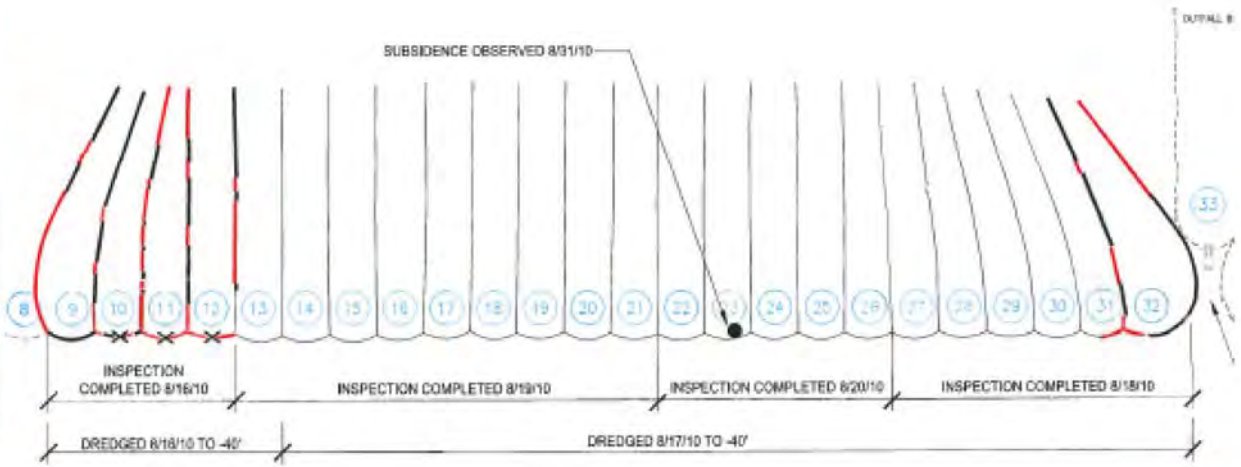
Wet Barge Berth Damage Report



North Extension 1 Damage Report

LEGEND:
CELLS NOT INSTALLED
EXISTING CELLS
NO MAJOR DAMAGE OBSERVED WHEN PULLED
DAMAGE OBSERVED WHEN PULLED
FACE SHEET DAMAGE IDENTIFIED DURING DIVE INSPECTION



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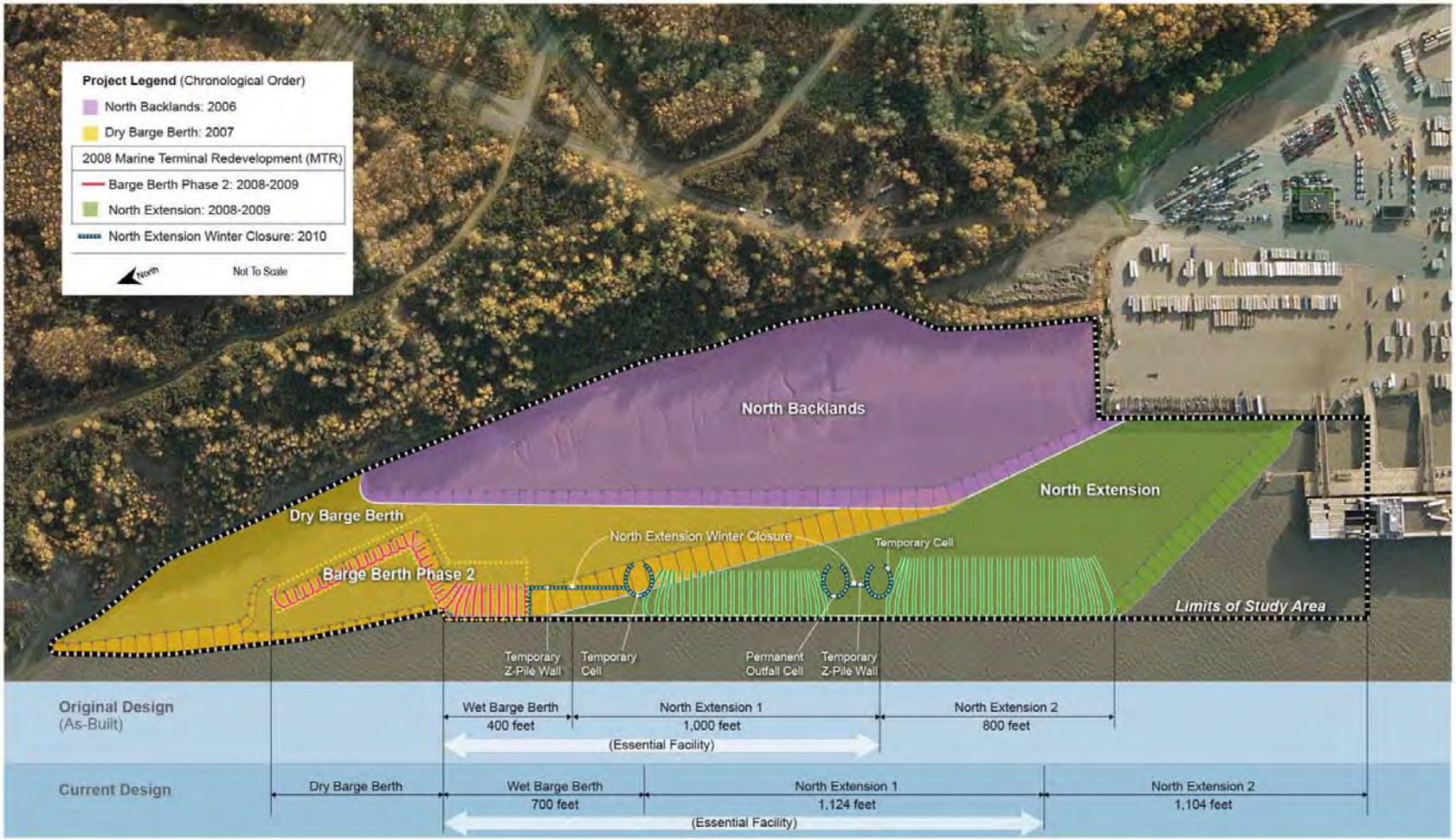
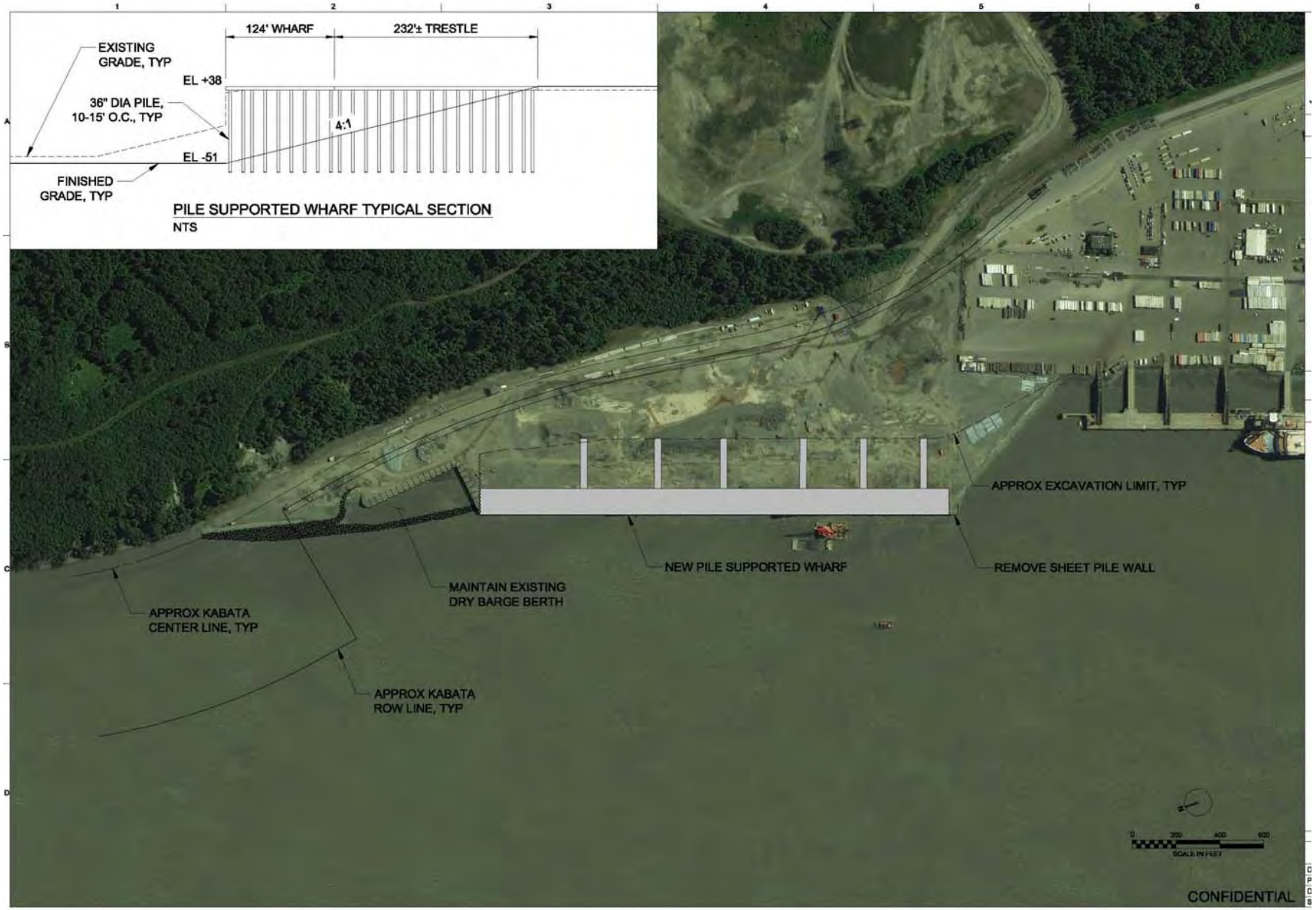
North Expansion Construction Summary

