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Environmental Cleanup Office

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Former Lone Star Northwest Cap Remedial Design Report

Harbor Island Superfund Site Soil and Groundwater Operable Unit

Prepared by:

ThermoRetec Consulting Corporation
1011 S.W. Klickitat Way, Suite #207
Seattle, Washington 98134

ThermoRetec Project No.: 3-3865-310

Prepared for:

Lone Star Northwest, Inc.
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March 16, 1999

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1186675

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March 17, 1999

Mr. Neil Thompson
EPA Remedial Project Manager
U.S. EPA Region 10, ECL-113
1200 Sixth Avenue
Seattle, Washington 98101

RE: Final Design Report—Environmental Cap
Former Lone Star Northwest Site, Harbor Island S&GOU Superfund Site

Dear Mr. Thompson:

On behalf of Lone Star Northwest, Inc. and Lone Star Industries, Inc. (Lone Star), ThermoRetec Consulting Corporation is submitting this final design report for your review and approval. This report addresses your review comments dated October 13, 1998 on the 95 percent design report.

Your significant comments included the requirement of a reduced permeability component to the 3-inch-thick environmental cap, along with the elimination of infiltration galleries proposed for the west property boundary. This final report includes a revised 3-inch-thick asphalt pavement section that contains a paving fabric with tack coat. We have also eliminated the infiltration galleries and have reconfigured surface drainage toward the east into a network of previously proposed new catch basins.

The draft report also contained Appendices A through C, which consisted of construction documents for purposes of bidding and contracting the work. We have excluded the construction documents from this final report, but will update and revise them accordingly to include the design revisions as presented in this final design report. This work will be completed prior to bidding the work once Lone Star concludes their ongoing discussions with the current site owner.

We have included four copies of this report for your use. Lone Star anticipates completing this capping work this summer and looks forward to receiving EPA approval

on this environmental cap design. Should you have any questions or require any additional copies, please feel free to call me. I can be reached at (206) 624-9349, extension 230.

Sincerely,

THERMORETEC CONSULTING CORPORATION

Bryan W. Stone

Bryan W. Stone, P.E.
Project Manager

BWS:hhj

Enclosures

cc: Shawn Lilley - LSNW (one copy)
Ed Owen - LSNW (one copy)
Jim Langham - LSI (one copy)
M. Valentine - de maximis (two copies)
ThermoRetec File No. 3-3865-310

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Prepared by:

Bryan W. Stone, P.E.

Technically Reviewed by:

Grant Hainsworth, P.E.

March 16, 1999

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1 Introduction

1.1 Project Description

This cap remedial design report has been prepared by ThermoRetec Consulting Corporation (ThermoRetec) on behalf of Lone Star Northwest, Inc. and Lone Star Industries, Inc. (Lone Star). Lone Star is one of the Settling Defendants designated in Consent Decree Civil No. C95-1495-Z (CD) for the Soil and Groundwater Operable Unit (S&GOU) of the Harbor Island Superfund Site. This plan presents the requirements for construction of a surface cap at the former Lone Star site. Lone Star has voluntarily elected to pave the entire site, not just those areas identified as requiring a cap based on analytical data that exceeds cleanup criteria. Lone Star would like to complete cap construction during the summer of calendar year 1999.

1.2 Summary of Capping Requirements

EPA has determined that surface soil that exceeds inorganic and organic cleanup criteria, as outlined in the Record of Decision (ROD; EPA, 1996), must be capped. The primary constituents of concern that require soil capping at the former Lone Star site are arsenic, which binds with native soil and resist leaching; and heavier total petroleum hydrocarbons (TPH), which are not readily leachable. The capping criteria for arsenic is 32.6 mg/kg in soil. The capping criteria for TPH is 600 mg/kg in soil. This information was previously presented in the *Remedial Design Report Design Set #1B, Harbor Island S&GOU Superfund Site, Seattle, Washington* (RETEC, 1997).

EPA's capping remedial action objective, as provided in their Statement of Work (SOW) and identified in the ROD, is outlined below:

- "The cap will be composed of asphalt (or reinforced concrete for load bearing surfaces) with a minimum thickness of 3 inches and a permeability less than 1×10^{-5} cm/sec."

The environmental caps installed in 1997 and 1998 at several other Design Set #1B properties consisted of a minimum of 3-inches of well-compacted WSDOT Class B asphaltic concrete pavement (ACP) placed on top of a minimum of 4 inches of crushed surfacing top course (CSTC).

It has also been demonstrated through laboratory testing at other sites that conventional Washington Department of Transportation (WSDOT) class B ACP when compacted in excess of 95 percent and completed with a surface seal coat,

or placed in multiple lifts separated by a tack coat (or paving fabric and a tack coat), can achieve the EPA permeability criteria. The pavement section to be constructed at this site is further described in Section 2.3.

The capped areas will provide a suitable barrier to prevent dermal contact with native soil and reduce infiltration of precipitation. The cap areas will also be constructed with necessary grade and drainage improvements such that storm water will not be able to readily pond or infiltrate.

