

**DRAFT**

***First Avenue South Bridge  
Hazardous Waste and  
Waste Discipline Report***

***June 1991***

***Seattle Engineering Department  
Seattle Municipal Building, Room 910  
Seattle, WA 98104***



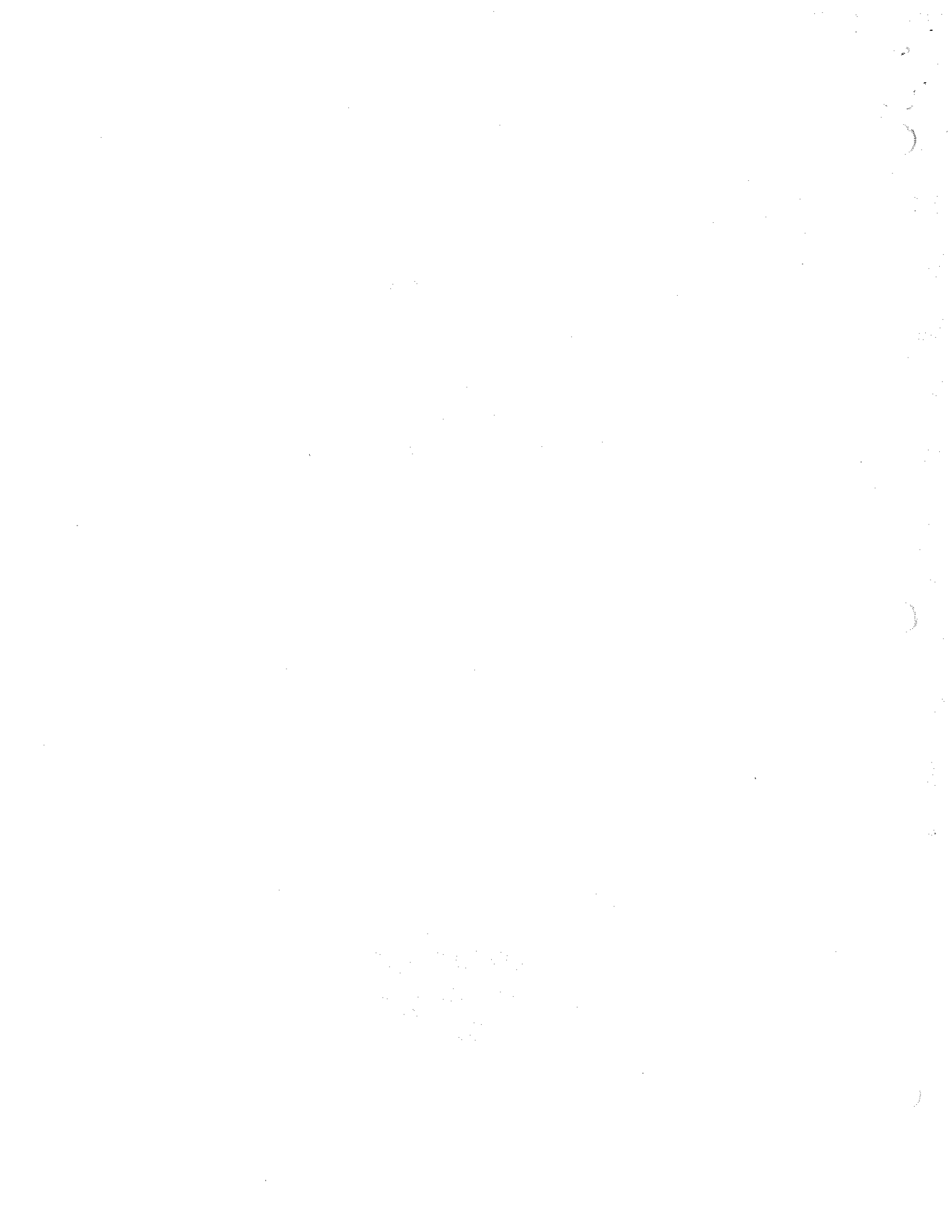
**SHANNON & WILSON, INC.**

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Seattle, WA 98103

(206) 632-8020



**1ST AVENUE SOUTH ENVIRONMENTAL ASSESSMENT  
PROPERTY INFORMATION SHEET**

**SITE NUMBER:** 34

**CURRENT SITE INFORMATION**

**SITE USE:**

The site is a street right of way. The north end of the site is a wetlands and the south end has apparently been used for disposing construction material.

**SITE DESCRIPTION:**

The site is located west of First Avenue South, south of West Marginal Way, east of Second Ave Southwest, and north of South Kenyon Street.

**UNDERGROUND STORAGE TANKS:**

There are no USTs currently registered for this site.

**REGULATORY LISTINGS:**

Ecology's Affected Media and Contaminants report lists the First Avenue Bridge Landfill, located at the 7700 block of Second Avenue Southwest (southern half of Site 34), as contaminated.

**HISTORICAL SITE INFORMATION:**

YEAR	USE/COMMENTS
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**KING COUNTY ARCHIVE RECORDS:**

There are no Archive records for this site.

**POLK CITY DIRECTORY:**

There are no listings for this site.

**HISTORICAL MAPS:**

1912	Baist's - The site is owned by Albert LaFrenchi, Charles Prentice and A. O. McAllister.
1914	Kroll - The site is owned by Albert LaFrenchi, Charles Prentice and A. O. McAllister.
1920	Kroll - The site is owned by A. O. McAllister.

YEAR	USE/COMMENTS
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**AERIAL PHOTOGRAPH REVIEW:**

1936	The site is vegetated land with a stream running through it.
1946	The site does not appear significantly changed from 1936.
1951-52	The site is vegetated land with a wetlands on the north end.
1961	The site appears essentially unchanged from 1951-52.
1965	The site is vegetated with a wetlands on the north end. Second Avenue Southwest is three-quarters constructed.
1970	The vegetation on the site appears to be slightly disturbed. Second Avenue Southwest is completed.
1985	The north end of the site is a wetlands. The vegetation on the south end has been removed and the soil graded.
1989	The north end of the site is a wetlands. The south end has some vegetation growing back. It also appears that debris has been left on the southern portion of the site.

