

Appendix A

Cost Estimate



**US Army Corps
of Engineers®**

**PORT OF ANCHORAGE INTERMODAL
EXPANSION PROJECT – OPTION 1
15% CONCEPT DESIGN
FOR
ALASKA DISTRICT, JOINT BASE ELMENDORF-
RICHARDSON, ALASKA**

Prepared for:

ALASKA DISTRICT U.S. ARMY CORPS OF ENGINEERS

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EXECUTIVE SUMMARY

The purpose of this report is to inform the stakeholders of the cost and schedule risks and their resulting impacts on project cost and duration. The project is considering three options, developed to a 15% CONCEPT stage of design. The project includes Features 08 Roads, Railroads; 12 Navigation Ports & Harbors; 16 Bank Stabilization; and 19 Buildings, Grounds, & Utilities. The method used was a Cost and Schedule Risk Analysis as directed in W912PP-09-D-0016, Task Order ZJ03 3.a. COST ESTIMATE. The contingency results are shown in Table 1 with the relative confidence of cost under run. Recommended risk mitigation strategies are varied and summarized in Section 8 of this report.

Table 1. Executive Summary of Risk Analysis

| Confidence Level | Value |
|-------------------------|---------------|
| 60% | \$363,274,838 |
| 80% | \$376,982,054 |
| 100% | \$446,700,447 |

1. PURPOSE

The purpose of this report is to present the cost and schedule forecasts of the Port of Anchorage Intermodal Expansion Project – Option 1, 15% Concept design. The purpose for a Cost and Schedule Risk Analysis (CSRA) is to study elements related to cost and schedule to derive an outcome contingency calculation at the 80th percentile confidence level, for both cost and schedule, which are measured in terms of dollars and months, respectively.

2. BACKGROUND

This project, at the concept design state (15%), was requested by Alaska District U.S. Army Corps of Engineers (USACE) after CH2M HILL completed for review the study on the halted design and construction of the Port of Anchorage Intermodal Expansion Project. The project currently is considering three options, all of which have design developed to the Concept stage (15%). Each option is considered independently and an estimate and CSRA have been developed for each.

3. REPORT SCOPE

The scope of the risk analysis report is to calculate and present the cost and schedule contingencies at the 80 percent confidence level using the risk analysis processes as mandated by USACE Engineer Regulation (ER) 1110-2-1150, Engineering and Design for Civil Works, ER 1110-2-1302, Civil Works Cost Engineering, and Engineer Technical Letter 1110-2-573, Construction Cost Estimating Guide for Civil Works. The report presents the contingency results for both cost and schedule risks for all project features. The study and presentation can include or exclude consideration for operation and maintenance or life cycle costs, depending upon the program or decision document intended for funding.

3.1 Project Scope

The report includes the project technical scope, estimates, and schedules as developed and presented by CH2M HILL. Consequently, these documents serve as the basis for the risk analysis. In general, the construction scope consists of the following:

- 08 Roads, Railroads, and Bridges (15% Concept Design Stage)
- 12 Navigation Ports & Harbors (15% Concept Design Stage)
- 16 Bank Stabilization (15% Concept Design Stage)
- 19 Buildings, Grounds, & Utilities (15% Concept Design Stage)

3.2 USACE Risk Analysis Process

The risk analysis process followed the contract stipulations and the USACE Headquarters requirements as well as the guidance provided by the Cost Engineering Directory of Expertise for Civil Works (Cost Engineering DX). The risk analysis process reflected within the risk analysis report uses probabilistic cost and schedule risk analysis

methods within the framework of the Crystal Ball software. The risk analysis results are intended to serve several functions, one being the establishment of reasonable contingencies reflective of an 80 percent confidence level to accomplish the project work successfully within that established contingency amount. Furthermore, the scope of the report includes the identification and communication of important steps, logic, key assumptions, limitations, and decisions to help ensure that risk analysis results can be appropriately interpreted.

Risk analysis results are also intended to provide project leadership with contingency information for scheduling, budgeting, and project control purposes, as well as provide tools to support decision-making and risk management as the project progresses through planning and implementation. To fully recognize its benefits, cost and schedule risk analyses should be considered as an ongoing process conducted concurrent to, and iteratively with, other important project processes such as scope and execution plan development, resource planning, procurement planning, cost estimating, budgeting, and scheduling.

In addition to broadly defined risk analysis standards and recommended practices, the risk analysis is performed to meet the requirements and recommendations of the following documents and sources:

- W912PP-09-D-0016, Task Order ZJ03 3.a. COST ESTIMATE
- ER 1110-2-1150, Engineering and Design for Civil Works Projects
- ER 1110-2-1302, Civil Works Cost Engineering
- ETL 1110-2-573, Construction Cost Estimating Guide for Civil Works
- Cost and Schedule Risk Analysis Process guidance prepared by the USACE Cost Engineering DX

4. METHODOLOGY/PROCESS

The Project Delivery Team (PDT) was composed of members of Task 3 Concept Plan Charrette, as well as CH2M HILL personnel later executing the estimate and risk analysis.

The Cost Engineering DX guidance for cost and schedule risk analysis generally focuses on the 80-percent level of confidence (P80) for cost contingency calculation. It should be noted that use of P80 as a decision criteria is a risk adverse approach.

The risk analysis process uses *Monte Carlo* techniques to determine probabilities and contingency. The *Monte Carlo* techniques are facilitated computationally by a commercially available risk analysis software package (Crystal Ball) that is an add-in to Microsoft Excel. Cost estimates are packaged into an Excel format and used directly for cost risk analysis purposes. Because Crystal Ball is an Excel add-in, the schedules for each option are recreated in an Excel format from their native format. The level of detail recreated in the Excel-format schedule is sufficient for risk analysis purposes that reflect the established risk register, but generally less than that of the native format.

The primary steps, in functional terms, of the risk analysis process are described in the following subsections. Risk analysis results would be provided in Section 6.

4.1 Identify and Assess Risk Factors

Identifying the risk factors with the PDT is considered a qualitative process that results in establishing a risk register that serves as the document for the further study using the Crystal Ball risk software. Risk factors are events and conditions that may influence or drive uncertainty in project performance. They may be inherent characteristics or conditions of the project or external influences, events, or conditions such as weather or economic conditions. Risk factors may have either favorable or unfavorable impacts on project cost and schedule.

Checklists or historical databases of common risk factors are sometimes used to facilitate risk factor identification. However, key risk factors are often unique to a project and not readily derivable from historical information. Therefore, input from the entire PDT is obtained using creative processes such as brainstorming or other facilitated risk assessment meetings. In practice, a combination of professional judgment from the PDT and empirical data from similar projects is desirable and is considered.

Formal PDT meetings were held as a part of the design charrette for the purposes of identifying and assessing risk factors. The meetings held included capable and qualified representatives from multiple project team disciplines and functions:

- Project/program managers
- Environmental
- Civil, structural, geotechnical, and hydraulic design
- Cost and schedule engineers
- Key sponsors

Additionally, numerous conference calls and informal meetings are conducted throughout the risk analysis process on an as-needed basis to further facilitate risk factor identification, market analysis, and risk assessment.

4.2 Quantify Risk Factor Impacts

The quantitative impacts of risk factors on project plans are analyzed using a combination of professional judgment, empirical data, and analytical techniques. Risk factor impacts are quantified using probability distributions, because risk factors are entered into the Crystal Ball software in the form of probability density functions.

Similar to the identification and assessment process, risk factor quantification involves multiple project team disciplines and functions. However, the quantification process used herein relied more extensively on collaboration between cost engineering, designers, and risk analysis team members with lesser inputs from other functions and disciplines.

The following are PDT quantifying risk factor impacts:

- Maximum possible value for the risk factor
- Minimum possible value for the risk factor
- Most likely value (the statistical mode), if applicable
- Nature of the probability density function used to approximate risk factor uncertainty
- Mathematical correlations between risk factors
- Affected cost estimate and schedule elements

In this analysis, the risk discussions focused on the various project features as presented within the USACE Civil Works Work Breakdown Structure for cost accounting purposes. It was recognized that the various features carry differing degrees of risk as related to cost, schedule, design complexity, and design progress. The project features under study are presented in Table 2:

Table 2. Work Breakdown Structure by Feature

| | |
|-----------|---------------------------------|
| 08 | Roads, Railroads, and Bridges |
| 12 | Navigation Ports & Harbors |
| 16 | Bank Stabilization |
| 20 | Buildings, Grounds, & Utilities |

The resulting product from the PDT discussions is captured within a risk register as presented in Section 6 for both cost and schedule risk concerns. Note that the risk register records the PDT's risk concerns, and potential impacts to the current cost and schedule estimates. The concerns should support the team's decisions related to event likelihood, impact, and the resulting risk levels for each risk event.

4.3 Analyze Cost Estimate and Schedule Contingency

Contingency is analyzed using the Crystal Ball software, an add-in to the Microsoft Excel format of the cost estimate and schedule. *Monte Carlo* simulations are performed by applying the risk factors (quantified as probability density functions) to the appropriate estimated cost and schedule elements identified by the PDT. Contingencies are calculated by applying only the moderate and high level risks identified for each option (i.e., low-level risks are typically not considered, but remain within the risk register to serve historical purposes as well as support follow-on risk studies as the project and risks evolve).

For the cost estimate, the contingency is calculated as the difference between the P80 cost forecast and the base cost estimate. For schedule contingency analysis, the option schedule contingency is calculated as the difference between the P80 option duration forecast and the base schedule duration. These contingencies are then used to

calculate the time value of money impact of project delays that are included in the presentation of total cost contingency in Section 6. The resulting time value of money, or added risk escalation, is then added into the contingency amount to reflect the USACE standard for presenting the “total project cost” for the fully funded project amount.

5. KEY ASSUMPTIONS

The following are key assumptions for the risk analysis identified by the PDT and risk analysts.

- Contract acquisition strategy assumed to be single prime contract DBB.
- Accuracy range of estimate is +30% to -15%.
- The contingency is determined after consideration of the project’s exposure to the studied risks. The recommended level of 80% should be carefully examined.
- All impact levels, those with high, moderate, or low risk level ratings, were studied and applied within the risk analysis.

6. RISK ANALYSIS RESULTS

6.1 Risk Register

The risk register reflects the results of risk factor identification and assessment, risk factor quantification, and contingency analysis (provided in Attachment A). A risk register can be an effective tool for managing identified risks throughout the project life cycle. As such, it is generally recommended that risk registers be updated as the designs, cost estimates, and schedule are further refined, especially on large projects with extended schedules. Recommended uses of the risk register going forward include:

- Documenting risk mitigation strategies pursued in response to the identified risks and their assessment in terms of probability and impact.
- Providing project sponsors, stakeholders, and leadership/management with a documented framework from which risk status can be reported in the context of project controls.
- Communicating risk management issues.
- Providing a mechanism for eliciting risk analysis feedback and project control input.
- Identifying risk transfer, elimination, or mitigation actions required for implementation of risk management plans.

6.2 Cost Risk Analysis – Base Cost Contingency Results

Cost risk as studied by the PDT and developed through the register and *Monte Carlo* processes is presented here. This section does not include cost escalation risk, which is studied separately and reported below in Section 6.4.

The sensitivity chart below reflects the areas of greatest concern, rated in order of criticality, and referenced to risks as shown in the risk register (and to the three-point estimate, see Attachment B for code references). Generally, the areas of high criticality are Market Conditions and Bidding Competition (PR-2), Poor construction quality/Hidden defects (CON-4), Historic Change Order Growth (CON-8), and Acts of God (PR-5).

Base Cost Sensitivity Chart

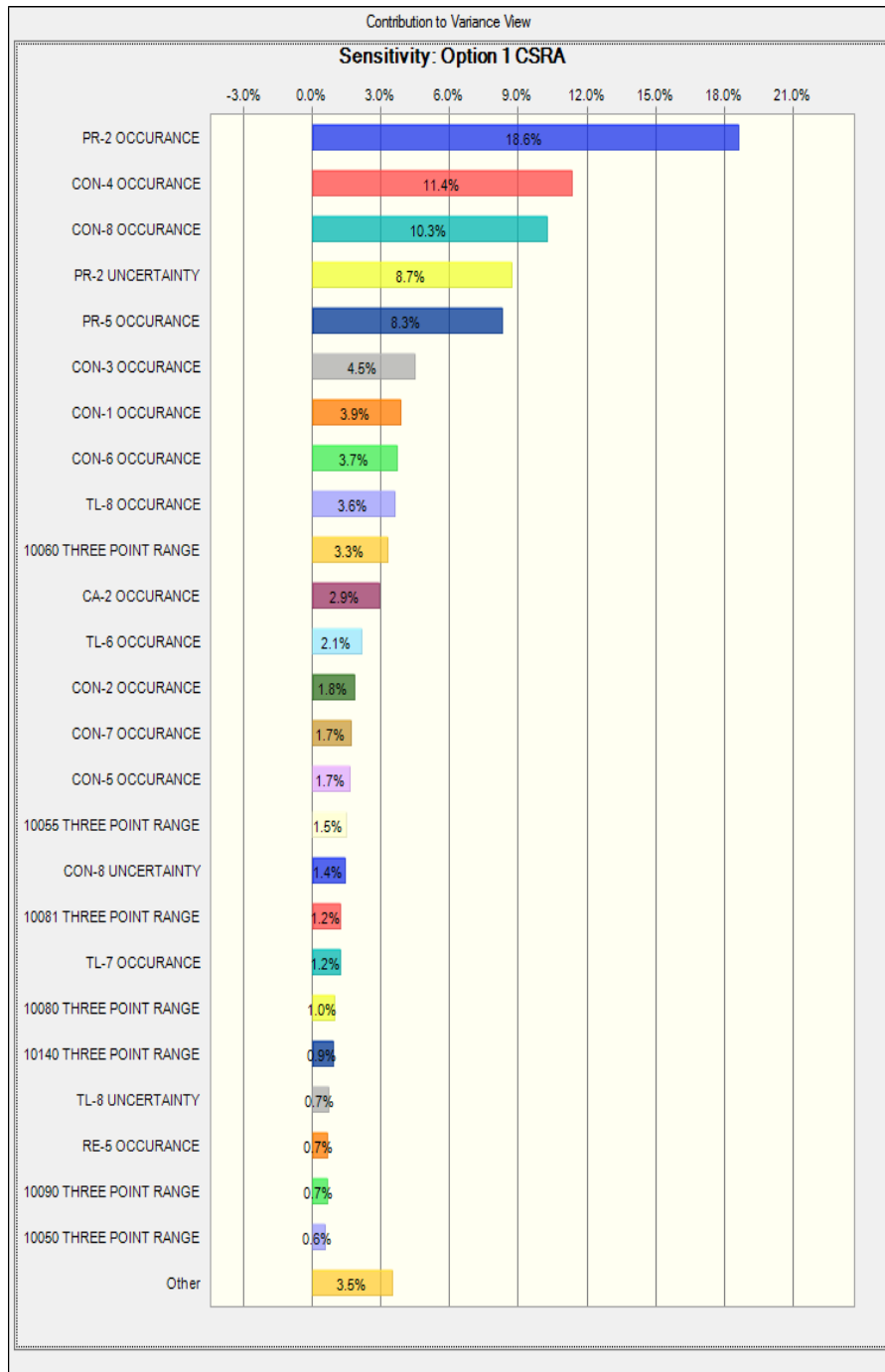
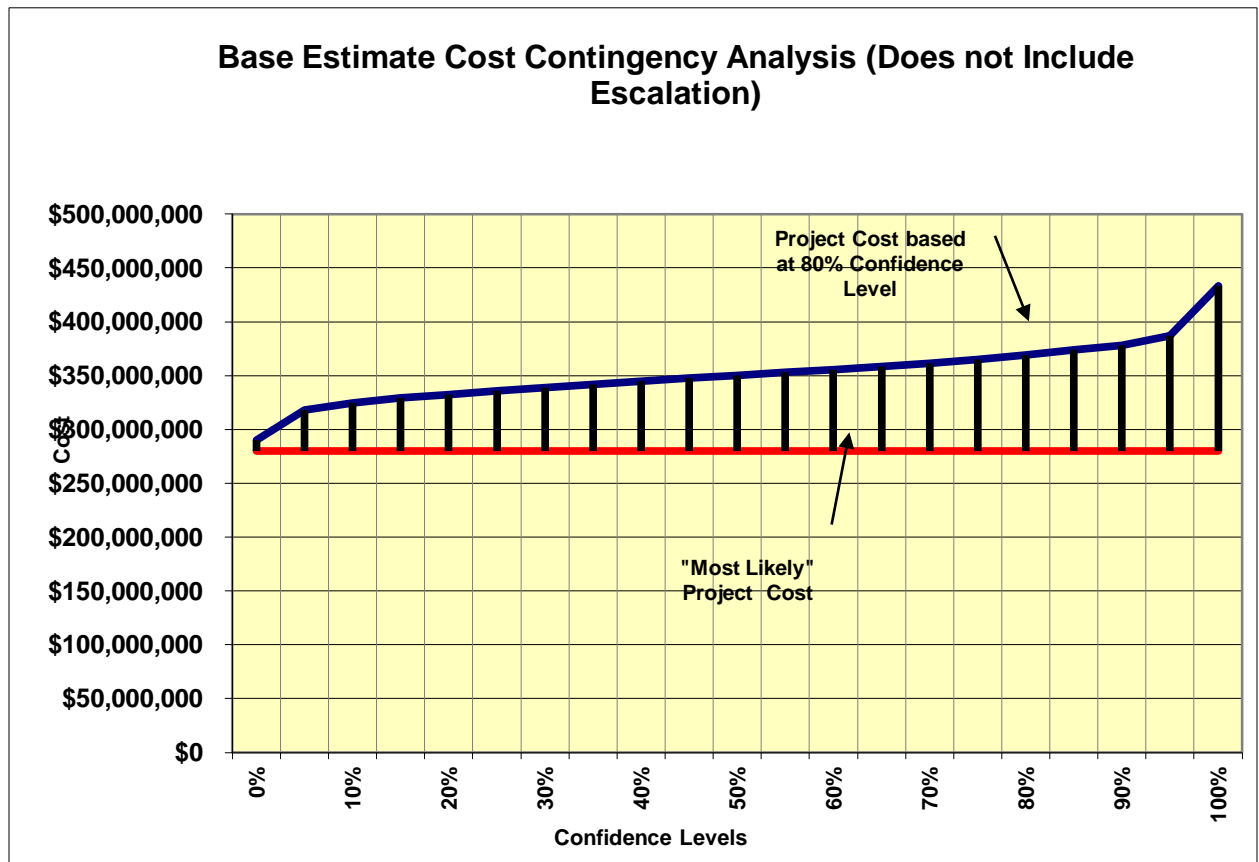


Table 3. Base Cost Confidence

Contingency Analysis

| Most Likely Cost Estimate | \$280,082,839 | |
|---------------------------|----------------------|---------------|
| | | |
| Confidence Level | Value | Contingency |
| 0% | \$289,931,745 | 3.52% |
| 5% | \$317,888,449 | 13.50% |
| 10% | \$324,315,564 | 15.79% |
| 15% | \$329,113,977 | 17.51% |
| 20% | \$332,402,618 | 18.68% |
| 25% | \$335,573,293 | 19.81% |
| 30% | \$338,904,440 | 21.00% |
| 35% | \$341,841,390 | 22.05% |
| 40% | \$344,687,563 | 23.07% |
| 45% | \$347,437,117 | 24.05% |
| 50% | \$350,162,976 | 25.02% |
| 55% | \$352,884,064 | 25.99% |
| 60% | \$355,465,340 | 26.91% |
| 65% | \$358,347,762 | 27.94% |
| 70% | \$361,655,747 | 29.12% |
| 75% | \$365,125,430 | 30.36% |
| 80% | \$369,172,557 | 31.81% |
| 85% | \$373,836,524 | 33.47% |
| 90% | \$377,729,070 | 34.86% |
| 95% | \$387,158,666 | 38.23% |
| 100% | \$433,521,071 | 54.78% |

Base Cost Confidence Chart



NOTE: These results reflect only those contingencies established from the cost risk analysis. For combined cost and schedule risk analysis, refer to Section 6.4.

6.3 Schedule Risk Analysis - Schedule Contingency Results

The base schedule was estimated at 30 months, and assumed a construction start in April 2015. Risks were analyzed for schedule impact, and the resulting uncertainty is expressed below.

The sensitivity chart below reflects the areas of greatest concern, rated in order of criticality, and referenced to risks as shown in the risk register. Generally, the areas of high criticality are Unpredictable Funding (PPM-1), Lack of a Master Plan (D-01), and Acts of God (PR-5).

Schedule Sensitivity Chart:

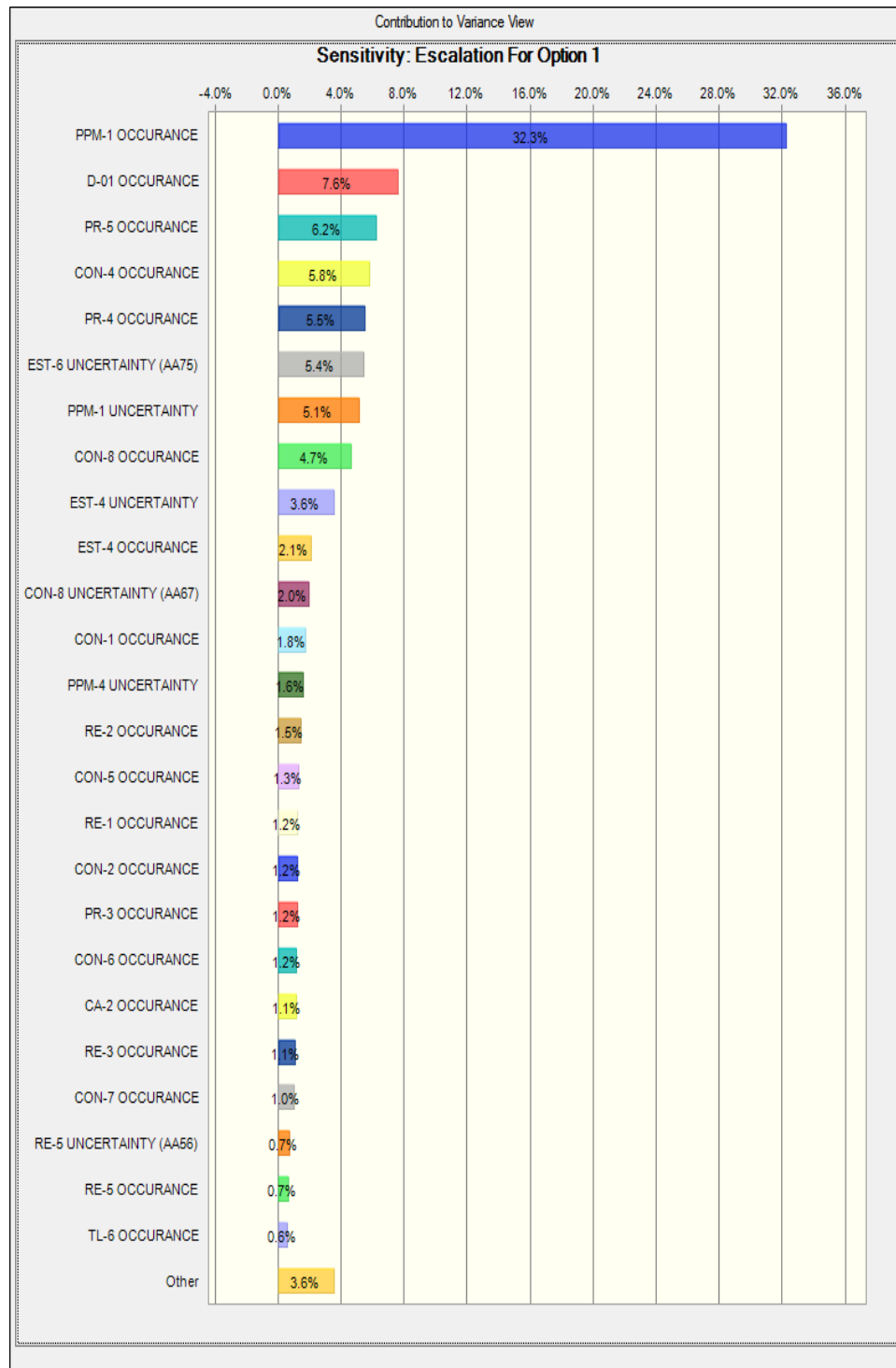
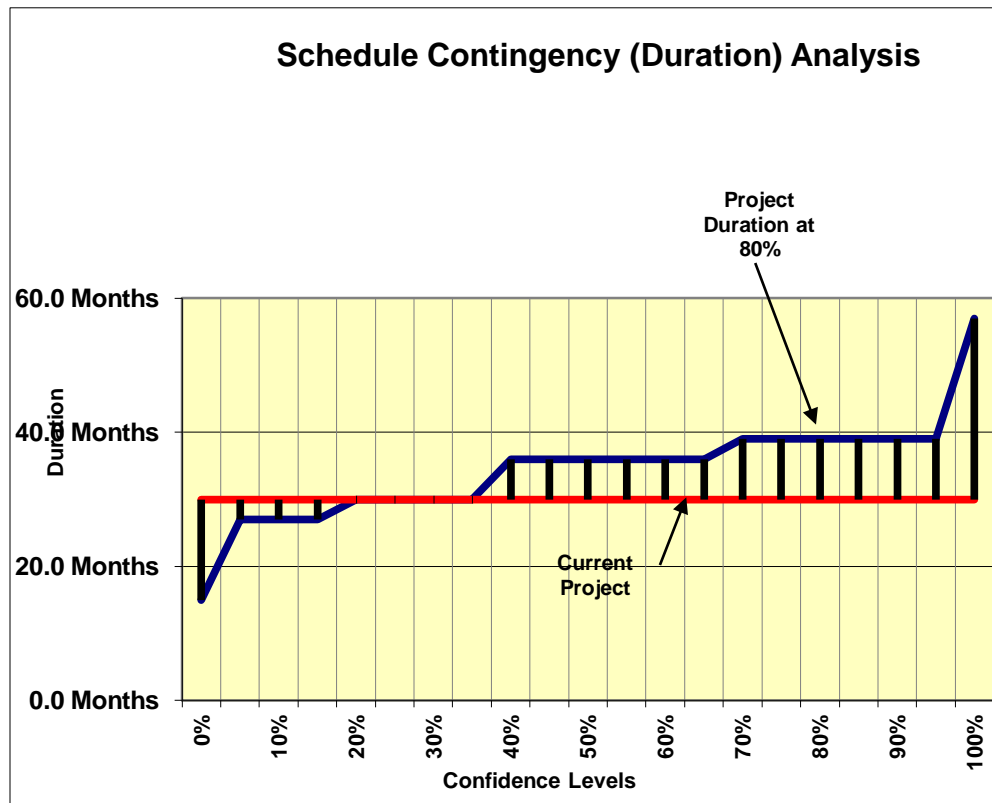


Table 4. Schedule Confidence

Contingency Analysis

| Most Likely Schedule | 30.0 Months | |
|----------------------|--------------------|---------------|
| | | |
| Confidence Level | Value | Contingency |
| 0% | 15.0 Months | -50.00% |
| 5% | 27.0 Months | -10.00% |
| 10% | 27.0 Months | -10.00% |
| 15% | 27.0 Months | -10.00% |
| 20% | 30.0 Months | 0.00% |
| 25% | 30.0 Months | 0.00% |
| 30% | 30.0 Months | 0.00% |
| 35% | 30.0 Months | 0.00% |
| 40% | 36.0 Months | 20.00% |
| 45% | 36.0 Months | 20.00% |
| 50% | 36.0 Months | 20.00% |
| 55% | 36.0 Months | 20.00% |
| 60% | 36.0 Months | 20.00% |
| 65% | 36.0 Months | 20.00% |
| 70% | 39.0 Months | 30.00% |
| 75% | 39.0 Months | 30.00% |
| 80% | 39.0 Months | 30.00% |
| 85% | 39.0 Months | 30.00% |
| 90% | 39.0 Months | 30.00% |
| 95% | 39.0 Months | 30.00% |
| 100% | 57.0 Months | 90.00% |

Schedule Confidence Chart



NOTE: These results reflect only those contingencies established from the schedule risk analysis.

6.4 Combined Cost and Schedule Contingency Results

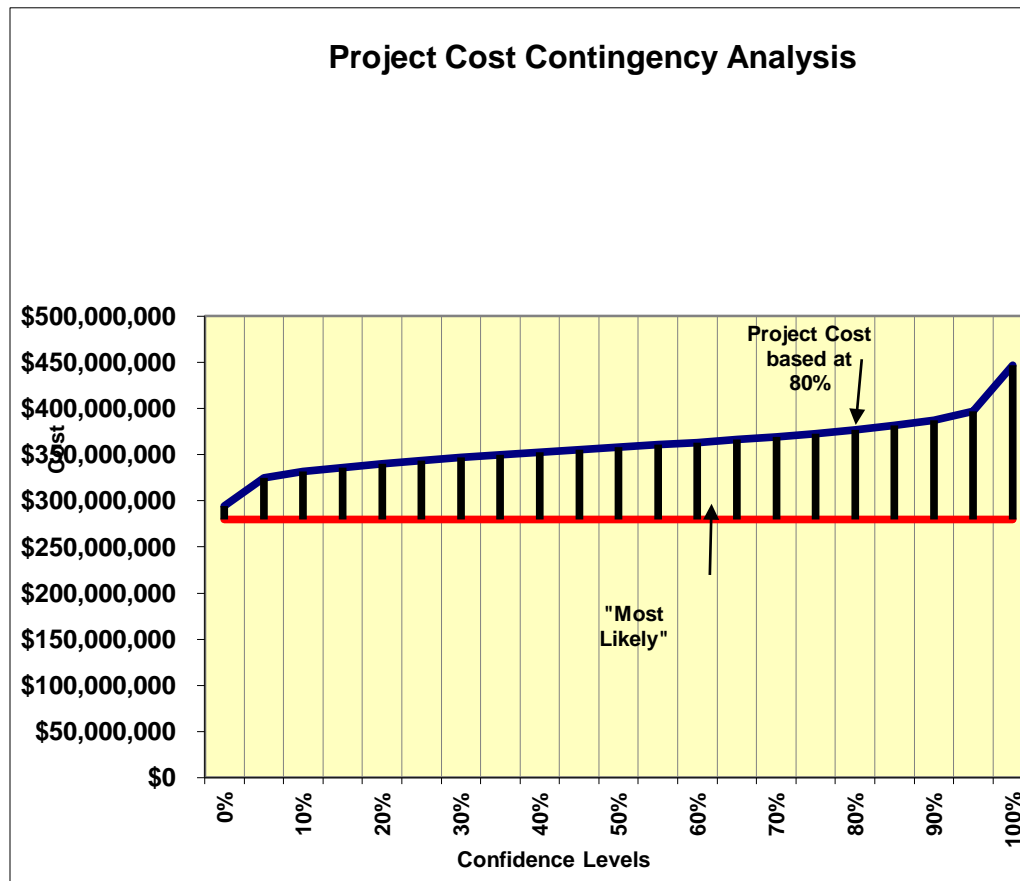
The cost risk analysis and schedule risk analysis contribute to a total project cost risk analysis. The schedule risk creates exposure to delays and risk of cost escalation. The purpose of analyzing schedule risk allows the project uncertainty to comprehend both the cost elements and their risks, but also how those costs are affected by the time element of the project and its associated risks. Presented here are the combine cost and schedule contingency results:

Table 5. Cost Confidence (Combined Cost and Schedule)

Contingency Analysis

| Most Likely Cost Estimate | \$280,082,839 | |
|------------------------------|---------------|-------------|
| | | |
| Confidence Level | Value | Contingency |
| 0% | \$294,477,887 | 5.14% |
| 5% | \$325,037,021 | 16.05% |
| 10% | \$331,464,136 | 18.35% |
| 15% | \$336,262,549 | 20.06% |
| 20% | \$340,212,115 | 21.47% |
| 25% | \$343,382,790 | 22.60% |
| 30% | \$346,713,938 | 23.79% |
| 35% | \$349,650,888 | 24.84% |
| 40% | \$352,497,060 | 25.85% |
| 45% | \$355,246,614 | 26.84% |
| 50% | \$357,972,473 | 27.81% |
| 55% | \$360,693,561 | 28.78% |
| 60% | \$363,274,838 | 29.70% |
| 65% | \$366,157,259 | 30.73% |
| 70% | \$369,465,245 | 31.91% |
| 75% | \$372,934,928 | 33.15% |
| 80% | \$376,982,054 | 34.60% |
| 85% | \$381,646,021 | 36.26% |
| 90% | \$387,526,528 | 38.36% |
| 95% | \$396,956,124 | 41.73% |
| 100% | \$446,700,447 | 59.49% |

Combined Cost and Schedule Chart



7. MAJOR FINDINGS/OBSERVATIONS

CH2M HILL prepared an estimate as an input to the CSRA, which utilized contingencies typical for the project type and design stage, as well as those identified by the stakeholders as required. This estimate is considered a deterministic, point-value estimate, from which contingencies and escalation was removed in order to study the project's exposure to risk and their impacts on cost and schedule. The results find that these contingencies as used in the deterministic estimate are reasonable in providing a similar degree of confidence as resulted from the CSRA study. The benefits of the CSRA are the identification of risks for future mitigation and management effort, as well as to communicate the underlying contributors to project cost and schedule variance.

Table 6 presents project contingencies, which include base cost plus cost and schedule contingencies.

Table 6. Project Contingencies (Cost and Schedule Contingencies)

| Confidence Level | Project Cost | Contingency (%) | Contingency (\$) |
|-------------------------|---------------------|------------------------|-------------------------|
| P0 | \$294,477,887 | 5.14% | \$14,395,048 |
| P10 | \$331,464,136 | 18.35% | \$51,381,297 |
| P20 | \$340,212,115 | 21.47% | \$60,129,277 |
| P30 | \$346,713,938 | 23.79% | \$66,631,099 |
| P40 | \$352,497,060 | 25.85% | \$72,414,222 |
| P50 | \$357,972,473 | 27.81% | \$77,889,635 |
| P60 | \$363,274,838 | 29.70% | \$83,191,999 |
| P70 | \$369,465,245 | 31.91% | \$89,382,406 |
| P80 | \$376,982,054 | 34.60% | \$96,899,216 |
| P90 | \$387,526,528 | 38.36% | \$107,443,689 |
| P100 | \$446,700,447 | 59.49% | \$166,617,609 |

8. MITIGATION RECOMMENDATIONS

Risk mitigation recommendations and strategies are as tabulated in the following risk register entries.

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|---|---|-------------------|-------------------------------|--|
| PPM-1 | Political considerations and pressures can impact funding | Incremental and unpredictable funding | High | Project Sponsor(s) | Coordinate decisions and/or contract and construction events to minimize impact of political pressures. |
| PPM-4 | Project planning and follow through | This is a concern for the design as well as the construction. Design related risk could become known and mitigated prior to construction. Construction risk can be negative or positive. | Low | Contracting | Have contractors discuss project delivery innovations and foreseeable planning difficulties during RFQ period. |
| 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. Risk could be positive or negative. | Low | Contracting | Consider all contract types including recent innovations, as allowed by procurement constraints. Receive input from the construction community. |
| CA-2 | Numerous separate contracts | Lack of coordination of multiple ongoing contracts, primarily the ongoing dredging contracts and the repair/construction contract can interfere or limit work. | Low | Contracting | Clearly delineate in the contract the method for contract coordination, and who has the right to occupy the work at various stages of construction and operation. |
| TL-1 | Handling of groundwater/surface water from hill behind north extension (Safety) | Assumes a pile supported design | Low | Construction | Highlight this risk in ITB, specifications, Pre-bid meeting, Contract, schedule, and communicate to all controlling parties before and during construction. Secure contractor mitigation plan. |
| TL-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. Impact to construction progress and production because of complexities of sequencing. | Moderate | Operations | Coordinate with stakeholder to optimize operations and construction impacts |
| TL-7 | Surveys outdated | Entire bathymetric survey is in dated, especially underneath Terminals 2 and 3, earthwork quantities for all options, and global stability for Option 5 at Terminals 2 and 3 are in question. | Moderate | Geotechnical/ Civil Design | Perform new surveys |
| TL-8 | Excess/spoils disposition | Need to identify a location for excess material. | Moderate | Geotechnical/ Civil Design | Normally done as design progresses |
| D-01 | 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 Container Cargo terminal) or that could be easily 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. | Low | Project Manager | Convene stakeholders to determine the ability and timeframe to develop a master plan. |
| D-08 | Deferring TOTE terminal maintenance and planning because "we are moving the terminal" | | Low | Operations | Examine ROI and other risks for optimal solution |
| D-09 | Potential cost to TOTE for the expansion/development e.g. new gatehouse, shop, yard reconfiguration | | Low | Operations | Include this cost after any design and logistics study is done to mitigate it |

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|---|---|-------------------|-----------------------------|--|
| RE-1 | Permits in place | 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 | Low | Environmental | Examine process for expediting permit if assumptions change from existing |
| RE-2 | Permit modifications | High risk of having permit modifications (negative impact) later that may cost time and money due to whether or not the existing North Extension is the best plan | Low | Environmental | Examine process for expediting permit if assumptions change from existing |
| RE-3 | Permit exposure | Completing North 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 Extension does not meet the Port's present and future goals | Low | Environmental | Examine process for expediting permit if assumptions change from existing |
| RE-4 | Excluding/including appropriate natural resource agency folks in the process early and often | Low risk of having negative environmental and regulatory issues 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 | Environmental | Ensure buy-in/inclusion is pursued |
| RE-5 | 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. | Moderate | Environmental | Design solutions as are warranted by ROI, assume risk. |
| CON-1 | The construction should be allowed on both the ocean and land side of the new dock system. | Over restrictive site limitations | Low | Construction | Verify and communicate the site limitations, consider all effect of such a limitation before making same required. |
| 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 | Moderate | Contracting | Consider that any onerous risk transferred to the contractor comes at a premium, and the determination of that premium is influenced by other circumstances such as market demand and overall state of the economy |
| 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 docks vs. OCSP® system). | | Low | Contracting | This can be addressed with an RFQ process that results in a bid go or no-go |
| CON-4 | Poor construction quality/hidden defects | Weak or lack of QA/QC 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 | Moderate | Project Manager | Use QA/QC best practices, examine others that were successful on other port projects |

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|---|--|-------------------|-----------------------------|--|
| 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? 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? | Moderate | Cost Engineering | Perform an analysis of impact of material availability when specifying material sources. |
| CON-6 | Potential for vessel schedule disruptions during construction | Some alternatives may have higher likelihood of occurring | Moderate | Operations | Coordinate these with operations in order to minimize |
| CON-7 | Access and security issues | Changes in security protocols, impact of access requirements on available labor force, daily production, and morale | Moderate | Contracting | Consider what options the port has to make the project attractive to contractors and workers, and communicate those options in the ITB, contract, pre-bid, etc. |
| CON-8 | Historical change order growth | Need to study market behavior for region and project type for historical changes - Walla Walla for reference | High | Cost Engineering | Investigate contractors during RFQ for propensity for change order growth. Consider contract type alternatives that minimize the exposure to both owner and contractor. |
| CON-9 | Diesel fuel volatility | \$6M marine + \$2M civil | Low | Cost Engineering | Maintain awareness of fuel pricing at bid time. Consider master agreement with suppliers. To provide min max at an agreed price |
| EST-4 | Project cost exceeds available budget | What if the minimal design exceeds construction budget? | High | Project Sponsor(s) | Create separable construction packages |
| EST-5 | Estimate quality related to lesser designed features | The use of parametric area based estimates for the civil backlands scope has inherent variability. Especially, utilities are perhaps the least designed at this stage, and are subject to variations. The wharf decking design is the marine side least designed component, along with bulkhead flat sheet piles | High | Cost Engineering | This can be mitigated normally through design progress. An assessment of exposure to estimate accuracy can be included in future estimate preparations |
| EST-6 | Estimate confidence in large and critical quantities | Dredging quantities are historically variable. | Low | Cost Engineering | This can be mitigated normally through design progress. An assessment of exposure to estimate accuracy can be included in future estimate preparations |
| EST-7 | Estimate include waste / drop off quantities | Estimate and design both include these, however, some uncertainty as to the location for disposal exists | Low | Cost Engineering | This can be mitigated normally through design progress. An assessment of exposure to estimate accuracy can be included in future estimate preparations |
| PR-2 | Market conditions and bidding competition | The base estimate is assuming 10% indirect costs and 20% overhead and profit markup structure, which favors a low demand market. Should there be little supply due to increased demand, the contractors are expected to add overhead and profit, up to 15% more than in the estimate | High | Contracting | Remain cognizant of the supply and demand for various contractor capabilities related to the project features. Select a contract type that leverages the market supply and demand forecast for the bid period. |

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|--|---|-------------------|-----------------------------|--|
| PR-3 | Labor disruptions | This is covered previously, but there is some related risk to the contractor that could affect schedule, and thus his escalation exposure | Low | Construction | Require labor resource identification, contingency plan and forecast from contractors during RFP period. Maintain contact with labor organizations. Consider low cost amenities that will attract skilled and qualified labor and supervision. |
| PR-4 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Weather (snow, freezing - subarctic related) impacts on production - estimate does not include "act of God" level impacts | Low | Contracting | Refer to insurance and contracting general terms and conditions |
| PR-5 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Seismic (earthquakes) impacts on production, labor availability, materials delivery, placed work damages - estimate does not include "act of God" level impacts | Low | Contracting | Refer to insurance and contracting general terms and conditions |

ITB = invitation to bid

POC = point of contact

QA/QC = quality control/quality assurance

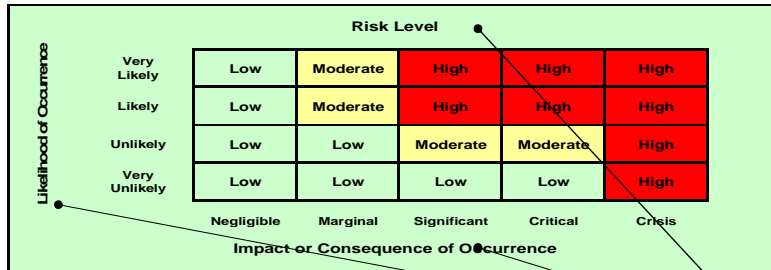
RFQ = request for quote

ROI = return on investment

TOTE = Totem Ocean Trailer Express, Inc.

ATTACHMENT A
DETAILED RISK REGISTER

Port of Anchorage Intermodal Expansion Project 15% CONCEPT - Risk Register



The project is located on the Knik Arm, within the Municipality of Anchorage, Alaska, approximately one mile north of downtown Anchorage. The scope of the work is to demolish *[existing wharf, trestle and]* sheet pile wall, construct new wharf, trestle and sheet pile wall, complete with associated excavation, grading, paving, drainage, stevedore facilities and utilities.

500,000,000 scale of project, Crisis, 100,000,000; Critical 50,000,000; Significant \$20,000,000, Marginal \$10,000,000.

4 year scale of project: Crisis 2 years; Critical 1 year; Significant 6 months; Marginal 3 months; Negligible <1 month.

Very Unlikely 1 in 10, Unlikely 3 in 10, Likely 7 in 10, Very Likely 9 in 10.

[illegible]

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|---|---------------|-------------|-------------|-------------------------|------------------|------------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| 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). Risk could be pos or neg | Very Unlikely | Marginal | LOW | \$10M | Very Unlikely | Negligible | LOW | none | Triangular | | Contracting | Project Cost |
| CA-2 | Numerous separate contracts | 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 | \$25M | Very Unlikely | Marginal | LOW | 3 mo | Triangular | | Contracting | Project Cost & Schedule |
| | TECHNICAL RISKS | | | | | | | | | | | | | |
| TL-1 | Handling of groundwater/surface water from hill behind north extension. (Safety) | Assumes a pile supported design | Very Unlikely | Negligible | LOW | \$1M | Very Unlikely | Negligible | LOW | none | Triangular | | Construction | Project Cost |
| TL-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 | | Unlikely | | 0 | | | | | |
| TL-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 dock and aground) | Unlikely | Significant | MODERATE | | Unlikely | | 0 | | | | | |
| TL-4 | Focusing on the North dock 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 | | Unlikely | | 0 | | | | | |
| TL-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 | | Very Unlikely | | 0 | | | | | |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|---|---------------|----------|-------------|-------------------------|------------------|------------|-------------|-------------------------|-----------------------|-------------------------|---------------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| TL-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.) Impact to construction progress and production due to complexities of sequencing | Likely | Marginal | MODERATE | \$10M | Likely | Marginal | MODERATE | 2 mo | Triangular | | Operations | Project Cost & Schedule |
| TL-7 | Surveys outdated | Entire bathymetric survey is in dated, especially underneath terminals #2 and #3, earthwork quantities for all options, and global stability for option 5 at terminals #2 and #3 are in question | Likely | Marginal | MODERATE | \$10M | Likely | Negligible | LOW | 1 mo | Triangular | | Geotechnical/Civil Design | Project Cost & Schedule |
| TL-8 | Excess/spoils disposition | Need to identify a location for excess material. | Likely | Marginal | MODERATE | \$15M | Likely | Negligible | LOW | 1 mo | Triangular | | Geotechnical/Civil Design | Project Cost & Schedule |
| | DESIGN RISKS | | | | | | | | | | | | | |
| D-01 | 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 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. | Very Unlikely | Marginal | LOW | \$10M | Very Unlikely | Critical | LOW | 1 year | Triangular | | Project Manager | Project Cost & Schedule |
| D-02 | b. Fail to ID requirements | | Very Unlikely | Marginal | LOW | | Very Unlikely | | 0 | | | | | |
| D-03 | c. Time to develop 100% design | | Very Unlikely | Marginal | LOW | | Very Unlikely | | 0 | | | | | |
| D-04 | d. Impact to cost from changes | | Very Unlikely | Marginal | LOW | | Very Unlikely | | 0 | | | | | |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|---|--|---------------|-------------|-------------|-------------------------|------------------|------------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| D-05 | e-Location and structure impact to Safe Navigation | What is the new structures impact to Safe Navigation and mooring? | Very-Unlikely | Marginal | LOW | | Very-Unlikely | | 0 | | | | | |
| D-06 | f- Impact from loss of acreage- | Effects on operation with loss of acreage? | Very-Unlikely | Significant | LOW | | Very-Unlikely | | 0 | | | | | |
| D-07 | Continuing silting issues at the stern of Tote vessels | | | | 0 | | 0 | | 0 | | | | | |
| D-08 | Deferring Tote terminal maintenance and planning because "we are moving the terminal" | | Unlikely | Marginal | LOW | \$1M | Unlikely | Negligible | LOW | none | Triangular | | Operations | Project Cost |
| D-09 | Potential cost to Tote for the expansion/development e.g. new gatehouse, shop, yard reconfiguration | | Unlikely | Marginal | LOW | \$1M | Unlikely | Negligible | LOW | none | Triangular | | Operations | Project Cost |
| | REGULATORY AND ENVIRONMENTAL RISKS | | | | | | | | 0 | | | | | |
| RE-1 | Permits in place | 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 | escalation related | Unlikely | Marginal | LOW | 3 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-2 | Permit mods | High risk of having permit mods (negative impact) later that may cost time and money due to whether or not the existing North Extension is the best plan | Unlikely | Marginal | LOW | escalation related | Unlikely | Marginal | LOW | 3 mo | Triangular | | Environmental | Project Cost & Schedule |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|--|---------------|-------------|-------------|-------------------------|------------------|----------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| RE-3 | Permit exposure | Completing North 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 Extension does not meet the Port's present and future goals | Unlikely | Marginal | LOW | escalation related | Unlikely | Marginal | LOW | 3 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-4 | Excluding/Including 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 | Very Unlikely | Significant | LOW | escalation related | Very Unlikely | Marginal | LOW | -3 to +1 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-5 | 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 reduces 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 | \$10M | Very Likely | Marginal | MODERATE | 3 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-6 | 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 | | | | 0 | | | | | |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|---|---|---------------|-------------|-------------|-------------------------|------------------|-------------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| RE-7 | Endangered species- (beluga whales)- a. Impact to in-water work- i. Low tide- ii. Harassment and takes- b. Monitoring- i. Contractor- ii. Scientific- iii. Cost associated- | Loss of 8 hours of in-water work daily around low times. Meeting whale harassment and having minimal takes- Monitoring requirement both from contractor and scientific by permit and the cost associated- | Likely | Marginal | MODERATE | | | | 0 | | | | | |
| | CONSTRUCTION RISKS | | | | | | | | 0 | | | | | |
| CON-1 | The construction should be allowed on both the ocean and land side of the new dock system. | Over restrictive site limitations | Very Unlikely | Significant | LOW | \$20M | Very Unlikely | Significant | LOW | 6 MO | Triangular | | Construction | Project Cost & Schedule |
| 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 | \$10m | Likely | Marginal | MODERATE | 3 mo | Triangular | | Contracting | Project Cost & Schedule |
| 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 docks vs. OCSP dock system). | | Very Unlikely | Significant | LOW | \$25m | Very Unlikely | Negligible | LOW | none | Triangular | | Contracting | Project Cost |

[illegible]

[illegible]

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distrib-ution | Correl-ation to Other(s) | Responsibility/PO C | Affected Project Component |
|--|--|---|--------------|-------------|-------------|----------------------------|------------------|-------------|-------------|----------------------------|---------------------------|-----------------------------|------------------------|-------------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| FL-8 | Potential negative risk to structures and appurtenances by ice flows and large tide cycle range | | Unlikely | Marginal | LOW | | | | | | | | | |
| FL-9 | Potential negative risk associated with existing condition of existing structures and utilities | | Unlikely | Marginal | LOW | | | | 0 | | | | | |
| Programmatic Risks (External Risk Items are those that are generated, caused, or controlled exclusively outside the PDT's sphere of influence.) | | | | | | | | | | | | | | |
| PR-1 | Public trust a. Incremental funding b. Budget challenge | The history of the project has created a problem with public trust that has caused the budget to be funded incrementally. How can these challenges be overcome to attain funding needed? Impact of incremental funding has to be addressed so that public is fully aware of impacts i.e. increasing cost and delay in completion. | Likely | Significant | HIGH | | | | 0 | | | | | |
| PR-2 | Market conditions and bidding competition | The base estimate is assuming a 10% indirects and 20% OH&P markup structure, which favors a low demand market. Should there be little supply due to increased demand, the contractors are expected to add overhead and profit, up to 15% more than in the estimate | Likely | Critical | HIGH | 0 to 15% more | Likely | Negligible | LOW | none | Triangular | | Contracting | Project Cost |
| PR-3 | Labor disruptions | This is covered in XX above, but there is some related risk to the contractor that could affect schedule, and thus his escalation exposure | Unlikely | Marginal | LOW | based on esc | Unlikely | Marginal | LOW | 3 mo | Triangular | | Construction | Project Cost & Schedule |
| PR-4 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Weather (snow, freezing - subarctic related) impacts on production - estimate does not include "act of God" level impacts | Unlikely | Marginal | LOW | \$3M | Unlikely | Significant | MODERATE | 6 mo | Triangular | | Contracting | Project Cost & Schedule |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|---|---------------|----------|-------------|-------------------------|------------------|----------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| PR-5 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Seismic (earthquakes) impacts on production, labor availability, materials delivery, placed work damages - estimate does not include "act of God" level impacts | Very Unlikely | Critical | LOW | \$50M | Very Unlikely | Critical | LOW | 1 yr | Triangular | | Contracting | Project Cost & Schedule |

*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.

ATTACHMENT B
COST ESTIMATE (INPUT TO CSRA)

Cost Estimate

**Port of Anchorage
Intermodal Expansion Project
15% Concept Plans – Option 1
Contract No. W912PP-09-D-0016
Task Order ZJ03**

Prepared for

Alaska District U.S. Army Corps of Engineers

February 26, 2013

CH2MHILL®

2020 SW 4th Avenue

3rd Floor

Portland, Oregon 97201

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Tables

| | |
|---|---------------|
| 1 | Overall Costs |
|---|---------------|

Cost Estimate

1. Executive Summary

The construction cost for the project is described herein and in Table 1.

TABLE 1
Overall Costs

Accuracy Range per ASTM E2516 – 11, Standard Classification for Cost Estimate Classification System, see Section 2.5

| Description | Amount | Rounded |
|-------------------|---------------|---------------|
| Option 1 estimate | \$366,847,382 | \$365,000,000 |
| Hi range + 30% | \$476,901,594 | \$475,000,000 |
| Lo range – 15% | \$311,820,275 | \$310,000,000 |

ASTM = American Society for Testing and Materials (formerly, now ASTM International)

The executive summary provides an overview of the Cost Estimate. Reliance on this information is advised to be in consideration of the full context of this report.

2. Estimate Information

2.1 Purpose of Estimate

The purpose of this Cost Estimate is to establish an engineer's opinion of probable cost for design documents at 15% concept design, suitable for further development using U.S. Army Corps of Engineers (USACE) Cost and Schedule Risk Analysis (CSRA) Guidance (17 May 2009) to calculate total project costs.

2.2 Client

The client is the Alaska District USACE.

2.3 Project Location and General Scope

The project is located on the Knik Arm, within the Municipality of Anchorage, Alaska, approximately 1 mile north of downtown Anchorage. The general scope of the work for Option 1 is to demolish an existing sheet pile wall, construct a new wharf, trestle and sheet pile wall, complete with associated excavation, grading, paving, drainage, stevedore facilities, and utilities.

2.4 Date and Preparation

The estimate was prepared January - February 2013, by CH2M HILL team members as listed:

- Jorge Abisambra/WPB (marine work)
- Robert Wells/PDX, (civil “*” scope) phone 503-872-4622 x24622
- Joe Taylor/ANC (civil quantities)
- John O'Reilly/SAC (quality assurance and quality control)

The estimate was requested by Doug Playter/SEA for project number 462130.

2.5 Estimate Classification and Methodology

This cost estimate prepared is considered a Budget Level or Class 4 estimate per American Society for Testing and Materials (ASTM) E2516-11. It is considered accurate to +30% to -15%, based upon a design deliverable (15% Concept Plans).

The estimating effort did decompose the scope to a sufficient level to support a thorough analysis of all major cost elements at the work package level, for purposes of performing risk analysis and identifying those critical items which might be expected to create cost variances of +0.5% in the bottom line estimate.

The individual scope items inclusions under Section 3.b.vi of the Task Order preceded by an asterisk were estimated by parametric estimating techniques. The estimated costs for these asterisked items were developed using the 11 April 2012 Port of Anchorage (POA) Intermodal Expansion Project Budgetary Cost Estimate Report and calculated as "blended costs" per unit of measure. Additionally, the estimated costs for the Marine Terminal Buildings (complete structures, including foundation, structure, shell, interior finishes, and all utilities) and Corrosion Protection were calculated by the same parametric technique.

This estimate was developed, as required by USACE CSRA Guidance (17 May 2009), as an input to the CSRA. The CSRA is a separate document prepared concurrently with this estimate.

The estimate is appended to this report as Appendix A.

3. Basis of Estimate

3.1 Basis Documents

The estimate is based on 15% drawings for Option 1, developed by CH2M HILL, dated February 2013. Additionally, the estimate used portions of the POA Intermodal Expansion Project Budgetary Cost Estimate Report estimate prepared 11 April 2012, as directed, for parametric cost estimating.

3.2 Key Assumptions

- Project is to be offered to bidders on a lowest responsive basis, in time to allow construction progress to begin April 2015.
- Permitting and regulatory agencies to have issued all permits, modifications, and amendments, so as not to impede the construction start and progress in any way.
- Project is to be fully funded prior to the start of construction.

3.3 Project Delivery Schedule and Method

It is assumed that the environmental, permitting, and design phase will continue to early 2015, with a bid and award date that supports an April 2015 construction start. The scheduled duration for Option 1 is 30 months, ending late 2017. The assumed delivery method is a single prime contract with the Municipality of Anchorage, Alaska.

3.4 Labor, Materials, Subcontracts and Other Direct Costs

3.4.1 Labor

Labor rates used are based on 2013 prevailing wage rates adjusted for Anchorage, Alaska, as well as those used in the POA Intermodal Expansion Project Budgetary Cost Estimate Report estimate prepared 11 April 2012, adjust for inflation by 1.28%.

3.4.2 Materials

Materials pricing is based on recent and historical vendor quotations, as well as pricing used in the POA Intermodal Expansion Project Budgetary Cost Estimate Report estimate prepared 11 April 2012, adjusted for inflation by 1.28%.

3.4.3 Subcontracts

It is assumed that the Prime Contractor may employ various specialty subcontractors, such as electrical, telecom, utility, and earthwork subcontractors.

3.4.4 Long Lead Items

Galvanized steel sheet and cylinder piling, fender materials assumed to be 5 months lead-time.

3.4.5 Owner Supplied

Steel sheet pile in quantities assumed to supply majority of bulkhead sheet pile materials.

3.4.6 Allowances

Landscaping allowance for restoration of disturbed areas, \$150,000 subcontractor price.

3.5 Markups, Taxes and Other Indirect Costs

Detail on markups used, taxes included, contingencies, owner costs, or any other cost additions.

| | |
|--|------|
| • General requirements/site indirect costs | 10% |
| • Taxes on material and equipment | 0% |
| • Prime Overhead, Profit | 20% |
| • Bond | 1% |
| • Contingency | 20% |
| • PM, CM and Design (Owner's Costs) | 18% |
| • Owner's Contingency (Reserve) | 8.5% |

3.6 Market Conditions

Market conditions adjustments were not considered for this project; it remains market neutral. An adjustment is unwarranted because of market condition volatility and because the project will be executed in the future.

3.7 Escalation Costs

Escalation is based on USACE EM 1110-2-1304 (31 March 2012), Table A-1, Quarterly Cost Index by CWBS Feature Code. Feature codes relevant to this project are:

- 08 Roads, Railroads, and Bridges (Cherry Hill Road, Rail extension)
- 12 Navigation Ports & Harbors (Wharf and bulkhead, including dredging and demo)
- 16 Bank Stabilization (Slope protection)
- 19 Buildings, Grounds, & Utilities (Landside work)

Escalation costs are estimated in two parts: The first part is to escalate the project costs prepared in February 2013 dollars to the assumed bid date of April 2015; the second part is the escalation of costs through the duration of the project, the mid-point of which is assumed to be mid 2014. The severing of escalation will allow the project to input into CSRA, removing only the escalation for the project duration, which then will be modeled per the CSRA guidance. The use of costs, as directed, from the POA Intermodal Expansion Project Budgetary Cost Estimate Report, dated 11 April 2012, required the addition of 1.28% escalation to bring it current to the year and month of estimate, February 2013.

3.8 Detailed Scope, Clarifications, Inclusions and Exclusions

3.8.1 Civil Scope

Option 1 does not propose any new improvements to the wharves or trestles at Terminals 2 and 3. As such, this option excludes Horizon Container Cargo terminal enhancement.

At the north extension, a new pile-supported Wet Barge Berth and new roll-on/roll-off (RO/RO) Berth are proposed, as well as a new sheet pile bulkhead. Approximately 31 acres of new paved upland area would be provided.

The integrity and function of the existing Dry Barge Berth would be maintained but removal of the existing OCSP® structure, mass excavation of existing embankment, and construction dredging would be required. The remaining slopes would be protected with a layer of armor stone.

3.8.2 Demolition of Existing Infrastructure and Mass Excavation

Option 1 would require moderate demolition of existing infrastructure and mass excavation.

At the north extension portion of the project, the OCSP® system including tail walls would be demolished from the existing Dry Barge Berth south. The portions of traditional Z-pile walls previously installed at the north extension would also be removed. The OCSP® system installed for the Dry Barge Berth would remain in place.

Mass excavation of previously constructed embankment and construction dredging would be required. Salvage of existing armor stone would also be included. The existing Dry Barge Berth would be maintained in approximately its existing condition but some regrading at the interface between the Dry Barge Berth and new upland area would be required.

3.8.3 Civil Elements to be Constructed

Option 1 would include the following specific civil design elements:

- Water service and fire suppression lines
- Sanitary sewer lines
- Storm drain piping and inlets
- Electrical, communication, and security lines
- Cherry Hill Haul Road realignment and new rail spur
- Paved upland area
- Landscaped areas
- Site grading and drainage

3.8.4 Structural Scope

The major structural components of Option 1 would consist of two pile-supported wharves, six access trestles, and a cellular steel sheet pile bulkhead. Other ancillary structural components to support port operations would include heavy-duty fenders, mooring bollards, quick release hooks along the wharf face, and a stevedore building. The pile-supported wharves would provide a total of 1,800 linear feet of new dock face and two new berths: (1) a barge berth to support containerized, break bulk, or bulk cargo operations, and (2) a RO/RO Berth to support containerized RO/RO operations.

3.8.5 Slope Protection

All new embankment slopes would be covered by a 6-foot-thick layer of armor rock and riprap, a mitigation measure to prevent piping conditions at the slope surface.

3.8.6 Corrosion Protection

Corrosion Protection System for Pile-Supported Wharf

The steel casing in the top part of the hybrid piles would be sacrificial. The presence of the steel casing would delay the onset of corrosion in the reinforced concrete core. A corrosion allowance is built into the design of the hollow steel pipe pile that would form the lower part of the hybrid pile. All-steel reinforcing bar used in the pile-supported wharf and trestle, including deck, piles, and pile caps, would be epoxy coated to increase corrosion resistance. High-performance concrete water/cement ratio and air entrainment admixture would be in accordance with American Concrete Institute 201.2R *Guide to Durable Concrete* to establish a dense, low-permeability concrete.

Corrosion Protection System for Sheet Pile Bulkhead

All existing sheet piles in the POA stockpile were specified to be hot-dip galvanized with a minimum zinc thickness of 6 to 12 mils. Galvanization would be the sole corrosion protection element for sheet piles exposed to the atmospheric and splash zones. An impressed-current cathodic protection system would protect structural components of the sheet pile bulkheads that would be submerged in or in contact with soil. Cathodic protection

anodes would be installed on the seaward side of sheet piling for protection of seaside surfaces, and additional anodes would be installed in drilled holes landside to protect surfaces exposed to soil and mud.

Corrosion Protection System for Fender Piles

A galvanic anode cathodic protection system would protect the portions of the fender piles that would be submerged in or in contact with soil. Based on the estimated surface area per fender pile, approximately 2,000 pounds of aluminum anode would be required for a 20-year service life. Eight or nine aluminum anodes could be fabricated into "bracelet" anodes that could be fastened or welded to the fender pile.

3.8.7 Exclusions

- Hazardous materials handling and disposal
- Natural gas utilities

3.9 Cost Resources

The following cost resources were used in the development of the cost estimate.

- 11 April 2012 POA Intermodal Expansion Project Budgetary Cost Estimate Report
- Vendor quotes on equipment and materials
- Estimator judgment

Appendix A

Cost Estimate Summary and Detail Reports

ESTIMATE RECAP - BID QUANTITIES

| | DIRECT | INDIRECT | TOTAL | % OF TOTAL |
|--------------|----------------|----------|----------------|------------|
| Labor | 8,190,204.49 | | 8,190,204.49 | 4.374% |
| Burden | 4,426,800.21 | | 4,426,800.21 | 2.364% |
| Lab+Bur | 12,617,004.70 | | 12,617,004.70 | 6.738% |
| Perm Matl | 61,132,325.36 | | 61,132,325.36 | 32.645% |
| Const Exp | 318,010.90 | | 318,010.90 | 0.170% |
| Equipment | 21,771,807.91 | | 21,771,807.91 | 11.626% |
| Subs | 64,782,006.93 | | 64,782,006.93 | 34.594% |
| Other | 26,641,078.43 | | 26,641,078.43 | 14.227% |
| Total Costs: | 187,262,234.23 | | 187,262,234.23 | 100.000% |
| % of Total | 100.000% | 0.000% | 100.000% | |

| Escalation on: | Labor | Burden | Perm Matl | Const Matl | Co Eqp | Rented Eqp |
|----------------|-----------|----------|-----------|------------|----------|------------------|
| | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % |
| | Eq Op Exp | Sub | Misc1 | Misc2 | Misc3 | Total Escalation |
| | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % |

* Data Below here is dependent on the Summary Process. *
The Summary Process was last run 02/26/2013 at 8:29 PM

| | | |
|--|-----------------------|--------------|
| Markup on Resource Costs | 35,202,256.42 | 18.7984% |
| MARKUP TOTALS ==> | 35,202,256.42 | 18.7984% |
| <i>Cost Addons</i> | | |
| Escalation to February 2015 3.4700 % of Cost, Mkup, & Prev | 7,846,813.54 | 4.1903% |
| Escalation to Proj Midpoint 2.0500 % of Cost, Mkup, & Prev | 4,796,585.26 | 2.5614% |
| Contingency 20.0000 % of Cost, Mkup, & Prev Addons | 47,755,270.77 | 25.5018% |
| PM, CM, Design 18.0000 % of Cost, Mkup, & Prev Addons | 51,575,692.43 | 27.5420% |
| Owner's Contingency 8.5000 % of Cost, Mkup, & Prev Addon | 28,739,121.95 | 15.3470% |
| Bond from Summary Table | 3,668,464.38 | 1.9590% |
| MARKUP, ADDON & BOND TOTALS ==> | 179,584,204.75 | 95.8999% |
| | ===== | (% of costs) |
| COST + MARKUP -----> | \$366,846,438.98 | |
| | (On Takeoff Quantity) | |

There * ARE NOT * closing accounts for this bid.

| | | |
|----------------------------|--------|-----------------------------|
| Rounding difference: | 943.19 | -Effect on Bid- Adjusted |
| Unbalancing difference: | | |
| From Cut&Add Sheet-costs: | | (on Bid Quantity) |
| From Cut&Add Sheet-markup: | | (on Bid Quantity) |
| Pass Through Adjustments: | | None |

02/26/2013
13-008-1
*** Bob Wells

20:30
POA 15% CONCEPT OPTION 1

BID TOTALS

| <u>Biditem</u> | <u>Description</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Bid Total</u> |
|----------------|------------------------------------|-----------------|--------------|-------------------|------------------|
| 10040 | Construction Staging | 1.000 | LS | 1,710,877.64 | 1,710,877.64 |
| 10050 | Demolition | 1.000 | LS | 23,078,216.31 | 23,078,216.31 |
| 10055 | Dredging | 938,000.000 | CY | 52.57 | 49,310,660.00 |
| 10060 | Piling | 88,172.000 | FT | 1,088.43 | 95,969,049.96 |
| 10080 | Sheet Pile Bulkhead | 2,200.000 | LF | 9,660.88 | 21,253,936.00 |
| 10081 | Credit Sheetpile Materials on site | 1.000 | LS | -18,086,297.52 | -18,086,297.5 |
| 10090 | Concrete Deck Superstructure | 149,750.000 | SF | 197.86 | 29,629,535.00 |
| 10100 | Abutments | 6.000 | EA | 293,795.02 | 1,762,770.12 |
| 10120 | Fendering | 1.000 | LS | 4,641,979.20 | 4,641,979.20 |
| 10140 | Slope Protection | 160,000.000 | CY | 191.68 | 30,668,800.00 |

***Subtotal Marine Work \$239,939,526.71

GENERAL CONSTRUCTION

| | | | | | |
|-------|--|-------|----|---------------|---------------|
| 10150 | Surface Pavements | 1.000 | LS | 45,518,984.70 | 45,518,984.70 |
| 10160 | Traffic Control Parking | 1.000 | LS | 731,885.94 | 731,885.94 |
| 10170 | Surface water control | 1.000 | LS | 2,067,798.24 | 2,067,798.24 |
| 10180 | Potable Water Utilities | 1.000 | LS | 4,947,008.02 | 4,947,008.02 |
| 10190 | Fire Suppression Utilities | 1.000 | LS | 4,947,008.02 | 4,947,008.02 |
| 10200 | Sanitary Sewer Utilities | 1.000 | LS | 704,567.53 | 704,567.53 |
| 10210 | Electrical Power Utilities | 1.000 | LS | 18,099,336.17 | 18,099,336.17 |
| 10230 | Telecommunications Utilities | 1.000 | LS | 6,428,494.77 | 6,428,494.77 |
| 10240 | Railroad Spur | 1.000 | LS | 13,328,244.27 | 13,328,244.27 |
| 10250 | Surface Restoration/Landscaping | 1.000 | LS | 293,849.78 | 293,849.78 |
| 10260 | Marine Terminal Buildings incl Crane Maint | 1.000 | LS | 2,845,968.39 | 2,845,968.39 |
| 10270 | Corrosion Control | 1.000 | LS | 16,778,822.29 | 16,778,822.29 |
| 10280 | Cherry Hill Road Upgrades | 1.000 | LS | 1,612,428.17 | 1,612,428.17 |
| 10290 | Other | 1.000 | LS | 8,603,459.16 | 8,603,459.16 |

***Subtotal General Construction \$126,907,855.45

Bid Total =====> \$366,847,382.16

**Notes:
Items in italics are Non-Additive.

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|-------|------------------|--------------------|---------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|-------|------------------|--------------------|---------------|------------------|-------|

PARENT ITEM = 10040 CLIENT# = 01-12

Description = Construction Staging Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

Listing of Sub-Biditems of Parent Item 10040:

PARENT ITEM = 10042 CLIENT# = 03-12

Description = Mobilization and Demobilization Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

Listing of Sub-Biditems of Parent Item 10042:

BID ITEM = 10043 CLIENT# = 03-12

Description = Mobilization Land Item SCHEDULE: 1 100 Unit = LS Takeoff Quan: 1.000 Engr Quan: 0.000

219000 Misc Hauling/Trucking Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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5TRKFB Trucking - Flat Bed 20.00 HR 100.000 2,000 2,000

540000 Temporary Construction Fence Quan: 750.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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31CHAINFENCE Temporary Chainlinkfence 750.00 LF 12.000 9,000 9,000

890005 Pile Crew Mobilization Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 *****

Mobilization from Tacoma Washington

| | | | | | | | | | | |
|-------------|----------------------------|--------|-------|-------------|---------|-------|----------|-------|----------|--------|
| MARPIL | Marine Piling & Demo Crew | 20.00 | CH | Prod: | 2.0000 | S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 2.00 | DA | | 70.000 | | 140 | | | 140 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | | 200.000 | | | 400 | | 400 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 20.00 | HR | 163.361 | | | 3,267 | | 3,267 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 20.00 | HR | 17.500 | | | 350 | | 350 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 20.00 | HR | 3.000 | | | 60 | | 60 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 20.00 | HR | 10.000 | | | 200 | | 200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 20.00 | HR | 17.500 | | | 350 | | 350 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 20.00 | HR | 20.000 | | | 400 | | 400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 | HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 | HR | 5.000 | | | 100 | | 100 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 20.00 | HR | 10.000 | | | 200 | | 200 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 20.00 | HR | 0.100 | | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 20.00 | HR | 3.000 | | | 60 | | 60 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 20.00 | HR | 3.500 | | | 70 | | 70 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 20.00 | HR | 5.000 | | | 100 | | 100 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 20.00 | HR | 6.500 | | | 130 | | 130 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 20.00 | HR | 10.000 | | | 200 | | 200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 20.00 | HR | 2.500 | | | 50 | | 50 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 20.00 | HR | 45.492 | | | 910 | | 910 |
| 9100000 | Substance 5 workers | 2.00 | DA | | 500.000 | | 1,000 | | | 1,000 |
| M105 | Foreman - General Marine | 1.00 | 20.00 | MH | 35.720 | 1,251 | | | | 1,251 |
| M165 | M-Piledriver | 1.00 | 20.00 | MH | 34.950 | 1,240 | | | | 1,240 |
| M170 | M-Welder | 1.00 | 20.00 | MH | 32.000 | 1,155 | | | | 1,155 |
| M190 | M-Skilled Laborer | 1.00 | 20.00 | MH | 29.250 | 1,008 | | | | 1,008 |
| M195 | M-Laborer | 1.00 | 20.00 | MH | 27.520 | 958 | | | | 958 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 | MH | 33.480 | 1,051 | | | | 1,051 |
| \$14,712.91 | 120.0000 MH/LS | 120.00 | MH | [4244.24] | 6,664 | | 1,140 | 6,909 | | 14,713 |

890006 Carpenter Crew Mob Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|---|--------------------------|-----------------|--------|--------------|-----------------|--------------------|-------------------|------------------|--------|
| BID ITEM = 10043 | | | | | | | | | |
| CLIENT# = 03-12 | | | | | | | | | |
| Land Item SCHEDULE: 1 100 | | | | | | | | | |
| Description = | Mobilization | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | 0.000 |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | |
| <u>MARWOO</u> | Marine Carpenters Crew | 20.00 | CH | Prod: | 2.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | 200.000 | | | 400 | | 400 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | HR | 106.961 | | | 2,139 | | 2,139 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | HR | 3.000 | | | 60 | | 60 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | HR | 6.500 | | | 130 | | 130 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | HR | 6.500 | | | 130 | | 130 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | HR | 10.000 | | | 200 | | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | HR | 5.000 | | | 100 | | 100 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | HR | 0.100 | | | 2 | | 2 |
| 8MFW-A-1 | Work Float | 1.00 | HR | 2.000 | | | 40 | | 40 |
| 8MFW-A-2 | Work Float | 1.00 | HR | 2.000 | | | 40 | | 40 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | HR | 2.000 | | | 40 | | 40 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | HR | 2.000 | | | 40 | | 40 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | HR | 3.500 | | | 70 | | 70 |
| 8MVP-A-2 | FORD F150 SUPER C 2 | 1.00 | HR | 6.500 | | | 130 | | 130 |
| 8WELD400 | Welder 400 AMP | 2.00 | HR | 2.044 | | | 82 | | 82 |
| M100 | Foreman - Carpenter | 1.00 | MH | 34.720 | 1,222 | | | | 1,222 |
| M170 | M-Welder | 1.00 | MH | 32.000 | 1,155 | | | | 1,155 |
| M173 | M-Lead Carpenter | 1.00 | MH | 28.250 | 1,046 | | | | 1,046 |
| M175 | M-Carpenter | 3.00 | MH | 27.520 | 3,076 | | | | 3,076 |
| M180 | M-Carpenter Helper | 3.00 | MH | 27.520 | 2,875 | | | | 2,875 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | MH | 33.480 | 1,051 | | | | 1,051 |
| \$14,088.62 | 200.0000 MH/LS | 200.00 | MH | [6458.54] | 10,426 | | 3,663 | | 14,089 |

960015 Rigging Supplies **Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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31RIGGING Rigging Supplies 1.00 LS 15,000.000 15,000 15,000

=====> **Item Totals: 10043 - Mobilization**

\$54,801.53 320.0000 MH/LS 320.00 MH [10702.78] 17,089 27,140 10,572 **54,802**
54,801.530 1 LS 17,089.49 27,140.00 10,572.04 54,801.53

BID ITEM = 10044 CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Transportation Unit = LS Takeoff Quan: 1.000 Engr Quan: 0.000

219000 Misc Hauling/Trucking **Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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5TRKFB Trucking - Flat Bed 80.00 HR 100.000 8,000 8,000

890007 Marine Tugs **Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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rental tugging services to and from Tacoma, Washington State.
Distance Tacoma to Anchorage: 1,472 N Miles
at 4.5 knots, 1,472/4.5= 327 hours ==> 13.62 days say 14 days

14 days in and 14 days back 2 days on stand by = 30 days

then tug needs to go back and do it all over again for demobilization

so, say 60 days

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|--|-----------------|-----------------|-------------|--------------|---------------|--------------------|-------------------|------------------|----------------|
| <hr/> | | | | | | | | | |
| BID ITEM = 10044 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Transportation | Unit = LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 0.000 | | |
| 5TUGSERVICE Tug Rental | 60.00 DA | 6,500.000 | | 390,000 | | | 390,000 | | |
| 8211060 ==> Fuel, Oil, Grease 1400 | 60.00 DA | 5,810.000 | | | | | 348,600 | | 348,600 |
| \$738,600.00 | | [] | | | | | 390,000 | 348,600 | 738,600 |
| <hr/> | | | | | | | | | |
| ====> Item Totals: 10044 - Transportation | | | | | | | | | |
| \$746,600.00 | | [] | | | | | 398,000 | 348,600 | 746,600 |
| 746,600.000 | 1 LS | | | | | | 398,000.00 | 348,600.00 | 746,600.00 |

| | | | | | | | | | |
|------------------------------|-----------------|-----------|-------------|-------|------|-------|-------|--|--|
| BID ITEM = 10046 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Demobilization | Unit = LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 0.000 | | |

115000 Remove Fence (Chain Link) Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | |
|-------------|------------------------|---------------|--------------|-----------------|----------|------|----------|-------|
| <u>LAB4</u> | Foreman + 3 Laborers | 30.00 CH | Prod: | 3.0000 S | Lab Pcs: | 4.00 | Eqp Pcs: | 1.00 |
| 8TRKPU70 | Leased 4x2, 3/4 Ton Ga | 1.00 30.00 HR | 8.476 | | | 254 | | 254 |
| LFORMN | Laborer-Foreman | 1.00 30.00 MH | 29.250 | 1,321 | | | | 1,321 |
| LPWR | Laborer-Power Tools | 3.00 90.00 MH | 28.020 | 3,827 | | | | 3,827 |
| \$5,402.41 | 120.0000 MH/LS | 120.00 MH | [3739.23] | 5,148 | | | 254 | 5,402 |

