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FINAL

REMEDIAL ACTION COMPLETION REPORT

Lockheed Shipyard Sediment Operable Unit (LSSOU)
Harbor Island, Seattle, Washington

Prepared For:
United States Environmental Protection Agency
Region X

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1.0 INTRODUCTION

1.1 PURPOSE

This document presents the Remedial Action Completion Report for remedial construction activities conducted during the 2003-2004 and 2004-2005 construction seasons at the Lockheed Shipyard Sediments Operable Unit (LSSOU) of the Harbor Island Superfund Site, Seattle, Washington (Figure 1.1, Vicinity Map). This document summarizes the history and regulatory activity of Harbor Island, discusses the specific regulatory process for the LSSOU including investigation and design, summarizes construction activities, supplemental investigations, design changes and construction inspections and associated documentation. The Remedial Action Completion Report serves to demonstrate that the remedial action met the Remedial Action Objectives and cleanup specifications contained in the Record of Decision/Explanations of Significant Differences (ROD/ESDs) while conforming to the approved plans and specifications. Observations and lessons learned are discussed and future operations, maintenance and monitoring activities are briefly outlined.

The Remedial Action Completion Report is a formal US Environmental Protection Agency (EPA) deliverable that meets the requirements of the Remedial Action Statements of Work (SOWs) for the LSSOU. The activities and outcomes described in this document are consistent with project requirements addressed in the site ROD (EPA 1996), two ESDs written by the EPA to amend the ROD (EPA 2002, 2003), the Administrative Order on Consent (AOC) for Remedial Design (EPA 1997), and the Consent Decree (CD; EPA 2003) and associated SOWs for Remedial Action (EPA 2003, 2004).

1.2 HARBOR ISLAND SITE

Harbor Island is located in Seattle, Washington on reclaimed land located between Seattle and West Seattle and bounded on each side by the mouth of the Duwamish River. Based on early navigation charts, the mouth of the Duwamish River was an undeveloped mudflat. According to the historical records, between 1903 and 1905 the main navigation channel of the Duwamish River and the East and West Waterways were dredged. The dredged sediment was spread across the mudflats as 5- to 15-foot-thick fill, forming Harbor Island. The 430-acre Harbor Island was developed and has supported industrial uses since its creation, including bulk petroleum storage and transfers, shipbuilding and repair, cargo handling, smelting operations plus metal recycling and fabrication. Lockheed Shipbuilding acquired the established shipbuilding operations in 1959 and ran the facility until 1986.

An EPA inspection in 1982 of the lead smelter facility formerly located on Harbor Island identified lead-contaminated soil, which resulted in the listing of the entire island including the sediments in the adjacent waterways on the National Priorities List (NPL) in 1983. Phase I Table 12 provides a summary of the regulatory history of the LSSOU as it relates to the Harbor Island Superfund Site. Subsequent to the NPL listing, the EPA divided the Harbor Island Superfund Site into five Operable Units (OUs), which are: 1) the Petroleum Storage Tank OU; 2) the Soil/Groundwater OU, 3) the Lockheed Shipyard OU, 4) the Shipyard Sediment OU, and 5) the Waterway Sediment OU. The Lockheed Shipyard OU, owned by Lockheed, has since

been remediated and was removed from the NPL in 1996. Lockheed Martin sold the upland property to the Port of Seattle in April 1997. Lockheed Martin continued to lease the submerged lands between the inner and outer harbor line at the Lockheed site until arrangements were made for the lease to be held by the Port of Seattle.

1.3 SEDIMENT OPERABLE UNITS

A Remedial Investigation and Feasibility Study (RI/FS) for the sediments surrounding Harbor Island (Harbor Island Sediment OU) were conducted in 1994 (Weston 1994). Prior to developing a proposed plan for the Harbor Island OU, the Harbor Island RI participants entered into an Administrative Order with the EPA to perform a Supplemental Remedial Investigation (SRI; EVS 1996) to address the data gaps of the RI/FS. Both the RI/FS and SRI produced only limited data applicable to the Channel Area of the LSSOU.

Based on the results of these studies, the EPA divided Harbor Island Sediment OU marine sediments into two OUs in 1997:

- **Shipyard Sediment OU** includes nearshore sediments at Todd Shipyard (located on the northwest corner of the island) and the former Lockheed Martin Shipyard (LSSOU); and

- **Waterway Sediment Operable Unit (WSOU)**, which includes all other impacted sediments located in the East and West Waterways.

1.4 COMPLIANCE WITH REMEDIAL ACTION OBJECTIVES AND SPECIFICATIONS

1.4.1 Dredging the Open Channel Area to Meet Sediment Quality Standard

All sediments exceeding the Sediment Quality Standard (SQS) as noted in Section 2.4 were to be dredged and any shipyard debris that would impede dredging activities or compromise the integrity of the cap to be placed in the adjacent Slope Area was to be removed.

The depth of dredging was guided by the use of progress core sampling and analysis for chemicals of concern (COCs). Core analysis indicated that the hard native sands were clean and that sediment exceeding the SQS stopped at the native sand layer. Therefore the approach to dredging was to dredge to refusal, the native sand layer. To arrive at the native sand surface, extensive amounts of shipyard debris were removed. Successive dredge passes accomplished this outcome.

Confirmatory sediment grab samples were obtained from the Open Channel Area on January 21, 2005 (see Phase II Appendix D.8 and Figure 1.1). Based on the chemical results of these samples, three limited areas were targeted for the application of a thin layer of Enhanced Natural Recovery (ENR) material. EPA determined that while these three areas contained sediments contaminated above the SQS, further dredging would not be productive. Several attempts to dredge into the native sands in these areas failed to produce a clean surface. EPA agreed it was most likely that a thin residual layer which could not be captured by the dredge was probably

causing continued failure of cleanup standards for these areas. Phase II Figure 1.1 depicts the various areas and the rationale for approving that they met the SQS.

It should be noted that the Open Channel Area was subject to one additional round of confirmatory sampling after the completion of cap placement described below. These results are available in Phase II Appendix D.8.

1.4.2 Addressing Contingency Area

The Contingency Area was designated as an area adjacent to the LSSOU in which additional investigation and, if necessary, capping activity was required. Sampling the Contingency Area and addressing any exceedances of the West Waterway Cleanup Screening Levels (CSLs) was accomplished early in the project. Sampling of the Contingency Area was initiated on November 24 and 25, 2003 in accordance with the methods and procedures specified in the Sediment Characterization Sampling and Analysis Plan of October 27, 2003. The results were compared to the COCs from the ESD. A single metal (lead) exceeded the confirmational level just north of the LSSOU. The remaining analytes were well below the confirmational levels. The report of the sampling and analysis effort is presented in Phase I Appendix D.4. No further work was required in the Contingency Area based on these results.

1.4.3 Capping the Subtidal and Intertidal Areas (Slope Area)

Any shipyard debris that would impede dredging or compromise the integrity of the cap to be placed in the Slope Area was to be removed. Sediments exceeding the CSLs would be dredged to a depth sufficient to allow the installation of the cap without loss of the existing water column. All sediments exceeding the SQS were to be covered by a cap that would physically and chemically contain and confine the COCs.

The cap was designed to physically and chemically contain the COCs to the extent possible and not become recontaminated. The isolation (bottom) layer was 2 feet of gravelly sand. This layer would physically confine the sediment solids and provide attenuation of dissolved phase COCs such that neither the chronic marine water quality criteria nor the SQS would be exceeded at the surface of the cap. At depths below –3 feet mean lower low water (MLLW) and on all slopes steeper than 5H:1V, the isolation layer was covered with a one-foot thickness of crushed rock to provide additional attenuation and support the subsequent placement of 2 feet of riprap which functioned as the armor layer. At depths above –3 feet MLLW which were on slopes gentler than 5H:1V, the isolation layer was covered with 3 feet of a cobble/gravel mix to function as the armor layer. Habitat enhancement materials were generally placed in a one-foot thickness except for deeper areas which received less material.

The requirement that the cap meet minimum thickness requirement for different layers and receive habitat enhancement materials was satisfied by a combination of carefully tracking placement rates over known areas as well as by surveys. A final multibeam survey for the entire site was taken on November 22, 2004 at the completion of dredging, which was used as the baseline survey for the capping effort. A final multibeam survey of the completed cap including fish mix as placed by marine equipment was completed on February 8, 2005. This multibeam survey was combined with data obtained for the beach areas by traditional upland survey

methods to present a final cap surface as shown in Phase II Appendix J.3. Final waterway capping material placement quantities can be seen in Phase II Tables 2, 3, and 4. Phase II Appendix J.1 through J.4 of the Remedial Action Completion report summarizes the survey methods employed and presents the final survey results. Based on a review of interim and final surveys combined with cap application rates over discreet areas the cap was determined to meet the remedial action objectives for thickness and habitat enhancement.

Grain-size analysis and analytical chemistry for COCs was performed on all imported materials unless specifically exempted through consultation with the EPA. Results are available in Phase I Appendix D.1 and Phase II Appendix D.2 of the Remedial Action Completion Report. Based on a review of these data, the objective of importing and placing clean materials was met.

1.4.4 Construction of Mitigation and Riparian Areas

To compensate for partially filling the south shipway, a portion of the upland in the Pier 10 area was removed to create a beach and an adjacent upland riparian area. The beach (mitigation area) was capped with the same materials as adjacent tidal areas and the riparian area was provided with appropriate soils and planted with native species according to the approved design documents. The mitigation area cap construction was documented and approved based on the data and methods presented above for the subtidal and intertidal cap. The riparian area was visually inspected and approved by the EPA.

1.4.5 Disposal Identification and Use

Waste characterization was conducted to identify appropriate upland disposal sites. During the first operation season, sediments were determined to meet nonhazardous waste criteria and were taken to disposal at the Columbia Ridge Disposal Facility operated by Waste Management. During the second season, the sediments were taken to the Roosevelt Regional Landfill operated by Regional Disposal Company. All disposal records are available in the Remedial Action Completion Report.

1.4.6 Long-Term Maintenance and Monitoring

An Operations, Maintenance and Monitoring Plan (OMMP) has been prepared and is under final review by the EPA to monitor the long-term effectiveness of the remedy and provide for maintenance, as needed. It will be in effect for 30 years and will be finalized by September 30, 2005.

The adjacent upland operable unit will have additional monitoring wells installed to monitor the effectiveness of the upland remedy and provide data to ensure the sediment cap and/or sediments in the sediment operable unit do not become recontaminated.

2.0 LOCKHEED SHIPYARD SEDIMENT OPERABLE UNIT BACKGROUND

2.1 LOCKHEED SEDIMENT OPERABLE UNIT DESCRIPTION

The LSSOU is the submerged portion of the former Lockheed Shipyard No. 1 property located on the West Waterway. Figure 1.2 illustrates the primary site features of the LSSOU at project inception, including its boundary, mean higher high water (MHHW), mean lower low water (MLLW), and location of the existing pier and bulkhead structures. As defined in the ROD, the approximately 8.2-acre site is bounded to the east by the bulkhead line or MHHW where no bulkhead is present, such as the southernmost 130 feet of shoreline and the shipways, and to the west by the –36-foot elevation contour (MLLW; Port of Seattle datum). The southern site boundary is defined by an east-west line which intersects the southernmost corner of southern pier (Pier 9). The northern site boundary is defined by the northeast edge of the northern pier (Pier 11) and by an east-west line extending from the northwest corner of that pier to the –36-foot MLLW elevation contour. The Slope Area of the site is situated on state-owned aquatic lands managed by the Washington Department of Natural Resources.

At project inception, existing structures (see Figure 1.2) included three piers (Piers 9, 10, and 11), three shipways (designated North, Middle, and South), and one finger pier (Pier 9.5). These structures were located on the upper section of the existing slope at the site (Slope Area). The piers and shipways primarily consisted of timber superstructures supported by timber pilings. Portions of the shipways were comprised of partially-submerged wooden decks supported on closely-spaced pilings, while other portions have a more random and less dense distribution of pilings. A relatively small nearshore area in the southeast corner of the site contains no structures but is separated from the Channel Area by piers. This nearshore area is also located within the Slope Area. The remainder of the site is located west of the pier face in the channel of the West Waterway (Channel Area).

Based on visual observations and hydrographic surveys of the site, the LSSOU initially contained both intertidal and subtidal sediment environments. Slopes varied across the site, ranging from nearly flat to 45 degrees. The shoreline of the LSSOU was primarily comprised of vertical bulkhead, riprap slope, sandy slope, or vegetated bank. In general, the intertidal area located under the existing piers was comprised of riprap, wood pilings, concrete rubble, and debris. The riprap extended approximately 10 feet westward from the bulkhead along most of the under-pier area of the site. Some minor accumulations of intertidal sediments, including silt, sand, and abrasive grit blast, had collected along the sides of the shipways, and a small rocky/sandy slope was located at the southern portion of the site. Approximately 5,800 timber pilings supported the over-water structures. No slope armoring exists on the subtidal slopes, although most of this area was covered by a dense piling array.

Presently the LSSOU and adjacent upland are vacant with the exception of a fueling station that has been built on the northern part of the uplands. The remainder of the uplands has most recently been used as a materials staging area by the Port for construction materials and as a parking lot for trucks and trailers. Based on ongoing communications with the Port, long-term potential future uses of the site include a wharf facility for barge-transported cargo and moorage

of commercial fishing vessels. No specific details on these potential future site uses have been provided. Short-term use is likely to be container storage. To that end the Port has provided plans for an asphalt overlay of the entire site along with installation of a stormwater system which will discharge to the existing Harbor Island system. TRC worked with the Port to incorporate the general concepts of these future site uses into the remedial design for the LSSOU to prevent, to the degree possible, interference of the future site use as the result of the remedial action and potential disturbances to the remedy in the future.

2.2 LSSOU ROD REQUIREMENTS

The EPA issued a ROD for the Shipyard Sediment OU in November of 1996 (EPA 1996b) which identified remedial alternatives for the LSSOU and selected among them. Alternative 4, dredge to the Chemical Cleanup Screening Level (CSL) and cap, was selected as the remedy for the Shipyard Sediment OU. Alternative 3, dredge to the Chemical Sediment Quality Standard was identified as a contingent remedy if sediment sampling conducted during remedial design indicated that Alternative 3 provides a better cost benefit than Alternative 4.

The essential elements of the selected remedy for the Shipyard Sediment OU as provided for in the ROD were as follows:

1. All sediments exceeding the chemical CSL and shipyard waste must be dredged. This also applies to sediments and shipyard waste in the shipways at Lockheed Shipyard. The extent of dredging of contaminated sediments and waste under piers at Todd and Lockheed Shipyards will be determined during remedial design based on cost, benefit, and technical feasibility;

2. Dredged sediments must be disposed in appropriate confined nearshore disposal (CND) or confined aquatic disposal (CAD) facilities. Appropriate CND or CAD sites will be selected during remedial design. If suitable CND or CAD sites are not identified, dredged sediments must be taken to an appropriate upland disposal facility. Any dredged material which is predominately shipyard waste must be disposed at a solid waste disposal facility. Sandblast grit may be recycled as feedstock for cement production;

3. After dredging, all remaining areas which exceed the chemical and/or biological SQS must be capped with a minimum 2 feet of clean sediment. The cap will meet the SQS cleanup objective by isolating remaining contaminants and preventing release of these contaminants to the environment. The cap is also intended to be protective of any future cleanup goals for TBT and PCB bioaccumulation by eliminating the exposure pathways associated with residual concentrations of these contaminants. The cap may require armoring with gravel or small rocks if analyses conducted during remedial design demonstrate that armoring is necessary;

4. Dredging and capping must be conducted with the objective of creating a flat surface out to the boundary of the Shipyard Sediment OU to minimize the potential for recontamination of the cap by resuspended contaminated sediments from other sources. Dredging, capping and disposal methods must also minimize adverse impacts to the existing habitat. In particular, the selected dredging and disposal methods shall minimize the release and resuspension of

contaminated sediments to the environment. To the extent practicable, the marine habitat in the Shipyard Sediment OU must also be restored to its most productive condition; and

5. Long-term monitoring of contaminant concentrations in the cap, and monitoring of cap thickness, must be periodically conducted. Long-term maintenance of the cap, which involves adding supplemental clean sediment to the cap, must periodically be performed to maintain the cap at a minimum 2-foot thickness. Future maintenance dredging in the Shipyard Sediment OU would be allowed only if it maintains the protectiveness of the selected remedy.

The ROD provided for estimates of the amount of dredged material at the Lockheed shipyard of 18,000 cubic yards and sand required for capping of 11,000 cubic yards. Using an assumption that all dredged materials could be disposed in a CND facility, the cost of design and implementation of the remedy was estimated at $1.5 million and $0.5 million for 10 years of cap monitoring and maintenance.

2.3 LSSOU REMEDIAL DESIGN REQUIREMENTS

In July 1997, Lockheed Martin and EPA entered into an AOC for Remedial Design (EPA 1997) for the Lockheed Shipyard portion (LSSOU) of the Shipyard Sediment OU. Based on this AOC, Hart Crowser was then tasked with completion of the following:

1. Remedial Design Work Plan (Hart Crowser and Foster Wheeler 1997) and Field investigation,
2. Source Control Report (Hart Crowser and Foster Wheeler 1998),
3. Remedial Design Investigation Data Report (Hart Crowser 1999),
4. Basis of Design Report and memorandum (Hart Crowser 2000a and 2000b), and
5. Design documents including Preliminary, Draft Final, and Final Submittals.

2.4 EXPLANATION OF ESD DOCUMENTS

Subsequent to the ROD, the above pre-remedial design studies for the LSSOU better defined the nature and extent of contamination within the LSSOU. The results of these studies indicated that certain elements of the ROD needed to be amended. The February 12, 2002 ESD summarized the sediment characterization data, specified details regarding the dredge and cap remedy, and defined abrasive grit blast. The March 7, 2003 ESD established confirmational numbers to be used to distinguish contaminants characteristic of the West Waterway from contamination associated with the LSSOU; summarized the long-term monitoring, maintenance and operational parameters; and identified the disposal option for contaminated sediments dredged from the LSSOU as being upland disposal.

Confirmational numbers defined in the second ESD have been defined as those concentrations that the EPA has determined to be characteristic of contamination present in the adjacent West Waterway. These confirmational numbers have been used to assist the EPA in defining the extent of LSSOU remediation and could also be used in determining potential future recontamination. However, the EPA's determination of the extent of LSSOU contamination and

remediation is not intended to release Lockheed from whatever liability it may have in the adjacent West Waterway OU.

According to the ESD, following dredging of the LSSOU samples will be taken from the post-dredge surface at selected locations along the LSSOU boundary. Sediments on the boundary and inside the LSSOU must meet the SQS cleanup numbers. If any newly exposed surfaces outside the LSSOU result due to remedial action at the LSSOU, then any COC that may be present on the newly-exposed surfaces must be below confirmational numbers (see below).

Confirmational Numbers by Chemical of Concern (COC)			
Contaminant	**SQS (mg/kg)**	**CSL (mg/kg)**	**Confirmational Number**
Arsenic	57 dw	93 dw	93 (mg/kg) dw
Copper	390 dw	390 dw	390 (mg/kg) dw
Lead	450 dw	530 dw	530 (mg/kg) dw
Zinc	410 dw	960 dw	960 (mg/kg) dw
LPAHs*	370 toc	780 toc	780 (mg/kg) toc 13 mg/kg dw
HPAHs**	960 toc	5300 toc	5300 (mg/kg) toc 69 mg/kg dw
For Bioaccumulants			
PCBs	12 toc	65 toc	39 (mg/kg) toc 591 µg/kg dw
Tributyltin	not available	not available	76 (mg/kg) toc 1335 µg/kg dw
Mercury	0.41 dw	0.59 dw	1.34 (mg/kg) dw

dw = dry weight
toc = total organic carbon normalized
* low molecular weight polynuclear aromatic hydrocarbons
** high molecular weight polynuclear aromatic hydrocarbons

Given the coarse-grained characteristics of some of the LSSOU sediments, the EPA will retain use of the dry weight TBT confirmational number as well as the total organic carbon (TOC) normalized value. Where the TOC is less than 1 percent, the dry weight criterion will be used; otherwise the TOC-normalized version will apply.

2.5 LSSOU REMEDIAL STRATEGY AND DESIGN CRITERIA AS PER ESD

The remedial strategy for the LSSOU was described in the ESDs as the following.

In the Slope Area of the LSSOU (referred to as the under-pier, shipway, and enclosed areas in the ESD):

- Remove the shipway pier and decking; remove or modify pilings to the maximum extent practicable so as to not compromise the stability of the existing bulkhead or slope but to permit dredging and capping as defined below;
- Remove any shipyard debris that will impede dredging activities or compromise the integrity of the cap to be placed in these areas;
- Dredge abrasive grit blast to a sufficient depth to accommodate the cap without any loss to the present water depth;
- Dredge all sediments exceeding the CSL to a depth sufficient to accommodate the cap without any loss to the present water depth (classified by EPA to mean without loss to present critical habitat elevation [between –4 and 8 feet MLLW]);
- Cover all sediments exceeding the SQS with a cap that shall physically and chemically confine COCs; and
- Dispose of contaminated dredge material at an EPA-approved upland landfill.

In the Channel Area of the LSSOU (referred to as the open-water areas in the ESD):

- Remove any shipyard debris that will impede dredging activities or compromise the integrity of the cap to be placed in these areas (no cap is anticipated in this area);
- Dredge all sediments exceeding SQS; and
- Dispose of contaminated dredged material at an EPA-approved upland landfill.

To meet objectives of the ESD, the following criteria were utilized in the remediation design for the LSSOU:

- Replace the existing deteriorated bulkhead wall so the upland soils will remain stable during and after remedial activities, including the following:
  - Pier and timber bulkhead removal; and
  - Dredging adjacent to the bulkhead.
- Remove all existing pier structures including timber piling and portions of the existing shipway structures from aquatic areas of the site while maintaining the stability of the site.

- Dredge contaminated sediments from the channel and slope areas of the LSSOU while maintaining stable slopes and critical habitat elevations:
  - Design the dredge prisms and constructed slopes such that they will be constructible;
  - In the Channel Area, remove the depth of sediment exceeding SQS criteria and construct a berm to support the Slope Area and maintain critical habitat elevation;
  - Perform post-dredge sediment verification sampling and analysis to confirm achievement of SQS in the Channel Area; and
  - In the Slope Area, limit changes in the post-remediation of critical habitat elevations (i.e., between –4 to 8 feet MLLW) from that of the existing condition while accommodating a 5-foot-thick cap.

- Construct an on-site mitigation area:
  - Habitat losses resulting from the partial filling of the South Shipway will be mitigated by creation of intertidal habitat by excavation of the upland portion of Pier 10.

- Cap the Slope Area such that the cap will provide the following:
  - Isolation of the underlying contaminated sediments;
  - Protection of the isolation portion of the cap from bioturbation and erosional forces; and
  - A final cap surface that is habitat compatible.

- Limited dredging and a sand cover along the offshore perimeter of the site (as a placeholder concept pending the results of further characterization in this area) to provide the following:
  - Partial removal, coverage, and enhanced natural recovery of contaminated off-site sediments located adjacent to the site; and
  - A final substrate surface that is habitat compatible.

2.6 DESIGN CONSIDERATIONS – PHASE I

2.6.1 Demolition

In order to perform the remediation in the under-pier area, the existing pier and shipway structures required demolition. Evaluations performed as part of the remedial design investigations indicated that the bulkhead for the piers was in very poor condition and had failed in some areas. The evaluations indicated that the removal of the piers would cause eventual failure of the bulkhead. The bulkhead was necessary to support the upland portion of the site and maintain the integrity of the upland cap, which is the remedy for the uplands operable unit. Therefore, in order to perform the remedial action activities described above, design and implementation of the remedial action included bulkhead replacement and demolition of the piers and shipways.

2.6.2 Bulkhead Alignment

Realignment of the bulkhead was also proposed to improve the future utility of the upland area and remedy constructability. The bulkhead realignment included partial filling of the South Shipway. To compensate for this fill area, an upland area at Pier 10 was slated to be excavated for construction of a beach/mitigation area.

2.6.3 Dredge Depth

To further the goal of maximizing the future utility of the LSSOU and adjacent uplands, the Port of Seattle requested that the navigation depth at the pierhead line be increased by 4 feet for 1,000 feet of the 1,500-foot length of the OU.

2.6.4 Habitat Areas

In consultation with the Natural Resource Trustees, it was decided that the highest value habitat was present between –4 and +8 feet MLLW. The dredge and cap design was targeted to maximize the area within this depth interval.

2.6.5 Slope Stability

It was determined during the design process that the maximum slopes that would be stable would be 2H:1V. As a result, the design of the finished dredge elevations and finished cap elevations would not be steeper than this slope. Consideration was given to cap materials to provide for these slopes. To best provide stable slopes while maximizing habitat areas in the –4 to +8 foot range, it was decided to construct a rock berm or supporting buttress of approximately a 30-foot-wide swath running the length of the OU. However, this berm would extend into the federally-authorized channel. The Rivers and Harbors Act prohibits the construction of permanent

obstacles to navigation in a federally-authorized navigation channel. The US Army Corps of Engineers, who oversees the Rivers and Harbors Act, agreed that the berm would not be considered a permanent obstacle since the berm could be removed and replaced with a sheet-pile wall to support the LSSOU cap in the event that navigational dredging needed to occur in the area of the berm. This agreement is documented in a Memorandum of Agreement as shown in Phase I Appendix N. In the agreement, the Port of Seattle agreed to maintain the integrity of the cap should additional dredging become necessary.

2.7 PLANNED CONSTRUCTION ACTIVITIES – PHASE I

2.7.1 General Planning Parameters and Documents

The LSSOU remedy was planned to take place during two in-water construction seasons. During the first season, or Phase I, demolition and bulkhead reconstruction was to take place. The following season, Phase II activities of dredging and capping would be completed. As it turns, out the first season saw the completion of demolition and bulkhead construction as well as substantial dredging.

The following documents controlled implementation of the construction work during the first season of remedy construction (2003/04) or Phase I. They were prepared according to the requirements of the SOW:

- Remedial Design Report, Bulkhead and Demolition, Hart Crowser June 2003
- Remedial Design Report, Sediment Remediation, Hart Crowser October 2003
- Remedial Action Work Plan (RAWP), TRC January 2004
- Construction Quality Assurance Plan (CQAP), TRC January 2004
- Health and Safety Plan (HSP), TRC January 2004
- Water Quality Monitoring Plan (WQMP), MCS Environmental October 2003
- Field Sampling Plan (FSP), TRC January 2004
- Quality Assurance Project Plan (QAPP), TRC January 2004

Due to the desire to begin construction as soon as allowed by the in-water work calendar, the design and implementation documents were submitted and approved in two groups. The first group covered the demolition and sheet-pile bulkhead construction. The second group described the subsequent dredging and capping project components. Demolition and bulkhead construction plans and specifications are shown in Appendix M.1 and M.2 while the plans for dredging and capping are shown in Appendix M.3.

The initial documents were revised, as needed, during the construction phase to fit the actual circumstances as they arose. For example, the contractors were required to modify their HSPs in order to cover additional activities that were not initially anticipated. The Remedial Action Work Plan discussed the preparation of these reports.

2.7.2 Planned Pier, Bulkhead, and Shipway Demolition

The demolition of the piers was planned to proceed using a combination of land-based and water-based methods. The pier decking, caps, and stringers were to be removed first, likely

using land-based equipment. The debris from demolition was to be staged into a designated area on the uplands portion of the site prior to off-site disposal or salvage by the contractor.

Following the removal of the superstructure of the pier, the bulkhead and piles were to be removed. The piles were planned to be removed by water-based equipment, and so must be performed during the appropriate open-water work window. The piles were to be pulled by first vibrating them loose, for example with a vibratory hammer, and then attaching a choker to the loosened pile and pulling it out with a crane. The pulled piles were to be temporarily placed on a barge and then offloaded from the barges and staged in a designated area on the upland property prior to off-site disposal or salvage by the contractor.

The goal of the established procedures was to remove as many piles in the aquatic areas as possible and to assure that any piles that did remain did not affect the function or integrity of the cap to be placed subsequently. Any piles remaining were not to extend above the final mudline nor interfere with dredging.

The remnants of the existing timber bulkhead were planned to be removed during the demolition of the pier, including pulling the soldier piles and removing the timber cross-members. The new bulkhead was designed to be built landward of the old bulkhead with the goal of not reducing the aquatic area. Soil retained behind the existing bulkhead was to be excavated and used as backfill in other areas as appropriate. The CQAP describes how the excavated soil was to be stockpiled during testing to verify that its use as backfill was appropriate. The soil was to be used as backfill if the soils pass MTCA industrial cleanup levels (WAC 173-340). All soils tested and approved as backfill were ultimately to be placed under the upland cap.

Water quality during pulling of the piles was to be controlled using standard methods for this type of work. Water quality monitoring plans to verify that the water quality protection standards were being achieved during construction are included in the WQMP as specified in the Water Quality Certification shown in Appendix E.1. The WQMP also includes best management practices (BMPs) and other measures to assure protection of water quality during construction. The field and quality assurance procedures to perform the confirmatory and water quality sampling are described in the FSP and QAPP. Additionally, contingency actions to be employed in the event of unacceptable water quality impacts are described. Water quality monitoring results are discussed in Section 7.1.

2.7.3 Planned Bulkhead Replacement

This section describes the plan for replacement of the existing bulkhead to support the uplands cap and facilitate simultaneous pier demolition and the dredging/capping portion of the remedy. The replacement bulkhead was designed to facilitate removal of the sediments prior to capping while supporting the cap on the upland property. The design of the bulkhead also considered potential future uses of the property. For example, it was designed to support truck traffic (up to 250 pounds per square foot [psf] of surcharge load) up to the edge of the upland and large equipment operations with 25-foot setback during the dredging/capping component of the remedy. Once remedial construction was complete with all capping materials in place, the bulkhead would be able to support live loads with surcharge pressures of up to 600 psf up to the

edge of the bulkhead. Seismic loading was also considered for the design, although the seismic design includes some deformation under the design seismic event.

Bulkhead replacement was planned to be performed concurrently with pier demolition. Bulkhead construction was to be completed before dredging because of the potential for failure of the existing bulkhead after demolition of the pier.

The proposed replacement bulkhead was slated to be a sheet-pile wall constructed along the alignment as shown on the drawings. The existing pavement behind the existing bulkhead was to be saw-cut and removed, and then a trench excavated to facilitate construction of the new sheet-pile wall. Any tiebacks to the existing bulkhead were to be cut away prior to removing and replacing it.

Bulkhead construction was planned to use standard construction methods, for example using a vibrating hammer to drive the interlocking steel sheets from the upland portion of the site. Generally, the sheet piling was to be driven to depth, trimmed and a concrete pile cap placed. The asphalt in the upland cap was to be nominally the same as the existing upland grades.

The bulkhead alignment cut across a portion of the south shipway. Prior to the shipway being filled, it was to be used as a containment area for dredged sediments and debris. Ultimately, the shipway was to be filled using soil materials derived from removal of the bulkhead and imported off-site fill, as necessary. The shipway decking in the area to be filled will be removed and the piles cut off to below one foot of the final grade.

The design called for the concrete in the north shipway to be left in place.

2.7.4 Planned Sediment Dredging

While not initially planned for the first season of work, the dredging schedule was moved up one season due to quicker than expected progress during demolition. Additional site characterization was conducted in the Open Channel Area by taking core samples at 14 locations and analyzing selected samples for COCs. These data were gathered to help refine the dredge plans in the open water including the depth of contaminated sediments and expected dewatering behavior of dredged materials. The additional data is included in the Design Analysis Report for Dredging and Capping (Hart Crowser June 2003).

The dredging sequence was to begin at the top of the slope, near the bulkhead, and work away from the shoreline. This was to assure that any contaminated material that may move downslope during dredging is ultimately removed. It also minimized oversteepening of the sloped areas during dredging.

It was planned that a clamshell dredge will be used, and that dredged sediments and debris were to be placed in a barge before offloading to the upland area. The offloaded sediments were then to be loaded directly into rail cars at the site for transportation to the selected upland landfill. Alternately, the sediments would be staged (i.e., if dewatering is required) in a designated upland area. A dredge material-dewatering plan is presented within the Final Remedial Action Work Plan in Section 3.5.1. The Dredge Materials Operations Area is depicted in Figure 1.3.

The landfill contracted for disposal of the sediments was Waste Management's Colombia Ridge Landfill in Arlington, Oregon. Waste Management was also contracted to transport the sediments. If necessary, the sediments would be allowed to drain within a constructed containment/staging area before loading into the rail cars. Water from the sediments would be clarified as necessary, and then returned to the waterway. Controls to be implemented to protect the water quality during sediment handling are described in the WQMP and include using straw bails and geotextile filter fabric to filter the water as specified in the Water Quality Certification (Appendix E.1).

Water quality during dredging was to be controlled using standard methods for this type of work. Required BMPs are presented in the Water Quality Monitoring Plan (see RAWP Appendix C) as required by the Water Quality Certification. Water quality monitoring procedures to verify that the water quality protection standards were to be achieved during construction are included in the WQMP. The field and quality assurance procedures to perform the sediment confirmatory sampling and water quality sampling are described in the FSP and QAPP (see RAWP Appendices D and E) respectively. Contingency actions are also discussed within these documents.

The following sections of this chapter describe how the remedial action was implemented for Phase I.

3.0 REMEDY CONSTRUCTION SUMMARY – PHASE I

3.1 MOBILIZATION

Site mobilization began in early July 2003 with installation of temporary fencing, construction trailers, and associated infrastructure. Stockpile areas for treated wood debris from demolition were constructed. Debris booms were placed in the water to contain floating debris. The general contractor for Phase I was ACC Hurlen Construction (ACC), with R.H. Rhine Demolition (Rhine) as a major subcontractor. Waste disposal for treated wood, soils, and sediments was provided by Waste Management, Inc.

A significant mobilization item was the steel sheet piles for construction of the bulkhead. These steel sheets were delivered directly from the suppliers to two coating contractors. The coating process was inspected by TRC and representatives of the coating manufacturer with the results presented in Appendix G.1. Certifications for the steel from the mill are presented in Appendix D.3.

3.2 DEMOLITION

ACC and Rhine conducted concurrent demolition activities. Rhine provided all land-based equipment while ACC provided barges and a barge-mounted crane. Wood debris was either placed on a barge which was unloaded on site into a stockpile area or transported by land-based equipment to the stockpile. In the stockpile, the debris was crushed to the maximum allowed size for eventual transportation via 48-foot steel containers to the Waste Management landfill in Arlington, Oregon. The disposition of demolition materials including concrete and steel that were recycled, wood that was salvaged, and soil that was taken to disposal, are all summarized in Phase I Tables 2 through 5 as well as Phase II Table 2.

Demolition began on July 18, 2003. Typically, Rhine removed all pier and shipway decking while ACC removed pilings with a vibratory hammer attached to a crane mounted on a barge. Often pile removal was supplemented by an ACC crawler crane equipped with a vibratory hammer working from shore to remove nearshore piling. Typically, Rhine had a number of large pieces of equipment working on different tasks in different areas. Activities in specific areas and progress are documented in Weekly Construction Reports 1 through 15 available in Appendix H.1.

Visual monitoring of water quality was conducted during demolition and sheet-pile bulkhead construction. Observations by TRC and measurements of water quality taken by MCS Environmental are documented in Appendix E and are summarized in Section 7.1.

During Week 4 while ongoing during pile removal was underway in the North Shipway, a 50-foot portion of the old steel sheet-pile bulkhead started leaning to the southwest toward the North Shipway. This old sheet-pile bulkhead was planned to remain in place, with the new bulkhead attaching to it at WP 8. The very dense pile array in the north shipway was approximately 95 percent removed, and the removal activity was quite close to the failure

location. Work was stopped immediately while structural and geotechnical engineers were consulted.

The result of this demolition experience was to modify the construction sequence to leave some selected wooden pilings in place near existing structures. For sheets not yet driven, all demolition within 50 feet had to be completed prior to driving piling for the new bulkhead. The old failed section of sheet pile was slated for removal and replacement with an extension of the new sheet-pile bulkhead. A report documenting this is available in Appendix G.2. Appendix G.5 contains as-built drawings with areas of remaining piling shown.

Demolition was essentially completed in 14 weeks. The debris stockpile area was dismantled the following week. Final documentation of the disposition of all materials is available in Phase I Tables 2 through 5 as well as Phase II Table 2.

3.3 BULKHEAD CONSTRUCTION

Construction of the sheet-pile bulkhead by ACC began immediately after demolition. Typically, demolition of the existing bulkhead was completed just ahead of the sheet-pile installation crew. Finishing the new sheet-pile bulkhead included forming and pouring a steel-reinforced concrete pile cap, which often took place well after the steel sheets were driven.

In Week 1, ending July 20, the steel sheet piles for the new bulkhead were driven beginning at Work Point 7 (WP-7) and continuing south to WP-6. In Week 3 the sheets were extended south from WP-5 to WP-3. In Week 7, the steel bulkhead was extended to WP-2. It became increasingly clear that extensive excavation was required to clear large debris prior to driving piles.

The pile-driving crane was moved to the Pier 11 area to begin work during Week 9. The Pier 11 work was completed in Week 11, including the repair of the old sheet-pile bulkhead which began to lean during nearby demolition as described previously. Plans and procedures for the repair are presented in Appendix C and G.2.

During Weeks 11, 12, 13, 14, and 15 the remaining new steel bulkhead piling were driven from WP-2 to WP-1. By Week 19 the concrete pile cap had been poured for all of the new bulkhead sections as summarized in Table 9. Remaining backfill and compaction, paving in the Pier 11 area, and final work were completed by Week 22. Various imported materials are summarized in Tables 6, 7, and 8. Remaining work included filling the South Shipway and final paving in the Piers 9 to 10 areas. Changes to the designs for connections and terminations of the new bulkhead are presented in Appendix C. As-built drawings are presented in Appendix G.5. Monitoring the new bulkhead for movement was conducted by surveys as documented in Appendix G.3. No significant movement was detected.

3.4 CONTINGENCY AREA SAMPLING

The contingency area was established because the EPA was not sure, based on available data, that the boundaries of the LSSOU were representative of the extent of LSSOU contamination.

Lockheed Martin provided money in a fund to pay for additional sampling and additional remediation if it was warranted.

Sampling of the Contingency Area was accomplished on November 24 and 25, 2003 in accordance with the methods and procedures specified in the Sediment Characterization Sampling and Analysis Plan of October 27, 2003. The results were compared to the COCs from the ESD. A single metal (lead) exceeded the confirmational level just north of the LSSOU. The remaining analytes were well below the confirmational levels. Confirmational numbers have been defined as those concentrations that the EPA has determined to be characteristic of contamination present in the adjacent West Waterway. These confirmational numbers have been used to assist the EPA in defining the extent of LSSOU remediation; and could also be used in determining potential future recontamination. The report of the sampling and analysis effort is presented in Appendix D.4. No further work was required in the Contingency Area at the time based on these results. Therefore, the LSSOU boundaries did not change.

3.5 DREDGING

Prior to beginning dredging, an uplands facility (as shown in Figure 1.3) for offloading dredged sediment from materials barges, stockpiling it to promote dewatering, and loading the sediment on to rail cars (gondolas) was constructed following driving the last sheet pile in Week 15. The following week excavation of sediments in the beach areas commenced using standard upland earthwork equipment. This work was done at low tides. Dredged (excavated) debris and sediments were transported by truck to the dewatering and stockpile area in the former South Shipway. These materials were transported and loaded into the gondolas using front-end loaders. Dredging using upland equipment continued periodically during weeks 17, 18, and 19. Water quality monitoring was conducted during this activity as planned. Results are available in Appendix E and are summarized in Section 7.1. Dredging was undertaken using a shallow to deep pattern in order to capture any material that would become unstable and slide down the slope.

Week 20 saw the arrival of the first piece of marine dredging equipment, the 4410. This relatively small barge with a crawler-mounted excavator onboard had a hydraulically-actuated clamshell bucket and a WINOPS dredge control system. The 4410 was used to dredge areas not accessible to land-based equipment, although due to reach limitations of the excavator arm it could only dredge to about –9 feet MLLW. The relatively small size of the clamshell bucket and the smooth closing surfaces made the 4410 marginally useful due to hard digging conditions and debris. On December 9, early in Week 22, the 4410 completed its work. Water quality monitoring during this period did not show any exceedances of the water quality targets.

On December 8 the relatively larger marine dredge "Rainier" was mobilized to the site. The presence of hard material, debris, and broken off or buried piling made the use of a closed environmental bucket infeasible. A 3.5-cubic-yard digging bucket was therefore used for the remainder of the project.

The second week (Week 23) of dredging using the Rainier saw the beginning of upland segregation of much of the debris from the sediment waste stream. The debris became a separate waste stream which was shipped out by truck as documented in Table 4. The degree to which

the sediments would dewater varied over the course of the project and was impacted by rainfall. On some occasions the dredged materials were very dark and granular and dewatered well. In many cases the sediments were finer-grained and did not dewater enough to allow effective handling and shipping. By Week 26 the addition of diatomaceous earth directly to the gondolas was initiated to control water as summarized in Table 10.

On January 29, 2004, sediment grab samples were taken in accordance with the FSP in three of the 17 sediment management units (SMUs) in the Open Channel Area. Observations were made of redeposited material in the grab samples and exceedances of many of the COCs at levels of up to five times the SQS were measured. The chemical results are shown in Appendix D.1. Based on these unfavorable initial results, additional samples were obtained on February 6 and 11 using shallow core tubes to better understand the initial failure to meet SQS. Both redeposited material from dredging and in-place material that was of shipyard origin proved to have elevated levels of specific COCs compared to the required SQS for the COCs. This being the case, the Open Channel Area did not meet the requirements of the ROD and ESDs and further work was required. All sample locations and results are shown in Appendix D.1. Core logs are available in the Focused Feasibility Study Report discussed below along with additional investigational cores which correlated native material with clean results and further defined the depth of sediment contamination.

Dredging with Rainier continued with periodic water quality monitoring until Week 31, at which time the dredge barge "Susitna" arrived on site. The "Susitna" dredged until February 14, 2004, which marked the end of the in-water construction season. Approximately 74,000 tons of sediments and debris were dredged as documented in Phase I Table 1 and Phase II Table 2. Hydrographic single-beam and multibeam surveys were conducted before, during, and following dredging. Multibeam surveys from before the beginning of dredging, after dredging was completed, and after the installation of the interim cap are available in Appendix K. These surveys documented the volume of material removed, provided a general idea of the depth of the interim cap and served as the basis for additional dredge design in the second construction season.

3.6 INTERIM CAP

Following the termination of dredging, a thin layer (approximately 4 inches) of coarse sand was placed over the entire LSSOU. This material amounted to approximately 8,290 tons as summarized in Phase II Table 1. The material was intended to limit any movement of contaminated fine materials as well as to protect marine life from any harm due to exposure to COCs until dredging could resume after the end of the work window. Work window closures define the construction season for in-water work and generally preclude work from February 15 to August 15, depending on the area and nature of construction. A diver survey was conducted to document the thickness and coverage of the interim cap as presented in Appendix K.3. Overall coverage from 2 to over 4 inches of interim cap was confirmed. Cap materials were sampled for chemistry to assure they would not contribute to any COCs as well as for grain size with the results shown in Appendix D.2.

Any work conducted after February 14 was subject to a requirement that the LSSOU be periodically checked for the presence of protected juvenile salmon using approved beach-seining

methods. In the event more than a certain number of protected fish were observed, any in-water work would be stopped. Observations are documented in Appendix K.4; few protected species were observed and no interruption to operations was necessary.

3.7 HEALTH AND SAFETY

For Health and Safety Plans, please refer to individual Contractor Plans that can be found in the Master Health and Safety Plans in the archived files. The Master Health and Safety Plans for TRC Solutions can be found in Appendix B of the Final Remedial Action Work Plan.

3.7.1 Exposure Assessment

In early December 2003 while beginning dredging operations with the 4410 barge-mounted excavator, there were several health complaints by four employees of the dredging contractor working on the barge. As an immediate response, TRC instructed that all employees exposed to dredge materials wear the next more stringent level of protective clothing, Tyvek coveralls and nitrile gloves. TRC then contracted with a Certified Industrial Hygienist employed by Hart Crowser to investigate conditions and recommend any additional health and safety measures. On December 5, 2003, the worker exposure assessment was conducted including taking appropriate samples. The results of observations, measurements, and samples could not explain the symptoms reported. The results were conveyed immediately in person and in writing to the dredging contractor. The assessment results are presented in Appendix L.1. No further symptoms were reported while performing dredging from the barge.