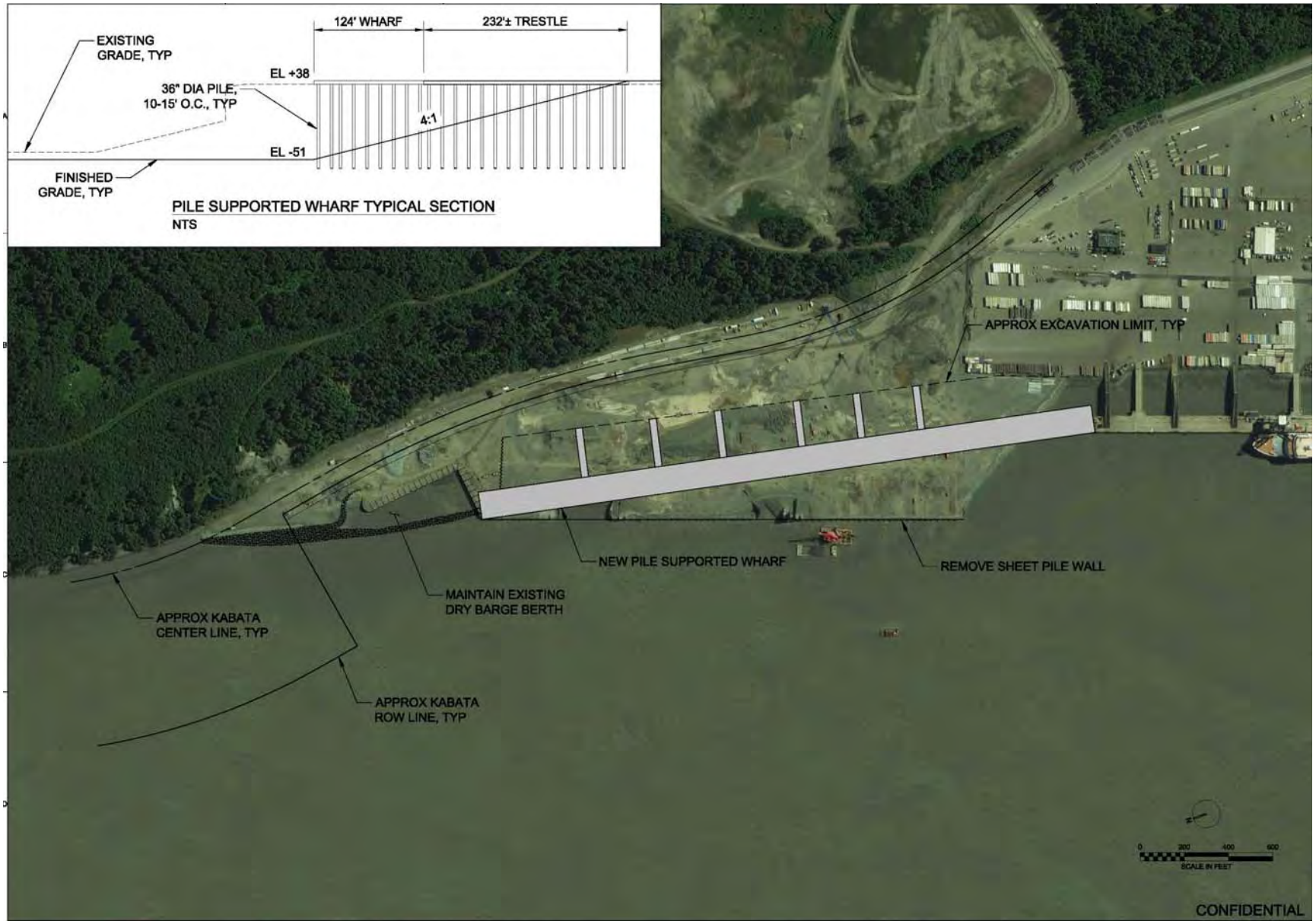



BULKHEAD CONTROL LINE AT CENTERLINE OF WYES
SHEET PILE WALL, TYP
ARMOR ROCK SLOPE, TYP
KABATA CENTER LINE, TYP
KABATA ROW LINE, TYP
CONFIDENTIAL