890010 Subcontractor Pile Crew Demobilization Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | |
|---------------|----------------------------|---------------|--------------|-----------------|----------|-------|----------|--------|
| <u>MARPIL</u> | Marine Piling & Demo Crew | 20.00 CH | Prod: | 2.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 2.00 DA | 70.000 | | 140 | | | 140 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 DA | 200.000 | | | 400 | | 400 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 20.00 HR | 163.361 | | | 3,267 | | 3,267 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 20.00 HR | 17.500 | | | 350 | | 350 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 20.00 HR | 17.500 | | | 350 | | 350 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 20.00 HR | 20.000 | | | 400 | | 400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MFD-A-1 | FAIRLEADS | 1.00 20.00 HR | 0.100 | | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 20.00 HR | 3.500 | | | 70 | | 70 |
| 8MPE-A-11 | Extractor Pile | 1.00 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 20.00 HR | 6.500 | | | 130 | | 130 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 20.00 HR | 2.500 | | | 50 | | 50 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 20.00 HR | 45.492 | | | 910 | | 910 |
| 9100000 | Substance 5 workers | 2.00 DA | 500.000 | | 1,000 | | | 1,000 |
| M105 | Foreman - General Marine | 1.00 20.00 MH | 35.720 | 1,251 | | | | 1,251 |
| M165 | M-Piledriver | 1.00 20.00 MH | 34.950 | 1,240 | | | | 1,240 |
| M170 | M-Welder | 1.00 20.00 MH | 32.000 | 1,155 | | | | 1,155 |
| M190 | M-Skilled Laborer | 1.00 20.00 MH | 29.250 | 1,008 | | | | 1,008 |
| M195 | M-Laborer | 1.00 20.00 MH | 27.520 | 958 | | | | 958 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 20.00 MH | 33.480 | 1,051 | | | | 1,051 |
| \$14,712.91 | 120.0000 MH/LS | 120.00 MH | [4244.24] | 6,664 | | 1,140 | 6,909 | 14,713 |

890011 Subcontractor Carpenter Crew Demob Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | |
|---------------|------------------------|----------|--------------|-----------------|----------|-------|----------|-------|
| <u>MARWOO</u> | Marine Carpenters Crew | 20.00 CH | Prod: | 2.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
|---------------|------------------------|----------|--------------|-----------------|----------|-------|----------|-------|

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | Total |
|-----------------|--------------------------|------------------------|-------------------------|------------------|------------------------|----------|-----------|------------|---------------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment | Contract |
| <hr/> | | | | | | | | | |
| BID ITEM | = 10046 | CLIENT# = 03-12 | | Land Item | SCHEDULE: 1 100 | | | | |
| Description = | Demobilization | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 0.000 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | 200.000 | | | | 400 | 400 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 20.00 HR | 106.961 | | | | 2,139 | 2,139 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 20.00 HR | 3.000 | | | | 60 | 60 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | | 130 | 130 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | | 130 | 130 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 20.00 HR | 10.000 | | | | 200 | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | | 60 | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | | 100 | 100 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 20.00 HR | 0.100 | | | | 2 | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 20.00 HR | 2.000 | | | | 40 | 40 |
| 8MFW-A-2 | Work Float | 1.00 | 20.00 HR | 2.000 | | | | 40 | 40 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | | 40 | 40 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | | 40 | 40 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | | 70 | 70 |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 20.00 HR | 6.500 | | | | 130 | 130 |
| 8WELD400 | Welder 400 AMP | 2.00 | 40.00 HR | 2.044 | | | | 82 | 82 |
| M100 | Foreman - Carpenter | 1.00 | 20.00 MH | 34.720 | 1,222 | | | | 1,222 |
| M170 | M-Welder | 1.00 | 20.00 MH | 32.000 | 1,155 | | | | 1,155 |
| M173 | M-Lead Carpenter | 1.00 | 20.00 MH | 28.250 | 1,046 | | | | 1,046 |
| M175 | M-Carpenter | 3.00 | 60.00 MH | 27.520 | 3,076 | | | | 3,076 |
| M180 | M-Carpenter Helper | 3.00 | 60.00 MH | 27.520 | 2,875 | | | | 2,875 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 33.480 | 1,051 | | | | 1,051 |
| \$14,088.62 | 200.0000 MH/LS | 200.00 | MH | [6458.54] | 10,426 | | | 3,663 | 14,089 |
| <hr/> | | | | | | | | | |
| =====> | Item Totals: | 10046 | - Demobilization | | | | | | |
| \$34,203.94 | 440.0000 MH/LS | 440.00 | MH | [14442.01] | 22,238 | 1,140 | 10,826 | | 34,204 |
| 34,203.940 | 1 LS | | | | 22,237.62 | 1,140.00 | 10,826.32 | | 34,203.94 |
| <hr/> | | | | | | | | | |

Total of Above Sub-Biditems

| | | | | | | | | | |
|---------------------|-----------------------|---------------|--|---------------------|------------------|-------------------|-------------------|--|-------------------|
| =====> | Item Totals: | 10042 | - Mobilization and Demobilization | | | | | | |
| \$835,605.47 | 760.0000 MH/LS | 760.00 | MH | [25144.79] | 39,327 | 426,280 | 369,998 | | 835,605 |
| 835,605.470 | 1 LS | | | | 39,327.11 | 426,280.00 | 369,998.36 | | 835,605.47 |
| <hr/> | | | | | | | | | |

| | | | | | | | | | |
|-----------------|--|------------------------|--------|------------------|------------------------|-------|---------|------------|-------|
| BID ITEM | = 10047 | CLIENT# = 03-12 | | Land Item | SCHEDULE: 1 100 | | | | |
| Description = | Environmental Protection & Turbidity Bar | | Unit = | FT | Takeoff | Quan: | 664.000 | Engr Quan: | 0.000 |

430000 Silt Fence - Install **Quan: 1,000.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | | | | |
|-------------|------------------------|----------|----------|--------------------------|----------|-------|----------|-------|
| <u>LAB3</u> | Foreman + 2 Laborers | 10.00 | CH | Prod: 100.0000 UH | Lab Pcs: | 3.00 | Eqp Pcs: | 1.00 |
| 31ECSF | Silt Fence | 1,000.00 | LF | 1.000 | 1,000 | | | 1,000 |
| 8TRKPU70 | Leased 4x2, 3/4 Ton Ga | 1.00 | 10.00 HR | 8.476 | | 85 | | 85 |
| LFORMN | Laborer-Foreman | 1.00 | 10.00 MH | 29.250 | 440 | | | 440 |
| LPWR | Laborer-Power Tools | 2.00 | 20.00 MH | 28.020 | 850 | | | 850 |
| \$2,375.55 | 0.0300 MH/LF | 30.00 | MH | [0.938] | 1,291 | 1,000 | 85 | 2,376 |

432000 Turbidity Barrier **Quan: 1,000.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | | | | |
|---------------|---------------------------|----------|----|-----------------------|----------|------|----------|--------|
| <u>MARPIL</u> | Marine Piling & Demo Crew | 10.00 | CH | Prod: 1.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3TRUBIDITYBA | Turbidity Barrier | 1,000.00 | LF | 14.000 | 14,000 | | | 14,000 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|--|-----------------|------------------|-----------------|---------------|------------------|--------------------|---------------|------------------|--------|
| BID ITEM = 10047 | CLIENT# = 03-12 | | | | | | | | | |
| Description = | Environmental Protection & Turbidity Bar | | Land Item Unit = | SCHEDULE: 1 100 | | | | | | |
| | | | | FT | Takeoff Quan: | | 664.000 | Engr Quan: | | 0.000 |
| 3WELD | Weld Supplies (1 man-Stick | 1.00 | DA | 70.000 | | | 70 | | | 70 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.00 | DA | 200.000 | | | | 200 | | 200 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | HR | 163.361 | | | | 1,634 | | 1,634 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | HR | 17.500 | | | | 175 | | 175 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | HR | 3.000 | | | | 30 | | 30 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | HR | 10.000 | | | | 100 | | 100 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | HR | 17.500 | | | | 175 | | 175 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | HR | 20.000 | | | | 200 | | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | HR | 3.000 | | | | 30 | | 30 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | HR | 5.000 | | | | 50 | | 50 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | HR | 10.000 | | | | 100 | | 100 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | HR | 0.100 | | | | 1 | | 1 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | HR | 3.000 | | | | 30 | | 30 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | HR | 3.500 | | | | 35 | | 35 |
| 8MPE-A-11 | Extractor Pile | 1.00 | HR | 5.000 | | | | 50 | | 50 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | HR | 6.500 | | | | 65 | | 65 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | HR | 10.000 | | | | 100 | | 100 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | HR | 2.500 | | | | 25 | | 25 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | HR | 45.492 | | | | 455 | | 455 |
| 9100000 | Subsistance 5 workers | 1.00 | DA | 500.000 | | | 500 | | | 500 |
| M105 | Foreman - General Marine | 1.00 | MH | 35.720 | 625 | | | | | 625 |
| M165 | M-Piledriver | 1.00 | MH | 34.950 | 620 | | | | | 620 |
| M170 | M-Welder | 1.00 | MH | 32.000 | 577 | | | | | 577 |
| M190 | M-Skilled Laborer | 1.00 | MH | 29.250 | 504 | | | | | 504 |
| M195 | M-Laborer | 1.00 | MH | 27.520 | 479 | | | | | 479 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | MH | 33.480 | 526 | | | | | 526 |
| \$21,356.46 | 0.0600 MH/LF | 60.00 | MH | [2.122] | 3,332 | | 14,570 | 3,455 | | 21,356 |

432005 Erosion Control - Hay Bales **Quan: 400.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | | | | |
|-------------|------------------------|--------|----|------------------------|----------|-------|----------|--------|
| LAB4 | Foreman + 3 Laborers | 66.66 | CH | Prod: 6.0000 UH | Lab Pcs: | 4.00 | Eqp Pcs: | 1.00 |
| 31ECHB | Hay Bales | 400.00 | EA | 5.000 | 2,000 | | | 2,000 |
| 8TRKPU70 | Leased 4x2, 3/4 Ton Ga | 1.00 | HR | 8.476 | | | 565 | 565 |
| LFORMN | Laborer-Foreman | 1.00 | MH | 29.250 | 2,936 | | | 2,936 |
| LPWR | Laborer-Power Tools | 3.00 | MH | 28.020 | 8,505 | | | 8,505 |
| \$14,005.50 | 0.6666 MH/EA | 266.67 | MH | [20.774] | 11,440 | 2,000 | 565 | 14,006 |

| | | | | | | | | |
|--|--------------|--------|----|------------|--------|--------|-------|---------------|
| Item Totals: 10047 - Environmental Protection & Turbidity Bar | | | | | | | | |
| \$37,737.51 | 0.5371 MH/FT | 356.67 | MH | [17.123] | 16,063 | 17,570 | 4,104 | 37,738 |
| 56.834 | 664 FT | | | | 24.19 | 26.46 | 6.18 | 56.83 |

Total of Above Sub-Biditems

| | | | | | | | | |
|--|-------------------------|-----------------|-----------|---------------------|------------------|-------------------|-------------------|-------------------|
| Item Totals: 10040 - Construction Staging | | | | | | | | |
| \$873,342.98 | 1,116.6700 MH/LS | 1,116.67 | MH | [36514.61] | 55,390 | 443,850 | 374,103 | 873,343 |
| 873,342.980 | 1 LS | | | | 55,390.26 | 443,850.00 | 374,102.72 | 873,342.98 |

| | | | | | | | | |
|-------------------------|-----------------|--|-------------|-----------------|---------------|-------|------------|-------|
| BID ITEM = 10050 | CLIENT# = 01-12 | | Marine Item | SCHEDULE: 1 100 | | | | |
| Description = | Demolition | | Unit = | LS | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 |
| Dredging: | 938,000 CY | | | | | | | |
| Excavation: | 734,000 cy | | | | | | | |

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | Total |
|----------|------|----------|------|------|-------|----------|----------|------|----------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment | Contract |

BID ITEM = 10050 CLIENT# = 01-12 Marine Item SCHEDULE: 1 100
Description = Demolition Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000
=====

Salvage Armor Rock: 10,100 CY
Armor Rock: 131,600 CY
Total to install: 141,700 CY

205025 Excavation Marine Quan: 734,000.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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INCLUDES 10,100 CY OF SALVAGED

| | | | | | | | | | | |
|----------------|--------------------------|------|-----------|----|--------------|-------------------|-----------|---------|-----------|-----------|
| <u>MARLAN</u> | Demolition Crew on land | | 2,451.57 | CH | Prod: | 245.1575 S | Lab Pcs: | 19.00 | Eqp Pcs: | 13.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 245.16 | DA | | 200.000 | | 49,032 | | 49,032 |
| 8BHL480 | BHL Cat 450E 1.75CY | 8.00 | 19,612.60 | HR | | 45.473 | | 891,844 | | 891,844 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 2,451.58 | HR | | 106.961 | | 262,223 | | 262,223 |
| 8TRKP10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 9,806.30 | HR | | 7.044 | | 69,076 | | 69,076 |
| 9100010 | Substance 10 workers | | 245.16 | DA | | 1,000.000 | | 245,160 | | 245,160 |
| M105 | Foreman - General Marine | 1.00 | 2,451.58 | MH | | 35.720 | 153,335 | | | 153,335 |
| M150 | M-Operator, Crane | 1.00 | 2,451.58 | MH | | 33.480 | 146,797 | | | 146,797 |
| M195 | M-Laborer | 8.00 | 19,612.60 | MH | | 27.520 | 939,765 | | | 939,765 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,451.58 | MH | | 33.480 | 128,884 | | | 128,884 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 19,612.60 | MH | | 32.390 | 1,004,847 | | | 1,004,847 |
| \$3,890,963.19 | 0.0634 MH/CY | | 46,579.94 | MH | [2.138] | 2,373,628 | | 245,160 | 1,272,175 | 3,890,963 |

205030 Excavation to Stockpile Marine Quan: 734,000.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | | |
|--------|---------------|--|------------|----|--|-------|--|-----------|--|-----------|
| 5TRKCY | Trucking - CY | | 734,000.00 | CY | | 8.000 | | 5,872,000 | | 5,872,000 |
|--------|---------------|--|------------|----|--|-------|--|-----------|--|-----------|

500510 Removal of Open Cell Sheets Marine Quan: 15,300.00 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | | |
|---------------|----------------------------|------|----------|----|--------------|-------------------|----------|---------|----------|---------|
| <u>MARPIL</u> | Marine Piling & Demo Crew | | 2,550.00 | CH | Prod: | 255.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | | 255.00 | DA | | 70.000 | | 17,850 | | 17,850 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 255.00 | DA | | 200.000 | | 51,000 | | 51,000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 2,550.00 | HR | | 163.361 | | 416,571 | | 416,571 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 2,550.00 | HR | | 17.500 | | 44,625 | | 44,625 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 2,550.00 | HR | | 3.000 | | 7,650 | | 7,650 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 2,550.00 | HR | | 10.000 | | 25,500 | | 25,500 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 2,550.00 | HR | | 17.500 | | 44,625 | | 44,625 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 2,550.00 | HR | | 20.000 | | 51,000 | | 51,000 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 2,550.00 | HR | | 3.000 | | 7,650 | | 7,650 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 2,550.00 | HR | | 5.000 | | 12,750 | | 12,750 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 2,550.00 | HR | | 10.000 | | 25,500 | | 25,500 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 2,550.00 | HR | | 0.100 | | 255 | | 255 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 2,550.00 | HR | | 3.000 | | 7,650 | | 7,650 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 2,550.00 | HR | | 3.500 | | 8,925 | | 8,925 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 2,550.00 | HR | | 5.000 | | 12,750 | | 12,750 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 2,550.00 | HR | | 6.500 | | 16,575 | | 16,575 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 2,550.00 | HR | | 10.000 | | 25,500 | | 25,500 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 2,550.00 | HR | | 2.500 | | 6,375 | | 6,375 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 2,550.00 | HR | | 45.492 | | 116,005 | | 116,005 |
| 9100000 | Substance 5 workers | | 255.00 | DA | | 500.000 | | 127,500 | | 127,500 |
| M105 | Foreman - General Marine | 1.00 | 2,550.00 | MH | | 35.720 | 159,491 | | | 159,491 |
| M165 | M-Piledriver | 1.00 | 2,550.00 | MH | | 34.950 | 158,107 | | | 158,107 |
| M170 | M-Welder | 1.00 | 2,550.00 | MH | | 32.000 | 147,237 | | | 147,237 |
| M190 | M-Skilled Laborer | 1.00 | 2,550.00 | MH | | 29.250 | 128,561 | | | 128,561 |
| M195 | M-Laborer | 1.00 | 2,550.00 | MH | | 27.520 | 122,187 | | | 122,187 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,550.00 | MH | | 33.480 | 134,058 | | | 134,058 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|---------------------------|------|------------------|---------------------------|------------------------|------------------|--------------------|----------------|------------------|---------------|
| BID ITEM = 10050 | | | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Demolition | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| \$1,875,896.60 | 1.0000 MH/FT | | 15,300.00 MH | [35.369] | 849,641 | | 145,350 | 880,905 | | 1,875,897 |
| 500530 | Removal of Rip Rap | | Marine | Quan: 10,100.00 CY | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** trucking included in excavatiuon to stockpile | | | | | | | | | | |
| <u>MARLAN</u> | Demolition Crew on land | | 89.32 CH | Prod: 8.9320 S | | Lab Pcs: 19.00 | | Eqp Pcs: 13.00 | | |
| 8211050 | Fuel, Oil, Grease 50g/d | | 8.93 DA | 200.000 | | | | 1,786 | | 1,786 |
| 8BHL480 | BHL Cat 450E 1.75CY | 8.00 | 714.56 HR | 45.473 | | | | 32,493 | | 32,493 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 89.32 HR | 106.961 | | | | 9,554 | | 9,554 |
| 8TRKPU10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 357.28 HR | 7.044 | | | | 2,517 | | 2,517 |
| 9100010 | Substance 10 workers | | 8.93 DA | 1,000.000 | | 8,930 | | | | 8,930 |
| M105 | Foreman - General Marine | 1.00 | 89.32 MH | 35.720 | 5,587 | | | | | 5,587 |
| M150 | M-Operator, Crane | 1.00 | 89.32 MH | 33.480 | 5,348 | | | | | 5,348 |
| M195 | M-Laborer | 8.00 | 714.56 MH | 27.520 | 34,239 | | | | | 34,239 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 89.32 MH | 33.480 | 4,696 | | | | | 4,696 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 714.56 MH | 32.390 | 36,610 | | | | | 36,610 |
| \$141,759.63 | 0.1680 MH/CY | | 1,697.08 MH | [5.661] | 86,480 | | 8,930 | 46,350 | | 141,760 |
| ===== Item Totals: 10050 - Demolition | | | | | | | | | | |
| \$11,780,619.42 | 63,577.0200 MH/LS | | 63,577.02 MH | [2167710.36] | 3,309,750 | | 6,271,440 | 2,199,429 | | 11,780,619 |
| 11,780,619.420 | 1 LS | | | | 3,309,750.03 | | 6,271,440.00 | 2,199,429.39 | | 11,780,619.42 |

BID ITEM = 10055 CLIENT# = 01-12 Land Item SCHEDULE: 1 100
Description = Dredging Unit = CY Takeoff Quan: 938,000.000 Engr Quan: 938,000.000

| | | | | | | | | | | |
|--|----------------------------|------|----------------------------|-------------------------|-----------------|------------------|---------|----------------|--|------------|
| 640000 | Mechanical Dredging | | Quan: 938,000.00 CY | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | | | |
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| <u>DREDGE</u> | Marine Piling & Demo Crew | | 4,709.14 CH | Prod: 470.9143 S | | Lab Pcs: 12.00 | | Eqp Pcs: 36.00 | | |
| 3WELD | Weld Supplies (1 man-Stick | | 1,177.29 DA | 70.000 | | 82,410 | | 82,410 | | |
| 8211060 | Fuel, Oil, Grease 1400g/d | | 588.64 DA | 5,810.000 | | 3,419,998 | | 3,419,998 | | |
| 8CRANEC200 | Crane Manitowoc 777 20 | 2.00 | 9,418.29 HR | 163.361 | | 1,538,581 | | 1,538,581 | | |
| 8DRILLR | ***DRILLS - ROCK*** | 2.00 | 9,418.29 HR | 17.500 | | 164,820 | | 164,820 | | |
| 8MAC-A-10 | Compressor 185 CFM | 2.00 | 9,418.29 HR | 3.000 | | 28,255 | | 28,255 | | |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 2.00 | 9,418.29 HR | 10.000 | | 94,183 | | 94,183 | | |
| 8MBS-Z-10 | Scow Barge | 4.00 | 18,836.57 HR | 227.000 | | 4,275,901 | | 4,275,901 | | |
| 8MBS-Z-14 | Spud Barge M-120x45' | 2.00 | 9,418.29 HR | 17.500 | | 164,820 | | 164,820 | | |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 2.00 | 9,418.29 HR | 20.000 | | 188,366 | | 188,366 | | |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 2.00 | 9,418.29 HR | 3.000 | | 28,255 | | 28,255 | | |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 2.00 | 9,418.29 HR | 5.000 | | 47,091 | | 47,091 | | |
| 8MDH-A-7 | DELMAG D19 HAMMER | 2.00 | 9,418.29 HR | 10.000 | | 94,183 | | 94,183 | | |
| 8MFD-A-1 | FAIRLEADS | 2.00 | 9,418.29 HR | 0.100 | | 942 | | 942 | | |
| 8MGN-Z-11 | Generator 10 KW | 2.00 | 9,418.29 HR | 3.000 | | 28,255 | | 28,255 | | |
| 8MLT-A-1 | Light Tower, Genie | 2.00 | 9,418.29 HR | 3.500 | | 32,964 | | 32,964 | | |
| 8MPE-A-11 | Extractor Pile | 2.00 | 9,418.29 HR | 5.000 | | 47,091 | | 47,091 | | |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 2.00 | 9,418.29 HR | 6.500 | | 61,219 | | 61,219 | | |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 2.00 | 9,418.29 HR | 10.000 | | 94,183 | | 94,183 | | |
| 8MWM-C-1 | Welder Diesel 400 AMP | 2.00 | 9,418.29 HR | 2.500 | | 23,546 | | 23,546 | | |
| 9100010 | Substance 10 workers | | 588.64 DA | 1,000.000 | | 588,640 | | | | 588,640 |
| M105 | Foreman - General Marine | 2.00 | 9,418.29 MH | 35.720 | 589,071 | | | | | 589,071 |
| M165 | M-Piledriver | 2.00 | 9,418.29 MH | 34.950 | 583,960 | | | | | 583,960 |
| M170 | M-Welder | 2.00 | 9,418.29 MH | 32.000 | 543,812 | | | | | 543,812 |
| M190 | M-Skilled Laborer | 2.00 | 9,418.29 MH | 29.250 | 474,835 | | | | | 474,835 |
| M195 | M-Laborer | 2.00 | 9,418.29 MH | 27.520 | 451,291 | | | | | 451,291 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 2.00 | 9,418.29 MH | 33.480 | 495,138 | | | | | 495,138 |
| \$14,141,809.61 | 0.0602 MH/CY | | 56,509.74 MH | [2.131] | 3,138,106 | | 671,050 | 10,332,654 | | 14,141,810 |

CH2MHILL
13-008-1
Bob Wells

POA 15% CONCEPT OPTION 1

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Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | Total |
|----------|------|----------|------|------|-------|----------|----------|------|----------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment | Contract |

BID ITEM = 10055 CLIENT# = 01-12 Land Item SCHEDULE: 1 100
Description = Dredging Unit = CY Takeoff Quan: 938,000.000 Engr Quan: 938,000.000

640010 Spoils Disposal Quan: 938,000.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H *****

| DDISPO | Dredge Disposal | 4,709.14 | CH | Prod: 470.9143 S | Lab Pcs: 10.00 | Eqp Pcs: 15.00 |
|----------------|---------------------------|-----------|--------------|--------------------|-------------------|----------------|
| 8211060 | Fuel, Oil, Grease 1400g/d | 588.64 | DA | 5,810.000 | 3,419,998 | 3,419,998 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 4,709.14 HR | 106.961 | 503,694 | 503,694 |
| 8DOZER | Bulldozer | 2.00 | 9,418.29 HR | 50.000 | 470,915 | 470,915 |
| 8EXCAV-Z-1 | Excavator | 2.00 | 9,418.29 HR | 45.000 | 423,823 | 423,823 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 4,709.14 HR | 3.000 | 14,127 | 14,127 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 4,709.14 HR | 17.500 | 82,410 | 82,410 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 4,709.14 HR | 20.000 | 94,183 | 94,183 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 4,709.14 HR | 3.000 | 14,127 | 14,127 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 4,709.14 HR | 0.100 | 471 | 471 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 4,709.14 HR | 3.000 | 14,127 | 14,127 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 4,709.14 HR | 3.500 | 16,482 | 16,482 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 4,709.14 HR | 2.500 | 11,773 | 11,773 |
| 8PMP-Z-1 | Slurry Pump | 2.00 | 9,418.29 HR | 150.000 | 1,412,744 | 1,412,744 |
| 9100000 | Substance 5 workers | 588.64 | DA | 500.000 | 294,320 | 294,320 |
| M105 | Foreman - General Marine | 1.00 | 4,709.14 MH | 35.720 | 294,535 | 294,535 |
| M170 | M-Welder | 1.00 | 4,709.14 MH | 32.000 | 271,906 | 271,906 |
| M195 | M-Laborer | 3.00 | 14,127.43 MH | 27.520 | 676,936 | 676,936 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 4,709.14 MH | 33.480 | 247,569 | 247,569 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 4.00 | 18,836.57 MH | 32.390 | 965,087 | 965,087 |
| \$9,229,226.51 | 0.0502 MH/CY | 47,091.42 | MH | [1.73] 2,456,032 | 294,320 6,478,875 | 9,229,227 |

905 MOBILIZATION-DEMobilIZATION Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | |
|-------|------------------------|------|----|---------------|-----------|-----------|
| 5MOBE | Dredging Mob and Demob | 1.00 | LS | 1,800,000.000 | 1,800,000 | 1,800,000 |
|-------|------------------------|------|----|---------------|-----------|-----------|

=====> Item Totals: 10055 - Dredging

| | | | | | | |
|-----------------|--------------|------------|----|---------------------|----------------------|------------|
| \$25,171,036.12 | 0.1104 MH/CY | 103,601.16 | MH | [3.861] 5,594,138 | 2,765,370 16,811,528 | 25,171,036 |
| 26.835 | 938000 CY | | | 5.96 | 2.95 17.92 | 26.83 |

BID ITEM = 10060 CLIENT# = 01-12 Marine Item SCHEDULE: 1 100
Description = Piling Unit = FT Takeoff Quan: 88,172.000 Engr Quan: 88,172.000

303000 Supply Pipe Piles Marine Quan: 88,172.00 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 *****

| | | | | | | |
|-----------|----------------------|-----------|----|---------|------------|------------|
| 2PP48INCH | 48 In Diam Pipe Pile | 88,172.00 | LF | 430.000 | 37,913,960 | 37,913,960 |
|-----------|----------------------|-----------|----|---------|------------|------------|

303010 Pile Painting & Wrapping Marine Quan: 1.04 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

Option 1
48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in
Wall Thickness = 1.000 in

| | | | | | | |
|---------------|---------------|-------------|----------|-------------------|---------------------|-------------|
| Tip Elevation | Top Elevation | Length (ft) | Quantity | Total Length (ft) | Unit Weight (lb/ft) | Weight (lb) |
| Weight (Ton) | | | | | | |
| 84,968.00 | 1 | 84,968.00 | 502.43 | 42,690,472.2 | 21,345.2 | |
| Coating | | | | | | |
| Tip Elevation | Top Elevation | Length (ft) | Quantity | Diameter | Coating(SF) | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|

| | | | | | | | | | |
|-------------------------|------------------------|-------------|-------------|---------|------------------|-----------------------|--|--|-----------|
| BID ITEM = 10060 | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Piling | | Unit = | FT | Takeoff | Quan: 88,172.000 | Engr Quan: 88,172.000 | | | |
| 116.55 | 486 48 711,827.9 | | | | | | | | |
| 2PP48COATING | Pipe Pile Shop Coating | 740,300.96 | SF | 4.000 | 2,961,204 | | | | 2,961,204 |

| | | | | | | |
|---------------|--------------------------|---------------|----------------------|------------------------|-----------------|------------------|
| 303022 | Set Pile Template | Marine | Quan: 1.04 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP |
|---------------|--------------------------|---------------|----------------------|------------------------|-----------------|------------------|

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| | | | | | | |
|--------------|--------------------|------|----|------------|--------|--------|
| 31PILETEMPLA | Pipe Pile Template | 1.04 | LS | 60,000.000 | 62,400 | 62,400 |
|--------------|--------------------|------|----|------------|--------|--------|

| | | | | | | |
|---------------|----------------------|---------------|------------------------|------------------------|-----------------|------------------|
| 303035 | Piling - Pipe | Marine | Quan: 504.33 EA | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP |
|---------------|----------------------|---------------|------------------------|------------------------|-----------------|------------------|

| Pipe Qty | Piles | Pile Length | Total Length | Concrete Fill Volume | Concrete (CF) | Rebar (Ft) |
|----------|-------|-------------|--------------|----------------------|---------------|------------|
|----------|-------|-------------|--------------|----------------------|---------------|------------|

| | | | | | | |
|---|----|-----|----------|-------|----------|--------|
| A1 | 18 | 178 | 3,204.00 | 85.00 | 19,226.6 | 25,632 |
| A19 | 17 | 178 | 3,026.00 | 85.00 | 18,158.4 | 24,208 |
| A36 | 55 | 178 | 9,790.00 | 85.00 | 58,747.9 | 78,320 |
| B1 | 18 | 178 | 3,204.00 | 85.00 | 19,226.6 | 25,632 |
| B19 | 17 | 178 | 3,026.00 | 85.00 | 18,158.4 | 24,208 |
| B36 | 55 | 173 | 9,515.00 | 85.00 | 58,747.9 | 78,320 |
| C1 | 18 | 173 | 3,114.00 | 85.00 | 19,226.6 | 25,632 |
| C19 | 17 | 173 | 2,941.00 | 85.00 | 18,158.4 | 24,208 |
| C36 | 55 | 173 | 9,515.00 | 85.00 | 58,747.9 | 78,320 |
| D1 | 18 | 168 | 3,024.00 | 85.00 | 19,226.6 | 25,632 |
| D19 | 17 | 168 | 2,856.00 | 85.00 | 18,158.4 | 24,208 |
| D36 | 55 | 173 | 9,515.00 | 85.00 | 58,747.9 | 78,320 |
| E10 | 2 | 188 | 376.00 | 85.00 | 2,136.3 | 2,848 |
| E25 | 2 | 198 | 396.00 | 85.00 | 2,136.3 | 2,848 |
| E40 | 12 | 198 | 2,376.00 | 85.00 | 12,817.7 | 17,088 |
| F10 | 2 | 183 | 366.00 | 85.00 | 2,136.3 | 2,848 |
| F25 | 2 | 193 | 386.00 | 85.00 | 2,136.3 | 2,848 |
| F40 | 12 | 193 | 2,316.00 | 85.00 | 12,817.7 | 17,088 |
| G10 | 2 | 178 | 356.00 | 85.00 | 2,136.3 | 2,848 |
| G25 | 2 | 188 | 376.00 | 85.00 | 2,136.3 | 2,848 |
| G40 | 8 | 188 | 1,504.00 | 85.00 | 8,545.2 | 11,392 |
| H10 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 |
| H25 | 8 | 183 | 1,464.00 | 85.00 | 8,545.2 | 11,392 |
| H40 | 2 | 183 | 366.00 | 85.00 | 2,136.3 | 2,848 |
| I10 | 2 | 168 | 336.00 | 85.00 | 2,136.3 | 2,848 |
| I25 | 2 | 178 | 356.00 | 85.00 | 2,136.3 | 2,848 |
| I40 | 8 | 178 | 1,424.00 | 85.00 | 8,545.2 | 11,392 |
| J10 | 2 | 163 | 326.00 | 85.00 | 2,136.3 | 2,848 |
| J25 | 2 | 178 | 356.00 | 85.00 | 2,136.3 | 2,848 |
| J40 | 8 | 178 | 1,424.00 | 85.00 | 8,545.2 | 11,392 |
| K10 | 2 | 158 | 316.00 | 85.00 | 2,136.3 | 2,848 |
| K25 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 |
| K40 | 8 | 173 | 1,384.00 | 85.00 | 8,545.2 | 11,392 |
| L10 | 2 | 158 | 316.00 | 85.00 | 2,136.3 | 2,848 |
| L25 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 |
| L40 | 8 | 168 | 1,344.00 | 85.00 | 8,545.2 | 11,392 |
| M10 | 2 | 148 | 296.00 | 85.00 | 2,136.3 | 2,848 |
| M25 | 2 | 158 | 316.00 | 85.00 | 2,136.3 | 2,848 |
| M40 | 8 | 163 | 1,304.00 | 85.00 | 8,545.2 | 11,392 |
| N10 | 2 | 133 | 266.00 | 85.00 | 2,136.3 | 2,848 |
| N25 | 2 | 143 | 286.00 | 85.00 | 2,136.3 | 2,848 |
| N40 | 8 | 178 | 1,424.00 | 85.00 | 8,545.2 | 11,392 |
| O40 | 8 | 173 | 1,384.00 | 85.00 | 8,545.2 | 11,392 |
| P40 | 8 | 158 | 1,264.00 | 85.00 | 8,545.2 | 11,392 |
| 486 173.5 84,968.00 519,118.0 cf 692,064 ft | | | | | | |
| Average 174.8 19,226.6 cy | | | | | | |

| | | | | | | |
|---------------|-----------------------------|----------|----|-------------------------|---------------|----------------|
| MARPIL | Marine Piling & Demo Crew | 1,260.79 | CH | Prod: 126.0794 S | Lab Pcs: 6.00 | Eqp Pcs: 17.00 |
| 3WELD | Weld Supplies (1 man-Stick) | 126.08 | DA | | 8,826 | 8,826 |
| 8211050 | Fuel, Oil, Grease 50g/d | 126.08 | DA | 200.000 | | 25,216 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | HR | 163.361 | 205,964 | 205,964 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | HR | 17.500 | 22,064 | 22,064 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|--------------------------|------|------------------|--------------|-------------|------------------|--------------------|---------------|------------------|---------|
| BID ITEM = 10060 | | | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Piling | | Unit = | FT | Takeoff | Quan: | 88,172.000 | Engr Quan: | 88,172.000 | |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 1,260.79 HR | 3.000 | | | | 3,782 | | 3,782 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 1,260.79 HR | 10.000 | | | | 12,608 | | 12,608 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 1,260.79 HR | 17.500 | | | | 22,064 | | 22,064 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 1,260.79 HR | 20.000 | | | | 25,216 | | 25,216 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 1,260.79 HR | 3.000 | | | | 3,782 | | 3,782 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 1,260.79 HR | 5.000 | | | | 6,304 | | 6,304 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 1,260.79 HR | 10.000 | | | | 12,608 | | 12,608 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 1,260.79 HR | 0.100 | | | | 126 | | 126 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 1,260.79 HR | 3.000 | | | | 3,782 | | 3,782 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 1,260.79 HR | 3.500 | | | | 4,413 | | 4,413 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 1,260.79 HR | 5.000 | | | | 6,304 | | 6,304 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 1,260.79 HR | 6.500 | | | | 8,195 | | 8,195 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 1,260.79 HR | 10.000 | | | | 12,608 | | 12,608 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 1,260.79 HR | 2.500 | | | | 3,152 | | 3,152 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 1,260.79 HR | 45.492 | | | | 57,356 | | 57,356 |
| 9100000 | Substance 5 workers | | 126.08 DA | 500.000 | | | 63,040 | | | 63,040 |
| M105 | Foreman - General Marine | 1.00 | 1,260.79 MH | 35.720 | 78,857 | | | | | 78,857 |
| M165 | M-Piledriver | 1.00 | 1,260.79 MH | 34.950 | 78,172 | | | | | 78,172 |
| M170 | M-Welder | 1.00 | 1,260.79 MH | 32.000 | 72,798 | | | | | 72,798 |
| M190 | M-Skilled Laborer | 1.00 | 1,260.79 MH | 29.250 | 63,564 | | | | | 63,564 |
| M195 | M-Laborer | 1.00 | 1,260.79 MH | 27.520 | 60,413 | | | | | 60,413 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 1,260.79 MH | 33.480 | 66,282 | | | | | 66,282 |
| \$927,495.50 | 14.9995 MH/EA | | 7,564.74 MH | [530.515] | 420,086 | | 71,866 | 435,544 | | 927,496 |

303040 Piling - Concrete Filling Marine Quan: 1.04 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | |
|---------------|--------------------------|------|--------------|-------------------------|----------|---------|----------|---------|
| MARWOO | Marine Carpenters Crew | | 1,252.36 CH | Prod: 125.2363 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 125.24 DA | 200.000 | | 25,048 | | 25,048 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 1,252.36 HR | 106.961 | | 133,954 | | 133,954 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 1,252.36 HR | 3.000 | | 3,757 | | 3,757 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 1,252.36 HR | 6.500 | | 8,140 | | 8,140 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 1,252.36 HR | 6.500 | | 8,140 | | 8,140 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 1,252.36 HR | 10.000 | | 12,524 | | 12,524 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 1,252.36 HR | 3.000 | | 3,757 | | 3,757 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 1,252.36 HR | 5.000 | | 6,262 | | 6,262 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 1,252.36 HR | 0.100 | | 125 | | 125 |
| 8MFW-A-1 | Work Float | 1.00 | 1,252.36 HR | 2.000 | | 2,505 | | 2,505 |
| 8MFW-A-2 | Work Float | 1.00 | 1,252.36 HR | 2.000 | | 2,505 | | 2,505 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 1,252.36 HR | 2.000 | | 2,505 | | 2,505 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 1,252.36 HR | 2.000 | | 2,505 | | 2,505 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 1,252.36 HR | 3.500 | | 4,383 | | 4,383 |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 1,252.36 HR | 6.500 | | 8,140 | | 8,140 |
| 8WELD400 | Welder 400 AMP | 2.00 | 2,504.73 HR | 2.044 | | 5,120 | | 5,120 |
| M100 | Foreman - Carpenter | 1.00 | 1,252.36 MH | 34.720 | 76,520 | | | 76,520 |
| M170 | M-Welder | 1.00 | 1,252.36 MH | 32.000 | 72,311 | | | 72,311 |
| M173 | M-Lead Carpenter | 1.00 | 1,252.36 MH | 28.250 | 65,525 | | | 65,525 |
| M175 | M-Carpenter | 3.00 | 3,757.09 MH | 27.520 | 192,612 | | | 192,612 |
| M180 | M-Carpenter Helper | 3.00 | 3,757.09 MH | 27.520 | 180,026 | | | 180,026 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 1,252.36 MH | 33.480 | 65,839 | | | 65,839 |
| \$882,202.95 | 12,041.9423 MH/LS | | 12,523.62 MH | [388866.788] | 652,834 | | 229,369 | 882,203 |

303042 Concrete Supply Marine Quan: 15,738.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| Pipe Qty | Piles | Pile Length | Total Length | Concrete Fill Volume | Concrete (CF) | Rebar (Ft) |
|----------|-------|-------------|--------------|----------------------|---------------|------------|
| A1 18 | 178 | 3,204.00 | 85.00 | 19,226.6 | 25,632 | |
| A19 17 | 178 | 3,026.00 | 85.00 | 18,158.4 | 24,208 | |
| A36 55 | 178 | 9,790.00 | 85.00 | 58,747.9 | 78,320 | |

| Activity | Resource | Desc | Pcs | Quantity | Unit | Unit Cost | Labor | Perm | Constr | Equip | Sub-Contract | Total |
|---|----------|------|-----|----------|------|-----------|-------|------|--------|-------|--------------|-------|
| <hr/> | | | | | | | | | | | | |
| BID ITEM = 10060 | | | | | | | | | | | | |
| CLIENT# = 01-12 | | | | | | | | | | | | |
| Marine Item | | | | | | | | | | | | |
| SCHEDULE: 1 100 | | | | | | | | | | | | |
| Description = Piling | | | | | | | | | | | | |
| Unit = FT Takeoff Quan: 88,172.000 Engr Quan: 88,172.000 | | | | | | | | | | | | |
| B1 18 178 3,204.00 85.00 19,226.6 25,632 | | | | | | | | | | | | |
| B19 17 178 3,026.00 85.00 18,158.4 24,208 | | | | | | | | | | | | |
| B36 55 173 9,515.00 85.00 58,747.9 78,320 | | | | | | | | | | | | |
| C1 18 173 3,114.00 85.00 19,226.6 25,632 | | | | | | | | | | | | |
| C19 17 173 2,941.00 85.00 18,158.4 24,208 | | | | | | | | | | | | |
| C36 55 173 9,515.00 85.00 58,747.9 78,320 | | | | | | | | | | | | |
| D1 18 168 3,024.00 85.00 19,226.6 25,632 | | | | | | | | | | | | |
| D19 17 168 2,856.00 85.00 18,158.4 24,208 | | | | | | | | | | | | |
| D36 55 173 9,515.00 85.00 58,747.9 78,320 | | | | | | | | | | | | |
| E10 2 188 376.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| E25 2 198 396.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| E40 12 198 2,376.00 85.00 12,817.7 17,088 | | | | | | | | | | | | |
| F10 2 183 366.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| F25 2 193 386.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| F40 12 193 2,316.00 85.00 12,817.7 17,088 | | | | | | | | | | | | |
| G10 2 178 356.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| G25 2 188 376.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| G40 8 188 1,504.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| H10 2 173 346.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| H25 8 183 1,464.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| H40 2 183 366.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| I10 2 168 336.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| I25 2 178 356.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| I40 8 178 1,424.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| J10 2 163 326.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| J25 2 178 356.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| J40 8 178 1,424.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| K10 2 158 316.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| K25 2 173 346.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| K40 8 173 1,384.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| L10 2 158 316.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| L25 2 173 346.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| L40 8 168 1,344.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| M10 2 148 296.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| M25 2 158 316.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| M40 8 163 1,304.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| N10 2 133 266.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| N25 2 143 286.00 85.00 2,136.3 2,848 | | | | | | | | | | | | |
| N40 8 178 1,424.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| O40 8 173 1,384.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| P40 8 158 1,264.00 85.00 8,545.2 11,392 | | | | | | | | | | | | |
| 486 173.5 84,968.00 519,118.0 cf 692,064 | | | | | | | | | | | | |
| Average 174.8 19,226.6 cy | | | | | | | | | | | | |
| 2CR14 5000 PSI Concrete 1.10 17,311.79 CY 105.000 1,817,738 1,817,738 | | | | | | | | | | | | |
| 303043 Concrete Pumping Marine Quan: 1.04 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | | | |
| 5CONCP36M Concrete Concrete Pump 36 626.16 HR 125.000 78,270 78,270 | | | | | | | | | | | | |
| 303045 Piling - Rebar Marine Quan: 4,349,090.53 LB Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | | | |
| Option 1 ==>=48" Pipe Pile Area II | | | | | | | | | | | | |
| PIECES SIZE WEIGHT LENGTH POUNDS TONS UNIT EXT. | | | | | | | | | | | | |
| INST. EA. PRICE PRICE | | | | | | | | | | | | |
| 1 #8 2.670 1,426,984 3,810,048 1905.02 0.65 \$2,476,531.08 hook dowels @ 5' | | | | | | | | | | | | |
| 3,810,048 1905.02 | | | | | | | | | | | | |
| 10% 4,191,053 | | | | | | | | | | | | |
| SUBTOTAL: \$2,476,531.08 | | | | | | | | | | | | |
| TAX 6.5%: \$160,974.52 | | | | | | | | | | | | |
| TOTAL: \$2,637,505.60 8% \$211,000.45 | | | | | | | | | | | | |
| 2RR02 Gr 60 Rebar 1.10 4,783,999.59 LB 0.480 2,296,320 2,296,320 | | | | | | | | | | | | |
| 2RR10 Rebar Supports 4,783,999.59 LB 0.050 239,200 239,200 | | | | | | | | | | | | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|--|----------------------------|-----------------|-------------|--------------|------------|------------------|--------------------|---------------|------------------|-------------------|
| BID ITEM = 10060 CLIENT# = 01-12 Marine Item SCHEDULE: 1 100 | | | | | | | | | | |
| Description = | Piling | | Unit = | FT | Takeoff | Quan: | 88,172.000 | Engr | Quan: | 88,172.000 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 8,069.22 EA | 13.000 | | 104,900 | | | | 104,900 |
| 5REBAR | Rebar Sub | 4,349,090.53 | LB | 0.280 | | | 1,217,745 | | | 1,217,745 |
| \$3,858,164.99 | | | | [] | | 2,640,420 | 1,217,745 | | | 3,858,165 |
| 304000 Pile Splices - Pipe pile Marine Quan: 499.85 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 5SPICES | Welding Subcontractor | 749.75 | EA | 650.000 | | | 487,338 | | | 487,338 |
| ===== Item Totals: 10060 - Piling | | | | | | | | | | |
| \$48,988,772.73 | 0.2278 MH/FT | 20,088.36 | MH | [7.621] | 1,072,920 | 45,333,321 | 1,917,618 | 664,913 | | 48,988,773 |
| 555.605 | 88172 FT | | | | 12.17 | 514.15 | 21.75 | 7.54 | | 555.60 |
| BID ITEM = 10080 CLIENT# = 01-12 Marine Item SCHEDULE: 1 100 | | | | | | | | | | |
| Description = | Sheet Pile Bulkhead | | Unit = | LF | Takeoff | Quan: | 2,200.000 | Engr | Quan: | 2,200.000 |
| 301000 Supply Open Cell Flat Sheets Marine Quan: 7,414,501.00 LB Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 2FSZ | STEEL SHEET PILE | 7,414,501.00 | LB | 0.950 | | 7,043,776 | | | | 7,043,776 |
| 2SSPGALVANIZ | Galvanization of SSP | 7,414,501.00 | LB | 0.350 | | 2,595,075 | | | | 2,595,075 |
| \$9,638,851.30 | | | | [] | | 9,638,851 | | | | 9,638,851 |
| 301015 Sheeting Template Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 31SHEETEMPLA | Open Cell Template | 1.00 | LS | 85,000.000 | | | 85,000 | | | 85,000 |
| 301020 Drive Sheeting Bulkhead Marine Quan: 2,200.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| MARPIL | Marine Piling & Demo Crew | 1,530.00 | CH | Prod: | 153.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | |
| 3WELD | Weld Supplies (1 man-Stick | 153.00 | DA | 70.000 | | 10,710 | | | | 10,710 |
| 8211050 | Fuel, Oil, Grease 50g/d | 153.00 | DA | 200.000 | | | 30,600 | | | 30,600 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 1,530.00 | HR | 163.361 | | 249,942 | | | 249,942 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 1,530.00 | HR | 17.500 | | 26,775 | | | 26,775 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 1,530.00 | HR | 3.000 | | 4,590 | | | 4,590 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 1,530.00 | HR | 10.000 | | 15,300 | | | 15,300 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 1,530.00 | HR | 17.500 | | 26,775 | | | 26,775 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 1,530.00 | HR | 20.000 | | 30,600 | | | 30,600 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 1,530.00 | HR | 3.000 | | 4,590 | | | 4,590 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 1,530.00 | HR | 5.000 | | 7,650 | | | 7,650 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 1,530.00 | HR | 10.000 | | 15,300 | | | 15,300 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 1,530.00 | HR | 0.100 | | 153 | | | 153 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 1,530.00 | HR | 3.000 | | 4,590 | | | 4,590 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 1,530.00 | HR | 3.500 | | 5,355 | | | 5,355 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 1,530.00 | HR | 5.000 | | 7,650 | | | 7,650 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 1,530.00 | HR | 6.500 | | 9,945 | | | 9,945 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 1,530.00 | HR | 10.000 | | 15,300 | | | 15,300 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 1,530.00 | HR | 2.500 | | 3,825 | | | 3,825 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 1,530.00 | HR | 45.492 | | 69,603 | | | 69,603 |
| 9100000 | Substance 5 workers | 153.00 | DA | 500.000 | | 76,500 | | | | 76,500 |
| M105 | Foreman - General Marine | 1.00 | 1,530.00 | MH | 35.720 | 95,694 | | | | 95,694 |
| M165 | M-Piledriver | 1.00 | 1,530.00 | MH | 34.950 | 94,864 | | | | 94,864 |
| M170 | M-Welder | 1.00 | 1,530.00 | MH | 32.000 | 88,342 | | | | 88,342 |
| M190 | M-Skilled Laborer | 1.00 | 1,530.00 | MH | 29.250 | 77,137 | | | | 77,137 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|--------------------------|-----------------|-------------|-----------------|---------------|------------------|--------------------|---------------|------------------|-------------------|
| BID ITEM = 10080 | | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Sheet Pile Bulkhead | | Unit = | LF | Takeoff Quan: | 2,200.000 | | Engr Quan: | 2,200.000 | |
| M195 | M-Laborer | 1.00 | 1,530.00 MH | 27.520 | 73,312 | | | | | 73,312 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 1,530.00 MH | 33.480 | 80,435 | | | | | 80,435 |
| \$1,125,537.95 | 4.1727 MH/LF | 9,180.00 MH | [147.584] | 509,785 | | 87,210 | 528,543 | | | 1,125,538 |
| =====> Item Totals: 10080 - Sheet Pile Bulkhead | | | | | | | | | | |
| \$10,849,389.25 | 4.1727 MH/LF | 9,180.00 MH | [147.584] | 509,785 | 9,638,851 | 172,210 | 528,543 | | | 10,849,389 |
| 4,931.541 | 2200 LF | | | 231.72 | 4,381.30 | 78.28 | 240.25 | | | 4,931.54 |

| | | | | | | | | | | |
|-------------------------|------------------------------------|-------------|-----------------|---------------|-------|--|------------|-------|--|--|
| BID ITEM = 10081 | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 100 | | | | | | | |
| Description = | Credit Sheetpile Materials on site | Unit = | LS | Takeoff Quan: | 1.000 | | Engr Quan: | 1.000 | | |

301000 Supply Open Cell Flat Sheets Marine Quan: 7,101,861.70 LB Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|---|----------------------|------------------|-------|------------|--|--|--|--|--|------------|
| ANCHORAGE EXISTING SHEET PILES | | | | | | | | | | |
| Unused PS 27.5 PS 31 | | | | | | | | | | |
| Total LF 26,040.00 116,453.00 | | | | | | | | | | |
| Unit weight 45.10 50.90 | | | | | | | | | | |
| Total weight 1,174,404.00 5,927,457.70 7,101,861.70 Lbs | | | | | | | | | | |
| 2FSZ | STEEL SHEET PILE | -7,101,861.70 LB | 0.950 | -6,746,769 | | | | | | -6,746,769 |
| 2SSPGALVANIZ | Galvanization of SSP | -7,101,861.70 LB | 0.350 | -2,485,652 | | | | | | -2,485,652 |
| \$-9,232,420.22 | | | [] | -9,232,420 | | | | | | -9,232,420 |

| | | | | | | | | | | |
|--|------|--|-----|---------------|--|--|--|--|--|-------------------|
| =====> Item Totals: 10081 - Credit Sheetpile Materials on site | | | | | | | | | | |
| \$-9,232,420.22 | | | [] | -9,232,420 | | | | | | -9,232,420 |
| -9,232,420.219 | 1 LS | | | -9,232,420.21 | | | | | | -9,232,420.21 |

| | | | | | | | | | | |
|-------------------------|------------------------------|-------------|-----------------|---------------|-------------|--|------------|-------------|--|--|
| BID ITEM = 10090 | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 100 | | | | | | | |
| Description = | Concrete Deck Superstructure | Unit = | SF | Takeoff Quan: | 149,750.000 | | Engr Quan: | 149,750.000 | | |

322005 Final Deck Product Marine Quan: 149,750.00 SF Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|---|-------------------------|---------------|---------|--|------------|--|--|--|--|------------|
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 52SUPERSTRUC | Concrete Superstructure | 149,750.00 SF | 101.000 | | 15,124,750 | | | | | 15,124,750 |

| | | | | | | | | | | |
|--|-----------|--|-----|--|------------|--|--|--|--|-------------------|
| =====> Item Totals: 10090 - Concrete Deck Superstructure | | | | | | | | | | |
| \$15,124,750.00 | | | [] | | 15,124,750 | | | | | 15,124,750 |
| 101.000 | 149750 SF | | | | 101.00 | | | | | 101.00 |

| | | | | | | | | | | |
|-------------------------|-----------------|-------------|-----------------|---------------|-------|--|------------|-------|--|--|
| BID ITEM = 10100 | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 100 | | | | | | | |
| Description = | Abutments | Unit = | EA | Takeoff Quan: | 6.000 | | Engr Quan: | 6.000 | | |

303000 Supply Pipe Piles Marine Quan: 1,058.40 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|---|----------------------|-------------|---------|--|---------|--|--|--|--|---------|
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 2PP48INCH | 48 In Diam Pipe Pile | 1,058.40 LF | 430.000 | | 455,112 | | | | | 455,112 |

303010 Pipe Painting & Wrapping Marine Quan: 8,866.86 SF Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|---|------------------------|-------------|-------|--|--------|--|--|--|--|--------|
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 2PP48COATING | Pipe Pile Shop Coating | 8,866.86 SF | 4.000 | | 35,467 | | | | | 35,467 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|---|----------------------------------|-----------------|---------------|--------------|-----------------|------------------------|-------------------|------------------|--------|
| BID ITEM = 10100 | | | | | | | | | |
| Description = Abutments | | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 | 100 | | | | |
| | | | Unit = EA | Takeoff | Quan: | 6.000 | Engr | Quan: | 6.000 |
| 303022 | Set Pile Template | | Marine | Quan: | 1.00 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | |
| 31PILETEMPLA | Pipe Pile Template | 1.00 | LS | 6,000.000 | | | 6,000 | | 6,000 |
| 303035 | Piling - Pipe | | Marine | Quan: | 6.00 EA | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | 15.00 | CH | Prod: | 1.5000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 1.50 | DA | 70.000 | | 105 | | | 105 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.50 | DA | 200.000 | | | 300 | | 300 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | HR | 163.361 | | | 2,450 | | 2,450 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | HR | 17.500 | | | 263 | | 263 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | HR | 3.000 | | | 45 | | 45 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | HR | 10.000 | | | 150 | | 150 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | HR | 17.500 | | | 263 | | 263 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | HR | 20.000 | | | 300 | | 300 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | HR | 3.000 | | | 45 | | 45 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | HR | 5.000 | | | 75 | | 75 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | HR | 10.000 | | | 150 | | 150 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | HR | 0.100 | | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | HR | 3.000 | | | 45 | | 45 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | HR | 3.500 | | | 53 | | 53 |
| 8MPE-A-11 | Extractor Pile | 1.00 | HR | 5.000 | | | 75 | | 75 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | HR | 6.500 | | | 98 | | 98 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | HR | 10.000 | | | 150 | | 150 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | HR | 2.500 | | | 38 | | 38 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | HR | 45.492 | | | 682 | | 682 |
| 9100000 | Subsistance 5 workers | 1.50 | DA | 500.000 | | 750 | | | 750 |
| M105 | Foreman - General Marine | 1.00 | MH | 35.720 | 938 | | | | 938 |
| M165 | M-Piledriver | 1.00 | MH | 34.950 | 930 | | | | 930 |
| M170 | M-Welder | 1.00 | MH | 32.000 | 866 | | | | 866 |
| M190 | M-Skilled Laborer | 1.00 | MH | 29.250 | 756 | | | | 756 |
| M195 | M-Laborer | 1.00 | MH | 27.520 | 719 | | | | 719 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | MH | 33.480 | 789 | | | | 789 |
| \$11,034.68 | 15.0000 MH/EA | 90.00 | MH | [530.532] | 4,998 | | 855 | 5,182 | 11,035 |
| 303040 | Piling - Concrete Filling | | Marine | Quan: | 1.00 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | |
| <u>MARWOO</u> | Marine Carpenters Crew | 15.00 | CH | Prod: | 1.5000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.50 | DA | 200.000 | | | 300 | | 300 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | HR | 106.961 | | | 1,604 | | 1,604 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | HR | 3.000 | | | 45 | | 45 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | HR | 6.500 | | | 98 | | 98 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | HR | 6.500 | | | 98 | | 98 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | HR | 10.000 | | | 150 | | 150 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | HR | 3.000 | | | 45 | | 45 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | HR | 5.000 | | | 75 | | 75 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | HR | 0.100 | | | 2 | | 2 |
| 8MFW-A-1 | Work Float | 1.00 | HR | 2.000 | | | 30 | | 30 |
| 8MFW-A-2 | Work Float | 1.00 | HR | 2.000 | | | 30 | | 30 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | HR | 2.000 | | | 30 | | 30 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | HR | 2.000 | | | 30 | | 30 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | HR | 3.500 | | | 53 | | 53 |
| 8MVP-A-2 | FORD F150 SUPERC 2 | 1.00 | HR | 6.500 | | | 98 | | 98 |
| 8WELD400 | Welder 400 AMP | 2.00 | HR | 2.044 | | | 61 | | 61 |
| M100 | Foreman - Carpenter | 1.00 | MH | 34.720 | 917 | | | | 917 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|--|----------------------------|-----------------|--------------|--------------|-------------|------------------|--------------------|---------------|------------------|--------|
| BID ITEM = 10100 | | | | | | | | | | |
| Description = | | CLIENT# = 01-12 | | Marine Item | SCHEDULE: 1 | 100 | | | | |
| | | Abutments | | Unit = | EA | Takeoff Quan: | 6.000 | Engr Quan: | | 6.000 |
| M170 | M-Welder | 1.00 | 15.00 MH | 32.000 | 866 | | | | | 866 |
| M173 | M-Lead Carpenter | 1.00 | 15.00 MH | 28.250 | 785 | | | | | 785 |
| M175 | M-Carpenter | 3.00 | 45.00 MH | 27.520 | 2,307 | | | | | 2,307 |
| M180 | M-Carpenter Helper | 3.00 | 45.00 MH | 27.520 | 2,156 | | | | | 2,156 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 15.00 MH | 33.480 | 789 | | | | | 789 |
| \$10,566.48 | 150.0000 MH/LS | 150.00 | MH | [4843.91] | 7,819 | | | 2,747 | | 10,566 |
| 303042 Concrete Supply Marine Quan: 219.75 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 2CR14 | 5000 PSI Concrete | 1.10 | 241.71 CY | 105.000 | | 25,380 | | | | 25,380 |
| 303043 Concrete Pumping Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 5CONCP36M | Concrete Concrete Pump 36 | 7.50 | HR | 125.000 | | | 938 | | | 938 |
| 303045 Piling - Rebar Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 2RR02 | Gr 60 Rebar | 1.10 | 23,347.50 LB | 0.480 | | 11,207 | | | | 11,207 |
| 2RR10 | Rebar Supports | | 23,347.50 LB | 0.050 | | 1,167 | | | | 1,167 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 96.00 EA | 13.000 | | 1,248 | | | | 1,248 |
| 5REBAR | Rebar Sub | | 21,224.01 LB | 0.280 | | | 5,943 | | | 5,943 |
| \$19,564.90 | | | | [] | | 13,622 | 5,943 | | | 19,565 |
| 304000 Pile Splices - Pipe pile Marine Quan: 6.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| 5SPICES | Welding Subcontractor | | 24.00 EA | 650.000 | | | 15,600 | | | 15,600 |
| 322910 Concrete Cap Dolphins Quan: 6.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 ***** | | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | | 360.00 CH | Prod: | 36.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | |
| 2CR14 | 5000 PSI Concrete | 1.10 | 250.80 CY | 105.000 | | 26,334 | | | | 26,334 |
| 2RR02 | Gr 60 Rebar | 1.05 | 38,162.25 LB | 0.480 | | 18,318 | | | | 18,318 |
| 3WELD | Weld Supplies (1 man-Stick | | 36.00 DA | 70.000 | | | 2,520 | | | 2,520 |
| 5REBAR | Rebar Sub | | 38,162.01 LB | 0.280 | | | 10,685 | | | 10,685 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 36.00 DA | 200.000 | | | | 7,200 | | 7,200 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 360.00 HR | 163.361 | | | | 58,810 | | 58,810 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 360.00 HR | 17.500 | | | | 6,300 | | 6,300 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 360.00 HR | 3.000 | | | | 1,080 | | 1,080 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 360.00 HR | 10.000 | | | | 3,600 | | 3,600 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 360.00 HR | 17.500 | | | | 6,300 | | 6,300 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 360.00 HR | 20.000 | | | | 7,200 | | 7,200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 360.00 HR | 3.000 | | | | 1,080 | | 1,080 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 360.00 HR | 5.000 | | | | 1,800 | | 1,800 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 360.00 HR | 10.000 | | | | 3,600 | | 3,600 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 360.00 HR | 0.100 | | | | 36 | | 36 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 360.00 HR | 3.000 | | | | 1,080 | | 1,080 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 360.00 HR | 3.500 | | | | 1,260 | | 1,260 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 360.00 HR | 5.000 | | | | 1,800 | | 1,800 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 360.00 HR | 6.500 | | | | 2,340 | | 2,340 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 360.00 HR | 10.000 | | | | 3,600 | | 3,600 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 360.00 HR | 2.500 | | | | 900 | | 900 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 360.00 HR | 45.492 | | | | 16,377 | | 16,377 |
| 9100000 | Substance 5 workers | | 36.00 DA | 500.000 | | | 18,000 | | | 18,000 |
| M105 | Foreman - General Marine | 1.00 | 360.00 MH | 35.720 | 22,516 | | | | | 22,516 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|--------------------------|--------------|--------------------|--------------|-------------|------------------|--------------------|---------------|------------------|----------------|
| BID ITEM = 10100 | | | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Abutments | | Unit = | EA | Takeoff | Quan: | 6.000 | Engr Quan: | | 6.000 |
| M165 | M-Piledriver | 1.00 | 360.00 MH | 34.950 | 22,321 | | | | | 22,321 |
| M170 | M-Welder | 1.00 | 360.00 MH | 32.000 | 20,786 | | | | | 20,786 |
| M190 | M-Skilled Laborer | 1.00 | 360.00 MH | 29.250 | 18,150 | | | | | 18,150 |
| M195 | M-Laborer | 1.00 | 360.00 MH | 27.520 | 17,250 | | | | | 17,250 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 360.00 MH | 33.480 | 18,926 | | | | | 18,926 |
| \$320,169.70 | 360.0000 MH/EA | | 2,160.00 MH | [12732.72] | 119,949 | 44,652 | 31,205 | 124,363 | | 320,170 |
| <hr/> | | | | | | | | | | |
| ===== | Item Totals: | 10100 | - Abutments | | | | | | | |
| \$899,832.25 | 400.0000 MH/EA | | 2,400.00 MH | [14070.57] | 132,767 | 574,233 | 60,541 | 132,292 | | 899,832 |
| 149,972.042 | 6 EA | | | | 22,127.76 | 95,705.51 | 10,090.10 | 22,048.68 | | 149,972.04 |

| | | | | | | | | | | |
|-------------------------|-----------|--|-----------------|-------------|-------------|-------|-------|------------|--|-------|
| BID ITEM = 10120 | | | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Fendering | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | | 1.000 |

620010 Fendering and bollard System Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 *****
***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H *****

24 fenders @ \$58,333.00= \$1,399,992.00
48 cylindrical fenders @ \$5,499= \$263,952.00
3 pneumatic fenders @ \$24,182.00= \$72,546
Total: = \$1,736,490.00

| | | | | | | | | | | |
|----------------|---------------|-------|----|---------------|--|-----------|--|--|--|-----------|
| 2BOLLARD | Bollards | 24.00 | EA | 22,700.000 | | 544,800 | | | | 544,800 |
| 2FENDER | Fender system | 1.00 | LS | 1,736,490.000 | | 1,736,490 | | | | 1,736,490 |
| \$2,281,290.00 | | | | [] | | 2,281,290 | | | | 2,281,290 |

620020 Install Fenders and Bollards Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5 *****
***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H *****

| | | | | | | | | | |
|---------------|----------------------------|--------|-----------|---------|-----------|----------|--------|----------|--------|
| <u>MARPIL</u> | Marine Piling & Demo Crew | 120.00 | CH | Prod: | 12.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 12.00 | DA | 70.000 | | 840 | | | 840 |
| 8211050 | Fuel, Oil, Grease 50g/d | 12.00 | DA | 200.000 | | | 2,400 | | 2,400 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 120.00 HR | 163.361 | | | 19,603 | | 19,603 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 120.00 HR | 17.500 | | | 2,100 | | 2,100 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 120.00 HR | 3.000 | | | 360 | | 360 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 120.00 HR | 10.000 | | | 1,200 | | 1,200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 120.00 HR | 17.500 | | | 2,100 | | 2,100 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 120.00 HR | 20.000 | | | 2,400 | | 2,400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 120.00 HR | 3.000 | | | 360 | | 360 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 120.00 HR | 5.000 | | | 600 | | 600 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 120.00 HR | 10.000 | | | 1,200 | | 1,200 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 120.00 HR | 0.100 | | | 12 | | 12 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 120.00 HR | 3.000 | | | 360 | | 360 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 120.00 HR | 3.500 | | | 420 | | 420 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 120.00 HR | 5.000 | | | 600 | | 600 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 120.00 HR | 6.500 | | | 780 | | 780 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 120.00 HR | 10.000 | | | 1,200 | | 1,200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 120.00 HR | 2.500 | | | 300 | | 300 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 120.00 HR | 45.492 | | | 5,459 | | 5,459 |
| 9100000 | Substance 5 workers | 12.00 | DA | 500.000 | | 6,000 | | | 6,000 |
| M105 | Foreman - General Marine | 1.00 | 120.00 MH | 35.720 | 7,505 | | | | 7,505 |
| M165 | M-Piledriver | 1.00 | 120.00 MH | 34.950 | 7,440 | | | | 7,440 |
| M170 | M-Welder | 1.00 | 120.00 MH | 32.000 | 6,929 | | | | 6,929 |
| M190 | M-Skilled Laborer | 1.00 | 120.00 MH | 29.250 | 6,050 | | | | 6,050 |
| M195 | M-Laborer | 1.00 | 120.00 MH | 27.520 | 5,750 | | | | 5,750 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|--------------------------|-----------------|-------------|-----------------|---------------|------------------|--------------------|---------------|------------------|------------------|
| BID ITEM = 10120 | | CLIENT# = 01-12 | Marine Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Fendering | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 120.00 MH | 33.480 | 6,309 | | | | | 6,309 |
| \$88,277.49 | 720.0000 MH/LS | | 720.00 MH | [25465.44] | 39,983 | | 6,840 | 41,454 | | 88,277 |
| <hr/> | | | | | | | | | | |
| =====> Item Totals: | 10120 - Fendering | | | | | | | | | |
| \$2,369,567.49 | 720.0000 MH/LS | | 720.00 MH | [25465.44] | 39,983 | 2,281,290 | 6,840 | 41,454 | | 2,369,567 |
| 2,369,567.490 | 1 LS | | | | 39,983.13 | 2,281,290.00 | 6,840.00 | 41,454.36 | | 2,369,567.49 |

BID ITEM = 10140 CLIENT# = 01-12 Marine Item SCHEDULE: 1 100
Description = Slope Protection Unit = CY Takeoff Quan: 160,000.000 Engr Quan: 160,000.000

203900 Supply Armor Rock Quan: 160,000.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

per plan C-8 supply armor rock: 131,600 CY
2ARMOR Armor Stone 208,950.83 TN 60.000 12,537,050 12,537,050

209900 Install Slope Protection Marine Quan: 172,279.64 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

MARLAN Demolition Crew on land 1,964.74 CH **Prod: 196.4742 S** Lab Pcs: 19.00 Eqp Pcs: 13.00
8211050 Fuel, Oil, Grease 50g/d 196.47 DA 200.000 39,294 39,294
8BHL480 BHL Cat 450E 1.75CY 8.00 15,717.93 HR 45.473 714,741 714,741
8CRANEC100 Crane Manitowoc 222B 1 1.00 1,964.74 HR 106.961 210,151 210,151
8TRKPU10 Pickup 4x2 3/4 Ton Gas 4.00 7,858.97 HR 7.044 55,359 55,359
9100010 Subistance 10 workerss 196.47 DA 1,000.000 196,470 196,470
M105 Foreman - General Marine 1.00 1,964.74 MH 35.720 122,885 122,885
M150 M-Operator, Crane 1.00 1,964.74 MH 33.480 117,646 117,646
M195 M-Laborer 8.00 15,717.93 MH 27.520 753,147 753,147
OPCR100 Op Eng 1A- Crane 100-200 1.00 1,964.74 MH 33.480 103,290 103,290
OPEXC3 Op Eng 3- Backhoe to 3Y 8.00 15,717.93 MH 32.390 805,304 805,304
\$3,118,286.91 0.2166 MH/CY 37,330.08 MH [7.301] 1,902,272 196,470 1,019,544 3,118,287

=====> **Item Totals: 10140 - Slope Protection**
\$15,655,336.71 0.2333 MH/CY 37,330.08 MH [7.861] 1,902,272 12,537,050 196,470 1,019,544 **15,655,337**
97.846 160000 CY 11.89 78.36 1.23 6.37 97.85

BID ITEM = 10150 CLIENT# = 01-19 Land Item SCHEDULE: 1 100
Description = Surface Pavements Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

23 ASPHALT PAVING Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

This is the parametric cost from ICRC estimate site prep, earthwork and paving, per SY
4SUB Subcontract 150,041.00 SY 154.863 23,235,844 23,235,844

BID ITEM = 10160 CLIENT# = 01-19 Land Item SCHEDULE: 1 100
Description = Traffic Control Parking Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

5 TRAFFIC CONTROL/ACCESS Quan: 150,041.00 SY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

This is the parametric cost from ICRC estimate for striping and signage, per SY
4SUB Subcontract 150,041.00 SY 2.490 373,602 373,602

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|--|------------------------------|-----------------|--------------|----------------------|------------------|------------------|--------------------|---------------|------------------|--------------|
| BID ITEM = 10170 | | CLIENT# = 01-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Surface water control | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| 40 | DRAINAGE | | Quan: | 150,041.00 SY | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
| This is the parametric cost from ICRC estimate for lump sum surface drainage, costed per SY | | | | | | | | | | |
| 4SUB | Subcontract | 150,041.00 SY | | 7.035 | | | | 1,055,538 | | 1,055,538 |
| BID ITEM = 10180 | | CLIENT# = 01-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Potable Water Utilities | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| 411 | WATER MAINS | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
| Potable water as lump sum from ICRC estimate | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 2,525,274.000 | | | | 2,525,274 | | 2,525,274 |
| BID ITEM = 10190 | | CLIENT# = 01-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Fire Suppression Utilities | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| 411 | WATER MAINS | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
| Estimating Fire suppression water as Potable water lump sum from ICRC estimate (assumes the ICRC estimate only had Potable water). | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 2,525,274.000 | | | | 2,525,274 | | 2,525,274 |
| BID ITEM = 10200 | | CLIENT# = 01-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Sanitary Sewer Utilities | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| 412 | SANITARY SEWER | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
| San Sewer as lump sum from ICRC estimate | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 359,657.000 | | | | 359,657 | | 359,657 |
| BID ITEM = 10210 | | CLIENT# = 01-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Electrical Power Utilities | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| 419 | ELEC. UTILITIES | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
| Electrical Utilities as lump sum from ICRC estimate | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 9,239,076.000 | | | | 9,239,076 | | 9,239,076 |
| BID ITEM = 10230 | | CLIENT# = 01-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Telecommunications Utilities | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| 419 | TEL/COM. UTILITIES | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
| Telecomm utilities cost taken as lump sum from ICRC estimate | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 3,281,521.000 | | | | 3,281,521 | | 3,281,521 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|---|---|-----------------|----------------------|------------------------|-----------------|--------------------|-------------------|------------------|-------|
| BID ITEM = 10240 | | CLIENT# = 01-08 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = Railroad Spur | | | Unit = LS | Takeoff | Quan: 1.000 | | Engr Quan: 1.000 | | |
| 3 | RAIL SPUR | | Quan: 1.00 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | | |
| Rail and appurtenances taken as lump sum from ICRC estimate | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 6,803,601.000 | | | 6,803,601 | 6,803,601 | |
| BID ITEM = 10250 | | CLIENT# = 01-19 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = Surface Restoration/Landscaping | | | Unit = LS | Takeoff | Quan: 1.000 | | Engr Quan: 1.000 | | |
| 209000 | Restorations | | Quan: 1.00 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | | |
| No restoration was identified in ICRC estimate. Assuming a nominal amount for landscape and plants. | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 150,000.000 | | | 150,000 | 150,000 | |
| BID ITEM = 10260 | | CLIENT# = 01-19 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = Marine Terminal Buildings incl Crane Mai | | | Unit = LS | Takeoff | Quan: 1.000 | | Engr Quan: 1.000 | | |
| 89 | Tote Marine and AWWU Meeting Buildings | | Quan: 1.00 EA | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | | |
| Parametric cost taken as lump sum from ICRC estimate - used for stevedore facilities | | | | | | | | | |
| 4SUB | Subcontract | 1.00 EA | | 1,452,767.000 | | | 1,452,767 | 1,452,767 | |
| BID ITEM = 10270 | | CLIENT# = 01-12 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = Corrosion Control | | | Unit = LS | Takeoff | Quan: 1.000 | | Engr Quan: 1.000 | | |
| 859 | CATHODIC PROTECTION | | Quan: 1.00 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | | |
| Updated numbers from Jerry Duppong/SEA based on current structural (replaces ICRC estimate) | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 8,565,000.000 | | | 8,565,000 | 8,565,000 | |
| BID ITEM = 10280 | | CLIENT# = 01-08 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = Cherry Hill Road Upgrades | | | Unit = LS | Takeoff | Quan: 1.000 | | Engr Quan: 1.000 | | |
| 2 | EARTHWORK/BASE/PAVING | | Quan: 1.00 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | | |
| Road upgrade cost from ICRC estimate | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 823,088.000 | | | 823,088 | 823,088 | |
| BID ITEM = 10290 | | CLIENT# = 01-12 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = Other | | | Unit = LS | Takeoff | Quan: 1.000 | | Engr Quan: 1.000 | | |
| 89 | MARINE MAMMAL MONITORING | | Quan: 1.00 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | | |
| 4SUB | Subcontract | 1.00 LS | | 3,624,482.000 | | | 3,624,482 | 3,624,482 | |

CH2MHILL
13-008-1
Bob Wells

POA 15% CONCEPT OPTION 1

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Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|------------------------------|------------------------|------------------|--------------------|-------------------|-------------------|--------------------|-------------------|--------------------|-------|
| <hr/> | | | | | | | | | | |
| BID ITEM | = 10290 | CLIENT# = 01-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Other | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| <hr/> | | | | | | | | | | |
| 890000 | KABATA WORK | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| 4SUB | Subcontract | 1.00 | LS | 767,282.000 | | | | 767,282 | 767,282 | |
| <hr/> | | | | | | | | | | |
| =====> | Item Totals: | 10290 | - Other | | | | | | | |
| \$4,391,764.00 | | | | [] | | | | 4,391,764 | 4,391,764 | |
| 4,391,764.000 | | 1 LS | | | | | | 4,391,764.00 | 4,391,764.00 | |
| <hr/> | | | | | | | | | | |
| <hr/> | | | | | | | | | | |
| \$187,262,233.66 | *** Report Totals *** | 238,013.29 | MH | 12,617,005 | 61,132,325 | 26,959,089 | 21,771,807 | 64,782,007 | 187,262,234 | |

>>> indicates Non Additive Activity

-----Report Notes:-----

The estimate was prepared with TAKEOFF Quantities.

This report shows TAKEOFF Quantities with the resources.

Bid Date: Owner: Engineering Firm:

Estimator-In-Charge:

JOB NOTES

Estimate created on: 03/12/2008 by User#: 0 -

Source used: C:\HEAVYBID\BIN\BLANK\BLANK.zip (a backup) from 04/20/2006 4:40:12 PM

*****Estimate created on: 03/20/2008 by User#: 0 -

Source used: R:\CURRENT DEVELOPMENT\HEAVYBID\INSTALLS\CURRENT INSTALL SOURCE\BACKUPS\BLANK.zip (a backup) from 03/18/2008 11:43:18 AM

*****Estimate created on: 03/21/2008 by User#: 0 -

Source used: C:\HEAVYBID\BACKUPS\BLANK.zip (a backup) from 03/20/2008 8:40:26 AM

*****Estimate created on: 01/24/2013 by User#: 609 - Bob Wells

Source estimate used: Y:\TBG-ENGI\EST\ESTMAST

*****Estimate created on: 02/07/2013 by User#: 609 - Bob Wells

Source estimate used: Y:\TBG-ENGI\EST\13-008

* on units of MH indicate average labor unit cost was used rather than base rate.