3.7.2 Site Inspection

In response to a worker complaint from a site subcontractor, the Washington Department of Labor and Industries began a site inspection on January 26, 2004. Both TRC and a site contractor received citations as a result of the inspections. The TRC Citation and Notice of Assessment dated July 15, 2004 is available in Appendix L.2. Both TRC and the contractor appealed their respective citations. The TRC appeal request and supporting information are available in Appendix L.3. Ultimately the TRC citation was upheld as documented in Appendix L.4, with the requirement that future work conforms to a rewritten Health and Safety Plan.

4.0 PHASE II PLANNING AND DESIGN

4.1 DESIGN CONSIDERATIONS – PHASE II

4.1.1 Addendum Statement of Work

Due to the difficulty in achieving Sediment Quality Standards in the Open Channel Area, the EPA issued an Addendum Statement of Work on April 19, 2004 which required the following:

1. assess whether areas outside the perimeter of the LSSOU have become contaminated with COCs above levels specified;

2. identify and evaluate other dredging methods or approaches that could be adopted for the open-water area of LSSOU and, if necessary, outside the LSSOU;

3. identify and evaluate contingent remedial alternatives that could be implemented if dredging does not result in obtaining the SQS at the sediment surface in the open-water area or cleanup numbers specified for areas outside the LSSOU;

4. development of an addendum Remedial Action Work Plan addressing additional remedial action necessary to successfully complete the remedy; and

5. performance of approved remedial action.

Specifically the following deliverables were required:

1. Focused Remedial Investigation/Feasibility (RI/FS) Study Work Plan
2. Data Report
3. Focused RI/FS
4. Revised or Addendum Design Plans and Specifications
5. Addendum Remedial Action Work Plan or other deliverables as necessary to implement the remedy

4.1.2 Remedial Investigation

The draft Sampling and Analysis Plan was submitted on April 16, 2004 and the samples were taken from May 19 through May 28, 2004. In addition, a video survey was completed on May 6, 2004 and a follow-up diver survey conducted on July 13, 2004 (Appendix M.1) to further investigate the presence and type of debris. The results were combined with previous data taken at the end of the 2003-2004 construction season and presented in the Focused Feasibility Study Report. The data showed relatively widespread exceedances of the SQS for a relatively limited set of COC metals in the Open Channel Area. These metals were present in redeposited fine-grained material which was either lost during dredge bucket activity or disturbed by the bucket and not recovered in the bucket. Metals were also found in shipyard waste and debris that had not been dredged. Areas outside the LSSOU remained within allowed parameters for the West Waterway as presented in Appendix D.2, indicating the redeposition was minimal and localized. Debris were detected by video survey and confirmed by diver survey in the Open Channel Area

and were most prevalent near the eastern boundary of the Open Channel Area at the toe of the Slope Area.

4.1.3 Focused Feasibility Study

Many options for dredging the Open Channel Area were evaluated and compared in the Focused Feasibility Study prepared by Landau Associates in consultation with MCS Environmental, TRC, and Dalton, Olmsted & Fuglevand. Alternative 3, Mechanical Dredging with Optional Enhanced Natural Recovery (ENR), was recommended as the best remedial alternative. ENR is the application of a relatively thin layer, usually approximately 10 cm, of sand or other fine grained material to the top surface of a contaminated surface. ENR is an acceptable remedy when information shows that the top 10 cm of surface will meet the SQS within 10 years of application through bioturbation of the clean and contaminated layers. As additional sediment is deposited on the mixture through natural processes, the exposure to marine organisms is further reduced. A spreadsheet of relative concentrations and thicknesses of redeposited material and associated ENR application thicknesses was prepared in the event it was needed.

4.2 REVISED DREDGE AND CAP DESIGNS AND SPECIFICATIONS

Based on the analytical results and associated sample depth intervals, the dredge prism was modified by Dalton, Olmsted & Fuglevand. Not only were the chosen finished depths different from the original design but a considerable amount of detail was added to the plans and specifications relative to equipment and methods. Per the Dalton, Olmsted & Fuglevand drawings, as approved for Phase II, the areas to be dredged were divided into Dredge Sediment Units (SEDs) and Remaining Debris Fields (D). Plan notes indicated that the dredging was to be accomplished in two passes, with the first pass picking up the remaining debris and dredging each separate SED to within 2 feet of the desired depth. The second pass was targeted to dredge the remaining 2 feet in order to reach the desired depths and construct the desired 2:1 slope at the toe of the slope. The cap design was modified to reflect the revised dredge design using the same set of design parameters as used originally. Specifications were revised as well and included a provision for transportation of dredged material to the Terminal 25 offloading facility for transfer to rail as opposed to the on-site offload/rail load system used during the first construction season. Phase II plans and specifications are available in Appendix L.

A separate proposed design change relative to cap construction was prepared after the beginning of dredging as shown in Appendix C as a Technical Memorandum prepared on October 22, 2004. This design change examined the feasibility of using alternative materials for armoring the cap in the slope area. This change was intended to provide a cap that was just as stable and environmentally effective as the originally approved cap, but which was easier and quicker to construct and provided a better habitat surface. Substitution of a 3-foot thickness of cobbles for the originally approved 2-foot thickness of riprap and 1-foot-thick geotechnical filter layer was recommended on slopes of 5H:1V.

Associated with this further design analysis was the decision to use a variety of habitat enhancement materials instead of one habitat mix. This approach was intended to provide a more stable habitat mix from the perspective of erosion while providing the maximum habitat enhancement possible from the introduction of a wide variety of grain sizes. Mix design was

based on providing large enough grain size to resist erosion along with smaller grain sizes that may not erode but would be preferable for fish habitat. Based on the slope grade and elevation, three habitat mixes were used in the beach area. The originally specified fish mix (Glacier Mix #7123) consisting of a large gravel and coarse sand fraction was used in the north end of the beach area where erosion potential was greatest. A pit-run material (Washington Rock #020) consisting of a very wide range of particle sizes ranging from fine sand to cobbles was used in beach areas with slopes of about 8:1 and in areas more exposed to northerly wind waves. For beach areas with gradual slopes in the 10:1 range and more protected areas, capping sand consisting primarily of coarse sand and small gravel (Glacier #7180) identical to that used in the cap-isolation layer was applied. For riprap slopes deeper than approximately –3 feet MLLW, the originally specified fish mix (Glacier Mix #7123) was applied using marine equipment.

4.3 REVISED REMEDIAL ACTION WORK PLANS

Amendments and revisions to the Remedial Action Work Plan used during the first construction season included:

1. Sediment Dredging and Materials Handling Plan (Appendix H.1)
2. Diver Survey Plan – Initial Cap Layer (Appendix H.2)
3. Remaining Piling Removal Plan (Appendix H.3)
4. Waterway Capping Plan (Appendix H.4)
5. Upland Capping Plan (Appendix H.5)
6. Revised Health and Safety Plans for both TRC and the contractor, American Construction.

5.0 REMEDY CONSTRUCTION SUMMARY – PHASE II

5.1 DREDGING

To reduce to an absolute minimum the potential for redeposition of dredged materials, a three-step operational approach was adopted. First, any identified debris areas would be dredged to clear the debris using a standard digging bucket. Second, an initial dredge pass using the same bucket would be made over the entire operable unit to remove the bulk of the contaminated material and any remaining debris, leaving behind a final layer less than one-foot thick. The final pass would use an environmental bucket to dredge the final, relatively thin layer and any redeposited material from the initial debris clearing and first-pass dredging. The final pass would be dredged to the native material because analytical data from cores indicated that contamination extended to native material and that the native material was clean. At times, scrapping the top of the native material with the environmental bucket was necessary to remove residual contaminated material left behind after the final pass.

The contractor, American Construction, proceeded to dredge the first pass utilizing a 5-cubic-yard digging bucket. This operation took place in a southern to northern pattern with the first pass beginning on October 19, 2004 and being completed on October 28, 2004, as described in Weekly Reports 1 and 2. The materials were brought to the surface, held just above the surface in order to allow the water to drain from the bucket, and placed in a materials barge equipped to dewater the sediments. The barge typically was filled within two to three days. It was left moored over the work area to allow for farther drainage overnight. The following morning the barge was towed over to Terminal 25 for unloading by RABANCO (see RABANCO Certificates of Disposal for Barges in Table 9) and shipment to an upland disposal facility.

American Construction utilized two barges for this operation, the Skagit and the Dungeness, with one being filled while the other was being unloaded. Straw bales were placed around the open end of the barges to filter the escaping water from the sediments and a filter liner was installed on the inside perimeter wooden bulkhead. Any damage to the fabric was repaired immediately to ensure continuous compliance with the BMPs.

Water quality monitoring was accomplished through both visual observation and testing. MCS personnel conducted water quality monitoring on October 22 and 28 as well as on November 1 and 3. No exceedances of compliance criteria were noted throughout the operation (see Appendix A.2 - Olcott Daily Diaries and Appendix F - Water Quality Monitoring).

Progress surveys were taken by the contracted survey group, Chris Ransome & Associates, Inc. (CRA-NW), on October 20, 22, 25, 27, and 29. The primary purpose was not only to determine the depths being achieved but also to determine whether any "sloughing" had occurred. In general, the depths observed during dredging were identical with those measured by the progress survey and no significant sloughing was identified.

The second dredging pass utilized a 6-cubic-yard closed environmental bucket and, once again, the work began at the southern end of the project and proceeded northward. This effort began on October 30, 2004 and was initially completed on November 12, 2004 as documented in Weekly

Reports 3 and 4. Progress surveys were taken for this portion of the dredging effort on October 30 as well as on November 2, 5, 11, and 14.

During Weeks 3 and 4, qualitative sediment sampling was conducted with a small grab-sampling device. The results are presented in Weekly Reports 3 and 4 and indicated in nearly all cases that native materials were encountered, indicating redeposition was not likely to be a problem. At various times during the second-pass operations, sediment samples were taken using composite cores to determine whether the second-pass dredging operations were adequate in the removal of undesirable sediments. These progress samples were taken on November 4, 10, and 11 and are discussed in the applicable Weekly Reports with the data presented in Appendix D.3. Sample locations are shown in Figure 1.1.

It was determined from further analytical testing of individual progress sample cores that several areas were in need of further dredging in order to reach the required SQS. These areas were targeted in consultation with the EPA and dredged to a predetermined depth based on results of cores, or refusal, which ever came first. Refusal was targeted as the underlying native sand which was clean (based on analytical chemistry) and relatively hard, assuring a clean surface. This work took place on November 13, 16, 18, 19, and 21 and is further described in Weekly Reports 5 and 6.

A final round of progress samples were taken using a van Veen grab sampler at various locations on November 22 to document the condition of the sediments following final dredging in the targeted areas. The chemical results were analyzed and a determination was made in consultation with the EPA that no further dredging was necessary. Appendix D.5 contains these results with sample locations depicted in Figure 1.1. The western portion of SMU 27 continued to exceed all of the COCs while the other targeted areas (portions of SMUs 20, 24, 25, and 34) continued to only exceed the SQS for mercury. Appendix D.6 contains a compilation of final surface data from the Open Channel Area at the completion of the redredging effort. It should be noted that the Open Channel Area was subject to one additional round of confirmatory sampling after the completion of cap placement. This sampling effort is described at the end of Section 5.2 Waterway Capping-Marine Equipment below.

A final multibeam survey for the entire site was taken on November 22, which was used as the baseline survey for the capping effort. Results indicated that targeted dredge depths were met or exceeded. The final quantity of dredge material delivered to RABANCO was 20,106.5 tons, as document in Table 7, Certificates of Disposal attached to each weekly report, and Table 9. Phase II Table 2 further summarizes all waste streams for both project phases.

During dredging, the condition of the sediments at the toe of the Slope Area came into question for several reasons. The boundary between the Slope Area and the Open Channel Area was the pierhead line. Sediments west of this line were required meet the SQS; east of the line the sediments were subject to capping and did not need to meet the SQS. Dredging at the toe of the slope provided mixed results due to a certain amount of material from the slope moving into the dredged area in some instances. In some respects the more the area was dredged the more it filled up with slope material. One solution would have been to dredge the entire slope area an additional amount, which would have decreased the intertidal habitat and greatly extended the

project. The area in question was relatively narrow, on the order of 10 feet in width. Due to the placement of the rock berm or buttress, this area was also going to be under the cap. For these reasons it was decided to leave this material in place and document its existence. A Sampling and Analysis Plan was prepared and a series of core samples were taken. The results are presented in Appendix D.2 and have been provided to the Port of Seattle. The Port has been provided with an indemnity for increased costs due to this material in the event the area is dredged and the rock buttress and associated cap removed.

5.2 WATERWAY CAPPING – EMPLOYING MARINE EQUIPMENT

The waterway capping effort in the areas deeper that approximate elevation 0 feet MLLW commenced on November 23, 2004 and was completed on February 3, 2005 as documented in Weekly Reports 6 through 16. A Capping Plan is included within this report for methodology. All of these efforts can be reviewed through the Dana Olcott material recaps and daily diaries that accompany this report in Appendix A.2 and in Table 3.

Initially a toe buttress of riprap was placed from south to north along the western boundary of the slope area of the project. This material was Glacier Product #7360 and was placed from November 23 to December 1, 2004 (see drawing sheets C-8 through C-16 and Weekly Reports 6 and 7) with the exception of Station 14+17 to 15+91, which was placed on December 21, 2004. In a previous meeting with the EPA, it was determined that this imported riprap material did not need to be chemically analyzed because of lack of fines.

After the buttress was in place, the first layer of attenuation material consisting of gravely sand, Glacier Product #7180 was placed (approximately 1-foot thick – see test results on material in Section 5.4). This was done for approximately half of the project site from Station 0+16 northward to 8+50. Due to an agreement with the EPA, the entire site was not done at once in order to help ensure that the layer would not be exposed to currents for a long period of time. This effort commenced on December 2, 2004 and was completed on December 4, 2004 as documented in Weekly Reports 7 and 8. A diver survey on December 5 was conducted to check for uniform coverage and stability of the material on the slope with favorable findings of at least one-foot of a relatively uniform thickness. No indications of sliding or other accumulation were noted. The Diver Survey Plan is shown in Appendix H.2 while the survey results are in Appendix M.2.

The second lift of gravely sand attenuation material was then placed to achieve the desired 2-foot-minimum thickness. This operation began on December 6, 2004 and was completed on December 9, 2004 as documented in Weekly Report 8. The second layer was also targeted to construct the desired 2:1 slope per the plan's pages C-19 through C-23. To accomplish this slope, additional material was applied in specific areas. Multibeam progress surveys were completed on November 27 and 29 as well as December 1, 5, and 8 to document the placement of gravely sand attenuation material. Survey results indicated that application rates and methods were effectively meeting design grades and thicknesses.

The rig then moved back to Station 0+16 at the southern project boundary and began application of the required minimum of 1-foot of angular filter rock. This material was Titan Rock Product #5QS 1A, and as with the riprap, no analytical testing was required due to the lack of fines

within the rock. This application began on December 10, 2004 and was completed on December 11, 2004 as discussed in Weekly Reports 8 and 9. A multibeam progress survey was completed on December 12 to document the filter placement, which was indicated to be uniform and of the intended one-foot thickness.

Again, the rig returned to Station 0+16 and began placement of the required 2-foot minimum of armor rock (riprap) on top of the filter rock. This operation began on December 14, 2004 and was completed on December 22, 2004 as documented in Weekly Reports 9 and 10. Except for the top layer of fish mix, which was scheduled to be applied at the end of the project, this riprap layer completed the cap construction using waterway equipment for the south half of the project.

By late December the cap application in the shallow areas, using upland equipment (described in Section 5.3), was complete (less habitat enhancement materials) for the southern half of the project. During this work, certain limited areas were not accessible due to the tides and because the land-based equipment could not place their 3-foot layer of rounded gravel/cobble filter material. As a result, the waterway equipment placed this material on December 23, 2004.

The northern half of the cap installation, using marine equipment, began on December 24, 2004 with the installation of the first 1-foot-thick pass of attenuation layer material (see plan's pages C-23 through C-27). This was completed on December 29 as documented in Weekly Reports 10 and 11. A multibeam progress survey on December 30 tracked attenuation material placement in the north as well as the recently-completed southern riprap layer. On January 2, a diver survey was conducted to check for uniform coverage and stability of the first pass as documented in Appendix M.2. The sand was found to be uniformly distributed with the appropriate thickness and showed no signs of sluffing or raveling on the slope.

The second-pass layer of attenuation material was then installed from December 30 through January 6, 2005 as discussed in Weekly Reports 11 and 12 (chemical analysis was done on this material again with the results in Appendix D.3). This pass completed the minimum 2-foot layer thickness target and provided the necessary 2:1 slope through the application of additional material in selected areas. As previous, a multibeam progress survey on January 6 documented this effort.

Application of the northern half of the filter layer commenced on January 10 and concluded on January 12, 2005 as documented in Weekly Report 13. On January 10, additional attenuation sand was placed over areas where divers were not able to cut off remaining pilings until after the first attenuation layer had been placed. The additional material insured the minimum of 2 feet of coverage was in place over these cutoffs between Stations 13+17 to 14+45. On January 6, a multibeam progress survey documented northern filter placement.

The placement of the armor rock (riprap) over the filter layer in the northern half of the site began on January 13, 2005 and was completed on January 24, 2005 as documented in a multibeam progress survey that day and Weekly Reports 13, 14, and 15.

The previously-approved fish mix, Glacier Product #7123, was tested for appropriate chemical parameters (see Appendix D.2) and placement of the product began on January 25, 2005. The

material was placed in variable thicknesses based on depth as per approved plans over the entire cap area recently placed by the marine equipment. In addition, in the Pier 11 area the material was placed on the beach area since this area was not readily accessible by upland equipment as previous. The fish mix application was completed on the February 2, and is discussed in detail in Weekly Reports 15 and 16. Because of a mix-up by the material supplier in loading a barge, attenuation layer material (gravelly sand) was placed in portions of the former Pier 11 area. Once the mistake was discovered, a meeting was held with the EPA where it was agreed upon to add the missing larger rock fraction of the fish mix to this area. This application was accomplished on February 2.

A final multibeam survey of the completed cap, including fish mix as placed by marine equipment, was completed on February 8, 2005. Final waterway capping material placement quantities can be seen in Tables 2, 3, and 4. Appendix J.1 through J.4 summarizes the survey methods employed and presents the final survey results, indicating that design thicknesses and slopes had been constructed.

Confirmatory sediment grab samples were obtained from the Open Channel Area on January 21, 2005 (see Appendix D.8 and Figure 1.1). Three of the eight samples exceeded the SQS for several parameters while one sample exceeded only for Total PCBs. Based on the chemical results of these samples, three limited areas were targeted for the application of a thin layer of Enhanced Natural Recovery material. This final application took place on February 3. The confirmatory samples were subjected to full data validation by Sayler Data Solutions for all COCs including organics as reported in Appendix D.9. All data were found to be qualified and accepted for use. Figure 1.1 depicts the various areas and the rationale for approving that they met the Remedial Action Objectives.

5.3 WATERWAY CAPPING – EMPLOYING UPLAND EQUIPMENT AND METHODS

The beach portion of the waterway cap in the elevations shallower than approximately 0 feet MLLW commenced on December 8, 2004 and was completed on January 14, 2005 as documented in Weekly Reports 8, 9, 10, 11, 12, and 13. The majority of the work was accomplished during two low-tide cycles at night (December 8 through 17 and January 6 through 14). The cap was placed utilizing upland equipment and methods (i.e., loaders, dozers, and a Telebelt mobile conveyor system which placed the attenuation layer) with BMPs strictly enforced. The cap in this area utilized the alternative cap design discussed above on slopes of 5H:1V. This alternative design consisted of 2 feet of attenuation material overlain by 3 feet of cobbles to serve as a geotechnical/armor layer. All slopes steeper than 5H:1V were constructed using the standard cap design. These areas included all the slopes immediately adjacent to the bulkhead. Final quantities utilized are shown in Table 4 of this report. An Upland Capping Plan is included in this report for methodology (see Appendix H.4).

The attenuation material consisting of gravely sand, approved Glacier Product #7180 was placed from approximate Stationing 0+16 to 7+50 (south to north) from December 8 through December 14 and from 15+50 to 7+50 (north to south) between January 5 and January 10, 2005. This material was placed to the full height required to meet a minimum of 2 feet (see approved Phase II specification drawings C-19 through C-27). A relatively simple system was employed

to ensure the material met the 2-foot thickness requirement. Prior to placing material, a series of grade stakes were driven into the beach and flagging was tied 2' 4" above the existing grade. The Telebelt operator was stationed on the beach to observe placement of the material and was able to move the belt using remote control to place the required material to bury the flagging.

The 3-foot-thick geotechnical/armor layer, consisting of a rounded gravel/cobble mix, approved Washington Rock Product #040B, was then applied while the latter stages of the attenuation material were still being applied further up the beach. This effort began on December 11 and was completed on December 16, 2004 at Stationing 0+16 to 7+50 (south to north) and on January 8 through January 14, 2005 for Stationing 15+50 through 7+50 (see approved Phase II specification drawings C-19 through C-27) from north to south. A system similar to the attenuation material was employed to insure the 3-foot-thickness geotechnical/armor layer was placed. Grade stakes were driven into the existing attenuation layer and flagging attached 3 feet above existing grade. A small bulldozer then graded the material from the supply point near the bulkhead or upland supply area down the beach to cover the flagging at each grade stake.

The southern portion of the boundary rock (riprap) was placed on December 13 (see approved specification drawing detail 4 on sheet C-28) followed by the sheet-pile wall armor rock (riprap) from December 14 through December 17, 2004 (see approved Phase II specification drawing detail 3 on sheet C-28) from south to north. Simple measurements of area covered and intended height provided confirmation that riprap was placed according to plans. These were confirmed by tracking delivered versus used quantities.

The northern portion of the boundary rock was placed on January 11, 2005 followed by the sheet-pile armor rock (riprap) being installed from January 11 to January 15, 2005 (see approved Phase II specification drawing detail 3 on sheet C-28) and again installed from north to south. The reason the north to south effort was instituted was because TRC wished to complete the portion adjacent to the BP property as we wished to restore the parking lot for their use as soon as possible.

Quality-assurance topographic surveys, using standard upland survey equipment and methods, were taken for the first portion of the placement on December 6, 9, 11, and 14. Topographic surveys were taken for the second portion on January 7, 9, 11, and 14. A final survey was taken over the entire beach portion of the waterway on February 28 during a low-tide period. The final survey figures are shown in Appendix J of this report and indicate that within the uncertainties of the surveys and construction methods employed, cap construction met the design parameters.

Approved fish-mix materials were then applied using upland equipment during low tides to elevations –3 feet MLLW and shallower (as indicated on approved Phase II drawings C-30) in the beach application areas with the exception of the area adjacent to the BP property, which was placed with waterway equipment by American Construction as described previously. Besides the originally-specified fish mix placed by American Construction, the two additional fish-mix materials were Glacier's #7180 (same as the attenuation layer) and Washington Rock's Pit Run Product #020. These were applied in a 1-foot thick layer over the top of the geotechnical layer material. As mentioned previously, grade stakes were driven into the geotechnical/armor layer and flagging was attached one foot above existing grade. The appropriate fish mix for each area

of the site was then placed by a small bulldozer from the supply point next to the shoreline down the beach to cover the flagging on the graded stakes. In addition, the required 1 cubic foot per lineal foot "feeder" berms were also installed per the plans. This effort, for the entire site, was accomplished from south to north between January 13 and February 3, 2005.

Tables 1, 6, 7, and 8 contain a summary and supporting details of upland capping activity.

5.4 MITIGATION AREA CONSTRUCTION

The mitigation area construction took place during both low-tide cycles and non-low-tide cycles as shown on the approved Phase II drawings on page C-29. All work was done with upland-placement equipment.

Similar to the previously-described beach areas, a 5-foot-thick cap was installed (2-foot chemical attenuation layer with a 3-foot rounded rock geotechnical layer on top) from elevation +2 feet MLLW to approximate elevation +10 feet MLLW. This was followed by placement of armor cap material (riprap) between elevations +10 upward to approximately +16 at a slope ratio of 2:1. Fish mix was applied to the area on February 3, 2005 with the required feeder berm installed on the 16th.

Douglas fir logs, per the plans, were then attached to the top of the armor rock at the grade break between the upland planting area and the beach/mitigation area. Geotextile fabric was spread along the upland side of the armor material and on top of a base layer of rounded rock in the planting area to preclude the loss of material from the planting area. This work was completed on February 10 and 11, 2005.

Following completion of the earthwork, the remainder of the Mitigation Area (the planting area) was constructed per the Habitat Mitigation Plan page C-3A prepared by Hart Crowser for the Phase I construction. Woody debris obtained from the US Army Corps of Engineers was placed and secured in the upper beach area. Topsoil material (50/50 garden mix from Palmer Coking Coal Co.) was brought in for the planting area and placed on February 15 and 18. Planting mix (Steerco from Sawdust Supply Co.) was brought in on February 18 and installed. MCI, Inc. was contracted to perform the planting and this was done on February 22, 2005. These also were installed per the Hart Crowser Habitat Mitigation Plan page C-3A.

5.5 HEALTH AND SAFETY

For Phase II Health and Safety Plans, please refer to individual Contractor Plans contained in the Master Health and Safety Plans in the archived files. Each Contractor that performed operations that were not in their original plans had to modify their plans as needed. One example was the plan modification to reflect barge decontamination following the completion of sediment dredging performed by American Construction.

The Master Health and Safety Plans for TRC Solutions can be found in Appendix B of the Final Remedial Action Work Plan.

No citations or incidents occurred during Phase II of the remedial construction.

6.0 CHRONOLOGY OF EVENTS

Table 13 in the Phase II supporting information provides a summary of major events for both Phase I and Phase II as well as activities prior to these activity periods.

7.0 PERFORMANCE STANDARDS AND QUALITY CONTROL

7.1 WATER QUALITY MONITORING AND MANAGEMENT

Water quality monitoring was to be conducted for the following major construction phases:

- Bulkhead replacement
- Pier demolition
- Dredging
- Capping
- Barge dewatering
- Upland sediment dewatering

This monitoring effort was to provide information and document the potential effects of the construction activities on the environment in accordance with the Water Quality Certification as shown in Phase I Appendix E.1. Visual monitoring was to be combined by monitoring with instruments. Monitoring stations including reference stations, mixing zones, and points of compliance were established for each activity. A tiered monitoring schedule of intensive, routine, and discontinued monitoring was established based on the length of time the construction had been ongoing without an exceedance of the compliance criteria. Temperature, dissolved oxygen, turbidity, salinity, and total suspended solids were standard monitoring parameters. COCs were periodically sampled and analyzed based on the monitoring schedule. Reporting and notification procedures were established for routine and non-routine operational situations.

BMPs were specified for each construction operation and included visual monitoring of any plumes along with BMP inspection and documentation as shown in Phase I Appendix E.2. In-water BMPs included prohibition of work during work-closure periods; inspections to preclude the introduction of foreign materials to the waterway; the use of certain types of demolition, dredging, and capping equipment; the use of booms and silt curtains to contain debris and suspended material; and specifications for dewatering sediments.

The results of water quality monitoring were, with very limited exceptions, within the compliance criteria as shown in Phase I Appendix E.3 and Phase II Appendix F.1. On a few occasions, analytical chemistry results indicated exceedances of the ambient water quality standard for copper. When compared to reference values obtained outside the area of operations, the copper values were nearly identical, indicating no contribution from the construction activities. On one occasion, when an exceedance for turbidity was noted for upland sediment dewatering, it was attributed to nearby dredging that was well within the dredging mixing zone. On one occasion, very low levels of dissolved oxygen were measured which were shown to be an equipment malfunction which was repaired. Daily water quality reports were prepared and weekly summary reports were completed and included in the weekly construction activity reports.

7.2 DEMOLITION

Inspection activities were to include documentation of the numbers, types, and dimensions of the pilings removed, along with their condition and the locations of broken pilings. Confirmation of compliance with project plans and specifications were also to be documented, including verification that broken pilings are cut off below the bottom elevation of the cap. Demolition equipment, progress, obstructions, etc. were to be closely tracked. Documentation was to note measures used to contain debris and creosote from pilings, as well as inspections for the integrity and effectiveness of such measures.

Each load of debris was to be inspected prior to off-site transport to assure the containers are full and properly closed to prevent loss during transport, and to assure that the vehicles would not track out contaminated materials. The number of loads leaving the site and arriving at the destination landfill were to be documented, and the net weight of each load measured at the disposal location and recorded. Waste management is further discussed in Section 5.4 of the RAWP.

A summary of demolition quality control and project progress records for Phases I and II are shown in Tables 11 and 10 respectively. These tables reference report appendices, figures, and tables to applicable project components (demolition, bulkhead construction, dredging, and capping).

7.3 BULKHEAD CONSTRUCTION

Planned activities included documenting the methods, materials, and equipment used, confirmation of compliance with project plans and specifications, and with general conditions related to the existing bulkhead, embankment, and obstructions. Sheet-pile installation locations and depths were to be surveyed to verify that installation is acceptable. Locations of bulkhead failure and bank instability were to be closely monitored. Activities which may be causing failure or instability would be modified as practical. Documentation was also to include containment measures to mitigate potential water quality impacts.

In addition to planned standard upland BMPs, during a substantial portion of the bulkhead construction the wooden bulkhead was removed prior to driving the steel sheet piles due to problems with instability caused by removal of wooden pilings with a vibratory hammer. As a result, the shoreline was not protected from wave and tidal action, potentially causing erosion and water quality impacts. This situation was effectively addressed by constructing a temporary wall of interlocking concrete blocks until the steel sheets could be placed. The wall was then relocated to the next section of new bulkhead construction. This reduced erosion substantially and limited water quality impacts to inside or very near the temporary wall.

A summary of bulkhead construction quality control and project progress records for Phases I and II are shown in Tables 11 and 10, respectively. In general, it was not difficult to build the new bulkhead during the dry season while employing the planned BMPs as supplemented as described above.

7.4 DREDGING AND CAPPING

Inspection, verification, and monitoring were to be performed to confirm compliance with the project plan and specifications. Key activities for this element of the work included the contractor monitoring the location being dredged and the depth of dredge for that location (using specialized equipment on the dredge), and establishing horizontal and elevation survey control systems that are acceptable to TRC and the EPA (i.e., meet the performance requirements designated in the Project Specifications). The horizontal survey was to be used to verify that sediment dredging and capping had been completed over the intertidal and subtidal areas of the site according to the Project Plans and Specifications. The vertical survey was to be used to verify that required dredging depths and capping thickness for each capping layer were achieved. Survey reference points and base stations were to be staked and maintained by the contractor until TRC determined that dredging and capping have been completed. Permanent survey markers were to be left in place for the purposes of long-term monitoring of the slope area cap and sedimentation in the channel excavation area.

Both land-based and hydrographic survey methods were used. The methods and performance standards for surveys are described in detail in the Project Specifications. Further information is provided in the contractors Hydrographic and Survey Plan provided as an attachment to the RAWP. A key goal of the CQAP was to assure that the surveys adequately verify compliance with the design and specifications.

Verification monitoring for the dredging also included collection and analysis of sediment samples in the open channel area to confirm attainment of the SQS. This confirmation sampling is discussed in Chapter 6.0 of the RAWP.

Inspection and monitoring of off-site transport of materials being disposed was to include confirmation that any containers loaded at the site were closed and protected from spilling or leaking, counts of the containers leaving the site, and measurement of the weight or volume of material disposed at the landfill. When an off-site transloading facility was used, some of these responsibilities will be the transloading facility operators. Waste management is further discussed in Section 5.4 of the RAWP.

There was also confirmatory sampling performed to verify chemical levels in the capping materials. This sampling and the performance standards are discussed in Chapter 6.0 of the RAWP. Data validation was to be performed on selected data as per the RAWP.

A summary of dredging quality-control and project progress records for Phases I and II are shown in Tables 11 and 10, respectively. In general, the records indicate that improvements in dredging equipment and methods employed during the second construction season were instrumental in largely achieving the SQS in the Open Channel Area. Redeposition was likely eliminated as an issue due to the use of debris clearing, two-pass dredging, and an environmental bucket for the second pass. The concurrent use of upland and marine equipment allowed the schedule to be met and provided for a simple and reliable method of constructing a multi-layered cap. Water quality exceedances beyond background conditions were minimal during both construction seasons.

7.5 DISPOSAL

The contractor was to conduct regular inspections of all liners, stockpile covers, and other containment structures to ensure adequate containment, protection from erosion, and use of BMPs (including upland operations during Phase I). Any deficiencies in the containment barrier integrity were to be noted along with the corrective actions taken to repair or replace the liner. A Contingency Plan was developed as part of the RAWP to describe procedures to control and report spills or releases of contaminated materials, fuels, and other chemical products in use at the site.

The dredging contractor, waste management contractor, and/or T-25 facility operator were to provide written documentation for all materials shipped for off-site landfill disposal. Truck weight tickets or barge displacement calculations indicating tonnage received and weekly reports were to be provided. Written documentation was to also include a complete accounting of the reuse, recycling, or disposal of all other materials removed during construction and demobilization.

A summary of disposal quality control and project progress records for Phases I and II are shown in Tables 11 and 10, respectively.

8.0 LONG-TERM OPERATIONAL, MAINTENANCE AND MONITORING

A Long-Term Operational, Maintenance and Monitoring Plan (OMMP) is required by the second ESD to detect any future contamination of the LSSOU as well as the failure to adequately confine the existing underlying contaminated sediments. The OMMP was recently submitted for EPA review and contained the following items as required by the ESD:

- monitoring of dredged sediments for recontamination with COCs at specified intervals, or based on previous monitoring results and following disruptive events such as significant storm, dredging, earthquake events.

- monitoring for cap integrity to determine compliance with performance requirement, including cap thickness and uniformity via bathymetric surveys, and deposition of sediment or organic materials at specified intervals or based on previous monitoring results and following disruptive events such as significant storm, dredging, earthquake events.

- monitoring to determine compliance with source control performance standards.

All monitoring activities will be subject to EPA's review, approval, oversight and reporting requirements. These activities must be maintained for 30 years.

9.0 SUMMARY OF PROJECT COSTS

As shown in Table 11, actual project costs were about $20 million versus estimated costs of approximately $12 million for Strategy 18C in the ESD. The ROD cost estimate was only $4.5 million, but was based on only addressing the Open Channel Area. Direct comparisons by line item are difficult because the ESD estimating system and the actual project cost accounting system did not use all of the same elements. This is not unusual; for instance, an estimate would typically contain a contingency item while project spending does not provide for procurement of anything but goods and services. The ESD estimate has a line item for contractor overhead and profit of $1.23 million, which is apportioned among the various contractor items in the project accounting system.

There was a nearly $2 million difference between the ESD estimate and the actual bulkhead construction cost. The ESD assumed the wood bulkhead would be repaired while the entire bulkhead required demolition and replacement. Similarly the ESD estimate for demolition is less than the actual by $1.6 million. Significantly more demolition was required for the wood bulkhead and additional pilings that were encountered, which increased the cost. While dredge volumes were approximately 20 percent or more above those anticipated, this does not account for the 176 percent increase of actual above estimate. The presence of extensive amounts of debris as well as areas of extremely hard digging conditions due to shipyard wastes having been consolidated or fused with corrosion products combined to reduce dredging production by half for a significant portion of the project. The unit rates in the estimate were typically significantly less than actual rates. Two mobilizations to the project were required as well.

Disposal costs were $4.6 million as compared to an estimate of $2.85 million. There was no provision for disposal of treated wood in the ESD estimate, which accounted for $0.6 million of this difference. Unit disposal costs in the ESD were $42 per cubic yard while actual costs were approximately 50 percent greater due to the difficulty of handling and dewatering these materials.

Actual capping costs were $2.4 million versus the estimated $0.89 million for approximately the same amount of material. Direct cost comparisons are complicated by the use of upland delivery and application methods for a portion of the cap in addition to the introduction of cap materials such as pit run, filter material, and cobbles that were not anticipated in the ESD. Unit rates for actual costs were about 30 percent above the estimated values.

Costs for construction management and administration were about $2 million more than estimated in the ESD. This was a larger and more complicated project than originally envisioned when the ESD estimate was prepared. With the addition of a completely new bulkhead, the construction management was much more intense and was complicated by the failure of the old sheet-pile bulkhead. Nearly every project component was complicated by unanticipated field condition which required additional management and administrate efforts. The length of the project was likely longer than anticipated so the greater level of effort was also maintained over a longer time period.

10.0 OBSERVATIONS AND LESSONS LEARNED

10.1 DEMOLITION AND BULKHEAD CONSTRUCTION

During demolition and bulkhead construction, problems were encountered with piling removal creating relatively localized instability. Vibratory removal of piling, especially in very dense arrays typical of shipways, produces a large amount of energy which liquefies sediments to some extent. In addition, removal of piling creates voids, further reducing stability. In the shipways, the piling were often driven touching one another and several instances of pulling two or even three piling were noted when the jaws of the vibratory hammer were closed.

When this removal activity was conducted near existing structures such as sheet-pile bulkheads, they were subject to movement or leaning. In the case of the old sheet-pile bulkhead, about 50 feet of the bulkhead failed through leaning several feet. This structure was extremely corroded, especially at the mudline, and had lost essentially all the wall thickness from corrosion, spalling of corrosion products, and subsequent additional corrosion of the newly-exposed surfaces. In addition, the tie backs were made of steel which had corroded through in two cases. This structure was marginally stable prior to demolition of the immediately-adjacent north shipway, so it is not surprising that the bulkhead failed.

Another, less-dramatic, example occurring in the south shipway. In this case, the new bulkhead was driven but the concrete pile cap was not constructed prior to demolition in the adjacent south shipway. Some deflection of the new bulkhead was noted, at which point demolition was stopped until the situation could be addressed. For structures that were in place, it was recommended that no piling removal be conducted within 50 feet and that monitoring for movement be undertaken. For the remainder of the bulkhead, the recommendation was to alter the demolition/construction sequence so the demolition would be completed ahead of the bulkhead construction. This method did raise an issue with erosion since the previous sequence provided for the sheets to be driven prior to removing the remnant existing bulkhead. To address this potential, a temporary wall of large interlocking concrete "Ecology Blocks" was constructed to protect the shoreline between when the old bulkhead was removed until the steel sheets could be driven.

10.2 DREDGE DESIGN AND OPERATIONS

Several problems became apparent during Phase I dredging which contributed to an initial failure to achieve SQS in the Open Channel Area. All manner of debris such as pipe, hoses, cables, concrete, and steel was mixed in with the target sediments, making dredging more disturbing to the sediment bed than anticipated. Debris caused resuspension of sediment and/or loss of sediments from the bucket due to failure to fully close and the large number of cycles required to remove debris. This situation was likely made worse by the presence of very hard, consolidated sandblast grit or fused metallic wastes in several areas. In addition, pile tips were encountered that had been historically broken off at or near the mudline and buried by subsequent waste deposition. These often were present on the slope area and were either worn away by repeated bucket closures or pulled in their entirety. This process complicated dredging to desired grades

and greatly disturbed these areas, with the resulting resuspension of material which may have moved down slope into the Open Channel Area to some extent.

The initial approach to dealing with debris was to conduct a debris clearing pass using a digging bucket deployed to just scrape the surface of the sediment bed. While a large quantity of debris was removed, this operation assumed that all debris was present at or within a foot or two of the bed surface. An examination of the physical deposition process of shipyard wastes would argue with this assumption, in fact debris would be expected to either be present throughout the dredge cut or be even more prevalent at deeper cut depths due to its relatively higher density compared to sediments.

Two critical decisions were made early in the Phase I dredging process that made prompt resolution of the debris problem more difficult; an environmental bucket would not be up to the mechanical rigors of the dredging environment and a relatively small, 3.5-cubic-yard standard bucket would be used. A larger digging bucket would weigh considerable more and thus provide a more aggressive digging action with relatively fewer cycles required to clear debris or achieve desired cut depths. If this larger bucket were used to nearly achieve depths, the final cut would have relatively less large debris and would be able to be addressed with an environmental (closed) bucket. This set of equipment and associated operational practices was employed during the second season in the Open Channel Area with much better results. A series of test dredge cuts prior to decisions about dredge and cap design and equipment selection may have provided an early warning of this problem.

In a related item, the interface of the Slope and Open Channel Areas was approximately at the pierhead line and was designated as the border between sediments that were required to meet SQS in the Open Channel Area and sediments that were to be capped in the Slope Area. A significant amount of dredging was done in this area with mixed results relative to meeting SQS as this area was the most likely to receive redeposition material and/or material moving downslope. Short of cutting back the entire Slope Area and substantially reducing the post-cap desired habitat elevations, the area was subject to capping at the toe of the slope.

During both dredging and capping, the accuracy and usefulness of hydrographic surveys was an issue. Much of the work subject to survey took place on a relatively steep slope and single-beam surveys were not as useful as multibeam surveys due to relatively small errors in single-beam hydrographic methods being magnified by the slope. Multibeam surveys provided more accurate and reproducible data and were used exclusively for nearly the entire second season. The only exception to their relative utility was in the case of riprap surfaces, which were a problem due to their uneven nature. With the application of fish mix which filled the void spaces and provided a smoother top surface the multibeam surveys were once again accurate and reproducible.

10.3 CAPPING

Refinements to the original cap design were possible due to taking a closer look at armor rock requirements. It turns out that riprap was not required on gentler beach slopes, which greatly reduced the need for large quantities of riprap and allowed upland construction equipment and methods to be employed in the beach area. Substitution of a 3-foot-thick cobble/gravel mix for the one-foot of geotechnical filter layer supporting an additional 2 feet of riprap allowed for

adequate armoring and did not reduce the environmental efficacy of the cap. Simultaneous cap construction using marine and land equipment was possible with independent and parallel material supply. This reduced costs and greatly reduced the required schedule which allowed the timely completion of the project well within the in-water construction period.

To provide for the required cap thickness in the Slope Area while maintaining cap slopes of 2H:1V or gentler, a rock buttress was designed to be placed just outside the pierhead line. While this location was optimal from a stability and habitat enhancement perspective, if considered a permanent structure it would be in violation of the Rivers and Harbors Act which prohibits permanent obstacles to navigation in a federally-authorized navigation channel shallower than the authorized depth. If the channel were deepened, the support buttress would require removal and alternative support for the slope cap would be necessary. This would likely require a subsurface sheet-pile wall to support the cap and allow the additional dredging to the authorized depth at the pierhead line. An agreement between the US Army Corps of Engineers, EPA, and the Port of Seattle was negotiated and executed by the parties providing for the Port to pay for support of the cap and dredging the rock if ever needed. In this manner the buttress rock was termed a temporary structure, which allowed for it to be placed in the channel. Phase I Appendix N provides a copy of this agreement.

