State of Oregon
Department of Environmental Quality **Memorandum**

Date: October 22, 2015

To: ECSI FILE #209
LUST FILE # 24-10-0295

Through: **Don Hanson, Lead Worker**

From: Susan Turnblom
Western Region

Subject: J.C. Jones Oil Co.Site, ECSI # 209 and LUST # 24-10-0295; Staff Memorandum in support of a conditional No Further Action determination

This document presents the basis for the Oregon Department of Environmental Quality's (DEQ's) recommended No Further Action (NFA) determination for the J.C. Jones Oil Site, in Salem. As discussed in this report, contaminant concentrations in shallow and deeper soil and shallow groundwater are below acceptable risk levels for current site uses. Residential use of the property may not be protective, so institutional controls are needed to ensure protectiveness.

The proposed NFA determination meets the requirements of Oregon Administrative Rules Chapter 340 Division 122, Sections 010 to 0140; and ORS 465.200 through 465.455.

The proposal is based on information documented in the administrative record for this site. A copy of the administrative record index is presented at the end of this report.

1. BACKGROUND

Site location.
The site's location can be described as follows:
- 650 15th Street, SE, Salem, Marion County Oregon.
- Latitude 44.930228° North, longitude -123.025048° West
- Tax lot(s) 4800 and 4900, Township 7 South, Range 3 West, Section 26

Site setting.
The site is comprised of approximately 3.9 acres, including approximately 0.77 acres of railroad right-of-way and 0.34 acres associated with the City of Salem Leslie Street S.E. right-of-way. The site is located in an area of "General Industrial" (IG) land use and is bounded on the west by 15th Street SE with commercial /industrial properties and 14th Street SE beyond, on the north by the Union Pacific railroad tracks and right-of-way with commercial and industrial properties and Oak Street SE beyond, on the east by commercial properties with 17th Street SE beyond, and on the south by the Shelton Ditch with Mission Street beyond (Se Figure 1).

The site was originally developed as a petroleum distribution facility in 1921 by Standard Oil Company and was used as a petroleum distribution and storage facility. Jones Oil took over ownership and operation of the facility in approximately 1980, adding a wholesale cardlock petroleum facility at the site in approximately 1986. Jones Oil discontinued site operations in early 2009.

Several buildings are located at the site, including an approximately 1,500 square foot office building on the western portion of the site, an approximately 5,000-square foot warehouse building located on the north-central portion of the site, and an approximately 6,500-square foot shop building located on the south-central portion of the site. These buildings are currently occupied by a commercial tenant. The former ASTs and containment area were located in the northeastern portion of the subject site (Figure 2).

Physical setting.
The site is located approximately 0.5 miles southwest of Mill Creek and approximately one mile east-southeast of the Willamette River. The site is approximately 180 feet above mean sea level. It is relatively flat with a slight slope to the south-southwest toward the Shelton Ditch located adjacent to and south of the site.

According to the United States Department of Agriculture "Soil Survey of Marion County Area Oregon (September 1972) the site is underlain by "Clackamas Gravelly Loam" soils. The Clackamas series consists of somewhat poorly-drained soils that are formed in mixed alluvial gravels. During site investigation activities in 2009 and 2011, gravels, sands, silts, clays and cobbles were encountered up to the maximum depth explored of approximately 20 feet below surface grade. Shallow groundwater was encountered at depths of between 11 and 15 feet below surface grade. Local shallow groundwater flow appears to be generally to the east with minor southerly and northerly flow components at a hydraulic gradient ranging between approximately 0.008 feet per foot and 0.035 feet per foot.

Site history.
Beginning in 1921 Standard Oil Company used the subject site as a gasoline and oil distribution facility. The site has been used in the same capacity under several different names since that time. Jones Oil began use of the site as a bulk petroleum storage and distribution facility in approximately 1980. A cardlock wholesale fuel facility was constructed at the site in approximately 1986, including installation of three petroleum Underground Storage Tanks. Jones Oil discontinued fuel storage and distribution activities at the site in early 2009. Petroleum Aboveground Storage Tanks and Underground Storage Tanks have been removed. Former ASTs included three 20,000-gallon vertical tanks, one 25,000-gallon vertical tank, one 70,000-gallon vertical tank and two 20,000 gallon compartmentalized horizontal tanks. Former USTs included one 5,000-gallon and two 3,000-gallon tanks. In addition, the former dispenser island canopy and associated features and the former loading rack and associated features have been removed for offsite disposal/recycling. Gasoline, diesel, heating oil, hydraulic oil, lubricating oil and motor oil have been stored onsite during operation of the site by Jones Oil.

2. BENEFICIAL LAND AND WATER USE DETERMINATIONS

Land use.
The site is located in an area of land use zoning designated "General Industrial" (IG). The General Industrial zoning permits a variety of land uses, including agricultural, construction, manufacturing, transportation, wholesale trade, retail and services, etc. Special uses include limited residential development only applicable to existing (i.e., grandfathered) residential land use. Residential structures are not currently located at or immediately adjacent to the subject site, but a residential neighborhood is located about 200 feet north of the site. According to a representative of the City of Salem Planning Department, given the absence of current residential structure at the subject site, residential development would not be allowed under its current zoning designation. Given the proximity of the site to Willamette University and residences, DEQ believes it's reasonable to consider future site use could be urban residential (if the site were re-zoned and developed as a dormitory or mixed use commercial/residential

The current tenant is Orr Insulation. They've been leasing the property for 4.5 years and used building on the property for office space, storage and warehousing.