[] in the Unit Cost Column = Labor Unit Cost Without Labor Burdens

In equipment resources, rent % and EOE % not = 100% are represented as XXX%YYY where XXX=Rent% and YYY=EOE%

-----Calendar Codes-----

510

5 days @ 10hrs/day



**US Army Corps
of Engineers®**

**PORT OF ANCHORAGE INTERMODAL
EXPANSION PROJECT – OPTION 5
15% CONCEPT DESIGN
FOR
ALASKA DISTRICT, JOINT BASE ELMENDORF-
RICHARDSON, ALASKA**

Prepared for:

ALASKA DISTRICT U.S. ARMY CORPS OF ENGINEERS

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ATTACHMENT

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EXECUTIVE SUMMARY

The purpose of this report is to inform the stakeholders of the cost and schedule risks and their resulting impacts on project cost and duration. The project is considering three options, developed to a 15% CONCEPT stage of design. The project includes Features 08 Roads, Railroads; 12 Navigation Ports & Harbors; 16 Bank Stabilization; and 19 Buildings, Grounds, & Utilities. The method used was a Cost and Schedule Risk Analysis as directed in W912PP-09-D-0016, Task Order ZJ03 3.a. COST ESTIMATE. The contingency results are shown in Table 1 with the relative confidence of cost under run. Recommended risk mitigation strategies are varied and summarized in Section 8 of this report.

Table 1. Executive Summary of Risk Analysis

| Confidence Level | Value |
|-------------------------|---------------|
| 60% | \$617,549,866 |
| 80% | \$641,540,311 |
| 100% | \$762,871,020 |

1. PURPOSE

The purpose of this report is to present the cost and schedule forecasts of the Port of Anchorage Intermodal Expansion Project – Option 5, 15% Concept design. The purpose for a Cost and Schedule Risk Analysis (CSRA) is to study elements related to cost and schedule to derive an outcome contingency calculation at the 80th percentile confidence level, for both cost and schedule, which are measured in terms of dollars and months, respectively.

2. BACKGROUND

This project, at the concept design state (15%), was requested by Alaska District U.S. Army Corps of Engineers (USACE) after CH2M HILL completed for review the study on the halted design and construction the Port of Anchorage Intermodal Expansion Project. The project currently is considering three options, all of which have design developed to the Concept stage (15%). Each option is considered independently and an estimate and CSRA have been developed for each.

3. REPORT SCOPE

The scope of the risk analysis report is to calculate and present the cost and schedule contingencies at the 80 percent confidence level using the risk analysis processes as mandated by USACE Engineer Regulation (ER) 1110-2-1150, Engineering and Design for Civil Works, ER 1110-2-1302, Civil Works Cost Engineering, and Engineer Technical Letter 1110-2-573, Construction Cost Estimating Guide for Civil Works. The report presents the contingency results for both cost and schedule risks for all project features. The study and presentation can include or exclude consideration for operation and maintenance or life cycle costs, depending upon the program or decision document intended for funding.

3.1 Project Scope

The report includes the project technical scope, estimates, and schedules as developed and presented by CH2M HILL. Consequently, these documents serve as the basis for the risk analysis. In general, the construction scope consists of the following:

- 08 Roads, Railroads, and Bridges (15% Concept Design Stage)
- 12 Navigation Ports & Harbors (15% Concept Design Stage)
- 16 Bank Stabilization (15% Concept Design Stage)
- 19 Buildings, Grounds, & Utilities (15% Concept Design Stage)

3.2 USACE Risk Analysis Process

The risk analysis process followed the contract stipulations and the USACE Headquarters requirements as well as the guidance provided by the Cost Engineering Directory of Expertise for Civil Works (Cost Engineering DX). The risk analysis process reflected within the risk analysis report uses probabilistic cost and schedule risk analysis

methods within the framework of the Crystal Ball software. The risk analysis results are intended to serve several functions, one being the establishment of reasonable contingencies reflective of an 80 percent confidence level to accomplish the project work successfully within that established contingency amount. Furthermore, the scope of the report includes the identification and communication of important steps, logic, key assumptions, limitations, and decisions to help ensure that risk analysis results can be appropriately interpreted.

Risk analysis results are also intended to provide project leadership with contingency information for scheduling, budgeting, and project control purposes, as well as provide tools to support decision-making and risk management as the project progresses through planning and implementation. To fully recognize its benefits, cost and schedule risk analyses should be considered as an ongoing process conducted concurrent to, and iteratively with, other important project processes such as scope and execution plan development, resource planning, procurement planning, cost estimating, budgeting, and scheduling.

In addition to broadly defined risk analysis standards and recommended practices, the risk analysis is performed to meet the requirements and recommendations of the following documents and sources:

- W912PP-09-D-0016, Task Order ZJ03 3.a. COST ESTIMATE
- ER 1110-2-1150, Engineering and Design for Civil Works Projects
- ER 1110-2-1302, Civil Works Cost Engineering
- ETL 1110-2-573, Construction Cost Estimating Guide for Civil Works
- Cost and Schedule Risk Analysis Process guidance prepared by the USACE Cost Engineering DX

4. METHODOLOGY/PROCESS

The Project Delivery Team (PDT) was composed of members of Task 3 Concept Plan Charrette, as well as CH2M HILL personnel later executing the estimate and risk analysis.

The Cost Engineering DX guidance for cost and schedule risk analysis generally focuses on the 80-percent level of confidence (P80) for cost contingency calculation. It should be noted that use of P80 as a decision criteria is a risk adverse approach.

The risk analysis process uses *Monte Carlo* techniques to determine probabilities and contingency. The *Monte Carlo* techniques are facilitated computationally by a commercially available risk analysis software package (Crystal Ball) that is an add-in to Microsoft Excel. Cost estimates are packaged into an Excel format and used directly for cost risk analysis purposes. Because Crystal Ball is an Excel add-in, the schedules for each option are recreated in an Excel format from their native format. The level of detail recreated in the Excel-format schedule is sufficient for risk analysis purposes that reflect the established risk register, but generally less than that of the native format.

The primary steps, in functional terms, of the risk analysis process are described in the following subsections. Risk analysis results would be provided in Section 6.

4.1 Identify and Assess Risk Factors

Identifying the risk factors with the PDT is considered a qualitative process that results in establishing a risk register that serves as the document for the further study using the Crystal Ball risk software. Risk factors are events and conditions that may influence or drive uncertainty in project performance. They may be inherent characteristics or conditions of the project or external influences, events, or conditions such as weather or economic conditions. Risk factors may have either favorable or unfavorable impacts on project cost and schedule.

Checklists or historical databases of common risk factors are sometimes used to facilitate risk factor identification. However, key risk factors are often unique to a project and not readily derivable from historical information. Therefore, input from the entire PDT is obtained using creative processes such as brainstorming or other facilitated risk assessment meetings. In practice, a combination of professional judgment from the PDT and empirical data from similar projects is desirable and is considered.

Formal PDT meetings were held as a part of the design charrette for the purposes of identifying and assessing risk factors. The meetings held included capable and qualified representatives from multiple project team disciplines and functions:

- Project/program managers
- Environmental
- Civil, structural, geotechnical, and hydraulic design
- Cost and schedule engineers
- Key sponsors

Additionally, numerous conference calls and informal meetings are conducted throughout the risk analysis process on an as-needed basis to further facilitate risk factor identification, market analysis, and risk assessment.

4.2 Quantify Risk Factor Impacts

The quantitative impacts of risk factors on project plans are analyzed using a combination of professional judgment, empirical data, and analytical techniques. Risk factor impacts are quantified using probability distributions, because risk factors are entered into the Crystal Ball software in the form of probability density functions.

Similar to the identification and assessment process, risk factor quantification involves multiple project team disciplines and functions. However, the quantification process used herein relied more extensively on collaboration between cost engineering, designers, and risk analysis team members with lesser inputs from other functions and disciplines.

The following is an example of the PDT quantifying risk factor impacts:

- Maximum possible value for the risk factor
- Minimum possible value for the risk factor
- Most likely value (the statistical mode), if applicable
- Nature of the probability density function used to approximate risk factor uncertainty
- Mathematical correlations between risk factors
- Affected cost estimate and schedule elements

In this study, the risk discussions focused on the various project features as presented within the USACE Civil Works Work Breakdown Structure for cost accounting purposes. It was recognized that the various features carry differing degrees of risk as related to cost, schedule, design complexity, and design progress. The project features under study are presented in Table 2:

Table 2. Work Breakdown Structure by Feature

| | |
|-----------|---------------------------------|
| 08 | Roads, Railroads, and Bridges |
| 12 | Navigation Ports & Harbors |
| 16 | Bank Stabilization |
| 20 | Buildings, Grounds, & Utilities |

The resulting product from the PDT discussions is captured within a risk register as presented in Section 6 for both cost and schedule risk concerns. Note that the risk register records the PDT's risk concerns, and potential impacts to the current cost and schedule estimates. The concerns should support the team's decisions related to event likelihood, impact, and the resulting risk levels for each risk event.

4.3 Analyze Cost Estimate and Schedule Contingency

Contingency is analyzed using the Crystal Ball software, an add-in to the Microsoft Excel format of the cost estimate and schedule. *Monte Carlo* simulations are performed by applying the risk factors (quantified as probability density functions) to the appropriate estimated cost and schedule elements identified by the PDT. Contingencies are calculated by applying only the moderate and high level risks identified for each option (i.e., low-level risks are typically not considered, but remain within the risk register to serve historical purposes as well as support follow-on risk studies as the project and risks evolve).

For the cost estimate, the contingency is calculated as the difference between the P80 cost forecast and the base cost estimate. For schedule contingency analysis, the option schedule contingency is calculated as the difference between the P80 option duration forecast and the base schedule duration. These contingencies are then used to

calculate the time value of money impact of project delays that are included in the presentation of total cost contingency in Section 6. The resulting time value of money, or added risk escalation, is then added into the contingency amount to reflect the USACE standard for presenting the “total project cost” for the fully funded project amount.

5. KEY ASSUMPTIONS

The following are key assumptions for the risk analysis identified by the PDT and risk analysts.

- Contract acquisition strategy assumed to be single prime contract DBB.
- Accuracy range of estimate is +30% to -15%.
- The contingency is determined after consideration of the project’s exposure to the studied risks. The recommended level of 80% should be carefully examined.
- All impact levels, those with high, moderate, or low risk level ratings, were studied and applied within the risk analysis.

6. RISK ANALYSIS RESULTS

6.1 Risk Register

The risk register reflects the results of risk factor identification and assessment, risk factor quantification, and contingency analysis (provided in Attachment A). A risk register can be an effective tool for managing identified risks throughout the project life cycle. As such, it is generally recommended that risk registers be updated as the designs, cost estimates, and schedule are further refined, especially on large projects with extended schedules. Recommended uses of the risk register going forward include:

- Documenting risk mitigation strategies pursued in response to the identified risks and their assessment in terms of probability and impact.
- Providing project sponsors, stakeholders, and leadership/management with a documented framework from which risk status can be reported in the context of project controls.
- Communicating risk management issues.
- Providing a mechanism for eliciting risk analysis feedback and project control input.
- Identifying risk transfer, elimination, or mitigation actions required for implementation of risk management plans.

6.2 Cost Risk Analysis - Cost Contingency Results

Cost risk as studied by the PDT and developed through the register and *Monte Carlo* processes is presented here. This section does not include cost escalation risk, which is studied separately and reported below in Section 6.4.

The sensitivity chart below reflects the areas of greatest concern, rated in order of criticality, and referenced to risks as shown in the risk register (and to the three-point estimate, see Attachment B for code references). Generally, the areas of high criticality are Market Conditions and Bidding Competition (PR-2), Historic Change Order Growth (CON-8), Piling for Wharf Area Phase II & and Phase III (30260 Three Point Range), Poor construction quality/Hidden defects (CON-4), and Acts of God (PR-5).

Base Cost Sensitivity Chart

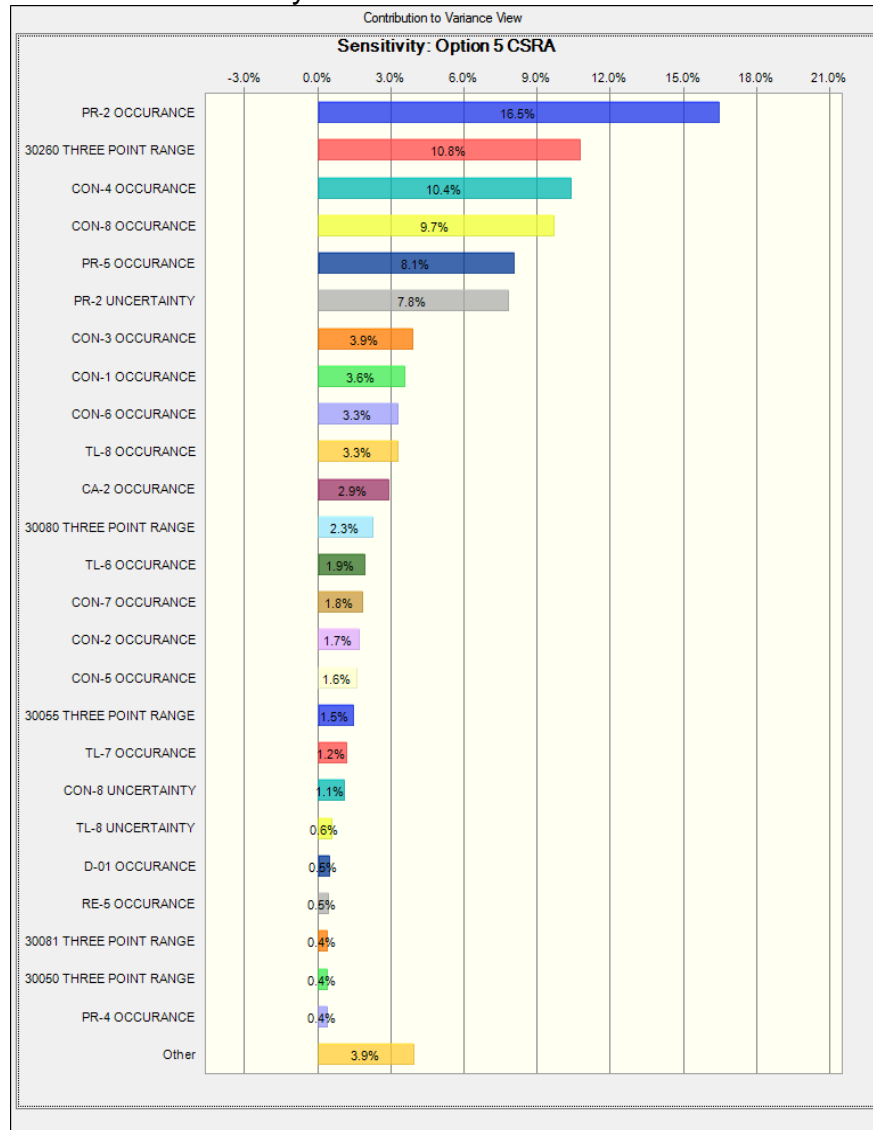
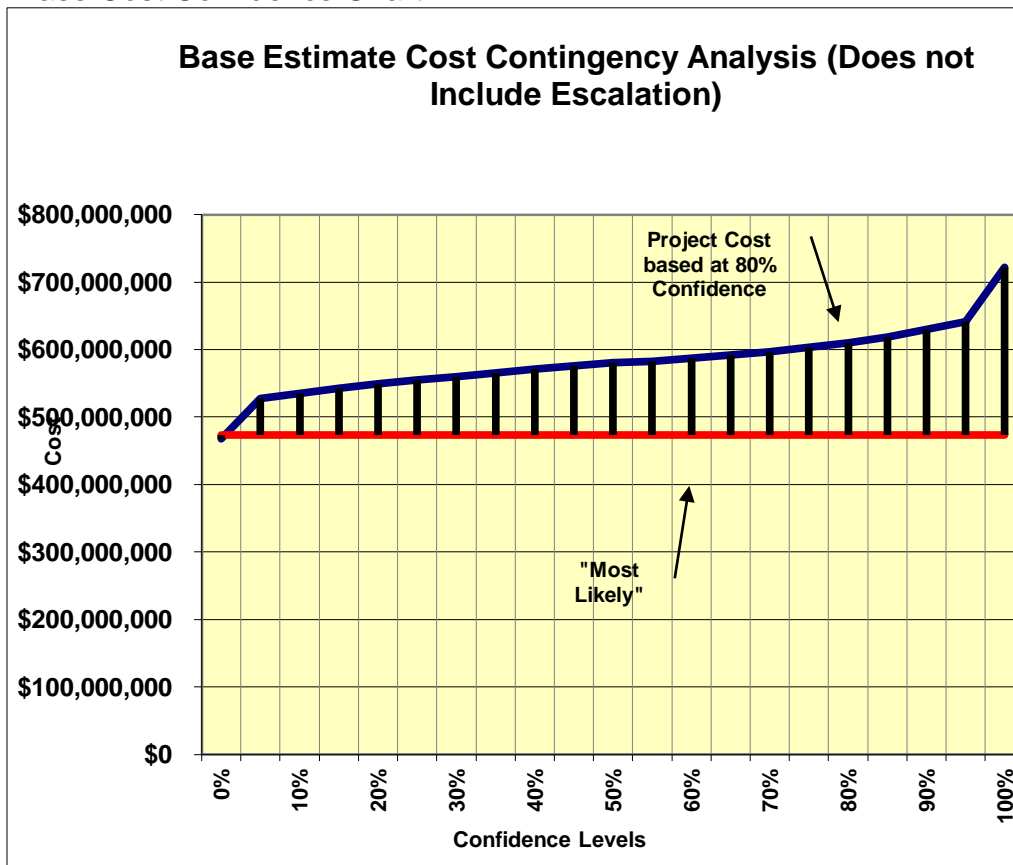


Table 3. Base Cost Confidence

Contingency Analysis

| | | |
|--------------------------------------|----------------------|--------------------|
| Most Likely Cost Estimate | \$472,992,722 | |
| | | |
| Confidence Level | Value | Contingency |
| 0% | \$467,560,608 | -1.15% |
| 5% | \$526,988,523 | 11.42% |
| 10% | \$535,014,238 | 13.11% |
| 15% | \$542,397,924 | 14.67% |
| 20% | \$548,801,154 | 16.03% |
| 25% | \$554,851,107 | 17.31% |
| 30% | \$560,171,634 | 18.43% |
| 35% | \$565,646,946 | 19.59% |
| 40% | \$570,883,046 | 20.70% |
| 45% | \$575,765,533 | 21.73% |
| 50% | \$580,281,187 | 22.68% |
| 55% | \$582,022,176 | 23.05% |
| 60% | \$587,092,354 | 24.12% |
| 65% | \$592,201,418 | 25.20% |
| 70% | \$596,478,809 | 26.11% |
| 75% | \$602,967,357 | 27.48% |
| 80% | \$609,884,757 | 28.94% |
| 85% | \$618,350,631 | 30.73% |
| 90% | \$629,893,501 | 33.17% |
| 95% | \$641,476,215 | 35.62% |
| 100% | \$721,473,927 | 52.53% |

Base Cost Confidence Chart



NOTE: These results reflect only those contingencies established from the cost risk analysis. For combined cost and schedule risk analysis, refer to Section 6.4.

6.3 Schedule Risk Analysis - Schedule Contingency Results

The base schedule was estimated at 54 months, and assumed a construction start in April 2015. Risks were analyzed for schedule impact, and the resulting uncertainty is expressed below.

The sensitivity chart below reflects the areas of greatest concern, rated in order of criticality, and referenced to risks as shown in the risk register. Generally, the areas of high criticality are Unpredictable Funding (PPM-1), Lack of a Master Plan (D-01), and Acts of God (PR-5).

Schedule Sensitivity Chart

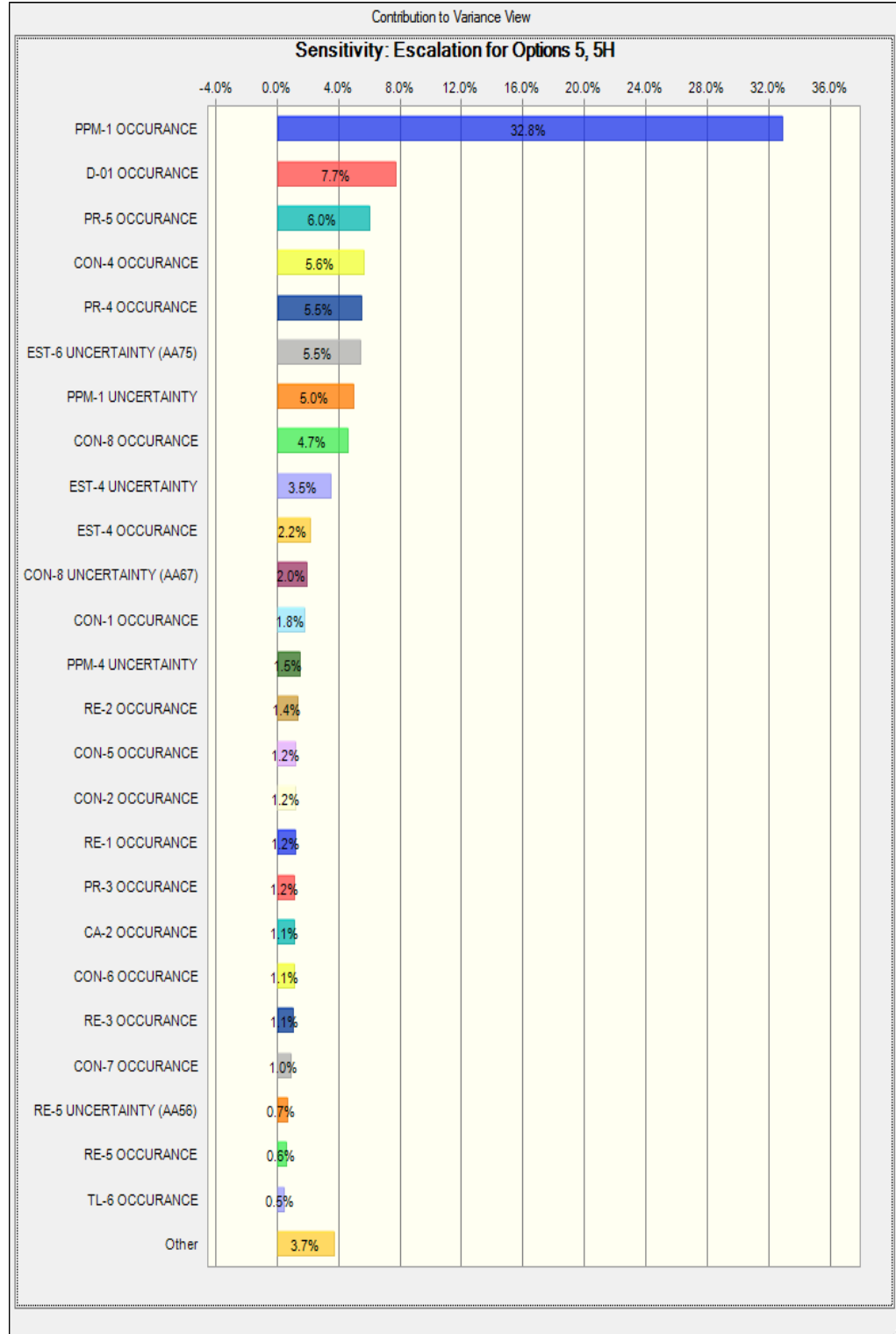
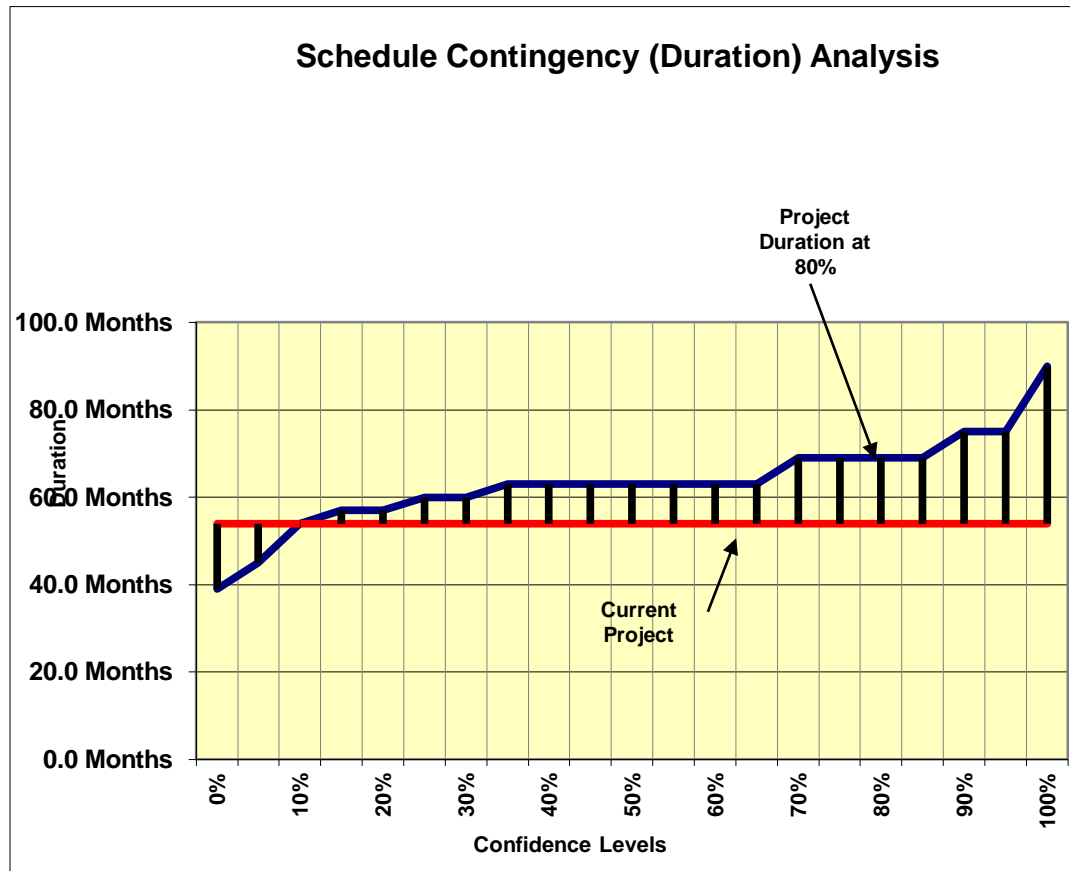


Table 4. Schedule Confidence

Contingency Analysis

| Most Likely Schedule | 54.0 Months | |
|----------------------|-------------|-------------|
| | | |
| Confidence Level | Value | Contingency |
| 0% | 39.0 Months | -27.78% |
| 5% | 45.0 Months | -16.67% |
| 10% | 54.0 Months | 0.00% |
| 15% | 57.0 Months | 5.56% |
| 20% | 57.0 Months | 5.56% |
| 25% | 60.0 Months | 11.11% |
| 30% | 60.0 Months | 11.11% |
| 35% | 63.0 Months | 16.67% |
| 40% | 63.0 Months | 16.67% |
| 45% | 63.0 Months | 16.67% |
| 50% | 63.0 Months | 16.67% |
| 55% | 63.0 Months | 16.67% |
| 60% | 63.0 Months | 16.67% |
| 65% | 63.0 Months | 16.67% |
| 70% | 69.0 Months | 27.78% |
| 75% | 69.0 Months | 27.78% |
| 0% | 69.0 Months | 27.78% |
| 85% | 69.0 Months | 27.78% |
| 90% | 75.0 Months | 38.89% |
| 95% | 75.0 Months | 38.89% |
| 100% | 90.0 Months | 66.67% |

Schedule Confidence Chart



NOTE: These results reflect only those contingencies established from the schedule risk analysis.

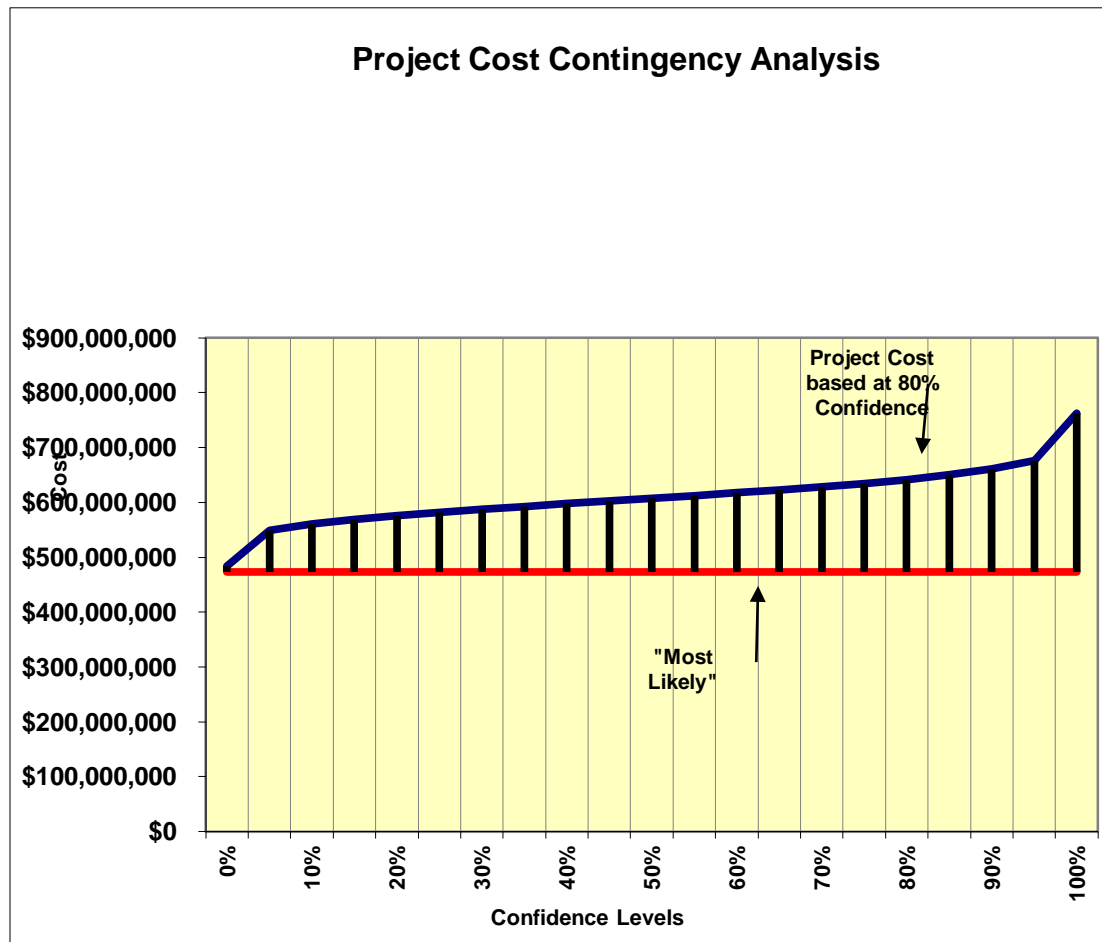
6.4 Combined Cost and Schedule Contingency Results

The cost risk analysis and schedule risk analysis contribute to a total project cost risk analysis. The schedule risk creates exposure to delays and risk of cost escalation. The purpose of analyzing schedule risk allows the project uncertainty to comprehend both the cost elements and their risks, but also how those costs are affected by the time element of the project and its associated risks. Presented here are the combine cost and schedule contingency results:

Table 5. Cost Confidence (Combined Cost and Schedule)

| | | |
|--------------------------------------|----------------------|--------------------|
| Most Likely Cost Estimate | \$472,992,722 | |
| | | |
| Confidence Level | Value | Contingency |
| 0% | \$484,106,164 | 2.35% |
| 5% | \$549,245,329 | 16.12% |
| 10% | \$560,750,574 | 18.55% |
| 15% | \$569,313,084 | 20.36% |
| 20% | \$575,716,314 | 21.72% |
| 25% | \$581,766,267 | 23.00% |
| 30% | \$587,086,793 | 24.12% |
| 35% | \$592,562,106 | 25.28% |
| 40% | \$597,798,206 | 26.39% |
| 45% | \$602,680,693 | 27.42% |
| 50% | \$607,196,347 | 28.37% |
| 55% | \$612,479,687 | 29.49% |
| 60% | \$617,549,866 | 30.56% |
| 65% | \$622,658,929 | 31.64% |
| 70% | \$628,134,363 | 32.80% |
| 75% | \$634,622,911 | 34.17% |
| 80% | \$641,540,311 | 35.63% |
| 85% | \$650,006,186 | 37.42% |
| 90% | \$661,549,056 | 39.86% |
| 95% | \$676,738,233 | 43.08% |
| 100% | \$762,871,020 | 61.29% |

Combined Cost and Schedule Chart



7. MAJOR FINDINGS/OBSERVATIONS

CH2M HILL prepared an estimate as an input to the CSRA, which utilized contingencies typical for the project type and design stage, as well as those identified by the stakeholders as required. This estimate is considered a deterministic, point-value estimate, from which contingencies and escalation was removed in order to study the project's exposure to risk and their impacts on cost and schedule. The results find that these contingencies as used in the deterministic estimate are reasonable in providing a similar degree of confidence as resulted from the CSRA study. The benefits of the CSRA are the identification of risks for future mitigation and management effort, as well as to communicate the underlying contributors to project cost and schedule variance.

Table 6 presents project contingencies, which include base cost plus cost and schedule contingencies.

Table 6. Project Contingencies (Base Cost Plus Cost and Schedule Contingencies)

| Confidence Level | Project Cost | Contingency (%) | Contingency (\$) |
|-------------------------|---------------------|------------------------|-------------------------|
| P0 | \$484,106,164 | 2.35% | \$11,113,441 |
| P10 | \$560,750,574 | 18.55% | \$87,757,852 |
| P20 | \$575,716,314 | 21.72% | \$102,723,592 |
| P30 | \$587,086,793 | 24.12% | \$114,094,071 |
| P40 | \$597,798,206 | 26.39% | \$124,805,484 |
| P50 | \$607,196,347 | 28.37% | \$134,203,624 |
| P60 | \$617,549,866 | 30.56% | \$144,557,143 |
| P70 | \$628,134,363 | 32.80% | \$155,141,641 |
| P80 | \$641,540,311 | 35.63% | \$168,547,589 |
| P90 | \$661,549,056 | 39.86% | \$188,556,333 |
| P100 | \$762,871,020 | 61.29% | \$289,878,297 |

8. MITIGATION RECOMMENDATIONS

Risk mitigation recommendations and strategies are tabulated in the following risk register entries.

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|---|---|-------------------|-------------------------------|--|
| PPM-1 | Political considerations and pressures can impact funding | Incremental and unpredictable funding | High | Project Sponsor(s) | Coordinate decisions and/or contract and construction events to minimize impact of political pressures. |
| PPM-4 | Project planning and follow through | This is a concern for the design as well as the construction. Design related risk could become known and mitigated prior to construction. Construction risk can be negative or positive. | Low | Contracting | Have contractors discuss project delivery innovations and foreseeable planning difficulties during RFQ period. |
| 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. Risk could be positive or negative. | Low | Contracting | Consider all contract types including recent innovations, as allowed by procurement constraints. Receive input from the construction community. |
| CA-2 | Numerous separate contracts | Lack of coordination of multiple ongoing contracts, primarily the ongoing dredging contracts and the repair/construction contract can interfere or limit work. | Low | Contracting | Clearly delineate in the contract the method for contract coordination, and who has the right to occupy the work at various stages of construction and operation. |
| TL-1 | Handling of groundwater/surface water from hill behind north extension (Safety) | Assumes a pile supported design | Low | Construction | Highlight this risk in ITB, specifications, Pre-bid meeting, Contract, schedule, and communicate to all controlling parties before and during construction. Secure contractor mitigation plan. |
| TL-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. Impact to construction progress and production because of complexities of sequencing | Moderate | Operations | Coordinate with stakeholder to optimize operations and construction impacts |
| TL-7 | Surveys outdated | Entire bathymetric survey is in dated, especially underneath Terminals 2 and 3, earthwork quantities for all options, and global stability for Option 5 at Terminals 2 and 3 are in question | Moderate | Geotechnical/ Civil Design | Perform new surveys |
| TL-8 | Excess/spoils disposition | Need to identify a location for excess material. | Moderate | Geotechnical/ Civil Design | Normally done as design progresses |
| D-01 | 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 Container Cargo terminal) or that could be easily 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. | Low | Project Manager | Convene stakeholders to determine the ability and timeframe to develop a master plan. |
| D-08 | Deferring Tote terminal maintenance and planning because "we are moving the terminal" | | Low | Operations | Examine ROI and other risks for optimal solution |
| D-09 | Potential cost to TOTE for the expansion/development e.g. new gatehouse, shop, yard reconfiguration | | Low | Operations | Include this cost after any design and logistics study is done to mitigate it |

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|---|---|-------------------|-----------------------------|--|
| RE-1 | Permits in place | 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 | Low | Environmental | Examine process for expediting permit if assumptions change from existing |
| RE-2 | Permit modifications | High risk of having permit modifications (negative impact) later that may cost time and money due to whether or not the existing North Extension is the best plan | Low | Environmental | Examine process for expediting permit if assumptions change from existing |
| RE-3 | Permit exposure | Completing North 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 Extension does not meet the Port's present and future goals | Low | Environmental | Examine process for expediting permit if assumptions change from existing |
| RE-4 | Excluding/including appropriate natural resource agency folks in the process early and often. | Low risk of having negative environmental and regulatory issues 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 | Environmental | Ensure buy-in/inclusion is pursued |
| RE-5 | 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. | Moderate | Environmental | Design solutions as are warranted by ROI, assume risk. |
| CON-1 | The construction should be allowed on both the ocean and land side of the new dock system | Over restrictive site limitations | Low | Construction | Verify and communicate the site limitations, consider all effect of such a limitation before making same required. |
| 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 | Moderate | Contracting | Consider that any onerous risk transferred to the contractor comes at a premium, and the determination of that premium is influenced by other circumstances such as market demand and overall state of the economy |
| 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 docks vs. OCSP® system). | | Low | Contracting | This can be addressed with an RFQ process that results in a bid go or no-go |
| CON-4 | Poor construction quality/hidden defects | Weak or lack of QA/QC 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 | Moderate | Project Manager | Use QA/QC best practices, examine others that were successful on other port projects |

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|---|--|-------------------|-----------------------------|---|
| 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? 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? | Moderate | Cost Engineering | Perform an analysis of impact of material availability when specifying material sources. |
| CON-6 | Potential for vessel schedule disruptions during construction | Some alternatives may have higher likelihood of occurring | Moderate | Operations | Coordinate these with operations in order to minimize |
| CON-7 | Access and security issues | Changes in security protocols, impact of access requirements on available labor force, daily production, and morale | Moderate | Contracting | Consider what options the port has to make the project attractive to contractors and workers, and communicate those options in the ITB, contract, pre-bid, etc. |
| CON-8 | Historical change order growth | Need to study market behavior for region and project type for historical changes - Walla Walla for reference | High | Cost Engineering | Investigate contractors during RFQ for propensity for change order growth. Consider contract type alternatives that minimize the exposure to both owner and contractor. |
| CON-9 | Diesel fuel volatility | \$6M marine + \$2M civil | Low | Cost Engineering | Maintain awareness of fuel pricing at bid time. Consider master agreement with suppliers. To provide min max at an agreed price |
| EST-4 | Project cost exceeds available budget | What if the minimal design exceeds construction budget? | High | Project Sponsor(s) | Create separable construction packages |
| EST-5 | Estimate quality related to lesser designed features | The use of parametric area based estimates for the civil backlands scope has inherent variability. Especially, utilities are perhaps the least designed at this stage, and are subject to variations. The wharf decking design is the marine side least designed component, along with bulkhead flat sheet piles | High | Cost Engineering | This can be mitigated normally through design progress. An assessment of exposure to estimate accuracy can be included in future estimate preparations |
| EST-6 | Estimate confidence in large and critical quantities | Dredging quantities are historically variable. | Low | Cost Engineering | This can be mitigated normally through design progress. An assessment of exposure to estimate accuracy can be included in future estimate preparations |
| EST-7 | Estimate include waste / drop off quantities | Estimate and design both include these, however, some uncertainty as to the location for disposal exists | Low | Cost Engineering | This can be mitigated normally through design progress. An assessment of exposure to estimate accuracy can be included in future estimate preparations |
| PR-2 | Market conditions and bidding competition | The base estimate is assuming 10% indirect costs and 20% overhead and profit markup structure, which favors a low demand market. Should there be little supply due to increased demand, the contractors are expected to add overhead and profit, up to 15% more than in the estimate | High | Contracting | Remain cognizant of the supply and demand for various contractor capabilities related to the project features. Select a contract type that leverages the market supply and demand forecast for the bid period |

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|--|---|-------------------|-----------------------------|--|
| PR-3 | Labor disruptions | This is covered previously, but there is some related risk to the contractor that could affect schedule, and thus his escalation exposure | Low | Construction | Require labor resource identification, contingency plan and forecast from contractors during RFP period. Maintain contact with labor organizations. Consider low cost amenities that will attract skilled and qualified labor and supervision. |
| PR-4 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Weather (snow, freezing - subarctic related) impacts on production - estimate does not include "act of God" level impacts | Low | Contracting | Refer to insurance and contracting general terms and conditions |
| PR-5 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Seismic (earthquakes) impacts on production, labor availability, materials delivery, placed work damages - estimate does not include "act of God" level impacts | Low | Contracting | Refer to insurance and contracting general terms and conditions |

ITB = invitation to bid

POC = point of contact

QA/QC = quality control/quality assurance

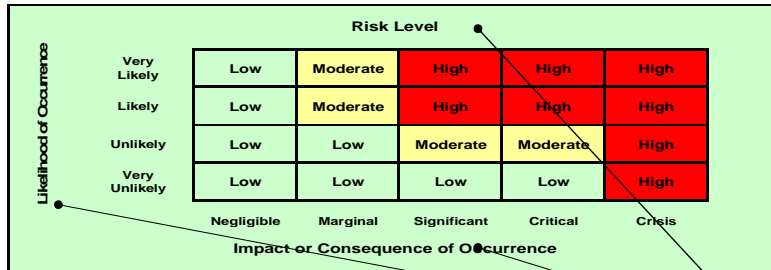
RFQ = request for quote

ROI = return on investment

TOTE = Totem Ocean Trailer Express, Inc.

ATTACHMENT A
DETAILED RISK REGISTER

Port of Anchorage Intermodal Expansion Project 15% CONCEPT - Risk Register



Overall Project Scope

The project is located on the Knik Arm, within the Municipality of Anchorage, Alaska, approximately one mile north of downtown Anchorage. The scope of the work is to demolish *[existing wharf, trestle and]* sheet pile wall, construct new wharf, trestle and sheet pile wall, complete with associated excavation, grading, paving, drainage, stevedore facilities and utilities.

Cost Impacts

500,000,000 scale of project, Crisis, 100,000,000; Critical 50,000,000; Significant \$20,000,000, Marginal \$10,000,000.

Schedule Impacts

4 year scale of project: Crisis 2 years; Critical 1 year; Significant 6 months; Marginal 3 months; Negligible <1 month.

Event Likelihood

Very Unlikely 1 in 10, Unlikely 3 in 10, Likely 7 in 10, Very Likely 9 in 10.

[illegible]

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|---|---------------|-------------|-------------|-------------------------|------------------|------------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| 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). Risk could be pos or neg | Very Unlikely | Marginal | LOW | \$10M | Very Unlikely | Negligible | LOW | none | Triangular | | Contracting | Project Cost |
| CA-2 | Numerous separate contracts | 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 | \$25M | Very Unlikely | Marginal | LOW | 3 mo | Triangular | | Contracting | Project Cost & Schedule |
| | TECHNICAL RISKS | | | | | | | | | | | | | |
| TL-1 | Handling of groundwater/surface water from hill behind north extension. (Safety) | Assumes a pile supported design | Very Unlikely | Negligible | LOW | \$1M | Very Unlikely | Negligible | LOW | none | Triangular | | Construction | Project Cost |
| TL-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 | | Unlikely | | 0 | | | | | |
| TL-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 dock and aground) | Unlikely | Significant | MODERATE | | Unlikely | | 0 | | | | | |
| TL-4 | Focusing on the North dock 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 | | Unlikely | | 0 | | | | | |
| TL-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 | | Very Unlikely | | 0 | | | | | |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|---|---------------|----------|-------------|-------------------------|------------------|------------|-------------|-------------------------|-----------------------|-------------------------|---------------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| TL-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.) Impact to construction progress and production due to complexities of sequencing | Likely | Marginal | MODERATE | \$10M | Likely | Marginal | MODERATE | 2 mo | Triangular | | Operations | Project Cost & Schedule |
| TL-7 | Surveys outdated | Entire bathymetric survey is in dated, especially underneath terminals #2 and #3, earthwork quantities for all options, and global stability for option 5 at terminals #2 and #3 are in question | Likely | Marginal | MODERATE | \$10M | Likely | Negligible | LOW | 1 mo | Triangular | | Geotechnical/Civil Design | Project Cost & Schedule |
| TL-8 | Excess/spoils disposition | Need to identify a location for excess material. | Likely | Marginal | MODERATE | \$15M | Likely | Negligible | LOW | 1 mo | Triangular | | Geotechnical/Civil Design | Project Cost & Schedule |
| | DESIGN RISKS | | | | | | | | | | | | | |
| D-01 | 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 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. | Very Unlikely | Marginal | LOW | \$10M | Very Unlikely | Critical | LOW | 1 year | Triangular | | Project Manager | Project Cost & Schedule |
| D-02 | b. Fail to ID requirements | | Very Unlikely | Marginal | LOW | | Very Unlikely | | 0 | | | | | |
| D-03 | c. Time to develop 100% design | | Very Unlikely | Marginal | LOW | | Very Unlikely | | 0 | | | | | |
| D-04 | d. Impact to cost from changes | | Very Unlikely | Marginal | LOW | | Very Unlikely | | 0 | | | | | |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|---|--|---------------|-------------|-------------|-------------------------|------------------|------------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| D-05 | e-Location and structure impact to Safe Navigation | What is the new structures impact to Safe Navigation and mooring? | Very-Unlikely | Marginal | LOW | | Very-Unlikely | | 0 | | | | | |
| D-06 | f-Impact from loss of acreage- | Effects on operation with loss of acreage? | Very-Unlikely | Significant | LOW | | Very-Unlikely | | 0 | | | | | |
| D-07 | Continuing silting issues at the stern of Tote vessels | | | | 0 | | 0 | | 0 | | | | | |
| D-08 | Deferring Tote terminal maintenance and planning because "we are moving the terminal" | | Unlikely | Marginal | LOW | \$1M | Unlikely | Negligible | LOW | none | Triangular | | Operations | Project Cost |
| D-09 | Potential cost to Tote for the expansion/development e.g. new gatehouse, shop, yard reconfiguration | | Unlikely | Marginal | LOW | \$1M | Unlikely | Negligible | LOW | none | Triangular | | Operations | Project Cost |
| | REGULATORY AND ENVIRONMENTAL RISKS | | | | | | | | 0 | | | | | |
| RE-1 | Permits in place | 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 | escalation related | Unlikely | Marginal | LOW | 3 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-2 | Permit mods | High risk of having permit mods (negative impact) later that may cost time and money due to whether or not the existing North Extension is the best plan | Unlikely | Marginal | LOW | escalation related | Unlikely | Marginal | LOW | 3 mo | Triangular | | Environmental | Project Cost & Schedule |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|--|---------------|-------------|-------------|-------------------------|------------------|----------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| RE-3 | Permit exposure | Completing North 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 Extension does not meet the Port's present and future goals | Unlikely | Marginal | LOW | escalation related | Unlikely | Marginal | LOW | 3 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-4 | Excluding/Including 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 | Very Unlikely | Significant | LOW | escalation related | Very Unlikely | Marginal | LOW | -3 to +1 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-5 | 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 reduces 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 | \$10M | Very Likely | Marginal | MODERATE | 3 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-6 | 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 | | | | 0 | | | | | |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|---|---|---------------|-------------|-------------|-------------------------|------------------|-------------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| RE-7 | Endangered species- (beluga whales)- a. Impact to in-water work- i. Low tide- ii. Harassment and takes- b. Monitoring- i. Contractor- ii. Scientific- iii. Cost associated- | Loss of 8 hours of in-water work daily around low times. Meeting whale harassment and having minimal takes- Monitoring requirement both from contractor and scientific by permit and the cost associated- | Likely | Marginal | MODERATE | | | | 0 | | | | | |
| | CONSTRUCTION RISKS | | | | | | | | 0 | | | | | |
| CON-1 | The construction should be allowed on both the ocean and land side of the new dock system. | Over restrictive site limitations | Very Unlikely | Significant | LOW | \$20M | Very Unlikely | Significant | LOW | 6 MO | Triangular | | Construction | Project Cost & Schedule |
| 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 | \$10m | Likely | Marginal | MODERATE | 3 mo | Triangular | | Contracting | Project Cost & Schedule |
| 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 docks vs. OCSP dock system). | | Very Unlikely | Significant | LOW | \$25m | Very Unlikely | Negligible | LOW | none | Triangular | | Contracting | Project Cost |

[illegible]

[illegible]

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distrib-ution | Correl-ation to Other(s) | Responsibility/PO C | Affected Project Component |
|--|--|---|--------------|-------------|-------------|----------------------------|------------------|-------------|-------------|----------------------------|---------------------------|-----------------------------|------------------------|-------------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| FL-8 | Potential negative risk to structures and appurtenances by ice flows and large tide cycle range | | Unlikely | Marginal | LOW | | | | | | | | | |
| FL-9 | Potential negative risk associated with existing condition of existing structures and utilities | | Unlikely | Marginal | LOW | | | | 0 | | | | | |
| Programmatic Risks (External Risk Items are those that are generated, caused, or controlled exclusively outside the PDT's sphere of influence.) | | | | | | | | | | | | | | |
| PR-1 | Public trust a. Incremental funding b. Budget challenge | The history of the project has created a problem with public trust that has caused the budget to be funded incrementally. How can these challenges be overcome to attain funding needed? Impact of incremental funding has to be addressed so that public is fully aware of impacts i.e. increasing cost and delay in completion. | Likely | Significant | HIGH | | | | 0 | | | | | |
| PR-2 | Market conditions and bidding competition | The base estimate is assuming a 10% indirects and 20% OH&P markup structure, which favors a low demand market. Should there be little supply due to increased demand, the contractors are expected to add overhead and profit, up to 15% more than in the estimate | Likely | Critical | HIGH | 0 to 15% more | Likely | Negligible | LOW | none | Triangular | | Contracting | Project Cost |
| PR-3 | Labor disruptions | This is covered in XX above, but there is some related risk to the contractor that could affect schedule, and thus his escalation exposure | Unlikely | Marginal | LOW | based on esc | Unlikely | Marginal | LOW | 3 mo | Triangular | | Construction | Project Cost & Schedule |
| PR-4 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Weather (snow, freezing - subarctic related) impacts on production - estimate does not include "act of God" level impacts | Unlikely | Marginal | LOW | \$3M | Unlikely | Significant | MODERATE | 6 mo | Triangular | | Contracting | Project Cost & Schedule |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|---|---------------|----------|-------------|-------------------------|------------------|----------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| PR-5 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Seismic (earthquakes) impacts on production, labor availability, materials delivery, placed work damages - estimate does not include "act of God" level impacts | Very Unlikely | Critical | LOW | \$50M | Very Unlikely | Critical | LOW | 1 yr | Triangular | | Contracting | Project Cost & Schedule |

*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.

ATTACHMENT B
COST ESTIMATE (INPUT TO CSRA)

Cost Estimate

**Port of Anchorage
Intermodal Expansion Project
15% Concept Plans – Option 5
Contract No. W912PP-09-D-0016
Task Order ZJ03**

Prepared for

Alaska District U.S. Army Corps of Engineers

February 26, 2013

CH2MHILL®

2020 SW 4th Avenue

3rd Floor

Portland, Oregon 97201

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Tables

| | |
|---|---------------|
| 1 | Overall Costs |
|---|---------------|

Cost Estimate

1. Executive Summary

The construction cost for the project is described herein and in Table 1.

TABLE 1
Overall Costs

Accuracy Range per ASTM E2516 – 11, Standard Classification for Cost Estimate Classification System, see Section 2.5

| Description | Amount | Rounded |
|-------------------|---------------|---------------|
| Option 5 estimate | \$619,720,950 | \$620,000,000 |
| Hi range + 30% | \$805,637,235 | \$805,000,000 |
| Lo range – 15% | \$526,762,807 | \$525,000,000 |

ASTM = American Society for Testing and Materials (formerly, now ASTM International)

The executive summary provides an overview of the Cost Estimate. Reliance on this information is advised to be in consideration of the full context of this report.

2. Estimate Information

2.1 Purpose of Estimate

The purpose of this Cost Estimate is to establish an engineer's opinion of probable cost for design documents at 15% concept design, suitable for further development using U.S. Army Corps of Engineers (USACE) Cost and Schedule Risk Analysis (CSRA) Guidance (17 May 2009) to calculate total project costs.

2.2 Client

The client is the Alaska District USACE.

2.3 Project Location and General Scope

The project is located on the Knik Arm, within the Municipality of Anchorage, Alaska, approximately 1 mile north of downtown Anchorage. The scope of the work is to demolish an existing wharf, trestle and sheet pile wall, construct a new wharf, trestle and sheet pile wall, complete with associated excavation, grading, paving, drainage, stevedore facilities, and utilities.

2.4 Date and Preparation

The estimate was prepared January and February 2013, by CH2M HILL team members as listed:

- Jorge Abisambra/WPB
- Robert Wells/PDX, phone 503-872-4622 x24622
- Joe Taylor/ANC (quantities)
- John O'Reilly/SAC (quality assurance and quality control)

The estimate was requested by Doug Playter/ATL for project number 462130.

2.5 Estimate Classification and Methodology

This cost estimate prepared is considered a Budget Level or Class 4 estimate per American Society for Testing and Materials (ASTM) E2516-11. It is considered accurate to +30% to -15%, based upon a design deliverable (15% Concept Plans).

The estimating effort did decompose the scope to a sufficient level to support a thorough analysis of all major cost elements at the work package level, for purposes of performing risk analysis and identifying those critical items which might be expected to create cost variances of +0.5% in the bottom line estimate.

The individual scope items inclusions under Section 3.b.vi of the Task Order preceded by an asterisk were estimated by parametric estimating techniques. The estimated costs for these asterisked items were developed using the 11 April 2012 Port of Anchorage (POA) Intermodal Expansion Project Budgetary Cost Estimate Report and calculated as "blended costs" per unit of measure. The estimated costs for the Marine Terminal Buildings (complete structures, including foundation, structure, shell, interior finishes, and all utilities) were calculated by parametric technique.

This estimate was developed, as required by USACE CSRA Guidance (17 May 2009), as an input to the CSRA. The CSRA is a separate document prepared concurrently with this estimate. The CSRA then used three-point range estimates for each of the 15% Concept Plans to forecast costs for each scope element not otherwise identified for estimation by parametric techniques. Further, *Monte Carlo* assessment performed a sensitivity analysis of critical items and a simulation on the individual cost elements to provide a probabilistic evaluation of the reported estimated project costs (Cost Risk Analysis Model). A quantitative analysis was performed for those project risks identified for such analysis (Risk Register development and Qualitative Analysis from Task 3, Charrette). This information, along with further supplemental information derived from PDT members during the cost estimating phase, formed the basis of the Cost Risk Analysis and Schedule Risk Analysis under the CSRA effort.

The estimate is appended to this report as Appendix A.

3. Basis of Estimate

3.1 Basis Documents

The estimate is based on 15% drawings for Option 5, developed by CH2M HILL, dated February 2013. Additionally, the estimate used portions of the POA Intermodal Expansion Project Budgetary Cost Estimate Report estimate prepared 11 April 2012, as directed, for parametric cost estimating.

3.2 Key Assumptions

- Project is to be offered to bidders on a lowest responsive basis, in time to allow construction progress to begin April 2015.
- Permitting and regulatory agencies to have issued all permits, modifications, and amendments, so as not to impede the construction start and progress in any way.
- Project is to be fully funded prior to the start of construction.

3.3 Project Delivery Schedule and Method

It is assumed that the environmental, permitting, and design phase will continue to early 2015, with a bid and award date that supports an April 2015 construction start. The scheduled duration for Option 5 is 54 months, ending late 2019. The assumed delivery method is a single prime contract with the Municipality of Anchorage, Alaska.

3.4 Labor, Materials, Subcontracts and Other Direct Costs

3.4.1 Labor

Labor rates used are based on 2013 prevailing wage rates adjusted for Anchorage, Alaska, as well as those used in the POA Intermodal Expansion Project Budgetary Cost Estimate Report estimate prepared 11 April 2012, adjusted for inflation by 1.28%.

3.4.2 Materials

Materials pricing is based on recent and historical vendor quotations, as well as pricing used in the POA Intermodal Expansion Project Budgetary Cost Estimate Report estimate prepared 11 April 2012, adjusted for inflation by 1.28%.

3.4.3 Subcontracts

It is assumed that the Prime Contractor may employ various specialty subcontractors, such as electrical, telecom, utility and earthwork subcontractors.

3.4.4 Long Lead Items

Galvanized steel sheet and cylinder piling, fender materials assumed to be 5 months lead-time.

3.4.5 Owner Supplied

Steel sheet pile in quantities assumed to supply the majority of bulkhead materials.

3.4.7 Allowances

Landscaping allowance for restoration of disturbed areas, \$150,000 subcontractor price.

3.5 Markups, Taxes and Other Indirect Costs

Detail on markups used, taxes included, contingencies, or owner costs or any other cost additions. Note that the costs and pricing used.

| | |
|--|------|
| • General requirements/site indirect costs | 10% |
| • Taxes on material and equipment | 0% |
| • Prime Overhead, Profit | 20% |
| • Bond | 1% |
| • Contingency | 20% |
| • PM, CM and Design (Owner's Costs) | 18% |
| • Owner's Contingency (Reserve) | 8.5% |

3.6 Market Conditions

Market conditions adjustments were not considered for this project; it remains market neutral. An adjustment is unwarranted because of market condition volatility and because the project is to be executed in the future.

3.7 Escalation Costs

Escalation is based on USACE EM 1110-2-1304 (31 March 2012), TABLE A-1, QUARTERLY COST INDEX BY CWBS FEATURE CODE. Feature codes relevant to this project are:

- 08 Roads, Railroads, and Bridges (Cherry Hill Road, Rail extension)
- 12 Navigation Ports & Harbors (Wharf and bulkhead, including dredging and demo)
- 16 Bank Stabilization (Slope protection)
- 19 Buildings, Grounds, & Utilities (Landside work)

Escalation costs are estimate in two parts: The first part is to escalate the project costs prepared in February 2013 dollars to the assumed bid date of April 2015; the second part is the escalation of costs through the duration of the project, the mid-point of which is assumed to be mid 2014. The severing of escalation will allow the project to input into CSRA, removing only the escalation for the project duration, which then will be modeled per the CSRA guidance.

The use of costs, as directed, from the POA Intermodal Expansion Project Budgetary Cost Estimate Report, dated 11 April 2012, required the addition of 1.28% escalation to bring it current to the year and month of estimate, February 2013.

3.8 Detailed Scope, Clarifications, Inclusions and Exclusions

3.8.1 Civil Scope

Option 5 would involve construction of new pile-supported wharves and trestles at the same location as the wharves and trestles at Terminals 2 and 3. A new sheet pile bulkhead would be required at the north extension and behind the new berths at Terminals 2 and 3, in front of the existing port upland area. Approximately 27 acres of new paved upland area would be provided, along with a new Wet Barge Berth.

The integrity and function of the existing Dry Barge Berth would be maintained, but removal of the existing OCSP® system, mass excavation of existing embankment, and construction dredging would be required. The remaining slopes would be protected with a layer of armor stone.

3.8.2 Demolition of Existing Infrastructure and Mass Excavation

The Option 5 demolition plan is depicted in Civil Sheet C4 of Appendix F. Option 5 would require significant demolition of existing infrastructure and mass excavation.

At the southern end of the project, existing Terminals 2 and 3, including utilities, crane rail, wharf, and piling, would require demolition.

At the north extension portion of the project, the OCSP® system including tail walls would be demolished from the existing Dry Barge Berth south. The portions of traditional Z-pile walls previously installed at the north extension would also be removed. The OCSP® system installed for the Dry Barge Berth would remain in place.

Mass excavation of previously constructed embankment and construction dredging would be required. Salvage of existing armor stone would also be included. Concept excavation, dredging, and armor stone salvage quantities are shown in the civil partial site plans and typical sections in Appendix F. The existing Dry Barge Berth would be maintained in approximately its existing condition but some regrading at the interface between the Dry Barge Berth and new upland area would be required.

3.8.3 Civil Elements to be Constructed

Option 5 would include the following specific civil design elements:

- Water service and fire suppression lines
- Sanitary sewer lines
- Storm drain piping and inlets
- Electrical, communication, security, and crane power lines
- Cherry Hill Haul Road realignment and new rail spur
- Paved upland area
- Landscaped areas
- Site grading and drainage

3.8.4 Structural Scope

The main structural components of Option 5 would consist of three pile-supported wharves, nine access trestles, a cellular steel sheet pile bulkhead, and several retaining walls. Other ancillary structural components to support port operations would include heavy-duty fenders, mooring bollards, quick release hooks along the wharf face, two stevedore buildings, and container-crane-supporting infrastructure. The pile-supported wharves would provide 2,900 linear feet of new dock face and three new berths: (1) a barge berth to support containerized, break bulk, or bulk cargo operations; (2) an roll-on/roll-off (RO/RO) berth to support containerized RO/RO operations; and (3) a container cargo berth to support lift-on/lift-off (LO/LO) container cargo operations.

3.8.5 Slope Protection

The embankment slopes at the Wet Barge Berth and north extension location would be covered by a 6-foot-thick layer of armor rock and riprap. Use of the armor rock and riprap would be a mitigation measure to prevent piping conditions at the slope surface.

3.8.6 Corrosion Protection

Corrosion Protection System for Pile-Supported Wharf

The steel casing in the top part of the hybrid piles would be sacrificial. The presence of the steel casing would delay onset of corrosion in the reinforced concrete core. A corrosion allowance is built into the design of the hollow steel pipe pile that would form the lower part of the hybrid pile. All steel reinforcing bar used in the pile-supported wharf and trestle, including deck, piles, and pile caps, would be epoxy-coated to increase corrosion resistance. High-performance concrete water/cement ratio and air entrainment admixture will be in accordance with American Concrete Institute 201.2R, *Guide to Durable Concrete*, to establish a dense, low-permeability concrete.

Corrosion Protection System for Sheet Pile Bulkhead and Retaining Wall

All existing sheet piles in the POA stockpile were specified to be hot-dip galvanized with a minimum zinc thickness of 6 to 12 mils. Galvanization would be the sole corrosion protection element for sheet piles exposed to the atmospheric and splash zones. An impressed current cathodic protection system would protect structural components submerged in or in contact with soil. Cathodic protection anodes would be installed on the seaside of sheet piling for protection of seaside surfaces, and additional anodes would be installed in drilled holes landside to protect surfaces exposed to soil and mud.

3.8.7 Exclusions

- Hazardous materials handling and disposal
- Natural gas utilities

3.9 Cost Resources

The following cost resources were used in the development of the cost estimate.

- 11 April 2012 POA Intermodal Expansion Project Budgetary Cost Estimate Report
- Vendor quotes on equipment and materials
- Estimator judgment

Attachment A
Cost Estimate Summary and Detail Reports

ESTIMATE RECAP - BID QUANTITIES

| | DIRECT | INDIRECT | TOTAL | % OF TOTAL |
|--------------|----------------|----------|----------------|------------|
| Labor | 15,073,502.50 | | 15,073,502.50 | 5.023% |
| Burden | 10,389,239.50 | | 10,389,239.50 | 3.462% |
| Lab+Bur | 25,462,742.00 | | 25,462,742.00 | 8.484% |
| Perm Matl | 127,209,652.93 | | 127,209,652.93 | 42.387% |
| Const Exp | 912,829.90 | | 912,829.90 | 0.304% |
| Equipment | 35,472,913.91 | | 35,472,913.91 | 11.820% |
| Subs | 65,749,217.44 | | 65,749,217.44 | 21.908% |
| Other | 45,309,689.49 | | 45,309,689.49 | 15.097% |
| Total Costs: | 300,117,045.67 | | 300,117,045.67 | 100.001% |
| % of Total | 100.000% | 0.000% | 100.000% | |

| Escalation on: | Labor | Burden | Perm Matl | Const Matl | Co Eqp | Rented Eqp |
|----------------|-----------|----------|-----------|------------|----------|------------------|
| | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % |
| | Eq Op Exp | Sub | Misc1 | Misc2 | Misc3 | Total Escalation |
| | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % |

* Data Below here is dependent on the Summary Process. *
The Summary Process was last run 02/26/2013 at 8:58 PM

| | | |
|--|-----------------------|--------------|
| Markup on Resource Costs | 68,745,517.13 | 22.9062% |
| MARKUP TOTALS ==> | 68,745,517.13 | 22.9062% |
| <i>Cost Addons</i> | | |
| Escalation to February 2015 3.4700 % of Cost, Mkup, & Prev | 13,014,571.31 | 4.3365% |
| Escalation to Proj Midpoint 3.9400 % of Cost, Mkup, & Prev | 15,290,125.97 | 5.0947% |
| Contingency 20.0000 % of Cost, Mkup, & Prev Addons | 80,672,877.84 | 26.8805% |
| PM, CM, Design 18.0000 % of Cost, Mkup, & Prev Addons | 87,126,708.06 | 29.0309% |
| Owner's Contingency 8.5000 % of Cost, Mkup, & Prev Addon | 48,548,937.88 | 16.1767% |
| Bond from Summary Table | 6,197,129.12 | 2.0649% |
| MARKUP, ADDON & BOND TOTALS ==> | 319,595,867.31 | 106.4904% |
| | ===== | (% of costs) |
| COST + MARKUP -----> | \$619,712,912.98 | |
| | (On Takeoff Quantity) | |

There * ARE NOT * closing accounts for this bid.

| | | |
|----------------------------|----------|-----------------------------|
| Rounding difference: | 8,036.58 | -Effect on Bid- Adjusted |
| Unbalancing difference: | | |
| From Cut&Add Sheet-costs: | | (on Bid Quantity) |
| From Cut&Add Sheet-markup: | | (on Bid Quantity) |
| Pass Through Adjustments: | | None |

02/26/2013
13-008-5
*** Bob Wells

21:00
POA 15% CONCEPT OPTION 5

BID TOTALS

| <u>Biditem</u> | <u>Description</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Bid Total</u> |
|----------------|--|-----------------|--------------|-------------------|------------------|
| 30040 | Construction Staging | 1.000 | LS | 1,865,869.73 | 1,865,869.73 |
| PHASE I | | | | | |
| 30050 | Demolition | 1.000 | LS | 33,287,672.92 | 33,287,672.92 |
| 30055 | Dredging | 1,581,000.000 | CY | 57.15 | 90,354,150.00 |
| 30060 | Piling Wharf Area I | 31,215.000 | FT | 1,105.24 | 34,500,066.60 |
| 30080 | Sheet Pile Bulkhead | 4,300.000 | LF | 13,679.75 | 58,822,925.00 |
| 30081 | Credit Free Issue Sheet Pile | 1.000 | LS | -19,064,062.12 | -19,064,062.1 |
| 30090 | Concrete Deck Superstructure | 51,600.000 | SF | 216.44 | 11,168,304.00 |
| 30100 | Abutments | 2.000 | EA | 316,564.83 | 633,129.66 |
| 30120 | Fendering | 1.000 | LS | 1,795,507.98 | 1,795,507.98 |
| 30140 | Slope Protection | 119,000.000 | CY | 231.71 | 27,573,490.00 |
| PHASE II & III | | | | | |
| 30250 | Demolition | 1.000 | LS | | |
| 30260 | Piling Wharf Area II & III | 168,378.000 | FT | 1,099.64 | 185,155,183.9 |
| 30290 | Concrete Deck Superstructure & Rail Foundation | 235,069.000 | SF | 214.06 | 50,318,870.14 |
| 30300 | Abutments | 7.000 | EA | 374,648.16 | 2,622,537.12 |
| 30310 | 100-gage Crain Rails | 2,160.000 | FT | 428.88 | 926,380.80 |
| 30320 | Fendering | 1.000 | LS | 3,995,096.26 | 3,995,096.26 |

***Subtotal Marine Work \$483,955,122.01

| | | | | | |
|----------------------|--|-------|----|---------------|---------------|
| GENERAL CONSTRUCTION | | | | | |
| 30550 | Surface Pavements | 1.000 | LS | 41,788,890.59 | 41,788,890.59 |
| 30560 | Traffic Control Parking | 1.000 | LS | 671,910.89 | 671,910.89 |
| 30570 | Surface water control | 1.000 | LS | 1,898,350.66 | 1,898,350.66 |
| 30580 | Potable Water Utilities | 1.000 | LS | 5,214,448.59 | 5,214,448.59 |
| 30590 | Fire Suppression Utilities | 1.000 | LS | 5,214,448.59 | 5,214,448.59 |
| 30600 | Sanitary Sewer Utilities | 1.000 | LS | 742,657.21 | 742,657.21 |
| 30610 | Electrical Power Utilities | 1.000 | LS | 19,077,805.75 | 19,077,805.75 |
| 30620 | Natural Gas Utilities | 1.000 | LS | 2.07 | 2.07 |
| 30630 | Telecommunications Utilities | 1.000 | LS | 6,776,026.11 | 6,776,026.11 |
| 30640 | Railroad Spur | 1.000 | LS | 14,048,783.48 | 14,048,783.48 |
| 30650 | Surface Restoration/Landscaping | 1.000 | LS | 309,735.61 | 309,735.61 |
| 30660 | Marine Terminal Buildings incl Crane Maint | 1.000 | LS | 5,999,649.02 | 5,999,649.02 |
| 30670 | Corrosion Control | 1.000 | LS | 23,254,949.79 | 23,254,949.79 |
| 30680 | Cherry Hill Road Upgrades | 1.000 | LS | 1,699,597.78 | 1,699,597.78 |
| 30690 | Other | 1.000 | LS | 9,068,571.41 | 9,068,571.41 |

***Subtotal General Construction \$135,765,827.55

Bid Total =====> \$619,720,949.56

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | Total |
|----------|------|----------|------|------|-------|----------|----------|------|----------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment | Contract |

PARENT ITEM = 30040 CLIENT# = 02-12

Description = Construction Staging Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

Listing of Sub-Biditems of Parent Item 30040:

PARENT ITEM = 30042 CLIENT# = 03-12

Description = Mobilization and Demobilization Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

Listing of Sub-Biditems of Parent Item 30042:

BID ITEM = 30043 CLIENT# = 03-12

Description = Mobilization Land Item SCHEDULE: 1 100 Unit = LS Takeoff Quan: 1.000 Engr Quan: 0.000

219000 Misc Hauling/Trucking Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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20 loads x 1 = 20 hours

5TRKFB Trucking - Flat Bed 20.00 HR 100.000 2,000 2,000

540000 Temporary Construction Fence Quan: 750.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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a 6 feet link fence will cost \$9.00/ ft. then can be sold installed at \$15/ft

31CHAINFENCE Temporary Chainlinkfence 750.00 LF 12.000 9,000 9,000

890005 Pile Crew Mobilization Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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Mobilization form Tacoma Washington

| | | | | | | | | | |
|------------|----------------------------|-------|----------|-------|----------|----------|-------|----------|-------|
| MARPIL | Marine Piling & Demo Crew | 20.00 | CH | Prod: | 2.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 2.00 | DA | | | 140 | | | 140 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | | 200.000 | | 400 | | 400 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 20.00 HR | | 163.361 | | 3,267 | | 3,267 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 20.00 HR | | 17.500 | | 350 | | 350 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 20.00 HR | | 3.000 | | 60 | | 60 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 20.00 HR | | 10.000 | | 200 | | 200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 20.00 HR | | 17.500 | | 350 | | 350 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 20.00 HR | | 20.000 | | 400 | | 400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | | 3.000 | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | | 5.000 | | 100 | | 100 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 20.00 HR | | 10.000 | | 200 | | 200 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 20.00 HR | | 0.100 | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 20.00 HR | | 3.000 | | 60 | | 60 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 20.00 HR | | 3.500 | | 70 | | 70 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 20.00 HR | | 5.000 | | 100 | | 100 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 20.00 HR | | 6.500 | | 130 | | 130 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 20.00 HR | | 10.000 | | 200 | | 200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 20.00 HR | | 2.500 | | 50 | | 50 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 20.00 HR | | 45.492 | | 910 | | 910 |
| 9100000 | Substance 5 workers | 2.00 | DA | | 500.000 | 1,000 | | | 1,000 |
| M105 | Foreman - General Marine | 1.00 | 20.00 MH | | 35.720 | 1,251 | | | 1,251 |
| M165 | M-Piledriver | 1.00 | 20.00 MH | | 34.950 | 1,385 | | | 1,385 |

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | Total |
|----------------------------|--------------------------|----------|-----------|-------------|---------|----------|----------|---------------|--------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment Contract | |
| BID ITEM = 30043 | | | | | | | | | |
| CLIENT# = 03-12 | | | | | | | | | |
| Land Item | | | | | | | | | |
| SCHEDULE: 1 100 | | | | | | | | | |
| Description = Mobilization | | | | Unit = LS | Takeoff | Quan: | 1.000 | Engr Quan: | 0.000 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | 1,561 |
| M190 | M-Skilled Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | 1,399 |
| M195 | M-Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | 1,399 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | 1,342 |
| \$16,384.16 | 120.0000 MH/LS | | 120.00 MH | [4878.94] | 8,335 | | 1,140 | 6,909 | 16,384 |

890006 Carpenter Crew Mob **Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | | | | | |
|---------------|--------------------------|------|-----------|--------------|-----------------|----------|-------|----------|--------|
| MARWOO | Marine Carpenters Crew | | 20.00 CH | Prod: | 2.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | 200.000 | | | 400 | | 400 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 20.00 HR | 106.961 | | | 2,139 | | 2,139 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 20.00 HR | 0.100 | | | 2 | | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MFW-A-2 | Work Float | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | 70 | | 70 |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8WELD400 | Welder 400 AMP | 2.00 | 40.00 HR | 2.044 | | | 82 | | 82 |
| M100 | Foreman - Carpenter | 1.00 | 20.00 MH | 34.720 | 1,222 | | | | 1,222 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | 1,561 |
| M173 | M-Lead Carpenter | 1.00 | 20.00 MH | 35.490 | 1,400 | | | | 1,400 |
| M175 | M-Carpenter | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | 4,201 |
| M180 | M-Carpenter Helper | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | 4,201 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | 1,342 |
| \$17,589.31 | 200.0000 MH/LS | | 200.00 MH | [7994.58] | 13,926 | | 3,663 | | 17,589 |

960015 Rigging Supplies **Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | | | | | |
|-----------|------------------|------|----|------------|--|--|--------|--|--------|
| 31RIGGING | Rigging Supplies | 1.00 | LS | 15,000.000 | | | 15,000 | | 15,000 |
|-----------|------------------|------|----|------------|--|--|--------|--|--------|

=====> **Item Totals: 30043 - Mobilization**

| | | | | | | | | | |
|-------------|----------------|-----------|--------------|-----------|--|-----------|-----------|--|---------------|
| \$59,973.47 | 320.0000 MH/LS | 320.00 MH | [12873.52] | 22,261 | | 27,140 | 10,572 | | 59,973 |
| 59,973.470 | 1 LS | | | 22,261.43 | | 27,140.00 | 10,572.04 | | 59,973.47 |

| | | | | | | | | | |
|------------------------------|--|--|--|-----------|---------|-------|-------|------------|-------|
| BID ITEM = 30044 | | | | | | | | | |
| CLIENT# = 03-12 | | | | | | | | | |
| Land Item | | | | | | | | | |
| SCHEDULE: 1 100 | | | | | | | | | |
| Description = Transportation | | | | Unit = LS | Takeoff | Quan: | 1.000 | Engr Quan: | 0.000 |

219000 Misc Hauling/Trucking **Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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Miscellaneous trucking to mobilize equipment to the site and demob. small cranes and loaders, trailers and containers.