11.0 PROJECT STAFFING AND CONTACT INFORMATION

A summary of TRC staff and associated responsibilities is presented in Table 10. Figure 1.2 provides an organization chart for the LSSOU. Specific contact information is as follows:

PHASE I

EPA Staff:

Lynda Priddy, Project Manager
Office of Environmental Cleanup
1200 Sixth Avenue (ECL-13)
Seattle, WA 98101
(206) 553-1987

EPA Oversight Staff:

URS
William J. Winter, P.E., D. Eng.
Century Square
1501 Fourth Avenue, Suite 1400
Seattle, WA 98101-1616
(206) 438-2393

MER
Nancy Musgrove
3035 NW 59th Street
Seattle, WA 98107-2556
(206) 784-5262

Design Consultants:

Hart Crowser
John Herzog, Ph.D.
1910 Fairview Avenue E
Seattle, WA 98102-3699
(206) 324-9530

Berger/ABAM
Richard Davis
33301 Ninth Avenue S, Suite 300
Federal Way, WA 98003
(206) 431-2300

Contractors:

ACC/Hurlen Construction
Wil Clark
700 S Riverside Drive
Seattle, WA 98108
(206) 763-1230

	Waste Management Mike Holzschuh 13225 NE 126th Place Kirkland, WA 98034 (425) 825-2004
Project Management	TRC Gary E. Gunderson, P.E. 6505 – 216th Street SW, Suite 100 Mountlake Terrace, WA 98043 (425) 776-7116

PHASE II

EPA Staff:	Same as for Phase I
EPA Oversight Staff:	Parametrix Ken Fellows, P.E. 1231 Fryar Avenue, PO Box 469 Sumner, WA 98390-1516 (253) 863-5128
Design Consultants:	Dalton, Olmsted & Fuglevand, Inc. Gregory L. Hartman, P.E. 10705 Silverdale Way NW, Suite 201 Silverdale, WA 98383 (360) 692-7345
	Landau Associates Peter D. Rude, Ph.D., P.G. 130 Second Avenue S Edmonds, WA 98020 (425) 778-0907
Contractors:	American Construction Steven P. Brannon, P.E. 411 – 13th Street Everett, WA 98201 (425) 259-0118
	Regional Disposal Company Elisa Webb 1001 SW Klickitat Way, Suite 109 Seattle, WA 98134 (425) 292-2929
Project Management:	Same as for Phase I

PHI TABLES

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Dredge Sediment
Company: Columbia Ridge Landfill and Recycling Center
Period: **SUMMARY** October 30, 2003 - Phase I Sediment Removal Completion

Shipped Gondolas	**864**
Billed Gondolas	**864**
Total Tons	**85096.41**
Billed Tons	**89941.63**
(95 Ton Min - Trans)	

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Dredge Sediment
Company: Columbia Ridge Landfill and Recycling Center
Period: October 30 - November 16

Date	Ticket #	Net wt		Gondola car #	Manifest Date
3-Nov	542268	111.58		80006	30-Oct
3-Nov	542271	106.75		80030	30-Oct
3-Nov	542270	113.73		80032	30-Oct
3-Nov	542266	99.8		80040	30-Oct
3-Nov	542267	110.63		80043	30-Oct
3-Nov	542275	92.18		80044	30-Oct
3-Nov	542264	104.43		80049	30-Oct
3-Nov	542263	92.68		80050	30-Oct
3-Nov	542265	79.48		700003	30-Oct
3-Nov	542276	98.68		700012	30-Oct
3-Nov	542269	106.88		700025	30-Oct
3-Nov	542277	110.73		700031	30-Oct
3-Nov	542274	106.38		700032	30-Oct
3-Nov	542273	104.95		700041	30-Oct
3-Nov	542272	89.18		700063	30-Oct
5-Nov	542545	113.78		80017	31-Oct
5-Nov	542544	112.83		80002	31-Oct
5-Nov	542546	123.55		80041	31-Oct
5-Nov	542547	140.45		80047	31-Oct
6-Nov	542541	111.65		700044	31-Oct
6-Nov	542542	106.83		700069	31-Oct
6-Nov	542540	107.18		80001	31-Oct
5-Nov	542548	99.33		527479	31-Oct
5-Nov	542549	103.45		527505	31-Oct
5-Nov	542550	96.28		527548	31-Oct
12-Nov	543087	113		80023	3-Nov
12-Nov	543084	104.83		700015	3-Nov
12-Nov	543088	98.93		80025	3-Nov
12-Nov	543076	99.55		700000	3-Nov
12-Nov	543089	117.53		80051	3-Nov
12-Nov	543075	105.9		700001	3-Nov
12-Nov	543071	112.9		80022	3-Nov
12-Nov	543074	102		700007	3-Nov
12-Nov	543073	113.5		700058	3-Nov
12-Nov	543072	117.13		80020	3-Nov
12-Nov	543083	101.75		700013	3-Nov
12-Nov	543082	99.68		700006	3-Nov
12-Nov	543081	112.88		80004	3-Nov
12-Nov	543080	119.15		80027	3-Nov
12-Nov	543079	94.4		700070	3-Nov
13-Nov	543121	125.98		80033	4-Nov
13-Nov	543120	99.2		700002	4-Nov
12-Nov	543078	122.93		80052	4-Nov

13-Nov	543122	100.58		700068	4-Nov
13-Nov	543123	108.68		700039	4-Nov
13-Nov	543124	102.9		700021	4-Nov
12-Nov	543085	108.4		700029	4-Nov
12-Nov	543086	118.2		80054	4-Nov
13-Nov	543129	105.15		80031	4-Nov
12-Nov	543077	106.4		700008	4-Nov
13-Nov	543131	126.28		700032	10-Nov
13-Nov	543132	140.63		80044	10-Nov
13-Nov	543133	115.43		700012	10-Nov
13-Nov	543136	123.25		700031	10-Nov
13-Nov	543130	109.33		527481	10-Nov
13-Nov	543139	118.95		700003	10-Nov
13-Nov	543138	133.18		80049	10-Nov
13-Nov	543137	143.4		80050	10-Nov
13-Nov	543128	109.6		527389	10-Nov
13-Nov	543127	114.95		527272	10-Nov
13-Nov	543126	114.3		527278	10-Nov
13-Nov	543125	116.68		527267	10-Nov
13-Nov	543116	104.58		700025	11-Nov
13-Nov	543119	147.88		80030	11-Nov
13-Nov	543118	119.7		700063	11-Nov
13-Nov	543115	135.65		80032	11-Nov
13-Nov	543117	118.83		700041	11-Nov
13-Nov	543135	120.93		80006	11-Nov
13-Nov	543134	131.18		80043	11-Nov

Number of Gondolas	**69**
Total Tons	**7699.67**
Billed Tons	**7726.75**
(95 Ton Min - Trans)	

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Dredge Sediment
Company: Columbia Ridge Landfill and Recycling Center
Period: December 1 - December 16

Date	Ticket #	Billed Tons	Net Wt	Gondola car #	Manifest Date
	544901	113.25	113.25	80040	24-Nov
	544902	95	90	527119	24-Nov
	544903	95	67.88	527158	26-Nov
	544904	95	60.73	527170	26-Nov
	544905	95	68.96	527182	26-Nov
	544906	95	74.18	527184	26-Nov
	544907	95	70.03	527196	26-Nov
	544908	120.8	120.8	527210	24-Nov
	544909	95	84.83	527214	24-Nov
	544910	95	71.65	527242	26-Nov
	544911	95	81.25	527375	26-Nov
	544912	95	94.08	527396	26-Nov
	544913	95	92.03	527832	1-Dec
	544914	103.63	103.63	527882	1-Dec
	544915	101.75	101.75	527904	24-Nov
	544916	137.35	137.35	527912	24-Nov
	544917	106.43	106.43	527913	24-Nov
	544918	95	59.76	527951	1-Dec
	544919	96.35	96.35	527957	26-Nov
	544920	132.1	132.1	527964	24-Nov
	544921	109.05	109.05	527968	24-Nov
	544922	97.61	97.61	527974	1-Dec
	544923	117.98	117.98	527989	24-Nov
	544924	95	93.8	527990	1-Dec
	544925	95	88.73	528014	1-Dec
	544926	95.6	95.6	528016	1-Dec
	544927	133.65	133.65	528032	24-Nov
	544928	119.71	119.71	528059	24-Nov
	544929	129.9	129.9	528061	24-Nov
	544930	95	88.81	528063	1-Dec
	544931	123.15	123.15	528069	24-Nov
	544932	95	90.85	528114	1-Dec
	544933	110.16	110.16	528117	1-Dec
	544934	95	75.53	528136	26-Nov
	544935	95	78.83	528145	26-Nov
	544936	124.95	124.95	528148	24-Nov
	544937	95	72.48	528166	26-Nov
	544938	95	83.73	528175	1-Dec
	544939	95	83.81	528212	1-Dec
	544940	95	92.06	528221	26-Nov
	544941	138.58	138.58	528242	24-Nov
	544942	95	75.93	528267	1-Dec
	544943	135.5	135.5	528276	24-Nov

	544944	123.96	123.96	528285	24-Nov
	544945	95	88.65	528315	1-Dec
	544946	120.23	120.23	528339	26-Nov
	544947	95	69.53	528371	26-Nov
	544948	119.53	119.53	528374	1-Dec
	544949	95	80.33	528390	26-Nov
	544950	95	81.13	80020	8-Dec
	544951	96.18	96.18	80022	8-Dec
	544952	95	56.36	528130	8-Dec
	544953	95	94.55	700007	8-Dec
	544954	95	55.65	700058	8-Dec
	544955	95	94.93	527973	24-Nov
	544956	95	88.16	528384	1-Dec

Number of Gondolas	**56**
Total Tons	**5356.63**
Billed Tons	**5847.4**
(95 Ton Min - Trans)	

95.65410714

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Dredge Sediment
Company: Columbia Ridge Landfill and Recycling Center
Period: December 16 - December 31

Date	Ticket #	Billed Tons	Net Wt	Gondola car #	Manifest Date		Site Wt
	545998	95	76.78	5103	17-Dec		
	545999	95	83.45	5106	17-Dec		
	546000	95	69.38	5107	17-Dec		
	546001	95	80.53	5119	17-Dec		
	546002	105.45	105.45	5122	17-Dec		
	545744	99.63	99.63	5124	14-Dec		
	546003	102.05	102.05	5140	17-Dec		
	546004	95	84.75	5162	17-Dec		
	545980	95	93.3	5165	18-Dec		
	546005	95	70.25	5166	17-Dec		
	546006	95	89.05	5174	17-Dec		
	545745	95	84.18	5181	14-Dec		
	546007	95	83.15	5185	17-Dec		
	546008	95	67.8	5190	17-Dec		
	546009	95	87.13	5195	17-Dec		
	545981	95	74.58	80018	17-Dec		
	545982	95	85.85	80023	17-Dec		
	545965	95	86.03	80040	14-Dec		
	545983	95	30.58	80045	17-Dec		
	545984	113.45	113.45	80052	17-Dec		
	545985	95	81.23	80054	17-Dec		
	545986	95	81.75	527089	17-Dec		
	545746	95	70.9	527119	14-Dec		
	545966	100.5	100.5	527158	14-Dec		
	545967	96.63	96.63	527182	14-Dec		
	546010	98.18	98.18	527184	17-Dec		
	545968	95	92.75	527210	14-Dec		
	545747	95	86.05	527214	14-Dec		
	545969	97.7	97.7	527242	14-Dec		
	545748	95	88.38	527278	14-Dec		
	545987	95	74.58	527344	17-Dec		
	545970	102.73	102.73	527371			
	545749	95	92.23	527375	14-Dec		
	545750	95.43	95.43	527389	14-Dec		
	545988	95.08	95.08	527810	17-Dec		
	545710	96.65	96.65	527817	8-Dec		
	545751	98	98	527832	14-Dec		
	545711	110.2	110.2	527843	8-Dec		
	545712	113.43	113.43	527845	8-Dec		
	545713	109.55	109.55	527855	8-Dec		
	545989	95	79.25	527872	17-Dec		
	545757	102.25	102.25	527889			
	545752	109.18	109.18	527904	14-Dec		

	545753	97.33	97.33	527912	14-Dec	
	546011	96.23	96.23	527913	17-Dec	
	545714	104.2	104.2	527914	8-Dec	
	545715	97.6	97.6	527932	11-Dec	
	545990	95	74.73	527949	17-Dec	
	545754	95	82.48	527964	14-Dec	
	545755	101.68	101.68	527968	14-Dec	
	545716	95	70.85	527970	11-Dec	
	546012	95	92.35	527973	17-Dec	
	545756	95	86.2	527974	14-Dec	
	545717	95	87	527981		
	545971	95	82.78	527990	14-Dec	
	545718	104.33	104.33	528008	8-Dec	
	545719	95	57.45	528011	11-Dec	
	545758	95	91.33	528014	14-Dec	
	545972	110	110	528016	14-Dec	
	545991	95	82.65	528024	17-Dec	
	545759	113.38	113.38	528032	14-Dec	
	545720	95	83.05	528044	11-Dec	
	545992	95	79.4	528049	17-Dec	96.75
	545760	100.9	100.9	528059	14-Dec	
	546013	95	87.1	528061	17-Dec	
	545973	95	89.6	528063	14-Dec	
	545761	98.7	98.7	528069	14-Dec	
	545721	95	91.68	528112	11-Dec	
	545762	95	89.2	528114	14-Dec	
	545974	118.13	118.13	528117	14-Dec	
	545722	95	44.45	528125	11-Dec	
	545975	95	84.63	528130	14-Dec	
	545976	97.38	97.38	528136	14-Dec	
	546014	95	91.68	528145	17-Dec	
	545763	114	114	528148	14-Dec	
	545723	95	92.45	528154		
	545724	106.68	106.68	528161	8-Dec	
	545764	103.65	103.65	528166	14-Dec	
	545725	106.7	106.7	528167	8-Dec	
	545726	95	67.15	528207		
	545765	99.45	99.45	528212	14-Dec	
	545766	95	59.75	528219	11-Dec	
	545767	98.28	98.28	528221	14-Dec	
	545727	97.85	97.15	528227	8-Dec	
	545728	95	59.8	528236	11-Dec	
	545729	95	57.9	528241	11-Dec	
	545730	95	81.58	528243	11-Dec	
	545768	95	53.4	528248	11-Dec	
	545731	95	76.6	528261	11-Dec	
	545977	95.73	95.73	528267	14-Dec	
	545732	95	93.7	528268	11-Dec	
	545769	102.98	102.98	528276	14-Dec	
	545733	95	48.63	528281	11-Dec	
	545734	95	82.2	528282		
	545735	95	74.75	528305	8-Dec	

	545736	95	91.8	528314		
	545770	95	86.65	528315	14-Dec	
	545771	95	90	528316	11-Dec	
	545737	95	90.93	528317	11-Dec	
	545738	95	66.23	528342	11-Dec	
	545993	119.28	119.28	528348	17-Dec	
	545978	98.3	98.3	528374	14-Dec	
	545739	95	47.05	528379	11-Dec	
	545740	95	90.95	528381	8-Dec	
	545741	95	42.88	528382	11-Dec	
	545979	95	70.53	528384	14-Dec	
	545742	95	80.13	528395		
	545994	95	60.83	700000	17-Dec	
	546015	95	84.4	700001	17-Dec	
	545995	95	72.6	700008	17-Dec	
	545743	95	69.9	700013	8-Dec	
	545996	113.25	113.25	700029	17-Dec	
	545997	105.35	105.35	700059	17-Dec	

Number of Gondolas	**113**
Total Tons	**9882.06**
Billed Tons	**11097.45**
(95 Ton Min - Trans)	

Subject: Waste Management
Type: Dredge Sediment
Company: Columbia Ridge Landfill and Recycling Center
Period: December 31

Ticket #	Billed Tons	Net wt	Gondola car #	Manifest Date		Site Wt	DE cy
546349	95	85.93	5105	23-Dec		109	
546374	99.95	99.95	5124	21-Dec			
546350	95	83.95	5138	23-Dec		104.4	
546351	95	78.75	5152	23-Dec		109.2	
546352	95	87.93	5158	23-Dec		110.8	
546375	95	93.25	5181	21-Dec			
546389	95	89.83	527196	21-Dec		90.4	
546353	96.7	96.7	527267	14-Dec			
546390	95	73	527389	21-Dec			
546354	107.95	107.95	527479	23-Dec			
546355	103.4	103.4	527502	23-Dec			
546356	95	79	527505	23-Dec		101.6	
546357	101.13	101.13	527628	23-Dec		107	
546358	106.23	106.23	527802	23-Dec		100.2	
546376	95	78.6	527822	18-Dec		90.6	
546377	95	78.58	527829	19-Dec		80	
546391	95	85.23	527831	18-Dec		86.6	
546378	95	76.6	527836	19-Dec		80	
546359	95	92.48	527840	18-Dec			
546379	95	90.48	527857	19-Dec		88.4	
546360	95	82.5	527862	23-Dec		87.4	
546380	96.25	96.25	527874	19-Dec		89.2	
546361	99.45	99.45	527882	14-Dec			
546362	95	93.53	527888	19-Dec			
546363	95.73	95.73	527894	23-Dec			
546381	106.25	106.25	527900	19-Dec			
546364	95	94.18	527907	23-Dec			
546392	95	72.08	527926	18-Dec		86.4	
546393	95	80	527936	19-Dec		69.6	
546365	95	83.93	527951	14-Dec			
546366	98.55	98.55	527975	19-Dec			
546394	95	86.13	527985	19-Dec		89.8	
546382	105.75	105.75	527984	19-Dec		80	
546367	95	80.1	527993	23-Dec		79.4	
546395	98.65	98.65	528000	19-Dec		99.8	
546368	95	84.93	528005	23-Dec		84.8	
546396	95	77.83	528025	18-Dec			
546383	95	71.48	528027	18-Dec		83.8	
546369	95	79.18	528028	23-Dec			
546370	95	92.78	528034	23-Dec		107.6	
546384	95	70.8	528043	18-Dec		84	
546397	95	82.23	528052	19-Dec		81.6	
546385	95	76.35	528054	19-Dec		80.2	
546386	95	90.05	528055	19-Dec			

546387	95	80.43	528057	18-Dec		83.2	
546398	95	78.28	528074	19-Dec		88.4	
546388	95.78	95.78	528161	21-Dec		87.8	
546371	99.38	99.38	528175	14-Dec			
546372	110.33	110.33	585686	4-Jan		107.4	
546373	110.88	110.88	585694	23-Dec			

Number of Gondolas		**50**
Total Tons		**4462.76**
Billed Tons		**4867.36**
(95 Ton Min - Trans)		

Subject: Waste Management
Type: Dredge Sediment
Company: Columbia Ridge Landfill and Recycling Center
Period: January 1- January 16

Ticket #	Billed Tons	Net wt	Gondola car #	Manifest Date		Site Wt	DE cy
547445		104.15	5103	2-Jan	x		12
547446		89.88	5105	30-Dec	x		6
546721		96.15	5106	30-Dec	x		
546722		70.43	5107	30-Dec	x		
546723		69.35	5119	30-Dec	x		
546724		66.95	5122	30-Dec	x		
546743		97.05	5124	2-Jan	x		
546744		125.90	5138	4-Jan	x		12
548415		88.28	5138		x		6
546725		83.50	5140	30-Dec	x		
547489		112.13	5152	4-Jan	x		
547490		109.63	5158	4-Jan	x		
546726		72.90	5162	30-Dec	x		
548416		83.60	5162		x		10
546727		79.53	5165	17-Dec	x		
546728		88.18	5166	30-Dec	x		
548417		80.86	5166		x		6
546729		71.88	5174	30-Dec	x		
546745		100.93	5181	2-Jan	x		
546730		87.15	5185	30-Dec	x		
546731		70.15	5190	30-Dec	x		
547657		106.00	5195	7-Jan	x		16
548129		110.93	56179	14-Jan	x		16
547466		98.23	80004		x		
547658		111.83	80006	11-Jan	x		16
547659		128.90	80009	14-Jan	x		11
547443		103.13	80010	8-Jan	x		11
547660		121.83	80012	11-Jan	x		16
547661		132.68	80015	7-Jan	x		16
547662		119.48	80017	14-Jan	x		13
547447		112.28	80018	2-Jan	x		12
547448		105.23	80023	2-Jan	x		12
547467		100.35	80028		x		
548130		124.13	80030	16-Jan	x		15
547468		112.68	80031	9-Jan	x		16
547663		133.00	80032		x		16
548131		125.08	80033	16-Jan	x		15
546746		108.05	80040	2-Jan	x		
548438		108.75	80040	16-Jan	x		8
547469		96.45	80041		x		
548132		119.38	80042	16-Jan	x		16
547664		117.40	80043	11-Jan	x		16
547470		99.33	80044		x		
547421		110.05	80045	30-Dec	x		12

548133		118.88	80046	16-Jan	x		16
547665		118.98	80047	14-Jan	x		10
548154		100.83	80049		x		
547491		133.05	80050	8-Jan	x		19
547666		114.68	80051	7-Jan	x		16
547422		118.80	80052	30-Dec	x		12
548418		116.68	80052	18-Jan	x		8
547423		99.43	80054	30-Dec	x		6
547459		93.85	528267	30-Dec	x		8
547458		99.00	198000		x		
548134		58.60	329357	14-Jan	x		14
548135		84.95	340160	14-Jan	x		16
547667		105.05	526305	14-Jan	x		5
547668		113.00	526308	14-Jan	x		5
547669		95.05	526323	14-Jan	x		
547670		123.98	526324	14-Jan	x		5
547492		93.15	526329	14-Jan	x		5
547671		88.23	526330	14-Jan	x		0
548136		108.05	526331	14-Jan	x		5
547672		96.88	526332	14-Jan	x		16
547673		91.38	526333	14-Jan	x		10
547674		90.28	526334	14-Jan	x		
548155		114.84	526336	14-Jan	x		7
547675		89.68	526346	14-Jan	x		0
548137		104.00	526357	14-Jan	x		4
546807		84.03	526485	24-Dec	x		
548439		85.08	526485	16-Jan	x		10
547676		98.28	526486	14-Jan	x		
546797		96.28	526489	24-Dec	x		
547677		93.80	526490	14-Jan	x		0
546738		83.15	527061		x		
547449		91.18	527089	30-Dec	x		
546819		76.05	527119	24-Dec	x		
547424		97.75	527158	30-Dec	x		12
548419		90.10	527158		x		6
546798		87.80	527170	24-Dec	x		
546732		92.60	527182	30-Dec	x		
546733		86.58	527184	30-Dec	x		
547464		98.60	527196	8-Jan	x		20
546747		94.00	527210	30-Dec	x		
548169		109.68	527210	18-Jan	x		5
546795		91.85	527214	24-Dec	x		
546734		84.38	527242	30-Dec	x		
547450		98.05	527267	30-Dec	x		5
548156		118.83	527273	14-Jan	x		10
546773		77.65	527278	24-Dec	x		
548440		97.48	527278	16-Jan	x		7
547451		96.75	527344	30-Dec	x		6
547471		79.08	527375	7-Jan	x		
548157		116.43	527379	14-Jan	x		12
547465		90.23	527389	8-Jan	x		16
546799		96.20	527396	24-Dec	x		

547425		106.95	527479	30-Dec	x		2
548420		91.88	527479		x		6
546748		98.18	527502	4-Jan	x		12
548138		77.90	527502	16-Jan	x		
547472		115.78	527505	4-Jan	x		
546800		95.70	527548	24-Dec	x		
547678		105.33	527615	16-Jan	x		16
546749		102.70	527628		x		
548421		94.65	527628		x		7
546750		109.83	527802	2-Jan	x		
546735		86.78	527810	30-Dec	x		
548139		70.20	527810	16-Jan	x		
548140		103.63	527812	14-Jan	x		16
546774		85.95	527817	21-Dec	x		16
547679		101.70	527817		x		
546751		94.05	527822	4-Jan	x		
548441		94.98	527822		x		
547473		99.05	527829	4-Jan	x		
547493		107.30	527831	8-Jan	x		15
546775		80.98	527832	24-Dec	x		
548442		108.65	527832	16-Jan	x		16
547680		97.83	527836	4-Jan	x		
547426		107.13	527840	30-Dec	x		5
548422		89.13	527840		x		6
546776		84.05	527843	21-Dec	x		
547474		111.08	527843	9-Jan	x		21
546801		101.85	527845	24-Dec	x		
546777		80.50	527855	21-Dec	x		
547475		107.50	527855	9-Jan	x		18
547440		99.60	527857	30-Dec	x		12
548437		93.60	527857		x		6
546752		101.80	527862	2-Jan	x		
547427		111.78	527872	2-Jan	x		12
547428		102.40	527874	30-Dec	x		2
546753		112.28	527882	30-Dec	x		4
548423		103.95	527882	18-Jan	x		7
546754		108.58	527888	2-Jan	x		
546755		109.53	527894	4-Jan	x		12
548424		94.68	527894		x		6
548141		100.00	527896	14-Jan	x		
547429		101.38	527900	30-Dec	x		2
548443		95.05	527900	18-Jan	x		7
547430		108.33	527907	30-Dec	x		5
548425		96.55	527907		x		6
546756		111.13	527912	4-Jan	x		
548426		109.20	527912	18-Jan	x		5
546736		78.90	527913	30-Dec	x		
548158		102.05	527913	18-Jan	x		6
546778		86.03	527914	21-Dec	x		
547494		93.63	527914		x		
547495		111.13	527926	9-Jan	x		16
547681		104.10	527932		x		

547444		103.55	527936	8-Jan	x		12
547452		96.85	527949	2-Jan	x		12
548444		94.85	527949	18-Jan	x		7
547453		89.30	527951	30-Dec	x		8
548142		119.90	527954	14-Jan	x		16
546779		93.93	527957	21-Dec	x	97	16
547683		101.43	527957		x		
548159		106.18	527968	4-Jan	x		
546796		87.73	527970	24-Dec	x		
546737		83.30	527973	30-Dec	x		
546780		96.50	527974	24-Dec	x	83.8	
547496		98.15	527974		x		
547684		89.95	527975	4-Jan	x		
548143		114.85	527981	14-Jan	x		15
546757		101.35	527984	4-Jan	x		
548427		113.08	527984	18-Jan	x		7
547497		95.05	527985	8-Jan	x		16
547431		84.58	527990	30-Dec	x		5
548428		96.55	527990		x		6
547432		98.90	527993	30-Dec	x		5
547498		112.73	528000	9-Jan	x		16
548144		108.48	528001	14-Jan	x		16
546758		118.58	528005	2-Jan	x	84.8	
548445		99.00	528005	18-Jan	x		4
548160		102.45	528006	14-Jan	x		16
546802		100.65	528008	24-Dec	x		
546781		97.35	528011	24-Dec	x		
547499		89.73	528011		x		
546782		101.93	528014	24-Dec	x		
548446		109.48	528014	16-Jan	x		5
547433		109.38	528016	30-Dec	x		5
548486		96.60	528016	18-Jan	x		7
547454		123.75	528024	2-Jan	x		12
548447		101.18	528024	18-Jan	x		7
547476		109.90	528025	9-Jan	x		16
547500		123.93	528027		x		
547434		103.00	528028	30-Dec	x		5
548448		95.18	528028		x		7
546759		96.38	528032	4-Jan	x		
548429		106.13	528032	18-Jan	x		7
547477		116.38	528034	4-Jan	x		
548145		97.68	528035	14-Jan	x		16
548161		98.45	528036	7-Jan	x		16
547685		103.33	528043	4-Jan	x		
546783		84.90	528044	24-Dec	x		
547501		96.73	528044		x		
546760		94.28	528049	30-Dec	x		
548430		105.55	528049	18-Jan	x		7
547502		113.75	528052		x		
547435		118.55	528054	30-Dec	x		12
548431		101.68	528054		x		
547686		86.88	528055	4-Jan	x		

547478		112.13	528057	4-Jan	x		
546784		106.85	528059	24-Dec	x		
548449		93.10	528059	16-Jan	x		6
547455		88.60	528063	30-Dec	x		4
547687		111.15	528069		x		16
547441		90.60	528074	8-Jan	x		15
547456		110.98	528112	2-Jan	x		15
548432		97.80	528112	18-Jan	x		7
546808		96.50	528114	24-Dec	x		
547436		89.38	528117	30-Dec	x		5
546809		70.13	528125	24-Dec	x		
548450		95.40	528125	16-Jan	x		10
547457		95.85	528130	30-Dec	x		5
548146		96.03	528131		x		
548451		99.00	528136	2-Jan	x		12
546739		82.75	528145	30-Dec	x		
548170		102.45	528145	18-Jan	x		6
548162		115.33	528148	4-Jan	x		16
546761		107.30	528154	4-Jan	x		
548433		98.45	528154	18-Jan	x		6
547437		100.35	528161	30-Dec	x		12
548434		104.73	528161	18-Jan	x		8
548163		101.20	528166	7-Jan	x		16
546803		103.05	528167	24-Dec	x		16
547688		123.30	528167		x		
546762		92.48	528175	30-Dec	x		
548435		92.38	528175		x		6
546763		91.13	528207	4-Jan	x		
548452		100.75	528207	18-Jan	x		8
546785		91.58	528212	24-Dec	x	86.2	
547503		102.60	528212		x		
546786		94.35	528219	24-Dec	x	86.4	
547504		102.35	528219		x		
548164		110.45	528221	7-Jan	x		16
546810		72.50	528227	24-Dec	x		
546804		95.10	528236	24-Dec	x		
547505		101.98	528236		x		
546787		96.75	528241	24-Dec	x	90.4	
547506		105.48	528241		x		
546811		90.95	528242	24-Dec	x		
548453		108.80	528242	16-Jan	x		15
546812		78.95	528243	24-Dec	x		
548454		96.28	528243	16-Jan	x		10
546788		93.18	528248	24-Dec	x	88.2	
547507		110.93	528248		x		
546813		89.15	528261	24-Dec	x		
548455		112.93	528261	16-Jan	x		15
547479		86.70	528268	7-Jan	x		
547689		108.60	528276	7-Jan	x		16
546814		76.23	528281	24-Dec	x		
548165		93.10	528281	16-Jan	x		10
547480		73.68	528282	7-Jan	x		

546789		82.23	528285	21-Dec	x	80.4	16
547690		99.70	528285		x		
548147		115.05	528294	14-Jan	x		16
546790		82.40	528305	21-Dec	x		
547481		106.30	528305		x		
547482		89.58	528314	7-Jan	x		
546805		86.48	528315	24-Dec	x		
547460		100.08	528316	2-Jan	x		12
548456		96.60	528316		x		7
546791		92.58	528317	24-Dec	x		
547508		94.90	528317		x		
548148		105.23	528337	14-Jan	x		16
546792		95.63	528339	21-Dec	x	88.4	
547691		108.80	528339		x		
546815		96.65	528342	24-Dec	x		
548436		105.33	528342	16-Jan	x		8
546740		76.63	528348	30-Dec	x		
548166		96.78	528348		x		
547438		90.93	528371	30-Dec	x		5
547461		93.05	528374	30-Dec	x		4
546816		71.53	528379	24-Dec	x		
548457		99.48	528379	16-Jan	x		16
546806		85.50	528381	24-Dec	x		
546817		71.53	528382	24-Dec	x		
548167		96.43	528382	16-Jan	x		6
547439		96.58	528384	30-Dec	x		6
548149		95.05	528385	14-Jan	x		
548150		108.23	528388	14-Jan	x		16
546793		109.90	528390	21-Dec	x	88	16
547692		107.80	528390		x		
546818		67.50	528395	24-Dec	x		
548151		81.88	528395	16-Jan	x		
546889		90.58	585686	23-Dec	x		
548152		84.35	585686	16-Jan	x		
546764		97.15	585694	4-Jan	x	110	
548458		102.60	585694		x		
548168		87.33	643562	16-Jan	x		15
547462		103.58	700000	2-Jan	x		12
546741		88.45	700001	30-Dec	x		
547693		92.90	700002	16-Jan	x		16
547483		99.78	700006		x		
547463		113.33	700008	2-Jan	x		12
547694		110.98	700010	11-Jan	x		16
546794		80.58	700013	21-Dec	x		16
547695		101.45	700013		x		
547696		108.85	700015	7-Jan	x		16
547697		120.20	700021		x		
548153		72.18	700028	16-Jan	x		15
546765		89.40	700029	30-Dec	x		
548172		104.75	700029	18-Jan	x		5
547484		89.33	700030		x		
547485		107.30	700031	9-Jan	x	93	16

547698		107.98	700036	7-Jan	x		16
547486		103.43	700039	9-Jan	x	87.4	16
547442		109.90	700041	8-Jan	x		20
547509		102.00	700044	8-Jan	x		11
546742		84.05	700059	30-Dec	x		
548171		100.08	700059	16-Jan	x		
547699		111.15	700060		x		
547487		88.43	700061		x		
547488		96.83	700063		x		
547700		114.15	700064	11-Jan	x		16
548459		102.60	700065	16-Jan	x		16
547510		105.10	700068	9-Jan	x		16
547701		108.18	700069	11-Jan	x		16
548173		89.10	187100		x		

Number of Gondolas	**318**
Total Tons	**31440.05**
Total Tons - DE gons	**17831.87**
Total Tons - nonDE gons	**13608.18**
(95 Ton Min - Trans)	**1218.82**
Billed Tons	**32658.87**

Subject: Waste Management
Type: Dredge Sediment
Company: Columbia Ridge Landfill and Recycling Center
Billing Period: February 1 - February 16

Ticket #	Billed Tons	Net wt	Gondola car #	Manifest Date		Site Wt	DE cy	Date DE	Date Loaded
548767		102.35	5103	21-Jan	x		9	20-Jan	
549174		99.90	5105	21-Jan	x		8	20-Jan	
548768		92.93	5124	18-Jan	x		5		
549154		101.63	5152	23-Jan	x		6	22-Jan	
549155		105.65	5158	23-Jan	x		6	22-Jan	
548745		95.50	5165	18-Jan	x		5		
548746		92.23	5181	18-Jan	x		6		
547747		96.60	5185		x		8	19-Jan	
549156		114.80	80012	29-Jan	x		6	27-Jan	
548769		110.20	80018	21-Jan	x		11	20-Jan	
548770		107.18	80023	21-Jan	x		10	20-Jan	
548748		103.05	80028	23-Jan	x		6	22-Jan	
549175		126.00	80032	29-Jan	x		6	25-Jan	
548749		133.10	80045		x		7	19-Jan	
549176		119.53	80047	29-Jan	x		6	25-Jan	
548771		111.58	80054	21-Jan	x		10	20-Jan	
549177		114.48	526305	29-Jan	x		6	25-Jan	
549178		99.10	526323	23-Jan	x		6	23-Jan	
549157		112.00	526329	23-Jan	x		6	22-Jan	
549179		92.65	526334	23-Jan	x		6	23-Jan	
549158		110.43	526346	29-Jan	x		6	27-Jan	
549159		96.15	526486	29-Jan	x		6	27-Jan	
548772		102.25	526489	23-Jan	x		6	21-Jan	
549160		106.78	526490		x		6	27-Jan	
548773		103.03	527089	21-Jan	x		9	20-Jan	
548750		88.33	527182		x		6	19-Jan	
548751		92.38	527184	18-Jan	x		5		
549161		115.30	527196	21-Jan	x		6	21-Jan	
548752		108.30	527242		x		6	19-Jan	

549162		103.55	527267	21-Jan	x		8	20-Jan	
548774		103.00	527344	21-Jan	x		10	20-Jan	
548775		99.45	527375	23-Jan	x		6	22-Jan	
548753		98.28	527481	29-Jan	x		6	27-Jan	
549180		98.58	527615	24-Jan	x		6	25-Jan	
548754		92.45	527802	18-Jan	x		6		
549163		112.88	527829	23-Jan	x		6	22-Jan	
548776		85.70	527831	21-Jan	x		6	21-Jan	
549181		111.25	527836	24-Jan	x		6	25-Jan	
548755		91.15	527862	18-Jan	x		~~		
549182		122.88	527872	21-Jan	x		6	21-Jan	
548777		107.30	527874	21-Jan	x		7	20-Jan	
548756		96.80	527888	18-Jan	x		5		
548757		115.70	527904	14-Jan	x		15		
549183		109.45	527914	21-Jan	x		6	21-Jan	
548778		93.25	527926	23-Jan	x		6	21-Jan	
549164		121.33	527936	21-Jan	x		8	20-Jan	
549165		117.03	527951	21-Jan	x		8	20-Jan	
548758		118.05	527964	14-Jan	x		10		
549184		107.70	527975	24-Jan	x		6	25-Jan	
549185		116.85	527985	21-Jan	x		6	21-Jan	
548759		120.00	527989	14-Jan	x		12		
548779		104.75	527993	21-Jan	x		10	20-Jan	
548780		107.93	528000	21-Jan	x		6	21-Jan	
548781		110.63	528008	23-Jan	x		6	21-Jan	
549186		110.70	528011	21-Jan	x		6	21-Jan	
548760		106.28	528025	23-Jan	x		6	22-Jan	
549166		106.68	528027	23-Jan	x		6	22-Jan	
548782		90.90	528052	23-Jan	x		6	21-Jan	
549187		116.05	528055	24-Jan	x		6	25-Jan	
549167		109.83	528057	23-Jan	x		6	23-Jan	
549188		102.40	528063	21-Jan	x		8	20-Jan	
548761		114.70	528117		x		5	18-Jan	
549189		101.90	528130	21-Jan	x		8	20-Jan	
549190		107.65	528236	21-Jan	x		6	21-Jan	
548783		106.23	528268	23-Jan	x		6	22-Jan	
548784		104.05	528282	23-Jan	x		6	22-Jan	

548762		103.28	528314	23-Jan	x		6	22-Jan	
549191		106.75	528317	21-Jan	x		6	21-Jan	
549168		102.65	528374	21-Jan	x		7	20-Jan	
548763		103.40	528384		x		7	18-Jan	
549193		99.75	528390	29-Jan	x		6	26-Jan	
548786		104.35	700000	21-Jan	x		6	20-Jan	
548764		88.55	700001		x		6	19-Jan	
548787		106.15	700008	21-Jan	x		10	20-Jan	
548765		95.60	700010	29-Jan	x	91.6	6	28-Jan	27-Jan
549169		98.08	700025	29-Jan	x		6	27-Jan	
548785		101.75	700031	23-Jan	x		6	21-Jan	
548788		99.93	700039	23-Jan	x		6	21-Jan	
549192		110.80	700041		x				
549170		96.98	700045	29-Jan	x		6	27-Jan	
549171		100.93	700046	29-Jan	x		6	27-Jan	
549173		101.50	700061	23-Jan	x		6	22-Jan	
549172		100.15	700067	29-Jan	x		6	27-Jan	
548789		103.95	700068	23-Jan	x		6	21-Jan	
548766		99.43	700070	29-Jan	x		6	27-Jan	

Number of Gondolas		**85**
Total Tons		**8920.85**
Total Tons - DE gons		**8809.90**
Total Tons - nonDE gons		**110.95**
(95 Ton Min - Trans)		**44.48**
Billed Tons		**8965.33**

Subject: Waste Management
Type: Dredge Sediment
Company: Columbia Ridge Landfill and Recycling Center
Billing Period: February 1 - Project Final Billing

Ticket #	Billed Tons	Net wt	Gondola car #	Manifest Date		Site Wt	DE cy	Date DE	Date Loaded
560507		89.78	5124	6-Feb			4	6-Feb	
560936		70.15	5152	27-Feb					
560937		70.3	5158	27-Feb					
556268		100.85	5195	29-Jan			6	26-Jan	
556269		105.10	56179	2-Feb			5	2-Feb	
556994		126.23	80004	29-Jan		112.4	6	27-Jan	
556270		120.85	80006	29-Jan			6	28-Jan	
556954		118.13	80009	29-Jan		111.6	6	27-Jan	26-Jan
560496		122.50	80010	21-Jan			9	20-Jan	
556992		126.98	80015	24-Jan			6	24-Jan	
556998		117.53	80017	29-Jan			6	27-Jan	
556997		121.73	80026	29-Jan			6	27-Jan	
556247		115.75	80030	2-Feb			6	2-Feb	
560929		69.6	80031	27-Feb					
560922		133	80032	27-Feb					
556248		119.63	80033	2-Feb			6	2-Feb	
556249		118.25	80042	2-Feb			8	2-Feb	
556271		117.50	80043	29-Jan		104.2	6	28-Jan	27-Jan
560462		113.30	80046	29-Jan			8	3-Feb	
560920		119.25	80047	27-Feb					
556991		117.55	80048	29-Jan			6	27-Jan	
560942		133.05	80050	23-Jan			6	23-Jan	
560474		105.40	80051	2-Feb					
560486		129.90	80052	6-Feb			6	5-Feb	
560475		72.50	329357	2-Feb					
560471		99.63	340160	29-Jan			10	29-Jan	
556971		79.35	340330	29-Jan		77.6	6	27-Jan	26-Jan
560921		86.68	526305	27-Feb					
556290		114.55	526308	29-Jan			6	26-Jan	

560925		56.35	526323	27-Feb				
556272		113.80	526324	29-Jan		6	26-Jan	
556273		108.48	526330			6	26-Jan	
560460		100.13	526331	29-Jan		9	3-Feb	
556274		111.20	526332	29-Jan		6	26-Jan	
556972		92.58	526333	23-Jan		6	23-Jan	
560934		55.1	526334	27-Feb				
560461		90.28	526336	29-Jan		6	3-Feb	
560463		97.55	526357	29-Jan		8	3-Feb	
556973		105.08	527119	24-Jan		6	24-Jan	
560483		108.15	527158	6-Feb		6	5-Feb	
556990		96.13	527170	23-Jan		6	23-Jan	
560505		93.80	527184	6-Feb		6	6-Feb	
560468		101.13	527210	2-Feb		6	3-Feb	
556974		101.43	527214	24-Jan		6	24-Jan	
560464		105.40	527273	2-Feb		12	3-Feb	
560489		106.80	527278	6-Feb		4	6-Feb	
560499		114.03	527375	6-Feb				
560465		101.18	527379	2-Feb		6	3-Feb	
560497		100.00	527389	21-Jan		6	21-Jan	
556977		113.35	527396	23-Jan		6	23-Jan	
556251		92.65	527502	2-Feb				
556975		112.23	527505	23-Jan		6	23-Jan	
556979		102.13	527548	24-Jan		6	24-Jan	
560506		104.13	527802	6-Feb		6	6-Feb	
556252		90.85	527810	2-Feb				
556275		93.58	527817	29-Jan		6	26-Jan	
560919		72	527836	27-Feb				
560932		56.88	527843	27-Feb				
556976		96.45	527845	23-Jan		6	23-Jan	
560928		55.65	527855	27-Feb				
560479		102.13	527857	6-Feb		6	5-Feb	
560926		69.85	527872	27-Feb				
556276		105.88	527896	29-Jan		10	29-Jan	
556277		104.58	527913	29-Jan		6	2-Feb	
560927		52.18	527914	27-Feb				
557003		82.70	527926	6-Feb				

556253		96.10	527932	24-Jan		6	25-Jan	
560473		100.73	527954	2-Feb				
556278		100.70	527957	29-Jan		6	26-Jan	
556254		92.30	527968	2-Feb				
556978		102.43	527970	24-Jan		6	24-Jan	
556980		110.23	527973	23-Jan		6	24-Jan	
560941		121.83	527974	23-Jan		6	23-Jan	
556279		102.65	527981	2-Feb		5	2-Feb	
560472		108.68	528001	29-Jan		10	29-Jan	
560466		101.60	528006	2-Feb		6	3-Feb	
560498		112.33	528008	6-Feb				
560509		103.68	528014	6-Feb		4	6-Feb	
560923		113.15	528024	6-Feb				
560482		110.63	528028	6-Feb		6	5-Feb	
556983		113.83	528034	23-Jan		6	23-Jan	
556280		104.30	528035	29-Jan		10	29-Jan	
560467		99.30	528036	2-Feb		2	3-Feb	
556255		109.35	528043	24-Jan		6	25-Jan	
560916		94.05	528044	23-Jan		6	23-Jan	
556981		110.48	528047	29-Jan	100	6	27-Jan	26-Jan
557007		79.63	528052	6-Feb				
560480		109.05	528054	6-Feb		6	5-Feb	
560918		64.9	528055	27-Feb				
560933		69.58	528057	27-Feb				
556982		104.90	528061	23-Jan		6	24-Jan	
560938		27.88	528063	27-Feb				
556985		102.80	528069	24-Jan		6	24-Jan	
560503		118.20	528074	21-Jan		6	21-Jan	
560484		116.98	528112	6-Feb		6	5-Feb	
556987		107.00	528114	23-Jan		6	23-Jan	
560935		71.5	528130	27-Feb				
556281		100.68	528131	2-Feb		5	2-Feb	
560481		107.35	528136	6-Feb		6	5-Feb	
556282		107.85	528145	29-Jan		10	29-Jan	
556256		110.48	528148	2-Feb		6	2-Feb	
560488		108.28	528154	6-Feb		4	6-Feb	
560485		102.25	528161	6-Feb		6	5-Feb	

556283		112.88	528166	2-Feb		5	2-Feb	
556257		98.90	528167	29-Jan		6	26-Jan	
557011		108.95	528212	23-Jan		6	23-Jan	
560917		101.98	528219	23-Jan		6	23-Jan	
556284		115.40	528221	2-Feb		5	2-Feb	
556989		103.98	528227	24-Jan		6	24-Jan	
557012		98.15	528241	23-Jan		6	23-Jan	
557013		100.93	528248	23-Jan		6	23-Jan	
560502		107.78	528267	21-Jan		7	20-Jan	
560500		115.95	528268	6-Feb				
556285		103.45	528281	29-Jan		10	29-Jan	
560508		109.20	528282	6-Feb		4	6-Feb	
556988		104.73	528285	29-Jan	102.8	6	27-Jan	26-Jan
560930		59.5	528305	27-Feb				
556986		104.70	528315	23-Jan		6	23-Jan	
560487		110.45	528316	6-Feb				
556258		94.70	528337	2-Feb				
556259		92.28	528339	29-Jan		6	26-Jan	
560478		105.05	528342	6-Feb		6	5-Feb	
560470		104.50	528348	2-Feb		6	3-Feb	
560504		113.23	528371	21-Jan				
557006		94.70	528381	23-Jan		6	23-Jan	
556286		101.10	528382	29-Jan		10	29-Jan	
556260		96.00	528385	2-Feb				
556261		112.68	528388	2-Feb		8	2-Feb	
556262		91.78	528395	2-Feb				
556263		92.88	585686	2-Feb				
556264		84.20	643562			6	2-Feb	
557019		107.53	700002	24-Jan		6	26-Jan	
556265		97.30	700003	2-Feb				
560931		65.2	700006	27-Feb				
556266		94.15	700013	29-Jan		6	26-Jan	
557017		103.55	700015	24-Jan		6	24-Jan	
556287		115.93	700021	29-Jan		6	28-Jan	27-Jan
556267		104.15	700028	2-Feb		6	2-Feb	
560469		100.80	700029	2-Feb		6	3-Feb	
557015		84.58	700031	6-Feb				