Groundwater use.
Currently there is no groundwater use at the site. It's unlikely, but not prohibited, that groundwater will be used in the future for domestic purposes because City water is supplied to the current tenant(s). A review of domestic and community well log files maintained by the OWRD has indicated that domestic and community water wells are not located within 0.25 miles of the site. The absence of domestic and community water wells at and in the vicinity of the site, and the current and reasonably likely future availability of potable water from the City of Salem indicates that future use of groundwater at the site is unlikely

Surface water use.
The nearest surface water body is the Shelton Ditch, which is adjacent to the site.
Stormwater from the site was historically collected and run through an oil/water separator before discharging to Shelton Ditch. It's unknown what the current status of the stormwater collection system is. The site is currently covered by pavement, buildings and gravel. Surface water runoff is not expected to be an issue currently on the property.

3. INVESTIGATION AND CLEANUP WORK

Areas of concern at the site included the above ground storage tank containment area and the former loading rack and associated fuel dispenser lines. Figure 1 shows the location of these areas on the site. The underground storage tanks were removed under DEQ oversight on April 5, 2010. A confirmed release was reported at the USTs and the LUST file number is 24-10-0295. and the decommissioning report can be found here:
http://www.deq.state.or.us/Webdocs/Forms/Output/FPController.ashx?SourceId=24-10-0295&SourceIdType=12
The above ground storage tanks were removed and recycled/disposed of off site. The LUST project was never closed out, and its closure is part of DEQ's recommendation.

In July of 1998 CJE Consultants conducted a Phase 1 Environmental Property Assessment for the UPRR right-of-way adjacent to the sits. This assessment recommended a Phase 2 subsurface assessment and four borings were installed in the right-of-way property and TPH-Diesel (TPH-Dx) was detected in one boring at 150 milligrams per kilogram (mg/kg). The report concluded that the right-of-way property had not been impacted by the Jones Oil site.

In March of 2002 PBS completed a phase 2 Environmental assessment of the site for Salem Keizer School District and installed 6 borings to collect soil and groundwater samples. Contamination was found and the report recommended against the City purchasing the property for a school site.

Wohlers Environmental Services, Inc. completed installation of 9 soil borings at and adjacent to the Joes Oil property to a depth of 10 feet in July 2009. Twenty subsurface samples were collected from the 9 borings. Up to 2,500 mg/kg TPH-Gasoline (TPH-Gx) was detected and up to 5,200 mg/kg TPH-Dx was detected in the soil samples. Benzene was detected at 490 micrograms per kilogram (ug/kg) at one sample from 15 feet below ground surface (bgs).

TPH-Gx was detected in 6 out of 7 groundwater samples analyzed. Concentrations ranged from 170 to 8,300 micrograms per liter (ug/L). Benzene was detected at levels ranging from 3 to 1,700 ug/L. TPH-Dx was detected at levels up to 68,000 ug/L in groundwater.

The underground storage tanks were removed in 2010. The contents of the tanks were removed and recycled, and the tanks themselves were recycled as metal scrap. Petroleum contaminated soil was disposed of appropriately. Soil samples collected after tank removal were non-detect or below residential RBCs. Pit water indicated that groundwater contamination was likely but groundwater samples collected in the vicinity of the USTs was below residential tapwater RBCs. DEQ concludes that the tanks were removed and decommissioned appropriately.

In August 2011, Wohlers Environmental collected surface soil samples from 7 locations. The locations were selected to sample areas around the loading rack and piping. In addition three monitoring wells were installed at the site, MW-2 in the former AST area, MW-3 near the former loading rack, and MW-4 just outside the property line on Willamette University property. MW-1 was not able to be completed because of the presence of gravels and cobbles and associated sloughing. Three rounds of groundwater monitoring took place: June 2011, November 2011 and September 2012. Free product was found in MW-2 and has been observed during every sampling event at thicknesses ranging from 0.68 feet to 0.28 feet.

Wohlers Environmental Services, Inc. submitted a report in December 2011 that summarized the results of September and November groundwater sampling. In that report groundwater flow appeared to be in an east-southeasterly direction.

Due to the uncertainty of the groundwater flow direction and potential for groundwater discharge to Shelton Ditch, additional groundwater monitoring and pore water sampling in Shelton Ditch was performed and results reported in a November 2012 report. TPH-Dx concentrations in MW-

2 were measured at 10,000 ug/L. The pore water sample collected from the Shelton Ditch was non-detect for all contaminants.

In October 2014 Jones Oil conducted targeted excavation and removal of contaminated soil from three areas on the site with elevated levels of contamination. Approximately 422 tons of contaminated soil were excavated from the site and disposed of in Riverbend Landfill. Two excavation areas were in the former AST containment area (Areas A and B) and the third was located at the former loading rack and piping area (Area C). Confirmation soil sampling indicated that levels of petroleum contaminated soil (PCS) above risk-based concentrations for direct contact with shallow soil and soil and groundwater vapor intrusion into buildings for the urban residential scenario remained even after excavation (See Table 1).

Nature and extent of contamination.
Contaminants of interest at the site are petroleum-related and include TPH-Gx, TPH-Dx, TPH-Heavy Oil, oil constituents benzene, toluene, ethylbenzene, xylenes, trimethylbenzenes, Polycyclic aromatic hydrocarbons (PAHs) and lead. Surface soil, subsurface soil, soil vapor and groundwater media have all been impacted.
Estimated extent of contamination is shown in Figures 2 through 5.

Three underground storage tanks that contained petroleum products and one holding tank were removed. One 5,000-gallon tank containing diesel, two 3,000-gallon tanks containing gasoline, and one steel holding tank were removed in March of 2010. Soil samples were collected on the side walls of the pit at the soil water interface. Most of the soil sample results were non-detect. The two samples that had detections were well below residential RBCs. The tank pit water had a detection of the constituent benzene slightly above the residential tap water RBC.

Contamination extends beneath the parking lot of the adjacent property to the west, but levels of contamination in all media are below RBCs.