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|----------------------------|-----------------|--------------|----------------|------------------|------------------|--------------------|---------------|------------------|--------------|
| BID ITEM = 30044 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Transportation | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 0.000 |
| 20 loads x 4 hours = 80 hours | | | | | | | | | | |
| 5TRKFB | Trucking - Flat Bed | 80.00 | HR | 100.000 | | | 8,000 | | | 8,000 |
| 890007 | Marine Tugs | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
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| rental tugging services to and from Tacoma, Washington State. Distance Tacoma to Anchorage: 1,472 N Miles at 4.5 knots, 1,472/4.5= 327 hours ==> 13.62 days say 14 days 14 days in and 14 days back 2 days on stand by = 30 days then tug needs to go back and do it all over again for demobilization so, say 60 days | | | | | | | | | | |
| 5TUGSERVICE | Tug Rental | 60.00 | DA | 6,500.000 | | | 390,000 | | | 390,000 |
| 8211060 | ==> Fuel, Oil, Grease 1400 | 60.00 | DA | 5,810.000 | | | | 348,600 | | 348,600 |
| \$738,600.00 | | | | [] | | | 390,000 | 348,600 | | 738,600 |
| ===== Item Totals: 30044 - Transportation | | | | | | | | | | |
| \$746,600.00 | | | | [] | | | 398,000 | 348,600 | | 746,600 |
| 746,600.000 | | 1 LS | | | | | 398,000.00 | 348,600.00 | | 746,600.00 |

BID ITEM = 30046 CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Demobilization Unit = LS Takeoff Quan: 1.000 Engr Quan: 0.000

115000 Remove Fence (Chain Link) Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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Per drawings there are 750 ft of link fencing to limit the construction site

| | | | | | | | | | |
|---------------|--------------------------|--------|-------|-------------|----------|----------|-------|----------|--------|
| <u>MARLAN</u> | Demolition Crew on land | 10.00 | CH | Prod: | 1.0000 S | Lab Pcs: | 19.00 | Eqp Pcs: | 13.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.00 | DA | 200.000 | | | 200 | | 200 |
| 8BHL480 | BHL Cat 450E 1.75CY | 8.00 | 80.00 | 45.473 | | | 3,638 | | 3,638 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 10.00 | 106.961 | | | 1,070 | | 1,070 |
| 8TRKPU10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 40.00 | 7.044 | | | 282 | | 282 |
| 9100010 | Substance 10 workerrs | 1.00 | DA | 1,000.000 | | 1,000 | | | 1,000 |
| M105 | Foreman - General Marine | 1.00 | 10.00 | 35.720 | 625 | | | | 625 |
| M150 | M-Operator, Crane | 1.00 | 10.00 | 39.190 | 756 | | | | 756 |
| M195 | M-Laborer | 8.00 | 80.00 | 35.430 | 5,594 | | | | 5,594 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 10.00 | 39.190 | 671 | | | | 671 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 80.00 | 37.430 | 5,193 | | | | 5,193 |
| \$19,029.26 | 190.0000 MH/LS | 190.00 | MH | [7666.78] | 12,840 | 1,000 | 5,189 | | 19,029 |

890010 Subcontractor Pile Crew Demobilization Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|---------------|----------------------------|-------|-------|---------|----------|----------|-------|----------|-------|
| <u>MARPIL</u> | Marine Piling & Demo Crew | 20.00 | CH | Prod: | 2.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 2.00 | DA | 70.000 | | 140 | | | 140 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | 200.000 | | | 400 | | 400 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 20.00 | 163.361 | | | 3,267 | | 3,267 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 20.00 | 17.500 | | | 350 | | 350 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 20.00 | 3.000 | | | 60 | | 60 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 20.00 | 10.000 | | | 200 | | 200 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|-------------------------|--------------------------|-----------------|----------|--------------|---------------|--------------------|-------------------|------------------|--------|
| BID ITEM = 30046 | CLIENT# = 03-12 | | | | | | | | |
| Description = | Demobilization | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 0.000 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 20.00 HR | 17.500 | | | 350 | | 350 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 20.00 HR | 20.000 | | | 400 | | 400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 20.00 HR | 0.100 | | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | 70 | | 70 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 20.00 HR | 2.500 | | | 50 | | 50 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 20.00 HR | 45.492 | | | 910 | | 910 |
| 9100000 | Substance 5 workers | 2.00 | DA | 500.000 | | | 1,000 | | 1,000 |
| M105 | Foreman - General Marine | 1.00 | 20.00 MH | 35.720 | 1,251 | | | | 1,251 |
| M165 | M-Piledriver | 1.00 | 20.00 MH | 34.950 | 1,385 | | | | 1,385 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | 1,561 |
| M190 | M-Skilled Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | 1,399 |
| M195 | M-Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | 1,399 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | 1,342 |
| \$16,384.16 | 120.0000 MH/LS | 120.00 | MH | [4878.94] | 8,335 | | 1,140 | 6,909 | 16,384 |

890011 Subcontractor Carpenter Crew Demob Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|---------------|--------------------------|--------|----------|--------------|-----------------|----------|-------|----------|--------|
| <u>MARWOO</u> | Marine Carpenters Crew | | 20.00 CH | Prod: | 2.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 2.00 DA | 200.000 | | | 400 | | 400 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 20.00 HR | 106.961 | | | 2,139 | | 2,139 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 20.00 HR | 0.100 | | | 2 | | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MFW-A-2 | Work Float | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | 70 | | 70 |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8WELD400 | Welder 400 AMP | 2.00 | 40.00 HR | 2.044 | | | 82 | | 82 |
| M100 | Foreman - Carpenter | 1.00 | 20.00 MH | 34.720 | 1,222 | | | | 1,222 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | 1,561 |
| M173 | M-Lead Carpenter | 1.00 | 20.00 MH | 35.490 | 1,400 | | | | 1,400 |
| M175 | M-Carpenter | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | 4,201 |
| M180 | M-Carpenter Helper | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | 4,201 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | 1,342 |
| \$17,589.31 | 200.0000 MH/LS | 200.00 | MH | [7994.58] | 13,926 | | 3,663 | | 17,589 |

=====> **Item Totals: 30046 - Demobilization**

| | | | | | | | | | |
|-------------|----------------|--------|----|-------------|-----------|--|----------|-----------|---------------|
| \$53,002.73 | 510.0000 MH/LS | 510.00 | MH | [20540.3] | 35,101 | | 2,140 | 15,761 | 53,003 |
| 53,002.730 | 1 LS | | | | 35,101.48 | | 2,140.00 | 15,761.25 | 53,002.73 |

Total of Above Sub-Biditems

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|----------------|-----------------|--------------|--------------|---------------|------------------|--------------------|---------------|------------------|------------|
| BID ITEM = 30046 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Demobilization | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 0.000 |
| =====> Item Totals: 30042 - Mobilization and Demobilization | | | | | | | | | | |
| \$859,576.20 | 830.0000 MH/LS | 830.00 MH | [33413.82] | 57,363 | | 427,280 | 374,933 | | | 859,576 |
| 859,576.200 | 1 LS | | | 57,362.91 | | 427,280.00 | 374,933.29 | | | 859,576.20 |

| | | | | | | | | | | |
|-------------------------|--|-----------------|-----------|-------------|---------------|--|---------|------------|--|-------|
| BID ITEM = 30047 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Environmental Protection & Turbidity Bar | | Unit = | FT | Takeoff Quan: | | 664.000 | Engr Quan: | | 0.000 |
| call on the plans D-101 | | | | | | | | | | |

430000 Silt Fence - Install **Quan: 1,000.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | | | | | |
|-------------|------------------------|---------------|-----------|--------------|--------------------|----------|------|----------|-------|
| LAB3 | Foreman + 2 Laborers | | 10.00 CH | Prod: | 100.0000 UH | Lab Pcs: | 3.00 | Eqp Pcs: | 1.00 |
| 31ECSF | Silt Fence | 1,000.00 LF | | 1.000 | | 1,000 | | | 1,000 |
| 8TRKPU70 | Leased 4x2, 3/4 Ton Ga | 1.00 10.00 HR | | 8.476 | | | 85 | | 85 |
| LFORMN | Laborer-Foreman | 1.00 10.00 MH | | 34.720 | 613 | | | | 613 |
| LPWR | Laborer-Power Tools | 2.00 20.00 MH | | 34.720 | 1,226 | | | | 1,226 |
| \$2,924.45 | 0.0300 MH/LF | 30.00 MH | [1.146] | 1,840 | | 1,000 | 85 | | 2,924 |

432000 Turbidity Barrier **Quan: 1,000.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | | | | | |
|---------------|----------------------------|---------------|-----------|--------------|-----------------|----------|-------|----------|--------|
| MARPIL | Marine Piling & Demo Crew | | 10.00 CH | Prod: | 1.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3TRUBIDITYBA | Turbidity Barrier | 1,000.00 LF | | 14.000 | | 14,000 | | | 14,000 |
| 3WELD | Weld Supplies (1 man-Stick | 1.00 DA | | 70.000 | | 70 | | | 70 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.00 DA | | 200.000 | | | 200 | | 200 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 10.00 HR | | 163.361 | | | 1,634 | | 1,634 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 10.00 HR | | 17.500 | | | 175 | | 175 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 10.00 HR | | 3.000 | | | 30 | | 30 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 10.00 HR | | 10.000 | | | 100 | | 100 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 10.00 HR | | 17.500 | | | 175 | | 175 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 10.00 HR | | 20.000 | | | 200 | | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 10.00 HR | | 3.000 | | | 30 | | 30 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 10.00 HR | | 5.000 | | | 50 | | 50 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 10.00 HR | | 10.000 | | | 100 | | 100 |
| 8MFD-A-1 | FAIRLEADS | 1.00 10.00 HR | | 0.100 | | | 1 | | 1 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 10.00 HR | | 3.000 | | | 30 | | 30 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 10.00 HR | | 3.500 | | | 35 | | 35 |
| 8MPE-A-11 | Extractor Pile | 1.00 10.00 HR | | 5.000 | | | 50 | | 50 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 10.00 HR | | 6.500 | | | 65 | | 65 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 10.00 HR | | 10.000 | | | 100 | | 100 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 10.00 HR | | 2.500 | | | 25 | | 25 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 10.00 HR | | 45.492 | | | 455 | | 455 |
| 9100000 | Substance 5 workers | 1.00 DA | | 500.000 | | 500 | | | 500 |
| M105 | Foreman - General Marine | 1.00 10.00 MH | | 35.720 | 625 | | | | 625 |
| M165 | M-Piledriver | 1.00 10.00 MH | | 34.950 | 692 | | | | 692 |
| M170 | M-Welder | 1.00 10.00 MH | | 41.050 | 780 | | | | 780 |
| M190 | M-Skilled Laborer | 1.00 10.00 MH | | 35.430 | 699 | | | | 699 |
| M195 | M-Laborer | 1.00 10.00 MH | | 35.430 | 699 | | | | 699 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 10.00 MH | | 39.190 | 671 | | | | 671 |
| \$22,192.08 | 0.0600 MH/LF | 60.00 MH | [2.439] | 4,168 | | 14,570 | 3,455 | | 22,192 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Ment | Contract | Total |
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|--------------|----------|-------|
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|--------------|----------|-------|

BID ITEM = 30047 CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Environmental Protection & Turbidity Bar Unit = FT Takeoff Quan: 664.000 Engr Quan: 0.000

432005 Erosion Control - Hay Bales **Quan: 400.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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A bale size of 14"x18"x22" will weigh about 37 to 43 lbs. This is a safer bale weight for many people to handle

it means the length is 22"/12= 1.83 ft

if there are 600 ft =====> qty of bales are: 600/1.83=327 say 400 bales

| | | | | | | | | |
|-------------|------------------------|-----------|-----------|------------------------|----------|-------|----------|--------|
| LAB4 | Foreman + 3 Laborers | | 66.66 CH | Prod: 6.0000 UH | Lab Pcs: | 4.00 | Eqp Pcs: | 1.00 |
| 31ECHB | Hay Bales | 400.00 EA | | 5.000 | 2,000 | | | 2,000 |
| 8TRKPU70 | Leased 4x2, 3/4 Ton Ga | 1.00 | 66.67 HR | 8.476 | | 565 | | 565 |
| LFORMN | Laborer-Foreman | 1.00 | 66.67 MH | 34.720 | 4,088 | | | 4,088 |
| LPWR | Laborer-Power Tools | 3.00 | 200.00 MH | 34.720 | 12,265 | | | 12,265 |
| \$18,918.10 | 0.6666 MH/EA | 266.67 MH | | [25.462] | 16,353 | 2,000 | 565 | 18,918 |

=====> **Item Totals: 30047 - Environmental Protection & Turbidity Bar**

| | | | | | | | |
|-------------|--------------|-----------|------------|--------|--------|-------|---------------|
| \$44,034.63 | 0.5371 MH/FT | 356.67 MH | [20.738] | 22,360 | 17,570 | 4,104 | 44,035 |
| 66.317 | 664 FT | | | 33.68 | 26.46 | 6.18 | 66.32 |

Total of Above Sub-Biditems

=====> **Item Totals: 30040 - Construction Staging**

| | | | | | | | |
|----------------------|-------------------------|--------------------|---------------------|------------------|-------------------|-------------------|-------------------|
| \$903,610.83 | 1,186.6700 MH/LS | 1,186.67 MH | [47183.71] | 79,723 | 444,850 | 379,038 | 903,611 |
| \$903,610.830 | 1 LS | | | 79,723.18 | 444,850.00 | 379,037.65 | 903,610.83 |

BID ITEM = 30050 CLIENT# = 02-12 Marine Item SCHEDULE: 1 100
Description = Demolition Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

205025 Excavation to Waste **Marine** **Quan: 952,000.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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excavate 3,000 cy per day:

997,000cy/3000cy/day= 333 days

| | | | | | | | | |
|----------------|--------------------------|--------------|--------------|-------------------------|-----------|-----------|-----------|-----------|
| MARLAN | Demolition Crew on land | | 3,179.69 CH | Prod: 317.9699 S | Lab Pcs: | 19.00 | Eqp Pcs: | 13.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 317.97 DA | 200.000 | | 63,594 | | 63,594 |
| 8BHLD480 | BHL Cat 450E 1.75CY | 8.00 | 25,437.59 HR | 45.473 | | 1,156,724 | | 1,156,724 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 3,179.70 HR | 106.961 | | 340,104 | | 340,104 |
| 8TRKPU10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 12,718.80 HR | 7.044 | | 89,591 | | 89,591 |
| 9100010 | Substance 10 workers | | 317.97 DA | 1,000.000 | | 317,970 | | 317,970 |
| M105 | Foreman - General Marine | 1.00 | 3,179.70 MH | 35.720 | 198,876 | | | 198,876 |
| M150 | M-Operator, Crane | 1.00 | 3,179.70 MH | 39.190 | 240,479 | | | 240,479 |
| M195 | M-Laborer | 8.00 | 25,437.59 MH | 35.430 | 1,778,758 | | | 1,778,758 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 3,179.70 MH | 39.190 | 213,284 | | | 213,284 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 25,437.59 MH | 37.430 | 1,651,348 | | | 1,651,348 |
| \$6,050,727.11 | 0.0634 MH/CY | 60,414.28 MH | | [2.561] | 4,082,745 | 317,970 | 1,650,013 | 6,050,727 |

205030 Excavation to Stockpile **Marine** **Quan: 966,700.00 LS Hrs/Shft: 8.00 WC: NONE**

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stockpile 997,000 cy of soils from excavation:

997,000/15cy= 67,000 truck loads at \$350/load

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|

BID ITEM = 30050 CLIENT# = 02-12 Marine Item SCHEDULE: 1 100
Description = Demolition Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

cost per cy= \$350/15cy= \$23.5/cy
5TRKCY Trucking - CY 966,699.99 CY 8.000 7,733,600 7,733,600

500510 Removal of Open Cell Sheets Marine Quan: 15,300.00 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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consists of:

Open Cell wall #1: 28 back extensions of 230 ft= 6,440 ft and 27 semi circles of 3.14*30/2= 47ft*27= 1,267ft ==> 6,440+ 1,267= 7,707ft

Open Cell wall #2: 22 back extensions of 180 ft= 3,960ft + 47*21= 4,947 ft

Open Cell wall #3: 12 back extensions of 125 ft= 1,500+47*11= 2,017

Total cells: 7,707+4,947+2,017= 14,671 ft

Additional cicular cells

#1= 3.1416*100= 314 ft

semicicle#2= 314/2*2= 314 ft

Grand total removal: 14,671+314+314= 15,299 say 15,300 ft by 60 ft..

if removal is at a rate of 60 ft per day ==> 15,300/60= 255 days.

it can be faster using 2 crews. yet, fo the sake of developing costs we will assume on single crew.

| | | | | | | |
|----------------|----------------------------|-----------|----------|-------------------------|---------------|----------------|
| MARPIL | Marine Piling & Demo Crew | 2,550.00 | CH | Prod: 255.0000 S | Lab Pcs: 6.00 | Eqp Pcs: 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 255.00 | DA | 70.000 | 17,850 | 17,850 |
| 8211050 | Fuel, Oil, Grease 50g/d | 255.00 | DA | 200.000 | 51,000 | 51,000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 2,550.00 | HR 163.361 | 416,571 | 416,571 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 2,550.00 | HR 17.500 | 44,625 | 44,625 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 2,550.00 | HR 3.000 | 7,650 | 7,650 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 2,550.00 | HR 10.000 | 25,500 | 25,500 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 2,550.00 | HR 17.500 | 44,625 | 44,625 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 2,550.00 | HR 20.000 | 51,000 | 51,000 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 2,550.00 | HR 3.000 | 7,650 | 7,650 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 2,550.00 | HR 5.000 | 12,750 | 12,750 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 2,550.00 | HR 10.000 | 25,500 | 25,500 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 2,550.00 | HR 0.100 | 255 | 255 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 2,550.00 | HR 3.000 | 7,650 | 7,650 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 2,550.00 | HR 3.500 | 8,925 | 8,925 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 2,550.00 | HR 5.000 | 12,750 | 12,750 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 2,550.00 | HR 6.500 | 16,575 | 16,575 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 2,550.00 | HR 10.000 | 25,500 | 25,500 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 2,550.00 | HR 2.500 | 6,375 | 6,375 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 2,550.00 | HR 45.492 | 116,005 | 116,005 |
| 9100000 | Substance 5 workers | 255.00 | DA | 500.000 | 127,500 | 127,500 |
| M105 | Foreman - General Marine | 1.00 | 2,550.00 | MH 35.720 | 159,491 | 159,491 |
| M165 | M-Piledriver | 1.00 | 2,550.00 | MH 34.950 | 176,544 | 176,544 |
| M170 | M-Welder | 1.00 | 2,550.00 | MH 41.050 | 199,020 | 199,020 |
| M190 | M-Skilled Laborer | 1.00 | 2,550.00 | MH 35.430 | 178,312 | 178,312 |
| M195 | M-Laborer | 1.00 | 2,550.00 | MH 35.430 | 178,312 | 178,312 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,550.00 | MH 39.190 | 171,046 | 171,046 |
| \$2,088,979.95 | 1.0000 MH/FT | 15,300.00 | MH | [40.658] 1,062,725 | 145,350 | 880,905 |
| | | | | | | 2,088,980 |

500530 Removal of Rip Rap Marine Quan: 14,700.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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remove 136,000 cy

remove 600 cy/day ==> 226 days

if remove 1200 cy/day==> 113 days

| | | | | | | |
|---------------|-------------------------|--------|----|------------------------|----------------|----------------|
| MARLAN | Demolition Crew on land | 130.00 | CH | Prod: 13.0000 S | Lab Pcs: 19.00 | Eqp Pcs: 13.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 13.00 | DA | 200.000 | 2,600 | 2,600 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|----------------------|--------------------------|------------------------|---------------------|--------------------|--------------------|--------------|------------------|--------------------|---------------|------------------|-------------------|
| <hr/> | | | | | | | | | | | |
| BID ITEM | = 30050 | CLIENT# = 02-12 | | Marine Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Demolition | | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 1.000 |
| 8BHLD480 | BHL Cat 450E 1.75CY | 8.00 | 1,040.00 | HR | 45.473 | | | | 47,292 | | 47,292 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 130.00 | HR | 106.961 | | | | 13,905 | | 13,905 |
| 8TRKPU10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 520.00 | HR | 7.044 | | | | 3,663 | | 3,663 |
| 9100010 | Substance 10 workers | | 13.00 | DA | 1,000.000 | | | 13,000 | | | 13,000 |
| M105 | Foreman - General Marine | 1.00 | 130.00 | MH | 35.720 | 8,131 | | | | | 8,131 |
| M150 | M-Operator, Crane | 1.00 | 130.00 | MH | 39.190 | 9,832 | | | | | 9,832 |
| M195 | M-Laborer | 8.00 | 1,040.00 | MH | 35.430 | 72,723 | | | | | 72,723 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 130.00 | MH | 39.190 | 8,720 | | | | | 8,720 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 1,040.00 | MH | 37.430 | 67,514 | | | | | 67,514 |
| \$247,380.19 | 0.1680 MH/CY | | 2,470.00 | MH | [6.78] | 166,920 | | 13,000 | 67,460 | | 247,380 |
| <hr/> | | | | | | | | | | | |
| ===== | Item Totals: | 30050 | - Demolition | | | | | | | | |
| \$16,120,687.17 | 78,184.2800 MH/LS | | 78,184.28 | MH | [3159538.23] | 5,312,390 | | 8,209,920 | 2,598,377 | | 16,120,687 |
| 16,120,687.170 | 1 LS | | | | | 5,312,389.80 | | 8,209,919.92 | 2,598,377.45 | | 16,120,687.17 |

| | | | | |
|-----------------|----------------|------------------|--------------------|--------------------------|
| BID ITEM | = 30055 | Land Item | SCHEDULE: 1 | 100 |
| Description = | Dredging | Unit = | CY | Takeoff |
| | | | | Quan: 1,581,000.000 |
| | | | | Engr Quan: 1,581,000.000 |

| | | | | | |
|---------------|----------------------------|------------------------------|------------------------|-----------------|------------------|
| 640000 | Mechanical Dredging | Quan: 1,580,999.99 CY | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP |
|---------------|----------------------------|------------------------------|------------------------|-----------------|------------------|

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one mechanical crew does 1000 cy/day

2 crews will do 2,000cy/day=

1,225,000/2,000= 615 days ==> say 615 days

| | | | | | | |
|-----------------|----------------------------|----------|-----------|-------------------------|----------------|----------------|
| DREDGE | Marine Piling & Demo Crew | 7,937.26 | CH | Prod: 793.7265 S | Lab Pcs: 12.00 | Eqp Pcs: 36.00 |
| 3WELD | Weld Supplies (1 man-Stick | 1,984.32 | DA | 70.000 | 138,902 | 138,902 |
| 8211060 | Fuel, Oil, Grease 1400g/d | 992.16 | DA | 5,810.000 | 5,764,450 | 5,764,450 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 2.00 | 15,874.53 | HR | 163.361 | 2,593,279 |
| 8DRILLR | ***DRILLS - ROCK*** | 2.00 | 15,874.53 | HR | 17.500 | 277,804 |
| 8MAC-A-10 | Compressor 185 CFM | 2.00 | 15,874.53 | HR | 3.000 | 47,624 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 2.00 | 15,874.53 | HR | 10.000 | 158,745 |
| 8MBS-Z-10 | Scow Barge | 4.00 | 31,749.06 | HR | 227.000 | 7,207,037 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 2.00 | 15,874.53 | HR | 17.500 | 277,804 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 2.00 | 15,874.53 | HR | 20.000 | 317,491 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 2.00 | 15,874.53 | HR | 3.000 | 47,624 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 2.00 | 15,874.53 | HR | 5.000 | 79,373 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 2.00 | 15,874.53 | HR | 10.000 | 158,745 |
| 8MFD-A-1 | FAIRLEADS | 2.00 | 15,874.53 | HR | 0.100 | 1,587 |
| 8MGN-Z-11 | Generator 10 KW | 2.00 | 15,874.53 | HR | 3.000 | 47,624 |
| 8MLT-A-1 | Light Tower, Genie | 2.00 | 15,874.53 | HR | 3.500 | 55,561 |
| 8MPE-A-11 | Extractor Pile | 2.00 | 15,874.53 | HR | 5.000 | 79,373 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 2.00 | 15,874.53 | HR | 6.500 | 103,184 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 2.00 | 15,874.53 | HR | 10.000 | 158,745 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 2.00 | 15,874.53 | HR | 2.500 | 39,686 |
| 9100010 | Substance 10 workers | | 992.16 | DA | 1,000.000 | 992,160 |
| M105 | Foreman - General Marine | 2.00 | 15,874.53 | MH | 35.720 | 992,879 |
| M165 | M-Piledriver | 2.00 | 15,874.53 | MH | 34.950 | 1,099,037 |
| M170 | M-Welder | 2.00 | 15,874.53 | MH | 41.050 | 1,238,963 |
| M190 | M-Skilled Laborer | 2.00 | 15,874.53 | MH | 35.430 | 1,110,048 |
| M195 | M-Laborer | 2.00 | 15,874.53 | MH | 35.430 | 1,110,048 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 2.00 | 15,874.53 | MH | 39.190 | 1,064,811 |
| \$25,162,584.84 | 0.0602 MH/CY | | 95,247.18 | MH | [2.449] | 6,615,787 |
| | | | | | 1,131,062 | 17,415,735 |
| | | | | | | 25,162,585 |

| | | | | | |
|---------------|------------------------|------------------------------|------------------------|-----------------|------------------|
| 640010 | Spoils Disposal | Quan: 1,580,999.99 CY | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP |
|---------------|------------------------|------------------------------|------------------------|-----------------|------------------|

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Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | Total |
|----------|------|----------|------|------|-------|----------|----------|------|----------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment | Contract |

BID ITEM = 30055

Land Item SCHEDULE: 1 100

Description = Dredging Unit = CY Takeoff Quan: 1,581,000.000 Engr Quan: 1,581,000.000

I believe that dredging spoils end up at a permitted disposal site farther south in Cook Inlet, typically transported by barge/dredging scow. Doug might know better, but I would not expect that muck to be trucked anywhere in the MOA.

- Joe

| | | | | | | | | |
|-----------------|---------------------------|-----------|-----------|------------------|----------------|----------------|------------|------------|
| DDISPO | Dredge Disposal | 7,937.26 | CH | Prod: 793.7265 S | Lab Pcs: 10.00 | Eqp Pcs: 15.00 | | |
| 8211060 | Fuel, Oil, Grease 1400g/d | 992.16 | DA | 5,810.000 | 5,764,450 | 5,764,450 | | |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 7,937.27 | HR | 106.961 | 848,978 | 848,978 | |
| 8DOZER | Bulldozer | 2.00 | 15,874.53 | HR | 50.000 | 793,727 | 793,727 | |
| 8EXCAV-Z-1 | Excavator | 2.00 | 15,874.53 | HR | 45.000 | 714,354 | 714,354 | |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 7,937.27 | HR | 3.000 | 23,812 | 23,812 | |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 7,937.27 | HR | 17.500 | 138,902 | 138,902 | |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 7,937.27 | HR | 20.000 | 158,745 | 158,745 | |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 7,937.27 | HR | 3.000 | 23,812 | 23,812 | |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 7,937.27 | HR | 0.100 | 794 | 794 | |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 7,937.27 | HR | 3.000 | 23,812 | 23,812 | |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 7,937.27 | HR | 3.500 | 27,780 | 27,780 | |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 7,937.27 | HR | 2.500 | 19,843 | 19,843 | |
| 8PMP-Z-1 | Slurry Pump | 2.00 | 15,874.53 | HR | 150.000 | 2,381,180 | 2,381,180 | |
| 9100000 | Substance 5 workers | 992.16 | DA | 500.000 | 496,080 | 496,080 | | |
| M105 | Foreman - General Marine | 1.00 | 7,937.27 | MH | 35.720 | 496,440 | 496,440 | |
| M170 | M-Welder | 1.00 | 7,937.27 | MH | 41.050 | 619,482 | 619,482 | |
| M195 | M-Laborer | 3.00 | 23,811.80 | MH | 35.430 | 1,665,072 | 1,665,072 | |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 7,937.27 | MH | 39.190 | 532,406 | 532,406 | |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 4.00 | 31,749.06 | MH | 37.430 | 2,061,074 | 2,061,074 | |
| \$16,790,741.93 | 0.0502 MH/CY | 79,372.67 | MH | [2.054] | 5,374,474 | 496,080 | 10,920,188 | 16,790,742 |

905 MOBILIZATION-DEMobilIZATION Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | |
|-------|-------------------------|------|----|---------------|-----------|-----------|
| 5MOBE | Dredging Mob and Demobe | 1.00 | LS | 1,800,000.000 | 1,800,000 | 1,800,000 |
|-------|-------------------------|------|----|---------------|-----------|-----------|

====> Item Totals: 30055 - Dredging

| | | | | | | | | |
|-----------------|--------------|------------|----|-----------|------------|-----------|------------|------------|
| \$43,753,326.77 | 0.1104 MH/CY | 174,619.85 | MH | [4.504] | 11,990,261 | 3,427,142 | 28,335,924 | 43,753,327 |
| 27.674 | 1581000 CY | | | | 7.58 | 2.17 | 17.92 | 27.67 |

BID ITEM = 30060

CLIENT# = 02-12

Marine Item SCHEDULE: 1 100

Description = Piling Wharf Area I

Unit = FT Takeoff Quan: 31,215.000 Engr Quan: 31,215.000

AREA 1

48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in
Wall Thickness = 1.000 in

| Tip Elevation | Top Elevation | Length (ft) | Quantity | Total Length (ft) | Unit Weight (lb/ft) | Weight (lb) |
|---------------|---------------|-------------|----------|-------------------|---------------------|-------------|
|---------------|---------------|-------------|----------|-------------------|---------------------|-------------|

| | | | | | | |
|-----------|---|-----------|--------|--------------|---------|--|
| 31,215.00 | 1 | 31,215.00 | 502.43 | 15,683,352.5 | 7,841.7 | |
|-----------|---|-----------|--------|--------------|---------|--|

Coating

| Tip Elevation | Top Elevation | Length (ft) | Quantity | Diameter | Coating(SF) |
|---------------|---------------|-------------|-----------|----------|-------------|
| 115.61 | 180 | 48 | 261,506.8 | | |

| Pipe Qty | Piles | Pile Length | Total Length | Concrete Fill Volume | Concrete (CF) | Rebar (Ft) |
|----------|-------|-------------|--------------|----------------------|---------------|------------|
|----------|-------|-------------|--------------|----------------------|---------------|------------|

| | | | | | | |
|-----|----|-----|----------|-------|----------|--------|
| A1 | 18 | 178 | 3,204.00 | 85.00 | 19,226.6 | 25,632 |
| A19 | 17 | 178 | 3,026.00 | 85.00 | 18,158.4 | 24,208 |
| B1 | 18 | 178 | 3,204.00 | 85.00 | 19,226.6 | 25,632 |
| B19 | 17 | 178 | 3,026.00 | 85.00 | 18,158.4 | 24,208 |
| C1 | 18 | 173 | 3,114.00 | 85.00 | 19,226.6 | 25,632 |
| C19 | 17 | 173 | 2,941.00 | 85.00 | 18,158.4 | 24,208 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|-------|------------------|--------------------|---------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|-------|------------------|--------------------|---------------|------------------|-------|

BID ITEM = 30060 CLIENT# = 02-12 Marine Item SCHEDULE: 1 100
Description = Piling Wharf Area I Unit = FT Takeoff Quan: 31,215.000 Engr Quan: 31,215.000

| | | | | | | | | | | |
|---------|-------|-----------|-----------|-------|----------|--------|--|--|--|--|
| D1 | 18 | 168 | 3,024.00 | 85.00 | 19,226.6 | 25,632 | | | | |
| D19 | 17 | 168 | 2,856.00 | 85.00 | 18,158.4 | 24,208 | | | | |
| E10 | 2 | 188 | 376.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| E25 | 2 | 198 | 396.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| F10 | 2 | 183 | 366.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| F25 | 2 | 193 | 386.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| G10 | 2 | 178 | 356.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| G25 | 2 | 188 | 376.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| H10 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| H25 | 2 | 183 | 366.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| I10 | 2 | 168 | 336.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| I25 | 2 | 178 | 356.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| J10 | 2 | 163 | 326.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| J25 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| K10 | 2 | 158 | 316.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| K25 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| L10 | 2 | 158 | 316.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| L25 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| M10 | 2 | 148 | 296.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| M25 | 2 | 158 | 316.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| N1 | 2 | 133 | 266.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| N3 | 2 | 143 | 286.00 | 85.00 | 2,136.3 | 2,848 | | | | |
| 180 | 171.6 | 31,215.00 | 192,265.9 | cf | 256,320 | | | | | |
| Average | 173.4 | 7,121.0 | cy | | | | | | | |

303000 Supply Pipe Piles Marine Quan: 31,215.00 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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AREA 1

48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in
Wall Thickness = 1.000 in

| Tip Elevation | Top Elevation | Length (ft) | Quantity | Total Length (ft) | Unit Weight (lb/ft) | Weight (lb) |
|---------------|---------------|-------------|----------|-------------------|---------------------|-------------|
| 31,215.00 | 1 | 31,215.00 | 502.43 | 15,683,352.5 | 7,841.7 | |

Coating

| Tip Elevation | Top Elevation | Length (ft) | Quantity | Diameter | Coating(SF) |
|---------------|---------------|-------------|-----------|----------|-------------|
| 115.61 | 180 | 48 | 261,506.8 | | |

| Pipe Qty | Piles | Pile Length | Total Length | Concrete Fill Volume | Concrete (CF) | Rebar (Ft) |
|----------|-------|-------------|--------------|----------------------|---------------|------------|
| A1 | 18 | 178 | 3,204.00 | 85.00 | 19,226.6 | 25,632 |
| A19 | 17 | 178 | 3,026.00 | 85.00 | 18,158.4 | 24,208 |
| B1 | 18 | 178 | 3,204.00 | 85.00 | 19,226.6 | 25,632 |
| B19 | 17 | 178 | 3,026.00 | 85.00 | 18,158.4 | 24,208 |
| C1 | 18 | 173 | 3,114.00 | 85.00 | 19,226.6 | 25,632 |
| C19 | 17 | 173 | 2,941.00 | 85.00 | 18,158.4 | 24,208 |
| D1 | 18 | 168 | 3,024.00 | 85.00 | 19,226.6 | 25,632 |
| D19 | 17 | 168 | 2,856.00 | 85.00 | 18,158.4 | 24,208 |
| E10 | 2 | 188 | 376.00 | 85.00 | 2,136.3 | 2,848 |
| E25 | 2 | 198 | 396.00 | 85.00 | 2,136.3 | 2,848 |
| F10 | 2 | 183 | 366.00 | 85.00 | 2,136.3 | 2,848 |
| F25 | 2 | 193 | 386.00 | 85.00 | 2,136.3 | 2,848 |
| G10 | 2 | 178 | 356.00 | 85.00 | 2,136.3 | 2,848 |
| G25 | 2 | 188 | 376.00 | 85.00 | 2,136.3 | 2,848 |
| H10 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 |
| H25 | 2 | 183 | 366.00 | 85.00 | 2,136.3 | 2,848 |
| I10 | 2 | 168 | 336.00 | 85.00 | 2,136.3 | 2,848 |
| I25 | 2 | 178 | 356.00 | 85.00 | 2,136.3 | 2,848 |

Direct Cost Report

| Activity | Resource | Desc | Pcs | Quantity | Unit | Unit Cost | Labor | Perm | Material | Constr | Matl/Exp | Equip | Sub- | Contract | Total | |
|--|---|---------------------|-------------------------|------------|-----------|-------------|-------------|-------------|-----------|----------------|----------|-------------|-------|-----------------------|-------|--|
| <hr/> | | | | | | | | | | | | | | | | |
| BID ITEM = 30060 | | CLIENT# = 02-12 | | | | Marine Item | | SCHEDULE: 1 | | 100 | | | | | | |
| Description = | | Piling Wharf Area I | | | | Unit = | | FT | | Takeoff Quan: | | 31,215.000 | | Engr Quan: 31,215.000 | | |
| J10 | 2 | 163 | 326.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| J25 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| K10 | 2 | 158 | 316.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| K25 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| L10 | 2 | 158 | 316.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| L25 | 2 | 173 | 346.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| M10 | 2 | 148 | 296.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| M25 | 2 | 158 | 316.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| N1 | 2 | 133 | 266.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| N3 | 2 | 143 | 286.00 | 85.00 | 2,136.3 | 2,848 | | | | | | | | | | |
| | 180 | 171.6 | 31,215.00 | 192,265.9 | cf | 256,320 | | | | | | | | | | |
| Average | | 173.4 | 7,121.0 cy | | | | | | | | | | | | | |
| 2PP48INCH | 48 In Diam Pipe Pile | | | | 31,215.00 | LF | 430.000 | 13,422,450 | | 13,422,450 | | | | | | |
| 303010 | Pile Painting & Wrapping | | | | Marine | Quan: | 1.00 | LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | | | |
| <hr/> | | | | | | | | | | | | | | | | |
| AREA 1 | | | | | | | | | | | | | | | | |
| 48 " | O | 1 | " Thick Steel Pipe Pile | | | | | | | | | | | | | |
| Outside Diameter = 48 in | | | | | | | | | | | | | | | | |
| Wall Thickness = 1.000 in | | | | | | | | | | | | | | | | |
| Tip Elevation | Top Elevation | | Length (ft) | | Quantity | Total | Length (ft) | | Unit | Weight (lb/ft) | | Weight (lb) | | | | |
| Weight (Ton) | 31,215.00 1 31,215.00 502.43 15,683,352.5 7,841.7 | | | | | | | | | | | | | | | |
| Coating | | | | | | | | | | | | | | | | |
| Tip Elevation | Top Elevation | | Length (ft) | | Quantity | Diameter | Coating(SF) | | | | | | | | | |
| 115.61 | 180 | 48 | 261,506.8 | | | | | | | | | | | | | |
| 2PP48COATING | Pipe Pile Shop Coating | | | 261,506.76 | SF | 4.000 | 1,046,027 | | 1,046,027 | | | | | | | |
| 303022 | Set Pile Template | | | | Marine | Quan: | 1.00 | LS | Hrs/Shft: | 8.00 | WC: NONE | | | | | |
| <hr/> | | | | | | | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | | | | | | | |
| 31PILETEMPLA | Pipe Pile Template | | | 1.00 | LS | 60,000.000 | 60,000 | | 60,000 | | | | | | | |
| 303035 | Piling - Pipe | | | | Marine | Quan: | 176.96 | EA | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | | | |
| <hr/> | | | | | | | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | | | | | | | |
| MARPIL | Marine Piling & Demo Crew | | | | 442.39 | CH | Prod: | 44.2390 | S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | | | |
| 3WELD | Weld Supplies (1 man-Stick | | | | 44.24 | DA | 70.000 | 3,097 | | 3,097 | | | | | | |
| 8211050 | Fuel, Oil, Grease 50g/d | | | | 44.24 | DA | 200.000 | 8,848 | | 8,848 | | | | | | |
| 8CRANEC200 | Crane Manitowoc 777 20 | | | | 1.00 | 442.39 | HR | 163.361 | 72,269 | | 72,269 | | | | | |
| 8DRILLR | ***DRILLS - ROCK*** | | | | 1.00 | 442.39 | HR | 17.500 | 7,742 | | 7,742 | | | | | |
| 8MAC-A-10 | Compressor 185 CFM | | | | 1.00 | 442.39 | HR | 3.000 | 1,327 | | 1,327 | | | | | |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | | | | 1.00 | 442.39 | HR | 10.000 | 4,424 | | 4,424 | | | | | |
| 8MBS-Z-14 | Spud Barge M-120x45' | | | | 1.00 | 442.39 | HR | 17.500 | 7,742 | | 7,742 | | | | | |
| 8MBT-Z-12 | Tug Push Boat 200 HP | | | | 1.00 | 442.39 | HR | 20.000 | 8,848 | | 8,848 | | | | | |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | | | | 1.00 | 442.39 | HR | 3.000 | 1,327 | | 1,327 | | | | | |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | | | | 1.00 | 442.39 | HR | 5.000 | 2,212 | | 2,212 | | | | | |
| 8MDH-A-7 | DELMAG D19 HAMMER | | | | 1.00 | 442.39 | HR | 10.000 | 4,424 | | 4,424 | | | | | |
| 8MFD-A-1 | FAIRLEADS | | | | 1.00 | 442.39 | HR | 0.100 | 44 | | 44 | | | | | |
| 8MGN-Z-11 | Generator 10 KW | | | | 1.00 | 442.39 | HR | 3.000 | 1,327 | | 1,327 | | | | | |
| 8MLT-A-1 | Light Tower, Genie | | | | 1.00 | 442.39 | HR | 3.500 | 1,548 | | 1,548 | | | | | |
| 8MPE-A-11 | Extractor Pile | | | | 1.00 | 442.39 | HR | 5.000 | 2,212 | | 2,212 | | | | | |
| 8MVP-A-11 | FORD F150 SUPERC 10 | | | | 1.00 | 442.39 | HR | 6.500 | 2,876 | | 2,876 | | | | | |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | | | | 1.00 | 442.39 | HR | 10.000 | 4,424 | | 4,424 | | | | | |
| 8MWM-C-1 | Welder Diesel 400 AMP | | | | 1.00 | 442.39 | HR | 2.500 | 1,106 | | 1,106 | | | | | |
| 8PILE26 | Vibro Hammer 150 TN | | | | 1.00 | 442.39 | HR | 45.492 | 20,125 | | 20,125 | | | | | |
| 9100000 | Substance 5 workers | | | | 44.24 | DA | 500.000 | 22,120 | | 22,120 | | | | | | |
| M105 | Foreman - General Marine | | | | 1.00 | 442.39 | MH | 35.720 | 27,669 | 27,669 | | | | | | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|-------------------------|--------------------------|-----------------|-------------|--------------|---------------|--------------------|-------------------|------------------|-----------------------|
| BID ITEM = 30060 | | | | | | | | | |
| Description = | | CLIENT# = 02-12 | | Marine Item | SCHEDULE: 1 | 100 | | | |
| Piling Wharf Area I | | | | Unit = | FT | Takeoff | Quan: | 31,215.000 | Engr Quan: 31,215.000 |
| M165 | M-Piledriver | 1.00 | 442.39 MH | 34.950 | 30,628 | | | | |
| M170 | M-Welder | 1.00 | 442.39 MH | 41.050 | 34,527 | | | | |
| M190 | M-Skilled Laborer | 1.00 | 442.39 MH | 35.430 | 30,935 | | | | |
| M195 | M-Laborer | 1.00 | 442.39 MH | 35.430 | 30,935 | | | | |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 442.39 MH | 39.190 | 29,674 | | | | |
| \$362,410.00 | 14.9996 MH/EA | 2,654.34 MH | [609.854] | 184,368 | | 25,217 | 152,825 | | 362,410 |

303040 Piling - Concrete Filling Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|--------------|--------------------------|-------------|---------------|--------------|------------------|----------|--------|----------|---------|
| <u>MARWO</u> | Marine Carpenters Crew | 442.39 | CH | Prod: | 44.2390 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 44.24 | DA | 200.000 | | | | 8,848 | 8,848 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 442.39 HR | 106.961 | | | | 47,318 | 47,318 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 442.39 HR | 3.000 | | | | 1,327 | 1,327 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 442.39 HR | 6.500 | | | | 2,876 | 2,876 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 442.39 HR | 6.500 | | | | 2,876 | 2,876 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 442.39 HR | 10.000 | | | | 4,424 | 4,424 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 442.39 HR | 3.000 | | | | 1,327 | 1,327 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 442.39 HR | 5.000 | | | | 2,212 | 2,212 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 442.39 HR | 0.100 | | | | 44 | 44 |
| 8MFW-A-1 | Work Float | 1.00 | 442.39 HR | 2.000 | | | | 885 | 885 |
| 8MFW-A-2 | Work Float | 1.00 | 442.39 HR | 2.000 | | | | 885 | 885 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 442.39 HR | 2.000 | | | | 885 | 885 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 442.39 HR | 2.000 | | | | 885 | 885 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 442.39 HR | 3.500 | | | | 1,548 | 1,548 |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 442.39 HR | 6.500 | | | | 2,876 | 2,876 |
| 8WELD400 | Welder 400 AMP | 2.00 | 884.78 HR | 2.044 | | | | 1,808 | 1,808 |
| M100 | Foreman - Carpenter | 1.00 | 442.39 MH | 34.720 | 27,030 | | | | 27,030 |
| M170 | M-Welder | 1.00 | 442.39 MH | 41.050 | 34,527 | | | | 34,527 |
| M173 | M-Lead Carpenter | 1.00 | 442.39 MH | 35.490 | 30,973 | | | | 30,973 |
| M175 | M-Carpenter | 3.00 | 1,327.17 MH | 35.490 | 92,919 | | | | 92,919 |
| M180 | M-Carpenter Helper | 3.00 | 1,327.17 MH | 35.490 | 92,919 | | | | 92,919 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 442.39 MH | 39.190 | 29,674 | | | | 29,674 |
| \$389,066.51 | 4,423.9000 MH/LS | 4,423.90 MH | [176836.11] | 308,043 | | | 81,023 | | 389,067 |

303042 Concrete Supply Marine Quan: 5,168.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|-------|-------------------|------|-------------|---------|---------|--|--|--|---------|
| 2CR14 | 5000 PSI Concrete | 1.10 | 5,684.80 CY | 105.000 | 596,904 | | | | 596,904 |
|-------|-------------------|------|-------------|---------|---------|--|--|--|---------|

303043 Concrete Pumping Marine Quan: 0.88 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|-----------|---------------------------|--|-----------|---------|--|--------|--|--|--------|
| 5CONCP36M | Concrete Concrete Pump 36 | | 221.19 HR | 125.000 | | 27,649 | | | 27,649 |
|-----------|---------------------------|--|-----------|---------|--|--------|--|--|--------|

303045 Piling - Rebar Marine Quan: 684,374.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|---|-------|---------|---------|--------|--------|--------------|------------------|--|--|
| Option 5 ==>48" Pipe Pile Area I | | | | | | | | | |
| PIECES SIZE WEIGHT LENGTH POUNDS TONS UNIT EXT. | | | | | | | | | |
| INST. | EA. | PRICE | | PRICE | | | | | |
| #3 | 0.376 | 0.00 | 0.00 | 0.65 | \$0.00 | | | | |
| #4 | 0.668 | 0.00 | 0.00 | 0.65 | \$0.00 | tie | | | |
| #5 | 1.043 | 0.00 | 0.00 | 0.65 | \$0.00 | | | | |
| #6 | 1.502 | 0.00 | 0.00 | 0.65 | \$0.00 | cont | | | |
| #7 | 2.044 | 0.00 | 0.00 | 0.65 | \$0.00 | tie | | | |
| 1 #8 | 2.670 | 256,320 | 684,374 | 342.19 | 0.65 | \$444,843.36 | hook dowels @ 5' | | |
| #9 | 3.400 | 0 | 0.00 | 0.65 | \$0.00 | | | | |
| #10 | 4.303 | 0 | 0.00 | 0.65 | \$0.00 | | | | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|--|-----------------------|-----------------|------------|--------------|---------|------------------|--------------------|---------------|------------------|-------------------|
| BID ITEM = 30060 CLIENT# = 02-12 Marine Item SCHEDULE: 1 100 | | | | | | | | | | |
| Description = | Piling Wharf Area I | | Unit = | FT | Takeoff | Quan: | 31,215.000 | Engr | Quan: | 31,215.000 |
| #11 | 5.313 | 0 | 0.00 | 0.65 | \$0.00 | | | | | |
| #14 | 7.650 | 0 | 0.00 | 0.65 | \$0.00 | | | | | |
| #18 | 13.600 | 0 | 0.00 | 0.65 | \$0.00 | | | | | |
| | 684,374 | 342.19 | | | | | | | | |
| | 10% | 752,812 | | | | | | | | |
| | SUBTOTAL: | \$444,843.36 | | | | | | | | |
| | TAX 6.5%: | \$28,914.82 | | | | | | | | |
| | TOTAL: | \$473,758.18 | 8% | \$37,900.65 | | | | | | |
| 2RR02 | Gr 60 Rebar | 1.10 | 752,811.40 | LB | 0.480 | 361,349 | | | | 361,349 |
| 2RR10 | Rebar Supports | | 752,811.40 | LB | 0.050 | 37,641 | | | | 37,641 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 3,095.40 | EA | 13.000 | 40,240 | | | | 40,240 |
| 5REBAR | Rebar Sub | | 684,374.00 | LB | 0.280 | | 191,625 | | | 191,625 |
| \$630,854.96 | | | | [] | | 439,230 | 191,625 | | | 630,855 |
| 304000 Pile Splices - Pipe pile Marine Quan: 176.96 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 5SPICES | Welding Subcontractor | 265.43 | EA | 650.000 | | | 172,530 | | | 172,530 |
| ===== Item Totals: 30060 - Piling Wharf Area I | | | | | | | | | | |
| \$16,707,890.76 | 0.2267 MH/FT | 7,078.24 | MH | [9.122] | 492,411 | 15,504,611 | 477,020 | 233,848 | | 16,707,891 |
| 535.252 | 31215 FT | | | | 15.77 | 496.70 | 15.28 | 7.49 | | 535.25 |

| | | | | | | | | | | |
|--|----------------------------|---------------|----------|------------|------------|-------|-----------|------|----------|------------|
| BID ITEM = 30080 CLIENT# = 02-12 Marine Item SCHEDULE: 1 100 | | | | | | | | | | |
| Description = | Sheet Pile Bulkhead | | Unit = | LF | Takeoff | Quan: | 4,300.000 | Engr | Quan: | 4,300.000 |
| 301000 Supply Open Cell Flat Shets Marine Quan: 19,296,150.00 LB Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 2FSZ | STEEL SHEET PILE | 19,296,149.87 | LB | 0.950 | 18,331,342 | | | | | 18,331,342 |
| 2SSPGALVANIZ | Galvanization of SSP | 19,296,150.00 | LB | 0.350 | 6,753,653 | | | | | 6,753,653 |
| \$25,084,994.88 | | | | [] | 25,084,995 | | | | | 25,084,995 |
| 301015 Sheeting Template Marine Quan: 3.74 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 31SHEETEMPLA | Open Cell Template | 3.74 | LS | 85,000.000 | | | 317,900 | | | 317,900 |
| 301020 Drive Sheeting Bulkhead Marine Quan: 4,300.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | 2,991.30 | CH | Prod: | 299.1304 | S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 299.13 | DA | 70.000 | | | 20,939 | | | 20,939 |
| 8211050 | Fuel, Oil, Grease 50g/d | 299.13 | DA | 200.000 | | | 59,826 | | | 59,826 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 2,991.30 | HR | 163.361 | | 488,662 | | | 488,662 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 2,991.30 | HR | 17.500 | | 52,348 | | | 52,348 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 2,991.30 | HR | 3.000 | | 8,974 | | | 8,974 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 2,991.30 | HR | 10.000 | | 29,913 | | | 29,913 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 2,991.30 | HR | 17.500 | | 52,348 | | | 52,348 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 2,991.30 | HR | 20.000 | | 59,826 | | | 59,826 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 2,991.30 | HR | 3.000 | | 8,974 | | | 8,974 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 2,991.30 | HR | 5.000 | | 14,957 | | | 14,957 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 2,991.30 | HR | 10.000 | | 29,913 | | | 29,913 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 2,991.30 | HR | 0.100 | | 299 | | | 299 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 2,991.30 | HR | 3.000 | | 8,974 | | | 8,974 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 2,991.30 | HR | 3.500 | | 10,470 | | | 10,470 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 2,991.30 | HR | 5.000 | | 14,957 | | | 14,957 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|--------------------------|-----------------|--------------------|-------------------------------------|-----------|------------------|--------------------|---------------|------------------|-----------|
| BID ITEM = 30080 | CLIENT# = 02-12 | | | | | | | | | |
| Description = | Sheet Pile Bulkhead | | Marine Item Unit = | SCHEDULE: 1 100 LF Takeoff Quan: | | | 4,300.000 | Engr Quan: | | 4,300.000 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 2,991.30 HR | 6.500 | | | | 19,443 | | 19,443 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 2,991.30 HR | 10.000 | | | | 29,913 | | 29,913 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 2,991.30 HR | 2.500 | | | | 7,478 | | 7,478 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 2,991.30 HR | 45.492 | | | | 136,080 | | 136,080 |
| 9100000 | Substance 5 workers | | 299.13 DA | 500.000 | | | 149,565 | | | 149,565 |
| M105 | Foreman - General Marine | 1.00 | 2,991.30 MH | 35.720 | 187,092 | | | | | 187,092 |
| M165 | M-Piledriver | 1.00 | 2,991.30 MH | 34.950 | 207,096 | | | | | 207,096 |
| M170 | M-Welder | 1.00 | 2,991.30 MH | 41.050 | 233,463 | | | | | 233,463 |
| M190 | M-Skilled Laborer | 1.00 | 2,991.30 MH | 35.430 | 209,171 | | | | | 209,171 |
| M195 | M-Laborer | 1.00 | 2,991.30 MH | 35.430 | 209,171 | | | | | 209,171 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,991.30 MH | 39.190 | 200,647 | | | | | 200,647 |
| \$2,450,496.32 | 4.1739 MH/LF | | 17,947.80 MH | [169.702] | 1,246,639 | | 170,504 | 1,033,354 | | 2,450,496 |

301030 Bulkhead Concrete Pile Cap Marine Quan: 2,400.00 CY Hrs/Shft: 8.00 WC: NONE

| | | | | | | | | | | |
|---|-------------------|--|--------------|-------------|-----------|------------|---------|-----------|--|-------------------|
| RETAINING WALLS | | | | | | | | | | |
| 6.0 STEEL H-PILE L.B. 729,120 lbs ?? | | | | | | | | | | |
| 7.0 STEEL PS PILING GR. 50 L.B. 2,640,692 lbs ?? | | | | | | | | | | |
| 8.0 STEEL PIPE PILE 10INCH DIA. L.B. 9,964,109 lbs ?? | | | | | | | | | | |
| 9.0 CIP CONCRETE CLASS 4000 - PILE CAP C.Y. 2,400 | | | | | | | | | | |
| 2CR14 | 5000 PSI Concrete | | 2,640.00 CY | 240.000 | | 633,600 | | | | 633,600 |
| =====> Item Totals: 30080 - Sheet Pile Bulkhead | | | | | | | | | | |
| \$28,486,991.20 | 4.1739 MH/LF | | 17,947.80 MH | [169.702] | 1,246,639 | 25,718,595 | 488,404 | 1,033,354 | | 28,486,991 |
| 6,624.882 | 4300 LF | | | | 289.92 | 5,981.07 | 113.58 | 240.31 | | 6,624.88 |

| | | | | | | | | | | |
|-------------------------|------------------------------|--|------------------|-------------------------------------|--|--|-------|------------|--|-------|
| BID ITEM = 30081 | CLIENT# = 02-12 | | | | | | | | | |
| Description = | Credit Free Issue Sheet Pile | | Land Item Unit = | SCHEDULE: 1 100 LS Takeoff Quan: | | | 1.000 | Engr Quan: | | 1.000 |

301000 Supply Open Cell Flat Shets Marine Quan: 7,101,861.70 LB Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|--|----------------------|--|------------------|-------|--|---------------|--|--|--|-------------------|
| ANCHORAGE EXISTING SHEET PILES | | | | | | | | | | |
| Unused PS 27.5 PS 31 | | | | | | | | | | |
| Total LF 26,040.00 116,453.00 | | | | | | | | | | |
| Unit weight 45.10 50.90 | | | | | | | | | | |
| Total weight 1,174,404.00 5,927,457.70 7,101,861.70 Lbs | | | | | | | | | | |
| 2FSZ | STEEL SHEET PILE | | -7,101,861.70 LB | 0.950 | | -6,746,769 | | | | -6,746,769 |
| 2SSPGALVANIZ | Galvanization of SSP | | -7,101,861.59 LB | 0.350 | | -2,485,652 | | | | -2,485,652 |
| \$-9,232,420.18 | | | | [] | | -9,232,420 | | | | -9,232,420 |
| =====> Item Totals: 30081 - Credit Free Issue Sheet Pile | | | | | | | | | | |
| \$-9,232,420.18 | | | | [] | | -9,232,420 | | | | -9,232,420 |
| -9,232,420.179 | 1 LS | | | | | -9,232,420.17 | | | | -9,232,420.17 |

| | | | | | | | | | | |
|-------------------------|------------------------------|--|--------------------|-------------------------------------|--|--|------------|------------|--|------------|
| BID ITEM = 30090 | CLIENT# = 02-12 | | | | | | | | | |
| Description = | Concrete Deck Superstructure | | Marine Item Unit = | SCHEDULE: 1 100 SF Takeoff Quan: | | | 51,600.000 | Engr Quan: | | 51,600.000 |

322005 Final Deck Product Marine Quan: 53,551.09 SF Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|--|-------------------------|--|--------------|---------|--|--|-----------|--|--|------------------|
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 52SUPERSTRUC | Concrete Superstructure | | 53,551.09 SF | 101.000 | | | 5,408,660 | | | 5,408,660 |
| =====> Item Totals: 30090 - Concrete Deck Superstructure | | | | | | | | | | |
| \$5,408,660.09 | | | | [] | | | 5,408,660 | | | 5,408,660 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Ment | Contract | Total |
|-------------------------|------------------------------|-----------------|-------------|--------------|---------------|--------------------|-------------------|--------------|----------|--------|
| BID ITEM = 30090 | CLIENT# = 02-12 | Marine Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Concrete Deck Superstructure | Unit = | SF | Takeoff | Quan: | 51,600.000 | Engr Quan: | 51,600.000 | | |
| 104.819 | 51600 SF | | | | | 104.82 | | | | 104.82 |

| | | | | | | | | | | |
|-------------------------|-----------------|-------------|-------------|---------|-------|-------|------------|-------|--|--|
| BID ITEM = 30100 | CLIENT# = 02-12 | Marine Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Abutments | Unit = | EA | Takeoff | Quan: | 2.000 | Engr Quan: | 2.000 | | |

303000 Supply Pipe Piles Marine Quan: 352.80 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | |
|-----------|----------------------|-----------|---------|---------|---------|
| 2PP48INCH | 48 In Diam Pipe Pile | 352.80 LF | 430.000 | 151,704 | 151,704 |
|-----------|----------------------|-----------|---------|---------|---------|

303010 Pile Painting & Wrapping Marine Quan: 0.01 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | |
|--------------|------------------------|-------------|-------|--------|--------|
| 2PP48COATING | Pipe Pile Shop Coating | 2,955.62 SF | 4.000 | 11,822 | 11,822 |
|--------------|------------------------|-------------|-------|--------|--------|

303022 Set Pile Template Marine Quan: 0.01 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | |
|--------------|--------------------|---------|------------|-----|-----|
| 31PILETEMPLA | Pipe Pile Template | 0.01 LS | 60,000.000 | 600 | 600 |
|--------------|--------------------|---------|------------|-----|-----|

303035 Piling - Pipe Marine Quan: 2.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | |
|--------------|----------------------------|----------|------------|----------|----------|-------|----------|-------|
| <u>MARPI</u> | Marine Piling & Demo Crew | 5.00 CH | Prod: | 0.5000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 0.50 DA | 70.000 | | 35 | | | 35 |
| 8211050 | Fuel, Oil, Grease 50g/d | 0.50 DA | 200.000 | | | 100 | | 100 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 163.361 | | | 817 | | 817 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 17.500 | | | 88 | | 88 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 3.000 | | | 15 | | 15 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 10.000 | | | 50 | | 50 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 17.500 | | | 88 | | 88 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 20.000 | | | 100 | | 100 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 3.000 | | | 15 | | 15 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 5.000 | | | 25 | | 25 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 10.000 | | | 50 | | 50 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 0.100 | | | 1 | | 1 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 3.000 | | | 15 | | 15 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 3.500 | | | 18 | | 18 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 5.000 | | | 25 | | 25 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 6.500 | | | 33 | | 33 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 10.000 | | | 50 | | 50 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 2.500 | | | 13 | | 13 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 45.492 | | | 227 | | 227 |
| 9100000 | Substance 5 workers | 0.50 DA | 500.000 | | 250 | | | 250 |
| M105 | Foreman - General Marine | 1.00 | 35.720 | 313 | | | | 313 |
| M165 | M-Piledriver | 1.00 | 34.950 | 346 | | | | 346 |
| M170 | M-Welder | 1.00 | 41.050 | 390 | | | | 390 |
| M190 | M-Skilled Laborer | 1.00 | 35.430 | 350 | | | | 350 |
| M195 | M-Laborer | 1.00 | 35.430 | 350 | | | | 350 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 39.190 | 335 | | | | 335 |
| \$4,096.04 | 15.0000 MH/EA | 30.00 MH | [609.88] | 2,084 | 285 | 1,727 | | 4,096 |

303040 Piling - Concrete Filling Marine Quan: 0.01 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | |
|---------------|-------------------------|---------|---------|----------|----------|-------|----------|-------|
| <u>MARWOO</u> | Marine Carpenters Crew | 5.00 CH | Prod: | 0.5000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 0.50 DA | 200.000 | | | 100 | | 100 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|--|---------------------------------|-------|------------------|--------------|--------------------|------------------|--------------------|-----------------|------------------|--------|
| BID ITEM = 30100 | CLIENT# = 02-12 | | | | | | | | | |
| Description = | Abutments | | Unit = | EA | Takeoff | Quan: | 2.000 | Engr Quan: | | 2.000 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 5.00 HR | 106.961 | | | | 535 | | 535 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 5.00 HR | 3.000 | | | | 15 | | 15 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 5.00 HR | 6.500 | | | | 33 | | 33 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 5.00 HR | 6.500 | | | | 33 | | 33 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 5.00 HR | 10.000 | | | | 50 | | 50 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 5.00 HR | 3.000 | | | | 15 | | 15 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 5.00 HR | 5.000 | | | | 25 | | 25 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 5.00 HR | 0.100 | | | | 1 | | 1 |
| 8MFW-A-1 | Work Float | 1.00 | 5.00 HR | 2.000 | | | | 10 | | 10 |
| 8MFW-A-2 | Work Float | 1.00 | 5.00 HR | 2.000 | | | | 10 | | 10 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 5.00 HR | 2.000 | | | | 10 | | 10 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 5.00 HR | 2.000 | | | | 10 | | 10 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 5.00 HR | 3.500 | | | | 18 | | 18 |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 5.00 HR | 6.500 | | | | 33 | | 33 |
| 8WELD400 | Welder 400 AMP | 2.00 | 10.00 HR | 2.044 | | | | 20 | | 20 |
| M100 | Foreman - Carpenter | 1.00 | 5.00 MH | 34.720 | 306 | | | | | 306 |
| M170 | M-Welder | 1.00 | 5.00 MH | 41.050 | 390 | | | | | 390 |
| M173 | M-Lead Carpenter | 1.00 | 5.00 MH | 35.490 | 350 | | | | | 350 |
| M175 | M-Carpenter | 3.00 | 15.00 MH | 35.490 | 1,050 | | | | | 1,050 |
| M180 | M-Carpenter Helper | 3.00 | 15.00 MH | 35.490 | 1,050 | | | | | 1,050 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 5.00 MH | 39.190 | 335 | | | | | 335 |
| \$4,397.34 | 5,000.0000 MH/LS | | 50.00 MH | [199867] | 3,482 | | | 916 | | 4,397 |
| 303042 | Concrete Supply | | Marine | Quan: | 73.25 CY | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 2CR14 | 5000 PSI Concrete | 1.10 | 80.57 CY | 105.000 | | 8,460 | | | | 8,460 |
| 303043 | Concrete Pumping | | Marine | Quan: | 0.01 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 5CONCP36M | Concrete Concrete Pump 36 | | 2.50 HR | 125.000 | | | 313 | | | 313 |
| 303045 | Piling - Rebar | | Marine | Quan: | 7,075.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 2RR02 | Gr 60 Rebar | 1.10 | 7,782.50 LB | 0.480 | | 3,736 | | | | 3,736 |
| 2RR10 | Rebar Supports | | 7,782.50 LB | 0.050 | | 389 | | | | 389 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 32.00 EA | 13.000 | | 416 | | | | 416 |
| 5REBAR | Rebar Sub | | 7,074.67 LB | 0.280 | | | 1,981 | | | 1,981 |
| \$6,521.64 | | | | [] | | 4,541 | 1,981 | | | 6,522 |
| 304000 | Pile Splices - Pipe pile | | Marine | Quan: | 2.00 EA | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 5SPICES | Welding Subcontractor | | 3.00 EA | 650.000 | | | 1,950 | | | 1,950 |
| 322910 | Concrete Cap Dolphins | | | Quan: | 2.00 EA | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | | 120.00 CH | Prod: | 12.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | |
| 2CR14 | 5000 PSI Concrete | 1.10 | 83.60 CY | 105.000 | | 8,778 | | | | 8,778 |
| 2RR02 | Gr 60 Rebar | 1.05 | 12,720.75 LB | 0.480 | | 6,106 | | | | 6,106 |
| 3WELD | Weld Supplies (1 man-Stick | | 12.00 DA | 70.000 | | | 840 | | | 840 |
| 5REBAR | Rebar Sub | | 12,720.67 LB | 0.280 | | | 3,562 | | | 3,562 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 12.00 DA | 200.000 | | | | 2,400 | | 2,400 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 120.00 HR | 163.361 | | | | 19,603 | | 19,603 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 120.00 HR | 17.500 | | | | 2,100 | | 2,100 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 120.00 HR | 3.000 | | | | 360 | | 360 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|--------------------------|--------|--------------------|-----------------|-----------|------------------|--------------------|---------------|------------------|----------------|
| BID ITEM = 30100 | CLIENT# = 02-12 | | | | | | | | | |
| Description = | Abutments | | Marine Item Unit = | SCHEDULE: 1 100 | EA | Takeoff | Quan: | 2.000 | Engr Quan: | 2.000 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 120.00 HR | 10.000 | | | | 1,200 | | 1,200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 120.00 HR | 17.500 | | | | 2,100 | | 2,100 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 120.00 HR | 20.000 | | | | 2,400 | | 2,400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 120.00 HR | 3.000 | | | | 360 | | 360 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 120.00 HR | 5.000 | | | | 600 | | 600 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 120.00 HR | 10.000 | | | | 1,200 | | 1,200 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 120.00 HR | 0.100 | | | | 12 | | 12 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 120.00 HR | 3.000 | | | | 360 | | 360 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 120.00 HR | 3.500 | | | | 420 | | 420 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 120.00 HR | 5.000 | | | | 600 | | 600 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 120.00 HR | 6.500 | | | | 780 | | 780 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 120.00 HR | 10.000 | | | | 1,200 | | 1,200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 120.00 HR | 2.500 | | | | 300 | | 300 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 120.00 HR | 45.492 | | | | 5,459 | | 5,459 |
| 9100000 | Substance 5 workers | 12.00 | DA | 500.000 | | | 6,000 | | | 6,000 |
| M105 | Foreman - General Marine | 1.00 | 120.00 MH | 35.720 | 7,505 | | | | | 7,505 |
| M165 | M-Piledriver | 1.00 | 120.00 MH | 34.950 | 8,308 | | | | | 8,308 |
| M170 | M-Welder | 1.00 | 120.00 MH | 41.050 | 9,366 | | | | | 9,366 |
| M190 | M-Skilled Laborer | 1.00 | 120.00 MH | 35.430 | 8,391 | | | | | 8,391 |
| M195 | M-Laborer | 1.00 | 120.00 MH | 35.430 | 8,391 | | | | | 8,391 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 120.00 MH | 39.190 | 8,049 | | | | | 8,049 |
| \$116,750.68 | 360.0000 MH/EA | 720.00 | MH | [14636.82] | 50,011 | 14,884 | 10,402 | 41,454 | | 116,751 |
| ===== Item Totals: 30100 - Abutments | | | | | | | | | | |
| \$306,614.53 | 400.0000 MH/EA | 800.00 | MH | [16246.035] | 55,576 | 191,411 | 15,530 | 44,097 | | 306,615 |
| 153,307.265 | 2 EA | | | | 27,787.98 | 95,705.51 | 7,765.10 | 22,048.68 | | 153,307.27 |

| | | | | | | | | | | |
|-------------------------|------------------------|--|--------------------|-----------------|----|---------|-------|-------|------------|-------|
| BID ITEM = 30120 | CLIENT# = 02-12 | | | | | | | | | |
| Description = | Fendering | | Marine Item Unit = | SCHEDULE: 1 100 | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 1.000 |

620010 Fendering and bollard System Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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10 fenders @ \$58,333.00= \$580,333.00

20 cylindrical fenders @ \$5,499= \$109,980

3 pneumatic fenders @ \$24,182.00= \$72,546

Total: = \$762,859.00

| | | | | | | | | | | |
|--------------|---------------|-------|----|-------------|--|---------|--|--|--|---------|
| 2BOLLARD | Bollards | 12.00 | LS | 2,063.000 | | 24,756 | | | | 24,756 |
| 2FENDER | Fender system | 1.00 | LS | 762,859.000 | | 762,859 | | | | 762,859 |
| \$787,615.00 | | | | [] | | 787,615 | | | | 787,615 |

620020 Install Fenders and Bollards Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|---------------|----------------------------|--------|-----------|--------------|------------------|----------|--------|----------|--------|
| MARPIL | Marine Piling & Demo Crew | 100.00 | CH | Prod: | 10.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 10.00 | DA | 70.000 | | 700 | | | 700 |
| 8211050 | Fuel, Oil, Grease 50g/d | 10.00 | DA | 200.000 | | | 2,000 | | 2,000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 100.00 HR | 163.361 | | | 16,336 | | 16,336 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 100.00 HR | 17.500 | | | 1,750 | | 1,750 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 100.00 HR | 3.000 | | | 300 | | 300 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 100.00 HR | 10.000 | | | 1,000 | | 1,000 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 100.00 HR | 17.500 | | | 1,750 | | 1,750 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 100.00 HR | 20.000 | | | 2,000 | | 2,000 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 100.00 HR | 3.000 | | | 300 | | 300 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 100.00 HR | 5.000 | | | 500 | | 500 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 100.00 HR | 10.000 | | | 1,000 | | 1,000 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|--------------------------|-----------------|-------------|-----------------|-----------|------------------|--------------------|---------------|------------------|----------------|
| BID ITEM = 30120 | | CLIENT# = 02-12 | Marine Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Fendering | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | | 1.000 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 100.00 HR | 0.100 | | | | 10 | | 10 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 100.00 HR | 3.000 | | | | 300 | | 300 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 100.00 HR | 3.500 | | | | 350 | | 350 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 100.00 HR | 5.000 | | | | 500 | | 500 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 100.00 HR | 6.500 | | | | 650 | | 650 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 100.00 HR | 10.000 | | | | 1,000 | | 1,000 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 100.00 HR | 2.500 | | | | 250 | | 250 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 100.00 HR | 45.492 | | | | 4,549 | | 4,549 |
| 9100000 | Substance 5 workers | 10.00 | DA | 500.000 | | | 5,000 | | | 5,000 |
| M105 | Foreman - General Marine | 1.00 | 100.00 MH | 35.720 | 6,255 | | | | | 6,255 |
| M165 | M-Piledriver | 1.00 | 100.00 MH | 34.950 | 6,923 | | | | | 6,923 |
| M170 | M-Welder | 1.00 | 100.00 MH | 41.050 | 7,805 | | | | | 7,805 |
| M190 | M-Skilled Laborer | 1.00 | 100.00 MH | 35.430 | 6,993 | | | | | 6,993 |
| M195 | M-Laborer | 1.00 | 100.00 MH | 35.430 | 6,993 | | | | | 6,993 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 100.00 MH | 39.190 | 6,708 | | | | | 6,708 |
| \$81,920.78 | 600.0000 MH/LS | 600.00 | MH | [24394.7] | 41,675 | | 5,700 | 34,545 | | 81,921 |
| =====> Item Totals: 30120 - Fendering | | | | | | | | | | |
| \$869,535.78 | 600.0000 MH/LS | 600.00 | MH | [24394.7] | 41,675 | 787,615 | 5,700 | 34,545 | | 869,536 |
| 869,535.780 | 1 LS | | | | 41,675.48 | 787,615.00 | 5,700.00 | 34,545.30 | | 869,535.78 |

BID ITEM = 30140 CLIENT# = 02-12 Marine Item SCHEDULE: 1 100
Description = Slope Protection Unit = CY Takeoff Quan: 119,000.000 Engr Quan: 119,000.000

203900 Supply Armor Rock **Quan: 107,415.23 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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2ARMOR Armor Stone 140,278.14 TN 60.000 8,416,688 8,416,688

209900 Install Slope Protection **Marine** **Quan: 127,113.64 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | | | | |
|----------------|--------------------------|-----------|--------------|-------------------------|-----------|---------|-----------|-----------|
| <u>MARLAN</u> | Demolition Crew on land | 2,594.15 | CH | Prod: 259.4156 S | Lab Pcs: | 19.00 | Eqp Pcs: | 13.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 259.42 | DA | 200.000 | | 51,884 | | 51,884 |
| 8BHLD480 | BHL Cat 450E 1.75CY | 8.00 | 20,753.25 HR | 45.473 | | 943,713 | | 943,713 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 2,594.16 HR | 106.961 | | 277,474 | | 277,474 |
| 8TRKPU10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 10,376.62 HR | 7.044 | | 73,093 | | 73,093 |
| 9100010 | Substance 10 workers | 259.42 | DA | 1,000.000 | | 259,420 | | 259,420 |
| M105 | Foreman - General Marine | 1.00 | 2,594.16 MH | 35.720 | 162,253 | | | 162,253 |
| M150 | M-Operator, Crane | 1.00 | 2,594.16 MH | 39.190 | 196,195 | | | 196,195 |
| M195 | M-Laborer | 8.00 | 20,753.25 MH | 35.430 | 1,451,199 | | | 1,451,199 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,594.16 MH | 39.190 | 174,008 | | | 174,008 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 20,753.25 MH | 37.430 | 1,347,252 | | | 1,347,252 |
| \$4,936,489.76 | 0.3877 MH/CY | 49,288.98 | MH | [15.646] | 3,330,906 | 259,420 | 1,346,163 | 4,936,490 |

=====> Item Totals: 30140 - Slope Protection
\$13,353,178.16 0.4141 MH/CY 49,288.98 MH [16.713] 3,330,906 8,416,688 259,420 1,346,163 **13,353,178**
112.212 119000 CY 27.99 70.73 2.18 11.31 112.21

BID ITEM = 30250 Land Item SCHEDULE: 1 100
Description = Demolition Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

There are no activities in this biditem.