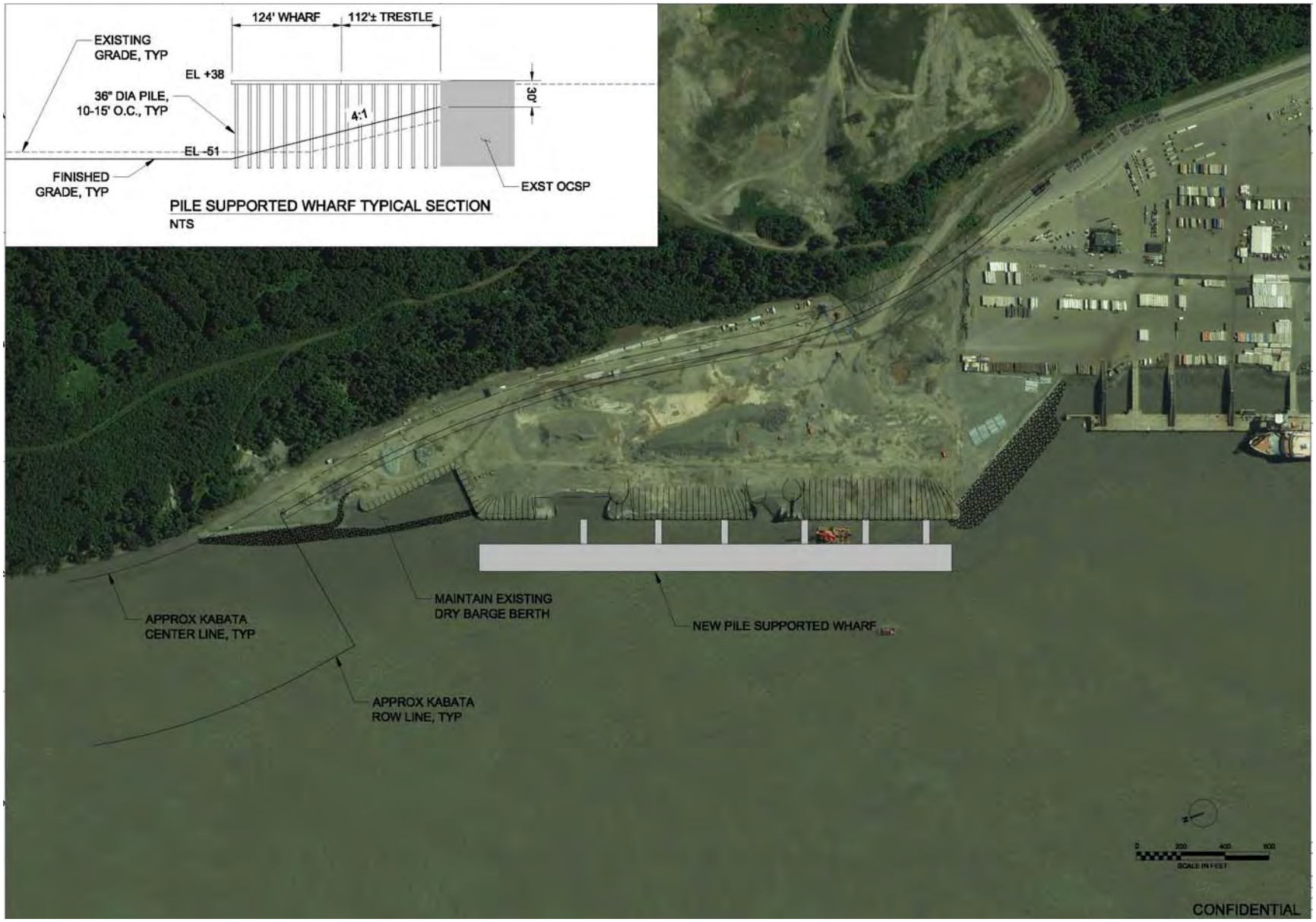
Existing



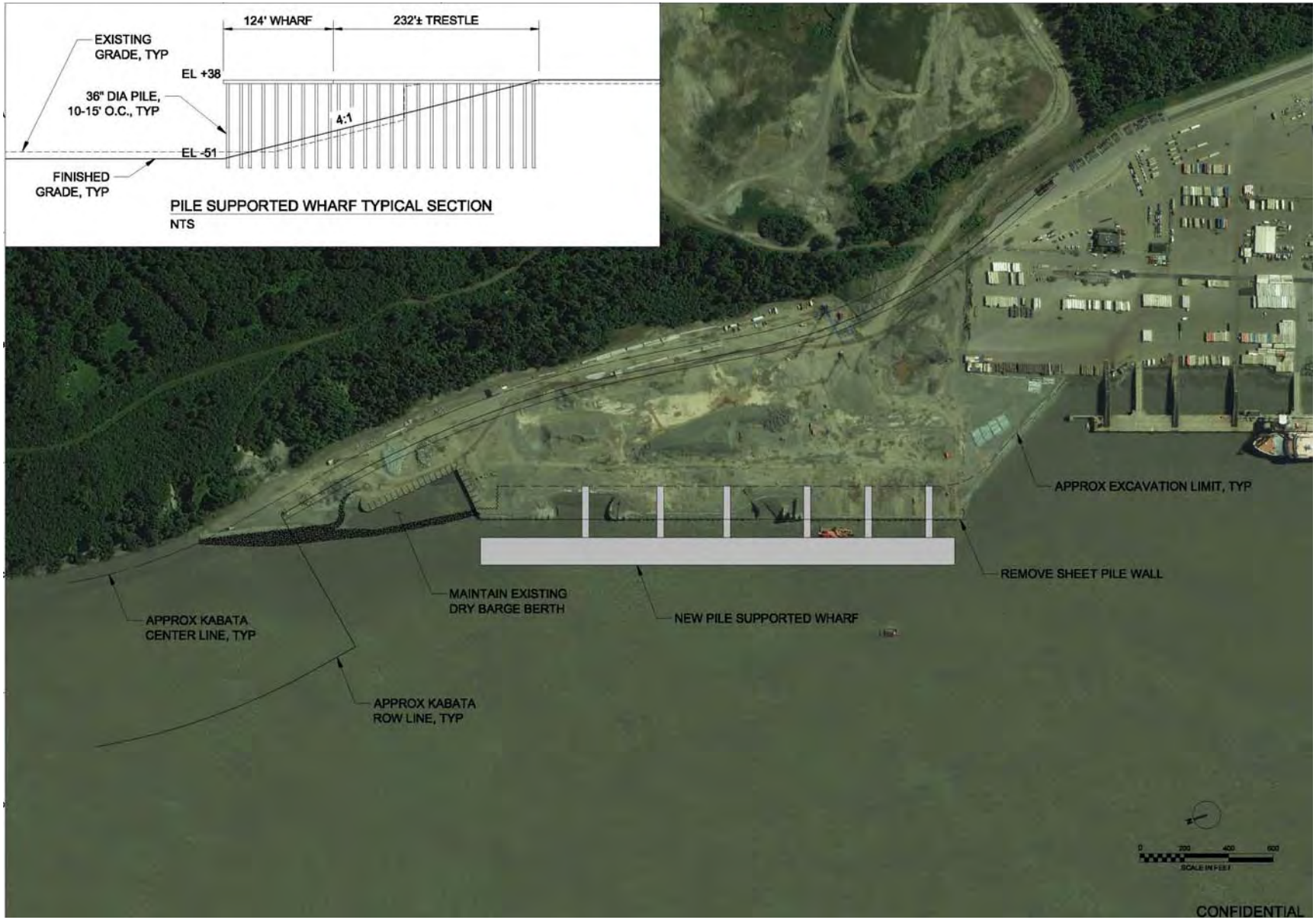
Option 1 - 2,200 ft. long wharf



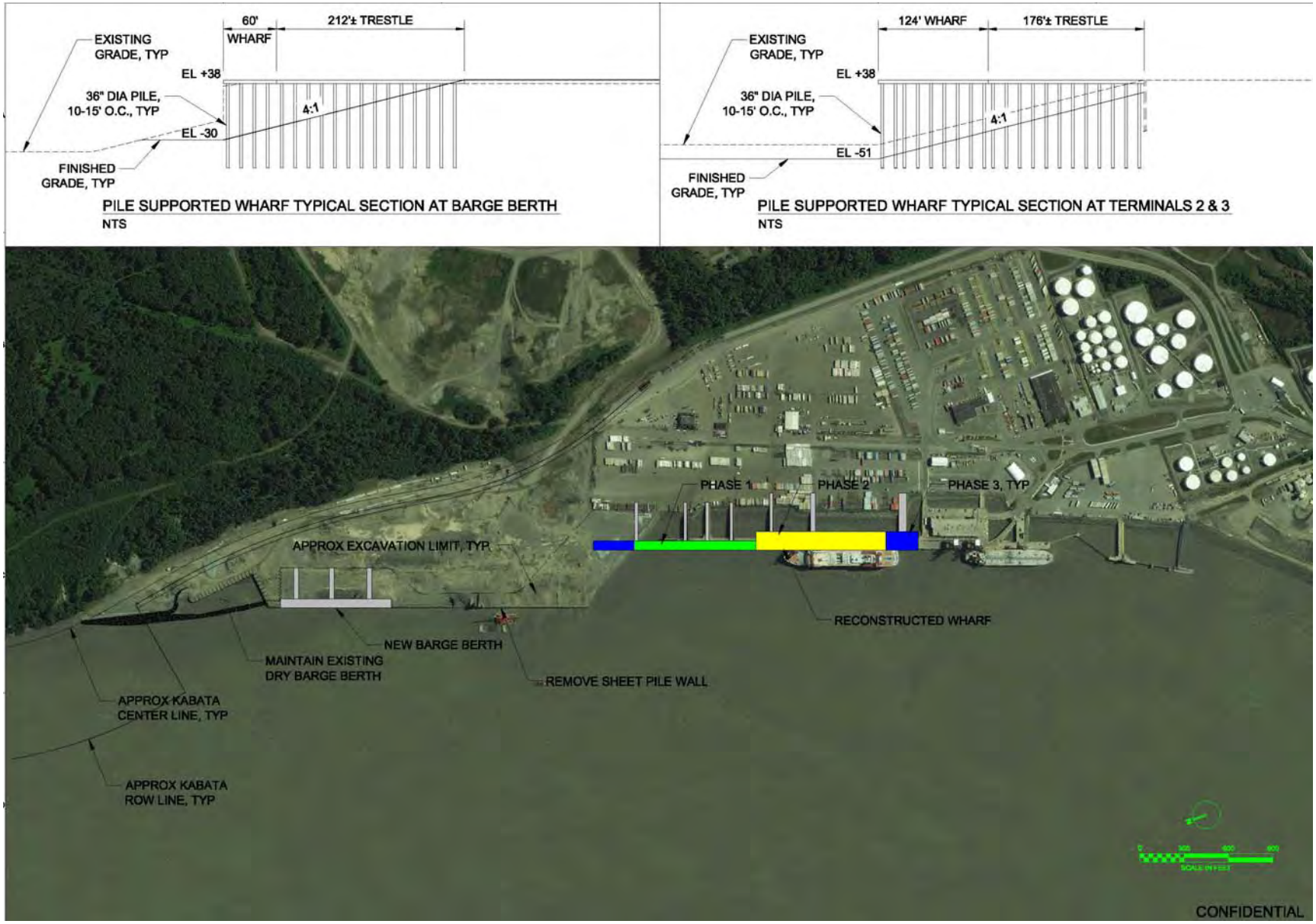
Option 2 – 2,800 ft. long angled wharf



Option 3 – 2,200 ft. long wharf with fill in front of open cell sheet pile (OCSP)



Option 4 – Cut top 40 ft. & spill and replace with 2,200 ft. long wharf



Option 5 - Reconstruct Terminals 2-3 and construct wet barge berth

2.2 Questions and Observations

The following was discussed during and after the inbrief presentation:

a. Where are authorized dredging changes?
    i. USACE is currently dredging to 35'-0", pursuing funding to dredge to 45'-0"
    ii. Tote has been utilizing 35'-0", future need would be 40'-0" depth for berthing, ships are 35' (see 2.7 Federal O&M Dredge Limits at Anchorage Harbor for further discussion from Steve Boardman and Julie Anderson)

b. How important are trestles, are they required and could we do without?
    i. Trestles are important for TOTE's operation that depends on hanging ramps to drive trailers off ships

c. How much land will be lost with option 1?
    i. 19.4 AC are removed to provide a stable slope at 4:1 and accommodate the trestles behind the wharf

d. Could sheet piles remain and install the wharf on top?
    i. The open cell sheet pile system as constructed is not stable enough and is too heavy
    ii. Conventional pile-supported wharf is more forgiving for ship handling

e. Could sheet pile be cut back and new pile installed in front?
    i. This can be done as reflected in Option 4. However, as you move away into the current more lines are required, more powerful tugs are required and there are more issues with ice flow

f. What is impact with angled design on current flow?
    i. Shoaling is reduced

g. Consider two-ship accommodation with one at the existing facilities

h. Shallow low water forces ships to move away from berthing

i. DoD requires 25 acres (somewhere)

j. If TOTE and Horizon share a berth, common use requires avoiding conflict between TOTE's ramps and Horizon's crane

2.3 Issues

It was agreed that the project needs to address the following as it moves forward:

a. The current north extension configuration creates a back eddy and the associated sedimentation that impacts operations on north end of Terminal 3 that cannot be removed until summer

b. POA long term needs more land

c. How to accommodate TOTE and Horizon during Terminal 2 & 3 replacement

d. Completion of the north end was estimated to be $665M as 'Scenario 2' in the April 11, 2012, Budgetary Cost Estimate Report prepared by MARAD/ICRC

e. Essential facility seismic design criteria impact on berths
    i. Essential facilities must be designed to higher earthquake load

ii. This criteria is being applied going forward

f. How does wharf configuration address vessel navigation and mooring considerations??

g. If the new pile supported wharf is placed in the same footprint of the existing pile supported wharf there will be a construction risk. Placing new piles over existing piles needs to be performed carefully in order to provide proper bearing. Also, the as-build conditions of the existing piles need to be absolutely known.

2.4 Constraints

The following were identified as major influences on how the project is executed:

a. Funding
b. Permitting - POA permit must be modified
c. Beluga whale construction schedule interruptions
d. Weather
e. Location with respect to material availability
f. Short construction season
g. Essential facility determination reflects higher level of earthquake design
h. Extreme tidal range and existing condition of wet barge berth and north extension
i. Continuous operation
j. Sedimentation mitigation program by USACE
k. 50 year minimum life, 75 is desirable

2.5 Functional Elements

The project consists of the following:

a. Barge landing (6 acres) with dry and wet berths
b. Two container ship berths
c. Maximized upland acreage
d. Rail service
e. 100 GA Crane

2.6 Performance Factors

The following criteria were agreed to for evaluation of alternatives:

a. Accommodate Tote and Horizon
b. Accommodate barges
c. Accommodate existing wharf use
d. Cost
e. Ease of phasing
f. Shoaling and dredging

g. Available uplands
h. Constructability risk
i. Permitability and wetland footprint
j. Schedule Duration
k. Ship mooring
l. Ship navigation

2.7 Initial Brainstorming

The following ideas were discussed for consideration on how to berth ships:

a. Develop up to 2,200 ft. of generic wharf (60 ft. wide)
b. Develop up to 1,500 ft. of -35 ft. to -45 ft. deep draft generic wharf (60 ft. wide)
c. Develop up to 700 ft. of -25 ft. deep barge wharf
d. Develop 1,000 ft. for one berth
e. Develop one permanent 1,100 ft. berth for Tote
f. Develop one permanent 1,100 ft. berth for Horizon
g. Develop one generic berth
h. Redevelop existing tote and horizon berths
i. Remove/stabilize south of the existing dry barge berth
j. Widen existing terminal 3 and extend north
k. Develop interim 1,100 ft. Tote at north to accommodate redeveloped Horizon at terminal 2
l. Develop one berth for Horizon with 1,800 ft. reconstructed at north extension

2.8 Risk Matrix

Prior to the charrette, subject matter experts independently were asked to identify potential risks that might somehow impact the project, the environment, and/or their operations at the port. Following the introduction to the risk process included below, the qualitative analysis on probability and impact was conducted during the charrette as documented in the attached matrix.

Probability – how likely is this risk to occur?	
H High	Has happened frequently, has very significant chance of happening in the future or a single event has already happened.
M Medium	Has happened occasionally, has a reasonable chance of happening in the future
L Low	Has happened infrequently or is expected not to happen except infrequently
NA Not Applicable	This risk is not relevant to this project
NI Need Information	Probability in determinate with currently available information. Information must come from outside source. Consider high probability until otherwise identified.
TBD To Be Determined	Additional study required. Consider high probability until otherwise identified.

Impact – What will happen if this risk becomes an issue?	
H High	The issue will have a major impact on scope, schedule, and/or budget, and is likely to cause significant disruption; a very visible event.
M Medium	The issue will have some impact on the project and will be visible to management and/or stakeholders & customer. Non-critical disruption in the
L Low	No significant disruption to the project is expected. Any negative impact can be corrected without significant effort or visibility.
NA Not Applicable	This risk is not relevant to this project
NI Need Information	Probability in determinate with currently available information. Information must come from outside source. Consider high probability until otherwise identified.
TBD To Be Determined	Additional study required. Consider high probability until otherwise identified.

The following table shows the relationship between the possible levels of risk probability and risk impact. For example, a low probability with high impact equals a medium risk, but a high probability with a low impact equals a medium risk.

		Probability					
		L	M	H	NI	TBD	NA
Impact	H	M	H	H	H	H	NA
	M	L	M	M	H	H	NA
	L	L	L	L	M	M	NA
	NA	NA	NA	NA	NA	NA	NA
	NI	M	H	H	H	H	NA
	TBD	M	H	H	H	H	NA

High risk included political considerations and pressures on funding, insufficient funds, uncertain levels and frequency of future funds and project cost exceeds available budget.