4. RISK EVALUATION

Conceptual site model.
Sources of contamination at this site are surface and subsurface soil contamination from spills and leaks, and subsequent contamination of groundwater beneath the site. This contamination can reach humans and environmental receptors by direct exposure to soil (ingestion, dermal contact, and inhalation), indirect exposure through volatilization into indoor air (from both soil and groundwater) and groundwater discharge to Shelton Ditch (aquatic receptors). Current possible receptors are occupational workers (employees of the company leasing buildings on the property) and construction workers that could encounter contaminated soil and groundwater. Given the proximity of the site to Willamette University and residences, DEQ believes it's reasonable to consider that without land use restrictions, future site uses could include urban residential (if the site were developed as a dormitory or mixed use commercial/residential, for example).

To evaluate human exposure to residual chemical contamination requires an assessment of the type and extent of that exposure. This is based on current and reasonably likely future site use. DEQ publishes risk-based concentrations (RBCs) for contaminants commonly encountered, for different types of exposure scenarios. These RBCs are conservative estimates of protective levels of contaminants in soil, groundwater and air. Table 1 shows potential exposure pathways and receptors for this site. Based on this, applicable RBCs are identified and used for risk screening.

Table 1. Identification of applicable RBCs, based on pertinent pathways and receptors

Pathway	Receptor	Applicable RBC?	Basis for selection/exclusion
SOIL			
Ingestion, dermal contact, and inhalation	Residential	No	See Note 1.
	Urban residential	Yes	
	Occupational	Yes	
	Construction worker	Yes	
	Excavation worker	Yes	
Volatilization to outdoor air	Residential	No	See Note 1.
	Urban residential	Yes	
	Occupational	Yes	
Vapor intrusion into buildings	Residential	No	See Note 1.
	Urban residential	Yes	
	Occupational	Yes	
Leaching to groundwater	Residential	No	See Note 2.
	Urban residential	No	
	Occupational	No	
GROUNDWATER			
Ingestion and inhalation from tap water	Residential	No	See Note 3.
	Urban residential	No	
	Occupational	No	
Volatilization to outdoor air	Residential	No	See Note 1.
	Urban residential	Yes	
	Occupational	Yes	
Vapor intrusion into buildings	Residential	No	See Note 1.
	Urban residential	Yes	
	Occupational	Yes	
Groundwater in excavation	Construction and excavation worker	Yes	

Notes:

1. Although the site is currently a non-residential property, Willamette University property is adjacent to the site and residences are located across the street from the Willamette University property. Because of the site's urban setting, urban residential land use is assumed rather than general residential exposure.
2. Groundwater is not used for drinking. This pathway is therefore not considered, in accordance with Section B.3.2.4 of DEQ's RBDM guidance.

3. City water is provided. Local groundwater is not currently used for drinking water and is not likely to be used for this purpose in the future.

Contaminant concentrations.
Contaminants exceeding applicable RBCs and their concentrations are presented in Table 2. Gasoline (TPH-Gx) in soil exceeds both the soil ingestion, dermal contact and inhalation pathway and the vapor intrusion into buildings pathway for the urban residential receptor. Diesel (TPH-Dx) in soil exceeds both the urban residential and construction worker RBCs for soil ingestion, dermal contact and inhalation. Benzene and Ethylbenzene concentrations remaining in soil both exceed the vapor intrusion into buildings pathway for urban residential receptors. Benzene in groundwater exceeds the vapor intrusion into buildings pathway for the urban resident.

No contaminants were detected at appropriate detection limits in the pore water sample that was collected to evaluate whether or not the site was impacting the adjacent Shelton Ditch.

Human health risk.
Because of the site's location in proximity to both Willamette University and single family residential homes, it was concluded that future urban residential use is reasonably likely. Based on the levels of contaminants remaining on site, and the presence of an unknown amount of free product remaining beneath the site, it was determined that a deed restriction prohibiting future residential development would be needed at this site.

Risk evaluation at the sited concluded that contamination remaining on site poses a potential risk for reasonably likely future urban residents and construction workers based on the number of contaminants and their concentrations remaining on site, even after targeted removals were conducted. However, the site is currently protective for occupational use, which is what the current use of the site it.

Soil contamination at depth (10-13 feet below ground) beneath the adjacent Mission Investment Property to the east contains petroleum contamination. However, in the unlikely event that soil were to be excavated from this area and brought to the surface, the contamination on the Mission Investment property should not present an unacceptable risk. The location of the subsurface contamination beneath the Mission Investment property is shown on Figure 6.

Ecological risk.
The site does not pose unacceptable risk to upland terrestrial receptors because the entire site is covered with paving, gravel and buildings. It is also assumed that ecological habitat will not be developed at the site in the future.

The Shelton Ditch is adjacent to the site and pore water from the Ditch adjacent to the site was sampled to determine whether or not subsurface contamination from the site was impacting the water in the ditch. No contaminants of concern were detected in the pore water sample (TPH-Gx, TPH-Dx, VOCs, PAHs and dissolved lead). DEQ concluded that groundwater discharge from the site does not pose unacceptable ecological risk to the Shelton Ditch.

5. RECOMMENDATION

DEQ concludes that the residual petroleum contamination in soil and groundwater at the site will not pose a risk to human health and the environment if the following conditions are met:

- No use of groundwater extracted from the site.
- No excavation in areas of known contamination without notification to DEQ and adherence to a DEQ-approved Contaminated Media Management Plan; and
- No use of the site for residential or agricultural purposes.

6. ADMINISTRATIVE RECORD

The primary documents used to evaluate the former JC Jones Oil Site are listed below. Additional background and supporting information can be found in the Jones Oil project file (ECSI #209) located at DEQ Western Region Eugene Office, 165 East 7th Avenue, Eugene, Oregon and in the Jones Oil LUST File #24-10-0295, located at DEQ Western Region Office, 4026 Fairview Industrial Drive SE, Salem, Oregon.