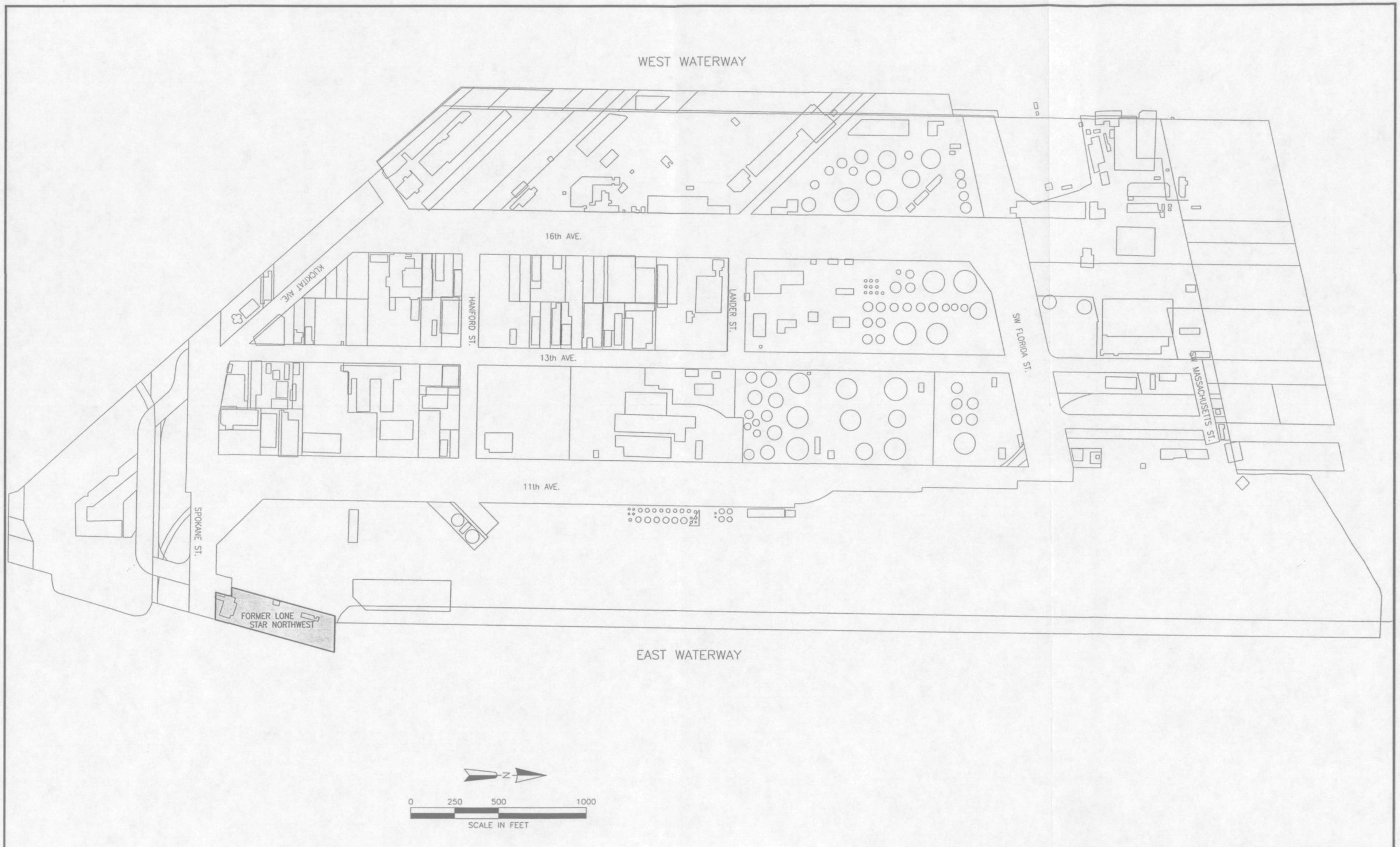
1.3 Site Description

This site is located on the southeast side of Harbor Island adjacent to the East Waterway of the Duwamish River. Figure 1-1 shows the location of the property on Harbor Island. The former Lone Star site was previously a concrete batching plant. Numerous buildings, silos, hoppers and material handling equipment were located at the site. Currently, the property contains an office building on the south end and a maintenance building on the north end. The remainder of the site is unpaved gravel and soil with limited slabs and foundations associated with previous site buildings or work areas. There is a 3-foot-high concrete wall that parallels the east side of the site and separates the wharf/dock area from the upland. The surface area around the existing office building consists of ACP on the north side and portland cement concrete pavement (PCCP) with catch basins for stormwater collection on the south and east sides. The property is currently owned by Olympic Tug and Barge (Olympic). Figure 1-2 is a site map with existing conditions.

1.4 Report Organization

This design report expands upon the information presented in the *Capping Basis of Design Memorandum* (RETEC, 1998). It outlines the requirements of the project and specifies the site work to be performed. A construction document, comprised of plans and specifications that contain the requirements outlined in this engineering report, will be prepared under separate cover for purposes of bidding and constructing the cap and drainage system improvements. This report is organized as follows:

- **Section 1** **Introduction.**
- **Section 2** **Scope of Work.** This section presents the design information which will serve as the basis for capping construction activities to be conducted at the site.



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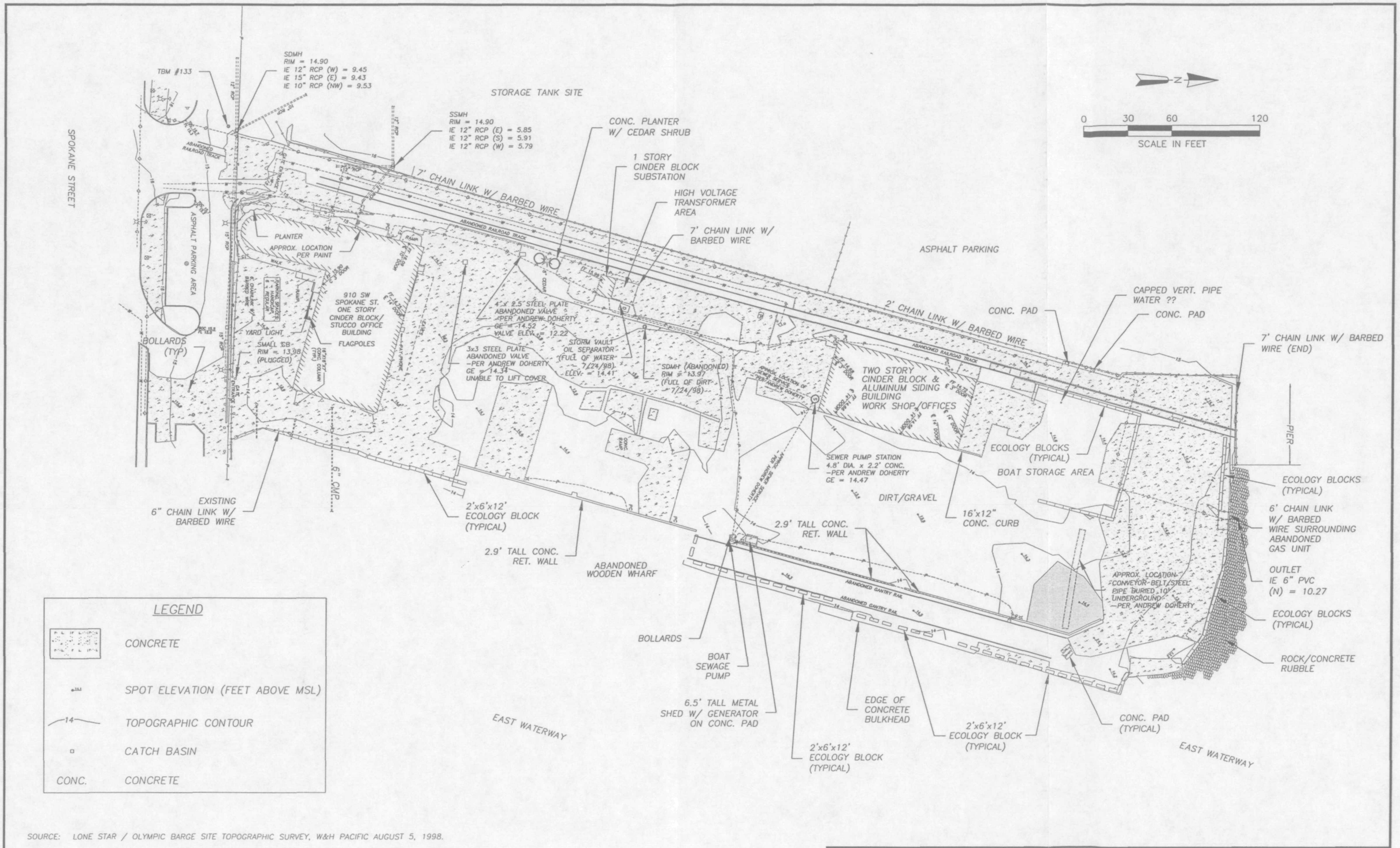
DESIGN SET 1B HARBOR ISLAND S&GOU SUPERFUND SITE 3-3865-230				SITE LOCATION MAP FORMER LONE STAR NORTHWEST SITE
CURRENT DATE	8/19/98	CADD FILE	2900S01S	FIGURE 1-1