556984		97.53	700036	24-Jan		6	24-Jan	
557016		91.88	700039	6-Feb				
560915		106.50	700044	23-Jan		6	23-Jan	
556250		104.25	80049					
556993		82.90	527812					
556996		102.58	5165					
556999		105.90	527812					
557000		106.95	527964					
557001		99.65	527989					
557002		116.53	527904					
557004		96.30	527481					
557005		81.58	528025					
557008		98.88	528314					
557009		97.18	528117					
557010		93.90	528384					
557014		96.73	528776					
557020		83.58	5181					
557021		86.33	80028					
560477		96.25	523294					
560490		133.10	80045					
560491		96.50	5185					
560492		93.50	527242					
560493		93.53	700010					
560494		103.10	700070					
560501		103.93	527888					
560924		111.95	528059					
560939		130.15	527198					
560940		130.15	527198					
560476		93.00	700059	2-Feb				
560495		94.70	700060	29-Jan	87.2	6	28-Jan	27-Jan
556288		94.65	700064	29-Jan	93.4	6	28-Jan	27-Jan
556289		99.58	700069	29-Jan	98.2	6	28-Jan	27-Jan
556970		79.43	741031	29-Jan	79.8	6	27-Jan	26-Jan
		17334.39	173					

Number of Gondolas	**173**
Total Tons	**17334.39**
Total Tons - DE gons	**17334.39**
Total Tons - nonDE gons	**0.00**
(95 Ton Min - Trans)	**1444.08**
Billed Tons	**18778.47**

Project:	**Lockheed Shipyard Sediment Operable Unit Project**				
Subject:	Waste Management				
Type:	Creosote Treated Wood				
Company:	Columbia Ridge Landfill and Recycling Center				
Period:	7/16-10/31 SUMMARY				
Total Containers:		442			
				Average wt in lbs:	
Total Wt. In Lbs:		21,320,300		48,235.97	
				Average wt in tons:	
Total Wt. In tons:		10,660		24.12	

Project:	**Lockheed Shipyard Sediment Operable Unit Project**					
Subject:	Waste Management					
Type:	Creosote Treated Wood					
Company:	Columbia Ridge Landfill and Recycling Center					
Period:	8/16 - 8/31					

KEY	
	: Missing Shipping Ticket
	: Unmatched Shipping Tickets

Date	Invoice #	Net wt	Trailer ID	Summary Match	Ship Date	By
27-Aug	524436	44,440	480-103	X	25-Aug	Puget Sound
18-Aug	523969	53,480	480-110	X	15-Aug	Puget Sound
22-Aug	524153	46,160	480-134	X		
28-Aug	531726	44,440	480-136	X	26-Aug	Puget Sound
25-Aug	524319	45,480	480-139	X	22-Aug	Union Pacific
18-Aug	524010	48,520	480-142	X	15-Aug	Union Pacific
22-Aug	524240	36,880	480-142	X		
27-Aug	524437	45,760	480-142	X	25-Aug	Puget Sound
25-Aug	524358	39,160	480-145	X	22-Aug	Puget Sound
28-Aug	531727	48,240	480-147	X	26-Aug	Union Pacific
22-Aug	524241	44,280	480-203	X		
28-Aug	531728	49,660	480-203	X	26-Aug	Puget Sound
28-Aug	531797	38,260	480-205	X	14-Aug	Union Pacific
21-Aug	524154	37,360	480-208	X		
22-Aug	524242	53,200	480-212	X		
20-Aug	524079	45,600	480-220	X		
29-Aug	531798	47,280	480-315	X	27-Aug	Union Pacific
22-Aug	524244	59,120	480-317	X		
18-Aug	523970	43,700	480-321	X	15-Aug	Puget Sound
19-Aug	524011	49,520	480-324	X	15-Aug	Puget Sound
25-Aug	524320	47,560	480-324	X	22-Aug	Puget Sound
20-Aug	524121	59,240	480-341	X	12-Aug	Puget Sound
22-Aug	524155	46,940	480-342	X		
26-Aug	524360	48,140	480-343	X	22-Aug	Union Pacific
25-Aug	524321	37,860	480-345	X		
21-Aug	524156	53,640	480-346	X		
22-Aug	524245	47,300	480-401	X		
22-Aug	524246	57,240	480-403	X		

29-Aug	531799	50,160	480-406	X	27-Aug	Puget Sound				
18-Aug	523971	53,520	480-408	X	15-Aug	Union Pacific				
29-Aug	531800	51,160	480-408	X						
21-Aug	524157	45,140	480-409	X						
27-Aug	524438	37,020	480-426	X	25-Aug	Puget Sound				
25-Aug	524322	50,540	480-428	X	21-Aug	Puget Sound				
18-Aug	523972	52,180	480-433	X	15-Aug	Puget Sound				
22-Aug	524158	46,020	480-442	X						
28-Aug	531729	50,340	480-442	X	26-Aug	Union Pacific				
18-Aug	523973	41,640	480-443	X	15-Aug	Union Pacific				
29-Aug	531801	45,040	480-443	X	27-Aug	Union Pacific				
20-Aug	524080	42,500	480-450	X						
29-Aug	531802	55,720	480-508	X	28-Aug	Puget Sound				
25-Aug	524323	54,520	480-511	X	22-Aug	Union Pacific				
25-Aug	524324	48,680	480-512	X						
22-Aug	524159	37,920	480-521	X						
21-Aug	524160	40,160	480-536	X						
29-Aug	531803	43,220	480-540	X	28-Aug	Union Pacific				
18-Aug	524035	51,360	480-549	X	15-Aug	Union Pacific				
20-Aug	524082	50,440	480-550	X						
27-Aug	524439	43,540	480-559	X	25-Aug	Union Pacific				
27-Aug	524440	50,640	480-571	X	28-Aug	Puget Sound				
25-Aug	524325	46,280	480-574	X	22-Aug	Union Pacific				
27-Aug	524441	42,680	480-588	X	25-Aug	Union Pacific				
25-Aug	524361	39,960	480-593	X	25-Aug	Union Pacific				
28-Aug	531730	55,220	480-597	X	26-Aug	Union Pacific				
20-Aug	524124	48,200	480-599	X						
29-Aug	531804	52,940	481-302	X	27-Aug	Puget Sound				
22-Aug	524247	41,580	481-304	X						
18-Aug	523974	42,660	481-312	X	15-Aug	Union Pacific				
25-Aug	524326	41,920	481-314	X						
29-Aug	531857	45,480	481-318	X	27-Aug	Puget Sound				
22-Aug	524248	51,160	481-329	X						
25-Aug	524362	47,740	481-338	X	22-Aug	Puget Sound				
25-Aug	524328	59,560	481-340	X	22-Aug	Puget Sound				
28-Aug	531731	53,720	481-349	X	26-Aug	Puget Sound				
22-Aug	524161	44,540	482-013	X						

27-Aug	524442	36,680	482-020	X	25-Aug	Union Pacific				
28-Aug	531732	51,720	482-024	X	26-Aug	Puget Sound				
21-Aug	524162	44,960	482-026	X						
20-Aug	524083	35,340	482-027	X						
28-Aug	531734	42,680	960-374	X	14-Aug	Puget Sound				
20-Aug	524125	39,320	960-501	X						
27-Aug	524443	43,200	960-504	X	14-Aug	Puget Sound				
25-Aug	524363	38,440	960-507	X	22-Aug	Puget Sound				
18-Aug	524012	34,400	960-508	X	14-Aug	Puget Sound				
25-Aug	524364	44,440	960-509	X	22-Aug	Union Pacific				
Total Containers:		75								
Total Wt in LBS:		3,484,740								
Total Wt in Tons:		1742.37								

Project:	**Lockheed Shipyard Sediment Operable Unit Project**									
Subject:	Waste Management									
Type:	Creosote Treated Wood									
Company:	Columbia Ridge Landfill and Recycling Center									
Period:	9/1 to 9/16									
Date	**Invoice #**	**Net wt**	**Trailer ID**	**Summary**	**Shipping Date**	**By**				
1-Sep	531,879	56,900	480-145	X	28-Aug	Puget Sound				
1-Sep	531,880	34,680	480-323	X	28-Aug	Union Pacific				
1-Sep	531,881	47,440	480-593	X	29-Aug	Union Pacific				
1-Sep	531,882	46,960	480-594	X	28-Aug	Union Pacific				
1-Sep	531,883	55,440	481-342	X	28-Aug	Puget Sound				
2-Sep	531,928	49,700	480-241	X	28-Aug	Puget Sound				
2-Sep	531,931	51,240	480-428	X	28-Aug	Union Pacific				
1-Sep	531,933	37,500	480-539	X	29-Aug	Union Pacific				
1-Sep	531,934	39,020	480-571	X						
2-Sep	531,935	49,700	480-574	X	29-Aug	Union Pacific				
1-Sep	531,936	51,520	481-308	X	29-Aug	Union Pacific				
1-Sep	531,937	33,180	482-012	X	29-Aug	Puget Sound				
2-Sep	531,938	48,000	482-017	X	29-Aug	Puget Sound				
4-Sep	532,008	57,720	480-555	X	13-Aug	Puget Sound				
3-Sep	532,010	50,020	480-509	X	26-Aug	Union Pacific				
4-Sep	532,011	56,960	482-021	X	28-Aug	Puget Sound				
3-Sep	532,055	39,180	480-322	X	2-Sep	Puget Sound				
4-Sep	532,075	31,340	480-106	X	2-Sep	Union Pacific				
4-Sep	532,076	39,680	480-109	X	2-Sep	Puget Sound				
4-Sep	532,077	37,800	480-138	X	2-Sep	Union Pacific				
4-Sep	532,078	42,420	480-240	X	2-Sep	Puget Sound				
4-Sep	532,079	40,040	480-422	X	3-Sep	Union Pacific				
4-Sep	532,080	41,100	480-438	X	2-Sep	Union Pacific				
4-Sep	532,081	36,620	480-540	X	2-Sep	Union Pacific				
4-Sep	532,082	45,740	481-320	X	2-Sep	Puget Sound				
4-Sep	532,083	33,160	482-006	X	27-Aug	Union Pacific				
4-Sep	532,084	42,840	482-026	X	2-Sep	Puget Sound				
5-Sep	532,178	29,700	480-142	X	3-Sep	Puget Sound				

KEY

: Missing Shipping Ticket

: Unmatched Shipping Tickets

5-Sep	532,179	34,380	480-233	X	4-Sep	Puget Sound				
5-Sep	532,180	36,520	480-444	X	3-Sep	Union Pacific				
5-Sep	532,181	43,020	480-500	X	3-Sep	Puget Sound				
5-Sep	532,182	43,440	480-502	X	4-Sep	Union Pacific				
5-Sep	532,183	34,940	480-553	X	3-Sep	Puget Sound				
5-Sep	532,184	30,020	480-556	X	4-Sep	Union Pacific				
5-Sep	532,185	42,120	480-565	X	3-Sep	Puget Sound				
5-Sep	532,186	44,100	482-013	X	4-Sep	Puget Sound				
5-Sep	532,187	32,140	482-014	X	4-Sep	Union Pacific				
8-Sep	532,289	48,580	480-104	X	4-Sep	Puget Sound				
8-Sep	532,290	49,400	480-205	X	4-Sep	Puget Sound				
8-Sep	532,291	50,900	480-211	X	5-Sep	Union Pacific				
8-Sep	532,292	50,240	480-307	X	5-Sep	Puget Sound				
8-Sep	532,293	51,200	480-344	X	4-Sep	Union Pacific				
8-Sep	532,294	41,220	480-415	X	5-Sep	Union Pacific				
8-Sep	532,295	45,740	480-523	X	5-Sep	Puget Sound				
8-Sep	532,296	35,640	480-567	X	5-Sep	Union Pacific				
8-Sep	532,297	58,720	481-326	X	5-Sep	Union Pacific				
8-Sep	532,298	38,120	482-001	X	4-Sep	Puget Sound				
8-Sep	532,299	47,480	482-007	X	5-Sep	Puget Sound				
9-Sep	532,361	47,160	480-120	X	5-Sep	Union Pacific				
8-Sep	532,362	47,800	480-316	X	5-Sep	Union Pacific				
8-Sep	532,363	55,740	481-303	X	5-Sep	Puget Sound				
8-Sep	532,364	46,000	482-017	X	5-Sep	Puget Sound				
10-Sep	532,482	51,400	480-267	X	8-Sep	Union Pacific				
10-Sep	532,483	49,400	480-268	X	8-Sep	Puget Sound				
10-Sep	532,484	53,000	480-312	X	8-Sep	Union Pacific				
10-Sep	532,485	48,400	480-531	X	8-Sep	Puget Sound				
10-Sep	532,486	49,860	480-539	X	8-Sep	Union Pacific				
10-Sep	532,487	50,580	480-569	X	8-Sep	Union Pacific				
10-Sep	532,488	38,040	480-577	X	3-Sep	Union Pacific				
10-Sep	532,489	40,180	480-586	X	8-Sep	Union Pacific				
10-Sep	532,490	45,620	482-032	X	8-Sep	Puget Sound				
10-Sep	532,533	45,060	480-118	X	9-Sep	Union Pacific				
10-Sep	532,535	37,780	480-233	X	8-Sep	Puget Sound				
11-Sep	532,565	44,880	480-246	X	9-Sep	Union Pacific				
12-Sep	532,566	54,960	480-418	X	10-Sep	Union Pacific				

11-Sep	532,567	51,120	480-504	X	9-Sep	Puget Sound				
11-Sep	532,568	37,420	480-525	X	2-Sep	Union Pacific				
11-Sep	532,569	42,920	480-560	X	10-Sep	Union Pacific				
12-Sep	532,570	41,900	480-579	X	10-Sep	Union Pacific				
11-Sep	532,571	41,760	480-593	X	9-Sep	Puget Sound				
12-Sep	532,572	44,140	482-005	X	9-Sep	Puget Sound				
12-Sep	532,573	47,860	482-013	X	10-Sep	Puget Sound				
12-Sep	532,574	49,040	482-018	X	10-Sep	Puget Sound				
11-Sep	532,575	45,960	482-026	X	9-Sep	Puget Sound				
11-Sep	532,640	44,260	482-029	X	9-Sep	Union Pacific				
12-Sep	532,663	42,220	480-104	X	11-Sep	Puget Sound				
12-Sep	532,664	43,880	480-108	X	10-Sep	Union Pacific				
12-Sep	532,665	38,980	480-110	X	11-Sep	Union Pacific				
13-Sep	532,666	46,900	480-142	X	11-Sep	Union Pacific				
12-Sep	532,667	48,920	480-236	X	4-Sep	Union Pacific				
12-Sep	532,668	49,920	480-553	X	10-Sep	Union Pacific				
12-Sep	532,669	46,220	480-567	X	10-Sep	Puget Sound				
12-Sep	532,670	50,260	480-581	X	10-Sep	Union Pacific				
12-Sep	532,671	51,360	481-333	X	11-Sep	Union Pacific				
12-Sep	532,672	50,280	482-015	X	10-Sep	Puget Sound				
12-Sep	532,673	49,580	482-016	X	10-Sep	Puget Sound				
12-Sep	532,674	54,020	482-028	X	10-Sep	Puget Sound				
15-Sep	532,755	47,900	480-132	X	11-Sep	Puget Sound				
13-Sep	532,772	45,120	480-511	X	11-Sep	Union Pacific				
13-Sep	532,773	46,000	480-536	X	12-Sep	Union Pacific				
13-Sep	532,774	55,140	480-544	X	11-Sep	Puget Sound				
13-Sep	532,775	50,740	480-573	X	11-Sep	Union Pacific				
13-Sep	532,776	55,420	480-585	X	12-Sep	Puget Sound				
13-Sep	532,777	44,820	482-017	X	12-Sep	Union Pacific				
15-Sep	532,778	38,080	960-500	X	11-Sep	Union Pacific				
13-Sep	532,779	46,200	960-507	X	11-Sep	Puget Sound				
13-Sep	532,836	50,620	480-136	X	11-Sep	Puget Sound				
15-Sep	532,840	46,200	480-116	X	12-Sep	Union Pacific				
15-Sep	532,841	52,820	480-215	X	12-Sep	Puget Sound				
15-Sep	532,842	38,040	480-437	X	12-Sep	Union Pacific				
15-Sep	532,843	43,800	480-541	X	12-Sep	Puget Sound				
15-Sep	532,844	52,740	481-339	X	12-Sep	Union Pacific				

Total Containers:		102								
Total Wt in LBS:		4,621,940								
Total Wt in Tons:		2310.97								

Project:	**Lockheed Shipyard Sediment Operable Unit Project**									
Subject:	Waste Management									
Type:	Creosote Treated Wood									
Company:	Columbia Ridge Landfill and Recycling Center									
Period:	9/16 - 9/30									
Date	**Invoice #**	**Net wt**	**Trailer ID**	**Summary**	**Shipping Date**	**By**				
17-Sep	532932	43,920	480-201	X	15-Sep	Puget Sound				
17-Sep	532933	46,080	480-325	X	15-Sep	Union Pacific				
17-Sep	532934	38,580	480-408	X	15-Sep	Union Pacific				
17-Sep	532935	40,280	480-417	X	16-Sep	Union Pacific				
17-Sep	532936	43,780	480-436	X	15-Sep	Puget Sound				
17-Sep	532937	45,180	480-443	X	15-Sep	Union Pacific				
17-Sep	532938	36,820	482-011	X	16-Sep	Puget Sound				
17-Sep	532939	52,060	482-029	X	15-Sep	Puget Sound				
18-Sep	533032	40,220	480-106	X	15-Sep	Union Pacific				
18-Sep	533033	41,420	480-303	X	18-Sep	Union Pacific				
18-Sep	533034	51,660	480-553	X	17-Sep	Puget Sound				
18-Sep	533035	51,980	481-305	X	16-Sep	Union Pacific				
18-Sep	533036	50,900	481-313	X	15-Sep	Puget Sound				
18-Sep	533037	41,760	482-005	X	16-Sep	Puget Sound				
18-Sep	533038	37,120	482-016	X	15-Sep	Union Pacific				
18-Sep	533115	42,740	480-432	X	17-Sep	Puget Sound				
19-Sep	533144	48,340	480-131	X						
19-Sep	533145	42,880	480-259	X						
19-Sep	533146	46,460	480-331	X	16-Sep	Union Pacific				
19-Sep	533147	56,720	480-508	X						
19-Sep	533148	60,300	480-533	X	25-Sep	Union Pacific				
19-Sep	533149	51,080	480-573	X						
19-Sep	533150	51,040	480-593	X						
19-Sep	533181	52,780	480-423	X						
19-Sep	533182	45,220	480-550	X	19-Sep	Union Pacific				
22-Sep	533212	43,620	480-107	X	15-Sep	Union Pacific				
22-Sep	533214	46,680	480-587	X						
22-Sep	533259	56,780	480-507	X						

KEY

: Missing Shipping Ticket

: Unmatched Shipping Tickets

23-Sep	533283	42,040	480-146	X	16-Sep	Union Pacific					
24-Sep	533284	39,400	482-019	X	16-Sep	Puget Sound					
23-Sep	533316	62,640	480-516	X	17-Sep	Union Pacific					
25-Sep	533401	37,420	480-432	X	22-Sep	Union Pacific					
25-Sep	533402	43,780	480-554	X	22-Sep	Union Pacific					
25-Sep	533452	47,420	481-333	X	23-Sep	Union Pacific					
27-Sep	533541	46,160	480-105	X	25-Sep	Union Pacific					
26-Sep	533542	51,240	480-533	X							
29-Sep	533543	50,600	482-002	X	25-Sep	Union Pacific					
29-Sep	533624	47,120	480-109	X	26-Sep	Union Pacific					
27-Sep	533625	41,740	480-302	X	25-Sep	Union Pacific					
29-Sep	533626	48,300	480-304	X	25-Sep	Union Pacific					
29-Sep	533627	52,780	480-442	X	26-Sep	Union Pacific					
29-Sep	533628	56,920	480-504	X	26-Sep	Union Pacific					
29-Sep	533629	47,340	481-315	X	22-Sep	Union Pacific					
29-Sep	533678	53,160	480-413	X	26-Sep	Union Pacific					
29-Sep	533713	30,080	480-566	X	23-Sep	Union Pacific					
Total Containers:		45									
Total Wt in LBS:		2,104,540									
Total Wt in Tons:		1052.27									

Project:	**Lockheed Shipyard Sediment Operable Unit Project**									
Subject:	Waste Management									
Type:	Creosote Treated Wood									
Company:	Columbia Ridge Landfill and Recycling Center									
Period:	10/1 -10/16									

KEY	
	: Missing Shipping Ticket
	: Unmatched Shipping Tickets

Date	Invoice #	Net wt	Trailer ID	Summary	Shipping Date	By
13-Oct	534,345	57,740	480-121	X	10-Oct	Union Pacific
3-Oct	533,821	42,500	480-123	X	30-Sep	Union Pacific
3-Oct	533,822	38,820	480-139	X	30-Sep	Union Pacific
2-Oct	533,823	45,940	480-147	X	30-Sep	Puget Sound
2-Oct	533,824	41,560	480-203	X	30-Sep	Puget Sound
2-Oct	533,825	46,660	480-205	X	1-Oct	Puget Sound
15-Oct	534,463	49,680	480-216	X	8-Oct	Union Pacific
13-Oct	534,346	56,300	480-227	X	9-Oct	Union Pacific
14-Oct	534,372	54,860	480-231	X	9-Oct	Union Pacific
1-Oct	533,758	51,320	480-234	X	29-Sep	Union Pacific
14-Oct	534,347	55,240	481-313	X	9-Oct	Union Pacific
2-Oct	533,759	43,580	480-318	X	29-Sep	Union Pacific
3-Oct	533,908	52,520	480-320	X	1-Oct	Union Pacific
2-Oct	533,826	45,660	480-325	X	1-Oct	Union Pacific
6-Oct	533,970	50,100	480-331	X	2-Oct	Union Pacific
2-Oct	533,760	49,780	480-333	X	29-Sep	Union Pacific
14-Oct	534,373	50,120	480-345	X	9-Oct	Union Pacific
2-Oct	533,827	46,260	480-349	X	30-Sep	Union Pacific
2-Oct	533,828	47,460	480-402	X	1-Oct	Union Pacific
2-Oct	533,829	47,860	480-414	X	1-Oct	Union Pacific
3-Oct	533,909	54,660	480-419	X	1-Oct	Puget Sound
14-Oct	534,374	49,140	480-426	X	10-Oct	Union Pacific
2-Oct	533,830	58,360	480-432	X	30-Sep	Union Pacific
13-Oct	534,348	56,100	480-518	X	10-Oct	Union Pacific
1-Oct	533,761	57,920	480-524	X	29-Sep	Union Pacific
1-Oct	533,762	56,260	480-525	X	29-Sep	Union Pacific
3-Oct	533,910	54,460	480-527	X	1-Oct	Puget Sound
2-Oct	533,879	56,240	480-529	X	30-Sep	Puget Sound

3-Oct	533,831	45,040	480-533	X	30-Sep	Puget Sound				
2-Oct	533,832	49,320	480-538	X	30-Sep	Union Pacific				
2-Oct	533,833	46,520	480-555	X	30-Sep	Union Pacific				
14-Oct	534,349	59,880	480-594	X	10-Oct	Union Pacific				
14-Oct	534,350	54,500	480-595	X	10-Oct	Union Pacific				
3-Oct	533,911	47,900	480-598	X	1-Oct	Union Pacific				
3-Oct	533,834	48,600	480-599	X	30-Sep	Puget Sound				
2-Oct	533,835	53,480	481-303	X	1-Oct	Puget Sound				
1-Oct	533,763	48,340	481-304	X	22-Sep	Union Pacific				
6-Oct	533,971	51,260	481-308	X	2-Oct	Union Pacific				
13-Oct	534,375	50,700	481-340	X	10-Oct	Union Pacific				
8-Oct	534,008	40,780	482-010	X	3-Oct	Union Pacific				
9-Oct	534,151	46,080	480-538	X	7-Oct	Union Pacific				
9-Oct	534,152	58,180	480-551	X	7-Oct	Union Pacific				
10-Oct	534,227	59,320	480-139	X	9-Oct	Union Pacific				
10-Oct	534,228	64,120	480-204	X	9-Oct	Union Pacific				
10-Oct	534,229	62,600	480-237	X	8-Oct	Union Pacific				
10-Oct	534,230	54,300	480-264	X	7-Oct	Union Pacific				
10-Oct	534,231	53,620	480-312	X						
10-Oct	534,232	53,880	480-332	X	9-Oct	Union Pacific				
10-Oct	534,233	43,320	480-413	X	8-Oct	Union Pacific				
Total Containers:		49								
Total Wt in LBS:		2,508,840								
Total Wt in Tons:		1254.42								

Project:	**Lockheed Shipyard Sediment Operable Unit Project**										
Subject:	Waste Management										
Type:	Creosote Treated Wood										
Company:	Columbia Ridge Landfill and Recycling Center										
Period:	10/16-10/31										

KEY	
	: Missing Shipping Ticket
	: Unmatched Shipping Tickets

Date	Invoice #	Net wt	Trailer ID	Summary	Shipping Date	By
20-Oct	534,708	52,300	480-521	X	17-Oct	Union Pacific
23-Oct	534,847	52,740	480-533	X	17-Oct	Union Pacific
21-Oct	534,707	51,420	480-433	X	17-Oct	Union Pacific
21-Oct	534,709	56,980	481-312	X	17-Oct	Union Pacific
22-Oct	534,706	33,400	480-310	X	17-Oct	Union Pacific
Total Containers:		5				
Total Wt in LBS:		246,840				
Total Wt in Tons:		123.42				

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Creosote Treated Wood
Company: Columbia Ridge Landfill and Recycling Center
Period: 11/16-11/30

KEY	
	: Missing Shipping Ticket
	: Unmatched Shipping Tickets

Date	Invoice #	Net wt	Trailer ID	Summary	Shipping Date	By
20-Nov	536014	43,620	481-307			

Total Containers: 1

Total Wt in LBS: 43,620
Total Wt in Tons: 21.81

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Creosote Treated Wood
Company: Columbia Ridge Landfill and Recycling Center
Period: 11/1-11/30

KEY	
	: Missing Shipping Ticket
	: Unmatched Shipping Tickets

Date	Invoice #	Net wt	Trailer ID	Summary	Shipping Date	By
7-Nov	535554	53,260	480-406	X	4-Nov	Union Pacific

Total Containers:	1
Total Wt in LBS:	53,260
Total Wt in Tons:	27

Project:	**Lockheed Shipyard Sediment Operable Unit Project**				
Subject:	Waste Management				
Type:	Salvage Wood Removed from Site				
Company:	Rhine: Rabanco Company				
Period:	July - August 2003				
Date	**Invoice #**	**Net wt Tons**			
25-Jul	146101	13.67			
26-Jul	1475549	11.89			
5-Aug	146641	9.09			
6-Aug	146657	10.78			
8-Aug	146740	8.35			
13-Aug	146570	9.5			
14-Aug	146600	9.78			
15-Aug	146231	8.92			
19-Aug	146358	10.6			
19-Aug	146358	10.6			
20-Aug	146378	11.73			
21-Aug	146407	9.67			
22-Aug	146422	7.32			
Total Wt in Tons:		131.9			

Project:	**Lockheed Shipyard Sediment Operable Unit Project**	
Subject:	Waste Management	
Type:	**SUMMARY** Salvage Wood, Concrete, and Concrete with Rebar	
Company:	Rhine: Rabanco Company	
Period:	July - September 2003	

TYPE	***Wt. Tons***	***Cost***
Salvage wood	205.08	
Concrete	120.48	
Concrete with Rebar	1113.28	

Project:	**Lockheed Shipyard Sediment Operable Unit Project**	
Subject:	Waste Management	
Type:	Salvage Wood Removed from Site	
Company:	Rhine: Rabanco Company	
Period:	July - September 2003	
Date	**Invoice #**	**Net wt Tons**
25-Jul	146101	13.67
26-Jul	1475549	11.89
5-Aug	146641	9.09
6-Aug	146657	10.78
8-Aug	146740	8.35
13-Aug	146570	9.5
14-Aug	146600	9.78
15-Aug	146231	8.92
19-Aug	146358	10.6
19-Aug	146358	10.6
20-Aug	146378	11.73
21-Aug	146407	9.67
22-Aug	146422	7.32
27-Aug	147779	10.69
28-Aug	147805	12.27
29-Aug	147819	8.57
30-Aug	27730	10.05
8-Sep	148375	12.01
9-Sep	148375	7.66
11-Sep	147652	9.79
11-Sep	147653	2.14
Total Wt in Tons:		205.08

Project:	**Lockheed Shipyard Sediment Operable Unit Project**					
Subject:	Waste Management					
Type:	Concrete Recycling					
Company:	Rhine:Renton Concrete Recyclers					
Period:	Jul-03					
Date	**Invoice #**	**Truck #**	**Net wt Tons**			
31-Jul	62667	1533	22.63			
		1533	21.93			
		1533	21.92			
30-Jul	62723		18			
			18			
			18			
	Total Wt in Tons:		120.48			

Project:	**Lockheed Shipyard Sediment Operable Unit Project**			
Subject:	Waste Management			
Type:	Concrete with Rebar			
Company:	Rhine:Renton Concrete Recyclers			
Period:	Aug-03			
Date	**Invoice #**	**Net Tons**	**Net C/Y**	
6-Aug	100960	174.14	144	
11-Aug	101080	17.29	12	
15-Aug	101259	23.25	16	
18-Aug	101310	183.7	128	
19-Aug	101350	440.33	378	
20-Aug	101389	89.62	90	
25-Aug	101513	158.03	190	
26-Aug	101558	26.92	18	
	Total:	1113.28	976	

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: scrap
Company: Seattle Iron and Metals Corp.
Period:

Date	Invoice #	Net wt lbs	Net wt tons
18-Jul	262848	6460	3.23
25-Jul	263755	12570	6.285
29-Jul	264243	13360	6.68
31-Jul	264598	25230	12.615
4-Aug	264982	13510	6.755
		71130	35.565

Project:	**Lockheed Shipyard Sediment Operable Unit Project**						
Subject:	Waste Management						
Type:	Upland Soil						
Company:	Gordon's Dozing and Backhoe Service, Inc.						
Period:	**Summary July - November 2003**						
Tons(actual)		3500.22					

Project:	**Lockheed Shipyard Sediment Operable Unit Project**					
Subject:	Waste Management					
Type:	Upland Soil					
Company:	Gordon's Dozing and Backhoe Service, Inc.					
Period:	7/24 & 7/25					
Date	**Invoice #**	**Truck #**	**Net wt Tons**			
24-Jul	4648	P1	22.59			
	4652	P1	26.77			
	4653	P1	26.55			
	4656	P1	29.63			
		Total wt Tons		**105.54**		
25-Jul	4657	P1	31.45			
	4659	P1	32.04			
	4662	P1	31.79			
	4664	P1	33.29			
	4669	P1	31.09			
	4672	P1	31.19			
	4676	P1	28.08			
	4679	P1	27.62			
	4680	P1	30.53			
	4681	P1	33.34			
		Total wt Tons		**310.42**		
			Total Tons	415.96		

Project:	**Lockheed Shipyard Sediment Operable Unit Project**				
Subject:	Waste Management				
Type:	Upland Soil				
Company:	Gordon's Dozing and Backhoe Service, Inc.				
Period:	8/1 - 8/16				
Date	**Invoice #**	**Truck #**	**Net wt Tons**		
1-Aug	4767	K3	31.63		
	4767	K3	32.6		
	4770	K3	34.21		
		Total wt Tons		**98.44**	
5-Aug	4790	K3	36.52		
		Total wt Tons		**36.52**	
6-Aug	4791	P1	29.83		
	4792	P1	32.17		
	4797	P1	31.84		
	4800	P1	28.19		
	4803	P1	32.51		
	4806	P1	29.94		
	4809	P1	30.69		
	4812	P1	29.72		
		Total wt Tons		**244.89**	
8-Aug	4838	P1	31.24		
	4840	P1	24.66		
	4841	P1	29.22		
	4843	P1	14.37		
		Total wt Tons		**99.49**	
			Total Tons	479.34	

Project:	**Lockheed Shipyard Sediment Operable Unit Project**					
Subject:	Waste Management					
Type:	Upland Soil					
Company:	Gordon's Dozing and Backhoe Service, Inc.					
Period:	8/1 - 8/16					
Date	**Invoice #**	**Ticket #**	**Truck #**	**Net wt Tons**		
26-Aug	5194	5308	K3	36.97		
		5315	K3	33.6		
		5318	K3	29.66		
		5323	K3	31.61		
		5326	K3	28.08		
		5329	K3	27.54		
		5332	K3	31.89		
		5335	K3	31.47		
		5338	K3	26.47		
			Total wt Tons:		**277.29**	
5-Sep		5606	2	31.44		
		5609	2	32.67		
		5614	2	31.89		
		5617	2	27.47		
		5622	2	31.09		
		5629	2	31.75		
		5632	2	27.16		
		5634	2	29.72		
		5637	2	31.26		
		5638	2	30.35		
		5641	2	29.38		
		5643	2	32.01		
			Total wt Tons:		**366.19**	
				Total Tons	643.48	

Project:	**Lockheed Shipyard Sediment Operable Unit Project**					
Subject:	Waste Management					
Type:	Upland Soil					
Company:	Gordon's Dozing and Backhoe Service, Inc.					
Period:	September					
Date	**Invoice #**	**Ticket #**	**Truck #**	**Net wt Tons**		
26-Sep	5301	6359	P1	34.09		
		6364	P1	32.51		
			Total wt Tons		**66.6**	
				Total Tons	66.6	

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Upland Soil
Company: Gordon's Dozing and Backhoe Service, Inc.
Period: October

Date	Invoice #	Ticket #	Truck #	Net wt Tons
7-Oct		2150	P1	29.97
			P1	36.44
			P1	35.18
			P1	35.12
			P1	30.89
			P1	31.37
			P1	34.65
			P1	31.92
			P1	31.55
			P1	25.63
			P1	31.44
			P1	31.33
			P1	26.36
		Total wt. In Tons:		**411.85**
8-Oct		2151	P1	30.5
			P1	29.45
			P1	31.42
			P1	28.77
			P1	28.28
			P1	30.7
			P1	32.5
			P1	29.74
			P1	27.23
			P1	29.13
			P1	30.84
			P1	30.91
		Total wt. In Tons:		**359.47**
9-Oct			P1	33.57
			P1	28.83
			P1	33.39
			P1	33.14
			P1	33.01
			P1	31.06
			P1	29.75
			P1	29.19
			P1	28.58
			P1	32.45
			P1	33.37

Total wt. In Tons: **346.34**

Total Tons 1117.66

PROJECT LOCKHEED SHIPYARD SEDIMENT OPERABLE UNIT (LSSOU) PROJECT NUMBER 37023
LOCATION HARBOR ISLAND - SEATTLE, WASHINGTON
SUBJECT OPERATIONS AREA ROAD BASE
PERIOD NOVEMBER

MATERIAL	**RECYCLED CONCRETE**					
Equipment Number	Equipment Type	Product	Tons	Concrete Ticket No.	Dozing Ticket No.	Date
K3	Truck/Trailer	1 1/4 Crushed	**32.14**	68391	2408	25-Nov
K3	Truck/Trailer	1 1/4 Crushed	**31.97**	68391	2408	25-Nov
K3	Truck/Trailer	1 1/4 Crushed	**31.18**	68391	2408	25-Nov
K3	Truck/Trailer	1 1/4 Crushed	**31.98**	68391	2408	25-Nov
K3	Truck/Trailer	1 1/4 Crushed	**33.22**	68391	2408	25-Nov
K3	Truck/Trailer	1 1/4 Crushed	**32.66**	68391	2408	25-Nov
K3	Truck/Trailer	1 1/4 Crushed	**32.17**	68391	2408	25-Nov
K3	Truck/Trailer	1 1/4 Crushed	**32.11**	68391	2408	25-Nov
K3	Truck/Trailer	1 1/4 Crushed	**33.15**	68391	2408	25-Nov
P-1	Truck/Trailer	1 1/4 Crushed	**29.54**	68390	2964	25-Nov
P-1	Truck/Trailer	1 1/4 Crushed	**29.01**	68390	2964	25-Nov
P-1	Truck/Trailer	1 1/4 Crushed	**29.22**	68390	2964	25-Nov
P-1	Truck/Trailer	1 1/4 Crushed	**31.06**	68390	2964	25-Nov
P-1	Truck/Trailer	1 1/4 Crushed	**30.31**	68390	2964	25-Nov
P-1	Truck/Trailer	1 1/4 Crushed	**31.42**	68390	2964	25-Nov
P-1	Truck/Trailer	1 1/4 Crushed	**30.39**	68390	2964	25-Nov
P-1	Truck/Trailer	1 1/4 Crushed	**29.97**	68390	2964	25-Nov
P-1	Truck/Trailer	1 1/4 Crushed	**30.31**	68390	2964	25-Nov
			Total Tons	561.81		

PROJECT LOCKHEED SHIPYARD SEDIMENT OPERABLE UNIT (LSSOU) PROJECT NUMBER 37023
LOCATION HARBOR ISLAND - SEATTLE, WASHINGTON
SUBJECT OPERATIONS AREA ROAD BASE - REPAIR
PERIOD JANUARY

MATERIAL	**Miscellaneous - WA Rock**						x=ok with invoice
Equipment Number	Equipment Type	Product	Tons	Ticket No.	Dozing Ticket No.	Date	
M75		004	33.72	125546		21-Jan	x
M75		004	32.99	125588		21-Jan	x
A19		010	31.73	125676		22-Jan	x
A19		010	34.3	125657		22-Jan	x

PROJECT LOCKHEED SHIPYARD SEDIMENT OPERABLE UNIT (LSSOU) PROJECT NUMBER 37023
LOCATION HARBOR ISLAND - SEATTLE, WASHINGTON
SUBJECT OPERATIONS AREA ROAD BASE
PERIOD OCTOBER

EQUIPMENT **FILL FROM ALASKA STREET**

Equipment Number	Equipment Type	Hours	No. Loads	Ticket Number	Date
P-1	Truck and Trailer	5	4	2157	21-Oct
K3	Truck and Trailer	5	4	2199	21-Oct
P-1	Truck and Trailer	3.5	6	2159	22-Oct
P-1	Truck and Trailer	8.5	15	2160	23-Oct
K3	Truck and Trailer	6.5	11	2161	23-Oct
P-1	Truck and Trailer	6.25	12	2162	24-Oct
P-1	Truck and Trailer	6.25	12	2163	24-Oct
			Total Hours:	41	

aprox. 1271 tons @31.0 ton per truck

MATERIAL **RECYCLED CONCRETE**

Equipment Number	Equipment Type	Product	Tons	Concrete Ticket No.	Dozing Ticket No.	Date
P-1	Truck and Trailer	1 1/4 Crushed	29.45	66978	2164	24-Oct
P-1	Truck and Trailer	1 1/4 Crushed	28.84	66978	2164	24-Oct
P-1	Truck and Trailer	1 1/4 Crushed	29.84	66978	2164	24-Oct
T-1	Truck and Trailer	1 1/4 Crushed	28.93	66979	2164	24-Oct
T-1	Truck and Trailer	1 1/4 Crushed	28.42	66979	2164	24-Oct
T-1	Truck and Trailer	1 1/4 Crushed	28.58	66979	2164	24-Oct
	Truck and Trailer	1 1/4 Crushed	29.51	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	30.08	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	29.95	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	30.09	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	28.85	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	28.55	67034		27-Oct

	Truck and Trailer	1 1/4 Crushed	29.46	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	29.39	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	28.78	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	29.16	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	29.39	67034		27-Oct
	Truck and Trailer	1 1/4 Crushed	29.89	67036		27-Oct
	Truck and Trailer	1 1/4 Crushed	30.90	67036		27-Oct
	Truck and Trailer	1 1/4 Crushed	31.04	67036		27-Oct
	Truck and Trailer	1 1/4 Crushed	30.77	67036		27-Oct
	Truck and Trailer	1 1/4 Crushed	29.95	67036		27-Oct
P-1	Truck and Trailer	1 1/4 Crushed	30.08		2170	31-Oct
P-1	Truck and Trailer	1 1/4 Crushed	29.51		2170	31-Oct
T-1	Truck and Trailer	1 1/4 Crushed	31.4		2170	31-Oct
			Total Tons:	740.81		

9941.17

PROJECT LOCKHEED SHIPYARD SEDIMENT OPERABLE UNIT (LSSOU) PROJECT NUMBER 29018801
LOCATION HARBOR ISLAND - SEATTLE, WASHINGTON
SUBJECT DIRT MATERIAL USAGE LOG
PERIOD SEPTEMBER -NOVEMBER
DELIVERED WASHINGTON ROCK QUARRY

x=ok with invoice

Material	Ticket Number	Truck Number	Tons	Date	
022D	3069824	I154	29.3	16-Oct	x
022D	3069850	I166	24.23	16-Oct	x
022D	3069866	I154	28.25	16-Oct	
022D	3071243	I174	33.89	10-Nov	
022D	3071267	EH2	32.36	10-Nov	
022D	3071272	I162	30.56	10-Nov	
022D	3071273	I152	30.09	10-Nov	
022D	3071274	I166	33.38	10-Nov	
022D	3071284	I176	34.17	11-Nov	
022D	3071285	I176	32.67	11-Nov	
022D	3071286	I162	34.09	11-Nov	
022D	3071287	I162	30.96	11-Nov	
022D	3071297	I174	32.58	11-Nov	
022D	3071298	I174	32.41	11-Nov	
022D	3071345	I176	32.88	11-Nov	
022D	3071347	I162	32.03	11-Nov	
022D	3071348	I174	33.79	11-Nov	
022D	3071358	I166	23.49	11-Nov	
022D	3071359	I166	23.61	11-Nov	
022D	3071360	I166	25.39	11-Nov	
022D	3071383	I174	32.52	11-Nov	
022D	3071386	I176	33.32	11-Nov	
022D	3071389	I162	32.83	11-Nov	
022D	3071401	I166	24.5	11-Nov	
022D	3071626	I166	24.47	13-Nov	x
022D	3071627	I166	26.65	13-Nov	x
022D	3072066	I176	33.42	18-Nov	x

USAGE	MATERIAL	DESCRIPTION
Dredging fill against wall, in water		Gravelly sand
	022D	Coarse Sand
	022	Screened sand
Debris Pit	030C	7/8" Drain Rock
		washed rock
	004	1 1/4" crushed
		Pea Gravel
	002	3/4" MINUS C
	007	2" crushed ballast

022D	3072099	I154	29.14	18-Nov	x
022D	3072167	I166	23.03	18-Nov	x
022D	3072186	I154	30.76	18-Nov	x
022D	3072226	I166	24.83	18-Nov	x
		Tons:	925.6		
022	3070988	I162	31.74	6-Nov	
022	3071103	I170	32.92	7-Nov	
022	3071034	I176	33.16	7-Nov	
022	3071033	I176	32.91	7-Nov	
022	3071074	I176	33.28	7-Nov	
022	3071110	I176	33.17	7-Nov	
022	3071036	I162	30.83	7-Nov	
022	3071037	I162	32.73	7-Nov	
022	3071076	I162	33.09	7-Nov	
022	3071112	I162	31.84	7-Nov	
022	3071098	EH2	32.82	7-Nov	
022	3071210	I166	34.51	10-Nov	
022	3071240	I166	32.33	10-Nov	
022	3071209	I166	32.96	10-Nov	
022	3071238	I162	31.37	10-Nov	
022	3071177	I162	32.29	10-Nov	
022	3071192	I162	31.31	10-Nov	
022	3071204	I152	29.96	10-Nov	
022	3071239	I152	30.4	10-Nov	
022	3071179	I152	30.7	10-Nov	
022	3071178	EH2	31.84	10-Nov	
022	3071196	EH2	32.34	10-Nov	
022	3071226	EH2	31.89	10-Nov	
		Tons:	740.39		
Pea Gravel	3069849	I154	31.46	10-Oct	x
Pea Gravel	3069888	I166	24.58	16-Oct	x
Pea Gravel	3069851	I166	25.11	16-Oct	x
002	121443	I52	33.87	14-Nov	x
002	121441	I90	32.98	14-Nov	x
002	121429	I52	32.18	14-Nov	x