Site-Specific Documents

4C's Environmental, Inc., 2010. Tank Decommissioning Report. Concerning J.C. Jones Oil Company. June 4, 2010.

Wohlers Environmental Services, Inc. 2015. Environmental Cleanup and Assessment Report for Jones Oil Company Site. January 2015.

Wohlers Environmental Services, Inc. 2012. Supplemental Environmental Assessment Report for Jones Oil Company Site. Novermber 2012.

Wohlers Environmental Services, Inc. 2011. Environmental Assessment Report for Jones Oil Company Site. December 2011.

Wohlers Environmental Services, Inc. 2011. Environmental Assessment Report for Jones Oil Company Site. August 2011.

Wohlers Environmental Services, Inc. 2009. Subsurface Investigation Report for Jones Oil Company Site. July 2009.

State of Oregon

Oregon's Environmental Cleanup Laws, Oregon Revised Statutes 465.200-.900, as amended by the Oregon Legislature in 1995.

Oregon's Hazardous Substance Remedial Action Rules, Oregon Administrative Rules, Chepater 340, Division 122, adopted by the Environmental Quality Commission in 1997.

Guidance and Technical Information

DEQ. Risk-Based Concentrations for Individual Chemicals. June 2012.

7. ATTACHMENTS

Table 2. Contaminants of Concern
Figure 1. Site Vicinity Map
Figure 2. Soil plume map for TPH-Dx
Figure 3. Soil plume map for TPH-Gx
Figure 4. Groundwater plume map for TPH-Dx
Figure 5. Groundwater plume map for TPH-Gx
Figure 6. Location of off-site subsurface contamination