**REFERENCES:**

- King County Assessors  
King County Archives  
Baist's Maps: 1912  
Kroll Maps: 1914, 1920, 1928, 1950, 1966  
Metzker's Maps: 1936  
Sanborn Fire Insurance Maps: 1929  
Polk City Directories 1940, 1943-44, 1951, 1955, 1960, 1965, 1970, 1975, 1980, 1985, 1989-90  
Aerial Photographs: 1929, 1936, 1946, 1951-52, 1961, 1965, 1970, 1985, 1989
- U.S. Environmental Protection Agency,  
CERCLIS Database 7/22/90  
RCRA Notifiers 1/16/90
- Washington Department of Ecology;  
Affected Media and Contaminants Report 3/15/91  
Registered Underground Storage Tank List 2/21/90  
Leaking Underground Storage Tank List 3/19/91



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**LETTER OF TRANSMITTAL**

Date 6/4/91 Job No. T-1252-01

To: Seattle Engineering Dept.  
Seattle Municipal Bldg. Rm 910  
Seattle, WA 98104-1879

Attention Ms. Chris Larson  
Re: First Avenue South Bridge

We are sending the following items:

- Report
- Proposal
- Attached
- Drawings
- Under separate cover via \_\_\_\_\_
- Samples
- Specifications
- Copy of \_\_\_\_\_
- \_\_\_\_\_

Copies	Date	No.	Description
20	6/91		Partial Draft - Hazardous Materials And Waste Discipline Report

These are transmitted:

- For your retention
- For review and comment
- Please return by \_\_\_\_\_
- For your use
- For action specified below
- \_\_\_\_\_
- As requested
- With corrections
- Prints returned after use by us

Remarks:

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Copies to \_\_\_\_\_

By Donald K. Balmer

- Invoice File
- Correspondence File



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2.2 Hydrogeologic Setting

The Duwamish River Valley is a north-trending trough situated between rounded hills composed almost exclusively of glacial sediments. The valley floor consists predominantly of post-glacial alluvial deposits.

During the Oligocene and Miocene times, approximately 13 to 36 million years ago, the area was the site of a marine embayment in which about 8,000 feet of marine sandstone, shale, and conglomerate sediments accumulated. This unit represents the consolidated bedrock logged from a water-supply well located immediately north of the study area (Liesch and others, 1963).

The marine bedrock from this well consist of shale, and underlies the Duwamish River Valley greater than 300 feet below mean sea level (MSL).

Valley glaciers developed in the Cascades and Olympic Mountains in the beginning of the Pleistocene period, approximately 1 million years ago. It is not known if these alpine glaciers extended into the study area, but early Pleistocene deposits in this area consist of a complex succession of lacustrine, glacial, and marine sediments of unconsolidated clay, silt, sand, gravel, till, and peat. A clay unit was observed in the water-supply well mentioned above between 250 and 312 feet below MSL.

The Puget Sound Lowland has undergone physiographic and depositional changes due to at least four glacial episodes. The last glaciation that occurred in the region was the Vashon Stade of

the Fraser Glaciation which ended approximately 13,500 years ago. The advance of the Vashon Glacier deepened and widened north/south-trending valleys. Thick glacial drift deposits consisting of outwash sands and gravels, and till were deposited over the greater Puget Sound area. These deposits are evident in the upland drift plains bordering the Duwamish River Valley to the east (Seattle Drift Plain) and to the west (Des Moines/West Seattle Drift Plain).

During the retreat of the glacier, ice-contact stratified drift was deposited over much of the region. This was followed by a period of alluvial valley filling, localized peat deposition, minor erosion, and soil development. The Duwamish River Valley is geologically characterized as an alluvial valley containing Recent sediments of sand intermixed with lenses or interbeds of silt and clay. Occasionally, zones of peat are encountered within the alluvial deposits, and they are most likely associated with ancient abandoned river channels. Much of the Duwamish River Valley has been developed using artificial fill consisting mainly of dredged sediments of sands and silts. This fill material ranges in depth from less than 3 feet to more than 30 feet in old river channels.

Subsurface soil conditions were determined based on a review of boring logs drilled in the area. Two soil units were encountered and identified from these studies, in order of increasing depth: fill soils and alluvial sand deposits. In general, the fill soils consisted of loose to medium dense sand; silty, fine sand; silty, sandy gravel; and soft, sandy to clayey silt with variable amounts of debris and wood. Fill soils extended from the surface to depths ranging from approximately 5 to 15 feet.

The alluvial sand deposits consist primarily of a loose to very dense, clean to silty, fine to medium sand with interbedded silt, clay and peat layers. The alluvial sand extends to a minimum depth of 220 feet beneath the ground surface.

Until the early part of this century, most of the Duwamish River Valley in the study area consisted of marshland and tidal mudflats occupied by shallow meandering stream channels. Prior to 1906, the Duwamish River was receiving its fresh-water from the Black (Cedar River), White, and Green Rivers. After 1906, the White River was permanently diverted to the south into the Puyallup River. In addition, Lake Washington was lowered about 9 feet due to the diversion of its water through the Lake Washington Ship Canal, which eventually caused the Black River to dry up. Since 1906, approximately 90% of the Green River drains into the Duwamish River (Richardson and others, 1968). The main river channel of the Duwamish has been straightened and confined by dredging operations. The original valley floodplain has been

raised 10 to 15 feet, and old abandoned channels were filled with both hydraulic and other dumped fill. The completion of the Howard Hanson Dam in the upper reach of the Green River in 1962 further reduced the amount of fresh-water inflow from the Green River into the Duwamish River, and thereby enhanced flood control throughout most of the Duwamish River Valley. Most of the water in the Duwamish River is derived primarily from groundwater that is recharged by surface runoff and infiltration during periods of heavy rainfall.

Principal groundwater aquifers in the Duwamish River Valley are found in the valley alluvium or from aquifers in the older unconsolidated deposits beneath the alluvium. Based on previous studies in the area, groundwater occurs about 8 to 10 feet below ground surface. Groundwater depth fluctuations are common due to seasonal precipitation and tidal fluctuations. The movement of the groundwater beneath the Duwamish River valley floor generally flows toward the Duwamish River and northward towards Elliot Bay (Puget Sound).

The groundwater of the valley floor has a high potential for contamination from various industries that occupy most of the valley. The majority of wells drilled in the Duwamish River Valley generally tapped small isolated pockets of sand and gravel in either the alluvium or the older unconsolidated deposits, and were subsequently abandoned due to insufficient yield or poor water quality. Based on published geological and groundwater literature, currently there are no reports of groundwater resource usage in the immediate proximity of the study area (RZ & Assoc., 1990). The public potable water supply is provided by the City of Seattle Cedar River and Tolt River Systems.

