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1239 - FRONT LP PROP. REPORT
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ZIDELL PHASE 1 ENVIRO. AGREE. PRELIM.

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ZIDELL PHASE I ENVIRONMENTAL ASSESSMENT

PRELIMINARY REPORT

ZIDELL PHASE I ENVIRONMENTAL ASSESSMENT

PRELIMINARY REPORT

Attorney Client Work Product

Prepared for

STOEL RIVES BOLEY JONES & GREY

July 31, 1989

Prepared by

SWEET-EDWARDS/EMCON, INC.
7504 S.W. Bridgeport Rd.
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Project No. U4101.01

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1.0 INTRODUCTION

Sweet-Edwards/EMCON, Inc. (SE/E) has been retained by the law firm of Stoel Rives Boley Jones & Gray (Stoel Rives) to perform a Phase I Environmental Assessment (Phase I Assessment) on property owned by Emery Zidell (Zidell), see Figure 1. The site (the Property), which may be leased to Lonestar Northwest, occupies land that lies between the Tube Forging of America (TFA) facility and the Willamette River, see Figure 2.

The purpose of the Phase I Assessment is to evaluate past activities on the site or activities on adjacent properties that may have resulted in soil and/or ground water contamination.

This report is preliminary, summarizing the Phase I information developed to date. Recommendations for a Phase II field investigation are included. These recommendations include reconnaissance soil and ground water sampling and analysis.

2.0 SITE DESCRIPTION

The site is located in Sections 18 and 19, Township 1N, Range 1E, Willamette Meridian, at approximately 5200 N.W. Front Avenue in Portland, Oregon (Figure 1) (the Property). The Property is a portion of a larger parcel of property owned by Zidell (the "Zidell Property"), see Figure 2. The Property lies between a portion of the Zidell Property leased to TFA and the Willamette River (Figure 2). The Property is bounded to the east by a portion of the Zidell Property and leased to Tricon Forest Products, Inc. (Tricon). McCall Oil and Chemical Corporation (McCall) occupies property to the west of the site. The Property lease boundary (Figure 2) is estimated from available information supplied by Stoel Rives.

Much of the Property is underlain by fill, which has extended the usable property toward the Willamette River. Portions of the Property are flat, except where differential placement of fill creates elevation changes. Elevations at the Property vary from approximately 37 to 55 feet (City of Portland datum, or 35.62 to 53.62 feet m.s.l.).

2.1 SITE RECONNAISSANCE

On July 6, 1989, SE/E personnel performed a reconnaissance of the Property. The purpose of this reconnaissance was to physically view the Property for signs of contamination; observe current uses on the Property; and to note uses of adjoining property. A second site reconnaissance was conducted on July 14, 1989. Observations made during the site reconnaissance are summarized on Table 1 and shown on Figure 2.

The following is a discussion of some site features noted during SE/E's site reconnaissance.

Sand Blast Pile/Shed (Feature 1). TFA uses a small shed as a sand blasting area. Sand blasting reportedly occurs on a limited basis. The sand blast shed is not located on the Property, but accumulated sand blast material extends from the TFA Facility onto the Property. A small area of rusty metallic debris was noted adjacent to the sandblast residue.

Storage/Sand Blast Shed (Feature 2). Based on the presence of no smoking signs on walls of the shed, this area may have been used to store petroleum-related products. No evidence of petroleum-related products was observed. There is also residual sand blasting material on the floor of the shed. What appears to be air lines are attached to the wall of the shed.

Concrete Slab With Stored Drums (Feature 3). About 50 drums are on pallets. The pallets are stored on a thick concrete slab (12+ inches) from what appears to have been a building. Most of the drums contain hardened resin. Numerous drums appear to have leaked or spilled.

Petroleum-Stained Soil; Drums With Hardened Resin; Spilled Graphite; Vertical Concrete Tile (Feature 4). A patch of petroleum-stained soil was noted in the area shown on Figure 2. The staining appears to be the result of a heavy oil. The stained soil does not have a volatile odor, but does have a mild petroleum odor. The stained area covers approximately 20 feet x 20 feet.

Several (5) overturned drums were also noted lying on the ground in the same general area. Several of the drums contained hardened resin, which had spilled and formed small piles. One drum also appeared to have contained graphite from TFA's lubrication process, which had also spilled and formed a small pile in the area. (Graphite MSDS supplied by Stoel Rives is attached.)

Several paint racks were being stored in this area. A vertical concrete tile, possibly a former storm drain catch basin, was noted beneath one of the racks. The tile is constructed of 1-1/2 to 2-foot diameter concrete tile. A metal cover is partially covering the top. A stone was dropped into the sump to estimate the depth and to check for the presence of free liquid. The estimated depth is 8 to 15 feet. There was no liquid in the sump.

Outfall Pipe (Feature 6). An outfall pipe was observed on the river shoreline at the approximate boundary between McCall and the property. There was no observable discharge from the pipe at the time of SE/E's visit. The pipe appears to be a storm water outfall.

McCall Oil Methanol Above-Ground Tank (Feature 7). McCall Oil has what is reported to be a methanol storage tank which is located on the property. The tank is above-ground; however, it is covered with soil and an asphalt emulsion.

Slag (Feature 8). Slag from Oregon Steel's former operation at the Zidell Property was noted in many areas of the property. The slag is a broken, vesicular, rubbly material, or in some cases, is composed of large rounded blocks where it appears to have hardened in a container. The slag in many cases is mixed with demolition debris and/or earthen material (soil and rock).

Demolition/Construction Debris (Feature 9). Demolition/construction debris observed on the property consists of large to small blocks of concrete mixed with occasional wood pieces, rebar, and asphalt. In some areas, the surface of the demolition fill is very uneven and rough.

Other areas of oily residue and process residues were observed adjacent to the proposed boundary with TFA. In addition, at

least 2 areas of oily residue were noted along the Tricon property. These areas appear to be on the Property.

3.0 SITE HISTORY

To evaluate the Property's history, SE/E has relied on the following sources of information:

- Review of historical occupants.
- Title records.
- Historic aerial photographs.
- Interviews with Zidell personnel.

SAFE Research, Inc. (SAFE) compiled a history of former occupants at the Zidell Property and on adjoining properties. The occupants for addresses ranging from 4900 N.W. Front Avenue and 5700 N.W. Front Avenue were reviewed.

Prior to 1940, there were no addresses reported within this range. The historical occupancy records indicate that Oregon Electric Steel Mills operated on the Zidell property from 1943 to 1944. By 1950, Oregon Electric Steel had become Oregon Steel Mills, Inc. (Oregon Steel), which operated on the Zidell Property from at least 1952 to 1975. By 1980, TFA had begun operations on the Zidell Property. The principle operations of these firms appear to have been on portions of Zidell Property not included in the Property; however, the Property has been used for peripheral activities by Oregon Steel and TFA.

A review of an aerial photograph from 1940 does not indicate the presence of any structures on the Property. The Property appears to be sparsely vegetated and undeveloped, with the exception of what appears to be several dirt roads on the Property. The photograph shows numerous log rafts being moored on the Willamette River adjacent to the property. Much of the Property was still under water at the time that photograph is taken.