TABLE 2

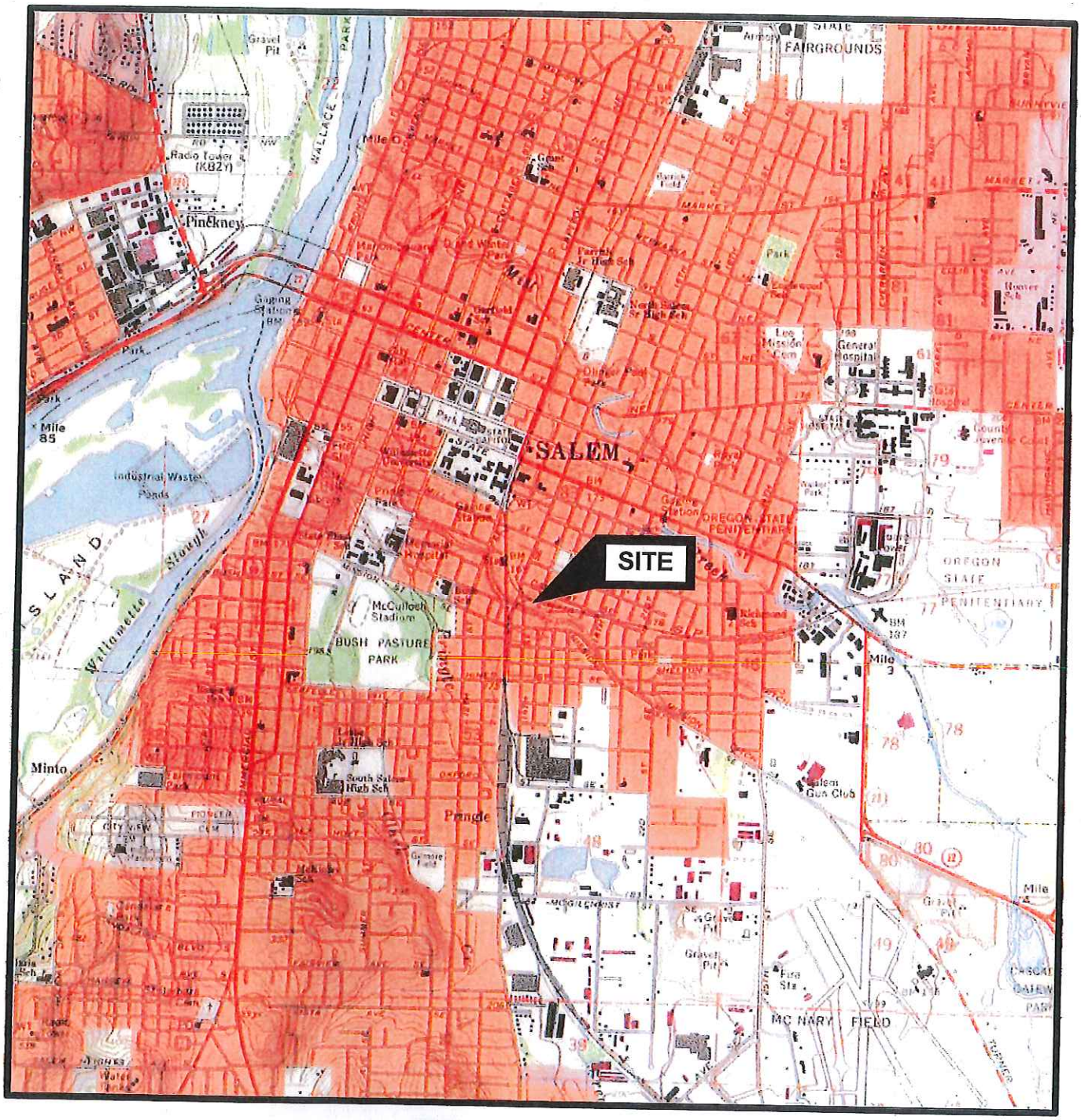
CONTAMINANTS OF POTENTIAL CONCERN

JONES OIL COMPANY
650 15TH STREET, SE
SALEM, OREGON
WES Project No. 14-0075

CONTAMINANT	MEDIA	MAXIMUM CONCENTRATION REMAINING DETECTED/DATE (mg/kg)	SAMPLE ID (feet bsg)	EXPOSURE PATHWAY	HUMAN RECEPTOR SCENARIO	GENERIC RBC (mg/kg)
Generic Gasoline	Soil	3,800 (10/14)	AA-EXCB1-6'	Soil Ingestion, Dermal Contact, & Inhalation	Urban Residential	2,500[1]
Generic Diesel	Soil	8,100 (10/14)	AB-WSW-3.5'	Soil Ingestion, Dermal Contact, & Inhalation	Urban Residential Construction Worker	2,200[1] 4,600[2]
Generic Gasoline	Soil	3,800 (10/14)	AA-EXCB1-6'	Vapor Intrusion into Buildings	Urban Residential	94[3]
Benzene	Soil	0.49 (04/09)	DP-5-15'	Vapor Intrusion into Buildings	Urban Residential	0.22
Ethylbenzene	Soil	11 (10/14)	AB-WSW-3.5'	Vapor Intrusion into Buildings	Urban Residential	2.2
Benzene	Groundwater	845 (11/11)	MW-2	Vapor Intrusion into Buildings	Urban Residential	510

ID = Identification
RBC = Oregon Department of Environmental Quality Risk-Based Concentration.
bsg = below surface grade
mg/kg = milligrams per kilogram or parts per million (ppm)

[1] = Calculated site-specific Oregon DEQ RBC_{ss} ("Soil Ingestion, Dermal Contact & Inhalation") for Urban Residential receptors of 3,000 ppm only for excavation Area C.
[2] = Calculated site-specific Oregon DEQ RBC_{ss} ("Soil Ingestion, Dermal Contact & Inhalation") for Construction Worker receptors of 7,200 ppm only for Area C.
[3] = Calculated site-specific Oregon DEQ RBC_{si} ("Vapor Intrusion into Buildings") for Urban Residential receptors of 830 ppm only for excavation Area C.



SOURCE: TOPO! © NATIONAL GEOGRAPHIC MAPS. TOPOGRAPHIC SURVEY MAP OF SALEM WEST, OREGON QUADRANGLE. 1997.

WOHLERS
ENVIRONMENTAL SERVICES, INC.

FIGURE 1

SITE VICINITY MAP

J.C. JONES OIL COMPANY
650 15TH STREET; S.E.
SALEM, OREGON

PROJECT NO.:	09-0022
DATE:	03/23/09
SCALE:	1" = 0.5 miles
FILE:	svm090022
DRAWN BY:	KB

LEGEND

⊙ DP-1 = Boring location

⊙ B-1 = Previous boring location (February 2002)

◔ = Groundwater monitoring well location

⊕ = Hand auger boring location

— · — · — = Approximate property boundary

NA = Not analyzed

(4,200:7) = Maximum concentration in ppm of TPH-Dx as diesel at this sampling location at sampled depth of 7 feet bsg.

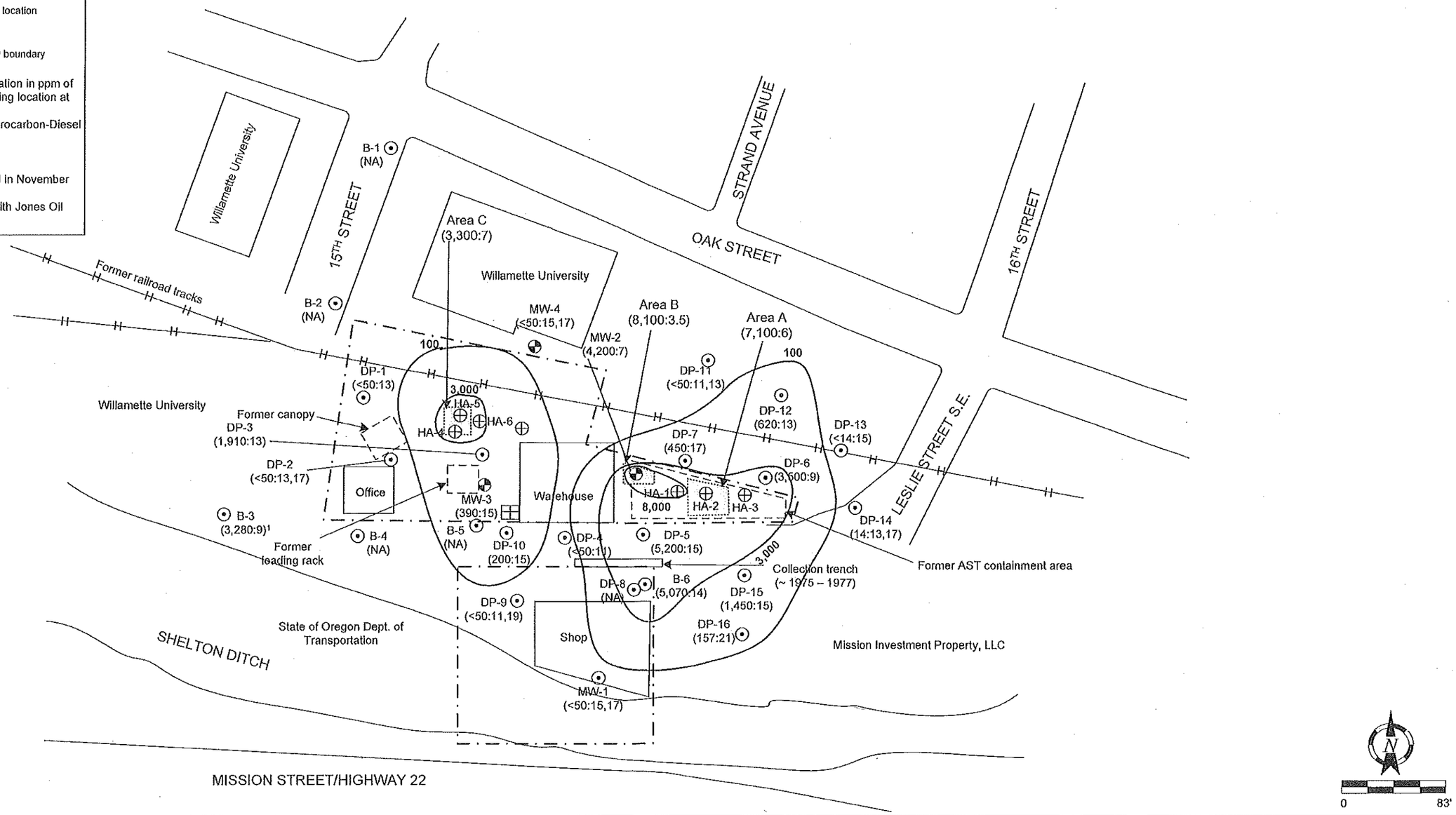
TPH-Dx = Total Petroleum Hydrocarbon-Diesel extended