The groundwater may also be contaminated by an influx migration of a wedge-shaped body of saltwater derived from the Duwamish River mouth area and Elliot Bay. The migration of this saltwater wedge upstream into the Duwamish varies with the rate of fresh-water inflow, and with the tidal fluctuations. The wedge advances farthest upstream during low rates of fresh-water inflow, and retreats downstream during greater inflow. The results from a saltwater migration study have indicated that the Duwamish River is usually well stratified to partially mixed with the saltwater in some areas. The inflowing fresh-water remains mostly in the upper 5 to 15 feet of the river, and is underlain by a wedge-shaped body of salty water throughout most of the length of the river (Santos/Stoner, 1972).

### 2.3 Project Corridor Routes

2.3.1 One-Way Bascule Bridge

2.3.2 Two-Way Fixed Bridge

3.0 STUDY METHODOLOGY

3.1 Public Record Review

The following series of public record sources were examined to determine the development history of the study area and review the regulatory agency knowledge of hazardous material occurrences in the study area.

Environmental Protection Agency (EPA) CERCLIS database (Comprehensive Environmental Response, Compensation, and Liability Information System, 7/22/90): This list documents potentially contaminated sites investigated under the Superfund Act. Sites on this list are not necessarily Superfund Sites. Sites still under investigation by the EPA, or sites where investigations have been completed and the EPA determined that "no further remedial action" (NFA) is required, are not Superfund Sites. Those sites that have been investigated and in which the EPA has determined that the site may pose a long-term threat to human health or the environment are then documented on the National Priorities List Superfund.

EPA RCRA Notifiers List (1/16/90): This list documents businesses generating, transporting, or disposing of potentially hazardous or toxic materials as part of their normal operations.

Washington State Department of Ecology (Ecology) Affected Media List (3/15/91): This list documents current sites in Washington State that are considered or suspected of being contaminated under state agency criteria.

Ecology's Underground Storage Tank (UST) List (2/21/90): This list documents all regulated, registered USTs in Washington.

Ecology's Leaking Underground Storage Tank (LUST) List (3/19/91): This list documents all reported leaking USTs in Ecology's Northwest Region.

King County Assessor's Office: assessor's property information from 1973 to the present.

Washington State, King County Archives: assessor's property information from the first assessment of the property, usually in the 1930's, to 1973.

Polk's City Directory of Seattle: This directory lists occupants by address. Years reviewed include: 1940, 1943-44, 1951, 1960, 1965, 1970, 1975, 1980, 1985, 1989-90.

### 3.2 Map Review

#### Maps

1912	Baist's Real Estate Map
1914	Kroll Assessor's Property Map of Seattle
1920	Kroll Assessor's Property Map of Seattle
1928	Kroll Assessor's Property Map of Seattle
1950	Kroll Assessor's Property Map of Seattle
1966	Kroll Assessor's Property Map of Seattle
1936	Metsker's Real Estate Map of Seattle
1917	Sanborne Fire Insurance Maps of Seattle
1929	Sanborne Fire Insurance Maps of Seattle

#### Aerial Photographs

1929	City of Seattle Public Works Collection (No Scale)
1936	City of Seattle Public Works Collection (No Scale)
1946	City of Seattle Public Works Collection (No Scale)
1951-52	City of Seattle Public Works Collection (No Scale)
1961	University of Washington Collection, Scale: 1"=400'
1965	University of Washington Collection, Scale: 1"=400'
1970	University of Washington Collection, Scale: 1"=400'
1985	University of Washington Collection, Scale: 1"=400'
1989	University of Washington Collection, Scale: 1"=400'

#### 4.0 HISTORICAL LAND USE REVIEW

The following summaries about the site development history are based on the review of the above sources. The project area is divided into four quadrants subdivided by the Duwamish River and First Avenue South for the purpose of describing the history.

##### 4.1 Northwest Quadrant I

Quadrant I is the area north and east of the Duwamish River and west of the railroad tracks that runs along East Marginal Way and First Avenue South. Quadrant I includes Sites 1 and 25 (refer to the Site Map).

Information from the 1920's is limited. Available aerial photographs cover the area between the First Avenue South-East Marginal Way intersection, south to the Duwamish River. Air photos for the area north of the First Avenue South-East Marginal Way intersection were not available. Maps, city directory, and archive information from this time period are sketchy.

Most of Quadrant I was undeveloped in the 1920's. There were a few, poorly-built houses along the Duwamish River and along the southeast side of Slip #2 (Site 25). At the far north end of Quadrant I, north of Lucile Street, L.F. Lauck's Inc. is located, which manufacture chemicals, paints, glues, and wall finishes. The remainder of Quadrant I, between Lauck's and Slip #2 (Site 1), was undeveloped land or unused farmland.

In the 1930's, new industries in the northern half of Quadrant I included the Seattle Export Lumber Company and the Northwest Glass Company, located just south of Lauck's. From the glass company south to Slip #2 most of the land was undeveloped. There were a few buildings just north of the slip that might have been remnants of an old farm or the beginnings of a new industry. The vegetation along the north side of Slip #2 was partly gone and the ground appeared disturbed, as if graded. There were numerous houses along the Duwamish River and the southeast side of the slip.

In the early 1940's, the City Fuel Company and the Silver Box Manufacturing Company began operations in the northern half of Site 1, along with those companies previously mentioned. By the mid-1940's, other industries north of Slip #2 included the Modern Excavation Company and the Newell W.C. Cement Company. In the southern half of Quadrant I, most of the houses were deteriorating. Slip #2 appeared to be partially filled so that the homes were no longer on

the waterfront. In the early to mid-1940's a large dock was built in the slip near the entrance to the Duwamish River.

In the early 1950's, industries in the north end of Quadrant I included the U.S. Plywood Corporation, the new occupants of the Seattle Export Lumber Company, City Fuel Company, Northwest Glass Company, Glacier Sand and Gravel, and Permanente Cement Company. L.F. Lauck's Inc. was no longer on site. Between Northwest Glass and Glacier Sand and Gravel the land appeared vacant and unused. In the southern half of Quadrant I was an auto wrecking yard. This yard extended eastward along South Michigan Street past First Avenue South to East Marginal Way. There was also a machine shop, the Utility Machine Company, on Site 25.