SOURCE: LONE STAR / OLYMPIC BARGE SITE TOPOGRAPHIC SURVEY, W&H PACIFIC AUGUST 5, 1998.

ThermoRetec

HARBOR ISLAND S&GOU SUPERFUND SITE SEATTLE, WA 3-3865-230			SITE MAP AND EXISTING CONDITIONS FORMER LONE STAR NORTHWEST SITE
CURRENT DATE 8/18/98	CADD FILE	3865s005	FIGURE 1-2

- **Section 3** **General Requirements.** This section provides general requirements and performance standards. It also presents a remedial action quality control structure for the project, and briefly discusses those federal, state and local regulations that must be substantially complied with during the remedial action.

- **Section 4** **References.**

2 Scope of Work

2.1 Subgrade Preparation

The Lone Star site was formerly a concrete batch plant. There are numerous historic slabs and foundations present at or below grade with the remainder of the site covered with gravel. Subgrade preparation will consist of grading and cut/fill work. Efforts will be made to balance the cut with fill so that excess soil associated with grading is minimal. Additional subgrade work will consist of limited slab or footing removal to facilitate installation of drainage systems or to establish grade for drainage purposes. Any concrete or asphalt debris generated during subgrade preparation will be temporarily stockpiled on site prior to off-site shipment to an approved recycling facility.

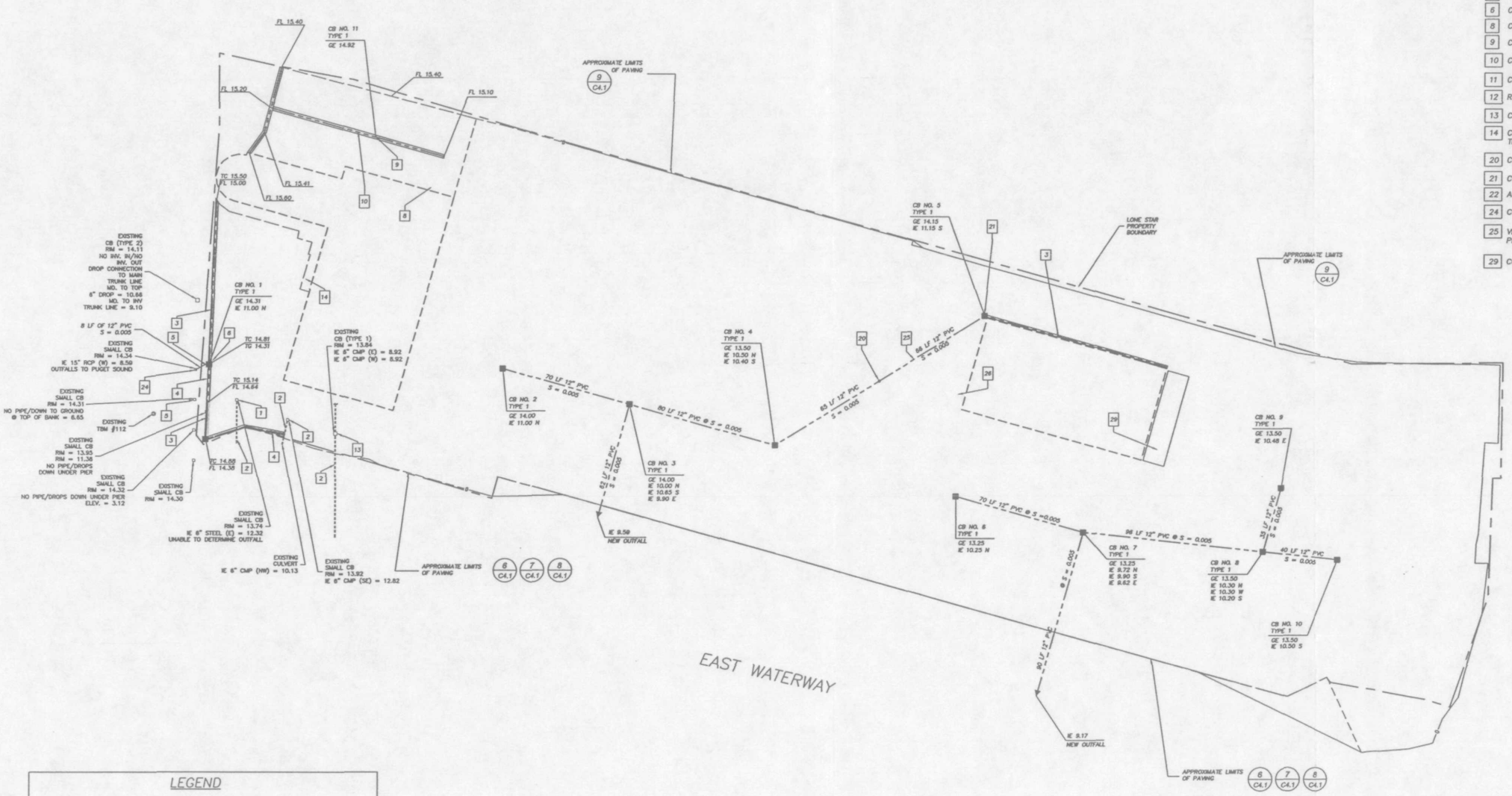
2.2 Storm Drainage System Improvements

The site will be graded to facilitate surface water collection and drainage through a network of new catch basins. Catch basins will be WSDOT standard Type 1 basins. The new storm drain system will convey surface water to one of two new outfalls to be installed along the east side of the site into the East Waterway of the Duwamish. Olympic will be responsible for any permitting and monitoring associated with proposed new storm drainage outfalls. The existing pavement around the office building on the south end will continue to collect and convey surface water to existing collection systems. Some portions of the site contain existing concrete slabs. In low-lying areas where these slabs are present that will also require drainage improvements, portions of these slabs will be selectively removed to facilitate installation of drainage systems. Figure 2-1 details the proposed and existing stormwater collection system.