Risk No.	Risk/Opportunity Event	Concerns	Likelihood*	Impact*	Risk Level*
	PROJECT & PROGRAM MGMT				
PPM-1	Political considerations and pressures can impact funding	Incremental and unpredictable funding	Likely	Significant	HIGH
PPM-2	Environmental and regulatory permitting can delay or restrict work at the POA.	It is critical to have all permitting in place before awarding construction contracts. Possibly look at making the project management team responsible for obtaining permits.	Unlikely	Significant	MODERATE
PPM-3	Lack of good project planning and follow through		Very Unlikely	Significant	LOW
	CONTRACT ACQUISITION RISKS				
CA-1	Misappropriation of risk to the contractor or owner.	The contract type will shift risk to either party through performance or prescriptive specifications. Three major types of contracts should be considered: design-build, design-bid-build and General Contractor/Construction Manager (GC/CM).	Very Unlikely	Marginal	LOW
CA-2	Lack of coordination of multiple ongoing contracts, primarily the on-going dredging contracts and the repair/construction contract can interfere or limit work.		Very Unlikely	Significant	LOW
	TECHNICAL RISKS				
T-1	Handling of groundwater/surface water from hill behind north extension. (Safety)	Assumes a pile supported design	Very Unlikely	Negligible	LOW

Risk No.	Risk/Opportunity Event	Concerns	Likelihood*	Impact*	Risk Level*
T-2	Port configuration that shoals in during the winter months when dredging cannot occur. (interrupting vessel operations in terms of time and money	Positioning vessels	Unlikely	Significant	MODERATE
T-3	Port layout that hampers current vessels to maneuver, dock, and moor with the current tugs.	(Higher horsepower tugs needed or ice sweeping vessels off wharf and aground)	Unlikely	Significant	MODERATE
T-4	Focusing on the north end wharf completion rather than the entire port system as a whole	(risk building the wrong project for today that may be incompatible with future needs)	Unlikely	Marginal	LOW
T-5	Port configuration that cannot be dredged with existing hopper equipment	(Operations money is getting tighter and the potential could exist to not be able to fully dredge)	Very Unlikely	Significant	LOW
T-6	Continuing port operations vs. construction phasing over extended time increments.	(Risk that some berths are unusable due to maneuvering or dredging requirements for extended times.)	Very Unlikely	Critical	LOW
	DESIGN RISKS				
D-1	Impact from Lack of master plan	Lack of a current Port Master Plan affects design. Requirements outside current application have not been fully analyzed, are only speculative, and not agreed on at all levels? Should time be spent on defining an undefined structure requirement or should focus be on a standard marine structure that meet current requirements (TOTE and Horizon) or that can be easily	Very Unlikely	Marginal	LOW

Risk No.	Risk/Opportunity Event	Concerns	Likelihood*	Impact*	Risk Level*
		customized to meet future requirements? Changing a design later in the process can have a major impact to budget and timeline and create problems of trust when seeking additional funding.			
D-2	Fail to ID requirements		Very Unlikely	Marginal	LOW
D-3	Time to develop 100% design		Very Unlikely	Marginal	LOW
D-4	Impact to cost from changes		Very Unlikely	Marginal	LOW
D-5	Location and structure impact to safe navigation	What is the new structures impact to safe navigation and mooring?	Very Unlikely	Marginal	LOW
D-8	Deferring Tote terminal maintenance and planning because "we are moving the terminal"		Unlikely	Marginal	LOW
D-9	Potential cost to Tote for the expansion/development e.g. new gatehouse, shop, yard reconfiguration		Unlikely	Marginal	LOW
	REGULATORY AND ENVIRONMENTAL RISKS				
RE-1	Risk of having a negative impact on the existing 404 permit because it is already in place for the North Extension assuming the design and construction methodology did not change		Unlikely	Marginal	LOW
RE-2	High risk of having permit mods (negative impact) later that may cost time and money due to whether or not the existing North End	The issue as to whether this is the best plan is not a regulatory or resource issue and obviously lies with the appropriate	Unlikely	Marginal	LOW

Risk No.	Risk/Opportunity Event	Concerns	Likelihood*	Impact*	Risk Level*
	Extension is the best plan	participants			
RE-3	Completing North End Extension prior to using a systems approach to determine present and future purpose and need: High risk of having future permit modifications or new permit requirements if North End Extension does not meet the Port's present and future goals		Unlikely	Marginal	LOW
RE-3	Excluding appropriate natural resource agency folks in the process early and often: Low risk of having environmental and regulatory issues that are negative late in the project. High risk of having successful "buy-in" (positive impact) upfront from agency folks and thus reducing project time and thus cost	Low risk of having environmental and regulatory issues that are negative late in the project. High risk of having successful "buy-in" (positive impact) upfront from agency folks and thus reducing project time and thus cost	Very Unlikely	Significant	LOW
RE-4	Beluga whale listing as a Threatened and Endangered species reduces the amount of work that can be performed during the day.	Stop and go operations also reduce productivity. Possible solutions include reducing the number of piles required in the new POA design, or increasing the construction duration. Any increases to construction duration will likely increase construction costs as well.	Very Likely	Marginal	MODERATE

Risk No.	Risk/Opportunity Event	Concerns	Likelihood*	Impact*	Risk Level*
RE-5	NEPA permits a. 404 (exp 31AUG2014 minimal quantities remain) b. LOA c. What new permits will a new structure require d. DOE e. ADEC requirements	Many of the permits expire in the near future. What new requirements will a new or hybrid structure entail? Will a new EA be required? Can the process be streamlined? How much time and effort will be required for submission and review? Impact to construction of not having permits in place?	Likely	Marginal	MODERATE
	CONSTRUCTION RISKS				
CON-1	The construction should be allowed on both the ocean and land side of the new wharf system.	Over restrictive site limitations	Very Unlikely	Significant	LOW
CON-2	Weather	Severe weather can affect the ability to perform work on the project site. Typically, weather delay risks are shared by both the owner and contractor. The contractor generally receives time but no additional compensation. Severe weather days should be anticipated in the schedule	Likely	Marginal	MODERATE
CON-3	Availability of experienced contractors/subcontractors and labor force in Anchorage. Selection of the repair and construction method can increase or decrease work force/contractor availability (i.e. pile/tussle supported wharfs vs. OCSP wharf system).		Very Unlikely	Significant	LOW

Risk No.	Risk/Opportunity Event	Concerns	Likelihood*	Impact*	Risk Level*
CON-4	Poor construction quality/Hidden defects	Weak or lack of Quality Control/Quality Assurance can result in rework, additional costs and extended durations. The selection of repair and construction method will also increase/decrease risk that work was performed correctly. For example, surface structures have a higher degree of assurance that the work was installed as designed verses piles driven below the ground surface have lower degree of assurance that work was installed as designed	Unlikely	Significant	MODERATE
CON-5	Material availability a. Local availability b. Material only available outside the region c. Special requirements after fabrication (galvanization) d. Material Inspections	Changes in design will likely require use of material not locally available. What are manufacturers' schedules of availability to manufacture, where will material inspections be performed for acceptance, and what are the planned and alternative methods of shipping to Anchorage? Are there unique dimension requirements? What is the impact when an unseen circumstances or event occurs to	Likely	Marginal	MODERATE
CON-6	Potential for vessel schedule disruptions during construction	Some alternatives may have higher likelihood of occurring	Unlikely	Significant	MODERATE

Risk No.	Risk/Opportunity Event	Concerns	Likelihood*	Impact*	Risk Level*
	ESTIMATE AND SCHEDULE RISKS				
EST-1	Insufficient funds, uncertain levels and frequency of future funds		Likely	Significant	HIGH
EST-2	Project cost exceeds available budget	What if the minimal design exceeds construction budget?	Very Likely	Significant	HIGH
	O & M RISKS				
OM-1	Potential negative risk to existing snow clearing and sanding/sweeping operations capacity	Potential need for additional equipment and manpower to maintain response time and storage/disposal capacity	Likely	Marginal	MODERATE
OM-2	Potential negative risk of snow clearing, sanding, and sweeping operations on at-grade specialty systems such as cable trench crane power systems		Likely	Marginal	MODERATE
OM-3	Potential negative risk of freeze-thaw cycles on at-grade specialty systems such as cable trench crane power systems		Likely	Marginal	MODERATE
OM-4	Potential negative risk to site circulation by above-grade bus bar crane power systems		Likely	Marginal	MODERATE
OM-5	Potential negative risk of additional site lighting on JBER nighttime aircraft operations		Very Unlikely	Significant	LOW
OM-6	Potential negative risk of certain fender systems interfering and causing ship line damage during tide cycle		Likely	Marginal	MODERATE
OM-7	Potential negative risk to structures and appurtenances by aggressive corrosion	USING REINFORCED CONCRETE	Unlikely	Marginal	LOW

Risk No.	Risk/Opportunity Event	Concerns	Likelihood*	Impact*	Risk Level*
	environment				
OM-8	Potential negative risk to structures and appurtenances by ice flows and large tide cycle range		Unlikely	Marginal	LOW
OM-9	Potential negative risk associated with existing condition of existing structures and utilities		Unlikely	Marginal	LOW

*Likelihood, Impact, and Risk Level to be verified through market research and analysis (conducted by cost engineer).

1. Risk/Opportunity identified with reference to the Risk Identification Checklist and through deliberation and study of the PDT.

2. Discussions and Concerns elaborates on Risk/Opportunity Events and includes any assumptions or findings (should contain information pertinent to eventual study and analysis of event's impact to project).

3. Likelihood is a measure of the probability of the event occurring -- **Very Unlikely**, **Unlikely**, **Moderately Likely**, **Likely**, **Very Likely.** The likelihood of the event will be the same for both Cost and Schedule, regardless of impact.

4. Impact is a measure of the event's effect on project objectives with relation to scope, cost, and/or schedule -- **Negligible**, **Marginal**, **Significant**, **Critical**, or **Crisis.** Impacts on Project Cost may vary in severity from impacts on Project Schedule.

5. Risk Level is the resultant of Likelihood and Impact **Low**, **Moderate**, or **High**. Refer to the matrix located at top of page.

6. Variance Distribution refers to the behavior of the individual risk item with respect to its potential effects on Project Cost and Schedule. For example, an item with clearly defined parameters and a solid most likely scenario would probably follow a triangular or normal distribution. An risk item for which the PDT has little data or probability of modeling with respect to effects on cost or schedule (i.e. "anyone's guess") would probably follow a uniform or discrete uniform distribution.

7. The responsibility or POC is the entity responsible as the Subject Matter Expert (SME) for action, monitoring, or information on the PDT for the identified risk or opportunity.

8. Correlation recognizes those risk events that may be related to one another. Care should be given to ensure the risks are handled correctly without a "double counting."