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | |
|----------|------|----------|------|------|-------|----------|----------|------|----------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment | Contract |
| | | | | | | | | | Total |

BID ITEM = 30260

Description = Piling Wharf Area II & III

Land Item SCHEDULE: 1 100

Unit = FT Takeoff Quan: 168,378.000 Engr Quan: 168,378.000

303000 Supply Pipe Piles Marine Quan: 168,378.00 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

AREA 1

48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in

Wall Thickness = 1.000 in

Tip Elevation Top Elevation Length (ft) Quantity Total Length (ft) Unit Weight (lb/ft) Weight (lb)
Weight (Ton)

168,378.00 1 168,378.00 502.43 84,598,158.5 42,299.1

Coating

Tip Elevation Top Elevation Length (ft) Quantity Diameter Coating(SF)

131.91 851 48 1,410,603.5

Pipe Qty Piles Pipe Length Total Length Concrete Fill Volume Concrete (CF) Rebar (Ft)

A1 55 203 11,165.00 85.00 58,747.9 78,320

A56 109 223 24,307.00 85.00 116,427.7 155,216

B1 55 198 10,890.00 85.00 58,747.9 78,320

B56 55 213 11,715.00 85.00 58,747.9 78,320

C1 55 198 10,890.00 85.00 58,747.9 78,320

C56 55 203 11,165.00 85.00 58,747.9 78,320

D-1 55 193 10,615.00 85.00 58,747.9 78,320

D56 55 198 10,890.00 85.00 58,747.9 78,320

E6A 12 203 2,436.00 85.00 12,817.7 17,088

E56 55 193 10,615.00 85.00 58,747.9 78,320

F6A 12 193 2,316.00 85.00 12,817.7 17,088

F56 55 188 10,340.00 85.00 58,747.9 78,320

G6A 8 188 1,504.00 85.00 8,545.2 11,392

G56 109 198 21,582.00 85.00 116,427.7 155,216

H6A 8 183 1,464.00 85.00 8,545.2 11,392

H60 10 193 1,930.00 85.00 10,681.4 14,240

I6A 8 178 1,424.00 85.00 8,545.2 11,392

I60 10 183 1,830.00 85.00 10,681.4 14,240

J6A 8 173 1,384.00 85.00 8,545.2 11,392

J60 6 178 1,068.00 85.00 6,408.9 8,544

K6A 8 168 1,344.00 85.00 8,545.2 11,392

K60 6 173 1,038.00 85.00 6,408.9 8,544

L6A 8 163 1,304.00 85.00 8,545.2 11,392

L60 6 168 1,008.00 85.00 6,408.9 8,544

M6A 8 158 1,264.00 85.00 8,545.2 11,392

M60 6 163 978.00 85.00 6,408.9 8,544

N6A 8 128 1,024.00 85.00 8,545.2 11,392

N60 6 148 888.00 85.00 6,408.9 8,544

851 183.9 168,378.00 908,990.5 cf 1,211,824

Average 197.9 33,666.3 cy

2PP48INCH 48 In Diam Pipe Pile 168,378.00 LF 430.000 72,402,540 72,402,540

303010 Pipe Painting & Wrapping Marine Quan: 4.78 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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2PP48COATING Pipe Pile Shop Coating 1,410,603.40 SF 4.000 5,642,414 5,642,414

303022 Set Pipe Template Marine Quan: 4.78 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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31PILETEMPLA Pipe Pile Template 4.78 LS 60,000.000 286,800 286,800

303035 Piling - Pipe Marine Quan: 954.52 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | Total |
|----------|------|----------|------|------|-------|----------|----------|------|----------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment | Contract |

| | | | | | | | | | |
|--|----------------------------|-----------|----------|--------------|-------------------|---------------|-------------|------------|-------------|
| BID ITEM = 30260 | | | | Land Item | SCHEDULE: 1 | 100 | | | |
| Description = | Piling Wharf Area II & III | | | Unit = | FT | Takeoff Quan: | 168,378.000 | Engr Quan: | 168,378.000 |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | 2,386.31 | CH | Prod: | 238.6310 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 238.63 | DA | | 70.000 | | 16,704 | | 16,704 |
| 8211050 | Fuel, Oil, Grease 50g/d | 238.63 | DA | | 200.000 | | | 47,726 | 47,726 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 2,386.31 | HR | 163.361 | | | 389,830 | 389,830 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 2,386.31 | HR | 17.500 | | | 41,760 | 41,760 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 2,386.31 | HR | 3.000 | | | 7,159 | 7,159 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 2,386.31 | HR | 10.000 | | | 23,863 | 23,863 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 2,386.31 | HR | 17.500 | | | 41,760 | 41,760 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 2,386.31 | HR | 20.000 | | | 47,726 | 47,726 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 2,386.31 | HR | 3.000 | | | 7,159 | 7,159 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 2,386.31 | HR | 5.000 | | | 11,932 | 11,932 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 2,386.31 | HR | 10.000 | | | 23,863 | 23,863 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 2,386.31 | HR | 0.100 | | | 239 | 239 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 2,386.31 | HR | 3.000 | | | 7,159 | 7,159 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 2,386.31 | HR | 3.500 | | | 8,352 | 8,352 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 2,386.31 | HR | 5.000 | | | 11,932 | 11,932 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 2,386.31 | HR | 6.500 | | | 15,511 | 15,511 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 2,386.31 | HR | 10.000 | | | 23,863 | 23,863 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 2,386.31 | HR | 2.500 | | | 5,966 | 5,966 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 2,386.31 | HR | 45.492 | | | 108,558 | 108,558 |
| 9100000 | Substance 5 workers | 238.63 | DA | | 500.000 | | 119,315 | | 119,315 |
| M105 | Foreman - General Marine | 1.00 | 2,386.31 | MH | 35.720 | 149,253 | | | 149,253 |
| M165 | M-Piledriver | 1.00 | 2,386.31 | MH | 34.950 | 165,211 | | | 165,211 |
| M170 | M-Welder | 1.00 | 2,386.31 | MH | 41.050 | 186,245 | | | 186,245 |
| M190 | M-Skilled Laborer | 1.00 | 2,386.31 | MH | 35.430 | 166,866 | | | 166,866 |
| M195 | M-Laborer | 1.00 | 2,386.31 | MH | 35.430 | 166,866 | | | 166,866 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,386.31 | MH | 39.190 | 160,066 | | | 160,066 |
| \$1,954,882.99 | 15.0000 MH/EA | 14,317.86 | MH | | [609.87] | 994,506 | 136,019 | 824,358 | 1,954,883 |

303040 Piling - Concrete Filling Marine Quan: 4.78 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | |
|--|--------------------------|-----------|----------|--------------|-------------------|-----------|---------|----------|-----------|
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | |
| <u>MARWOO</u> | Marine Carpenters Crew | 2,386.31 | CH | Prod: | 238.6310 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 238.63 | DA | | 200.000 | | | 47,726 | 47,726 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 2,386.31 | HR | 106.961 | | | 255,242 | 255,242 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 2,386.31 | HR | 3.000 | | | 7,159 | 7,159 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 2,386.31 | HR | 6.500 | | | 15,511 | 15,511 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 2,386.31 | HR | 6.500 | | | 15,511 | 15,511 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 2,386.31 | HR | 10.000 | | | 23,863 | 23,863 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 2,386.31 | HR | 3.000 | | | 7,159 | 7,159 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 2,386.31 | HR | 5.000 | | | 11,932 | 11,932 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 2,386.31 | HR | 0.100 | | | 239 | 239 |
| 8MFW-A-1 | Work Float | 1.00 | 2,386.31 | HR | 2.000 | | | 4,773 | 4,773 |
| 8MFW-A-2 | Work Float | 1.00 | 2,386.31 | HR | 2.000 | | | 4,773 | 4,773 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 2,386.31 | HR | 2.000 | | | 4,773 | 4,773 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 2,386.31 | HR | 2.000 | | | 4,773 | 4,773 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 2,386.31 | HR | 3.500 | | | 8,352 | 8,352 |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 2,386.31 | HR | 6.500 | | | 15,511 | 15,511 |
| 8WELD400 | Welder 400 AMP | 2.00 | 4,772.62 | HR | 2.044 | | | 9,755 | 9,755 |
| M100 | Foreman - Carpenter | 1.00 | 2,386.31 | MH | 34.720 | 145,805 | | | 145,805 |
| M170 | M-Welder | 1.00 | 2,386.31 | MH | 41.050 | 186,245 | | | 186,245 |
| M173 | M-Lead Carpenter | 1.00 | 2,386.31 | MH | 35.490 | 167,073 | | | 167,073 |
| M175 | M-Carpenter | 3.00 | 7,158.93 | MH | 35.490 | 501,219 | | | 501,219 |
| M180 | M-Carpenter Helper | 3.00 | 7,158.93 | MH | 35.490 | 501,219 | | | 501,219 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,386.31 | MH | 39.190 | 160,066 | | | 160,066 |
| \$2,098,675.24 | 4,992.2803 MH/LS | 23,863.10 | MH | | [199555.925] | 1,661,625 | 437,050 | | 2,098,675 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|

BID ITEM = 30260

Description = Piling Wharf Area II & III

Land Item SCHEDULE: 1 100

Unit = FT Takeoff Quan: 168,378.000 Engr Quan: 168,378.000

303042 Concrete Supply Marine Quan: 27,877.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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Pipe Qty Piles Pile Length Total Length Concrete Fill Volume Concrete (CF) Rebar (Ft)

A1 55 203 11,165.00 85.00 58,747.9 78,320
 A56 109 223 24,307.00 85.00 116,427.7 155,216
 B1 55 198 10,890.00 85.00 58,747.9 78,320
 B56 55 213 11,715.00 85.00 58,747.9 78,320
 C1 55 198 10,890.00 85.00 58,747.9 78,320
 C56 55 203 11,165.00 85.00 58,747.9 78,320
 D-1 55 193 10,615.00 85.00 58,747.9 78,320
 D56 55 198 10,890.00 85.00 58,747.9 78,320
 E6A 12 203 2,436.00 85.00 12,817.7 17,088
 E56 55 193 10,615.00 85.00 58,747.9 78,320
 F6A 12 193 2,316.00 85.00 12,817.7 17,088
 F56 55 188 10,340.00 85.00 58,747.9 78,320
 G6A 8 188 1,504.00 85.00 8,545.2 11,392
 G56 109 198 21,582.00 85.00 116,427.7 155,216
 H6A 8 183 1,464.00 85.00 8,545.2 11,392
 H60 10 193 1,930.00 85.00 10,681.4 14,240
 I6A 8 178 1,424.00 85.00 8,545.2 11,392
 I60 10 183 1,830.00 85.00 10,681.4 14,240
 J6A 8 173 1,384.00 85.00 8,545.2 11,392
 J60 6 178 1,068.00 85.00 6,408.9 8,544
 K6A 8 168 1,344.00 85.00 8,545.2 11,392
 K60 6 173 1,038.00 85.00 6,408.9 8,544
 L6A 8 163 1,304.00 85.00 8,545.2 11,392
 L60 6 168 1,008.00 85.00 6,408.9 8,544
 M6A 8 158 1,264.00 85.00 8,545.2 11,392
 M60 6 163 978.00 85.00 6,408.9 8,544
 N6A 8 128 1,024.00 85.00 8,545.2 11,392
 N60 6 148 888.00 85.00 6,408.9 8,544
 851 183.9 168,378.00 908,990.5 cf 1,211,824
 Average 197.9 33,666.3 cy

2CR14 5000 PSI Concrete 1.10 30,664.71 CY 105.000 3,219,795 3,219,795

303043 Concrete Pumping Marine Quan: 4.78 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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5CONCP36M Concrete Concrete Pump 36 1,193.16 HR 125.000 149,145 149,145

303045 Piling - Rebar Marine Quan: 3,235,570.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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Option 5 ==>48" Pipe Pile Area II

PIECES SIZE WEIGHT LENGTH POUNDS TONS UNIT EXT.

INST. EA. PRICE PRICE

1 #8 2.670 1,211,824 3,235,570 1617.79 0.65 \$2,103,120.55 hook dowels @ 5'
 3,235,570 1617.79
 10% 3,559,127

SUBTOTAL: \$2,103,120.55

TAX 6.5%: \$136,702.84

TOTAL: \$2,239,823.39 8% \$179,185.87

| | | | | | |
|----------------|-------------------|----------------------|--------|-----------|-----------|
| 2RR02 | Gr 60 Rebar | 1.10 3,559,126.97 LB | 0.480 | 1,708,381 | 1,708,381 |
| 2RR10 | Rebar Supports | 3,559,126.97 LB | 0.050 | 177,956 | 177,956 |
| 2RS16 | Coupler T-25 (#8) | 16.00 14,634.38 EA | 13.000 | 190,247 | 190,247 |
| 5REBAR | Rebar Sub | 3,235,569.97 LB | 0.280 | 905,960 | 905,960 |
| \$2,982,543.83 | | | [] | 2,076,584 | 2,982,544 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|--|--|-----------------|---------------|----------------------------|------------------------|--------------------|-------------------|-------------------|-------------------|
| <hr/> | | | | | | | | | |
| BID ITEM = 30260 | | | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Piling Wharf Area II & III | | Unit = | FT | Takeoff | Quan: 168,378.000 | Engr | Quan: 168,378.000 | |
| <hr/> | | | | | | | | | |
| 304000 | Pile Splices - Pipe pile | | Marine | Quan: 954.52 EA | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | |
| 5SPLICES | Welding Subcontractor | 1,431.79 | EA | 650.000 | | 930,664 | | | 930,664 |
| <hr/> | | | | | | | | | |
| =====> | Item Totals: 30260 - Piling Wharf Area II & III | | | | | | | | |
| \$89,667,458.71 | 0.2267 MH/FT | 38,180.96 | MH | [9.122] | 2,656,131 | 83,341,332 | 2,408,587 | 1,261,408 | 89,667,459 |
| 532.537 | 168378 FT | | | | 15.77 | 494.97 | 14.30 | 7.49 | 532.54 |
| <hr/> | | | | | | | | | |
| <hr/> | | | | | | | | | |
| BID ITEM = 30290 | | | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Concrete Deck Superstructure & Rail Foun | | Unit = | SF | Takeoff | Quan: 235,069.000 | Engr | Quan: 235,069.000 | |
| <hr/> | | | | | | | | | |
| 322005 | Final Deck Product | | Marine | Quan: 241,275.72 SF | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | |
| 52SUPERSTRUC | Concrete Superstructure | 241,275.72 | SF | 101.000 | | 24,368,848 | | | 24,368,848 |
| <hr/> | | | | | | | | | |
| =====> | Item Totals: 30290 - Concrete Deck Superstructure & Rail Foun | | | | | | | | |
| \$24,368,847.72 | | | | [] | | 24,368,848 | | | 24,368,848 |
| 103.667 | 235069 SF | | | | | 103.67 | | | 103.67 |
| <hr/> | | | | | | | | | |
| <hr/> | | | | | | | | | |
| BID ITEM = 30300 | | | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Abutments | | Unit = | EA | Takeoff | Quan: 7.000 | Engr | Quan: 7.000 | |
| <hr/> | | | | | | | | | |
| 303000 | Supply Pipe Piles | | Marine | Quan: 1,234.80 FT | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | |
| 2PP48INCH | 48 In Diam Pipe Pile | 1,234.80 | LF | 430.000 | | 530,964 | | | 530,964 |
| <hr/> | | | | | | | | | |
| 303010 | Pile Painting & Wrapping | | Marine | Quan: 0.05 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | |
| 2PP48COATING | Pipe Pile Shop Coating | 10,344.67 | SF | 4.000 | | 41,379 | | | 41,379 |
| <hr/> | | | | | | | | | |
| 303022 | Set Pile Template | | Marine | Quan: 0.05 LS | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | |
| 31PILETEMPLA | Pipe Pile Template | 0.05 | LS | 60,000.000 | | 3,000 | | | 3,000 |
| <hr/> | | | | | | | | | |
| 303035 | Piling - Pipe | | Marine | Quan: 7.00 EA | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | 17.50 | CH | Prod: 1.7500 S | Lab Pcs: 6.00 | Eqp Pcs: 17.00 | | | |
| 3WELD | Weld Supplies (1 man-Stick | 1.75 | DA | 70.000 | 123 | | | | 123 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.75 | DA | 200.000 | | 350 | | | 350 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 17.50 | HR | 163.361 | 2,859 | | | 2,859 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 17.50 | HR | 17.500 | 306 | | | 306 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 17.50 | HR | 3.000 | 53 | | | 53 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 17.50 | HR | 10.000 | 175 | | | 175 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 17.50 | HR | 17.500 | 306 | | | 306 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 17.50 | HR | 20.000 | 350 | | | 350 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 17.50 | HR | 3.000 | 53 | | | 53 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 17.50 | HR | 5.000 | 88 | | | 88 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|--------------------------|------|------------------|---------------------|-------------------|----------------------|--------------------|---------------|------------------|--------|
| BID ITEM = 30300 | | | | | | | | | | |
| Description = | Abutments | | | Land Item Unit = | SCHEDULE: 1 EA | 100 Takeoff Quan: | | 7.000 | Engr Quan: | 7.000 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 17.50 HR | | 10.000 | | | 175 | | 175 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 17.50 HR | | 0.100 | | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 17.50 HR | | 3.000 | | | 53 | | 53 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 17.50 HR | | 3.500 | | | 61 | | 61 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 17.50 HR | | 5.000 | | | 88 | | 88 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 17.50 HR | | 6.500 | | | 114 | | 114 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 17.50 HR | | 10.000 | | | 175 | | 175 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 17.50 HR | | 2.500 | | | 44 | | 44 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 17.50 HR | | 45.492 | | | 796 | | 796 |
| 9100000 | Substance 5 workers | | 1.75 DA | | 500.000 | | | 875 | | 875 |
| M105 | Foreman - General Marine | 1.00 | 17.50 MH | | 35.720 | 1,095 | | | | 1,095 |
| M165 | M-Piledriver | 1.00 | 17.50 MH | | 34.950 | 1,212 | | | | 1,212 |
| M170 | M-Welder | 1.00 | 17.50 MH | | 41.050 | 1,366 | | | | 1,366 |
| M190 | M-Skilled Laborer | 1.00 | 17.50 MH | | 35.430 | 1,224 | | | | 1,224 |
| M195 | M-Laborer | 1.00 | 17.50 MH | | 35.430 | 1,224 | | | | 1,224 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 17.50 MH | | 39.190 | 1,174 | | | | 1,174 |
| \$14,336.16 | 15.0000 MH/EA | | 105.00 MH | | [609.869] | 7,293 | | 998 | 6,045 | 14,336 |

303040 Piling - Concrete Filling Marine Quan: 0.05 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|---------------|--------------------------|------|-----------|--------------|----------|----------|-------|----------|--------|
| <u>MARWOO</u> | Marine Carpenters Crew | | 17.50 CH | Prod: | 1.7500 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 1.75 DA | 200.000 | | | | 350 | 350 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 17.50 HR | 106.961 | | | | 1,872 | 1,872 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 17.50 HR | 3.000 | | | | 53 | 53 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 17.50 HR | 6.500 | | | | 114 | 114 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 17.50 HR | 6.500 | | | | 114 | 114 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 17.50 HR | 10.000 | | | | 175 | 175 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 17.50 HR | 3.000 | | | | 53 | 53 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 17.50 HR | 5.000 | | | | 88 | 88 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 17.50 HR | 0.100 | | | | 2 | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 17.50 HR | 2.000 | | | | 35 | 35 |
| 8MFW-A-2 | Work Float | 1.00 | 17.50 HR | 2.000 | | | | 35 | 35 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 17.50 HR | 2.000 | | | | 35 | 35 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 17.50 HR | 2.000 | | | | 35 | 35 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 17.50 HR | 3.500 | | | | 61 | 61 |
| 8MVP-A-2 | FORD F150 SUPERC 2 | 1.00 | 17.50 HR | 6.500 | | | | 114 | 114 |
| 8WELD400 | Welder 400 AMP | 2.00 | 35.00 HR | 2.044 | | | | 72 | 72 |
| M100 | Foreman - Carpenter | 1.00 | 17.50 MH | 34.720 | 1,069 | | | | 1,069 |
| M170 | M-Welder | 1.00 | 17.50 MH | 41.050 | 1,366 | | | | 1,366 |
| M173 | M-Lead Carpenter | 1.00 | 17.50 MH | 35.490 | 1,225 | | | | 1,225 |
| M175 | M-Carpenter | 3.00 | 52.50 MH | 35.490 | 3,676 | | | | 3,676 |
| M180 | M-Carpenter Helper | 3.00 | 52.50 MH | 35.490 | 3,676 | | | | 3,676 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 17.50 MH | 39.190 | 1,174 | | | | 1,174 |
| \$15,390.64 | 3,500.0000 MH/LS | | 175.00 MH | [139905.2] | 12,186 | | | 3,205 | 15,391 |

303042 Concrete Supply Marine Quan: 256.39 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|-------|-------------------|------|-----------|---------|--|--------|--|--|--------|
| 2CR14 | 5000 PSI Concrete | 1.10 | 282.01 CY | 105.000 | | 29,611 | | | 29,611 |
|-------|-------------------|------|-----------|---------|--|--------|--|--|--------|

303043 Concrete Pumping Marine Quan: 0.05 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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| | | | | | | | | | |
|-----------|---------------------------|--|---------|---------|--|--|-------|--|-------|
| 5CONCP36M | Concrete Concrete Pump 36 | | 8.75 HR | 125.000 | | | 1,094 | | 1,094 |
|-----------|---------------------------|--|---------|---------|--|--|-------|--|-------|

303045 Piling - Rebar Marine Quan: 24,762.50 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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Direct Cost Report

| Activity | Desc | Quantity | | Unit | Unit | Perm | Constr | Equip | Sub- | | |
|---------------|-------------------|----------|-----------|-----------|-----------|---------|----------|----------|------|----------|--------|
| Resource | | Pcs | | | Cost | Labor | Material | Matl/Exp | ment | Contract | Total |
| <hr/> | | | | | | | | | | | |
| BID ITEM | = 30300 | | | Land Item | SCHEDULE: | 1 | 100 | | | | |
| Description = | Abutments | | | Unit = | EA | Takeoff | Quan: | 7.000 | Engr | Quan: | 7.000 |
| 2RR02 | Gr 60 Rebar | 1.10 | 27,238.75 | LB | 0.480 | | 13,075 | | | | 13,075 |
| 2RR10 | Rebar Supports | | 27,238.75 | LB | 0.050 | | 1,362 | | | | 1,362 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 112.00 | EA | 13.000 | | 1,456 | | | | 1,456 |
| 5REBAR | Rebar Sub | | 24,762.50 | LB | 0.280 | | | 6,934 | | | 6,934 |
| \$22,826.04 | | | | | [] | | 15,893 | 6,934 | | | 22,826 |

| | | | | | | | |
|--------|-------------|--------|-------|---------|-----------|------|----------|
| 303900 | ADDED CODES | Marine | Ouan: | 0.05 LS | Hrs/Shft: | 8.00 | WC: NONE |
|--------|-------------|--------|-------|---------|-----------|------|----------|

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There are no cost resources for this activity.

| | | | | | | | | | | |
|--------|--------------------------|--------|-------|---------|-----------|-------|------|-----|-----|-------|
| 304000 | Pile Splices - Pipe pile | Marine | Ouan: | 7.00 EA | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
|--------|--------------------------|--------|-------|---------|-----------|-------|------|-----|-----|-------|

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| | | | | | |
|---------|-----------------------|----------|---------|-------|-------|
| 5SPICES | Welding Subcontractor | 10.50 EA | 650.000 | 6,825 | 6,825 |
|---------|-----------------------|----------|---------|-------|-------|

322910 Concrete Cap Dolphins Quan: 7.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP

***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H *****

| <u>MARPIL</u> | Marine Piling & Demo Crew | | 420.00 | CH | Prod: | 42.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
|---------------|----------------------------|------|------------|----|--------------|------------------|----------|---------|----------|---------|
| 2CR14 | 5000 PSI Concrete | 1.10 | 292.60 | CY | 105.000 | 30,723 | | | | 30,723 |
| 2RR02 | Gr 60 Rebar | 1.05 | 44,522.64 | LB | 0.480 | 21,371 | | | | 21,371 |
| 3WELD | Weld Supplies (1 man-Stick | | 42.00 | DA | 70.000 | | 2,940 | | | 2,940 |
| 5REBAR | Rebar Sub | | 744,522.33 | LB | 0.280 | | 208,466 | | | 208,466 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 42.00 | DA | 200.000 | | | 8,400 | | 8,400 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 420.00 | HR | 163.361 | | | 68,612 | | 68,612 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 420.00 | HR | 17.500 | | | 7,350 | | 7,350 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 420.00 | HR | 3.000 | | | 1,260 | | 1,260 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 420.00 | HR | 10.000 | | | 4,200 | | 4,200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 420.00 | HR | 17.500 | | | 7,350 | | 7,350 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 420.00 | HR | 20.000 | | | 8,400 | | 8,400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 420.00 | HR | 3.000 | | | 1,260 | | 1,260 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 420.00 | HR | 5.000 | | | 2,100 | | 2,100 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 420.00 | HR | 10.000 | | | 4,200 | | 4,200 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 420.00 | HR | 0.100 | | | 42 | | 42 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 420.00 | HR | 3.000 | | | 1,260 | | 1,260 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 420.00 | HR | 3.500 | | | 1,470 | | 1,470 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 420.00 | HR | 5.000 | | | 2,100 | | 2,100 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 420.00 | HR | 6.500 | | | 2,730 | | 2,730 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 420.00 | HR | 10.000 | | | 4,200 | | 4,200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 420.00 | HR | 2.500 | | | 1,050 | | 1,050 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 420.00 | HR | 45.492 | | | 19,107 | | 19,107 |
| 9100000 | Subsistance 5 workers | | 42.00 | DA | 500.000 | | 21,000 | | | 21,000 |
| M105 | Foreman - General Marine | 1.00 | 420.00 | MH | 35.720 | 26,269 | | | | 26,269 |
| M165 | M-Piledriver | 1.00 | 420.00 | MH | 34.950 | 29,078 | | | | 29,078 |
| M170 | M-Welder | 1.00 | 420.00 | MH | 41.050 | 32,780 | | | | 32,780 |
| M190 | M-Skilled Laborer | 1.00 | 420.00 | MH | 35.430 | 29,369 | | | | 29,369 |
| M195 | M-Laborer | 1.00 | 420.00 | MH | 35.430 | 29,369 | | | | 29,369 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 420.00 | MH | 39.190 | 28,172 | | | | 28,172 |
| \$604,627.39 | 360.0000 MH/EA | | 2,520.00 | MH | [14636.82] | 175,037 | 52,094 | 232,406 | 145,090 | 604,627 |

=====> Item Totals: 30300 - Abutments

| | | | | | | | | |
|----------------|----------------|-------------|---------------|-----------|-----------|-----------|-----------|------------------|
| \$1,270,052.71 | 400.0000 MH/EA | 2,800.00 MH | [16246.011] | 194,516 | 669,940 | 251,256 | 154,341 | 1,270,053 |
| 181,436.101 | 7 EA | | | 27,787.97 | 95,705.73 | 35,893.71 | 22,048.68 | 181,436.101 |

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit Cost | Labor | Perm | Constr | Equip | Sub-Contract | Total |
|--|---|----------|-----------|--------------|-----------|--------------|-----------|-----------|--------------|--------------|
| Resource | | Pcs | | | | Material | Matl/Exp | Ment | | |
| | | | | | | | | | | |
| BID ITEM = 30310 | | | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = 100-gage Crain Rails | | | Unit = | FT | Takeoff | Quan: | 2,160.000 | Engr | Quan: | 2,160.000 |
| 387000 | Steel Railing grantry cranes | | Quan: | 2,160.00 LF | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 52CRANERAIL | Crane Rail Installation | 2,160.00 | FT | 207.700 | | | 448,632 | | | 448,632 |
| =====> | Item Totals: 30310 - 100-gage Crain Rails | | | [] | | | 448,632 | | | 448,632 |
| \$448,632.00 | | | | | | | 207.70 | | | 207.70 |
| 207.700 | 2160 FT | | | | | | | | | |
| | | | | | | | | | | |
| BID ITEM = 30320 | | | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Fendering | | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 1.000 |
| 620010 | Fendering and bollard System | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| 2BOLLARD | Bollards | 30.00 | LS | 2,063.000 | | 61,890 | | | | 61,890 |
| 2FENDER | Fender system | 30.00 | LS | 58,333.000 | | 1,749,990 | | | | 1,749,990 |
| \$1,811,880.00 | | | | [] | | 1,811,880 | | | | 1,811,880 |
| 620020 | Install Fenders and Bollards | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5H ***** | | | | | | | | | | |
| MARPIL | Marine Piling & Demo Crew | 150.00 | CH | Prod: | 15.0000 S | | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 15.00 | DA | 70.000 | | | 1,050 | | | 1,050 |
| 8211050 | Fuel, Oil, Grease 50g/d | 15.00 | DA | 200.000 | | | | 3,000 | | 3,000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 150.00 | HR | 163.361 | | | 24,504 | | 24,504 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 150.00 | HR | 17.500 | | | 2,625 | | 2,625 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 150.00 | HR | 3.000 | | | 450 | | 450 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 150.00 | HR | 10.000 | | | 1,500 | | 1,500 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 150.00 | HR | 17.500 | | | 2,625 | | 2,625 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 150.00 | HR | 20.000 | | | 3,000 | | 3,000 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 150.00 | HR | 3.000 | | | 450 | | 450 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 150.00 | HR | 5.000 | | | 750 | | 750 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 150.00 | HR | 10.000 | | | 1,500 | | 1,500 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 150.00 | HR | 0.100 | | | 15 | | 15 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 150.00 | HR | 3.000 | | | 450 | | 450 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 150.00 | HR | 3.500 | | | 525 | | 525 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 150.00 | HR | 5.000 | | | 750 | | 750 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 150.00 | HR | 6.500 | | | 975 | | 975 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 150.00 | HR | 10.000 | | | 1,500 | | 1,500 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 150.00 | HR | 2.500 | | | 375 | | 375 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 150.00 | HR | 45.492 | | | 6,824 | | 6,824 |
| 9100000 | Substance 5 workers | 15.00 | DA | 500.000 | | | 7,500 | | | 7,500 |
| M105 | Foreman - General Marine | 1.00 | 150.00 | MH | 35.720 | 9,382 | | | | 9,382 |
| M165 | M-Piledriver | 1.00 | 150.00 | MH | 34.950 | 10,385 | | | | 10,385 |
| M170 | M-Welder | 1.00 | 150.00 | MH | 41.050 | 11,707 | | | | 11,707 |
| M190 | M-Skilled Laborer | 1.00 | 150.00 | MH | 35.430 | 10,489 | | | | 10,489 |
| M195 | M-Laborer | 1.00 | 150.00 | MH | 35.430 | 10,489 | | | | 10,489 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 150.00 | MH | 39.190 | 10,062 | | | | 10,062 |
| \$122,881.18 | 900.0000 MH/LS | 900.00 | MH | [36592.05] | 62,513 | | 8,550 | 51,818 | | 122,881 |
| =====> | Item Totals: 30320 - Fendering | | | [36592.05] | 62,513 | 1,811,880 | 8,550 | 51,818 | | 1,934,761 |
| \$1,934,761.18 | 900.0000 MH/LS | 900.00 | MH | [36592.05] | 62,513.23 | 1,811,880.00 | 8,550.00 | 51,817.95 | | 1,934,761.18 |
| 1,934,761.180 | 1 LS | | | | | | | | | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|--|---|-----------------|--------------|----------------------|-------------------|--------------------|-------------------|------------------|-------|
| BID ITEM = 30550 | | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Surface Pavements | | Unit = | LS | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 | |
| 23 | ASPHALT PAVING | | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | WC: NONE | | |
| This is the | parametric cost from ICRC estimate site prep, earthwork and paving, per SY | | | | | | | | |
| 4SUB | Subcontract | 130,681.00 SY | | 154.863 | | | 20,237,691 | 20,237,691 | |
| BID ITEM = 30560 | | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Traffic Control Parking | | Unit = | LS | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 | |
| 5 | TRAFFIC CONTROL/ACCESS | | Quan: | 130,681.00 SY | Hrs/Shift: | 8.00 | WC: NONE | | |
| This is the | parametric cost from ICRC estimate for striping and signage, per SY | | | | | | | | |
| 4SUB | Subcontract | 130,681.00 SY | | 2.490 | | | 325,396 | 325,396 | |
| BID ITEM = 30570 | | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Surface water control | | Unit = | LS | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 | |
| 40 | DRAINAGE | | Quan: | 130,681.00 SY | Hrs/Shift: | 8.00 | WC: NONE | | |
| This is the | parametric cost from ICRC estimate for lump sum surface drainage, costed per SY | | | | | | | | |
| 4SUB | Subcontract | 130,681.00 SY | | 7.035 | | | 919,341 | 919,341 | |
| BID ITEM = 30580 | | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Potable Water Utilities | | Unit = | LS | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 | |
| 411 | WATER MAINS | | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | WC: NONE | | |
| Potable water as lump sum from ICRC estimate | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 2,525,274.000 | | | 2,525,274 | 2,525,274 | |
| BID ITEM = 30590 | | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Fire Suppression Utilities | | Unit = | LS | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 | |
| 411 | WATER MAINS | | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | WC: NONE | | |
| Estimating Fire suppression water as Potable water lump sum from ICRC estimate (assumes the ICRC estimate only had Potable water). | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 2,525,274.000 | | | 2,525,274 | 2,525,274 | |
| BID ITEM = 30600 | | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Sanitary Sewer Utilities | | Unit = | LS | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 | |
| 412 | SANITARY SEWER | | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | WC: NONE | | |
| San Sewer as lump sum from ICRC estimate | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 359,657.000 | | | 359,657 | 359,657 | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|---|-----------------|----------------|-------------------|-------------|------------------|--------------------|---------------|------------------|-------|
| BID ITEM = 30610 | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Electrical Power Utilities | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 1.000 | | |
| 419 | ELEC. UTILITIES | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | WC: NONE | | | | |
| Electrical Utilities as lump sum from ICRC estimate | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 9,239,076.000 | | | | 9,239,076 | 9,239,076 | |
| BID ITEM = 30620 | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Natural Gas Utilities | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 1.000 | | |
| 419 | NAT GAS UTIL | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | WC: NONE | | | | |
| Natural gas has been removed from the project, a place holder is left. | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 1.000 | | | | 1 | 1 | |
| BID ITEM = 30630 | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Telecommunications Utilities | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 1.000 | | |
| 419 | TEL/COM. UTILITIES | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | WC: NONE | | | | |
| Telecomm utilities cost taken as lump sum from ICRC estimate | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 3,281,521.000 | | | | 3,281,521 | 3,281,521 | |
| BID ITEM = 30640 | CLIENT# = 02-08 | Land Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Railroad Spur | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 1.000 | | |
| 3 | RAIL SPUR | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | WC: NONE | | | | |
| Rail and appurtenances taken as lump sum from ICRC estimate | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 6,803,601.000 | | | | 6,803,601 | 6,803,601 | |
| BID ITEM = 30650 | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Surface Restoration/Landscaping | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 1.000 | | |
| 209000 | Restorations | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | WC: NONE | | | | |
| No restoration was identified in ICRC estimate. Assuming a nominal amount for landscape and plants. | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 150,000.000 | | | | 150,000 | 150,000 | |
| BID ITEM = 30660 | CLIENT# = 02-19 | Land Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Marine Terminal Buildings incl Crane Mai | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 1.000 | | |
| 89 | Tote Marine and AWWU Meeting Buildings | Quan: | 2.00 EA | Hrs/Shift: | 8.00 | WC: NONE | | | | |
| Parametric cost taken as lump sum from ICRC estimate - used for stevedore facilities | | | | | | | | | | |
| 4SUB | Subcontract | 2.00 EA | | 1,452,767.000 | | | | 2,905,534 | 2,905,534 | |

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13-008-5
Bob Wells

POA 15% CONCEPT OPTION 5

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Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|-------|------------------|--------------------|---------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|-------|------------------|--------------------|---------------|------------------|-------|

BID ITEM = 30670 CLIENT# = 02-12 Land Item SCHEDULE: 1 100
Description = Corrosion Control Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

859 CATHODIC PROTECTION Quan: 1.00 LS Hrs/Shift: 8.00 WC: NONE

Updated numbers from Jerry Duppong/SEA based on current structural (replaces ICRC estimate)
4SUB Subcontract 1.00 LS 11,262,000.00 11,262,000 11,262,000

BID ITEM = 30680 CLIENT# = 02-08 Land Item SCHEDULE: 1 100
Description = Cherry Hill Road Upgrades Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

2 EARTHWORK/BASE/PAVING Quan: 1.00 LS Hrs/Shift: 8.00 WC: NONE

Road upgrade cost from ICRC estimate
4SUB Subcontract 1.00 LS 823,088.000 823,088 823,088

BID ITEM = 30690 CLIENT# = 02-12 Land Item SCHEDULE: 1 100
Description = Other Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

89 MARINE MAMMAL MONITORING Quan: 1.00 LS Hrs/Shift: 8.00 WC: NONE

4SUB Subcontract 1.00 LS 3,624,482.000 3,624,482 3,624,482

890000 KABATA WORK Quan: 1.00 LS Hrs/Shift: 8.00 WC: NONE

4SUB Subcontract 1.00 LS 767,282.000 767,282 767,282

====> **Item Totals: 30690 - Other**
\$4,391,764.00 [] 4,391,764 **4,391,764**
4,391,764.00 1 LS 4,391,764.00 4,391,764.00

\$300,117,044.87 * Report Totals *** 371,586.78 MH 25,462,742 127,209,653 46,222,519 35,472,913 65,749,217 300,117,045**

>>> indicates Non Additive Activity

-----Report Notes:-----

The estimate was prepared with TAKEOFF Quantities.

This report shows TAKEOFF Quantities with the resources.

Bid Date: Owner: Engineering Firm:

Estimator-In-Charge:

JOB NOTES

Estimate created on: 03/12/2008 by User#: 0 -

Source used: C:\HEAVYBID\BIN\BLANK\BLANK.zip (a backup) from 04/20/2006 4:40:12 PM

*****Estimate created on: 03/20/2008 by User#: 0 -

Source used: R:\CURRENT DEVELOPMENT\HEAVYBID\INSTALLS\CURRENT INSTALL SOURCE\BACKUPS\BLANK.zip (a backup)
from 03/18/2008 11:43:18 AM

*****Estimate created on: 03/21/2008 by User#: 0 -

Source used: C:\HEAVYBID\BACKUPS\BLANK.zip (a backup) from 03/20/2008 8:40:26 AM

*****Estimate created on: 01/24/2013 by User#: 609 - Bob Wells

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POA 15% CONCEPT OPTION 5

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Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|----------------------|------|-----------------|--------------|--------------|-------|------------------|--------------------|---------------|------------------|-------|
|----------------------|------|-----------------|--------------|--------------|-------|------------------|--------------------|---------------|------------------|-------|

| | | | | | | | | | | |
|-----------------|---|--------------|-----------------|-----------|-------------|---------------|-------|------------|--|-------|
| BID ITEM | = | 30690 | CLIENT# = 02-12 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | | Other | | Unit = | LS | Takeoff Quan: | 1.000 | Engr Quan: | | 1.000 |

Source estimate used: Y:\TBG-ENGI\EST\ESTMAST

*****Estimate created on: 02/07/2013 by User#: 609 - Bob Wells

Source estimate used: Y:\TBG-ENGI\EST\13-008

*****Estimate created on: 02/07/2013 by User#: 609 - Bob Wells

Source estimate used: Y:\TBG-ENGI\EST\13-008-1

* on units of MH indicate average labor unit cost was used rather than base rate.

[] in the Unit Cost Column = Labor Unit Cost Without Labor Burdens

In equipment resources, rent % and EOE % not = 100% are represented as XXX%YYY where XXX=Rent% and YYY=EOE%

-----Calendar Codes-----

510 5 days @ 10hrs/day



**US Army Corps
of Engineers®**

**PORT OF ANCHORAGE INTERMODAL
EXPANSION PROJECT – OPTION 5H
15% CONCEPT DESIGN
FOR
ALASKA DISTRICT, JOINT BASE ELMENDORF-
RICHARDSON, ALASKA**

Prepared for:

ALASKA DISTRICT U.S. ARMY CORPS OF ENGINEERS

Prepared by:

CH2M HILL

Date: February 2013

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ATTACHMENT

| | |
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| ATTACHMENT A | Detailed Risk Register |
| ATTACHMENT B | Cost Estimate (Input to CSRA) |

EXECUTIVE SUMMARY

The purpose of this report is to inform the stakeholders of the cost and schedule risks and their resulting impacts on project cost and duration. The project is considering three options, developed to a 15% CONCEPT stage of design. The project includes Features 08 Roads, Railroads; 12 Navigation Ports & Harbors; 16 Bank Stabilization; and 19 Buildings, Grounds, & Utilities. The method used was a Cost and Schedule Risk Analysis as directed in W912PP-09-D-0016, Task Order ZJ03 3.a. COST ESTIMATE. The contingency results are shown in Table 1 with the relative confidence of cost under run. Recommended risk mitigation strategies are varied and summarized in Section 8 of this report.

Table 1. Executive Summary of Risk Analysis 5HA

Option 5HA – Early Section

| Confidence Level | Value |
|------------------|---------------|
| 60% | \$315,405,425 |
| 80% | \$327,362,767 |
| 100% | \$394,408,199 |

Table 2. Executive Summary of Risk Analysis 5HB

Option 5HB – Later Section

| Confidence Level | Value |
|------------------|---------------|
| 60% | \$263,632,918 |
| 80% | \$275,333,847 |
| 100% | \$341,691,846 |

1. PURPOSE

The purpose of this report is to present the cost and schedule forecasts of the Port of Anchorage Intermodal Expansion Project – Option 5H, 15% Concept design. The purpose for a Cost and Schedule Risk Analysis (CSRA) is to study elements related to cost and schedule to derive an outcome contingency calculation at the 80th percentile confidence level, for both cost and schedule, which are measured in terms of dollars and months, respectively.

2. BACKGROUND

This project, at the Concept design state (15%), was requested by Alaska District U.S. Army Corps of Engineers (USACE) after CH2M HILL completed for review the study on the halted design and construction of the Port of Anchorage Intermodal Expansion Project. The project currently is considering three options, all of which have design developed to the Concept stage (15%). Each option is considered independently and an estimate and CSRA have been developed for each.

3. REPORT SCOPE

The scope of the risk analysis report is to calculate and present the cost and schedule contingencies at the 80 percent confidence level using the risk analysis processes as mandated by USACE Engineer Regulation (ER) 1110-2-1150, Engineering and Design for Civil Works, ER 1110-2-1302, Civil Works Cost Engineering, and Engineer Technical Letter 1110-2-573, Construction Cost Estimating Guide for Civil Works. The report presents the contingency results for both cost and schedule risks for all project features. The study and presentation can include or exclude consideration for operation and maintenance or life cycle costs, depending upon the program or decision document intended for funding.

3.1 Project Scope

The report includes the project technical scope, estimates, and schedules as developed and presented by CH2M HILL. Consequently, these documents serve as the basis for the risk analysis. In general, the construction scope consists of the following:

- 08 Roads, Railroads, and Bridges (15% Concept Design Stage)
- 12 Navigation Ports & Harbors (15% Concept Design Stage)
- 16 Bank Stabilization (15% Concept Design Stage)
- 19 Buildings, Grounds, & Utilities (15% Concept Design Stage)

3.2 USACE Risk Analysis Process

The risk analysis process followed the contract stipulations and the USACE Headquarters requirements as well as the guidance provided by the Cost Engineering Directory of Expertise for Civil Works (Cost Engineering DX). The risk analysis process reflected within the risk analysis report uses probabilistic cost and schedule risk analysis

methods within the framework of the Crystal Ball software. The risk analysis results are intended to serve several functions, one being the establishment of reasonable contingencies reflective of an 80 percent confidence level to accomplish the project work successfully within that established contingency amount. Furthermore, the scope of the report includes the identification and communication of important steps, logic, key assumptions, limitations, and decisions to help ensure that risk analysis results can be appropriately interpreted.

Risk analysis results are also intended to provide project leadership with contingency information for scheduling, budgeting, and project control purposes, as well as provide tools to support decision-making and risk management as the project progresses through planning and implementation. To fully recognize its benefits, cost and schedule risk analyses should be considered as an ongoing process conducted concurrent to, and iteratively with, other important project processes such as scope and execution plan development, resource planning, procurement planning, cost estimating, budgeting, and scheduling.

In addition to broadly defined risk analysis standards and recommended practices, the risk analysis is performed to meet the requirements and recommendations of the following documents and sources:

- W912PP-09-D-0016, Task Order ZJ03 3.a. COST ESTIMATE
- ER 1110-2-1150, Engineering and Design for Civil Works Projects
- ER 1110-2-1302, Civil Works Cost Engineering
- ETL 1110-2-573, Construction Cost Estimating Guide for Civil Works
- Cost and Schedule Risk Analysis Process guidance prepared by the USACE Cost Engineering DX

4. METHODOLOGY/PROCESS

The Project Delivery Team (PDT) was composed of members of Task 3 Concept Plan Charrette, as well as CH2M HILL personnel later executing the estimate and risk analysis.

The cost and schedule products under analysis have not been submitted for an Agency Technical Review (ATR), thus the risk analysis outcome is based upon an unapproved product and likely to change after an ATR is completed.

The Cost Engineering DX guidance for cost and schedule risk analysis generally focuses on the 80-percent level of confidence (P80) for cost contingency calculation. It should be noted that use of P80 as a decision criteria is a risk adverse approach.

The risk analysis process uses *Monte Carlo* techniques to determine probabilities and contingency. The *Monte Carlo* techniques are facilitated computationally by a commercially available risk analysis software package (Crystal Ball) that is an add-in to Microsoft Excel. Cost estimates are packaged into an Excel format and used directly for cost risk analysis purposes. Because Crystal Ball is an Excel add-in, the schedules for

each option are recreated in an Excel format from their native format. The level of detail recreated in the Excel-format schedule is sufficient for risk analysis purposes that reflect the established risk register, but generally less than that of the native format.

The primary steps, in functional terms, of the risk analysis process are described in the following subsections. Risk analysis results would be provided in Section 6.

4.1 Identify and Assess Risk Factors

Identifying the risk factors with the PDT is considered a qualitative process that results in establishing a risk register that serves as the document for the further study using the Crystal Ball risk software. Risk factors are events and conditions that may influence or drive uncertainty in project performance. They may be inherent characteristics or conditions of the project or external influences, events, or conditions such as weather or economic conditions. Risk factors may have either favorable or unfavorable impacts on project cost and schedule.

Checklists or historical databases of common risk factors are sometimes used to facilitate risk factor identification. However, key risk factors are often unique to a project and not readily derivable from historical information. Therefore, input from the entire PDT is obtained using creative processes such as brainstorming or other facilitated risk assessment meetings. In practice, a combination of professional judgment from the PDT and empirical data from similar projects is desirable and is considered.

Formal PDT meetings were held as a part of the Design Charrette for the purposes of identifying and assessing risk factors. The meetings held included capable and qualified representatives from multiple project team disciplines and functions:

- Project/program managers
- Environmental
- Civil, structural, geotechnical, and hydraulic design
- Cost and schedule engineers
- Key sponsors

Additionally, numerous conference calls and informal meetings are conducted throughout the risk analysis process on an as-needed basis to further facilitate risk factor identification, market analysis, and risk assessment.

4.2 Quantify Risk Factor Impacts

The quantitative impacts of risk factors on project plans are analyzed using a combination of professional judgment, empirical data, and analytical techniques. Risk factor impacts are quantified using probability distributions, because risk factors are entered into the Crystal Ball software in the form of probability density functions.

Similar to the identification and assessment process, risk factor quantification involves multiple project team disciplines and functions. However, the quantification process

used herein relied more extensively on collaboration between cost engineering, designers, and risk analysis team members with lesser inputs from other functions and disciplines.

The following is an example of the PDT quantifying risk factor impacts:

- Maximum possible value for the risk factor
- Minimum possible value for the risk factor
- Most likely value (the statistical mode), if applicable
- Nature of the probability density function used to approximate risk factor uncertainty
- Mathematical correlations between risk factors
- Affected cost estimate and schedule elements

In this study, the risk discussions focused on the various project features as presented within the USACE Civil Works Work Breakdown Structure for cost accounting purposes. It was recognized that the various features carry differing degrees of risk as related to cost, schedule, design complexity, and design progress. The project features under study are presented in Table 3:

Table 3. Work Breakdown Structure by Feature

| | |
|-----------|---------------------------------|
| 08 | Roads, Railroads, and Bridges |
| 12 | Navigation Ports & Harbors |
| 16 | Bank Stabilization |
| 20 | Buildings, Grounds, & Utilities |

The resulting product from the PDT discussions is captured within a risk register as presented in Section 6 for both cost and schedule risk concerns. Note that the risk register records the PDT's risk concerns, and potential impacts to the current cost and schedule estimates. The concerns should support the team's decisions related to event likelihood, impact, and the resulting risk levels for each risk event.

4.3 Analyze Cost Estimate and Schedule Contingency

Contingency is analyzed using the Crystal Ball software, an add-in to the Microsoft Excel format of the cost estimate and schedule. *Monte Carlo* simulations are performed by applying the risk factors (quantified as probability density functions) to the appropriate estimated cost and schedule elements identified by the PDT. Contingencies are calculated by applying only the moderate and high level risks identified for each option (i.e., low-level risks are typically not considered, but remain within the risk register to serve historical purposes as well as support follow-on risk studies as the project and risks evolve).

For the cost estimate, the contingency is calculated as the difference between the P80 cost forecast and the base cost estimate. For schedule contingency analysis, the option schedule contingency is calculated as the difference between the P80 option duration forecast and the base schedule duration. These contingencies are then used to calculate the time value of money impact of project delays that are included in the presentation of total cost contingency in Section 6. The resulting time value of money, or added risk escalation, is then added into the contingency amount to reflect the USACE standard for presenting the “total project cost” for the fully funded project amount.

5. KEY ASSUMPTIONS

The following are key assumptions for the risk analysis identified by the PDT and risk analysts.

- Contract acquisition strategy assumed to be single prime contract DBB.
- ATR status: estimate has not been reviewed.
- Accuracy range of estimate is +30% to -15%.
- The contingency is determined after consideration of the project’s exposure to the studied risks. The recommended level of 80% should be carefully examined.
- All impact levels, those with high, moderate, or low risk level ratings, were studied and applied within the risk analysis.

6. RISK ANALYSIS RESULTS

6.1 Risk Register

The risk register reflects the results of risk factor identification and assessment, risk factor quantification, and contingency analysis (provided in Attachment A). A risk register can be an effective tool for managing identified risks throughout the project life cycle. As such, it is generally recommended that risk registers be updated as the designs, cost estimates, and schedule are further refined, especially on large projects with extended schedules. Recommended uses of the risk register going forward include:

- Documenting risk mitigation strategies pursued in response to the identified risks and their assessment in terms of probability and impact.
- Providing project sponsors, stakeholders, and leadership/management with a documented framework from which risk status can be reported in the context of project controls.
- Communicating risk management issues.
- Providing a mechanism for eliciting risk analysis feedback and project control input.
- Identifying risk transfer, elimination, or mitigation actions required for implementation of risk management plans.

6.2 Cost Risk Analysis - Cost Contingency Results

Cost risk as studied by the PDT and developed through the register and *Monte Carlo* processes is presented here. This section does not include cost escalation risk, which is studied separately and reported below in Section 6.4.

The sensitivity chart below reflects the areas of greatest concern, rated in order of criticality, and referenced to risks as shown in the risk register (and to the three-point estimate, see Attachment B for code references). Generally, the areas of high criticality are Market Conditions and Bidding Competition (PR-2), Poor construction quality/Hidden defects (CON-4), Historic Change Order Growth (CON-8), and Acts of God (PR-5), and Piling Concrete Wharf Phase II (50160 Three Point Range).

Base Cost Sensitivity Chart

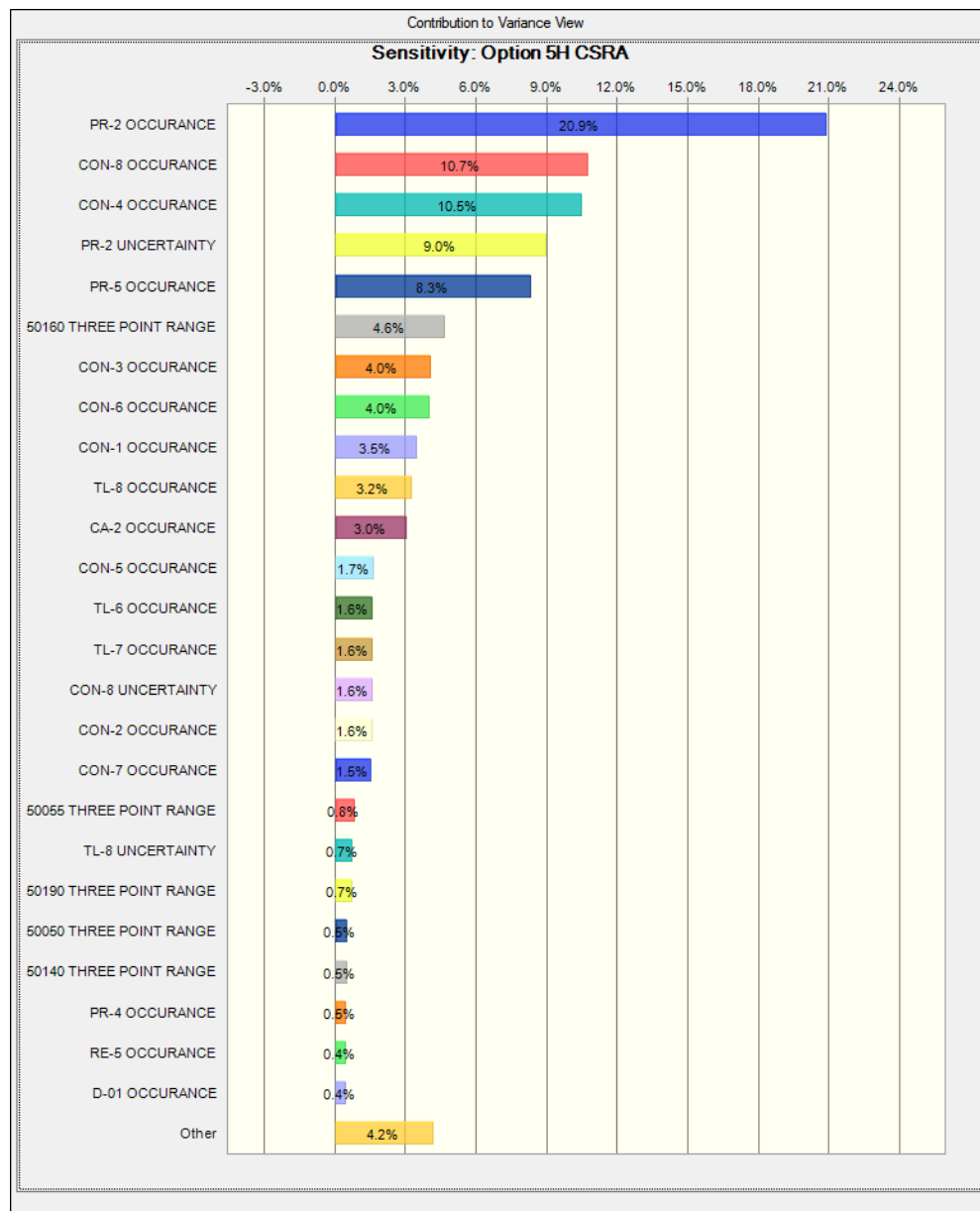


Table 4. Base Cost Confidence 5HA

Contingency Analysis

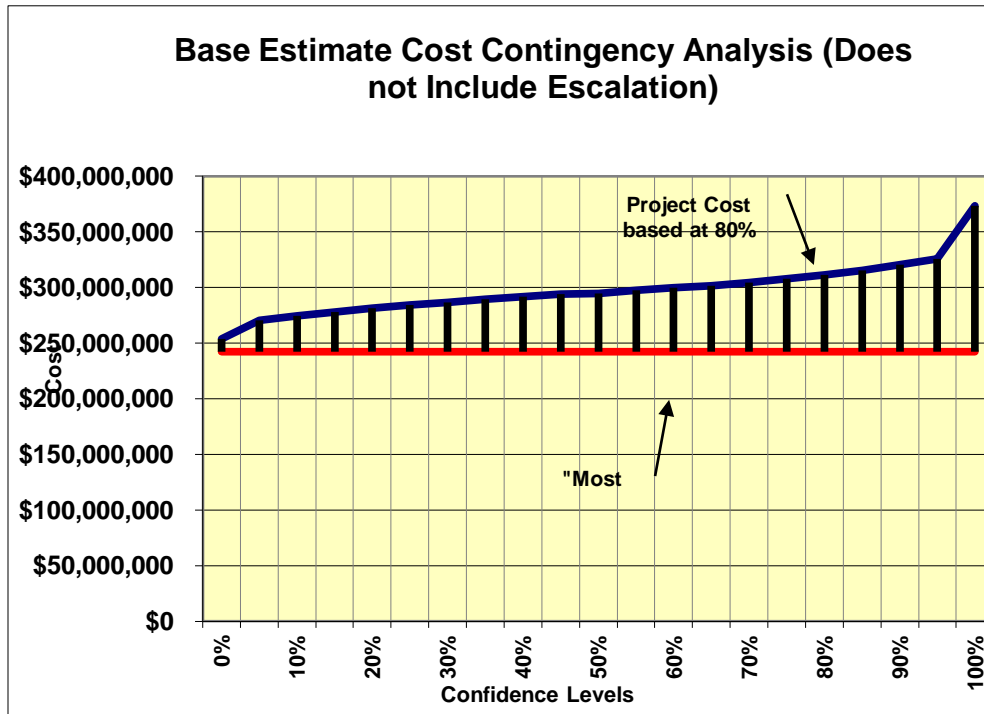
| | | |
|--------------------------------------|----------------------|--------------------|
| Most Likely Cost Estimate | \$242,488,793 | |
| | | |
| Confidence Level | Value | Contingency |
| 0% | \$253,599,136 | 4.58% |
| 5% | \$270,408,123 | 11.51% |
| 10% | \$274,274,376 | 13.11% |
| 15% | \$277,869,181 | 14.59% |
| 20% | \$281,432,127 | 16.06% |
| 25% | \$284,195,795 | 17.20% |
| 30% | \$286,816,469 | 18.28% |
| 35% | \$289,384,591 | 19.34% |
| 40% | \$291,791,738 | 20.33% |
| 45% | \$294,066,125 | 21.27% |
| 50% | \$294,785,045 | 21.57% |
| 55% | \$297,317,988 | 22.61% |
| 60% | \$299,790,798 | 23.63% |
| 65% | \$301,752,908 | 24.44% |
| 70% | \$304,508,990 | 25.58% |
| 75% | \$307,674,584 | 26.88% |
| 80% | \$311,133,940 | 28.31% |
| 85% | \$315,224,513 | 30.00% |
| 90% | \$320,590,017 | 32.21% |
| 95% | \$325,692,434 | 34.31% |

Table 5. Base Cost Confidence 5HB

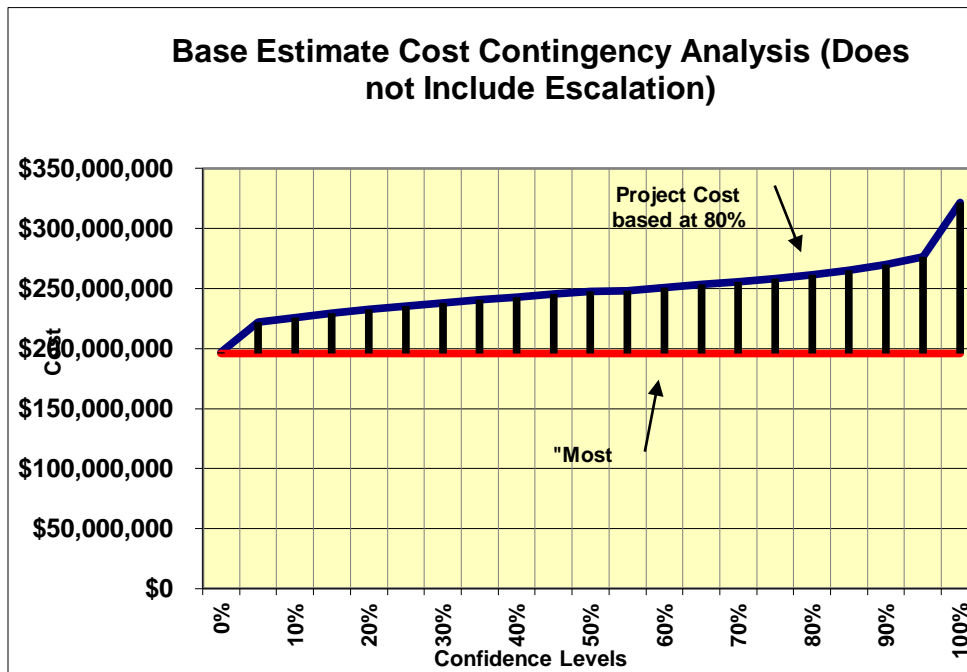
Contingency Analysis

| | | |
|--------------------------------------|----------------------|--------------------|
| Most Likely Cost Estimate | \$196,315,285 | |
| | | |
| Confidence Level | Value | Contingency |
| 0% | \$198,948,445 | 1.34% |
| 5% | \$222,784,681 | 13.48% |
| 10% | \$226,921,850 | 15.59% |
| 15% | \$230,024,960 | 17.17% |
| 20% | \$233,236,849 | 18.81% |
| 25% | \$235,833,603 | 20.13% |
| 30% | \$238,392,492 | 21.43% |
| 35% | \$240,923,349 | 22.72% |
| 40% | \$243,432,051 | 24.00% |
| 45% | \$245,533,105 | 25.07% |
| 50% | \$246,372,860 | 25.50% |
| 55% | \$248,695,240 | 26.68% |
| 60% | \$250,984,550 | 27.85% |
| 65% | \$252,920,661 | 28.83% |
| 70% | \$255,701,178 | 30.25% |
| 75% | \$258,654,182 | 31.75% |
| 80% | \$262,195,232 | 33.56% |
| 85% | \$265,804,233 | 35.40% |
| 90% | \$270,626,053 | 37.85% |
| 95% | \$277,094,916 | 41.15% |

Base Cost Confidence Chart 5HA



Base Cost Confidence Chart 5HB:



NOTE: These results reflect only those contingencies established from the cost risk analysis. For combined cost and schedule risk analysis, refer to Section 6.4.

6.3 Schedule Risk Analysis - Schedule Contingency Results

The base schedule was estimated at 54 months, and assumed a construction start in April 2015. Risks were analyzed for schedule impact, and the resulting uncertainty is expressed below.

The sensitivity chart below reflects the areas of greatest concern, rated in order of criticality, and referenced to risks as shown in the risk register. Generally, the areas of high criticality are Unpredictable Funding (PPM-1), Lack of a Master Plan (D-01), and Acts of God (PR-5).

Schedule Sensitivity Chart

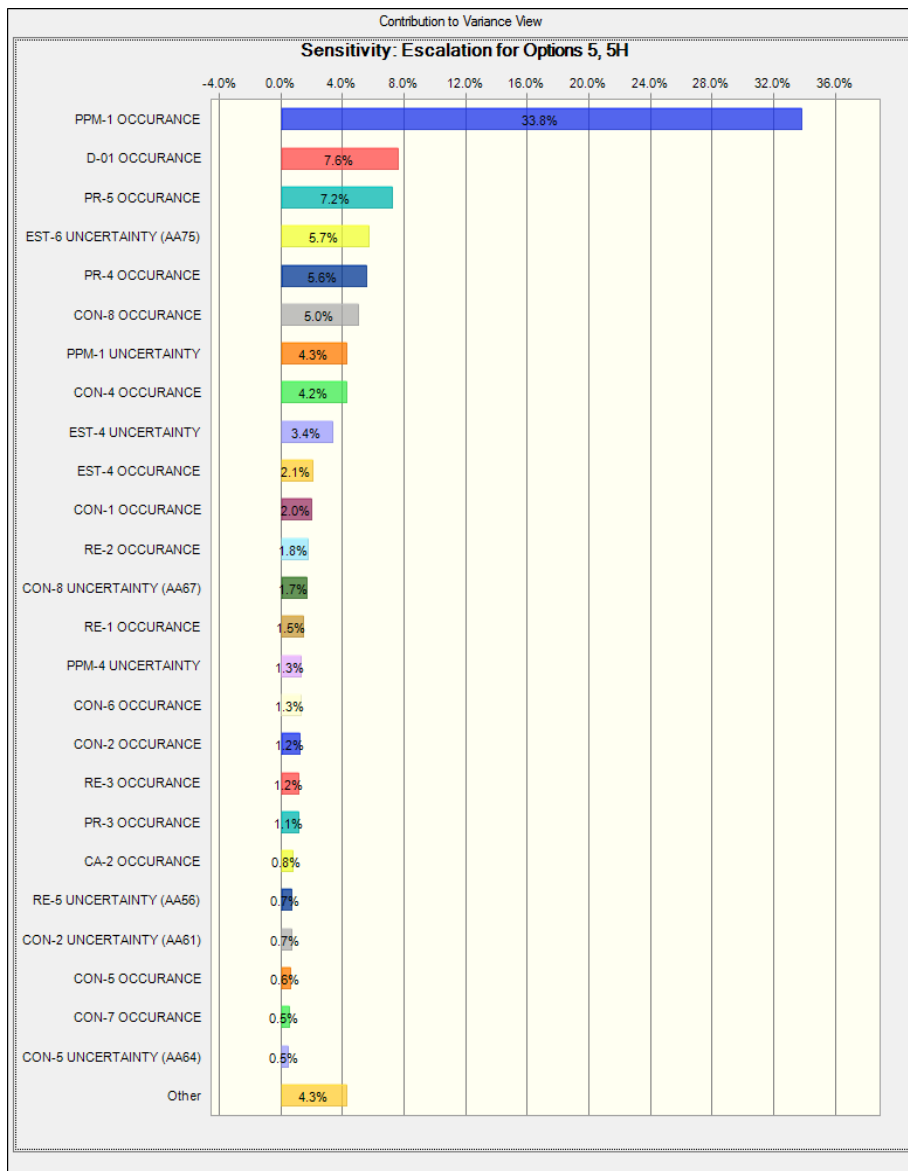


Table 6. Schedule Confidence 5HA

Contingency Analysis

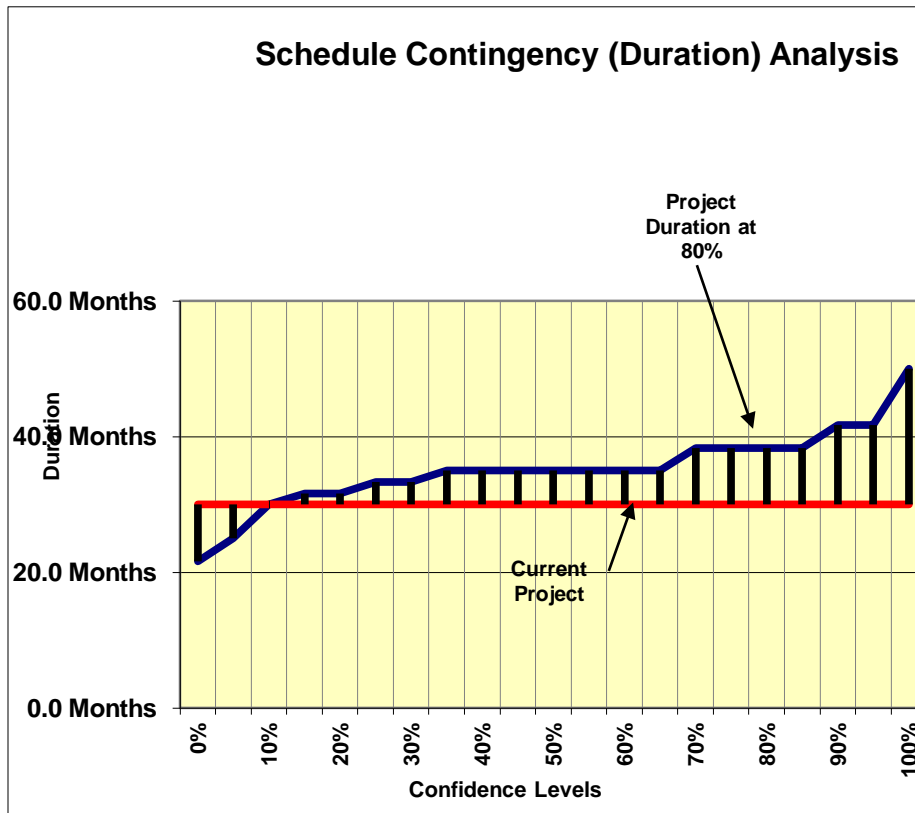
| Most Likely Schedule | 30.0 Months | |
|----------------------|--------------------|---------------|
| | | |
| Confidence Level | Value | Contingency |
| 0% | 21.7 Months | -27.78% |
| 5% | 25.0 Months | -16.67% |
| 10% | 30.0 Months | 0.00% |
| 15% | 31.7 Months | 5.56% |
| 20% | 31.7 Months | 5.56% |
| 25% | 33.3 Months | 11.11% |
| 30% | 33.3 Months | 11.11% |
| 35% | 35.0 Months | 16.67% |
| 40% | 35.0 Months | 16.67% |
| 45% | 35.0 Months | 16.67% |
| 50% | 35.0 Months | 16.67% |
| 55% | 35.0 Months | 16.67% |
| 60% | 35.0 Months | 16.67% |
| 65% | 35.0 Months | 16.67% |
| 70% | 38.3 Months | 27.78% |
| 75% | 38.3 Months | 27.78% |
| 80% | 38.3 Months | 27.78% |
| 85% | 38.3 Months | 27.78% |
| 90% | 41.7 Months | 38.89% |
| 95% | 41.7 Months | 38.89% |
| 100% | 50.0 Months | 66.67% |

Table 7. Schedule Confidence 5HB

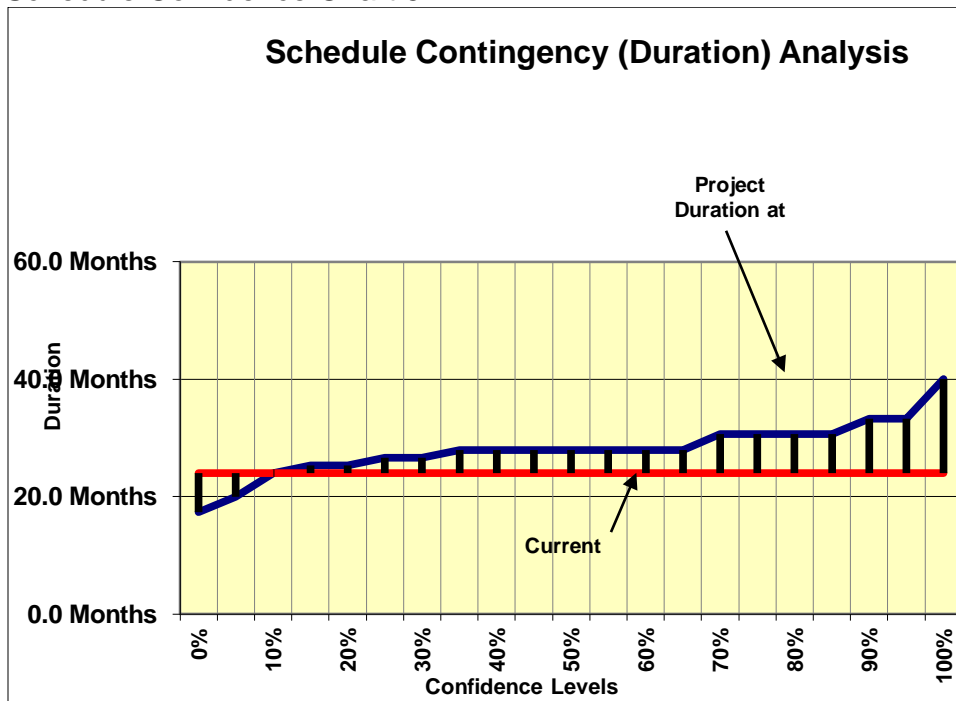
Contingency Analysis

| Most Likely Schedule | 30.0 Months | |
|----------------------|--------------------|---------------|
| | | |
| Confidence Level | Value | Contingency |
| 0% | 17.3 Months | -27.78% |
| 5% | 20.0 Months | -16.67% |
| 10% | 24.0 Months | 0.00% |
| 15% | 25.3 Months | 5.56% |
| 20% | 25.3 Months | 5.56% |
| 25% | 26.7 Months | 11.11% |
| 30% | 26.7 Months | 11.11% |
| 35% | 28.0 Months | 16.67% |
| 40% | 28.0 Months | 16.67% |
| 45% | 28.0 Months | 16.67% |
| 50% | 28.0 Months | 16.67% |
| 55% | 28.0 Months | 16.67% |
| 60% | 28.0 Months | 16.67% |
| 65% | 28.0 Months | 16.67% |
| 70% | 30.7 Months | 27.78% |
| 75% | 30.7 Months | 27.78% |
| 80% | 30.7 Months | 27.78% |
| 85% | 30.7 Months | 27.78% |
| 90% | 33.3 Months | 38.89% |
| 95% | 33.3 Months | 38.89% |
| 100% | 40.0 Months | 66.67% |

Schedule Confidence Chart 5HA



Schedule Confidence Chart 5HB



NOTE: These results reflect only those contingencies established from the schedule risk analysis.

6.4 Combined Cost and Schedule Contingency Results

The cost risk analysis and schedule risk analysis contribute to a total project cost risk analysis. The schedule risk creates exposure to delays and risk of cost escalation. The purpose of analyzing schedule risk allows the project uncertainty to comprehend both the cost elements and their risks, but also how those costs are affected by the time element of the project and its associated risks. Presented here are the combine cost and schedule contingency results:

Table 8. Cost Confidence (Combined Cost and Schedule) 5HA

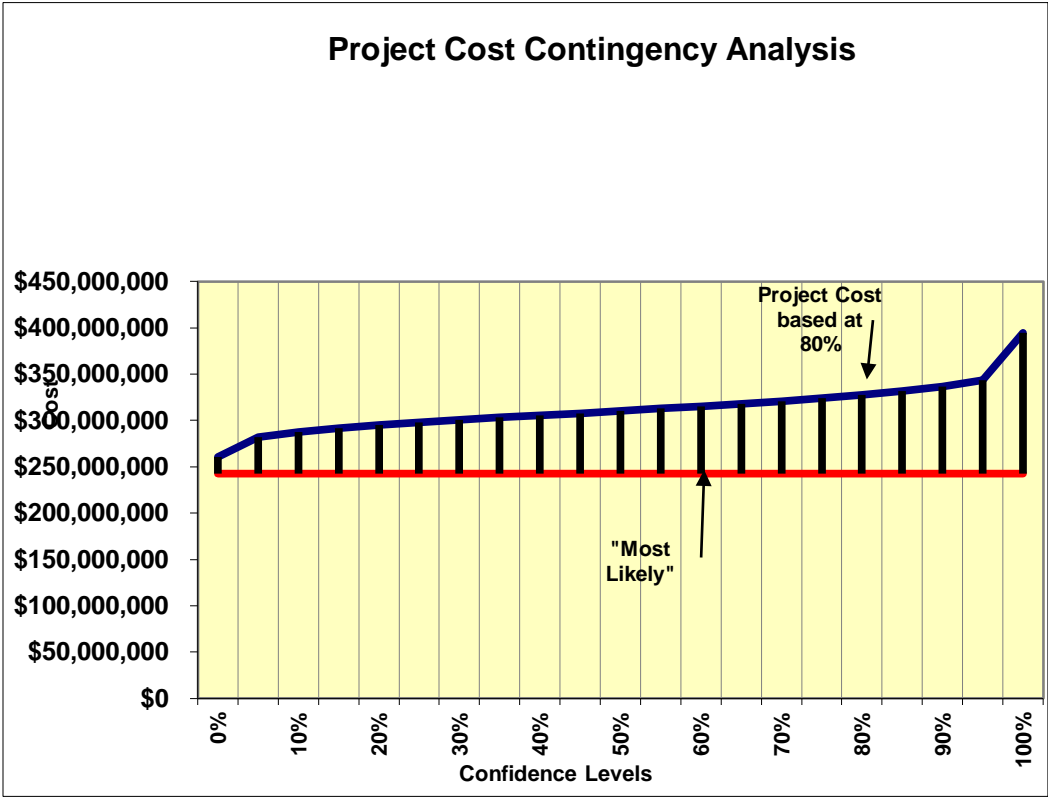
| Contingency Analysis | | |
|----------------------------------|----------------------|--------------------|
| Most Likely Cost Estimate | \$242,488,793 | |
| Confidence Level | Value | Contingency |
| 0% | \$260,360,406 | 7.37% |
| 5% | \$281,818,501 | 16.22% |
| 10% | \$287,468,602 | 18.55% |
| 15% | \$291,667,754 | 20.28% |
| 20% | \$295,230,700 | 21.75% |
| 25% | \$297,994,368 | 22.89% |
| 30% | \$300,615,042 | 23.97% |
| 35% | \$303,183,164 | 25.03% |
| 40% | \$305,590,311 | 26.02% |
| 45% | \$307,864,698 | 26.96% |
| 50% | \$310,399,673 | 28.01% |
| 55% | \$312,932,615 | 29.05% |
| 60% | \$315,405,425 | 30.07% |
| 65% | \$317,981,736 | 31.13% |
| 70% | \$320,737,817 | 32.27% |
| 75% | \$323,903,412 | 33.57% |
| 80% | \$327,362,767 | 35.00% |
| 85% | \$331,453,340 | 36.69% |
| 90% | \$336,818,844 | 38.90% |
| 95% | \$343,770,184 | 41.77% |
| 100% | \$394,408,199 | 62.65% |

Table 9. Cost Confidence (Combined Cost and Schedule) 5HB

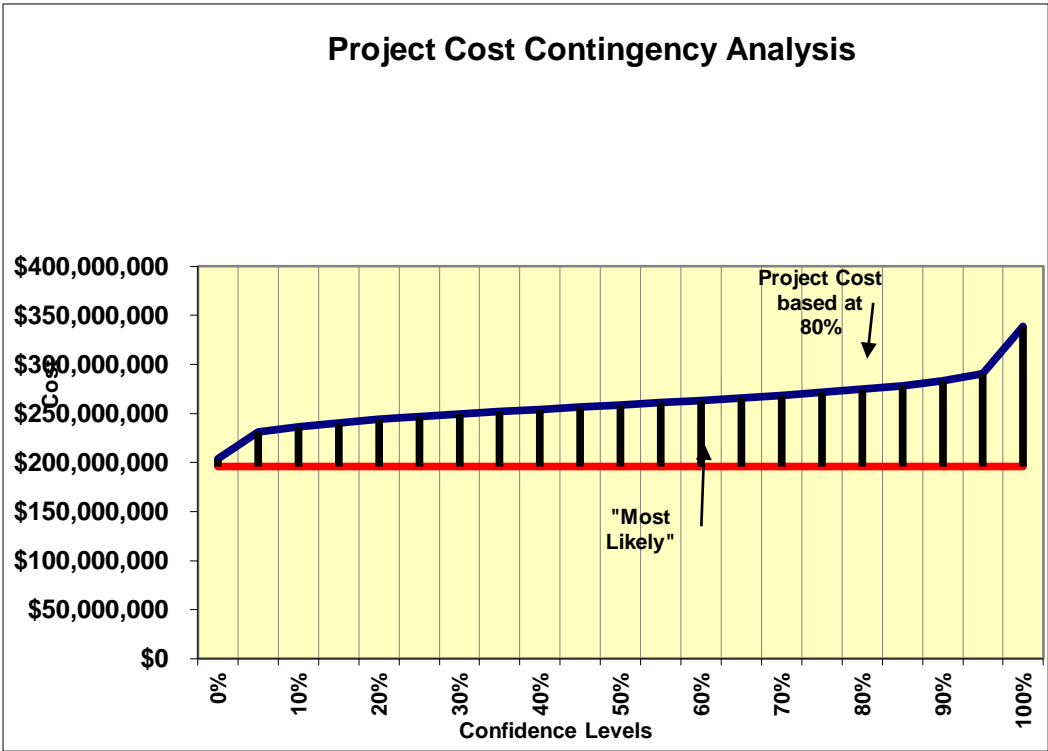
Contingency Analysis

| Most Likely Cost Estimate | \$196,315,285 | |
|------------------------------|---------------|-------------|
| | | |
| Confidence Level | Value | Contingency |
| 0% | \$204,422,268 | 4.13% |
| 5% | \$232,022,352 | 18.19% |
| 10% | \$237,603,697 | 21.03% |
| 15% | \$241,196,078 | 22.86% |
| 20% | \$244,407,967 | 24.50% |
| 25% | \$247,004,720 | 25.82% |
| 30% | \$249,563,609 | 27.12% |
| 35% | \$252,094,466 | 28.41% |
| 40% | \$254,603,168 | 29.69% |
| 45% | \$256,704,222 | 30.76% |
| 50% | \$259,014,228 | 31.94% |
| 55% | \$261,336,608 | 33.12% |
| 60% | \$263,625,918 | 34.29% |
| 65% | \$266,059,276 | 35.53% |
| 70% | \$268,839,793 | 36.94% |
| 75% | \$271,792,796 | 38.45% |
| 80% | \$275,333,847 | 40.25% |
| 85% | \$278,942,848 | 42.09% |
| 90% | \$283,764,668 | 44.55% |
| 95% | \$291,730,391 | 48.60% |
| 100% | \$341,691,846 | 74.05% |

Combined Cost and Schedule Chart 5HA



Combined Cost and Schedule Chart 5HB



7. MAJOR FINDINGS/OBSERVATIONS

CH2M HILL prepared an estimate as an input to the CSRA, which utilized contingencies typical for the project type and design stage, as well as those identified by the stakeholders as required. This estimate is considered a deterministic, point-value estimate, from which contingencies and escalation was removed in order to study the project's exposure to risk and their impacts on cost and schedule. The results find that these contingencies as used in the deterministic estimate are reasonable in providing a similar degree of confidence as resulted from the CSRA study. The benefits of the CSRA are the identification of risks for future mitigation and management effort, as well as to communicate the underlying contributors to project cost and schedule variance.