002	121420	I52	32.02	14-Nov	x
004	118195	I70	31.5	22-Sep	x
004	118077	I58	32.92	18-Sep	x
004	118078	I76	33.74	18-Sep	x
		Tons:	310.36		
030C	3073631	I162	32.19	5-Dec	x
030C	3073595	I192	34.95	5-Dec	x
030C	3073598	I178	33.49	5-Dec	x
030C	3073592	I160	32.49	5-Dec	x
030C	3073587	I198	32.54	5-Dec	x
030C	3073588	I190	33.07	5-Dec	x
030C	3073833	I190	32.67	9-Dec	x
030C	3073862	I178	33.29	9-Dec	x
030C	3073865	I160	33.18	9-Dec	x
030C	3073829	I192	34.73	9-Dec	x
		Tons:	332.6		
007	124747	CT194	33.37	12-Jan	x
		Tons:	33.37		

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Backfill Delivery
Company: Washington Rock Quarries
Period: 10/1-10/31

x= ok with invoice

Date	Invoice #	Truck #	Wt Tons	
2-Oct	3069296	I184	31.17	
2-Oct	3069289	I194	32.76	
31-Oct	3070596	I168	33.59	x
31-Oct	3070594	I168	33.68	x
31-Oct	3070580	C10	32.01	x
31-Oct	3070606	C10	29.98	x
31-Oct	3070930	I176	31.99	
3-Oct	3069308	I160	33.7	x
3-Oct	3069309	I180	33.41	x
3-Oct	3069331	I182	32.51	x
2-Oct	3069289	I194	32.76	x
2-Oct	3069296	I184	31.17	x

Total Wt in Tons:	388.73

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Backfill Delivery
Company: Washington Rock Quarries
Period: 7/30 - 8/5

x=ok with invoice

Date	Invoice #	Truck #	Wt Tons	
30-Jul	3065077	I192	34.43	x
30-Jul	3065078	I192	37.56	x
30-Jul	3065099	I192	33.63	x
30-Jul	3065102	I150	29.58	x
30-Jul	3065104	I160	32.26	x
31-Jul	3064970	I160	32.18	x
31-Jul	3064997	I160	34.05	x
31-Jul	3064998	I05	24.31	x
31-Jul	3065012	I180	33.06	x
31-Jul	3065015	I178	31.95	x
31-Jul	3065017	I176	34.61	x
1-Aug	3065025	I170	33.56	x
1-Aug	3065031	I162	32.53	x
1-Aug	3065037	I192	33.56	x
1-Aug	3065051	I192	33.66	x
4-Aug	3065083	I162	33.15	x
4-Aug	3065102	I162	34.64	x
4-Aug	3065108	I182	33.51	x
4-Aug	3065109	I178	32.96	x
4-Aug	3065116	I162	31.44	x
4-Aug	3065118	I180	33.12	x
4-Aug	3065121	I178	33.29	x
5-Aug	3065127	I182	32.98	x
5-Aug	3065126	I168	32.54	x
5-Aug	3065153	I182	33.6	x
5-Aug	3065150	I168	33.89	x

Total Wt in Tons:	856.05

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Backfill Delivery
Company: Washington Rock Quarries
Period: 9/1-9/30

x=ok with invoice

Date	Invoice #	Truck #	Wt Tons	
30-Sep	3069093	I162	32.86	x
30-Sep	3069051	I162	31.57	x

Total Wt. In Tons:	64.43

Project: **Lockheed Shipyard Sediment Operable Unit Project**
Subject: Waste Management
Type: Backfill Delivery
Company: Washington Rock Quarries
Period: 10/1-10/31

x=ok with invoice

Date	Invoice #	Truck #	Wt Tons	
5-Nov	3070777	I162	32.84	
5-Nov	3070841	I162	32.49	
5-Nov	3070848	I162	31.37	
5-Nov	3070776	I176	33.08	
5-Nov	3070839	I176	33.32	
5-Nov	3070840	I176	33.49	
6-Nov		I176	33.66	
6-Nov		I162	33.07	
6-Nov	3070931	I162	31.49	
6-Nov	3070984	I176	33.2	
7-Nov	3071062	I170	32.17	
7-Nov	3071061	I170	32.61	
7-Nov	3071058	EH2	33.68	
7-Nov	3071057	EH2	32.13	
13-Nov	3071624	EH2	33.56	x
13-Nov	3071625	EH2	31.9	x
13-Nov	3071665	EH2	33.41	x
13-Nov	3071701	EH2	34.43	x
18-Nov	3072098	I154	29.16	x
17-Nov	3071926	I174	33.56	x
17-Nov	3071855	I174	32.99	x
17-Nov	3071845	I176	31.79	x
17-Nov	3071893	I176	32.9	x
17-Nov	3071949	I176	33.75	x
17-Nov	3071952	I162	32.91	x
17-Nov	3071847	I162	33.92	x
17-Nov	3071900	I162	33.42	x
18-Nov	3072065	I176	33.65	x
13-Nov	3071667	I166	25.21	x

Total Wt in Tons:	945.16

Project:	**Lockheed Shipyard Sediment Operable Unit Project**							
Subject:	BACK FILL DELIVERY							
Type:								
Company:	Washington Rock Quarries							
Period:	SUMMARY 7-30 TO 11-30							
Total Wt in Tons:		2254.37						

Project:	**Lockheed Shipyard Sediment Operable Unit Project**				
Subject:	Concrete Usage				
Type:					
Company:	Glacier Northwest Concrete				
Period:	August 18 - November 30				
Location:	Seal at WP 6		x= ok with invoice		
Date	**Ticket #**	**cubic yards**			
18-Aug	500857	2			
			2		
Location:	WP 6-7				
Date	**Ticket #**	**cubic yards**			
25-Aug	494945	6			
	494942	6			
			12		
Location:	Seal at WP 5				
Date	**Ticket #**	**cubic yards**			
27-Aug	493576	2	x		
			2		
Location:	WP 3-4-5				
Date	**Ticket #**	**cubic yards**			
4-Sep	495278	10.5			
	493992	9.5			
	493994	9.5			
	493998	9.5			
	494000	9.5			
	495287	9			
			57.5		
Location:	WP 2-3				
Date	**Ticket #**	**cubic yards**			
24-Sep	494726	9	x		
	494723	9.5	x		
	500431	9.5	x		
			28		
Location:	WP 9 backfill				
Date	**Ticket #**	**cubic yards**			
30-Sep	498156	9.5	x		
			9.5		
Location:	WP8-9				
Date	**Ticket #**	**cubic yards**			
13-Oct	498915	9	x		
	498923	9.5	x		
	498927	9	x		
	498933	4.5	x		
	498940	5.5	x		
			37.5		
Location:	WP 8-9				

Date	Ticket #	cubic yards			
20-Oct	499257	10.5	x		
	495897	10.5	x		
	495899	9.5	x		
	499267	3	x		
	499268	1	x		
			34.5		
Location:	WP 8-9				
Date	**Ticket #**	**cubic yards**			
29-Oct	469801	9.5	x		
	496126	9.5	x		
	496134	9.5	x		
			28.5		
Location:	wp2-1				
Date	**Ticket #**	**cubic yards**			
6-Nov	496478	9	x		
	496475	9.5	x		
	470366	9.5	x		
	496471	9.5	x		
			37.5		
Location:	wp2-1				
Date	**Ticket #**	**cubic yards**			
12-Nov	472028	9.5	x		
	515192	9	x		
	515186	10.5	x		
	472024	10.5	x		
	472018	9.5	x		
	472011	9.5	x		
			x	invoiced for 61.5	3yd returned
			58.5		to plant
Location:	wp2-1				
Date	**Ticket #**	**cubic yards**			
19-Nov	515531	10.5	x		
	515536	7	x		
	515528	10.5	x		
			28		
	Total:	**335.5**			

DE Application Rate and Truck Deliveries Summary

Date	# Cars Treated	# Cubic Yards (# Scoops)	Truck Deliveries In Tons	Average C.Y. per car
12/31/03	13	156	66.2	12.0
1/1/04	4	51	33.5	12.8
1/3/04	5	60	0	12.0
1/7/04	0	0	65.9	#DIV/0!
1/8/04	10	155	89.1	15.5
1/9/04	9	151	97.3	16.8
1/10/04	16	251	125.5	15.7
1/11/04	7	112	129.5	16.0
1/12/04	16	256	96.7	16.0
1/13/04	15	134	99.5	8.9
1/14/04	15	256	164.7	17.1
1/15/04	15	219	60	14.6
1/16/04	10	100	215.81	10.0
1/17/04	15	96	125.22	6.4
1/18/04	12	77	124.8	6.4
1/19/04	28	189	67.21	6.8
1/20/04	20	171	67.09	8.6
1/21/04	19	114	125.92	6.0
1/22/04	12	72	92.08	6.0
1/23/04	20	120	91.8	6.0
1/24/04	12	66	123.56	5.5
1/25/04	9	54	33.58	6.0
1/26/04	12	72	130.26	6.0
1/27/04	19	114		6.0
1/29/04	7	70		10.0
2/2/04	14	83	66.18	5.9
2/3/04	12	81		6.8
2/4/04			65.74	#DIV/0!
2/6/04			125.98	#DIV/0!
				#DIV/0!
				#DIV/0!
TOTALS	**346**	**3280**	**2483.13**	
AVERAGE	**7.2**	**Tons/Car**		
AVERAGE	**9.5**	**C.Y./Car**		

Billing Date	# Cars	Total tons	Billed tons	Average/Car	DE Added
Nov. 16	69	7699.67	7726.75	111.6	
Dec. 16	56	5356.63	5847.4	95.7	
Dec. 29	113	9882.06	11097.45	87.5	
Dec. 31	50	4462.76	4867.36	89.3	
Jan. 16	91	8216.22		90.3	
DE train 1				#DIV/0!	

DE train 2	45	4557	101.3	
DE train 3	44	4692	106.6	
DE train 4	45	4571.245	101.6	
DE train 5	46	4548.73	98.9	
DE train 6	45	4918.1	109.3	314
DE train 7	40	4308.85	107.7	
Totals	**604**	**58904.415**		

page 1	**TABLE 11 - QA/QC AND PROJECT**						
	PROGRESS REFERENCE TABLE	Demolition	Bulkhead Construction	Dredge Open Channel Area	Dredge Slope Area	Cap Slope Area Waterway Equip.	Cap Slope Area Upland Equip.
Phase I							
Appendix A	Daily QA/QC Documentation						
A.1	Daily Summary Reports	X	X	X	X	X	
Appendix B	Project Photographs						
B.1	Photographic Log	X	X	X	X	X	
B.2	Photographs	X	X	X	X	X	
Appendix C	Deviations from Original Plans/Specs.						
C.1	Construction Recommendations Memo	X	X				
C.2	Other changes to earthwork and bulkhead		X				
Appendix D	Analytical Test Data						
D.1	Test Results Summary and Map			X			
D.2	Imported Materials Test Results					X	
D.3	Sheet Pile Mill Certifications		X				
D.4	Contingency Area Report			X			
Appendix E	Water Quality Monitoring						
E.1	Water Quality Certification Amendment	X	X	X	X	X	
E.2	TRC Daily Water Quality Inspection Sheets	X	X	X	X	X	
E.3	MCS Water Quality Testing Results	X	X	X	X	X	
Appendix F	Concrete and Steel Inspections						
F.1	Inspection Sheets and Test Results		X				
Appendix G	Sheet Pile Information						
G.1	Coating Inspection Documentation		X				
G.2	Recommendations for Movement/Failure	X	X				
G.3	Bulkhead Monitoring Documentation		X				
G.4	Settlement Monitoring Sheets		X				
G.5	As-Built Drawings	X	X				
Appendix H	EPA Oversight Documentation						
H.1	Weekly Summary Reports	X	X	X	X	X	
Appendix I	Activity Implementation Plans						
I.1	Hydrographic & Topographic Survey Plan		X	X	X	X	
I.2	Contractor's Site Work Control Plan	X	X	X	X	X	

page 2	TABLE 11 - QA/QC AND PROJECT						
	PROGRESS REFERENCE TABLE	Demolition	Bulkhead	Dredge Open	Dredge Slope	Cap Slope Area	Cap Slope Area
			Construction	Channel Area	Area	Waterway Equip.	Upland Equip.
Phase I							
Appendix J	Final Construction Schedule	X	X	X	X	X	
Appendix K	Project Surveys						
K.1	Multibeam Survey of Oct. 2003			X	X		
K.2	Multibeam Survey of Feb. 2004			X	X		
K.3	Interim Cap Diver Survey					X	
K.4	Fish Monitoring					X	
Appendix L	WISHA Incident						
L.1	Assessment Results			X	X		
L.2	Citation and Notice of Appeal			X	X		
L.3	Appeal Request			X	X		
L.4	Appeal Denial			X	X		
Appendix M	Plans and Specifications						
M.1	Phase I Specifications	X	X	X	X	X	
M.2	Phase I Plans-Demolition and Bulkhead	X	X				
M.3	Phase I Plans-Dredging and Capping			X	X	X	
Table 1	Dredged Sediments Disposal Recap			X	X		
Table 2	Creosote Treated Wood Disposal Recap	X					
Table 3	Salvaged Wood Disposal Recap	X					
Table 4	Salvaged Materials Quantities Recap	X					
Table 5	Upland Excavated Soil Removal Recap	X					
Table 6	Import DMOA Road Material Recap			X	X		
Table 7	Import DMOA Pit Material Recap			X	X		
Table 8	Import Bulkhead Backfill Material Recap						
Table 9	Import Capping Concrete Material Recap						
Table 10	Import Diatomaceous Material Recap			X	X		
Table 11	QA/QC and Project Progress Reference	X	X	X	X	X	X
Figure 1.1	Site Location Map	X		X	X		
Figure 1.2	General Site Plan	X		X	X		
Figure 1.3	Dredged Material Handling Area Layout			X	X		

TABLE 12 Regulatory History Summary Dates

Event	Date
EPA site inspection identified significant lead contaminated soil at the lead smelter facility on Harbor Island	1982
Harbor Island Superfund Site was listed on the EPA National Priorities List	1983
Washington Department of Ecology performed preliminary investigation of the island to determine nature and extent of contamination	1985
EPA completed an initial Remedial Investigation of marine sediments around Harbor Island	1994
PRPs completed Supplemental Remedial Investigation to further characterize the extent of contamination in the Harbor Island sediments	1995
EPA issues a Record of Decision selecting the remedy for the Shipyard Sediments Operable Unit and subdivides the Shipyard Sediments Operable Unit into two separate OUs, Todd Shipyard Sediments Operable Unit and Lockheed Shipyard Sediments Operable Unit	1996
EPA issues Administrative Order on Consent for Remedial Design	7/16/1997
EPA issues an Explanation of Significant Differences	2/22/2002
EPA issues an Explanation of Significant Differences	3/31/2003
Consent Decree finalizing settlement for responsible party performance of remedy entered by Federal Court	7/23/2003
EPA approves PRP Remedial Design for demolition	7/2/2003
Start of Phase 1 remedial action – pier demolition	7/7/2003
EPA approves PRP Remedial Design for dredging and capping	10/25/2003
Completion of Phase 1 construction season	3/10/2004
EPA approves PRP Remedial Design for Phase 2 construction	10/18/2004

Event	Date
season	
Start of Phase 2 remedial action – dredging and capping of contaminated sediments	10/22/04
Completion of Phase 2 remedial action – dredging and capping of contaminated sediments	2/4/2005
Final Construction Inspection	under EPA review
Final Construction Completion Report	under EPA review
Final OMMP	under EPA review
Final Source Control Report	under EPA review

PH II TABLES

TABLE 1 - LSSOU CAPPING SUMMARY PH I and PH II

Phase I	Weight in Tons	Notes
Interim Cap	8,290	Covered entire operable unit
Phase II - Applied by Marine Equipment		
Toe Buttress Riprap	4,854	
Armor Riprap	13,501	
Sand Attenuation Cap Layer	21,479	
Filter Layer	5,951	
Rounded Filter/Armor Layer	1,451	one barge load
Fish Mix	8,667	
Phase II - Applied by Upland Equipment		
Armor Riprap	2,446	
Sand Attenuation Cap Layer	13,052	includes fish mix in some areas
Rounded Filter/Armor Layer	17,018	
Fish Mix - Pit Run	3,001	

TABLE 2 - LSSOU DISPOSAL AND RECYCLE SUMMARY PH I and PH II

Phase I	Weight in Tons		Notes
Dredge and Debris Disposal by Rail (Waste Management)	85,096		864 Rail Cars
Soil and Dredge Disposal by Truck (Waste Management)	1,118		
Creosote Treated Wood Disposal by Bins (Waste Management)	10,660		442 Bins
Wood Salvage for Reuse (Rhine)	205		
Concrete Recycle (Renton Concrete Recyclers)	121		
Concrete w/Rebar Recycle (Renton Concrete Recyclers)	1,113		
Steel Recycle (Seattle Iron and Metals)	36		
Phase II			
Dredge and Debris Disposal by Barge (Regional Disposal Co.)	20,107		15 Barges
Rock and Soil Disposal by Truck (Regional Disposal Co.)	586		
Creosote Treated Wood Disposal by Bins (Regional Disposal Co.)	21		1 Bin
Sample Disposal by Bin (Waste Management)	1		1 Roll Off

Date	Field Report	Activity	WINOPS File (muk_Date_.clm)	Parameter File (.ini)	Daily Log File Name (.ini)
19-Oct	1	Dredge debris areas on slope	29304	TRC Pass 1.3	29304
20-Oct	2	Dredge debris areas on slope	29404	TRC Pass 1.3	29404
21-Oct	3	Dredge channel - first pass and debris area D-15	29504	TRC Pass 1.3	29504
22-Oct	4	Dredge channel - first pass	29604	TRC Pass 1.3	29604
23-Oct		Dredge channel - first pass	29704	TRC Pass 1.3	29704
24-Oct		Dredge channel - first pass	29804	TRC Pass 1.3	29804
25-Oct	5	Dredge channel - first pass	29904	TRC Pass 1.3	29904
26-Oct	6	Dredge channel - pass 1 & debris D-7 though D-11	30004	TRC Pass 1.3	30004
27-Oct	7	Dredge channel - first pass	30104	TRC Pass 1.3	30104
28-Oct	8	Dredge channel - finished pass 1, started pass 2	30204 and 30204_END	TRC Pass 1.3	30204 and 30204_END
29-Oct		Dredge channel - second pass	30304	TRC Pass 2.3	30304
30-Oct	9	Dredge channel - second pass	30404	TRC Pass 2.3	30404
31-Oct	10	Dredge channel - second pass	30504	TRC Pass 2.3	30504
1-Nov	11	Dredge channel - second pass	30604	TRC Pass 2.3	30604
2-Nov	12	Dredge channel - second pass	30704	TRC Pass 2.3	30704
3-Nov	13	Dredge channel - second pass	30804	TRC Pass 2.3	30804
4-Nov	14	Dredge channel - second pass	30904	TRC Pass 2.3	30904
5-Nov	15	Dredge channel - second pass	31004	TRC Pass 2.3	31004
6-Nov			31104	TRC Pass 2.3	31104
7-Nov			31204	TRC Pass 2.3	31204
8-Nov	16	Dredge channel - second pass	31304	TRC Pass 2.3	31304
9-Nov	17	Dredge toe of slope to construct 2:1	31404	TRC Pass 2.3	31404
10-Nov	18	Dredge toe of slope to construct 2:1 & pass 2	31504	TRC Pass 2.3	31504
11-Nov	19	Dredge channel - second pass	31604	TRC Pass 2.3	31604
12-Nov	20	Dredge channel - second pass	31704	TRC Pass 2.3	31704
13-Nov		Dredge channel - second pass, dig along toe at 2:1	31804	TRC Pass 2.3	31804
14-Nov			No Dredging or Capping		
15-Nov			No Dredging or Capping		
16-Nov	21	Re-Dredge SMU 27, 30, and 34	32104	TRC Pass 2.3	32104
17-Nov	22	No dredging, install decking and maintenance	No Dredging or Capping		
18-Nov	23	Re-Dredge SMU 22, 25, and 30	32304	TRC Pass 2.3	32304
19-Nov	24	Re-Dredge SMU 24, 25, and 27	32404	TRC Pass 2.3	32404
20-Nov			No Dredging or Capping		
21-Nov		Re-Dredge SMU 20, 27, 35	32604	TRC Pass 2.3	32604
22-Nov			No Dredging or Capping		
23-Nov	25	Toe buttress	32804	TRC Cap Butt 1.1	32804
24-Nov	26	Toe buttress	32904	TRC Cap Butt 1.1	32904
25-Nov			No Dredging or Capping		
26-Nov			No Dredging or Capping		
27-Nov		Toe buttress	33204	TRC Cap Butt 2.2.5	33204
28-Nov		Toe buttress	33304	TRC Cap Butt 2.2.5	33304
29-Nov	27	Decontaminate materials barge, no material placed	No Dredging or Capping		
30-Nov	28	Toe buttress	33504	TRC Cap Butt 2.2.5	33504
1-Dec	29	Toe buttress	33604	TRC Cap Butt 2.2.5	33604
2-Dec	30	Sand - pass 1	33704	TRC Cap Butt 2.2.5	33704
3-Dec	31	Sand - pass 1	33804	TRC Cap Butt 2.2.7	33804
4-Dec			33904	TRC Cap Butt 2.2.7	33904
5-Dec			No Dredging or Capping		
6-Dec	32	Sand - pass 2	34104	TRC Cap Butt 2.5.7	34104
7-Dec	33	Sand - pass 2	34204	TRC Cap Butt 2.4.7	34204
8-Dec	34	Sand - pass 2	34304	TRC Cap Butt 2.4.7	34304
9-Dec	35	Sand - pass 2, stop at Station 7+65 (C/L)	34404	TRC Cap Butt 2.6.7	34404
10-Dec	36	Filter - Angular, start at Station 0+16	34504	TRC Filter 1.1	34504
11-Dec			34604	TRC Filter 1.2	34604
12-Dec			No Dredging or Capping		
13-Dec	37	Maintenance - fixing leak barge, no material placed	No Dredging or Capping		
14-Dec		Armor - Riprap	34904	TRC Armor 1.2.5	34904
15-Dec		Armor - Riprap	35004	TRC Armor 1.2.5	35004
16-Dec		Armor - Riprap	35104	TRC Armor 1.2.5	35104
17-Dec		Armor - Riprap	35204	TRC Armor 1.2.5	35204

18-Dec		Armor - Riprap	35304	TRC Armor	35304
19-Dec			No Dredging or Capping		
20-Dec		Armor - Riprap	35504	TRC Armor	35504
21-Dec	38	Toe buttress, Station 14+17 to 15+91	35604	TRC Armor	35604
22-Dec		Armor - Riprap	35704	TRC Armor	35704
23-Dec		Rounded filter in 2-layer cap area	35804	TRC Round Filter	35804
24-Dec		Sand - pass 1	35904	TRC Cap Sand	35904
25-Dec			No Dredging or Capping		
26-Dec			No Dredging or Capping		
27-Dec			No Dredging or Capping		
28-Dec	39	Sand - pass 1	36304	TRC Cap Sand	36304
29-Dec	40	Sand - pass 1, end first pass at Station 15+91	36404 and 36404_END1	TRC Cap Sand	36404 and 36404_END1
30-Dec	41	Sand - pass 2, start at Station 7+65 (C/L)	36504	TRC Cap Sand	36504
31-Dec		Sand - pass 2	36604	TRC Cap Sand	36604
1-Jan			No Dredging or Capping		
2-Jan			No Dredging or Capping		
3-Jan			No Dredging or Capping		
4-Jan	42	Sand - pass 2	00405	TRC Cap Sand	00405
5-Jan	43	Sand - pass 2	00505	TRC Cap Sand	00505
6-Jan	44	Sand - pass 2, end at Station 15+91	00605	TRC Cap Sand	00605
7-Jan	45	Filter - Angular	00705	TRC Filter	00705
8-Jan			No Dredging or Capping		
9-Jan			No Dredging or Capping		
10-Jan	46	Filter - Angular, place additional sand over pile tops between Stations 13+17 and 14+45	01005 and 01005_Pile	TRC Filter	01005 and 01005_Pile
11-Jan	47	Filter - Angular	01105	TRC Filter	01105
12-Jan	48	Filter - Angular	01205	TRC Filter	01205
13-Jan	49	Armor - Riprap	01305	TRC Armor	01305
14-Jan	50	Armor - Riprap	01405	TRC Armor	01405
15-Jan			No Dredging or Capping		
16-Jan			No Dredging or Capping		
17-Jan	51	Armor - Riprap	01705	TRC Armor	01705
18-Jan	52	Armor - Riprap	01805	TRC Armor	01805
19-Jan	53	Armor - Riprap	01905	TRC Armor	01905
20-Jan	54	Armor - Riprap	02005	TRC Armor	02005
21-Jan		Armor - Riprap	02105	TRC Armor	02105
22-Jan			No Dredging or Capping		
23-Jan			No Dredging or Capping		
24-Jan	55	Armor - Riprap	02405	TRC Armor	02405
25-Jan		Fishmix - Upland (also placed in 3-layer cap on slope from Station 10+86 to 12+63 over 5000 ft^2)	02505	TRC Fishmix Upland	02505
26-Jan	56	Fishmix	02605	TRC Fishmix Rev	02605
27-Jan	57	Fishmix	02705	TRC Fishmix	02705
28-Jan	58	Fishmix	02805	TRC Fishmix	02805
29-Jan			No Dredging or Capping		
30-Jan			No Dredging or Capping		
31-Jan		Fishmix	03105	TRC Fishmix	03105
1-Feb	59	Fishmix	03205	TRC Fishmix	03205
2-Feb	60	Fishmix and feeder berm along Pier 11	03305	TRC Fishmix	03305
3-Feb	61	ENR channel cap - sand and gravel	03405	TRC SMU Capping	03405

Toe Buttress - Station 0+16 to 15+91

Date	WINOPS (.clm file)	Start STA	End STA	Tonnage - Barge Tickets			Multiplier (ton/yd^3)	Usage (ton/ft)	Area Placed (ft^2 / lnft)
				Delivered (tons)	Placed in Buttress	Placed in Cap			
A	B	C	D	E	F	G	H	I	J
23-Nov-04	muk32804	16	170	1559	1559	0	1.35	3.8	75.3
24-Nov-04	muk32904	170	430						
27-Nov-04	muk33204	430	675	1410	1410	0	1.35	2.9	58.0
28-Nov-04	muk33304	675	916						
30-Nov-04	muk33504	916	1238	1450	1450	0	1.35	2.9	57.9
1-Dec-04	muk33604	1238	1417						
21-Dec-04	muk35604	1417	1591	1217	435	782	1.35	2.5	50.0
22-Dec-04	muk35704	Riprap placed in cap, Sta 5+39 to 6+30, 5750 ft^2							

Buttress Information	
Toe Buttress Area / Linear Foot	50

Notes:

A) Date(s) over which a single barge was unloaded

B) WINOPS file (shown as julian date i.e., January 15, 2005 is muk01505.clm)

C) Start station - toe buttress

D) Stop station - toe buttress

E) Tons delivered based on barge tickets

F) Tons placed for toe buttress. Where riprap was placed in the cap out of same barge, this quantity is assumed based on multiplier, buttress area / linear foot, and length

G) Tons placed in the cap area. Quantity is the different between delivered tons and tons placed in buttress

H) Multiplier of 1.35 tons / yd^3 based on Hart Crowser design report

I) Riprap usage for toe buttress in tons / linear foot

J) Toe buttress square footage in cross-section per linear foot.

Sand #1 Station 0+16 to 15+91 First Layer

Date	WINOPS (.clm file)	Start STA (centerline)	End STA (centerline)	Start STA (area calcs)	End STA (area calcs)	No. Extra Footprints	Computed Area (ft^2)	Additional Area (ft^2)	Total Area (ft^2)	Tonnage (tons)	Multiplier (ton/yd^3)	Thickness (feet)
2-Dec	muk33704	16	286	16	275	0	26677	0	26677	1526	1.5	1.03
3-Dec	muk33804	286	570	275	555	0	28840	0	28840	1528	1.5	0.95
4-Dec	muk33904	570	862	555	850	0	30385	-730	29655	1414	1.5	0.86
		(subtract 730 ft^2 for area not covered in dig pattern)										
24-Dec 28-Dec	muk35904 muk36304	862	1337	850	1315	0	47895	2900	50795	2838	1.5	1.01
		(combine tonnage from 12/24/04 and 12/28/04)										
		(add 2900 ft^2 for area covered outside of dig pattern between STA 10+65 and 12+14)										
29-Dec	muk36404	1337	1591	1315	1557	0	24926	0	24926	1428	1.5	1.03
								Totals	160893	8734	**Average**	0.98

Sand #2 Station 0+16 to 15+91 Second Layer

Date	WINOPS (.clm file)	Start STA (centerline)	End STA (centerline)	Start STA (area calcs)	End STA (area calcs)	No. Extra Footprints	Computed Area (ft^2)	Additional Area (ft^2)	Total Area (ft^2)	Tonnage (tons)	Multiplier (ton/yd^3)	Thickness (feet)
6-Dec	muk34104	16	204	38	220	101	18746	9191	27937	1472	1.5	0.95
7-Dec	muk34204	16 204	25 388	16 220	38 375	4 97	2266 15965	364 8827	27422	1373	1.5	0.90
8-Dec	muk34304	388	596	375	580	67	21115	6097	27212	1423	1.5	0.94
9-Dec	muk34404	596	765	580	750	104	17510	9464	26974	1374	1.5	0.92
30-Dec	muk36504	765	960	750	947	50	20291	3820	24111	1421	1.5	1.06
		(subtract 730 ft^2 for area not covered in dig pattern)										
31-Dec	muk36604	960	1142	947	1122	44	18025	4004	22029	1415	1.5	1.16
4-Jan	muk00405	1142	1278	1122	1258	51	14008	4641	18649	1416	1.5	1.37
5-Jan	muk00505	1278	1415	1258	1395	5	14111	3355	17466	1422	1.5	1.47
		(add 2900 ft^2 for area covered outside of dig pattern between STA 10+65 and 12+14)										
6-Jan	muk00605	1415	1591	1395	1557	22	16686	2002	18688	1429	1.5	1.38
								Totals	210488	12745	**Average**	1.13

Notes:

1) The width of the WINOPS static dig pattern is approximately 103 feet
2) The sand was placed using the 7 yd^3 bucket which has a 7ft x 13ft footprint
3) Number of additional footprints are those required to build the 2:1 (H:V) slope, applicable in the second layer
4) Tonnage indicated was obtained from barge ticket quantities
5) Multiplier for sand of 1.5 $tons/yd^3$ was obtained from the Hart Crowser Design Report

Filter - Station 0+16 to 15+91

Date	WINOPS (.clm file)	Start STA (C/L)	End STA (C/L)	Start STA (area)	End STA (area)	Start STA Cummulative Area (ft^2)	End STA Cummulative Area (ft^2)	Total Cap Area (ft^2)	Barge Ticket (tons)	Multiplier (ton/yd^3)	Average Thickness (ft)
A	B	C	D	E	F	G	H	I	J	K	L
10-Dec	muk34504	16	398	16	398	0	24715	24715	1555	1.35	1.26
11-Dec	muk34604	398	765	398	765	24715	50420	25705	1460	1.35	1.14
11-Jan	muk01105	765	960	765	958	50420	64926	30732	1425	1.35	0.93
12-Jan	muk01205	960	1155	958	1129	64926	81152				
7-Jan	muk00705	1155	1317	1129	1314	81152	100242	37790	1511	1.35	0.80
10-Jan	muk01005	1317	1591	1314	1591	100242	118942				
							Total	118942	5951	Average	1.03

Rounded Filter - Station 0+65 to 3+11 and Station 4+22 to 7+20

Date	WINOPS (.clm file)	Start STA (C/L)	End STA (C/L)	Start STA (area)	End STA (area)	Start STA Cummulative Area (ft^2)	End STA Cummulative Area (ft^2)	Total Area (ft^2)	Barge Ticket (tons)	Multiplier (ton/yd^3)	Average Thickness (ft)
A	B	C	D	E	F	G	H	I	J	K	L
23-Dec	muk35804	65	311	65	311	0	4503	8035	1451	1.5	3.25
		422	720	422	720	0	3532				
							Total	8035	1451	Average	3.25

Notes (Angular Filter):

A) Date(s) over which a single barge was unloaded
B) WINOPS file (shown as julian date i.e., January 15, 2005 is muk01505.clm)
C) Start station at centerline of derick and trackline on WINOPS dig pattern
D) Stop station at centerline of derick and trackline on WINOPS dig pattern
E) Start station used for computing cap area (E-W line through station shown)
F) Stop station used for computing cap area (E-W line through station shown)
G) Cummulative area of 3-layer cap up to station shown in Column E
H) Cummulative area of 3-layer cap up to station shown in Column F
I) Area of cap where filter was placed. Sum of (H-G) for a single barge.
J) Tons shown on the barge ticket, provided by the contractor.
K) Multiplier 1.35 $tons/yd^3$ was obtained from the supplier Washington Rock
L) Average filter thickness between stations covering area indicated in column I

Notes (Rounded Filter):

1) Rounded filter was placed as part of the 2-layer cap with design thickness of 3.0 feet
2) Areas shown in columns G and H were computed separately from the 3-layer cap
3) Multiplier 1.5 $tons/yd^3$ was obtained from the Hart Crowser Design Report

Riprap - Station 0+16 to 15+91

Date	WINOPS (.clm file)	Start STA (C/L)	End STA (C/L)	Start STA (area)	End STA (area)	Start STA Cummulative Area (ft^2)	End STA Cummulative Area (ft^2)	Other Area (see note)	Total Cap Area (ft^2)	Tonnage - Barge Tickets			Multiplier (ton/yd^3)	Average Thickness (ft)
										Delivered (tons)	Placed in Cap	Placed in Buttress		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
14-Dec	muk34904	279	363	283	366	16492	22462		13169	1434	1434	0	1.35	2.18
15-Dec	muk35004	156	279	160	283	9293	16492							
16-Dec	muk35104	83	156	86	160	4756	9293		10034	1395	1152.5	242.5	1.35	2.30
		16	83	16	86	0	4756							
17-Dec	muk35204	363	381	366	377	22462	23203							
		South buttress, 0+10 to 0+18, Offset 50-147, 97 linear ft. Assume full quantity placed at area / ft shown below and multiplier shown at right												
18-Dec	muk35304	381	465	377	460	23203	29424		11621	1412	1412	0	1.35	2.43
20-Dec	muk35504	465	544	460	539	29424	34824							
21-Dec	muk35604	Toe buttress 14+17 to 15+91, 174 linear feet. Assume full quantity placed at area / ft shown below and multiplier shown at right							5750	1217	782	435	1.35	2.72
22-Dec	muk35704	544	633	539	630	34824	40574							
13-Jan	muk01305	633	745	630	740	40574	48374		12878	1415	1415	0	1.35	2.20
14-Jan	muk01405	745	813	740	800	48374	53452							
17-Jan	muk01705	813	964	800	958	53452	64926		11474	1329	1329	0	1.35	2.32
18-Jan	muk01805	964	1054	958	1054	64926	71921		12915	1303	1303	0	1.35	2.02
		1054	1154	1054	1149	Toe to offset 122 5920 ft^2		5920						
19-Jan	muk01905	1154	1283	1149	1280	Toe to offset 121 8142 ft^2		8142	8142	934	934	0	1.35	2.29
20-Jan	muk02005	1283	1468	1280	1457	97601	110396		12795	1448	1448	0	1.35	2.26
21-Jan	muk02105	1468	1591	1457	1591	110396	118942		8546	1259	924	335	1.35	2.16
		North buttress, extends 15+14/153 to 15+95/52, 134 linear feet. Assume full quantity placed at area / ft shown below and multiplier shown at right												
24-Jan	muk02405	1054	1280	1054	1280	Offset 120 to E. Edge 11778 ft^2		11778	11778	1367	1367	0	1.35	2.32
								Total	119102	14513	13500.5	1012.5	**Average:**	2.29

Buttress Information	
Toe Buttress Area / Linear Foot	50
South Buttress Area / Linear Foot	50
North Buttress Area / Linear Foot	50

Notes:

A) Date(s) over which a single barge was unloaded
B) WINOPS file (shown as julian date i.e., January 15, 2005 is muk01505.clm)
C) Start station at the centerline of the derick and trackline on WINOPS dig pattern
D) Stop station at the centerline of the derick and trackline on WINOPS dig pattern
E) Start station used for computing cap area (assume E-W line through station shown)
F) Stop station used for computing cap area (assume E-W line through station shown)
G) Cummulative area of 3-layer cap up to station shown in Column E
H) Cummulative area of 3-layer cap up to station shown in Column F
I) Riprap areas that did not extend the full width of the 3-layer cap (computed on separate form)
J) Area of cap where riprap was placed. Sum of (H-G) for a single barge.
K) Tons shown on the barge ticket, provided by the contractor
L) Difference between barge ticket tons (K) and estimated tons placed in buttress (M)
M) Estimated tons based on lineal footage, area / ft^2, and multiplier (N).
N) Multiplier 1.35 tons/yd^3 was obtained from the Hart Crowser Design Report
O) Average cap thickness between stations covering area indicated in column J

Fish Mix - Station 0+16 to 15+91

Date	WINOPS (.clm file)	Start STA (C/L)	End STA (C/L)	Start STA (area)	End STA (area)	Start STA Cummulative Area (ft^2)	End STA Cummulative Area (ft^2)	Area Covered (ft^2)	Barge Ticket (tons)	Average Application Rate (tons/1000ft^2)
A	B	C	D	E	F	G	H	I	J	K
25-Jan	muk02505	Upland fishmix placed from Station 11+70 to 15+45 in 2-layer cap area (area not determined). Fishmix placed in 3-layer cap area from Station 10+86 to 12+63 (approximately 5000 ft^2)							1425	Not Determined
26-Jan	muk02605	239	367	245	367	17590	27793	10203	480	47.0
27-Jan	muk02705	367	719	367	706	27793	56192	28399	1415	49.8
28-Jan	muk02805	719	1057	706	1047	56192	86863	30671	1560	50.9
31-Jan	muk03105	1057	1311	1047	1300	86863	118451	26588	1427	53.7
		Area between Station 10+86 and 12+63 covered previsouly 1/25/05. Area is approximately 5000 ft^2								
1-Feb	muk03205	1311	1591	1300	1591	118451	142567	24116	1434	59.5
2-Feb	muk03305	16	239	16	245	0	17590	17590	926	52.6

Notes:

A) Date(s) over which a single barge was unloaded

B) WINOPS file (shown as julian date i.e., January 15, 2005 is muk01505.clm)

C) Start station at centerline of derick and trackline on WINOPS dig pattern

D) Stop station at centerline of derick and trackline on WINOPS dig pattern

E) Start station used for computing cap area (E-W line through station shown)

F) Stop station used for computing cap area (E-W line through station shown)

G) Cummulative area of 3-layer cap up to station shown in Column E

H) Cummulative area of 3-layer cap up to station shown in Column F

I) Area of cap where fishmix was placed. (H-G)

J) Tons shown on the barge ticket, provided by the contractor.