bsg = below surface grade

ppm = parts per million

Excavation A, B & C completed in November 2014

[1] = Presumed not associated with Jones Oil petroleum release(s)



WOHLERS ENVIRONMENTAL SERVICES, INC.

FIGURE 2

SOIL PLUME MAP: TPH-Dx as DIESEL

JONES OIL COMPANY
650 15TH STREET SE
SALEM, OREGON

PROJECT NO.:	15-0016
DATE:	04/17/15
SCALE:	1" = 83'
FILE:	Soil DX Plume
DRAWN BY:	KB

LEGEND

⊙ DP-1 = Boring location

⊙ B-1 = Previous boring location (February 2002)

⊕ = Groundwater monitoring well location

⊕ = Hand auger boring location

— · — · — = Approximate property boundary

NA = Not analyzed

(910/<0.03:13) = Maximum concentration in ppm of TPH-Gx/Benzene at this sampling location at sampled depth of 13 feet bsg.

TPH-Gx = Total Petroleum Hydrocarbon-Gasoline extended

bsg = below surface grade

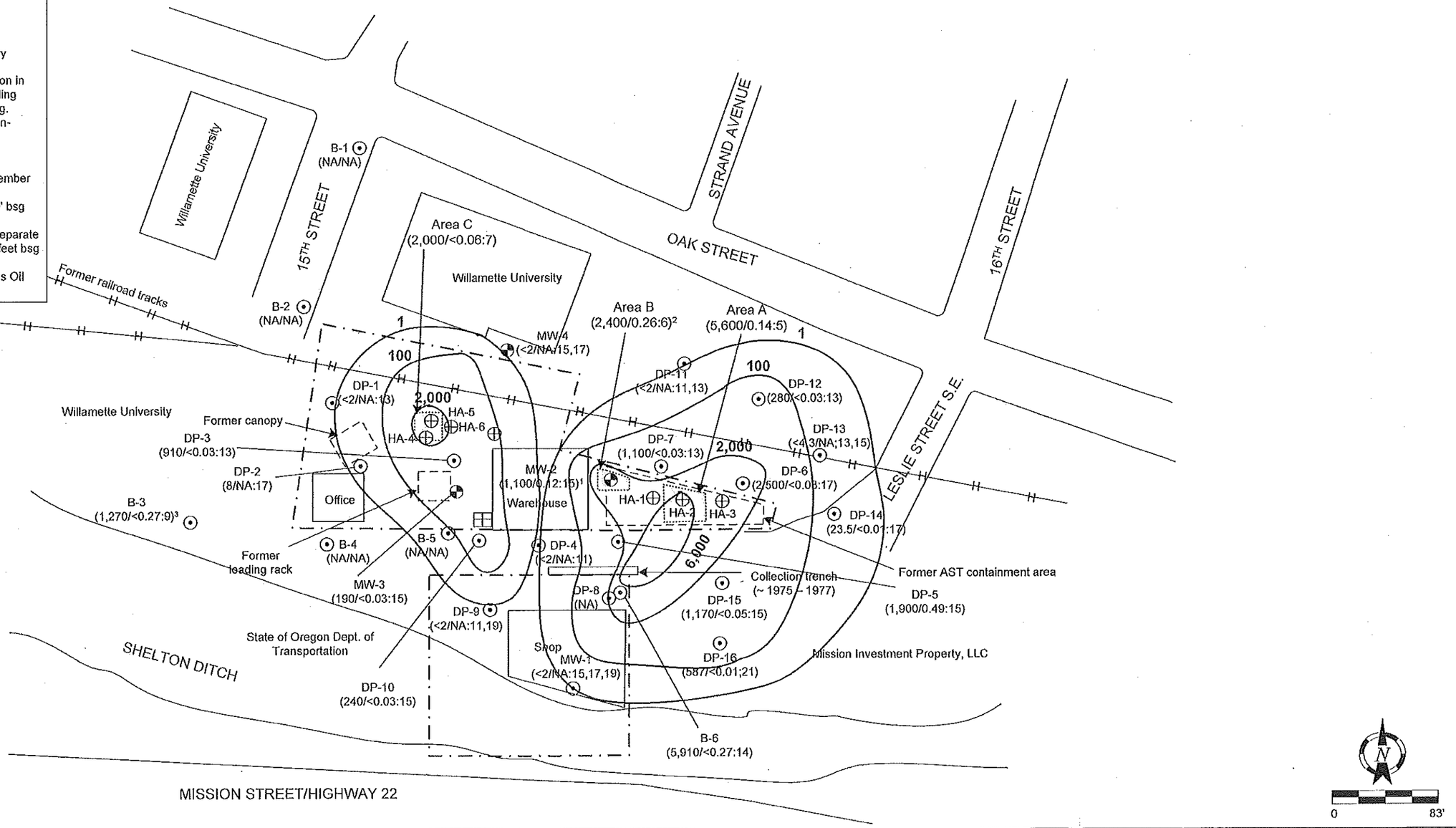
ppm = parts per million

Excavation A, B & C completed in November 2014

[1] = TPH-Gx detected at 1,200 ppm at 9' bsg (No VOC analysis)

[2] = TPH-Gx detected at 2,500 ppm in separate soil sample collected from Area B at 5 feet bsg (benzene <0.27)

[3] = Presumed not associated with Jones Oil petroleum release(s)



WOHLERS ENVIRONMENTAL SERVICES, INC.