Zidell employees were interviewed for additional information related to Zidell's use of the Property and operations at TFA. SE/E interviewed Tim Pope, Zidell's Safety Superintendent, and Larry Aldrin, a TFA millwright.

TFA reportedly manufactures carbon steel pipe fittings. Pipe is delivered and remolded to specification by TFA. During molding, the pipe is lubricated with graphite. Molasses is reportedly added to ensure uniform adherence. Pipe is painted with a water-based paint. All pipe cutting is reportedly performed dry, with carbide-tipped cutters. Cutting oils and water-soluble coolings oils are reportedly not used and have not been used by TFA in the past.

Hydraulic presses are used to remold pipe. The hydraulic oil is used in the condition in which it is delivered without additives. The hydraulic oil is stored in steel reservoirs inside buildings. There reportedly has been no known use of PCBs on the property or in plant processes.

Wastes generated by TFA reportedly include spent solvents from parts washing operations, sludge accumulated during parts washing, and waste hydraulic oil. The parts washing operation is part of a fully enclosed system. Waste solvent and oil is reportedly placed in a steel, above-ground storage tank on the TFA property. These are picked up periodically by Inman Oil Company. TFA does not appear on any of DEQ's lists of hazardous waste generators.

There are reportedly two storage tanks being used on the TFA property. One is an above-ground propane storage tank. A second is an underground waste oil tank. A 1980 map of the TFA facility indicated the presence of other underground storage tanks on the portion of the Zidell Property leased by TFA. Messrs. Pope and Aldrin were unaware of the presence of these tanks. Messrs. Pope

and Aldrin were also unaware of the use or purpose of four above-ground storage tanks that were identified on the Property in a 1980 aerial photograph.

Prior to TFA occupying the Zidell Property, Oregon Steel had reportedly removed all equipment from inside the buildings on the Zidell Property. TFA reportedly excavated extensively inside the existing buildings and backfilled with engineered fill. It is not known where the excavated material was disposed of.

Messrs. Pope and Aldrin indicated that TFA's operations on the Property have been extremely limited. A small portion of the Property along the boundary between the Property and the TFA facility has been used for storing equipment. TFA is reportedly storing excess drums, which contained water-based paint and steel shot used for cleaning pipe, on a concrete slab near the craneway on the Property.

Two 20,000-gallon underground storage tanks (USTs), used for storage of bunker C oil, are also being stored on the Property (Figure 2). These tanks were reportedly removed from the ground near the general office and were not used by Zidell. These tanks reportedly have some oil remaining in them.

4.0 REVIEW OF DEQ AND CORPS FILES

The following information was noted in SE/E's review of DEQ files:

- Reference to release from underground storage tanks containing bunker C oil on the Zidell Property leased to TFA.
- McCall Oil and Chemical Company reported a spill on September 25, 1988, of two barrels of asphalt at their dock.
- No information available for Tricon.
- No information available of Oregon Steel at 5200 N.W. Front Avenue.

DEQ files contained 1) a notice filed by Zidell of the above-referenced bunker C release; 2) a completed DEQ LUST report; 3) a Report of Findings prepared for TFA by Century West Engineering Corporation (Century West) dated April 20, 1989; and 4) a letter from DEQ (May 15, 1989) to Mr. Steve Shain of Zidell regarding the UST investigation.

The DEQ letter indicates that remedial actions proposed by Zidell "are acceptable to DEQ if Zidell 1) provides further documentation of vertical contamination extent and 2) either documents that contaminants have not migrated onto property owned by McCall or if contaminants are present on McCall property, the proposed remedial action is acceptable to McCall." The Century West report also indicates the presence of low levels of chlorinated volatile organic compounds (VOCs) in soil and ground water samples. These contaminants are not thought by Century West or DEQ to have originated from the bunker C USTs. The source of VOC contamination has not been documented. However, given that TFA's use of chlorinated solvents is limited and the high intensity of chemical storage and manufacturing in the general area, an offsite source of chlorinated VOCs is possible.

Note, laboratory data sheets and boring logs were not available for SE/E's review.

SE/E has obtained the results of U.S. Army Corps of Engineers (Corps) in-stream (mid-channel) sediment sampling. These data have not been reviewed in detail. The Corps data will be compared to the results from near shore sampling recommended for Phase II in evaluating for potential impacts from slag disposal and/or other activities.

5.0 REVIEW OF AERIAL PHOTOGRAPHS

SE/E has obtained and reviewed historic aerial photographs for the site. Photos, and their scale, from the following years have been reviewed.

- 1940, 1" = 900'
- 1948, 1" = 1,500'
- 1957, 1" = 1,800'
- 1961, 1" = 1,800'
- 1963, 1" = 900'
- 1969, 1" = 1,000'
- 1969, 1" = 1,000'
- 1972, 1" = 3,000'
- 1974, 1" = 2,000'
- 1974, 1" = 2,000'
- 1975, 1" = 1,000'
- 1980, 1" = 1,000'
- 1981, 1" = 4,000'
- 1983, 1" = 4,000'
- 1984, 1" = 2,000'
- 1987, 1" = 1,000'
- 1988, 1" = 100'

In addition, SE/E reviewed infrared (IR) photographs taken in 1983 and 1986.

The 1948 aerial photograph shows the Willamette River bank at approximately the current location of the site/TFA property line. Oregon Electric Steel had apparently begun operations at the site and had constructed a building, approximately 900 feet long, parallel to the Willamette River. Several white patches of material are noticeable, extending from the building towards the river. The pump station on the river had not been installed at this time.

By 1957, Oregon Steel had begun to fill, presumably with slag, submerged portions of the Property. The fill extends into the river as a narrow dike, at what is now the approximate center of the site.

Filling by Oregon Steel appears to have continued through 1969, leaving a portion of the Property still submerged. By 1969, the Property had been filled to its current extent. The center of the Property was lower than the present grade and a pond was present in photographs from 1969 to 1983.

The 1983 IR photograph shows half of the pond as white. The other half is blue. It is not known if the pond is white because filling, or if warmer liquid was being placed in the pond, yielding a white appearance in the IR photograph.

The 1980 photograph shows four cylindrical above-ground tanks on the Property. These tanks appeared to be about 20 feet high and 10 feet in diameter. The tanks were no longer present in the photographs from 1983.

Zidell employees did not have any information concerning the above-ground tanks. Steven L. Shain, property manager for Zidell, thought that the pond had been filled with construction debris brought to the Property by Hatch Construction.

6.0 DISCUSSION OF OREGON STEEL SLAG

To evaluate the potential environmental impacts from Oregon Steel's slag, a former employee of Gilmore Steel, formerly Oregon Steel, Tom McCue, was contacted. It should be noted that Mr. McCue is no longer employed by Oregon Steel and is not an official spokesperson for Oregon Steel. The information provided by Mr. McCue should be considered preliminary and unofficial. Mr. McCue recommended contacting Dick Bird at Gilmore Steel's Rivergate Mill for additional information. Mr. Bird has reportedly been with Gilmore Steel for 25 years, either as the head of engineering or maintenance.

Mr. McCue worked at Oregon Steel's Front Avenue rolling mill from 1969 to 1973 as a chemist. Mr. McCue indicated that the rolling mill closed in 1974. Mr. McCue later was employed by Gilmore Steel from 1977 to 1986 in their environmental section.