2.3 Cap Construction

The primary purpose of the environmental cap is to provide a dermal contact barrier to native soil. A secondary purpose is to reduce infiltration of surface water in areas where soil exceedances require the placement of a cap. The environmental cap recently installed at several other Design Set #1B properties, consisted of a minimum of 3 inches of well-compacted WSDOT Class B ACP placed on top of a minimum of 4 inches of CSTC.

The ACP specification for this project is based on WSDOT. The WSDOT specifications define standards for batching, placing and testing asphaltic concrete. Aside from the various percentages of the asphalt mix components, the



CONSTRUCTION NOTES:

1. CONSTRUCT NEW CB TG=13.91
2. EXISTING PIPE TO REMAIN
3. CONSTRUCT CURB & GUTTER PER 1/C4.1
4. CONSTRUCT CEMENT CONCRETE CURB PER 3/C4.1
5. CAP EXIST CATCH BASIN
6. CONSTRUCT NEW CB TG=14.31
8. CONC STOOP TO REMAIN
9. CONSTRUCT NEW CB TG=14.92
10. CONSTRUCT NEW CONC GUTTER 4/C4.1
11. CONSTRUCT NEW CB TG=14.20
12. REMOVE CONC RAMP/SLAB
13. CONSTRUCT NEW CB TG=14.05
14. CONSTRUCT NEW WEEP HOLES THRU EXIST PLANTER WALL.
20. CONSTRUCT CLEAN OUT TO GRADE 2/C5.1
21. CONSTRUCT NEW CB TG= 14.15
22. ADJUST VALVE BOX TO GRADE
24. CONNECT SD PIPE TO EXISTING CB, IE 10.96
25. VERIFY EXIST SANITARY SEWER PIPE ELEV. PRIOR TO SD PIPE CONSTRUCTION
29. CONSTRUCT SPEED BUMP PER 10/C4.1

LEGEND

- PROPERTY BOUNDARY
- PROPOSED STORM WATER COLLECTION SYSTEMS
- EXISTING BUILDINGS

SOURCE: LONE STAR / OLYMPIC BARGE SITE PAVING AND GRADING PLAN–NORTH AND SOUTH, W&H PACIFIC, OCTOBER 30, 1998.

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HARBOR ISLAND S&GOU SUPERFUND SITE
SEATTLE, WA
3-3865-320

CURRENT DATE	2/15/99	CADD FILE	3865s008

PROPOSED STORM WATER COLLECTION SYSTEM FORMER LONE STAR NORTHWEST SITE

FIGURE 2-1

primary field parameter used in verifying that newly constructed asphalt meets WSDOT specifications is the measurement of field compaction.

The minimum acceptable compaction per individual sample test necessary to meet WSDOT standards is 91 percent Rice density. Furthermore, the acceptable range of compaction is 92 to 96 percent Rice density for field test sections constructed on paving projects utilizing WSDOT asphalt. For purposes of achieving the low-permeability cap requirements required by EPA, the pavement section will include a paving fabric with a tack coat as presented in Figure 2-2, and described below. Table 3-1 also provides performance standards for the WSDOT Class B ACP to be used on this project.

2.3.1 Pavement Overlay

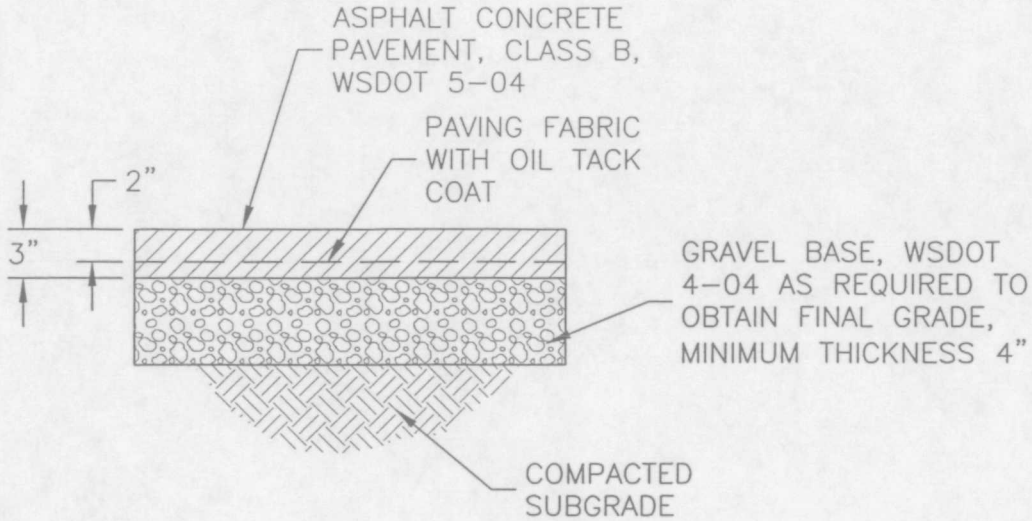
Many portions of the site contain suitable pavements consisting of either PCCP or ACP. These areas will receive an overlay only, consisting of a minimum compacted lift thickness of 2 inches of WSDOT Class B ACP. To minimize reflective cracking from subsurface irregularities all pavement overlay areas will first receive a minimum 1-inch lift of compacted CSTC followed by placement of a paving fabric and oil tack coat, prior to placement of the ACP. Given the nature and behavior of ACP materials and the use of thin overlays on this site, no overlay work will occur unless the ambient air temperature is above 45 degrees F.