Tables 10 and 11 present project contingencies, which include base cost plus cost and schedule contingencies.

Table 10. Project Contingencies (Cost and Schedule Contingencies) 5HA

| Confidence Level | Project Cost | Contingency (%) | Contingency (\$) |
|-------------------------|---------------------|------------------------|-------------------------|
| P0 | \$260,360,406 | 7.37% | \$17,871,614 |
| P10 | \$287,468,602 | 18.55% | \$44,979,810 |
| P20 | \$295,230,700 | 21.75% | \$52,741,908 |
| P30 | \$300,615,042 | 23.97% | \$58,126,249 |
| P40 | \$305,590,311 | 26.02% | \$63,101,518 |
| P50 | \$310,399,673 | 28.01% | \$67,910,880 |
| P60 | \$315,405,425 | 30.07% | \$72,916,632 |
| P70 | \$320,737,817 | 32.27% | \$78,249,024 |
| P80 | \$327,362,767 | 35.00% | \$84,873,974 |
| P90 | \$336,818,844 | 38.90% | \$94,330,051 |
| P100 | \$394,408,199 | 62.65% | \$151,919,406 |

Table 11. Project Contingencies (Cost and Schedule Contingencies) 5HB

| Confidence Level | Project Cost | Contingency (%) | Contingency (\$) |
|-------------------------|---------------------|------------------------|-------------------------|
| P0 | \$204,422,268 | 4.13% | \$8,106,983 |
| P10 | \$237,603,697 | 21.03% | \$41,288,413 |
| P20 | \$244,407,967 | 24.50% | \$48,092,682 |
| P30 | \$249,563,609 | 27.12% | \$53,248,325 |
| P40 | \$254,603,168 | 29.69% | \$58,287,884 |
| P50 | \$259,014,228 | 31.94% | \$62,698,944 |
| P60 | \$263,625,918 | 34.29% | \$67,310,633 |
| P70 | \$268,839,793 | 36.94% | \$72,524,508 |
| P80 | \$275,333,847 | 40.25% | \$79,018,562 |
| P90 | \$283,764,668 | 44.55% | \$87,449,383 |
| P100 | \$341,691,846 | 74.05% | \$145,376,561 |

8. MITIGATION RECOMMENDATIONS

Risk mitigation recommendations and strategies are tabulated in the following risk register.

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|---|---|-------------------|-------------------------------|--|
| PPM-1 | Political considerations and pressures can impact funding | Incremental and unpredictable funding | High | Project Sponsor(s) | Coordinate decisions and/or contract and construction events to minimize impact of political pressures. |
| PPM-4 | Project planning and follow through | This is a concern for the design as well as the construction. Design related risk could become known and mitigated prior to construction. Construction risk can be negative or positive. | Low | Contracting | Have contractors discuss project delivery innovations and foreseeable planning difficulties during RFQ period. |
| 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. Risk could be positive or negative. | Low | Contracting | Consider all contract types including recent innovations, as allowed by procurement constraints. Receive input from the construction community. |
| CA-2 | Numerous separate contracts | Lack of coordination of multiple ongoing contracts, primarily the ongoing dredging contracts and the repair/construction contract can interfere or limit work. | Low | Contracting | Clearly delineate in the contract the method for contract coordination, and who has the right to occupy the work at various stages of construction and operation. |
| TL-1 | Handling of groundwater/surface water from hill behind north extension (Safety) | Assumes a pile supported design | Low | Construction | Highlight this risk in ITB, specifications, Pre-bid meeting, Contract, schedule, and communicate to all controlling parties before and during construction. Secure contractor mitigation plan. |
| TL-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. Impact to construction progress and production because of complexities of sequencing | Moderate | Operations | Coordinate with stakeholder to optimize operations and construction impacts |
| TL-7 | Surveys outdated | Entire bathymetric survey is in dated, especially underneath Terminals 2 and 3, earthwork quantities for all options, and global stability for Option 5 at Terminals 2 and 3 are in question | Moderate | Geotechnical/ Civil Design | Perform new surveys |
| TL-8 | Excess/spoils disposition | Need to identify a location for excess material. | Moderate | Geotechnical/ Civil Design | Normally done as design progresses |
| D-01 | 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 Container Cargo terminal) or that could be easily 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. | Low | Project Manager | Convene stakeholders to determine the ability and timeframe to develop a master plan. |
| D-08 | Deferring TOTE terminal maintenance and planning because "we are moving the terminal" | | Low | Operations | Examine ROI and other risks for optimal solution |
| D-09 | Potential cost to Tote for the expansion/development e.g. new gatehouse, shop, yard reconfiguration | | Low | Operations | Include this cost after any design and logistics study is done to mitigate it |

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|---|---|-------------------|-----------------------------|--|
| RE-1 | Permits in place | 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 | Low | Environmental | Examine process for expediting permit if assumptions change from existing |
| RE-2 | Permit modifications | High risk of having permit modifications (negative impact) later that may cost time and money due to whether or not the existing North Extension is the best plan | Low | Environmental | Examine process for expediting permit if assumptions change from existing |
| RE-3 | Permit exposure | Completing North 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 Extension does not meet the Port's present and future goals | Low | Environmental | Examine process for expediting permit if assumptions change from existing |
| RE-4 | Excluding/including appropriate natural resource agency folks in the process early and often | Low risk of having negative environmental and regulatory issues 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 | Environmental | Ensure buy-in/inclusion is pursued |
| RE-5 | 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. | Moderate | Environmental | Design solutions as are warranted by ROI, assume risk. |
| CON-1 | The construction should be allowed on both the ocean and land side of the new dock system | Over restrictive site limitations | Low | Construction | Verify and communicate the site limitations, consider all effect of such a limitation before making same required. |
| 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 | Moderate | Contracting | Consider that any onerous risk transferred to the contractor comes at a premium, and the determination of that premium is influenced by other circumstances such as market demand and overall state of the economy |
| 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 docks vs. OCSP® system). | | Low | Contracting | This can be addressed with an RFQ process that results in a bid go or no-go |
| CON-4 | Poor construction quality/hidden defects | Weak or lack of QA/QC 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 | Moderate | Project Manager | Use QA/QC best practices, examine others that were successful on other port projects |

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|---|--|-------------------|-----------------------------|---|
| 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? 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? | Moderate | Cost Engineering | Perform an analysis of impact of material availability when specifying material sources. |
| CON-6 | Potential for vessel schedule disruptions during construction | Some alternatives may have higher likelihood of occurring | Moderate | Operations | Coordinate these with operations in order to minimize |
| CON-7 | Access and security issues | Changes in security protocols, impact of access requirements on available labor force, daily production, and morale | Moderate | Contracting | Consider what options the port has to make the project attractive to contractors and workers, and communicate those options in the ITB, contract, pre-bid, etc. |
| CON-8 | Historical change order growth | Need to study market behavior for region and project type for historical changes - Walla Walla for reference | High | Cost Engineering | Investigate contractors during RFQ for propensity for change order growth. Consider contract type alternatives that minimize the exposure to both owner and contractor. |
| CON-9 | Diesel fuel volatility | \$6M marine + \$2M civil | Low | Cost Engineering | Maintain awareness of fuel pricing at bid time. Consider master agreement with suppliers. To provide min max at an agreed price |
| EST-4 | Project cost exceeds available budget | What if the minimal design exceeds construction budget? | High | Project Sponsor(s) | Create separable construction packages |
| EST-5 | Estimate quality related to lesser designed features | The use of parametric area based estimates for the civil backlands scope has inherent variability. Especially, utilities are perhaps the least designed at this stage, and are subject to variations. The wharf decking design is the marine side least designed component, along with bulkhead flat sheet piles | High | Cost Engineering | This can be mitigated normally through design progress. An assessment of exposure to estimate accuracy can be included in future estimate preparations |
| EST-6 | Estimate confidence in large and critical quantities | Dredging quantities are historically variable. | Low | Cost Engineering | This can be mitigated normally through design progress. An assessment of exposure to estimate accuracy can be included in future estimate preparations |
| EST-7 | Estimate include waste / drop off quantities | Estimate and design both include these, however, some uncertainty as to the location for disposal exists | Low | Cost Engineering | This can be mitigated normally through design progress. An assessment of exposure to estimate accuracy can be included in future estimate preparations |
| PR-2 | Market conditions and bidding competition | The base estimate is assuming 10% indirect costs and 20% overhead and profit markup structure, which favors a low demand market. Should there be little supply due to increased demand, the contractors are expected to add overhead and profit, up to 15% more than in the estimate | High | Contracting | Remain cognizant of the supply and demand for various contractor capabilities related to the project features. Select a contract type that leverages the market supply and demand forecast for the bid period |

| Risk No. | Risk/Opportunity Event | Concerns | Risk Level | Responsibility (POC) | Recommended Mitigation |
|-----------------|--|---|-------------------|-----------------------------|--|
| PR-3 | Labor disruptions | This is covered in previously, but there is some related risk to the contractor that could affect schedule, and thus his escalation exposure | Low | Construction | Require labor resource identification, contingency plan and forecast from contractors during RFP period. Maintain contact with labor organizations. Consider low cost amenities that will attract skilled and qualified labor and supervision. |
| PR-4 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Weather (snow, freezing - subarctic related) impacts on production - estimate does not include "act of God" level impacts | Low | Contracting | Refer to insurance and contracting general terms and conditions |
| PR-5 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Seismic (earthquakes) impacts on production, labor availability, materials delivery, placed work damages - estimate does not include "act of God" level impacts | Low | Contracting | Refer to insurance and contracting general terms and conditions |

ITB = invitation to bid

POC = point of contact

QA/QC = quality control/quality assurance

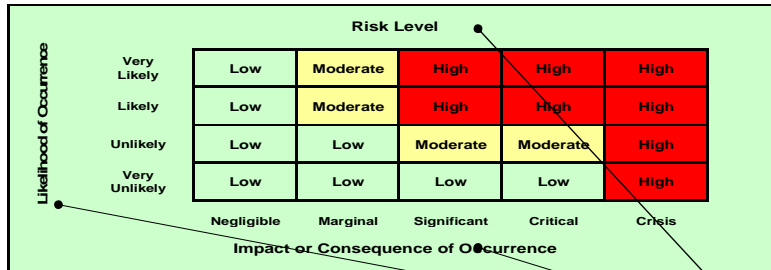
RFQ = request for quote

ROI = return on investment

TOTE = Totem Ocean Trailer Express, Inc.

ATTACHMENT A
DETAILED RISK REGISTER

Port of Anchorage Intermodal Expansion Project 15% CONCEPT - Risk Register



Overall Project Scope

The project is located on the Knik Arm, within the Municipality of Anchorage, Alaska, approximately one mile north of downtown Anchorage. The scope of the work is to demolish *[existing wharf, trestle and]* sheet pile wall, construct new wharf, trestle and sheet pile wall, complete with associated excavation, grading, paving, drainage, stevedore facilities and utilities.

Cost Impacts

500,000,000 scale of project, Crisis, 100,000,000; Critical 50,000,000; Significant \$20,000,000, Marginal \$10,000,000.

Schedule Impacts

4 year scale of project: Crisis 2 years; Critical 1 year; Significant 6 months; Marginal 3 months; Negligible <1 month.

Event Likelihood

Very Unlikely 1 in 10, Unlikely 3 in 10, Likely 7 in 10, Very Likely 9 in 10.

[illegible]

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|---|---------------|-------------|-------------|-------------------------|------------------|------------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| 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). Risk could be pos or neg | Very Unlikely | Marginal | LOW | \$10M | Very Unlikely | Negligible | LOW | none | Triangular | | Contracting | Project Cost |
| CA-2 | Numerous separate contracts | 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 | \$25M | Very Unlikely | Marginal | LOW | 3 mo | Triangular | | Contracting | Project Cost & Schedule |
| | TECHNICAL RISKS | | | | | | | | | | | | | |
| TL-1 | Handling of groundwater/surface water from hill behind north extension. (Safety) | Assumes a pile supported design | Very Unlikely | Negligible | LOW | \$1M | Very Unlikely | Negligible | LOW | none | Triangular | | Construction | Project Cost |
| TL-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 | | Unlikely | | 0 | | | | | |
| TL-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 dock and aground) | Unlikely | Significant | MODERATE | | Unlikely | | 0 | | | | | |
| TL-4 | Focusing on the North dock 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 | | Unlikely | | 0 | | | | | |
| TL-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 | | Very Unlikely | | 0 | | | | | |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|---|---------------|----------|-------------|-------------------------|------------------|------------|-------------|-------------------------|-----------------------|-------------------------|---------------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| TL-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.) Impact to construction progress and production due to complexities of sequencing | Likely | Marginal | MODERATE | \$10M | Likely | Marginal | MODERATE | 2 mo | Triangular | | Operations | Project Cost & Schedule |
| TL-7 | Surveys outdated | Entire bathymetric survey is in dated, especially underneath terminals #2 and #3, earthwork quantities for all options, and global stability for option 5 at terminals #2 and #3 are in question | Likely | Marginal | MODERATE | \$10M | Likely | Negligible | LOW | 1 mo | Triangular | | Geotechnical/Civil Design | Project Cost & Schedule |
| TL-8 | Excess/spoils disposition | Need to identify a location for excess material. | Likely | Marginal | MODERATE | \$15M | Likely | Negligible | LOW | 1 mo | Triangular | | Geotechnical/Civil Design | Project Cost & Schedule |
| | DESIGN RISKS | | | | | | | | | | | | | |
| D-01 | 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 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. | Very Unlikely | Marginal | LOW | \$10M | Very Unlikely | Critical | LOW | 1 year | Triangular | | Project Manager | Project Cost & Schedule |
| D-02 | b. Fail to ID requirements | | Very Unlikely | Marginal | LOW | | Very Unlikely | | 0 | | | | | |
| D-03 | c. Time to develop 100% design | | Very Unlikely | Marginal | LOW | | Very Unlikely | | 0 | | | | | |
| D-04 | d. Impact to cost from changes | | Very Unlikely | Marginal | LOW | | Very Unlikely | | 0 | | | | | |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|---|--|---------------|-------------|-------------|-------------------------|------------------|------------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| D-05 | e-Location and structure impact to Safe Navigation | What is the new structures impact to Safe Navigation and mooring? | Very-Unlikely | Marginal | LOW | | Very-Unlikely | | 0 | | | | | |
| D-06 | f-Impact from loss of acreage- | Effects on operation with loss of acreage? | Very-Unlikely | Significant | LOW | | Very-Unlikely | | 0 | | | | | |
| D-07 | Continuing silting issues at the stern of Tote vessels | | | | 0 | | 0 | | 0 | | | | | |
| D-08 | Deferring Tote terminal maintenance and planning because "we are moving the terminal" | | Unlikely | Marginal | LOW | \$1M | Unlikely | Negligible | LOW | none | Triangular | | Operations | Project Cost |
| D-09 | Potential cost to Tote for the expansion/development e.g. new gatehouse, shop, yard reconfiguration | | Unlikely | Marginal | LOW | \$1M | Unlikely | Negligible | LOW | none | Triangular | | Operations | Project Cost |
| | REGULATORY AND ENVIRONMENTAL RISKS | | | | | | | | 0 | | | | | |
| RE-1 | Permits in place | 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 | escalation related | Unlikely | Marginal | LOW | 3 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-2 | Permit mods | High risk of having permit mods (negative impact) later that may cost time and money due to whether or not the existing North Extension is the best plan | Unlikely | Marginal | LOW | escalation related | Unlikely | Marginal | LOW | 3 mo | Triangular | | Environmental | Project Cost & Schedule |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|--|---------------|-------------|-------------|-------------------------|------------------|----------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| RE-3 | Permit exposure | Completing North 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 Extension does not meet the Port's present and future goals | Unlikely | Marginal | LOW | escalation related | Unlikely | Marginal | LOW | 3 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-4 | Excluding/Including 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 | Very Unlikely | Significant | LOW | escalation related | Very Unlikely | Marginal | LOW | -3 to +1 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-5 | 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 reduces 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 | \$10M | Very Likely | Marginal | MODERATE | 3 mo | Triangular | | Environmental | Project Cost & Schedule |
| RE-6 | 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 | | | | 0 | | | | | |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|---|---|---------------|-------------|-------------|-------------------------|------------------|-------------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| RE-7 | Endangered species- (beluga whales)- a. Impact to in-water work- i. Low tide- ii. Harassment and takes- b. Monitoring- i. Contractor- ii. Scientific- iii. Cost associated- | Loss of 8 hours of in-water work daily around low times. Meeting whale harassment and having minimal takes- Monitoring requirement both from contractor and scientific by permit and the cost associated- | Likely | Marginal | MODERATE | | | | 0 | | | | | |
| | CONSTRUCTION RISKS | | | | | | | | 0 | | | | | |
| CON-1 | The construction should be allowed on both the ocean and land side of the new dock system. | Over restrictive site limitations | Very Unlikely | Significant | LOW | \$20M | Very Unlikely | Significant | LOW | 6 MO | Triangular | | Construction | Project Cost & Schedule |
| 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 | \$10m | Likely | Marginal | MODERATE | 3 mo | Triangular | | Contracting | Project Cost & Schedule |
| 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 docks vs. OCSP dock system). | | Very Unlikely | Significant | LOW | \$25m | Very Unlikely | Negligible | LOW | none | Triangular | | Contracting | Project Cost |

[illegible]

[illegible]

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distrib-ution | Correl-ation to Other(s) | Responsibility/PO C | Affected Project Component |
|--|--|---|--------------|-------------|-------------|----------------------------|------------------|-------------|-------------|----------------------------|---------------------------|-----------------------------|------------------------|-------------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| FL-8 | Potential negative risk to structures and appurtenances by ice flows and large tide cycle range | | Unlikely | Marginal | LOW | | | | | | | | | |
| FL-9 | Potential negative risk associated with existing condition of existing structures and utilities | | Unlikely | Marginal | LOW | | | | 0 | | | | | |
| Programmatic Risks (External Risk Items are those that are generated, caused, or controlled exclusively outside the PDT's sphere of influence.) | | | | | | | | | | | | | | |
| PR-1 | Public trust a. Incremental funding b. Budget challenge | The history of the project has created a problem with public trust that has caused the budget to be funded incrementally. How can these challenges be overcome to attain funding needed? Impact of incremental funding has to be addressed so that public is fully aware of impacts i.e. increasing cost and delay in completion. | Likely | Significant | HIGH | | | | 0 | | | | | |
| PR-2 | Market conditions and bidding competition | The base estimate is assuming a 10% indirects and 20% OH&P markup structure, which favors a low demand market. Should there be little supply due to increased demand, the contractors are expected to add overhead and profit, up to 15% more than in the estimate | Likely | Critical | HIGH | 0 to 15% more | Likely | Negligible | LOW | none | Triangular | | Contracting | Project Cost |
| PR-3 | Labor disruptions | This is covered in XX above, but there is some related risk to the contractor that could affect schedule, and thus his escalation exposure | Unlikely | Marginal | LOW | based on esc | Unlikely | Marginal | LOW | 3 mo | Triangular | | Construction | Project Cost & Schedule |
| PR-4 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Weather (snow, freezing - subarctic related) impacts on production - estimate does not include "act of God" level impacts | Unlikely | Marginal | LOW | \$3M | Unlikely | Significant | MODERATE | 6 mo | Triangular | | Contracting | Project Cost & Schedule |

| Risk No | Risk/Opportunity Event | Concerns | Project Cost | | | | Project Schedule | | | | Variance Distribution | Correlation to Other(s) | Responsibility/POC | Affected Project Component |
|---------|--|---|---------------|----------|-------------|-------------------------|------------------|----------|-------------|-------------------------|-----------------------|-------------------------|--------------------|----------------------------|
| | | | Likelihood* | Impact* | Risk Level* | Rough Order Impact (\$) | Likelihood* | Impact* | Risk Level* | Rough Order Impact (mo) | | | | |
| PR-5 | Acts of God (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane) | Seismic (earthquakes) impacts on production, labor availability, materials delivery, placed work damages - estimate does not include "act of God" level impacts | Very Unlikely | Critical | LOW | \$50M | Very Unlikely | Critical | LOW | 1 yr | Triangular | | Contracting | Project Cost & Schedule |

*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.

ATTACHMENT B
COST ESTIMATE (INPUT TO CSRA)

Cost Estimate

**Port of Anchorage
Intermodal Expansion Project
15% Concept Plans – Option 5H
Contract No. W912PP-09-D-0016
Task Order ZJ03**

Prepared for

Alaska District U.S. Army Corps of Engineers

February 26, 2013

CH2MHILL®

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Portland, Oregon 97201

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| 1 | Overall Costs |
|---|---------------|

Cost Estimate

1. Executive Summary

The construction cost for the project is described herein and in Table 1:

TABLE 1
Overall Costs

Accuracy Range per ASTM E2516 – 11, Standard Classification for Cost Estimate Classification System, see Section 2.5

| Description | Amount | Rounded |
|-------------------------------------|---------------|---------------|
| Option 5HA estimate (early section) | \$317,610,676 | \$320,000,000 |
| Hi range + 30% | \$412,893,879 | \$410,000,000 |
| Lo range – 15% | \$270,027,920 | \$270,000,000 |
| Option 5HB estimate (later section) | \$257,042,775 | \$255,000,000 |
| Hi range + 30% | \$334,155,607 | \$335,000,000 |
| Lo range – 15% | \$218,486,359 | \$220,000,000 |

ASTM = American Society for Testing and Materials (formerly, now ASTM International)

The executive summary provides an overview of the Cost Estimate. Reliance on this information is advised to be in consideration of the full context of this report.

2. Estimate Information

2.1 Purpose of Estimate

The purpose of this Cost Estimate is to establish an Engineer's opinion of probable cost for design documents at 15% concept design, suitable for further development using U.S. Army Corps of Engineers (USACE) Cost and Schedule Risk Analysis (CSRA) Guidance (17 May 2009) to calculate total project costs.

2.2 Client

The Client is the Alaska District USACE.

2.3 Project Location and General Scope

The project is located on the Knik Arm, within the Municipality of Anchorage, Alaska, approximately 1 mile north of downtown Anchorage. The scope of the work is to demolish an existing wharf, trestle and sheet pile wall, construct a new wharf, trestle and sheet pile wall, complete with associated excavation, grading, paving, drainage, stevedore facilities and utilities.

2.4 Date and Preparation

The estimate was prepared January and February 2013, by CH2M HILL team members as listed:

- Jorge Abisambra/WPB (marine work)
- Robert Wells/PDX, (civil "*" scope) phone 503-872-4622 x24622
- Joe Taylor/ANC (civil quantities)
- John O'Reilly/SAC (quality assurance and quality control)

The estimate was requested by Doug Playter/SEA for project number 462130.

2.5 Estimate Classification and Methodology

This cost estimate prepared is considered a Budget Level or Class 4 estimate per American Society for Testing and Materials (ASTM) E2516-11. It is considered accurate to +30% to -15%, based upon a design deliverable (15% Concept Plans).

The estimating effort did decompose the scope to a sufficient level to support an analysis of all major cost elements at the work package level, for purposes of performing risk analysis and identifying those critical items which might be expected to create cost variances of +0.5% in the bottom line estimate.

The individual scope items inclusions under Section 3.b.vi of the Task Order preceded by an asterisk were estimated by parametric estimating techniques. The estimated costs for these asterisked items were developed using the 11 April 2012 Port of Anchorage (POA) Intermodal Expansion Project Budgetary Cost Estimate Report and calculated as "blended costs" per unit of measure. Additionally, the estimated costs for the Marine Terminal Buildings (complete structures, including foundation, structure, shell, interior finishes, and all utilities) and Corrosion Protection were calculated by the same parametric technique.

This estimate was developed, as required by USACE CSRA Guidance (17 May 2009), as an input to the CSRA. The CSRA is a separate document prepared concurrently with this estimate. The CSRA then used three-point range estimates for each of the 15% Concept Plans to forecast costs for each scope element not otherwise identified for estimation by parametric techniques. Further, *Monte Carlo* assessment performed a sensitivity analysis of critical items and a simulation on the individual cost elements to provide a probabilistic evaluation of the reported estimated project costs (Cost Risk Analysis Model). A Quantitative Analysis was performed for those Project Risks identified for such analysis (Risk Register development and Qualitative Analysis from Task 3, Charrette). This information, along with further supplemental information derived from PDT members during the cost estimating phase, formed the basis of the Cost Risk Analysis and Schedule Risk Analysis under the CSRA effort.

The estimate is appended to this report as Appendix A.

3. Basis of Estimate

3.1 Basis Documents

The estimate is based on 15% drawings for Option 5H, developed by CH2M HILL, dated February 2013. Additionally, the estimate used portions of the POA Intermodal Expansion Project Budgetary Cost Estimate Report estimate prepared 11 April 2012, as directed, for parametric cost estimating.

3.2 Key Assumptions

- Project is to be offered to bidders on a lowest responsive basis, in time to allow construction progress to begin April 2015.
- Permitting and regulatory agencies to have issued all permits, modifications, and amendments, so as not to impede the construction start and progress in any way.
- Project to be fully funded prior to the start of construction.

3.3 Project Delivery Schedule and Method

It is assumed that the environmental, permitting, and design phase will continue to early 2015, with a bid and award date that supports an April 2015 construction start. The scheduled duration for Option 5H is 54 months (5HA – 30 months, 5HB - 24 months), ending late 2019. The assumed delivery method is a single prime contract with the Municipality of Anchorage, Alaska.

3.4 Labor, Materials, Subcontracts and Other Direct Costs

3.4.1 Labor

Labor rates used are the national average as determined by R S Means, adjusted for Anchorage, Alaska.

3.4.2 Materials

Materials pricing is based on recent and historical vendor quotations, as well as pricing used in the POA Intermodal Expansion Project Budgetary Cost Estimate Report estimate prepared 11 April 2012, adjusted for inflation by 1.28%.

3.4.3 Subcontracts

It is assumed that the Prime Contractor may employ various specialty subcontractors, such as electrical, telecom, utility and earthwork subcontractors.

3.4.4 Equipment

Equipment pricing as used in the Port of Anchorage Intermodal Expansion Project Budgetary Cost Estimate Report estimate prepared 11 April 2012, adjust for inflation by 1.28%.

3.4.5 Long Lead Items

Galvanized steel sheet and cylinder piling, fender materials assumed to be 5 months lead-time.

3.4.6 Owner Supplied

Steel sheet pile in quantities assumed to supply the majority of bulkhead materials.

3.4.7 Allowances

Landscaping allowance for restoration of disturbed areas, \$150,000 subcontractor price.

3.5 Markups, Taxes and Other Indirect Costs

Detail on markups used, taxes included, contingencies, owner costs, or any other cost additions.

| | |
|--|------|
| • General requirements/site indirect costs | 10% |
| • Taxes on material and equipment | 0% |
| • Prime Overhead, Profit | 20% |
| • Bond | 1% |
| • Contingency | 20% |
| • PM, CM and Design (Owner's Costs) | 18% |
| • Owner's Contingency (Reserve) | 8.5% |

3.6 Market Conditions

Market conditions adjustments were not considered for this project; it remains market neutral. An adjustment is unwarranted because of market condition volatility and because the project will be executed in the future.

3.7 Escalation Costs

Escalation is based on USACE EM 1110-2-1304 (31 March 2012), TABLE A-1, QUARTERLY COST INDEX BY CWBS FEATURE CODE. Feature codes relevant to this project are:

- 08 Roads, Railroads, and Bridges (Cherry Hill Road, Rail extension)
- 12 Navigation Ports & Harbors (Wharf and bulkhead, including dredging and demo)
- 16 Bank Stabilization (Slope protection)
- 19 Buildings, Grounds, & Utilities (Landside work)

Escalation costs are estimate in two parts: The first part is to escalate the project costs prepared in February 2013 dollars to the assumed bid date of April 2015; the second part is the escalation of costs through the duration of the project, the mid-point of which is assumed to be mid 2014. The severing of escalation will allow the project to input

into CSRA, removing only the escalation for the project duration, which then will be modeled per the CSRA guidance. The use of costs, as directed, from the POA Intermodal Expansion Project Budgetary Cost Estimate Report, dated 11 April 2012, required the addition of 1.28% escalation to bring it current to the year and month of estimate, February 2013.

3.8 Detailed Scope, Clarifications, Inclusions and Exclusions

3.8.1 Civil Scope

Option 5 Hybrid would construct new pile-supported wharves and trestles in front of the existing wharfs and trestles at Terminals 2 and 3. A new sheet pile bulkhead would be required at the north extension. Approximately 32 acres of new paved upland area would be provided, along with a new Hybrid Berth. The Hybrid Berth would provide for temporary operations for TOTE and would provide for a future Wet Barge Berth.

The integrity and function of the existing Dry Barge Berth would be maintained, but removal of the existing OCSP® system, mass excavation of existing embankment, and construction dredging would be required. The remaining slopes would be protected with a layer of armor rock.

3.8.2 Demolition of Existing Infrastructure and Mass Excavation

At the southern end of the project, existing Terminals 2 and 3, including utilities, crane rail, wharf, and piling, would require demolition.

At the north extension portion of the project, the OCSP® system including tail walls would be demolished from the existing Dry Barge Berth south. The portions of traditional Z-pile walls previously installed at the north extension would also be removed. The OCSP® system installed for the Dry Barge Berth would remain in place.

Mass excavation of previously constructed embankment and construction dredging would be required. Salvage of existing armor stone would also be included. Concept excavation, dredging, and armor stone salvage quantities are shown in the civil partial site plans and typical sections in Appendix F. The existing Dry Barge Berth would be maintained in approximately its existing condition but some regrading at the interface between the Dry Barge Berth and new upland area would be required.

3.8.3 Civil Elements to be Constructed

Option 5 Hybrid includes the following specific civil scope:

- Water service and fire suppression lines
- Sanitary sewer lines
- Storm drain piping and inlets
- Electrical, communication, security, and crane power lines
- Cherry Hill Haul Road realignment and new rail spur
- Paved upland area
- Landscaped areas
- Site grading and drainage

3.8.4 Structural Scope

The main structural components of Option 5 Hybrid would consist of three pile-supported wharves, nine access trestles, a cellular steel sheet pile bulkhead, and five mooring dolphins. Other ancillary structural components to support port operations would include heavy-duty fenders, mooring bollards, and quick-release hooks along the wharf face, three stevedore buildings, and container-crane-supporting infrastructure. The pile-supported wharves would provide 2,405 linear feet of new dock face and three new berths: (1) a hybrid berth to support containerized, break bulk, bulk, and roll-on/roll-off (RO/RO) cargo operations; (2) an RO/RO berth to support containerized RO/RO operations; and (3) a container cargo berth to support lift-on/lift-off (LO/LO) container cargo operations.

3.8.5 Slope Protection

The embankment slopes at the Wet Barge Berth and north extension location would be protected by a 6-foot-thick layer of armor rock and riprap.

Micropile Slope Stabilization

A micropile slope stabilization wall would be constructed just outside of the existing rock embankment at Terminal 2 and 3.

3.8.6 Corrosion Protection

Corrosion Protection System for Pile-Supported Wharf

The steel casing in the top part of the hybrid piles would be sacrificial. The presence of the steel casing would delay onset of corrosion in the reinforced concrete core. A corrosion allowance is built into the design of the hollow steel pipe pile that would form the lower part of the hybrid pile. All steel reinforcing bar used in the pile-supported wharf, including deck, piles, and pile caps, would be epoxy-coated to increase corrosion resistance. High-Performance concrete water/cement ratio and air entrainment admixture would be in accordance with American Concrete Institute 201.2R, *Guide to Durable Concrete*, to establish a dense, low-permeability concrete.

Corrosion Protection System for Sheet Pile Bulkhead

All existing sheet piles in the POA stockpile were specified to be hot-dip galvanized with a minimum zinc thickness of 6 to 12 mils. Galvanization would be the sole corrosion protection element for sheet piles exposed to the atmospheric and splash zones. An impressed current cathodic protection system would protect structural components submerged in or in contact with soil. Cathodic protection anodes would be installed on the seaside of the sheet piling for protection of seaside surfaces, and additional anodes would be installed in drilled holes on the land side to protect surfaces exposed to soil and mud.

Corrosion Protection System for Fender Piles

A galvanic anode cathodic protection system would protect the portions of the fender piles that would be submerged in or in contact with soil. Based on the estimated surface area per fender pile, approximately 2,000 pounds of aluminum anode would be required for a 20-year service life. Eight or nine aluminum anodes could be fabricated into "bracelet" anodes that could be fastened or welded to the fender pile.

3.8.7 Exclusions

- Hazardous materials handling and disposal
- Natural gas utilities

3.9 Cost Resources

The following is a list of the various cost resources used in the development of the cost estimate.

- 11 April 2012 POA Intermodal Expansion Project Budgetary Cost Estimate Report
- Vendor quotes on equipment and materials
- Estimator judgment

Appendix A

Cost Estimate Detail and Summary Reports

ESTIMATE RECAP - BID QUANTITIES

| | DIRECT | INDIRECT | TOTAL | % OF TOTAL |
|--------------|----------------|----------|----------------|------------|
| Labor | 11,511,775.87 | | 11,511,775.87 | 6.968% |
| Burden | 7,877,321.51 | | 7,877,321.51 | 4.768% |
| Lab+Bur | 19,389,097.38 | | 19,389,097.38 | 11.736% |
| Perm Matl | 35,410,749.50 | | 35,410,749.50 | 21.433% |
| Const Exp | 354,289.40 | | 354,289.40 | 0.214% |
| Equipment | 26,475,673.62 | | 26,475,673.62 | 16.025% |
| Subs | 68,471,128.70 | | 68,471,128.70 | 41.444% |
| Other | 15,114,110.41 | | 15,114,110.41 | 9.148% |
| Total Costs: | 165,215,049.01 | | 165,215,049.01 | 100.000% |
| % of Total | 100.000% | 0.000% | 100.000% | |

| Escalation on: | Labor | Burden | Perm Matl | Const Matl | Co Eqp | Rented Eqp |
|----------------|-----------|----------|-----------|------------|----------|------------------|
| | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % |
| | Eq Op Exp | Sub | Misc1 | Misc2 | Misc3 | Total Escalation |
| | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % |

* Data Below here is dependent on the Summary Process. *
The Summary Process was last run 02/27/2013 at 11:24 PM

| | | |
|--|-----------------------|--------------|
| Markup on Resource Costs | 27,393,563.25 | 16.5805% |
| MARKUP TOTALS ==> | 27,393,563.25 | 16.5805% |
| Cost Addons | | |
| Escalation to February 2015 3.4700 % of Cost, Mkup, & Prev | 6,793,730.82 | 4.1121% |
| Escalation to Proj Midpoint 2.0500 % of Cost, Mkup, & Prev | 4,152,858.85 | 2.5136% |
| Contingency 20.0000 % of Cost, Mkup, & Prev Addons | 41,346,267.91 | 25.0257% |
| PM, CM, Design 18.0000 % of Cost, Mkup, & Prev Addons | 44,653,969.34 | 27.0278% |
| Owner's Contingency 8.5000 % of Cost, Mkup, & Prev Addon | 24,882,184.03 | 15.0605% |
| Bond from Summary Table | 3,176,137.60 | 1.9224% |
| MARKUP, ADDON & BOND TOTALS ==> | 152,398,711.80 | 92.2426% |
| | ===== | (% of costs) |
| COST + MARKUP -----> | \$317,613,760.81 | |
| | (On Takeoff Quantity) | |

There * ARE NOT * closing accounts for this bid.

| | | |
|----------------------------|-----------|-----------------------------|
| Rounding difference: | -3,084.74 | -Effect on Bid- Adjusted |
| Unbalancing difference: | | |
| From Cut&Add Sheet-costs: | | (on Bid Quantity) |
| From Cut&Add Sheet-markup: | | (on Bid Quantity) |
| Pass Through Adjustments: | | None |

02/27/2013
13-008-5HA-1
*** Bob Wells

23:25
POA Option 5H Phase 1 (rev 1)

BID TOTALS

| <u>Biditem</u> | <u>Description</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Bid Total</u> |
|----------------|----------------------|-----------------|--------------|-------------------|------------------|
| 50040 | Construction Staging | 1.000 | LS | 1,775,573.82 | 1,775,573.82 |

***Subtotal Staging \$1,775,573.82

PHASE I

| | | | | | |
|-------|----------------------------------|---------------|----|----------------|---------------|
| 50050 | Demolition and Excavation | 1.000 | LS | 24,831,190.04 | 24,831,190.04 |
| 50055 | Dredging | 1,171,000.000 | CY | 51.01 | 59,732,710.00 |
| 50060 | Piling for Concrete Wharf Area I | 35,280.000 | LF | 1,022.42 | 36,070,977.60 |
| 50080 | Sheet Pile Bulkhead | 2,300.000 | LF | 9,742.94 | 22,408,762.00 |
| 50081 | Credit Free Issue Sheet Pile | 1.000 | LS | -17,748,647.75 | -17,748,647.7 |
| 50090 | Concrete Superstructure | 62,777.000 | SF | 194.17 | 12,189,410.09 |
| 50095 | Walkways | 4.000 | EA | 404,171.10 | 1,616,684.40 |
| 50100 | Abutments | 3.000 | LS | 294,914.53 | 884,743.59 |
| 50120 | Fendering | 1.000 | LS | 2,571,553.56 | 2,571,553.56 |
| 50130 | Mooring Dolphins Piles | 24.000 | EA | 182,500.19 | 4,380,004.56 |
| 50135 | Pile Cap Mooring Dolphin | 4.000 | EA | 112,222.33 | 448,889.32 |
| 50140 | Slope Protection | 174,800.000 | CY | 210.63 | 36,818,124.00 |

***Subtotal Marine Work \$184,204,401.41

GENERAL CONSTRUCTION

| | | | | | |
|-------|--|-------|----|---------------|---------------|
| 50500 | Surface Pavements | 1.000 | LS | 46,110,131.44 | 46,110,131.44 |
| 50510 | Traffic Control Parking | 1.000 | LS | 718,222.50 | 718,222.50 |
| 50520 | Surface water control | 1.000 | LS | 2,094,652.35 | 2,094,652.35 |
| 50530 | Potable Water Utilities | 1.000 | LS | 4,854,653.24 | 4,854,653.24 |
| 50540 | Fire Suppression Utilities | 1.000 | LS | 4,854,653.24 | 4,854,653.24 |
| 50550 | Sanitary Sewer Utilities | 1.000 | LS | 691,414.09 | 691,414.09 |
| 50560 | Electrical Power Utilities | 1.000 | LS | 17,761,442.99 | 17,761,442.99 |
| 50580 | Telecommunications Utilities | 1.000 | LS | 6,308,482.38 | 6,308,482.38 |
| 50590 | Railroad Spur | 1.000 | LS | 13,079,421.72 | 13,079,421.72 |
| 50600 | Surface Restoration/Landscaping | 1.000 | LS | 288,363.95 | 288,363.95 |
| 50610 | Marine Terminal Buildings incl Crane Maint | 1.000 | LS | 8,378,512.61 | 8,378,512.61 |
| 50620 | Corrosion Control | 1.000 | LS | 16,465,581.54 | 16,465,581.54 |
| 50630 | Cherry Hill Road Upgrades | 1.000 | LS | 1,582,326.04 | 1,582,326.04 |
| 50640 | Other | 1.000 | LS | 8,442,842.76 | 8,442,842.76 |

***Subtotal General Construction \$131,630,700.85

02/27/2013
13-008-5HA-1
*** Bob Wells

23:25
POA Option 5H Phase 1 (rev 1)

BID TOTALS

| <u>Biditem</u> | <u>Description</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Bid Total</u> |
|----------------|--------------------|-----------------|--------------|-------------------|------------------|
| | | Bid Total | =====> | | \$317,610,676.08 |

**Notes:
Items in italics are Non-Additive.

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|

PARENT ITEM = 50040 CLIENT# = 03-12

Description = Construction Staging Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

LFORMN Laborer-Foreman 34.72 MH 8.16 18.73 STD
LPWR Laborer-Power Tools 34.72 MH 8.16 18.73 STD
M100 Foreman - Carpenter 34.72 MH 28 10.93 STD
M105 Foreman - General Marine 35.72 MH 28 10.93 STD
M150 M-Operator, Crane 39.19 MH 28 19 STD
M165 M-Piledriver 34.95 MH 28 18.73 STD
M170 M-Welder 41.05 MH 28 18.73 STD
M173 M-Lead Carpenter 35.49 MH 28 18.73 STD
M175 M-Carpenter 35.49 MH 28 18.73 STD
M180 M-Carpenter Helper 35.49 MH 28 18.73 STD
M190 M-Skilled Laborer 35.43 MH 28 18.73 STD
M195 M-Laborer 35.43 MH 28 18.73 STD
OPCR100 Op Eng 1A- Crane 100-200 39.19 MH 8.16 19 STD
OPEXC3 Op Eng 3- Backhoe to 3Y 37.43 MH 8.16 19 STD

Listing of Sub-Biditems of Parent Item 50040:

PARENT ITEM = 50042 CLIENT# = 03-12

Description = Mobilization and Demobilization Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

Listing of Sub-Biditems of Parent Item 50042:

BID ITEM = 50043 CLIENT# = 03-12

Description = Mobilization Unit = LS Takeoff Quan: 1.000 Engr Quan: 0.000

219000 Misc Hauling/Trucking Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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20 loads x 1 = 20 hours
5TRKFB Trucking - Flat Bed 20.00 HR 100.000 2,000 2,000

540000 Temporary Construction Fence Quan: 750.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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a 6 feet link fence will cost \$9.00/ ft. then can be sold installed at \$15/ft
31CHAINFENCE Temporary Chainlinkfence 750.00 LF 12.000 9,000 9,000

890005 Pile Crew Mobilization Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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Crew mobilized for Tacoma, Washington

| | | | | | | | | | |
|---------------|----------------------------|-------|----------|--------------|-----------------|----------|-------|----------|-------|
| MARPIL | Marine Piling & Demo Crew | 20.00 | CH | Prod: | 2.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 2.00 | DA | 70.000 | | 140 | | | 140 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | 200.000 | | | 400 | | 400 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 20.00 HR | 163.361 | | | 3,267 | | 3,267 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 20.00 HR | 17.500 | | | 350 | | 350 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 20.00 HR | 17.500 | | | 350 | | 350 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 20.00 HR | 20.000 | | | 400 | | 400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|---------------------------|--------------|-----------------------|--------------|-----------------|------------------|--------------------|---------------|------------------|------------------|
| <hr/> | | | | | | | | | | |
| BID ITEM = 50043 | | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Mobilization | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | | 0.000 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 20.00 HR | 0.100 | | | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | | 70 | | 70 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 20.00 HR | 5.000 | | | | 100 | | 100 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 20.00 HR | 10.000 | | | | 200 | | 200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 20.00 HR | 2.500 | | | | 50 | | 50 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 20.00 HR | 45.492 | | | | 910 | | 910 |
| 9100000 | Substance 5 workers | 2.00 | DA | 500.000 | | | 1,000 | | | 1,000 |
| M105 | Foreman - General Marine | 1.00 | 20.00 MH | 35.720 | 1,251 | | | | | 1,251 |
| M165 | M-Piledriver | 1.00 | 20.00 MH | 34.950 | 1,385 | | | | | 1,385 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | | 1,561 |
| M190 | M-Skilled Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | | 1,399 |
| M195 | M-Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | | 1,399 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | | 1,342 |
| \$16,384.16 | 120.0000 MH/LS | | 120.00 MH | [4878.94] | 8,335 | | 1,140 | 6,909 | | 16,384 |
| <hr/> | | | | | | | | | | |
| 890006 | Carpenter Crew Mob | | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A ***** | | | | | | | | | | |
| <u>MARWOO</u> | Marine Carpenters Crew | | 20.00 CH | Prod: | 2.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 | |
| 8211050 | Fuel, Oil, Grease 50g/d | | 2.00 DA | 200.000 | | | | 400 | | 400 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 20.00 HR | 106.961 | | | | 2,139 | | 2,139 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 20.00 HR | 10.000 | | | | 200 | | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | | 100 | | 100 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 20.00 HR | 0.100 | | | | 2 | | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MFW-A-2 | Work Float | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | | 70 | | 70 |
| 8MVP-A-2 | FORD F150 SUPERC 2 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8WELD400 | Welder 400 AMP | 2.00 | 40.00 HR | 2.044 | | | | 82 | | 82 |
| M100 | Foreman - Carpenter | 1.00 | 20.00 MH | 34.720 | 1,222 | | | | | 1,222 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | | 1,561 |
| M173 | M-Lead Carpenter | 1.00 | 20.00 MH | 35.490 | 1,400 | | | | | 1,400 |
| M175 | M-Carpenter | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | | 4,201 |
| M180 | M-Carpenter Helper | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | | 4,201 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | | 1,342 |
| \$17,589.31 | 200.0000 MH/LS | | 200.00 MH | [7994.58] | 13,926 | | | 3,663 | | 17,589 |
| <hr/> | | | | | | | | | | |
| 960015 | Rigging Supplies | | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A ***** | | | | | | | | | | |
| ***** Copied and adjusted from C:\HEAVYBID\EST\012-008A ***** | | | | | | | | | | |
| 31RIGGING | Rigging Supplies | | 1.00 LS | 35,000.000 | | | | 35,000 | | 35,000 |
| <hr/> | | | | | | | | | | |
| ===== | Item Totals: | 50043 | - Mobilization | | | | | | | |
| \$79,973.47 | 320.0000 MH/LS | | 320.00 MH | [12873.52] | 22,261 | | 47,140 | 10,572 | | 79,973 |
| 79,973.470 | 1 LS | | | | 22,261.43 | | 47,140.00 | 10,572.04 | | 79,973.47 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|-------|------------------|--------------------|---------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|-------|------------------|--------------------|---------------|------------------|-------|

BID ITEM = 50044 CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Transportation Unit = LS Takeoff Quan: 1.000 Engr Quan: 0.000

219000 Misc Hauling/Trucking Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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Miscellaneous trucking to mobilize equipment to the site and demob. smal cranes and loaders, traileres and containers.

20 loads x 4 hours = 80 hours

| | | | | | | | | | | |
|--------|---------------------|-------|----|---------|--|--|-------|--|--|-------|
| 5TRKFB | Trucking - Flat Bed | 80.00 | HR | 100.000 | | | 8,000 | | | 8,000 |
|--------|---------------------|-------|----|---------|--|--|-------|--|--|-------|

890007 Marine Tugs Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

rental tugging services to and from Tacoma, Washington State.
Distance Tacoma to Anchorage: 1,472 N Miles
at 4.5 knots, 1,472/4.5= 327 hours ==> 13.62 days say 14 days

14 days in and 14 days back 2 days on stand by = 30 days

then tug needs to go back and do it all over again for demobilization

so, say 60 days

| | | | | | | | | | | |
|--------------|----------------------------|-------|----|-----------|--|--|---------|---------|--|---------|
| 5TUGSERVICE | Tug Rental | 60.00 | DA | 6,500.000 | | | 390,000 | | | 390,000 |
| 8211060 | ==> Fuel, Oil, Grease 1400 | 60.00 | DA | 5,810.000 | | | | 348,600 | | 348,600 |
| \$738,600.00 | | | | [] | | | 390,000 | 348,600 | | 738,600 |

=====> **Item Totals: 50044 - Transportation**

| | | | | | | | | | | |
|--------------|--|------|--|-----|--|--|------------|------------|--|----------------|
| \$746,600.00 | | | | [] | | | 398,000 | 348,600 | | 746,600 |
| 746,600.000 | | 1 LS | | | | | 398,000.00 | 348,600.00 | | 746,600.00 |

BID ITEM = 50045 CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Demobilization Unit = LS Takeoff Quan: 1.000 Engr Quan: 0.000

115000 Remove Fence (Chain Link) Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

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Per drawings there are 750 ft of link fencing to limit the construction site

| | | | | | | | | |
|---------------|--------------------------|--------|-------|-----------------------|----------|-------|----------|--------|
| <u>MARLAN</u> | Demolition Crew on land | 10.00 | CH | Prod: 1.0000 S | Lab Pcs: | 19.00 | Eqp Pcs: | 13.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.00 | DA | 200.000 | | 200 | | 200 |
| 8BHLD480 | BHL Cat 450E 1.75CY | 8.00 | 80.00 | 45.473 | | 3,638 | | 3,638 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 10.00 | 106.961 | | 1,070 | | 1,070 |
| 8TRKPU10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 40.00 | 7.044 | | 282 | | 282 |
| 9100010 | Substance 10 workers | 1.00 | DA | 1,000.000 | | 1,000 | | 1,000 |
| M105 | Foreman - General Marine | 1.00 | 10.00 | 35.720 | 625 | | | 625 |
| M150 | M-Operator, Crane | 1.00 | 10.00 | 39.190 | 756 | | | 756 |
| M195 | M-Laborer | 8.00 | 80.00 | 35.430 | 5,594 | | | 5,594 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 10.00 | 39.190 | 671 | | | 671 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 80.00 | 37.430 | 5,193 | | | 5,193 |
| \$19,029.26 | 190.0000 MH/LS | 190.00 | MH | [7666.78] | 12,840 | 1,000 | 5,189 | 19,029 |

890010 Subcontractor Pile Crew Demobilization Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | |
|---------------|----------------------------|-------|----|-----------------------|----------|------|----------|-------|
| <u>MARPIL</u> | Marine Piling & Demo Crew | 20.00 | CH | Prod: 2.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 2.00 | DA | 70.000 | 140 | | | 140 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | 200.000 | | 400 | | 400 |

| Activity | Desc | Quantity | Unit | Unit Cost | Labor | Perm | Constr | Equip | Sub-Contract | Total |
|--|------------------------------------|------------------|-----------|-------------|---------------|----------|----------|------------|--------------|-----------|
| Resource | Pcs | | | | | Material | Matl/Exp | Ment | | |
| | | | | | | | | | | |
| BID ITEM = 50045 | CLIENT# = 03-12 | | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Demobilization | | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 0.000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 20.00 HR | 163.361 | | | | 3,267 | | 3,267 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 20.00 HR | 17.500 | | | | 350 | | 350 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 20.00 HR | 10.000 | | | | 200 | | 200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 20.00 HR | 17.500 | | | | 350 | | 350 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 20.00 HR | 20.000 | | | | 400 | | 400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | | 100 | | 100 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 20.00 HR | 10.000 | | | | 200 | | 200 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 20.00 HR | 0.100 | | | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | | 70 | | 70 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 20.00 HR | 5.000 | | | | 100 | | 100 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 20.00 HR | 10.000 | | | | 200 | | 200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 20.00 HR | 2.500 | | | | 50 | | 50 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 20.00 HR | 45.492 | | | | 910 | | 910 |
| 9100000 | Substance 5 workers | | 2.00 DA | 500.000 | | | 1,000 | | | 1,000 |
| M105 | Foreman - General Marine | 1.00 | 20.00 MH | 35.720 | 1,251 | | | | | 1,251 |
| M165 | M-Piledriver | 1.00 | 20.00 MH | 34.950 | 1,385 | | | | | 1,385 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | | 1,561 |
| M190 | M-Skilled Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | | 1,399 |
| M195 | M-Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | | 1,399 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | | 1,342 |
| \$16,384.16 | 120.0000 MH/LS | | 120.00 MH | [4878.94] | 8,335 | | 1,140 | 6,909 | | 16,384 |
| 890011 | Subcontractor Carpenter Crew Demob | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A ***** | | | | | | | | | | |
| MARWOO | Marine Carpenters Crew | | 20.00 CH | Prod: | 2.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 2.00 DA | 200.000 | | | | 400 | | 400 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 20.00 HR | 106.961 | | | | 2,139 | | 2,139 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 20.00 HR | 10.000 | | | | 200 | | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | | 100 | | 100 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 20.00 HR | 0.100 | | | | 2 | | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MFW-A-2 | Work Float | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | | 70 | | 70 |
| 8MVP-A-2 | FORD F150 SUPERC 2 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8WELD400 | Welder 400 AMP | 2.00 | 40.00 HR | 2.044 | | | | 82 | | 82 |
| M100 | Foreman - Carpenter | 1.00 | 20.00 MH | 34.720 | 1,222 | | | | | 1,222 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | | 1,561 |
| M173 | M-Lead Carpenter | 1.00 | 20.00 MH | 35.490 | 1,400 | | | | | 1,400 |
| M175 | M-Carpenter | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | | 4,201 |
| M180 | M-Carpenter Helper | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | | 4,201 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | | 1,342 |
| \$17,589.31 | 200.0000 MH/LS | | 200.00 MH | [7994.58] | 13,926 | | | 3,663 | | 17,589 |
| ===== | Item Totals: 50045 | - Demobilization | | | | | | | | |
| \$53,002.73 | 510.0000 MH/LS | | 510.00 MH | [20540.3] | 35,101 | | 2,140 | 15,761 | | 53,003 |
| 53,002.730 | 1 LS | | | | 35,101.48 | | 2,140.00 | 15,761.25 | | 53,002.73 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|------------------------------------|----------------|--|--------------|---------------|---------------|--------------------|-------------------|------------------|-------|
| BID ITEM = 50045 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = Demobilization | | | Unit = LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 0.000 |
| Total of Above Sub-Biditems | | | | | | | | | |
| =====> Item Totals: | 50042 | - Mobilization and Demobilization | | | | | | | |
| \$879,576.20 | 830.0000 MH/LS | 830.00 MH | [33413.82] | 57,363 | 447,280 | 374,933 | 879,576 | | |
| 879,576.200 | 1 LS | | | 57,362.91 | 447,280.00 | 374,933.29 | 879,576.20 | | |

| | | | | | | | | | |
|--|-----------------|-----------|---------------|---------|------------|-------|--|--|--|
| BID ITEM = 50046 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Environmental Protection & Turbidity Bar | | Unit = FT | Takeoff Quan: | 664.000 | Engr Quan: | 0.000 | | | |
| call on the plans D-101 | | | | | | | | | |

430000 Silt Fence - Install **Quan: 1,000.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | |
|-------------|------------------------|---------------|--------------------------|---------------|----------------|
| LAB3 | Foreman + 2 Laborers | 10.00 CH | Prod: 100.0000 UH | Lab Pcs: 3.00 | Eqp Pcs: 1.00 |
| 31ECSF | Silt Fence | 1,000.00 LF | 1.000 | 1,000 | 1,000 |
| 8TRKPU70 | Leased 4x2, 3/4 Ton Ga | 1.00 10.00 HR | 8.476 | 85 | 85 |
| LFORMN | Laborer-Foreman | 1.00 10.00 MH | 34.720 | 613 | 613 |
| LPWR | Laborer-Power Tools | 2.00 20.00 MH | 34.720 | 1,226 | 1,226 |
| \$2,924.45 | 0.0300 MH/LF | 30.00 MH | [1.146] | 1,840 | 1,000 85 2,924 |

432000 Turbidity Barrier **Quan: 1,000.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | |
|--------------|----------------------------|---------------|-----------------------|---------------|---------------------|
| MARPL | Marine Piling & Demo Crew | 10.00 CH | Prod: 1.0000 S | Lab Pcs: 6.00 | Eqp Pcs: 17.00 |
| 3TRUBIDITYBA | Turbidity Barrier | 1,000.00 LF | 14.000 | 14,000 | 14,000 |
| 3WELD | Weld Supplies (1 man-Stick | 1.00 DA | 70.000 | 70 | 70 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.00 DA | 200.000 | 200 | 200 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 10.00 HR | 163.361 | 1,634 | 1,634 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 10.00 HR | 17.500 | 175 | 175 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 10.00 HR | 3.000 | 30 | 30 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 10.00 HR | 10.000 | 100 | 100 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 10.00 HR | 17.500 | 175 | 175 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 10.00 HR | 20.000 | 200 | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 10.00 HR | 3.000 | 30 | 30 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 10.00 HR | 5.000 | 50 | 50 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 10.00 HR | 10.000 | 100 | 100 |
| 8MFD-A-1 | FAIRLEADS | 1.00 10.00 HR | 0.100 | 1 | 1 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 10.00 HR | 3.000 | 30 | 30 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 10.00 HR | 3.500 | 35 | 35 |
| 8MPE-A-11 | Extractor Pile | 1.00 10.00 HR | 5.000 | 50 | 50 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 10.00 HR | 6.500 | 65 | 65 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 10.00 HR | 10.000 | 100 | 100 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 10.00 HR | 2.500 | 25 | 25 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 10.00 HR | 45.492 | 455 | 455 |
| 9100000 | Substance 5 workers | 1.00 DA | 500.000 | 500 | 500 |
| M105 | Foreman - General Marine | 1.00 10.00 MH | 35.720 | 625 | 625 |
| M165 | M-Piledriver | 1.00 10.00 MH | 34.950 | 692 | 692 |
| M170 | M-Welder | 1.00 10.00 MH | 41.050 | 780 | 780 |
| M190 | M-Skilled Laborer | 1.00 10.00 MH | 35.430 | 699 | 699 |
| M195 | M-Laborer | 1.00 10.00 MH | 35.430 | 699 | 699 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 10.00 MH | 39.190 | 671 | 671 |
| \$22,192.08 | 0.0600 MH/LF | 60.00 MH | [2.439] | 4,168 | 14,570 3,455 22,192 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|

BID ITEM = 50046 CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Environmental Protection & Turbidity Bar Unit = FT Takeoff Quan: 664.000 Engr Quan: 0.000

432005 Erosion Control - Hay Bales **Quan: 400.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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A bale size of 14"x18"x22" will weigh about 37 to 43 lbs. This is a safer bale weight for many people to handle

it means the length is 22"/12= 1.83 ft

if there are 600 ft =====> qty of bales are: 600/1.83=327 say 400 bales

| | | | | | | | | | |
|-------------|------------------------|--------|--------|------------|------------------------|----------|------|----------|--------|
| <u>LAB4</u> | Foreman + 3 Laborers | | 66.66 | CH | Prod: 6.0000 UH | Lab Pcs: | 4.00 | Eqp Pcs: | 1.00 |
| 31ECHB | Hay Bales | 400.00 | EA | 5.000 | | 2,000 | | | 2,000 |
| 8TRKPU70 | Leased 4x2, 3/4 Ton Ga | 1.00 | 66.67 | HR | 8.476 | | 565 | | 565 |
| LFORMN | Laborer-Foreman | 1.00 | 66.67 | MH | 34.720 | 4,088 | | | 4,088 |
| LPWR | Laborer-Power Tools | 3.00 | 200.00 | MH | 34.720 | 12,265 | | | 12,265 |
| \$18,918.10 | 0.6666 MH/EA | 266.67 | MH | [25.462] | 16,353 | 2,000 | 565 | | 18,918 |

=====> **Item Totals: 50046 - Environmental Protection & Turbidity Bar**
 \$44,034.63 0.5371 MH/FT 356.67 MH [20.738] 22,360 17,570 4,104 **44,035**
 66.317 664 FT 33.68 26.46 6.18 66.32

Total of Above Sub-Biditems

=====> **Item Totals: 50040 - Construction Staging**
\$923,610.83 1,186.6700 MH/LS 1,186.67 MH [47183.71] 79,723 464,850 379,038 923,611
923,610.830 1 LS 79,723.18 464,850.00 379,037.65 923,610.83

BID ITEM = 50050 CLIENT# = 03-12 Marine Item SCHEDULE: 1 100
Description = Demolition and Excavation Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

205025 Excavation to Waste **Marine** **Quan: 737,000.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

excavate 3,000 cy per day:

997,000cy/3000cy/day= 333 days

| | | | | | | | | | |
|----------------|--------------------------|-----------|-----------|-----------|-------------------------|-----------|-----------|----------|-----------|
| <u>MARLAN</u> | Demolition Crew on land | | 2,461.59 | CH | Prod: 246.1595 S | Lab Pcs: | 19.00 | Eqp Pcs: | 13.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 246.16 | DA | 200.000 | | 49,232 | | 49,232 |
| 8BHL480 | BHL Cat 450E 1.75CY | 8.00 | 19,692.76 | HR | 45.473 | | 895,489 | | 895,489 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 2,461.59 | HR | 106.961 | | 263,294 | | 263,294 |
| 8TRKPU10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 9,846.38 | HR | 7.044 | | 69,358 | | 69,358 |
| 9100010 | Substance 10 workers | | 246.16 | DA | 1,000.000 | | 246,160 | | 246,160 |
| M105 | Foreman - General Marine | 1.00 | 2,461.59 | MH | 35.720 | 153,961 | | | 153,961 |
| M150 | M-Operator, Crane | 1.00 | 2,461.59 | MH | 39.190 | 186,169 | | | 186,169 |
| M195 | M-Laborer | 8.00 | 19,692.76 | MH | 35.430 | 1,377,043 | | | 1,377,043 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,461.59 | MH | 39.190 | 165,115 | | | 165,115 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 19,692.76 | MH | 37.430 | 1,278,407 | | | 1,278,407 |
| \$4,684,228.35 | 0.0634 MH/CY | 46,770.29 | MH | [2.561] | 3,160,696 | 246,160 | 1,277,373 | | 4,684,228 |

205030 Excavation to Stockpile **Marine** **Quan: 737,000.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

stockpile 997,000 cy of soils from excavation:
 997,000/15cy= 67,000 truck loads at \$350/load

cost per cy= \$350/15cy= \$23.5/cy

| | | | | | | | | |
|--------|---------------|------------|----|-------|--|-----------|--|-----------|
| 5TRKCY | Trucking - CY | 737,000.00 | CY | 8.000 | | 5,896,000 | | 5,896,000 |
|--------|---------------|------------|----|-------|--|-----------|--|-----------|

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|------------------|-------|

BID ITEM = 50050 CLIENT# = 03-12 Marine Item SCHEDULE: 1 100
Description = Demolition and Excavation Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

500510 Removal of Open Cell Sheets Marine Quan: 15,300.00 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

consists of:

Open Cell wall #1: 28 back extensions of 230 ft= 6,440 ft and 27 semi circles of $3.14 \times 30 / 2 = 47 \text{ ft} \times 27 = 1,267 \text{ ft}$ ==> $6,440 + 1,267 = 7,707 \text{ ft}$
Open Cell wall #2: 22 back extensions of 180 ft= 3,960 ft + $47 \times 21 = 4,947 \text{ ft}$
Open Cell wall #3: 12 back extensions of 125 ft= $1,500 + 47 \times 11 = 2,017$

Total cells: $7,707 + 4,947 + 2,017 = 14,671 \text{ ft}$

Additional cicular cells

#1= $3.1416 \times 100 = 314 \text{ ft}$
semicircle#2= $314 / 2 \times 2 = 314 \text{ ft}$

Grand total removal: $14,671 + 314 + 314 = 15,299$ say 15,300 ft by 60 ft..
if removal is at a rate of 60 ft per day ==> $15,300 / 60 = 255$ days.

it can be faster using 2 crews. yet, fo the sake of developing costs we will assume on single crew.

| | | | | | | | | | |
|----------------|----------------------------|-----------|----------|----|-------------------------|----------|---------|----------|-----------|
| <u>MARPIL</u> | Marine Piling & Demo Crew | | 2,550.00 | CH | Prod: 255.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 255.00 | DA | | 70.000 | 17,850 | | | 17,850 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 255.00 | DA | 200.000 | | 51,000 | | 51,000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 2,550.00 | HR | 163.361 | | 416,571 | | 416,571 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 2,550.00 | HR | 17.500 | | 44,625 | | 44,625 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 2,550.00 | HR | 3.000 | | 7,650 | | 7,650 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 2,550.00 | HR | 10.000 | | 25,500 | | 25,500 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 2,550.00 | HR | 17.500 | | 44,625 | | 44,625 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 2,550.00 | HR | 20.000 | | 51,000 | | 51,000 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 2,550.00 | HR | 3.000 | | 7,650 | | 7,650 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 2,550.00 | HR | 5.000 | | 12,750 | | 12,750 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 2,550.00 | HR | 10.000 | | 25,500 | | 25,500 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 2,550.00 | HR | 0.100 | | 255 | | 255 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 2,550.00 | HR | 3.000 | | 7,650 | | 7,650 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 2,550.00 | HR | 3.500 | | 8,925 | | 8,925 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 2,550.00 | HR | 5.000 | | 12,750 | | 12,750 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 2,550.00 | HR | 6.500 | | 16,575 | | 16,575 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 2,550.00 | HR | 10.000 | | 25,500 | | 25,500 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 2,550.00 | HR | 2.500 | | 6,375 | | 6,375 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 2,550.00 | HR | 45.492 | | 116,005 | | 116,005 |
| 9100000 | Substance 5 workers | | 255.00 | DA | 500.000 | 127,500 | | | 127,500 |
| M105 | Foreman - General Marine | 1.00 | 2,550.00 | MH | 35.720 | 159,491 | | | 159,491 |
| M165 | M-Piledriver | 1.00 | 2,550.00 | MH | 34.950 | 176,544 | | | 176,544 |
| M170 | M-Welder | 1.00 | 2,550.00 | MH | 41.050 | 199,020 | | | 199,020 |
| M190 | M-Skilled Laborer | 1.00 | 2,550.00 | MH | 35.430 | 178,312 | | | 178,312 |
| M195 | M-Laborer | 1.00 | 2,550.00 | MH | 35.430 | 178,312 | | | 178,312 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,550.00 | MH | 39.190 | 171,046 | | | 171,046 |
| \$2,088,979.95 | 1.0000 MH/FT | 15,300.00 | MH | | [40.658] 1,062,725 | 145,350 | 880,905 | | 2,088,980 |

500530 Removal of Rip Rap Marine Quan: 14,700.00 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

remove 136,000 cy
remove 600 cy/day ==> 226 days
if remove 1200 cy/day==> 113 days

| | | | | | | | | | |
|---------------|--------------------------|------|----------|----|------------------------|----------|--------|----------|--------|
| <u>MARLAN</u> | Demolition Crew on land | | 130.00 | CH | Prod: 13.0000 S | Lab Pcs: | 19.00 | Eqp Pcs: | 13.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 13.00 | DA | 200.000 | | 2,600 | | 2,600 |
| 8BHLD480 | BHL Cat 450E 1.75CY | 8.00 | 1,040.00 | HR | 45.473 | | 47,292 | | 47,292 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 130.00 | HR | 106.961 | | 13,905 | | 13,905 |
| 8TRKPU10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 520.00 | HR | 7.044 | | 3,663 | | 3,663 |
| 9100010 | Substance 10 workers | | 13.00 | DA | 1,000.000 | 13,000 | | | 13,000 |
| M105 | Foreman - General Marine | 1.00 | 130.00 | MH | 35.720 | 8,131 | | | 8,131 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|--|---------------------------|------|------------------|-----------------|---------------|------------------|--------------------|---------------|------------------|-------------------|
| BID ITEM = 50050 | CLIENT# = 03-12 | | Marine Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Demolition and Excavation | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| M150 | M-Operator, Crane | 1.00 | 130.00 MH | 39.190 | 9,832 | | | | | 9,832 |
| M195 | M-Laborer | 8.00 | 1,040.00 MH | 35.430 | 72,723 | | | | | 72,723 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 130.00 MH | 39.190 | 8,720 | | | | | 8,720 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 1,040.00 MH | 37.430 | 67,514 | | | | | 67,514 |
| \$247,380.19 | 0.1680 MH/CY | | 2,470.00 MH | [6.78] | 166,920 | | 13,000 | 67,460 | | 247,380 |
| ====> Item Totals: 50050 - Demolition and Excavation | | | | | | | | | | |
| \$12,916,588.49 | 64,540.2900 MH/LS | | 64,540.29 MH | [2608983.09] | 4,390,341 | | 6,300,510 | 2,225,738 | | 12,916,588 |
| 12,916,588.490 | 1 LS | | | | 4,390,340.80 | | 6,300,510.00 | 2,225,737.69 | | 12,916,588.49 |

| | | |
|-------------------------|-----------|--|
| BID ITEM = 50055 | Land Item | SCHEDULE: 1 100 |
| Description = Dredging | Unit = CY | Takeoff Quan: 1,171,000.000 Engr Quan: 1,171,000.000 |

640000 Mechanical Dredging **Quan: 1,170,999.99 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

one mechanical crew does 1000 cy/day
2 crews will do 2,000cy/day=
1,225,000/2,000= 615 days ==> say 615 days

| | | | | | | |
|-----------------|----------------------------|----------|--------------|-------------------------|----------------|-------------------------------|
| DREDGE | Marine Piling & Demo Crew | 5,878.89 | CH | Prod: 587.8898 S | Lab Pcs: 12.00 | Eqp Pcs: 36.00 |
| 3WELD | Weld Supplies (1 man-Stick | 1,469.72 | DA | 70.000 | 102,880 | 102,880 |
| 8211060 | Fuel, Oil, Grease 1400g/d | 734.86 | DA | 5,810.000 | 4,269,537 | 4,269,537 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 2.00 | 11,757.80 HR | 163.361 | 1,920,766 | 1,920,766 |
| 8DRILLR | ***DRILLS - ROCK*** | 2.00 | 11,757.80 HR | 17.500 | 205,762 | 205,762 |
| 8MAC-A-10 | Compressor 185 CFM | 2.00 | 11,757.80 HR | 3.000 | 35,273 | 35,273 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 2.00 | 11,757.80 HR | 10.000 | 117,578 | 117,578 |
| 8MBS-Z-10 | Scow Barge | 4.00 | 23,515.59 HR | 227.000 | 5,338,039 | 5,338,039 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 2.00 | 11,757.80 HR | 17.500 | 205,762 | 205,762 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 2.00 | 11,757.80 HR | 20.000 | 235,156 | 235,156 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 2.00 | 11,757.80 HR | 3.000 | 35,273 | 35,273 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 2.00 | 11,757.80 HR | 5.000 | 58,789 | 58,789 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 2.00 | 11,757.80 HR | 10.000 | 117,578 | 117,578 |
| 8MFD-A-1 | FAIRLEADS | 2.00 | 11,757.80 HR | 0.100 | 1,176 | 1,176 |
| 8MGN-Z-11 | Generator 10 KW | 2.00 | 11,757.80 HR | 3.000 | 35,273 | 35,273 |
| 8MLT-A-1 | Light Tower, Genie | 2.00 | 11,757.80 HR | 3.500 | 41,152 | 41,152 |
| 8MPE-A-11 | Extractor Pile | 2.00 | 11,757.80 HR | 5.000 | 58,789 | 58,789 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 2.00 | 11,757.80 HR | 6.500 | 76,426 | 76,426 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 2.00 | 11,757.80 HR | 10.000 | 117,578 | 117,578 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 2.00 | 11,757.80 HR | 2.500 | 29,395 | 29,395 |
| 9100010 | Substance 10 workers | | 734.86 DA | 1,000.000 | 734,860 | 734,860 |
| M105 | Foreman - General Marine | 2.00 | 11,757.80 MH | 35.720 | 735,396 | 735,396 |
| M165 | M-Piledriver | 2.00 | 11,757.80 MH | 34.950 | 814,025 | 814,025 |
| M170 | M-Welder | 2.00 | 11,757.80 MH | 41.050 | 917,664 | 917,664 |
| M190 | M-Skilled Laborer | 2.00 | 11,757.80 MH | 35.430 | 822,180 | 822,180 |
| M195 | M-Laborer | 2.00 | 11,757.80 MH | 35.430 | 822,180 | 822,180 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 2.00 | 11,757.80 MH | 39.190 | 788,675 | 788,675 |
| \$18,637,161.21 | 0.0602 MH/CY | | 70,546.80 MH | [2.449] | 4,900,120 | 837,740 12,899,301 18,637,161 |

640010 Spoils Disposal **Quan: 1,170,999.99 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

I believe that dredging spoils end up at a permitted disposal site farther south in Cook Inlet, typically transported by barge/dredging scow. Doug might know better, but I would not expect that muck to be trucked anywhere in the MOA.