Mr. McCue indicated that the Gilmore facility was built in the late 1940's and melted scrap iron. The facility's raw material was reportedly always scrap iron, except from 1969 to the late 1970's when some iron ore pellets were also melted.

During melting, lime rock was added to the scrap iron and melted with it, creating CO_2 bubbles which passed through the molten steel. The CO_2 complexed with impurities in the steel and would form a froth on the surface. When skimmed off, the froth hardens and becomes slag. The slag is a silicone complex, which reportedly tightly binds metals in a silica matrix. It is reportedly uncommon to find heavy metals leaching from this type of slag. The slag reportedly has a high pH, which tends further to reduce the potential for heavy metal leaching. Slag may contain some fluoride, the result of fluorospar having been added to increase the fluidity of the slag; however, it is thought that the fluoride would probably also be bound in the silica matrix.

The rolling operation at the Oregon Steel mill was reportedly a mild steel operation, and it is uncommon to find chromium associated with this type of operation. Emissions reportedly may contain lead or cadmium; however, if the Oregon Steel operation had emission control equipment, it would have only been in use for a short period of time in the 1970's. Therefore, it is unlikely that there were large quantities of recovered flue material that would have been disposed of in the site area. Emissions may have resulted in some air fall accumulation.

The slag reportedly contains trace quantities of steel, which may result in more difficult drilling conditions.

7.0 PRELIMINARY PHASE II RECOMMENDATIONS

Based on the available information developed to date in the Phase I Assessment, SE/E makes the following recommendations:

- Additional discussions with past site tenants (i.e., Oregon Steel);
- Remove all drums, former underground storage tanks temporarily stored on the Property, and miscellaneous spilled material from the Property (e.g., hardened resin, graphite). Arrange for proper disposal. Prior to removing the former underground storage tanks, the contents should be properly removed and the tanks cleaned;
- Characterize soils with visible petroleum hydrocarbon contamination or remove soil with visible hydrocarbon contamination and dispose of properly;
- Collect 5 samples at selected locations to verify adequate removal of surficial contaminants. Identified areas of potential concern include:
  - sand blast residue adjacent to sand blasting shed,
  - rusty metallic rich (slag?) material adjacent to sand blast area,
  - powdery residue adjacent to shed marked "No Smoking",
  - oily residue near area of vertical concrete tile (sump?),
  - oily residue adjacent to concrete slab where drummed material is located,
  - slag and an ashy material adjacent to drum storage slab, and
  - isolated oily areas along site perimeter;
- Analyze for total priority pollutant metals, and petroleum hydrocarbons. Collect a sediment sample from the bottom of the sump and analyze for the same constituents as noted for surficial soil samples. In addition, samples with visible oily contamination should be analyzed for PCB;
- Analyze a composite sample of slag material for EP Toxicity metals. The sample should be collected from four randomly

selected locations and analyzed by the laboratory on an as-received basis;

- Advance seven test borings at the site and document the nature of the fill. Collect discrete samples of the fill at 5-foot intervals and analyze a composite sample from each boring for total priority pollutant metals, and petroleum hydrocarbons. Analyze two samples for EP Toxicity metals for purposes of comparison with total metals analysis;

- Collect a reconnaissance ground water sample from each boring. Ground water from one boring will be tested for priority pollutant parameters (volatiles, semi-volatiles, pesticides, PCBs, metals, cyanide, and phenols), total petroleum hydrocarbons, and alkalinity. Ground water from the other six borings will be tested for a reduced suite of parameters, including: priority pollutant metals, volatile organic compounds, total petroleum hydrocarbons, and alkalinity. The purpose of the organic analysis is to evaluate for potential impacts from past uses on the property, as well as to evaluate for potential impacts from nearby land use. Alkalinity will be used to evaluate for potential water quality impacts from slag filling.

- Evaluate Phase I and Phase II data and prepare a final report documenting procedures and summarizing findings.