By the mid-1950's, additional companies on Site 1 included the Longview Fibre Company and the Kaiser Gypsum Company. The Duwamish Fuel Company was south of the slip.

During the 1960's, Quadrant I, north of the slip, remained essentially unchanged. South of the slip most of the houses were gone. New companies in this area included the Gibson Tractor Agency in the early 1960's and Northwest Batteries and Junk House Company in the mid-1960's. There appeared to be a lumber mill with a storage yard along the Duwamish River near Slip #2. Although the large wrecking yard was no longer in this area, there appeared to be a lot of debris on the ground.

The industries in the northern half of Quadrant I appeared essentially unchanged in the 1970's. An area near the Duwamish River between Longview Fibre and Kaiser Gypsum might have been a landfill for unused wallboard (see the Potential Environmental Hazards Section, below EPA-First Avenue Bridge Landfill).

New industries in Site 25 and in the southern half of Site 1 included Udylyte Corporation and Manufacturing Agents Building in the early 1970's and Kaiser Warehouse, Packers Plus, Alaska Shippers, B&G Contractors, and River Rock Distributors in the mid-1970's. Most of these businesses probably shared building space as there were only three or four buildings in this area. The mill was being demolished and large areas in the southern half of Quadrant I appeared abandoned. In the air photos from 1970 it appeared that there were half buried cars in the right of way along First Avenue South.

In the early 1980's, industries in the northern half of Quadrant I included Northwest Glass Manufactures, Longview Fibre Company, Northwest Gypsum Inc., Glacier Sand & Gravel Company, and Kaiser Cement Corporation. By the late 1980's, Northwest Glass Manufactures



was replaced by Ball InCon Inc., Northwest Gypsum by James Hardie Gypsum, and Kaiser Cement by Lonestar Northwest. In the mid-1980's air photos, the landfill at the gypsum plant did not appear as large as in the 1970's.

In the southern portion of Site 1 was a large building that belonged to Lonestar Northwest, two small buildings just south of that, and a medium sized building at the far southern end of Site 1. The mill was completely torn down and Site 25 consisted of empty lots. Some of these lots appeared to be storage for semi-trailers and heavy equipment. Businesses in Quadrant I during the early 1980's included B.F. Goodrich Tire Division Warehouse, Beadex Manufacturing Company, Puget Sound Packing and Crating, Hale's Construction & Associates, and Manufacturing Agents Building. In the mid-1980's, businesses in this area were M&M Terminals Inc., Arctic Gulf Marine Inc., Manufacturing Agents Building, and Cascade Pacific Marine Inc. By the late 1980's, the only businesses in the southern half of Quadrant I were Manufacturing Agents Building, Ray Burgess Company Inc., Smokester Sales Office, and Mobil Oil Janitor Service.

Some of the current businesses in Quadrant I are listed as potentially contaminated sites on state or federal listings. Ecology's LUST list includes Ball Incon, Longview Fibre, and Lonestar Concrete Northwest for leaking underground storage tanks. Ecology's Affected Media and Contaminants Report includes Longview Fibre for contaminated soil from leaking USTs and James Hardie Gypsum for improper and unlawful storage and disposal of asbestos containing waste material and contaminated soils from leaking USTs. The EPA CERCLIS database includes the City of Seattle's First Avenue Bridge Landfill at East Marginal Way and Fidalgo Street for alleged landfill use by Bayside Disposal. This is classified on the CERCLIS database as a NFA site. For more information concerning these sites, refer to the Potential Environmental Hazards Section below.

#### 4.2 Northeast Quadrant II

Quadrant II is the area north of the Duwamish River, east of the railroad tracks that runs along East Marginal Way and First Avenue South, south of South Lucile Street and west of 4th Avenue South, inclusive. Quadrant II includes Sites 2-24 (refer to the Site Map).

Information from the 1920's is limited. Available aerial photographs cover the area between the First Avenue South-East Marginal Way intersection south to the Duwamish River. Air

photos for the area north of the First Avenue South-East Marginal Way intersection were not available. Maps, city directory, and archive information from this time period are sketchy.

In the 1920's most of the area east of First Avenue South was farmland with some single family dwellings. There were industrial businesses in the area between First Avenue South and East Marginal Way, north of their intersection, Sites 2-9. These businesses included a soda bottling works company for most of the 1920's, which became the National Cylinder Gas Company in the late 1920's (Site 2), a used auto parts and repair company, and a tractor repair and welding company, also in the late 1920's. In the southern part of the Quadrant, along the Duwamish River, there were several waterfront homes.

In the 1930's there was a large housing project in Quadrant II, the Duwamish Bend Housing Development, located east of First Avenue South, north of Michigan Street and south of Lucile Street (sites 11-22). From Michigan Street south to the Duwamish River were single family residences (Sites 23 and 24). Sites 2-8, located between First Avenue South and East Marginal Way and north of their intersection, consisted mostly of light industrial-type businesses. A gas station was built just north of this intersection on Site 9 and continues to operate today.

During the 1940's the large housing development on Sites 11-20 was located east of First Avenue South and East Marginal Way, north of Michigan Street and South of Lucile Street. A mixture of residential and businesses existed south of Front Street on Sites 23 and 24. East of First Avenue South, west of East Marginal Way and north of Front Street (Site 21) appeared to be an auto wrecking yard. On Sites 3-5 and on the portion of Site 10 west of First Avenue South, there were industrial-type businesses and a storage yard, possibly an auto wrecking yard.

Quadrant II did not change significantly in the 1950's. The auto wrecking yard that was located in Site 21 expanded south to Michigan Street and included Site 22. The area south of Michigan Street, Sites 23 and 24, was a mixture of residential and businesses. The large housing development was located on Sites 11-20.

By the 1960's, most of Quadrant II consisted of businesses with some storage yards and a few residential areas in the northern portion of the Quadrant. The large housing development was replaced by a wrecking yard on Site 13 and by businesses on the other sites. The area north of Fidalgo Street and east of First Avenue South (Site 10) was residential. Sites 2-8, located between First Avenue South and East Marginal Way and north of their intersection, were

businesses with some storage of heavy equipment. The wrecking yard was no longer in this area. South of this intersection, and between these two streets were businesses with some storage areas, mostly in what appeared to be street right-of-ways (Sites 22, 23 and 24), and an auto repair shop with some auto storage (Site 21A).