- Joe

| | | | | | | |
|---------------|---------------------------|----------|-------------|-------------------------|----------------|----------------|
| DDISPO | Dredge Disposal | 5,878.89 | CH | Prod: 587.8898 S | Lab Pcs: 10.00 | Eqp Pcs: 15.00 |
| 8211060 | Fuel, Oil, Grease 1400g/d | 734.86 | DA | 5,810.000 | 4,269,537 | 4,269,537 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 5,878.90 HR | 106.961 | 628,813 | 628,813 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|--------------------------|-----------------|--------------|-----------------|-----------|---------------------|--------------------|---------------------|------------------|------------|
| <hr/> | | | | | | | | | | |
| BID ITEM = 50055 | | | Land Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Dredging | | Unit = | CY | Takeoff | Quan: 1,171,000.000 | Engr | Quan: 1,171,000.000 | | |
| 8DOZER | Bulldozer | 2.00 | 11,757.80 HR | 50.000 | | | | 587,890 | | 587,890 |
| 8EXCAV-Z-1 | Excavator | 2.00 | 11,757.80 HR | 45.000 | | | | 529,101 | | 529,101 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 5,878.90 HR | 3.000 | | | | 17,637 | | 17,637 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 5,878.90 HR | 17.500 | | | | 102,881 | | 102,881 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 5,878.90 HR | 20.000 | | | | 117,578 | | 117,578 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 5,878.90 HR | 3.000 | | | | 17,637 | | 17,637 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 5,878.90 HR | 0.100 | | | | 588 | | 588 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 5,878.90 HR | 3.000 | | | | 17,637 | | 17,637 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 5,878.90 HR | 3.500 | | | | 20,576 | | 20,576 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 5,878.90 HR | 2.500 | | | | 14,697 | | 14,697 |
| 8PMP-Z-1 | Slurry Pump | 2.00 | 11,757.80 HR | 150.000 | | | | 1,763,670 | | 1,763,670 |
| 9100000 | Substance 5 workers | | 734.86 DA | 500.000 | | | | 367,430 | | 367,430 |
| M105 | Foreman - General Marine | 1.00 | 5,878.90 MH | 35.720 | 367,698 | | | | | 367,698 |
| M170 | M-Welder | 1.00 | 5,878.90 MH | 41.050 | 458,832 | | | | | 458,832 |
| M195 | M-Laborer | 3.00 | 17,636.69 MH | 35.430 | 1,233,269 | | | | | 1,233,269 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 5,878.90 MH | 39.190 | 394,337 | | | | | 394,337 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 4.00 | 23,515.59 MH | 37.430 | 1,526,576 | | | | | 1,526,576 |
| \$12,436,383.88 | 0.0502 MH/CY | 58,788.98 MH | | [2.054] | 3,980,713 | | 367,430 | 8,088,241 | | 12,436,384 |

905 MOBILIZATION-DEMobilIZATION **Quan: 0.96 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

There are no cost resources for this activity.

| | | | | | | | | |
|-----------------|--------------------------------------|---------------|-----------|-----------|-----------|------------|-------------------|--|
| ===== | Item Totals: 50055 - Dredging | | | | | | | |
| \$31,073,545.09 | 0.1104 MH/CY | 129,335.78 MH | [4.504] | 8,880,833 | 1,205,170 | 20,987,542 | 31,073,545 | |
| 26.536 | 1171000 CY | | | 7.58 | 1.03 | 17.92 | 26.54 | |

| | | | | | | |
|-------------------------|----------------------------------|-------------|-----------------|---------|------------------|-----------------------|
| BID ITEM = 50060 | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 100 | | | |
| Description = | Piling for Concrete Wharf Area I | Unit = | LF | Takeoff | Quan: 35,280.000 | Engr Quan: 35,280.000 |

AREA 1
48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in
Wall Thickness = 1.000 in

Tip Elevation Top Elevation Length (ft) Quantity Total Length (ft) Unit Weight (lb/ft) Weight (lb)
Weight (Ton)

-100 7.54 35,280.00 1 35280 502.43 17,725,730.4 8,862.9

Coating

Tip Elevation Top Elevation Length (ft) Quantity Diameter Coating(SF)

-35 7.54 117.6 1 48 295,561.7

Pipe Qty Piles Pile Length Total Length

A32 32 178 5,696.00

B32 32 178 5,696.00

C32 32 173 5,536.00

D32 32 173 5,536.00

E31A 6 198 1,188.00

F31A 6 193 1,158.00

G31A 6 188 1,128.00

H31A 6 183 1,098.00

I31A 6 178 1,068.00

J31A 6 178 1,068.00

K31A 6 173 1,038.00

L31A 6 168 1,008.00

M31A 6 163 978.00

N31A 6 178 1,068.00

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Ment | Contract | Total |
|----------------------|------|-----------------|--------------|--------------|---------------|--------------------|-------------------|--------------|----------|-------|
|----------------------|------|-----------------|--------------|--------------|---------------|--------------------|-------------------|--------------|----------|-------|

BID ITEM = 50060 CLIENT# = 03-12 Marine Item SCHEDULE: 1 100
Description = Piling for Concrete Wharf Area I Unit = LF Takeoff Quan: 35,280.000 Engr Quan: 35,280.000
O31A 6 173 1,038.00
P31A 6 163 978.00
200 177.4 35,280.00
Average 176.4

303000 Supply Pipe Piles Marine Quan: 35,280.00 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

AREA 1
48 " O 1 " Thick Steel Pipe Pile
Outside Diameter = 48 in
Wall Thickness = 1.000 in

Tip Elevation Top Elevation Length (ft) Quantity Total Length (ft) Unit Weight (lb/ft) Weight (lb)
Weight (Ton)
-100 7.54 35,280.00 1 35280 502.43 17,725,730.4 8,862.9
Coating
Tip Elevation Top Elevation Length (ft) Quantity Diameter Coating(SF)
-35 7.54 117.6 1 48 295,561.7

Pipe Qty Piles Pile Length Total Length
A32 32 178 5,696.00
B32 32 178 5,696.00
C32 32 173 5,536.00
D32 32 173 5,536.00
E31A 6 198 1,188.00
F31A 6 193 1,158.00
G31A 6 188 1,128.00
H31A 6 183 1,098.00
I31A 6 178 1,068.00
J31A 6 178 1,068.00
K31A 6 173 1,038.00
L31A 6 168 1,008.00
M31A 6 163 978.00
N31A 6 178 1,068.00
O31A 6 173 1,038.00
P31A 6 163 978.00
200 177.4 35,280.00
Average 176.4

2PP48INCH 48 In Diam Pipe Pile 35,280.00 LF 430.000 15,170,400 15,170,400

303010 Pipe Painting & Wrapping Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

2PP48COATING Pipe Pile Shop Coating 295,561.70 SF 4.000 1,182,247 1,182,247

303022 Set Pipe Template Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

31PILETEMPLA Pipe Pile Template 1.00 LS 60,000.000 60,000 60,000

303035 Piling - Pipe Marine Quan: 200.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP

due to tides the efficiency will be assumed at 4 piles per day of 6 hours

| | | | | | | |
|-------------------|-----------------------------|--------|--------|------------------------|---------------|----------------|
| MARPIL | Marine Piling & Demo Crew | 500.00 | CH | Prod: 50.0000 S | Lab Pcs: 6.00 | Eqp Pcs: 17.00 |
| 3WELD | Weld Supplies (1 man-Stick) | 50.00 | DA | 70.000 | 3,500 | 3,500 |
| 8211050 | Fuel, Oil, Grease 50g/d | 50.00 | DA | 200.000 | 10,000 | 10,000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 500.00 | HR 163.361 | 81,681 | 81,681 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 500.00 | HR 17.500 | 8,750 | 8,750 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 500.00 | HR 3.000 | 1,500 | 1,500 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 500.00 | HR 10.000 | 5,000 | 5,000 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 500.00 | HR 17.500 | 8,750 | 8,750 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|----------------------|----------------------------------|------------------------|------------------|--------------------|----------------------|------------------|--------------------|-----------------|------------------|---------|
| <hr/> | | | | | | | | | | |
| BID ITEM | = 50060 | CLIENT# = 03-12 | | Marine Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Piling for Concrete Wharf Area I | | Unit = | LF | Takeoff | Quan: | 35,280.000 | Engr Quan: | 35,280.000 | |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 500.00 HR | 20.000 | | | | 10,000 | | 10,000 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 500.00 HR | 3.000 | | | | 1,500 | | 1,500 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 500.00 HR | 5.000 | | | | 2,500 | | 2,500 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 500.00 HR | 10.000 | | | | 5,000 | | 5,000 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 500.00 HR | 0.100 | | | | 50 | | 50 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 500.00 HR | 3.000 | | | | 1,500 | | 1,500 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 500.00 HR | 3.500 | | | | 1,750 | | 1,750 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 500.00 HR | 5.000 | | | | 2,500 | | 2,500 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 500.00 HR | 6.500 | | | | 3,250 | | 3,250 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 500.00 HR | 10.000 | | | | 5,000 | | 5,000 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 500.00 HR | 2.500 | | | | 1,250 | | 1,250 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 500.00 HR | 45.492 | | | | 22,746 | | 22,746 |
| 9100000 | Substance 5 workers | | 50.00 DA | 500.000 | | | 25,000 | | | 25,000 |
| M105 | Foreman - General Marine | 1.00 | 500.00 MH | 35.720 | 31,273 | | | | | 31,273 |
| M165 | M-Piledriver | 1.00 | 500.00 MH | 34.950 | 34,616 | | | | | 34,616 |
| M170 | M-Welder | 1.00 | 500.00 MH | 41.050 | 39,024 | | | | | 39,024 |
| M190 | M-Skilled Laborer | 1.00 | 500.00 MH | 35.430 | 34,963 | | | | | 34,963 |
| M195 | M-Laborer | 1.00 | 500.00 MH | 35.430 | 34,963 | | | | | 34,963 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 500.00 MH | 39.190 | 33,538 | | | | | 33,538 |
| \$409,603.94 | 15.0000 MH/EA | | 3,000.00 MH | [609.868] | 208,377 | | 28,500 | 172,727 | | 409,604 |
| <hr/> | | | | | | | | | | |
| 303040 | Piling - Concrete Filling | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| <u>MARWOO</u> | Marine Carpenters Crew | | 500.00 CH | Prod: | 50.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 | |
| 8211050 | Fuel, Oil, Grease 50g/d | | 50.00 DA | 200.000 | | | 10,000 | | 10,000 | |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 500.00 HR | 106.961 | | | 53,481 | | 53,481 | |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 500.00 HR | 3.000 | | | 1,500 | | 1,500 | |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 500.00 HR | 6.500 | | | 3,250 | | 3,250 | |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 500.00 HR | 6.500 | | | 3,250 | | 3,250 | |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 500.00 HR | 10.000 | | | 5,000 | | 5,000 | |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 500.00 HR | 3.000 | | | 1,500 | | 1,500 | |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 500.00 HR | 5.000 | | | 2,500 | | 2,500 | |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 500.00 HR | 0.100 | | | 50 | | 50 | |
| 8MFW-A-1 | Work Float | 1.00 | 500.00 HR | 2.000 | | | 1,000 | | 1,000 | |
| 8MFW-A-2 | Work Float | 1.00 | 500.00 HR | 2.000 | | | 1,000 | | 1,000 | |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 500.00 HR | 2.000 | | | 1,000 | | 1,000 | |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 500.00 HR | 2.000 | | | 1,000 | | 1,000 | |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 500.00 HR | 3.500 | | | 1,750 | | 1,750 | |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 500.00 HR | 6.500 | | | 3,250 | | 3,250 | |
| 8WELD400 | Welder 400 AMP | 2.00 | 1,000.00 HR | 2.044 | | | 2,044 | | 2,044 | |
| M100 | Foreman - Carpenter | 1.00 | 500.00 MH | 34.720 | 30,550 | | | | 30,550 | |
| M170 | M-Welder | 1.00 | 500.00 MH | 41.050 | 39,024 | | | | 39,024 | |
| M173 | M-Lead Carpenter | 1.00 | 500.00 MH | 35.490 | 35,007 | | | | 35,007 | |
| M175 | M-Carpenter | 3.00 | 1,500.00 MH | 35.490 | 105,020 | | | | 105,020 | |
| M180 | M-Carpenter Helper | 3.00 | 1,500.00 MH | 35.490 | 105,020 | | | | 105,020 | |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 500.00 MH | 39.190 | 33,538 | | | | 33,538 | |
| \$439,732.39 | 5,000.0000 MH/LS | | 5,000.00 MH | [199864.5] | 348,158 | | 91,575 | | 439,732 | |
| <hr/> | | | | | | | | | | |
| 303042 | Concrete Supply | | Marine | Quan: | 5,392.00 CY | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| 2CR14 | 5000 PSI Concrete | 1.10 | 5,931.20 CY | 105.000 | | 622,776 | | | | 622,776 |
| <hr/> | | | | | | | | | | |
| 303043 | Concrete Pumping | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| 30 days x 8 hours= | 240 hours | | | | | | | | | |
| 5CONCP36M | Concrete Concrete Pump 36 | | 250.00 HR | 125.000 | | | 31,250 | | | 31,250 |
| <hr/> | | | | | | | | | | |
| 303045 | Piling - Rebar | | Marine | Quan: | 707,500.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|--|-----------------|------------------------|------------------------|-----------------|------------------|--------------------|---------------|------------------|-------------------|
| BID ITEM = 50060 | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 100 | | | | | | | |
| Description = | Piling for Concrete Wharf Area I | Unit = | LF | Takeoff | Quan: | 35,280.000 | Engr Quan: | 35,280.000 | | |
| 200*16= 3200 | couplers | | | | | | | | | |
| 2RR02 | Gr 60 Rebar | 1.10 | 778,250.00 LB | 0.480 | | 373,560 | | | | 373,560 |
| 2RR10 | Rebar Supports | | 778,250.00 LB | 0.050 | | 38,913 | | | | 38,913 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 3,200.00 EA | 13.000 | | 41,600 | | | | 41,600 |
| 5REBAR | Rebar Sub | | 707,500.00 LB | 0.280 | | | 198,100 | | | 198,100 |
| \$652,172.50 | | | | [] | | 454,073 | 198,100 | | | 652,173 |
| 304000 | Pile Splices - Pipe pile | Marine | Quan: 200.00 EA | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP | | | | |
| 5SPICES | Welding Subcontractor | 300.00 | EA | 650.000 | | 195,000 | | | | 195,000 |
| ===== | Item Totals: 50060 - Piling for Concrete Wharf Area I | | | | | | | | | |
| \$18,763,181.63 | 0.2267 MH/LF | 8,000.00 | MH | [9.122] | 556,535 | 17,429,495 | 512,850 | 264,301 | | 18,763,182 |
| 531.836 | 35280 LF | | | | 15.77 | 494.03 | 14.54 | 7.49 | | 531.84 |

| | | | | | | | | | | |
|-------------------------|---|---------------|------------------------------|-----------------------|-----------------|------------|------------|-----------|--|------------|
| BID ITEM = 50080 | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 100 | | | | | | | |
| Description = | Sheet Pile Bulkhead | Unit = | LF | Takeoff | Quan: | 2,300.000 | Engr Quan: | 2,300.000 | | |
| 301000 | Supply Open Cell Flat Sheets | Marine | Quan: 7,751,523.73 LB | Hrs/Shft: 8.00 | WC: NONE | | | | | |
| ***** | Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 | ***** | | | | | | | | |
| 2FSZ | STEEL SHEET PILE | 7,751,523.73 | LB | 0.950 | | 7,363,948 | | | | 7,363,948 |
| 2SSPGALVANIZ | Galvanization of SSP | 7,751,523.73 | LB | 0.350 | | 2,713,033 | | | | 2,713,033 |
| \$10,076,980.85 | | | | [] | | 10,076,981 | | | | 10,076,981 |
| 301015 | Sheeting Template | Marine | Quan: 1.00 LS | Hrs/Shft: 8.00 | WC: NONE | | | | | |
| ***** | Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 | ***** | | | | | | | | |
| 31SHEETEMPLA | Open Cell Template | 1.00 | LS | 85,000.000 | | 85,000 | | | | 85,000 |
| 301020 | Drive Sheeting Bulkhead | Marine | Quan: 2,300.00 LF | Hrs/Shft: 8.00 | WC: NONE | | | | | |

| | | | | | | | | | | |
|---------------|---|----------|-------------|-------------------------|----------|--------|----------|-------|--|---------|
| ***** | Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 | ***** | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | 1,599.54 | CH | Prod: 199,9432 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | | |
| 3WELD | Weld Supplies (1 man-Stick | 159.95 | DA | 70.000 | | 11,197 | | | | 11,197 |
| 8211050 | Fuel, Oil, Grease 50g/d | 159.95 | DA | 200.000 | | | 31,990 | | | 31,990 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 1,599.55 HR | 163.361 | | | 261,304 | | | 261,304 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 1,599.55 HR | 17.500 | | | 27,992 | | | 27,992 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 1,599.55 HR | 3.000 | | | 4,799 | | | 4,799 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 1,599.55 HR | 10.000 | | | 15,996 | | | 15,996 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 1,599.55 HR | 17.500 | | | 27,992 | | | 27,992 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 1,599.55 HR | 20.000 | | | 31,991 | | | 31,991 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 1,599.55 HR | 3.000 | | | 4,799 | | | 4,799 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 1,599.55 HR | 5.000 | | | 7,998 | | | 7,998 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 1,599.55 HR | 10.000 | | | 15,996 | | | 15,996 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 1,599.55 HR | 0.100 | | | 160 | | | 160 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 1,599.55 HR | 3.000 | | | 4,799 | | | 4,799 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 1,599.55 HR | 3.500 | | | 5,598 | | | 5,598 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 1,599.55 HR | 5.000 | | | 7,998 | | | 7,998 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 1,599.55 HR | 6.500 | | | 10,397 | | | 10,397 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 1,599.55 HR | 10.000 | | | 15,996 | | | 15,996 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 1,599.55 HR | 2.500 | | | 3,999 | | | 3,999 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 1,599.55 HR | 45.492 | | | 72,767 | | | 72,767 |
| 9100000 | Subsistance 5 workers | | 159.95 DA | 500.000 | | 79,975 | | | | 79,975 |
| M105 | Foreman - General Marine | 1.00 | 1,599.55 MH | 35.720 | 90,617 | | | | | 90,617 |
| M165 | M-Piledriver | 1.00 | 1,599.55 MH | 34.950 | 101,517 | | | | | 101,517 |
| M170 | M-Welder | 1.00 | 1,599.55 MH | 41.050 | 114,006 | | | | | 114,006 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|-----------------------------------|-----------------|------------------------------|-----------------|------------------|------------------|--------------------|-----------------|------------------|-------------------|
| BID ITEM = 50080 | CLIENT# = 03-12 | | Marine Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Sheet Pile Bulkhead | | Unit = | LF | Takeoff | Quan: | 2,300.000 | Engr Quan: | | 2,300.000 |
| M190 | M-Skilled Laborer | 1.00 | 1,599.55 MH | 35.430 | 102,500 | | | | | 102,500 |
| M195 | M-Laborer | 1.00 | 1,599.55 MH | 35.430 | 102,500 | | | | | 102,500 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 1,599.55 MH | 39.190 | 98,193 | | | | | 98,193 |
| \$1,253,072.85 | 4.1727 MH/LF | | 9,597.30 MH | [154.231] | 609,333 | | 91,172 | 552,568 | | 1,253,073 |
| 301030 | Bulkhead Concrete Pile Cap | | Marine | Quan: | 915.00 LF | Hrs/Shft: | 8.00 | WC: NONE | | |
| STEEL SHEET PILE BULKHEAD 5.0 STEEL PS PILING GR. 50 L.B. 8,789,005 | | | | | | | | | | |
| RETAINING WALLS 6.0 STEEL PIPE PILE 10INCH DIA. L.B. 3,191,244 11,980,248 lbs 7.0 CIP CONCRETE CLASS 4000 - PILE CAP C.Y. 915 | | | | | | | | | | |
| 2CR14 | 5000 PSI Concrete | | 1,006.00 CY | 240.000 | | 241,440 | | | | 241,440 |
| ===== | Item Totals: | 50080 | - Sheet Pile Bulkhead | | | | | | | |
| \$11,656,493.70 | 4.1727 MH/LF | | 9,597.30 MH | [154.231] | 609,333 | 10,318,421 | 176,172 | 552,568 | | 11,656,494 |
| 5,068.041 | 2300 LF | | | | 264.93 | 4,486.27 | 76.60 | 240.25 | | 5,068.04 |

| | | | | | | | | | | |
|---|-------------------------------------|--------------|---------------------------------------|-----------------|------------------------|------------------|-------------|-----------------|--|-------------------|
| BID ITEM = 50081 | CLIENT# = 03-12 | | Land Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Credit Free Issue Sheet Pile | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | | 1.000 |
| 301000 | Supply Open Cell Flat Sheets | | Marine | Quan: | 7,101,861.70 LB | Hrs/Shft: | 8.00 | WC: NONE | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | | |
| 2FSZ | STEEL SHEET PILE | | -7,101,861.70 LB | 0.950 | | -6,746,769 | | | | -6,746,769 |
| 2SSPGALVANIZ | Galvanization of SSP | | -7,101,861.70 LB | 0.350 | | -2,485,652 | | | | -2,485,652 |
| \$-9,232,420.22 | | | | [] | | -9,232,420 | | | | -9,232,420 |
| ===== | Item Totals: | 50081 | - Credit Free Issue Sheet Pile | | | | | | | |
| \$-9,232,420.22 | | | | [] | | -9,232,420 | | | | -9,232,420 |
| -9,232,420.219 | 1 LS | | | | | -9,232,420.21 | | | | -9,232,420.21 |

| | | | | | | | | | | |
|---|-------------------------|--|-------------|-----------------|---------|-------|------------|------------|--|------------|
| BID ITEM = 50090 | CLIENT# = 03-12 | | Marine Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Concrete Superstructure | | Unit = | SF | Takeoff | Quan: | 62,777.000 | Engr Quan: | | 62,777.000 |
| deck and trestle area: 640*60+235*30*3= 59,550 sf | | | | | | | | | | |

| | | | | | | | | | | |
|---------------|---------------------------|--|---------------|--------------|---------------------|------------------|--------------|-----------------|------------------|--|
| 322005 | Final Deck Product | | Marine | Quan: | 62,777.00 SF | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
|---------------|---------------------------|--|---------------|--------------|---------------------|------------------|--------------|-----------------|------------------|--|

Images/Docs Attached
Reference from previous projects as attached; slabs and superstructures with all the fittings and ancillary structures: \$84/sf price in 2010. now escalated at 6% annually for 3 years yields \$101.00/sf

=====

AREA 1
48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in
Wall Thickness = 1.000 in

| | | | | | | |
|---------------|---------------|-------------|--------------|-------------------|---------------------|-------------|
| Tip Elevation | Top Elevation | Length (ft) | Quantity | Total Length (ft) | Unit Weight (lb/ft) | Weight (lb) |
| Weight (Ton) | | | | | | |
| 35,280.00 | 1 35280 | 502.43 | 17,725,730.4 | 8,862.9 | | |

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Cost | Labor | Perm | Constr | Equip | Sub- | Total |
|----------------|-------------------------|-----------------|---------------------------|---------------|---------------|---------------|------------|------------|------------|----------|-------|
| Resource | | Pcs | | | | | | Matl/Exp | Ment | Contract | |
| <hr/> | | | | | | | | | | | |
| BID ITEM | = 50090 | CLIENT# = 03-12 | Marine Item | SCHEDULE: | 1 | 100 | | | | | |
| Description = | Concrete Superstructure | | Unit = | SF | Takeoff Quan: | 62,777.000 | | Engr Quan: | 62,777.000 | | |
| Coating | | | | | | | | | | | |
| Tip Elevation | Top Elevation | Length (ft) | Quantity | Diameter | Coating(SF) | | | | | | |
| 117.6 | 200 48 | 295,561.7 | | | | | | | | | |
| | | | | | | | | | | | |
| Pipe Qty | Piles | Pile Length | Total Length | Concrete Fill | Volume | Concrete (CF) | Rebar (Ft) | | | | |
| A32 32 | 178 | 5,696.00 | 85.00 | 34,180.6 | 45,568 | | | | | | |
| B32 32 | 178 | 5,696.00 | 85.00 | 34,180.6 | 45,568 | | | | | | |
| C32 32 | 173 | 5,536.00 | 85.00 | 34,180.6 | 45,568 | | | | | | |
| D32 32 | 173 | 5,536.00 | 85.00 | 34,180.6 | 45,568 | | | | | | |
| E31A 6 | 198 | 1,188.00 | 85.00 | 6,408.9 | 8,544 | | | | | | |
| F31A 6 | 193 | 1,158.00 | 85.00 | 6,408.9 | 8,544 | | | | | | |
| G31A 6 | 188 | 1,128.00 | 85.00 | 6,408.9 | 8,544 | | | | | | |
| H31A 6 | 183 | 1,098.00 | 85.00 | 6,408.9 | 8,544 | | | | | | |
| I31A 6 | 178 | 1,068.00 | 85.00 | 6,408.9 | 8,544 | | | | | | |
| J31A 6 | 178 | 1,068.00 | 85.00 | 6,408.9 | 8,544 | | | | | | |
| K31A 6 | 173 | 1,038.00 | 50.00 | 3,769.9 | 5,184 | | | | | | |
| L31A 6 | 168 | 1,008.00 | 50.00 | 3,769.9 | 5,184 | | | | | | |
| M31A 6 | 163 | 978.00 | 50.00 | 3,769.9 | 5,184 | | | | | | |
| N31A 6 | 178 | 1,068.00 | 50.00 | 3,769.9 | 5,184 | | | | | | |
| O31A 6 | 173 | 1,038.00 | 50.00 | 3,769.9 | 5,184 | | | | | | |
| P31A 6 | 163 | 978.00 | 50.00 | 3,769.9 | 5,184 | | | | | | |
| 200 | 177.4 | 35,280.00 | 197,795.1 | CF | 264,640 | | | | | | |
| Average | 176.4 | 7,325.7 | CY | | | | | | | | |
| 52SUPERSTRUC | Concrete Superstructure | 62,777.00 | SF | 101.000 | | 6,340,477 | | 6,340,477 | | | |
| <hr/> | | | | | | | | | | | |
| =====> | Item Totals: | 50090 | - Concrete Superstructure | | | | | | | | |
| \$6,340,477.00 | | | | [] | | 6,340,477 | | 6,340,477 | | | |
| 101.000 | | 62777 SF | | | | 101.00 | | 101.00 | | | |
| <hr/> | | | | | | | | | | | |

BID ITEM = **50095** CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Walkways Unit = EA Takeoff Quan: 4.000 Engr Quan: 4.000

331910 Aluminum Walkways Quan: 4.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | |
|--------------|----------------------------|----------|-------|--------------|-----------------|----------|-------|----------|---------|
| 4 walkways: | 125*4= | 1,000 | ft | | | | | | |
| <u>MARPI</u> | Marine Piling & Demo Crew | 50.00 | CH | Prod: | 5.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 2WALKWAYS | Aluminum Walways | 1,000.00 | FT | 800.000 | 800,000 | | | | 800,000 |
| 3WELD | Weld Supplies (1 man-Stick | 5.00 | DA | 70.000 | | 350 | | | 350 |
| 8211050 | Fuel, Oil, Grease 50g/d | 5.00 | DA | 200.000 | | | 1,000 | | 1,000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 50.00 | HR | 163.361 | | 8,168 | | 8,168 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 50.00 | HR | 17.500 | | 875 | | 875 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 50.00 | HR | 3.000 | | 150 | | 150 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 50.00 | HR | 10.000 | | 500 | | 500 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 50.00 | HR | 17.500 | | 875 | | 875 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 50.00 | HR | 20.000 | | 1,000 | | 1,000 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 50.00 | HR | 3.000 | | 150 | | 150 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 50.00 | HR | 5.000 | | 250 | | 250 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 50.00 | HR | 10.000 | | 500 | | 500 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 50.00 | HR | 0.100 | | 5 | | 5 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 50.00 | HR | 3.000 | | 150 | | 150 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 50.00 | HR | 3.500 | | 175 | | 175 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 50.00 | HR | 5.000 | | 250 | | 250 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 50.00 | HR | 6.500 | | 325 | | 325 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 50.00 | HR | 10.000 | | 500 | | 500 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 50.00 | HR | 2.500 | | 125 | | 125 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 50.00 | HR | 45.492 | | 2,275 | | 2,275 |
| 9100000 | Substance 5 workers | 5.00 | DA | 500.000 | | 2,500 | | | 2,500 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|--|--------------------------|-----------------|--------------|--------------|---------------|------------------|--------------------|---------------|------------------|----------------|
| BID ITEM = 50095 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Walkways | | Unit = | EA | Takeoff Quan: | | 4.000 | Engr Quan: | | 4.000 |
| M105 | Foreman - General Marine | 1.00 | 50.00 MH | 35.720 | 3,127 | | | | | 3,127 |
| M165 | M-Piledriver | 1.00 | 50.00 MH | 34.950 | 3,462 | | | | | 3,462 |
| M170 | M-Welder | 1.00 | 50.00 MH | 41.050 | 3,902 | | | | | 3,902 |
| M190 | M-Skilled Laborer | 1.00 | 50.00 MH | 35.430 | 3,496 | | | | | 3,496 |
| M195 | M-Laborer | 1.00 | 50.00 MH | 35.430 | 3,496 | | | | | 3,496 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 50.00 MH | 39.190 | 3,354 | | | | | 3,354 |
| \$840,960.39 | 75.0000 MH/EA | 300.00 MH | [3049.338] | 20,838 | 800,000 | 2,850 | 17,273 | | | 840,960 |
| =====> Item Totals: 50095 - Walkways | | | | | | | | | | |
| \$840,960.39 | 75.0000 MH/EA | 300.00 MH | [3049.338] | 20,838 | 800,000 | 2,850 | 17,273 | | | 840,960 |
| 210,240.098 | 4 EA | | | 5,209.44 | 200,000.00 | 712.50 | 4,318.16 | | | 210,240.10 |

| | | | | | | | | | | |
|-------------------------|-----------------|-------------|-------------|---------------|--|-------|------------|--|-------|--|
| BID ITEM = 50100 | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Abutments | Unit = | LS | Takeoff Quan: | | 3.000 | Engr Quan: | | 3.000 | |

303000 Supply Pipe Piles Marine Quan: 529.20 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

AREA 1
48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in
Wall Thickness = 1.000 in

Tip Elevation Top Elevation Length (ft) Quantity Total Length (ft) Unit Weight (lb/ft) Weight (lb)
Weight (Ton)
-100 7.54 35,280.00 1 35280 502.43 17,725,730.4 8,862.9

Coating
Tip Elevation Top Elevation Length (ft) Quantity Diameter Coating(SF)
-35 7.54 117.6 1 48 295,561.7

Pipe Qty Piles Pile Length Total Length

A32 32 178 5,696.00
B32 32 178 5,696.00
C32 32 173 5,536.00
D32 32 173 5,536.00
E31A 6 198 1,188.00
F31A 6 193 1,158.00
G31A 6 188 1,128.00
H31A 6 183 1,098.00
I31A 6 178 1,068.00
J31A 6 178 1,068.00
K31A 6 173 1,038.00
L31A 6 168 1,008.00
M31A 6 163 978.00
N31A 6 178 1,068.00
O31A 6 173 1,038.00
P31A 6 163 978.00
200 177.4 35,280.00
Average 176.4

2PP48INCH 48 In Diam Pipe Pile 529.20 LF 430.000 227,556 227,556

303010 Pipe Painting & Wrapping Marine Quan: 0.02 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

2PP48COATING Pipe Pile Shop Coating 4,433.43 SF 4.000 17,734 17,734

303022 Set Pipe Template Marine Quan: 0.02 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

31PILETEMPLA Pipe Pile Template 0.02 LS 60,000.000 1,200 1,200

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|---|----------------------------------|-----------------|---------------|-----------------|-----------------|--------------------|-------------------|------------------|------------------|
| <hr/> | | | | | | | | | |
| BID ITEM = 50100 | | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 100 | | | | | |
| Description = Abutments | | | Unit = | LS Takeoff | Qua: | 3.000 | Engr Quan: | | 3.000 |
| 303035 | Piling - Pipe | | Marine | Quan: | 3.00 EA | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP |
| due to tides the efficiency will be assumed at 4 piles per day of 6 hours | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | | 7.50 CH | Prod: | 0.7500 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | | | | | 53 | | | 53 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 0.75 DA | 70.000 | | | 150 | | 150 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 7.50 HR | 163.361 | | | 1,225 | | 1,225 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 7.50 HR | 17.500 | | | 131 | | 131 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 7.50 HR | 3.000 | | | 23 | | 23 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 7.50 HR | 10.000 | | | 75 | | 75 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 7.50 HR | 17.500 | | | 131 | | 131 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 7.50 HR | 20.000 | | | 150 | | 150 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 7.50 HR | 3.000 | | | 23 | | 23 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 7.50 HR | 5.000 | | | 38 | | 38 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 7.50 HR | 10.000 | | | 75 | | 75 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 7.50 HR | 0.100 | | | 1 | | 1 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 7.50 HR | 3.000 | | | 23 | | 23 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 7.50 HR | 3.500 | | | 26 | | 26 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 7.50 HR | 5.000 | | | 38 | | 38 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 7.50 HR | 6.500 | | | 49 | | 49 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 7.50 HR | 10.000 | | | 75 | | 75 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 7.50 HR | 2.500 | | | 19 | | 19 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 7.50 HR | 45.492 | | | 341 | | 341 |
| 9100000 | Subsistance 5 workers | | 0.75 DA | 500.000 | | 375 | | | 375 |
| M105 | Foreman - General Marine | 1.00 | 7.50 MH | 35.720 | 469 | | | | 469 |
| M165 | M-Piledriver | 1.00 | 7.50 MH | 34.950 | 519 | | | | 519 |
| M170 | M-Welder | 1.00 | 7.50 MH | 41.050 | 585 | | | | 585 |
| M190 | M-Skilled Laborer | 1.00 | 7.50 MH | 35.430 | 524 | | | | 524 |
| M195 | M-Laborer | 1.00 | 7.50 MH | 35.430 | 524 | | | | 524 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 7.50 MH | 39.190 | 503 | | | | 503 |
| \$6,144.06 | 15.0000 MH/EA | | 45.00 MH | [609.87] | 3,126 | 428 | 2,591 | | 6,144 |
| 303040 | Piling - Concrete Filling | | Marine | Quan: | 0.02 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP |
| <u>MARWOO</u> | Marine Carpenters Crew | | 7.50 CH | Prod: | 0.7500 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 0.75 DA | 200.000 | | | 150 | | 150 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 7.50 HR | 106.961 | | | 802 | | 802 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 7.50 HR | 3.000 | | | 23 | | 23 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 7.50 HR | 6.500 | | | 49 | | 49 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 7.50 HR | 6.500 | | | 49 | | 49 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 7.50 HR | 10.000 | | | 75 | | 75 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 7.50 HR | 3.000 | | | 23 | | 23 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 7.50 HR | 5.000 | | | 38 | | 38 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 7.50 HR | 0.100 | | | 1 | | 1 |
| 8MFW-A-1 | Work Float | 1.00 | 7.50 HR | 2.000 | | | 15 | | 15 |
| 8MFW-A-2 | Work Float | 1.00 | 7.50 HR | 2.000 | | | 15 | | 15 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 7.50 HR | 2.000 | | | 15 | | 15 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 7.50 HR | 2.000 | | | 15 | | 15 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 7.50 HR | 3.500 | | | 26 | | 26 |
| 8MVP-A-2 | FORD F150 SUPERC 2 | 1.00 | 7.50 HR | 6.500 | | | 49 | | 49 |
| 8WELD400 | Welder 400 AMP | 2.00 | 15.00 HR | 2.044 | | | 31 | | 31 |
| M100 | Foreman - Carpenter | 1.00 | 7.50 MH | 34.720 | 458 | | | | 458 |
| M170 | M-Welder | 1.00 | 7.50 MH | 41.050 | 585 | | | | 585 |
| M173 | M-Lead Carpenter | 1.00 | 7.50 MH | 35.490 | 525 | | | | 525 |
| M175 | M-Carpenter | 3.00 | 22.50 MH | 35.490 | 1,575 | | | | 1,575 |
| M180 | M-Carpenter Helper | 3.00 | 22.50 MH | 35.490 | 1,575 | | | | 1,575 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 7.50 MH | 39.190 | 503 | | | | 503 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|---------------------------------|-----------------|---------------|--------------|---------------------|------------------|--------------------|---------------|------------------|------------------|
| BID ITEM = 50100 CLIENT# = 03-12 Marine Item SCHEDULE: 1 100 | | | | | | | | | | |
| Description = | Abutments | | Unit = | LS | Takeoff | Quan: | 3.000 | Engr | Quan: | 3.000 |
| \$6,596.01 | 3,750.0000 MH/LS | 75.00 | MH | [149898.5] | 5,222 | | | 1,374 | | 6,596 |
| 303042 | Concrete Supply | | Marine | Quan: | 109.88 CY | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| 2CR14 | 5000 PSI Concrete | 1.10 | 120.86 CY | 105.000 | | 12,690 | | | | 12,690 |
| 303043 | Concrete Pumping | | Marine | Quan: | 0.02 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| 30 days x 8 hours= | 240 hours | | | | | | | | | |
| 5CONCP36M | Concrete Concrete Pump 36 | 3.75 | HR | 125.000 | | | 469 | | | 469 |
| 303045 | Piling - Rebar | | Marine | Quan: | 10,612.50 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| 200*16= | 3200 couplers | | | | | | | | | |
| 2RR02 | Gr 60 Rebar | 1.10 | 11,673.75 LB | 0.480 | | 5,603 | | | | 5,603 |
| 2RR10 | Rebar Supports | | 11,673.75 LB | 0.050 | | 584 | | | | 584 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 48.00 EA | 13.000 | | 624 | | | | 624 |
| 5REBAR | Rebar Sub | | 10,612.00 LB | 0.280 | | | 2,971 | | | 2,971 |
| \$9,782.45 | | | | [] | | 6,811 | 2,971 | | | 9,782 |
| 304000 | Pile Splices - Pipe pile | | Marine | Quan: | 3.00 EA | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| 5SPICES | Welding Subcontractor | 4.50 | EA | 650.000 | | | 2,925 | | | 2,925 |
| 322910 | Concrete Cap Dolphins | | | Quan: | 3.00 EA | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| size: 15.5 ft* 13.2 ft* 5 ft= 1,023 cf ==> 38 cy | | | | | | | | | | |
| 4 caps: 38*4= 152 cy | | | | | | | | | | |
| 160 lbs/cy ==> rebar: 152*160= 24,320 lbs | | | | | | | | | | |
| MARPIL | Marine Piling & Demo Crew | 180.00 | CH | Prod: | 18.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | |
| 2CR14 | 5000 PSI Concrete | 1.10 | 125.40 CY | 105.000 | | 13,167 | | | | 13,167 |
| 2RR02 | Gr 60 Rebar | 1.05 | 19,081.13 LB | 0.480 | | 9,159 | | | | 9,159 |
| 3WELD | Weld Supplies (1 man-Stick | | 18.00 DA | 70.000 | | | 1,260 | | | 1,260 |
| 5REBAR | Rebar Sub | | 19,081.00 LB | 0.280 | | | 5,343 | | | 5,343 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 18.00 DA | 200.000 | | | | 3,600 | | 3,600 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 180.00 HR | 163.361 | | | | 29,405 | | 29,405 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 180.00 HR | 17.500 | | | | 3,150 | | 3,150 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 180.00 HR | 3.000 | | | | 540 | | 540 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 180.00 HR | 10.000 | | | | 1,800 | | 1,800 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 180.00 HR | 17.500 | | | | 3,150 | | 3,150 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 180.00 HR | 20.000 | | | | 3,600 | | 3,600 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 180.00 HR | 3.000 | | | | 540 | | 540 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 180.00 HR | 5.000 | | | | 900 | | 900 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 180.00 HR | 10.000 | | | | 1,800 | | 1,800 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 180.00 HR | 0.100 | | | | 18 | | 18 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 180.00 HR | 3.000 | | | | 540 | | 540 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 180.00 HR | 3.500 | | | | 630 | | 630 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 180.00 HR | 5.000 | | | | 900 | | 900 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 180.00 HR | 6.500 | | | | 1,170 | | 1,170 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 180.00 HR | 10.000 | | | | 1,800 | | 1,800 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 180.00 HR | 2.500 | | | | 450 | | 450 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 180.00 HR | 45.492 | | | | 8,189 | | 8,189 |
| 9100000 | Substance 5 workers | | 18.00 DA | 500.000 | | | 9,000 | | | 9,000 |
| M105 | Foreman - General Marine | 1.00 | 180.00 MH | 35.720 | 11,258 | | | | | 11,258 |
| M165 | M-Piledriver | 1.00 | 180.00 MH | 34.950 | 12,462 | | | | | 12,462 |
| M170 | M-Welder | 1.00 | 180.00 MH | 41.050 | 14,049 | | | | | 14,049 |
| M190 | M-Skilled Laborer | 1.00 | 180.00 MH | 35.430 | 12,587 | | | | | 12,587 |
| M195 | M-Laborer | 1.00 | 180.00 MH | 35.430 | 12,587 | | | | | 12,587 |

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Per | Constr | Equip | Sub- | |
|---|--------------------------|-----------------|-------------|---------------|-----------|-----------|----------|-----------|----------------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | ment | Contract |
| | | | | | | | | | Total |
| BID ITEM | = 50100 | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Abutments | | Unit = | LS | Takeoff | Quan: | 3.000 | Engr | Quan: |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 180.00 MH | 39.190 | 12,074 | | | | 12,074 |
| \$175,126.03 | 360.0000 MH/EA | | 1,080.00 MH | [14636.82] | 75,016 | 22,326 | 15,603 | 62,182 | 175,126 |
| =====> Item Totals: 50100 - Abutments | | | | | | | | | |
| \$460,222.32 | 400.0000 MH/LS | | 1,200.00 MH | [16246.013] | 83,364 | 287,117 | 23,595 | 66,146 | 460,222 |
| 153,407.440 | 3 LS | | | | 27,787.99 | 95,705.68 | 7,865.10 | 22,048.67 | 153,407.44 |

| | | | | | | | | |
|----------------------|------------------|------------------------|--------------------|--------------------|----------------------|--------------|-------------------|--------------|
| BID ITEM | = 50120 | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 | 100 | | | |
| Description = | Fendering | | Unit = | LS | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 |

| 620010 | Fendering and bollard System | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP |
|----------------|------------------------------|---------|---------------|---------|-----------|-------|----------|-----------|
| 2BOLLARD | Bollards | 1.00 LS | 22,700.000 | | 22,700 | | | 22,700 |
| 2FENDER | Fender system | 1.00 LS | 1,274,000.000 | | 1,274,000 | | | 1,274,000 |
| \$1,296,700.00 | | | | [] | 1,296,700 | | | 1,296,700 |

| 620020 | Install Fenders and Bollards | Marine | Quan: | 1.00 LS | Hrs/Shift: | 10.00 | Cal: 510 | WC: CCISP | |
|----------------|---------------------------------------|--------|-------|--------------|-----------------|--------------|----------|-----------|------------------|
| <u>MARPIL</u> | Marine Piling & Demo Crew | 50.00 | CH | Prod: | 5.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 5.00 | DA | 70.000 | | 350 | | | 350 |
| 8211050 | Fuel, Oil, Grease 50g/d | 5.00 | DA | 200.000 | | | 1,000 | | 1,000 |
| 8CRANEC200 | Crane Manitowoc 777 20 1.00 | 50.00 | HR | 163.361 | | | 8,168 | | 8,168 |
| 8DRILLR | ***DRILLS - ROCK*** 1.00 | 50.00 | HR | 17.500 | | | 875 | | 875 |
| 8MAC-A-10 | Compressor 185 CFM 1.00 | 50.00 | HR | 3.000 | | | 150 | | 150 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- 1.00 | 50.00 | HR | 10.000 | | | 500 | | 500 |
| 8MBS-Z-14 | Spud Barge M-120x45' 1.00 | 50.00 | HR | 17.500 | | | 875 | | 875 |
| 8MBT-Z-12 | Tug Push Boat 200 HP 1.00 | 50.00 | HR | 20.000 | | | 1,000 | | 1,000 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ 1.00 | 50.00 | HR | 3.000 | | | 150 | | 150 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD 1.00 | 50.00 | HR | 5.000 | | | 250 | | 250 |
| 8MDH-A-7 | DELMAG D19 HAMMER 1.00 | 50.00 | HR | 10.000 | | | 500 | | 500 |
| 8MFD-A-1 | FAIRLEADS 1.00 | 50.00 | HR | 0.100 | | | 5 | | 5 |
| 8MGN-Z-11 | Generator 10 KW 1.00 | 50.00 | HR | 3.000 | | | 150 | | 150 |
| 8MLT-A-1 | Light Tower, Genie 1.00 | 50.00 | HR | 3.500 | | | 175 | | 175 |
| 8MPE-A-11 | Extractor Pile 1.00 | 50.00 | HR | 5.000 | | | 250 | | 250 |
| 8MVP-A-11 | FORD F150 SUPERC 10 1.00 | 50.00 | HR | 6.500 | | | 325 | | 325 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 1.00 | 50.00 | HR | 10.000 | | | 500 | | 500 |
| 8MWM-C-1 | Welder Diesel 400 AMP 1.00 | 50.00 | HR | 2.500 | | | 125 | | 125 |
| 8PILE26 | Vibro Hammer 150 TN 1.00 | 50.00 | HR | 45.492 | | | 2,275 | | 2,275 |
| 9100000 | Subsistance 5 workers | 5.00 | DA | 500.000 | | 2,500 | | | 2,500 |
| M105 | Foreman - General Marine 1.00 | 50.00 | MH | 35.720 | 3,127 | | | | 3,127 |
| M165 | M-Piledriver 1.00 | 50.00 | MH | 34.950 | 3,462 | | | | 3,462 |
| M170 | M-Welder 1.00 | 50.00 | MH | 41.050 | 3,902 | | | | 3,902 |
| M190 | M-Skilled Laborer 1.00 | 50.00 | MH | 35.430 | 3,496 | | | | 3,496 |
| M195 | M-Laborer 1.00 | 50.00 | MH | 35.430 | 3,496 | | | | 3,496 |
| OPCR100 | Op Eng 1A- Crane 100-200 1.00 | 50.00 | MH | 39.190 | 3,354 | | | | 3,354 |
| \$40,960.39 | 300.0000 MH/LS | 300.00 | MH | [12197.35] | 20,838 | 2,850 | 17,273 | | 40,960 |
| ===== | Item Totals: 50120 - Fendering | | | | | | | | |
| \$1,337,660.39 | 300.0000 MH/LS | 300.00 | MH | [12197.35] | 20,838 | 1,296,700 | 2,850 | 17,273 | 1,337,660 |
| 1,337,660.390 | 1 LS | | | | 20,837.74 | 1,296,700.00 | 2,850.00 | 17,272.65 | 1,337,660.39 |

| | | | | | | | |
|-----------------|------------------------|-----------------|-------------|-------------|---------------|--------|-------------------|
| BID ITEM | = 50130 | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 | 100 | | |
| Description = | Mooring Dolphins Piles | | Unit = | EA | Takeoff Quan: | 24.000 | Engr Quan: 24.000 |
| AREA 1 | | | | | | | |

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | |
|----------|------|----------|------|------|-------|----------|----------|------|----------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment | Contract |
| | | | | | | | | | Total |

BID ITEM = 50130 CLIENT# = 03-12 Marine Item SCHEDULE: 1 100
Description = Mooring Dolphins Piles Unit = EA Takeoff Quan: 24.000 Engr Quan: 24.000
48 " O 1 " Thick Steel Pipe Pile
Outside Diameter = 48 in
Wall Thickness = 1.000 in

Tip Elevation Top Elevation Length (ft) Quantity Total Length (ft) Unit Weight (lb/ft) Weight (lb)
Weight (Ton)
-100 7.54 35,280.00 1 35280 502.43 17,725,730.4 8,862.9
Coating
Tip Elevation Top Elevation Length (ft) Quantity Diameter Coating(SF)
-35 7.54 117.6 1 48 295,561.7

Pipe Qty Piles Pile Length Total Length
A32 32 178 5,696.00
B32 32 178 5,696.00
C32 32 173 5,536.00
D32 32 173 5,536.00
E31A 6 198 1,188.00
F31A 6 193 1,158.00
G31A 6 188 1,128.00
H31A 6 183 1,098.00
I31A 6 178 1,068.00
J31A 6 178 1,068.00
K31A 6 173 1,038.00
L31A 6 168 1,008.00
M31A 6 163 978.00
N31A 6 178 1,068.00
O31A 6 173 1,038.00
P31A 6 163 978.00
200 177.4 35,280.00
Average 176.4

303000 Supply Pipe Piles Marine Quan: 4,233.60 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

AREA 1
48 " O 1 " Thick Steel Pipe Pile
Outside Diameter = 48 in
Wall Thickness = 1.000 in

Tip Elevation Top Elevation Length (ft) Quantity Total Length (ft) Unit Weight (lb/ft) Weight (lb)
Weight (Ton)
-100 7.54 35,280.00 1 35280 502.43 17,725,730.4 8,862.9
Coating
Tip Elevation Top Elevation Length (ft) Quantity Diameter Coating(SF)
-35 7.54 117.6 1 48 295,561.7

Pipe Qty Piles Pile Length Total Length
A32 32 178 5,696.00
B32 32 178 5,696.00
C32 32 173 5,536.00
D32 32 173 5,536.00
E31A 6 198 1,188.00
F31A 6 193 1,158.00
G31A 6 188 1,128.00
H31A 6 183 1,098.00
I31A 6 178 1,068.00
J31A 6 178 1,068.00
K31A 6 173 1,038.00
L31A 6 168 1,008.00

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|-------------------------------------|-----------------|---------------|--------------|-----------------|--------------------|--------------------|-----------------|------------------|-----------|
| <hr/> | | | | | | | | | | |
| BID ITEM = 50130 | CLIENT# = 03-12 | | Marine Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Mooring Dolphins Piles | | Unit = | EA | Takeoff Quan: | | 24.000 | Engr Quan: | | 24.000 |
| M31A 6 | 163 | 978.00 | | | | | | | | |
| N31A 6 | 178 | 1,068.00 | | | | | | | | |
| O31A 6 | 173 | 1,038.00 | | | | | | | | |
| P31A 6 | 163 | 978.00 | | | | | | | | |
| 200 | 177.4 | 35,280.00 | | | | | | | | |
| Average | 176.4 | | | | | | | | | |
| 2PP48INCH | 48 In Diam Pipe Pile | 4,233.60 | LF | 430.000 | | 1,820,448 | | | | 1,820,448 |
| 303010 | Pile Painting & Wrapping | | Marine | Quan: | 0.12 LS | Hrs/Shft: | 8.00 | WC: NONE | | |
| 2PP48COATING | Pipe Pile Shop Coating | 35,467.40 | SF | 4.000 | | 141,870 | | | | 141,870 |
| 303022 | Set Pile Template | | Marine | Quan: | 0.12 LS | Hrs/Shft: | 8.00 | WC: NONE | | |
| 31PILETEMPLA | Pipe Pile Template | 0.12 | LS | 60,000.000 | | 7,200 | | | | 7,200 |
| 303035 | Piling - Pipe | | Marine | Quan: | 24.00 EA | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| due to tides the efficiency will be assumed at 4 piles per day of 6 hours | | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | 60.00 | CH | Prod: | 6.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | |
| 3WELD | Weld Supplies (1 man-Stick | 6.00 | DA | 70.000 | | 420 | | | 420 | |
| 8211050 | Fuel, Oil, Grease 50g/d | 6.00 | DA | 200.000 | | | 1,200 | | 1,200 | |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 60.00 | HR | 163.361 | | 9,802 | | 9,802 | |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 60.00 | HR | 17.500 | | 1,050 | | 1,050 | |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 60.00 | HR | 3.000 | | 180 | | 180 | |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 60.00 | HR | 10.000 | | 600 | | 600 | |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 60.00 | HR | 17.500 | | 1,050 | | 1,050 | |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 60.00 | HR | 20.000 | | 1,200 | | 1,200 | |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 60.00 | HR | 3.000 | | 180 | | 180 | |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 60.00 | HR | 5.000 | | 300 | | 300 | |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 60.00 | HR | 10.000 | | 600 | | 600 | |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 60.00 | HR | 0.100 | | 6 | | 6 | |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 60.00 | HR | 3.000 | | 180 | | 180 | |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 60.00 | HR | 3.500 | | 210 | | 210 | |
| 8MPE-A-11 | Extractor Pile | 1.00 | 60.00 | HR | 5.000 | | 300 | | 300 | |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 60.00 | HR | 6.500 | | 390 | | 390 | |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 60.00 | HR | 10.000 | | 600 | | 600 | |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 60.00 | HR | 2.500 | | 150 | | 150 | |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 60.00 | HR | 45.492 | | 2,730 | | 2,730 | |
| 9100000 | Substance 5 workers | 6.00 | DA | 500.000 | | 3,000 | | | 3,000 | |
| M105 | Foreman - General Marine | 1.00 | 60.00 | MH | 35.720 | 3,753 | | | 3,753 | |
| M165 | M-Piledriver | 1.00 | 60.00 | MH | 34.950 | 4,154 | | | 4,154 | |
| M170 | M-Welder | 1.00 | 60.00 | MH | 41.050 | 4,683 | | | 4,683 | |
| M190 | M-Skilled Laborer | 1.00 | 60.00 | MH | 35.430 | 4,196 | | | 4,196 | |
| M195 | M-Laborer | 1.00 | 60.00 | MH | 35.430 | 4,196 | | | 4,196 | |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 60.00 | MH | 39.190 | 4,025 | | | 4,025 | |
| \$49,152.47 | 15.0000 MH/EA | 360.00 | MH | [609.868] | 25,005 | | 3,420 | 20,727 | | 49,152 |
| 303040 | Piling - Concrete Filling | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| <u>MARWOO</u> | Marine Carpenters Crew | 60.00 | CH | Prod: | 6.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 | |
| 8211050 | Fuel, Oil, Grease 50g/d | 6.00 | DA | 200.000 | | | 1,200 | | 1,200 | |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 60.00 | HR | 106.961 | | 6,418 | | 6,418 | |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 60.00 | HR | 3.000 | | 180 | | 180 | |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 60.00 | HR | 6.500 | | 390 | | 390 | |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 60.00 | HR | 6.500 | | 390 | | 390 | |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 60.00 | HR | 10.000 | | 600 | | 600 | |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 60.00 | HR | 3.000 | | 180 | | 180 | |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 60.00 | HR | 5.000 | | 300 | | 300 | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|------------------------------|---------------------------------|-----------------|---------------------------------|-----------------|---------------------|--------------------|--------------------|---------------|------------------|------------------|
| <hr/> | | | | | | | | | | |
| BID ITEM = 50130 | CLIENT# = 03-12 | | | | | | | | | |
| Description = | Mooring Dolphins Piles | | Marine Item Unit = | SCHEDULE: 1 100 | | | | | | |
| | | | | EA | Takeoff | Quan: | 24.000 | Engr Quan: | | 24.000 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 60.00 HR | 0.100 | | | | 6 | | 6 |
| 8MFW-A-1 | Work Float | 1.00 | 60.00 HR | 2.000 | | | | 120 | | 120 |
| 8MFW-A-2 | Work Float | 1.00 | 60.00 HR | 2.000 | | | | 120 | | 120 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 60.00 HR | 2.000 | | | | 120 | | 120 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 60.00 HR | 2.000 | | | | 120 | | 120 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 60.00 HR | 3.500 | | | | 210 | | 210 |
| 8MVP-A-2 | FORD F150 SUPER C 2 | 1.00 | 60.00 HR | 6.500 | | | | 390 | | 390 |
| 8WELD400 | Welder 400 AMP | 2.00 | 120.00 HR | 2.044 | | | | 245 | | 245 |
| M100 | Foreman - Carpenter | 1.00 | 60.00 MH | 34.720 | 3,666 | | | | | 3,666 |
| M170 | M-Welder | 1.00 | 60.00 MH | 41.050 | 4,683 | | | | | 4,683 |
| M173 | M-Lead Carpenter | 1.00 | 60.00 MH | 35.490 | 4,201 | | | | | 4,201 |
| M175 | M-Carpenter | 3.00 | 180.00 MH | 35.490 | 12,602 | | | | | 12,602 |
| M180 | M-Carpenter Helper | 3.00 | 180.00 MH | 35.490 | 12,602 | | | | | 12,602 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 60.00 MH | 39.190 | 4,025 | | | | | 4,025 |
| \$52,767.89 | 600.0000 MH/LS | | 600.00 MH | [23983.74] | 41,779 | | | 10,989 | | 52,768 |
| <hr/> | | | | | | | | | | |
| 303042 | Concrete Supply | | Marine | Quan: | 879.00 CY | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| 2CR14 | 5000 PSI Concrete | 1.10 | 966.90 CY | 105.000 | | 101,525 | | | | 101,525 |
| <hr/> | | | | | | | | | | |
| 303043 | Concrete Pumping | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| 30 days x 8 hours= 240 hours | | | | | | | | | | |
| 5CONCP36M | Concrete Concrete Pump 36 | | 30.00 HR | 125.000 | | | 3,750 | | | 3,750 |
| <hr/> | | | | | | | | | | |
| 303045 | Piling - Rebar | | Marine | Quan: | 84,900.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| 200*16= 3200 couplers | | | | | | | | | | |
| 2RR02 | Gr 60 Rebar | 1.10 | 93,390.00 LB | 0.480 | | 44,827 | | | | 44,827 |
| 2RR10 | Rebar Supports | | 93,390.00 LB | 0.050 | | 4,670 | | | | 4,670 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 384.00 EA | 13.000 | | 4,992 | | | | 4,992 |
| 5REBAR | Rebar Sub | | 84,900.00 LB | 0.280 | | | 23,772 | | | 23,772 |
| \$78,260.70 | | | | [] | | 54,489 | 23,772 | | | 78,261 |
| <hr/> | | | | | | | | | | |
| 304000 | Pile Splices - Pipe pile | | Marine | Quan: | 24.00 EA | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| 5SPICES | Welding Subcontractor | | 36.00 EA | 650.000 | | | 23,400 | | | 23,400 |
| <hr/> | | | | | | | | | | |
| ====> | Item Totals: | 50130 | - Mooring Dolphins Piles | | | | | | | |
| \$2,278,373.16 | 40.0000 MH/EA | | 960.00 MH | [1609.19] | 66,784 | 2,118,331 | 61,542 | 31,716 | | 2,278,373 |
| 94,932.215 | 24 EA | | | | 2,782.68 | 88,263.78 | 2,564.25 | 1,321.51 | | 94,932.22 |
| <hr/> | | | | | | | | | | |

| | | | | | | | | | | |
|-------------------------|--------------------------|--|------------------|-----------------|---------|-------|-------|------------|--|-------|
| BID ITEM = 50135 | CLIENT# = 03-12 | | | | | | | | | |
| Description = | Pile Cap Mooring Dolphin | | Land Item Unit = | SCHEDULE: 1 100 | | | | | | |
| | | | | EA | Takeoff | Quan: | 4.000 | Engr Quan: | | 4.000 |

| | | | | | | | | | |
|---------------|------------------------------|--|--------------|----------------|------------------|--------------|-------------|------------|------------------|
| 322910 | Concrete Cap Dolphins | | Quan: | 4.00 EA | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
|---------------|------------------------------|--|--------------|----------------|------------------|--------------|-------------|------------|------------------|

size: 15.5 ft* 13.2 ft* 5 ft= 1,023 cf ==> 38 cy

4 caps: 38*4= 152 cy

160 lbs/cy ==> rebar: 152*160= 24,320 lbs

| | | | | | | | | | | |
|---------------|----------------------------|------|-----------|----|--------------|------------------|----------|-------|----------|--------|
| <u>MARPIL</u> | Marine Piling & Demo Crew | | 240.00 | CH | Prod: | 24.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 2CR14 | 5000 PSI Concrete | 1.10 | 167.20 | CY | 105.000 | 17,556 | | | | 17,556 |
| 2RR02 | Gr 60 Rebar | 1.05 | 25,441.50 | LB | 0.480 | 12,212 | | | | 12,212 |
| 3WELD | Weld Supplies (1 man-Stick | | 24.00 | DA | 70.000 | | 1,680 | | | 1,680 |
| 5REBAR | Rebar Sub | | 25,441.50 | LB | 0.280 | | 7,124 | | | 7,124 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 24.00 | DA | 200.000 | | | 4,800 | | 4,800 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|----------------------|--------------------------|------------------------|-----------------------------------|------------------|------------------------|------------------|--------------------|---------------|------------------|----------------|
| <hr/> | | | | | | | | | | |
| BID ITEM | = 50135 | CLIENT# = 03-12 | | Land Item | SCHEDULE: 1 100 | | | | | |
| Description = | Pile Cap Mooring Dolphin | | Unit = | EA | Takeoff Quan: | | 4.000 | Engr Quan: | | 4.000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 240.00 HR | 163.361 | | | | 39,207 | | 39,207 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 240.00 HR | 17.500 | | | | 4,200 | | 4,200 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 240.00 HR | 3.000 | | | | 720 | | 720 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 240.00 HR | 10.000 | | | | 2,400 | | 2,400 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 240.00 HR | 17.500 | | | | 4,200 | | 4,200 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 240.00 HR | 20.000 | | | | 4,800 | | 4,800 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 240.00 HR | 3.000 | | | | 720 | | 720 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 240.00 HR | 5.000 | | | | 1,200 | | 1,200 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 240.00 HR | 10.000 | | | | 2,400 | | 2,400 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 240.00 HR | 0.100 | | | | 24 | | 24 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 240.00 HR | 3.000 | | | | 720 | | 720 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 240.00 HR | 3.500 | | | | 840 | | 840 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 240.00 HR | 5.000 | | | | 1,200 | | 1,200 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 240.00 HR | 6.500 | | | | 1,560 | | 1,560 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 240.00 HR | 10.000 | | | | 2,400 | | 2,400 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 240.00 HR | 2.500 | | | | 600 | | 600 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 240.00 HR | 45.492 | | | | 10,918 | | 10,918 |
| 9100000 | Substance 5 workers | | 24.00 DA | 500.000 | | | 12,000 | | | 12,000 |
| M105 | Foreman - General Marine | 1.00 | 240.00 MH | 35.720 | 15,011 | | | | | 15,011 |
| M165 | M-Piledriver | 1.00 | 240.00 MH | 34.950 | 16,616 | | | | | 16,616 |
| M170 | M-Welder | 1.00 | 240.00 MH | 41.050 | 18,731 | | | | | 18,731 |
| M190 | M-Skilled Laborer | 1.00 | 240.00 MH | 35.430 | 16,782 | | | | | 16,782 |
| M195 | M-Laborer | 1.00 | 240.00 MH | 35.430 | 16,782 | | | | | 16,782 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 240.00 MH | 39.190 | 16,098 | | | | | 16,098 |
| \$233,501.43 | 360.0000 MH/EA | 1,440.00 MH | [14636.82] | 100,021 | 29,768 | 20,804 | 82,909 | | | 233,501 |
| <hr/> | | | | | | | | | | |
| =====> | Item Totals: | 50135 | - Pile Cap Mooring Dolphin | | | | | | | |
| \$233,501.43 | 360.0000 MH/EA | 1,440.00 MH | [14636.82] | 100,021 | 29,768 | 20,804 | 82,909 | | | 233,501 |
| 58,375.358 | 4 EA | | | 25,005.29 | 7,441.98 | 5,200.91 | 20,727.18 | | | 58,375.36 |
| <hr/> | | | | | | | | | | |

| | | | | | | | | | | |
|-----------------|------------------|------------------------|--------------------|------------------------|---------------|-------------|------------|-------------|--|--|
| BID ITEM | = 50140 | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Slope Protection | | Unit = | CY | Takeoff Quan: | 174,800.000 | Engr Quan: | 174,800.000 | | |

| | | | | | |
|---------------|--------------------------|----------------------------|------------------------|-----------------|------------------|
| 203900 | Supply Armor Rock | Quan: 157,783.05 CY | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP |
|---------------|--------------------------|----------------------------|------------------------|-----------------|------------------|

Armor stone 2600 lb/cy

2600/2000= 1.3 ton/cy

136,300 cy *1.3 ton/cy= 178,000 tn

| | | | | | |
|--------|-------------|---------------|--------|------------|------------|
| 2ARMOR | Armor Stone | 206,055.63 TN | 60.000 | 12,363,338 | 12,363,338 |
|--------|-------------|---------------|--------|------------|------------|

| | | | | | | |
|---------------|---------------------------------|---------------|----------------------------|------------------------|-----------------|------------------|
| 209900 | Install Slope Protection | Marine | Quan: 174,800.00 CY | Hrs/Shft: 10.00 | Cal: 510 | WC: CCISP |
|---------------|---------------------------------|---------------|----------------------------|------------------------|-----------------|------------------|

| | | | | | | | | |
|----------------|--------------------------|--------------|--------------|-------------------------|-----------|-----------|----------|-----------|
| <u>MARLAN</u> | Demolition Crew on land | 3,567.34 | CH | Prod: 356.7347 S | Lab Pcs: | 19.00 | Eqp Pcs: | 13.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 356.73 | DA | 200.000 | | 71,346 | | 71,346 |
| 8BHL480 | BHL Cat 450E 1.75CY | 8.00 | 28,538.78 HR | 45.473 | | 1,297,744 | | 1,297,744 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 3,567.35 HR | 106.961 | | 381,567 | | 381,567 |
| 8TRKPUI0 | Pickup 4x2 3/4 Ton Gas | 4.00 | 14,269.39 HR | 7.044 | | 100,514 | | 100,514 |
| 9100010 | Substance 10 workers | | 356.73 DA | 1,000.000 | | 356,730 | | 356,730 |
| M105 | Foreman - General Marine | 1.00 | 3,567.35 MH | 35.720 | 223,121 | | | 223,121 |
| M150 | M-Operator, Crane | 1.00 | 3,567.35 MH | 39.190 | 269,797 | | | 269,797 |
| M195 | M-Laborer | 8.00 | 28,538.78 MH | 35.430 | 1,995,613 | | | 1,995,613 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 3,567.35 MH | 39.190 | 239,286 | | | 239,286 |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 28,538.78 MH | 37.430 | 1,852,670 | | | 1,852,670 |
| \$6,788,387.92 | 0.3877 MH/CY | 67,779.61 MH | [15.646] | 4,580,487 | 356,730 | 1,851,171 | | 6,788,388 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|------------------|-----------------|--------------|--------------|---------------|------------------|--------------------|---------------|------------------|-------------------|
| BID ITEM = 50140 | | CLIENT# = 03-12 | Marine Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Slope Protection | | Unit = | CY | Takeoff Quan: | 174,800.000 | | Engr Quan: | 174,800.000 | |
| ====> Item Totals: 50140 - Slope Protection | | | | | | | | | | |
| \$19,151,725.72 | 0.3877 MH/CY | 67,779.61 MH | | [15.646] | 4,580,487 | 12,363,338 | 356,730 | 1,851,171 | | 19,151,726 |
| 109.564 | 174800 CY | | | | 26.20 | 70.73 | 2.04 | 10.59 | | 109.56 |

| | | | | | | | | | | |
|-------------------------|-------------------|-----------------|-----------|-------------|---------------|--|-------|------------|--|-------|
| BID ITEM = 50500 | | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Surface Pavements | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |

23 ASPHALT PAVING Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|--|-------------|---------------|--|---------|--|--|--|------------|--|------------|
| This is the parametric cost from ICRC estimate site prep, earthwork and paving, per SY | | | | | | | | | | |
| 4SUB | Subcontract | 154,881.00 SY | | 154.863 | | | | 23,985,383 | | 23,985,383 |

| | | | | | | | | | | |
|-------------------------|-------------------------|-----------------|-----------|-------------|---------------|--|-------|------------|--|-------|
| BID ITEM = 50510 | | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Traffic Control Parking | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |

5 TRAFFIC CONTROL/ACCESS Quan: 150,041.00 SY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|---|-------------|---------------|--|-------|--|--|--|---------|--|---------|
| This is the parametric cost from ICRC estimate for striping and signage, per SY | | | | | | | | | | |
| 4SUB | Subcontract | 150,041.00 SY | | 2.490 | | | | 373,602 | | 373,602 |

| | | | | | | | | | | |
|-------------------------|-----------------------|-----------------|-----------|-------------|---------------|--|-------|------------|--|-------|
| BID ITEM = 50520 | | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Surface water control | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |

40 DRAINAGE Quan: 154,881.00 SY Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|---|-------------|---------------|--|-------|--|--|--|-----------|--|-----------|
| This is the parametric cost from ICRC estimate for lump sum surface drainage, costed per SY | | | | | | | | | | |
| 4SUB | Subcontract | 154,881.00 SY | | 7.035 | | | | 1,089,588 | | 1,089,588 |

| | | | | | | | | | | |
|-------------------------|-------------------------|-----------------|-----------|-------------|---------------|--|-------|------------|--|-------|
| BID ITEM = 50530 | | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Potable Water Utilities | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |

411 WATER MAINS Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|--|-------------|---------|--|---------------|--|--|--|-----------|--|-----------|
| Potable water as lump sum from ICRC estimate | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 2,525,274.000 | | | | 2,525,274 | | 2,525,274 |

| | | | | | | | | | | |
|-------------------------|----------------------------|-----------------|-----------|-------------|---------------|--|-------|------------|--|-------|
| BID ITEM = 50540 | | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Fire Suppression Utilities | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |

411 WATER MAINS Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|--|-------------|---------|--|---------------|--|--|--|-----------|--|-----------|
| Estimating Fire suppression water as Potable water lump sum from ICRC estimate (assumes the ICRC estimate only had Potable water). | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 2,525,274.000 | | | | 2,525,274 | | 2,525,274 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|---|---|-----------------|----------------|------------------|---------------|--------------------|-------------------|------------------|-----------|
| BID ITEM = 50550 | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Sanitary Sewer Utilities | Unit = | LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 1.000 |
| 412 | SANITARY SEWER | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| San Sewer as lump sum from ICRC estimate | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 359,657.000 | | | 359,657 | | 359,657 |
| BID ITEM = 50560 | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Electrical Power Utilities | Unit = | LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 1.000 |
| 419 | ELEC. UTILITIES | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| Electrical Utilities as lump sum from ICRC estimate | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 9,239,076.000 | | | 9,239,076 | | 9,239,076 |
| BID ITEM = 50580 | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Telecommunications Utilities | Unit = | LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 1.000 |
| 419 | TEL/COM. UTILITIES | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| Telecomm utilities cost taken as lump sum from ICRC estimate | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 3,281,521.000 | | | 3,281,521 | | 3,281,521 |
| BID ITEM = 50590 | CLIENT# = 03-08 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Railroad Spur | Unit = | LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 1.000 |
| 3 | RAIL SPUR | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| Rail and appurtenances taken as lump sum from ICRC estimate | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 6,803,601.000 | | | 6,803,601 | | 6,803,601 |
| BID ITEM = 50600 | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Surface Restoration/Landscaping | Unit = | LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 1.000 |
| 209000 | Restorations | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| No restoration was identified in ICRC estimate. Assuming a nominal amount for landscape and plants. | | | | | | | | | |
| 4SUB | Subcontract | 1.00 LS | | 150,000.000 | | | 150,000 | | 150,000 |
| BID ITEM = 50610 | CLIENT# = 03-19 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Marine Terminal Buildings incl Crane Mai | Unit = | LS | Takeoff | Quan: | 1.000 | Engr | Quan: | 1.000 |
| 89 | Tote Marine and AWWU Meeting Buildings | Quan: | 3.00 EA | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| Parametric cost taken as lump sum from ICRC estimate - used for stevedore facilities | | | | | | | | | |
| 4SUB | Subcontract | 3.00 EA | | 1,452,767.000 | | | 4,358,301 | | 4,358,301 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|---------------------------------|-----------------|--------------|----------------|-------------------|------------------|--------------------|------------------|------------------|--------------------|
| BID ITEM = 50620 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Corrosion Control | | | Unit = LS | Takeoff Quan: | | 1.000 | | Engr Quan: | | 1.000 |
| 859 | CATHODIC PROTECTION | | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | | WC: NONE | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 | LS | 8,565,000.000 | | | | 8,565,000 | | 8,565,000 |
| BID ITEM = 50630 | | CLIENT# = 03-08 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Cherry Hill Road Upgrades | | | Unit = LS | Takeoff Quan: | | 1.000 | | Engr Quan: | | 1.000 |
| 2 | EARTHWORK/BASE/PAVING | | Quan: | 1.00 LS | Hrs/Shift: | 10.00 | Cal: 510 | WC: CCISP | | |
| Road upgrade cost from ICRC estimate | | | | | | | | | | |
| 4SUB | Subcontract | 1.00 | LS | 823,088.000 | | | | 823,088 | | 823,088 |
| BID ITEM = 50640 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Other | | | Unit = LS | Takeoff Quan: | | 1.000 | | Engr Quan: | | 1.000 |
| 89 | MARINE MAMMAL MONITORING | | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | | WC: NONE | | |
| 4SUB | Subcontract | 1.00 | LS | 3,624,482.000 | | | | 3,624,482 | | 3,624,482 |
| 890000 | KABATA WORK | | Quan: | 1.00 LS | Hrs/Shift: | 8.00 | | WC: NONE | | |
| 4SUB | Subcontract | 1.00 | LS | 767,282.000 | | | | 767,282 | | 767,282 |
| =====> Item Totals: 50640 - Other | | | | | | | | | | |
| \$4,391,764.00 | | | | [] | | | | 4,391,764 | | 4,391,764 |
| 4,391,764.000 | | 1 LS | | | | | | 4,391,764.00 | | 4,391,764.00 |
| | | | | | | | | | | |
| \$165,215,048.63 | *** Report Totals *** | 284,639.65 | MH | | 19,389,097 | 35,410,750 | 15,468,400 | 26,475,673 | 68,471,129 | 165,215,049 |

>>> indicates Non Additive Activity

-----Report Notes:-----

The estimate was prepared with TAKEOFF Quantities.

This report shows TAKEOFF Quantities with the resources.

Bid Date: Owner: Engineering Firm:

Estimator-In-Charge:

JOB NOTES

Estimate created on: 03/12/2008 by User#: 0 -

Source used: C:\HEAVYBID\BIN\BLANK\BLANK.zip (a backup) from 04/20/2006 4:40:12 PM

*****Estimate created on: 03/20/2008 by User#: 0 -

Source used: R:\CURRENT DEVELOPMENT\HEAVYBID\INSTALLS\CURRENT INSTALL SOURCE\BACKUPS\BLANK.zip (a backup)
from 03/18/2008 11:43:18 AM

*****Estimate created on: 03/21/2008 by User#: 0 -

Source used: C:\HEAVYBID\BACKUPS\BLANK.zip (a backup) from 03/20/2008 8:40:26 AM

*****Estimate created on: 01/24/2013 by User#: 609 - Bob Wells

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Ment | Contract | Total |
|----------------------|------|-----------------|--------------|--------------|---------------|--------------------|-------------------|--------------|----------|-------|
|----------------------|------|-----------------|--------------|--------------|---------------|--------------------|-------------------|--------------|----------|-------|

| | | | | | | | | | | |
|-------------------------|-----------------|-----------|-------------|---------------|-------|--|------------|--|-------|--|
| BID ITEM = 50640 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = Other | | Unit = | LS | Takeoff Quan: | 1.000 | | Engr Quan: | | 1.000 | |

Source estimate used: Y:\TBG-ENGI\EST\ESTMAST

*****Estimate created on: 02/07/2013 by User#: 609 - Bob Wells
Source estimate used: Y:\TBG-ENGI\EST\13-008

*****Estimate created on: 02/07/2013 by User#: 609 - Bob Wells
Source estimate used: Y:\TBG-ENGI\EST\13-008-1

*****Estimate created on: 02/07/2013 by User#: 609 - Bob Wells
Source estimate used: Y:\TBG-ENGI\EST\13-008-5

*****Estimate created on: 02/25/2013 by User#: 657 - Jorge Abisambra
Source estimate used: Y:\TBG-ENGI\EST\13-008-5H

*****Estimate created on: 02/27/2013 by User#: 609 - Bob Wells
Source estimate used: Y:\TBG-ENGI\EST\13-008-5HA

* on units of MH indicate average labor unit cost was used rather than base rate.