K) Application rate (J/I)

FISHMIX Area

Station	Offset - West (western edge of toe buttress) (bottom of 2:1 buttress slope)	Offset - East (2 to 3-Layer Cap Boundary)	Incremental Area (ft2)	Cummulative Area (ft2)
16	40	117	0	0
65	40	128	4042.5	4043
65	40	128	0	4043
78	42	125	1111.5	5154
86	43	123	652	5806
111	43	117	1925	7731
140	46	123	2189.5	9921
140	46	123	0	9921
145	45	122	385	10306
160	45	121	1147.5	11453
210	46	116	3650	15103
220	46	116	700	15803
239	46	118	1349	17152
245	46	120	438	17590
283	46	125	2907	20497
300	46	128	1368.5	21866
316	46	138	1392	23258
339	46	138	2116	25374
364	46	128	2175	27549
364	46	128	0	27549
366	48	129	163	27712
366	48	129	0	27712
367	47	129	81.5	27793
367	47	129	0	27793
377	48	131	825	28618
398	48	139	1827	30445
437	43	135	3568.5	34014
460	43	131	2070	36084
475	42	128	1305	37389
475	42	128	0	37389
510	42	126	2975	40364
510	46	126	0	40364
539	45	124	2305.5	42669
605	44	120	5115	47784
630	43	127	2000	49784
635	43	128	422.5	50207
636	43	128	85	50292
636	43	128	0	50292
649	43	128	1105	51397
670	42	124	1753.5	53150
706	41	128	3042	56192
719	41	130	1144	57336
728	41	131	805.5	58142
740	41	133	1092	59234
743	41	133	276	59510
765	40	143	2145	61655
765	40	143	0	61655
776	40	143	1133	62788
776	40	143	0	62788
800	40	139	2424	65212
805	40	138	492.5	65704

818	40	136	1261	66965
880	40	126	5642	72607
885	40	125	427.5	73035
943	39	120	4814	77849
950	40	120	563.5	78412
950	39	120	0	78412
955	40	120	402.5	78815
958	40	121	241.5	79056
1020	39	131	5363	84419
1047	43	132	2443.5	86863
1050	42	132	268.5	87131
1050	43	132	0	87131
1054	43	134	360	87491
1057	43	135	274.5	87766
1061	43	150	398	88164
1086	44	191	3175	91339
1090	44	193	592	91931
1125	45	199	5302.5	97233
1129	45	198	614	97847
1141	45	196	1824	99671
1147	45	194	900	100571
1149	45	193	297	100868
1156	45	190	1025.5	101894
1174	46	184	2547	104441
1177	43	183	417	104858
1240	45	147	7623	112481
1240	40	147	0	112481
1280	40	137	4080	116561
1284	40	136	386	116947
1300	40	132	1504	118451
1311	41	130	995.5	119446
1314	41	129	265.5	119712
1317	41	128	262.5	119974
1329	40	125	1032	121006
1385	42	125	4704	125710
1401	41	125	1336	127046
1415	43	127	1176	128222
1425	44	129	845	129067
1425	38	129	0	129067
1457	40	133	2944	132011
1457	39	133	0	132011
1470	40	135	1228.5	133240
1470	40	135	0	133240
1500	40	129	2760	136000
1520	39	135	1850	137850
1534	44	131	1281	139131
1550	44	120	1304	140435
1591	42	70	2132	142567
			Total	**142567**

Station	Offset - West	Offset - East	Incremental	Cummulative
	(top of east side of toe buttress)	(2 to 3-Layer Cap Boundary)	Area (ft2)	Area (ft2)
16	55	117	0	0
65	55	128	3307.5	3308
65	55	128	0	3308
78	57	125	916.5	4224
86	58	123	532	4756
111	58	117	1550	6306
140	61	123	1754.5	8061
140	61	123	0	8061
145	60	122	310	8371
160	60	121	922.5	9293
210	61	116	2900	12193
220	61	116	550	12743
239	61	118	1064	13807
245	61	120	348	14155
283	61	125	2337	16492
300	61	128	1113.5	17606
316	61	138	1152	18758
339	61	138	1771	20529
364	61	128	1800	22329
364	61	128	0	22329
366	63	129	133	22462
366	63	129	0	22462
367	62	129	66.5	22528
367	62	129	0	22528
377	63	131	675	23203
398	63	139	1512	24715
437	58	135	2983.5	27699
460	58	131	1725	29424
475	57	128	1080	30504
475	57	128	0	30504
510	57	126	2450	32954
510	61	126	0	32954
539	60	124	1870.5	34824
605	59	120	4125	38949
630	58	127	1625	40574
635	58	128	347.5	40922
636	58	128	70	40992
636	58	128	0	40992
649	58	128	910	41902
670	57	124	1438.5	43340
706	56	128	2502	45842
719	56	130	949	46791
728	56	131	670.5	47462
740	56	133	912	48374
743	56	133	231	48605
765	55	143	1815	50420
765	55	143	0	50420
776	55	143	968	51388
776	55	143	0	51388
800	55	139	2064	53452
805	55	138	417.5	53869
818	55	136	1066	54935
880	55	126	4712	59647
885	55	125	352.5	60000

943	54	120	3944	63944
950	55	120	458.5	64402
950	54	120	0	64402
955	55	120	327.5	64730
958	55	121	196.5	64926
1020	54	131	4433	69359
1047	58	132	2038.5	71398
1050	57	132	223.5	71621
1050	58	132	0	71621
1054	58	134	300	71921
1057	58	135	229.5	72151
1061	58	150	338	72489
1086	59	191	2800	75289
1090	59	193	532	75821
1125	60	199	4777.5	80598
1129	60	198	554	81152
1141	60	196	1644	82796
1147	60	194	810	83606
1149	60	193	267	83873
1156	60	190	920.5	84794
1174	61	184	2277	87071
1177	58	183	372	87443
1240	60	147	6678	94121
1240	55	147	0	94121
1280	55	137	3480	97601
1284	55	136	326	97927
1300	55	132	1264	99191
1311	56	130	830.5	100021
1314	56	129	220.5	100242
1317	56	128	217.5	100459
1329	55	125	852	101311
1385	57	125	3864	105175
1401	56	125	1096	106271
1415	58	127	966	107237
1425	59	129	695	107932
1425	53	129	0	107932
1457	55	133	2464	110396
1457	54	133	0	110396
1470	55	135	1033.5	111430
1470	55	135	0	111430
1500	55	129	2310	113740
1520	54	135	1550	115290
1534	59	131	1071	116361
1550	59	120	1064	117425
1591	57	70	1517	118942
			Total	**118942**

Riprap - Areas Not Extending the Full Width of the 2 to 3-Layer Cap Boundary

11+49 to 12+80 1/19/05

Station	Offset - West (top of east side of toe buttress)	Offset - East (2 to 3-Layer Cap Boundary)	Incremental Area (ft2)	Cummulative Area (ft2)
1149	60	121	0	0
1240	55	118	5642	5642
1280	56	118	2500	8142
			Total	**8142**

10+54 to 11+49 1/18/05

Station	Offset - West (top of east side of toe buttress)	Offset - East (2 to 3-Layer Cap Boundary)	Incremental Area (ft2)	Cummulative Area (ft2)
1054	58	123	0	0
1140	61	121	5375	5375
1149	60	121	544.5	5920
			Total	**5920**

10+54 to 12+80 1/24/05

Station	Offset - West (top of east side of toe buttress)	Offset - East (2 to 3-Layer Cap Boundary)	Incremental Area (ft2)	Cummulative Area (ft2)
1054	123	134	0	0
1072	122	177	594	594
1107	122	199	2310	2904
1141	121	196	2584	5488
1174	120	184	2293.5	7782
1240	119	147	3036	10818
1280	117	137	960	11778
			Total	**11778**

Rounded Filter
0+65 to 3+11 and 4+22 to 7+20 12/23/04

Station	Offset - West	Offset - East	Incremental Area (ft2)	Cummulative Area (ft2)
65	128	128	0	0
71	127	128	3	3
95	121	137	204	207
107	118	141	234	441
113	118	145	150	591
114	118	145	27	618
140	123	144	624	1242
155	122	142	307.5	1549.5
169	120	137	259	1808.5
213	116	142	946	2754.5
220	115	141	182	2936.5
232	117	138	282	3218.5
248	120	144	360	3578.5
300	128	138	884	4462.5
306	135	137	36	4498.5
311	136	136	5	4503.5
422	137	137	0	0
474	128	134	156	156
605	120	142	1834	1990
637	128	144	608	2598
643	128	145	99	2697
649	128	144	99	2796
670	124	140	336	3132
720	130	130	400	3532
			Total	**8035.5**

4

Day No.	Date	Day of Week	Barge Production Sent to T-25 (Tons)	Daily Production At Rig (Tons)	Barge Unloaded At T-25 (Tons)	Hydrographic Survey	Extra Rig Time (Hrs)	Water Sampling	Sediment Coring
1	19-Oct	Tues.	0	317	0	no	0	no	no
2	20-Oct	Wed.	0	458	0	yes	0	no	no
3	21-Oct	Thurs.	0	545	0	no	0	no	no
4	22-Oct	Fri.	1319	445	1067	yes	0	yes	no
5	23-Oct	Sat.	0	440	0	no	0	no	no
6	24-Oct	Sun.	0	1182	0	no	0	no	no
7	25-Oct	Mon.	1635	1230	1498	yes	0	no	no
8	26-Oct	Tues.	1411	1455	1308	no	1	no	no
9	27-Oct	Wed.	1635	1436	1423	yes SB		no	no
10	28-Oct	Thurs.	1567	288	1316	no		yes	no
11	29-Oct	Fri.	0	390	0	yes SB		no	no
12	30-Oct	Sat.	0	503	0	yes MB		no	no
13	31-Oct	Sun.	0	600	0	no		no	no
14	1-Nov	Mon.	1550	673	1451	no		yes	no
15	2-Nov	Tues.	0	385	0	yes MB		no	no
16	3-Nov	Wed.	1547	670	1402	no		yes	no
17	4-Nov	Thurs.	0	704	0	no		no	Hand Grab
18	5-Nov	Fri.	1654	663	1359	yes MB		no	no
19	6-Nov	Sat.	0	835	0	no		no	no
20	7-Nov	Sun.	0	912	0	no		no	no
21	8-Nov	Mon.	1645	557	1388	yes MB		no	no
22	9-Nov	Tues.	1674	724	1416	no		no	no
23	10-Nov	Wed.	0	707	0	no		no	yes
24	11-Nov	Thurs.	1645	979	1504	yes MB		no	yes
25	12-Nov	Fri.	0	581	0	no		no	no
26	13-Nov	Sat.	0	787	0	no		no	yes
27	14-Nov	Sun.	NO DIG	NO DIG	0	yes MB		no	no
28	15-Nov	Mon.	1772	NO DIG	1695	no		no	no
29	16-Nov	Tues.	NO DIG	663	0	no		no	no
30	17-Nov	Wed.	1450	NO DIG	1333	no		no	no
31	18-Nov	Thurs.	0	846	0	no		no	no
32	19-Nov	Fri.	0	553	0	no		no	no
33	20-Nov	Sat.	1547	NO DIG	1149	no		no	no
34	21-Nov	Sun.	0	623		no		no	no
35	22-Nov	Mon.	957	NO DIG	835	yes MB		no	Van-Veen
	TOTALS:		23008		19309				

American Construction Material Placement

Day No.	Date	Day of Week	Daily Production At Rig (Tons)	Loaded Tonnage	Hydro Survey	Extra Rig Time(Hrs)	Water Sampling	Sediment Coring	Sample Analysis	Analysis Returned
1	22-Nov	Mon.	No Work	1559						
2	23-Nov	Tues.	779							
3	24-Nov	Wed.	780						#1 Yes	
4	25-Nov	Thurs.	No Work							
5	26-Nov	Fri.	No Work	1410						
6	27-Nov	Sat.	850		Yes					
7	28-Nov	Sun.	560							
8	29-Nov	Mon.	Decon Dungen	1450					#2 Yes	#1 Yes
9	30-Nov	Tues.	800							
10	1-Dec	Wed.	650		Yes			Yes		#1,#2 Yes
	Rip-Rap Totals:		**4419**	**4419**						
10	1-Dec	Wed.		1526	Yes					
11	2-Dec	Thurs.	1526	1528					#3 Yes	
12	3-Dec	Fri.	1528	1414				Yes		#3 Yes
13	4-Dec	Sat.	1414							
14	5-Dec	Sun.	No Work	1472	Yes			Diver Survey		
15	6-Dec	Mon.	1472	1373						
16	7-Dec	Tues.	1373	1423			Yes			
17	8-Dec	Wed.	1423	1374			Yes			
18	9-Dec	Thurs.	1374		Yes					
	Cap Total to 7+50		**10110**	**10110**						
18	9-Dec			1555						
19	10-Dec	Fri.	1555	1460			Yes			
20	11-Dec	Sat.	1460							
	Filter Total to 7+00		**3015**	**3015**						
21	12-Dec	Sun.	No Work		Yes					
22	13-Dec	Mon.	Maintenance	1434						
23	14-Dec	Tues.	717						Yes Pit-Run	
24	15-Dec	Wed.	717	1395				Yes Mitigation		
25	16-Dec	Thurs.	697							
26	17-Dec	Fri.	698	1412						
27	18-Dec	Sat.	706							
28	19-Dec	Sun.	No Work							
29	20-Dec	Mon.	706	1217						
30	21-Dec	Tues.	608							

31	22-Dec	Wed.	609							
	Armor to 7+00		**5458**	**5458**						
	22-Dec	Wed.		1451						
32	23-Dec	Thurs.	1451							
Rounded	**Filter Total to 7+50**		**1451**	**1451**						
	23-Dec	Thurs.		1418						
33	24-Dec	Fri.	1418							
34	25-Dec	Sat.	No Work							
35	26-Dec	Sun.	No Work							
36	27-Dec	Mon.	No Work	1420						
37	28-Dec	Tues.	1420	1428						
38	29-Dec	Wed.	1428	1421						
39	30-Dec	Thurs.	1421	1415	Yes					
40	31-Dec	Fri.	1415							
41	1-Jan	Sat.	No Work							
42	2-Jan	Sun.	No Work					Diver Survey		
43	3-Jan	Mon.	No Work	1416					Yes G Pit Run	
44	4-Jan	Tues.	1416	1422						
45	5-Jan	Wed.	1422	1429						Yes G Pit Run
46	6-Jan	Thurs.	1429							
	Cap Total to 15+75		**11369**	**11369**						
46	6-Jan	Thurs.		1511	Yes				Yes GL Cap	
47	7-Jan	Fri.	750							Yes WR Pit Run
48	10-Jan	Mon.	761	1425					Yes RR Fines	
49	11-Jan	Tues.	725							
50	12-Jan	Wed.	700		Yes					
	Filter Total to 15+75		**2936**	**2936**						
50	12-Jan	Wed.		1415						
51	13-Jan	Thurs.	675							Yes RR Fines
52	14-Jan	Fri.	675	1329						Yes GL Cap
53	15-Jan	Sat.	No Work							
54	16-Jan	Sun.	No Work							
55	17-Jan	Mon.	1329	1303						
56	18-Jan	Tues.	1303	934						
57	19-Jan	Wed.	934	1448						
58	20-Jan	Thurs.	1448	1259						
59	21-Jan	Fri.	1259	1367				Grab Samples		

American Construction Material Placement

60	24-Jan	Mon.	1367		Yes					
	Armor Total to 15+75		**9055**	**9055**						
60	24-Jan	Mon.		1425						
61	25-Jan	Tues.	1425	1428 (#7180)						
62	26-Jan	Wed.	480	1415 (#7123)					Yes Fish Mix	
63	27-Jan	Thurs.	1415	612 (7/8,1-1/2)						
64	28-Jan	Fri.	1560 Mixed	1427 (#7123)						
65	31-Jan	Mon.	1427	1434 (#7123)						Yes Fish Mix
66	1-Feb	Tues.	1434	926 (#7123), 513 (7/8, 1-2/2)						Yes Grab Samples
67	2-Feb	Wed.	1439							
68	3-Feb	Thurs.	763***							
69	4-Feb	Fri.								
70	8-Feb	Tues.			Yes					
	Fishmix Total to 15+75		**9943**	**9180**						

*** 350 Angular Filter & 413 Capping Sand for ENR furnished by TRC and placed by American.

LSSOU Upland Material Quantities/Hours

Date	Day of Week	Bone - Brundage Material	Bone - Brundage Hours	Cap Received	Filter Received	Pit-Run Received	Rip-Rap Received	Cap Placed	Filter Placed	Pit-Run Placed	Rip-Rap Placed	Survey Crew Hrs.
6-Dec	Mon.			3000								
7-Dec	Tues.			2029								6
8-Dec	Wed.	980	8					980				
9-Dec	Thurs.	1200	6.5					1200				4
10-Dec	Fri.	1080	6.5		1566			1080				
11-Dec	Sat.	740	7		2430			740	1656			2
12-Dec	Sun.	766	7.5					766	400			
13-Dec	Mon.	1006	11		2581		483		2159		30	
14-Dec	Tues.	615	8.45					134	2064		24	4
15-Dec	Wed.				657		1119		837		373	
16-Dec	Thurs.				670				788		403	
17-Dec	Fri.										150	
18-Dec	Sat.											
21-Dec	Tues.											
23-Dec	Thurs.											
Loader Rental - Month												
Light Plant - Month												
Vac Trailer - Month												
Radios - Month												
Volvo Loader - Week												
Fuel - Month												
3-Jan	Mon.											
4-Jan	Tues.			4621								
5-Jan	Wed.					300 FM						
6-Jan	Thurs.	800	6			300 FM		800				
7-Jan	Fri.	800	6.25		1506	903 FM		800				4
8-Jan	Sat.	1100	7.75		1,619			1100	1100			
9-Jan	Sun.	1100	7.75					1100	1300			4
10-Jan	Mon.	821	7		2892			821	1000			
11-Jan	Tues.	n/a	0	2000 FM	439	1444 FM	654	0	1600		133	4
12-Jan	Wed.	1000	9.25	523 FM	230	654 FM		1300**	1100		133	
13-Jan	Thurs.	400	4.5		1213			400**	1300		600	
14-Jan	Fri.	823	9.75		865			823**	1264			4
15-Jan	Sat.										600	
17-Jan	Mon.						128					
18-Jan	Tues.											
19-Jan	Wed.											
20-Jan	Thurs.											
21-Jan	Fri.			709 FM								

LSSOU Upland Material Quantities/Hours

Date	Day of Week	Bone - Brundage Material	Bone - Brundage Hours	Cap Received	Filter Received	Pit-Run Received	Rip-Rap Received	Cap Placed	Filter Placed	Pit-Run Placed	Rip-Rap Placed	Survey Crew Hrs.
23-Jan	Sun.									890 FM		
24-Jan	Mon.							300**		1208 FM		
25-Jan	Tues.											
26-Jan	Wed.											
27-Jan	Thurs.							125**	100			
28-Jan	Fri.											
1-Feb	Tues.				350***							
3-Feb	Thurs.							413***	350***			
Loader Rental - Month												
Light Plant - Month												
Vac Trailer - Month												
Radios - Month												
Volvo Loader - Week												
Fuel - Month												
15Feb.	Tues.			170 FM				170**				
28-Feb	Mon.											4
Additional Dozer & Operator												
TOTALS:		11,087	113.2	13052**	17018	3,001 FM	2384	13,052**	17018	3,001 FM	2446	

** Includes Fish Mix Material

FM = Fish Mix Only

*** Materials used for ENR placed by American Costruction

GLACIER UPLAND CAPPING SAND LOG

PHASE II

Material	Invoice Date	Truck Date	Ticket Number	Barge Name	Truck Number	Tons
Capping sand	12/16/2004	12/13/2004	774883	ITB270		5,029.00
Capping sand	1/26/2005	1/24/2005	778501	ITB280		1,400.00
Capping sand	1/26/2005	1/24/2005	778502	ITB280		3,121.00
Capping sand	1/26/2005	1/24/2005	778503	ITB241		2,523.00
Capping sand	1/26/2005	1/21/2005	778290		ACE9T	30.77
Capping sand	1/26/2005	1/21/2005	778291		ACE8T	31.83
Capping sand	1/26/2005	1/21/2005	778291		ACE8T	31.83
Capping sand	1/26/2005	1/21/2005	778292		ACE6TT	31.10
Capping sand	1/26/2005	1/21/2005	778298		ACE9T	32.35
Capping sand	1/26/2005	1/21/2005	778299		ACE8T	31.32
Capping sand	1/26/2005	1/21/2005	778302		ACE6TT	29.97
Capping sand	1/26/2005	1/21/2005	778310		ACE9T	31.82
Capping sand	1/26/2005	1/21/2005	778313		ACE8T	32.05
Capping sand	1/26/2005	1/21/2005	778315		ACE6TT	31.73
Capping sand	1/26/2005	1/21/2005	778322		ACE9T	30.9
Capping sand	1/26/2005	1/21/2005	778325		ACE8T	31.10
Capping sand	1/26/2005	1/21/2005	778327		ACE5TT	31.04
Capping sand	1/26/2005	1/21/2005	778331		ACE6TT	30.48
Capping sand	1/26/2005	1/21/2005	778339		ACE9T	29.5
Capping sand	1/26/2005	1/21/2005	778342		ACE8T	30.34
Capping sand	1/26/2005	1/21/2005	778346		ACE5TT	30.37
Capping sand	1/26/2005	1/21/2005	778348		ACE6TT	30.06
Capping sand	1/26/2005	1/21/2005	778351		ACE9T	30.07
Capping sand	1/26/2005	1/21/2005	778352		ACE8T	30.35
Capping sand	1/26/2005	1/21/2005	778359		ACE5TT	30.16
Capping sand	1/26/2005	1/21/2005	778361		ACE6TT	30.17
Capping sand	1/26/2005	1/21/2005	778366		ACE8T	30.23
Capping sand	1/26/2005	1/21/2005	778367		ACE9T	31.06

12,813.60

Gary Russell 16P9S 206-340-1110

DATE: 03/07/05
TIME: 08:16:45

WASHINGTON ROCK QUARRIES, INC
SUMMARY SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

CUSTOMER/ JOB CODE	CUST/JOB NAME	ITEM CODE	ITEM DESC	QUANTITY	UM
374	TRC ENVIRONMENTAL SOLU	011	6" MINUS TAILINGS	338.50	TN
		020	PIT RUN	2098.03	TN
		040B	STREAM BED GRVL 8	17233.80	TN
	TOTALS FOR: CUSTOMER 374		586 TICKET(S)	19670.33	
	REPORT TOTALS:		586 TICKET(S)	19670.33	

DATE: 03/07/05
TIME: 08:16:07

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM SELL
CUSTOMER 374	TRC ENVIRONMENTAL SOLUTIONS				
PLANT: 1	KAPOWSIN				
148301	01/31/05	011	6" MINUS TAILI	32.50	TN
148304	01/31/05	011	6" MINUS TAILI	34.84	TN
148305	01/31/05	011	6" MINUS TAILI	33.66	TN
148321	02/01/05	011	6" MINUS TAILI	33.39	TN
148322	02/01/05	011	6" MINUS TAILI	33.87	TN
148323	02/01/05	011	6" MINUS TAILI	34.27	TN
148324	02/01/05	011	6" MINUS TAILI	35.04	TN
148325	02/01/05	011	6" MINUS TAILI	32.74	TN
148373	02/01/05	011	6" MINUS TAILI	34.41	TN
148403	02/01/05	011	6" MINUS TAILI	33.78	TN
PLANT: 3	KING CREEK				
101221	12/09/04	040B	STREAM BED GRV	33.28	TN
101222	12/09/04	040B	STREAM BED GRV	33.83	TN
101224	12/09/04	040B	STREAM BED GRV	33.38	TN
101225	12/09/04	040B	STREAM BED GRV	33.90	TN
101226	12/09/04	040B	STREAM BED GRV	34.75	TN
101227	12/09/04	040B	STREAM BED GRV	33.88	TN
101228	12/09/04	040B	STREAM BED GRV	32.40	TN
101229	12/09/04	040B	STREAM BED GRV	44.48	TN
101232	12/10/04	040B	STREAM BED GRV	33.97	TN
101233	12/10/04	040B	STREAM BED GRV	34.33	TN
101237	12/10/04	040B	STREAM BED GRV	38.70	TN
101238	12/10/04	040B	STREAM BED GRV	32.37	TN
101239	12/10/04	040B	STREAM BED GRV	32.38	TN
101240	12/10/04	040B	STREAM BED GRV	34.18	TN
101241	12/10/04	040B	STREAM BED GRV	33.04	TN
101244	12/10/04	040B	STREAM BED GRV	45.86	TN
101245	12/10/04	040B	STREAM BED GRV	35.09	TN
101247	12/10/04	040B	STREAM BED GRV	32.41	TN
101249	12/10/04	040B	STREAM BED GRV	34.26	TN
101251	12/10/04	040B	STREAM BED GRV	35.82	TN
101252	12/10/04	040B	STREAM BED GRV	33.66	TN
101253	12/10/04	040B	STREAM BED GRV	34.50	TN
101254	12/10/04	040B	STREAM BED GRV	32.22	TN
101255	12/10/04	040B	STREAM BED GRV	32.79	TN
101256	12/10/04	040B	STREAM BED GRV	31.83	TN
101258	12/10/04	040B	STREAM BED GRV	33.71	TN
101259	12/10/04	040B	STREAM BED GRV	33.68	TN
101260	12/10/04	040B	STREAM BED GRV	33.69	TN
101261	12/10/04				

DATE: 03/07/05
TIME: 08:16:11

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL
		040B	STREAM BED GRV	33.32	TN	
101262	12/10/04	040B	STREAM BED GRV	34.98	TN	
101263	12/10/04	040B	STREAM BED GRV	31.80	TN	
101264	12/10/04	040B	STREAM BED GRV	34.75	TN	
101265	12/10/04	040B	STREAM BED GRV	33.02	TN	
101266	12/10/04	040B	STREAM BED GRV	32.22	TN	
101267	12/10/04	040B	STREAM BED GRV	30.79	TN	
101268	12/10/04	040B	STREAM BED GRV	32.81	TN	
101269	12/10/04	040B	STREAM BED GRV	32.28	TN	
101280	12/10/04	040B	STREAM BED GRV	35.64	TN	
101281	12/10/04	040B	STREAM BED GRV	33.70	TN	
101294	12/10/04	040B	STREAM BED GRV	33.40	TN	
101295	12/10/04	040B	STREAM BED GRV	34.52	TN	
101297	12/10/04	040B	STREAM BED GRV	32.83	TN	
101298	12/10/04	040B	STREAM BED GRV	32.00	TN	
101301	12/10/04	040B	STREAM BED GRV	35.69	TN	
101302	12/10/04	040B	STREAM BED GRV	36.33	TN	
101304	12/10/04	040B	STREAM BED GRV	31.76	TN	
101305	12/10/04	040B	STREAM BED GRV	38.34	TN	
101307	12/10/04	040B	STREAM BED GRV	33.64	TN	
101308	12/10/04	040B	STREAM BED GRV	34.20	TN	
101310	12/10/04	040B	STREAM BED GRV	32.79	TN	
101311	12/10/04	040B	STREAM BED GRV	34.19	TN	
101313	12/10/04	040B	STREAM BED GRV	33.52	TN	
101314	12/10/04	040B	STREAM BED GRV	33.39	TN	
101315	12/10/04	040B	STREAM BED GRV	35.50	TN	
101316	12/10/04	040B	STREAM BED GRV	31.64	TN	
101317	12/10/04	040B	STREAM BED GRV	32.10	TN	
101318	12/10/04	040B	STREAM BED GRV	30.86	TN	
101320	12/10/04	040B	STREAM BED GRV	32.03	TN	
101321	12/10/04	040B	STREAM BED GRV	34.10	TN	
101326	12/10/04	040B	STREAM BED GRV	32.27	TN	
101327	12/10/04	040B	STREAM BED GRV	31.81	TN	
101328	12/10/04	040B	STREAM BED GRV	32.73	TN	
101329	12/10/04	040B	STREAM BED GRV	33.32	TN	
101330	12/10/04	040B	STREAM BED GRV	38.23	TN	
101331	12/10/04	040B	STREAM BED GRV	36.09	TN	
101336	12/10/04	040B	STREAM BED GRV	32.21	TN	
101337	12/10/04	040B	STREAM BED GRV	32.63	TN	
101338	12/10/04	040B	STREAM BED GRV	31.12	TN	
101350	12/10/04	040B	STREAM BED GRV	32.23	TN	
101351	12/10/04					

DATE: 03/07/05
TIME: 08:16:11

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL PR
		040B	STREAM BED GRV	33.16	TN	
101353	12/10/04	040B	STREAM BED GRV	34.36	TN	
101355	12/10/04	040B	STREAM BED GRV	34.47	TN	
101360	12/10/04	040B	STREAM BED GRV	33.25	TN	
101361	12/10/04	040B	STREAM BED GRV	33.45	TN	
101364	12/10/04	040B	STREAM BED GRV	32.00	TN	
101365	12/10/04	040B	STREAM BED GRV	32.70	TN	
101369	12/10/04	040B	STREAM BED GRV	33.53	TN	
101371	12/10/04	040B	STREAM BED GRV	31.92	TN	
101372	12/10/04	040B	STREAM BED GRV	32.58	TN	
101374	12/10/04	040B	STREAM BED GRV	33.35	TN	
101376	12/10/04	040B	STREAM BED GRV	34.02	TN	
101377	12/10/04	040B	STREAM BED GRV	32.98	TN	
101379	12/10/04	040B	STREAM BED GRV	35.27	TN	
101389	12/10/04	040B	STREAM BED GRV	32.07	TN	
101390	12/10/04	040B	STREAM BED GRV	36.25	TN	
101391	12/10/04	040B	STREAM BED GRV	32.38	TN	
101392	12/10/04	040B	STREAM BED GRV	32.28	TN	
101394	12/10/04	040B	STREAM BED GRV	32.04	TN	
101396	12/10/04	040B	STREAM BED GRV	33.96	TN	
101397	12/10/04	040B	STREAM BED GRV	34.17	TN	
101399	12/10/04	040B	STREAM BED GRV	32.77	TN	
101400	12/10/04	040B	STREAM BED GRV	34.90	TN	
101401	12/10/04	040B	STREAM BED GRV	34.83	TN	
101402	12/10/04	040B	STREAM BED GRV	33.92	TN	
101403	12/10/04	040B	STREAM BED GRV	33.60	TN	
101404	12/10/04	040B	STREAM BED GRV	38.91	TN	
101405	12/10/04	040B	STREAM BED GRV	34.29	TN	
101406	12/10/04	040B	STREAM BED GRV	33.53	TN	
101407	12/10/04	040B	STREAM BED GRV	33.56	TN	
101408	12/10/04	040B	STREAM BED GRV	33.80	TN	
101409	12/11/04	040B	STREAM BED GRV	34.09	TN	
101410	12/11/04	040B	STREAM BED GRV	33.60	TN	
101411	12/11/04	040B	STREAM BED GRV	33.96	TN	
101412	12/11/04	040B	STREAM BED GRV	34.58	TN	
101413	12/11/04	040B	STREAM BED GRV	34.85	TN	
101414	12/11/04	040B	STREAM BED GRV	36.22	TN	
101415	12/11/04	040B	STREAM BED GRV	33.02	TN	
101416	12/11/04	040B	STREAM BED GRV	33.33	TN	
101417	12/11/04	040B	STREAM BED GRV	34.89	TN	
101418	12/11/04	040B	STREAM BED GRV	35.33	TN	
101419	12/11/04					

DATE: 03/07/05
TIME: 08:16:11

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL P
		040B	STREAM BED GRV	35.57	TN	
101420	12/11/04	040B	STREAM BED GRV	34.80	TN	
101421	12/11/04	040B	STREAM BED GRV	31.91	TN	
101422	12/11/04	040B	STREAM BED GRV	32.85	TN	
101423	12/11/04	040B	STREAM BED GRV	31.90	TN	
101424	12/11/04	040B	STREAM BED GRV	33.42	TN	
101425	12/11/04	040B	STREAM BED GRV	33.23	TN	
101426	12/11/04	040B	STREAM BED GRV	36.44	TN	
101427	12/11/04	040B	STREAM BED GRV	35.85	TN	
101428	12/11/04	040B	STREAM BED GRV	34.04	TN	
101429	12/11/04	040B	STREAM BED GRV	32.14	TN	
101430	12/11/04	040B	STREAM BED GRV	31.38	TN	
101431	12/11/04	040B	STREAM BED GRV	34.72	TN	
101433	12/11/04	040B	STREAM BED GRV	37.40	TN	
101434	12/11/04	040B	STREAM BED GRV	38.10	TN	
101435	12/11/04	040B	STREAM BED GRV	33.08	TN	
101436	12/11/04	040B	STREAM BED GRV	33.61	TN	
101437	12/11/04	040B	STREAM BED GRV	34.74	TN	
101438	12/11/04	040B	STREAM BED GRV	35.40	TN	
101439	12/11/04	040B	STREAM BED GRV	33.41	TN	
101440	12/11/04	040B	STREAM BED GRV	31.74	TN	
101441	12/11/04	040B	STREAM BED GRV	33.32	TN	
101442	12/11/04	040B	STREAM BED GRV	31.50	TN	
101443	12/11/04	040B	STREAM BED GRV	33.64	TN	
101444	12/11/04	040B	STREAM BED GRV	33.00	TN	
101445	12/11/04	040B	STREAM BED GRV	34.29	TN	
101446	12/11/04	040B	STREAM BED GRV	31.48	TN	
101447	12/11/04	040B	STREAM BED GRV	31.86	TN	
101448	12/11/04	040B	STREAM BED GRV	32.70	TN	
101450	12/11/04	040B	STREAM BED GRV	32.40	TN	
101451	12/11/04	040B	STREAM BED GRV	31.17	TN	
101452	12/11/04	040B	STREAM BED GRV	31.35	TN	
101453	12/11/04	040B	STREAM BED GRV	32.34	TN	
101454	12/11/04	040B	STREAM BED GRV	32.14	TN	
101455	12/11/04	040B	STREAM BED GRV	34.49	TN	
101456	12/11/04	040B	STREAM BED GRV	31.16	TN	
101457	12/11/04	040B	STREAM BED GRV	32.74	TN	
101458	12/11/04	040B	STREAM BED GRV	35.19	TN	
101459	12/11/04	040B	STREAM BED GRV	33.78	TN	
101460	12/11/04	040B	STREAM BED GRV	33.66	TN	
101461	12/11/04	040B	STREAM BED GRV	33.47	TN	
101462	12/11/04					

DATE: 03/07/05
TIME: 08:16:11

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL P
		040B	STREAM BED GRV	34.71	TN	
101463	12/11/04	040B	STREAM BED GRV	35.31	TN	
101465	12/11/04	040B	STREAM BED GRV	31.91	TN	
101467	12/11/04	040B	STREAM BED GRV	36.00	TN	
101470	12/11/04	040B	STREAM BED GRV	32.34	TN	
101476	12/13/04	040B	STREAM BED GRV	36.41	TN	
101477	12/13/04	040B	STREAM BED GRV	32.95	TN	
101478	12/13/04	040B	STREAM BED GRV	34.51	TN	
101479	12/13/04	040B	STREAM BED GRV	33.16	TN	
101480	12/13/04	040B	STREAM BED GRV	33.37	TN	
101481	12/13/04	040B	STREAM BED GRV	33.61	TN	
101482	12/13/04	040B	STREAM BED GRV	33.85	TN	
101483	12/13/04	040B	STREAM BED GRV	35.12	TN	
101484	12/13/04	040B	STREAM BED GRV	36.36	TN	
101485	12/13/04	040B	STREAM BED GRV	33.38	TN	
101487	12/13/04	040B	STREAM BED GRV	33.00	TN	
101488	12/13/04	040B	STREAM BED GRV	32.67	TN	
101489	12/13/04	040B	STREAM BED GRV	35.42	TN	
101491	12/13/04	040B	STREAM BED GRV	34.45	TN	
101492	12/13/04	040B	STREAM BED GRV	33.32	TN	
101494	12/13/04	040B	STREAM BED GRV	30.95	TN	
101495	12/13/04	040B	STREAM BED GRV	34.78	TN	
101496	12/13/04	040B	STREAM BED GRV	33.44	TN	
101531	12/13/04	040B	STREAM BED GRV	32.80	TN	
101532	12/13/04	040B	STREAM BED GRV	31.67	TN	
101533	12/13/04	040B	STREAM BED GRV	34.64	TN	
101534	12/13/04	040B	STREAM BED GRV	31.25	TN	
101535	12/13/04	040B	STREAM BED GRV	34.50	TN	
101536	12/13/04	040B	STREAM BED GRV	34.80	TN	
101537	12/13/04	040B	STREAM BED GRV	33.94	TN	
101539	12/13/04	040B	STREAM BED GRV	36.19	TN	
101540	12/13/04	040B	STREAM BED GRV	38.45	TN	
101541	12/13/04	040B	STREAM BED GRV	36.81	TN	
101542	12/13/04	040B	STREAM BED GRV	31.93	TN	
101544	12/13/04	040B	STREAM BED GRV	36.27	TN	
101545	12/13/04	040B	STREAM BED GRV	37.27	TN	
101546	12/13/04	040B	STREAM BED GRV	33.17	TN	
101547	12/13/04	040B	STREAM BED GRV	32.90	TN	
101548	12/13/04	040B	STREAM BED GRV	34.59	TN	
101549	12/13/04	040B	STREAM BED GRV	34.14	TN	
101550	12/13/04	040B	STREAM BED GRV	32.50	TN	
101551	12/13/04					

DATE: 03/07/05
TIME: 08:16:11

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL F
		040B	STREAM BED GRV	33.21	TN	
101552	12/13/04	040B	STREAM BED GRV	32.91	TN	
101553	12/13/04	040B	STREAM BED GRV	32.95	TN	
101554	12/13/04	040B	STREAM BED GRV	33.24	TN	
101555	12/13/04	040B	STREAM BED GRV	32.62	TN	
101557	12/13/04	040B	STREAM BED GRV	34.01	TN	
101562	12/13/04	040B	STREAM BED GRV	32.15	TN	
101563	12/13/04	040B	STREAM BED GRV	31.87	TN	
101564	12/13/04	040B	STREAM BED GRV	32.70	TN	
101565	12/13/04	040B	STREAM BED GRV	32.98	TN	
101566	12/13/04	040B	STREAM BED GRV	34.07	TN	
101567	12/13/04	040B	STREAM BED GRV	33.97	TN	
101569	12/13/04	040B	STREAM BED GRV	35.49	TN	
101571	12/13/04	040B	STREAM BED GRV	33.45	TN	
101573	12/13/04	040B	STREAM BED GRV	31.72	TN	
101592	12/13/04	040B	STREAM BED GRV	33.37	TN	
101593	12/13/04	040B	STREAM BED GRV	33.81	TN	
101598	12/13/04	040B	STREAM BED GRV	33.91	TN	
101747	12/15/04	040B	STREAM BED GRV	33.75	TN	
101749	12/15/04	040B	STREAM BED GRV	37.71	TN	
101755	12/15/04	040B	STREAM BED GRV	33.53	TN	
101756	12/15/04	040B	STREAM BED GRV	32.72	TN	
101767	12/15/04	040B	STREAM BED GRV	34.72	TN	
101774	12/15/04	040B	STREAM BED GRV	34.54	TN	
101779	12/15/04	040B	STREAM BED GRV	34.12	TN	
101783	12/15/04	040B	STREAM BED GRV	34.88	TN	
101784	12/15/04	040B	STREAM BED GRV	34.65	TN	
101800	12/15/04	040B	STREAM BED GRV	35.38	TN	
101805	12/15/04	040B	STREAM BED GRV	34.52	TN	
101812	12/15/04	040B	STREAM BED GRV	33.99	TN	
101815	12/15/04	040B	STREAM BED GRV	33.04	TN	
101817	12/15/04	040B	STREAM BED GRV	34.21	TN	
101845	12/16/04	040B	STREAM BED GRV	35.95	TN	
101846	12/16/04	040B	STREAM BED GRV	32.94	TN	
101847	12/16/04	040B	STREAM BED GRV	35.31	TN	
101848	12/16/04	040B	STREAM BED GRV	35.24	TN	
101849	12/16/04	040B	STREAM BED GRV	37.23	TN	
101850	12/16/04	040B	STREAM BED GRV	34.10	TN	
101868	12/16/04	040B	STREAM BED GRV	35.28	TN	
101869	12/16/04	040B	STREAM BED GRV	40.04	TN	
101870	12/16/04	040B	STREAM BED GRV	40.89	TN	
103004	01/06/05					

DATE: 03/07/05
TIME: 08:16:11

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL
		040B	STREAM BED GRV	33.88	TN	
103005	01/06/05	040B	STREAM BED GRV	33.52	TN	
103007	01/06/05	040B	STREAM BED GRV	33.90	TN	
103008	01/06/05	040B	STREAM BED GRV	34.10	TN	
103012	01/06/05	040B	STREAM BED GRV	33.67	TN	
103016	01/06/05	040B	STREAM BED GRV	33.10	TN	
103017	01/06/05	040B	STREAM BED GRV	35.10	TN	
103018	01/06/05	040B	STREAM BED GRV	42.19	TN	
103019	01/06/05	040B	STREAM BED GRV	35.14	TN	
103020	01/06/05	040B	STREAM BED GRV	36.71	TN	
103021	01/06/05	040B	STREAM BED GRV	40.81	TN	
103022	01/06/05	040B	STREAM BED GRV	35.17	TN	
103023	01/06/05	040B	STREAM BED GRV	32.52	TN	
103028	01/06/05	040B	STREAM BED GRV	33.45	TN	
103036	01/06/05	040B	STREAM BED GRV	37.19	TN	
103037	01/06/05	040B	STREAM BED GRV	34.55	TN	
103050	01/07/05	040B	STREAM BED GRV	31.95	TN	
103051	01/07/05	040B	STREAM BED GRV	33.51	TN	
103052	01/07/05	040B	STREAM BED GRV	32.13	TN	
103053	01/07/05	040B	STREAM BED GRV	37.21	TN	
103054	01/07/05	040B	STREAM BED GRV	32.12	TN	
103065	01/07/05	040B	STREAM BED GRV	35.53	TN	
103070	01/07/05	040B	STREAM BED GRV	33.37	TN	
103071	01/07/05	040B	STREAM BED GRV	32.04	TN	
103072	01/07/05	040B	STREAM BED GRV	29.80	TN	
103075	01/07/05	040B	STREAM BED GRV	32.52	TN	
103076	01/07/05	040B	STREAM BED GRV	34.24	TN	
103079	01/07/05	040B	STREAM BED GRV	34.02	TN	
103080	01/07/05	040B	STREAM BED GRV	34.47	TN	
103082	01/07/05	040B	STREAM BED GRV	32.80	TN	
103084	01/07/05	040B	STREAM BED GRV	31.09	TN	
103085	01/07/05	040B	STREAM BED GRV	32.62	TN	
103086	01/07/05	040B	STREAM BED GRV	34.83	TN	
103087	01/07/05	040B	STREAM BED GRV	33.74	TN	
103088	01/07/05	040B	STREAM BED GRV	31.42	TN	
103089	01/07/05	040B	STREAM BED GRV	32.72	TN	
103091	01/07/05	040B	STREAM BED GRV	33.62	TN	
103092	01/07/05	040B	STREAM BED GRV	40.09	TN	
103093	01/07/05	040B	STREAM BED GRV	31.94	TN	
103094	01/07/05	040B	STREAM BED GRV	33.37	TN	
103095	01/07/05	040B	STREAM BED GRV	32.14	TN	
103096	01/07/05					

DATE: 03/07/05
TIME: 08:16:12

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM SELL
		040B	STREAM BED GRV	32.88	TN
103096	01/07/05	040B	STREAM BED GRV	34.22	TN
103100	01/07/05	040B	STREAM BED GRV	33.77	TN
103101	01/07/05	040B	STREAM BED GRV	32.82	TN
103102	01/07/05	040B	STREAM BED GRV	32.48	TN
103103	01/07/05	040B	STREAM BED GRV	32.73	TN
103104	01/07/05	040B	STREAM BED GRV	31.64	TN
103105	01/07/05	040B	STREAM BED GRV	34.58	TN
103106	01/07/05	040B	STREAM BED GRV	32.33	TN
103111	01/07/05	040B	STREAM BED GRV	33.45	TN
103112	01/07/05	040B	STREAM BED GRV	38.03	TN
103113	01/07/05	040B	STREAM BED GRV	32.27	TN
103114	01/07/05	040B	STREAM BED GRV	33.87	TN
103116	01/07/05	040B	STREAM BED GRV	32.65	TN
103117	01/07/05	040B	STREAM BED GRV	31.56	TN
103118	01/07/05	040B	STREAM BED GRV	32.66	TN
103119	01/07/05	040B	STREAM BED GRV	32.36	TN
103120	01/07/05	040B	STREAM BED GRV	37.98	TN
103121	01/08/05	040B	STREAM BED GRV	33.01	TN
103123	01/07/05	040B	STREAM BED GRV	35.87	TN
103124	01/07/05	040B	STREAM BED GRV	34.88	TN
103125	01/08/05	040B	STREAM BED GRV	33.83	TN
103126	01/08/05	040B	STREAM BED GRV	30.77	TN
103127	01/08/05	040B	STREAM BED GRV	44.10	TN
103128	01/08/05	040B	STREAM BED GRV	35.92	TN
103129	01/08/05	040B	STREAM BED GRV	32.09	TN
103130	01/08/05	040B	STREAM BED GRV	32.33	TN
103131	01/08/05	040B	STREAM BED GRV	33.39	TN
103132	01/08/05	040B	STREAM BED GRV	31.65	TN
103133	01/08/05	040B	STREAM BED GRV	33.96	TN
103134	01/08/05	040B	STREAM BED GRV	33.37	TN
103135	01/08/05	040B	STREAM BED GRV	32.55	TN
103136	01/08/05	040B	STREAM BED GRV	39.63	TN
103137	01/08/05	040B	STREAM BED GRV	33.72	TN
103138	01/08/05	040B	STREAM BED GRV	32.40	TN
103139	01/08/05	040B	STREAM BED GRV	33.95	TN
103140	01/08/05	040B	STREAM BED GRV	35.17	TN
103141	01/08/05	040B	STREAM BED GRV	33.46	TN
103142	01/08/05	040B	STREAM BED GRV	34.64	TN
103143	01/08/05	040B	STREAM BED GRV	31.33	TN
103144	01/08/05	040B	STREAM BED GRV	32.08	TN
103145	01/08/05				

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WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

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HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL
		040B	STREAM BED GRV	33.17	TN	
103146	01/08/05	040B	STREAM BED GRV	34.12	TN	
103147	01/08/05	040B	STREAM BED GRV	34.47	TN	
103148	01/08/05	040B	STREAM BED GRV	31.60	TN	
103149	01/08/05	040B	STREAM BED GRV	34.65	TN	
103150	01/08/05	040B	STREAM BED GRV	34.89	TN	
103151	01/08/05	040B	STREAM BED GRV	31.15	TN	
103152	01/08/05	040B	STREAM BED GRV	33.61	TN	
103153	01/08/05	040B	STREAM BED GRV	34.55	TN	
103154	01/08/05	040B	STREAM BED GRV	33.32	TN	
103155	01/08/05	040B	STREAM BED GRV	31.94	TN	
103156	01/08/05	040B	STREAM BED GRV	33.85	TN	
103157	01/08/05	040B	STREAM BED GRV	33.18	TN	
103158	01/08/05	040B	STREAM BED GRV	33.82	TN	
103159	01/08/05	040B	STREAM BED GRV	35.11	TN	
103160	01/08/05	040B	STREAM BED GRV	33.72	TN	
103161	01/08/05	040B	STREAM BED GRV	32.04	TN	
103162	01/08/05	040B	STREAM BED GRV	34.65	TN	
103163	01/08/05	040B	STREAM BED GRV	32.42	TN	
103164	01/08/05	040B	STREAM BED GRV	33.40	TN	
103165	01/08/05	040B	STREAM BED GRV	31.99	TN	
103166	01/08/05	040B	STREAM BED GRV	33.37	TN	
103167	01/08/05	040B	STREAM BED GRV	34.90	TN	
103168	01/08/05	040B	STREAM BED GRV	33.83	TN	
103169	01/08/05	040B	STREAM BED GRV	38.80	TN	
103170	01/08/05	040B	STREAM BED GRV	31.16	TN	
103171	01/08/05	040B	STREAM BED GRV	32.18	TN	
103172	01/10/05	040B	STREAM BED GRV	35.92	TN	
103173	01/10/05	040B	STREAM BED GRV	32.99	TN	
103174	01/10/05	040B	STREAM BED GRV	36.28	TN	
103175	01/10/05	040B	STREAM BED GRV	34.88	TN	
103176	01/10/05	040B	STREAM BED GRV	33.07	TN	
103177	01/10/05	040B	STREAM BED GRV	33.84	TN	
103178	01/10/05	040B	STREAM BED GRV	32.18	TN	
103179	01/10/05	040B	STREAM BED GRV	31.92	TN	
103180	01/10/05	040B	STREAM BED GRV	32.81	TN	
103181	01/10/05	040B	STREAM BED GRV	34.93	TN	
103182	01/10/05	040B	STREAM BED GRV	32.85	TN	
103183	01/10/05	040B	STREAM BED GRV	33.63	TN	
103184	01/10/05	040B	STREAM BED GRV	35.02	TN	
103185	01/10/05	040B	STREAM BED GRV	33.51	TN	
103186	01/10/05					

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WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