9. Affected Project Component identifies the specific item of the project to which the risk directly or strongly correlates.

10. Project Implications identifies whether or not the risk item affects project cost, project schedule, or both. The PDT is responsible for conducting studies for both Project Cost and for Project Schedule.

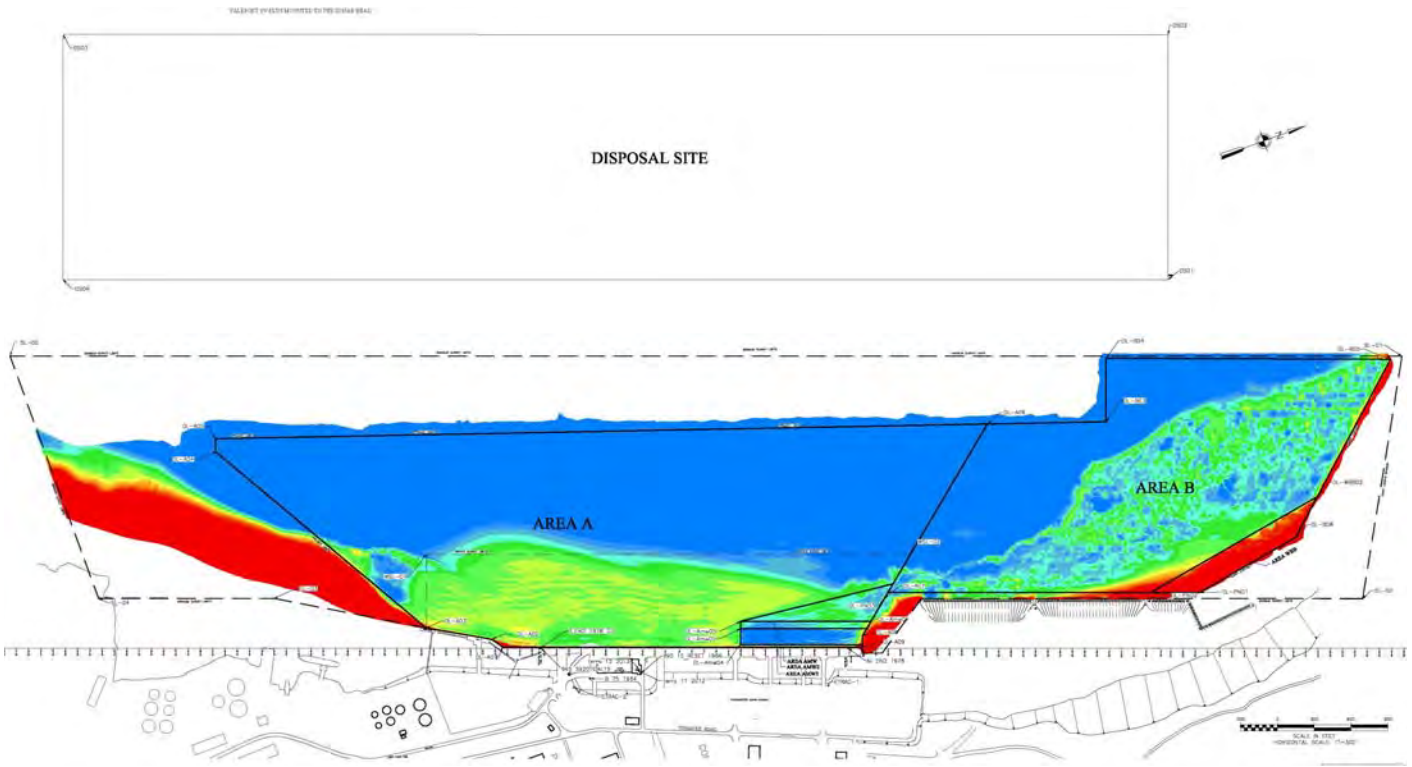
11. Results of the risk identification process are studied and further developed by the Cost Engineer, then analyzed through the Monte Carlo Analysis Method for Cost (Contingency) and Schedule (Escalation) Growth.

2.9 Federal O&M Dredge Limits at Anchorage Harbor

The following sketch was exhibited by USACE to describe the limits of dredging in Cook Inlet in front of the Port.

a. Steve Boardman-USACE discussed the following:
   i. 35 ft. depth is authorized for dredging
   ii. 30 degree angle for in/out
   iii. Whatever is required in front of existing structure limit (cannot dredge within footprint)
   iv. 45 ft. depth x 10,860 ft. is maximum in front of completed improvement
   v. Actual annual amount of dredging is per funding
   vi. Key mission is maintenance

b. Julie Anderson-USACE discussed the following:
   i. 1 May-31Oct active dredging period (no dredging in winter)
   ii. 2012- 1M CY (varies)
   iii. Usually work in area A with some work in area B as required or available
   iv. Equipment used is an 1,800 CY hopper dredge (6-8K CY/day are removed)
   v. Work shuts down when Beluga whales are sited within 50 meters



Limits of Dredging

2.10 Creative Idea List

After brainstorming, the ideas were scored to determine which would be developed further as alternatives or considered as design suggestions as the project progresses.

Idea No	Resp.	Score	Idea
Berth Ships			
BS-2	T	3	Develop up to 1,100 ft. long x 60 ft. wide minus 35 ft. to minus 45 ft. wharf
BS-3	T	3	Develop 700 ft. long x 60 ft. wide minus 25 ft. to minus 35 ft. wharf
BS-4		3	Develop one berth for TOTE
BS-5	T	3	Develop one berth for Horizon
BS-8	T	3	Remove and stabilize south of the existing dry barge berth
BS-12	T	4	Reduce length of trestle by adding 30 ft. high x 2,200 ft. long sheet wall made up w/existing open cell sheet to get back up to 6 acres
BS-17	T	4	Option 2 – 2,800 ft. long angled wharf
BS-18	T	4	Option 4 – Cut top 40 ft. & spill and replace with 2,200 ft. long wharf
BS-19	T	4	Option 5 – Reconstruct Terminals 2-3
Ideas Not Developed			
1		1	Develop up to 2,200 ft. long generic wharf
7		4	Redevelop existing TOTE and Horizon berths
6		0	Develop one generic berth
9		4	Widen existing terminal 3 and extend north
10		3	Develop interim 1,100 ft. long TOTE at north to accommodate redeveloped Horizon at terminal 2
11		1	Develop one berth for Horizon with 1,800 ft. long reconstructed at north extension
13		1	Reduce amount of open cell sheet pile removal-Option 4
14		1	Add break bulk delivery wharf
15		1	1,000 ft. of modify/replace-Options 4/5
16		6	Consider adjacent 100 acre(from JBER) convenience

NOTES **Value = Function / Cost (or F / C)**

Function

Code	Meaning
BS	Berth Ships

Responsibility

Code	Responsible
T	Team

Scoring

Score	Meaning
0	In Baseline Design
1	Unacceptable Impacts/Fatal Flaw
2	Poor Value (Major reduction in value) - F↓ / C↑
3	Cost Cutting/Deferral (Negligible change/slight reduction in value) - F↓ / C↓
4	Good Opportunity (Moderate increase in value) - F↑ / C=; F= / C↓; F↑ / C↑
5	Great Opportunity (Major increase in value) - F↑ / C↓
6	Design Suggestion

2.11 Evaluation and Decision Matrix

The following choosing by advantages (CBA) decision matrix was prepared by the team to document the rationale for determining which alternative was the best based on the importance of advantages. After the various alternatives were compared to establish which one performs the best and what its advantage was for each evaluation factor, the advantages were ranked and scored according to the following scale to establish levels of importance scores with 10 being the highest score:

Score		Advantages
(highest)10		Least navigation change
9		Most wharf capability
8		Most desirable for TOTE; Most desirable for Horizon; Least mooring change
7		Least cost
6		
5		Most usable uplands acreage
4		Same phasing & least impact to operations
3		Lowest construction risk
2		Shortest schedule
(lowest)1		Least dredging

The process starts by identifying across the attribute row how each alternative performs for each evaluation factor. The highest performing alternative's attributes for that factor are then identified as an advantage.

	A l t e r n a t i v e s							
Evaluation Factors	**Option 1** 2,200 ft. long wharf		**Option 2** 2,800 ft. long angled wharf		**Option 4** Cut top 40 ft. & spill and replace with 2,200 ft. long wharf		**Option 5** Reconstruct Terminals 2-3	
1. Accommodate TOTE								
Attributes	Splits operation and increases travel		Splits operation and increases travel		Splits operation and increases travel		Improves existing operation	
Advantages & Scores		1		0		0	**Most desirable for TOTE**	**8**
2. Accommodate Horizon								
Attributes	Splits operation and increases travel		Splits operation and increases travel		Splits operation and increases travel		Improves existing operation	
Advantages & Scores		0		0		0	**Most desirable for Horizon**	**8**
3. Accommodate Barges								
Attributes	Two 400 ft. barges, one in dry berth, one in wet berth		Two 400 ft. barges, one in dry berth, one in wet berth		Two 400 ft. barges, one in dry berth, one in wet berth		Two 400 ft. barges, one in dry berth, one in wet berth	
Advantages & Scores	No clear advantage for any alternative							

Evaluation Factors	Alternatives							
	Option 1 2,200 ft. long wharf		**Option 2** 2,800 ft. long angled wharf		**Option 4** Cut top 40 ft. & spill and replace with 2,200 ft. long wharf		**Option 5** Reconstruct Terminals 2-3	
4. Cost								
Attributes	491M		494M		451M		560M	
Advantages & Scores		6		5	**Least cost**	**7**		4
5. Ease of Phasing/Continuity of Operations								
Attributes	Single phase at N end		Single phase at N end		Single phase at N end		3 Phases	
Advantages & Scores	**Same phasing & least impact to operations**	**4**	**Same phasing & least impact to operations**	**4**	**Same phasing & least impact to operations**	**4**		1
6. Shoaling and Dredging								
Attributes	Improves due to slope cutback		Increases flow		Increases dredging requirement		Existing conditions	
Advantages & Scores		0	**Least dredging**	**1**		0	**Least dredging**	**1**
7. Additional usable uplands								
Attributes	26.2 acres		23.1 acres		37.6 acres		26 acres	
Advantages & Scores		4		2	**Most usable uplands acreage**	**5**		3
8. Improved wharf								
Attributes	2,200 ft.		2,800 ft.		2,200 ft.		3,500 ft.	
Advantages & Scores		5		7		5	**Most wharf capability**	**9**
9. Constructability Risk								
Attributes	Remove all cellular sheet pile & backfill; install pile-supported wharf		Remove all cellular sheet pile & backfill; install pile-supported wharf		Remove top of cellular sheet pile & backfill; install pile-supported wharf		Remove cellular sheet pile & backfill; replace existing pile supported wharf; coordinate with ongoing operations	
Advantages & Scores		2		2	**Lowest construction risk**	**3**		1