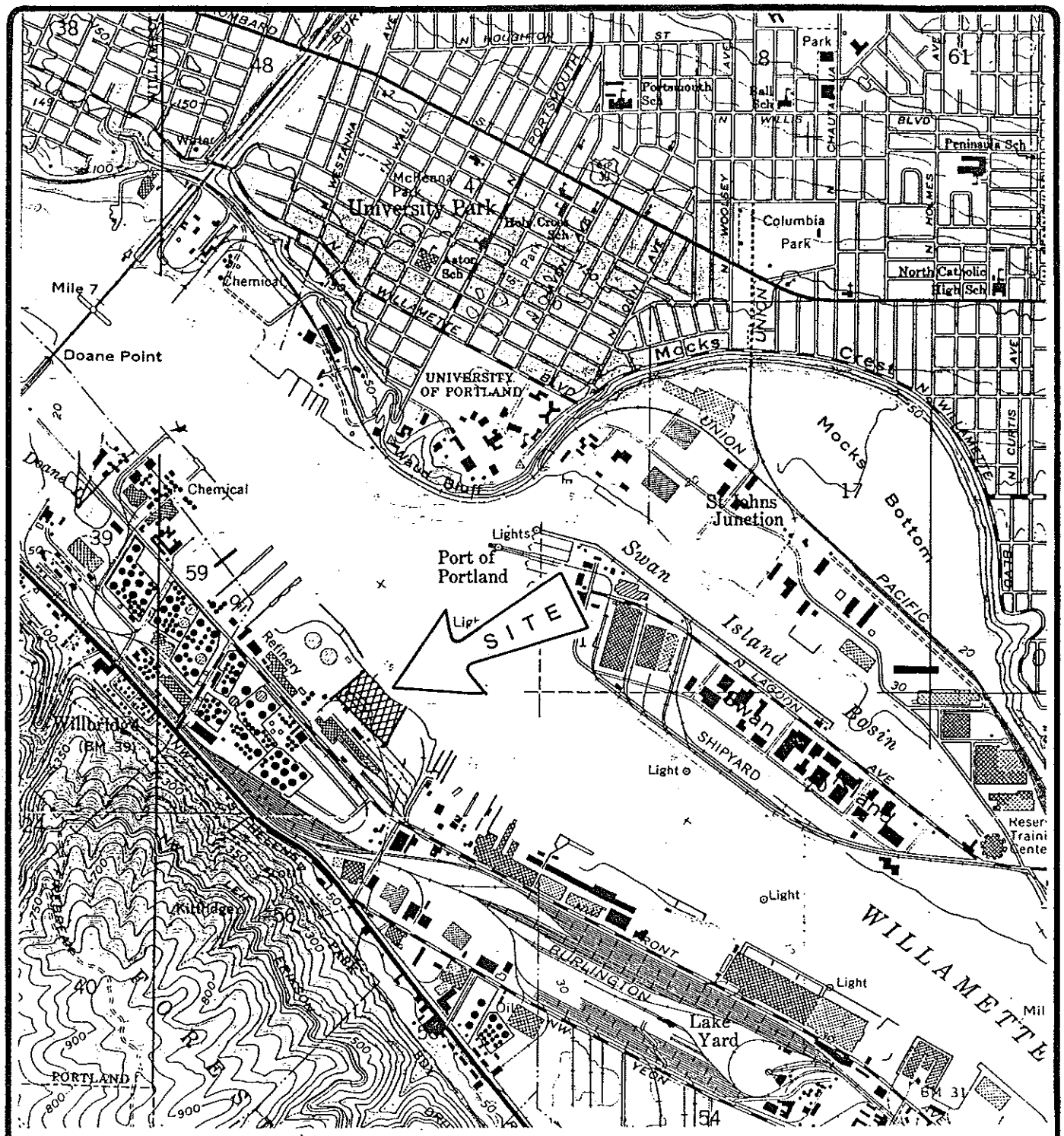
TABLE 1

ZIDELL PROPERTY
ENVIRONMENTAL SURVEY
SUMMARY OF SITE RECONNAISSANCE

Feature*
1. Sand Blast Pile/Shed
2. Petroleum Storage?/Sand Blast Shed
3. Concrete Slab With Stored Drums
4. Petroleum Stained Soil; Drums With Hardened Resin; Spilled Graphite; Sump
5. Removed Bunker C Underground Storage Tanks Resting on the Ground Surface (Removed From Zidell Property)
6. Outfall Pipe
7. McCall Oil Methanol Above-Ground Tank
8. Slag
9. Demolition/Construction Debris

NOTE: See figure for reference to specific area.

ZIDEL-T1.727 TS
U4101.01



Base map from U.S.G.S. topographic quadrangle Portland, Oregon, 1977.

N

0 2000 4000

Scale in Feet

Sweet-Edwards EMCON

ZIDELL ENVIRONMENTAL SURVEY

Site Location Map

Figure 1

DATE 7-10-89
DWN. mmm
APPR.
REVIS.
PROJECT NO. U4101.01

EXHIBIT A

PHASE II ENVIRONMENTAL SITE ASSESSMENT

ZIDELL PROPERTY

PROPOSED SCOPE OF WORK

AND COST ESTIMATE

Prepared for

STOEL RIVES BOLEY JONES & GREY

September 5, 1989

Prepared by

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Project No. U4101.01

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2. Estimated Budget
3. Proposed Testing Program

FIGURE(S)
(following text)

1. Proposed Boring and Surface Samples Locations

APPENDIX(S)
(following text)

A. Laboratory Test Parameters

1.0 INTRODUCTION

Sweet-Edwards/EMCON, Inc. (SE/E) has prepared this proposal for a Phase II environmental assessment for the Zidell property located between the Tube Forging of America facility and the Willamette River at approximately 5200 N.W. Front Avenue. The site location is shown on Figure 1 in the Phase I report. The proposed scope of work and projected cost estimate were prepared for Stoel Rives Boley Jones & Grey (Stoel Rives).

This proposed scope of work is based on the results presented in SE/E's Preliminary Phase I Environmental Site Assessment Report (July 11, 1989) and a site visit and discussions with Mr. J. Mark Morford (Stoel Rives), Mr. James C. Brown (Bogle & Gates), Mr. Steven R. Shain (Zidell), and Mr. Tim Pope (Zidell) on July 13 and 14, 1989.

2.0 SCOPE OF WORK

The scope of work includes sampling and testing the site fill, areas of potential surface contamination, and shallow ground water beneath the Property. Seven boreholes are proposed. Due to the diverse nature of fill material observed during the site visit, an air rotary drill will be used to advance the borings.

The scope of work includes the following tasks:

- Collect surface soil samples from 5 locations where minor stained soil and small quantities of hardened resin was observed to have been spilled. These proposed locations are shown on Figure 1. Collect a sediment sample from the vertical concrete tile observed in area 4 (Figure 2, report). The concrete tile is possibly a former storm drain catch basin. Test the soil sample from S-1 (in front of concrete slab) for priority pollutant analyses. Test the other samples for total priority pollutant metals and hydrocarbons. Soil from selected locations where oily stained soil was observed will also be tested for PCBs.

- Composite one slag sample, collected from four randomly selected surface locations on the Property. Test slag for EP Toxicity metals.

- Drill seven test borings into the permanent water table at the site (estimated maximum depth of 40 feet). Collect discrete samples of the fill, from the drill cuttings, at 5-foot intervals. Analyze a composite soil sample from each boring for total priority pollutant metals, and petroleum hydrocarbons. Analyze two duplicate samples for EP Toxicity metals for purposes of comparison with total metals analysis.

- Collect a reconnaissance ground water sample from each boring. Three borings (B-1, B-2, and B-4) will be tested for priority pollutant compounds, total petroleum hydrocarbons, and alkalinity. Ground water from the other four borings will be tested for priority pollutant metals, volatile organic compounds, total petroleum hydrocarbons, and alkalinity.

- Evaluate the Phase I and Phase II data and prepare a final report documenting procedures and summarizing the findings.

Specified chemistry tests are listed on Table 1 and 3 and included in Appendix A.

3.0 SAMPLING PLAN

The proposed sampling plan is based on the results of the Phase I Environmental Survey and on a site visit on July 14, 1989. Proposed boring locations are based on: 1) the assumption that the general ground water flow direction is toward the Willamette River (NNE), 2) surface features observed during the site visit, 3) the available information pertaining to the Property's history, and 4) surrounding land use. Surface soil samples will be from specific areas of potential contamination identified during Phase I. Final sampling locations will be determined in the field.

3.1 BORINGS

Soil (fill) and ground water will be collected from seven borings. Proposed locations of which are shown on Figure 1. The purpose of the borings is to:

- examine and describe the fill/soil at the site at each boring location;
- collect a reconnaissance ground water sample from each location for chemical analysis; and
- collect a composited soil sample from each boring for chemical analysis.

The rationale for each boring location is discussed below.

3.1.1 Boring B-1

This boring will be located in the assumed hydraulic downgradient direction of the two excavated bunker "C" tanks adjacent to McCall property. A reconnaissance ground water sample from this location will allow the quality of water to be evaluated as it moves onto the property from TFA and McCall.

Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Soil

DATE COLLECTED: / /
DATE RECEIVED: / /
DATE EXTRACTED: / /
DATE ANALYZED: / /

Volatile Organics Analysis
EPA Method 8010 (Low Level Method)
mg/Kg (ppm)

Sample Name: Lab Code:	Estimated MDL
Chloromethane	0.005
Vinyl Chloride	0.005
Bromomethane	0.005
Chloroethane	0.005
1,1-Dichloroethene	0.005
Methylene Chloride	0.01
Trans 1,2-Dichloroethene	0.005
Cis 1,2-Dichloroethene	0.005
1,1-Dichloroethane	0.005
Chloroform	0.005
1,1,1-Trichloroethane	0.005
Carbon Tetrachloride	0.005
Benzene	0.005
1,2-Dichloroethane	0.005
Trichloroethene	0.005
1,2-Dichloropropane	0.005
Bromodichloromethane	0.005
2-Chloroethylvinyl ether	0.05
Trans 1,3-Dichloropropene	0.005
Toluene	0.005
Cis 1,3-Dichloropropene	0.005
1,1,2-Trichloroethane	0.005
Tetrachloroethene	0.005
Dibromochloromethane	0.005
Chlorobenzene	0.005
Ethylbenzene	0.005
Bromoform	0.005
1,1,2,2-Tetrachloroethane	0.005
1,3 Dichlorobenzene	0.005
1,4 Dichlorobenzene	0.005
1,2 Dichlorobenzene	0.005
Total Xylenes	0.010