2.3.2 New Pavement Construction

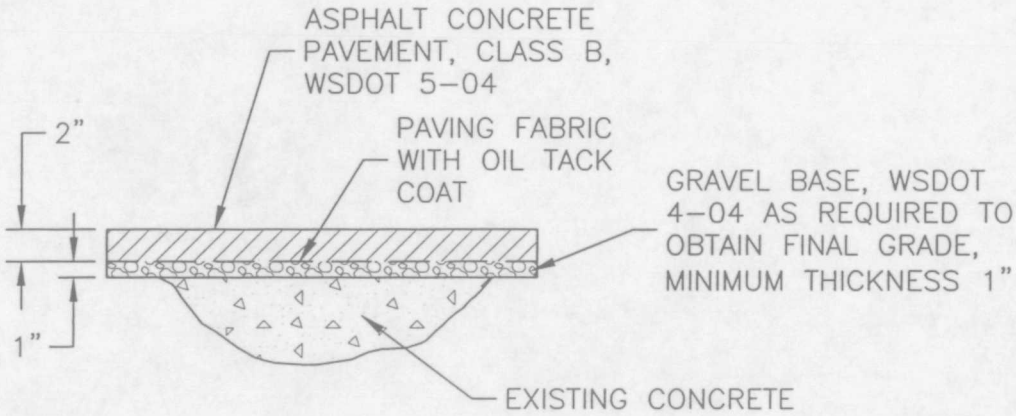
Any new area to be capped that does not currently contain existing pavement, will receive a 3-inch compacted thickness of ACP, placed in two lifts. The thickness of CSTC rock base beneath the ACP will vary in thickness from 4 to 8 inches depending upon the existing grade, whether slabs or structures are present, or if the slab requires removal prior to cap construction.

The Contractor will initially place the CSTC followed by approximately a 1-inch lift of ACP as a pre-level step. The Contractor will then place a paving fabric and oil tack coat over the entire area prior to placing the final topping coat, or remaining 2-inch lift of ACP. Figure 2-3 delineates the approximate extent of new and overlay pavements.

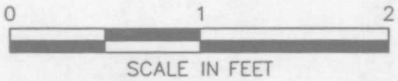
The Contractor will sequence the cap construction such that the pre-level lift consisting of rock and a minimal thickness of ACP will allow the final or topping coat of ACP to be placed over the entire site during the same paving event so as to achieve a uniform compacted thickness with a smooth appearance and finish.



1 NEW ACP CAP, MIN 3-INCH THICKNESS



2 ACP OVERLAY CAP, MIN 2-INCH THICKNESS



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HARBOR ISLAND S&GOU SUPERFUND SITE SEATTLE, WASHINGTON 3-3865-320			PAVEMENT SECTIONS FORMER LONE STAR NORTHWEST SITE
CURRENT DATE 2/15/99	CADD FILE 3865d001		FIGURE 2-2

STORAGE TANK SITE

SPOKANE STREET

ABANDONED RAILROAD TRACK

1 STORY CINDER BLOCK SUBSTATION

HIGH VOLTAGE TRANSFORMER AREA

ASPHALT PARKING

910 SW SPOKANE ST. ONE STORY CINDER BLOCK/ STUCCO OFFICE BUILDING

TWO STORY CINDER BLOCK & ALUMINUM SIDING BUILDING WORK SHOP/OFFICES

ECOLOGY BLOCKS (TYPICAL)

16'x12" CONC. CURB

2.9' TALL CONC. RET. WALL

ABANDONED WOODEN WHARF

2.9' TALL CONC. RET. WALL

OUTLET IE 6" PVC (N) = 10.27

EAST WATERWAY

BOLLARDS

BOAT SEWAGE PUMP

ABANDONED GANTRY RAIL

6.5' TALL METAL SHED W/ GENERATOR ON CONC. PAD

EDGE OF CONCRETE BULKHEAD

ROCK/CONCRETE RUBBLE

EAST WATERWAY

EAST WATERWAY

LEGEND

NEW ACP CAP MIN 3-INCH THICKNESS

ACP OVERLAY CAP MIN 2-INCH THICKNESS

N

0 30 60 120

SCALE IN FEET

NOTE: ALL LAYER MEASUREMENTS ARE COMPACTED THICKNESSES

SOURCE: LONE STAR / OLYMPIC BARGE SITE PAVING AND GRADING PLAN NORTH AND SOUTH, W&H PACIFIC OCTOBER 30, 1998.

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HARBOR ISLAND S&GOU SUPERFUND SITE
SEATTLE, WA
3-3865-320

CURRENT DATE	2/15/99	CADD FILE	3865s009

APPROXIMATE EXTENT OF NEW PAVEMENT FORMER LONE STAR NORTHWEST SITE

FIGURE 2-3

2.4 Project Schedule

Once the engineering design is approved, and Lone Star concludes their ongoing discussions with the current site owner, Lone Star will competitively bid this cap construction work to a limited set of previously qualified environmental contractors. The cap construction work is anticipated to occur during the summer months of 1999. Oversight Engineer and documentation activities will be performed by ThermoRetec.

3 General Requirements

This section discusses quality control for the project, including the quality control structure, responsibilities, and requirements. Quality control requirements include ensuring compliance with health and safety requirements and contract performance standards.

3.1 Quality Assurance/Quality Control Structure

The Oversight Engineer will oversee a system for inspections and tests and retesting of work if necessary to ensure Contractor compliance with contract provisions and established performance standards.

Figure 3-1 provides an organization chart for quality assurance/quality control during grading and capping activities. The Oversight Engineer will be responsible for verifying the Contractor's compliance with the Performance Standards outlined in Section 3.2.2. The Contractor will perform limited quality control testing.

Once capping activities are completed, the Oversight Engineer will submit a final completion report with as-built drawings identifying the prime and subcontractor personnel and equipment on site, work accomplished, materials used, inspections and tests conducted, results of inspections and tests, nature of defects found, reasons for rejection (if any), and corrective actions taken.

3.2 Quality Control Requirements

3.2.1 Health and Safety

For work that does not disturb native soil, such as asphalt paving, the Contractor is not required to have workers trained for hazardous waste work. For Contractors who will be conducting site preparation work (such as earthwork grading, or storm system installation) in native soil, the following requirements are applicable.

The Remedial Contractor shall be required to meet all the requirements of Washington Administrative Code (WAC) 296-155, Safety Standards for Construction, and the applicable provisions of the hazardous waste operations regulations, WAC 296-62, Part P and 29 Code of Federal Regulations (CFR) 1910.120. The Contractor will also have a site health and safety (H&S) officer who will ensure that Contractor personnel adhere to H&S regulations. Prior to