[] in the Unit Cost Column = Labor Unit Cost Without Labor Burdens

In equipment resources, rent % and EOE % not = 100% are represented as XXX%YYY where XXX=Rent% and YYY=EOE%
-----Calendar Codes-----

510 5 days @ 10hrs/day

ESTIMATE RECAP - BID QUANTITIES

| | DIRECT | INDIRECT | TOTAL | % OF TOTAL |
|--------------|----------------|----------|----------------|------------|
| Labor | 1,884,423.05 | | 1,884,423.05 | 1.640% |
| Burden | 1,364,775.04 | | 1,364,775.04 | 1.187% |
| Lab+Bur | 3,249,198.09 | | 3,249,198.09 | 2.827% |
| Perm Matl | 83,075,055.38 | | 83,075,055.38 | 72.282% |
| Const Exp | 363,237.30 | | 363,237.30 | 0.316% |
| Equipment | 2,105,321.66 | | 2,105,321.66 | 1.832% |
| Subs | 35,000.00 | | 35,000.00 | 0.030% |
| Other | 26,103,429.77 | | 26,103,429.77 | 22.712% |
| Total Costs: | 114,931,242.20 | | 114,931,242.20 | 99.999% |
| % of Total | 100.000% | 0.000% | 100.000% | |

| Escalation on: | Labor | Burden | Perm Matl | Const Matl | Co Eqp | Rented Eqp |
|----------------|-----------|----------|-----------|------------|----------|------------------|
| | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % |
| | Eq Op Exp | Sub | Misc1 | Misc2 | Misc3 | Total Escalation |
| | 0 | 0 | 0 | 0 | 0 | 0 |
| | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % | 100.00 % |

* Data Below here is dependent on the Summary Process. *
The Summary Process was last run 02/27/2013 at 11:38 PM

| | | |
|--|-----------------------|--------------|
| Markup on Resource Costs | 34,468,039.66 | 29.9901% |
| MARKUP TOTALS ==> | 34,468,039.66 | 29.9901% |
| <i>Cost Addons</i> | | |
| Escalation to February 2015 3.4700 % of Cost, Mkup, & Prev | 5,273,442.87 | 4.5883% |
| Escalation to Proj Midpoint 6.5100 % of Cost, Mkup, & Prev | 10,236,705.48 | 8.9068% |
| Contingency 20.0000 % of Cost, Mkup, & Prev Addons | 33,496,513.07 | 29.1448% |
| PM, CM, Design 18.0000 % of Cost, Mkup, & Prev Addons | 36,176,234.12 | 31.4764% |
| Owner's Contingency 8.5000 % of Cost, Mkup, & Prev Addon | 20,158,201.57 | 17.5394% |
| Bond from Summary Table | 2,573,135.14 | 2.2388% |
| MARKUP, ADDON & BOND TOTALS ==> | 142,382,271.91 | 123.8847% |
| | ===== | (% of costs) |
| COST + MARKUP -----> | \$257,313,514.11 | |
| | (On Takeoff Quantity) | |

There * ARE NOT * closing accounts for this bid.

| | | |
|----------------------------|-----------|-----------------------------|
| Rounding difference: | -1,229.06 | -Effect on Bid- Adjusted |
| Unbalancing difference: | | |
| From Cut&Add Sheet-costs: | | (on Bid Quantity) |
| From Cut&Add Sheet-markup: | | (on Bid Quantity) |
| Pass Through Adjustments: | | None |

02/27/2013
13-008-5HB
*** Bob Wells

23:39
POA Option 5H- Phases 2 & 3

BID TOTALS

| <u>Biditem</u> | <u>Description</u> | <u>Quantity</u> | <u>Units</u> | <u>Unit Price</u> | <u>Bid Total</u> |
|----------------|----------------------|-----------------|--------------|-------------------|------------------|
| 50040 | Construction Staging | 1.000 | LS | 2,067,823.76 | 2,067,823.76 |

***Subtotal Staging \$2,067,823.76

PHASES II & III

| | | | | | |
|-------|---|-------------|----|--------------|---------------|
| 50150 | Demolition | 1.000 | | 2,992,684.85 | 2,992,684.85 |
| 50160 | Piling Concrete Wharf Area II | 159,348.000 | LF | 1,192.87 | 190,081,448.7 |
| 50190 | Concrete Superstructure | 222,573.000 | SF | 226.12 | 50,328,206.76 |
| 50200 | Abutments | 6.000 | EA | 406,143.69 | 2,436,862.14 |
| 50210 | 100-gage Crain Rail and suptg foundation system | 1,900.000 | LF | 465.01 | 883,519.00 |
| 50220 | Fendering | 1.000 | LS | 8,232,186.36 | 8,232,186.36 |
| 50221 | Mooring Dolphin | 1.000 | EA | 289,553.43 | 289,553.43 |

***Subtotal Marine Work \$255,244,461.30

Bid Total =====> \$257,312,285.06

**Notes:
Items in italics are Non-Additive.

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|----------------------|------|-----------------|--------------|--------------|---------------|--------------------|-------------------|------------------|-------|
|----------------------|------|-----------------|--------------|--------------|---------------|--------------------|-------------------|------------------|-------|

PARENT ITEM = 50040 CLIENT# = 03-12

Description = Construction Staging Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

LFORMN Laborer-Foreman 34.72 MH 8.16 18.73 STD
LPWR Laborer-Power Tools 34.72 MH 8.16 18.73 STD
M100 Foreman - Carpenter 34.72 MH 28 10.93 STD
M105 Foreman - General Marine 35.72 MH 28 10.93 STD
M150 M-Operator, Crane 39.19 MH 28 19 STD
M165 M-Piledriver 34.95 MH 28 18.73 STD
M170 M-Welder 41.05 MH 28 18.73 STD
M173 M-Lead Carpenter 35.49 MH 28 18.73 STD
M175 M-Carpenter 35.49 MH 28 18.73 STD
M180 M-Carpenter Helper 35.49 MH 28 18.73 STD
M190 M-Skilled Laborer 35.43 MH 28 18.73 STD
M195 M-Laborer 35.43 MH 28 18.73 STD
OPCR100 Op Eng 1A- Crane 100-200 39.19 MH 8.16 19 STD
OPEXC3 Op Eng 3- Backhoe to 3Y 37.43 MH 8.16 19 STD

Listing of Sub-Biditems of Parent Item 50040:

PARENT ITEM = 50042 CLIENT# = 03-12

Description = Mobilization and Demobilization Unit = LS Takeoff Quan: 1.000 Engr Quan: 1.000

Listing of Sub-Biditems of Parent Item 50042:

BID ITEM = 50043 CLIENT# = 03-12

Description = Mobilization Unit = LS Takeoff Quan: 1.000 Engr Quan: 0.000

219000 Misc Hauling/Trucking Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A *****

20 loads x 1 = 20 hours

5TRKFB Trucking - Flat Bed 20.00 HR 100.000 2,000 2,000

540000 Temporary Construction Fence Quan: 750.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP

***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A *****

a 6 feet link fence will cost \$9.00/ ft. then can be sold installed at \$15/ft

31CHAINFENCE Temporary Chainlinkfence 750.00 LF 12.000 9,000 9,000

890005 Pile Crew Mobilization Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A *****

***** Copied and adjusted from C:\HEAVYBID\EST\012-008A *****

Crew mobilized for Tacoma, Washington

| | | | | | | | | | |
|---------------|----------------------------|-------|----------|--------------|-----------------|----------|-------|----------|-------|
| MARPIL | Marine Piling & Demo Crew | 20.00 | CH | Prod: | 2.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 2.00 | DA | 70.000 | | 140 | | | 140 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | 200.000 | | | 400 | | 400 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 20.00 HR | 163.361 | | | 3,267 | | 3,267 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 20.00 HR | 17.500 | | | 350 | | 350 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 20.00 HR | 17.500 | | | 350 | | 350 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 20.00 HR | 20.000 | | | 400 | | 400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |

Direct Cost Report

| Activity Resource | Desc | Pcs | Quantity Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|---------------------------|--------------|-----------------------|--------------|-----------------|------------------|--------------------|---------------|------------------|------------------|
| <hr/> | | | | | | | | | | |
| BID ITEM = 50043 | | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Mobilization | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | | 0.000 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 20.00 HR | 0.100 | | | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | | 70 | | 70 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 20.00 HR | 5.000 | | | | 100 | | 100 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 20.00 HR | 10.000 | | | | 200 | | 200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 20.00 HR | 2.500 | | | | 50 | | 50 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 20.00 HR | 45.492 | | | | 910 | | 910 |
| 9100000 | Substance 5 workers | 2.00 | DA | 500.000 | | | 1,000 | | | 1,000 |
| M105 | Foreman - General Marine | 1.00 | 20.00 MH | 35.720 | 1,251 | | | | | 1,251 |
| M165 | M-Piledriver | 1.00 | 20.00 MH | 34.950 | 1,385 | | | | | 1,385 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | | 1,561 |
| M190 | M-Skilled Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | | 1,399 |
| M195 | M-Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | | 1,399 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | | 1,342 |
| \$16,384.16 | 120.0000 MH/LS | | 120.00 MH | [4878.94] | 8,335 | | 1,140 | 6,909 | | 16,384 |
| <hr/> | | | | | | | | | | |
| 890006 | Carpenter Crew Mob | | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A ***** | | | | | | | | | | |
| <u>MARWOO</u> | Marine Carpenters Crew | | 20.00 CH | Prod: | 2.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 | |
| 8211050 | Fuel, Oil, Grease 50g/d | | 2.00 DA | 200.000 | | | | 400 | | 400 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 20.00 HR | 106.961 | | | | 2,139 | | 2,139 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 20.00 HR | 10.000 | | | | 200 | | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | | 100 | | 100 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 20.00 HR | 0.100 | | | | 2 | | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MFW-A-2 | Work Float | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | | 40 | | 40 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | | 70 | | 70 |
| 8MVP-A-2 | FORD F150 SUPERC 2 | 1.00 | 20.00 HR | 6.500 | | | | 130 | | 130 |
| 8WELD400 | Welder 400 AMP | 2.00 | 40.00 HR | 2.044 | | | | 82 | | 82 |
| M100 | Foreman - Carpenter | 1.00 | 20.00 MH | 34.720 | 1,222 | | | | | 1,222 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | | 1,561 |
| M173 | M-Lead Carpenter | 1.00 | 20.00 MH | 35.490 | 1,400 | | | | | 1,400 |
| M175 | M-Carpenter | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | | 4,201 |
| M180 | M-Carpenter Helper | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | | 4,201 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | | 1,342 |
| \$17,589.31 | 200.0000 MH/LS | | 200.00 MH | [7994.58] | 13,926 | | | 3,663 | | 17,589 |
| <hr/> | | | | | | | | | | |
| 960015 | Rigging Supplies | | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: | 510 | WC: CCISP |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A ***** | | | | | | | | | | |
| ***** Copied and adjusted from C:\HEAVYBID\EST\012-008A ***** | | | | | | | | | | |
| 31RIGGING | Rigging Supplies | | 1.00 LS | 35,000.000 | | | | 35,000 | | 35,000 |
| <hr/> | | | | | | | | | | |
| ===== | Item Totals: | 50043 | - Mobilization | | | | | | | |
| \$79,973.47 | 320.0000 MH/LS | | 320.00 MH | [12873.52] | 22,261 | | 47,140 | 10,572 | | 79,973 |
| 79,973.470 | 1 LS | | | | 22,261.43 | | 47,140.00 | 10,572.04 | | 79,973.47 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|--|------------------------------|-----------------|-------------------------|----------------|------------------|------------------|--------------------|------------------|------------------|----------------|
| <hr/> | | | | | | | | | | |
| BID ITEM | = | 50044 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = | Transportation | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 0.000 |
| 219000 | Misc Hauling/Trucking | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A ***** | | | | | | | | | | |
| ***** Copied and adjusted from C:\HEAVYBID\EST\012-008A ***** | | | | | | | | | | |
| Miscellaneous trucking to mobilize equipment to the site and demob. smal cranes and loaders, traileres and containers. | | | | | | | | | | |
| 20 loads x 4 hours = 80 hours | | | | | | | | | | |
| 5TRKFB | Trucking - Flat Bed | 80.00 | HR | 100.000 | | | 8,000 | | | 8,000 |
| 890007 | Marine Tugs | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| rental tugging services to and from Tacoma, Washington State. | | | | | | | | | | |
| Distance Tacoma to Anchorage: 1,472 N Miles | | | | | | | | | | |
| at 4.5 knots, 1,472/4.5= 327 hours ==> 13.62 days say 14 days | | | | | | | | | | |
| 14 days in and 14 days back 2 days on stand by = 30 days | | | | | | | | | | |
| then tug needs to go back and do it all over again for demobilization | | | | | | | | | | |
| so, say 60 days | | | | | | | | | | |
| 5TUGSERVICE | Tug Rental | 60.00 | DA | 6,500.000 | | | 390,000 | | | 390,000 |
| 8211060 | ==> Fuel, Oil, Grease 1400 | 60.00 | DA | 5,810.000 | | | | 348,600 | | 348,600 |
| \$738,600.00 | | | | [] | | | 390,000 | 348,600 | | 738,600 |
| <hr/> | | | | | | | | | | |
| ===== | Item Totals: | 50044 | - Transportation | | | | | | | |
| \$746,600.00 | | | | [] | | | 398,000 | 348,600 | | 746,600 |
| 746,600.000 | | 1 LS | | | | | 398,000.00 | 348,600.00 | | 746,600.00 |
| <hr/> | | | | | | | | | | |

BID ITEM = **50045** CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Demobilization Unit = LS Takeoff Quan: 1.000 Engr Quan: 0.000

| | | | | | | | | | | |
|--|---|--------|--------------|----------------|------------------|--------------|-----------------|------------------|--------|--|
| 115000 | Remove Fence (Chain Link) | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A ***** | | | | | | | | | | |
| Per drawings there are 750 ft of link fencing to limit the construction site | | | | | | | | | | |
| <u>MARLAN</u> | Demolition Crew on land | 10.00 | CH | Prod: | 1.0000 S | Lab Pcs: | 19.00 | Eqp Pcs: | 13.00 | |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.00 | DA | 200.000 | | | 200 | | 200 | |
| 8BHLD480 | BHL Cat 450E 1.75CY | 8.00 | 80.00 | 45.473 | | | 3,638 | | 3,638 | |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 10.00 | 106.961 | | | 1,070 | | 1,070 | |
| 8TRKPU10 | Pickup 4x2 3/4 Ton Gas | 4.00 | 40.00 | 7.044 | | | 282 | | 282 | |
| 9100010 | Substance 10 workerrs | 1.00 | DA | 1,000.000 | | | 1,000 | | 1,000 | |
| M105 | Foreman - General Marine | 1.00 | 10.00 | 35.720 | 625 | | | | 625 | |
| M150 | M-Operator, Crane | 1.00 | 10.00 | 39.190 | 756 | | | | 756 | |
| M195 | M-Laborer | 8.00 | 80.00 | 35.430 | 5,594 | | | | 5,594 | |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 10.00 | 39.190 | 671 | | | | 671 | |
| OPEXC3 | Op Eng 3- Backhoe to 3Y | 8.00 | 80.00 | 37.430 | 5,193 | | | | 5,193 | |
| \$19,029.26 | 190.0000 MH/LS | 190.00 | MH | [7666.78] | 12,840 | | 1,000 | 5,189 | 19,029 | |
| 890010 | Subcontractor Pile Crew Demobilization | | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | 20.00 | CH | Prod: | 2.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | |
| 3WELD | Weld Supplies (1 man-Stick | 2.00 | DA | 70.000 | | | 140 | | 140 | |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | 200.000 | | | 400 | | 400 | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|--|--|-----------------|--------------|----------------|-------------------|--------------------|-------------------|------------------|---------------|
| BID ITEM = 50045 | CLIENT# = 03-12 | | | | | | | | |
| Description = | Demobilization | | Unit = | LS | Takeoff | Quan: | 1.000 | Engr Quan: | 0.000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 20.00 HR | 163.361 | | | 3,267 | | 3,267 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 20.00 HR | 17.500 | | | 350 | | 350 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 20.00 HR | 17.500 | | | 350 | | 350 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 20.00 HR | 20.000 | | | 400 | | 400 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 20.00 HR | 0.100 | | | 2 | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | 70 | | 70 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 20.00 HR | 2.500 | | | 50 | | 50 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 20.00 HR | 45.492 | | | 910 | | 910 |
| 9100000 | Substance 5 workers | | 2.00 DA | 500.000 | | | 1,000 | | 1,000 |
| M105 | Foreman - General Marine | 1.00 | 20.00 MH | 35.720 | 1,251 | | | | 1,251 |
| M165 | M-Piledriver | 1.00 | 20.00 MH | 34.950 | 1,385 | | | | 1,385 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | 1,561 |
| M190 | M-Skilled Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | 1,399 |
| M195 | M-Laborer | 1.00 | 20.00 MH | 35.430 | 1,399 | | | | 1,399 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | 1,342 |
| \$16,384.16 | 120.0000 MH/LS | 120.00 | MH | [4878.94] | 8,335 | | 1,140 | 6,909 | 16,384 |
| 890011 | Subcontractor Carpenter Crew Demob | | Quan: | 1.00 LS | Hrs/Shift: | 10.00 | Cal: 510 | WC: CCISP | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\12-060A ***** | | | | | | | | | |
| <u>MARWOO</u> | Marine Carpenters Crew | | 20.00 CH | Prod: | 2.0000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 2.00 | DA | 200.000 | | | 400 | | 400 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 20.00 HR | 106.961 | | | 2,139 | | 2,139 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 20.00 HR | 10.000 | | | 200 | | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 20.00 HR | 3.000 | | | 60 | | 60 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 20.00 HR | 5.000 | | | 100 | | 100 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 20.00 HR | 0.100 | | | 2 | | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MFW-A-2 | Work Float | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 20.00 HR | 2.000 | | | 40 | | 40 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 20.00 HR | 3.500 | | | 70 | | 70 |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 20.00 HR | 6.500 | | | 130 | | 130 |
| 8WELD400 | Welder 400 AMP | 2.00 | 40.00 HR | 2.044 | | | 82 | | 82 |
| M100 | Foreman - Carpenter | 1.00 | 20.00 MH | 34.720 | 1,222 | | | | 1,222 |
| M170 | M-Welder | 1.00 | 20.00 MH | 41.050 | 1,561 | | | | 1,561 |
| M173 | M-Lead Carpenter | 1.00 | 20.00 MH | 35.490 | 1,400 | | | | 1,400 |
| M175 | M-Carpenter | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | 4,201 |
| M180 | M-Carpenter Helper | 3.00 | 60.00 MH | 35.490 | 4,201 | | | | 4,201 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 20.00 MH | 39.190 | 1,342 | | | | 1,342 |
| \$17,589.31 | 200.0000 MH/LS | 200.00 | MH | [7994.58] | 13,926 | | 3,663 | | 17,589 |
| ===== | Item Totals: 50045 - Demobilization | | | | | | | | |
| \$53,002.73 | 510.0000 MH/LS | 510.00 | MH | [20540.3] | 35,101 | | 2,140 | 15,761 | 53,003 |
| 53,002.730 | 1 LS | | | | 35,101.48 | | 2,140.00 | 15,761.25 | 53,002.73 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|------------------------------------|----------------|--|--------------|---------------|---------------|--------------------|-------------------|------------------|-------|
| BID ITEM = 50045 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | |
| Description = Demobilization | | | Unit = LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 0.000 |
| Total of Above Sub-Biditems | | | | | | | | | |
| =====> Item Totals: | 50042 | - Mobilization and Demobilization | | | | | | | |
| \$879,576.20 | 830.0000 MH/LS | 830.00 MH | [33413.82] | 57,363 | 447,280 | 374,933 | 879,576 | | |
| 879,576.200 | 1 LS | | | 57,362.91 | 447,280.00 | 374,933.29 | 879,576.20 | | |

| | | | | | | | | | |
|--|-----------------|-----------|---------------|---------|------------|-------|--|--|--|
| BID ITEM = 50046 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Environmental Protection & Turbidity Bar | | Unit = FT | Takeoff Quan: | 664.000 | Engr Quan: | 0.000 | | | |
| call on the plans D-101 | | | | | | | | | |

430000 Silt Fence - Install **Quan: 1,000.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | |
|-------------|------------------------|---------------|--------------------------|---------------|----------------|
| LAB3 | Foreman + 2 Laborers | 10.00 CH | Prod: 100.0000 UH | Lab Pcs: 3.00 | Eqp Pcs: 1.00 |
| 31ECSF | Silt Fence | 1,000.00 LF | 1.000 | 1,000 | 1,000 |
| 8TRKPU70 | Leased 4x2, 3/4 Ton Ga | 1.00 10.00 HR | 8.476 | 85 | 85 |
| LFORMN | Laborer-Foreman | 1.00 10.00 MH | 34.720 | 613 | 613 |
| LPWR | Laborer-Power Tools | 2.00 20.00 MH | 34.720 | 1,226 | 1,226 |
| \$2,924.45 | 0.0300 MH/LF | 30.00 MH | [1.146] | 1,840 | 1,000 85 2,924 |

432000 Turbidity Barrier **Quan: 1,000.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP**

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| | | | | | |
|--------------|----------------------------|---------------|-----------------------|---------------|---------------------|
| MARPL | Marine Piling & Demo Crew | 10.00 CH | Prod: 1.0000 S | Lab Pcs: 6.00 | Eqp Pcs: 17.00 |
| 3TRUBIDITYBA | Turbidity Barrier | 1,000.00 LF | 14.000 | 14,000 | 14,000 |
| 3WELD | Weld Supplies (1 man-Stick | 1.00 DA | 70.000 | 70 | 70 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.00 DA | 200.000 | 200 | 200 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 10.00 HR | 163.361 | 1,634 | 1,634 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 10.00 HR | 17.500 | 175 | 175 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 10.00 HR | 3.000 | 30 | 30 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 10.00 HR | 10.000 | 100 | 100 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 10.00 HR | 17.500 | 175 | 175 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 10.00 HR | 20.000 | 200 | 200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 10.00 HR | 3.000 | 30 | 30 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 10.00 HR | 5.000 | 50 | 50 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 10.00 HR | 10.000 | 100 | 100 |
| 8MFD-A-1 | FAIRLEADS | 1.00 10.00 HR | 0.100 | 1 | 1 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 10.00 HR | 3.000 | 30 | 30 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 10.00 HR | 3.500 | 35 | 35 |
| 8MPE-A-11 | Extractor Pile | 1.00 10.00 HR | 5.000 | 50 | 50 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 10.00 HR | 6.500 | 65 | 65 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 10.00 HR | 10.000 | 100 | 100 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 10.00 HR | 2.500 | 25 | 25 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 10.00 HR | 45.492 | 455 | 455 |
| 9100000 | Substance 5 workers | 1.00 DA | 500.000 | 500 | 500 |
| M105 | Foreman - General Marine | 1.00 10.00 MH | 35.720 | 625 | 625 |
| M165 | M-Piledriver | 1.00 10.00 MH | 34.950 | 692 | 692 |
| M170 | M-Welder | 1.00 10.00 MH | 41.050 | 780 | 780 |
| M190 | M-Skilled Laborer | 1.00 10.00 MH | 35.430 | 699 | 699 |
| M195 | M-Laborer | 1.00 10.00 MH | 35.430 | 699 | 699 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 10.00 MH | 39.190 | 671 | 671 |
| \$22,192.08 | 0.0600 MH/LF | 60.00 MH | [2.439] | 4,168 | 14,570 3,455 22,192 |

Direct Cost Report

| Activity | Desc | Quantity | Unit | Unit | Perm | Constr | Equip | Sub- | Total |
|----------|------|----------|------|------|-------|----------|----------|------|----------|
| Resource | | Pcs | | Cost | Labor | Material | Matl/Exp | Ment | Contract |

| | | | | | | | | | |
|-----------------|---|--|-----------------|-----------|-------------|---------------|---------|------------|-------|
| BID ITEM | = | 50046 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | |
| Description = | | Environmental Protection & Turbidity Bar | | Unit = | FT | Takeoff Quan: | 664.000 | Engr Quan: | 0.000 |

| | | | | | | | | | |
|---------------|------------------------------------|--------------|------------------|------------------|--------------|-------------|------------|------------|--------------|
| 432005 | Erosion Control - Hay Bales | Quan: | 400.00 EA | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
|---------------|------------------------------------|--------------|------------------|------------------|--------------|-------------|------------|------------|--------------|

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A bale size of 14"x18"x22" will weigh about 37 to 43 lbs. This is a safer bale weight for many people to handle

it means the length is 22"/12= 1.83 ft

if there are 600 ft =====> qty of bales are: 600/1.83=327 say 400 bales

| | | | | | | | | | | |
|-------------|------------------------|--------|--------|------------|--------------|------------------|----------|------|----------|--------|
| LAB4 | Foreman + 3 Laborers | | 66.66 | CH | Prod: | 6.0000 UH | Lab Pcs: | 4.00 | Eqp Pcs: | 1.00 |
| 31ECHB | Hay Bales | 400.00 | EA | 5.000 | | | 2,000 | | | 2,000 |
| 8TRKPU70 | Leased 4x2, 3/4 Ton Ga | 1.00 | 66.67 | HR | 8.476 | | | 565 | | 565 |
| LFORMN | Laborer-Foreman | 1.00 | 66.67 | MH | 34.720 | 4,088 | | | | 4,088 |
| LPWR | Laborer-Power Tools | 3.00 | 200.00 | MH | 34.720 | 12,265 | | | | 12,265 |
| \$18,918.10 | 0.6666 MH/EA | 266.67 | MH | [25.462] | 16,353 | | 2,000 | 565 | | 18,918 |

| | | | | | | | | | | |
|-------------|---------------------|--------------|----|---|--------|--|--------|-------|--|---------------|
| =====> | Item Totals: | 50046 | - | Environmental Protection & Turbidity Bar | | | | | | |
| \$44,034.63 | 0.5371 MH/FT | 356.67 | MH | [20.738] | 22,360 | | 17,570 | 4,104 | | 44,035 |
| 66.317 | 664 FT | | | | 33.68 | | 26.46 | 6.18 | | 66.32 |

Total of Above Sub-Biditems

| | | | | | | | | | | |
|---------------------|-------------------------|-----------------|-----------|-----------------------------|------------------|--|-------------------|-------------------|--|-------------------|
| =====> | Item Totals: | 50040 | - | Construction Staging | | | | | | |
| \$923,610.83 | 1,186.6700 MH/LS | 1,186.67 | MH | [47183.71] | 79,723 | | 464,850 | 379,038 | | 923,611 |
| 923,610.830 | 1 LS | | | | 79,723.18 | | 464,850.00 | 379,037.65 | | 923,610.83 |

| | | | | | | | | | |
|-----------------|---|--------------|-----------------|-----------|-------------|---------------|-------|------------|-------|
| BID ITEM | = | 50150 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | |
| Description = | | Demolition | | Unit = | | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 |

| | | | | | | | | | |
|---------------|--|--------------|----------------------|------------------|--------------|-------------|------------|------------|--------------|
| 133014 | Demo Pier 1500 Piles & Deck | Quan: | 175,600.00 SF | Hrs/Shft: | 10.00 | Cal: | 510 | WC: | CCISP |
|---------------|--|--------------|----------------------|------------------|--------------|-------------|------------|------------|--------------|

REmove 15 piles per day
then 100 days duration

| | | | | | | | | | | |
|------------|----------------------------|--------|----------|---------|--------------|-------------------|----------|---------|----------|---------|
| MARPIL | Marine Piling & Demo Crew | | 1,000.00 | CH | Prod: | 100.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 100.00 | DA | 70.000 | | | 7,000 | | | 7,000 |
| 8211050 | Fuel, Oil, Grease 50g/d | 100.00 | DA | 200.000 | | | | 20,000 | | 20,000 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 1,000.00 | HR | 163.361 | | | 163,361 | | 163,361 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 1,000.00 | HR | 17.500 | | | 17,500 | | 17,500 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 1,000.00 | HR | 3.000 | | | 3,000 | | 3,000 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 1,000.00 | HR | 10.000 | | | 10,000 | | 10,000 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 1,000.00 | HR | 17.500 | | | 17,500 | | 17,500 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 1,000.00 | HR | 20.000 | | | 20,000 | | 20,000 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 1,000.00 | HR | 3.000 | | | 3,000 | | 3,000 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 1,000.00 | HR | 5.000 | | | 5,000 | | 5,000 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 1,000.00 | HR | 10.000 | | | 10,000 | | 10,000 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 1,000.00 | HR | 0.100 | | | 100 | | 100 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 1,000.00 | HR | 3.000 | | | 3,000 | | 3,000 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 1,000.00 | HR | 3.500 | | | 3,500 | | 3,500 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 1,000.00 | HR | 5.000 | | | 5,000 | | 5,000 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 1,000.00 | HR | 6.500 | | | 6,500 | | 6,500 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 1,000.00 | HR | 10.000 | | | 10,000 | | 10,000 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 1,000.00 | HR | 2.500 | | | 2,500 | | 2,500 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 1,000.00 | HR | 45.492 | | | 45,492 | | 45,492 |
| 9100000 | Subsistance 5 workers | 100.00 | DA | 500.000 | | | 50,000 | | | 50,000 |

| Pipe | Qty | Piles | Pile | Length | Total | Length |
|---------|-------|-----------|----------|--------|-------|--------|
| A32 | 32 | 178 | 5,696.00 | | | |
| B32 | 32 | 178 | 5,696.00 | | | |
| C32 | 32 | 173 | 5,536.00 | | | |
| D32 | 32 | 173 | 5,536.00 | | | |
| E31A | 6 | 198 | 1,188.00 | | | |
| F31A | 6 | 193 | 1,158.00 | | | |
| G31A | 6 | 188 | 1,128.00 | | | |
| H31A | 6 | 183 | 1,098.00 | | | |
| I31A | 6 | 178 | 1,068.00 | | | |
| J31A | 6 | 178 | 1,068.00 | | | |
| K31A | 6 | 173 | 1,038.00 | | | |
| L31A | 6 | 168 | 1,008.00 | | | |
| M31A | 6 | 163 | 978.00 | | | |
| N31A | 6 | 178 | 1,068.00 | | | |
| O31A | 6 | 173 | 1,038.00 | | | |
| P31A | 6 | 163 | 978.00 | | | |
| 200 | 177.4 | 35,280.00 | | | | |
| Average | | 176.4 | | | | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Ment | Contract | Total |
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|--------------|----------|-------|
|----------------------|------|-----------------|------|--------------|---------------|--------------------|-------------------|--------------|----------|-------|

BID ITEM = 50160 CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Piling Concrete Wharf Area II Unit = LF Takeoff Quan: 159,348.000 Engr Quan: 159,348.000

303000 Supply Pipe Piles Marine Quan: 159,348.00 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

AREA 1
48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in
Wall Thickness = 1.000 in

Tip Elevation Top Elevation Length (ft) Quantity Total Length (ft) Unit Weight (lb/ft) Weight (lb)
Weight (Ton)

-100 7.54 35,280.00 1 35280 502.43 17,725,730.4 8,862.9

Coating

Tip Elevation Top Elevation Length (ft) Quantity Diameter Coating(SF)

-35 7.54 117.6 1 48 295,561.7

Pipe Qty Piles Pile Length Total Length

A32 32 178 5,696.00
B32 32 178 5,696.00
C32 32 173 5,536.00
D32 32 173 5,536.00
E31A 6 198 1,188.00
F31A 6 193 1,158.00
G31A 6 188 1,128.00
H31A 6 183 1,098.00
I31A 6 178 1,068.00
J31A 6 178 1,068.00
K31A 6 173 1,038.00
L31A 6 168 1,008.00
M31A 6 163 978.00
N31A 6 178 1,068.00
O31A 6 173 1,038.00
P31A 6 163 978.00
200 177.4 35,280.00
Average 176.4

2PP48INCH 48 In Diam Pipe Pile 159,348.00 LF 430.000 68,519,640 68,519,640

303010 Pile Painting & Wrapping Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

2PP48COATING Pipe Pile Shop Coating 1,334,953.68 SF 4.000 5,339,815 5,339,815

303022 Set Pile Template Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

31PILETEMPLA Pipe Pile Template 4.52 LS 60,000.000 271,200 271,200

303035 Piling - Pipe Marine Quan: 903.33 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP

due to tides the efficiency will be assumed at 4 piles per day of 6 hours

| MARPIL | Marine Piling & Demo Crew | 2,258.33 CH | Prod: 225.8333 S | Lab Pcs: 6.00 | Eqp Pcs: 17.00 |
|------------|----------------------------|------------------|------------------|---------------|----------------|
| 3WELD | Weld Supplies (1 man-Stick | 225.83 DA | 70.000 | 15,808 | 15,808 |
| 8211050 | Fuel, Oil, Grease 50g/d | 225.83 DA | 200.000 | 45,166 | 45,166 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 2,258.33 HR | 163.361 | 368,923 | 368,923 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 2,258.33 HR | 17.500 | 39,521 | 39,521 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 2,258.33 HR | 3.000 | 6,775 | 6,775 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 2,258.33 HR | 10.000 | 22,583 | 22,583 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 2,258.33 HR | 17.500 | 39,521 | 39,521 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 2,258.33 HR | 20.000 | 45,167 | 45,167 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 2,258.33 HR | 3.000 | 6,775 | 6,775 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 2,258.33 HR | 5.000 | 11,292 | 11,292 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 2,258.33 HR | 10.000 | 22,583 | 22,583 |
| 8MFD-A-1 | FAIRLEADS | 1.00 2,258.33 HR | 0.100 | 226 | 226 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Ment | Contract | Total |
|------------------------------|----------------------------------|------------------------|-----------------|------------------|------------------------|--------------------|-------------------|-----------------|------------------|-------------|
| <hr/> | | | | | | | | | | |
| BID ITEM | = 50160 | CLIENT# = 03-12 | | Land Item | SCHEDULE: 1 100 | | | | | |
| Description = | Piling Concrete Wharf Area II | | Unit = | LF | Takeoff | Quan: | 159,348.000 | Engr | Quan: | 159,348.000 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 2,258.33 HR | 3.000 | | | | 6,775 | | 6,775 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 2,258.33 HR | 3.500 | | | | 7,904 | | 7,904 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 2,258.33 HR | 5.000 | | | | 11,292 | | 11,292 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 2,258.33 HR | 6.500 | | | | 14,679 | | 14,679 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 2,258.33 HR | 10.000 | | | | 22,583 | | 22,583 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 2,258.33 HR | 2.500 | | | | 5,646 | | 5,646 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 2,258.33 HR | 45.492 | | | | 102,736 | | 102,736 |
| 9100000 | Substance 5 workers | 225.83 | DA | 500.000 | | | 112,915 | | | 112,915 |
| M105 | Foreman - General Marine | 1.00 | 2,258.33 MH | 35.720 | 141,248 | | | | | 141,248 |
| M165 | M-Piledriver | 1.00 | 2,258.33 MH | 34.950 | 156,350 | | | | | 156,350 |
| M170 | M-Welder | 1.00 | 2,258.33 MH | 41.050 | 176,256 | | | | | 176,256 |
| M190 | M-Skilled Laborer | 1.00 | 2,258.33 MH | 35.430 | 157,917 | | | | | 157,917 |
| M195 | M-Laborer | 1.00 | 2,258.33 MH | 35.430 | 157,917 | | | | | 157,917 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,258.33 MH | 39.190 | 151,481 | | | | | 151,481 |
| \$1,850,039.24 | 15.0000 MH/EA | 13,549.98 | MH | [609.869] | 941,170 | | 128,723 | 780,146 | | 1,850,039 |
| <hr/> | | | | | | | | | | |
| 303040 | Piling - Concrete Filling | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| <u>MARWOO</u> | Marine Carpenters Crew | | 2,258.33 CH | Prod: | 225.8333 S | | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 225.83 | DA | 200.000 | | | | 45,166 | | 45,166 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 2,258.33 HR | 106.961 | | | | 241,553 | | 241,553 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 2,258.33 HR | 3.000 | | | | 6,775 | | 6,775 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 2,258.33 HR | 6.500 | | | | 14,679 | | 14,679 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 2,258.33 HR | 6.500 | | | | 14,679 | | 14,679 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 2,258.33 HR | 10.000 | | | | 22,583 | | 22,583 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 2,258.33 HR | 3.000 | | | | 6,775 | | 6,775 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 2,258.33 HR | 5.000 | | | | 11,292 | | 11,292 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 2,258.33 HR | 0.100 | | | | 226 | | 226 |
| 8MFW-A-1 | Work Float | 1.00 | 2,258.33 HR | 2.000 | | | | 4,517 | | 4,517 |
| 8MFW-A-2 | Work Float | 1.00 | 2,258.33 HR | 2.000 | | | | 4,517 | | 4,517 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 2,258.33 HR | 2.000 | | | | 4,517 | | 4,517 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 2,258.33 HR | 2.000 | | | | 4,517 | | 4,517 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 2,258.33 HR | 3.500 | | | | 7,904 | | 7,904 |
| 8MVP-A-2 | FORD F150 SUPERC 2 | 1.00 | 2,258.33 HR | 6.500 | | | | 14,679 | | 14,679 |
| 8WELD400 | Welder 400 AMP | 2.00 | 4,516.67 HR | 2.044 | | | | 9,232 | | 9,232 |
| M100 | Foreman - Carpenter | 1.00 | 2,258.33 MH | 34.720 | 137,985 | | | | | 137,985 |
| M170 | M-Welder | 1.00 | 2,258.33 MH | 41.050 | 176,256 | | | | | 176,256 |
| M173 | M-Lead Carpenter | 1.00 | 2,258.33 MH | 35.490 | 158,113 | | | | | 158,113 |
| M175 | M-Carpenter | 3.00 | 6,775.00 MH | 35.490 | 474,338 | | | | | 474,338 |
| M180 | M-Carpenter Helper | 3.00 | 6,775.00 MH | 35.490 | 474,338 | | | | | 474,338 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 2,258.33 MH | 39.190 | 151,481 | | | | | 151,481 |
| \$1,986,122.33 | 22,583.3200 MH/LS | 22,583.32 | MH | [902720.78] | 1,572,512 | | 413,610 | | | 1,986,122 |
| <hr/> | | | | | | | | | | |
| 303042 | Concrete Supply | | Marine | Quan: | 25,691.00 CY | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| 2CR14 | 5000 PSI Concrete | 1.10 | 28,260.10 CY | 105.000 | | 2,967,311 | | | | 2,967,311 |
| <hr/> | | | | | | | | | | |
| 303043 | Concrete Pumping | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| 30 days x 8 hours= 240 hours | | | | | | | | | | |
| 5CONCP36M | Concrete Concrete Pump 36 | 1,129.17 | HR | 125.000 | | | 141,146 | | | 141,146 |
| <hr/> | | | | | | | | | | |
| 303045 | Piling - Rebar | | Marine | Quan: | 3,195,541.66 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| 200*16= 3200 couplers | | | | | | | | | | |
| 2RR02 | Gr 60 Rebar | 1.10 | 3,515,095.83 LB | 0.480 | | 1,687,246 | | | | 1,687,246 |
| 2RR10 | Rebar Supports | | 3,515,095.83 LB | 0.050 | | 175,755 | | | | 175,755 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 14,453.33 EA | 13.000 | | 187,893 | | | | 187,893 |
| 5REBAR | Rebar Sub | | 3,195,541.66 LB | 0.280 | | | 894,752 | | | 894,752 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|---|-----------------|--------------|------------------|-------------------|------------------|--------------------|---------------|-------------------|--------------|
| <hr/> | | | | | | | | | | |
| BID ITEM = 50160 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = | Piling Concrete Wharf Area II | Unit = | LF | Takeoff | Quan: | 159,348.000 | Engr | Quan: | 159,348.000 | |
| \$2,945,645.74 | | | [] | 2,050,894 | 894,752 | | | | 2,945,646 | |
| <hr/> | | | | | | | | | | |
| 304000 | Pile Splices - Pipe pile | Marine | Quan: | 903.33 EA | Hrs/Shift: | 10.00 | Cal: | 510 | WC: | CCISP |
| 5SPLICES | Welding Subcontractor | 1,355.00 EA | | 650.000 | | | 880,750 | | | 880,750 |
| <hr/> | | | | | | | | | | |
| =====> | Item Totals: 50160 - Piling Concrete Wharf Area II | | | | | | | | | |
| \$84,901,668.78 | 0.2267 MH/LF | 36,133.30 MH | [9.122] | 2,513,682 | 78,877,659 | 2,316,571 | 1,193,756 | | 84,901,669 | |
| 532.807 | 159348 LF | | | 15.77 | 495.00 | 14.54 | 7.49 | | 532.81 | |
| <hr/> | | | | | | | | | | |

BID ITEM = 50190 CLIENT# = 03-12 Land Item SCHEDULE: 1 100
Description = Concrete Superstructure Unit = SF Takeoff Quan: 222,573.000 Engr Quan: 222,573.000
deck and trestle area: 640*60+235*30*3= 59,550 sf

322005 Final Deck Product Marine Quan: 222,573.00 SF Hrs/Shift: 10.00 Cal: 510 WC: CCISP

Images/Docs Attached

Reference from previous projects as attached; slabs and superstructures with all the fittings and ancillary structures: \$84/sf price in 2010. now escalated at 6% annually for 3 years yields \$101.00/sf

=====

AREA 2
48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in
Wall Thickness = 1.000 in

Tip Elevation Top Elevation Length (ft) Quantity Total Length (ft) Unit Weight (lb/ft) Weight (lb)
Weight (Ton)
159,348.00 1 159,348.00 502.43 80,061,215.6 40,030.6
Coating
Tip Elevation Top Elevation Length (ft) Quantity Diameter Coating(SF)
130.19 816 48 1,334,953.8

Pipe Qty Piles Pile Length Total Length Concrete Fill Volume Concrete (CF) Rebar (Ft)
A1 41 203 8,323.00 85.00 43,793.9 58,384
A42 95 223 21,185.00 85.00 101,473.7 135,280
B1 41 198 8,118.00 85.00 43,793.9 58,384
B42 48 213 10,224.00 85.00 51,270.9 68,352
C1 41 198 8,118.00 85.00 43,793.9 58,384
C42 48 203 9,744.00 85.00 51,270.9 68,352
D1 41 193 7,913.00 85.00 43,793.9 58,384
D42 48 198 9,504.00 85.00 51,270.9 68,352
E6A 12 208 2,496.00 85.00 12,817.7 17,088
E42 48 193 9,264.00 85.00 51,270.9 68,352
F6A 12 203 2,436.00 85.00 12,817.7 17,088
F42 48 193 9,264.00 85.00 51,270.9 68,352
G6A 8 198 1,584.00 85.00 8,545.2 11,392
G42 95 203 19,285.00 85.00 101,473.7 135,280
H6A 8 193 1,544.00 85.00 8,545.2 11,392
H43A 8 198 1,584.00 85.00 8,545.2 11,392
I6A 8 188 1,504.00 85.00 8,545.2 11,392
I43 8 193 1,544.00 85.00 8,545.2 11,392
J6A 8 183 1,464.00 85.00 8,545.2 11,392
J43A 4 188 752.00 85.00 4,272.6 5,696
K6A 8 178 1,424.00 85.00 8,545.2 11,392

Direct Cost Report

| Activity | Resource | Desc | Pcs | Quantity | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub-Contract | Total |
|--|-------------------------|-------|-----------------|----------|------------|-----------|------------|---------------|-----------------|------------|--------------|-------------|
| <hr/> | | | | | | | | | | | | |
| BID ITEM | = | 50190 | CLIENT# = 03-12 | | Land Item | SCHEDULE: | 1 | 100 | | | | |
| Description = | Concrete Superstructure | | | | Unit = | SF | Takeoff | Quan: | 222,573.000 | Engr | Quan: | 222,573.000 |
| K43A | 4 | 183 | 732.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| L6A | 8 | 173 | 1,384.00 | 85.00 | 8,545.2 | 11,392 | | | | | | |
| L43A | 4 | 178 | 712.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| M6A | 8 | 168 | 1,344.00 | 85.00 | 8,545.2 | 11,392 | | | | | | |
| M43A | 4 | 173 | 692.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| N6A | 8 | 163 | 1,304.00 | 85.00 | 8,545.2 | 11,392 | | | | | | |
| N43A | 4 | 168 | 672.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| O6A | 8 | 158.0 | 1,264.00 | 85.00 | 8,545.2 | 11,392 | | | | | | |
| O43A | 4 | 163 | 652.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| P6A | 8 | 168 | 1,344.00 | 85.00 | 8,545.2 | 11,392 | | | | | | |
| P43A | 4 | 158 | 632.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| Q6A | 8 | 163 | 1,304.00 | 85.00 | 8,545.2 | 11,392 | | | | | | |
| Q43A | 4 | 173 | 692.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| R6A | 8 | 158 | 1,264.00 | 85.00 | 8,545.2 | 11,392 | | | | | | |
| R43A | 4 | 168 | 672.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| S6A | 8 | 153 | 1,224.00 | 85.00 | 8,545.2 | 11,392 | | | | | | |
| S43A | 4 | 163 | 652.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| T6A | 8 | 148 | 1,184.00 | 85.00 | 8,545.2 | 11,392 | | | | | | |
| T43A | 4 | 158 | 632.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| U14A | 6 | 143 | 858.00 | 85.00 | 6,408.9 | 8,544 | | | | | | |
| U43A | 4 | 153 | 612.00 | 85.00 | 4,272.6 | 5,696 | | | | | | |
| V14A | 6 | 138 | 828.00 | 85.00 | 6,408.9 | 8,544 | | | | | | |
| | | | | | V43A | 2 | 148 | 296.00 | 85.00 | 2,136.3 | 2,848 | |
| | | | | | W14A | 6 | 138 | 828.00 | 85.00 | 6,408.9 | 8,544 | |
| | | | | | W43A | 2 | 148 | 296.00 | 85.00 | 2,136.3 | 2,848 | |
| | | | | | | 816 | 177.2 | 159,348.00 | | 871,605.5 | | cf |
| 1,161,984 | | | | | Average | 195.3 | | | | | | |
| 52SUPERSTRUC Concrete Superstructure | | | | | 222,573.00 | SF | 101.000 | 32,281.7 | | 22,479,873 | cy | 22,479,873 |
| ===== Item Totals: 50190 - Concrete Superstructure | | | | | | | | | | | | |
| \$22,479,873.00 | | | | | | [] | 22,479,873 | | 22,479,873 | | | |
| 101.000 | | | | | 222573 | SF | | 101.00 | | 101.00 | | |

| | | | | | | | | | | |
|-------------------------|-----------------|-----------|-------------|-------|-------|------|-------|-------|--|--|
| BID ITEM = 50200 | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | | |
| Description = Abutments | Unit = | EA | Takeoff | Quan: | 6.000 | Engr | Quan: | 6.000 | | |

303000 Supply Pipe Piles Marine Quan: 1,058.40 FT Hrs/Shft: 10.00 Cal: 510 WC: CCISP

AREA 1
48 " O 1 " Thick Steel Pipe Pile

Outside Diameter = 48 in
Wall Thickness = 1.000 in

Tip Elevation Top Elevation Length (ft) Quantity Total Length (ft) Unit Weight (lb/ft) Weight (lb)
Weight (Ton)
-100 7.54 35,280.00 1 35280 502.43 17,725,730.4 8,862.9

Coating

Tip Elevation Top Elevation Length (ft) Quantity Diameter Coating(SF)
-35 7.54 117.6 1 48 295,561.7

Pipe Qty Piles Pile Length Total Length
A32 32 178 5,696.00
B32 32 178 5,696.00
C32 32 173 5,536.00
D32 32 173 5,536.00
E31A 6 198 1,188.00

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|-------------------------------------|-----------------|---------------|--------------|-----------------|------------------|--------------------|-----------------|------------------|---------|
| <hr/> | | | | | | | | | | |
| BID ITEM = 50200 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = | Abutments | | Unit = | EA | Takeoff Quan: | | 6.000 | Engr Quan: | | 6.000 |
| F31A 6 | 193 | 1,158.00 | | | | | | | | |
| G31A 6 | 188 | 1,128.00 | | | | | | | | |
| H31A 6 | 183 | 1,098.00 | | | | | | | | |
| I31A 6 | 178 | 1,068.00 | | | | | | | | |
| J31A 6 | 178 | 1,068.00 | | | | | | | | |
| K31A 6 | 173 | 1,038.00 | | | | | | | | |
| L31A 6 | 168 | 1,008.00 | | | | | | | | |
| M31A 6 | 163 | 978.00 | | | | | | | | |
| N31A 6 | 178 | 1,068.00 | | | | | | | | |
| O31A 6 | 173 | 1,038.00 | | | | | | | | |
| P31A 6 | 163 | 978.00 | | | | | | | | |
| 200 | 177.4 | 35,280.00 | | | | | | | | |
| Average | 176.4 | | | | | | | | | |
| 2PP48INCH | 48 In Diam Pipe Pile | 1,058.40 | LF | 430.000 | | 455,112 | | | | 455,112 |
| 303010 | Pile Painting & Wrapping | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| 2PP48COATING | Pipe Pile Shop Coating | 8,866.86 | SF | 4.000 | | 35,467 | | | | 35,467 |
| 303022 | Set Pile Template | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| 31PILETEMPLA | Pipe Pile Template | 0.04 | LS | 60,000.000 | | | 2,400 | | | 2,400 |
| 303035 | Piling - Pipe | | Marine | Quan: | 6.00 EA | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| due to tides the efficiency will be assumed at 4 piles per day of 6 hours | | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | | 15.00 CH | Prod: | 1.5000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | |
| 3WELD | Weld Supplies (1 man-Stick | 1.50 | DA | 70.000 | | 105 | | | | 105 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.50 | DA | 200.000 | | | 300 | | | 300 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 15.00 HR | 163.361 | | | 2,450 | | | 2,450 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 15.00 HR | 17.500 | | | 263 | | | 263 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 15.00 HR | 3.000 | | | 45 | | | 45 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 15.00 HR | 10.000 | | | 150 | | | 150 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 15.00 HR | 17.500 | | | 263 | | | 263 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 15.00 HR | 20.000 | | | 300 | | | 300 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 15.00 HR | 3.000 | | | 45 | | | 45 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 15.00 HR | 5.000 | | | 75 | | | 75 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 15.00 HR | 10.000 | | | 150 | | | 150 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 15.00 HR | 0.100 | | | 2 | | | 2 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 15.00 HR | 3.000 | | | 45 | | | 45 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 15.00 HR | 3.500 | | | 53 | | | 53 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 15.00 HR | 5.000 | | | 75 | | | 75 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 15.00 HR | 6.500 | | | 98 | | | 98 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 15.00 HR | 10.000 | | | 150 | | | 150 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 15.00 HR | 2.500 | | | 38 | | | 38 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 15.00 HR | 45.492 | | | 682 | | | 682 |
| 9100000 | Subsistance 5 workers | 1.50 | DA | 500.000 | | 750 | | | | 750 |
| M105 | Foreman - General Marine | 1.00 | 15.00 MH | 35.720 | 938 | | | | | 938 |
| M165 | M-Piledriver | 1.00 | 15.00 MH | 34.950 | 1,039 | | | | | 1,039 |
| M170 | M-Welder | 1.00 | 15.00 MH | 41.050 | 1,171 | | | | | 1,171 |
| M190 | M-Skilled Laborer | 1.00 | 15.00 MH | 35.430 | 1,049 | | | | | 1,049 |
| M195 | M-Laborer | 1.00 | 15.00 MH | 35.430 | 1,049 | | | | | 1,049 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 15.00 MH | 39.190 | 1,006 | | | | | 1,006 |
| \$12,288.13 | 15.0000 MH/EA | 90.00 | MH | [609.872] | 6,251 | 855 | 5,182 | | | 12,288 |
| 303040 | Piling - Concrete Filling | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| <u>MARWOO</u> | Marine Carpenters Crew | | 15.00 CH | Prod: | 1.5000 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 | |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.50 | DA | 200.000 | | | 300 | | | 300 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 15.00 HR | 106.961 | | | 1,604 | | | 1,604 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|--|----------------------------|-----------------|---------------|--------------|------------------|--------------------|-------------------|------------------|---------|
| BID ITEM = 50200 | | | | | | | | | |
| CLIENT# = 03-12 | | | | | | | | | |
| Land Item SCHEDULE: 1 100 | | | | | | | | | |
| Description = | Abutments | | Unit = | EA | Takeoff | Quan: | 6.000 | Engr Quan: | 6.000 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 15.00 HR | 3.000 | | | | 45 | 45 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 15.00 HR | 6.500 | | | | 98 | 98 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 15.00 HR | 6.500 | | | | 98 | 98 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 15.00 HR | 10.000 | | | | 150 | 150 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 15.00 HR | 3.000 | | | | 45 | 45 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 15.00 HR | 5.000 | | | | 75 | 75 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 15.00 HR | 0.100 | | | | 2 | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 15.00 HR | 2.000 | | | | 30 | 30 |
| 8MFW-A-2 | Work Float | 1.00 | 15.00 HR | 2.000 | | | | 30 | 30 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 15.00 HR | 2.000 | | | | 30 | 30 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 15.00 HR | 2.000 | | | | 30 | 30 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 15.00 HR | 3.500 | | | | 53 | 53 |
| 8MVP-A-2 | FORD F150 SUPERC 2 | 1.00 | 15.00 HR | 6.500 | | | | 98 | 98 |
| 8WELD400 | Welder 400 AMP | 2.00 | 30.00 HR | 2.044 | | | | 61 | 61 |
| M100 | Foreman - Carpenter | 1.00 | 15.00 MH | 34.720 | 917 | | | | 917 |
| M170 | M-Welder | 1.00 | 15.00 MH | 41.050 | 1,171 | | | | 1,171 |
| M173 | M-Lead Carpenter | 1.00 | 15.00 MH | 35.490 | 1,050 | | | | 1,050 |
| M175 | M-Carpenter | 3.00 | 45.00 MH | 35.490 | 3,151 | | | | 3,151 |
| M180 | M-Carpenter Helper | 3.00 | 45.00 MH | 35.490 | 3,151 | | | | 3,151 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 15.00 MH | 39.190 | 1,006 | | | | 1,006 |
| \$13,191.99 | 150.0000 MH/LS | 150.00 | MH | [5995.96] | 10,445 | | | 2,747 | 13,192 |
| 303042 Concrete Supply Marine Quan: 219.76 CY Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | |
| 2CR14 | 5000 PSI Concrete | 1.10 | 241.72 CY | 105.000 | | 25,381 | | | 25,381 |
| 303043 Concrete Pumping Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | |
| 30 days x 8 hours= 240 hours | | | | | | | | | |
| 5CONCP36M | Concrete Concrete Pump 36 | | 7.50 HR | 125.000 | | | 938 | | 938 |
| 303045 Piling - Rebar Marine Quan: 21,225.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | |
| 200*16= 3200 couplers | | | | | | | | | |
| 2RR02 | Gr 60 Rebar | 1.10 | 23,347.50 LB | 0.480 | | 11,207 | | | 11,207 |
| 2RR10 | Rebar Supports | | 23,347.50 LB | 0.050 | | 1,167 | | | 1,167 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 96.00 EA | 13.000 | | 1,248 | | | 1,248 |
| 5REBAR | Rebar Sub | | 21,225.00 LB | 0.280 | | | 5,943 | | 5,943 |
| \$19,565.18 | | | | [] | | 13,622 | 5,943 | | 19,565 |
| 304000 Pile Splices - Pipe pile Marine Quan: 6.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | |
| 5SPLICES | Welding Subcontractor | | 9.00 EA | 650.000 | | | 5,850 | | 5,850 |
| 322910 Concrete Cap Dolphins Quan: 6.00 EA Hrs/Shft: 10.00 Cal: 510 WC: CCISP | | | | | | | | | |
| size: 15.5 ft* 13.2 ft* 5 ft= 1,023 cf ==> 38 cy | | | | | | | | | |
| 4 caps: 38*4= 152 cy | | | | | | | | | |
| 160 lbs/cy ==> rebar: 152*160= 24,320 lbs | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | | 360.00 CH | Prod: | 36.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 2CR14 | 5000 PSI Concrete | 1.10 | 250.80 CY | 105.000 | | 26,334 | | | 26,334 |
| 2RR02 | Gr 60 Rebar | 1.05 | 38,162.26 LB | 0.480 | | 18,318 | | | 18,318 |
| 3WELD | Weld Supplies (1 man-Stick | | 36.00 DA | 70.000 | | | 2,520 | | 2,520 |
| 5REBAR | Rebar Sub | | 638,162.00 LB | 0.280 | | | 178,685 | | 178,685 |
| 8211050 | Fuel, Oil, Grease 50g/d | | 36.00 DA | 200.000 | | | | 7,200 | 7,200 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 360.00 HR | 163.361 | | | | 58,810 | 58,810 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 360.00 HR | 17.500 | | | | 6,300 | 6,300 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 360.00 HR | 3.000 | | | | 1,080 | 1,080 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|--------------------------|-----------------|------------------|-----------------|-----------|------------------|--------------------|---------------|------------------|------------------|
| BID ITEM = 50200 | CLIENT# = 03-12 | | | | | | | | | |
| Description = | Abutments | | Land Item Unit = | SCHEDULE: 1 100 | EA | Takeoff Quan: | 6.000 | Engr Quan: | | 6.000 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 360.00 HR | 10.000 | | | | 3,600 | | 3,600 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 360.00 HR | 17.500 | | | | 6,300 | | 6,300 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 360.00 HR | 20.000 | | | | 7,200 | | 7,200 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 360.00 HR | 3.000 | | | | 1,080 | | 1,080 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 360.00 HR | 5.000 | | | | 1,800 | | 1,800 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 360.00 HR | 10.000 | | | | 3,600 | | 3,600 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 360.00 HR | 0.100 | | | | 36 | | 36 |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 360.00 HR | 3.000 | | | | 1,080 | | 1,080 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 360.00 HR | 3.500 | | | | 1,260 | | 1,260 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 360.00 HR | 5.000 | | | | 1,800 | | 1,800 |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | 360.00 HR | 6.500 | | | | 2,340 | | 2,340 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 360.00 HR | 10.000 | | | | 3,600 | | 3,600 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 360.00 HR | 2.500 | | | | 900 | | 900 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 360.00 HR | 45.492 | | | | 16,377 | | 16,377 |
| 9100000 | Substance 5 workers | 36.00 | DA | 500.000 | | | 18,000 | | | 18,000 |
| M105 | Foreman - General Marine | 1.00 | 360.00 MH | 35.720 | 22,516 | | | | | 22,516 |
| M165 | M-Piledriver | 1.00 | 360.00 MH | 34.950 | 24,924 | | | | | 24,924 |
| M170 | M-Welder | 1.00 | 360.00 MH | 41.050 | 28,097 | | | | | 28,097 |
| M190 | M-Skilled Laborer | 1.00 | 360.00 MH | 35.430 | 25,173 | | | | | 25,173 |
| M195 | M-Laborer | 1.00 | 360.00 MH | 35.430 | 25,173 | | | | | 25,173 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 360.00 MH | 39.190 | 24,148 | | | | | 24,148 |
| \$518,252.06 | 360.0000 MH/EA | 2,160.00 | MH | [14636.82] | 150,032 | 44,652 | 199,205 | 124,363 | | 518,252 |
| =====> Item Totals: 50200 - Abutments | | | | | | | | | | |
| \$1,088,444.90 | 400.0000 MH/EA | 2,400.00 | MH | [16246.018] | 166,728 | 574,234 | 215,191 | 132,292 | | 1,088,445 |
| 181,407.483 | 6 EA | | | | 27,787.98 | 95,705.68 | 35,865.14 | 22,048.68 | | 181,407.48 |

| | | | | | | | | | | |
|-------------------------|--|--|------------------|-----------------|----|---------------|-----------|------------|-----------|--|
| BID ITEM = 50210 | CLIENT# = 03-20 | | | | | | | | | |
| Description = | 100-gage Crain Rail and suptg foundation | | Land Item Unit = | SCHEDULE: 1 100 | LF | Takeoff Quan: | 1,900.000 | Engr Quan: | 1,900.000 | |
| Images/Docs Attached | | | | | | | | | | |

387000 Steel Railing grantry cranes Quan: 1,900.00 LF Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|--|-------------------------|----------|----|---------|--|--|---------|--|--|---------|
| 4 Complementary | | | | | | | | | | |
| 4.1 Crane Rail Installation 340 ML \$572.00 \$194,480.00 | | | | | | | | | | |
| cost per linear feet: \$572/m*/3.28ft/m= \$174\ft | | | | | | | | | | |
| escalation for 3 years at 6%= \$207.7/ft | | | | | | | | | | |
| 52CRANERAIL | Crane Rail Installation | 1,900.00 | FT | 207.700 | | | 394,630 | | | 394,630 |

| | | | | | | | | | | |
|--|---------|--|--|-----|--|--|---------|--|--|----------------|
| =====> Item Totals: 50210 - 100-gage Crain Rail and suptg foundation | | | | | | | | | | |
| \$394,630.00 | | | | [] | | | 394,630 | | | 394,630 |
| 207.700 | 1900 LF | | | | | | 207.70 | | | 207.70 |

| | | | | | | | | | | |
|-------------------------|------------------------|--|------------------|-----------------|----|---------------|-------|------------|-------|--|
| BID ITEM = 50220 | CLIENT# = 03-12 | | | | | | | | | |
| Description = | Fendering | | Land Item Unit = | SCHEDULE: 1 100 | LS | Takeoff Quan: | 1.000 | Engr Quan: | 1.000 | |
| Images/Docs Attached | | | | | | | | | | |

620010 Fendering and bollard System Marine Quan: 1.00 LS Hrs/Shft: 10.00 Cal: 510 WC: CCISP

| | | | | | | | | | | |
|----------------------|---------------|------|----|---------------|--|-----------|--|--|--|-----------|
| Images/Docs Attached | | | | | | | | | | |
| 2BOLLARD | Bollards | 1.00 | LS | 68,079.000 | | 68,079 | | | | 68,079 |
| 2FENDER | Fender system | 1.00 | LS | 3,486,015.000 | | 3,486,015 | | | | 3,486,015 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|-------------------------|-------------------------------------|-----------------|---------------|-----------------|------------------|------------------|--------------------|-----------------|------------------|------------------|
| <hr/> | | | | | | | | | | |
| BID ITEM = 50220 | | CLIENT# = 03-12 | Land Item | SCHEDULE: 1 100 | | | | | | |
| Description = Fendering | | | Unit = | LS | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| \$3,554,094.00 | | | | [] | 3,554,094 | | | | | 3,554,094 |
| 620020 | Install Fenders and Bollards | | Marine | Quan: | 1.00 LS | Hrs/Shft: | 10.00 | Cal: 510 | WC: CCISP | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | 150.00 | CH | Prod: | 15.0000 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 | |
| 3WELD | Weld Supplies (1 man-Stick | 15.00 | DA | 70.000 | | 1,050 | | | 1,050 | |
| 8211050 | Fuel, Oil, Grease 50g/d | 15.00 | DA | 200.000 | | | | 3,000 | 3,000 | |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | HR | 163.361 | | | | 24,504 | 24,504 | |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | HR | 17.500 | | | | 2,625 | 2,625 | |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | HR | 3.000 | | | | 450 | 450 | |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | HR | 10.000 | | | | 1,500 | 1,500 | |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | HR | 17.500 | | | | 2,625 | 2,625 | |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | HR | 20.000 | | | | 3,000 | 3,000 | |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | HR | 3.000 | | | | 450 | 450 | |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | HR | 5.000 | | | | 750 | 750 | |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | HR | 10.000 | | | | 1,500 | 1,500 | |
| 8MFD-A-1 | FAIRLEADS | 1.00 | HR | 0.100 | | | | 15 | 15 | |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | HR | 3.000 | | | | 450 | 450 | |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | HR | 3.500 | | | | 525 | 525 | |
| 8MPE-A-11 | Extractor Pile | 1.00 | HR | 5.000 | | | | 750 | 750 | |
| 8MVP-A-11 | FORD F150 SUPERC 10 | 1.00 | HR | 6.500 | | | | 975 | 975 | |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | HR | 10.000 | | | | 1,500 | 1,500 | |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | HR | 2.500 | | | | 375 | 375 | |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | HR | 45.492 | | | | 6,824 | 6,824 | |
| 9100000 | Subsistance 5 workers | 15.00 | DA | 500.000 | | 7,500 | | | 7,500 | |
| M105 | Foreman - General Marine | 1.00 | MH | 35.720 | 9,382 | | | | 9,382 | |
| M165 | M-Piledriver | 1.00 | MH | 34.950 | 10,385 | | | | 10,385 | |
| M170 | M-Welder | 1.00 | MH | 41.050 | 11,707 | | | | 11,707 | |
| M190 | M-Skilled Laborer | 1.00 | MH | 35.430 | 10,489 | | | | 10,489 | |
| M195 | M-Laborer | 1.00 | MH | 35.430 | 10,489 | | | | 10,489 | |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | MH | 39.190 | 10,062 | | | | 10,062 | |
| \$122,881.18 | 900.0000 MH/LS | 900.00 | MH | [36592.05] | 62,513 | 8,550 | 51,818 | | 122,881 | |
| <hr/> | | | | | | | | | | |
| =====> Item Totals: | 50220 - Fendering | | | | | | | | | |
| \$3,676,975.18 | 900.0000 MH/LS | 900.00 | MH | [36592.05] | 62,513 | 3,554,094 | 8,550 | 51,818 | | 3,676,975 |
| 3,676,975.180 | 1 LS | | | | 62,513.23 | 3,554,094.00 | 8,550.00 | 51,817.95 | | 3,676,975.18 |

| | | | | | | | | | | |
|---|-------------------------------------|----------|---------------|-----------------|-----------------|------------------|-------------|-----------------|--------|-------|
| BID ITEM = 50221 | | | Land Item | SCHEDULE: 1 100 | | | | | | |
| Description = Mooring Dolphin | | | Unit = | EA | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| 303000 | Supply Pipe Piles | | Marine | Quan: | 44.00 FT | Hrs/Shft: | 8.00 | WC: NONE | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | | |
| 2PP48INCH | 48 In Diam Pipe Pile | 44.00 | LF | 430.000 | | 18,920 | | | 18,920 | |
| 303010 | Pile Painting & Wrapping | | Marine | Quan: | 0.03 LS | Hrs/Shft: | 8.00 | WC: NONE | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | | |
| 2PP48COATING | Pipe Pile Shop Coating | 8,866.85 | SF | 4.000 | | 35,467 | | | 35,467 | |
| 303022 | Set Pile Template | | Marine | Quan: | 0.03 LS | Hrs/Shft: | 8.00 | WC: NONE | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | | |
| 31PILETEMPLA | Pipe Pile Template | 0.03 | LS | 60,000.000 | | | 1,800 | | 1,800 | |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Perm Labor | Constr Material | Equip Matl/Exp | Sub- Contract | Total |
|---|----------------------------------|-----------------|---------------------|-------------------|----------------------|--------------------|-------------------|------------------|-------|
| BID ITEM = 50221 | | | | | | | | | |
| Description = | Mooring Dolphin | | Land Item Unit = | SCHEDULE: 1 EA | 100 Takeoff Quan: | | 1.000 | Engr Quan: | 1.000 |
| 303035 | Piling - Pipe | | Marine | Quan: | 0.25 EA | Hrs/Shft: | 8.00 | WC: NONE | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | |
| <u>MARPIL</u> | Marine Piling & Demo Crew | | 0.62 CH | Prod: | 0.0781 S | Lab Pcs: | 6.00 | Eqp Pcs: | 17.00 |
| 3WELD | Weld Supplies (1 man-Stick | 0.06 DA | | 70.000 | | 4 | | | 4 |
| 8211050 | Fuel, Oil, Grease 50g/d | 0.06 DA | | 200.000 | | | 12 | | 12 |
| 8CRANEC200 | Crane Manitowoc 777 20 | 1.00 | 0.63 HR | 163.361 | | | 103 | | 103 |
| 8DRILLR | ***DRILLS - ROCK*** | 1.00 | 0.63 HR | 17.500 | | | 11 | | 11 |
| 8MAC-A-10 | Compressor 185 CFM | 1.00 | 0.63 HR | 3.000 | | | 2 | | 2 |
| 8MBM-Z-2 | M.Barge2110 GRT OB-80- | 1.00 | 0.63 HR | 10.000 | | | 6 | | 6 |
| 8MBS-Z-14 | Spud Barge M-120x45' | 1.00 | 0.63 HR | 17.500 | | | 11 | | 11 |
| 8MBT-Z-12 | Tug Push Boat 200 HP | 1.00 | 0.63 HR | 20.000 | | | 13 | | 13 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 0.63 HR | 3.000 | | | 2 | | 2 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 0.63 HR | 5.000 | | | 3 | | 3 |
| 8MDH-A-7 | DELMAG D19 HAMMER | 1.00 | 0.63 HR | 10.000 | | | 6 | | 6 |
| 8MFD-A-1 | FAIRLEADS | 1.00 | 0.63 HR | 0.100 | | | | | |
| 8MGN-Z-11 | Generator 10 KW | 1.00 | 0.63 HR | 3.000 | | | 2 | | 2 |
| 8MLT-A-1 | Light Tower, Genie | 1.00 | 0.63 HR | 3.500 | | | 2 | | 2 |
| 8MPE-A-11 | Extractor Pile | 1.00 | 0.63 HR | 5.000 | | | 3 | | 3 |
| 8MVP-A-11 | FORD F150 SUPER 10 | 1.00 | 0.63 HR | 6.500 | | | 4 | | 4 |
| 8MWH-A-1 | WINCH 3-DRUM RB-90 | 1.00 | 0.63 HR | 10.000 | | | 6 | | 6 |
| 8MWM-C-1 | Welder Diesel 400 AMP | 1.00 | 0.63 HR | 2.500 | | | 2 | | 2 |
| 8PILE26 | Vibro Hammer 150 TN | 1.00 | 0.63 HR | 45.492 | | | 29 | | 29 |
| 9100000 | Subsistance 5 workers | 0.06 DA | | 500.000 | | 30 | | | 30 |
| M105 | Foreman - General Marine | 1.00 | 0.63 MH | 35.720 | 36 | | | | 36 |
| M165 | M-Piledriver | 1.00 | 0.63 MH | 34.950 | 40 | | | | 40 |
| M170 | M-Welder | 1.00 | 0.63 MH | 41.050 | 45 | | | | 45 |
| M190 | M-Skilled Laborer | 1.00 | 0.63 MH | 35.430 | 40 | | | | 40 |
| M195 | M-Laborer | 1.00 | 0.63 MH | 35.430 | 40 | | | | 40 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 0.63 MH | 39.190 | 39 | | | | 39 |
| \$491.16 | 15.1200 MH/EA | 3.78 MH | | [558.84] | 240 | | 34 | 217 | 491 |
| 303040 | Piling - Concrete Filling | | Marine | Quan: | 0.25 LS | Hrs/Shft: | 8.00 | WC: NONE | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | |
| <u>MARWOQ</u> | Marine Carpenters Crew | | 15.00 CH | Prod: | 1.8750 S | Lab Pcs: | 10.00 | Eqp Pcs: | 16.00 |
| 8211050 | Fuel, Oil, Grease 50g/d | 1.50 DA | | 200.000 | | | 300 | | 300 |
| 8CRANEC100 | Crane Manitowoc 222B 1 | 1.00 | 15.00 HR | 106.961 | | | 1,604 | | 1,604 |
| 8MAC-A-17 | Atlas Copco 185 CFM Ai | 1.00 | 15.00 HR | 3.000 | | | 45 | | 45 |
| 8MBC-Z-1 | Barge Carpenter 12'X40 | 1.00 | 15.00 HR | 6.500 | | | 98 | | 98 |
| 8MBC-Z-2 | Barge Carpenter 12'X40 | 1.00 | 15.00 HR | 6.500 | | | 98 | | 98 |
| 8MBS-Z-9 | Spud Barge M-80x28' | 1.00 | 15.00 HR | 10.000 | | | 150 | | 150 |
| 8MBW-Z-2 | 18' Aluminum Boat & O/ | 1.00 | 15.00 HR | 3.000 | | | 45 | | 45 |
| 8MCE-A-40 | Bucket Clamshell 3 CYD | 1.00 | 15.00 HR | 5.000 | | | 75 | | 75 |
| 8MCN-A-13 | Container Steel 20' | 1.00 | 15.00 HR | 0.100 | | | 2 | | 2 |
| 8MFW-A-1 | Work Float | 1.00 | 15.00 HR | 2.000 | | | 30 | | 30 |
| 8MFW-A-2 | Work Float | 1.00 | 15.00 HR | 2.000 | | | 30 | | 30 |
| 8MGN-Z-17 | Generator 8 KW | 1.00 | 15.00 HR | 2.000 | | | 30 | | 30 |
| 8MGN-Z-18 | Generator 8 KW | 1.00 | 15.00 HR | 2.000 | | | 30 | | 30 |
| 8MLT-A-2 | Light Tower, Genie | 1.00 | 15.00 HR | 3.500 | | | 53 | | 53 |
| 8MVP-A-2 | FORD F150 SUPER 2 | 1.00 | 15.00 HR | 6.500 | | | 98 | | 98 |
| 8WELD400 | Welder 400 AMP | 2.00 | 30.00 HR | 2.044 | | | 61 | | 61 |
| M100 | Foreman - Carpenter | 1.00 | 15.00 MH | 34.720 | 831 | | | | 831 |
| M170 | M-Welder | 1.00 | 15.00 MH | 41.050 | 1,069 | | | | 1,069 |
| M173 | M-Lead Carpenter | 1.00 | 15.00 MH | 35.490 | 962 | | | | 962 |
| M175 | M-Carpenter | 3.00 | 45.00 MH | 35.490 | 2,887 | | | | 2,887 |
| M180 | M-Carpenter Helper | 3.00 | 45.00 MH | 35.490 | 2,887 | | | | 2,887 |
| OPCR100 | Op Eng 1A- Crane 100-200 | 1.00 | 15.00 MH | 39.190 | 921 | | | | 921 |

Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|---|---|-----------------|---------------|---------------------------|-----------------------|------------------|--------------------|-----------------|------------------|--------------------|
| <hr/> | | | | | | | | | | |
| BID ITEM = 50221 | | | Land Item | SCHEDULE: 1 100 | | | | | | |
| Description = | Mooring Dolphin | | Unit = | EA | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |
| \$12,304.23 | 600.0000 MH/LS | 150.00 | MH | [21803.4] | 9,557 | | | 2,747 | | 12,304 |
| 303042 | Concrete Supply | | Marine | Quan: 9.16 CY | Hrs/Shft: 8.00 | | | WC: NONE | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | | |
| 2CR14 | 5000 PSI Concrete | 1.10 | 10.08 CY | 105.000 | | 1,058 | | | | 1,058 |
| 303043 | Concrete Pumping | | Marine | Quan: 1.00 LS | Hrs/Shft: 8.00 | | | WC: NONE | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | | |
| 5CONCP36M | Concrete Concrete Pump 36 | | 30.00 HR | 125.000 | | | 3,750 | | | 3,750 |
| 303045 | Piling - Rebar | | Marine | Quan: 21,225.00 LS | Hrs/Shft: 8.00 | | | WC: NONE | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | | |
| 2RR02 | Gr 60 Rebar | 1.10 | 23,347.50 LB | 0.480 | | 11,207 | | | | 11,207 |
| 2RR10 | Rebar Supports | | 23,347.50 LB | 0.050 | | 1,167 | | | | 1,167 |
| 2RS16 | Coupler T-25 (#8) | 16.00 | 96.00 EA | 13.000 | | 1,248 | | | | 1,248 |
| 5REBAR | Rebar Sub | | 21,225.00 LB | 0.280 | | | 5,943 | | | 5,943 |
| \$19,565.18 | | | | [] | | 13,622 | 5,943 | | | 19,565 |
| 304000 | Pile Splices - Pipe pile | | Marine | Quan: 1.00 EA | Hrs/Shft: 8.00 | | | WC: NONE | | |
| ***** Copied and adjusted from Y:\TBG-ENGI\EST\13-008-5HA-1 ***** | | | | | | | | | | |
| 5SPICES | Welding Subcontractor | | 1.50 EA | 650.000 | | | 975 | | | 975 |
| 630020 | Gangway | | | Quan: 1.00 LS | Hrs/Shft: 8.00 | | | WC: NONE | | |
| 4SUB | Subcontract | | 1.00 LS | 35,000.000 | | | | 35,000 | | 35,000 |
| <hr/> | | | | | | | | | | |
| ===== | Item Totals: 50221 - Mooring Dolphin | | | | | | | | | |
| \$129,331.37 | 153.7800 MH/EA | | 153.78 MH | [5590.56] | 9,797 | 69,068 | 12,502 | 2,964 | 35,000 | 129,331 |
| 129,331.370 | 1 EA | | | | 9,796.99 | 69,067.98 | 12,502.20 | 2,964.20 | 35,000.00 | 129,331.37 |
| <hr/> | | | | | | | | | | |
| \$114,931,241.88 | *** Report Totals *** | | 46,773.75 MH | | 3,249,198 | 83,075.055 | 26,466.667 | 2,105,321 | 35,000 | 114,931,242 |

>>> indicates Non Additive Activity

-----Report Notes:-----

The estimate was prepared with TAKEOFF Quantities.

This report shows TAKEOFF Quantities with the resources.

Bid Date: Owner: Engineering Firm:

Estimator-In-Charge:

JOB NOTES

Estimate created on: 03/12/2008 by User#: 0 -

Source used: C:\HEAVYBID\BIN\BLANK\BLANK.zip (a backup) from 04/20/2006 4:40:12 PM

*****Estimate created on: 03/20/2008 by User#: 0 -

Source used: R:\CURRENT DEVELOPMENT\HEAVYBID\INSTALLS\CURRENT INSTALL SOURCE\BACKUPS\BLANK.zip (a backup)
from 03/18/2008 11:43:18 AM

*****Estimate created on: 03/21/2008 by User#: 0 -

Source used: C:\HEAVYBID\BACKUPS\BLANK.zip (a backup) from 03/20/2008 8:40:26 AM

*****Estimate created on: 01/24/2013 by User#: 609 - Bob Wells

Source estimate used: Y:\TBG-ENGI\EST\ESTMAST

CH2MHILL
13-008-5HB
Bob Wells

POA Option 5H- Phases 2 & 3

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Direct Cost Report

| Activity Resource | Desc | Quantity Pcs | Unit Unit | Unit Cost | Labor | Perm Material | Constr Matl/Exp | Equip Ment | Sub- Contract | Total |
|----------------------|------|-----------------|--------------|--------------|-------|------------------|--------------------|---------------|------------------|-------|
|----------------------|------|-----------------|--------------|--------------|-------|------------------|--------------------|---------------|------------------|-------|

| | | | | | | | | | | |
|-------------------------------|--|--|-----------|-------------|---------------|--|-------|------------|--|-------|
| BID ITEM = 50221 | | | Land Item | SCHEDULE: 1 | 100 | | | | | |
| Description = Mooring Dolphin | | | Unit = | EA | Takeoff Quan: | | 1.000 | Engr Quan: | | 1.000 |

*****Estimate created on: 02/07/2013 by User#: 609 - Bob Wells
Source estimate used: Y:\TBG-ENGI\EST\13-008

*****Estimate created on: 02/07/2013 by User#: 609 - Bob Wells
Source estimate used: Y:\TBG-ENGI\EST\13-008-1

*****Estimate created on: 02/07/2013 by User#: 609 - Bob Wells
Source estimate used: Y:\TBG-ENGI\EST\13-008-5

*****Estimate created on: 02/25/2013 by User#: 657 - Jorge Abisambra
Source estimate used: Y:\TBG-ENGI\EST\13-008-5H

* on units of MH indicate average labor unit cost was used rather than base rate.

[] in the Unit Cost Column = Labor Unit Cost Without Labor Burdens

In equipment resources, rent % and EOE % not = 100% are represented as XXX%YYY where XXX=Rent% and YYY=EOE%

-----Calendar Codes-----

510 5 days @ 10hrs/day