Most of Quadrant II consisted of businesses in the 1970's, including the former residential area north of Fidalgo Street and east of First Avenue South. Sites 2-9 remained essentially unchanged. The wrecking yard was gone from Site 13 in the 70's and was replaced by a large warehouse-type structure. The remaining area of Quadrant II consisted of businesses with some heavy equipment and truck parking or storage. The auto repair shop continued to operate on Site 21A.

By the 1980's, Quadrant II was entirely businesses, some with storage yards for heavy equipment and trucks or for used auto parts. There were no wrecking yards in this Quadrant by the mid-1980's although there were auto and truck repair shops with storage areas. For the most part, these businesses were located in Sites 21, 22, and 23.

There are currently no businesses in Quadrant II that are listed as potentially contaminated sites on state or federal listings. For more information concerning potentially contaminated sites not included on governments lists, please refer to the Potential Environmental Hazards Section, Potential Sites.

#### 4.3 Southeast Quadrant III

Quadrant III is the area south of the Duwamish River, east of First Avenue South and north of South Kenyon Street. Quadrant III includes Sites 29, 30, 35-41 (refer to the Site Map).

Information from the 1920's is limited. Available aerial photographs cover the area south from the Duwamish River to South Webster Street, about half of Quadrant III. Air photos from the 1920's for the remaining area in the Quadrant were not available. Maps, city directory, and archive information from this time period are sketchy.

Quadrant III was mostly undeveloped in the 1920's. Site 76, just south of the river and east of First Avenue South was a turning basin in the river. There were a few buildings on Site 30, just south of the turning basin, that might have been part of a farm or a lumber mill. The remainder of Quadrant III appeared to be unused, undeveloped land that had been graded and cleared of vegetation.

Quadrant III remained essentially unchanged in the 1930's. Site 76 was still a turning basin. Site 30 appeared to be part of a farm or a mill with only a few buildings. The remainder of the site was still highly disturbed with signs of regrading although some vegetation had grown back. The South Park Landfill operations south of Quadrant III (south of South Kenyon Street) are apparent in the 1930 aerial photographs.

In the 1940's, Site 76 remained a turning basin. The Polk City Directory indicates that Site 30, which contained many buildings, was a steel drum reconditioning business, the Pacific Drum Company. The remaining area of Quadrant III appeared to be unused farmland or undeveloped, empty land.

By the 1950's, the turning basin in Site 76 was partially filled in and might have been part of a concrete plant, the Seattle Ready Mix Concrete Company. According to the Polk City Directory, there were two companies on Site 30, the Duwamish Welding Company and the Northwest Cooperage Company. The Northwest Cooperage Company continues to operate at this site. The remainder of the Quadrant appeared to be unused farmland or empty, undeveloped land. The South Park Landfill appeared to continue operating south of the Quadrant.

In the early 1960's, the majority of Site 76 was still a turning basin. By the mid-1960's it was completely filled in, but buildings were not apparent. The Polk City Directory lists the Seattle Ready Mix Concrete Company on Site 76 in the 1960's. Throughout the 1960's, Northwest Cooperage Company continued to operate on Site 30. On the north end of Site 36, just south of Site 30, was an auto wrecking yard. The remainder of the Quadrant appears to be undeveloped, unused land which was partially vegetated.

In the 1970's, Quadrant III became more developed. The Seattle Ready Mix Concrete Company and Northwest Cooperage Company were on Sites 29 and 30, respectively. There was a wrecking yard on the north end of Site 36 and an industrial-type building south of the wrecking yard. In the southern end of the Quadrant, there were several buildings along the north side of South Kenyon Street (Sites 38-41) and several buildings and storage areas east of West Marginal Way (Site 37). The remainder of Quadrant III was unused, revegetated land.

In the 1980's, Quadrant III was fully developed. Alaska Marine Lines was on Site 29 and Northwest Cooperage was on Site 30. Site 36 had several industrial-type buildings with a storage yard at the southern end. The wrecking yard was no longer on this site. Site 37 still

had several buildings and storage areas. Sites 38-41 were completely developed. There were buildings on each site. Site 40 was a container storage company and Site 41 was a wrecking yard. Site 35 was vegetated city-owned right of way east of First Avenue South.

Some businesses currently located in Quadrant III are listed as potentially contaminated sites on state or federal listings. Ecology's Affected Media and Contaminants Report includes the Northwest Cooperage Company for improper handling, and the South Park Landfill, just south of Quadrant III. The EPA CERCLIS database also includes these two sites. The EPA investigations of both sites are on-going. For more information concerning these sites, refer to the Potential Environmental Hazards Section, Listed Sites.

#### 4.4 Southwest Quadrant IV

Quadrant IV is the area south of the Duwamish River, west of First Avenue South, east of Detroit Avenue Southwest and north of South Kenyon Street. Quadrant IV includes Sites 26-29 and 31-34 (refer to the Site Map).

Information from the 1920's is limited. Available aerial photographs cover the area south from the Duwamish River to the south end of Site 32, about half of Quadrant IV. Air photos from the 1920's for the remaining area in the Quadrant were not available. Maps, city directory, and archive information from this time period are sketchy.

During the 1920's there was a Boeing Plant on Site 26. Just northwest of Site 26 was a turning basin in the river. A waterway from the turning basin ran south into Sites 26, 27, and 32. The area north of West Marginal Way appeared unused and empty. The area south of West Marginal Way appeared to be farmlands and wetlands.

In the 1930's Quadrant IV appeared essentially unchanged from the 1920's.

During the 1940's there was a compound of nine buildings located on Site 31. The foundations of eight additional buildings previously demolished are apparent in the air photos. There is no historical data identifying these buildings. The remainder of Quadrant IV was essentially unchanged from the 1930's. Boeing continued to be located on Site 26. All other sites appeared to be empty, undeveloped land or unused farmland.

During the 1950's there was an auto wrecking yard on Site 31 and on the southwest end of Site 29. Sites 27 and 28, and the south end of Site 31, were used as parking lots. There was an

industrial-type building on Site 27A. According to the Polk City Directory, it was Century Metal Works Inc. Boeing continued to be located on Site 26. The remainder of Quadrant IV appeared to be unused farmland or empty, undeveloped land.