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CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL PR
		040B	STREAM BED GRV	33.35	TN	
103187	01/10/05	040B	STREAM BED GRV	35.02	TN	
103188	01/10/05	040B	STREAM BED GRV	32.96	TN	
103189	01/10/05	040B	STREAM BED GRV	31.33	TN	
103190	01/10/05	040B	STREAM BED GRV	31.71	TN	
103191	01/10/05	040B	STREAM BED GRV	31.51	TN	
103193	01/10/05	040B	STREAM BED GRV	30.88	TN	
103194	01/10/05	040B	STREAM BED GRV	30.16	TN	
103195	01/10/05	040B	STREAM BED GRV	32.18	TN	
103196	01/10/05	040B	STREAM BED GRV	34.95	TN	
103197	01/10/05	040B	STREAM BED GRV	32.31	TN	
103198	01/10/05	040B	STREAM BED GRV	31.08	TN	
103199	01/10/05	040B	STREAM BED GRV	35.58	TN	
103200	01/10/05	040B	STREAM BED GRV	32.99	TN	
103202	01/10/05	040B	STREAM BED GRV	31.55	TN	
103203	01/10/05	040B	STREAM BED GRV	35.43	TN	
103207	01/10/05	040B	STREAM BED GRV	35.48	TN	
103209	01/10/05	040B	STREAM BED GRV	35.47	TN	
103211	01/10/05	040B	STREAM BED GRV	34.11	TN	
103213	01/10/05	040B	STREAM BED GRV	34.29	TN	
103214	01/10/05	040B	STREAM BED GRV	34.18	TN	
103215	01/10/05	040B	STREAM BED GRV	34.46	TN	
103216	01/10/05	040B	STREAM BED GRV	33.47	TN	
103217	01/10/05	040B	STREAM BED GRV	32.77	TN	
103220	01/10/05	040B	STREAM BED GRV	32.51	TN	
103221	01/10/05	040B	STREAM BED GRV	33.75	TN	
103222	01/10/05	040B	STREAM BED GRV	33.91	TN	
103223	01/10/05	040B	STREAM BED GRV	33.09	TN	
103224	01/10/05	040B	STREAM BED GRV	32.23	TN	
103227	01/10/05	040B	STREAM BED GRV	32.85	TN	
103229	01/10/05	040B	STREAM BED GRV	34.36	TN	
103232	01/10/05	040B	STREAM BED GRV	31.85	TN	
103233	01/10/05	040B	STREAM BED GRV	31.14	TN	
103234	01/10/05	040B	STREAM BED GRV	33.25	TN	
103235	01/10/05	040B	STREAM BED GRV	32.14	TN	
103236	01/10/05	040B	STREAM BED GRV	31.55	TN	
103237	01/10/05	040B	STREAM BED GRV	33.89	TN	
103238	01/10/05	040B	STREAM BED GRV	33.85	TN	
103239	01/10/05	040B	STREAM BED GRV	35.15	TN	
103241	01/10/05	040B	STREAM BED GRV	32.35	TN	
103243	01/10/05	040B	STREAM BED GRV	37.31	TN	
103244	01/10/05					

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WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL P
		040B	STREAM BED GRV	37.92	TN	
103245	01/10/05	040B	STREAM BED GRV	37.92	TN	
103247	01/10/05	040B	STREAM BED GRV	34.00	TN	
103248	01/10/05	040B	STREAM BED GRV	33.18	TN	
103249	01/10/05	040B	STREAM BED GRV	32.13	TN	
103250	01/10/05	040B	STREAM BED GRV	31.51	TN	
103252	01/10/05	040B	STREAM BED GRV	32.11	TN	
103253	01/10/05	040B	STREAM BED GRV	33.89	TN	
103257	01/10/05	040B	STREAM BED GRV	31.58	TN	
103258	01/10/05	040B	STREAM BED GRV	30.87	TN	
103261	01/10/05	040B	STREAM BED GRV	30.64	TN	
103263	01/10/05	040B	STREAM BED GRV	31.70	TN	
103264	01/10/05	040B	STREAM BED GRV	33.43	TN	
103267	01/10/05	040B	STREAM BED GRV	31.18	TN	
103268	01/10/05	040B	STREAM BED GRV	31.13	TN	
103271	01/10/05	040B	STREAM BED GRV	36.48	TN	
103272	01/10/05	040B	STREAM BED GRV	33.27	TN	
103273	01/10/05	040B	STREAM BED GRV	33.67	TN	
103274	01/10/05	040B	STREAM BED GRV	33.65	TN	
103275	01/10/05	040B	STREAM BED GRV	34.08	TN	
103276	01/10/05	040B	STREAM BED GRV	33.50	TN	
103277	01/10/05	040B	STREAM BED GRV	35.87	TN	
103278	01/10/05	040B	STREAM BED GRV	33.35	TN	
103280	01/10/05	040B	STREAM BED GRV	32.26	TN	
103283	01/10/05	040B	STREAM BED GRV	30.42	TN	
103284	01/10/05	040B	STREAM BED GRV	32.26	TN	
103285	01/10/05	040B	STREAM BED GRV	32.54	TN	
103287	01/10/05	040B	STREAM BED GRV	32.28	TN	
103289	01/10/05	040B	STREAM BED GRV	33.02	TN	
103290	01/10/05	040B	STREAM BED GRV	31.35	TN	
103291	01/10/05	040B	STREAM BED GRV	33.54	TN	
103292	01/10/05	040B	STREAM BED GRV	31.56	TN	
103294	01/11/05	040B	STREAM BED GRV	32.06	TN	
103295	01/11/05	040B	STREAM BED GRV	34.33	TN	
103296	01/11/05	040B	STREAM BED GRV	34.35	TN	
103297	01/11/05	040B	STREAM BED GRV	34.76	TN	
103298	01/11/05	040B	STREAM BED GRV	31.97	TN	
103299	01/11/05	040B	STREAM BED GRV	32.31	TN	
103300	01/11/05	040B	STREAM BED GRV	34.38	TN	
103302	01/11/05	040B	STREAM BED GRV	33.17	TN	
103303	01/11/05	040B	STREAM BED GRV	36.47	TN	
103304	01/11/05					

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TIME: 08:16:12

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL PI
		040B	STREAM BED GRV	35.71	TN	
103306	01/11/05	040B	STREAM BED GRV	32.67	TN	
103307	01/11/05	020	PIT RUN	36.41	TN	
103309	01/11/05	020	PIT RUN	29.69	TN	
103310	01/11/05	020	PIT RUN	30.59	TN	
103311	01/11/05	020	PIT RUN	35.29	TN	
103312	01/11/05	020	PIT RUN	34.25	TN	
103313	01/11/05	020	PIT RUN	33.21	TN	
103315	01/11/05	040B	STREAM BED GRV	35.51	TN	
103320	01/11/05	020	PIT RUN	35.13	TN	
103325	01/11/05	020	PIT RUN	32.57	TN	
103326	01/11/05	020	PIT RUN	32.64	TN	
103328	01/11/05	020	PIT RUN	33.27	TN	
103329	01/11/05	020	PIT RUN	31.41	TN	
103333	01/11/05	020	PIT RUN	32.38	TN	
103334	01/11/05	020	PIT RUN	32.17	TN	
103335	01/11/05	020	PIT RUN	32.03	TN	
103336	01/11/05	020	PIT RUN	33.09	TN	
103338	01/11/05	020	PIT RUN	34.14	TN	
103341	01/11/05	020	PIT RUN	32.71	TN	
103342	01/11/05	020	PIT RUN	34.38	TN	
103344	01/11/05	020	PIT RUN	32.59	TN	
103345	01/11/05	020	PIT RUN	31.95	TN	
103349	01/11/05	020	PIT RUN	33.73	TN	
103350	01/11/05	020	PIT RUN	31.03	TN	
103354	01/11/05	020	PIT RUN	34.81	TN	
103355	01/11/05	020	PIT RUN	29.53	TN	
103360	01/11/05	020	PIT RUN	31.47	TN	
103361	01/11/05	020	PIT RUN	31.84	TN	
103362	01/11/05	020	PIT RUN	31.73	TN	
103363	01/11/05	020	PIT RUN	31.89	TN	
103366	01/11/05	020	PIT RUN	33.73	TN	
103368	01/11/05	020	PIT RUN	33.69	TN	
103369	01/11/05	020	PIT RUN	32.42	TN	
103370	01/11/05	020	PIT RUN	32.21	TN	
103371	01/11/05	020	PIT RUN	33.32	TN	
103372	01/11/05	020	PIT RUN	33.64	TN	
103376	01/11/05	020	PIT RUN	35.00	TN	
103377	01/11/05	020	PIT RUN	32.61	TN	
103382	01/11/05	040B	STREAM BED GRV	31.65	TN	
103383	01/11/05	020	PIT RUN	32.55	TN	
103384	01/11/05					

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WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
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COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL F
		020	PIT RUN	30.54	TN	
103387	01/11/05	020	PIT RUN	31.62	TN	
103388	01/11/05	020	PIT RUN	31.82	TN	
103389	01/11/05	020	PIT RUN	33.63	TN	
103391	01/11/05	020	PIT RUN	32.19	TN	
103392	01/11/05	020	PIT RUN	35.62	TN	
103399	01/11/05	020	PIT RUN	33.91	TN	
103405	01/12/05	020	PIT RUN	31.58	TN	
103406	01/12/05	020	PIT RUN	31.71	TN	
103407	01/12/05	020	PIT RUN	32.59	TN	
103408	01/12/05	020	PIT RUN	38.29	TN	
103409	01/12/05	020	PIT RUN	33.47	TN	
103411	01/12/05	020	PIT RUN	37.52	TN	
103413	01/12/05	020	PIT RUN	31.70	TN	
103427	01/12/05	020	PIT RUN	32.02	TN	
103428	01/12/05	020	PIT RUN	33.69	TN	
103429	01/12/05	020	PIT RUN	31.52	TN	
103433	01/12/05	020	PIT RUN	34.15	TN	
103434	01/12/05	020	PIT RUN	31.98	TN	
103435	01/12/05	020	PIT RUN	30.64	TN	
103439	01/12/05	020	PIT RUN	31.89	TN	
103451	01/12/05	020	PIT RUN	31.67	TN	
103452	01/12/05	020	PIT RUN	33.11	TN	
103453	01/12/05	020	PIT RUN	31.10	TN	
103457	01/12/05	020	PIT RUN	31.62	TN	
103461	01/12/05	020	PIT RUN	31.47	TN	
103463	01/12/05	020	PIT RUN	31.88	TN	
103468	01/12/05	040B	STREAM BED GRV	33.98	TN	
103470	01/12/05	040B	STREAM BED GRV	32.23	TN	
103472	01/12/05	040B	STREAM BED GRV	31.61	TN	
103474	01/12/05	040B	STREAM BED GRV	33.81	TN	
103476	01/12/05	040B	STREAM BED GRV	31.51	TN	
103477	01/12/05	040B	STREAM BED GRV	33.58	TN	
103478	01/12/05	040B	STREAM BED GRV	33.20	TN	
103479	01/13/05	040B	STREAM BED GRV	33.86	TN	
103480	01/13/05	040B	STREAM BED GRV	34.72	TN	
103481	01/13/05	040B	STREAM BED GRV	32.68	TN	
103482	01/13/05	040B	STREAM BED GRV	31.50	TN	
103483	01/13/05	040B	STREAM BED GRV	31.41	TN	
103484	01/13/05	040B	STREAM BED GRV	33.23	TN	
103485	01/13/05	040B	STREAM BED GRV	34.75	TN	
103486	01/13/05					

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WASHINGTON ROCK QUARRIES, INC
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COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL PR
		040B	STREAM BED GRV	32.85	TN	
103487	01/13/05	040B	STREAM BED GRV	32.57	TN	
103488	01/13/05	040B	STREAM BED GRV	32.45	TN	
103489	01/13/05	040B	STREAM BED GRV	34.77	TN	
103492	01/13/05	040B	STREAM BED GRV	32.05	TN	
103493	01/13/05	040B	STREAM BED GRV	33.05	TN	
103494	01/13/05	040B	STREAM BED GRV	33.30	TN	
103504	01/13/05	040B	STREAM BED GRV	31.95	TN	
103506	01/13/05	040B	STREAM BED GRV	33.77	TN	
103507	01/13/05	040B	STREAM BED GRV	32.63	TN	
103509	01/13/05	040B	STREAM BED GRV	31.43	TN	
103516	01/13/05	040B	STREAM BED GRV	33.71	TN	
103519	01/13/05	040B	STREAM BED GRV	32.00	TN	
103526	01/13/05	040B	STREAM BED GRV	32.88	TN	
103528	01/13/05	040B	STREAM BED GRV	34.18	TN	
103535	01/13/05	040B	STREAM BED GRV	31.97	TN	
103537	01/13/05	040B	STREAM BED GRV	33.22	TN	
103538	01/13/05	040B	STREAM BED GRV	32.38	TN	
103541	01/13/05	040B	STREAM BED GRV	30.74	TN	
103545	01/13/05	040B	STREAM BED GRV	33.68	TN	
103547	01/13/05	040B	STREAM BED GRV	31.83	TN	
103554	01/13/05	040B	STREAM BED GRV	33.19	TN	
103557	01/13/05	040B	STREAM BED GRV	33.03	TN	
103560	01/13/05	040B	STREAM BED GRV	31.00	TN	
103564	01/13/05	040B	STREAM BED GRV	31.72	TN	
103565	01/13/05	040B	STREAM BED GRV	33.31	TN	
103568	01/13/05	040B	STREAM BED GRV	30.11	TN	
103572	01/13/05	040B	STREAM BED GRV	33.66	TN	
103579	01/13/05	040B	STREAM BED GRV	33.62	TN	
103580	01/13/05	040B	STREAM BED GRV	33.95	TN	
103581	01/14/05	040B	STREAM BED GRV	33.14	TN	
103582	01/14/05	040B	STREAM BED GRV	32.29	TN	
103583	01/14/05	040B	STREAM BED GRV	31.99	TN	
103584	01/14/05	040B	STREAM BED GRV	32.60	TN	
103585	01/14/05	040B	STREAM BED GRV	32.42	TN	
103586	01/14/05	040B	STREAM BED GRV	32.88	TN	
103587	01/14/05	040B	STREAM BED GRV	31.73	TN	
103590	01/14/05	040B	STREAM BED GRV	37.44	TN	
103592	01/14/05	040B	STREAM BED GRV	36.78	TN	
103596	01/14/05	040B	STREAM BED GRV	33.64	TN	
103597	01/14/05	040B	STREAM BED GRV	33.19	TN	
103598	01/14/05					

DATE: 03/07/05
TIME: 08:16:12

WASHINGTON ROCK QUARRIES, INC
DETAIL SALES JOURNAL REPORT

JOB:
SALESPERSON: ALL
ITEM CODE: ALL
PHASE: ALL
FROM DATE:

CUSTOMER: 374
HAULER: ALL
AREA: ALL
COST TYPE: ALL
TO DATE: 03/07/05

TICKET	DATE	ITEM CODE	ITEM DESC	NET QTY	UM	SELL PR
		040B	STREAM BED GRV	30.93	TN	
103601	01/14/05	040B	STREAM BED GRV	30.89	TN	
103602	01/14/05	040B	STREAM BED GRV	32.17	TN	
103607	01/14/05	040B	STREAM BED GRV	33.19	TN	
103612	01/14/05	040B	STREAM BED GRV	36.32	TN	
103616	01/14/05	040B	STREAM BED GRV	34.44	TN	
103620	01/14/05	040B	STREAM BED GRV	32.98	TN	
103621	01/14/05	040B	STREAM BED GRV	31.66	TN	
103622	01/14/05	040B	STREAM BED GRV	33.57	TN	
103626	01/14/05	040B	STREAM BED GRV	32.10	TN	
103627	01/14/05	040B	STREAM BED GRV	33.34	TN	
103629	01/14/05	040B	STREAM BED GRV	36.21	TN	
103635	01/14/05	040B	STREAM BED GRV	32.86	TN	
103637	01/14/05	040B	STREAM BED GRV	32.83	TN	
103639	01/14/05	040B	STREAM BED GRV	32.95	TN	
TOTALS FOR CUSTOMER 374			586 TICKET(S)	19670.33		
REPORT TOTALS:			586 TICKET(S)	19670.33		

LSSOU DISPOSAL MATERIAL LOG

PHASE II

Material	Disposal Date	Truck Date	Ticket Number	Barge Name	Truck Number	Tons
Barge Sediments	10/22/2004			Dungeness		1,066.60
	10/25/2004			Skagit		1,497.60
	10/26/2004			Dungeness		1,307.90
	10/27/2004			Skagit		1,423.20
	10/28/2004			Dungeness		1,316.20
	11/1/2004			Skagit		1,450.70
	11/3/2004			Dungeness		1,402.00
	11/5/2004			Skagit		1,359.40
	11/8/2004			Dungeness		1,388.00
	11/9/2004			Skagit		1,416.30
	11/11/2004			Dungeness		1,501.70
	11/15/2004			Skagit		1,662.20
	11/17/2004			Dungeness		1,330.60
	11/20/2004			Dungeness		1,148.70
	11/22/2004			Dungeness		835.4
Total Barge Sediments Delivered to Terminal 25 (Rabanco):						20,106.50

Contaminated Rip-Rap		1/10/2005	2109705		3	10.54
		1/10/2005	2109712		3	11
		1/10/2005	2109713		A8	10.25
		1/10/2005	2109723		3	11.57
		1/10/2005	2109724		A8	11.23
		1/10/2005	2109730		3	12.91
		1/10/2005	2109734		A8	12.09
		1/10/2005	2109740		3	12.27
		1/10/2005	2109741		A8	10.21
		1/10/2005	2109747		3	12.86
		1/10/2005	2109749		A8	13.38
		1/10/2005	2109755		3	13.53
		1/10/2005	2109756		A8	13.04
		1/11/2005	2109764		3	13.33
		1/11/2005	2109765		A8	13.1
		1/11/2005	2109769		3	13.91
		1/11/2005	2109774		A8	14.5
		1/11/2005	2109780		3	15.15
		1/11/2005	2110323		A8	10.12
		1/26/2005	2116791		A8	14.53
		1/26/2005	2116818		A8	11.39
		1/26/2005	2116863		A8	13.01
		1/26/2005	2116896		A8	11.87
		1/26/2005	2116937		8	11.92
		1/26/2005	2116981		8	13.56
		1/26/2005	2117030		A8	12.01

Material	Disposal Date	Truck Date	Ticket Number	Barge Name	Truck Number	Tons
Contaminated Rip-Rap		1/31/2005	2118928		8	13.65
		1/31/2005	2118948		8	10.85
		1/31/2005	2118989		8	12.19
		1/31/2005	2119023		8	11.83
		1/31/2005	2119074		8	12.37
		1/31/2005	2119145		8	12.25
		1/31/2005	2119220		A8	14.25
		1/31/2005	2119268		A8	12.9
		1/31/2005	2119308		A8	11.94
		1/31/2005	2119354		A8	13.72
		2/1/2005	2119657		8	13.63
		2/1/2005	2119693		A8	12.06
		2/1/2005	2119735		A8	14.15
		2/1/2005	2119781		8	14.28
		2/1/2005	2119858		8	11.88
		2/1/2005	2119899		A8	12.31
		2/1/2005	2119929		A8	11.33
		2/1/2005	2119958		A8	12.4
		2/1/2005	2119985		A8	12.73
		2/2/2005	2120247		8	10.95
		2/3/2005	2121191		1	10.99
Total Contaminated Rip-Rap Delivered to Terminal 25 (Rabanco):						**585.94**

Creosote Wood Bin	2/1/2005		951944		9951	21.05
Total Creosote Disposed of in the Rabanco Bin:						**21.05**

Core Sample Bin	1/28/2005		224105		575300	1.21
Total Contaminated Samples Disposed of in the Waste Mgmt. Bin:						**1.21**

CW[illegible] OF THE NORTHWEST-ARLINGTON
1[illegible]29 Cedar Springs Lane
Arlington, OR 97812

Trip Ticket: RUN: _____ PAGE:
Requested by: WM0225GXM
Requested On: 11/19/04

Profile # 103467

Driver (1): Kyle
Driver (2): _____
Equipment: _____

Load/Unload:

Generator Information: US EPA ID No. Pickup:	Manifest Document Number(s) _____ State EPA ID No. Phone:
Transporter Information:	US EPA ID No. State EPA ID No. Phone:
Designated Facility Information [illegible]POSAL: SC:	US EPA ID No. State EPA ID No. Phone:

DOT Information: Service Request No.: Activity No.
Master Service Request No.: UN/NA: Pkg Grp:
Hazard class: HM:

DOT Proper Shipping Name:
Customer Contacts: Profile # 10951 CV

Containers No.	Type	Total Quantity	UWV	UOM DESCRIPTION	Waste Codes
1	CM				
		(Shipped)			

LOADING DEMURRAGE
DEPART DATE: _____

Time Summary	
Start	
End	
Total	

ARRIVAL DATE: _____

ADDITIONAL CUSTOMER/SITE Requirements

Box In #	
Box Out #	7133
Wash	Yes / No
Bring Liner	0/1/2/3

UNLOADING DEMURRAGE
DEPART DATE: _____

Time Summary	
Start	
End	
Total	

ARRIVAL DATE: _____

LOAD/UNLOAD COMMENTS: Pick-Up Only.
ADDITIONAL COMMENTS/REMARKS: _____

TRC 1/20/05
Shipper Signature Date

1/20/05
Transportation Signature Date

G/F SHIPPING ORDER

PUGET SOUND TRUCK LINES, INC.

3720 AIRPORT WAY SO. PO BOX 24526 SEATTLE, WA 98124-0526
(206) 623-1600 WATS (800) 638-2254

SERVING YOU SINCE 1919

NEW TRIPCO

COMP # 303467

SHIP DATE: 1/20/2005

SHIPPER	CONSIGNEE
LOCKHEED SHIPYARD #1 HARBOR ISLAND SEATTLE, WA.	ARCO SEATTLE, WA.

B/L OR WT TICKET #	# OF UNITS	# LDS	COMMODITY / DESCRIPTION	WEIGHT
PROFILE # 10951 CV		P/U (1)	LOADED 20'	CONT.
			CONT. # CLUM4 7133	
			CV. # 733054	
			TOTALS	

This Shipping Order is subject to the terms and conditions contained on the back of this form.

DRIVER: TURN IN BILL OF LADING WITH THIS PAGE

SHIPPER: _____ TRC _____ CONSIGNEE: _____ DATE: _____
AUTHORIZED SIGNATURE AUTHORIZED SIGNATURE

AXLE WEIGHTS

STEER:	DROP:	DRIVER NOTES:
DRIVERS:	TRL #1:	
DOLLY:	TRL #2:	
TOTAL	TRLR #1	TRLR #2 / DOLLY

DRIVER INFORMATION				DATE	TRIP	LOAD	UNLOAD	BREAKS (Mins.)
DRIVER NAME	DRIVER #	AGENCY		MO. / DAY	TIME	TIME	TIME	
DAN PAGE	56217	003	START	1/20	9:30 a	9:45 a	: a	
	TRACTOR 9-30		STOP	1/20	: a	10:15 a	: a	
			START	/	: a	: a	: a	
	TRACTOR		STOP	/	: a	: a	: a	
			START	/	: a	: a	: a	
	TRACTOR		STOP	/	: a	: a	: a	
			START	/	: a	: a	: a	
	TRACTOR		STOP	/	: a	: a	: a	
			START	/	: a	: a	: a	
	TRACTOR		STOP	/	: a	: a	: a	

OFFICE USE ONLY BELOW THIS LINE

ROUTE:

DESCRIPTION OF CHARGE	

Columbia Ridge Landfill and Recycling Center
a subsidiary of Waste Management
18177 Cedar Springs Lane
Arlington, Oregon 97812-6512
(541) 454-2030

Bill Of Lading

Date scheduled for pickup 1-10-5

Time scheduled for pickup

Generator Name and Loading Address
LOCKHEED SHIPYARD #1
HARBOR ISLAND
SEATTLE, WA.

Contact Person:

Telephone Number:

Waste Profile # 109510V

Waste Type
- ☐ CDL
- ☐ Contaminated Soil
- ☐ Asbestos
- ☒ Other: Non-Regulated Material Per-49CFR

Acknowledgement of Loading:

Company Name: LOCKHEED SHIPYARD Date: 1-20-05

Signature: [signature] TSC Name: [illegible]
Generator's Authorized Representative — Please Print

Deliver to:
Pacific Seattle Intermodal Facility (ARGO Yard)
402 South Dawson Street
Seattle, Washington 98108
Phone (206) 764-1541 or Night (206) 764-1438

Disposal Facility:
Columbia Ridge Landfill and Recycling Center
18177 Cedar Springs Lane
Arlington, Oregon 97812-6512
Phone # (541) 454-2030

Container Inspection Upon Pickup:

	Yes	No
Tarp in good serviceable condition	☐	☐
Container is in good condition	☐	☐
No free standing water	☐	☐
Container is empty and clean	☐	☐

Circle ONE: **DROP ONLY** **PICK UP ONLY** **SWAP** **WTL**

Loading

Start Time 09:45 Box #-In [illegible] Liners 0 1 2

End Time 10:15 Box # Out 7133 Liners 0 1 2

Unloading
Start Time
End Time

Transporter Name: PSC Truck/Chassis # 9-3/1999

Driver Name: DANIEL E. PAGE Driver Signature: [signature]
Please Print

Remarks: PAGE XD

Cont. # 324467

RABANCO RECYCLING CO.

A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109723

DATE: 01/10/05
TIME: 21:31

15440 - TRC Job:05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	50180 LBS	21:28	01/10/05	IN
TARE:	27040 LBS	21:31	01/10/05	OUT

NET LBS:		23140
NET TONS:		11.570
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 2.50%:		0.00
TOTAL AMOUNT:	$	-0.00

Weighmaster KIM

X
CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.

A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109712

DATE: 01/10/05
TIME: 20:50

15440 - TRC Job:05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	49080 LBS	20:53	01/10/05	IN
TARE:	27080 LBS	20:58	01/10/05	OUT

NET LBS:		22000
NET TONS:		11.000
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 2.50%:		0.00
TOTAL AMOUNT:	$	0.00

Weighmaster KIM

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2110383

DATE: 01/11/05
TIME: 19:33

15440 - TRC Job:04-1345A
TRC
TRUCK #: A0 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	43860 LBS	19:29	01/11/05	IN
TARE:	23640 LBS	19:33	01/11/05	OUT

NET LBS:		20240
NET TONS:		10.120
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

X
CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109765

DATE: 01/11/05
TIME: 08:18

15440 - TRC Job:05-1010
TRC
TRUCK #: A0 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	45620 LBS	08:11	01/11/05	IN
TARE:	23420 LBS	08:18	01/11/05	OUT

NET LBS:		22200
NET TONS:		11.100
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

X

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109756

DATE: 01/10/05
TIME: 23:44

15440 - TRC Job:05-1010
TRC
TRUCK #: A0 DUMP TRUCK PLACE: 6 SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	79480 LBS	23:41	01/10/05	IN
TARE:	56400 LBS	23:41	01/10/05	OUT

NET LBS: 23080
NET TONS: 11.54
RATE PER TON: $ 0.00

AMOUNT: $ 0.00
REFUSE TAX 3.60%: 0.00

TOTAL AMOUNT: $ 0.00

X _____
CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109749

DATE: 01/10/05
TIME: 23:14

15440 - TRC Job:05-1010
TRC
TRUCK #: A0 DUMP TRUCK PLACE: 6 SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	58100 LBS	23:12	01/10/05	IN
TARE:	23340 LBS	23:14	01/10/05	OUT

NET LBS: 34760
NET TONS: 17.38
RATE PER TON: $ 0.00

AMOUNT: $ 0.00
REFUSE TAX 3.60%: 0.00

TOTAL AMOUNT: $ 0.00

X _____

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

ICKET NUMBER 2109724

DATE: 01/10/05
TIME: 21:37

15440 - TRC Job:05-1010
TRC
TRUCK #: A8 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	45300 LBS	21:35	01/10/05	IN
TARE:	22040 LBS	21:37	01/10/05	OUT

NET LBS:		22[illegible]2
NET TONS:		11.2[illegible]
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

Weighmaster KSM

X
CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

ICKET NUMBER 2109734

DATE: 01/10/05
TIME: 22:13

15440 - TRC Job:05-1010
TRC
TRUCK #: A8 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	47280 LBS	22:10	01/10/05	IN
TARE:	23100 LBS	22:13	01/10/05	OUT

NET LBS:		24180
NET TONS:		12.090
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

Weighmaster KSM

X

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

ICKET NUMBER 2109741

DATE: 01/10/05
TIME: 22:42

:5440 - TRC Job:05-1010
TRC
TRUCK #: A8 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	42720 LBS	22:40	01/10/05	IN
TARE:	22300 LBS	22:42	01/10/05	OUT

NET LBS:		20420
NET TONS:		10.21
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

X
CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

ICKET NUMBER 2109713

DATE: 01/10/05
TIME: 20:59

J5440 TRC Job:05-1010
TRC
TRUCK #: A8 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	43360 LBS	20:54	01/10/05	IN
TARE:	22860 LBS	20:59	01/10/05	OUT

NET LBS:		20500
NET TONS:		10.25
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

X

RABANCO RECYCLING CO.

A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109774

DATE: 01/11/05
TIME: 00:57

15440 - TPC Job:05-1010
TRC
TRUCK #: 48 DUMP TRUCK PLACE: A-SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	52560 LBS	00:54	01/11/05	IN
TARE:	23540 LBS	00:57	01/11/05	OUT

NET LBS: 29020
NET TONS: 14.51
RATE PER TON: $ 0.00

AMOUNT: $ 0.00
REFUSE TAX 3.60%: 0.00

TOTAL AMOUNT: $ 0.00

Mastercard XXXX

X
CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109766

DATE: 01-11-05
TIME: 01:17

ISAAC - TRC 3-6.05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	77280 LBS	01:16	01/11/05	IN
TARE:	71980 LBS	01:17	01/11/05	OUT

NET LBS: 5300
NET TONS: 15.59
RATE PER TON: $ 0.00

AMOUNT: $ 0.00
REFUSE TAX 3.60%: 0.00

TOTAL AMOUNT: $ 0.00

X
CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109769

DATE: 01/11/05
TIME: 20:30

ISAAC - TRC 3-6.05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	54920 LBS	20:35	01/11/05	IN
TARE:	77080 LBS	20:38	01/11/05	OUT

NET LBS: 27540
NET TONS: 13.77
RATE PER TON: $ 0.00

AMOUNT: $ 0.00
REFUSE TAX 3.60%: 0.00

TOTAL AMOUNT: $ 0.00

X
CUSTOMER SIGNATURE

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109764

DATE: 01/11/05
TIME: 00:07

15440 - TRC Job:05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	53720 LBS	00:05	01/11/05	IN
TARE:	27060 LBS	00:07	01/11/05	OUT

NET LBS:		26660
NET TONS:		13.330
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

Weighmaster X Kim

CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109755

DATE: 01/10/05
TIME: 23:38

15440 - TRC Job:05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	54100 LBS	23:37	01/10/05	IN
TARE:	27040 LBS	23:38	01/10/05	OUT

NET LBS:		27060
NET TONS:		13.530
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

Weighmaster X Kim

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109747

DATE: 01/10/05
TIME: 23:09

15440 - TRC Job:05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	52720 LBS	23:05	01/10/05	IN
TARE:	27000 LBS	23:09	01/10/05	OUT

NET LBS:		25720
NET TONS:		12.860
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

Weighmaster - KIM

X _____
CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109725

DATE: 01/10/05
TIME: 20:19

15440 - TRC Job:05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	46280 LBS	20:13	01/10/05	IN
TARE:	27200 LBS	20:19	01/10/05	OUT

NET LBS:		21080
NET TONS:		10.540
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

Weighmaster - KIM

X _____

RABANCO RECYCLING CO.

A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109740

DATE: 01/10/05
TIME: 22:37

15440 - TRC Job:05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	51560 LBS	22:35	01/10/05	IN
TARE:	27020 LBS	22:37	01/10/05	OUT

NET LBS:		24540
NET TONS:		12.27
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

X _____
CUSTOMER SIGNATURE
I HAVE READ AND AGREE TO THE CONDITIONS ON THE REVERSE SIDE.

RABANCO RECYCLING CO.

A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 2109730

DATE: 01/10/05
TIME: 22:08

15440 - TRC Job:05-1010
TRC
TRUCK #: 3 DUMP TRUCK PLACE: A SEATTLE
PRODUCT: DREDGE SPOILS

	WEIGHT	TIME	DATE	SCALE
GROSS:	52940 LBS	22:01	01/10/05	IN
TARE:	27020 LBS	22:05	01/10/05	OUT

NET LBS:		25920
NET TONS:		12.96
RATE PER TON:	$	0.00
AMOUNT:	$	0.00
REFUSE TAX 3.60%:		0.00
TOTAL AMOUNT:	$	0.00

X _____

Transmittal

Regional Disposal Company
Corporate Office
54 S. Dawson
Seattle, WA 98134
206.332.7700

TO
Gary Gunderson
TRC Solutions
6505 - 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

FROM
Elisa Webb
Regional Disposal Company
16710 Seminole Road NE
Poulsbo, WA 98370

Date: **October 28, 2004**

Regarding: Certificates of Disposal for Barge Loads 1 - 5

Transmittal No. 1

Gary,

Attached are the Certificates of Disposal for Lockheed Shipyard Sediment Operable Unit Project Barge Loads 1 through 5.

Please review and keep for your records.

Sincerely,
REGIONAL DISPOSAL COMPANY

Elisa M Webb

Elisa M. Webb
Technical & Regulatory Affairs

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

October 28, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,066.60 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered October 22, 2004, and offloaded from the American Construction Company barge Dungeness, barge load # 1. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of October 22, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

October 28, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,497.60 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered October 25, 2004, and offloaded from the American Construction Company barge Skagit, barge load # 2.. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of October 25, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

October 28, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,307.90 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered October 26, 2004, and offloaded from the American Construction Company barge Dungeness, barge load # 3. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of October 26, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

October 28, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,423.20 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered October 27, 2004, and offloaded from the American Construction Company barge Skagit, barge load # 4. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of October 27, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

RABANCO
REGIONAL DISPOSAL COMPANY

A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

October 28, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,316.20 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered October 28, 2004, and offloaded from the American Construction Company barge Dungeness, barge load # 5. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of October 28, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

Transmittal

Regional Disposal Company
Corporate Office
54 S. Dawson
Seattle, WA 98134
206.332.7700

TO
Gary Gunderson
TRC Solutions
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

FROM
Elisa Webb
Regional Disposal Company
16710 Seminole Road NE
Poulsbo, WA 98370

Date: **November 11, 2004**

Regarding: Certificates of Disposal for Barge Loads 6 - 10

Transmittal No. 2

Gary,

Attached are the original Certificates of Disposal for Lockheed Shipyard Sediment Operable Unit Project Barge Loads 6 through 10.

Please review and keep for your records.

Sincerely,
REGIONAL DISPOSAL COMPANY

Elisa M. Webb
Technical & Regulatory Affairs

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 8, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,450.70 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 1, 2004, and offloaded from the American Construction Company barge Skagit, barge load # 6. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 1, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 8, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,402.00 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 3, 2004, and offloaded from the American Construction Company barge Dungeness, barge load # 7. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 3, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 8, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,359.40 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 5, 2004, and offloaded from the American Construction Company barge Skagit, barge load # 8. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 5, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 11, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,388.00 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 8, 2004, and offloaded from the American Construction Company barge Dungeness, barge load # 9. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 8, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

CORPORATE OFFICE: 54 SOUTH DAWSON STREET • SEATTLE, WASHINGTON 98134 (206) 332-7700 • FAX (206) 332-7600
500 ROOSEVELT GRADE ROAD • P.O. BOX 238 • ROOSEVELT, WASHINGTON 99356 (509) 384-5641 • FAX (509) 384-5881

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 11, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,416.30 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 9, 2004, and offloaded from the American Construction Company barge Skagit, barge load # 10. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 9, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

Transmittal

Regional Disposal Company
Corporate Office
54 S. Dawson
Seattle, WA 98134
206.332.7700

TO
Gary Gunderson
TRC Solutions
6505 - 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

FROM
Elisa Webb
Regional Disposal Company
16710 Seminole Road NE
Poulsbo, WA 98370

Date: **November 30, 2004**

Regarding: Certificates of Disposal for Barge Loads 11 - 15

Transmittal No. 3

Gary,

Attached are the original Certificates of Disposal for Lockheed Shipyard Sediment Operable Unit Project Barge Loads 11 through 15.

Please review and keep for your records.

Sincerely,
REGIONAL DISPOSAL COMPANY

Elisa M Webb

Elisa M. Webb
Technical & Regulatory Affairs

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 30, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,501.70 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 11, 2004, and offloaded from the American Construction Company barge Dungeness, barge load # 11. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 11, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 30, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,662.20 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 15, 2004, and offloaded from the American Construction Company barge Skagit, barge load # 12. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 16, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 30, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,330.60 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 17, 2004, and offloaded from the American Construction Company barge Dungeness, barge load # 13. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 17, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

TERMINAL 25 TRANSLOADING FACILITY

SOURCE PROJECT Lockheed

LOAD #: 13

LOADED	DEWATER	EMPTY
DATE 11-17-04	DATE	DATE 11/17/04
TIME	START TIME	TIME 2:00 pm
	STOP TIME	
NAME OF BARGE Dungeness	NAME OF BARGE	NAME OF BARGE Dungeness
TUG DEPART TIME		BARGE DEPART TIME
READING (.25 .50 .75 .00) FT	READING (.25 .50 .75 .00) FT	READING (.25 .50 .75 .00) FT
1.70 FT	PB FT	PB 7.70 FT
1.65 FT	PS FT	PS 8.30 FT
SB 1.80 FT	SB FT	SB 8.00 FT
SS 1.90 FT	SS FT	SS 7.30 FT
AVG. 1.76 FT 1'9-1"	AVG. FT	AVG 7.83 FT 7'10"
STSW 1,827.4	STSW	STSW 496.8

note: STSW = Short Tons, Salt Water

WATER TONS _____ SEDIMENT TONS _____ TOTAL OFFLOADED TONS 1,330.6

BARGE CONDITION AT ARRIVAL

BARGE CONDITION AT DEPARTURE

COMMENTS / DELAYS

COMMENTS / DELAYS

SIGNATURE X Scott Smith 11/17/04

X Scott Smith

FINAL ACCE[PTANCE X Bill Brinkley

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 30, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 1,148.70 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 20, 2004, and offloaded from the American Construction Company barge Dungeness, barge load # 14. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 20, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

TERMINAL 25 TRANSLOADING FACILITY

SOURCE PROJECT Lockheed

LOAD #: 14

LOADED	DEWATER	EMPTY
DATE 11/20/04	DATE	DATE 11/20/04
TIME 0000	START TIME	TIME 0530
	STOP TIME	
NAME OF BARGE	NAME OF BARGE	NAME OF BARGE
Dongeness		Dongeness
TUG DEPART TIME		BARGE DEPART TIME
READING (.25 .50 .75 .00) FT	READING (.25 .50 .75 .00) FT	READING (.25 .50 .75 .00) FT
1.65 FT	PB FT	PB 8.50 FT
3.80 FT	PS FT	PS 9.00 FT
SB 1.80 FT	SB FT	SB 7.20 FT
SS 3.95 FT	SS FT	SS 7.80 FT
AVG. 2.80 FT 2'9.6"	AVG. FT	AVG 8.13 FT 8'1.6"
STSW 1,585.2	STSW	STSW 436.4

note: STSW = Short Tons, Salt Water

WATER TONS _____ SEDIMENT TONS _____ TOTAL OFFLOADED TONS 1,148.7

BARGE CONDITION AT ARRIVAL

BARGE CONDITION AT DEPARTURE

COMMENTS / DELAYS

COMMENTS / DELAYS

SIGNATURE X _____

X _____

FINAL ACCE[PTANCE X Bill Brinsky 11/22/04

RABANCO
REGIONAL DISPOSAL COMPANY
A WASHINGTON GENERAL PARTNERSHIP

CERTIFICATE OF DISPOSAL

November 30, 2004

TRC Solutions
Attn: Gary Gunderson
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043

This is to certify that Regional Disposal Company received 835.40 tons of contaminated dredge material from Lockheed Shipyard Sediment Operable Unit Project, delivered November 22, 2004, and offloaded from the American Construction Company barge Dungeness, barge load # 15. The material will be disposed of at Roosevelt Regional Landfill, 500 Roosevelt Grade Road, Roosevelt, WA 98356.

RDC has taken all title and ownership of the material as of November 23, 2004.

Final Disposition: Subtitle D and WAC 173-351 MSW Landfill

Signature
For Regional Disposal Company

WILDER CONSTRUCTION COMPANY

Terminal 25 Transloading Facility Forman Daily Report

Start Date: 11-22-04

Barge Deliveries (fill out one report for each barge delivery/offloading)
Note: Use Military Time

Project Name/Barge Name: Lockheed / Dungeness

Scheduled arrival time: 0815 (Sunday) 11/21/04

Actual arrival time: 0815

Marine Contractor rep. present for heavy measurements? (Y/N) Y

Comments/problems/etc.: H20 Alot!