FIGURE 3

SOIL PLUME MAP: TPH-Gx

JONES OIL COMPANY
650 15TH STREET SE
SALEM, OREGON

PROJECT NO.:	15-0016
DATE:	04/17/15
SCALE:	1" = 83'
FILE:	Soil gx benzene
DRAWN BY:	KB

LEGEND

⊙ DP-1 = Boring location

⊙ B-1 = Previous boring location (February 2002)

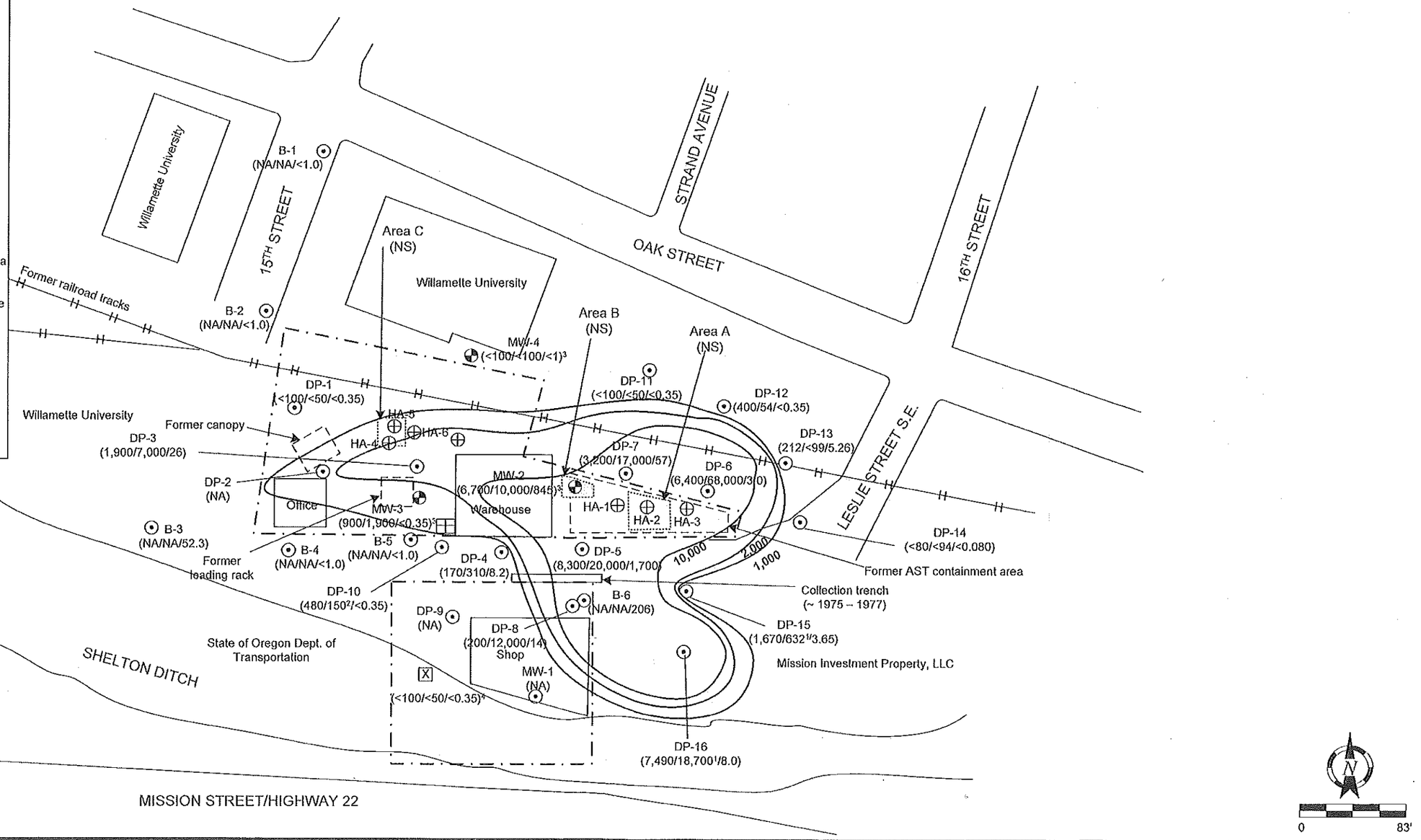
◔ = Groundwater monitoring well location

⊕ = Hand auger boring location

[X] = Pore space water sample location (September 2012)

— · — · = Approximate property boundary

NS = Not Samples
(400/54/<0.35) = TPH-Gx/TPH-Dx/Benzene concentrations in groundwater in ppb
TPH-Gx = Total Petroleum Hydrocarbon-Gasoline extended
Dx = Diesel extended
ppb = parts per billion
NA = Not Analyzed
Excavation A, B & C completed in November 2014
[1] = According to the analytical laboratory: "Hydrocarbon pattern most closely resembles a blend of gasoline range overlap as well as weathered diesel."
[2] = According to the analytical laboratory: "The sample chromatographic pattern does not resemble the fuel standard used for quantitation."
[3] = Highest concentration of groundwater samples collected from June 2011 through September 2012.
[4] = Pore space water sample collected in September 2012 from an apparent blend of shallow groundwater and surface water from the Shelton Ditch.



WOHLERS ENVIRONMENTAL SERVICES, INC.