Quadrant IV in the early 1960's consisted mostly of empty unused land and vegetated street right of ways. The buildings and foundations formerly on Site 31 were no longer apparent. The northern half of Site 34 appeared to be wetlands. Site 33A and 33B had an auto wrecking yard. Site 33C contained one industrial-type building. Site 28 and the northern portion of Site 27 were parking lots for the Boeing Plant on Site 26. Second Avenue South between West Marginal Way and South Kenyon Street was about two-thirds completed.

In the 1970's there appeared to be a lot of debris in the street right of ways in Sites 27, 28, 29 and 31. Sites 26 and 28 appeared essentially unchanged from the 1960's. Site 32 had a large industrial-type building on the far south end and graded, unvegetated land on the northern end. Sites 33A, B and the eastern half of 33E contained wrecking yards. There were industrial-type buildings on Sites 33C and D. Site 34 had wetlands on the northern half and disturbed, revegetated land on the southern half. According to Ecology's Affected Media and Contaminants Report, the southern half of Site 34 was a landfill from 1969 to 1972 (refer to the Potential Environmental Hazards Section, Listed Sites).

In the 1980's, several of the sites in Quadrant IV contained industrial-type buildings. These included Site 26, the former Boeing Plant, currently Terminal 115; Site 27A, Lloyd's Electrical Apparatus Company; Site 32 which included buildings for Familian Northwest, Waste Management Company, and Jones Stevoring. The Laidlaw Company parked their school buses on Site 33A, B, and C. Eastern Supply Company was on Site 33D and an auto wrecking yard was on Site 33E. The southern half of Site 34, which is Ecology's reported location of the First Avenue South Landfill, appeared disturbed and unvegetated, possibly from grading. Site 31 was used by Waste Management Company and others for storage of dumpsters and construction material. Site 29 west of First Avenue South was a storage area for the Alaska Marine Lines.

Some businesses currently located in Quadrant IV are listed as potentially contaminated sites on state or federal listings. Ecology's Affected Media and Contaminants Report includes Bayside Disposal Company on Site 31, Eastern Supply Company (Site 33D), First Avenue South Landfill (Site 34), and Laidlaw Company (Site 33A, B, and C). The EPA CERCLIS database includes Chemical Processors (now located on Site 36, Quadrant III) and Port of Seattle,

Terminal 115 (Site 26). For more information concerning these sites, refer to the Potential Environmental Hazards Section, Listed Sites.

## 5.0 POTENTIAL ENVIRONMENTAL HAZARDS

### 5.1 Listed Sites

#### Quadrant I:

The EPA CERCLIS database identifies one site within Quadrant I. It is the City of Seattle First Avenue Bridge Landfill and is classified as a no further action (NFA) site. According to information from the EPA file, the site was located at East Marginal Way and Fidalgo Street in the vacant lot next to the old Gypsum Company Building. The site was allegedly used as a landfill by Bayside Disposal Company from 1969 to 1972. However, there are no known contacts to verify the existence of this landfill, nor are there any records of hazardous waste disposal at the site. The Washington Department of Ecology (Ecology) also lists a First Avenue Bridge Landfill on their Affected Media and Contaminants Report. The information concerning the site is similar but the Ecology list places the landfill in Quadrant IV (Site 34).

Ecology's Affected Media and Contaminants Report lists two sites within Quadrant I. They are Longview Fibre Company (Site 1A) and James Hardie Gypsum (Site 1B). Both sites are categorized as C1, Confirmed Hazardous Substance Sites.

Longview Fibre Company is also listed on Ecology's Leaking Underground Storage Tank (LUST) list. A review of Ecology's file concerning this site revealed the following information. Three underground storage tanks (USTs) were removed from the Longview Fibre Company's property in 1987. One tank contained 12,000 gallons of Bunker C Oil, and according to Ecology's files evidence of leaks or contamination were not observed during removal. A 7,500 gallon UST was also removed, which stored gasoline, and most recently, diesel fuel. Discolored soil under the tank was noted during removal. The third tank was a 1,000 gallon fuel oil tank that reportedly was leaking. All three excavations were backfilled in 1987 with the intent that further investigations would be performed at a later date.

In 1988 as part of the contamination investigation, three monitoring wells were installed, one in each in of the former tank locations. A product recovery well was also installed in 1988. Recovery was terminated in August of 1988, although a sheen still existed in one of the wells.

In January of 1990 the Total Petroleum Hydrocarbon (TPH) level was still high in monitoring well 3 (MW-3). The other two monitoring wells had little or no TPH. Test pits were used to determine the extent of product distribution on the water table and to recover the residual product around MW-3.

Currently, Longview Fibre has a 5,000-gallon above ground heating oil fuel storage tank. In January of 1991 heating oil was detected on the pavement below the tank and in a previously clean monitoring well near the tank (MW-1). During cleanup of this spill, 4,204 gallons of product were recovered, and according to Ecology's files recovery was ongoing in February.

James Hardie Gypsum (JHG) is located on Site 1B. A gypsum company has been operating on this site since 1954. According to Ecology's files, materials generated from on-site operations were disposed of in a solid waste landfill from 1960-65. Based on a review of aerial photographs, this landfill was located between the northwest corner of the building and the Duwamish River. A remedial investigation performed on the landfill in 1987 indicated that soil levels exceeded the Drinking Water Standards by 10 times for Arsenic, Chromium, Lead, Cadmium and Mercury. Groundwater exceeded the Drinking Water Standards for Chromium, Lead, and Mercury. In August, 1990, James Hardie Gypsum proposed to clean up the landfill. Ecology stated in a letter that JHG must first determine if the contents of the landfill are considered a dangerous waste. The current status of the landfill was not available when the files were reviewed.

In November, 1989, petroleum products were detected in an excavation on-site. According to Ecology's files, possible sources for the petroleum products include migration from Longview Fibre's contaminated soil or leaking fuel lines from James Hardie Gypsum's USTs. In January, 1991, JHG removed three 1,000 gallon heating oil USTs that had been out of service for 5 to 10 years. The files do not indicate the condition of the soil or groundwater after these USTs were removed, or if contamination is present.

Ecology's LUST list identifies three sites with leaking USTs in Quadrant I. They are Ball Incon (Site 1D), Longview Fibre (Site 1A, see above), and Lone Star Concrete Northwest (Site 1C). According to the limited information on the LUST list, Ball Incon removed 5 USTs and closed 4 heating oil USTs in place. There is limited cleanup currently in progress. Longview Fibre's USTs are listed as removed with on-going cleanup. According to the LUST list, the removal of Lone Star Northwest's leaking tanks and cleanup of the associated contamination is still in the planning stages.