MDL means Method Detection Limit

Approved by_____ Date_____

CAS

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Water

DATE COLLECTED: / /
DATE RECEIVED: / /
DATE EXTRACTED: / /
DATE ANALYZED: / /

Hydrocarbon Scan
EPA Methods 3510/Modified 8015
µg/L (ppb)

Sample Name	Lab Code	Estimated MDL	Diesel	Gasoline	Kerosene
		100			

ND means None Detected
MDL means Method Detection Limit

Approved by_____ Date_____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Soil

DATE COLLECTED: / /
DATE RECEIVED: / /
DATE EXTRACTED: / /
DATE ANALYZED: / /

Hydrocarbon Scan
EPA Methods 3550/Modified 8015
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	Estimated MDL	Diesel	Gasoline	Kerosene
		5			

ND means None Detected
MDL means Method Detection Limit

Approved by_____ Date_____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Soil

DATE COLLECTED: / /
DATE RECEIVED: / /
WORK ORDER #:

Total Metals
mg/Kg
As Received Basis

	Method	MDL
Aluminum	6010	10
Antimony	6010	10
Arsenic	7060	1
Barium	6010	2
Beryllium	6010	1
Boron	6010	2
Cadmium	6010	1
Calcium	6010	10
Chromium	6010	1
Cobalt	6010	2
Copper	6010	2
Iron	6010	4
Lead	6010	6
Magnesium	6010	2
Manganese	6010	2
Mercury	7471	0.2
Molybdenum	6010	4
Nickel	6010	4
Potassium	6010	80
Selenium	7740	1
Silver	6010	2
Sodium	6010	10
Thallium	7841	1
Tin	6010	2
Vanadium	6010	2
Zinc	6010	2
Solids, Total (%)	160.3	-

ND means None Detected at or above MRL
MDL means Method Detection Limit

Approved by_____ Date_____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Water

DATE COLLECTED: / /
DATE RECEIVED: / /
WORK ORDER #:

Total Metals
mg/L

	Method	MDL
Aluminum	200.7	0.05
Antimony	200.7	0.05
Arsenic	206.2	0.005
Barium	200.7	0.01
Beryllium	200.7	0.005
Boron	200.7	0.01
Cadmium	200.7	0.002
Calcium	200.7	0.05
Chromium	200.7	0.005
Cobalt	200.7	0.01
Copper	200.7	0.01
Iron	200.7	0.020
Lead	239.2	0.002
Magnesium	200.7	0.01
Manganese	200.7	0.01
Mercury	245.1	0.0005
Molybdenum	200.7	0.01
Nickel	200.7	0.02
Potassium	200.7	0.4
Selenium	270.2	0.005
Silver	200.7	0.01
Sodium	200.7	0.05
Thallium	279.1	0.005
Tin	200.7	0.01
Vanadium	200.7	0.01
Zinc	200.7	0.01

ND means None Detected at or above MDL
MDL means Method Detection Limit

Approved by_____ Date_____

COLUMBIA ANALYTICAL SERVICES, INC. CAS

Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Water

DATE RECEIVED: / /
DATE EXTRACTED: / /
DATE ANALYZED: / /
WORK ORDER #:

Pesticides/PCBs
EPA Method 3510/8080
µg/L (ppb)

Compound	Estimated MDL
Pesticides:	
Alpha-BHC	0.05
Gamma-BHC (Lindane)	0.05
Beta-BHC	0.05
Heptachlor	0.05
Delta-BHC	0.05
Aldrin	0.05
Heptachlor Epoxide	0.05
Alpha - Endosulfan	0.05
4,4'-DDE	0.1
Dieldrin	0.1
Endrin	0.1
4,4'-DDD	0.1
Beta - Endosulfan	0.1
4,4'-DDT	0.1
Endrin Aldehyde	0.1
Endosulfan Sulfate	0.1
Methoxychlor	0.5
Toxaphene	1
Chlordane	0.5
PCBs:	
Arochlor 1016	0.5
1221	0.5
1232	0.5
1242	0.5
1248	0.5
1254	0.5
1260	0.5

MDL means Method Detection Limit

Approved by:_____ Date:_____

COLUMBIA ANALYTICAL SERVICES, INC. CAS

Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Soil

DATE RECEIVED: / /
DATE EXTRACTED: / /
DATE ANALYZED: / /
WORK ORDER #:

Pesticides/PCBs
EPA Method 3540/8080
mg/Kg (ppm)

Compound	Estimated MDL
Pesticides:	
Alpha-BHC	0.008
Gamma-BHC (Lindane)	0.008
Beta-BHC	0.008
Heptachlor	0.008
Delta-BHC	0.008
Aldrin	0.008
Heptachlor Epoxide	0.008
Alpha - Endosulfan	0.008
4,4'-DDE	0.015
Dieldrin	0.015
Endrin	0.015
4,4'-DDD	0.015
Beta - Endosulfan	0.015
4,4'-DDT	0.015
Endrin Aldehyde	0.015
Endosulfan Sulfate	0.015
Methoxychlor	0.08
Toxaphene	0.2
Chlordane	0.08
PCBs:	
Arochlor 1016	0.08
1221	0.08
1232	0.08
1242	0.08
1248	0.08
1254	0.08
1260	0.08

MDL means Method Detection Limit

Approved by:_____ Date:_____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Soil

DATE COLLECTED: / /
DATE RECEIVED: / /
DATE ANALYZED: / /

Purgeable Aromatic Volatile Compounds
EPA Method 8020 (Lower Level)
mg/Kg (ppm)

	Estimated MDL
Benzene	0.005
Toluene	0.005
Chlorobenzene	0.005
Ethyl Benzene	0.005
Total Xylenes	0.010
1,3-Dichlorobenzene	0.005
1,4-Dichlorobenzene	0.005
1,2-Dichlorobenzene	0.005

Approved by_____ Date_____

3.1.2 Boring B-2

This boring will be located adjacent to an observed vertical concrete tile, whose former use has not been established. The tile is estimated to be 8-10 feet deep. The location was selected to allow an evaluation of the soil and ground water quality adjacent to this tile. This location will also allow ground water to be evaluated as it moves onto the Property from the TFA lease property.

3.1.3 Boring B-3

This boring will be located east of the sand blast area, toward the boundary between Tricon and the Property. The quality of ground water migrating onto the Property from the TFA lease property, and possibly Tricon, can also be evaluated.

3.1.4 Boring B-4

Boring B-4 will be located in the former area of ponding on the Property (as identified in historic aerial photographs). Information from this boring will be compared to other borings to assess overall similarities or differences in the nature of fill on the Property. Potential impacts to the ground water nearer the center of the Property can also be evaluated.

3.1.5 Boring B-5

The exact location for Boring B-5 will depend on drill accessibility. This location is adjacent to the McCall methanol tank, situated along the common boundary between the two properties. Access from the Project is limited. The boring will be accessed from McCall property, if it is possible. The boring will allow impacts to the soil and ground water near the methanol tank and the common property boundary to be evaluated.