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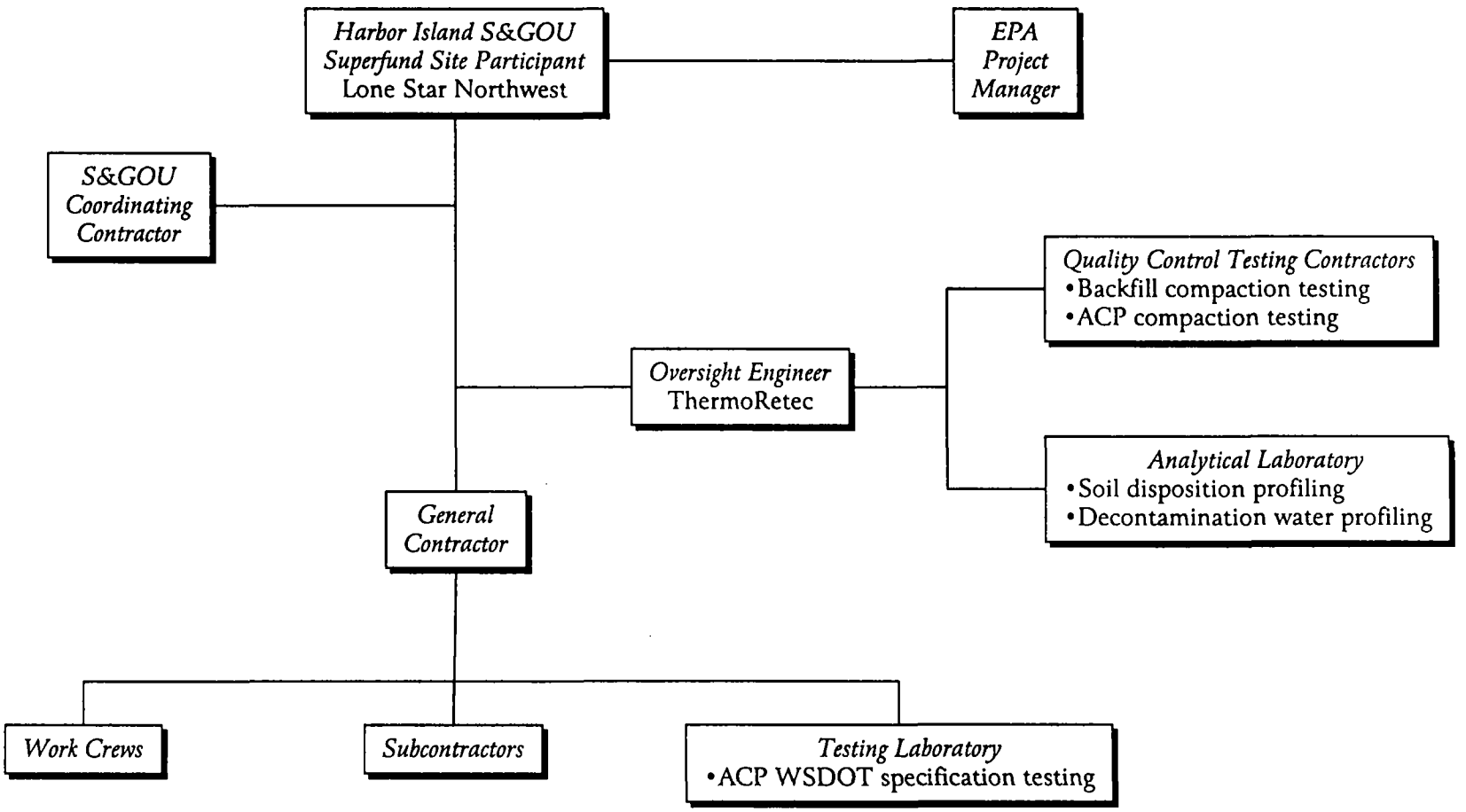
Figure 3-1 Project Organization, Former Lone Star Northwest Site



starting work, the Contractor will be required to submit their own health and safety plan (HASP) for review by the Oversight Engineer and EPA. The plan will also include written documentation of employee training and medical certifications as required under WAC 296-62, Part P. Documentation of the following items is required for each site worker where work falls under the requirements of WAC 296-62, Part P:

- Initial 40-hour health and safety training and annual 8-hour refresher training
- Eight-hour supervisory training, required for the field supervisor
- Medical clearance from a licensed physician certifying that the worker is fit to participate in field activities and use personal protective equipment
- Current respirator fit test certification
- Current CPR and first aid certification for at least one member of each crew
- Provision of personal protective equipment (PPE) for each worker at the highest level of protection for this site

3.2.2 Performance Standards

Performance standards address environmental and public health issues, such as emission and noise control; soil transportation, disposition, and recycling; and compliance with environmental regulations. Monitoring efforts of the Oversight Engineer will be conducted to ensure compliance with performance standards.

The following is a preliminary identification of performance standards for capping activities at the 1B properties. Table 3-1 lists the various performance standards and the Contractor quality assurance testing requirements.

Table 3-1 Performance Standards

Standard	Parameter	Level of Performance	Testing Method or Specification	Frequency of Testing	Comments
Emission Controls	Dust	Section 9.15 PSAPCA Regulation I	Visual Observation	Continuous	Contractor shall provide dust suppression measures.
Noise Control	Exceedance of maximum permissible sound levels	RCW 70.107 SMC Title 25.800	None	N.A.	Work shall only occur during daylight hours. Sites are in industrial areas with no domestic dwellings nearby.
Criteria for Off-site Shipment	Stockpiled soil	Subtitle D waste	Analytical Results ^ <DW Criteria	Every 200 cubic yards	Soil remaining on site may be used as fill material and capped in accordance with EPA capping requirements, or stored until such time.
		Subtitle C waste	Analytical Results >DW Criteria		
	Asphalt debris	Recycling facility or Subtitle D	None	N.A.	Asphalt debris will be recycled off site.
	Concrete debris	Recycling facility or Subtitle D	None	N.A.	Concrete debris will be recycled off site.
	Vegetation	Subtitle D waste	None	None	Vegetation cleared from site during clearing and grubbing shall be sent to receiving facility with soil sent off site.
	Decontamination water	Receiving facility requirements	TPH by EPA Method 418.1 Metals by EPA Method 6010	Once per vessel or container	Decontamination water shall be sent to an EPA-approved facility. Testing will only be done for those constituents that were previously detected in the soil.

Table 3-1 Performance Standards (Continued)

Standard	Parameter	Level of Performance	Testing Method or Specification	Frequency of Testing	Comments
Subgrade Prepa-ration	Compaction in fill areas	95 percent maximum standard density	WSDOT Method 613 (typical site soil sample to be collected for Proctor testing)	Once per fill area or every 250 square yards, whichever is smaller	Any individual layer of subgrade fill material shall not exceed 8 inches in depth prior to compaction.
	Compaction in cut areas	To satisfaction of Oversight Engineer	None	None	Compaction in cut areas shall consist of a minimum of two passes over area with a vibratory roller.
Base Course	Gradation	WSDOT crushed surfacing top course	WSDOT 9-03.9(3)	For each source	
	Los Angeles wear, 500 rev Degradation factor, base course	35% maximum 15% minimum	WSDOT Test Method 131 WSDOT Test Method 113	For each source For each source	
	Compaction	95 percent maximum standard density	WSDOT Method 613	Once per fill area or every 500 square yards, whichever is smaller	Any layer of base course material shall not exceed 4 inches in depth without compaction.