Quadrant II:

The EPA CERCLIS database does not identify any sites within Quadrant II.

Ecology's Affected Media and Contaminants Report does not list any sites within Quadrant II. It does list a site, Master Builders, just north of Quadrant II at 64 South Lucile Street (north of Site 10), which is categorized as C1, Confirmed Hazardous Substance Site. According to Ecology's files, Master Builders were cited for unauthorized dumping of petroleum products in the shop/yard area and the adjacent parking area. This contamination had been confirmed by Ecology. The files also state that Ecology suspects contamination from spills and improper handling of halogenated organic compounds and non-chlorinated solvents. Based on the files this information has not yet been confirmed.

Ecology's LUST list does not identify any sites with leaking USTs in Quadrant II.

Quadrant III:

The EPA CERCLIS database identifies one site within Quadrant III and two sites just south of the Quadrant. They are Northwest Cooperage Company Inc. (Site 30) and, south of Quadrant III, King County South Park Landfill and Seattle South Transfer Station. The investigations of the Northwest Cooperage Company and the King County South Park Landfill are on-going. These two sites are also listed on Ecology's Affected Media and Contaminants Report. The EPA has classified the Seattle South Transfer Station as a no further action (NFA) site.

Ecology's LUST list does not identify any sites with leaking USTs in Quadrant III.

Northwest Cooperage Inc., located on Site 30 in Quadrant III, cleans and reconditions steel drums. According to information from the EPA files, the contents of drums brought to Northwest Cooperage include hazardous waste, resins, solvents, petroleum products, food products, paints, adhesives, and pesticides (Tetra Tech, 1988). Drums are considered empty if the contents in the drum are less than one inch. Reportedly, the sludges from the drum are transported to landfills for disposal. The wastewater goes through a primary treatment on-site and then is discharged into the Municipality of Metropolitan Seattle (Metro) sewer system. Flammable drum contents are burned in an on-site incinerator.

Northwest Cooperage has been cited by Puget Sound Air Pollution Control Agency (PSAPCA) and fined by Metro for exceeding permitted discharge. During a Resource Conservation and

Recovery Act (RCRA) compliance evaluation inspection in 1988, it was determined that Northwest Cooperaage released a minimum of 400 gallons of waste oil into the Duwamish Waterway in August of 1973 (Tetra Tech, 1988). Subsequent investigations have confirmed that subsurface soils are contaminated with heavy metals, particularly lead, chromium, and arsenic, and to a lesser extent, with volatile organics and base/neutral/ acid extractable compounds (BNA's) (Ecology and Environment, Inc. [E&E], 1988). Groundwater also appears contaminated with heavy metals, volatile organics, and BNA's. All heavy metals detected were below EPA Water Quality Criteria and all detected organics were less than one part per million (E&E, 1988).

The King County South Park Landfill is located immediately south of Quadrant III. According to a 1988 report by E&E, under contract with the EPA, the former boundaries of the landfill were approximately from South Kenyon Street to South Cloverdale and between First Avenue South and West Marginal Way, for a total of 90 acres. It is possible that at one time the landfill extended north of South Kenyon Street. Ecology reports the landfill size as 40 acres. The landfill was operated from 1946 to 1966. In the early years the site was reportedly a dump for sawdust from a nearby mill. Later it became a municipal dump, a burning dump, and possibly an industrial dump. E&E reports that the Boeing Company may have dumped unknown quantities of water soluble oils and alkaline cleaners in the landfill. Previous studies indicate that soils and surface water are contaminated with heavy metals, volatile organics, and BNAs. There also appears to be significant levels of combustible gas produced in the landfill. According to the "Seattle-King County Abandoned Landfill Toxicity/Hazard Assessment Project" report (1986), any construction within 1,000 feet of the landfill should be protected from the migration of these combustible gasses.

The South Seattle Transfer Station was built on the northern portion of the South Park Landfill. The EPA files on this site indicate that there are no known risks from this transfer station which has been classified as NFA. There are some 55 gallon drums on site which store unmarked waste. These are periodically transferred off-site to a waste facility.

#### Quadrant IV:

The EPA CERCLIS database identifies two sites within Quadrant IV. They are Chemical Processors, Inc. and Port of Seattle, Terminal 115. Both of these sites are classified as NFA.

Ecology's Affected Media and Contaminants Report lists four sites within Quadrant IV. They are Bayside Disposal Company ( Site 32), Laidlaw (Sites 33A, B and C), Eastern Supply Company (Site 33D), and First Avenue Bridge Landfill (Site 34).

Ecology's LUST list does not identify any sites with leaking USTs in Quadrant IV.

Chemical Processors, Inc. had a temporary satellite storage area located at 7500 Detroit Street Southwest (Site 32, far south end). This site was used from September, 1980, to August, 1981, for storing drums containing flammable material while their Georgetown site was under remedial cleanup for fire code violations. Based on EPA files there were no known problems from spills or improper handling of waste at this site. It is classified NFA.

Terminal 115, a 100 acre parcel owned by the Port of Seattle, includes the old Boeing Plant (Site 26) which operated from 1917 to 1969. According to the EPA files, all waste from the Boeing Plant was disposed of off site. A small scale aluminum smelter and metal recycling plant was located in the southwest corner of Terminal 115 (southwest corner of Site 26) prior to 1967. It is not apparent where former sludge ponds were located. It appears that they may be associated with the recyclers at the north end of Terminal 115. These sludge ponds were dredged and filled in 1977. A former landfill was located north of the Boeing Plant in the old turning basin. This landfill may have been used for disposal of dredge material and cement kiln material. All of Terminal 115 is covered with asphalt. Currently Site 26 is used for seafood processing, cold storage, and barge line activities. This site is classified NFA.

Bayside Disposal Company, located towards the northern end of Site 32, is classified by Ecology as C2, Potential Hazardous Substance Site. The site is used as a truck maintenance yard and offices for Bayside Disposal. Ecology is investigating the site for potential contamination from waste oils and solvents used in truck maintenance. Red dye was spilled and cleaned up in April, 1988. In a June, 1988 letter, Ecology acknowledged that the spill was cleaned up and closed the files. Wastes generated on site include petroleum naphtha and antifreeze.