3.1.6 Boring B-6

This boring will be located on the surcharge area toward the west side of the property near the Willamette River. The nature of the fill at this location will be evaluated. Ground water quality as it leaves the Property can also be evaluated.

3.1.7 Boring B-7

This boring will be located along the center of the property on the surcharge area near the Willamette River. The fill appears to change from slag enriched to predominantly construction debris in this general location. The nature of the fill will be evaluated. Ground water moving beneath the center of the site, as it exits the Property, will be evaluated.

3.2 CHEMISTRY TESTS

Proposed borehole laboratory testing is summarized on Table 1. One composited soil sample from each boring location will be tested for total priority pollutant metals and petroleum hydrocarbons. Duplicate soil samples from two randomly selected locations will also be tested for EP Toxicity metals to compare with the results of total metals testing.

Ground water samples from borings B-1, B-2, and B-4 will be tested for priority pollutant parameters (volatiles, semi-volatiles, pesticides, PCBs, metals, cyanide, and phenols), total petroleum hydrocarbons, and alkalinity. Ground water from the other four borings will be tested for a reduced suite of parameters, including: priority pollutant metals, volatile organic compounds, total petroleum hydrocarbons, and alkalinity. The reduced suite of analyses will allow for comparison with samples analyzed for all priority pollutants, which should allow for cost-effective projection of contaminant magnitude and

extent, if necessary. All ground water samples will be monitored for pH, specific conductance, and temperature in the field. Specific test parameters are listed in Appendix A.

3.3 SURFACE SAMPLING

Several areas of what is thought to be minor surficial contamination were identified during the Phase I Environmental Survey. Five soil samples will be collected from areas of having visible contamination. The approximate surface sampling locations are shown on Figure 1. In addition, a sediment sample from the bottom of the concrete tile will be collected if possible. A composited sample of slag will be prepared from four randomly selected locations.

3.3.1 Chemistry Tests

The surficial sample near the concrete slab on which the drums are stored will be tested for priority pollutant analyses and hydrocarbons. The other samples will be analyzed for total priority pollutant metals, BTEX, and petroleum hydrocarbons. Samples from areas with visible oil-stained soils and from the concrete tile will be tested for PCBs. A composited slag sample will be tested for EP Toxicity metals. Specific test parameters are included in Appendix A.

4.0 ESTIMATED BUDGET

SE/E's estimated costs for the previously described scope of work is $53,313. Specific cost breakdown is summarized on Table 2. This amount will not be exceeded without your prior approval. This estimate assumes one week turnaround for the chemistry tests. The laboratory charges a 50% premium for results in one week. The proposed test program is listed on Table 3. SE/E's estimated budget also assumes carry-over of any Phase I costs over the $5,000 approved Phase I budget.

5.0 SCHEDULE

Based on our telephone conversations of August 30, 1989, SE/E has contacted drillers with the equipment and expertise necessary to drill on the Property. The earliest we can schedule a driller is the week of September 18. Should this tentative schedule change, we will notify Stoel Rives as soon as we become aware of any scheduling problems.

TABLE 1

PROPOSED BORING LOCATIONS
AND CHEMISTRY TESTS

BORING DESIGNATION	LOCATION	PROPOSED ANALYSES SOIL*	PROPOSED ANALYSES GROUND WATER
B-1	Assumed downgradient of former Bunker "C" USTs/ adjacent to TFA lease property/adjacent to McCall property	PPM, TPH	PPA, TPH, ALK
B-2	Adjacent to concrete tile of unknown usage	PPM, TPH	PPA, TPH, ALK
B-3	Assumed downgradient of TFA and Tricon lease property	PPM, TPH	PPM, VOC, TPH, ALK
B-4	Area of former pond on Property	PPM, TPH	PPA, TPH, ALK
B-5	Adjacent to McCall methanol tank	PPM, TPH	PPM, VOC, TPH, ALK
B-6	Assumed downgradient, west edge of the Property	PPM, TPH	PPM, VOC, TPH, ALK
B-7	Central portion of the Property	PPH, TPH	PPM, VOC, TPH, ALK

NOTE: * Two composite soil samples will be tested for EP Toxicity metals.
PPA = priority pollutant analysis
PPM = priority pollutant metals
TPH = petroleum hydrocarbon scan
VOC = volatile organic compounds
ALK = alkalinity
pH = pH (field)
spec. cond. = specific conductance (field)
temp. = temperature in degrees C (field)

ZIDEL-T1.905 LK
U4101.01

TABLE 2

ZIDELL PROPERTY
PHASE II SITE ASSESSMENT
ESTIMATED BUDGET
September 5, 1989

		SWEET-EDWARDS/EMCON, INC.			
	TASK	MAN-HOURS	LABOR	DIRECT COSTS	SUBCONTRACTOR
1.	Drilling, Soil and Ground Water Sampling, Chemical Analyses	74	$ 4,440	$500	$21,000 (Driller) 11,780 (Lab)
2.	Surficial Sampling	8	480	50	4,813* (Lab)
3.	Data Evaluation/Report	200	10,000	250	-0-
	Totals:	282	$14,920	$800	$37,593

TOTAL ESTIMATED BUDGET: $53,313

NOTES:
1) Lab costs assume 1 week turnaround which includes a laboratory premium of 50%.
2) Does not include VOA for surface samples.
3) *No QA/QC duplicate samples.
4) Meetings requested by the Client are not included in this budget estimate. Meetings will be charged on a time and materials basis per SE/E's Schedule of Fees.