Evaluation Factors	Alternatives							
	Option 1 2,200 ft. long wharf		**Option 2** 2,800 ft. long angled wharf		**Option 4** Cut top 40 ft. & spill and replace with 2,200 ft. long wharf		**Option 5** Reconstruct Terminals 2-3	
10. Permit Ability								
Attributes	Maintains existing tidelands footprint		Reduces existing tidelands footprint		Expands existing tidelands footprint		Expands existing footprint at terminals 1,2,3	
Advantages & Scores	No clear advantage for any alternative							
11. Schedule Duration								
Attributes	x months		x months + 12 months additional length and demo		x months		x months + 36 months phasing requirements	
Advantages & Scores	**Shortest schedule**	*2*		1	**Shortest schedule**	**2**		**0**
12. Ship Mooring								
Attributes	4-8 extra lines due to current		1-4 more lines than existing		4-8 extra lines due to current		12 lines per ship (existing conditions)	
Advantages & Scores		4		6		4	**Least mooring change**	**8**
13. Ship Navigation								
Attributes	Shorter turning radius, faster current, dredging requirements (2) 5,000 HP tugs if larger ships are utilized		Shorter turning radius, angled wharf, (2) 5,000 HP tugs if larger ships are utilized		Shortest turning radius, dredging requirements, (2) 5,000 HP tugs if larger ships are utilized		Existing conditions; possible modifications during construction, (2) 5,000 HP tugs if larger ships are utilized	
Advantages & Scores		6		8		5	**Least navigation change**	**10**
Importance of advantages total score	**34**		**36**		**35**		**Most preferred alternative**	**53**

The selection is based upon the total importance of advantages because the best alternative has the most important advantages and gets the highest score.

2.12 Value Improvement Matrix

The following summarizes the preliminary impact on first cost in millions of dollars relative to the baseline alternative (Option 1 – 2,200 ft. long wharf) and implementation recommendation of various value engineering alternatives that were brainstormed. – Values indicate cost savings.
Key: "C" = consider

Idea No	Idea	Potential	Implementation Recommendation & Proposed Amount	
Berth Ships				
BS-2	Develop up to 1,100 ft. long x 60 ft. wide minus 35 ft. to minus 45 ft. wharf	-162M	C	-162M
BS-3	Develop 700 ft. long x 60 ft. wide minus 25 ft. to minus 35 ft. wharf	-281M	C	-281M
BS-4	Develop one berth for TOTE	-162M	C	-162M
BS-5	Develop one berth for Horizon	-83M	C	-83M
BS-12	Reduce length of trestle by adding 30 ft. high x 2,200 ft. long sheet wall made up w/existing open cell sheet to get back up to 6 acres	-29M	C	-29M
BS-17	Option 2 – 2,800 ft. long angled wharf	2.541	C	2.541
BS-18	Option 4 – Cut top 40 ft. & spill and replace with 2,200 ft. long wharf	-40M	C	-40M
BS-19	Option 5 – Reconstruct Terminals 2-3	69M	C	69M

2.13 Preliminary Cost Analysis

The following cost estimate was prepared during the charrette.

	Option Number	April 2012	1						2	4	5
	VE reference		Baseline	BS-2	BS-3	BS-5	BS-4	BS-12	BS-17	BS-18	BS-19
01	Acreage change	45.6	(19.4)	(19.4)	(19.4)	(19.4)	(19.4)	(9.7)	(16.5)	(8.0)	(9.7)
02	Acreage	45.6	26.2	26.2	26.2	26.2	26.2	35.9	29.1	37.6	35.9
	Estimate (+50/-30%), IN MILLIONS ROUNDED	$370M	$490M	$330M	$220M	$410M	$330M	$460M	$490M	$450M	$560M
	LF of Wharf face	-	2,200	1,800	700	1,800	1,800	2,200	2,200	2,200	2,400
	Cost per LF of Wharf - IN THOUSANDS ROUNDED		$220K	$180K	$310K	$230K	$180K	$210K	$220K	$200K	$230K
03	**Starting Basis**										
04	April 2012 Estimate (in $M)										
05	Construction	286.800	286.800	286.800	286.800	286.800	286.800	286.800	286.800	286.800	286.800
06	DBB RORO	4.600	4.600	4.600	4.600	4.600	4.600	4.600	4.600	4.600	4.600
07	Subtotal - starting basis	291.400	291.400	291.400	291.400	291.400	291.400	291.400	291.400	291.400	291.400
08	**Removals from Estimate**										
09	From April 2012 Estimate (in $M)										
10	Less Barge Berth Cap Subt	-	(10.936)	(10.936)	(10.936)	(10.936)	(10.936)	(10.936)	(10.936)	(10.936)	(10.936)
11	Less Barge Berth Bulkhead Subt	-	(29.790)	(29.790)	(29.790)	(29.790)	(29.790)	(29.790)	(29.790)	(29.790)	(29.790)
12	Less North Ext 1 Cap Subt	-	(21.569)	(21.569)	(21.569)	(21.569)	(21.569)	(21.569)	(21.569)	(21.569)	(21.569)
13	Less North Ext 1 Bulkhead Subt	-	(83.150)	(83.150)	(83.150)	(83.150)	(83.150)	(83.150)	(83.150)	(83.150)	(83.150)
14	Less Crane Rail electrical	-	(23.798)	(23.798)	(23.798)	(23.798)	(23.798)	(23.798)	(23.798)	(23.798)	(23.798)
15	Less lost acreage not paved $750K/ACRE	-	(14.550)	(14.550)	(14.550)	(14.550)	(14.550)	(7.275)	(12.353)	(6.000)	(7.275)
16	Less repurposed as staging (allowance), util, road,	-	-	-	-	-	-	-	-	-	(13.000)
18	Less contingencies of (18.25% gross)	(53.181)	(53.181)	(53.181)	(53.181)	(53.181)	(53.181)	(53.181)	(53.181)	(53.181)	(53.181)
19	Subtotal - removals from estimate	238.220	54.426	54.426	54.426	54.426	54.426	61.701	56.624	62.976	48.701
20	**Added elements (in $M)**										
21	Remove sheet pile		20.000	20.000	20.000	20.000	20.000	20.000	20.000	na	20.000
22	Remove top 40' of sheet pile		na	na	na	na	na	na	na	10.000	na
23	Mass ex 995,776cy $15/cy		14.937	14.937	14.937	14.937	14.937	na	na	na	na
24	Mass ex 774,199cy $15/cy		na	na	na	na	na	11.613	na	na	na
25	Mass ex 1,806,871cy $15/cy		na	na	na	na	na	na	na	na	na
26	Mass ex 1,625,177cy $15/cy		na	na	na	na	na	na	24.378	na	na
27	Mass ex 160,000cy $15/cy		na	na	na	na	na	na	na	2.400	na
28	Mass ex 200,000cy $15/cy		na	na	na	na	na	na	na	na	3.000
29	Imported fill credit (assume 3' ss - 2' using exist fill)		(2.323)	(2.323)	(2.323)	(2.323)	(2.323)	(2.760)	(2.348)	(0.529)	(2.254)
30	Waste fill offsite (holding for $1/cy)		0.895	0.895	0.895	0.895	0.895	0.654	1.523	0.034	na
31	30'H 2160LF sheet pile wall $40/SF face		na	na	na	na	na	2.592	na	na	na
32	30'H 2400LF sheet pile wall $40/SF face		na	na	na	na	na	na	2.880	na	na
33	ACM 2000LF *180F * $25/SF		na	na	na	na	na	9.000	na	na	na
34	ACM 3000LF *180F * $25/SF		13.500	13.500	13.500	13.500	13.500	na	na	na	13.500
35	1000LF x 60' Pile Supported wharf $700/SF		na	na	na	na	na	na	na	na	na
35	700LF x 60' Pile Supported wharf $700/SF		29.400	29.400	29.400	29.400	29.400	29.400	29.400	29.400	29.400
35	1100LF x 124' Pile Supported wharf $700/SF		na	46.200	na	95.480	46.200	na	na	na	below
35	1800LF x 124' Pile Supported wharf $700/SF		na	na	na	na	na	na	na	na	below
35	1500LF x 124' Pile Supported wharf $700/SF		130.200	na	na	na	na	130.200	130.200	130.200	below
36	2100LF x 124' Pile Supported wharf $700/SF		na	na	na	na	na	na	na	na	below
37	Fenders/Bollards $7142/LF		15.712	12.856	4.999	12.856	12.856	15.712	15.712	15.712	17.141
38	2 Trestles 92LF x 38' x $600SF		4.195	4.195	4.195	4.195	4.195	4.195	4.195	4.195	4.195
38	2 Trestles 230LF x 38' x $600SF		na	na	na	na	na	na	na	na	na
39	3 Trestles 230LF x 38' x $600SF		na	15.732	na	15.732	15.732	na	na	na	na
40	6 Trestles 230LF x 38' x $600SF		31.464	na	na	na	na	na	31.464	na	31.464
41	6 Trestles 236LF x 38' x $600SF		na	na	na	na	na	na	na	32.285	na
42	6 Trestles 110LF x 38' x $600/SF		na	na	na	na	na	11.286	na	na	na
43	5 Trestles 175LF x 38' x $600/SF		na	na	na	na	na	na	na	na	19.950
44	Crane rail 1100LF $1000/LF		1.100	na	na	1.100	na	1.100	1.100	1.100	na
45	Crane rail 900LF $1000/LF		na	na	na	na	na	na	na	na	0.900