Laidlaw, a school bus transit company located on Sites 33A, B and C, is classified as a C1 site by Ecology. A March, 1991 letter to Laidlaw from Ecology confirmed that contaminants on the site included halogenated organic compounds, petroleum products and non-chlorinated solvents. There is also a tank that is used for waste oil, but information in Ecology's files did

not indicate the size of the tank, nor whether it was above or below ground. Laidlaw generates used motor oil and cleaning solvents during their normal operations.

Eastern Supply Company, located on Site 33D, is a cleaning agents wholesaler for hospitals, drycleaners and restaurants. They have a 5000 gallon above ground tetrachloroethene (PCE) storage tank on a concrete pad with no containment berm. A site assessment hazard study was completed by E&E in January of 1991. Based on this study, Ecology classified this site as C1. Confirmed contaminants in soils include vinyl chloride, PCE, acetone and 2-butane, and in groundwater contaminants include 1,2-dichloroethene (DCE). PCE and vinyl chloride appear to be the greatest problem in the soils. PCE was also found in the soils at Laidlaw, but not in the groundwater. Based on the study that E&E completed Ecology wrote a letter in March, 1991, to Eastern Supply concerning the contamination. Additional information concerning this site was not available.

The location for the First Avenue Bridge Landfill is the 7700 block of Second Avenue Southwest (southern half of Site 34) according to Ecology's Affected Media and Contaminants report. Maps within Ecology's file, however, give conflicting locations. The other location mentioned in the files is East Marginal Way and Fidalgo Street, the location given by EPA for the First Avenue Bridge Landfill. Based on Ecology's files, the landfill was operated from 1969 to 1972. A letter from PASPCA stated that the landfill was used for improper and unlawful storage and disposal of asbestos containing waste materials. There was no verification of this information in the file.

## 5.2 Potential Sites

# 6.0 CONSTRUCTION AND OPERATIONAL IMPACTS

## 6.1 Build Alternative 1. Bascule Bridge

## 6.2 Build Alternative 2. Fixed Bridge

7.0 POTENTIAL MIGRATION REFERENCES

SHANNON & WILSON, INC.

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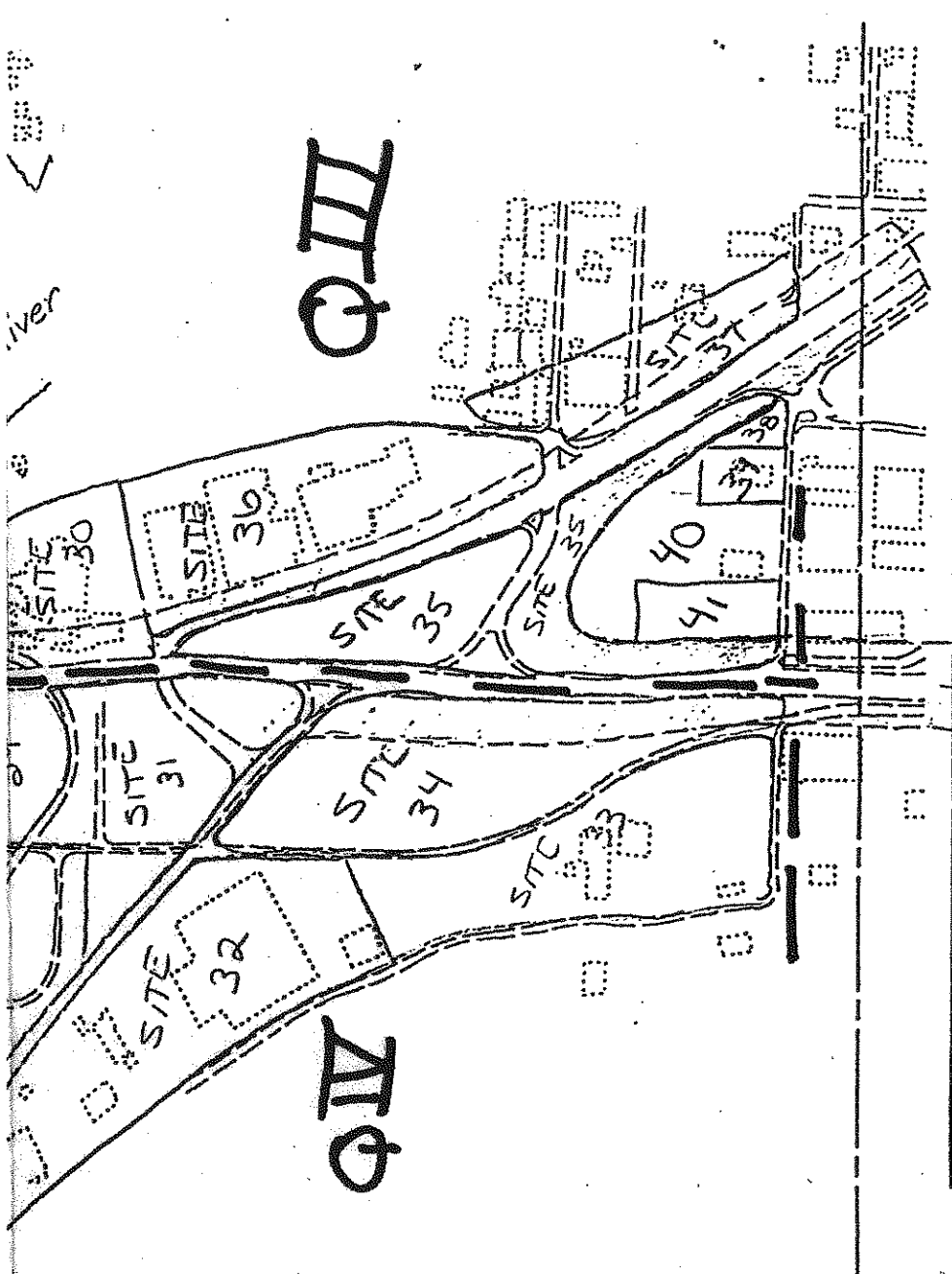
Ann M. Youberg  
Geologist

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Donald K. Balmer, P.G.  
Associate

AMY:BAC:DKB/amy

8.0 REFERENCES



FIRST AVENUE SOUTH BRIDGE  
 APPROXIMATE LOCATIONS OF SITES WITHIN QUADRANTS  
 DRAFT

**DRAFT**