ZIDEL-T2.905 LK

TABLE 3

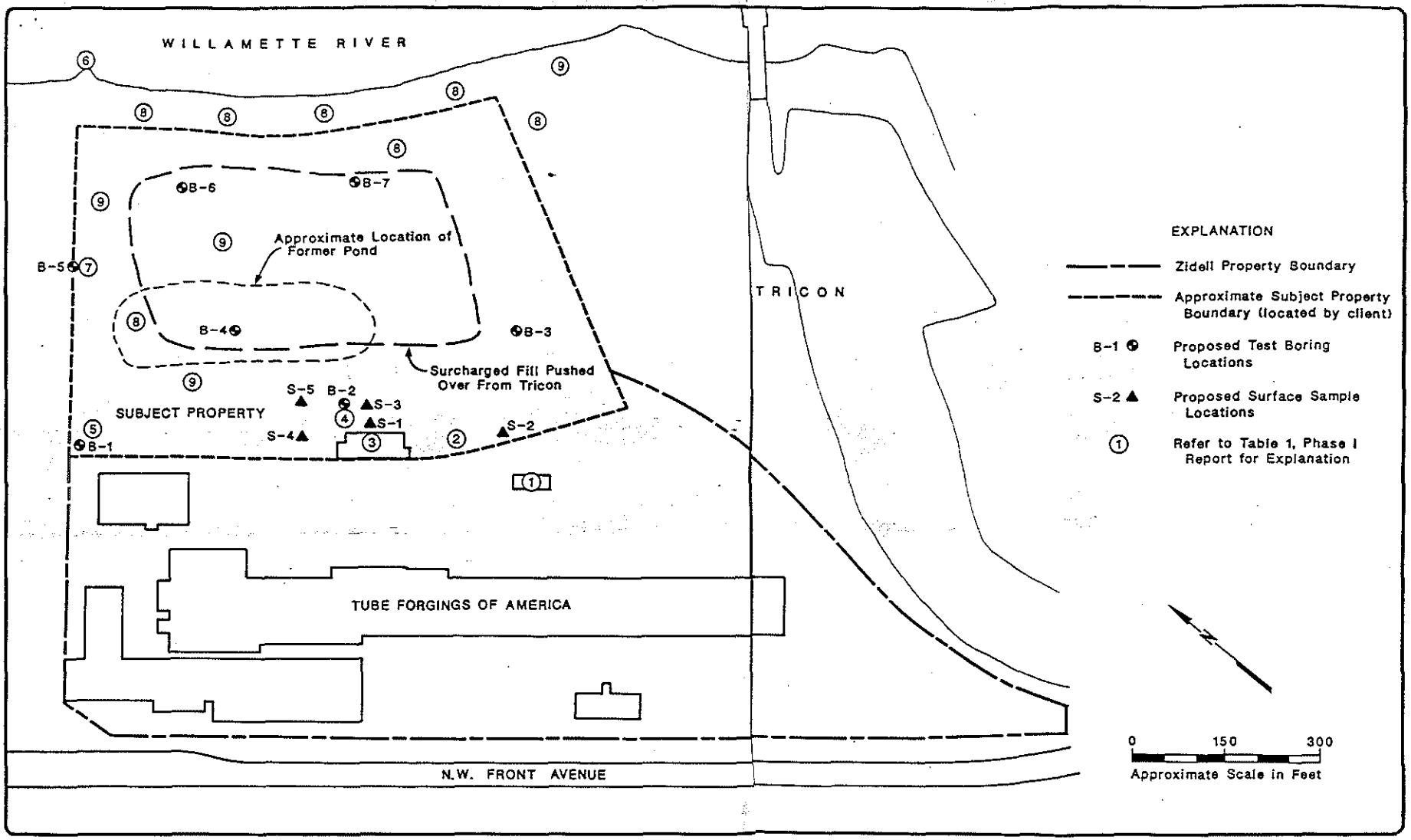
PROPOSED TESTING PROGRAM

TEST PARAMETER	TYPE OF SAMPLE				
	WATER	SOIL (BORING)	SOIL (SURFICIAL)	SLAG	SEDIMENT (DRAIN TILE)
Priority Pollutant Analysis*	3	---	1	---	---
Hydrocarbon Scan	7	7	5	---	1
Alkalinity	7	---	---	---	---
Priority Pollutant Metals	4	7	4	---	1
Volatile Organic Compounds	4	---	---	---	---
PCBs	---	---	2	---	1
EPTOX (Metals)	---	2	---	1	---
BTEX**	---	---	4	---	---

NOTE:

* Included in the priority pollutant analysis are: volatiles (EPA 624/8240), semi-volatiles (EPA 625/8270), pesticides/PCBs (EPA 608/8080), priority pollutant metals, and cyanide/phenol. Specific compounds included in the proposed testing program are identified in Appendix A.

** BTEX analyses are included in priority pollutant analysis and volatile organic compounds analysis. Only 4 specific BTEX tests will be required.



Sweet-Edwards EMCON

NOTE:
Map based on 1988 aerial photograph.

ZIDELL
ENVIRONMENTAL SURVEY
Proposed Boring and Surface Sample Locations

Figure 1

DATE 9/1/89
DWN. MMM
APPR.
REVIS.
PROJECT NO. U4101.01

APPENDIX A

LABORATORY TEST PARAMETERS

CAS

COLUMBIA ANALYTICAL SERVICES, INC.
Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Water

DATE COLLECTED: / /89
DATE RECEIVED: / /89
DATE EXTRACTED: / /89
DATE ANALYZED: / /89

EPA Acid/Base Neutral Priority Pollutants
EPA Method 8270
ug/L (ppb)

SAMPLE NAME: _____

LAB CODE: _____ REVIEWED BY: _____

PARAMETER	MDL	ug/L
N-Nitrosodimethylamine	5	ND
Aniline	5	ND
Bis(2-chloroethyl)ether	5	ND
1,3-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
Bis(2-chloroisopropyl)ether	5	ND
N-Nitrososdi-n-propyl amine	5	ND
Hexachloroethane	5	ND
Nitrobenzene	5	ND
Isophorone	5	ND
Bis(2-Chloroethoxy)methane	5	ND
1,2,4-Trichlorobenzene	5	ND
Naphthalene	5	ND
4-Chloroaniline	5	ND
Hexachlorobutadiene	5	ND
2-Methylnaphthalene	5	ND
Hexachlorocyclopentadiene	5	ND
2-Chloronaphthalene	5	ND
2-Nitroaniline	20	ND
Dimethylphthalate	5	ND
Acenaphthylene	5	ND
3-Nitroaniline	20	ND
Acenaphthene	5	ND
Dibenzofuran	5	ND
2,4-Dinitrotoluene	5	ND
2,6-Dinitrotoluene	5	ND
Diethylphthalate	5	ND
4-Chlorophenyl phenyl ether	5	ND
Fluorene	5	ND
4-Nitroaniline	20	ND
N-Nitrosodiphenylamine	5	ND
4-Bromophenyl phenyl ether	5	ND
Hexachlorobenzene	5	ND

PARAMETER	MDL	ug/L
Phenanthrene	5	ND
Anthracene	5	ND
Dibutylphthalate	5	ND
Fluoranthene	5	ND
Pyrene	5	ND
Butyl benzyl phthalate	5	ND
3,3'-Dichlorobenzidine	5	ND
Benzo(a)anthracene	5	ND
Bis(2-ethylhexyl)phthalate	5	ND
Chrysene	5	ND
Di-n-octyl phthalate	5	ND
Benzo(b)fluoranthene	5	ND
Benzo(k)fluoranthene	5	ND
Benzo(a)pyrene	5	ND
Indeno(1,2,3-c,d)pyrene	5	ND
Dibenzo(a,h)anthracene	5	ND
Benzo(g,h,i)perylene	5	ND
Phenol	5	ND
2-Chlorophenol	5	ND
Benzyl Alcohol	5	ND
2-Methylphenol	5	ND
4-Methylphenol	5	ND
2-Nitrophenol	5	ND
2,4-Dimethylphenol	5	ND
Benzoic Acid	50	ND
2,4-Dichlorophenol	5	ND
4-Chloro-3-methylphenol	5	ND
2,4,6-Trichlorophenol	5	ND
2,4,5-Trichlorophenol	5	ND
2,4-Dinitrophenol	50	ND
4-Nitrophenol	50	ND
2-Methyl-4,6-dinitrophenol	20	ND
Pentachlorophenol	20	ND

Approved by _____ Date _____ FILE: BNWTR.SHT

CAS

COLUMBIA ANALYTICAL SERVICES, INC.
Analytical Report

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Soil

DATE COLLECTED: / /89
DATE RECEIVED: / /89
DATE EXTRACTED: / /89
DATE ANALYZED: / /89

EPA Acid/Base Neutral Priority Pollutants
EPA Method 8270
mg/Kg (ppm) Dry Weight Basis