47	Phase 1: H&T shift south		na	na	na	na	na	na	na	na	1.000
48	Phase 1: Structural strengthing T1 (jacketing)		na	na	na	na	na	na	na	na	2.700
50	Phase 1: Remove and Construct T3		na	na	na	na	na	na	na	na	75.950
51	Phase 1: Remove and Construct Dolphin		na	na	na	na	na	na	na	na	1.000
52	Phase 1: Cement operation damages		na	na	na	na	na	na	na	na	1.000
53	Phase 1: Demo crane bus bar		na	na	na	na	na	na	na	na	0.200
54	Phase 2: Move TOTE to T3		na	na	na	na	na	na	na	na	1.000
55	Phase 2: Remove and Construct T2		na	na	na	na	na	na	na	na	71.610
56	Phase 3: Move Horizon T2		na	na	na	na	na	na	na	na	1.000
57	Phase 3: Remove and Construct Dolphin		na	na	na	na	na	na	na	na	na
58	Phase 3: Remove and Construct T1		na	na	na	na	na	na	na	na	na
59	Additional General Requirements (time related)		na	na	na	na	na	na	na	na	8.710
60	Dredging		na	na	na	na	na	na	na	na	na
61	Subtotal - added elements	-	259.080	155.391	85.603	205.771	155.391	232.993	258.505	224.797	301.466
62											
63	Total (no contingency)	238.220	313.506	209.817	140.029	260.197	209.817	294.694	315.128	287.773	350.167
64											
65	Risks										
66	Contingency 22.324%	53.180	69.987	46.840	31.260	58.086	46.840	65.787	70.349	64.243	78.171
67	Escalation exposure, (mid point extend one year)	-	-	-	-	-	-	-	-	-	8.754
68	Risk	-	-	-	-	-	-	-	-	-	-
69	Subtotal	53.180	69.987	46.840	31.260	58.086	46.840	65.787	70.349	64.243	86.925
73	Total with contingency	291.400	383.493	256.657	171.289	318.284	256.657	360.481	385.477	352.016	437.093
74											
75	PM Fees 8%	23.312	30.679	20.533	13.703	25.463	20.533	28.839	30.838	28.161	34.967
76	Design Fees 4%	11.656	15.340	10.266	6.852	12.731	10.266	14.419	15.419	14.081	17.484
77	CM Fees 6%	17.484	23.010	15.399	10.277	19.097	15.399	21.629	23.129	21.121	26.226
78											
79	Subtotal (MEC)	343.852	452.522	302.855	202.121	375.575	302.855	425.368	454.863	415.379	515.769
80											
81	Owner's Contingency 8.5%	29.227	38.464	25.743	17.180	31.924	25.743	36.156	38.663	35.307	43.840
82											
83	**TOTAL (in $ millions)**	**373.079**	**490.986**	**328.598**	**219.302**	**407.499**	**328.598**	**461.524**	**493.527**	**450.686**	**559.610**
84		100%	132%	88%	59%	109%	88%	124%	132%	121%	150%
85											
86	ACRES	45.60	26.20	26.20	26.20	26.20	26.20	35.90	29.13	37.60	35.90
87	$M per ACRE	8.18	18.74	12.54	8.37	15.55	12.54	12.86	16.94	11.99	15.59
88											
89	SEISMICALLY IMPROVED WHARF LENGTH		2,200.00	1,800.00	700.00	1,800.00	1,800.00	2,200.00	2,200.00	2,200.00	2,400.00
90	$K per LF		223.18	182.55	313.29	226.39	182.55	209.78	224.33	204.86	233.17
91											
92											
93	Operation +/-										
94											
95	Maintenance +/-	350.000									
96											
97	Decommission +/-										
98											
99	Expand/rehab/modify +/-	250.000									
100											
101	Risks +/-	1,000.000									
102	Public image										ok
103											
104											
105	50 year LCC +/-	1,600.000	-						-	-	-

2.14 Outbrief Comments

At the conclusion of the charrette a presentation of the charrette findings was given to key stakeholders who had the following comments:

#	Comment	Response
1	George Vakalis (MOA) – Is escalation included in the cost estimates?	Robert Wells (CH2M Hill) – Yes.
2	George Vakalis (MOA) – What risk factors will be used for estimating contingency in the 15% design?	Robert Wells (CH2M Hill) – We are currently using a 32.72% factor that will be reduced based on completion of a quantitative risk analysis of the qualitative risks identified during the charrette.
3	George Vakalis (MOA) – Which are you considering, steel or concrete piling?	Doug Playter (CH2M Hill) – Our current thinking is steel shells with reinforced concrete cores would have the best longevity and most flexibility for construction.
4	James Sauceda (USACE-Alaska) – There is risk in placing new piles over existing piles. A pile test program might help reduce our risk contingency in the cost estimates as we go forward. Before performing a pile test program we should look at all the pile foundation testing and installation that has been performed at the port in the past.	
5	George Vakalis (MOA) – Option 2 should be dropped due to the loss of upland acreage; Option 4 should be dropped due to shoaling; Option 1 could work with some value engineering; Option 5 should be considered with further study because it is preferred by our Horizon and TOTE tenants; We should also consider a hybrid between Options 1 and 5.	

3.0 Support Documentation

3.1 Baseline Materials

The following baseline materials were provided prior to the session:

a. Port of Anchorage
   Intermodal Expansion Project Phasing Plan
   Aerial photograph dated August 30, 2011

b. Port of Anchorage Intermodal Expansion Project (PIEP)
   i. Budgetary Cost Estimate Report
   ii. North End Completion Scenario 1 & Scenario 2
   iii. Prepared by US Department of Transportation Maritime Administration and ICRC, April 20 2012

c. Port of Anchorage Intermodal Expansion Project Technical Review
   Project Management Pan V0-1
   Unique Project Code ANC027 / P2 Number 370104
   US Department of Transportation, Maritime Administration
   US Army Corps of Engineers, Alaska District
   Initiated September 2011 – Finalized Draft December 2011

d. Port of Anchorage Intermodal Expansion Project Study
   WP5 Develop Concepts to Address the Completion of the North Extension
   Prepared for the US Maritime Administration and the Municipality of Anchorage
   By US Army Corps of Engineers, Alaska District 15 August, 2012
   Draft – Version 1

The following were provided during the charrette:

a. Concept drawings prepared by US Army Corps of Engineers, Alaska District

b. Existing Terminal 1, 2 & 3 deck elevations provided by POA

c. Existing Terminal 1, 2, & 3 pile plans (AutoCAD) provided by POA.

d. Sept. 6, 2012, Port Seismic Vulnerability memo provided by POA

3.2 Value-based Design Charrette Job Plan

1 Pre Workshop
- Identify team members
- Prepare for study

2 Information
Understand project and issues
- Gather, organize, analyze data
- Define costs and cost models
- Define problem, reason and scope of study
- Determine customer needs and value metrics

3 Function Analysis
Understand the purpose of the project and project parts
- Define Functions
- Evaluate Functions

4 Speculation
Generate ideas to improve value
- Blast and create
- What else will perform the function
- Innovative ideas

5 Evaluation
Select best ideas
- Analyze evaluate, rank ideas
- Select and refine best ideas

6 Development
Expand ideas and rationale
- Develop best ideas into VE proposals
- Develop, support and justification data

7 Presentation / Implementation
Select final design
- Prepare and issue a report
- Present report and sell VE proposals
- Report implemented ideas

8 Post Workshop
- Implement changes
- Monitor status

3.3 Agenda

Tuesday, November 13 – 2000 Anchorage Port Rd., Anchorage, AK

0815	**Port of Anchorage Security Checkpoint** Obtain access badges	 As required
0845	**Meet in Lobby** Set up meeting room	 Clancy Value Services
0900	**Introduction and Background Meeting** Introduce organizations and representatives Review charrette guidelines, expectations & agenda Confirm outbrief and partnering time, locations and attendees	 Key Stakeholders: Municipality of Anchorage US Maritime Administration Tenants
0915	**Information** Overview background and update current status Identify stakeholders and issues of concern Review previous decisions and confirm constraints Present design alternatives, assumptions and cost estimates Document observations from stakeholders	 Project Team: USACE-Alaska District CH2MHill design team Clancy Value Services
1030	**Break**	
1045	**Function Analysis/Function Diagram** Confirm project goals and charrette objectives Examine major elements & systems Identify required functions to meet goals List performance requirements and define as evaluation factors Model function logic (FAST) Identify functions offering improvement or risk categories	 Key Stakeholders (as requested or available) Project Team
1200	**Lunch Break (brought in)**	
1245	**Creative** Review proposed design relative to FAST model Brainstorm ideas by function List alternative solutions & areas of opportunity Consider lessons learned from other projects List all ideas generated	 Key Stakeholders (as available) Project Team
1430	**Break**	
1445	**Evaluation** Score ideas for value improvement (value=function/cost) Select creative ideas for development Assign person responsible for follow-up Distribute workbook formats	 Key Stakeholders (as available) Project Team
1645	**Review and Adjust Next Day's Agenda**	
1700	**Adjourn**	

Wednesday, November 14 – 2000 Anchorage Port Rd., Anchorage, AK

All day	**Development** Develop ideas/research Document baseline and proposed alternative assumptions Prepare initial and life cycle cost assessments Assess advantages and disadvantages against criteria Prepare alternative design drawings and cost models Follow up on issues and complete documentation Team quality review of alternatives & performance criteria	 Project Team

Thursday, November 15 – 2000 Anchorage Port Rd., Anchorage, AK

0900	**Recommendation** Describe alternative's attributes for each evaluation factor Define highest performing alternative's advantage for each factor	Project Team
1030	**Break**	
1045	Rank advantages and calculate each alternative's total importance Select preferred alternative based on importance of advantages Develop recommendations	Project Team Key Stakeholders (as available)
1200	**Lunch break (brought in)**	
1300	**Presentation and selection of alternatives** Present recommendations and obtain feedback Reach consensus on next steps Sign partnering agreement	All participants
1500	**Adjourn**	

3.4 After Action Review

At the conclusion of the charrette the team reviewed lessons learned about the charrette prcess:

a. What worked well
   i) Communicate with stakeholders
   ii) Involving the right people
   iii) At project site with separation for break out
   iv) Good room good food
   v) Strong facilitator
   vi) Flexibility and teamwork
   vii) Lessons learned from previous project (list)
   viii) Real-time cost estimating in a quick time

b. What we did we should not continue
   i) Too little time on front end for A/E & during Charrette

c. What should we add?
   i) Do needs assessment with stakeholders (questionnaire, interview)
   ii) Define nomenclature
   iii) Make an effort to avoid apples/oranges comparison
   iv) Better focus of big/little picture
   v) Include gluten-free refreshment
   vi) Separate customer & tenant ranking