Barge Offloading

Date/time offloading began: 11-22-04 / 0930

Date/time offloading completed: 11-23-04 / 1500

Debris encountered (Y/N)? If yes describe:

Comments/problems/equip break downs: Total decon of barge

Foreman Signature:

TERMINAL 25 TRANSLOADING FACILITY

SOURCE PROJECT Lockheed

LOAD #: 15

LOADED	DEWATER	EMPTY
DATE 11-22-04	DATE	DATE 11-23-04
TIME 0815	START TIME	TIME 1500
	STOP TIME	
NAME OF BARGE Dungeness	NAME OF BARGE	NAME OF BARGE Dungeness
TUG DEPART TIME		BARGE DEPART TIME
READING (.25 .50 .75 .00) FT	READING (.25 .50 .75 .00) FT	READING (.25 .50 .75 .00) FT
4.60 FT	PB FT	PB 8.00 FT
F 5.60 FT	PS FT	PS 9.25 FT
SB 4.25 FT	SB FT	SB 8.15 FT
SS 4.35 FT	SS FT	SS 9.45 FT
AVG. 4.70 FT 4'8.4"	AVG. FT	AVG 8.71 FT 8'8.5"
STSW 1,158.1	STSW	STSW 322.7

note: STSW = Short Tons, Salt Water

WATER TONS _____ SEDIMENT TONS _____ TOTAL OFFLOADED TONS 835.4

BARGE CONDITION AT ARRIVAL

BARGE CONDITION AT DEPARTURE

COMMENTS / DELAYS

COMMENTS / DELAYS

for Cathy Russell/TRC

SIGNATURE X [signature]

X [signature]

FINAL ACCE[PTANCE X [signature] 11/29/04

page 1	TABLE 10 - QA/QC AND PROJECT						
	PROGRESS REFERENCE TABLE	Demolition	Bulkhead Construction	Dredge Open Channel Area	Dredge Slope Area	Cap Slope Area Waterway Equip.	Cap Slope Area Upland Equip.
Phase II							
Appendix A	Daily QA/QC Documentation						
A.1	Upland Daily Diaries	X	X	X	X	X	X
A.2	Waterway Daily Diaries	X		X	X	X	X
A.3	Upland Compaction Testing		X				
Appendix B	Project Photographs						
B.1	Photographic Log	X	X	X	X	X	X
B.2	Photographs	X	X	X	X	X	X
Appendix C	Deviation from Original Plans/Specs.						
C.1	Cap Design Memo of 10/22/2004					X	X
Appendix D	Analytical Test Data						
D.1	Imported Material and Other Test Results		X			X	X
D.2	May 2004 Contingency Area Test Results						
D.3	Open Channel Composite Cores Results			X			
D.4	Post Dredge Added Core Analyses			X			
D.5	Redredge Grab Samples			X			
D.6	Post Dredge Samples (Summary of D.3-D.5)			X			
D.7	Slope Toe Composite Core Results			X			
D.8	Confirmation Sample Results			X			
D.9	Data Validation Report			X			
Appendix E	Air Quality Monitoring						
E.1	Hart Crowser Monitoring Results			X	X		
E.2	TRC Badge Results			X	X		
Appendix F	Water Quality Monitoring						
F.1	MCS Environmental Monitoring Results			X	X	X	X
Appendix G	EPA Oversight						
G.1	Weekly Summary Reports	X	X	X	X	X	X
G.2	Weekly Meeting Minutes	X	X	X	X	X	X
Appendix H	Activity Implementation Plans						
H.1	Sediment Dredging and Materials Handling			X	X		
H.2	Diving Plan					X	
H.3	Remaining Piling Removal Plan	X				X	X
H.4	Waterway Capping Plan					X	
H.5	Upland Capping Plan						X

Appendix I	Final Construction Schedule	X	X	X	X	X	X
Appendix J	Project Surveys						
J.1	Project Survey Report			X	X	X	X
J.2	Project Cross Sections			X	X	X	X
J.3	Project Final Topography					X	X
J.4	Project Final Isopach Drawing					X	X
Appendix K	State of Washington Use Authorization					X	

page 2	**TABLE 10 - QA/QC AND PROJECT**						
	PROGRESS REFERENCE TABLE	Demolition	Bulkhead	Dredge Open	Dredge Slope	Cap Slope Area	Cap Slope Area
			Construction	Channel Area	Area	Waterway Equip.	Upland Equip.
Phase II							
Appendix L	Plans and Specifications						
L.1	Phase II Specifications			X	X	X	
L.2	Phase II Drawings			X	X	X	
Appendix M	Diver Surveys and Inspections						
M.1	Diver Debris Survey			X	X		
M.2	Diver Initial Cap Layer Inspections					X	X
Table 1	LSSOU Capping Summary - Ph I and Ph II					X	X
Table 2	LSSOU Disposal and Recycle - Ph I and II	X	X	X	X		
Table 3	Waterway Material Placement Summary					X	
Table 4	Dredging Material Quantitative Summary			X	X		
Table 5	Waterway Capping Quantitative Summary					X	
Table 6	Upland Capping Quantitative Summary						X
Table 7	Glacier Upland Material Delivery Summary						X
Table 8	WA Rock Upland Material Delivery Summary						X
Table 9	Disposal Summary and Certificates			X	X		
Table 10	QA/QC and Project Progress Reference	X	X	X	X	X	X
Table 11	Project Cost Estimate vs. Actual Costs						
Table 12	Summary of Personnel Responsibilities						
Table 13	Chronology of Events						
Figure 1.1	Progress Sampling Summary			X			
Figure 1.2	Organization Chart						

TABLE 11 - PROJECT COST ESTIMATE VS. ACTUAL COSTS

COSTS (IN $ MILLION)	ACTUAL	ROD (Alt. 4) See Note	ESD (2002) Strategy 18C	Notes
Mobilize/Demobilize	0.00	0.00	0.06	
Demolition	3.30	0.00	1.66	Nearly 2,000 additional piling actual vs ESD estimate
Bulkhead Construction	2.40	0.00	0.46	ESD assumed existing wood bulkhead would be repaired
Dredging	2.70	0.81	0.98	ROD estimate is 18,000 cy while ESD is 57,725 cy including debris. Actual dredging was over 70,000 cy
Disposal	4.60	2.24	2.85	ESD estimate does not include disposal of treated wood
Capping	2.40	0.52	0.89	ROD estimate is 11,000 cy (about 17,000 tons) cap while ESD is 107,000 tons. Actual placement was about 100,000 tons including about 7,000 tons for the interim cap
Contractor Overhead & Profit	0.00	0.00	1.23	ESD assumes 18% contractor overhead and profit
Const. Mgmt./Admin.	3.00	0.00	0.93	
Engineering	1.40	0.53	1.24	
Permitting	0.10	0.00	0.00	
Contingency	0.00	0.36	1.72	
TOTAL	19.90	4.45	11.96	

General Notes:
ROD estimate was for Open Channel Area Only.
No adjustment is made for inflation or time value of money.
ESD called for dredging 3.5 feet in underpier, shipway and enclosed water SMUs while actual was closer to 5 feet of dredging in these areas

TABLE 12

SUMMARY OF PERSONNEL RESPONSIBILITIES
LOCKHEED SHIPYARD SEDIMENTS OPERABLE UNIT

POSITION[1]	RESPONSIBILITIES
Project Manager Gary Gunderson,TRC (Ph I & Ph II)	• Overall project management. • Understands applicable requirements of the CD, ROD, ESD and the Remedial Design Plans. • Serves as the focal point for communication between the EPA, LMC, POS and the technical consultants. • Technical and managerial responsibility for the project, including assisting with contract negotiations and authorization and accounting for the following: - Analytical laboratories. - Technical consultants. - Construction contractors/subcontractors and suppliers. • Provides site and project management for O&M activities. • Reviews applications for payment with Design Engineer, technical consultants, the QA Officers, contractors, and vendors. • Monitors performance with respect to project schedules, budgets and objectives. • Selects QA Officers and assigns responsibilities.
General Construction Superintendent Gary Russell, TRC (Ph I & Ph II)	• Understands the requirements of the Remedial Design Plans. • Understands the Remedial Design construction specifications and plans. • Manages the day-to-day activities of the contractors and technical consultants. • Directs the activities of the contractors and technical consultants. • Manages activities of the contractors and technical consultants with respect to schedules, budgets and objectives. • Prepares project summary and status reports. • Reviews inspection and correction action reports with respect to the work efforts of the contractors and technical consultants. • Provides construction and project management for construction activities. • Serves as the Project Manager's liaison with contractors and Design Engineer for construction related tasks.
Field Engineer Ken Rooker, TRC (Ph I) Dan Olcott,, Landau Associates (Ph II)	• Coordinate with General Construction Superintendent, contractors and QA Officer to address technical questions, issues, modifications and problems. • Processes contractor submittals. • Coordinates the approval of in-field engineering changes. • Prepares daily activity logs. • Provides general support to Construction Superintendent.
Project QA Officer Tom Patterson, TRC (Ph I & Ph II)	• Understands the requirements of the CD, ROD, ESD and the Remedial Design Plans. • Administers and verifies compliance with QAPP. • Provides independent QA review. • Reviews work plans, reports, and project records for compliance with QAPP. • Assesses problems of quality or noncompliance with CQAP. • Records problems and corrective measures in writing and files documentation in organized project files. • Initiates, recommends, or develops solutions for corrective actions. • Monitors implementation of corrective actions.

(1) Ph I = Individual during Phase I (2003/2004 season)
Ph II = Individual during Phase II (subsequent season)

TABLE 12

SUMMARY OF PERSONNEL RESPONSIBILITIES
LOCKHEED SHIPYARD SEDIMENTS OPERABLE UNIT
(Continued)

POSITION[1]	RESPONSIBILITIES
Construction QA Officer Ken Rooker, TRC (Ph I) Warren West, TRC (Ph II)	• Understands the Remedial Design construction specifications. • Attends conference meetings with contractors and Design Engineer (i.e., preconstruction conferences, progress meetings), and prepares and distributes copies of minutes thereof. • Assists the Project Manager with the selection of contractor(s) and material suppliers. • Understands the requirements of agreements/contracts with contractors, subcontractors, and material equipment and instrumentation suppliers/vendors used for construction activities. • Administers and verifies compliance with QAPP and CQAP. • Trains support personnel for construction oversight activities. • Reviews and understands shop/vendor drawings for equipment and instrumentation required for construction, recording date of receipt of shop drawing, and making copies of drawings and file originals in Site project file, sending copies to design engineering office file and keeping an updated Drawing Control Log showing the most current revision of the drawing. • Completes daily inspections and inspection reports for construction verification and documentation purposes. • Tags or labels construction work that is not in compliance with construction/design specifications. • Reviews and reports problems of work quality or defective workmanship and noncompliance with design plans to Project Manager. • Records problems and corrective measures. • Notifies the Project Manager of construction deficiencies and if requested, initiates, recommends and/or develops solutions for corrective actions to any deficiencies. • Monitors implementation of corrective actions. • Verifies that system or component tests, equipment and system start-ups, are conducted in the presence of appropriate personnel, and documenting and maintaining records thereof. • Accompanies visiting inspectors representing public, regulatory, or other agencies having jurisdiction over the project. Reports results of these inspections to the Project Manager, and documents and maintains records thereof. • Reviews and evaluates contractor's suggestions/requests for modifications in drawings or specifications. Evaluates, reports and documents suggestions and modifications with the Project Manager, Project Manager and the Design Engineer. • Records names, contacts, addresses and telephone numbers of all contractors, subcontractors and material suppliers.
O&M QA Officer TBD during O&M Phase	• Understands the requirements of the CD, ROD, ESD and the Remedial Design Plans. • Understands the Remedial Design O&M specifications. • Attends conference meetings with Project Manager, contractors and Design Engineer. • Assists the Project Manager with the selection of O&M contractor(s) and material suppliers. • Understands the requirements of agreements/contracts with contractors, subcontractors, and material equipment and instrumentation suppliers/vendors used for O&M activities. • Administers and verifies compliance with QAPP for O&M. • Trains support personnel for O&M oversight activities.

(1) Ph I = Individual during Phase I (2003/2004 season)
Ph II = Individual during Phase II (subsequent season)

TABLE 12

SUMMARY OF PERSONNEL RESPONSIBILITIES
LOCKHEED SHIPYARD SEDIMENTS OPERABLE UNIT
(Continued)

POSITION[1]	RESPONSIBILITIES
O&M QA Officer TBD during O&M Phase (Continued)	• Reviews and understands shop/vendor drawings for equipment and instrumentation required for O&M. Records date of receipt of shop drawing, files originals in Site project file, and distributes copies to design engineering office file. Updates Drawing Control Log to include the most current revisions. • Completes inspections and inspection reports for O&M and documentation purposes. • Records problems and corrective measures in writing. Files documentation in organized and accessible project files. • Notifies the Project Manager, Project QA Officer and the Project Manager of O&M deficiencies and if requested, initiates, recommends and/or develops solutions for corrective actions to any deficiencies. • Monitors implementation of corrective actions. • Accompanies visiting inspectors representing public, regulatory, or other agencies having jurisdiction over the project. Reports results of inspections to the Project Manager and documents and maintains records thereof. • Reviews and evaluates contractor's suggestions/requests for modifications in drawings or specifications. Evaluates, reports and documents suggestions and modifications with the Project Manager. • Maintains orderly Site files in accordance with the O&M QA requirements which contain at least the following categories: - Correspondence - Shop drawings - Engineering drawings - Copies of contractual documents - Work directive modifications/changes (change orders and field orders) - Project reports and meeting reports • Records names, contacts, addresses and telephone numbers of all contractors, subcontractors and material suppliers.

TABLE 12

SUMMARY OF PERSONNEL RESPONSIBILITIES
LOCKHEED SHIPYARD SEDIMENTS OPERABLE UNIT
(Continued)

POSITION[1]	RESPONSIBILITIES
Laboratory QA Officer Tom Patterson TRC (Ph I) Rob Gilmor MCS (Ph II)	• Understands the requirements of the CD, ROD, ESD and the Remedial Action Goals. • Understands the DQOs developed for each of sampling programs. • Attends conference meetings regarding the selection of appropriate analytical laboratories capable of meeting the DQOs for the program. • Administers and verifies compliance with QAPP. • Assists Project QA Officer and Project Manager in selection of analytical laboratories. • Provides oversight and management of laboratory and sampling activities. • Reviews work in progress for compliance with project schedules and conducts sampling audits. • Supply data to the third party validator. • Implements recommendation of third party validator (as necessary). • Reviews and reports problems of work quality or defective workmanship and noncompliance with QAPP and CQAR. • Records problems and corrective measures in writing and files documentation in organized files. • Notifies the Project QA Officer and Project Manager of laboratory and sampling deficiencies and if necessary, initiates, recommends, and/or develops solutions for corrective actions. • Monitors implementation of corrective actions. • Requests clarification and interpretation from the Project Manager for contractual considerations with the laboratories of field sampling personnel. • Prepares monthly progress reports for site sampling and analytical activities.
Design Engineer Hart Crowser (Ph I), Dalton, Olmstead and Fuglevand (Ph II)	• Understands the requirements of the CD, ROD, ESD and the Remedial Design Plans. • Acts as technical liaison for the Project Manager and EPA for engineering design concerns, as directed by the Project Manager. • Provides and/or interprets drawings or other engineering information at the request of the Project Manager or his designatee. • Provides support staff to assist the QA Officer with construction oversight responsibilities. • Identifies contractors and subcontractors, suppliers of equipment and instrumentation, and develops and reviews cost estimates for these services and supplies required for the construction project. • Reviews and evaluates contractor's suggestions for modifications in engineering design plans. Reports the results of the review or evaluation, and suggestions and modifications to the Project Manager. • Implements changes to remedial design plan engineering drawings and other engineering information as directed by the Project Manager. • Prepares, reviews, and submits as-built drawings and/or reports required for this project, ensuring the technical quality of reports and submissions are acceptable and that procedures used to develop conclusions and recommendations are appropriate and correctly applied.

(1) Ph I = Individual during Phase I (2003/2004 season)
Ph II = Individual during Phase II (subsequent seasons)

TABLE 12

SUMMARY OF PERSONNEL RESPONSIBILITIES
LOCKHEED SHIPYARD SEDIMENTS OPERABLE UNIT
(Continued)

POSITION[1]	RESPONSIBILITIES
Technical Consulting and Site Personnel	• Reports project concerns to the Project Manager. • Understands applicable requirements of the CD, ROD, ESD and Remedial Design Plans. • Administers and verifies compliance with QAPP. • Understands and performs project activities according to scope, schedule, and budget. • Administers subcontracts, as applicable. • Understands and performs O&M in accordance with accepted technical and safety procedures. • Performs corrective actions as requested by the Project Manager. • Prepares and reviews reports required for this project, ensuring technical quality. • Conducts field activities including training of field personnel, sample collection, field measurements and quality control. • Performs data validation procedures (as necessary).
Contractors/Subcontractors and Material Suppliers	• Follows contract established for the project work. • Understands the Remedial Design Plans construction specifications. • Provides project organizational chart including job description, qualifications and responsibilities of project personnel, as necessary. • Provides procedures for scheduling and managing submittals, including those of subcontractors, fabricators, suppliers, and purchasing agents. • Provides sampling QA procedures related to construction sampling requirements. • Provides control testing procedures for specified tests. • Provides reporting procedures including proposed reporting formats. • Provides construction and installation services of structures, materials, equipment, and instrumentation as required in the construction specifications design plans. • Provides all original shop drawings, operation manuals, equipment specifications and other related material to the QA Officer. • Provides suggestions or requests for modifications in drawings or specifications for the design plans to improve the system quality and/or efficiency. • Reviews and understands shop/vendor drawings for equipment and instrumentation required for construction, record date of receipt of shop drawing and provide all originals to the QA Officers. • Reviews work in progress for compliance with project schedules with QA Officers, and Project Manager. • Attends conference meetings with Project Manager, QA Officer and Design Engineer, such as preconstruction conferences (e.g., Bid Document Review, Pre-Bid Meetings, and Bid Analysis) and construction progress meetings.

(1) Ph I = Individual during Phase I (2003/2004 season).
Ph II = Individual during Phase II (subsequent season).

TABLE 12

SUMMARY OF PERSONNEL RESPONSIBILITIES
LOCKHEED SHIPYARD SEDIMENTS OPERABLE UNIT
(Continued)

POSITION(1)	RESPONSIBILITIES
Project Analytical Laboratories	• Performs all analyses for ROD contaminant constituents according to accepted EPA methods as indicated in the CD, which include methods documented in 40 CFR Part 136 and *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846) and any additions or revisions to these requirements. • Capable of producing submittals of sufficient quality to meet the current requirements for the Contract Laboratory Program Statement of Work for Inorganic Analysis and for Organic Analysis. • Participate in an EPA or EPA-equivalent QA/QC program. • Report deficiencies of internal and external performance and system audits and follow-up corrective actions to the Project QA Officer. • Each laboratory will assign a laboratory project manager. The responsibilities of the laboratory project manager include: - Reporting directly to the Laboratory QA Officer or his designee. - Understanding the applicable requirements of the CD, ROD, ESD and the Remedial Design Plans. - Administering and verifying compliance with this QAPP. - Measuring compliance against laboratory data quality objectives or practices and this document. - Notifying the Laboratory QA Officer when data quality objectives are not met. - Reviewing data quality problems and instituting corrective actions.

(1) Ph I = Individual during Phase I (2003/2004 season)
Ph II = Individual during Phase II (subsequent season)

TABLE 13 CHRONOLOGY OF EVENTS

PRELIMINARY WORK AND FIRST SEASON - PHASE I (2003/2004) Document or Action	Date(s)	Date Draft Submitted	Date Final Submitted	Date Final Approved
Harbor Island Superfund Site Listed on NPL	1983			
EPA Remedial Investigation/Feasibility Study	1996			
Hart Crowser Remedial Investigation	Aug. 29, 1996			
Record of Decision (ROD)	Nov. 27, 1996			
Administrative Order on Consent (AOC)	Jul. 16, 1997			
Remedial Design Investigation	Apr. 2, 1999			
Basis of design report	Jan. 15, 2002			
Explanation of Significant Difference (ESD)	Feb. 22, 2002			
Explanation of Significant Difference (ESD)	Mar. 31, 2003			
Statement of Work				
Consent Decree (CD)	21-May-03			
Remedial Design - Demolition and Bulkhead Construction		7-Apr-03	4-Jun-03	31-Jul-03
Demolition and Bulkhead Const. Begins, Season 1 (2003/2004)	7-Jul-03			
Remedial Design - Dredging and Capping		9-Jul-03	Sept. 26, 2003	Oct-03
Dredging Begins, Season 1 (2003/2004)	Nov. 22, 2003			
Contingency Area Sampling	Nov. 23 and 24, 2003			

PRELIMINARY WORK AND FIRST SEASON - PHASE I (2003/2004)		Date Draft	Date Final	Date Final
Document or Action	Date(s)	Submitted	Submitted	Approved
Remedial Action Work Plan		23-May-03	27-Jun-03	Jan-04
Confirmatory Sampling, Season 1 (2003/2004)				
Grab Samples	Jan. 29, 2004			
Core Samples	Feb. 6 and 11, 2004			
Dredging Ends, Season 1 (2003/2004)	Mar. 10, 2004			

SECOND SEASON - PHASE II (2004/2005)		Date Draft	Date Final	Date Final
Document or Action	Date	Submitted	Submitted	Approved
EPA Amended Statement of Work				
Sampling and Analysis Plan		Apr. 16, 2004		
Sample Contingency Area and Outside LSSOU	May-04			
Video Survey	6-May-04			
Sampling Open Channel Area	May 19-28, 2004			
Diver Survey	13-Jul-04			
Focused Remedial Investigation/Feasibility Study		Aug. 11, 2004		
Remedial Design - Dredging and Capping			Nov. 12, 2004	Nov. 30, 2004
Proposed Slope Cap Design Modification Tech. Memo	Oct. 22, 2004			
Dredging Begins, Season 2 (2004/2005)	Oct. 22, 2004			
Confirmatory Sampling, Season 2 (2004/2005)	Nov. 10,11,22, 2004			
Toe of Slope Sampling and Analysis Plan		Dec. 3, 2004		

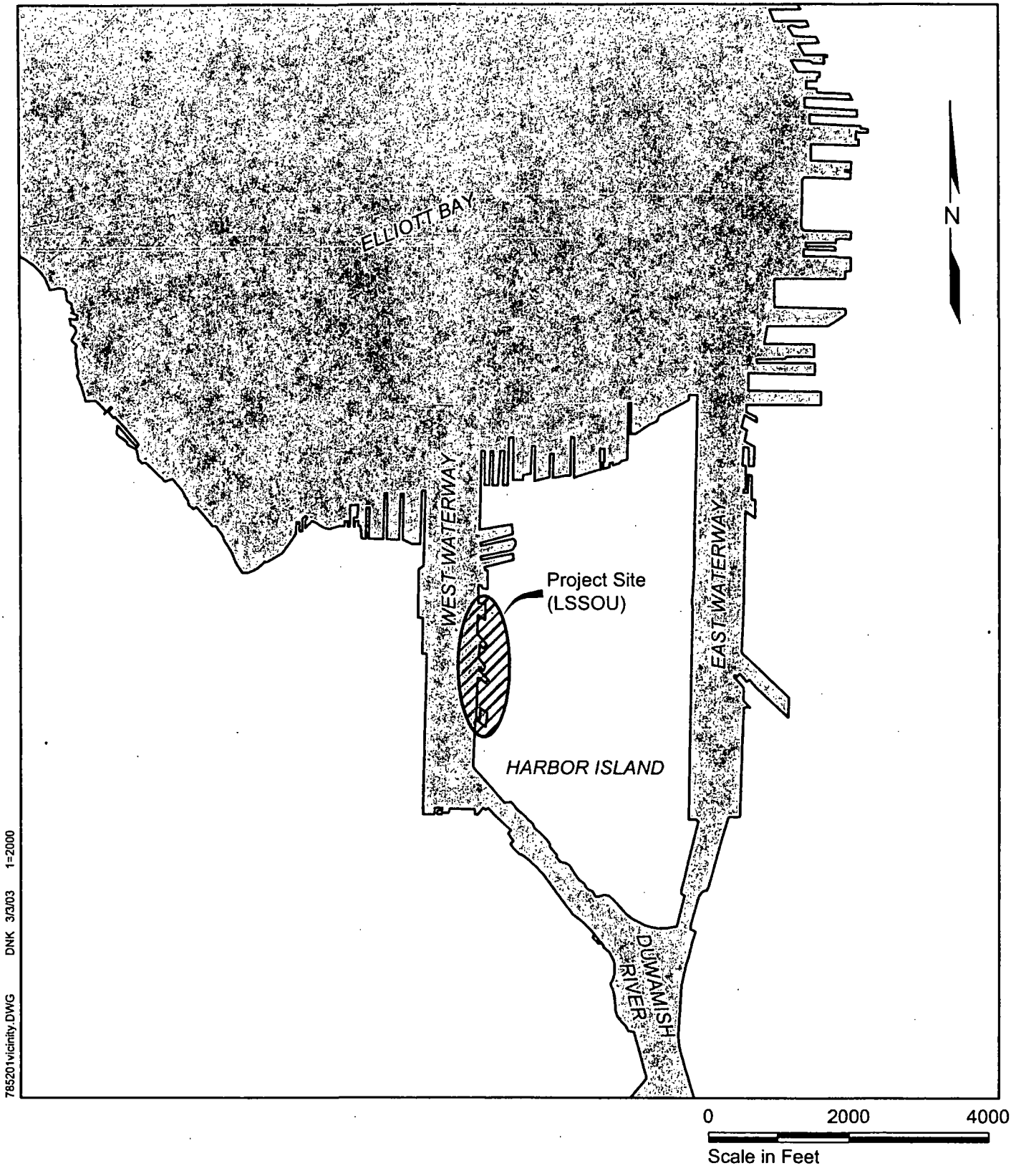
SECOND SEASON - PHASE II (2004/2005)

Document or Action	Date	Date Draft Submitted	Date Final Submitted	Date Final Approved
Toe of Slope Core Samples Taken	Dec. 1-3, 2004			
Capping Begins, Season 2 (2004/2005)	Nov. 23, 2004			
Capping Completed, Season 2 (2004/2005)	Feb. 4, 2005			
Final Remedial Action Inspection	Mar. 7, 2005			
Demobilization Completed	Apr. 1, 2005			
Remedial Action Completion Report		Apr. 15, 2005		
Operation, Maintenance and Monitoring Plan		Apr. 22, 2005		

PHI FIGURES

1.1 – Site Location Map

Vicinity Map



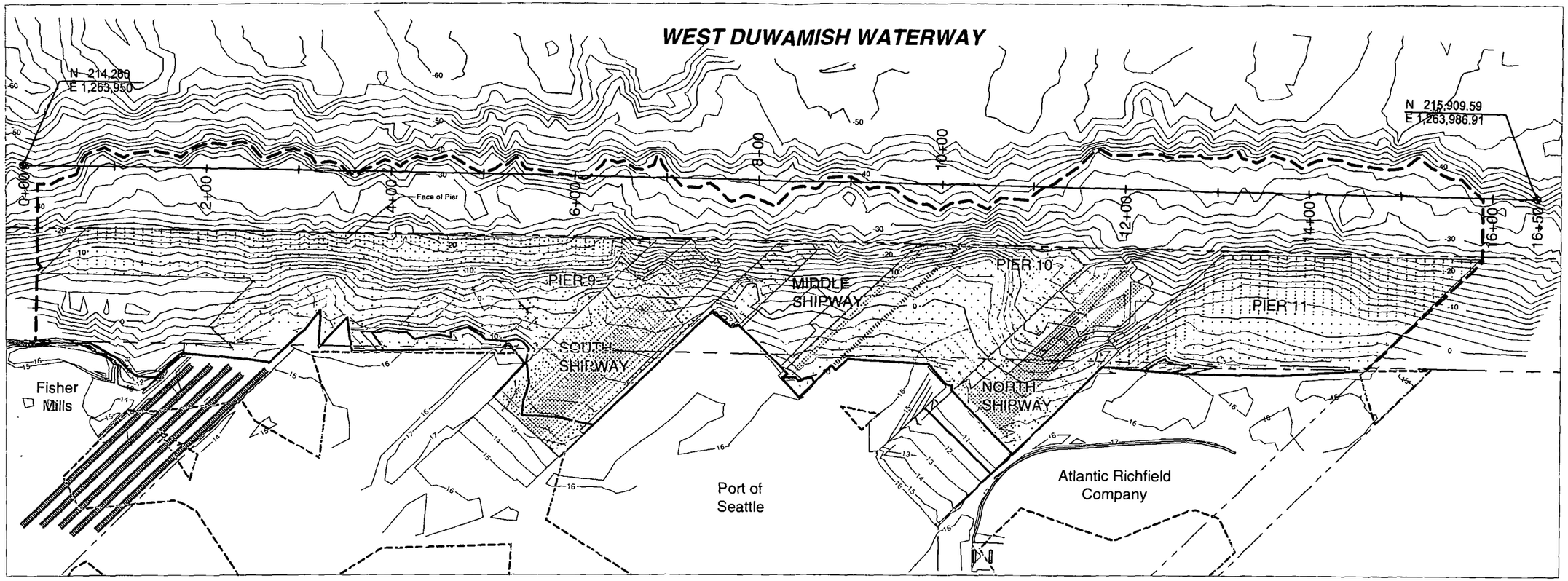
HARTCROWSER

7852-01 *2/03*

Figure 1-1 *DFDAR*

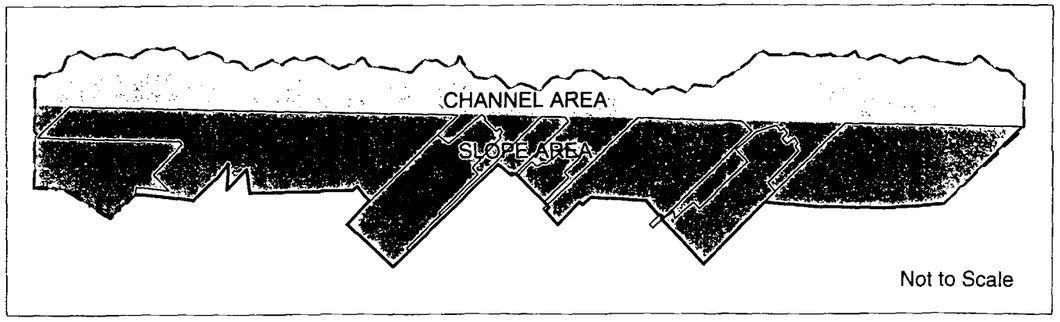
1.2 – General Site Plan

Site Features Map



Note:

1. Base map prepared from drawing provided by Hartman Consulting Corp. titled "Lockheed Yard", dated September 2, 1997.
2. Piling information based on drawing by Foster Wheeler Environmental Corporation titled "Piling Information" dated February 25, 1998.
3. Contours are shown relative to MLLW, Port of Seattle Datum.



N

0 120 240

Scale in Feet

- Outer LSSOU Boundary (-36 Feet MLLW)
- MHHW (11.35 Feet MLLW)
- Approximate Location of Property Line
- Bulkhead
- Pier Head Line
- Inner Harbor Line
- Top of Bank
- Upland Areas Requiring Long-Term Cap Monitoring and Maintenance (ICF Kaiser 1995)
- Pier or Shipway Structure
- Approximate Pile Locations
- Approximate Location of Rail Spur

785201001.DWG DJH 5/29/03 1=120

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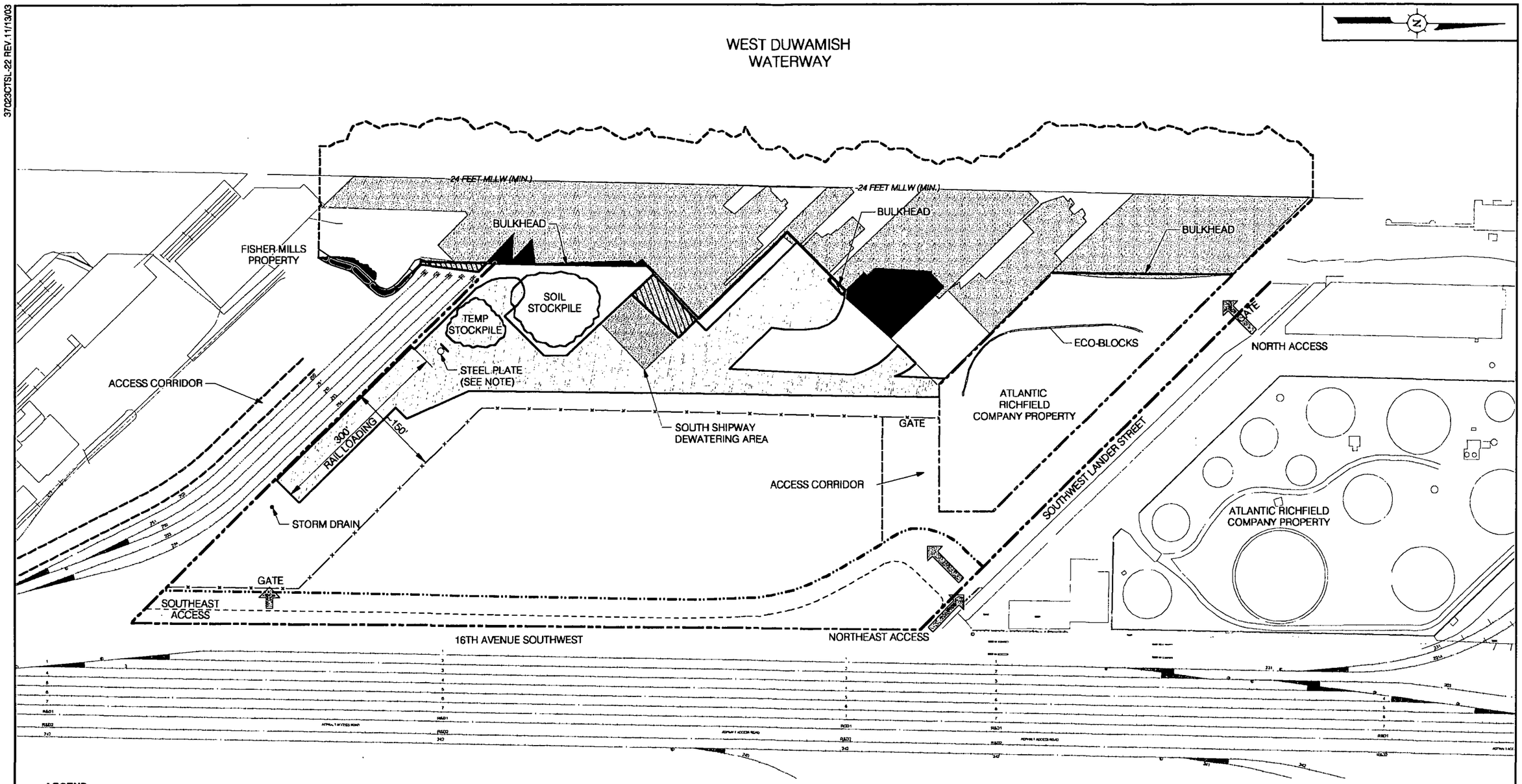
7852-01 *6/03*

Figure 1-2

1.3 – Dredged Material Handling Area Layout

37023CTSL-22 REV 11/13/03



LEGEND

- LSSOU BOUNDARY (OUTER BOUNDRY - 36 FEET MLLW PORT OF SEATTLE DATUM)
- APPROXIMATE LOCATION OF PROPERTY LINE
- APPROXIMATE LOCATION OF NEW ROAD EASEMENT
- BULKHEAD (NEW)
- TOP OF BANK (NEW)
- TOP OF BANK (EXISTING)
- PIER OR SHIPWAY STRUCTURE (TO BE REMOVED)
- APPROXIMATE LOCATION OF RAIL SPUR
- PROPOSED ACCESS/EGRESS POINT
- UPLAND PROPERTY LOSS
- SEDIMENT OPERATIONS AREA (ALL WATER LEAVING AREA MUST PASS THROUGH GEOTEXTILE FILTER FABRIC)
- TEMPORARY FENCE
- PORTION OF INTERTIDAL ZONE TO BE FILLED

NOTE: SEAL STEEL PLATE AND PROVIDE SUMP-PUMP. WATER TO SOUTH SHIPWAY DEWATERING AREA.

0 150 300 FEET
SCALE

LAYOUT OF PROPOSED DREDGED MATERIALS HANDLING AND DRAINAGE CONTROLS

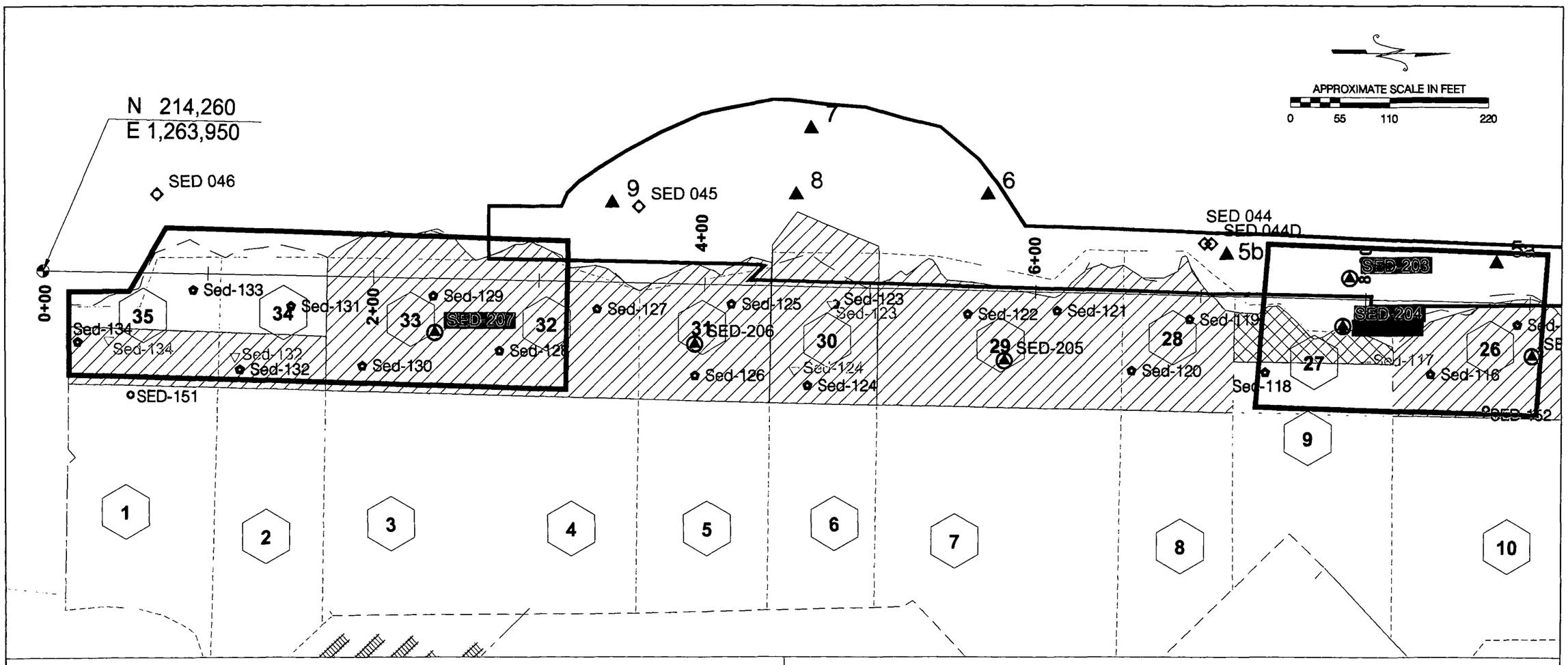
LOCKHEED SHIPYARD SEDIMENT OU PROJECT
SEATTLE, WASHINGTON

TRC

FIGURE 3.2

PHII FIGURES

1.1 – Progress Sampling Summary



CLEANUP AREA STATUS	PH II
Area Cleared After Analysis of Composite Core Pair	Appendix D.3
Area Cleared After Individual Analysis of Core	Appendix D.4
Area Cleared After Redredge and Resample	Appendix D.5
Area Redredged and Resample - Failed	Appendix D.6
Confirmation Grab Failure	Appendix D.8
ENR Material	

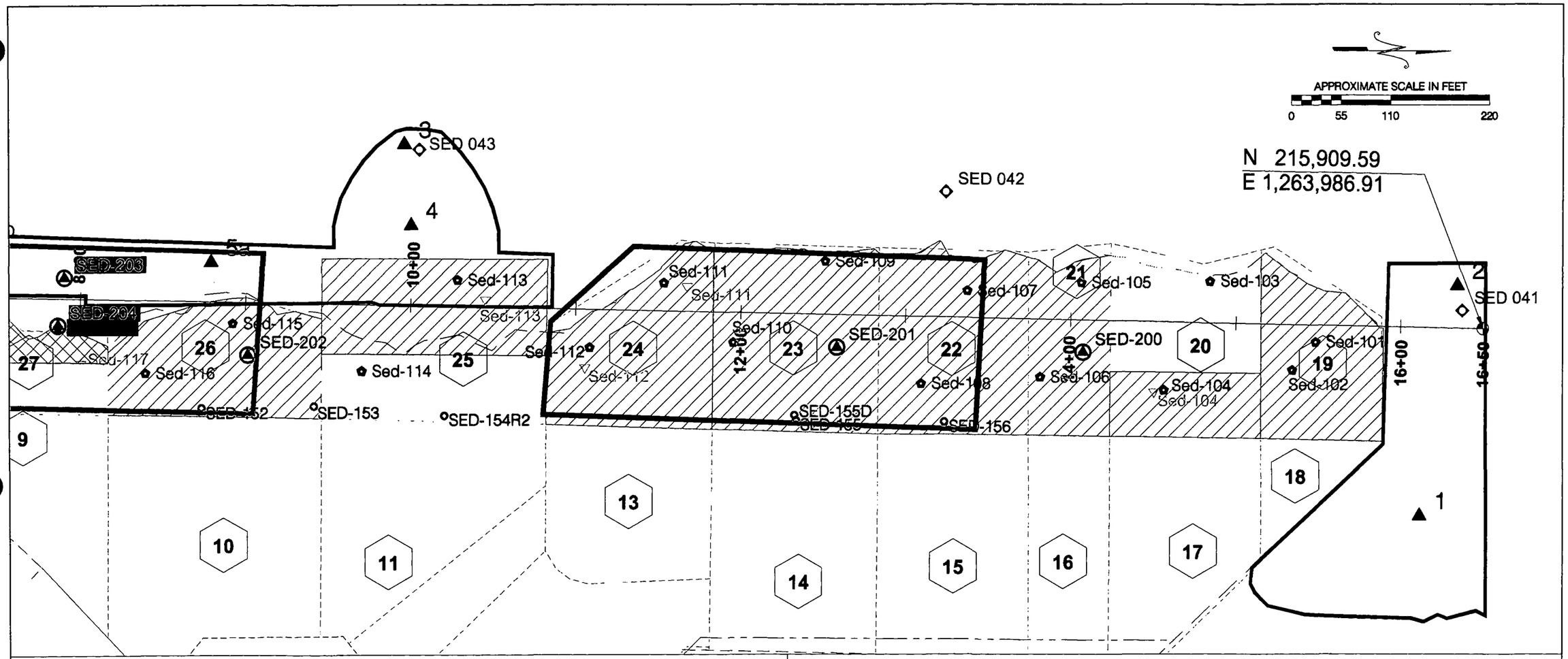
▲	Grab Sampling Location (Nov 2003)	PH I Appendix D.4
◇	Additional Grab Sample (May 2004)	PH II Appendix D.2
●	Progress Core (Nov 2004), Composite Core Pair Analysis	PH II Appendix D.3
●	Progress Core (Nov 2004), Individual Analysis	PH II Appendix D.4
▽	Progress Grab Sample (Nov 2004)	PH II Appendix D.5
○	Toe of Slope Core (Dec 2004)	PH II Appendix D.7
◬	Confirmation Grab Sample (Jan 2005)	PH II Appendix D.8

MGS Environmental

LSSOU Sediment Characterization
Seattle, Washington
for TRC Solutions

Figure 1.1a
Phase II
Progress Sampling Summary

6/23/05 TRC Report Figure.dwg



CLEANUP AREA STATUS	PH II
Area Cleared After Analysis of Composite Core Pair	Appendix D.3
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▲	Grab Sampling Location (Nov 2003)	PH I Appendix D.4
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✿	Progress Core (Nov 2004), Individual Analysis	PH II Appendix D.4
▽	Progress Grab Sample (Nov 2004)	PH II Appendix D.5
○	Toe of Slope Core (Dec 2004)	PH II Appendix D.7
ⓐ	Confirmation Grab Sample (Jan 2005)	PH II Appendix D.8

MGS Environmental

LSSOU Sediment Characterization
Seattle, Washington
for TRC Solutions

Figure 1.1b
Phase II
Progress Sampling Summary

6/23/05 TRC Report Figure.dwg

1.2 – Organization Chart

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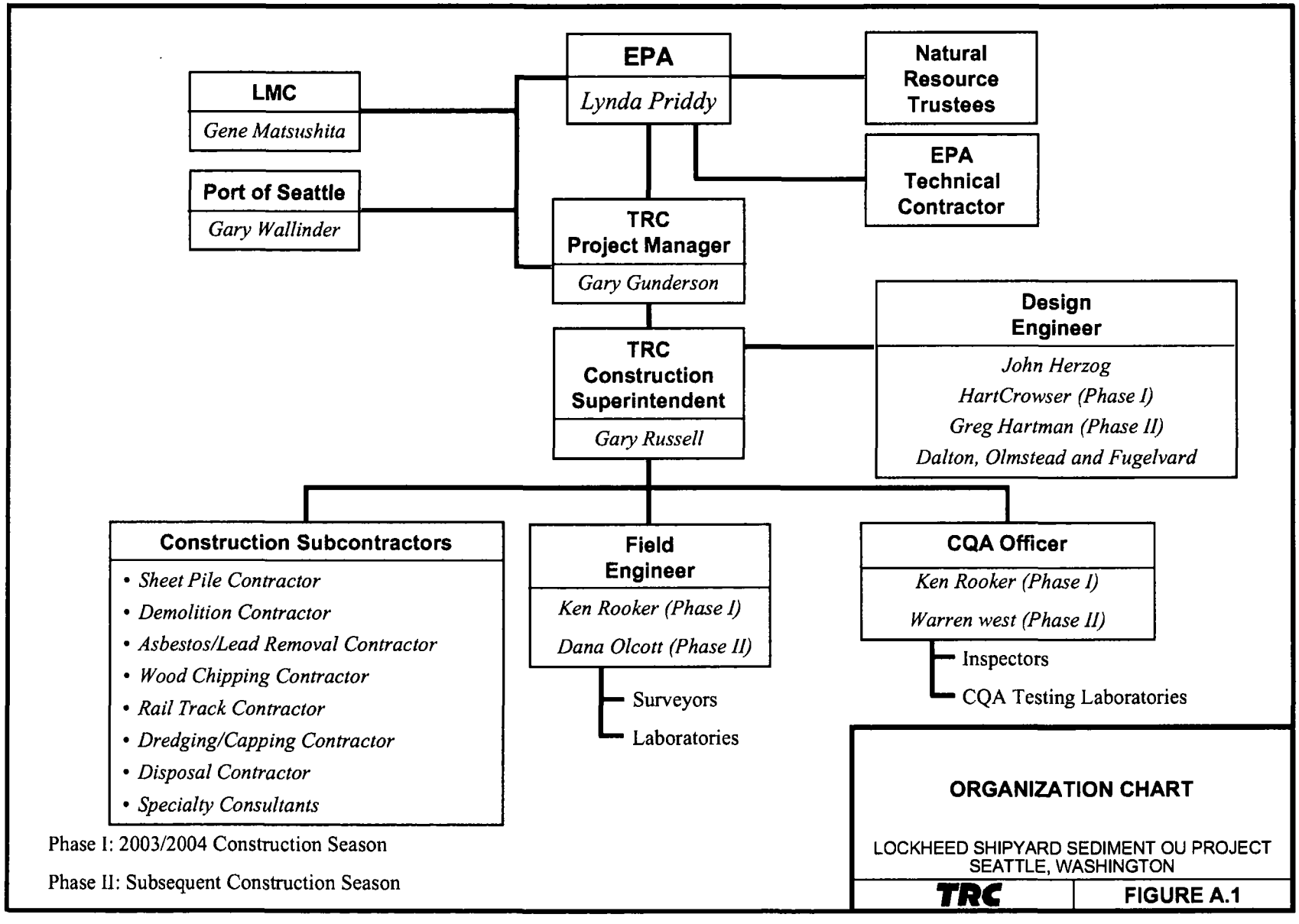

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TARGET SHEET

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