SAMPLE NAME: _____

LAB CODE: _____ REVIEWED BY: _____

PARAMETER	MDL	mg/Kg
N-Nitrosodimethylamine	0.5	ND
Aniline	0.5	ND
Bis(2-chloroethyl)ether	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
Bis(2-chloroisopropyl)ether	0.5	ND
N-Nitrososdi-n-propyl amine	0.5	ND
Hexachloroethane	0.5	ND
Nitrobenzene	0.5	ND
Isophorone	0.5	ND
Bis(2-Chloroethoxy)methane	0.5	ND
1,2,4-Trichlorobenzene	0.5	ND
Naphthalene	0.5	ND
4-Chloroaniline	0.5	ND
Hexachlorobutadiene	0.5	ND
2-Methylnaphthalene	0.5	ND
Hexachlorocyclopentadiene	0.5	ND
2-Chloronaphthalene	0.5	ND
2-Nitroaniline	2.0	ND
Dimethylphthalate	0.5	ND
Acenaphthylene	0.5	ND
3-Nitroaniline	2.0	ND
Acenaphthene	0.5	ND
Dibenzofuran	0.5	ND
2,4-Dinitrotoluene	0.5	ND
2,6-Dinitrotoluene	0.5	ND
Diethylphthalate	0.5	ND
4-Chlorophenyl phenyl ether	0.5	ND
Fluorene	0.5	ND
4-Nitroaniline	2.0	ND
N-Nitrosodiphenylamine	0.5	ND
4-Bromophenyl phenyl ether	0.5	ND
Hexachlorobenzene	0.5	ND

PARAMETER	MDL	mg/Kg
Phenanthrene	0.5	ND
Anthracene	0.5	ND
Dibutylphthalate	0.5	ND
Fluoranthene	0.5	ND
Pyrene	0.5	ND
Butyl benzyl phthalate	0.5	ND
3,3'-Dichlorobenzidine	0.5	ND
Benzo(a)anthracene	0.5	ND
Bis(2-ethylhexyl)phthalate	0.5	ND
Chrysene	0.5	ND
Di-n-octyl phthalate	0.5	ND
Benzo(b)fluoranthene	0.5	ND
Benzo(k)fluoranthene	0.5	ND
Benzo(a)pyrene	0.5	ND
Indeno(1,2,3-c,d)pyrene	0.5	ND
Dibenzo(a,h)anthracene	0.5	ND
Benzo(g,h,i)perylene	0.5	ND
Phenol	0.5	ND
2-Chlorophenol	0.5	ND
Benzyl Alcohol	0.5	ND
2-Methylphenol	0.5	ND
4-Methylphenol	0.5	ND
2-Nitrophenol	0.5	ND
2,4-Dimethylphenol	0.5	ND
Benzoic Acid	5.0	ND
2,4-Dichlorophenol	0.5	ND
4-Chloro-3-methylphenol	0.5	ND
2,4,6-Trichlorophenol	0.5	ND
2,4,5-Trichlorophenol	0.5	ND
2,4-Dinitrophenol	5.0	ND
4-Nitrophenol	5.0	ND
2-Methyl-4,6-dinitrophenol	2.0	ND
Pentachlorophenol	2.0	ND

Approved by _____ Date _____ FILE: BNSOL.SHT

COLUMBIA ANALYTICAL SERVICES, INC.

CAS

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Soil

DATE RECEIVED: / /
DATE ANALYZED: / /
WORK ORDER #:

EPA Volatile Priority Pollutant Analysis
EPA Method 8240 (Low Level)
mg/Kg (ppm) Dry Weight Basis

Compound	Estimated MDL
Chloromethane	0.005
Vinyl Chloride	0.005
Bromomethane	0.005
Chloroethane	0.005
Trichlorofluoromethane	0.01
1,1-Dichloroethene	0.005
Acetone	0.05
Carbon Disulfide	0.005
Methylene Chloride	0.01
Trans 1,2-Dichloroethene	0.005
Cis 1,2-Dichloroethene	0.005
2-Butanone (MEK)	0.03
1,1-Dichloroethane	0.005
Chloroform	0.005
1,1,1-Trichloroethane	0.005
Carbon Tetrachloride	0.005
Benzene	0.005
1,2-Dichloroethane	0.005
Vinyl Acetate	0.03
Trichloroethene	0.005
1,2-Dichloropropane	0.005
Bromodichloromethane	0.005
2-Chloroethylvinyl ether	0.02
Trans 1,3-Dichloropropene	0.005
2-Hexanone	0.03
4-Methyl-2-Pentanone (MIBK)	0.02
Toluene	0.005
Cis 1,3-Dichloropropene	0.005
1,1,2-Trichloroethane	0.005
Tetrachloroethene	0.005
Dibromochloromethane	0.005
Chlorobenzene	0.005
Ethylbenzene	0.005
Styrene	0.005
Total Xylenes	0.005
Bromoform	0.005
1,1,2,2-Tetrachloroethane	0.005
1,3-Dichlorobenzene	0.005
1,4-Dichlorobenzene	0.005
1,2-Dichlorobenzene	0.005

MDL means Method Detection Limit

Approved by_____ Date_____

CLIENT:
SUBMITTED BY:
PROJECT:
SAMPLE DESCRIPTION: Soil

DATE RECEIVED: / /
DATE EXTRACTED: / /
DATE ANALYZED: / /
WORK ORDER #:

EPA Volatile Priority Pollutant Analysis
EPA Method 8240 (High Level)
mg/Kg (ppm) Dry Weight Basis

Compound	Estimated MDL
Chloromethane	0.5
Vinyl Chloride	0.5
Bromomethane	0.5
Chloroethane	0.5
Trichlorofluoromethane	0.05
1,1-Dichloroethene	0.05
Acetone	0.5
Carbon Disulfide	0.05
Methylene Chloride	0.5
Trans 1,2-Dichloroethene	0.05
Cis 1,2-Dichloroethene	0.05
2-Butanone (MEK)	0.5
1,1-Dichloroethane	0.05
Chloroform	0.05
1,1,1-Trichloroethane	0.05
Carbon Tetrachloride	0.05
Benzene	0.05
1,2-Dichloroethane	0.05
Vinyl Acetate	0.5
Trichloroethene	0.05
1,2-Dichloropropane	0.05
Bromodichloromethane	0.05
2-Chloroethylvinyl ether	0.5
Trans 1,3-Dichloropropene	0.05
2-Hexanone	0.5
4-Methyl-2-Pentanone (MIBK)	0.5
Toluene	0.05
Cis 1,3-Dichloropropene	0.05
1,1,2-Trichloroethane	0.05
Tetrachloroethene	0.05
Dibromochloromethane	0.05
Chlorobenzene	0.05
Ethylbenzene	0.05
Styrene	0.05
Total Xylenes	0.05
Bromoform	0.05
1,1,2,2-Tetrachloroethane	0.05
1,3-Dichlorobenzene	0.05
1,4-Dichlorobenzene	0.05
1,2-Dichlorobenzene	0.05

MDL means Method Detection Limit

Approved by_____ Date_____