FIGURE 4

GROUNDWATER PLUME MAP: TPH-Dx as DIESEL

JONES OIL COMPANY
650 15TH STREET SE
SALEM, OREGON

PROJECT NO.:	15-0016
DATE:	04/17/15
SCALE:	1" = 83'
FILE:	GW Dx plume
DRAWN BY:	KB

LEGEND

⊙ DP-1 = Boring location

⊙ B-1 = Previous boring location (February 2002)

⊕ = Groundwater monitoring well location

⊕ = Hand auger boring location

X = Pore space water sample location (September 2012)

— · — · = Approximate property boundary

NS = Not Samples

(400/54/<0.35) = TPH-Gx/TPH-Dx/Benzene concentrations in groundwater in ppb

TPH-Gx = Total Petroleum Hydrocarbon-Gasoline extended

Dx = Diesel extended

ppb = parts per billion

NA = Not Analyzed

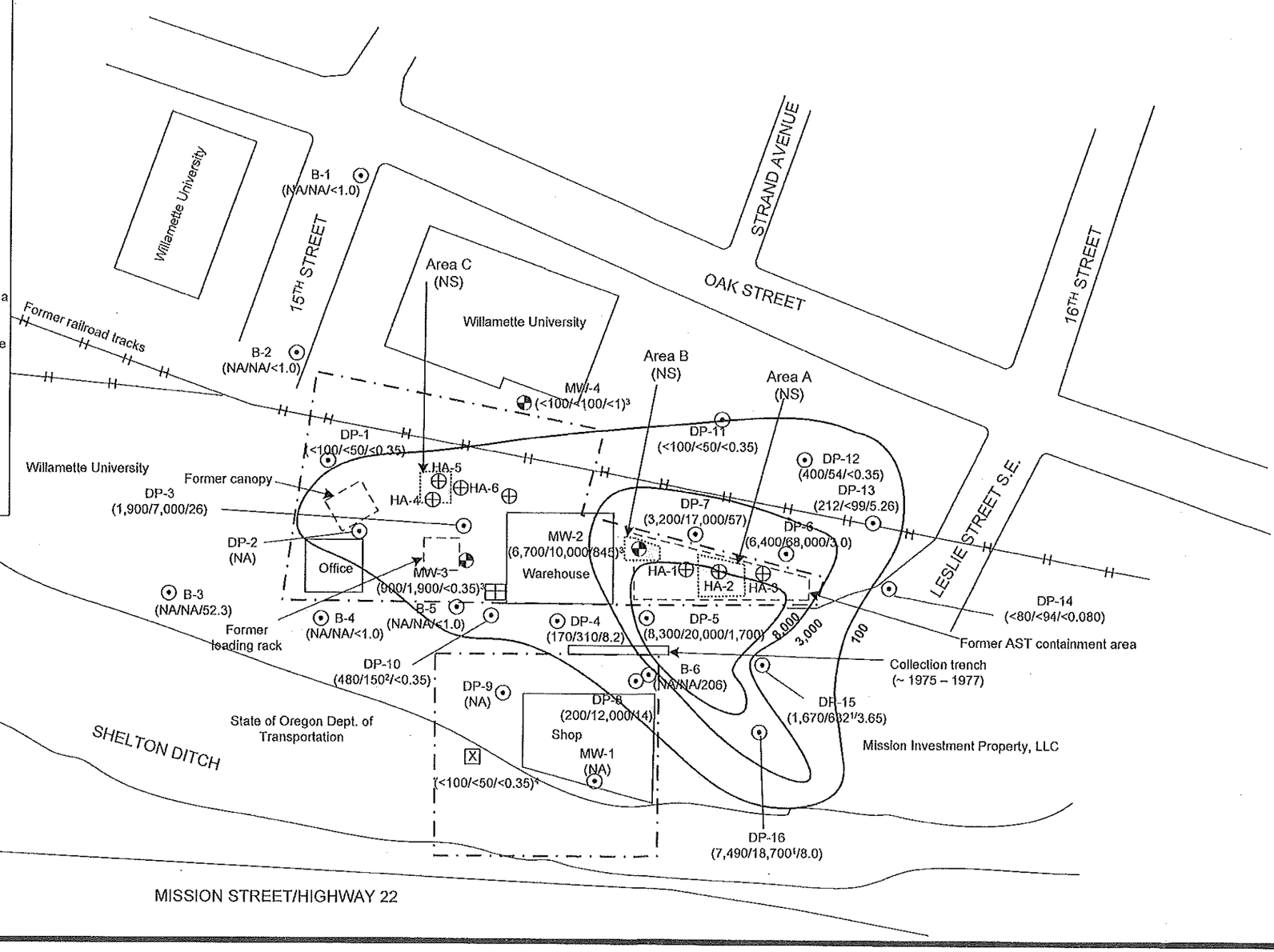
Excavation A, B & C completed in November 2014

[1] = According to the analytical laboratory: "Hydrocarbon pattern most closely resembles a blend of gasoline range overlap as well as weathered diesel."

[2] = According to the analytical laboratory: "The sample chromatographic pattern does not resemble the fuel standard used for quantitation."

[3] = Highest concentration of groundwater samples collected from June 2011 through September 2012.

[4] = Pore space water sample collected in September 2012 from an apparent blend of shallow groundwater and surface water from the Shelton Ditch.



WOHLERS ENVIRONMENTAL SERVICES, INC.

FIGURE 5

GROUNDWATER PLUME MAP: TPH-Gx

JONES OIL COMPANY
650 15TH STREET SE
SALEM, OREGON

PROJECT NO.:	15-0016
DATE:	04/17/15
SCALE:	1" = 83'
FILE:	Gw Gx plume
DRAWN BY:	KB

JC Jones Oil ORMAP

AdjacentProperties

Figure 6

Location of Off-Site Subsurface Contamination