Table 3-1 Performance Standards (Continued)

Standard	Parameter	Level of Performance	Testing Method or Specification	Frequency of Testing	Comments
ACP Cap	Aggregate gradation	WSDOT Class B	WSDOT 9-03.8(6)	For each source	
	Los Angeles wear, 500 rev	30% maximum	WSDOT Test Method 131	For each source	
	Degradation factor, wearing course	30% minimum	WSDOT Test Method 113	For each source	
	Cohesion value	100 minimum	WSDOT Test Method 719	For each source	Contractor to submit optimum densities for each mix design, for use by Field Inspectors for compliance. Contractor shall mix, handle, batch, haul, place, roll and compact asphalt concrete in accordance with the applicable portions of WSDOT Section 5-04.3, except the maximum thickness of a course shall be 2 inches.
	Modified Lottman stripping test	PASS	Modified Lottman	For each source	
	Asphalt content (AR 4000)	4.0–7.5%	WSDOT 718	For each source	
	Stabilometer value	35 minimum	WSDOT Test Method 722	For each source	
	Percent voids	2.0–4.5	ASTM D3637	For each source	
	Maximum standard density	Rice density	WSDOT Method 705	For each source	
Paving Fabric	Petromat, Amopave 4599, Trivera 1112, or equal		Manufacturer's specification	For each source	Fabric shall be installed once the tack coat has fully broken. Joints shall overlap 1 to 6 inches in direction of paving and sprayed with an additional asphalt tack coat to insure adequate saturation.

Table 3-1 Performance Standards (Continued)

Standard	Parameter	Level of Performance	Testing Method or Specification	Frequency of Testing	Comments
Tack Coat	Emulsified asphalt used in conjunction with paving fabric	0.20–0.25 gal/sq yd of residual asphalt, or as recommended by manufacturer	Emulsified asphalt CSS-1 or CRS-1	For each source	
Concrete Work	Curb, gutter and slab	WSDOT concrete work	WSDOT 8.04	N.A.	

NOTES:

DW Criteria - Dangerous Waste Criteria taken from MTCA 173-303.

^ Analytical Results from samples taken from stockpiled soil, asphalt, or concrete debris. Samples will only be analyzed for those constituents previously found at levels greater than capping criteria.

Emission Controls

Grading and capping activities will be carried out in a manner that minimizes emissions of odors and dust (fugitive emissions). Grading and capping activities will comply with the Puget Sound Air Pollution Control Agency (PSAPCA) air quality standards and controls as listed in Table 3-1. The Contractor will provide measures to suppress any fugitive dust generated during site grading that exceed Section 9.15, Regulation I criteria. The Oversight Engineer will monitor the on-site activities to ensure compliance with these standards and regulations.

Noise Control

The Lone Star site is located in an industrial area and all work will most likely be conducted during daylight hours, thus no excessive noise will be generated that may be regulated under Seattle Municipal Code (SMC).

Criteria for Off-site Shipment of Material

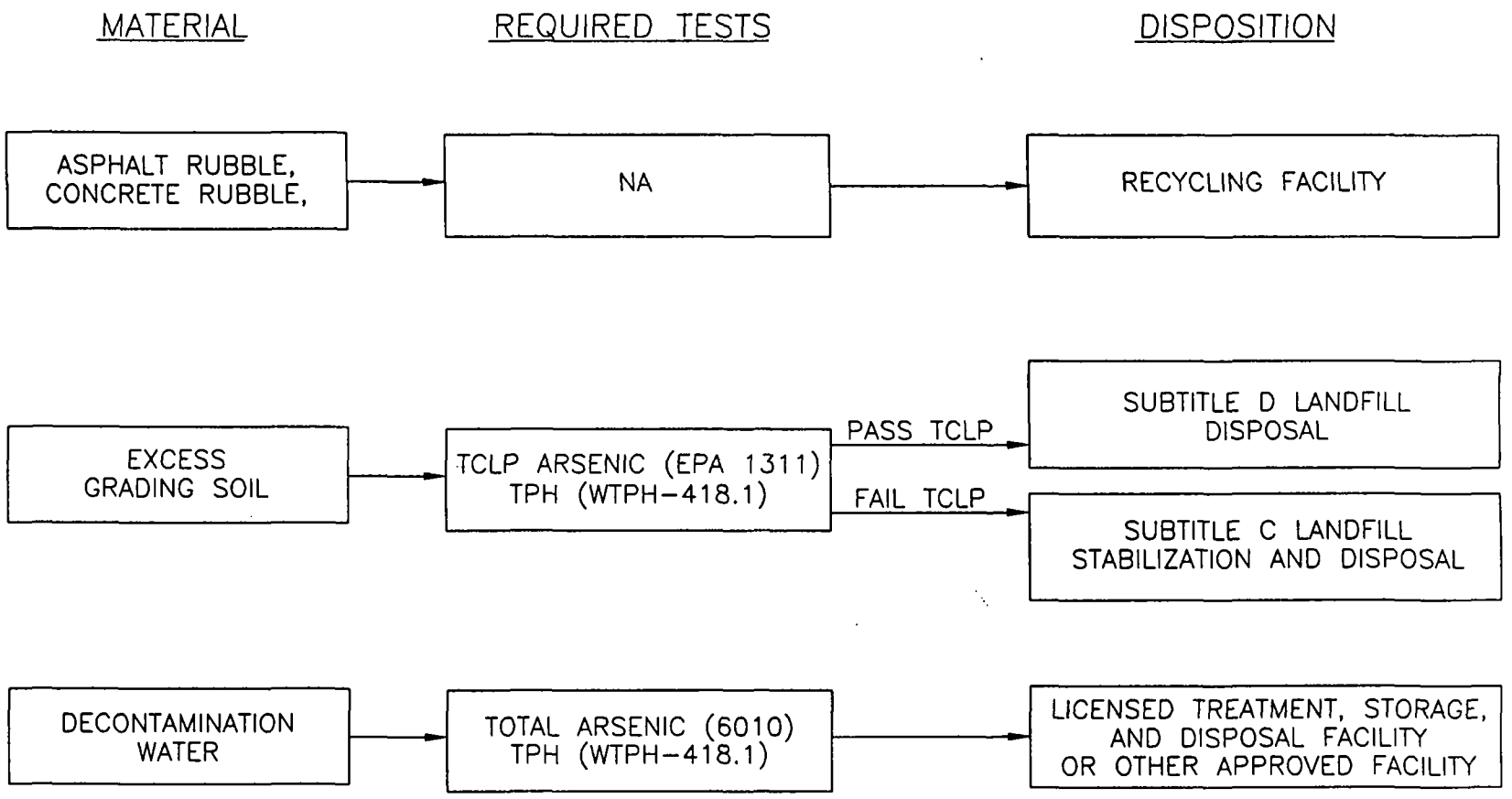
Material resulting from subgrade preparation activities that will be shipped off site for recycling or disposal must meet certain criteria depending on its type and final use. Types of material include: soil, asphalt debris, concrete debris, and vegetation. The categories of end use include recycling/reuse, solid waste disposal, and possibly dangerous waste disposal, although none is anticipated. These criteria must be achieved by the Contractor as confirmed through compliance monitoring performed by the Oversight Engineer. Table 3-1 indicates the procedure that will be used to determine if off-site shipment criteria have been achieved. All dangerous waste disposal facilities must be EPA-approved.