3.5 Attendee List

Nov.			NAME	DISCIPLINE/ REPRESENTING	PHONE	e-mail
13	14	15				
X	X	X	Don Anderson	Geotechnical Engineering CH2M Hill	425-233-3418	Donald.Anderson@CH2M.com
	X		Julie Anderson	Civil Works USACE-Alaska District	907-753-5685	Julie.l.anderson@usace.army.mil
X	X		Katrina Anderson	Operations Manager	907-277-7611	Katrina@cookinlettug.com
		X	Loran Baxter	Project Management USACE-Alaska District		
	X	X	Steve Boardman	Project Management USACE-Alaska District	907-753-5799	Stephen.c.boardman@usace.army.mil
X	X	X	Roger Bohnert	Dep Assoc. Administrator Maritime Administration	202-366-0720	Roger.Bohnert@dot.gov
X			Bruce Carr	Director Strategic Planning Alaska Railroad		carrb@akrr.com
X	X	X	Michael Carter	Office of Environment Maritime Administration	202-366-9431	Michael.carter@dot.gov
X	X	X	Carl Cartwright	Port Maint. Supervisor Municipality of Anchorage Port		cartwrightca@muni.org
X	X	X	Daniel Clancy	Charrette Facilitator Clancy Value Services	206.601.5571	dan@clancyvalueservices.com
X			Lance Cluff	Line Design Engineer Municipal Light & Power (ML&P)	907-263-5244	cluffla@muni.org
X	X	X	Todd Cowles	Port Engineer Municipality of Anchorage Port	907-343-6209	cowlestc@muni.org
		X	Amy Culhane	Director of Public Affairs Port of Anchorage		
X			Judy Dougherty	Deputy Director Knik Arm Bridge and Toll Authority (KABATA)	907-269-6679	judy.dougherty@alaska.gov
	X	X	Ken Eisses	Hydraulics/Hydrology USACE-Alaska District	907-753-2742	Kenneth.J.Eisses@usace.army.mil
		X	Dave Frenier	Engineering Division Chief USACE-Alaska District	907-753-2662	
X	X		Lori Galloway	Terminal Ops Manager Horizon Lines, Inc.	907-263-5073	
X	X		Kenny Gill	Alaska Director of Ops Horizon Lines, Inc.	907-263-5016	kengill@horizonlines.com

Nov.			NAME	DISCIPLINE/ REPRESENTING	PHONE	e-mail
13	14	15				
X	X	X	Stuart Greydanus	Port Ops/Maint. Mngr. Municipality of Anchorage Port		greydanussb@muni.org
	X		Karl Harvey	Cost Engineering USACE-Alaska District	907-753-5738	Karl.J.Harvey@usace.army.mil
X			Nicole Hayes	Anchorage Regulator USACE-Alaska District	907-753-2792	Nicole.M.Hayes@usace.army.mil
		X	Jim Hinkle	Director of Finance and Administration Port of Anchorage		
X	X	X	Simo Hoite	Port Operations, Cranes & Containers CH2M Hill	510-333-8076	Simo.hoite@ch2mhill
X			Clark Hopp	Director Special Projects Alaska Railroad	907-265-2372	hoppc@akrr.com
		X	Brad Kroon	Captain		Brad@cookinlettug.com
X		X	Craig Lance	Construction USACE-Alaska District	907-753-2729	Craig.B.Lance@usace.army.mil
X	X	X	Robert Loken	Director West Gateways Maritime Administration	206-200-5744	robert.loken@dot.gov
		X	Larry McAllister	Deputy Commander for PPMD USACE-Alaska District	907-753-5634	
X		X	Shane McCoy	Anchorage Regulator USACE-Alaska District	907-753-2715	Shane.M.Mccoy@usace.army.mil
X	X	X	Tina McMaster-Goering	Civil Works USACE-Alaska District	907-753-2861	Tina.M.McMaster-Goering@usace.army.mil
X	X	X	David Mock	Maritime Design Lead CH2M Hill	561-904-7478	david.mock@ch2m.com
X	X	X	Christopher Moore	Director of Gateway Offices Maritime Administration	202-366-5005	christopher.moore@dot.gov
X			Russ Oswald	Project Manager Municipality of Anchorage Project Management & Engineering (PM&E)	907-343-8196	OswaldRH@ci.anchorage.ak.us
	X		Marcus Palmer	Geotechnical USACE-Alaska District	907-753-2665	Marcus.D.Palmer@usace.army.mil
X	X	X	Doug Playter	Project Manager CH2M Hill	425-233-3150	dplayter@ch2m.com
X	X	X	Steve Ribuffo	Deputy Port Director Municipality of Anchorage Port	907-343-6203	RibuffoS@muni.org

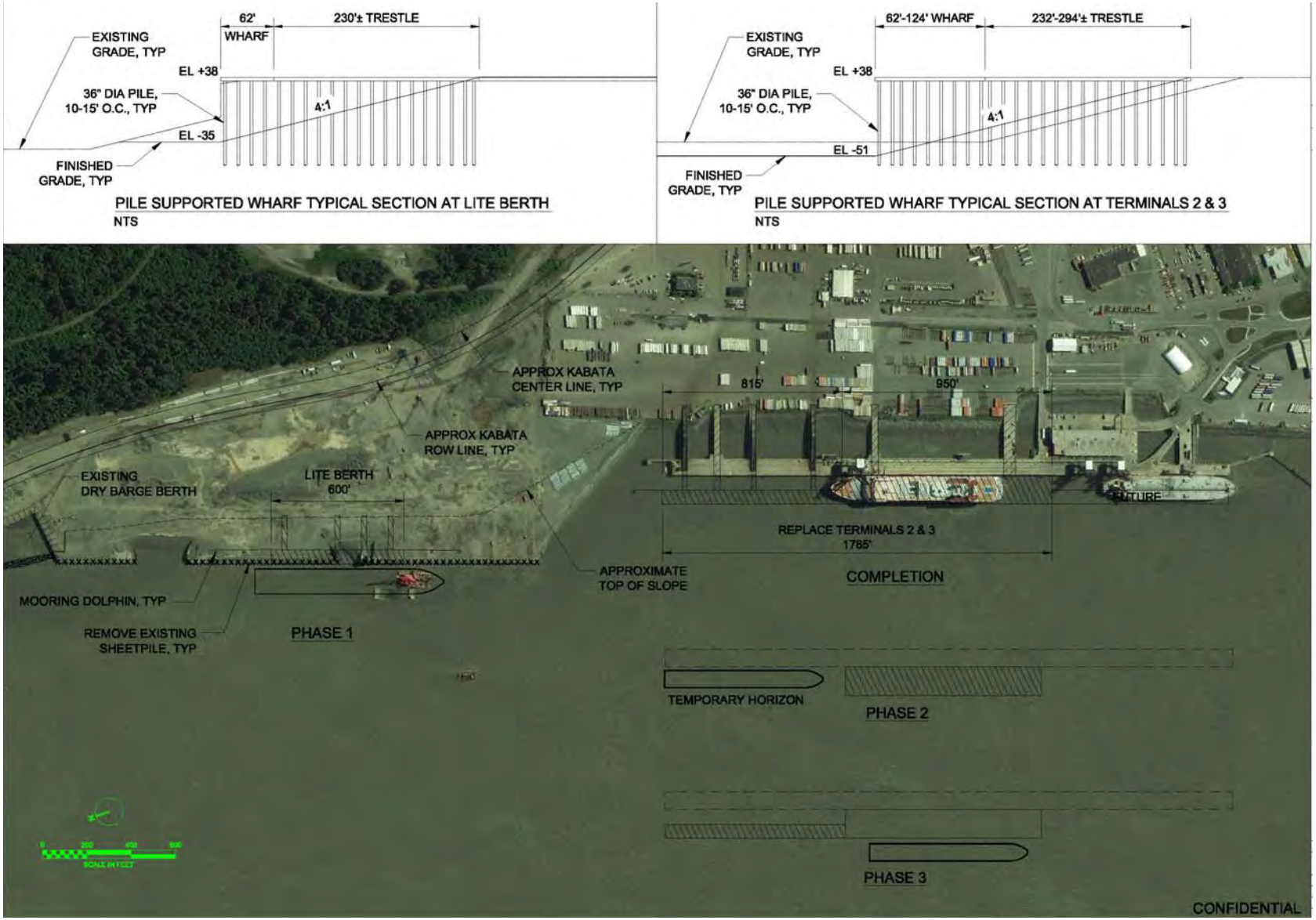
Nov.			NAME	DISCIPLINE/ REPRESENTING	PHONE	e-mail
13	14	15				
X	X	X	Michael Richardson	Notekeeper Meridian Management	907-602-1178	mrichardson@meridianak.com
X	X	X	Jim Runion	Engineer Maritime Administration	202-366-2034	James.b.runion.ctr@dot.gov
	X		Mike Salyer	Environmental USACE-Alaska District	907-753-2690	Michael.Salyer@usace.army.mil
X	X	X	James Sauceda	Technical Team Lead USACE-Alaska District	907-753-2872	James.B.Sauceda@usace.army.mil
X			Pat Shake	Vice President, Transportation Alaska Railroad	907-265-2548	shakep@akrr.com
X	X		Frank Smith	Pilot Totem Ocean Trailer Express (TOTE)		
X	X		Mike Stone	Captain		swapa@alaska.com
	X	X	Joseph Taylor	Civil Engineer CH2M Hill		
	X	X	Robert Tedrick	Marine Structures USACE-Alaska District	907-753-5745	Robert.C.Tedrick@usace.army.mil
X	X		Mike Thrasher	Terminal Ops Manager Totem Ocean Trailer Express (TOTE)		mthrasher@totemocean.com
		X	George Vakalis	Municipal Manager Municipality of Anchorage	907-343-4311	VakalisGJ@ci.anchorage.ak.us
X			Sharen Walsh	Dep Dir & Building Official Municipality of Anchorage		WalshSA@ci.anchorage.ak.us
		X	Ron Ward	Captain Southwest Alaska Pilots Association	907-399-1162	captron@ak.net
X	X	X	Robert Wells	Cost Engineering CH2MHill		
X	X	X	Richard Wilson	Port Director Municipality of Anchorage Port	907-343-6201	WilsonRG@muni.org
X	X	X	Pat Zettler	Charrette Manager USACE-Alaska District	907-753-5743	Patrick.J.Zettler@usace.army.mil

4.0 Appendix

Option 5-1, as noted below, was developed after the charrette, in response to outbrief comments.

4.1 Option 5-1 Hybrid –Remove cellular sheet pile. Construct multi-use 60 ft. wide x 600 ft. long wharf with dolphins (lengthening effective length to 1,100 ft.) general-purpose “lite” wharf at North Extension. Construct new 125 ft. wide by 815 ft. long berth with crane rails in front of Terminal 2. Construct new 60 ft. wide by 950 ft. long berth with trestles in front of Terminal 3. Since this alternative is still in development estimated costs have not been prepared. However, it is expected to be within the range of the Options presented above. Phasing occurs as follows:

a. Phase 1 – Remove sheet piling and construct new general purpose “lite” wharf at North Extension
b. Phase 2 - Relocate Tote to North Extension, Extend crane busbar to Terminal 3 and shift Horizon to Terminal 3, Construct new 124 ft. x 950 ft. wharf in front of Terminal 2
c. Phase 3 – Move Horizon to new Terminal 2, construct new 60 ft. x 815 ft. wharf in front of Terminal 3, then, move Tote to new Terminal 3.
d. Completion – When Tote and Horizon are occupying the new Terminals 2-3, the new wharf in the North Extension can be used for new barge and/or deeper draft customers with a potential bottom elevation of -45 ft. MLLW.



Option 5-1 Hybrid - Reconstruct Terminals 2-3 and construct general purpose "lite" wharf