Decontamination

All construction equipment used to excavate storm drainage systems, and perform soil handling associated with cut/fill grading work will require decontamination prior to leaving the site. Decontamination will consist of an initial gross decontamination consisting of brushing loose soil from the equipment followed by steam cleaning in a designated area.

Steam cleaning will include water and a portable high-pressure and -temperature washer. Steam cleaning will be performed over a minimum 6-mil plastic sheet with all decontamination residuals being collected in accordance with the material flow diagram shown on Figure 3-2.

In the event that excess soil requires off-site shipment, hauling trucks will receive a gross decontamination consisting of brushing off the tops of the sideboards and any other part of the truck, pup trailer, or shipping container. If hauling vehicles enter grading areas or if soil is visible on truck tires, truck tires will be dry-brushed



ThermoRetec

HARBOR ISLAND S&GOU SUPERFUND SITE SEATTLE, WA 3-3865-320				MATERIAL FLOW DIAGRAM FORMER LONE STAR SITE
CURRENT DATE	8/27/98	CADD FILE	3865f01s	FIGURE 3-2

to remove soil to prevent track-out onto adjacent public-accessible paved surfaces. No steam cleaning will occur to material hauling vehicles prior to leaving the site.

Decontamination Water Disposal Criteria

Water resulting from decontamination of equipment or personnel will be shipped off site for final disposition depending on its chemical profile. For purposes of bidding the work, the Contractor will assume water disposal will occur at a treatment, storage and disposal (TSD) facility. The Oversight Engineer will be responsible for profiling the decontamination water. Decontamination water will be sampled for disposal characterization purposes for total arsenic and TPH by EPA Methods 6010/200.7 and WTPH-418.1, respectively. Figure 3-2 indicates the procedure that will be used to determine if off-site shipment criteria have been achieved.

Temporary Erosion and Sedimentation Controls

Best management practices (BMPs) for managing stormwater during remedial activities are provided in the *Stormwater Management Manual for the Puget Sound Basin* (Ecology, 1992). Additional stormwater management requirements are provided in the King County Erosion and Sedimentation Control Standards. All work performed at the Lone Star site will comply with BMPs for stormwater management.

Subgrade Preparation Specifications

The Contractor will be required to prepare the subgrade for base course and capping per WSDOT standard specifications. Table 3-1 provides additional information for subgrade preparation.

Base Course Specifications

The Contractor will backfill areas to be capped with clean, granular fill. Backfilling will be performed in accordance with specifications for construction per WSDOT standard specifications. Table 3-1 provides testing frequency and additional requirements for the minimum allowable base course. All materials, work, quality control, and quality standards for this specification shall be performed in accordance with and will meet the requirements of the pertinent sections of the WSDOT Standard Specifications, current edition.

Handling, hauling, placing and compacting of base course will also be done in accordance with the applicable sections of the WSDOT Standard Specifications. Placement will be to dimensions and grades indicated on the construction drawings, or as directed by the Oversight Engineer.

ACP Cap Specification

Table 3-1 provides testing frequency and additional requirements for the minimum allowable ACP section and base course. All materials, work, quality control, and quality standards for this specification will be performed in accordance with and will meet the requirements of the pertinent sections of the WSDOT Standard Specifications, current edition.

Mixing, handling, batching, hauling, placing, rolling and compacting ACP will be done in accordance with the applicable sections of the WSDOT Standard Specifications. Placement will be to dimensions and grades indicated on the construction drawings or as directed by the Engineer.

Required tack coats will be applied in accordance with applicable sections of WSDOT Standard Specifications.

All joints to existing asphalt will be butt joints as per WSDOT Standard Specifications; use of other joint types must be approved by engineer.

3.2.3 Record Keeping and Reporting

The Oversight Engineer will maintain records to document the work performed. These records include, but are not limited to, the following:

- **Daily Activity Log.** A daily activity log will be completed to describe general site activity and personnel working on site. The records may be used to substantiate invoices as related to measurement and payment of site work. Health and safety levels will also be noted in the daily logs as well as field H&S monitoring.

- **Sample Collection Log.** Records of all samples collected will be maintained. Samples will be collected from any soil stockpiled for characterization and final disposition purposes, and from any decontamination water that has been collected and stored. Sample collection logs will include, at a minimum, the date and time of sampling, sample location, medium and characteristics of medium sampled, identification of sampler, analysis requested, analytical results, plus any additional relevant comments. A record of all laboratory data reports and sample chain-of-custody documentation will be maintained.

- ***Material Testing Results.*** *Records of all compaction tests will be* maintained. Material testing logs will, at a minimum, include the date and time of testing, testing site and location, identification of

individual and company performing the testing, test results, and any relevant comments.

- **Off-site Tracking Form.** A continuous log of all off-site shipments and manifests which includes the following information: type of material, source of material, day shipped, receiver, weight, and usage restrictions.

3.3 Permit Compliance Plan

Application for permits normally required for this site work will not be necessary given the Superfund site status, although the substantive requirements of such permits will be followed.

City of Seattle Department of Construction and Land Use shoreline and grading permits normally would be required for some properties. New storm drainage outfalls may also require permitting through Metro. The substantive requirements for these permits will be satisfied.

4 References

RETEC, 1998. *Capping Basis of Design Memorandum, Former Lone Star Site, Harbor Island S&GOU Superfund Site.* July 27.

RETEC, 1997. *Remedial Design Work Plan, Harbor Island Soil and Groundwater Operable Unit Superfund Site, Seattle, Washington.* January.

Washington State Department of Ecology (Ecology), 1992. *Storm Water Management Manual for the Puget Sound Basin (Volumes I and II).* February.

Weston, 1993. *Remedial Investigation Report, Remedial Investigation and Feasibility Study, Harbor Island, Part 1 - Air Soil and Groundwater, Volume 1.* Prepared for U.S. Environmental Protection Agency, Region 10, Seattle, Washington.